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, December 13, 2022**
Meeting Time:	**7:00 pm**

1. **CITIZENS' FORUM**
2. **APPROVAL OF THE PRIOR MINUTES**
   - November 8, 2022 Regular Meeting Minutes
   - November 15, 2022 Special Meeting Minutes
3. **OLD BUSINESS**
4. **NEW BUSINESS**

A. Consideration and acceptance of a Lot Line Adjustment for JSR, LLC (Owner: JSR, LLC), Assessor's Map D, Lots 11-5 & 11-5-SND, zoned IT, located at Quality Way and Venture Drive. *(P22-57/LOTA-2022-0002)

B. Consideration and acceptance of a Conditional Use Permit for JSR, LLC (Owner: JSR, LLC), Assessor's Map D, Lots 11-5 & 11-5-SND, zoned IT, located at Quality Way and Venture Drive. (Proposal is to impact 7,935 sq. ft. within the wetland buffer to gain access to the site and develop a stormwater treatment cell). *(P22-56/COND-2022-0005)

C. Consideration and acceptance of a Site Review for JSR, LLC (Owner: JSR, LLC), Assessor's Map D, Lots 11-5 & 11-5-SND, zoned IT, located at Quality Way and Venture Drive. (Proposal is to construct a 10,080 sq. ft., Commercial Building for Contractor Bays/Office Space). *(P22-55/SITE-2022-0011)

D. ~~Consideration and acceptance of a Minor Subdivision for Canney Brook Engineering and Consulting, CBF2 LLC., (Owners: Canney Brook Engineering and Consulting, CBF2 LLC. and Helen F. Preston Revocable Trust of 2009), Assessor's Map K, Lot 6, zoned R-40, located at 105 Middle Road and Back Road. (2 new lots) *(P22-09)~~
THIS ITEM HAS BEEN WITHDRAWN

E. Consideration and acceptance of a Minor Subdivision for Summit Land Development, (Owner: 7 West, LLC), Assessor's Map H, Lot 11, zoned Gateway, located at Durham Road. (Proposal is to subdivide the current lot into two lots.) *(P22-75)

F. Consideration and acceptance of a Conditional Use Permit for Summit Land Development, (Owner: 7 West, LLC), Assessor's Map H, Lot 11, zoned Gateway, located at Durham Road. (Proposal is to construct a three story 42,480 s.f medical office building creating 950 s.f. of wetland buffer impact associated with two drainage pipe outfalls.) *(P22-38)

G. Consideration and acceptance of a Conditional Use Permit for Summit Land Development, (Owner: 7 West, LLC), Assessor's Map H, Lot 11, zone Gateway, located at Durham Road. (Proposal is to construct a medical office building 146± ft. from the front property line where a build-to-line of 5' to 20' is required, and a frontage build-out of 38% where 60% is required) *(P22-76)

H. Consideration and acceptance of a Site Review for Summit Land Development, (Owner 7 West, LLC), Assessor's Map H, Lot 11 zoned Gateway, located at Durham Road, 250' north of Daley Drive. (Proposal is to construct a 14,160 s.f. 3 story medical office building with associated parking and access.) *(P22-39)

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.

DOVER PLANNING BOARD – MINUTES

CITY OF DOVER

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Staff Present: Donna Benton, Director of Planning and Development

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Citizens Forum Open
No one spoke
Citizens Forum Closed

2. APPROVAL OF THE PRIOR MINUTES

October 25, 2022 Regular Meeting Minutes
Motion: F. Torr moved to approve October 25, 2022 minutes and indicated the minutes vote at that meeting was indeed to approve the October 11th minutes. Seconded by: T. Clark. Vote: U/A

3. OLD BUSINESS

None

4. NEW BUSINESS

A. Consideration and acceptance of a Minor Subdivision for Jahn H. & Susan G. Janetos, Assessor's Map N, Lot 13-F, zoned R-40, located at Gulf Road & Oak Street. (2 new lots). *(P22-68/SUBM-2022-0004)

D. Benton introduced the minor subdivision and explained this is a do-over of a recent application due to an abutter noticing issue and the Board should treat this as a new request again. All abutters were notified for this hearing. Staff is aware of a complaint regarding the existing driveway which currently does not need a Conditional Use Permit based on the most recent wetlands delineation.

Kevin McEneaney, McEneaney Survey, represented the application.

Motion: F. Torr moved to accept and declared no regional impact. Seconded by T. Clark. Vote: U/A.

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He presented a slideshow of the wetland buffers and how they have changed on the plans presented by the applicant.
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Meeting Type:	Special Meeting
Meeting Location:	City Council Chamber's 288 Central Avenue
Meeting Date:	**Tuesday, November 15, 2022**
Meeting Time:	**6:00 pm**

Members Present: Gina Cruikshank (Chair), Hayley Harmon (Vice Chair), Ken Mavrogeorge, Tom Clark, Frank Torr, Mark Speidel, and Fergus Cullen (Councilor)
Members Not Present (excused): Kyle Pimental, Erinn Kaspari, George DeBoer (Alternate) and Jon Elliard (Alternate)
Members Not Present (un-excused):
Staff Present: Donna Benton, Director of Planning and Development

1. CALL TO ORDER

G. Cruikshank called the meeting to order at 6 p.m.

2. PRESENTATION/WORKSHOP

A. Presentation and discussion of Urban3's Revenue Model Analysis, on how land use effects land valuation in Dover and New Hampshire.

D.Benton introduced Joe Minicozzi, who presented Urban3's project Phase I looking at the value per acre for different land uses in Dover and NH and compared to other communities.

He then also presented about Phase II of the project which looks at the City's infrastructure and its value it brings to developments and made comparisons to other communities.

The Board asked questions and Joe Minicozzi answered and will send the full analysis for both Phases to staff to pass along to the Board.

3. CITIZENS FORUM

Citizens Forum Open
No one spoke
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4. ADJOURNMENT

Motion: H.Harmon moved to adjourn at 7:02pm. Seconded by T.Clark. Vote: U/A

DRAFT

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P22-57

Application Type:	Lot Line Adjustment
Applicant(s):	JSR, LLC
Owner(s):	JSR, LLC
Location:	Quality Way and Venture Drive (Assessor's Map D, Lots 11-5 & 11-5-SND)
Meeting Date:	December 13, 2022

INTENT: To adjust the lot lines to result in an equal land swap (5,223 sq. ft. / 0.12 ac. & 874 sq. ft. / 0.02 ac.) leaving Lot 11-5 remaining as 43, 314 sq. ft. and Lot 11-5SND as 43,517 sq. ft. A wetland impact CUP and Site Review are also proposed as part of the development to construct a 10,080 sq. ft. contractor storage bay/office facility consisting of four (4) separate bays with office space.

LOTS PROPOSED: No additional

AGENDA ITEM #: 4-A

ACREAGE:
Lot 11-5: 43, 314± sf. / 0.99± ac.
Lot 11-5SND: 43,517± sf. / 1.00± ac.

ZONING DISTRICT: IT, Wetlands Protection District

EXISTING USE: Vacant

PROPOSED USE: Storage Bay / Office Facility

SURROUNDING USES: Vacant & Industrial

ZBA ACTION: None

ATTACHMENTS: LLA Plan

APPLICATION IS COMPLETE: Yes

REGIONAL IMPACT: No

NOTICES SENT: Abutter notices were sent by certified mail for the previous meeting. Abutter notice to SELT and professional agents were sent for this meeting.

PERMITS / WAIVERS REQUIRED:
- Site Plan Approval
- Conditional Use Permit (Buffer)
- US EPA Notice of Intent

Summary of Request and Background
This application was originally scheduled for November 8, 2022 but was continued to tonight's hearing.

The applicant is requesting to complete a lot line adjustment between two lots swapping 5,223 sq. ft. / 0.12 ac. and 874 sq. ft. / 0.02 ac. The lots would still meet the minimum lot area post adjustment, which is 2 acres in the IT zone.

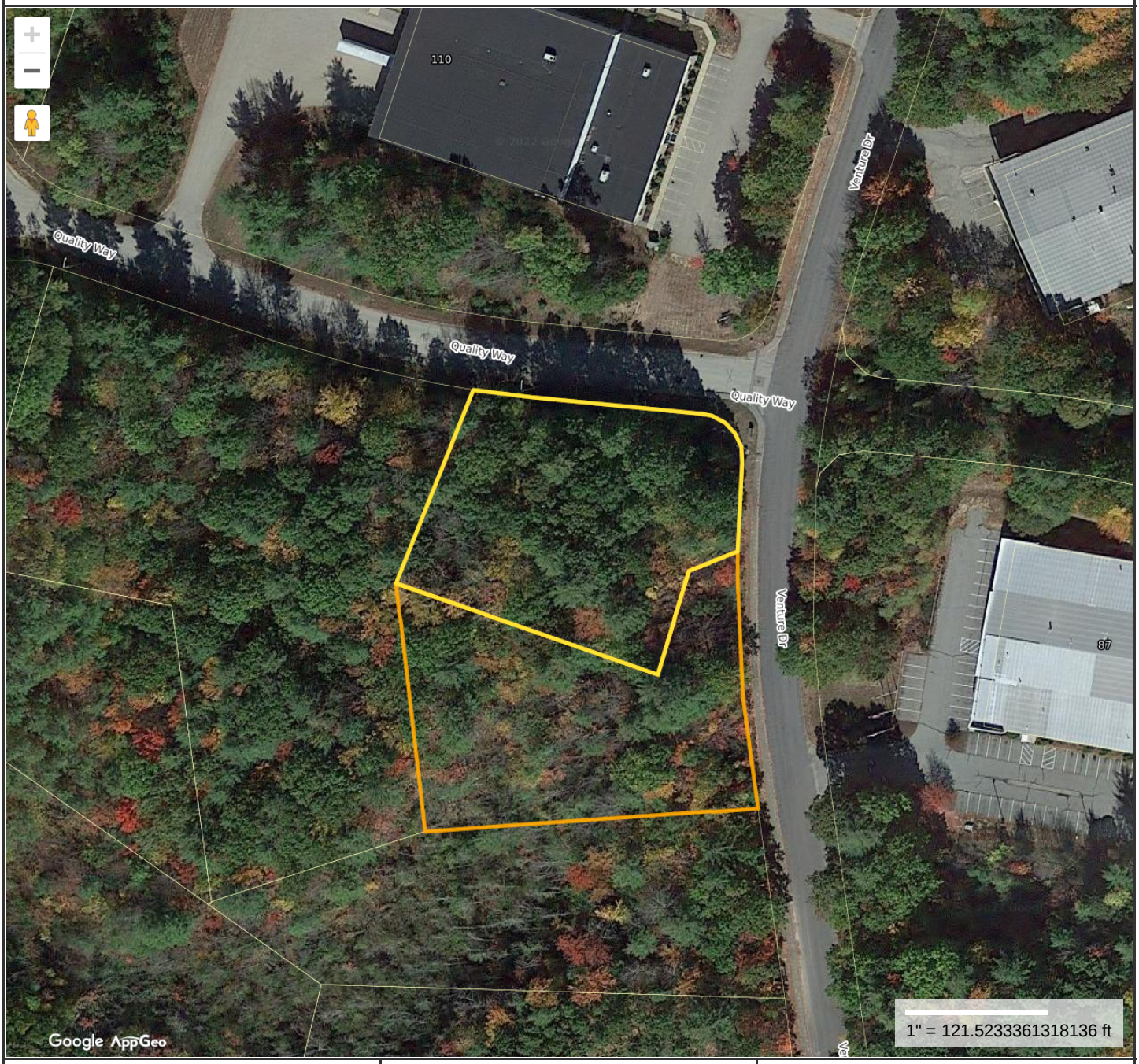
As a Lot Line Adjustment, this application did not appear before the TRC, however the associated site plan review did on August 11, 2022 and again on October 27, 2022.

Consistency with Land Use Regulations
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.

STAFF RECOMMENDATION:
The Planning Department recommends the Planning Board to accept the application, open the public hearing, make findings, and vote to grant final approval of 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:
   a. Planning File Number P22-57
   b. The owner's signatures
   c. The LLS stamp and signature
   d. Add proposed conservation easement area
   e. Add rights-of-way widths
   f. Developer must seek and receive written approvals of the Conservation Commission, City Council, and the NH Charitable Trust Director concerning amendment of conservation easement area.
   g. Add note to plan that prior to any deeding proof of Conservation Commission approval, City Council approval, and NH Charitable Trust Director approval is to be provided to the Planning Department.
   h. City Council and Southeast Land Trust (SELT) acknowledge in writing proposed change to sending areas and conservation easement.

P22-75/LOTA-2022-0002 Quality Way & Venture Drive



Property Information

Property ID	D0011-005000
Location	VENTURE DR
Owner	JSR LLC
Land Use	440
Zoning Code	IT

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 5/3/2021
Data updated Daily

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

City of Dover, New Hampshire
MINOR LOT LINE ADJUSTMENT APPLICATION

[Revision Date: June 4, 2019]

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

APPLICANT INFORMATION

Name of Applicant: JSR LLC Telephone # 1-978-979-2170

Address of Applicant: 17 Fosters Drive, Dover, NH 03820

FIRST PROPERTY OWNER AND PARCEL INFORMATION

Name of 1st Property Owner (*if different from applicant*): Same Telephone #_____

Address of 1st Property Owner: _____

Address of Property: Quality Way and Venture Drive

Assessor's Map # D Lot(s) # 11-5

Property Deed: Book 4980 Page: 63

Zoning District(s) IT Overlay District(s) Wetlands Protection

Size of Existing Parcel (sq. ft.): 43,314 Size of Proposed Parcel (sq. ft.): 43,314

SECOND PROPERTY OWNER AND PARCEL INFORMATION

Name of 2nd Property Owner (*if different from applicant*): Same Telephone #_____

Address of 2nd Property Owner: _____

Address of Property: _____

Assessor's Map # D Lot(s) # 11-5SND

Property Deed: Book 4980 Page: 63

Zoning District(s) IT Overlay District(s) Wetlands Protection

Size of Existing Parcel (sq. ft.): 43,517 Size of Proposed Parcel (sq. ft.): 43,517

THIRD PROPERTY OWNER AND PARCEL INFORMATION

Name of 3rd Property Owner (*if different from applicant*): _____ Telephone #_____

Address of 3rd Property Owner: _____

Address of Property: _____

Assessor's Map # _____ Lot(s) # _____

Property Deed: Book _____ Page: _____

Zoning District(s) _____ Overlay District(s) _____

Size of Existing Parcel (sq. ft.): _____ Size of Proposed Parcel (sq. ft.): _____

[Use additional application form if more than two lots are being adjusted]

SURVEYOR INFORMATION

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

Address 335 Second Crown Point Road, Barrington, NH 03820 Telephone #: 603-332-2863

k.berry@berrysurveying.com

Professional License #: 805 E-mail address: crberry@metrocast.net

CONSERVATION EASEMENT HOLDER (s)

Name of Easement Holder: _____ Telephone #_____

Address Easement Holder: _____

Name of 2nd Easement Holder: _____ Telephone #_____

Address 2nd 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. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of First Property Owner: _____ Date: 6-1-22

Signature of Second Property Owner: _____ Date: _____

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

Signature of Agent: _____ Date: 6-1-22

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I 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 p

Signature of Property Owner: _____ Date: 6-1-22

SIGNATURES

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

Signature of Property Owner: _____ Date: 6-1-22

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

Signature of Agent: _____ Date: 6-1-22

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 6-1-22

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 6-1-22

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

CERTIFICATION OF FEES

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

Signature of Property Owner: _____ Date: 6-1-22

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

P22-57/LOTA-2022-0002 **QUALITY WAY & VENTURE DRIVE**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
D0011-002000	46 VENTURE DR	46 VENTURE DRIVE PROPERTIES LLC		910 DAY HILL RD	WINDSOR	CT	06095
D0011-003000	111 VENTURE DR	MERCHANDISE CENTRAL LLC		111 VENTURE DR	DOVER	NH	03820
D0011-004000	110 VENTURE DR	QUALITY WAY LLC		55 MAIN ST UNIT 407	NEWMARKET	NH	03857
D0011-006000	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-006SND	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-007SN1	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0013-003000	27 PRODUCTION DR	SARNIA PROPERTIES INC		1 HAVEN COURT	PORTSMOUTH	NH	03801
D0014-000000	VENTURE DR	DOVER BUSINESS & IND DEV AUTHORITY		288 CENTRAL AVE	DOVER	NH	03820
D0014-004000	87 VENTURE DR	VYGON CORPORATION	ADVANCED MEDICAL INC	2750 MORRIS RD #A200	LANSDALE	PA	19446-6083
D0011-005000	VENTURE DR	JSR LLC		17 FOSTERS DR	DOVER	NH	03820
D0011-005SND	VENTURE DR	JSR LLC		17 FOSTERS DR	DOVER	NH	03820
		BERRY SURVEYING & ENGINEERING		335 SECOND CROWN P(	BARRINGTON	NH	03825
		JOHN P HAYES III, CSS, CWS		7 LIMESTONE WAY	NORTH HAMPT	NH	03862
		DEIDRA L BENJAMIN, CWS		100 LEAVITT ROAD	PITTSFIELD	NH	03263
		TERRAIN PLANNING & DESIGN LLC		311 KAST HILL ROAD	HOPKINTON	NH	03229
		South East Land Trust		247 North River Road	Epping	NH	03042

DEIDRA L.BENJAMIN, CWS

STATE OF NEW HAMPSHIRE
DEIDRA L BENJAMIN
No. 295
CERTIFIED WETLAND SCIENTIST

WETLAND NOTE:

WETLANDS WERE DELINEATED BY DEIDRA L. BENJAMIN, CWS, IN THE SUMMER OF 2021 USING THE FOLLOWING CRITERIA:

1. USACE. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. VERSION 2.0. U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER. 2012. VICKSBURG, MS.

2. USACE. CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. ENVIRONMENTAL LABORATORY. 1987. VICKSBURG, MS.

3. UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE. 2018. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2. L.M. VASILAS, G.W. HURT, AND J.F. BERKOWITZ (EDS.). USDA, NRCS, IN COOPERATION WITH THE NATIONAL TECHNICAL COMMITTEE FOR HYDRIC SOILS.

4. NEW ENGLAND HYDRIC SOIL TECHNICAL COMMITTEE. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION. 2019. LOWELL, MA.

5. U.S. ARMY CORPS OF ENGINEERS 2019. NATIONAL WETLAND PLANT LIST, VERSION 3.3. HTTP://WETLAND-PLANTS.USACE.ARMY.MIL/

PLAN REFERENCES:

1.) "SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY SIXTH STREET / LONG HILL ROAD EXT. DOVER, NEW HAMPSHIRE" BY: TERRASCAN ENGINEERS SURVEYORS DATED: JANUARY 17, 1992 S.C.R.D. PLAN 41-91

2.) "LOT LINE ADJUST PLAN PREPARED FOR WHITE ENTERPRISES AND DOVER INDUSTRIAL DEVELOPMENT AUTHORITY LONGHILL ROAD, DOVER, NH" BY: MCENEANEY SURVEY ASSOCIATES DATED: JULY 3, 1991 S.C.R.D. PLAN 39-38

3.) "SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY SIXTH STREET / LONG HILL ROAD EXT. DOVER, NEW HAMPSHIRE" BY: TERRASCAN ENGINEERS SURVEYORS DATED: JANUARY 17, 1992 S.C.R.D. PLAN 41-92

4.) "SUBDIVISION OF LAND PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY VENTURE DRIVE DOVER, NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC. DATED: AUGUST 4, 1994 S.C.R.D. PLAN # 45-32

5.) "SUBDIVISION OF LAND PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP H, LOT NO. 11-1 VENTURE DRIVE DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC. DATED: FEBRUARY 25, 2005 S.C.R.D. PLAN # 79-87

PLAN REFERENCES:

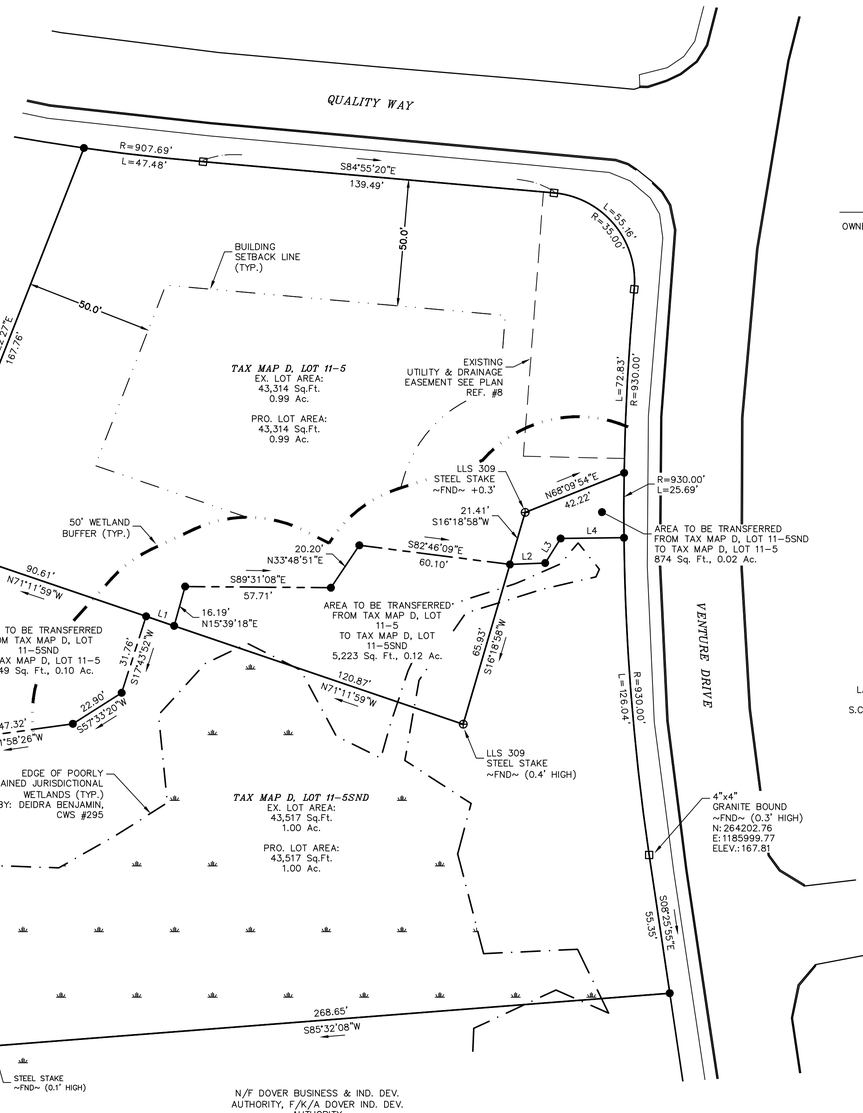
6.) "AMENDED SUBDIVISION AND LOT LINE ADJUSTMENT PLAN PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: FEBRUARY 14, 2006 S.C.R.D. PLAN 85-99

7.) "AMENDED SUBDIVISION AND LOT LINE ADJUSTMENT PLAN PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: FEBRUARY 14, 2006 S.C.R.D. PLAN 85-100

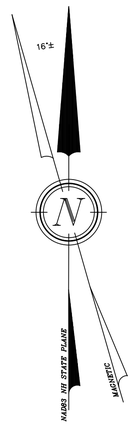
8.) "LOT LINE ADJUSTMENT AND SUBDIVISION PLAN OF LAND PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: JUNE 12, 2006 S.C.R.D. PLAN 86-73

LINE	BEARING	DISTANCE
L1	N71°11'59"W	11.72'
L2	N87°42'08"E	13.96'
L3	N32°16'10"E	11.49'
L4	N89°20'00"E	25.07'

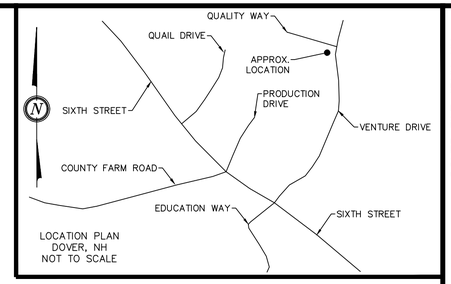
N/F QUALITY WAY LLC
1 QUALITY WAY ENTERPRISE PARK
DOVER, NH 03820
TAX MAP D, LOT 11-4
S.C.R.D. BOOK 3973, PAGE 254



16'±



OWNER



LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

A.) TAX MAP D, LOT 11-5

B.) EXISTING LOT AREA: 43,314 Sq.Ft., 0.99 Ac.
PROPOSED LOT AREA: 43,314 Sq.Ft., 0.99 Ac.

C.) R.C.R.D. BOOK 4980, PAGE 632

2.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

A.) TAX MAP D, LOT 11-5SND

B.) EXISTING LOT AREA: 43,517 Sq.Ft., 1.00 Ac.
PROPOSED LOT AREA: 43,517 Sq.Ft., 1.00 Ac.

C.) R.C.R.D. BOOK 4980, PAGE 63

3.) ZONING: IT - INNOVATIVE TECHNOLOGY
SETBACKS
FRONT ~ 50'
SIDE ~ 50'
REAR ~ 50'
MIN. LOT SIZE: 2 ACRES
MIN. FRONTAGE: 200'
MAX. LOT COVERAGE: 33%
MAX. BUILDING HEIGHT: 55'

4.) THE INTENT OF THIS PLAN IS TO REVISE THE BOUNDARY LINES OF TAX MAP D, LOT 11-5 & 11-5SND. THIS IS AN EQUAL LAND SWAP AND BOTH LOTS WILL HAVE THE SAME LOT AREA AS THE EXISTING.

5.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0310E, DATED: SEPTEMBER 30, 2015.

6.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

7.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN AUGUST OF 2021 WITH AN ERROR OF CLOSURE BETTER THAN 1 PART IN 10,000.

8.) THIS SITE IS SERVICED BY MUNICIPAL SEWER AND WATER.

LEGEND:

- ● 3/4" REBAR W/ ID CAP ~TBS~
- ⊡ GRANITE BOUND ~FND OR TBS~
- ⊕ STEEL STAKE ~FND~
- PROPOSED BOUNDARY LINE
- BUILDING SETBACK LINE
- POORLY DRAINED WETLANDS
- 50' WETLAND BUFFER
- FND FOUND
- TYP TYPICAL
- TBS TO BE SET
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DOVER APPROVAL

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND THE CITY OF DOVER, N.H. -1:10,000-

07/28/2022

KENNETH A. BERRY L.L.S. 805 DATE

DOVER FILE #PXX-XX

REVISION	DATE	DESCRIPTION

LOT LINE REVISION
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 30 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE No. 805 LICENSED LAND SURVEYOR KENNETH A BERRY SIGNATURE

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P22-56

Application Type:	Conditional Use Permit- Environmental
Applicant(s):	JSR, LLC
Owner(s):	JSR, LLC
Location:	Quality Way and Venture Drive (Assessor's Map D, Lots 11-5 & 11-5-SND)
Meeting Date:	December 13, 2022

INTENT: To request a CUP to impact 7,935 s.f. within the wetland buffer to gain access to the site and develop a stormwater treatment cell.

UNITS PROPOSED: Commercial Building

AGENDA ITEM #: 4-B

ACREAGE POST LLA: 0.99 acres

ZONING DISTRICT: IT, Wetlands Protection District

EXISTING USE: Vacant

PROPOSED USE: Storage Bay / Office Facility

SURROUNDING USES: Vacant & Industrial

ZBA ACTION: None

ATTACHMENTS: Application materials, including Impact Plan, CC Minutes, TRC Minutes

APPLICATION IS COMPLETE: Yes

REGIONAL IMPACT: No

NOTICES SENT: Abutter notices were sent by certified mail for the previous meeting. Abutter notice to SELT and professional agents were sent for this meeting.

PERMITS / WAIVERS REQUIRED:
- Site Plan Approval
- Conditional Use Permit (Buffer)
- US EPA Notice of Intent

Summary of Request and Background:
The applicant seeks a Conditional Use Permit (CUP) to impact 7,935 s.f. of wetland buffer to allow access to the site and develop a stormwater treatment cell.

This CUP permit application was endorsed by the Conservation Commission at their September 12, 2022 meeting (draft minutes attached), with the request that the applicant "provide details noting if any vernal pools were discovered onsite and highlighting the functions and values of the wetlands before the application is heard by the Planning Board." That notification has been provided in the Board's packets.

This application was most recently before the Technical Review Committee on August 11, 2022 and October 27, 2022 (minutes attached).

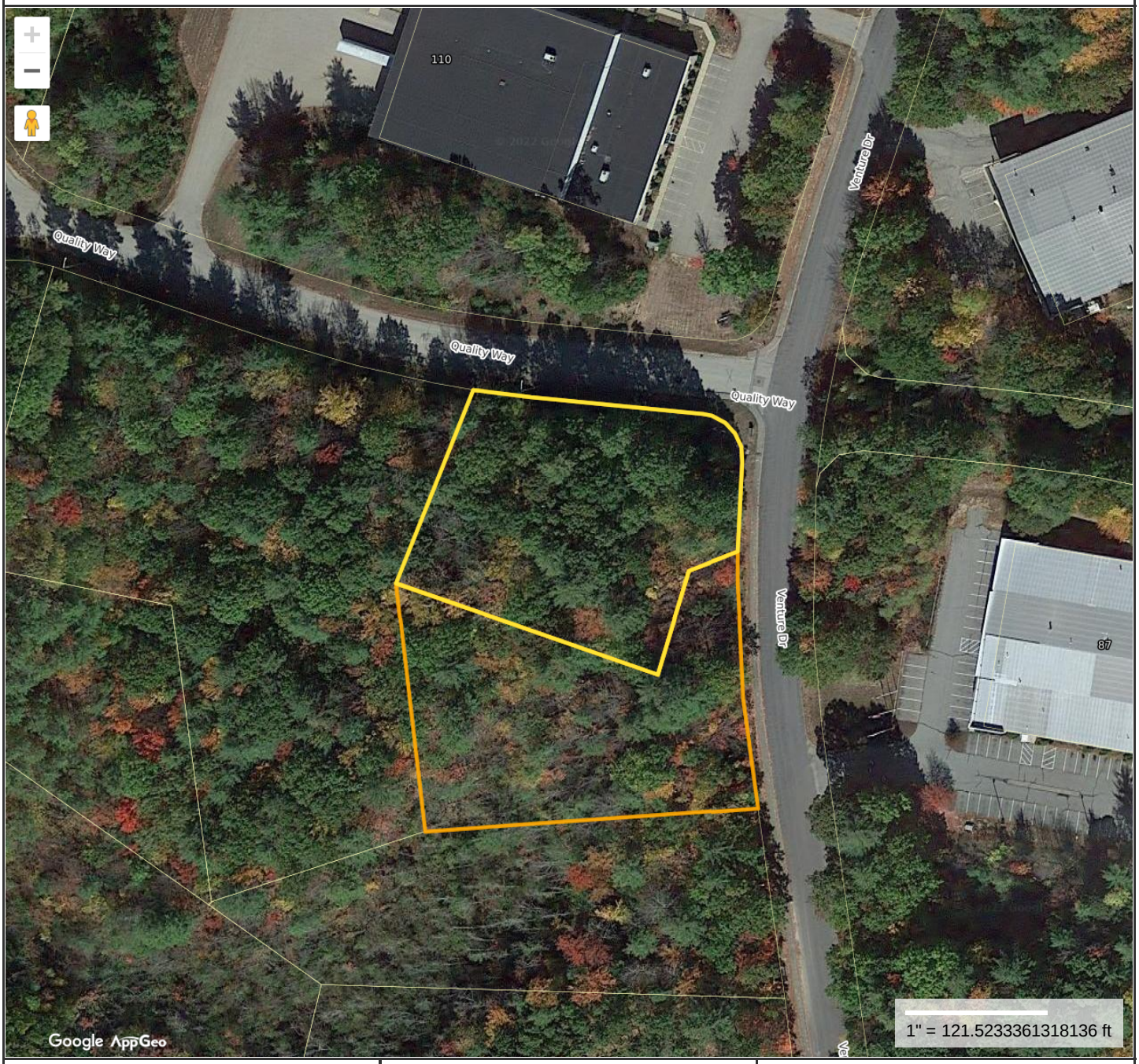
CONSISTENCY WITH LAND USE REGULATIONS:
The Wetlands Protection District ordinance §170.27.1.F. provides for Conditional Use Permits to allow impacts to wetlands and wetland buffers if standards related to demonstration that no practicable alternative exists, impact avoidance was considered, impacts were minimized, and mitigation has been sought.

Planning Staff feels that the applicant considered the criteria of practical alternative, avoidance, minimization, and mitigation and propose to create minimal wetland/wetland buffer disturbance on the site. The use of alternative materials to plastics, the inclusion of silt sock and retaining walls, and treatment of an area not currently treated were all findings of the Conservation Commission endorsement.

STAFF RECOMMENDATION:
The Planning Department recommends that the Planning Board accept the application as complete, note it is not of regional impact, hold a public hearing, make the necessary and supporting findings of fact, and vote to grant final approval of the Conditional Use Permit with the following subsequent conditions, as the plans meet the standards outlined.

Subsequent Condition to Be Met Prior to Signing of the Plans:
1. Approval of Site Plan (P22-55) and LLA (P22-57);

P22-56/COND-2022-0005 Quality Way & Venture Drive



Property Information

Property ID	D0011-005000
Location	VENTURE DR
Owner	JSR LLC
Land Use	440
Zoning Code	IT

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 5/3/2021
Data updated Daily

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

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: JSR LLC Telephone # 1-978-979-2170

Address of Applicant: 17 Fosters Drive, Dover, NH 03820

E-Mail Address: rswhit10@gmail.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Assessor's Map # D Lot(s) # 11-5 & 11-5SND

Address of Property: Quality Way and Venture Drive

Zoning District(s) IT Overlay District(s) Wetlands Protection

Existing Use of Property: Vacant

CONDITIONAL USE PERMIT INFORMATION

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

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

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

Filling within the 50' Buffer to gain access to the site and develop a stormwater treatment cell.

List Any Associated State or Federal Permits That Have Been or Will Be Applied For and Indicate Their Status: US EPA Notice of Intent

Name of Professional That Prepared Plans: Berry Surveying & Engineering
Kenneth A. Berry PE, LLS
Christopher R. Berry PM

Address 335 Second Crown Point Road
Barrington, NH 03820 Telephone #: 603-332-2863

Professional License #: 14243 E-mail address: k.berry@berrysurveying.com
crberry@metrocast.net

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity

Signature of Property Owner: _____ Date: 6-1-22

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

Signature of Agent: _____ Date: 6-1-22

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 6-1-22

P22-56/COND-2022-0005 **QUALITY WAY & VENTURE DRIVE**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
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D0011-003000	111 VENTURE DR	MERCHANDISE CENTRAL LLC		111 VENTURE DR	DOVER	NH	03820
D0011-004000	110 VENTURE DR	QUALITY WAY LLC		55 MAIN ST UNIT 407	NEWMARKET	NH	03857
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D0011-007SN1	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0013-003000	27 PRODUCTION DR	SARNIA PROPERTIES INC		1 HAVEN COURT	PORTSMOUTH	NH	03801
D0014-000000	VENTURE DR	DOVER BUSINESS & IND DEV AUTHORITY		288 CENTRAL AVE	DOVER	NH	03820
D0014-004000	87 VENTURE DR	VYGON CORPORATION	ADVANCED MEDICAL INC	2750 MORRIS RD #A200	LANSDALE	PA	19446-6083
D0011-005000	VENTURE DR	JSR LLC		17 FOSTERS DR	DOVER	NH	03820
D0011-005SND	VENTURE DR	JSR LLC		17 FOSTERS DR	DOVER	NH	03820
		BERRY SURVEYING & ENGINEERING		335 SECOND CROWN P(	BARRINGTON	NH	03825
		JOHN P HAYES III, CSS, CWS		7 LIMESTONE WAY	NORTH HAMPT	NH	03862
		DEIDRA L BENJAMIN, CWS		100 LEAVITT ROAD	PITTSFIELD	NH	03263
		TERRAIN PLANNING & DESIGN LLC		311 KAST HILL ROAD	HOPKINTON	NH	03229
		South East Land Trust		247 North River Road	Epping	NH	03042

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, September 12, 2022
Meeting Time:	**5:30 pm**

MEMBERS PRESENT: Robert Atwood (Secretary), Kristen Murphy, Jason Aube, Bruce Batchelder
Absent (Excused): Bill Hunt (Chair), Steve Fellows (Vice Chair), Amy Kramer-Perry, Abigail Lyon
STAFF PRESENT: Jackson Kaspari – Resilience Manager
OTHERS PRESENT: Lindsey Williams (City Council), Kevin Boulin, Joe Griffin, Alex Ross, Mike Carle, Chris Wilkes.

1. CALL TO ORDER AND ROLL CALL

The meeting was convened at 5:30 PM.
Atwood opened the meeting and did a roll call.

2. CITIZENS' FORUM: None

3. APPROVAL OF THE PRIOR MEETING MINUTES – August 8, 2022

B. Batchelder moved to approve the August 8, 2022 minutes, K. Murphy seconded. Vote: 2 yes, 2 abstentions.

4. OLD BUSINESS: None

5. NEW BUSINESS

A. City of Dover Conditional Use Permit for JSR, LLC, (Agent: Berry Surveying & Engineering), Assessor's Map D, Lots 11-5 and 11-5SND, zoned IT, located at the intersection of Quality Way and Venture Drive. Proposal is to add fill to allow for access to the site and develop a stormwater treatment cell associated with the construction of a 10,080 square foot Contractor Storage Bay / Office Facility creating 7,935 square feet of wetland buffer impact.

Kevin Bolin from Berry Surveying and Engineering was present to explain the application.

K. Murphy: Can you speak to the snow storage locations?

K. Bolin: There are temporary locations for storage but the snow will be removed from the site.

J. Aube: No direct impact to wetlands?

K. Bolin: That is correct.

J. Aube: What are the existing conditions of the buffer in this area?

K. Bolin: The site is wooded currently.

R. Atwood. Is the entire site going to be cleared, are there going to be new plantings?

K. Bolin: The landscape plan indicates where the new plantings will be located and the types.

J. Aube: Was a functions and values assessment conducted?

K. Bolin: I will have to get back to you with that information.

K. Murphy: Did they check for a sign of vernal pools?

K. Bolin: I'll have to check with the wetland scientist.

J. Aube expressed his desire for more information regarding the current state of the wetland resources on site especially considering the fully wooded nature of the lot.

K. Murphy moved to endorse the application citing the use of alternative materials to plastics, the inclusion of a silt sock, addition of retaining walls where possible, and treatment of an area that is not currently treated but asked that the applicant provide details noting if any vernal pools were discovered onsite and highlighting the functions and values of the wetlands before the application is heard by the Planning Board. J. Aube seconded. Vote: 4 yes.

B. City of Dover Conditional Use Permit for Weave Filtration, LLC, (Owner: DBIDA), (Agent: Civilworks New England), Assessor's Map D, Lot 11-7, zoned IT, located off Quality Way. Proposal is for the construction of a 23,125 square foot building creating 5,075 square feet of wetland buffer impact mostly associated with the grading and drainage.

Joe Griffin with Civilworks New England was present to explain the application.

K. Murphy: For a large site with a small amount of porous pavement, is the applicant committed to maintaining it?

J. Griffin: They are committed to maintaining it and signs will be posted on the site regarding the maintenance. Conservations about this were conducted with the City Engineer during the Technical Review Committee meetings. A vacuum assisted brush will be used a couple times a year to clear built up debris.

J. Aube: Could you speak to when the delineation was conducted and the corresponding functions and values of the wetland area?

J. Griffin: Functions and values was not performed but the wetland was delineated within the past six months.

K. Murphy: Is there curbing around the site and could you talk about how the stormwater would flow through the property?

J. Griffin: Curbing directs the water into the conveyance swale that brings it to a sediment forebay prior to it entering the wet pond. Roof drain also brings the water to the sediment forebay. Is expanding treatment out to quality way where there currently was not treatment.

K. Murphy moved to endorse the application given the considerations for treatment of stormwater that is not currently treated, avoidance of deep sump catch basins where possible, pervious pavement and the maintenance plan provided the recommendation that the Planning Board receive indication that vernal pools were looked for and that the existing functions and values of the wetlands will not be impaired. B. Batchelder seconded. Vote: 4 yes.

C. City of Dover Conditional Use Permit for White Birch Armory, (Owner: Recon Realty, LLC), (Agent: Civilworks New England), Assessor's Map G, Lot 3-A1, zoned CM, located at 80 Industrial Park Drive. Proposal is for a 20,287 square foot addition with associated expanded parking, additional drainage and grading, creating 6,975 square feet of wetland buffer impact.

Joe Griffin with Civilworks New England was present to explain the application.

J. Aube: What are the conditions of the buffer today?

J. Griffin: The buffer today is a wooded, brush and grass mix.

J. Aube noted that the area is currently industrial.

J. Aube: Is there any opportunity for buffer enhancement elsewhere?

J. Griffin: The buffer impacts were minimized to the greatest extent possible.

J. Griffin explained the use of the different seed mixes to K. Murphy.

K. Murphy moved to endorse the application based on the proximity of the site to existing development, the efforts to meet AOT standards, with a recommendation that the applicant indicates to the Planning Board that no vernal pools are present and that the functions and values of the wetlands will not be degraded. J. Aube seconded. Vote: 4 yes.

D. City of Dover Conditional Use Permit and NHDES Expedited Minimum Impact Wetland Permit for William C. Fisher and Chaney N. Fisher, (Agent: Ross Engineering, LLC), Assessor's Map 7, Lot 2, zoned R-20, located at 1 Boston Harbor Rd. Proposal is to install a 960 square foot addition, new deck stairs, an outdoor shower, replace the existing driveway with pervious pavers, install a pervious paver walkway and concrete pad for utility equipment creating 534 square feet of temporary wetland impact (419 square feet within the Conservation District) and 2,890 square feet of permanent wetland impact (1,306 within the Conservation District).

Alex Ross was present to explain the application.

J. Aube: Can you speak to the decrease in lot coverage?

A. Ross: It went from 39% percent to a proposed 25%.

J. Aube: Is there any opportunity for stormwater management?

A. Ross: Was considered but the site is very constrained by the lot size. With the pervious pavers it should allow stormwater to shed off and infiltrate.

J. Aube: Could a drywell be installed?

A. Ross: We could integrate that if it is a recommendation.

K. Murphy: Is the outdoor shower treated at all?

A. Ross: It's just a shower meant for cleaning sand off.

K. Murphy: Could you speak about the property under sea level rise scenarios?

A. Ross noted the highest water mark that the owner had ever experienced.

J. Aube motioned to endorse the project as presented because the site is already developed and that the impervious area will be significantly reduced and there is a maintenance plan with the recommendation that a dry well in incorporated to help infiltrate stormwater associated with the proposed garage and endorse that the applicant be able to submit the NHDES wetlands permit application through the expedited permitting process. K. Murphy seconded. Vote 4 yes.

E. NHDES Standard Dredge and Fill Wetlands Permit Application for Great Bay Yacht Club, Assessor's Map 8 Lot 40, zoned R-20, located at 21 Wentworth Terrace. Proposal is to conduct maintenance on an existing boulder and gravel causeway by adding trap rocks to fill in the current rip-rap creating 771 square feet of permanent impact to the Tidal Buffer Zone.

Mike Carle was present to explain the application.

J. Aube: Proposing to temporarily mitigate erosion using trap rock?

M. Carle: Yes, the trap rock fills the void spaces to help prevent leaching of the gravel.

J. Aube requested to see additional photos and the applicant presented them and indicated the impacts during storm occasions.

J. Aube requested clarification that the applicant eventually will raise the money to do a full overhaul of the site.

J. Aube: Have you sought guidance from a professional engineer who is well versed in these projects?

M. Carle: A couple professional engineers are involved with the Club who provided guidance and plans for the project.

M. Carle noted that the next step will be a full evaluation and assessment plan once the funds have been procured which is planned for around 2032.

J. Aube motioned to endorse the NHDES application with a recommendation that the applicant does their due diligence and makes a good faith effort to find a long-term solution to minimize the loss of material over time. B. Batchelder seconded. Vote 4 yes.

F. City of Dover Conditional Use Permit for Public Service Company of New Hampshire d/b/a Eversource Energy, (Agent: VHB, Inc.), Assessor's Maps 24 and 25, covering various lots within the utility ROW, zoned G and R-12, located between Oak Street and south of Atlantic Ave. Proposal is to replace six deficient wooden utility poles with weathered steel poles creating 2,110 square feet of temporary wetland impact and combined 14,900 square feet of temporary impact to wetland buffers and the Conservation District.

Chris Wilkes was present to explain the application.

J. Aube: Does Eversource do a lot of construction monitoring?

C. Wilkes: They do, VHB will be onsite to oversee that the contractor is performing the work according to the plan and NHDES regulations.

Per J. Aube's request, C. Wilkes provided insight to his correspondence with the NHB regarding plants and animals in the projects area.

Work is to be conducted outside of the growing season which will also help minimize impacts.

R. Atwood: How does the size of the new poles compare to the old ones?

C. Wilkes: All the poles are being replaced within 10 feet of the existing poles and will be around the same height to the wooden poles that are currently present. All impacts are temporary.

J. Aube motioned to endorse the project as presented given that the applicant made a good faith effort to avoid and minimize impacts to resources, work is to be conducted during the non-growing season, coordination has been made with NH Fish and Game and lastly construction monitoring will ensure the resources are protected. K. Murphy seconded. Vote: 4 yes.

G. Request for expenditures from the Conservation Fund for:
1. Open Lands Committee – Conservation Easement Appraisal – not to exceed $10,000

J. Kaspari explained the request from the Open Lands Committee in general terms, noting that the Committee conducted an evaluation and that the property scored very highly. To move forward the private party needs to have a sense of what the easement is worth. Therefore, the Open Lands Committee is recommending this expenditure so that an appraisal can be conducted. Based off a recent appraisal cost, he expects it to be between $6,000 and $10,000.

B. Batchelder motioned to approve to fund the Open Lands Committee for a conservation easement appraisal not to exceed $10,000. K. Murphy seconded. Vote: 4 yes.

6. REPORT FROM THE CHAIR

A. Review of Correspondence Received from NH Department of Environmental Services

J. Kaspari noted that there was no correspondence to report but left the agenda item in case something came in in the days prior to the meeting.

7. OTHER BUSINESS

J. Kaspari: S. Fellows requested to have the Forestry Subcommittee start meeting again. I've reviewed where the Subcommittee left off and am working with him to schedule a future meeting. Please let me know if you're interested in participating.

K. Murphy: Who from the Conservation Commission participated in the past?
R. Atwood: I did and so did Amy.

Kaspari and Atwood discussed where the Subcommittee left off.

8. ADJOURNMENT

The meeting was adjourned unanimously.

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11–5
B.) TAX MAP D, LOT 11–5SND

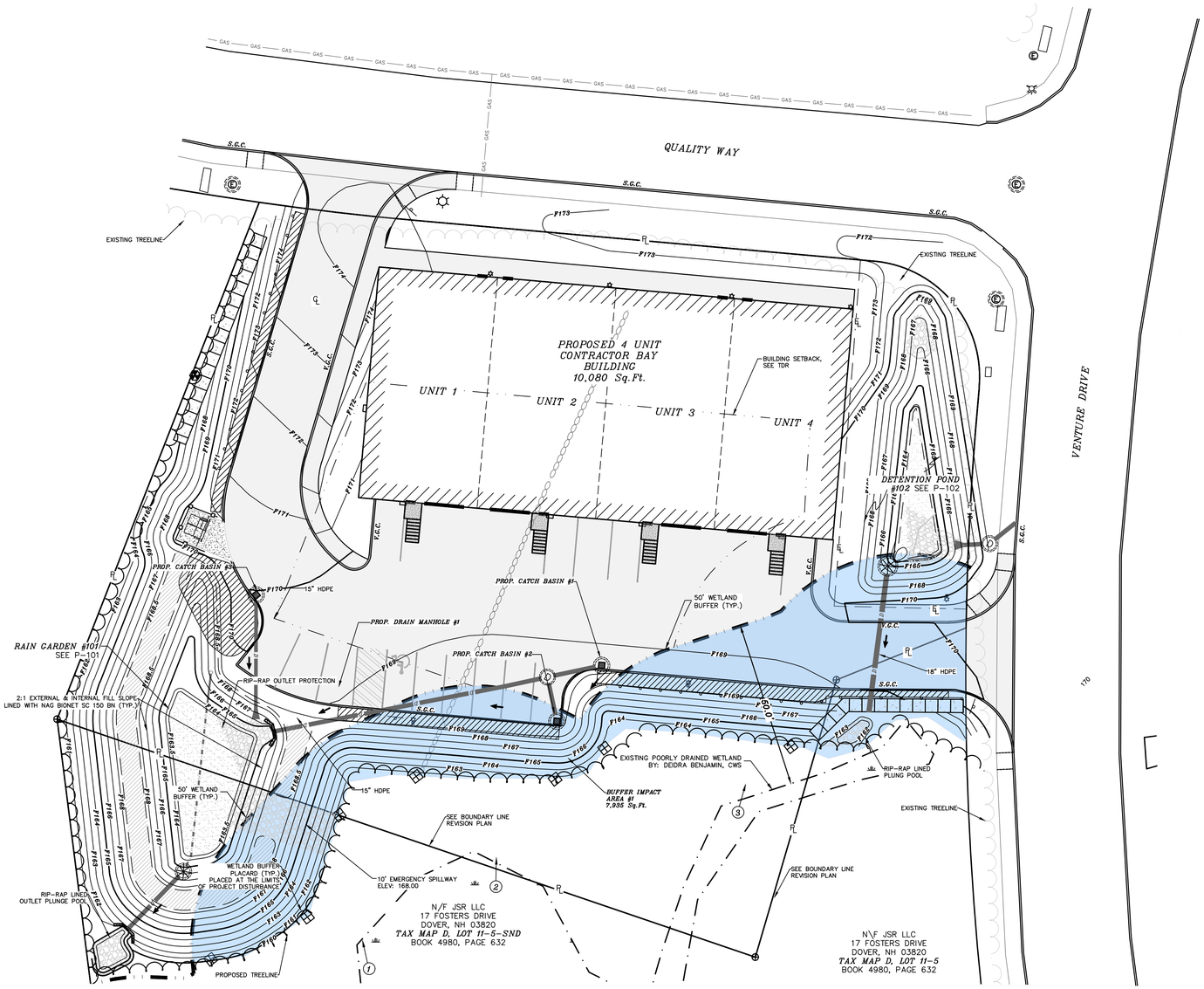
3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

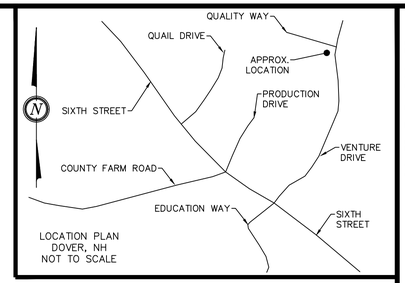
4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) ZONING: IT – INNOVATIVE TECHNOLOGY

SETBACKS	PROVIDED ORIGINAL TDR
FRONT ~ 50'	15.0'
SIDE ~ 50'	40.1' & 40.9'
REAR ~ 50'	50.0'
MIN. LOT SIZE: 2 ACRES	0.99 Ac.
MIN. FRONTAGE: 200'	267.48'
MIN. LOT COVERAGE: 33%	23.27%
MAX. BUILDING HEIGHT: 55'	31'±

6.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DISTURBANCE WITHIN THE CITY OF DOVER 50' RIPARIAN AND WETLAND BUFFER DISTRICT ORDINANCE IN RELATION TO A CONDITIONAL US PERMIT APPLICATION.





SOIL DATA:

EgB ~ ELMWOOD FINE SANDY LOAM, 3 TO 8% SLOPES
GsC ~ GLOUCESTER VERY STONY FINE SANDY LOAM, 8 TO 15% SLOPES
ScB ~ SCANTIC SILT LOAM, 3 TO 8% SLOPES

SEE USDA / NRCS WEBSOIL

LEGEND:

- STEEL STAKE ~FND~
- UTILITY POLE
- TEST PIT
- BENCHMARK
- (1) PHOTO ORIENTATION POINT
- BUILDING SETBACK LINE
- POORLY DRAINED WETLANDS
- 50' WETLAND SETBACK
- PERIMETER BOUNDARY LINE

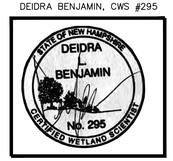
FND FOUND
TYP TYPICAL
TBS TO BE SET
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS

WETLAND NOTES:

WETLANDS WERE DELINEATED BY DEIDRA BENJAMIN: IN AUGUST OF 2021 UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

DEIDRA BENJAMIN, CWS #295



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

APPROVED DOVER

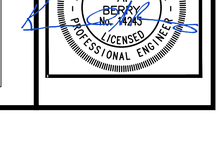
DOVER FILE #P22–55

REVISION	DATE	DESCRIPTION
#3	10–31–22	REVISED PER TRC #2
#2	10–27–22	REVISED PER SEWER APPLICATION
#1	9–1–22	REVISED PER DOVER TRC COMMENT

CONDITIONAL USE PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134



BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com
crberry@metrocast.net
September 6, 2022

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

Re: No-Residential Site Plan
Quality Way
Tax Map D, Lot 11-5 & 11-5SND

Mrs. Benton,

Berry Surveying & Engineering (BS&E,) on behalf of JSR, LLC respectfully submits to Planning Department a Conditional Use Permit request to permit filling within the 50' wetlands buffer found on the project site in the amount of 7,935 Sq.Ft.

Background

JSR LLC owns the parcels on the corner of Quality Way and Venture Drive commonly known as Tax Map D, Lots 11-5 and 11-5SND . The site is comprised of nearly 2 acres of land which is wooded. Wetlands were delineated at the rear of the site by Deidra Benjamin, CWS and are largely consistent with the wetlands delineated for the development of the industrial park undertaken by the City of Dover. On site test pitting was conducted by John P. Hayes, CWS and a Site-Specific Soils Map was produced for the use in developing a hydraulic stormwater model for the project.

This project was one of the original Transfer of Development Rights projects where development rights were transferred or "sent" from certain lots in the development for the purposes of development use in other areas of the City of Dover. Many owners in the development were sold the development lots and then the sending lots, which are denoted with the same tax map and lot number followed by "SND". Though the project now falls in the IT Zone, the project requests modification to the setbacks within the zone using the mechanism found in the TDR.

Since the development of the industrial park the City of Dover has instituted a Wetlands Protection District. The district aims to protect wetlands through the use of the required 50' buffer requirement. Prior to this district being established this site had additional land available for development and use for building, grading and stormwater practices.

Proposal

The proposal is to construct a 10,080 Sq.Ft., Contractor Storage Bay / Office facility which faces Quality Way. The building is designed with 4 units to be sold or rented to small contractors that needs space to run businesses. The site proposes an entrance onto Quality Way and a second onto Venture Drive to allow vehicles to enter and exit without requiring space to turn around. To increase the intersection distance between the driveway on Venture with the intersection of Quality Way the drive aisle is placed as far south as practical given the constraints of the wetlands on site. The drive aisle lines up with the rear aisle needed to ensure practical use of the rear of the building site and loading dock heights.

Site Grading & Stormwater

The existing grade of the site starts at Quality Way and slopes to the wetland buffer and wetland boundary found on the southern boundary line. In kind, the project site is designed to grade in the southern direction. The building's roof line is proposed to slope to the rear. The drive aisle, loading and parking area is all design to be super elevated to the rear of the site. The grading scheme reduces the amount of fill required on the site and in turn reduces the amount of fill required within the buffer.

Stormflow from the project site, including the roof is captured through the use of three catch basins, and routed to an onsite rain garden for treatment and attenuation. The rain garden is designed to range between 0.5'-2.2' above seasonal high-water table to promote infiltration of the treated stormflow during periods the ground will accept the volume. This recharge assumption was not included in the stormwater modeling of the site. The flow from the pond is attenuated in an outlet control structure and is designed to control the 100 Yr.24Hr storm event without the use of the emergency spillway. Dover is a coastal community and therefore 15% was added to each of the assumed storm events. The rain garden is designed to treat the water quality event and discharges flow a small enough rate to adhere to the Alteration of Terrain Channel Flow Protection rules.

In the existing condition there are two outfalls for the stormwater infrastructure along Quality Way and Venture Drive that drain onto the subject parcels. Due to the placement of the driveway onto Venture Drive, the applicant is encroaching into the easement a bit and will need to work with the City of Dover on either a revised easement or a joint use agreement. Additionally, due to the vertical design of the driveway there was an opportunity to improve the stormwater that enters the site by detaining it further and providing additional pre-treatment through the construction of a small detention facility within the easement. Operation and Maintenance of this facility is now proposed to be the applicant's responsibility; however, the easement rights of the City of Dover should be maintained at the pipe outlets.

Minimization & Avoidance

Through the use of retaining walls on site and thoughtful layout of site features there are no proposed wetlands impacts for the project site. The proposed rain garden is placed as far from the buffer as practical while still providing the needed storage and treatment required of modern site design. The outfall of the pond is placed outside of the buffer in an effort to increase the overland flow distance prior to entrance into the wetlands. Tree clearing is limited to the extent of the required grading and placards are proposed to be hung as is required in the overlay district.

An evaluation of deeps sumps was done for the project site, and it was determined that the site would be better served by having sumps and hoods. In this case, given the setting of the project within an established industrial park which contains deep sumps, that the use was appropriate. Additionally, if the sumps were removed from the design, additional space would be required within the rain garden for a forebay, increasing the foot print size and providing more disturbance within the 50' buffer. Lastly, given the proposed slopes on site, the terrestrial movement onsite is likely to be confined to the buffer and wetlands areas and not the steep slopes leading to the development site. A similar contemplation was conducted concerning the use of curbing onsite and for the same reasons noted above, it is proposed for use. The outlet control structure however, is not equipped with a sump and the rim is proposed to be set away from the berm with 12" of reveal to reduce the likely hood of climbing and entrapment.

The site is proposed to be lined with landscaping materials that provide both a stout understory, but also taller shading vegetation to reduce the thermal impacts of the development on stormwater. The use of the rain garden, which also provides for un-modeled infiltration component reduces the amount of flow seen at the discharge from the "fist flush" from the developed site and reduces the thermal impact from the site.

Lastly, there are a number of products used which reduce the need for plastic or non-natural items onsite. Steep slopes are lined with a natural product, NAG Bionet SC 150 BN which does not contain plastic, and reduces the risk of entanglement. Though silt fence is offered as a detailed item in the plan set, the plans direct contractors to use mulch berm or non-plastic silt soxs for perimeter erosion control use. The two outlets closest to the wetland boundaries are proposed to be installed with rip-rap aprons that are loamed and seeded over, and stabilized using erosion control blankets.

Compliance with the following standards

a) *Practicable Alternative: There is no practicable alternative that would have a less adverse impact on the area.*

The only alternative is to reduce the developable foot print of an industrial lot, which did not originally contemplate a wetlands buffer. This seems contrary to the development needs of the City of Dover.

b) *Avoidance: The potential impacts have been avoided to the maximum extent practicable. The APPLICANT will demonstrate by plan and example that the proposed construction represents the least impacting alternative.*

- As noted above the design contemplates the needs of the applicant as well as the environmental impact and proposes multiple features related to minimization and avoidance.

c) *Minimization: Any unavoidable impacts have been minimized. No reasonable Alternative to the proposed construction exists which does not impact a wetland or which has less detrimental impact on a wetland. Design, construction and maintenance methods will be prepared by a registered engineer to minimize detrimental impacts to the wetlands and will include restoration of the site as nearly as possible to its original grade.*

- The proposed project minimizes buffer disturbance through several design methods as noted above.

d) *Mitigation: If the APPLICANT is required by State rules to prepare a compensatory mitigation plan, the APPLICANT shall provide the Conservation Commission and PLANNING BOARD with one copy each of said plan for their review.*

- There is no mitigation as required by local or state rules for the proposed buffer impacts, however landscaping enhancements both in the buffer and out of the buffer are proposed to reduce direct and secondary impacts to the buffer and jurisdictional wetlands.

e) *Approval for the wetlands impact has been received from the NHDES Wetlands Bureau pursuant to Section G (3), below.*

- There are no proposed impacts to the jurisdictional wetlands, only the buffer. No permit is required.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

Christopher R. Berry
Principal, President

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

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

SITE-2022-0011

RECEIVED
Planning Office
NOV 01 2022
Dover, New Hampshire

Office Use Only	Project #: P22-55	Date Received: NOV 01 2022
	Amount Paid:	Time Received:

APPLICANT AND OWNER INFORMATION

Name of Applicant: JSR, LLC Telephone # 1-978-979-2170

Address of Applicant: 17 Fosters Drive, Dover, NH 03820

E-Mail Address: rswhit10@gmail.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: Quality Way and Venture Drive

Assessor's Map # D Lot(s) # 11-5 & 11-5SND

Zoning District(s) IT Overlay District(s) Wetlands Protection

Size of Parcel: ~~43,517~~ 43,314 sq. ft. ~~1.00~~ 0.99 ac. Property Deed: Book 4980 Page: 632

Existing Use of Property: Vacant Land

SITE PLAN INFORMATION

Describe Proposed Use: 4 Contractor Bays / Office Space

Area of Parcel to be Developed: 10,080 SF sq. ft.

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

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

Number of Parking Spaces: Existing N/A Proposed 14

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

Number of Employees Total: +/-10-12 In Maximum Shift: 1 Shift

Disposition of Parcel: Building Setbacks: Original TDR

Building Footprint 10,080 sq. ft. Front Yard 15' Where 50' Req. ft.

Total Building Area 10,080 sq. ft. Rear Yard +50' Where 50'Req. ft.

Paved Area 13,440 sq. ft. Side Yard: Right N/A ft. Left 40 ft.

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

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

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

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

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

Relief sought (Check All That Apply):

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

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

The project was designed as an Industrial TDR when built. The subject parcel requires relief to the new underlying zoning requirements of 50' front setbacks and 50' side setbacks to be a viable commercial building lot.

BUILDING INFORMATION

Type of Building to be Built: Steel Commercial Building with brick/concrete facade features

Height of Building: 30' +/- Finished Floor Elevation: 174.00

Number of Seats (where applicable) N/A

Estimated value of construction: 750,000 Refuse removal: Public/Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: 157-32-G Slope of 3% within 75' of the intersection

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

The intersection design proposed is not excessive in slope (3.25% max) and meets the NHDOT requirements of intersection design and therefore meets the intent of the regulations.

See waiver request for further information

SURVEYOR INFORMATION

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

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

Professional License #: 805 E-mail address: K.Berry@BerrySurveying.com
crberry@metrocast.net

ENGINEER INFORMATION

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

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

Professional License #: 14243 E-mail address: K.Berry@BerrySurveying.com
crberry@metrocast.net

ARCHITECT INFORMATION

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

Address 27 Lowell Street, Suite 503, Manchester NH Telephone #: 603-315-8158

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Terrain Planting & Design LLC
Eric Buck

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

Professional License #: 78 E-mail address: _____

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) John P. Hayes III

Address 7 Limestone Way, North Hampton NH 03862 Telephone #: 603-205-4396

Professional License #: 87 E-mail address: johnphayes@comcast.net

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: _____ Telephone #_____

Wetlands Scientist
Deidra Benjamin, CWS 295
100 Leavitt Road
Pittsfield, NH 03263

Address Easement Holder: _____

SIGNATURES

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

Signature of Property Owner: _____ Date: 6-1-22

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

Signature of Agent: _____ Date: 6-1-22

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 6-1-22

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 6-1-22

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

CERTIFICATION OF FEES

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

Signature of Property Owner: _____ Date: 6-1-22

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

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

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

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

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

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

APPLICANT: JSR LLC File Number: _____

PROJECT TITLE: Quality Way and Venture Drive

PROPERTY LOCATION: Quality Way Tax Map: D Lot: 11-5 & 11-5SND

	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	x	
9. A colored architectural plan showing all sides of buildings	x	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	x	
Location map at appropriate scale	x	
Proposed Project name and title and Planning File #	x	
Date, north arrow and scale	x	
Names of all abutting property owners	x	
Name and address of owners and/or applicants	x	
Signature & stamp of NH licensed land surveyor and/or engineer	x	
Zoning District boundaries, including any special or overlay districts	x	
Location of Conservation District areas	x	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	x	
Location and widths of existing & proposed easements & right of ways	x	
Location and width of existing and proposed access/egress ways	x	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	x	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	x	
Existing and proposed topographic information at two foot intervals	x	
Existing and proposed buildings and structure locations	x	
Minimum building setbacks or build to lines on all lots	x	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	x	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	x	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	x	
Existing and proposed stormwater lines and facilities	x	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	x	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	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	x	
Depict all service, storage, loading bays and utility areas	x	
All applicable Dover Common Site Plan notes	x	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	x	
Stormwater Management System Operation and Maintenance Plan	x	
Letter to Serve from Public and Private Utilities	Will provide	
Erosion and Sedimentation Control Plan	x	
Landscape Operation and Maintenance Plan	x	
Proposed restrictive covenants or homeowners association documents	N/A	
Dates and permit numbers of all required state and federal permits	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	Will provide as needed	

REVIEWED BY: _____ DATE_____ TRC DATE_____

P22-55/SITE-2022-0011 **QUALITY WAY & VENTURE DRIVE**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
D0011-002000	46 VENTURE DR	46 VENTURE DRIVE PROPERTIES LLC		910 DAY HILL RD	WINDSOR	CT	06095
D0011-003000	111 VENTURE DR	MERCHANDISE CENTRAL LLC		111 VENTURE DR	DOVER	NH	03820
D0011-004000	110 VENTURE DR	QUALITY WAY LLC		55 MAIN ST UNIT 407	NEWMARKET	NH	03857
D0011-006000	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-006SND	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-007SN1	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0013-003000	27 PRODUCTION DR	SARNIA PROPERTIES INC		1 HAVEN COURT	PORTSMOUTH	NH	03801
D0014-000000	VENTURE DR	DOVER BUSINESS & IND DEV AUTHORITY		288 CENTRAL AVE	DOVER	NH	03820
D0014-004000	87 VENTURE DR	VYGON CORPORATION	ADVANCED MEDICAL INC	2750 MORRIS RD #A200	LANSDALE	PA	19446-6083
D0011-005000	VENTURE DR	JSR LLC		17 FOSTERS DR	DOVER	NH	03820
D0011-005SND	VENTURE DR	JSR LLC		17 FOSTERS DR	DOVER	NH	03820
		BERRY SURVEYING & ENGINEERING		335 SECOND CROWN P(	BARRINGTON	NH	03825
		JOHN P HAYES III, CSS, CWS		7 LIMESTONE WAY	NORTH HAMPT	NH	03862
		DEIDRA L BENJAMIN, CWS		100 LEAVITT ROAD	PITTSFIELD	NH	03263
		TERRAIN PLANNING & DESIGN LLC		311 KAST HILL ROAD	HOPKINTON	NH	03229
		South East Land Trust		247 North River Road	Epping	NH	03042

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Barrington, NH 03825
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crberry@metrocast.net

RECEIVED
Planning Office
NOV 01 2022
Dover, New Hampshire

June 1, 2022

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

Re: No-Residential Site Plan
Quality Way
Tax Map D, Lot 11-5 & 11-5SND

Mrs. Benton,

Berry Surveying & Engineering (BS&E,) on behalf of JSR, LLC respectfully submits to Planning Department a proposed Commercial Contractor Storage / Office Building with a Non-Residential Site Plan application located on the corner of Quality Way and Venture Drive.

Background

JSR LLC owns the parcels on the corner of Quality Way and Venture Drive commonly known as Tax Map D, Lots 11-5 and 11-5SND . The site is comprised of nearly 2 acres of land which is wooded. Wetlands were delineated at the rear of the site by Deidra Benjamin, CWS and are largely consistent with the wetlands delineated for the development of the industrial park undertaken by the City of Dover. On site test pitting was conducted by John P. Hayes, CWS and a Site-Specific Soils Map was produced for the use in developing a hydraulic stormwater model for the project.

This project was one of the original Transfer of Development Rights projects where development rights were transferred or "sent" from certain lots in the development for the purposes of development use in other areas of the City of Dover. Many owners in the development were sold the development lots and then the sending lots, which are denoted with the same tax map and lot number followed by "SND". Though the project now falls in the IT Zone, the project requests modification to the setbacks within the zone using the mechanism found in the TDR.

Municipal water, sewer, and gas stubs are provided to the project site. Utilities are in close proximity found on the lot line and the corner of Quality Way and Venture Drive. Both roads contain sidewalks, with curbing and closed stormwater systems. There are two stormwater outfalls onto the property and one further up on Quality Way that has minor impacts on the project site. There is an easement at the corner of the property for the outfalls which is proposed to be modified in the proposed condition, noted below.

Proposal

The proposal is to construct a 10,080 Sq.Ft., Contractor Storage Bay / Office facility which faces Quality Way. The building is designed with 4 units to be sold or rented to small contractors that needs space to run businesses. The front of the building and each unit will be equipped with a small office area or reception as may be needed for each business. The rear section will be for storage of goods and materials as may be needed on project sites. The building is proposed to be steel construction, single slope roof with an ornamental layer of brick or cement style siding on the lower portion of the structure. Due to the site constraints parking is at the rear of the site with accessibility to the front being provided by a walk that is less than 5% to the front doors. Each bay has a 12' overhead door at the rear of the building along with an egress door. The rear of the site is dropped 4' to allow for loading into small box trucks or work vans as may be needed. A small dumpster with pad and enclosure is proposed in a position that is not overtly visible from either road and is easily accessed for pickup and delivery. Due to the project constraints and being the original TDR the application required relief to the front and side setbacks from the current zoning requirements in the IT Zone. The building is proposed to be 15' off the front lot line and 40' from the side lot line, where 50' is required.

To accommodate fire access to the site as well as deliveries of goods, a looping driveway is proposed from Venture Drive to Quality Way and is proposed as a two-way driveway with a 20' lane. To ensure grading stays both on the lot and outside of jurisdictional wetlands areas retaining walls are proposed at both entrances. These walls are to be designed by the manufacturer, but are assumed to be 41" deep and of gravity block design. Ample room is left for grid behind the wall if needed by the designer. Wood frame rail is proposed in these areas whereas the walls are vertical and the incoming slopes are proposed to be 2:1. The driveways and the rear parking / loading area is proposed to be super elevated at 2% to the outside of the site. (Down slope).

Stormflow from the project site, including the roof is captured through the use of three catch basins, and routed to an onsite rain garden for treatment and attenuation. The rain garden is designed to range between 0.5'-2.2' above seasonal high-water table to promote infiltration of the treated stormflow during periods the ground will accept the volume. This recharge assumption was not included in the stormwater modeling of the site. The flow from the pond is attenuated in an outlet control structure and is designed to control the 100 Yr.24Hr storm event without the use of the emergency spillway. Dover is a coastal community and therefore 15% was added to each of the assumed storm events. The rain garden is designed to treat the water quality event and discharges flow a small enough rate to adhere to the Alteration of Terrain Channel Flow Protection rules.

In the existing condition there are two outfalls for the stormwater infrastructure along Quality Way and Venture Drive that drain onto the subject parcels. Due to the placement of the driveway onto Venture Drive, the applicant is encroaching into the easement a bit and will need to work with the City of Dover on either a revised easement or a joint use agreement.

Additionally, due to the vertical design of the driveway there was an opportunity to improve the stormwater that enters the site by detaining it further and providing additional pre-treatment through the construction of a small detention facility within the easement. Operation and Maintenance of this facility is now proposed to be the applicant's responsibility; however, the easement rights of the City of Dover should be maintained at the pipe outlets.

Due to the layout of the usable spaces outside of the 50' wetlands buffer, a lot line revision is proposed between 11-5 and 11-5SND to swap an equal amount of land between the two lots. Since the development of the industrial park, an additional environmental layer by way of the 50' buffer has been added to the site. In an effort to utilize space outside of the buffer to the extent practical and reduce buffer impacts a corner of the sending lot is proposed to be used for the stormwater practice. The project does require a conditional use permit for work within the buffer of 7,935 Sq.Ft. Please find a separate Conditional Use Permit application and narrative.

Lighting on site meets the regulations through the use of three solar lamps at the rear of the site as well as 4 architectural wall packs over each door on the contractor bay. There is an existing cobra head lamp in Quality Way which provides ample lighting at the driveway intersection and 4 small residential style lamps are proposed along the front of the structure.

Unfortunately, due to site constraints there is no existing vegetation to remain in the developed areas. However, a landscape design has been prepared and provides for overstory design at the front and rear of the site as well as ornamental building plantings as well as plantings along the perimeter.

As noted above the site proposes to use municipal utilities which are provided at the front boundary line. Both electric utility and gas utility is provided to the site already.

The project required the following approvals:

- TDR Setback relief.
- Site Plan Approval
- Conditional Use Permit (Buffer)
- US EPA Notice of Intent

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

Christopher R. Berry
Principal, President

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RECEIVED
Planning Office
NOV 01 2022
Dover, New Hampshire

June 1, 2022

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

Re: Waiver Requests
Non-Residential Site Plan
JSR LLC
Quality Way and Venture Drive
Tax Map D, Lot 11-5 & 11-5SND

Chairperson & Members of the Dover Planning Board:

In accordance with Land Subdivision Regulations Article 157-32-G, the following waiver is hereby requested:

1. Identification of Waiver Request: Maximum Road slope of 3% within 75' of an intersection per Land Subdivision Regulations 157-32-G.

- Proposed private driveway that provides for a 2% platform and then transitions to 3.25% within 75' of the intersection.

2. Explanation:

The applicant is proposing a relatively narrow structure on the lot with a 4' change from the finished floor to the rear dock access. To obtain the grade change in the drive aisle with appropriate vertical curves the slope off Quality Way is required to transition to 3.25% after the 2% requirement through the walk.

3. Waiver Justification:

a. Granting the waiver will properly carry out the purpose and intent of the regulations.

The purpose and intent of this regulation is to provide a safe platform for a queue length of several vehicles at an intersection. This proposal provides a safe platform that is less than the minimum required by NHDOT (4%).

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

Requiring the applicant to comply with this intersection requirement would pose an unnecessary hardship on the applicant. The slope would be required to be flattened, the finish floor raised and an additional foot of fill would be required for the entire project site. This would increase the amount of area that is filled in the wetlands buffer, which is contrary to the minimization efforts made for the project.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

Christopher R. Berry
Principal, President

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RECEIVED
Planning Office
NOV 01 2022
Dover, New Hampshire

June 1, 2022

City of Dover Planning Department
Attn: Director of Department of Planning and Community Development Mrs. Donna Benton
288 Central Ave.
Dover, NH 03820

RE: Traffic Impact Memo
JSR, LLC
Tax Map D, Lot 11-5
Venture Drive & Quality Way
Dover, NH 03820

Mrs. Benton,

Pursuant to the City of Dover Site Review Regulations, Berry Surveying & Engineering (BS&E), on behalf of the applicant, has prepared a Trip Generation memo for the construction of four (4) Specialty Trade Contractor units at the corner of Venture Drive & Quality Way. The point of analysis is the intersection of the proposed site driveway and Venture Drive. While there are two means of egress from the proposed site, the driveway off of Venture Drive will be the primary driveway and therefore considered the point of analysis.

The following trip generations are calculated from the 10th Edition Trip Generation Manual using Code 180, Specialty Trade Contractor:

Specialty Trade Contractor Proposed Generation

Time Method	Weekday Total Dwelling Units			Time Method	AM Peak Adj. Street Dwelling Units			Time Method	PM Peak Adj. Street Dwelling Units		
1,000 SF GFA	10.08			1,000 SF GFA	10.08			1,000 SF GFA	10.08		
Avg. Rate	10.22			Avg. Rate	1.66			Avg. Rate	1.97		
Total Trips	103.0			Total Trips	16.7			Total Trips	19.9		
% Enter	50.0	Total Enter	51.5	% Enter	73.0	Total Enter	12.2	% Enter	32.0	Total Enter	6.4
% Exit	50.0	Total Exit	51.5	% Exit	27.0	Total Exit	4.5	% Exit	68.0	Total Exit	13.5

It can be seen from the proposed trip generation that a generation of 103 weekday total trips, seventeen (17) trips during the AM weekend peak hour, and twenty (20) trips during the PM weekday peak hour.

As Venture Drive terminates in a cul-de-sac and Quality Way terminates in the same manner, it is assumed that all vehicle trips will enter left from Venture Drive northbound and will exit right to Venture Drive southbound. To the south, the intersection of Venture Drive and Sixth Street is signalized. This signalized intersection provides a safe opportunity for protected right and left turns out of the Industrial Park. The Industrial Park provides walkability throughout, with a sidewalk on the western side of the roadway (in front of subject parcel). Coast Bus Route 33

(Weekday County Complex) provides a stop at the intersection of Venture Drive and Sixth Street. While this intersection / bus stop is over a half mile away, it provides the possibly of bus transportation if desired.

The following tables are a summary of the directional distribution.

Weekday AM Peak Hour Directional Distribution

Time	AM Peak Hour	# Trips	Turn Type	% Distribution
Total Trips	16.7			
Trips Enter from Venture Drive Northbound		12.2	Left	73.0
Trips Enter from Venture Drive Southbound		0.0	Right	0.0
Trips Exit to Venture Drive Northbound		0.0	Left	0.0
Trips Exit to Venture Drive Southbound		4.5	Right	27.0

Weekday PM Peak Hour Directional Distribution

Time	PM Peak Hour	# Trips	Turn Type	% Distribution
Total Trips	19.9			
Trips Enter from Venture Drive Northbound		6.4	Left	32.0
Trips Enter from Venture Drive Southbound		0.0	Right	0.0
Trips Exit to Venture Drive Northbound		0.0	Left	0.0
Trips Exit to Venture Drive Southbound		13.5	Right	68.0

- It is recommended that the existing and surrounding infrastructure will be sufficient to handle the vehicle trip generation during the weekday AM, PM peak hour and all other hours for Venture Drive and Quality Way.

Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

Christopher R. Berry, SIT
Principal, President

Kenneth A. Berry, PE, LLS,
CPSWQ, CPESC, CESSWI
Principal, VP-Technical Operations

KRP/krp

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City of Dover
Planning Office
Attn: Mrs. Donna Benton, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

September 1, 2022

Re: Site Plan Review
Berry Surveying & Engineering
JSR, LLC
Venture Drive & Quality Way
Tax Map D, Lots 11-5 & 11-5SND
Dover File #P22-55

Based on comments from the Technical Review Committee Minutes from August 11, 2022, we respectfully submit the following comments and revisions. Our comments are in **bold**.

PLANNING COMMENTS

1. Water and sewer investment fees.
   Applicant acknowledges comment and will pay fees when due.

2. Impact Fees.
   Applicant acknowledges comment and will pay fees when due.

3. Signatures needed on Site Plan Application forms.
   Please find signed Site Plan application.

4. Clarify, will the contractor units be leased or sold as condominium units.
   These are proposed to be leased currently, but may be sold in the future. Utilities have been provided for each unit.

5. Condo docs or lease with restrictions required.
   The applicant requests that this is a condition of approval.

6. No outdoor storage of equipment or materials should be noted on plan and signage.
   This has been added to the Site Plan as note #41 and signage has been added to the Site Plan, see sheet #6.

7. What type of materials will be allowed to be stored?
   The applicant intends to lease or sell these units to small contractors. There may be materials and solvents in low volumes stored in the building. It is assumed that materials of 1 gallon or less would be stored in the building. The applicant is now proposing a water service for a potential sprinkler system, in an effort to address many of the speculation questions related to the use of the building.

8. Revise Plan to:

   a. Add Planning File Number P22-55.
      This is now added to the Title Block.

   b. LLS, CWS, & LLA signatures and stamps on each submission.
      Please find stamped plans.

   c. Owner's signature.
      Owner's signature will be added for the final construction approval plans.

   d. Add landscaping to streetscape rendering.
      Please find revised streetscape rendering.

   e. Legible landscape maintenance section of Landscape Plan sheet #13.
      Please find revised Landscaping Plan.

   f. Add wetland buffer placard symbol to key
      Symbol has been added to the master legend and the Site plan Legend. See neighborhood Plan, sheet #1, and Site Plan, sheet #5.

   g. Add streetscape rendering for Venture Drive.
      Please find streetscape rendering.

POLICE COMMENTS

1. On-site parking seems inadequate to accommodate four separate contractors, work vehicles, employees, etc. The layout also creates the strong likelihood that customer and overflow employee parking will be on Quality Way. This is not discussed in the project narrative.
   As discussed at TRC #1, it is assumed that a small contractor will use these spaces, with one or two employees, the owner and one office

employee. The parking table does not count the overhead door space for each unit. If this is considered each unit has 4.5 spaces allocated for use.

ENGINEERING COMMENTS

1.) General Note: Add note to reflect that an easement is provided to the City to maintain the potable drinking water quality through the hydrant flushing program, which includes providing access to the water curb boxes.
This has been added as note #9 on the Lot Line Revision, sheet #4.

2. Sheet 5: Confirm there is 24' from the end of each parking space perpendicular to the curb.
Pavement at Sta: 2+60 +/- has been revised to be 24' between the curb line and parking space. See Site Plan, sheet #6.

3. Sheet 6: Grading is within 5' of property line; clarify if an easement will be required from adjacent property.
A temporary grading easement is now proposed with the DBIDA with the shown on the Easement Plan, sheet #5. Easement plans were sent to the Assistant City Manager for review and comment.

4. Sheet 6: Applicant shall verify if sufficient spaces is provided to construct the block wall or if an easement is required.
A temporary grading easement is now proposed with the DBIDA with the shown on the Easement Plan, sheet #5. Easement plans were sent to the Assistant City Manager for review and comment.

5. Sheet 6: It is recommended to make the two catch basins east of Station 2+00 off-line catch basins for pre- treatment of stormwater.
These structures of been made off-line structures. See Grading Plans, sheets #7 & 8.

6. Sheet 7: It is recommended to raise the grade of both driveway entrances to prevent water on Quality Way and Venture Way from entering the property.
Please find revised profiles and grading. See Grading Plans, sheets #7 & 8.

7. Sheet 11: It is strongly recommended to provide individual water and sewer services to each unit if they are to be sold separately.
Individual services are now provided to each unit. See Utility Plan, sheet #12.

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8. Sheet 11: Sewer stub from Quality Way is likely a 6- inch in diameter. If test pits confirm that it is not, the lateral shall be upgraded to 6-inch.
   This callout has been corrected on the Existing Conditions Plan and leader has been corrected on the Utility Plan. See sheets #2 and #12.

9. Sheet 11: Ensure there is a minimum of 4' cover of the sewer service and 5' cover over the water service; specifically, within the proposed swale.
   This has been added as note #18 to the Utility Plan, sheet #12.

10. Sheet 11: Please add a note that the water service shall be tested in accordance with City of Dover Standards.
    This note has been added. See Utility Plan Sheet #12, note #18.

11. Sheet 12: It appears that the cross sections are not representative of the proposed plan features. Please review and identify.
    Please find revised Cross Sections, sheet #13.

12. Sheet 23: Detail of Unit Sewer Service. The main is 8" not 6" as shown.
    This detail has been revised. See detail U4, sheet #24.

13. Sheet 23: Typical Sewer Pipe Trench; compacted stone shall extend 12" above pipe.
    This detail has been revised. See detail U5, sheet #24.

14. Sheet 19: Detail D1 notes that the grate shall be a Rexus grate which conflicts with Detail D2. Please clarify. Catch basin and drop inlet frames and grates shall provide a 24-square-inch grate at the top and shall attach to the maintenance hole opening of 24-inch diameter below. They shall be a NHDOT Type B cast iron frame and grate.
    Detail D1 has been corrected. See Detail D1, sheet #20.

15. Sheet 19: Detail D4 indicates a Pamrex cover which conflicts with detail D5. Please clarify. Drain maintenance hole frame and cover shall be Liftmate R- 1743-LM or approved equal, and provide a 30-inch diameter clear opening. The cover shall have the word "DRAIN" in 3-inch letters cast into the top surface. Covers to be hinged and incorporate a 90-degree blocking system to prevent accidental closure.
    This detail has been revised. See Detail D4 & D5 #12, sheet #20.

16. Sheet 25: Add note identifying who the contractor should contact, should one of the species identified on the plan, be found.
    A note has been added to this sheet. See W-101, sheet #26.

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17. Sheet 26: Provide profile view of the fire truck including dimensions.
    Truck has been added to the plan. See Truck Turning, sheet #27.

18. General Comment: Provide plan or other legal description showing proposed modifications to the existing drainage easement. Plan should indicate that the maintenance of the proposed detention basin will be the responsibility of the Applicant/Property Owner as indicated in the Narrative.
    This has been done graphically and this note is now added to the Easement Plan, sheet #5 as note #9.

19. Drainage Report: Please provide a BMP worksheet and storage tables for detention basin #102.
    Please find revised Drainage binder.

FIRE/INSPECTION SERVICES

1. Sheet 5 – ensure there is adequate separation between adjacent utilities at side of building.
   The electric meters have been moved further down the building. See Site Plan sheet #6 and Utility Plan, sheet #12.

2. Clarify the type of uses and commodities of the proposed structure.
   These are unknown at this time, however the applicant is preparing the building to be sprinkled with an updated utility design.

3. Provide site specific street rendering.
   Please find street rendering.

4. Provide colored elevation plans of all four sides.
   Please find colored elevation plans.

5. Clarify if there are loading docks.
   Loading docks are called on the southern side of the building. See Site Plan, sheet #6.

6. Sprinkle building; or require that no use be permitted that requires fire. suppression without an amendment to the plan.
   The applicant is now providing a dedicated sprinkler line to the building for the future potential need.

BUSINESS DEVELOPMENT

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

1. How will the sending area remain protected? TDR relief?
   As noted at the TRC #1, the definition of the protected area may need to be revised and approved by council as part of a condition of approval for this project.

2. Have attorney prepare legal docs for LLA.
   These documents can be provided as a condition of approval.

3. Provide architectural for DBIDA review.
   The applicant has met with DBIDA who approved the revised architectural drawings.

PLANNING BOARD

1. Does retaining wall require fencing?
   This retaining wall does not require fencing since there is guard rail up slope. See Site Plan, sheet #6.

2. Please provide dumpster screening – plantings.
   Shrubs have been added for screening along the dumpster. See Landscaping Plan, sheet #14.

3. Will the disposition of the stone wall be preserved?
   This interior stonewall is now proposed to be relocated to the western boundary line. See Site Plan, sheet #5.

Very truly yours,
BERRY SURVEYING & ENGINEERING

Christopher R. Berry
Principal, President

Kenneth A. Berry, PE, LLS
VP – Technical Operations

Kevin R. Poulin, EIT
Design Engineer

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

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P22-55

Application Type:	Site Review
Applicant(s):	JSR, LLC
Owner(s):	JSR, LLC
Location:	Quality Way & Venture Drive (Assessor's Map D, Lots 11-5 & 11-5SND)
Date:	August 11, 2022

INTENT: Proposal is for the construction of a 10,080 s.f. contractor storage bay/office facility consisting of four (4) separate bays with office space. A wetland impact CUP and LLA are also proposed as part of the development.

LOTS/UNITS PROPOSED: Four (4) commercial units, contractor bays/office space

AGENDA ITEM #: 1

ACREAGE: 1.99 ± acres total;
Lot 11-5: 43, 314± sf / 0.99± ac
Lot 11-5SND: 43,517± sf / 1.00± ac

ZONING DISTRICTS: IT District and Wetlands Protection District

EXISTING LAND USE: Vacant

SURROUNDING LAND USE: Vacant & Industrial

ZBA ACTION: None

PERMITS REQUIRED:
- Site Plan Approval
- Conditional Use Permit (Buffer)
- Lot Line Adjustment
- US EPA Notice of Intent

WAIVERS/RELIEF REQUESTED:
- §157-32-G.: NHDOT min 4%; 2-3.5% provided
- Relief to min lot coverage, front & side setbacks through Industrial TDR

ATTENDANCE:
Members:
Michael Asciola, Planning
Natasha Kypfer, Zoning
Christopher Parker, Business Development
Jim Maxfield, Fire/Inspection Services
Ken Mavrogeorge, Engineering
Frank Torr, Planning Board
Others:
Chris Berry, Berry Surveying & Engineering

Approval of Prior Meeting Minutes:
C. Parker moved to approve the August 4, 2022 meeting minutes. Seconded by: J. Maxfield. Vote: U/A.

PLAN REVIEW:
Planning:
- Water and Sewer investment fees
- Impact fees
- Signatures needed on Site Plan Application forms
- Clarify, will the contractor units be leased or sold as condominium units?
- Condo docs or lease with restrictions required
- No outdoor storage of equipment or materials should be noted on plan and signage
- What type of materials will be allowed to be stored?
- Revise plan set to include:
  - Add Planning file #P22-55
  - LLS, CWS & LLA signatures and stamps on each submission
  - Owners signature
  - Add landscaping to streetscape rendering
  - Legible landscape maintenance section on Landscape Plan sheet 13
  - Add wetland buffer placard symbol to key
  - Add streetscape rendering for Venture Drive

Police:
- On-site parking seems inadequate to accommodate four separate contractors, work vehicles, employees, etc. The layout also creates the strong likelihood that customer and overflow employee parking will be on Quality Way. This is not discussed in the project narrative.

Engineering:
- General Note: Add note to reflect that an easement is provided to the City to maintain the potable drinking water quality through the hydrant flushing program, which includes providing access to the water curb boxes.
- Sheet 5: Confirm there is 24' from the end of each parking space perpendicular to the curb.
- Sheet 6: Grading is within 5' of property line; clarify if an easement will be required from adjacent property.

- Sheet 6: Applicant shall verify if sufficient spaces is provided to construct the block wall or if an easement is required.
- Sheet 6: It is recommended to make the two catch basins east of Station 2+00 off-line catch basins for pre-treatment of stormwater.
- Sheet 7: It is recommended to raise the grade of both driveway entrances to prevent water on Quality Way and Venture Way from entering the property.
- Sheet 11: It is strongly recommended to provide individual water and sewer services to each unit if they are to be sold separately.
- Sheet 11: Sewer stub from Quality Way is likely a 6-inch in diameter. If test pits confirm that it is not, the lateral shall be upgraded to 6-inch.
- Sheet 11: Ensure there is a minimum of 4' cover of the sewer service and 5' cover over the water service; specifically, within the proposed swale.
- Sheet 11: Please add a note that the water service shall be tested in accordance with City of Dover Standards.
- Sheet 12: It appears that the cross sections are not representative of the proposed plan features. Please review and identify.
- Sheet 23: Detail of Unit Sewer Service. The main is 8" not 6" as shown.
- Sheet 23: Typical Sewer Pipe Trench; compacted stone shall extend 12" above pipe.
- Sheet 19: Detail D1 notes that the grate shall be a Rexus grate which conflicts with Detail D2. Please clarify. Catch basin and drop inlet frames and grates shall provide a 24-square-inch grate at the top and shall attach to the maintenance hole opening of 24-inch diameter below. They shall be a NHDOT Type B cast iron frame and grate.
- Sheet 19: Detail D4 indicates a Pamrex cover which conflicts with detail D5. Please clarify. Drain maintenance hole frame and cover shall be Liftmate R-1743-LM or approved equal, and provide a 30-inch diameter clear opening. The cover shall have the word "DRAIN" in 3-inch letters cast into the top surface. Covers to be hinged and incorporate a 90-degree blocking system to prevent accidental closure.
- Sheet 25: Add note identifying who the contractor should contact, should one of the species identified on the plan, be found.
- Sheet 26: Provide profile view of the fire truck including dimensions.
- General Comment: Provide plan or other legal description showing proposed modifications to the existing drainage easement. Plan should indicate that the maintenance of the proposed detention basin will be the responsibility of the Applicant/Property Owner as indicated in the Narrative.
- Drainage Report: Please provide a BMP worksheet and storage tables for detention basin #102.

Fire/Inspections Services:

- Sheet 5 – ensure there is adequate separation between adjacent utilities at side of building
- Clarify the type of uses and commodities of the proposed structure
- Provide site specific street rendering
- Provide colored elevation plans of all four sides.
- Clarify if there are loading docks
- Sprinkle building; or require that no use be permitted that requires fire suppression without an amendment to the plan

Business Development:

- How will the sending area remain protected? TDR relief?
- Have attorney prepare legal docs for LLA
- Provide architecturals for DBIDA review

Planning Board:

- Does retaining wall require fencing?
- Please provide dumpster screening – plantings
- Will the disposition of the stone wall be preserved?

Next Steps: Revise and come back for second TRC.

Adjournment:

C. Parker moved to adjourn at 11:09 am. Seconded by K. Mavrogeorge. Vote: U/A.

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P22-55

Application Type:	Site Review
Applicant(s):	JSR, LLC
Owner(s):	JSR, LLC
Location:	Quality Way & Venture Drive (Assessor's Map D, Lots 11-5 & 11-5SND)
Date:	October 27, 2022

INTENT: Proposal is for the construction of a 10,080 s.f. contractor storage bay/office facility consisting of four (4) separate bays with office space. A wetland impact CUP and LLA are also proposed as part of the development.

LOTS/UNITS PROPOSED: Four (4) commercial units, contractor bays/office space

AGENDA ITEM #: 1

ACREAGE: 1.99 ± acres total;
Lot 11-5: 43, 314± sf / 0.99± ac
Lot 11-5SND: 43,517± sf / 1.00± ac

ZONING DISTRICTS: IT District and Wetlands Protection District

EXISTING LAND USE: Vacant

SURROUNDING LAND USE: Vacant & Industrial

ZBA ACTION: None

PERMITS REQUIRED:
- Site Plan Approval
- Conditional Use Permit (Buffer)
- Lot Line Adjustment
- US EPA Notice of Intent

WAIVERS/RELIEF REQUESTED:
- §157-32-G.: NHDOT min 4%; 2-3.5% provided
- Relief to min lot coverage, front & side setbacks through Industrial TDR

PREVIOUS TRC: August 11, 2022

ATTENDANCE:
Members:
Donna Benton, Planning
Natasha Kypfer, Zoning
Reid Amy, Business Development
Jim Maxfield, Fire/Inspection Services
Ken Mavrogeorge, Engineering
Frank Torr, Planning Board
Others:
Chris Berry, Berry Surveying & Engineering

Approval of Prior Meeting Minutes:
F. Torr moved to approve the October 20, 2022 meeting minutes. Seconded by: R. Amy. Vote: U/A.

PLAN REVIEW:
Planning:
- *Water and Sewer investment fees*
- *Impact fees*
- *Signatures needed on Site Plan Application forms > Did not see attached within EnerGov portal as "Owner Authorization" form*
- *Condo docs or lease with restrictions required as COA*
- *Revise sending areas if needed before City Council as COA*
- Revise CUP narrative to add more detail about specific criteria and how they have been met
- *Revise plan set to include:*
  - *LLS, CWS & LLA signatures and stamps on each submission*
  - *Owners signature to final*

Police: None

Engineering:
- Sheet 7: Provide spot grade on proposed dumpster pad to ensure drainage runs to catch basin in parking area.
- Sheet 11: *Previous Comment: Please add a note that the water service shall be tested in accordance with City of Dover Standards.* **New Comment: Note is 19 not 18.**
- Sheet 12: External cleanouts are not allowed by the City. Please indicate internal cleanouts for sewer.
- Sheet 24: Revise detail U8 to show compacted stone shall extend 12" above pipe.

Fire/Inspections Services: None

Business Development: None

Planning Board: None

Next Steps: This is on the 11/8/2022 Planning Board meeting. To reduce COAs, revise and submit by Monday, 10/31/2022.

Motion: J. Maxfield moved to allow administrative approval by the Planning Director for Trask Drive #P22-49 following their July 7, 2022 TRC meeting. Seconded by: K. Mavrogeorge. Vote: U/A.

Adjournment: R. Amy moved to adjourn at 10:39 am. Seconded by J. Maxfield. Vote: U/A.

DRAFT

DRAINAGE ANALYSIS
&
EROSION AND SEDIMENT CONTROL PLAN

Prepared for:

JSR, LLC
17 Fosters Drive
DOVER, NH 03820

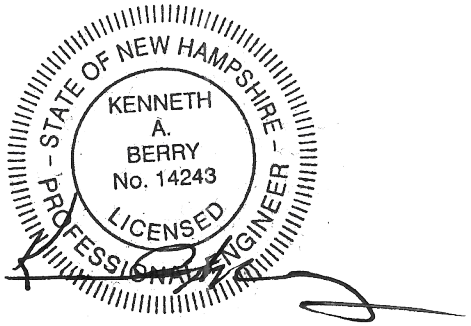
Land of

JSR, LLC
17 Fosters Drive
DOVER, NH 03820

QUALITY WAY, DOVER, NH
TAX MAP D, LOTS 11-5 & 11-5SND

Prepared by:

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825



Project Number:
DB 2021-134

June 1, 2022
Revised: September 1, 2022

Table of Contents

USGS Quadrangle Location Map

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3.0	Full Comparative Analysis	Page 5
3.1	Ground Water Recharge	Page 5
3.2	Other Improvements	Page 6
4.0	Erosion & Sediment Control, BMP's	Page 6
5.0	Conclusion	Page 12

Appendix I - Existing Conditions Analysis

25 Yr-24 Hr Full Summary
2 Yr-24 Hr Node Listing
10 Yr-24 Hr Node Listing
25 Yr-24Hr Node Listing
50 Yr-24 Hr Node Listing
100 Yr-24 Hr Node Listing

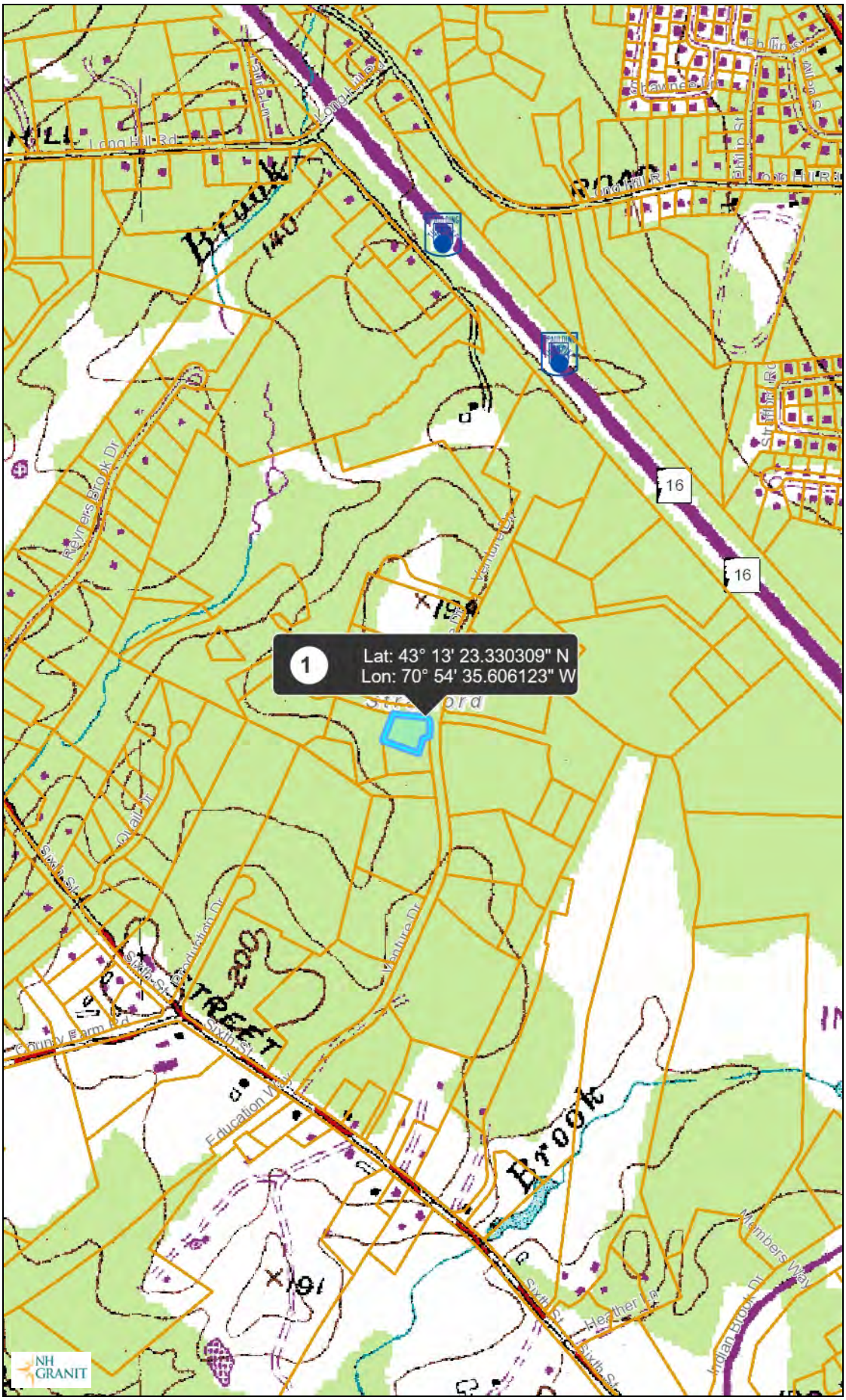
Appendix II - Proposed Conditions Analysis

25 Yr-24 Hr Full Summary
2 Yr-24 Hr Node Listing
10 Yr-24 Hr Node Listing
25 Yr-24Hr Node Listing
50 Yr-24 Hr Node Listing
100 Yr-24 Hr Node Listing

Appendix III - Calculations, Charts, & Graphs
Extreme Precipitation Tables
NCRS USDA Web-soil Map
Pond #101 Stage-Area-Storage Table
Pond #101 Treatment Sheets
Stormwater System Operation & Maintenance Plan
& Inspection and Maintenance Manual
Watershed Report Card and Impaired Waters

Enclosed:	W-1 Sheet	Existing Conditions Watershed Plan	Sheet 1
	W-2 Sheet	Post Construction Watershed Plan	Sheet 2

Map by NH GRANIT



Legend

- Parcels
  - Parcel Polygons
  - Attributes for Additional Lines
- State
- County
- City/Town

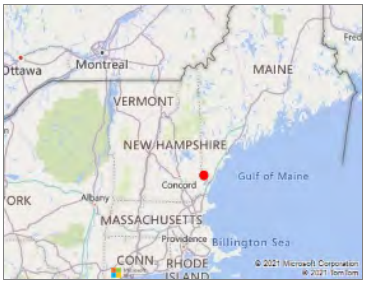
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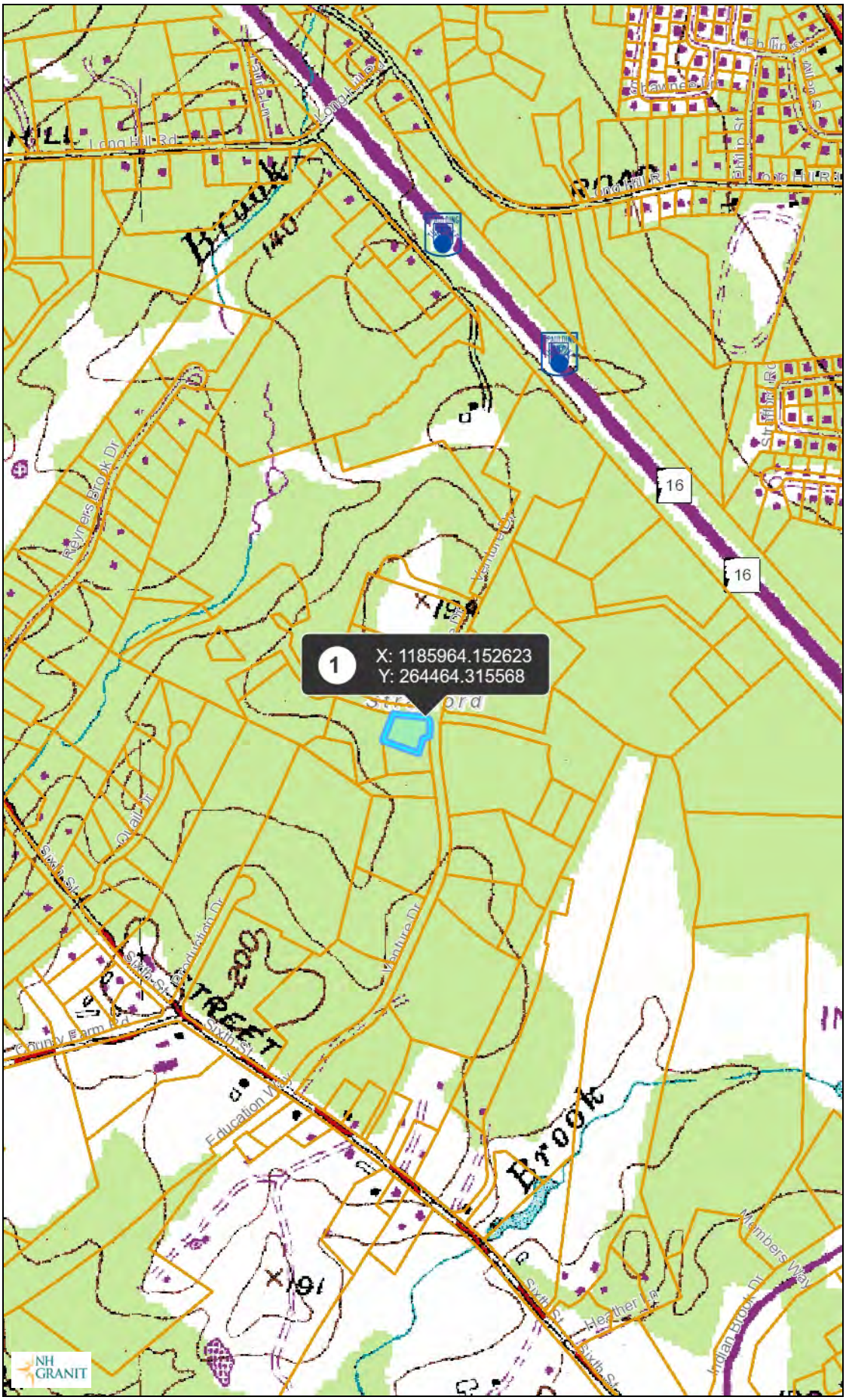
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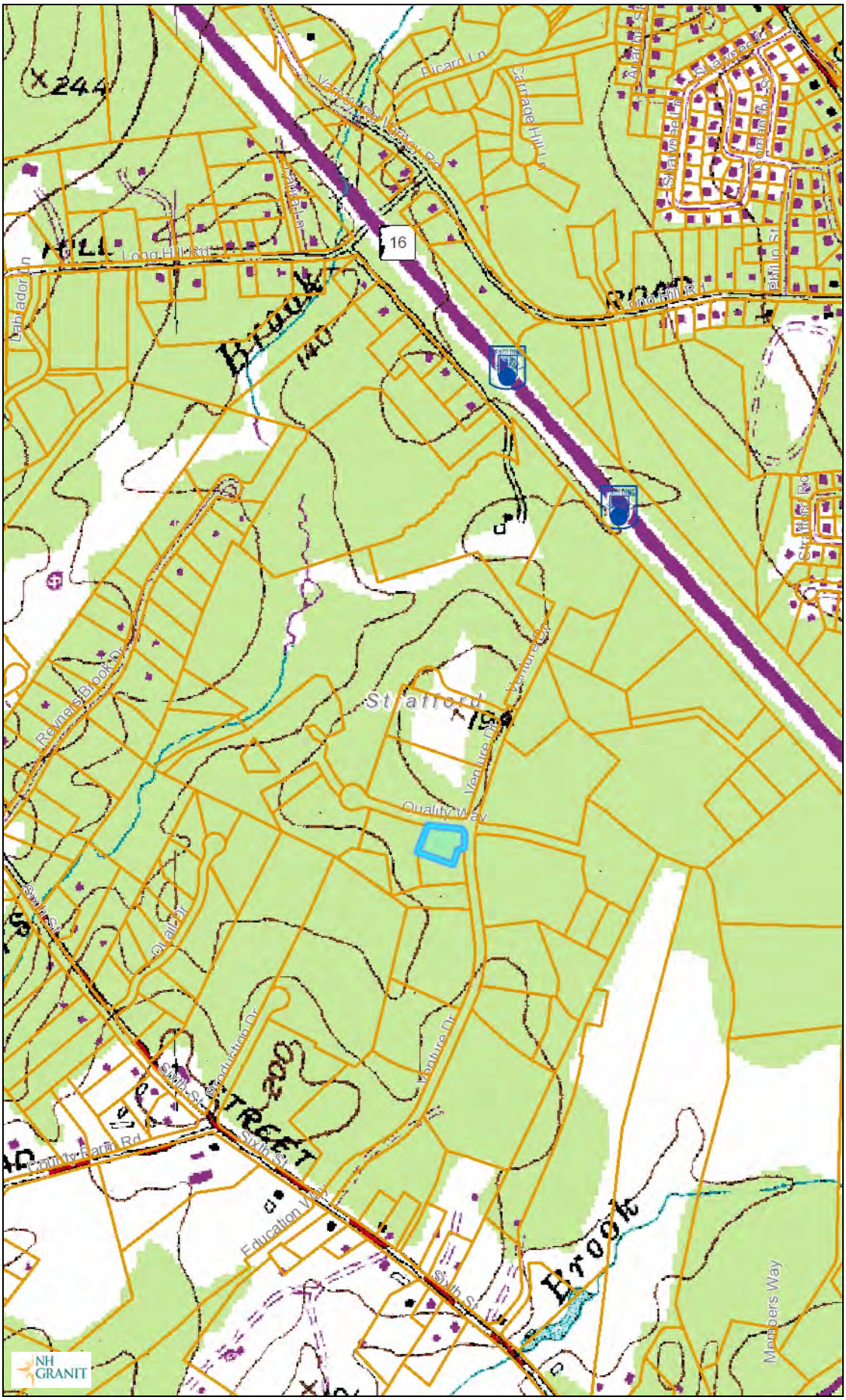
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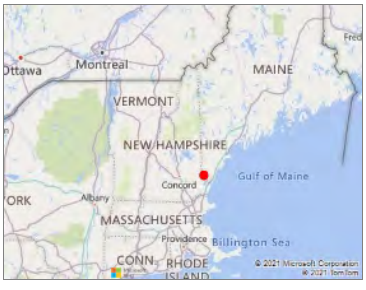
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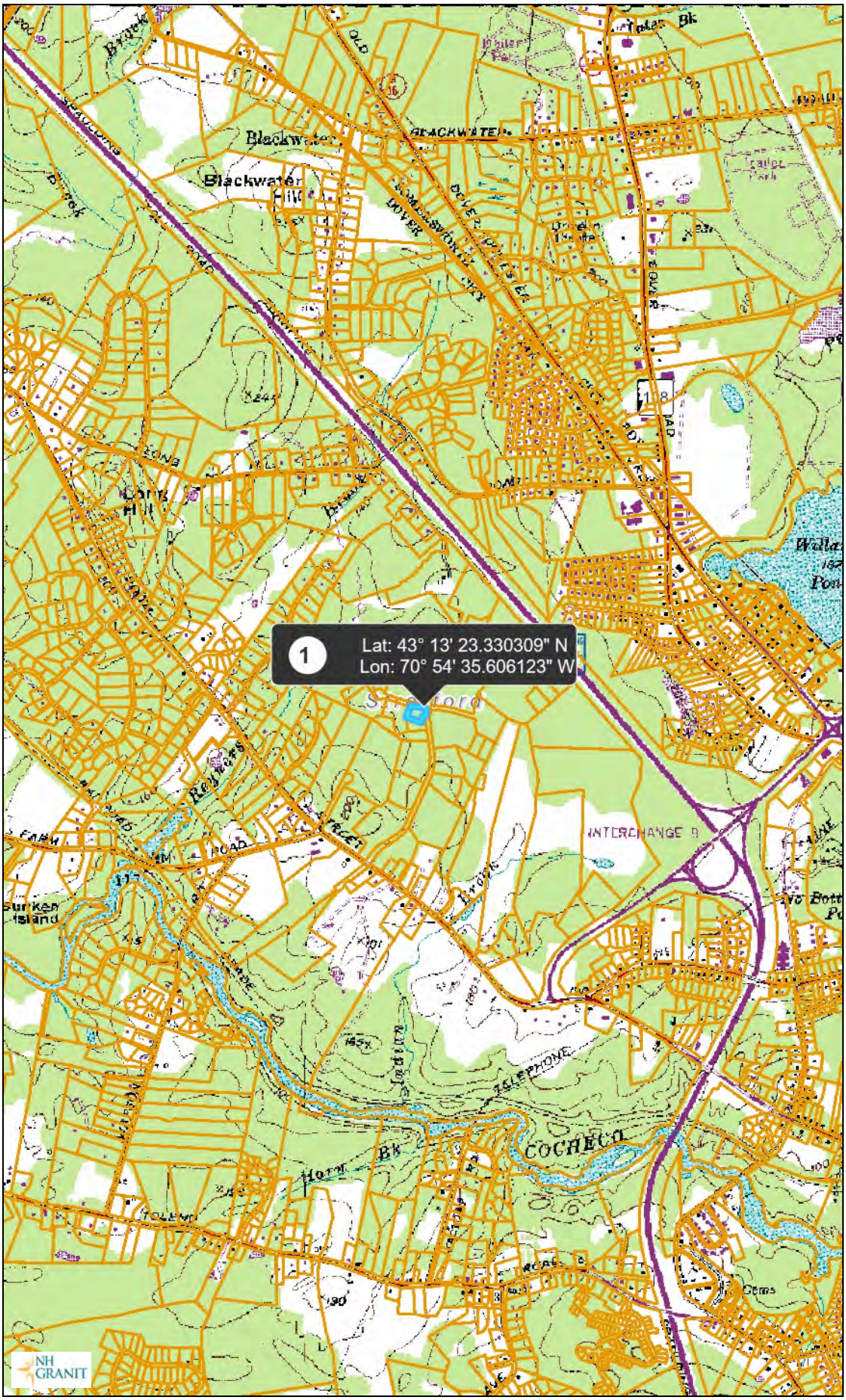
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Legend

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- Attributes for Additional Lines

State

County

City/Town

Map Scale

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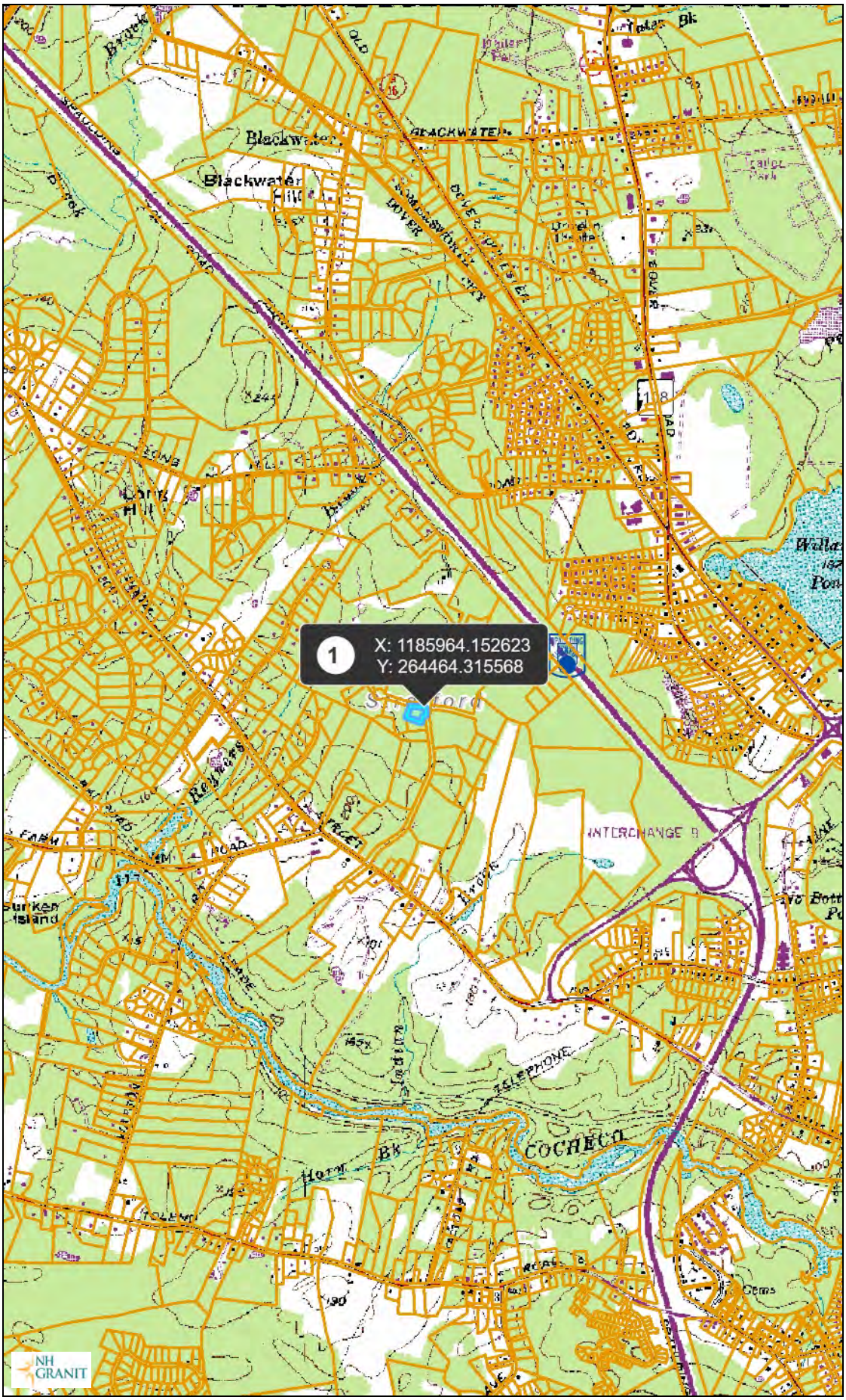
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- State
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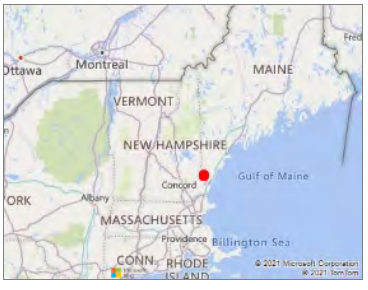
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Notes



DESIGN METHOD OBJECTIVES

JSR, LLC is proposing to develop a commercial building within the parcel at Quality Way & Venture Drive (Tax Map D, Lots 11-5 & 11-5SND.) The property is currently vacant and wooded.

Runoff from the parcel flows south to an onsite wetland (which continues offsite) as shallow concentrated flow.

An Existing and Proposed Conditions analysis was conducted for the purpose of estimating the peak rate of stormwater run-off from the property, Quality Way, and Venture Drive and to subsequently design adequate mitigation of drainage. There are two drainage discharge points which were identified in the existing analysis and duplicated in the proposed conditions analysis. Designing two watershed models we have compared the differences in these rates of peak run-off and surface water volume. Sheet W1, Existing Conditions Watershed Plan, outlines the characteristics of the site in its existing or pre-construction conditions. The second analysis displays the proposed (post-construction) conditions (See Sheet W2.) The analysis was conducted using data for; 2 Yr – 24 Hr (3.60”), 10 Yr – 24 Hr (5.42”), 25 Yr -24 Hr (6.85”), 50 Yr – 24 Hr (8.18”), and 100 YR-24 Hr (9.76”) storm events. Storm event analysis was accomplished using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment and rainfall quantities are based on the Extreme Precipitation Table for this location from the Northeast Regional Climate Center / Cornell University (http://precip.eas.cornell.edu). As Dover is considered a Seacoast Community by NHDES the Extreme Precipitation quantities have been adjusted to be 115% of the documented rainfalls for the 24-hour events.

1.0 Existing Conditions Analysis:

Reference: Sheet W1 - Existing Conditions Watershed Plan (Enclosed)
Existing Conditions Plan

The existing property consists of vacant land. The surface water runoff is evaluated at the onsite wetland line in the southern portion of the parcel. The receiving watershed is the Lower Cochecho (Cocheco) River. The area of the property is 1.98 acres and the area of the analysis is 5.51 acres. The current use is supported by municipal water and sewer.

The onsite soils are made up of Gs – Gloucester (very stony) & Hg – Hollis-Gloucester Complex (very rocky), which are classified as Hydrologic Soil Group (HSG) A, as well as Sc - Scitico, 500 – Udorthents, 600 – Endoaquents, Ea (State #238) – Elmridge (very stony) which are classified as HSG C, and Be – Maybid which is classified as HSG D based on the Site Specific Soil Survey conducted by John P. Hayes III (CSS #87). The offsite soils are made up of GlB – Gloucester fine sandy loam & GsC – Gloucester very

stony fine sandy loam, which are classified as HSG A, as well as EaB – Elmwood fine sandy loam which is classified as HSG B based on the USDA, NRCS Websoil.

Note: Elmridge is abbreviated as Ea (State No. 238) in the provided Site Specific Soils Survey. Due to Elmwood being abbreviated as Ea in the provided USDA, NRCS Websoils Report we have primarily used the state number of 238 to denote Elmridge on the Site Specific Soils Map used throughout this plan set.

Final Reach #100:

Reach #2

Subcatchments #1 & #2 make up the offsite land area surrounding and including a portion of Quality Way north and east of the parcel with runoff draining east of the property through a culvert (**Pond #1**) and a catch basin (**Pond #2**). Runoff flows through an overland reach (**Reach #2**) through **Subcatchment #12** to the delineated wetland line evaluated as **Final Reach #100**.

Reach #4

Subcatchments #3 & #4 make up the offsite land area surrounding and including a majority of the intersection of Quality Way and Venture Drive with runoff draining onto the property through a pair of catch basins (**Ponds #3 & #4**). Runoff flows through an overland reach (**Reach #4**) to a combined overland reach (**Reach #10**) through **Subcatchment #12** to the delineated wetland line evaluated as **Final Reach #100**.

Reach #6

Subcatchments #5 - #11 make up the offsite land area north of Quality Way including a portion of Venture Drive. Runoff drains onto the property through a series of catch basins (**Ponds #5-#6, #7-#9, #10, & #11**). Runoff flows through an overland reach (**Reach #6**) to a combined overland reach (**Reach #10**) through **Subcatchment #12** to the delineated wetland line evaluated as **Final Reach #100**.

Subcatchment #12 consists of the entirety of the analyzed area of the locus parcel as well as a portion of offsite land and is defined by the runoff that drains to the delineated wetland line on the southern side of the parcel (**Final Reach #100**).

Final Reach #200:

Final Reach #200 serves only as an overflow analysis reach during larger storm events when **Ponds #5 & #6** overflow and runoff may flow further down Venture Drive away from the locus parcel.

Subcatchment #13 consists of a section on Venture Drive and sidewalk in front of the area of proposed development. (**Final Reach #200**).

2.0 Proposed Conditions Analysis:

Reference: Sheet W2 - Proposed Conditions Watershed Plan (Enclosed)
Proposed Site Plan
Proposed Site Detail Plans

The proposed conditions analysis consists of 17 subcatchments. Subcatchments #1 - #11 are largely offsite and therefore unchanged. Subcatchment #12 is altered as a result of the proposed construction. Subcatchments #20 - #24 are proposed subcatchments defined by the location of the proposed commercial building, paved area, and rain garden and divided by catch basins. The catch basins are modelled as ponds and routed to the proposed rain garden.

Final Reach #100:

Subcatchments #1 - #11 remain unchanged.

Subcatchment #12 is greatly decreased in size due to the construction of the proposed commercial building and the related parking area and drainage practice (**Pond #101**). Runoff still flows directly to the delineated wetland line analyzed as **Final Reach #100**.

Subcatchment #20 consists of the land area between the proposed commercial building and Venture Drive limited by the proposed entrance off of Venture Drive. Runoff is collected in a detention pond (**Pond #102**) and outlets through a cross culvert under the entrance and to **Final Reach #100**.

Subcatchments #21 & #22 encompass the proposed commercial building and a majority of the related driveway and parking area including the entrance from Venture Drive. Runoff drains to a pair of connected catch basins (**Ponds #C01 & #C02**) which outlet to **Pond #101** and eventually to **Final Reach #100**.

Subcatchment #23 consists of the entrance from Quality Way along the west side of the proposed commercial building. Runoff is collected in a catch basin (**Pond #C03**) and directed to **Pond #101** and eventually to **Final Reach #100**.

Subcatchment #24 Consists solely of the land area contributing directly to **Pond #101** which outlets through an outlet structure and emergency spillway utilizing two short overland reaches (**Reaches #101a & #101b**) to **Final Reach #100**.

Final Reach #200:

Subcatchments #5 & #6 remain unchanged

Subcatchment #25 Consists solely of the small driveway area that drains back to **Final Reach #200**.

Summary

Peak rate of discharge is decreased for all storm events at Final Reach #100 and remains unchanged at Final Reach #200. Volume is increased within the channel protection allowance of 0.100 acre feet at Final Reach #100 and remains unchanged at Final Reach #200.

3.0 FULL COMPARATIVE ANALYSIS

ANALYSIS COMPONENT: PEAK RATE DISCHARGE (Cubic Feet / Second)

		2 Yr	10 Yr	25 Yr	50 Yr	100 Yr
Final Reach #100	Existing	3.42	7.94	12.48	16.62	22.05
	Proposed	3.26	7.53	12.45	15.85	21.50
Final Reach #200	Existing	0.11	0.17	0.22	1.89	2.46
	Proposed	0.11	0.17	0.22	0.49	0.90

ANALYSIS COMPONENT: VOLUME (Acre Feet)

		2 Yr
Final Reach #100	Existing	0.373
	Proposed	0.464
Final Reach #200	Existing	0.009
	Proposed	0.009

3.1 Ground Water Recharge.

Though the soils onsite are not conducive to infiltration practices, due to KSat values being less than allowable rates, the onside rain garden pond is specifically designed to be above seasonal high-water table to the base of the stone. On the high side of the design the stone base is 0.5' above seasonal high-water table while on the low side it is approximately 2.2' above.

3.2 Other Improvements.

The design captures two, point source discharges from Quality Way and Venture Drive which have historically discharged to a swale and then directly to a wetland system. The flow from these two outfalls is now captured, and attenuated in a detention pond. The outfalls are now equipped with fore-bays to increase the pre-treatment that takes place.

4.0 EROSION & SEDIMENT CONTROL PLANS BEST MANAGEMENT PRACTICES (BMP's)

Reference: Proposed Site Plan and Grading Plan
Erosion & Sediment Control Plan
Erosion & Sediment Control Details

The proposed site development is protected from erosion and the abutting properties are protected from sediment by the use of Best Management Practices as outlined in the New Hampshire Stormwater Manual, Volume 2, Post-Construction Best Management Practices Selection & Design (December 2008, NHDES & US EPA); and City of Dover Chapter 149-14 A, Stormwater Management, Erosion Control, and Flood Hazards. **Any area disturbed by construction will be re-stabilized within 14 calendar days and abutting properties will not be adversely affected by this development. All disturbed soils within 100 feet of surface waters or wetlands will be temporarily or permanently stabilized within 7 calendar days. Erosion and sediment control measures shall be installed prior to any soil land disturbance and must be reviewed and approved by the City of Dover Community Services Department. All swales and drainage structures will be constructed and stabilized prior to having run-off directed to them.** Reference is also made to the Stormwater System Operation Inspection & Maintenance Manual which has been written specifically for this project and available to the owner.

As this proposed site redevelopment will disturb less than one acre of land, a Notice of Intent does not need to be submitted to the US EPA. This project will not be covered by the Construction General Permit. As this project proposes less than 100,000 square feet of impact it does not require an issued permit by NHDES AoT, however construction is governed by a General Permit by Rule under NH RSA 485-A:17. Either a Stormwater Pollution Prevention Plan (SWPPP) or a Stormwater Management Plan (SWMP) as required by the City of Dover will be required. In either case, the requirements of Chapter 149-14 A will be included in the plan.

Silt Fence

The plan set demonstrates the location of silt fence for sediment control. The Erosion and Sediment Control Details, Sheet E-101, has the specifications for installation

and maintenance of the silt fence. It is noted that the City of Dover prefers the mulch berms below as well as the Filtrexx product.

Erosion Control Mix Berm

As an alternative to the Silt Fence, an Erosion Control Mix Berm can be utilized as a perimeter control. The specifications can be found on Sheet E-101.

Vegetated Stabilization

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of breaking ground. Construction will be managed in such a manner that erosion is prevented and that no abutter's property will be subjected to any siltation, unless otherwise permitted. All areas to be planted with grass for long-term cover will follow the specification and on Sheet E-102 using seeding mixture C, as follows:

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Conservation Mix

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	15	0.35
Creeping Red Fescue	15	0.35
Annual Ryegrass	5	0.12
Perennial Ryegrass	5	0.12
Kentucky Bluegrass	15	0.35
White Clover	7	0.16
Total	**62**	**1.45**

Conservation Mix will be used to stabilize all 2:1 slopes and all land area disturbed within the wetland buffer. (If applicable)

Stabilized Construction Entrance

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the

pad should be between 1 and 2-inch coarse aggregate, and the pad itself constructed to a minimum length of 50' for the full width of the access road. The aggregate should be placed at least six inches thick. A plan view and profile are shown on Sheet E-102-Erosion and Sediment Control Detail Plan.

Environmental Dust Control

Dust will be controlled on the site by the use of multiple Best Management Practices. Mulching and temporary seeding will be the first line of protection to be utilized where problems occur. If dust problems are not solved by these applications, the use of water and calcium chloride can be applied. Calcium chloride will be applied at a rate that will keep the surface moist but not cause pollution.

Inlet Protection / Storm Drain Inlets

Storm drain inlet protection will be installed per the Erosion & Sediment Control Details as a sediment barrier installed around a storm drain inlet, catch basin, or curb inlet to reduce sediment intrusion into a system after it has been constructed and existing catch basins. These are to be constructed in accordance with the Erosion & Sediment Control Details, Sheet E-101 and maintained after every rain event.

At a minimum, you must comply with following (EPA CGP Part 2.1.2.9.b) "Clean, or remove and replace, the protection measures as sediment accumulates, the filter becomes clogged, and/or performance is compromised. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, you must remove the deposited sediment by the end of the same work day in which it is found or by the end of the following work day if removal by the same work day is not feasible."

It is vital in the construction of this site that the existing MS4 drainage system not be impacted by sediment. See also sediment track out below.

Sediment Track-Out / Stabilized Construction Entrance / Exit

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the pad should be between 1 and 2-inch coarse aggregate, and the pad itself constructed to a minimum length of 50' for the full width of the access road. The aggregate should be placed at least six inches thick. A plan view and profile are shown on Construction Details Plan. The Construction Exit will be maintained in a condition that will prevent tracking of sediment onto the public highway. When the control pad becomes ineffective, the stone should be removed along with the collected soil material, regraded on site, and stabilized. A plan view and profile are shown on the Construction Details Plan in E-101 Erosion & Sediment Control Details.

Off-site Vehicle Tracking: A stabilized construction entrance has been provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance will be swept every other week or as necessary to remove any excess mud, dirt or rock tracked from the site. After the binder pavement has been placed, any construction activity that causes the tracking of sediments will also result in street sweeping. Pavement should be swept prior to surface pavement and periodically to remove materials. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

At a minimum, you must provide for maintenance that meets the following (EPA CGP Part 2.1.2.3.d) "Where sediment has been tracked-out from your site onto the surface of off-site streets, other paved areas, and sidewalks, you must remove the deposited sediment by the end of the same work day in which the track-out occurs or by the end of the next work day if track-out occurs on a non-work day. You must remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. You are prohibited from hosing or sweeping tracked-out sediment into any stormwater conveyance (unless it is connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or surface water."

Stockpiled Sediment or Soil

Stockpiled materials including topsoil, excavated materials, borrow materials imported onto the site, construction aggregates, and sediment removed from temporary sediment traps will be located in designated areas at least 50 feet away form concentrated flows. All stockpiles will have erosion protection in the form of silt fence and diversion swales will be applied to protect the material and surrounding areas. Inactive stockpiles will be seeded for temporary stabilization. Erosion control measures will be inspected in accordance with the schedule for all other activities on site.

At a minimum, you must comply with following (EPA CGP Part 2.1.2.4d) "Do no hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance (unless connected to a sediment basin, sediment trap, or similar effective control,) storm drain inlet, or surface water."

Dewatering Practices

Dewatering practices are not known to be required on this site. If during construction this becomes required, an addendum will be published specific for the requirements. As a general rule, ground water that needs to be removed from an excavation will be pumped to a sediment basin or a storm drain inlet prior to discharge from the site.

At a minimum, you must comply with following (EPA CGP Part 2.1.3.4) "With backwash water, either haul it away for disposal or return it to the beginning of the

treatment process; and replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications."

Regarding dewatering practices in the State of New Hampshire, specifically see Construction General Permit Section 9.1.2 NHR12000 State of New Hampshire and "Clarification of Section 9.1.2 … and other New Hampshire specific information for the U.S. EPA 2012 NPDES Construction General Permit (CGP), May 3, 2012"

Drainage Swales / Stormwater Conveyance Channels

Drainage swales will be stabilized with vegetation for long term cover as outlined below, and on Sheet E-102 using seed mixture C. As a general rule, velocities in the swale should not exceed 3.0 feet per second for a vegetated swale although velocities as high as 4.5 FPS are allowed under certain soil conditions (If applicable).

Construction Sequence

1. Cut and remove trees in construction area only as required.

2. Construct and/or install temporary and permanent sediment erosion and detention control facilities as required.

3. Erosion, sediment and detention control facility shall be installed & stabilized prior to any earth moving operation & or directing runoff to them.

4. Clear, cut and dispose of debris in approved facility.

5. Construct temporary culverts as required, or directed.

6. Construct roadways for access to desired construction areas. All roads shall be stabilized immediately.

7. Install pipe and construction associated appurtenances as required or directed. Install rain gardens. All disturbed areas shall stabilized immediately after grading.

8. Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded or mulched as required, or directed. No area is allowed to be disturbed for a length of time that exceeds 60 days before being stabilized. Daily, or as required. All roadways and parking areas shall be stabilized within 72 hours of

achieving finished grades. All cut and fill slopes shall be stabilized within 72 hours of achieving finished grades.

9. Construct temporary berms, drains ditches, silt fences, sediment traps, etc. mulch and seed as required.

10. Inspect and maintain all erosion and sediment control measures during construction.

11. Complete permanent seeding and landscaping.

12. Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete.

13. Smooth and revegetate all disturbed areas.

14. Finish paving all roadways.

Temporary Erosion Control Measures

1. The smallest practical area of land shall be exposed at any one time.

2. Erosion, sediment control measures shall be installed as shown on the plans and at locations as required, or directed by the engineer.

3. All disturbed areas shall be returned to original grades and elevations. Disturbed areas shall be loamed with a minimum of 4” of loam and seeded with not less than 1.10 pound of seed per 1,000 square feet (48 pounds per acre) of area.

4. Silt fences and other barriers shall be inspected periodically and after every rainstorm during the life of the project. All damaged areas shall be repaired, sediment deposits shall periodically be removed and properly disposed of.

5. After all disturbed areas have been stabilized, the temporary erosion control measures are to be removed and the area disturbed by the removal smoothed and re-vegetated.

6. Areas must be seeded and mulched within 5 days of final grading, permanently stabilized within 3 days of final grading, or temporarily stabilized within 14 days of initial disturbance of soil.

Inspection and Maintenance Schedule

Sediment control measures will be inspected during and after storm events to ensure that the practice still has integrity and is not allowing sediment to pass. Depending on SWPPP criteria, all controls will be inspected either once every 7 days or once every 14 days and after storm events. Inspection reports must be submitted to Town of Barrington Code Enforcement. Sediment build-up in swales and level spreaders will be removed if it is deeper than six inches. See also Stormwater System Operation: Inspection & Maintenance Manual published separately also by Berry Surveying & Engineering. See also Storm Water Pollution Prevention Plan (SWPPP) and / or Stormwater Management Plan (SWMP) developed in accordance with EPA NPDES or City of Dover requirements.

Corrective Action measures will be made in accordance with Stormwater Management Plan (SWMP) / SWPPP requirements and records maintained on site by the Contractor.

5.0 CONCLUSION

Peak rates of runoff flow are modeled to be reduced in the post-construction analysis / condition, as compared to the pre-construction peak rates of runoff flow at Final Reach #100 & unchanged at Final Reach #200. This reduction occurs during the 2 Yr, 10 Yr, 25 Yr, 50 Yr, and 100 Yr/24 Hour extreme storm events due to the detention effect of the Rain Garden as well as the modified detention pond. Per Env-Wq 1507.05(b)(1)(a) the channel protection volume is satisfied by the 2-year, 24-hour post-development peak flow rate generated from the proposed disturbance being less than the 2-year, 24-hour pre-development peak flow rate and the 2 year, 24-hour post-development storm volume has not increased over the pre-development volume by more than 0.1 acre-feet.

A Site Specific, Terrain Alteration Permit (RSA 485: A-17) is not required for this site plan due to the area of disturbance being less than 100,000 SF and the site will operate as a General Permit by Rule under this rule. Because the site impact is greater than one acre, a Notice of Intent with the EPA is required and the site will operate in accordance with the City of Dover Chapter 153-14 A Stormwater Management, Erosion Control, and Flood Hazards and the approved Stormwater Management Plan.

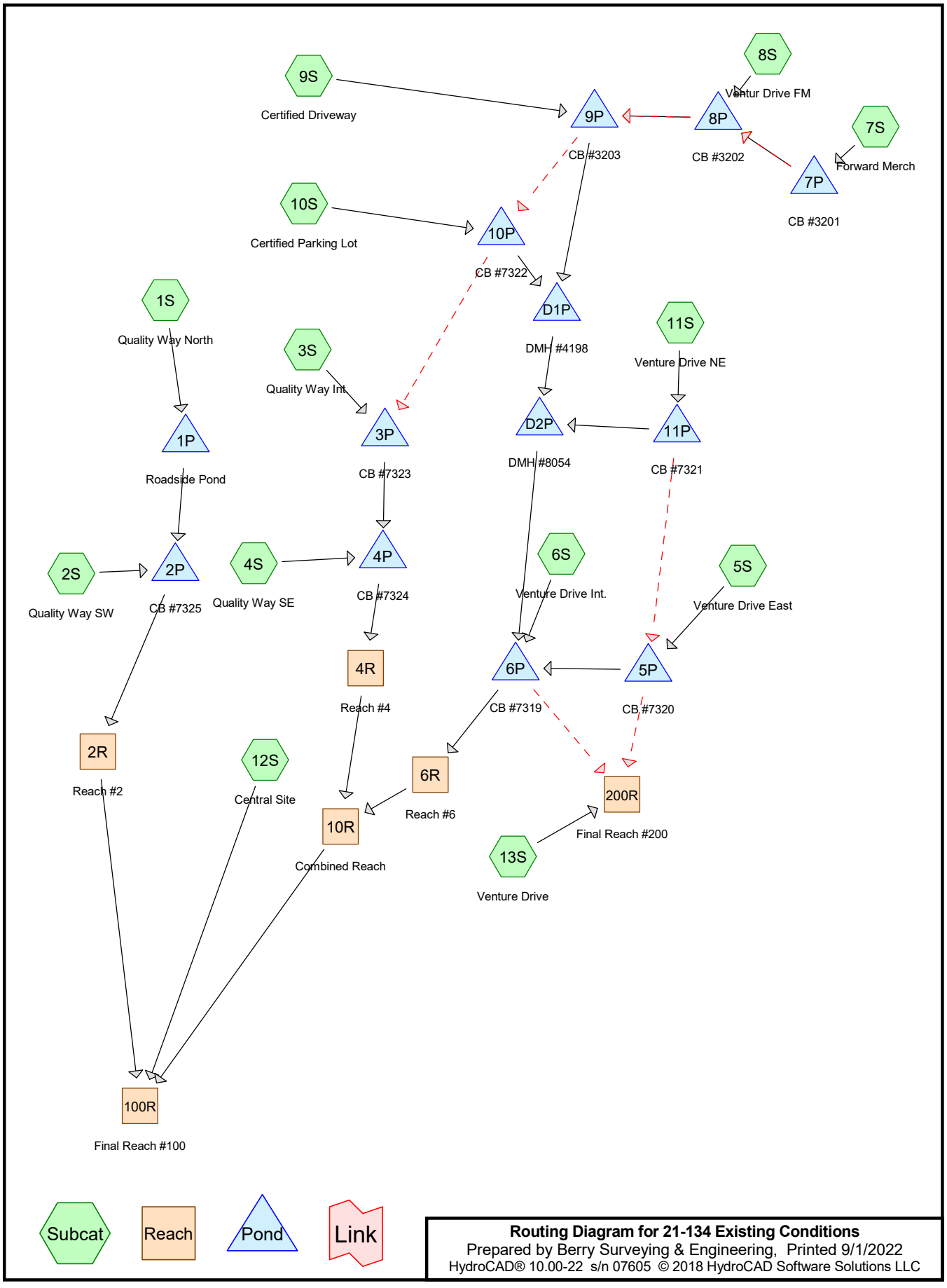
Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

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Appendix I – Existing Conditions Analysis

25 Yr - 24 Hr. Full Summary
2 Yr - 24 Hr. Node Listing
10 Yr - 24 Hr. Node Listing
25 Yr - 24 Hr. Node Listing
50 Yr - 24 Hr. Node Listing
100 Yr - 24 Hr. Node Listing



Routing Diagram for 21-134 Existing Conditions

Prepared by Berry Surveying & Engineering, Printed 9/1/2022

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.056	39	>75% Grass cover, Good, HSG A (1S, 3S, 6S, 7S, 9S, 10S, 12S)
0.006	61	>75% Grass cover, Good, HSG B (12S)
0.019	74	>75% Grass cover, Good, HSG C (12S)
1.526	98	Paved parking, HSG A (1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S)
0.036	98	Paved parking, HSG B (5S, 13S)
0.043	98	Unconnected pavement, HSG A (12S)
0.475	98	Unconnected roofs, HSG A (1S, 9S, 10S)
1.819	30	Woods, Good, HSG A (1S, 3S, 7S, 10S, 12S)
0.003	55	Woods, Good, HSG B (12S)
0.677	70	Woods, Good, HSG C (12S)
5.659	**62**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.918	HSG A	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S
0.045	HSG B	5S, 12S, 13S
0.696	HSG C	12S
0.000	HSG D	
0.000	Other	
5.659		**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
1.056	0.006	0.019	0.000	0.000	1.081	>75% Grass cover, Good	1S, 3S, 6S, 7S, 9S, 10S, 12S
1.526	0.036	0.000	0.000	0.000	1.561	Paved parking	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 13S
0.043	0.000	0.000	0.000	0.000	0.043	Unconnected pavement	12S
0.475	0.000	0.000	0.000	0.000	0.475	Unconnected roofs	1S, 9S, 10S
1.819	0.003	0.677	0.000	0.000	2.499	Woods, Good	1S, 3S, 7S, 10S, 12S
4.918	**0.045**	**0.696**	**0.000**	**0.000**	**5.659**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	168.58	167.36	42.3	0.0288	0.012	12.0	0.0	0.0
2	2P	166.90	166.78	32.7	0.0037	0.012	12.0	0.0	0.0
3	3P	168.90	168.43	24.4	0.0193	0.012	12.0	0.0	0.0
4	4P	168.33	167.78	36.3	0.0152	0.012	12.0	0.0	0.0
5	5P	167.11	166.51	25.3	0.0237	0.012	12.0	0.0	0.0
6	6P	166.45	166.46	27.1	-0.0004	0.012	12.0	0.0	0.0
7	7P	174.37	173.93	17.5	0.0251	0.012	12.0	0.0	0.0
8	8P	173.61	173.31	25.8	0.0116	0.012	12.0	0.0	0.0
9	9P	173.21	168.55	208.7	0.0223	0.012	12.0	0.0	0.0
10	10P	171.40	170.45	1.0	0.9500	0.012	12.0	0.0	0.0
11	11P	167.17	167.86	25.8	-0.0267	0.012	12.0	0.0	0.0
12	D1P	168.45	168.02	40.1	0.0107	0.012	12.0	0.0	0.0
13	D2P	167.86	166.51	96.9	0.0139	0.012	12.0	0.0	0.0

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>2.30"
Flow Length=326' Tc=10.1 min CN=58 Runoff=3.98 cfs 0.344 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.66 cfs 0.055 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>2.30"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.17 cfs 0.014 af

Subcatchment 4S: Quality Way SE Runoff Area=4,615 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.70 cfs 0.058 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,181 sf 88.45% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=91 Runoff=0.31 cfs 0.024 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>3.28"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.23 cfs 0.021 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>4.01"
Flow Length=257' Tc=7.9 min CN=75 Runoff=3.46 cfs 0.266 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>3.91"
Flow Length=151' Tc=6.4 min CN=74 Runoff=2.54 cfs 0.186 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.058 af

Subcatchment 12S: Central Site Runoff Area=82,187 sf 2.30% Impervious Runoff Depth>1.32"
Flow Length=296' Tc=16.0 min CN=47 Runoff=1.70 cfs 0.208 af

Subcatchment 13S: Venture Drive Runoff Area=1,441 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Reach 2R: Reach #2 Avg. Flow Depth=0.24' Max Vel=1.08 fps Inflow=4.38 cfs 0.399 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=4.10 cfs 0.398 af

Reach 4R: Reach #4 Avg. Flow Depth=0.21' Max Vel=0.69 fps Inflow=2.27 cfs 0.080 af
n=0.080 L=89.2' S=0.0200 '/' Capacity=10.50 cfs Outflow=1.60 cfs 0.080 af

Reach 6R: Reach #6 Avg. Flow Depth=0.43' Max Vel=1.04 fps Inflow=6.98 cfs 0.584 af
n=0.080 L=27.3' S=0.0168 '/' Capacity=9.65 cfs Outflow=6.96 cfs 0.583 af

Reach 10R: Combined Reach Avg. Flow Depth=0.28' Max Vel=1.57 fps Inflow=7.77 cfs 0.663 af
n=0.080 L=66.1' S=0.0681 '/' Capacity=27.17 cfs Outflow=7.72 cfs 0.663 af

Reach 100R: Final Reach #100 Inflow=12.48 cfs 1.269 af
Outflow=12.48 cfs 1.269 af

Reach 200R: Final Reach #200 Inflow=0.22 cfs 0.018 af
Outflow=0.22 cfs 0.018 af

Pond 1P: Roadside Pond Peak Elev=170.15' Storage=62 cf Inflow=3.98 cfs 0.344 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=3.92 cfs 0.344 af

Pond 2P: CB #7325 Peak Elev=168.93' Storage=25 cf Inflow=4.39 cfs 0.400 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=4.38 cfs 0.399 af

Pond 3P: CB #7323 Peak Elev=169.67' Storage=10 cf Inflow=2.01 cfs 0.022 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=1.93 cfs 0.022 af

Pond 4P: CB #7324 Peak Elev=169.19' Storage=11 cf Inflow=2.33 cfs 0.080 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=2.27 cfs 0.080 af

Pond 5P: CB #7320 Peak Elev=170.40' Storage=41 cf Inflow=0.75 cfs 0.028 af
Primary=0.75 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.75 cfs 0.028 af

Pond 6P: CB #7319 Peak Elev=170.36' Storage=49 cf Inflow=7.03 cfs 0.584 af
Primary=6.98 cfs 0.584 af Secondary=0.00 cfs 0.000 af Outflow=6.98 cfs 0.584 af

Pond 7P: CB #3201 Peak Elev=177.11' Storage=34 cf Inflow=0.23 cfs 0.021 af
Primary=0.45 cfs 0.021 af Secondary=0.00 cfs 0.000 af Outflow=0.45 cfs 0.021 af

Pond 8P: CB #3202 Peak Elev=177.11' Storage=44 cf Inflow=0.51 cfs 0.034 af
Primary=0.55 cfs 0.034 af Secondary=0.00 cfs 0.000 af Outflow=0.55 cfs 0.034 af

Pond 9P: CB #3203 Peak Elev=177.11' Storage=49 cf Inflow=3.77 cfs 0.301 af
Primary=3.74 cfs 0.301 af Secondary=0.00 cfs 0.000 af Outflow=3.74 cfs 0.301 af

Pond 10P: CB #7322 Peak Elev=174.65' Storage=35 cf Inflow=2.54 cfs 0.186 af
Primary=2.55 cfs 0.178 af Secondary=1.87 cfs 0.008 af Outflow=2.55 cfs 0.186 af

Pond 11P: CB #7321 Peak Elev=173.39' Storage=73 cf Inflow=0.69 cfs 0.058 af
Primary=0.61 cfs 0.053 af Secondary=0.55 cfs 0.004 af Outflow=0.63 cfs 0.057 af

Pond D1P: DMH #4198 Peak Elev=175.75' Storage=70 cf Inflow=6.25 cfs 0.479 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=6.05 cfs 0.479 af

Pond D2P: DMH #8054 Peak Elev=173.88' Storage=64 cf Inflow=6.52 cfs 0.532 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=6.50 cfs 0.532 af

Total Runoff Area = 5.659 ac Runoff Volume = 1.290 af Average Runoff Depth = 2.74"
63.26% Pervious = 3.580 ac 36.74% Impervious = 2.079 ac

Summary for Subcatchment 1S: Quality Way North

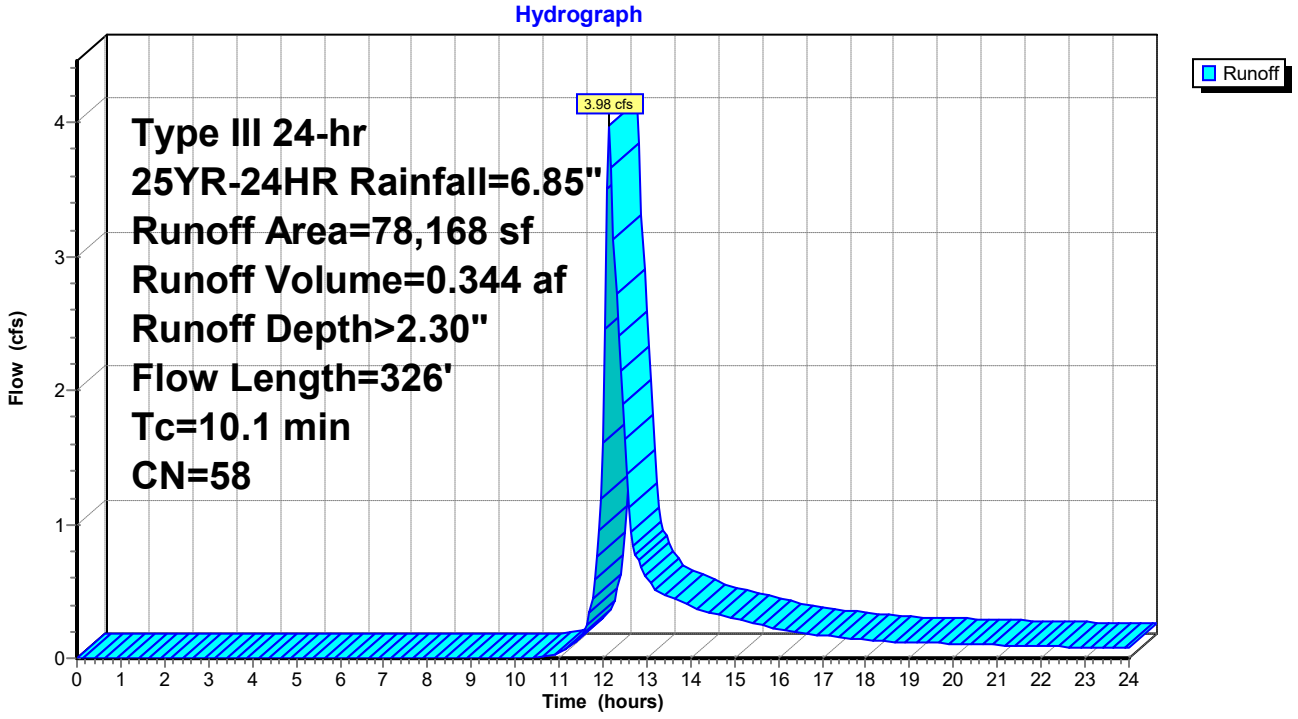
Runoff = 3.98 cfs @ 12.15 hrs, Volume= 0.344 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
11,732	98	Unconnected roofs, HSG A
18,602	39	>75% Grass cover, Good, HSG A
17,923	98	Paved parking, HSG A
29,911	30	Woods, Good, HSG A
78,168	58	Weighted Average
48,513		62.06% Pervious Area
29,655		37.94% Impervious Area
11,732		39.56% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0375	0.23		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.61"
2.9	226	0.0354	1.32		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
10.1	326	Total			

Subcatchment 1S: Quality Way North



Summary for Subcatchment 2S: Quality Way SW

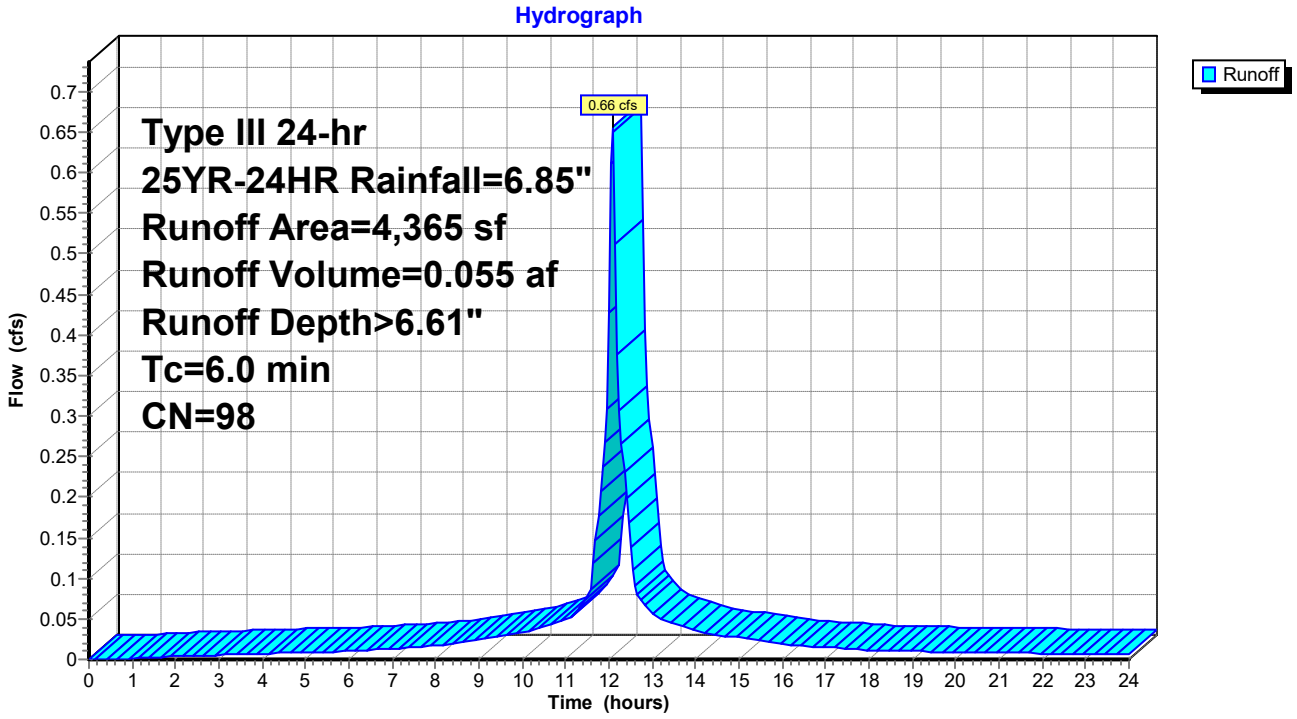
Runoff = 0.66 cfs @ 12.09 hrs, Volume= 0.055 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,365	98	Paved parking, HSG A
4,365		100.00% Impervious Area

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

Subcatchment 2S: Quality Way SW



Summary for Subcatchment 3S: Quality Way Int.

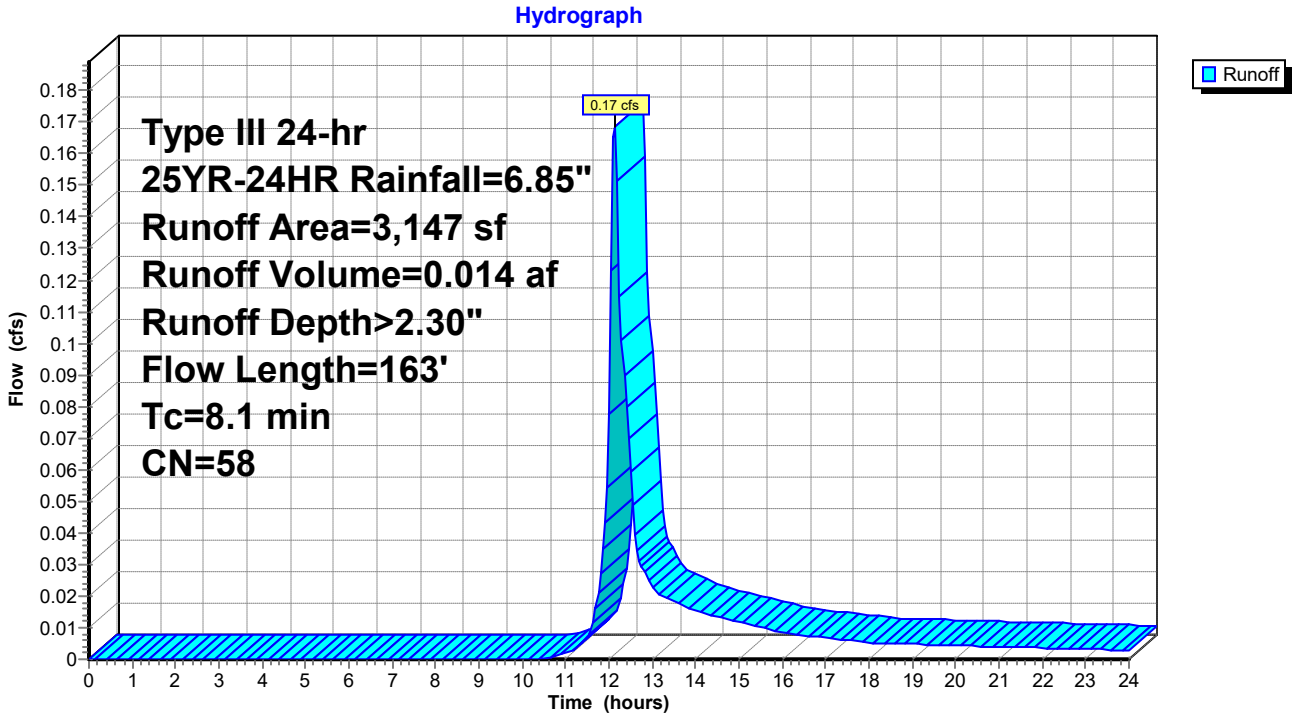
Runoff = 0.17 cfs @ 12.13 hrs, Volume= 0.014 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
1,775	39	>75% Grass cover, Good, HSG A
1,076	98	Paved parking, HSG A
296	30	Woods, Good, HSG A
3,147	58	Weighted Average
2,071		65.81% Pervious Area
1,076		34.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	36	0.0830	0.26		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.61"
3.7	33	0.1517	0.15		**Sheet Flow, Segment #2** Woods: Light underbrush n= 0.400 P2= 3.61"
1.5	14	0.0356	0.15		**Sheet Flow, Segment #3** Grass: Short n= 0.150 P2= 3.61"
0.6	80	0.0125	2.27		**Shallow Concentrated Flow, Segment #4** Paved Kv= 20.3 fps
8.1	163	Total			

Subcatchment 3S: Quality Way Int.



Summary for Subcatchment 4S: Quality Way SE

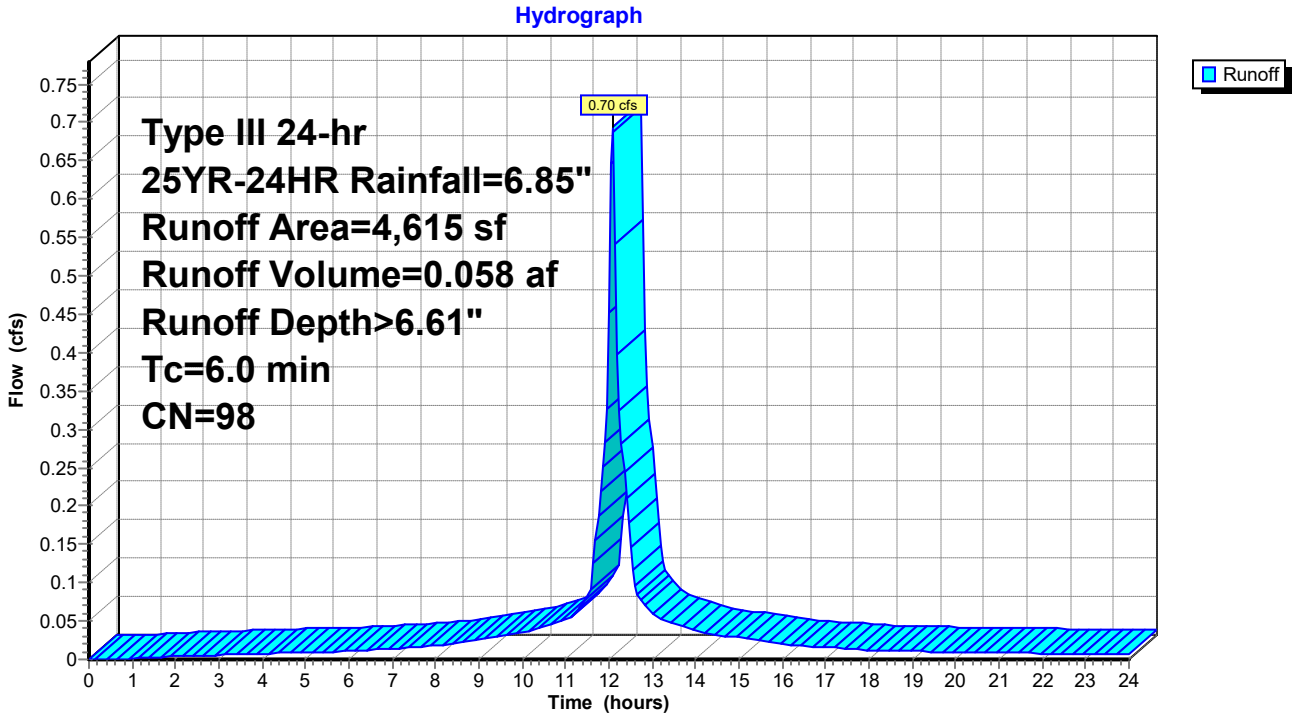
Runoff = 0.70 cfs @ 12.09 hrs, Volume= 0.058 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,615	98	Paved parking, HSG A
4,615		100.00% Impervious Area

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

Subcatchment 4S: Quality Way SE



Summary for Subcatchment 5S: Venture Drive East

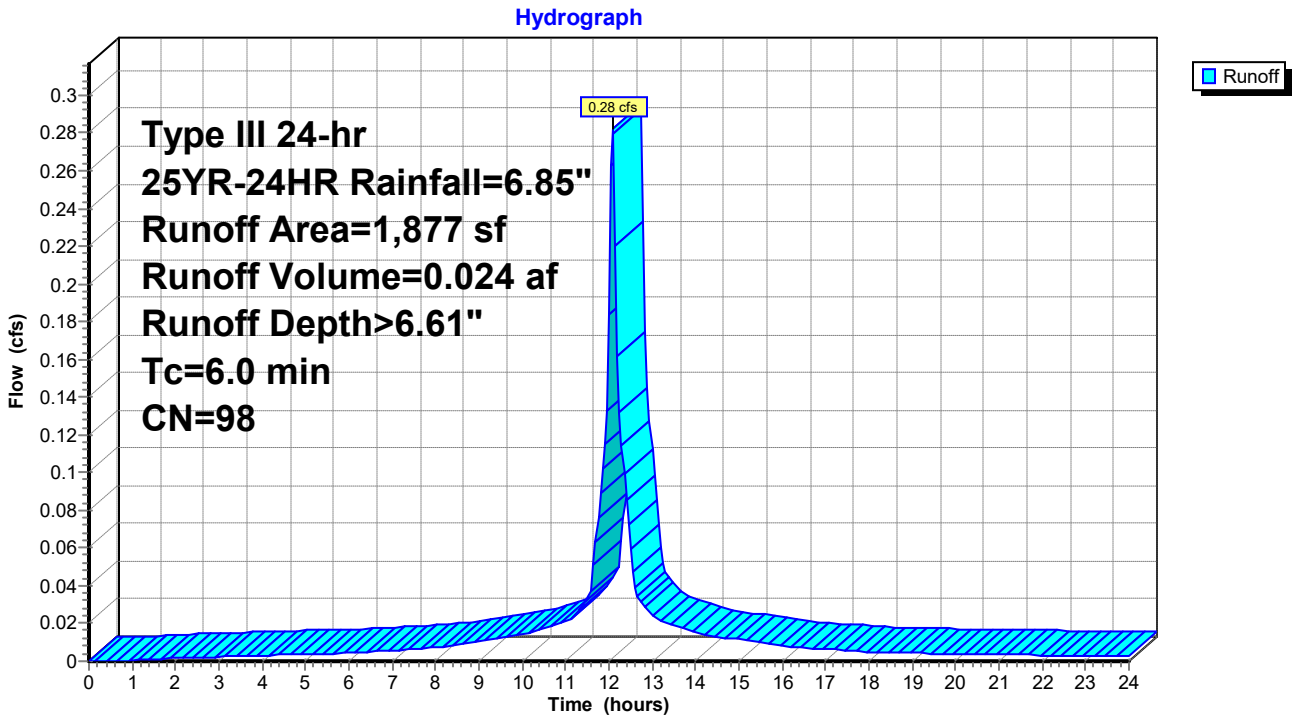
Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
1,765	98	Paved parking, HSG A
112	98	Paved parking, HSG B
1,877	98	Weighted Average
1,877		100.00% Impervious Area

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

Subcatchment 5S: Venture Drive East



Summary for Subcatchment 6S: Venture Drive Int.

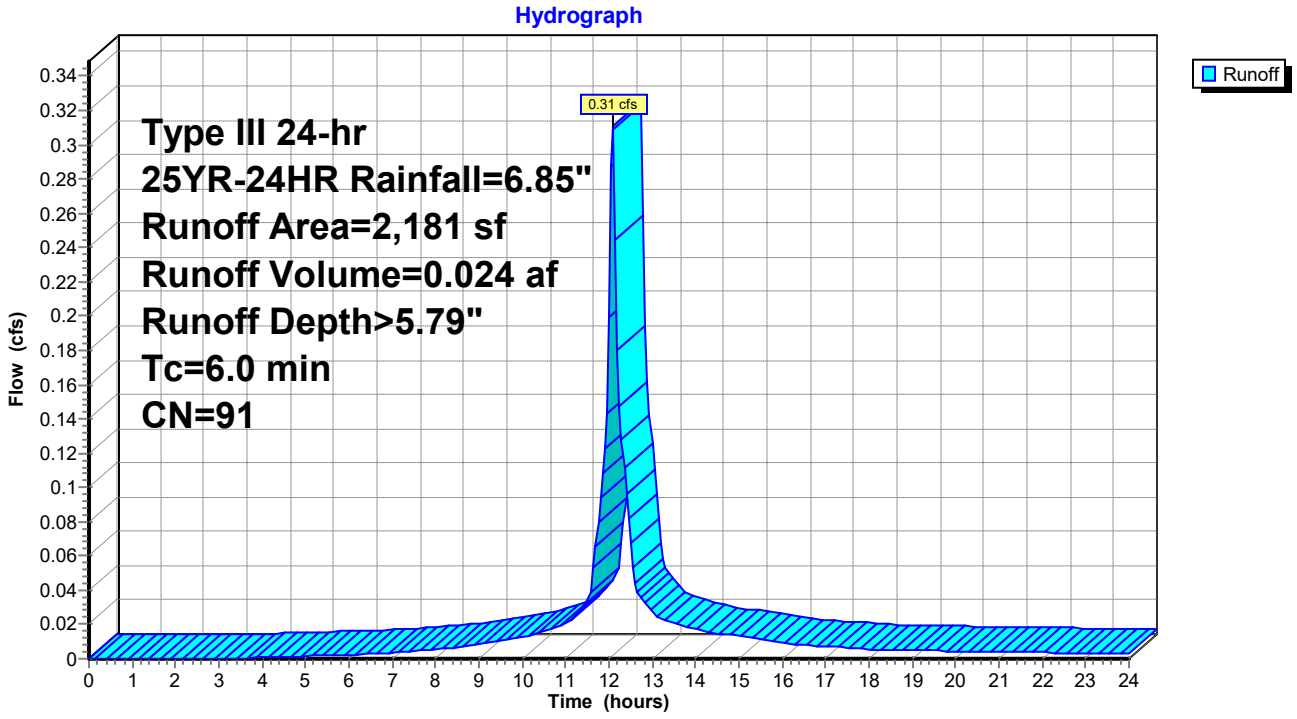
Runoff = 0.31 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 5.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
252	39	>75% Grass cover, Good, HSG A
1,929	98	Paved parking, HSG A
2,181	91	Weighted Average
252		11.55% Pervious Area
1,929		88.45% Impervious Area

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

Subcatchment 6S: Venture Drive Int.



Summary for Subcatchment 7S: Forward Merch

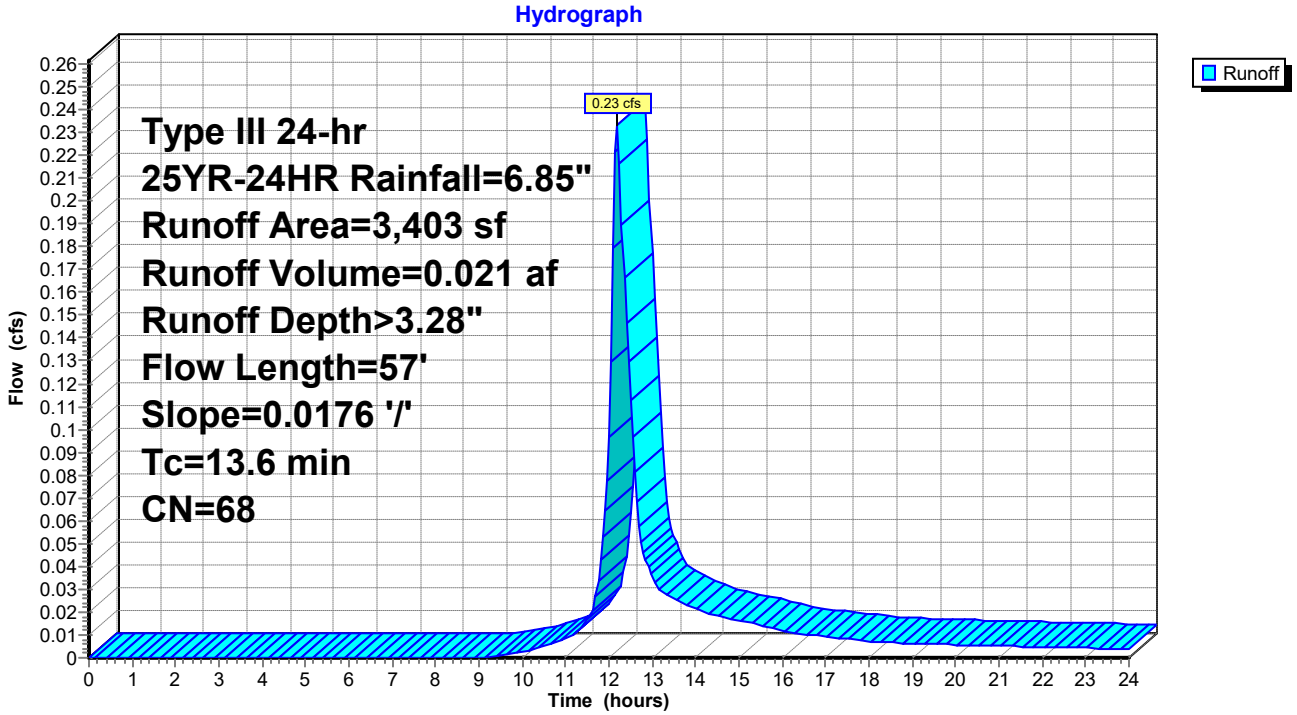
Runoff = 0.23 cfs @ 12.20 hrs, Volume= 0.021 af, Depth> 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
493	39	>75% Grass cover, Good, HSG A
1,830	98	Paved parking, HSG A
1,080	30	Woods, Good, HSG A
3,403	68	Weighted Average
1,573		46.22% Pervious Area
1,830		53.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	57	0.0176	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.61"

Subcatchment 7S: Forward Merch



Summary for Subcatchment 8S: Ventur Drive FM

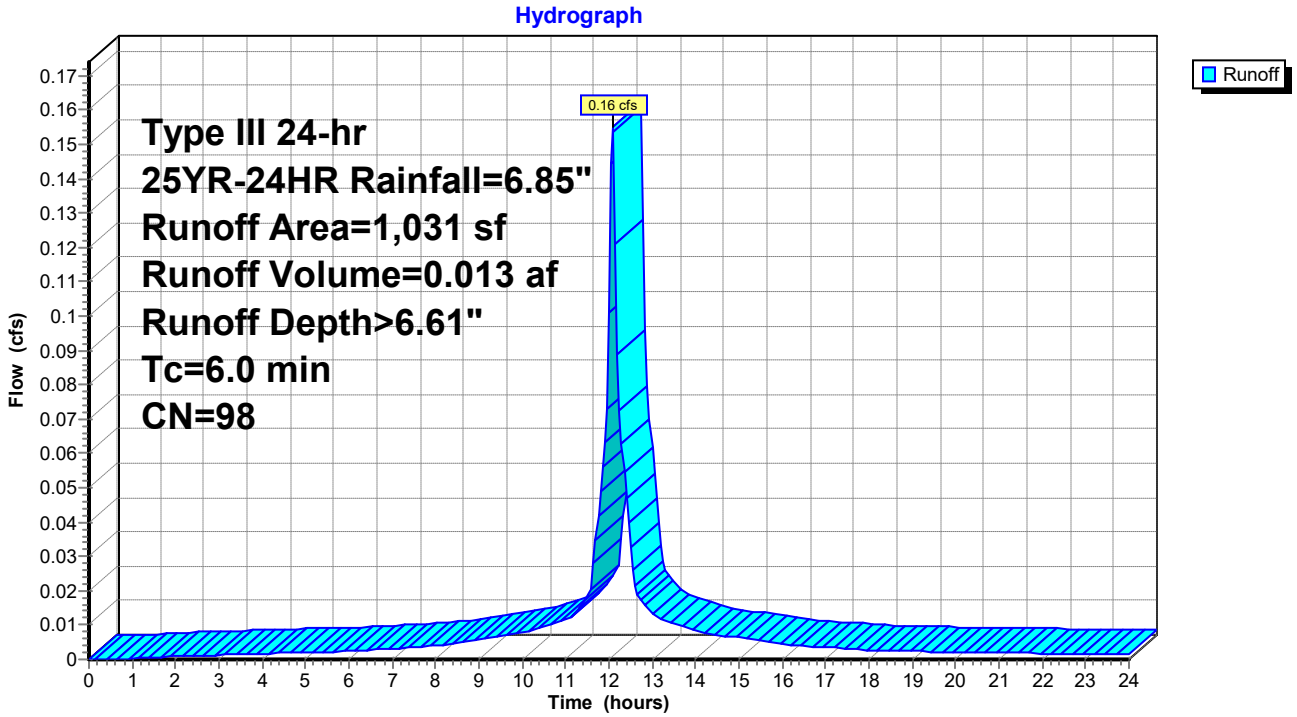
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
1,031	98	Paved parking, HSG A
1,031		100.00% Impervious Area

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

Subcatchment 8S: Ventur Drive FM



Summary for Subcatchment 9S: Certified Driveway

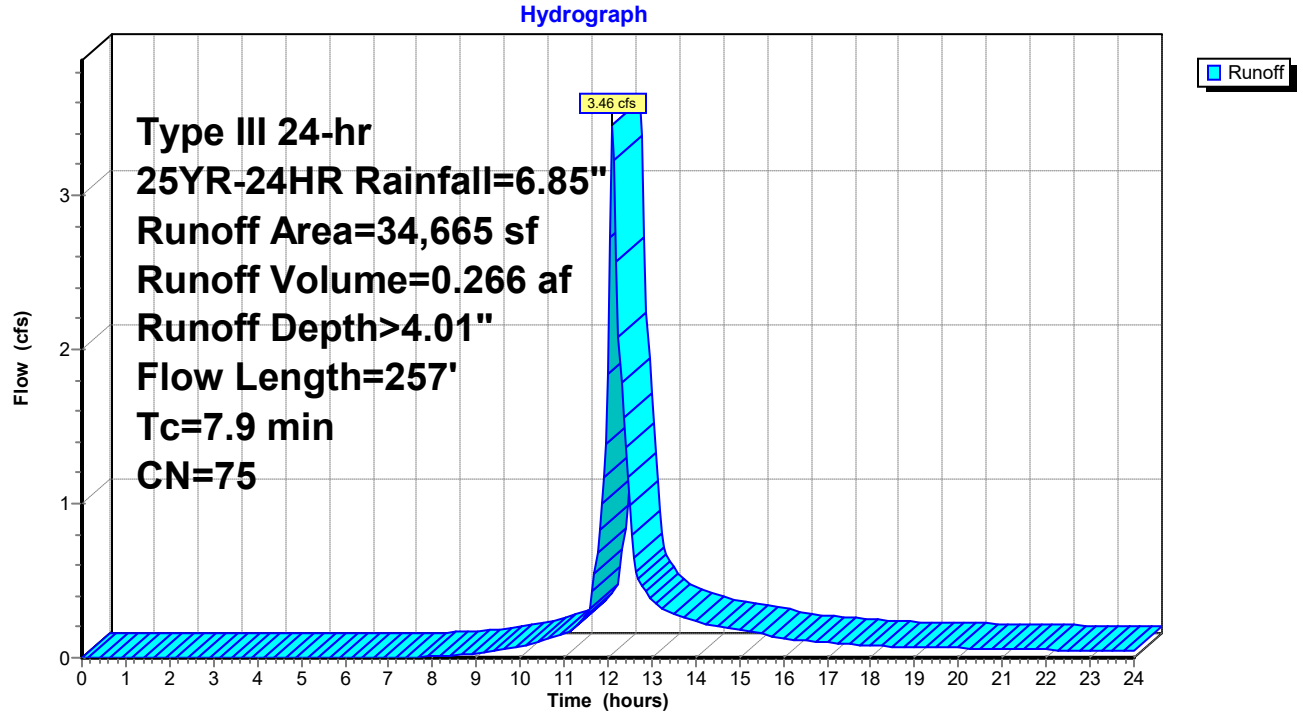
Runoff = 3.46 cfs @ 12.11 hrs, Volume= 0.266 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,472	98	Unconnected roofs, HSG A
13,788	39	>75% Grass cover, Good, HSG A
16,405	98	Paved parking, HSG A
34,665	75	Weighted Average
13,788		39.77% Pervious Area
20,877		60.23% Impervious Area
4,472		21.42% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0500	0.26		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.61"
1.2	110	0.0499	1.56		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
0.3	47	0.0212	2.96		**Shallow Concentrated Flow, Segment #3** Paved Kv= 20.3 fps
7.9	257	Total			

Subcatchment 9S: Certified Driveway



Summary for Subcatchment 10S: Certified Parking Lot

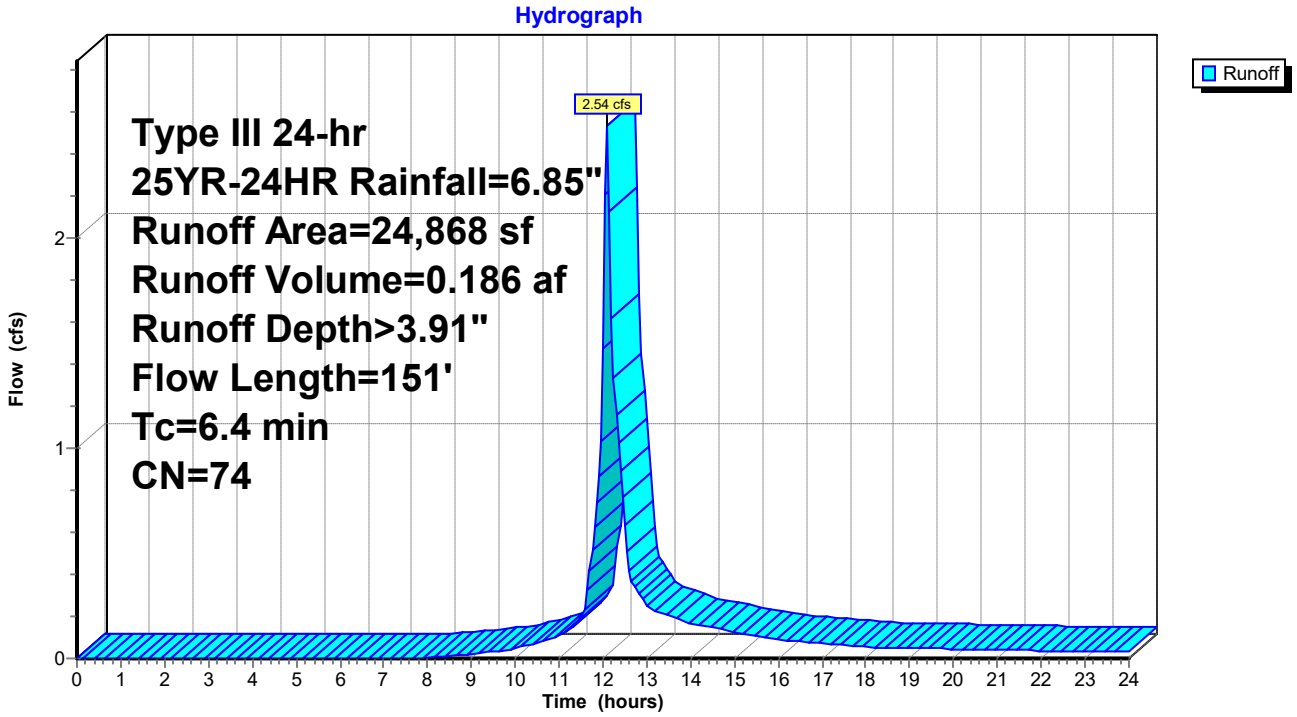
Runoff = 2.54 cfs @ 12.10 hrs, Volume= 0.186 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,472	98	Unconnected roofs, HSG A
5,585	39	>75% Grass cover, Good, HSG A
10,965	98	Paved parking, HSG A
3,846	30	Woods, Good, HSG A
24,868	74	Weighted Average
9,431		37.92% Pervious Area
15,437		62.08% Impervious Area
4,472		28.97% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	18	0.1382	0.28		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.61"
3.9	29	0.1021	0.12		**Sheet Flow, Segment #2** Woods: Light underbrush n= 0.400 P2= 3.61"
0.9	14	0.1439	0.27		**Sheet Flow, Segment #3** Grass: Short n= 0.150 P2= 3.61"
0.5	90	0.0223	3.03		**Shallow Concentrated Flow, Segment #4** Paved Kv= 20.3 fps
6.4	151	Total			

Subcatchment 10S: Certified Parking Lot



Summary for Subcatchment 11S: Venture Drive NE

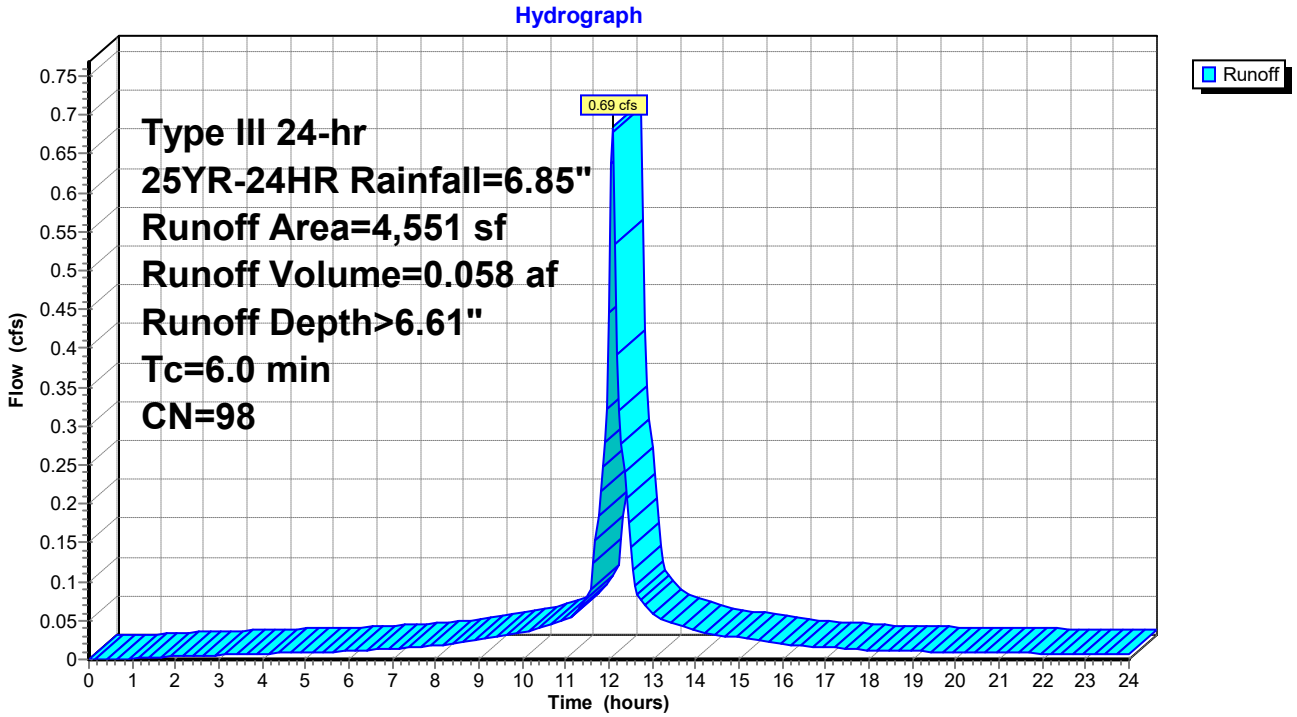
Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.058 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,551	98	Paved parking, HSG A
4,551		100.00% Impervious Area

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

Subcatchment 11S: Venture Drive NE



Summary for Subcatchment 12S: Central Site

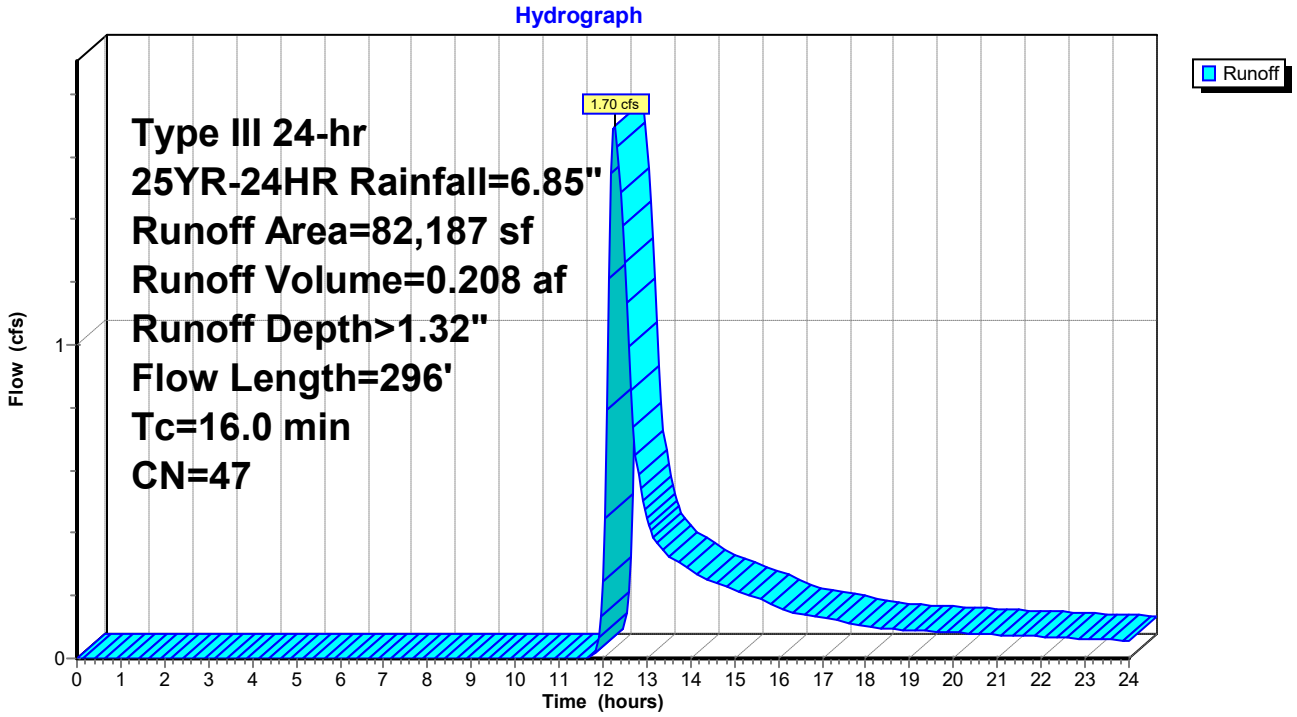
Runoff = 1.70 cfs @ 12.27 hrs, Volume= 0.208 af, Depth> 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
5,499	39	>75% Grass cover, Good, HSG A
1,890	98	Unconnected pavement, HSG A
44,091	30	Woods, Good, HSG A
279	61	>75% Grass cover, Good, HSG B
110	55	Woods, Good, HSG B
811	74	>75% Grass cover, Good, HSG C
29,507	70	Woods, Good, HSG C
82,187	47	Weighted Average
80,297		97.70% Pervious Area
1,890		2.30% Impervious Area
1,890		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0600	0.13		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.61"
3.0	196	0.0460	1.07		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
16.0	296	Total			

Subcatchment 12S: Central Site



Summary for Subcatchment 13S: Venture Drive

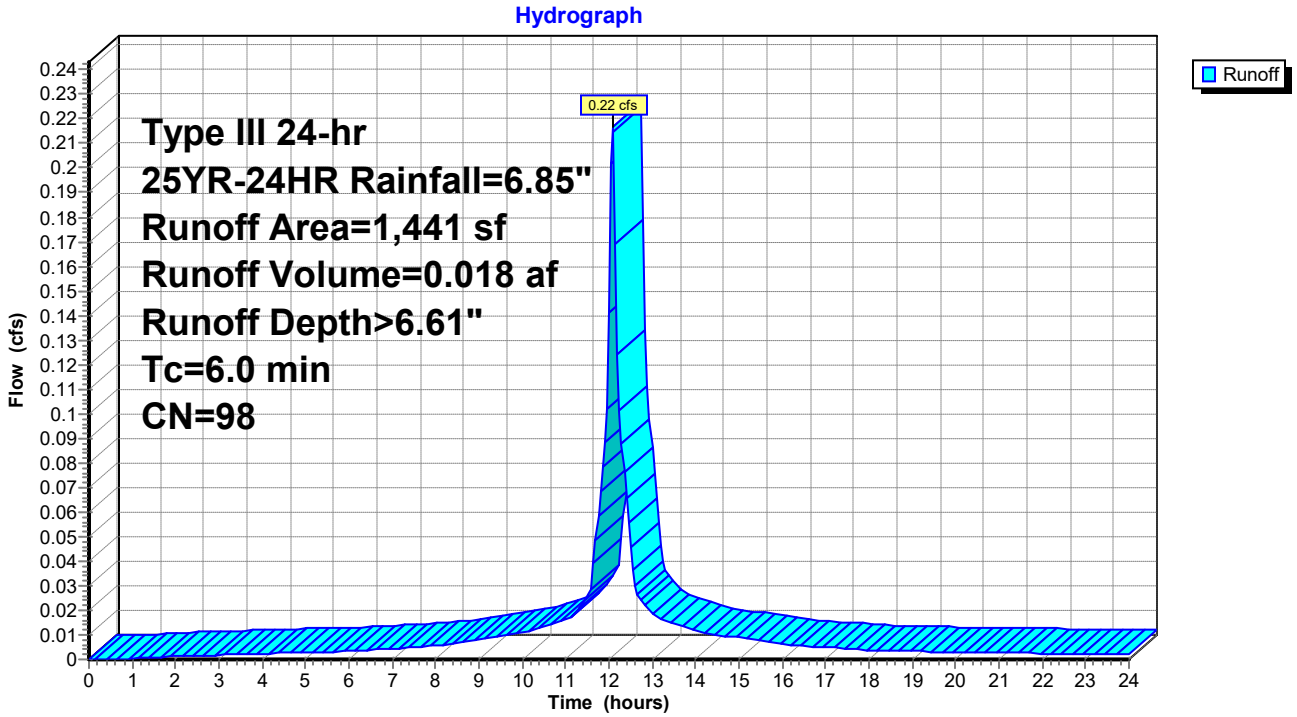
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
1,441	98	Paved parking, HSG B
1,441		100.00% Impervious Area

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

Subcatchment 13S: Venture Drive



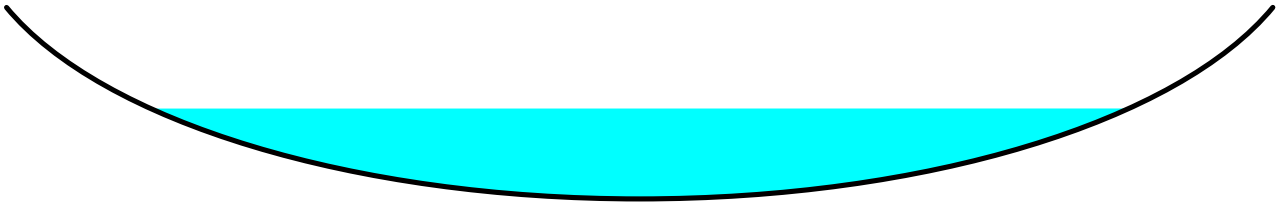
Summary for Reach 2R: Reach #2

Inflow Area = 1.895 ac, 41.22% Impervious, Inflow Depth > 2.53" for 25YR-24HR event
Inflow = 4.38 cfs @ 12.16 hrs, Volume= 0.399 af
Outflow = 4.10 cfs @ 12.21 hrs, Volume= 0.398 af, Atten= 6%, Lag= 3.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.08 fps, Min. Travel Time= 4.5 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 14.6 min

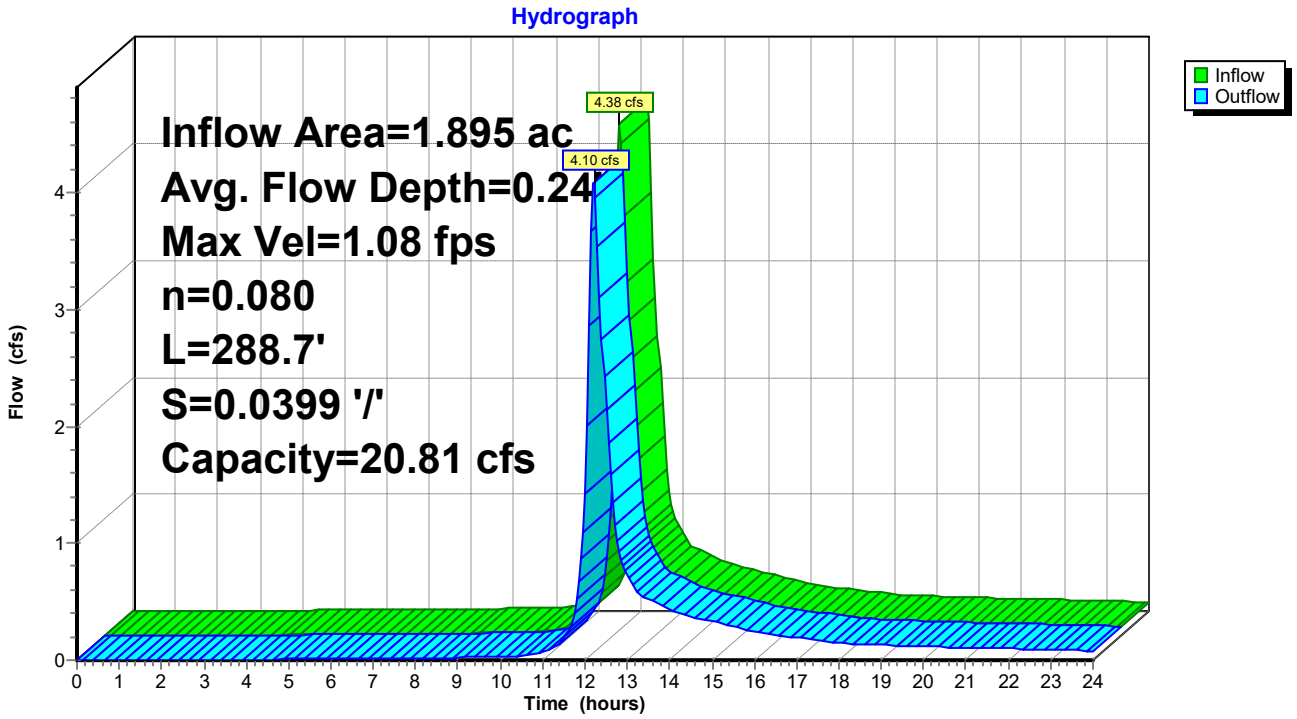
Peak Storage= 1,093 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 0.50' Flow Area= 11.7 sf, Capacity= 20.81 cfs

35.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 288.7' Slope= 0.0399 '/'
Inlet Invert= 166.78', Outlet Invert= 155.25'



‡

Reach 2R: Reach #2



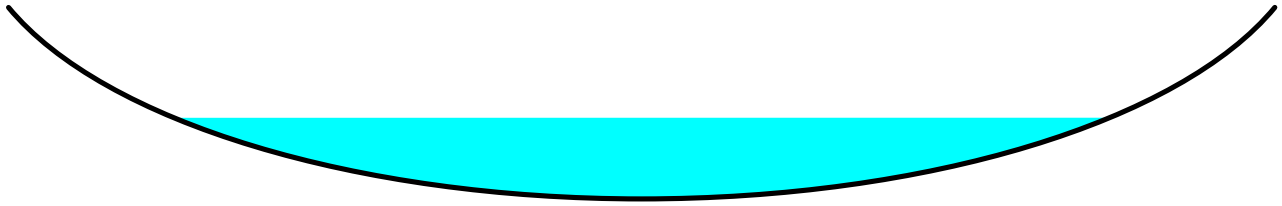
Summary for Reach 4R: Reach #4

Inflow Area = 0.178 ac, 73.32% Impervious, Inflow Depth > 5.39" for 25YR-24HR event
Inflow = 2.27 cfs @ 12.20 hrs, Volume= 0.080 af
Outflow = 1.60 cfs @ 12.23 hrs, Volume= 0.080 af, Atten= 29%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.69 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 7.9 min

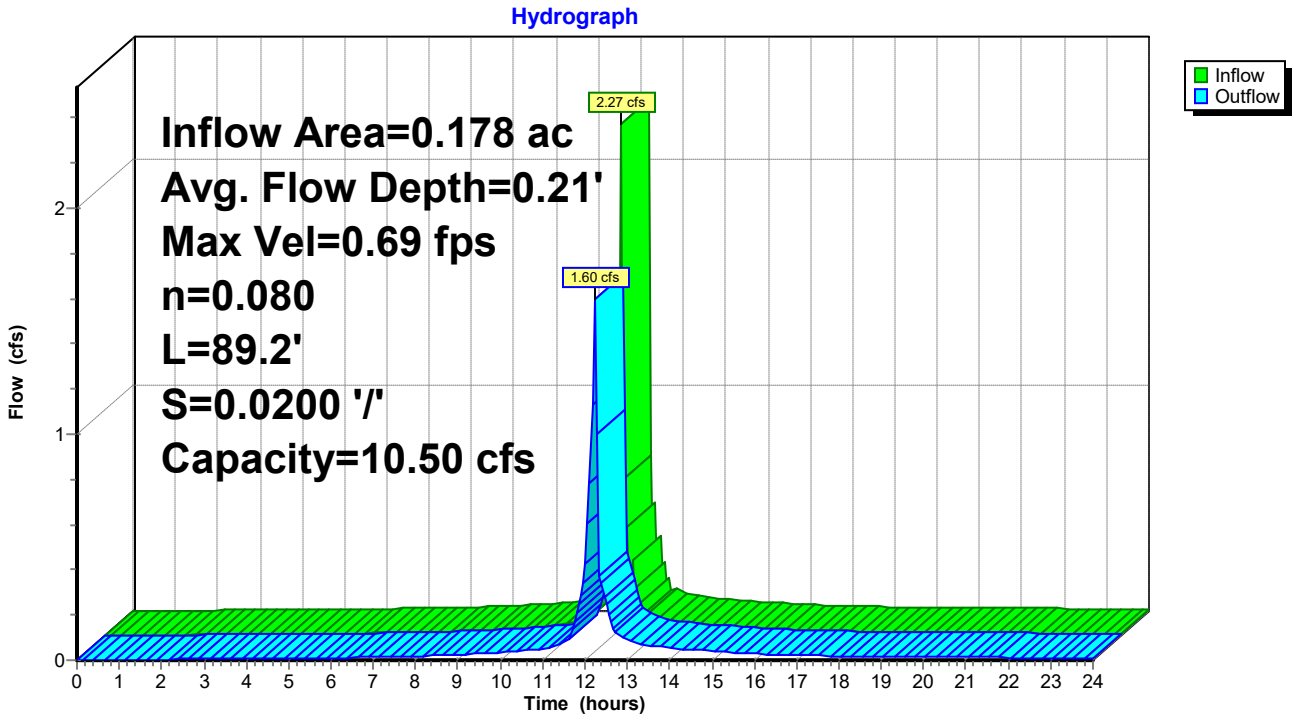
Peak Storage= 204 cf @ 12.23 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 0.50' Flow Area= 8.3 sf, Capacity= 10.50 cfs

25.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 89.2' Slope= 0.0200 '/'
Inlet Invert= 167.78', Outlet Invert= 166.00'



‡

Reach 4R: Reach #4



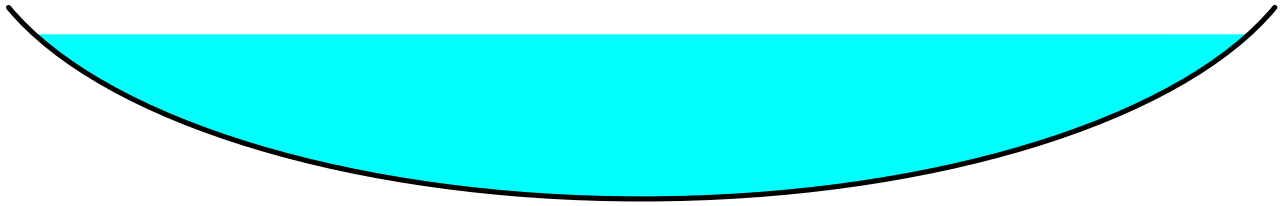
Summary for Reach 6R: Reach #6

Inflow Area = 1.666 ac, 65.49% Impervious, Inflow Depth > 4.20" for 25YR-24HR event
Inflow = 6.98 cfs @ 12.11 hrs, Volume= 0.584 af
Outflow = 6.96 cfs @ 12.12 hrs, Volume= 0.583 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.04 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.31 fps, Avg. Travel Time= 1.5 min

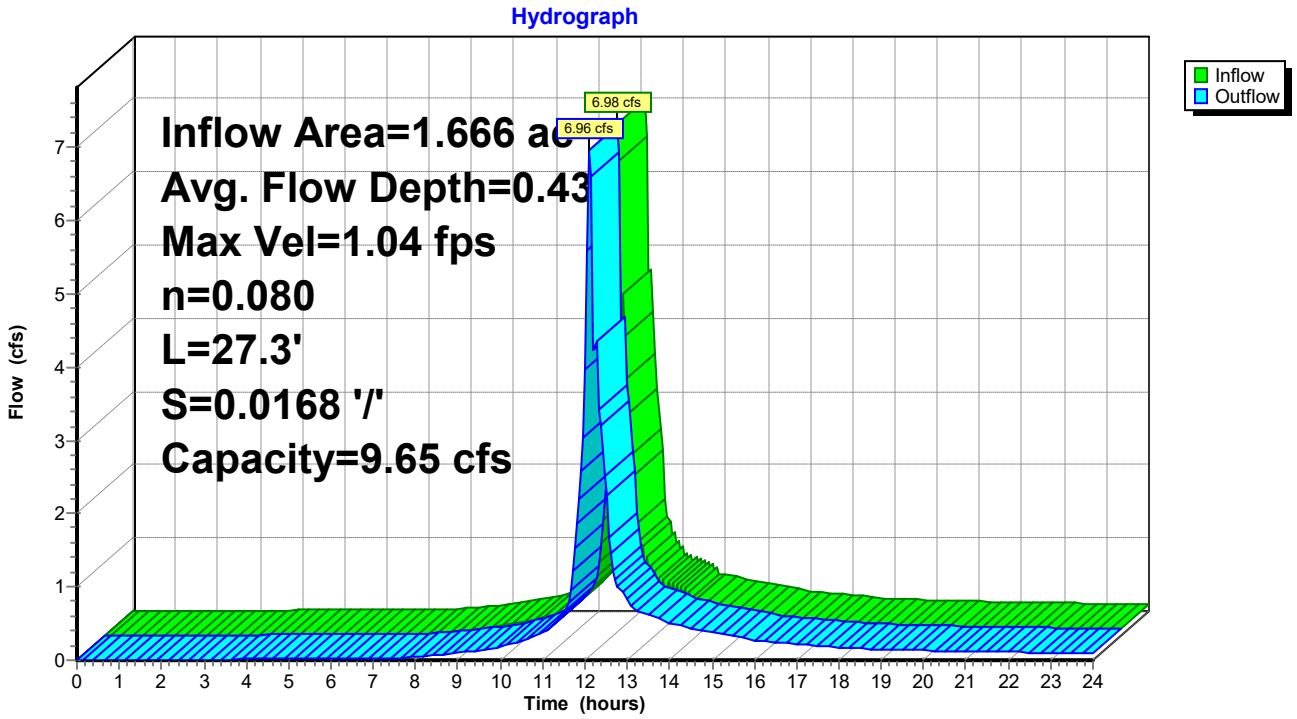
Peak Storage= 182 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 0.50' Flow Area= 8.3 sf, Capacity= 9.65 cfs

25.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 27.3' Slope= 0.0168 '/'
Inlet Invert= 166.46', Outlet Invert= 166.00'



‡

Reach 6R: Reach #6



Summary for Reach 10R: Combined Reach

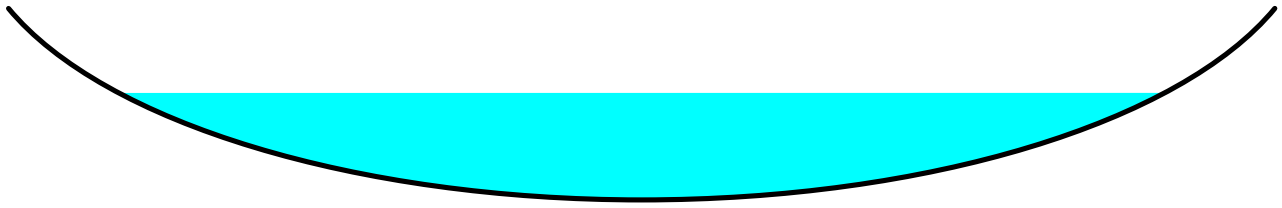
[62] Hint: Exceeded Reach 4R OUTLET depth by 0.13' @ 12.15 hrs
[61] Hint: Exceeded Reach 6R outlet invert by 0.28' @ 12.15 hrs

Inflow Area = 1.844 ac, 66.25% Impervious, Inflow Depth > 4.32" for 25YR-24HR event
Inflow = 7.77 cfs @ 12.12 hrs, Volume= 0.663 af
Outflow = 7.72 cfs @ 12.13 hrs, Volume= 0.663 af, Atten= 1%, Lag= 0.6 min

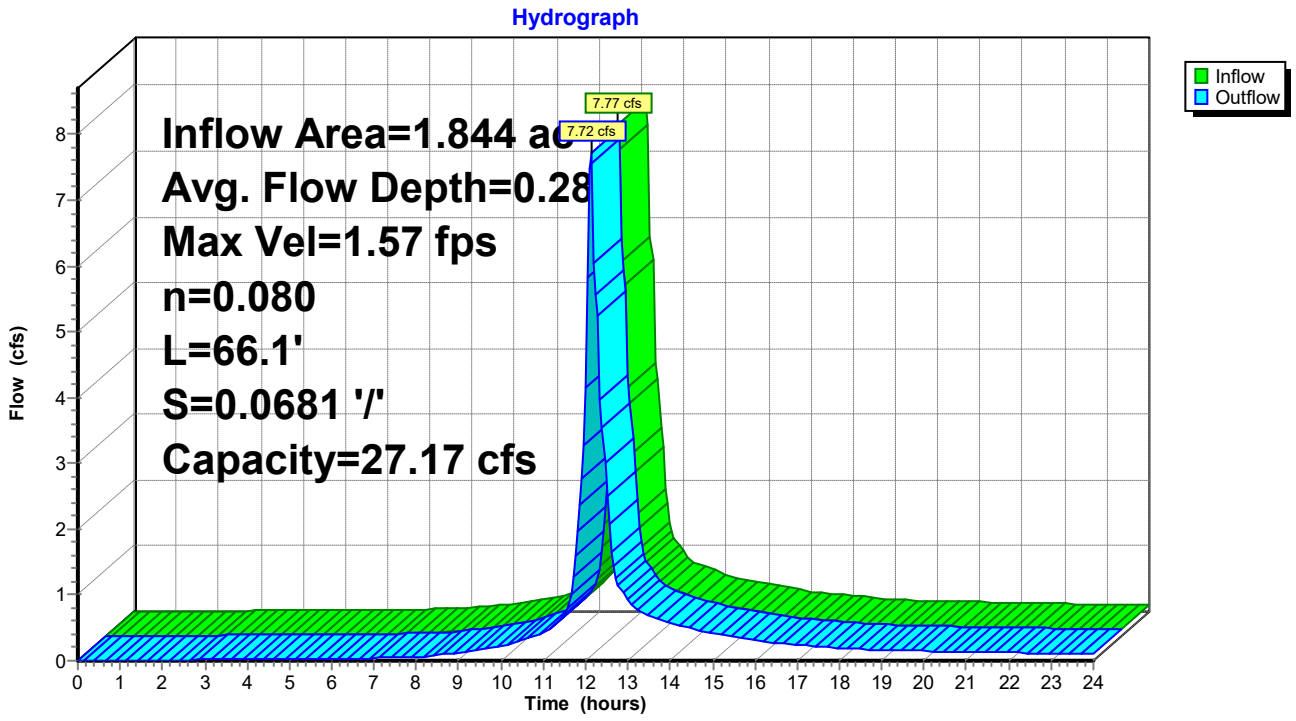
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.57 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 2.3 min

Peak Storage= 323 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 0.50' Flow Area= 11.7 sf, Capacity= 27.17 cfs

35.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 66.1' Slope= 0.0681 '/'
Inlet Invert= 166.00', Outlet Invert= 161.50'



‡



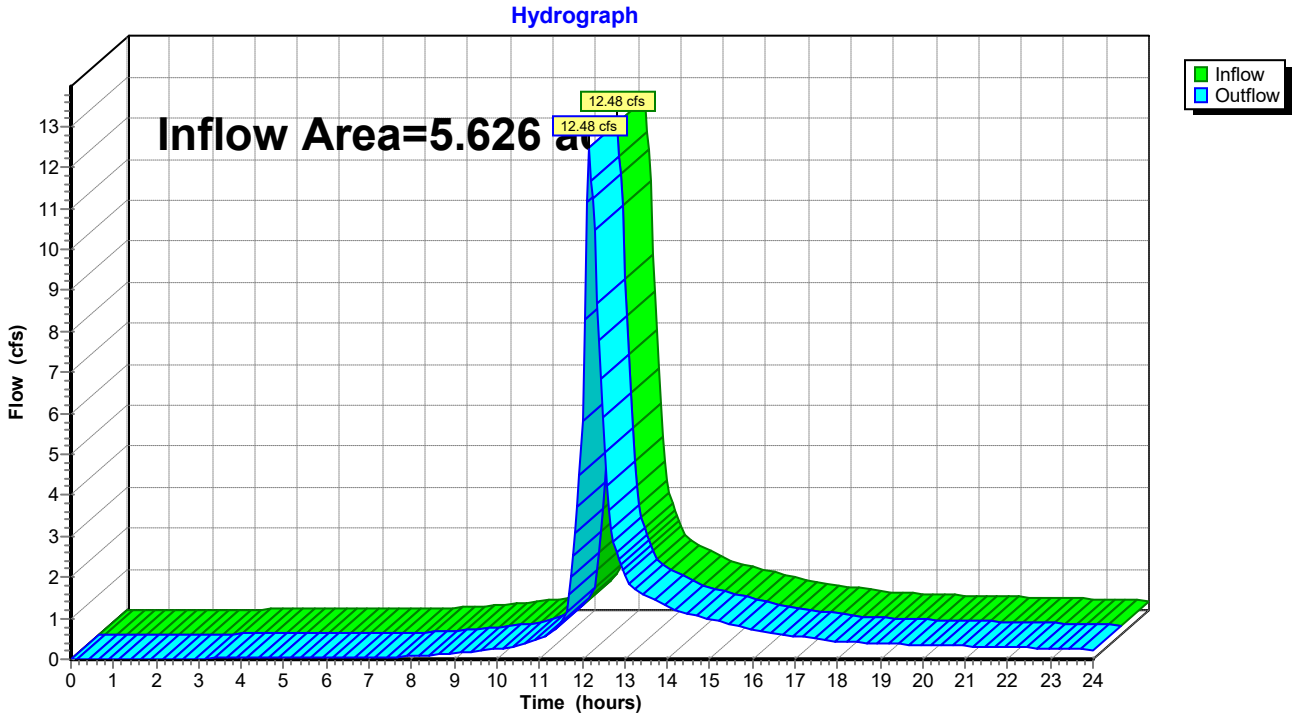
Summary for Reach 100R: Final Reach #100

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

Inflow Area = 5.626 ac, 36.37% Impervious, Inflow Depth > 2.71" for 25YR-24HR event
Inflow = 12.48 cfs @ 12.16 hrs, Volume= 1.269 af
Outflow = 12.48 cfs @ 12.16 hrs, Volume= 1.269 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 100R: Final Reach #100



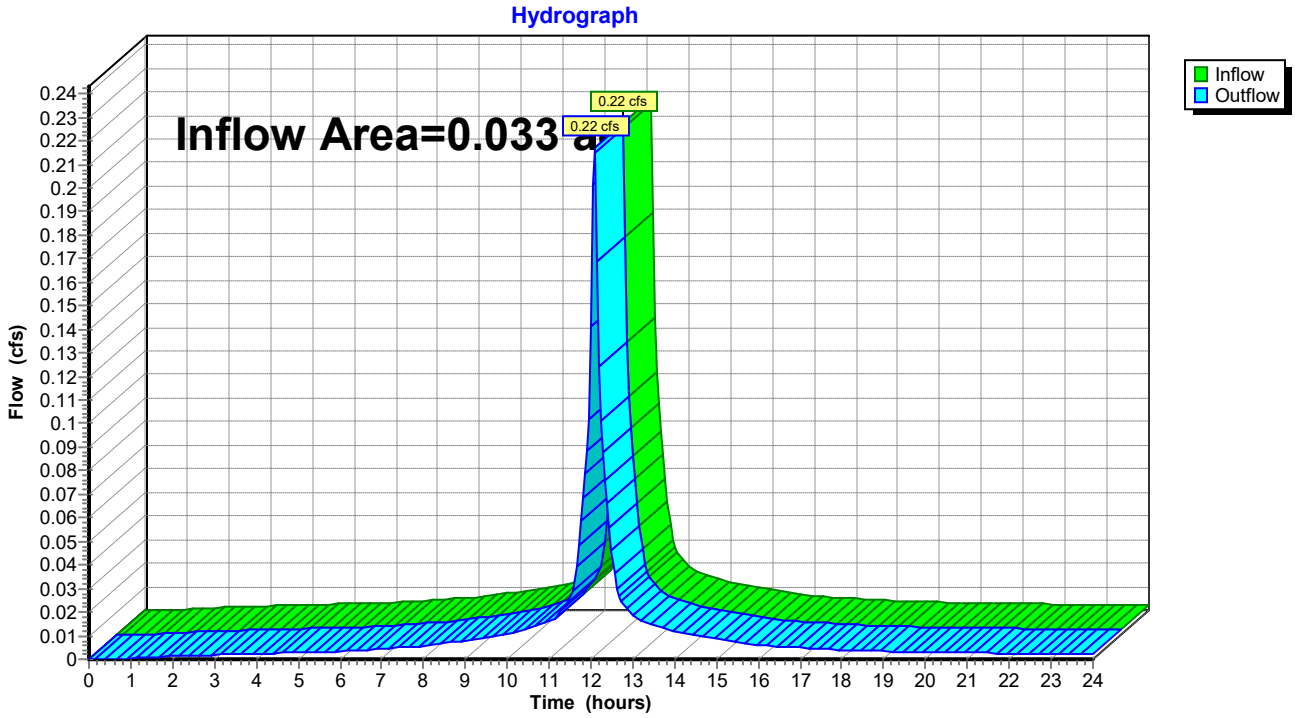
Summary for Reach 200R: Final Reach #200

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

Inflow Area = 0.033 ac,100.00% Impervious, Inflow Depth > 6.61" for 25YR-24HR event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 200R: Final Reach #200



Summary for Pond 1P: Roadside Pond

Inflow Area = 1.794 ac, 37.94% Impervious, Inflow Depth > 2.30" for 25YR-24HR event
Inflow = 3.98 cfs @ 12.15 hrs, Volume= 0.344 af
Outflow = 3.92 cfs @ 12.17 hrs, Volume= 0.344 af, Atten= 2%, Lag= 1.0 min
Primary = 3.92 cfs @ 12.17 hrs, Volume= 0.344 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 170.15' @ 12.17 hrs Surf.Area= 146 sf Storage= 62 cf

Plug-Flow detention time= 0.1 min calculated for 0.344 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (862.3 - 862.2)

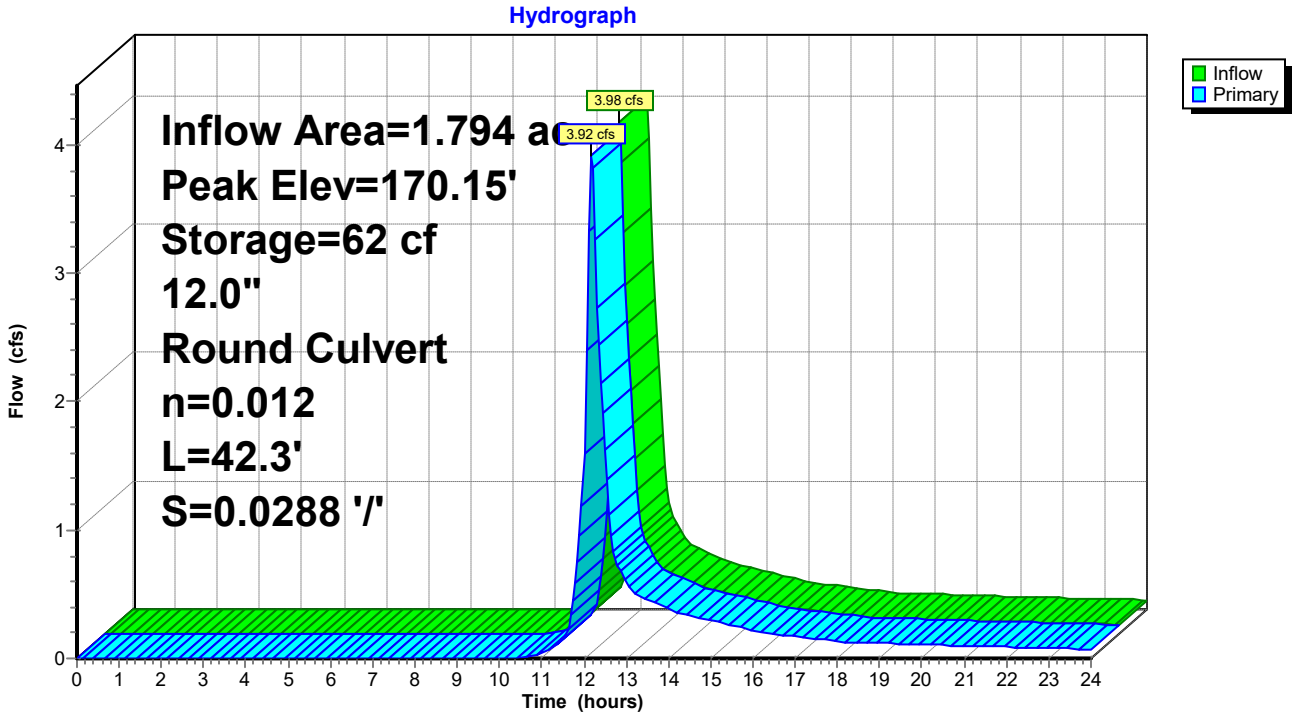
Volume	Invert	Avail.Storage	Storage Description
#1	168.58'	1,980 cf	**Open Water Storage (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
168.58	0	3.2	0	0	0
170.00	93	71.6	44	44	411
171.00	665	272.4	336	380	5,910
172.00	2,778	538.9	1,601	1,980	23,120

Device	Routing	Invert	Outlet Devices
#1	Primary	168.58'	**12.0" Round 12" RCP** L= 42.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.58' / 167.36' S= 0.0288 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.85 cfs @ 12.17 hrs HW=170.11' TW=168.89' (Dynamic Tailwater)
↑**1=12" RCP** (Inlet Controls 3.85 cfs @ 4.90 fps)

Pond 1P: Roadside Pond



Summary for Pond 2P: CB #7325

Inflow Area = 1.895 ac, 41.22% Impervious, Inflow Depth > 2.53" for 25YR-24HR event
Inflow = 4.39 cfs @ 12.16 hrs, Volume= 0.400 af
Outflow = 4.38 cfs @ 12.16 hrs, Volume= 0.399 af, Atten= 0%, Lag= 0.1 min
Primary = 4.38 cfs @ 12.16 hrs, Volume= 0.399 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 168.93' @ 12.16 hrs Surf.Area= 13 sf Storage= 25 cf

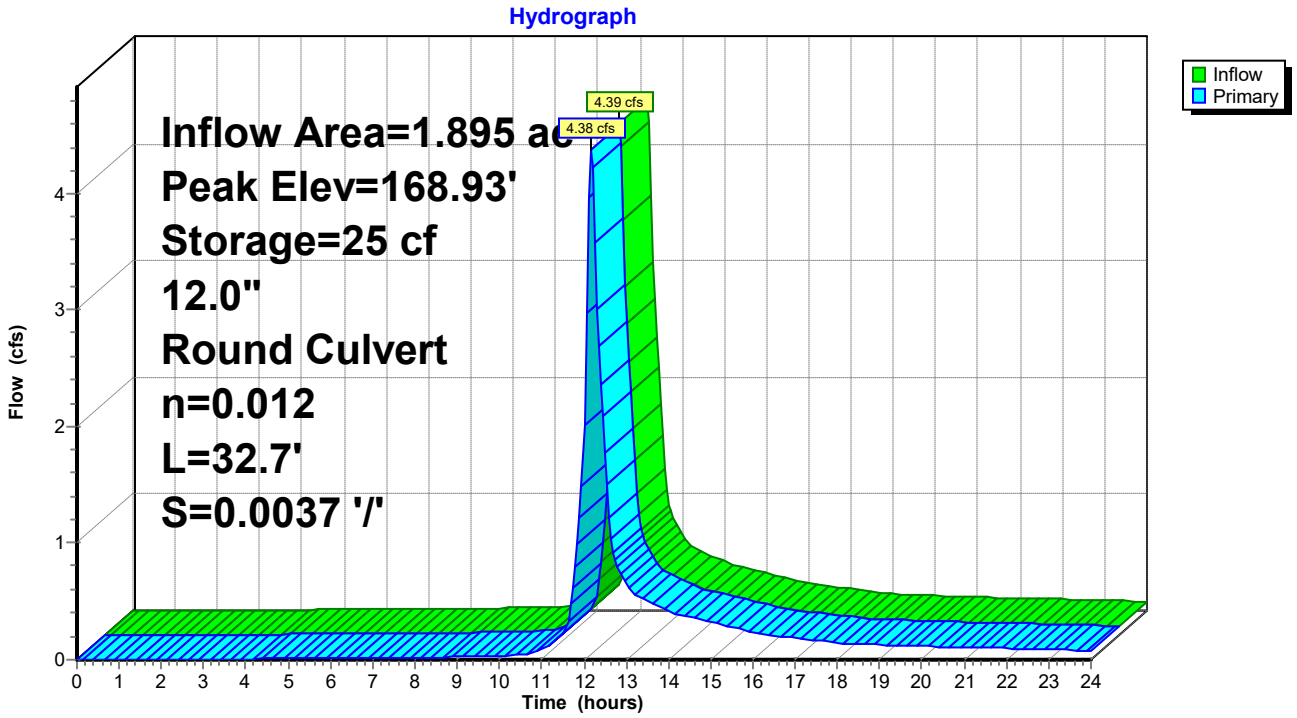
Plug-Flow detention time= 0.2 min calculated for 0.399 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (845.9 - 845.8)

Volume	Invert	Avail.Storage	Storage Description
#1	166.90'	97 cf	**4.00'D x 7.70'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	166.90'	**12.0" Round 12" RCP** L= 32.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.90' / 166.78' S= 0.0037 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.33 cfs @ 12.16 hrs HW=168.90' TW=167.01' (Dynamic Tailwater)
1=12" RCP (Barrel Controls 4.33 cfs @ 5.52 fps)

Pond 2P: CB #7325



Summary for Pond 3P: CB #7323

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.072 ac, 34.19% Impervious, Inflow Depth > 3.61" for 25YR-24HR event
Inflow = 2.01 cfs @ 12.20 hrs, Volume= 0.022 af
Outflow = 1.93 cfs @ 12.20 hrs, Volume= 0.022 af, Atten= 4%, Lag= 0.1 min
Primary = 1.93 cfs @ 12.20 hrs, Volume= 0.022 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 169.67' @ 12.20 hrs Surf.Area= 13 sf Storage= 10 cf

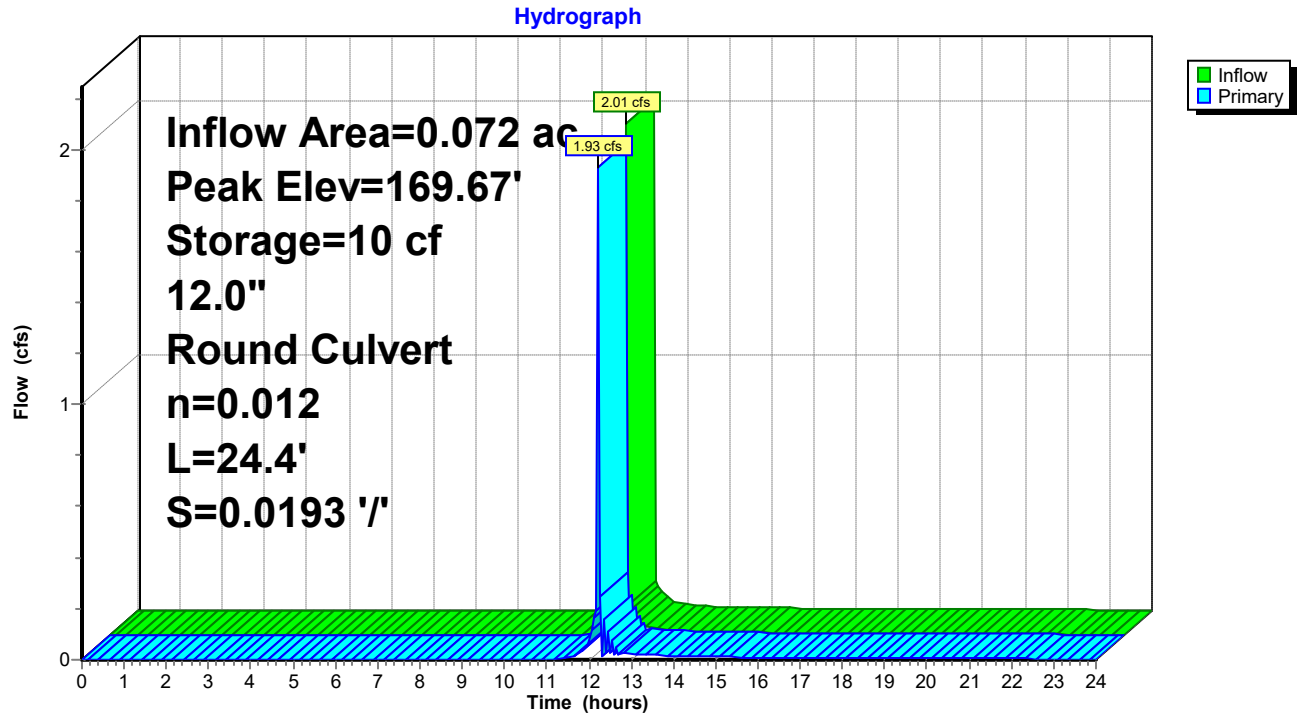
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.3 min (814.5 - 814.2)

Volume	Invert	Avail.Storage	Storage Description
#1	168.90'	40 cf	**4.00'D x 3.20'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	168.90'	**12.0" Round 12" RCP** L= 24.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.90' / 168.43' S= 0.0193 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.79 cfs @ 12.20 hrs HW=169.66' TW=169.19' (Dynamic Tailwater)
↑**1=12" RCP** (Outlet Controls 1.79 cfs @ 3.85 fps)

Pond 3P: CB #7323



Summary for Pond 4P: CB #7324

Inflow Area = 0.178 ac, 73.32% Impervious, Inflow Depth > 5.39" for 25YR-24HR event
Inflow = 2.33 cfs @ 12.20 hrs, Volume= 0.080 af
Outflow = 2.27 cfs @ 12.20 hrs, Volume= 0.080 af, Atten= 3%, Lag= 0.1 min
Primary = 2.27 cfs @ 12.20 hrs, Volume= 0.080 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 169.19' @ 12.20 hrs Surf.Area= 13 sf Storage= 11 cf

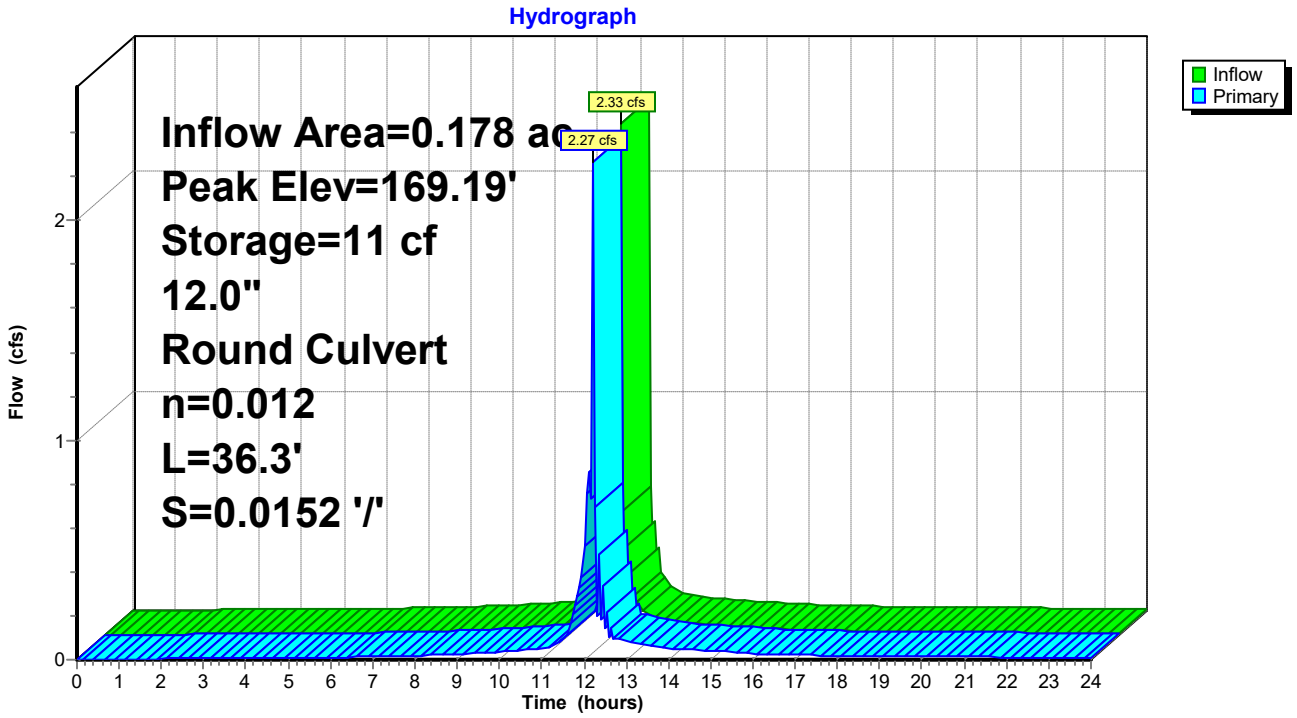
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.3 min (762.5 - 762.3)

Volume	Invert	Avail.Storage	Storage Description
#1	168.33'	47 cf	**4.00'D x 3.75'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	168.33'	**12.0" Round 12" RCP** L= 36.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.33' / 167.78' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.26 cfs @ 12.20 hrs HW=169.19' TW=167.98' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 2.26 cfs @ 3.15 fps)

Pond 4P: CB #7324



Summary for Pond 5P: CB #7320

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=11)

Inflow Area = 0.043 ac,100.00% Impervious, Inflow Depth > 7.67" for 25YR-24HR event
Inflow = 0.75 cfs @ 12.16 hrs, Volume= 0.028 af
Outflow = 0.75 cfs @ 12.18 hrs, Volume= 0.028 af, Atten= 1%, Lag= 1.0 min
Primary = 0.75 cfs @ 12.18 hrs, Volume= 0.028 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 170.40' @ 12.16 hrs Surf.Area= 13 sf Storage= 41 cf
Flood Elev= 170.63' Surf.Area= 13 sf Storage= 44 cf

Plug-Flow detention time= 1.2 min calculated for 0.028 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (742.1 - 741.1)

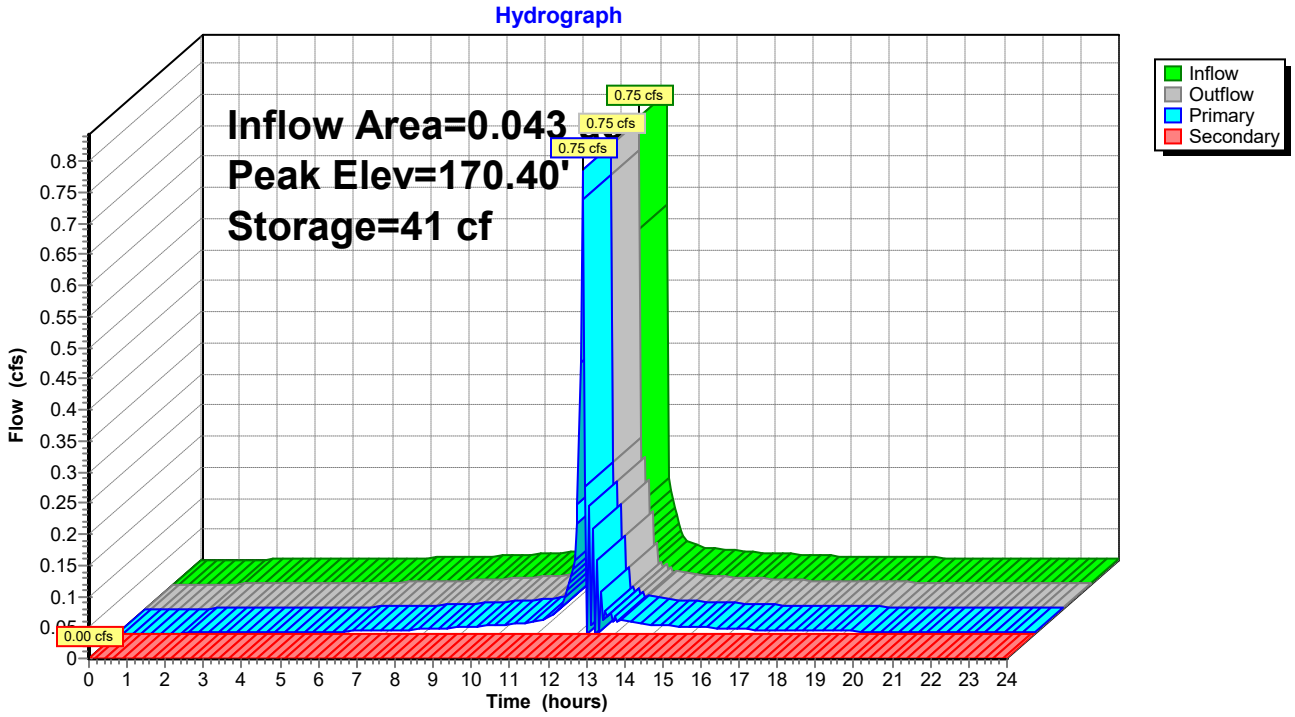
Volume	Invert	Avail.Storage	Storage Description
#1	167.11'	44 cf	**4.00'D x 3.52'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	167.11'	**12.0" Round 12" RCP** L= 25.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 167.11' / 166.51' S= 0.0237 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	170.62'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=4.04 cfs @ 12.18 hrs HW=170.12' TW=168.98' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 4.04 cfs @ 5.15 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.11' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 5P: CB #7320



Summary for Pond 6P: CB #7319

[80] Warning: Exceeded Pond 5P by 1.00' @ 12.10 hrs (3.78 cfs 0.067 af)

Inflow Area =	1.666 ac,	65.49% Impervious,	Inflow Depth >	4.20" for 25YR-24HR event
Inflow =	7.03 cfs @	12.11 hrs,	Volume=	0.584 af
Outflow =	6.98 cfs @	12.11 hrs,	Volume=	0.584 af, Atten= 1%, Lag= 0.2 min
Primary =	6.98 cfs @	12.11 hrs,	Volume=	0.584 af
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 170.36' @ 12.11 hrs Surf.Area= 13 sf Storage= 49 cf
Flood Elev= 170.61' Surf.Area= 13 sf Storage= 52 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min (810.3 - 810.1)

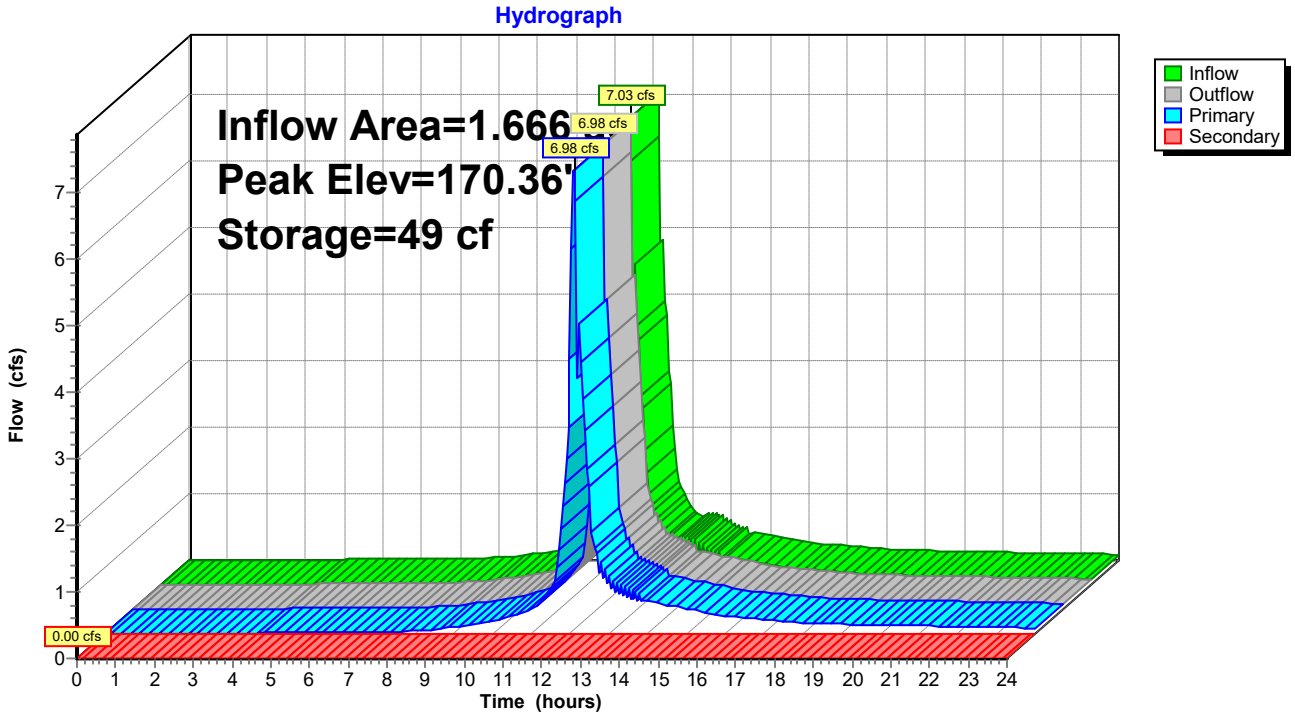
Volume	Invert	Avail.Storage	Storage Description
#1	166.45'	52 cf	**4.00'D x 4.16'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	166.46'	**12.0" Round 12" RCP** L= 27.1' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.45' / 166.46' S= -0.0004 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	170.60'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=6.85 cfs @ 12.11 hrs HW=170.24' TW=166.89' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 6.85 cfs @ 8.72 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=166.45' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6P: CB #7319



Summary for Pond 7P: CB #3201

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=6)

Inflow Area = 0.078 ac, 53.78% Impervious, Inflow Depth > 3.28" for 25YR-24HR event
Inflow = 0.23 cfs @ 12.20 hrs, Volume= 0.021 af
Outflow = 0.45 cfs @ 12.34 hrs, Volume= 0.021 af, Atten= 0%, Lag= 8.9 min
Primary = 0.45 cfs @ 12.34 hrs, Volume= 0.021 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 177.11' @ 12.29 hrs Surf.Area= 13 sf Storage= 34 cf
Flood Elev= 177.22' Surf.Area= 13 sf Storage= 35 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min (841.9 - 841.8)

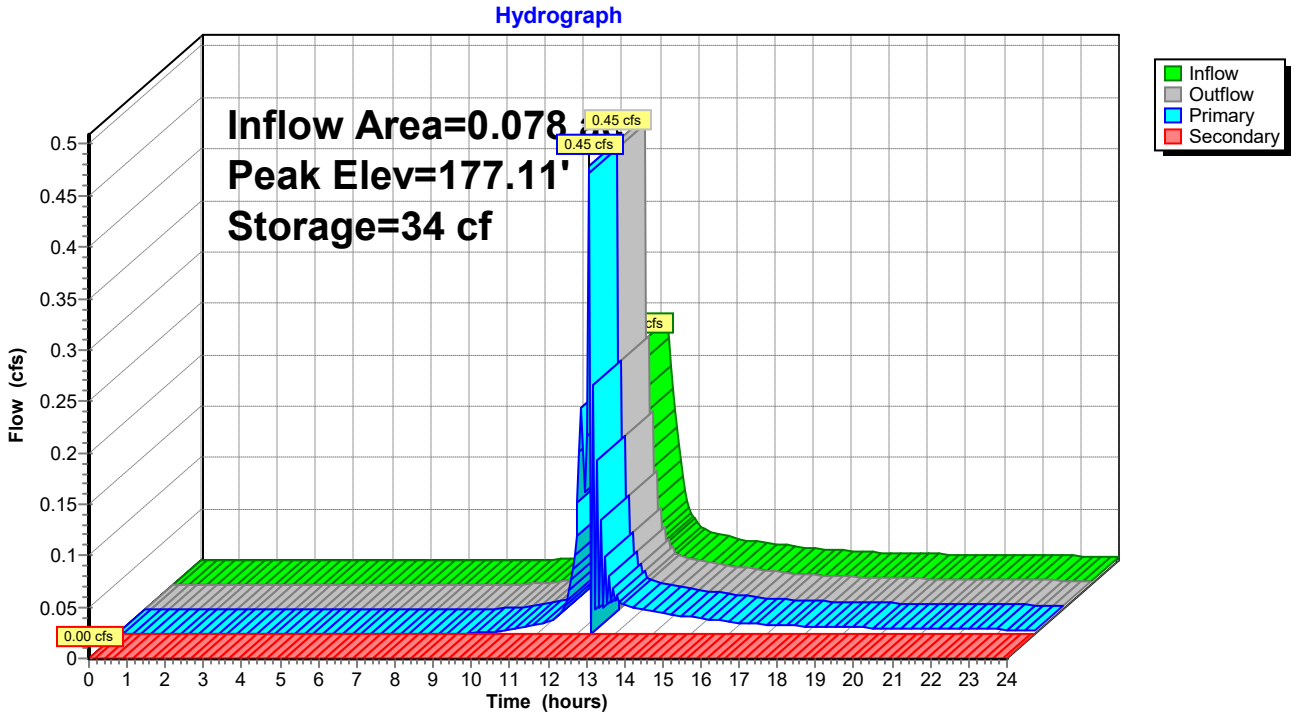
Volume	Invert	Avail.Storage	Storage Description
#1	174.37'	35 cf	**4.00'D x 2.80'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	174.37'	**12.0" Round 12" RCP** L= 17.5' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 174.37' / 173.93' S= 0.0251 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	177.16'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.55 cfs @ 12.34 hrs HW=175.32' TW=174.23' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 2.55 cfs @ 3.31 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=174.37' TW=173.61' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 7P: CB #3201



Summary for Pond 8P: CB #3202

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[80] Warning: Exceeded Pond 7P by 1.24' @ 12.20 hrs (3.99 cfs 0.034 af)

Inflow Area = 0.102 ac, 64.52% Impervious, Inflow Depth > 4.06" for 25YR-24HR event
Inflow = 0.51 cfs @ 12.34 hrs, Volume= 0.034 af
Outflow = 0.55 cfs @ 12.31 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.31 hrs, Volume= 0.034 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 177.11' @ 12.24 hrs Surf.Area= 13 sf Storage= 44 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.6 min (805.1 - 804.4)

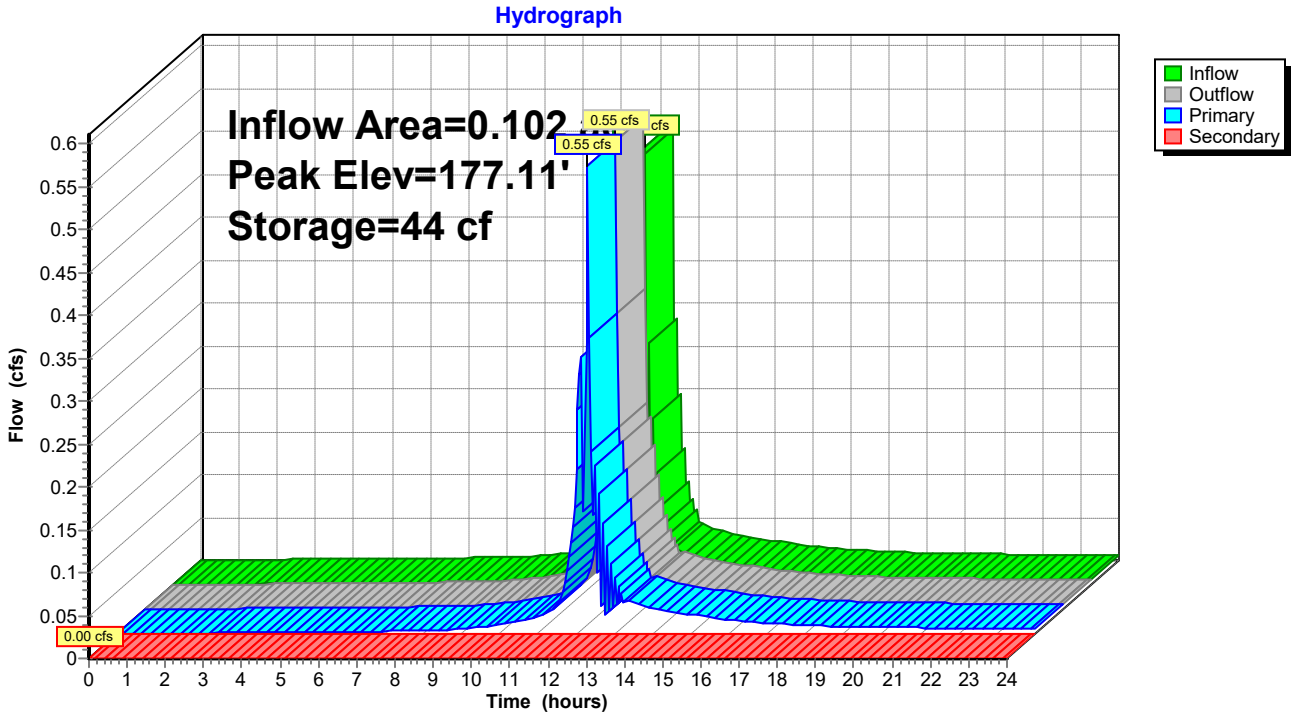
Volume	Invert	Avail.Storage	Storage Description
#1	173.61'	57 cf	**4.00'D x 4.54'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	173.61'	**12.0" Round 12" RCP** L= 25.8' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.61' / 173.31' S= 0.0116 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	178.14'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=3.23 cfs @ 12.31 hrs HW=174.84' TW=174.04' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 3.23 cfs @ 4.11 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=173.61' TW=173.21' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 8P: CB #3202



Summary for Pond 9P: CB #3203

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=5)
[80] Warning: Exceeded Pond 8P by 1.30' @ 12.15 hrs (4.31 cfs 0.049 af)

Inflow Area = 0.898 ac, 60.71% Impervious, Inflow Depth > 4.02" for 25YR-24HR event
Inflow = 3.77 cfs @ 12.12 hrs, Volume= 0.301 af
Outflow = 3.74 cfs @ 12.11 hrs, Volume= 0.301 af, Atten= 1%, Lag= 0.0 min
Primary = 3.74 cfs @ 12.11 hrs, Volume= 0.301 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 177.11' @ 12.19 hrs Surf.Area= 13 sf Storage= 49 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (819.9 - 819.7)

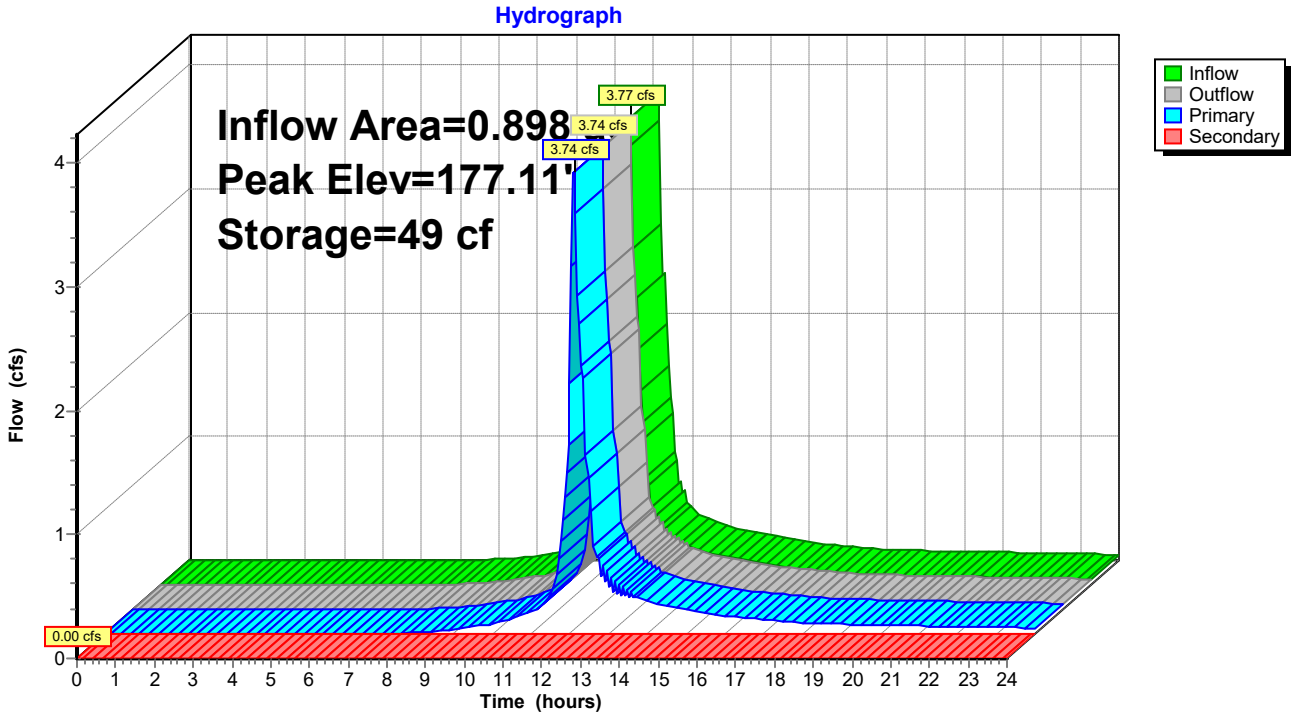
Volume	Invert	Avail.Storage	Storage Description
#1	173.21'	62 cf	**4.00'D x 4.92'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	173.21'	**12.0" Round 12" RCP** L= 208.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.21' / 168.55' S= 0.0223 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	178.12'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.90 cfs @ 12.11 hrs HW=174.93' TW=174.29' (Dynamic Tailwater)
1=12" RCP (Outlet Controls 1.90 cfs @ 2.42 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=173.21' TW=171.40' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: CB #3203



Summary for Pond 10P: CB #7322

[93] Warning: Storage range exceeded by 0.50'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=13)

Inflow Area = 0.571 ac, 62.08% Impervious, Inflow Depth > 3.91" for 25YR-24HR event
Inflow = 2.54 cfs @ 12.10 hrs, Volume= 0.186 af
Outflow = 2.55 cfs @ 12.09 hrs, Volume= 0.186 af, Atten= 0%, Lag= 0.0 min
Primary = 2.55 cfs @ 12.09 hrs, Volume= 0.178 af
Secondary = 1.87 cfs @ 12.20 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 174.65' @ 12.20 hrs Surf.Area= 13 sf Storage= 35 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min (822.8 - 822.7)

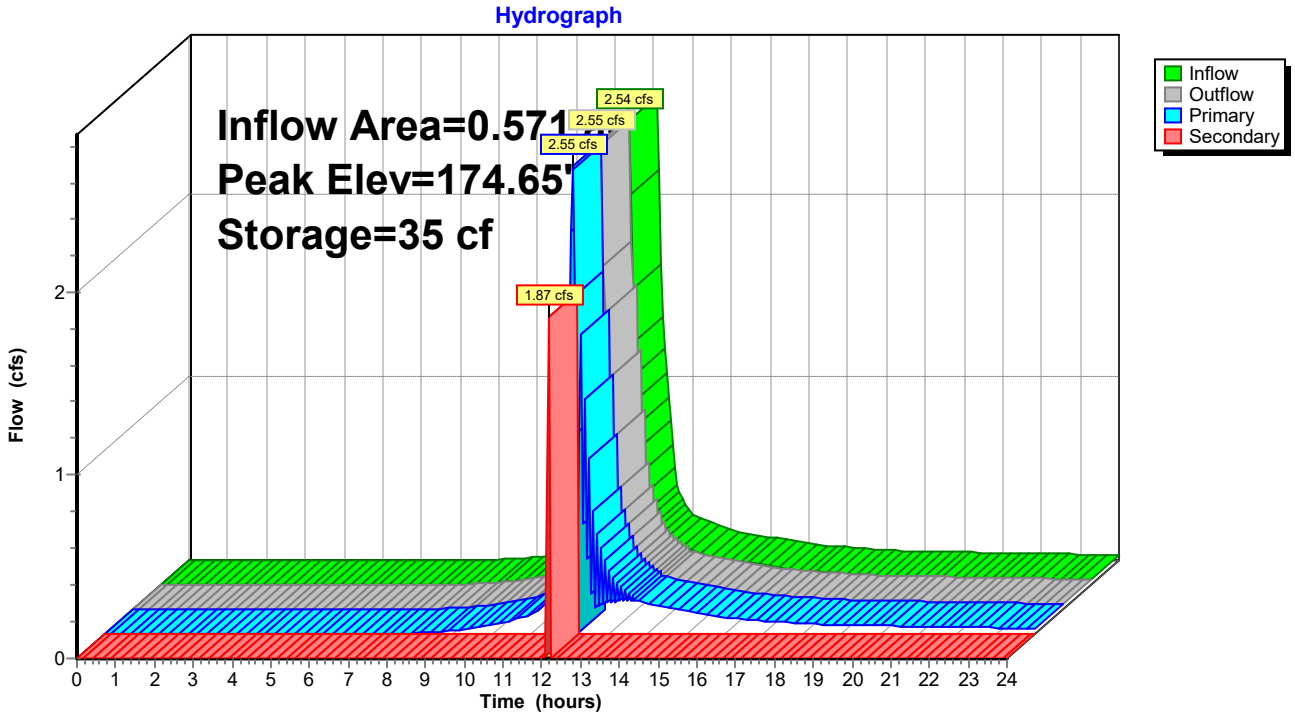
Volume	Invert	Avail.Storage	Storage Description
#1	171.40'	35 cf	**4.00'D x 2.75'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	171.40'	**12.0" Round 12" RCP** L= 1.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 171.40' / 170.45' S= 0.9500 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	174.14'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=172.33' TW=173.48' (Dynamic Tailwater)
1=12" RCP (Controls 0.00 cfs)

Secondary OutFlow Max=1.86 cfs @ 12.20 hrs HW=174.64' TW=169.67' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 1.86 cfs @ 1.85 fps)

Pond 10P: CB #7322



Summary for Pond 11P: CB #7321

[93] Warning: Storage range exceeded by 0.42'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=101)

Inflow Area = 0.104 ac,100.00% Impervious, Inflow Depth > 6.61" for 25YR-24HR event
Inflow = 0.69 cfs @ 12.09 hrs, Volume= 0.058 af
Outflow = 0.63 cfs @ 12.24 hrs, Volume= 0.057 af, Atten= 8%, Lag= 9.1 min
Primary = 0.61 cfs @ 12.25 hrs, Volume= 0.053 af
Secondary = 0.55 cfs @ 12.17 hrs, Volume= 0.004 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 173.39' @ 12.17 hrs Surf.Area= 13 sf Storage= 73 cf

Plug-Flow detention time= 6.3 min calculated for 0.057 af (99% of inflow)
Center-of-Mass det. time= 3.4 min (746.2 - 742.8)

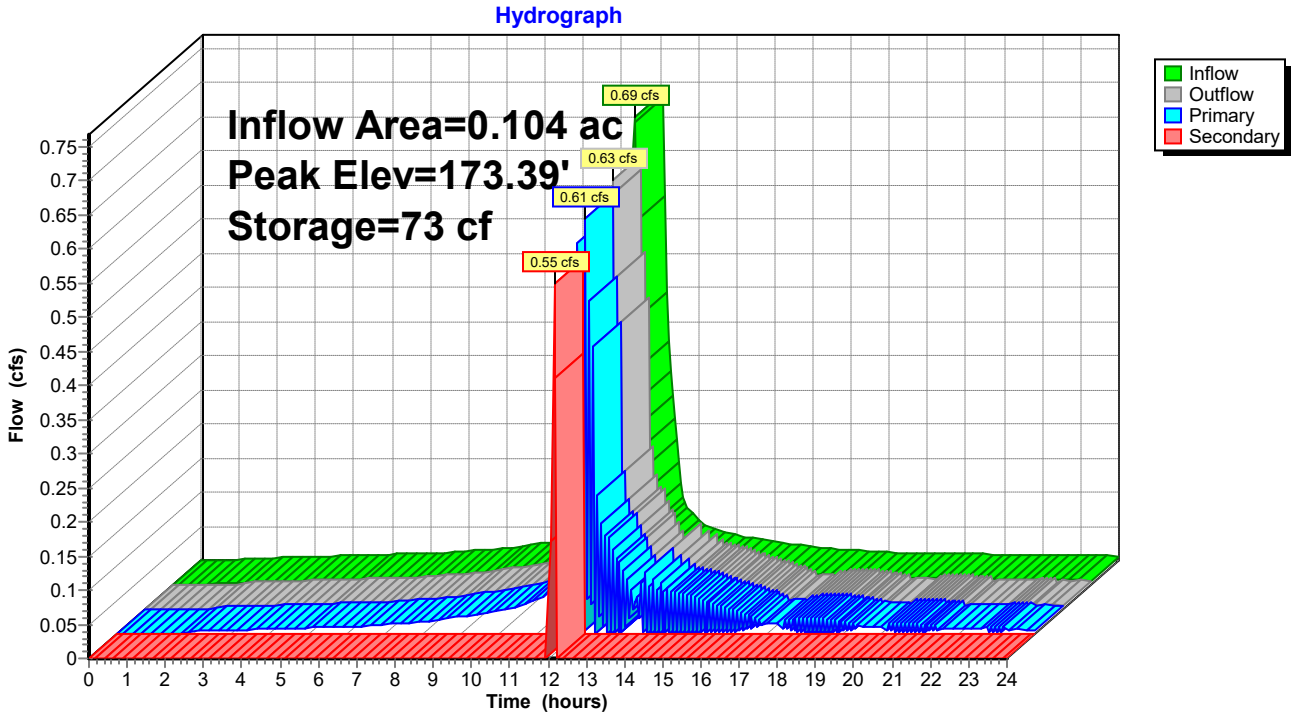
Volume	Invert	Avail.Storage	Storage Description
#1	167.17'	73 cf	**4.00'D x 5.80'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	167.86'	**12.0" Round 12" RCP** L= 25.8' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 167.17' / 167.86' S= -0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	172.96'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.56 cfs @ 12.25 hrs HW=170.76' TW=170.30' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 2.56 cfs @ 3.25 fps)

Secondary OutFlow Max=0.48 cfs @ 12.17 hrs HW=173.17' TW=170.22' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.48 cfs @ 1.16 fps)

Pond 11P: CB #7321



Summary for Pond D1P: DMH #4198

[93] Warning: Storage range exceeded by 1.70'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=7)
[80] Warning: Exceeded Pond 10P by 1.59' @ 12.10 hrs (4.77 cfs 0.039 af)

Inflow Area = 1.468 ac, 61.24% Impervious, Inflow Depth > 3.91" for 25YR-24HR event
Inflow = 6.25 cfs @ 12.10 hrs, Volume= 0.479 af
Outflow = 6.05 cfs @ 12.11 hrs, Volume= 0.479 af, Atten= 3%, Lag= 0.3 min
Primary = 6.05 cfs @ 12.11 hrs, Volume= 0.479 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 175.75' @ 12.15 hrs Surf.Area= 13 sf Storage= 70 cf

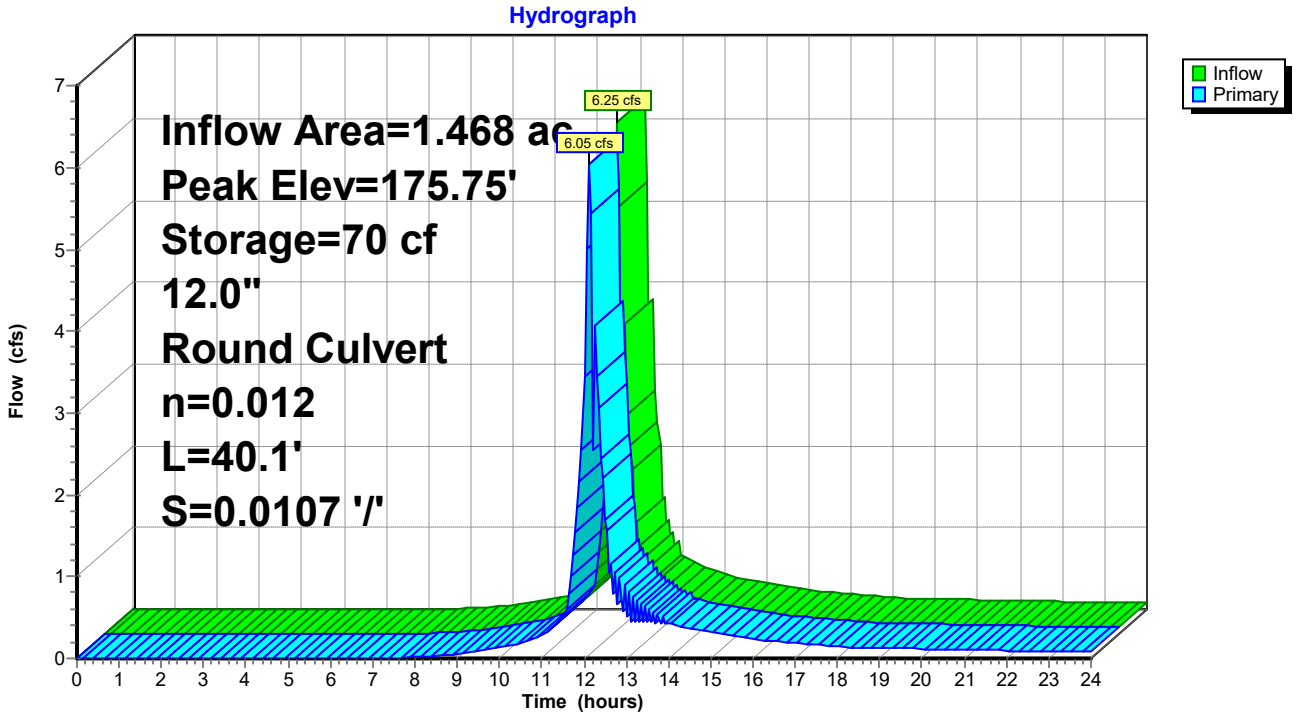
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (822.6 - 822.5)

Volume	Invert	Avail.Storage	Storage Description
#1	168.45'	70 cf	**4.00'D x 5.60'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	168.45'	**12.0" Round 12" RCP** L= 40.1' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.45' / 168.02' S= 0.0107 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.75 cfs @ 12.11 hrs HW=174.17' TW=173.64' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 2.75 cfs @ 3.50 fps)

Pond D1P: DMH #4198



Summary for Pond D2P: DMH #8054

[93] Warning: Storage range exceeded by 0.92'
[80] Warning: Exceeded Pond 11P by 2.28' @ 12.10 hrs (5.71 cfs 0.134 af)
[80] Warning: Exceeded Pond D1P by 0.15' @ 12.05 hrs (1.44 cfs 0.006 af)

Inflow Area = 1.573 ac, 63.82% Impervious, Inflow Depth > 4.06" for 25YR-24HR event
Inflow = 6.52 cfs @ 12.10 hrs, Volume= 0.532 af
Outflow = 6.50 cfs @ 12.10 hrs, Volume= 0.532 af, Atten= 0%, Lag= 0.2 min
Primary = 6.50 cfs @ 12.10 hrs, Volume= 0.532 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 173.88' @ 12.12 hrs Surf.Area= 13 sf Storage= 64 cf

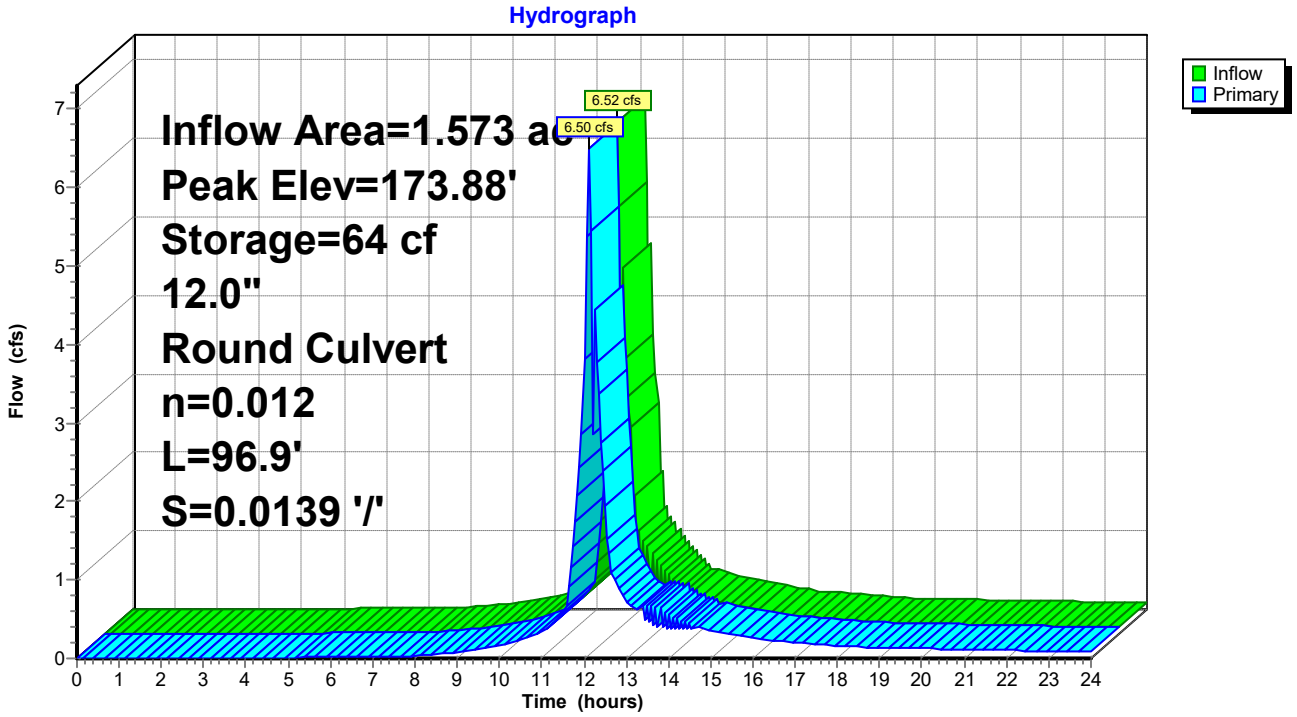
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (815.2 - 815.0)

Volume	Invert	Avail.Storage	Storage Description
#1	167.86'	64 cf	**4.00'D x 5.10'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	167.86'	**12.0" Round 12" RCP** L= 96.9' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 167.86' / 166.51' S= 0.0139 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.70 cfs @ 12.10 hrs HW=173.68' TW=170.33' (Dynamic Tailwater)
1=12" RCP (Outlet Controls 5.70 cfs @ 7.26 fps)

Pond D2P: DMH #8054



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>0.49"
Flow Length=326' Tc=10.1 min CN=58 Runoff=0.55 cfs 0.073 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.028 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>0.49"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.02 cfs 0.003 af

Subcatchment 4S: Quality Way SE Runoff Area=4,615 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.030 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,181 sf 88.45% Impervious Runoff Depth>2.63"
Tc=6.0 min CN=91 Runoff=0.15 cfs 0.011 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>0.96"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.06 cfs 0.006 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>1.37"
Flow Length=257' Tc=7.9 min CN=75 Runoff=1.15 cfs 0.091 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>1.31"
Flow Length=151' Tc=6.4 min CN=74 Runoff=0.82 cfs 0.062 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.029 af

Subcatchment 12S: Central Site Runoff Area=82,187 sf 2.30% Impervious Runoff Depth>0.14"
Flow Length=296' Tc=16.0 min CN=47 Runoff=0.04 cfs 0.022 af

Subcatchment 13S: Venture Drive Runoff Area=1,441 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Reach 2R: Reach #2 Avg. Flow Depth=0.10' Max Vel=0.62 fps Inflow=0.78 cfs 0.102 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=0.65 cfs 0.101 af

Reach 4R: Reach #4 Avg. Flow Depth=0.10' Max Vel=0.44 fps Inflow=0.38 cfs 0.033 af
n=0.080 L=89.2' S=0.0200 '/' Capacity=10.50 cfs Outflow=0.35 cfs 0.033 af

Reach 6R: Reach #6 Avg. Flow Depth=0.28' Max Vel=0.78 fps Inflow=2.67 cfs 0.218 af
n=0.080 L=27.3' S=0.0168 '/' Capacity=9.65 cfs Outflow=2.67 cfs 0.218 af

Reach 10R: Combined Reach Avg. Flow Depth=0.18' Max Vel=1.18 fps Inflow=3.01 cfs 0.250 af
n=0.080 L=66.1' S=0.0681 '/' Capacity=27.17 cfs Outflow=2.97 cfs 0.250 af

Reach 100R: Final Reach #100 Inflow=3.42 cfs 0.373 af
Outflow=3.42 cfs 0.373 af

Reach 200R: Final Reach #200 Inflow=0.11 cfs 0.009 af
Outflow=0.11 cfs 0.009 af

Pond 1P: Roadside Pond Peak Elev=168.95' Storage=1 cf Inflow=0.55 cfs 0.073 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=0.55 cfs 0.073 af

Pond 2P: CB #7325 Peak Elev=167.45' Storage=7 cf Inflow=0.77 cfs 0.102 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=0.78 cfs 0.102 af

Pond 3P: CB #7323 Peak Elev=168.97' Storage=1 cf Inflow=0.02 cfs 0.003 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=0.02 cfs 0.003 af

Pond 4P: CB #7324 Peak Elev=168.63' Storage=4 cf Inflow=0.38 cfs 0.033 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=0.38 cfs 0.033 af

Pond 5P: CB #7320 Peak Elev=167.86' Storage=9 cf Inflow=0.15 cfs 0.012 af
Primary=0.13 cfs 0.012 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.012 af

Pond 6P: CB #7319 Peak Elev=167.86' Storage=18 cf Inflow=2.68 cfs 0.218 af
Primary=2.67 cfs 0.218 af Secondary=0.00 cfs 0.000 af Outflow=2.67 cfs 0.218 af

Pond 7P: CB #3201 Peak Elev=174.49' Storage=1 cf Inflow=0.06 cfs 0.006 af
Primary=0.06 cfs 0.006 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.006 af

Pond 8P: CB #3202 Peak Elev=173.86' Storage=3 cf Inflow=0.12 cfs 0.013 af
Primary=0.12 cfs 0.013 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.013 af

Pond 9P: CB #3203 Peak Elev=173.80' Storage=7 cf Inflow=1.27 cfs 0.104 af
Primary=1.27 cfs 0.104 af Secondary=0.00 cfs 0.000 af Outflow=1.27 cfs 0.104 af

Pond 10P: CB #7322 Peak Elev=171.86' Storage=6 cf Inflow=0.82 cfs 0.062 af
Primary=0.82 cfs 0.062 af Secondary=0.00 cfs 0.000 af Outflow=0.82 cfs 0.062 af

Pond 11P: CB #7321 Peak Elev=168.78' Storage=20 cf Inflow=0.36 cfs 0.029 af
Primary=0.34 cfs 0.029 af Secondary=0.00 cfs 0.000 af Outflow=0.34 cfs 0.029 af

Pond D1P: DMH #4198 Peak Elev=169.29' Storage=11 cf Inflow=2.09 cfs 0.166 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=2.08 cfs 0.166 af

Pond D2P: DMH #8054 Peak Elev=168.77' Storage=11 cf Inflow=2.42 cfs 0.195 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=2.42 cfs 0.195 af

Total Runoff Area = 5.659 ac Runoff Volume = 0.384 af Average Runoff Depth = 0.81"
63.26% Pervious = 3.580 ac 36.74% Impervious = 2.079 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>1.40"
Flow Length=326' Tc=10.1 min CN=58 Runoff=2.28 cfs 0.210 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.52 cfs 0.043 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>1.40"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.10 cfs 0.008 af

Subcatchment 4S: Quality Way SE Runoff Area=4,615 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.046 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.019 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,181 sf 88.45% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=91 Runoff=0.24 cfs 0.018 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>2.18"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.15 cfs 0.014 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.010 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>2.79"
Flow Length=257' Tc=7.9 min CN=75 Runoff=2.41 cfs 0.185 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>2.70"
Flow Length=151' Tc=6.4 min CN=74 Runoff=1.75 cfs 0.128 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.54 cfs 0.045 af

Subcatchment 12S: Central Site Runoff Area=82,187 sf 2.30% Impervious Runoff Depth>0.69"
Flow Length=296' Tc=16.0 min CN=47 Runoff=0.68 cfs 0.108 af

Subcatchment 13S: Venture Drive Runoff Area=1,441 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Reach 2R: Reach #2 Avg. Flow Depth=0.18' Max Vel=0.91 fps Inflow=2.66 cfs 0.253 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=2.38 cfs 0.252 af

Reach 4R: Reach #4 Avg. Flow Depth=0.13' Max Vel=0.52 fps Inflow=0.64 cfs 0.054 af
n=0.080 L=89.2' S=0.0200 '/' Capacity=10.50 cfs Outflow=0.59 cfs 0.054 af

Reach 6R: Reach #6 Avg. Flow Depth=0.37' Max Vel=0.95 fps Inflow=5.06 cfs 0.419 af
n=0.080 L=27.3' S=0.0168 '/' Capacity=9.65 cfs Outflow=5.07 cfs 0.419 af

Reach 10R: Combined Reach Avg. Flow Depth=0.24' Max Vel=1.43 fps Inflow=5.66 cfs 0.473 af
n=0.080 L=66.1' S=0.0681 '/' Capacity=27.17 cfs Outflow=5.58 cfs 0.473 af

Reach 100R: Final Reach #100 Inflow=7.94 cfs 0.833 af
Outflow=7.94 cfs 0.833 af

Reach 200R: Final Reach #200 Inflow=0.17 cfs 0.014 af
Outflow=0.17 cfs 0.014 af

Pond 1P: Roadside Pond Peak Elev=169.44' Storage=10 cf Inflow=2.28 cfs 0.210 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=2.27 cfs 0.210 af

Pond 2P: CB #7325 Peak Elev=168.12' Storage=15 cf Inflow=2.66 cfs 0.253 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=2.66 cfs 0.253 af

Pond 3P: CB #7323 Peak Elev=169.05' Storage=2 cf Inflow=0.10 cfs 0.008 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=0.10 cfs 0.008 af

Pond 4P: CB #7324 Peak Elev=168.73' Storage=5 cf Inflow=0.64 cfs 0.054 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=0.64 cfs 0.054 af

Pond 5P: CB #7320 Peak Elev=168.88' Storage=22 cf Inflow=0.22 cfs 0.019 af
Primary=0.18 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.019 af

Pond 6P: CB #7319 Peak Elev=168.88' Storage=31 cf Inflow=5.07 cfs 0.420 af
Primary=5.06 cfs 0.419 af Secondary=0.00 cfs 0.000 af Outflow=5.06 cfs 0.419 af

Pond 7P: CB #3201 Peak Elev=174.56' Storage=2 cf Inflow=0.15 cfs 0.014 af
Primary=0.15 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.014 af

Pond 8P: CB #3202 Peak Elev=174.20' Storage=7 cf Inflow=0.24 cfs 0.024 af
Primary=0.24 cfs 0.024 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.024 af

Pond 9P: CB #3203 Peak Elev=174.18' Storage=12 cf Inflow=2.63 cfs 0.209 af
Primary=2.63 cfs 0.209 af Secondary=0.00 cfs 0.000 af Outflow=2.63 cfs 0.209 af

Pond 10P: CB #7322 Peak Elev=172.12' Storage=9 cf Inflow=1.75 cfs 0.128 af
Primary=1.75 cfs 0.128 af Secondary=0.00 cfs 0.000 af Outflow=1.75 cfs 0.128 af

Pond 11P: CB #7321 Peak Elev=170.87' Storage=47 cf Inflow=0.54 cfs 0.045 af
Primary=0.49 cfs 0.045 af Secondary=0.00 cfs 0.000 af Outflow=0.49 cfs 0.045 af

Pond D1P: DMH #4198 Peak Elev=171.83' Storage=42 cf Inflow=4.37 cfs 0.338 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=4.28 cfs 0.338 af

Pond D2P: DMH #8054 Peak Elev=170.86' Storage=38 cf Inflow=4.74 cfs 0.383 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=4.66 cfs 0.383 af

Total Runoff Area = 5.659 ac Runoff Volume = 0.850 af Average Runoff Depth = 1.80"
63.26% Pervious = 3.580 ac 36.74% Impervious = 2.079 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>2.30"
Flow Length=326' Tc=10.1 min CN=58 Runoff=3.98 cfs 0.344 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.66 cfs 0.055 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>2.30"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.17 cfs 0.014 af

Subcatchment 4S: Quality Way SE Runoff Area=4,615 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.70 cfs 0.058 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,181 sf 88.45% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=91 Runoff=0.31 cfs 0.024 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>3.28"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.23 cfs 0.021 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>4.01"
Flow Length=257' Tc=7.9 min CN=75 Runoff=3.46 cfs 0.266 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>3.91"
Flow Length=151' Tc=6.4 min CN=74 Runoff=2.54 cfs 0.186 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.058 af

Subcatchment 12S: Central Site Runoff Area=82,187 sf 2.30% Impervious Runoff Depth>1.32"
Flow Length=296' Tc=16.0 min CN=47 Runoff=1.70 cfs 0.208 af

Subcatchment 13S: Venture Drive Runoff Area=1,441 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Reach 2R: Reach #2 Avg. Flow Depth=0.24' Max Vel=1.08 fps Inflow=4.38 cfs 0.399 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=4.10 cfs 0.398 af

Reach 4R: Reach #4 Avg. Flow Depth=0.21' Max Vel=0.69 fps Inflow=2.27 cfs 0.080 af
n=0.080 L=89.2' S=0.0200 '/' Capacity=10.50 cfs Outflow=1.60 cfs 0.080 af

Reach 6R: Reach #6 Avg. Flow Depth=0.43' Max Vel=1.04 fps Inflow=6.98 cfs 0.584 af
n=0.080 L=27.3' S=0.0168 '/' Capacity=9.65 cfs Outflow=6.96 cfs 0.583 af

Reach 10R: Combined Reach Avg. Flow Depth=0.28' Max Vel=1.57 fps Inflow=7.77 cfs 0.663 af
n=0.080 L=66.1' S=0.0681 '/' Capacity=27.17 cfs Outflow=7.72 cfs 0.663 af

Reach 100R: Final Reach #100 Inflow=12.48 cfs 1.269 af
Outflow=12.48 cfs 1.269 af

Reach 200R: Final Reach #200 Inflow=0.22 cfs 0.018 af
Outflow=0.22 cfs 0.018 af

Pond 1P: Roadside Pond Peak Elev=170.15' Storage=62 cf Inflow=3.98 cfs 0.344 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=3.92 cfs 0.344 af

Pond 2P: CB #7325 Peak Elev=168.93' Storage=25 cf Inflow=4.39 cfs 0.400 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=4.38 cfs 0.399 af

Pond 3P: CB #7323 Peak Elev=169.67' Storage=10 cf Inflow=2.01 cfs 0.022 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=1.93 cfs 0.022 af

Pond 4P: CB #7324 Peak Elev=169.19' Storage=11 cf Inflow=2.33 cfs 0.080 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=2.27 cfs 0.080 af

Pond 5P: CB #7320 Peak Elev=170.40' Storage=41 cf Inflow=0.75 cfs 0.028 af
Primary=0.75 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.75 cfs 0.028 af

Pond 6P: CB #7319 Peak Elev=170.36' Storage=49 cf Inflow=7.03 cfs 0.584 af
Primary=6.98 cfs 0.584 af Secondary=0.00 cfs 0.000 af Outflow=6.98 cfs 0.584 af

Pond 7P: CB #3201 Peak Elev=177.11' Storage=34 cf Inflow=0.23 cfs 0.021 af
Primary=0.45 cfs 0.021 af Secondary=0.00 cfs 0.000 af Outflow=0.45 cfs 0.021 af

Pond 8P: CB #3202 Peak Elev=177.11' Storage=44 cf Inflow=0.51 cfs 0.034 af
Primary=0.55 cfs 0.034 af Secondary=0.00 cfs 0.000 af Outflow=0.55 cfs 0.034 af

Pond 9P: CB #3203 Peak Elev=177.11' Storage=49 cf Inflow=3.77 cfs 0.301 af
Primary=3.74 cfs 0.301 af Secondary=0.00 cfs 0.000 af Outflow=3.74 cfs 0.301 af

Pond 10P: CB #7322 Peak Elev=174.65' Storage=35 cf Inflow=2.54 cfs 0.186 af
Primary=2.55 cfs 0.178 af Secondary=1.87 cfs 0.008 af Outflow=2.55 cfs 0.186 af

Pond 11P: CB #7321 Peak Elev=173.39' Storage=73 cf Inflow=0.69 cfs 0.058 af
Primary=0.61 cfs 0.053 af Secondary=0.55 cfs 0.004 af Outflow=0.63 cfs 0.057 af

Pond D1P: DMH #4198 Peak Elev=175.75' Storage=70 cf Inflow=6.25 cfs 0.479 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=6.05 cfs 0.479 af

Pond D2P: DMH #8054 Peak Elev=173.88' Storage=64 cf Inflow=6.52 cfs 0.532 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=6.50 cfs 0.532 af

Total Runoff Area = 5.659 ac Runoff Volume = 1.290 af Average Runoff Depth = 2.74"
63.26% Pervious = 3.580 ac 36.74% Impervious = 2.079 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>3.24"
Flow Length=326' Tc=10.1 min CN=58 Runoff=5.75 cfs 0.484 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.79 cfs 0.066 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>3.24"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.25 cfs 0.019 af

Subcatchment 4S: Quality Way SE Runoff Area=4,615 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.83 cfs 0.070 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.028 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,181 sf 88.45% Impervious Runoff Depth>7.10"
Tc=6.0 min CN=91 Runoff=0.38 cfs 0.030 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>4.38"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.31 cfs 0.028 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.016 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>5.20"
Flow Length=257' Tc=7.9 min CN=75 Runoff=4.47 cfs 0.345 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>5.08"
Flow Length=151' Tc=6.4 min CN=74 Runoff=3.29 cfs 0.242 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.82 cfs 0.069 af

Subcatchment 12S: Central Site Runoff Area=82,187 sf 2.30% Impervious Runoff Depth>2.03"
Flow Length=296' Tc=16.0 min CN=47 Runoff=2.90 cfs 0.319 af

Subcatchment 13S: Venture Drive Runoff Area=1,441 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.022 af

Reach 2R: Reach #2 Avg. Flow Depth=0.26' Max Vel=1.16 fps Inflow=5.26 cfs 0.550 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=5.20 cfs 0.548 af

Reach 4R: Reach #4 Avg. Flow Depth=0.36' Max Vel=1.01 fps Inflow=5.78 cfs 0.123 af
n=0.080 L=89.2' S=0.0200 '/' Capacity=10.50 cfs Outflow=5.11 cfs 0.123 af

Reach 6R: Reach #6 Avg. Flow Depth=0.46' Max Vel=1.08 fps Inflow=8.15 cfs 0.713 af
n=0.080 L=27.3' S=0.0168 '/' Capacity=9.65 cfs Outflow=8.06 cfs 0.712 af

Reach 10R: Combined Reach Avg. Flow Depth=0.30' Max Vel=1.64 fps Inflow=8.81 cfs 0.835 af
n=0.080 L=66.1' S=0.0681 '/' Capacity=27.17 cfs Outflow=8.76 cfs 0.835 af

Reach 100R: Final Reach #100 Inflow=16.62 cfs 1.703 af
Outflow=16.62 cfs 1.703 af

Reach 200R: Final Reach #200 Inflow=1.89 cfs 0.034 af
Outflow=1.89 cfs 0.034 af

Pond 1P: Roadside Pond Peak Elev=171.09' Storage=449 cf Inflow=5.75 cfs 0.484 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=4.86 cfs 0.484 af

Pond 2P: CB #7325 Peak Elev=169.43' Storage=32 cf Inflow=5.29 cfs 0.550 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=5.26 cfs 0.550 af

Pond 3P: CB #7323 Peak Elev=171.82' Storage=37 cf Inflow=5.65 cfs 0.053 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=5.40 cfs 0.053 af

Pond 4P: CB #7324 Peak Elev=171.08' Storage=35 cf Inflow=6.01 cfs 0.123 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=5.78 cfs 0.123 af

Pond 5P: CB #7320 Peak Elev=171.30' Storage=44 cf Inflow=1.16 cfs 0.034 af
Primary=0.73 cfs 0.029 af Secondary=1.24 cfs 0.005 af Outflow=1.25 cfs 0.035 af

Pond 6P: CB #7319 Peak Elev=171.31' Storage=52 cf Inflow=9.36 cfs 0.719 af
Primary=8.15 cfs 0.713 af Secondary=1.46 cfs 0.006 af Outflow=9.44 cfs 0.719 af

Pond 7P: CB #3201 Peak Elev=178.72' Storage=35 cf Inflow=0.31 cfs 0.028 af
Primary=0.73 cfs 0.027 af Secondary=0.52 cfs 0.002 af Outflow=0.73 cfs 0.029 af

Pond 8P: CB #3202 Peak Elev=178.81' Storage=57 cf Inflow=0.79 cfs 0.045 af
Primary=0.72 cfs 0.043 af Secondary=0.23 cfs 0.002 af Outflow=0.73 cfs 0.045 af

Pond 9P: CB #3203 Peak Elev=178.81' Storage=62 cf Inflow=4.82 cfs 0.389 af
Primary=4.63 cfs 0.376 af Secondary=2.39 cfs 0.013 af Outflow=4.57 cfs 0.389 af

Pond 10P: CB #7322 Peak Elev=175.17' Storage=35 cf Inflow=5.11 cfs 0.255 af
Primary=3.27 cfs 0.221 af Secondary=5.42 cfs 0.034 af Outflow=5.32 cfs 0.255 af

Pond 11P: CB #7321 Peak Elev=173.47' Storage=73 cf Inflow=0.82 cfs 0.069 af
Primary=0.67 cfs 0.063 af Secondary=0.87 cfs 0.006 af Outflow=0.83 cfs 0.069 af

Pond D1P: DMH #4198 Peak Elev=178.26' Storage=70 cf Inflow=7.88 cfs 0.598 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=8.02 cfs 0.598 af

Pond D2P: DMH #8054 Peak Elev=177.06' Storage=64 cf Inflow=8.18 cfs 0.660 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=8.29 cfs 0.660 af

Total Runoff Area = 5.659 ac Runoff Volume = 1.739 af Average Runoff Depth = 3.69"
63.26% Pervious = 3.580 ac 36.74% Impervious = 2.079 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>4.43"
Flow Length=326' Tc=10.1 min CN=58 Runoff=7.98 cfs 0.663 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.94 cfs 0.079 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>4.44"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.34 cfs 0.027 af

Subcatchment 4S: Quality Way SE Runoff Area=4,615 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.99 cfs 0.084 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.40 cfs 0.034 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,181 sf 88.45% Impervious Runoff Depth>8.66"
Tc=6.0 min CN=91 Runoff=0.46 cfs 0.036 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>5.74"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.41 cfs 0.037 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.019 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>6.65"
Flow Length=257' Tc=7.9 min CN=75 Runoff=5.68 cfs 0.441 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>6.52"
Flow Length=151' Tc=6.4 min CN=74 Runoff=4.19 cfs 0.310 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.98 cfs 0.083 af

Subcatchment 12S: Central Site Runoff Area=82,187 sf 2.30% Impervious Runoff Depth>2.99"
Flow Length=296' Tc=16.0 min CN=47 Runoff=4.52 cfs 0.470 af

Subcatchment 13S: Venture Drive Runoff Area=1,441 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.31 cfs 0.026 af

Reach 2R: Reach #2 Avg. Flow Depth=0.28' Max Vel=1.20 fps Inflow=5.90 cfs 0.742 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=5.81 cfs 0.740 af

Reach 4R: Reach #4 Avg. Flow Depth=0.49' Max Vel=1.24 fps Inflow=10.61 cfs 0.190 af
n=0.080 L=89.2' S=0.0200 '/' Capacity=10.50 cfs Outflow=9.99 cfs 0.190 af

Reach 6R: Reach #6 Avg. Flow Depth=0.45' Max Vel=1.08 fps Inflow=7.93 cfs 0.864 af
n=0.080 L=27.3' S=0.0168 '/' Capacity=9.65 cfs Outflow=7.76 cfs 0.864 af

Reach 10R: Combined Reach Avg. Flow Depth=0.35' Max Vel=1.80 fps Inflow=12.69 cfs 1.054 af
n=0.080 L=66.1' S=0.0681 '/' Capacity=27.17 cfs Outflow=12.16 cfs 1.053 af

Reach 100R: Final Reach #100 Inflow=22.05 cfs 2.263 af
Outflow=22.05 cfs 2.263 af

Reach 200R: Final Reach #200 Inflow=2.46 cfs 0.043 af
Outflow=2.46 cfs 0.043 af

Pond 1P: Roadside Pond Peak Elev=171.86' Storage=1,613 cf Inflow=7.98 cfs 0.663 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=5.45 cfs 0.663 af

Pond 2P: CB #7325 Peak Elev=169.86' Storage=37 cf Inflow=5.92 cfs 0.742 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=5.90 cfs 0.742 af

Pond 3P: CB #7323 Peak Elev=178.75' Storage=40 cf Inflow=9.22 cfs 0.105 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=9.48 cfs 0.106 af

Pond 4P: CB #7324 Peak Elev=176.11' Storage=47 cf Inflow=10.33 cfs 0.190 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=10.61 cfs 0.190 af

Pond 5P: CB #7320 Peak Elev=171.16' Storage=44 cf Inflow=1.54 cfs 0.040 af
Primary=0.65 cfs 0.034 af Secondary=1.54 cfs 0.006 af Outflow=1.55 cfs 0.040 af

Pond 6P: CB #7319 Peak Elev=171.23' Storage=52 cf Inflow=9.91 cfs 0.875 af
Primary=7.93 cfs 0.864 af Secondary=2.05 cfs 0.010 af Outflow=9.89 cfs 0.875 af

Pond 7P: CB #3201 Peak Elev=179.27' Storage=35 cf Inflow=0.41 cfs 0.037 af
Primary=0.65 cfs 0.033 af Secondary=0.60 cfs 0.004 af Outflow=0.68 cfs 0.037 af

Pond 8P: CB #3202 Peak Elev=179.27' Storage=57 cf Inflow=0.80 cfs 0.056 af
Primary=0.64 cfs 0.053 af Secondary=0.52 cfs 0.003 af Outflow=0.68 cfs 0.056 af

Pond 9P: CB #3203 Peak Elev=179.27' Storage=62 cf Inflow=5.92 cfs 0.497 af
Primary=5.34 cfs 0.464 af Secondary=4.95 cfs 0.033 af Outflow=6.05 cfs 0.497 af

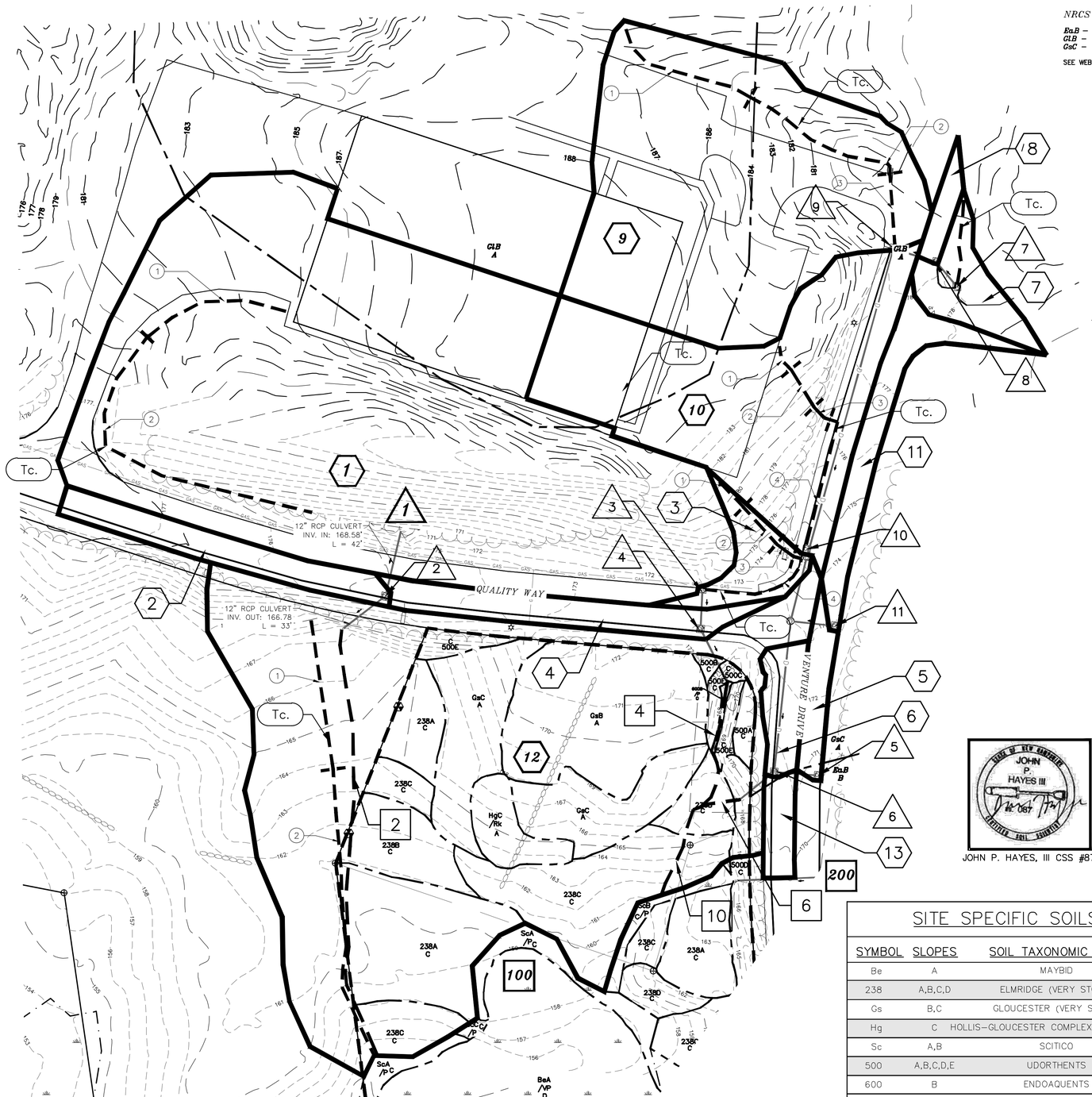
Pond 10P: CB #7322 Peak Elev=175.77' Storage=35 cf Inflow=8.66 cfs 0.343 af
Primary=3.68 cfs 0.264 af Secondary=8.89 cfs 0.079 af Outflow=8.52 cfs 0.343 af

Pond 11P: CB #7321 Peak Elev=173.36' Storage=73 cf Inflow=0.98 cfs 0.083 af
Primary=1.07 cfs 0.077 af Secondary=1.14 cfs 0.006 af Outflow=1.14 cfs 0.083 af

Pond D1P: DMH #4198 Peak Elev=179.37' Storage=70 cf Inflow=8.33 cfs 0.728 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=8.34 cfs 0.728 af

Pond D2P: DMH #8054 Peak Elev=178.40' Storage=64 cf Inflow=9.08 cfs 0.805 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=9.22 cfs 0.805 af

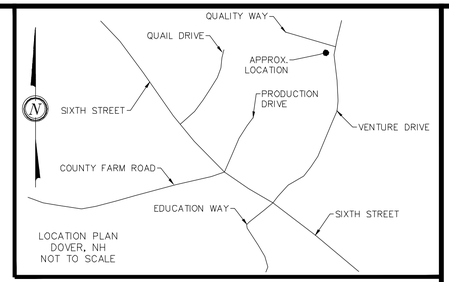
Total Runoff Area = 5.659 ac Runoff Volume = 2.309 af Average Runoff Depth = 4.90"
63.26% Pervious = 3.580 ac 36.74% Impervious = 2.079 ac



NRCS SOILS:

EaB – ELMWOOD FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
GLB – GLOUCESTER FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
GsC – GLOUCESTER VERY STONY FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES

SEE WEBSOIL USDA–NRCS



LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11–5
B.) TAX MAP D, LOT 11–5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 0.99 Ac.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS OF TAX MAP D, LOT 11–5 LOCATED IN DOVER, N.H., AS OF THE FIELD SURVEY IN AUGUST 2021.

7.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0310E, DATED: SEPTEMBER 30, 2015.

8.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

WETLAND NOTE:

WETLANDS WERE DELINEATED BY DEIDRA L. BENJAMIN, CWS, IN THE SUMMER OF 2021 USING THE FOLLOWING CRITERIA:

1. USACE. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. VERSION 2.0. U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER. 2012. VICKSBURG, MS.

2. USACE. CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. ENVIRONMENTAL LABORATORY. 1987. VICKSBURG, MS.

3. UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE. 2018. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2. L.M. VASILAS, G.W. HURT, AND J.F. BERKOWITZ (EDS.). USDA, NRCS, IN COOPERATION WITH THE NATIONAL TECHNICAL COMMITTEE FOR HYDRIC SOILS.

4. NEW ENGLAND HYDRIC SOIL TECHNICAL COMMITTEE. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. VERSION 4. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION. 2019. LOWELL, MA.

5. U.S. ARMY CORPS OF ENGINEERS 2019. NATIONAL WETLAND PLANT LIST, VERSION 3.3. HTTP://WETLAND-PLANTS.USACE.ARMY.MIL/

EXISTING LEGEND:

- STONE BOUND (FND)
- DRILL HOLE (FND)
- IRON BOUND (FND)
- IRON PIPE (FND)
- STEEL STAKE (FND)
- UTILITY POLE / GUY WIRE
- SINGLE POST SIGN
- TEMPORARY BENCHMARK
- TEST PIT
- CURB STOP
- GATE VALVE
- FIRE HYDRANT
- CATCH BASIN
- SEWER MANHOLE
- STONE WALL
- ABUTTING PROPERTY LINE
- BUILDING SETBACK LINE
- EWL — EXISTING WATER LINE
- S — EXISTING SEWER LINE
- EXISTING DRAIN LINE
- OHU — OVERHEAD UTILITIES
- 116 — EXISTING CONTOUR MINOR
- 115 — EXISTING CONTOUR MAJOR
- EXISTING TREELINE
- *WdA* — NRCS SOIL LINE/LABEL
- FND FOUND
- TYP TYPICAL
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS

STATE OF NEW HAMPSHIRE
JOHN P. HAYES III
No. 087
LICENSED SOIL SCIENTIST

JOHN P. HAYES, III CSS #87

STATE OF NEW HAMPSHIRE
DEIDRA L. BENJAMIN
No. 295
CERTIFIED WETLAND SCIENTIST

DEIDRA BENJAMIN, CWS #295

SITE SPECIFIC SOILS LEGEND

SYMBOL	SLOPES	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
Be	A	MAYBID	D
238	A,B,C,D	ELMRIDGE (VERY STONY)	C
Gs	B,C	GLOUCESTER (VERY STONY)	A
Hg	C	HOLLIS–GLOUCESTER COMPLEX (VERY ROCKY)	A/D
Sc	A,B	SCITICO	C
500	A,B,C,D,E	UDORTHENTS	C
600	B	ENDOAQUENTS	C

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VP = VERY POORLY DRAINED /P = POORLY DRAINED
/Rk = VERY ROCKY

SYMBOLS LEGEND:

- SUBCATCHMENT AREA SYMBOL
- FLOW REACH SYMBOL
- POND DEVICE SYMBOL
- TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

DOVER FILE #P22–55

REVISION	DATE	DESCRIPTION
#1	9–1–22	REVISED PER DOVER TRC COMMENT

W–1 EXISTING CONDITIONS WATERSHED PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

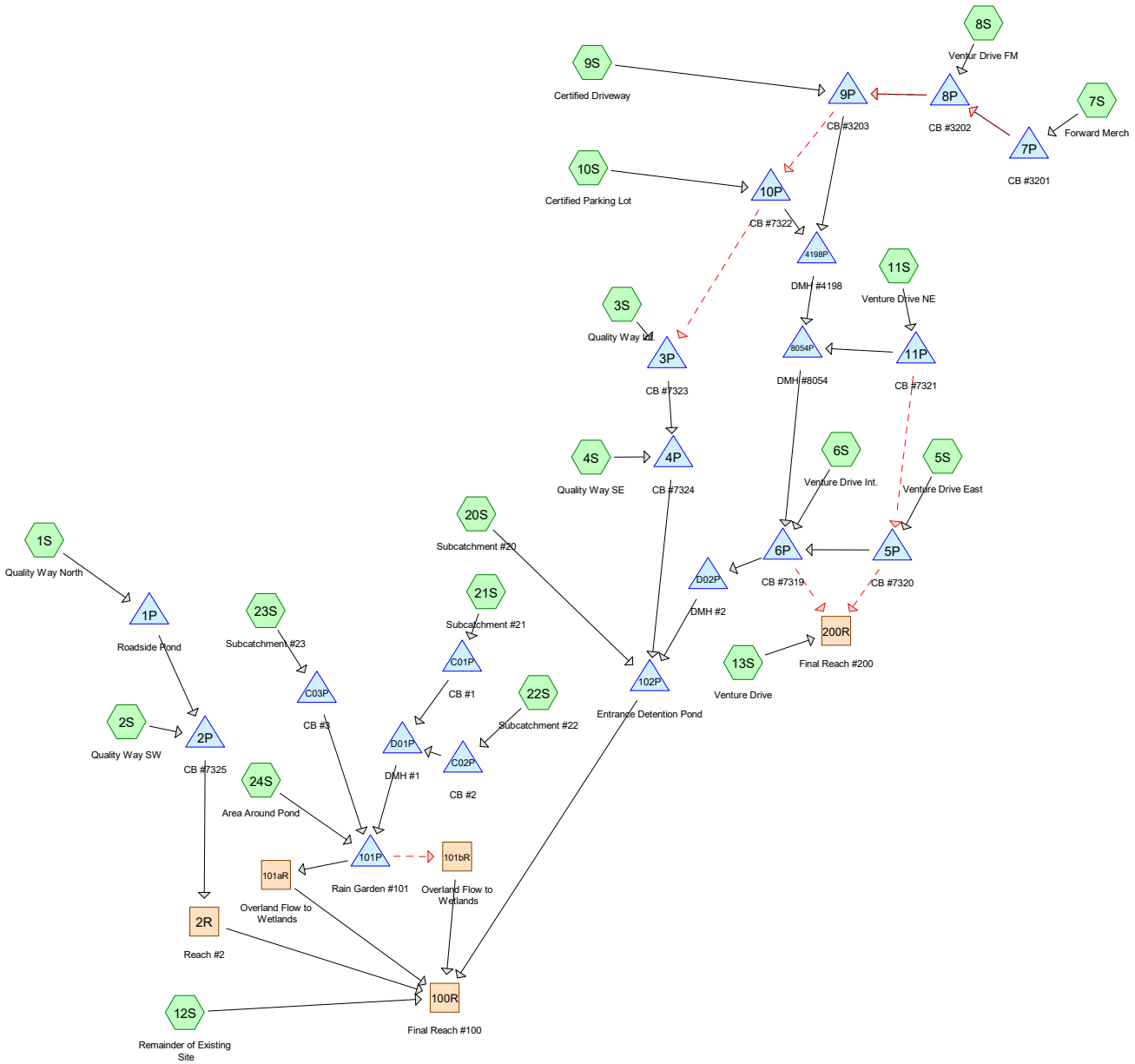
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

Appendix II - Proposed Conditions Analysis

25 Yr - 24 Hr. Full Summary
2 Yr - 24 Hr. Node Listing
10 Yr - 24 Hr. Node Listing
25 Yr - 24 Hr. Node Listing
50 Yr - 24 Hr. Node Listing
100 Yr - 24 Hr. Node Listing



Routing Diagram for 21-134 Proposed Conditions
Prepared by Berry Surveying & Engineering, Printed 9/1/2022
HydroCAD® 10.00-22 s/n 07605 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.114	39	>75% Grass cover, Good, HSG A (1S, 3S, 6S, 7S, 9S, 10S, 12S, 20S, 22S)
0.003	61	>75% Grass cover, Good, HSG B (20S)
0.389	74	>75% Grass cover, Good, HSG C (12S, 20S, 22S, 24S)
1.802	98	Paved parking, HSG A (1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 20S, 21S, 22S, 23S)
0.042	98	Paved parking, HSG B (5S, 13S, 21S)
0.085	98	Paved parking, HSG C (4S, 21S, 22S, 23S)
0.231	98	Roofs, HSG A (21S, 22S)
0.475	98	Unconnected roofs, HSG A (1S, 9S, 10S)
1.296	30	Woods, Good, HSG A (1S, 3S, 7S, 10S, 12S)
0.221	70	Woods, Good, HSG C (12S)
5.659	**68**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.918	HSG A	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 20S, 21S, 22S, 23S
0.045	HSG B	5S, 13S, 20S, 21S
0.696	HSG C	4S, 12S, 20S, 21S, 22S, 23S, 24S
0.000	HSG D	
0.000	Other	
5.659		**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
1.114	0.003	0.389	0.000	0.000	1.507	>75% Grass cover, Good	1S, 3S, 6S, 7S, 9S, 10S, 12S, 20S, 22S, 24S
1.802	0.042	0.085	0.000	0.000	1.930	Paved parking	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 13S, 20S, 21S, 22S, 23S
0.231	0.000	0.000	0.000	0.000	0.231	Roofs	21S, 22S
0.475	0.000	0.000	0.000	0.000	0.475	Unconnected roofs	1S, 9S, 10S
1.296	0.000	0.221	0.000	0.000	1.517	Woods, Good	1S, 3S, 7S, 10S, 12S
4.918	**0.045**	**0.696**	**0.000**	**0.000**	**5.659**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	168.58	167.36	42.3	0.0288	0.012	12.0	0.0	0.0
2	2P	166.90	166.78	32.7	0.0037	0.012	12.0	0.0	0.0
3	3P	168.90	168.43	24.4	0.0193	0.012	12.0	0.0	0.0
4	4P	168.33	167.78	36.3	0.0152	0.012	12.0	0.0	0.0
5	5P	167.11	166.51	25.3	0.0237	0.012	12.0	0.0	0.0
6	6P	166.45	166.35	8.0	0.0125	0.012	15.0	0.0	0.0
7	7P	174.37	173.93	17.5	0.0251	0.012	12.0	0.0	0.0
8	8P	173.61	173.31	25.8	0.0116	0.012	12.0	0.0	0.0
9	9P	173.21	168.55	208.7	0.0223	0.012	12.0	0.0	0.0
10	10P	171.40	170.45	1.0	0.9500	0.012	12.0	0.0	0.0
11	11P	167.17	167.86	25.8	-0.0267	0.012	12.0	0.0	0.0
12	101P	160.90	160.40	20.0	0.0250	0.012	15.0	0.0	0.0
13	102P	163.50	163.25	42.0	0.0060	0.012	18.0	0.0	0.0
14	4198P	168.45	168.02	40.1	0.0107	0.012	12.0	0.0	0.0
15	8054P	167.86	166.51	96.9	0.0139	0.012	12.0	0.0	0.0
16	C01P	165.20	165.10	13.0	0.0077	0.012	15.0	0.0	0.0
17	C02P	165.20	165.10	9.7	0.0103	0.012	15.0	0.0	0.0
18	C03P	166.70	165.75	32.5	0.0292	0.012	12.0	0.0	0.0
19	D01P	165.00	164.35	82.7	0.0079	0.012	15.0	0.0	0.0
20	D02P	166.25	166.15	6.0	0.0167	0.012	15.0	0.0	0.0

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>2.30"
Flow Length=326' Tc=10.1 min CN=58 Runoff=3.98 cfs 0.344 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.66 cfs 0.055 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>2.30"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.17 cfs 0.014 af

Subcatchment 4S: Quality Way SE Runoff Area=4,938 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.74 cfs 0.062 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,203 sf 88.56% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=91 Runoff=0.31 cfs 0.024 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>3.28"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.23 cfs 0.021 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>4.01"
Flow Length=257' Tc=7.9 min CN=75 Runoff=3.46 cfs 0.266 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>3.91"
Flow Length=151' Tc=6.4 min CN=74 Runoff=2.54 cfs 0.186 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.058 af

Subcatchment 12S: Remainder of Existing Runoff Area=43,238 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=296' Tc=16.0 min CN=49 Runoff=1.07 cfs 0.123 af

Subcatchment 13S: Venture Drive Runoff Area=1,436 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment 20S: Subcatchment #20 Runoff Area=10,628 sf 23.04% Impervious Runoff Depth>2.88"
Tc=6.0 min CN=64 Runoff=0.80 cfs 0.059 af

Subcatchment 21S: Subcatchment #21 Runoff Area=9,242 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=1.39 cfs 0.117 af

Subcatchment 22S: Subcatchment #22 Runoff Area=12,546 sf 93.85% Impervious Runoff Depth>6.14"
Tc=6.0 min CN=94 Runoff=1.85 cfs 0.147 af

Subcatchment 23S: Subcatchment #23 Runoff Area=2,316 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.35 cfs 0.029 af

Subcatchment 24S: Area Around Pond Runoff Area=3,890 sf 0.00% Impervious Runoff Depth>3.91"
Tc=6.0 min CN=74 Runoff=0.40 cfs 0.029 af

Reach 2R: Reach #2 Avg. Flow Depth=0.24' Max Vel=1.08 fps Inflow=4.38 cfs 0.399 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=4.10 cfs 0.398 af

Reach 100R: Final Reach #100 Inflow=12.45 cfs 1.482 af
Outflow=12.45 cfs 1.482 af

Reach 101aR: Overland Flow to Avg. Flow Depth=0.14' Max Vel=2.08 fps Inflow=0.98 cfs 0.235 af
n=0.065 L=20.0' S=0.2000 '/' Capacity=38.38 cfs Outflow=0.98 cfs 0.235 af

Reach 101bR: Overland Flow to Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.065 L=52.0' S=0.0192 '/' Capacity=5.06 cfs Outflow=0.00 cfs 0.000 af

Reach 200R: Final Reach #200 Inflow=0.22 cfs 0.018 af
Outflow=0.22 cfs 0.018 af

Pond 1P: Roadside Pond Peak Elev=170.15' Storage=62 cf Inflow=3.98 cfs 0.344 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=3.92 cfs 0.344 af

Pond 2P: CB #7325 Peak Elev=168.93' Storage=25 cf Inflow=4.39 cfs 0.400 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=4.38 cfs 0.399 af

Pond 3P: CB #7323 Peak Elev=169.64' Storage=9 cf Inflow=1.88 cfs 0.021 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=1.81 cfs 0.021 af

Pond 4P: CB #7324 Peak Elev=169.16' Storage=10 cf Inflow=2.23 cfs 0.083 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=2.17 cfs 0.083 af

Pond 5P: CB #7320 Peak Elev=169.54' Storage=31 cf Inflow=0.34 cfs 0.024 af
Primary=0.37 cfs 0.024 af Secondary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.024 af

Pond 6P: CB #7319 Peak Elev=169.53' Storage=39 cf Inflow=7.01 cfs 0.584 af
Primary=6.98 cfs 0.584 af Secondary=0.00 cfs 0.000 af Outflow=6.98 cfs 0.584 af

Pond 7P: CB #3201 Peak Elev=176.36' Storage=25 cf Inflow=0.23 cfs 0.021 af
Primary=0.39 cfs 0.021 af Secondary=0.00 cfs 0.000 af Outflow=0.39 cfs 0.021 af

Pond 8P: CB #3202 Peak Elev=176.36' Storage=35 cf Inflow=0.45 cfs 0.034 af
Primary=0.47 cfs 0.034 af Secondary=0.00 cfs 0.000 af Outflow=0.47 cfs 0.034 af

Pond 9P: CB #3203 Peak Elev=176.36' Storage=40 cf Inflow=3.77 cfs 0.300 af
Primary=3.74 cfs 0.300 af Secondary=0.00 cfs 0.000 af Outflow=3.74 cfs 0.300 af

Pond 10P: CB #7322 Peak Elev=174.62' Storage=35 cf Inflow=2.54 cfs 0.186 af
Primary=2.55 cfs 0.179 af Secondary=1.74 cfs 0.007 af Outflow=2.55 cfs 0.186 af

Pond 11P: CB #7321 Peak Elev=173.31' Storage=73 cf Inflow=0.69 cfs 0.058 af
Primary=0.59 cfs 0.057 af Secondary=0.18 cfs 0.001 af Outflow=0.59 cfs 0.057 af

Pond 101P: Rain Garden #101 Peak Elev=167.51' Storage=6,610 cf Inflow=3.92 cfs 0.321 af
Primary=0.98 cfs 0.235 af Secondary=0.00 cfs 0.000 af Outflow=0.98 cfs 0.235 af

Pond 102P: Entrance Detention Pond Peak Elev=167.22' Storage=2,982 cf Inflow=8.67 cfs 0.726 af
Outflow=6.42 cfs 0.725 af

Pond 4198P: DMH #4198 Peak Elev=174.95' Storage=70 cf Inflow=6.26 cfs 0.479 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=6.10 cfs 0.479 af

Pond 8054P: DMH #8054 Peak Elev=173.30' Storage=64 cf Inflow=6.61 cfs 0.536 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=6.51 cfs 0.536 af

Pond C01P: CB #1 Peak Elev=167.52' Storage=29 cf Inflow=1.39 cfs 0.117 af
15.0" Round Culvert n=0.012 L=13.0' S=0.0077 '/' Outflow=1.37 cfs 0.116 af

Pond C02P: CB #2 Peak Elev=167.52' Storage=29 cf Inflow=1.85 cfs 0.147 af
15.0" Round Culvert n=0.012 L=9.7' S=0.0103 '/' Outflow=1.82 cfs 0.147 af

Pond C03P: CB #3 Peak Elev=167.51' Storage=10 cf Inflow=0.35 cfs 0.029 af
12.0" Round Culvert n=0.012 L=32.5' S=0.0292 '/' Outflow=0.35 cfs 0.029 af

Pond D01P: DMH #1 Peak Elev=167.52' Storage=32 cf Inflow=3.19 cfs 0.263 af
15.0" Round Culvert n=0.012 L=82.7' S=0.0079 '/' Outflow=3.17 cfs 0.263 af

Pond D02P: DMH #2 Peak Elev=168.26' Storage=25 cf Inflow=6.98 cfs 0.584 af
15.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=6.98 cfs 0.584 af

Total Runoff Area = 5.659 ac Runoff Volume = 1.590 af Average Runoff Depth = 3.37"
53.43% Pervious = 3.024 ac 46.57% Impervious = 2.636 ac

Summary for Subcatchment 1S: Quality Way North

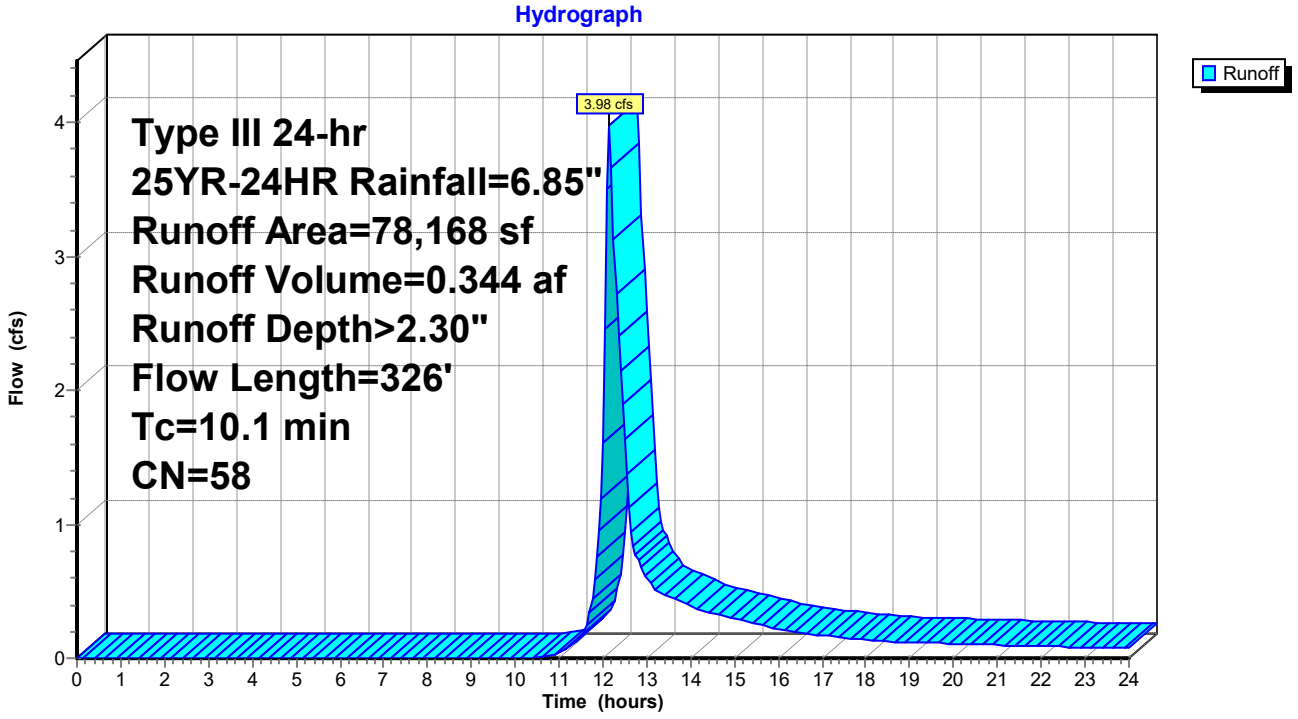
Runoff = 3.98 cfs @ 12.15 hrs, Volume= 0.344 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
11,732	98	Unconnected roofs, HSG A
18,602	39	>75% Grass cover, Good, HSG A
17,923	98	Paved parking, HSG A
29,911	30	Woods, Good, HSG A
78,168	58	Weighted Average
48,513		62.06% Pervious Area
29,655		37.94% Impervious Area
11,732		39.56% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0375	0.23		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.61"
2.9	226	0.0354	1.32		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
10.1	326	Total			

Subcatchment 1S: Quality Way North



Summary for Subcatchment 2S: Quality Way SW

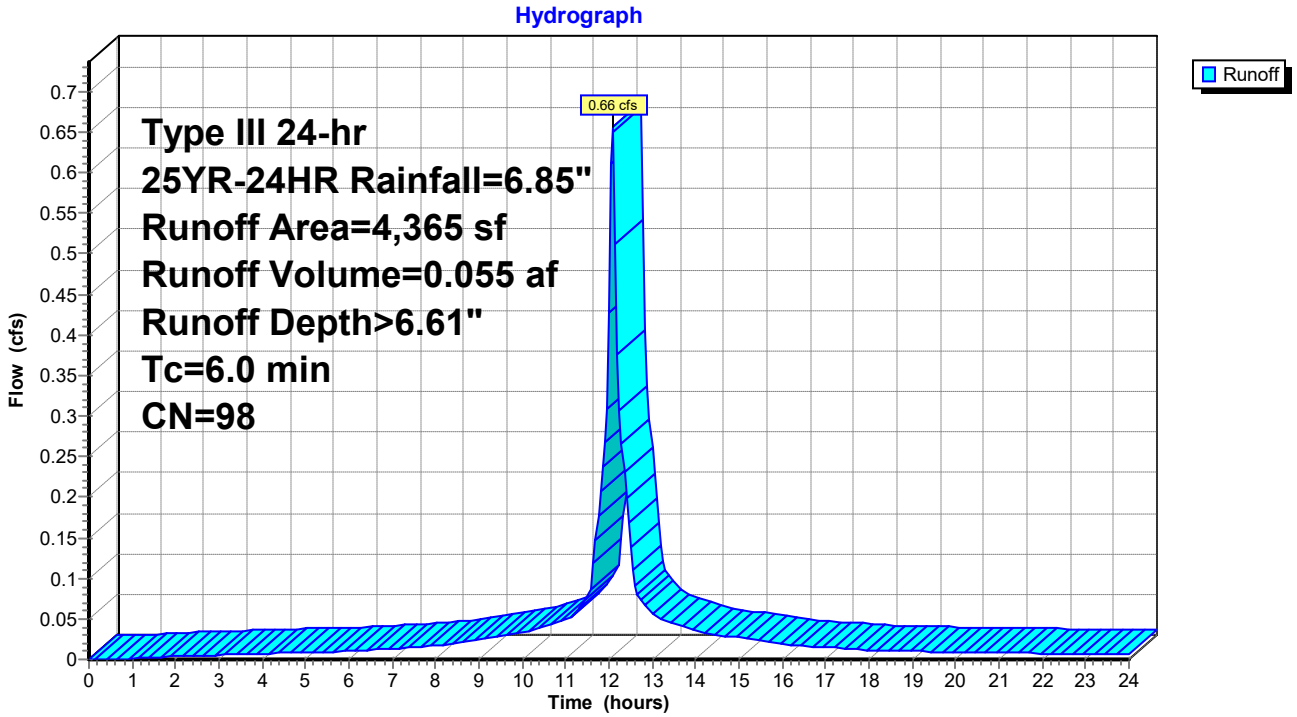
Runoff = 0.66 cfs @ 12.09 hrs, Volume= 0.055 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,365	98	Paved parking, HSG A
4,365		100.00% Impervious Area

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

Subcatchment 2S: Quality Way SW



Summary for Subcatchment 3S: Quality Way Int.

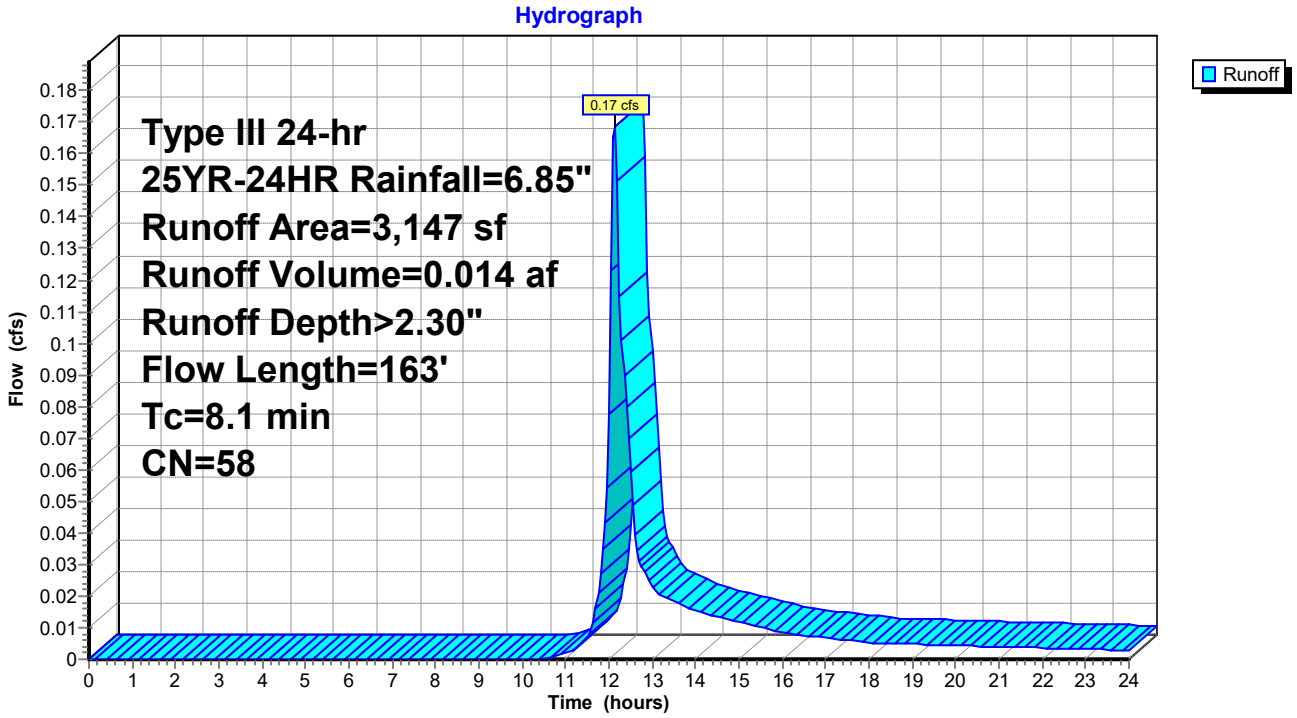
Runoff = 0.17 cfs @ 12.13 hrs, Volume= 0.014 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
1,775	39	>75% Grass cover, Good, HSG A
1,076	98	Paved parking, HSG A
296	30	Woods, Good, HSG A
3,147	58	Weighted Average
2,071		65.81% Pervious Area
1,076		34.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	36	0.0830	0.26		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.61"
3.7	33	0.1517	0.15		**Sheet Flow, Segment #2** Woods: Light underbrush n= 0.400 P2= 3.61"
1.5	14	0.0356	0.15		**Sheet Flow, Segment #3** Grass: Short n= 0.150 P2= 3.61"
0.6	80	0.0125	2.27		**Shallow Concentrated Flow, Segment #4** Paved Kv= 20.3 fps
8.1	163	Total			

Subcatchment 3S: Quality Way Int.



Summary for Subcatchment 4S: Quality Way SE

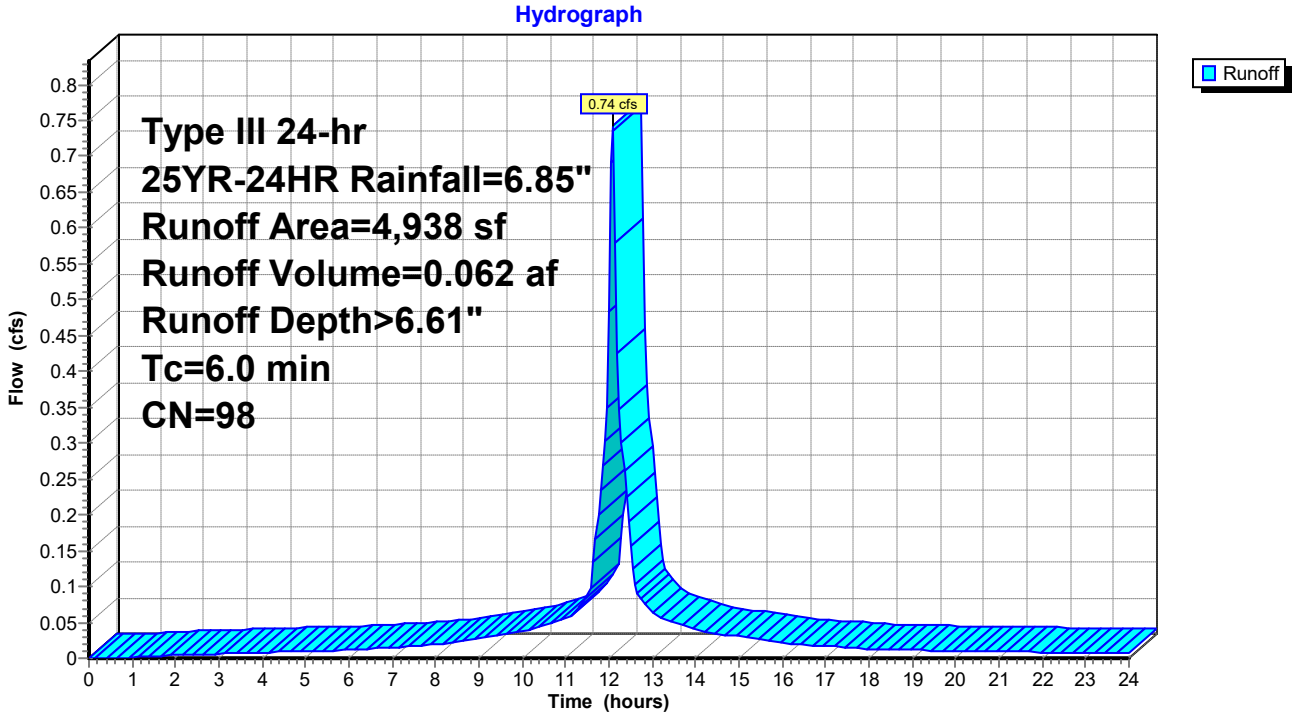
Runoff = 0.74 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,880	98	Paved parking, HSG A
58	98	Paved parking, HSG C
4,938	98	Weighted Average
4,938		100.00% Impervious Area

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

Subcatchment 4S: Quality Way SE



Summary for Subcatchment 5S: Venture Drive East

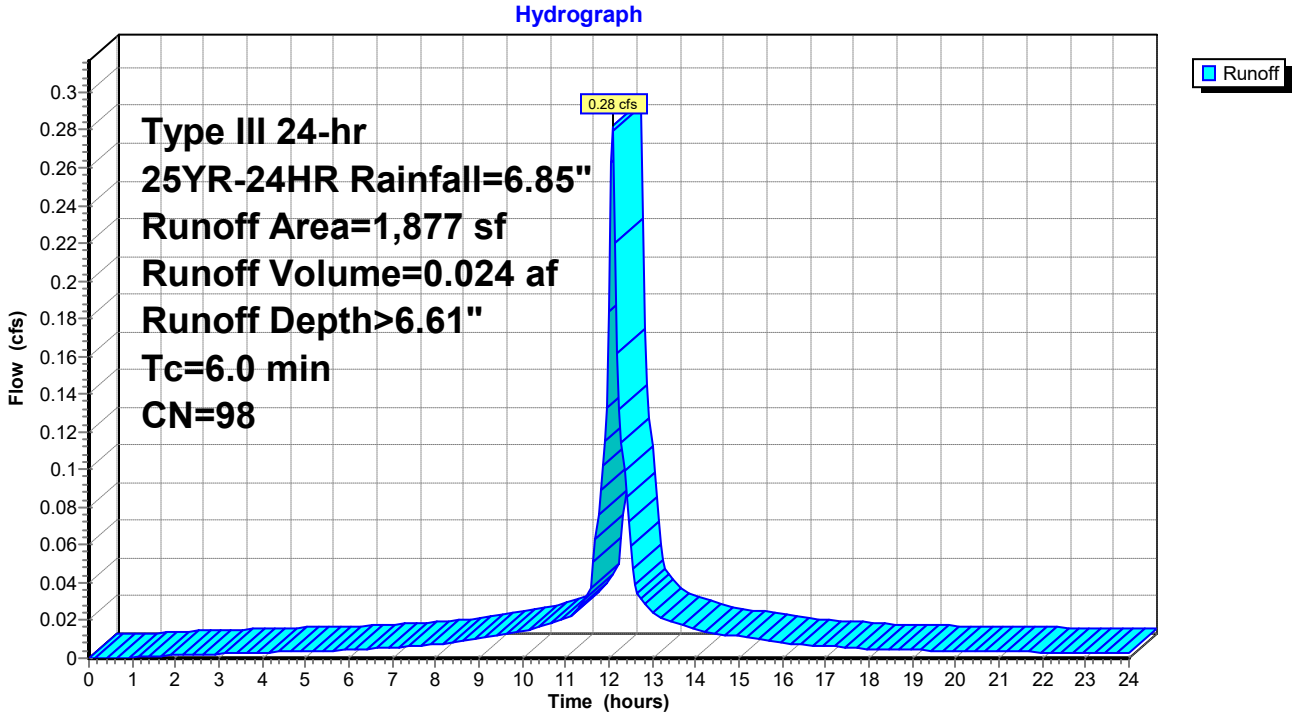
Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
1,765	98	Paved parking, HSG A
112	98	Paved parking, HSG B
1,877	98	Weighted Average
1,877		100.00% Impervious Area

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

Subcatchment 5S: Venture Drive East



Summary for Subcatchment 6S: Venture Drive Int.

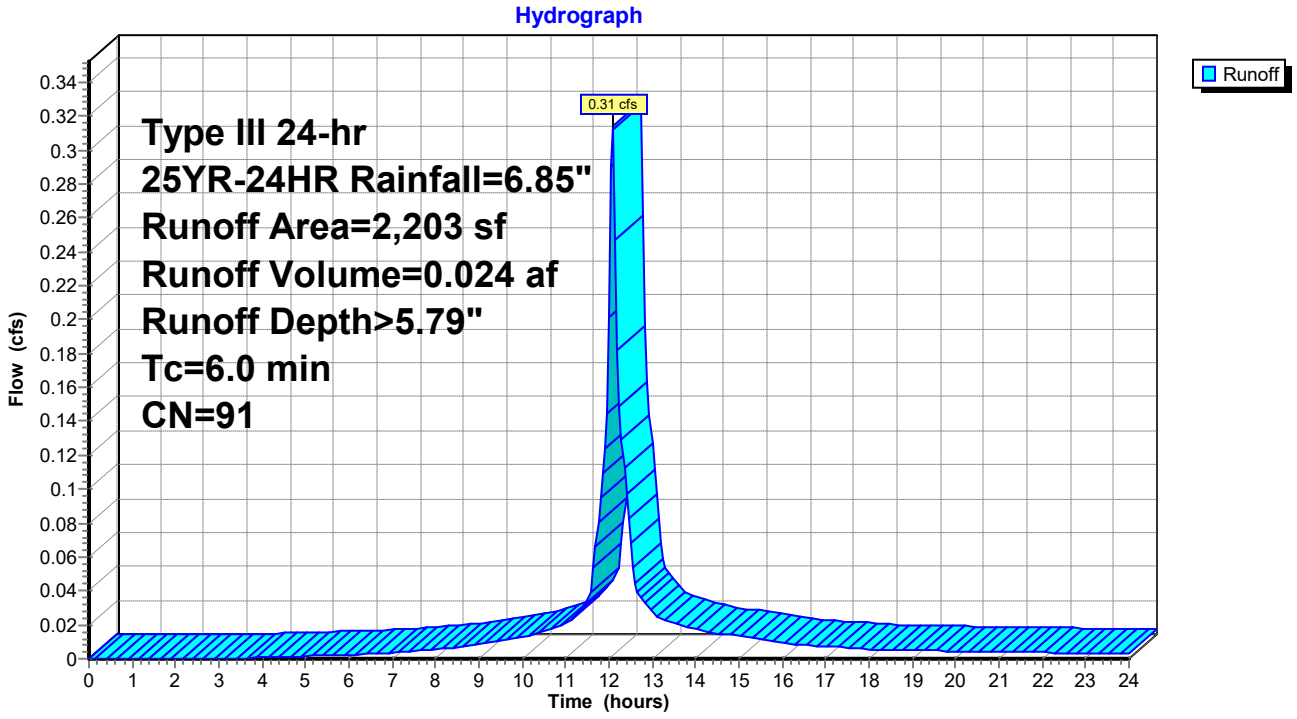
Runoff = 0.31 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 5.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
252	39	>75% Grass cover, Good, HSG A
1,951	98	Paved parking, HSG A
2,203	91	Weighted Average
252		11.44% Pervious Area
1,951		88.56% Impervious Area

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

Subcatchment 6S: Venture Drive Int.



Summary for Subcatchment 7S: Forward Merch

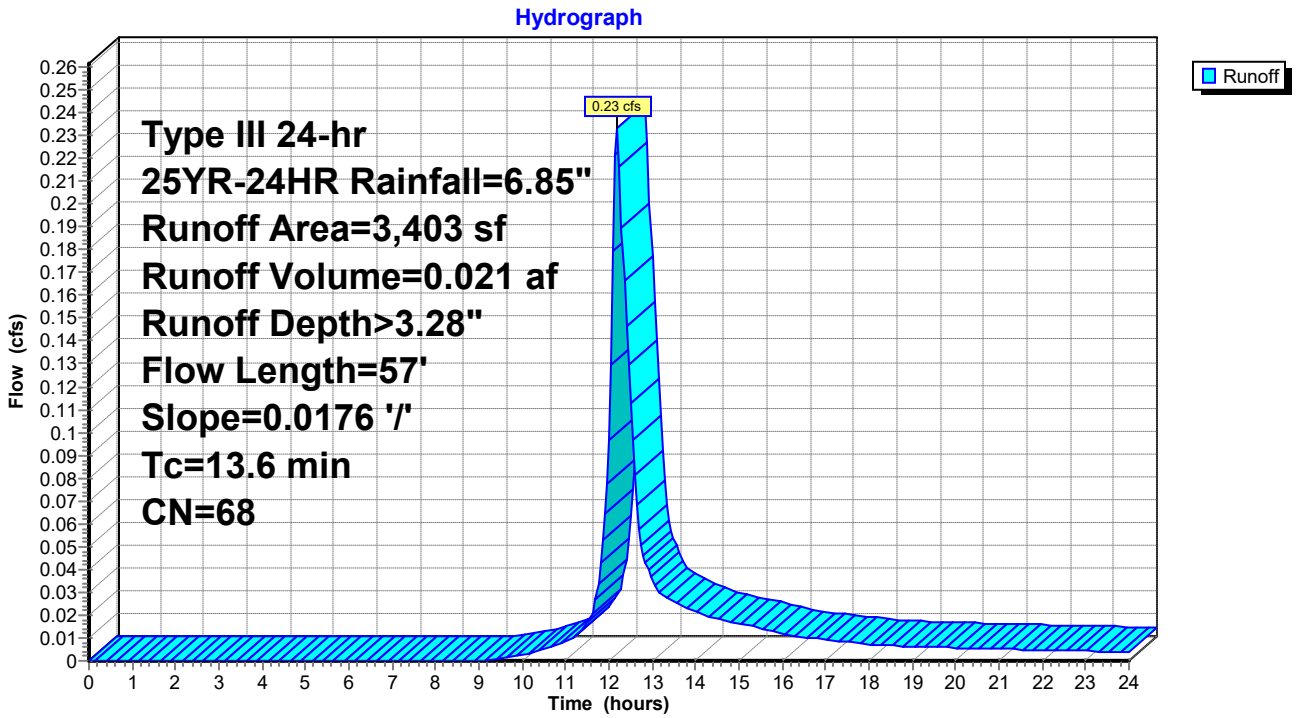
Runoff = 0.23 cfs @ 12.20 hrs, Volume= 0.021 af, Depth> 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
493	39	>75% Grass cover, Good, HSG A
1,830	98	Paved parking, HSG A
1,080	30	Woods, Good, HSG A
3,403	68	Weighted Average
1,573		46.22% Pervious Area
1,830		53.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	57	0.0176	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.61"

Subcatchment 7S: Forward Merch



Summary for Subcatchment 8S: Ventur Drive FM

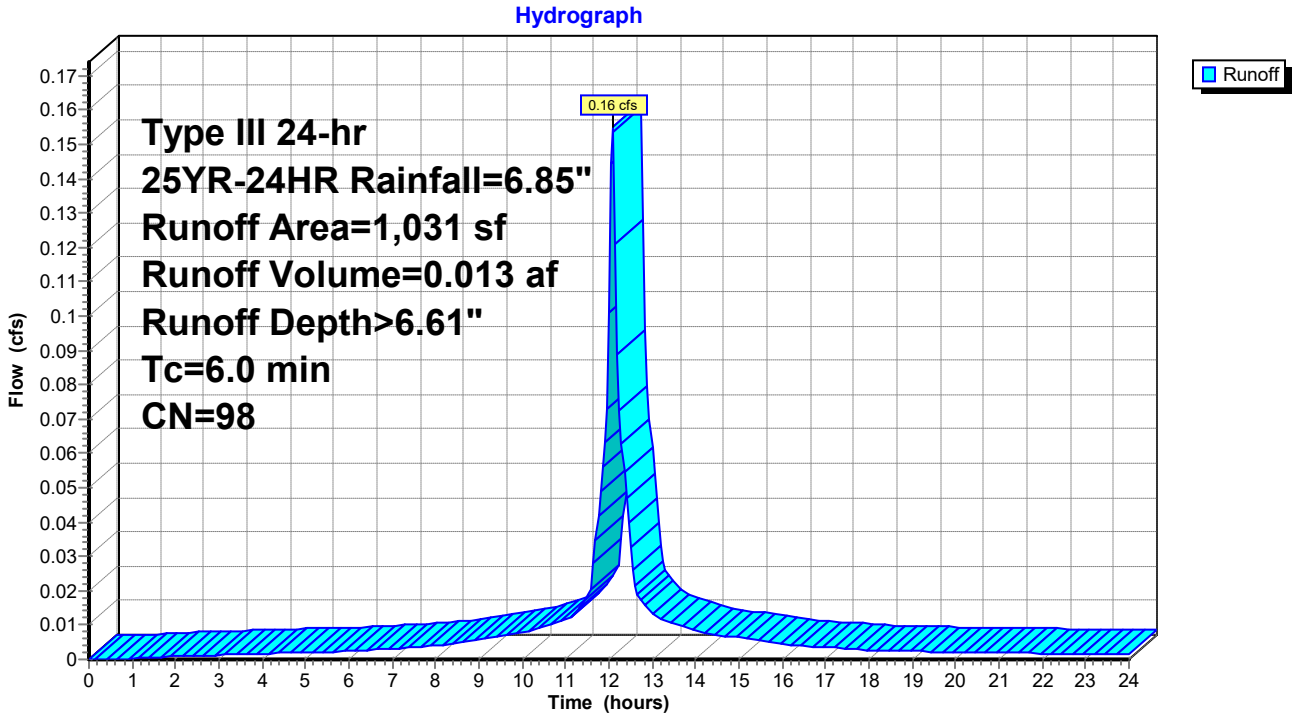
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
1,031	98	Paved parking, HSG A
1,031		100.00% Impervious Area

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

Subcatchment 8S: Ventur Drive FM



Summary for Subcatchment 9S: Certified Driveway

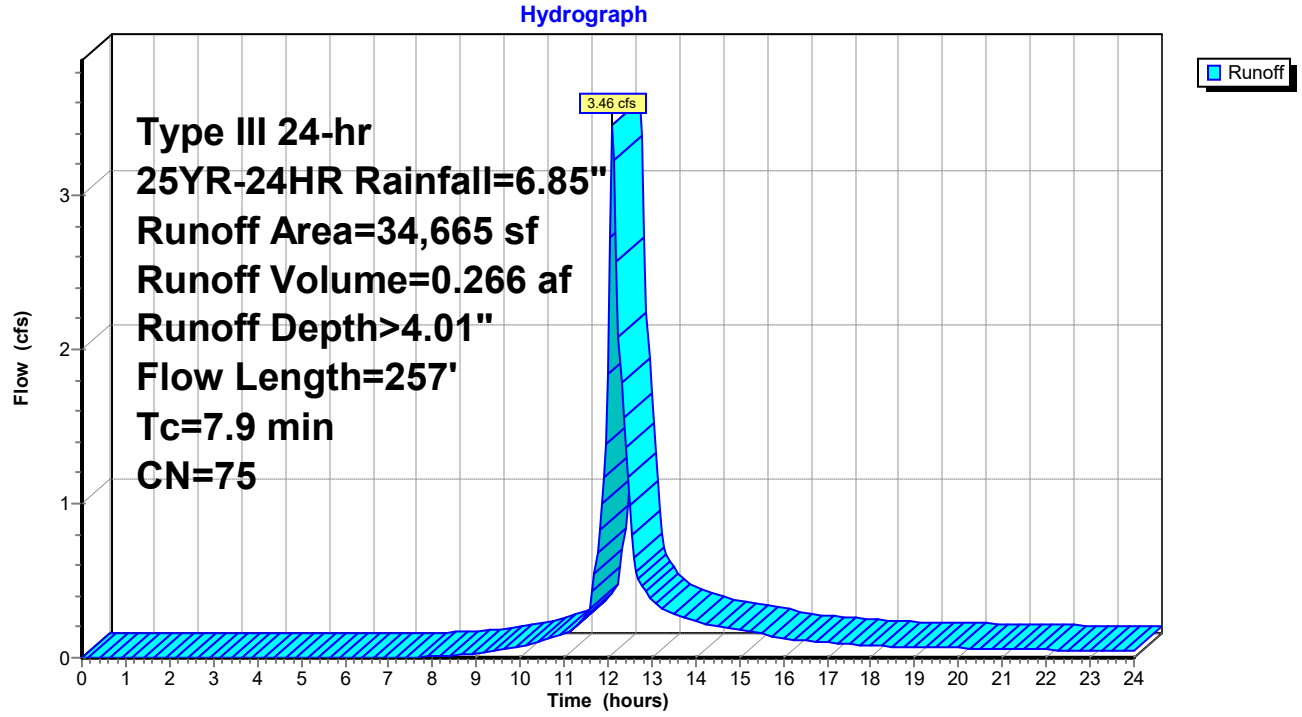
Runoff = 3.46 cfs @ 12.11 hrs, Volume= 0.266 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,472	98	Unconnected roofs, HSG A
13,788	39	>75% Grass cover, Good, HSG A
16,405	98	Paved parking, HSG A
34,665	75	Weighted Average
13,788		39.77% Pervious Area
20,877		60.23% Impervious Area
4,472		21.42% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0500	0.26		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.61"
1.2	110	0.0499	1.56		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
0.3	47	0.0212	2.96		**Shallow Concentrated Flow, Segment #3** Paved Kv= 20.3 fps
7.9	257	Total			

Subcatchment 9S: Certified Driveway



Summary for Subcatchment 10S: Certified Parking Lot

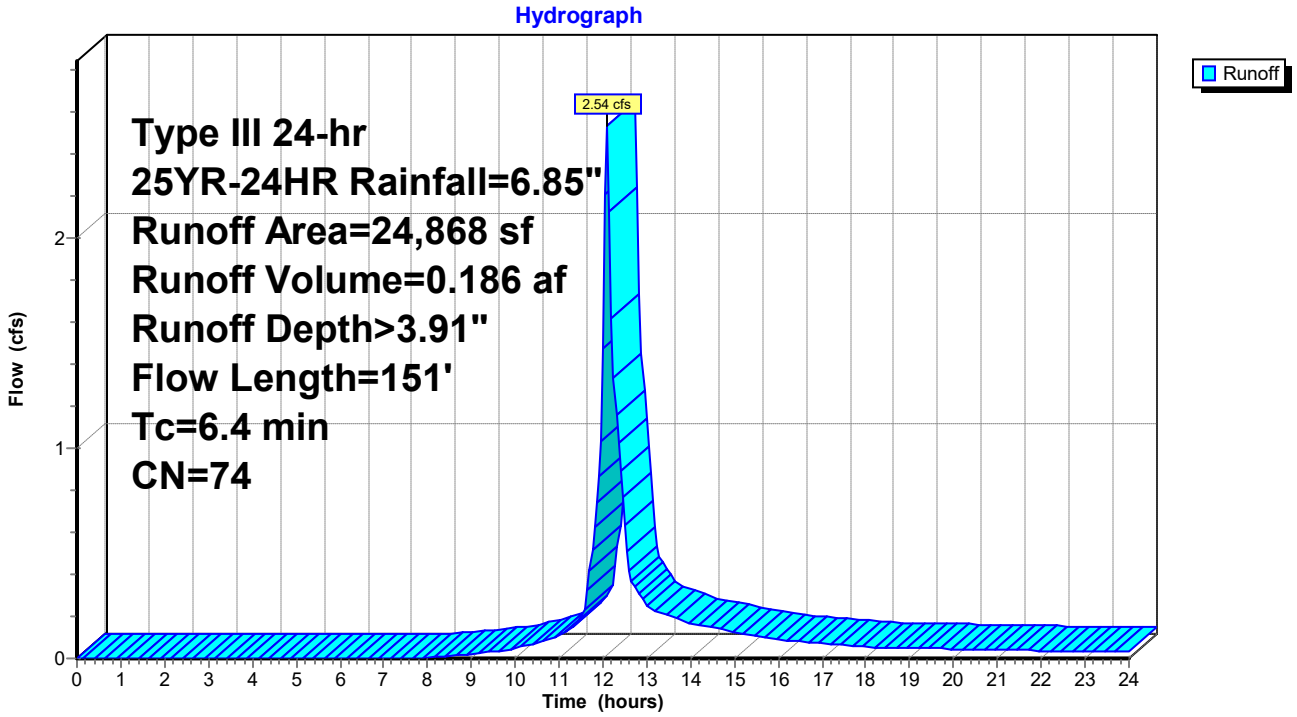
Runoff = 2.54 cfs @ 12.10 hrs, Volume= 0.186 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,472	98	Unconnected roofs, HSG A
5,585	39	>75% Grass cover, Good, HSG A
10,965	98	Paved parking, HSG A
3,846	30	Woods, Good, HSG A
24,868	74	Weighted Average
9,431		37.92% Pervious Area
15,437		62.08% Impervious Area
4,472		28.97% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	18	0.1382	0.28		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.61"
3.9	29	0.1021	0.12		**Sheet Flow, Segment #2** Woods: Light underbrush n= 0.400 P2= 3.61"
0.9	14	0.1439	0.27		**Sheet Flow, Segment #3** Grass: Short n= 0.150 P2= 3.61"
0.5	90	0.0223	3.03		**Shallow Concentrated Flow, Segment #4** Paved Kv= 20.3 fps
6.4	151	Total			

Subcatchment 10S: Certified Parking Lot



Summary for Subcatchment 11S: Venture Drive NE

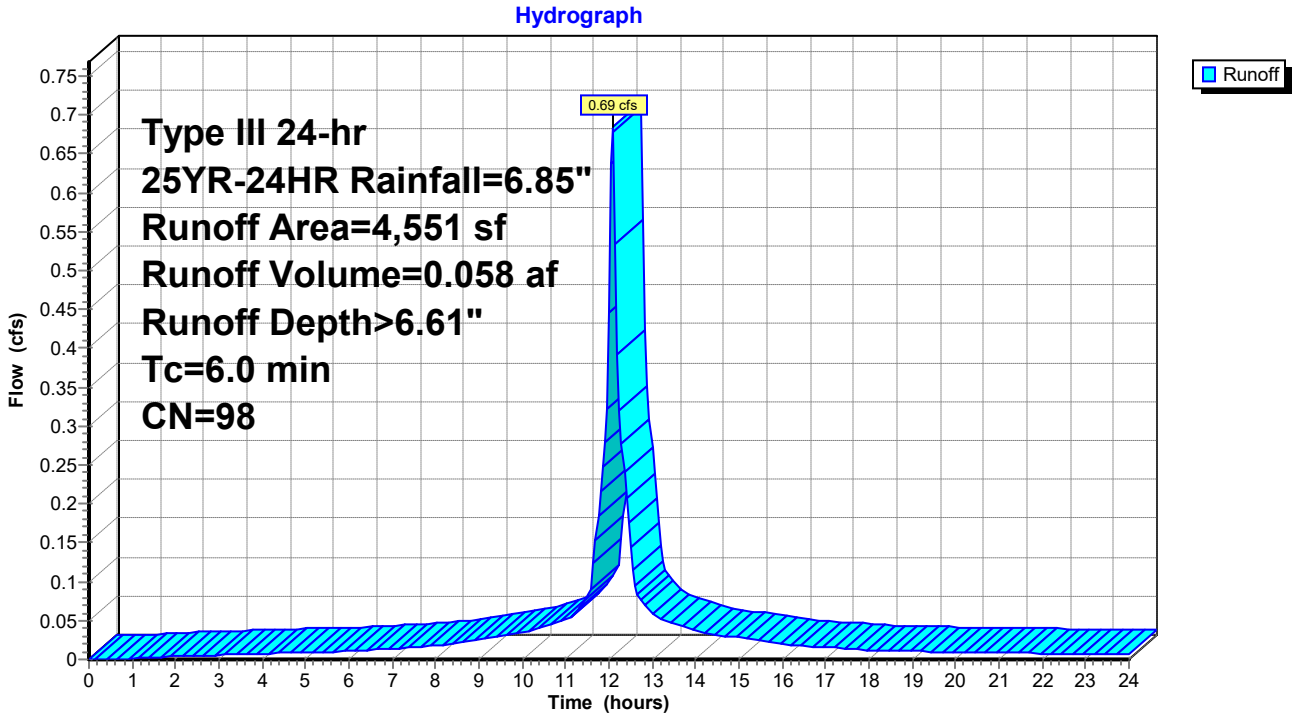
Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.058 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,551	98	Paved parking, HSG A
4,551		100.00% Impervious Area

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

Subcatchment 11S: Venture Drive NE



Summary for Subcatchment 12S: Remainder of Existing Site

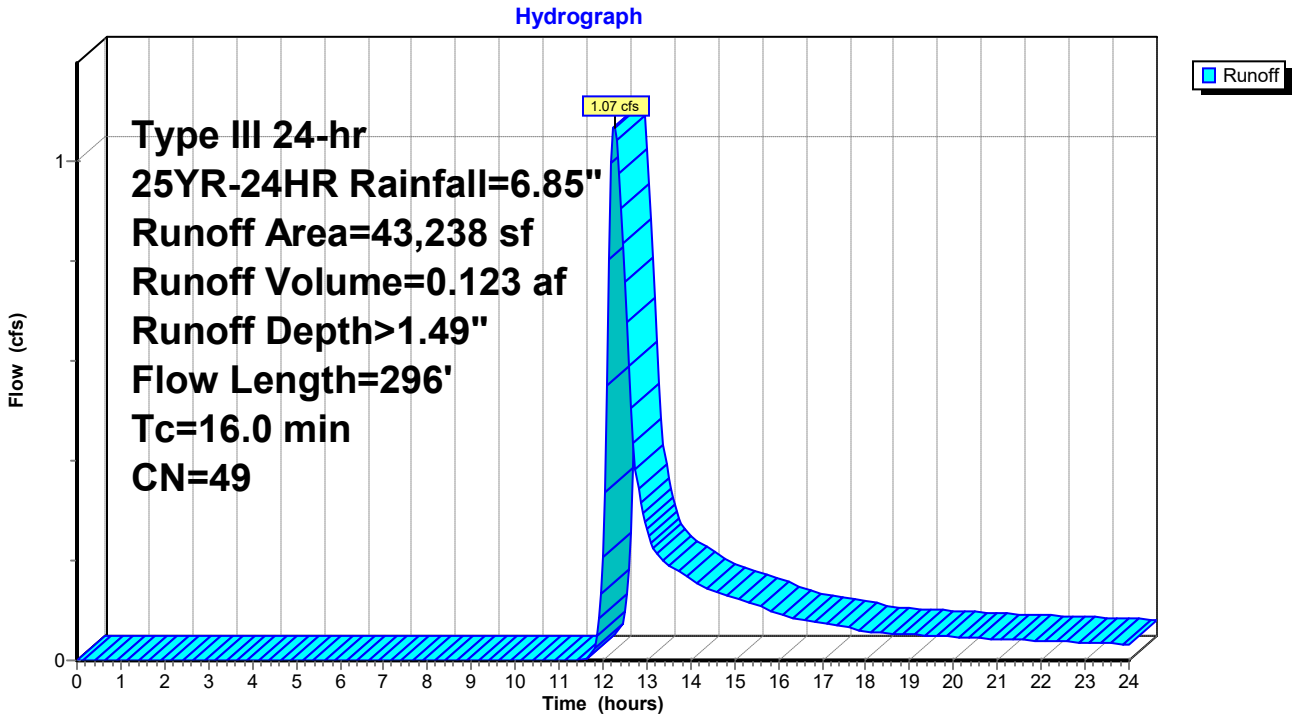
Runoff = 1.07 cfs @ 12.26 hrs, Volume= 0.123 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
2,711	39	>75% Grass cover, Good, HSG A
21,309	30	Woods, Good, HSG A
9,577	74	>75% Grass cover, Good, HSG C
9,641	70	Woods, Good, HSG C
43,238	49	Weighted Average
43,238		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0600	0.13		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.61"
3.0	196	0.0460	1.07		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
16.0	296	Total			

Subcatchment 12S: Remainder of Existing Site



Summary for Subcatchment 13S: Venture Drive

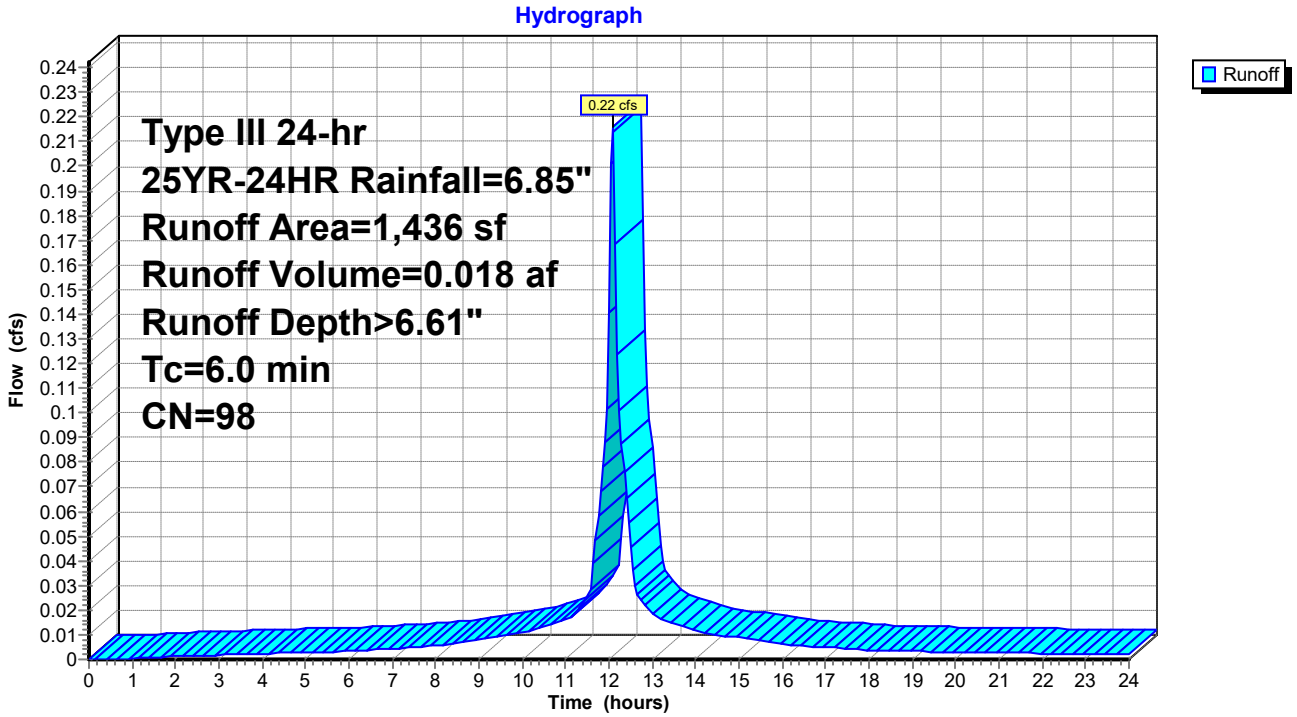
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
1,436	98	Paved parking, HSG B
1,436		100.00% Impervious Area

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

Subcatchment 13S: Venture Drive



Summary for Subcatchment 20S: Subcatchment #20

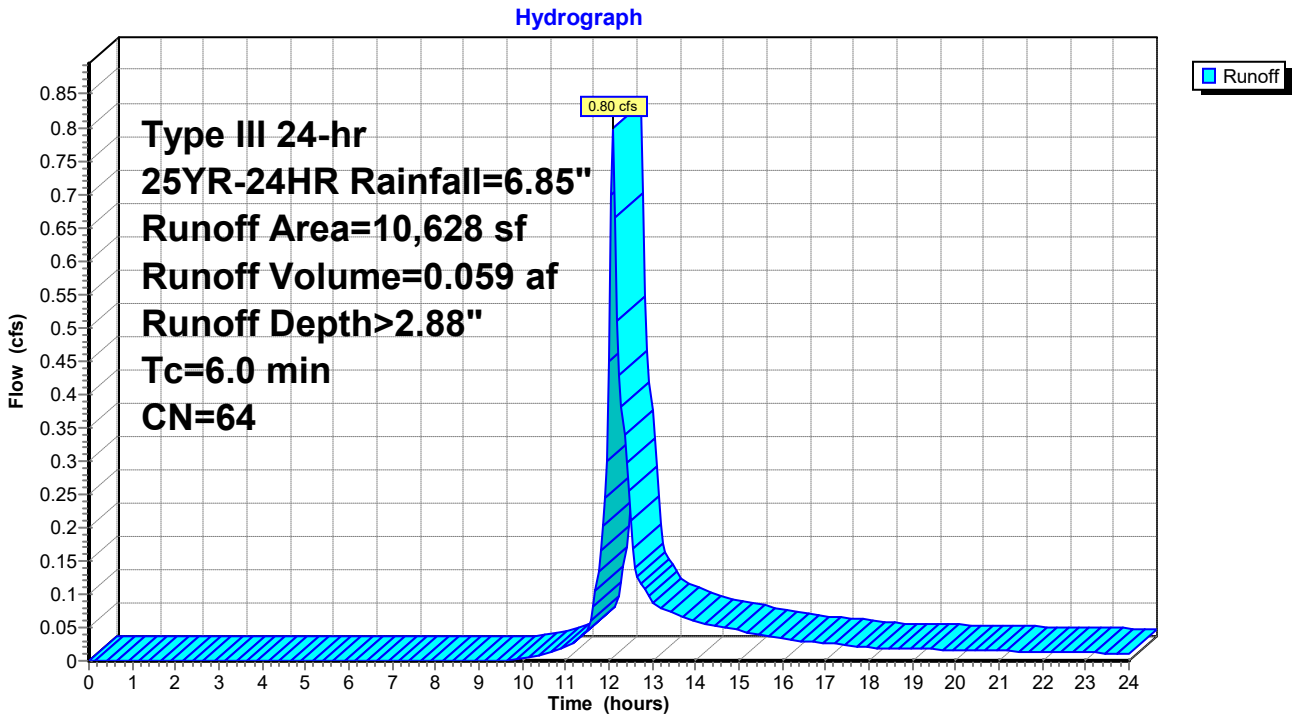
Runoff = 0.80 cfs @ 12.10 hrs, Volume= 0.059 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,612	39	>75% Grass cover, Good, HSG A
2,449	98	Paved parking, HSG A
119	61	>75% Grass cover, Good, HSG B
3,448	74	>75% Grass cover, Good, HSG C
10,628	64	Weighted Average
8,179		76.96% Pervious Area
2,449		23.04% Impervious Area

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

Subcatchment 20S: Subcatchment #20



Summary for Subcatchment 21S: Subcatchment #21

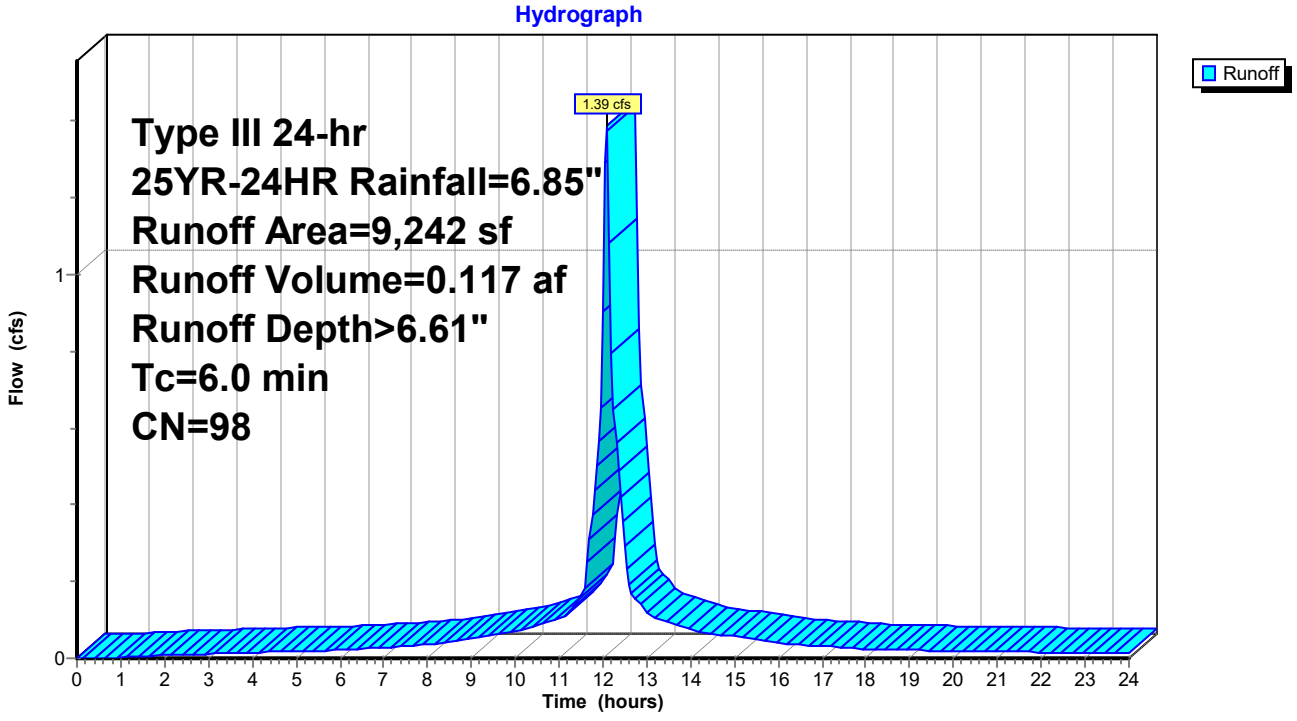
Runoff = 1.39 cfs @ 12.09 hrs, Volume= 0.117 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
4,702	98	Roofs, HSG A
2,302	98	Paved parking, HSG A
294	98	Paved parking, HSG B
1,944	98	Paved parking, HSG C
9,242	98	Weighted Average
9,242		100.00% Impervious Area

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

Subcatchment 21S: Subcatchment #21



Summary for Subcatchment 22S: Subcatchment #22

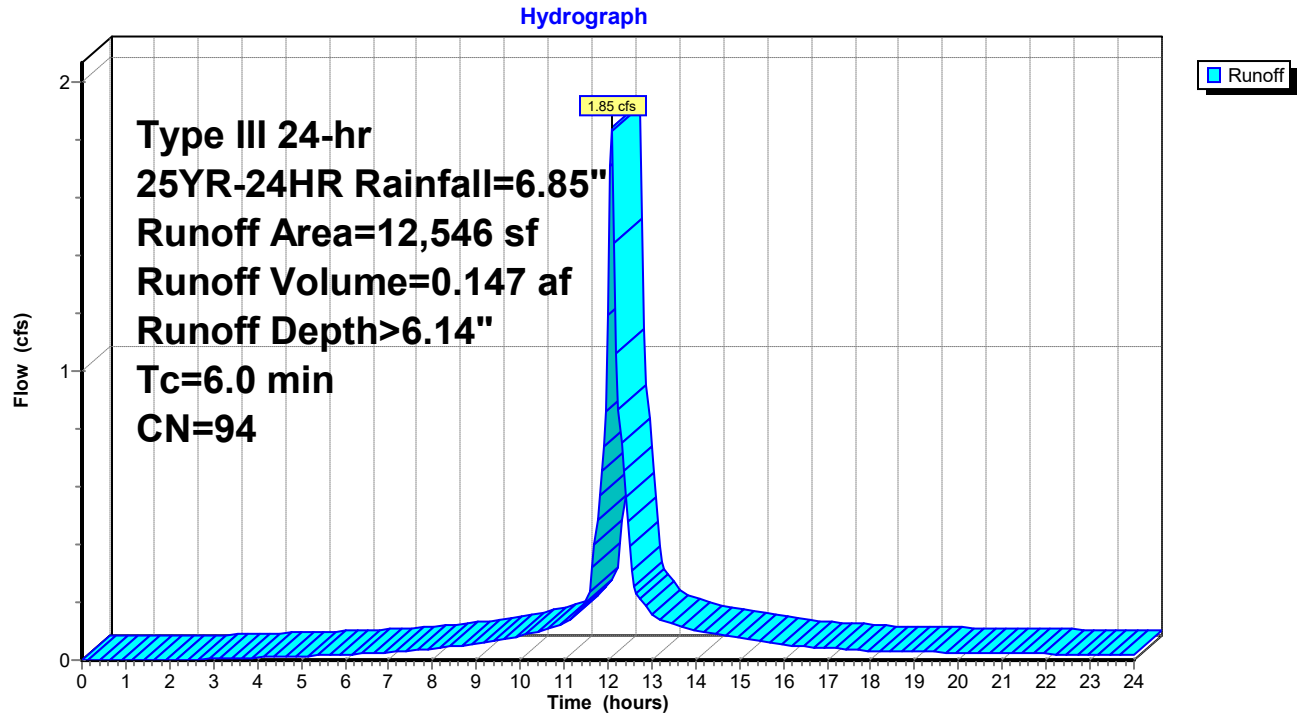
Runoff = 1.85 cfs @ 12.09 hrs, Volume= 0.147 af, Depth> 6.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
5,372	98	Roofs, HSG A
727	39	>75% Grass cover, Good, HSG A
6,022	98	Paved parking, HSG A
45	74	>75% Grass cover, Good, HSG C
380	98	Paved parking, HSG C
12,546	94	Weighted Average
772		6.15% Pervious Area
11,774		93.85% Impervious Area

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

Subcatchment 22S: Subcatchment #22



Summary for Subcatchment 23S: Subcatchment #23

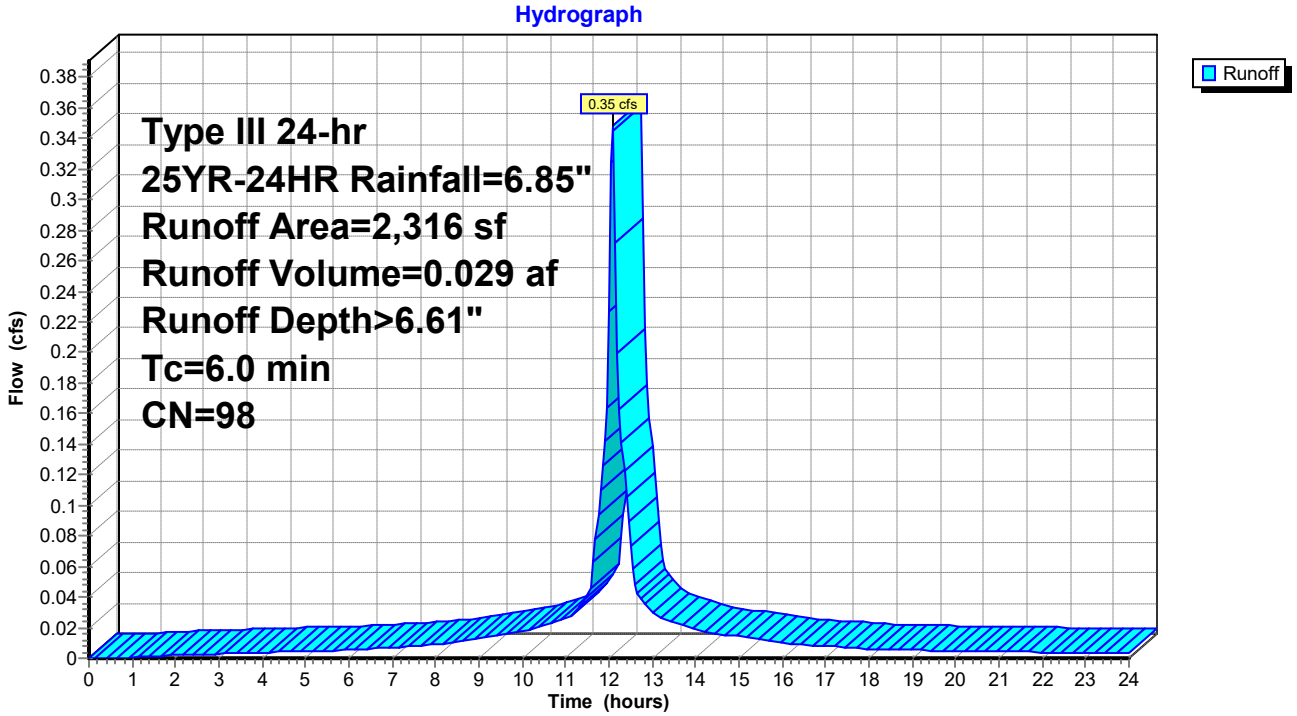
Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
983	98	Paved parking, HSG A
1,333	98	Paved parking, HSG C
2,316	98	Weighted Average
2,316		100.00% Impervious Area

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

Subcatchment 23S: Subcatchment #23



Summary for Subcatchment 24S: Area Around Pond

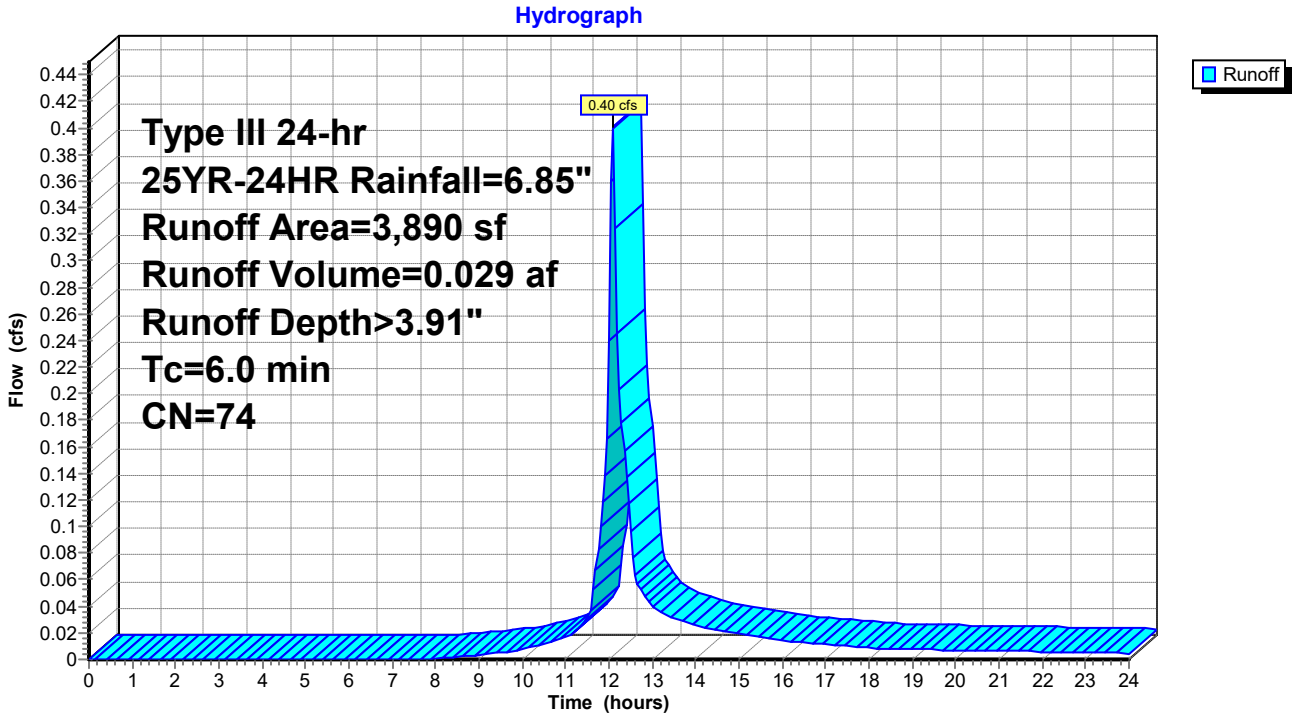
Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR-24HR Rainfall=6.85"

Area (sf)	CN	Description
3,890	74	>75% Grass cover, Good, HSG C
3,890		100.00% Pervious Area

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

Subcatchment 24S: Area Around Pond



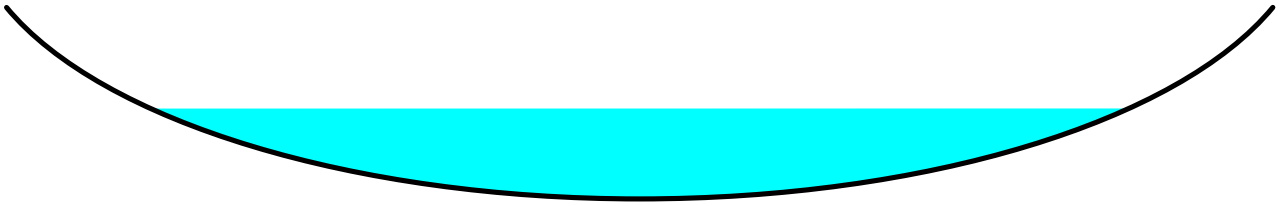
Summary for Reach 2R: Reach #2

Inflow Area = 1.895 ac, 41.22% Impervious, Inflow Depth > 2.53" for 25YR-24HR event
Inflow = 4.38 cfs @ 12.16 hrs, Volume= 0.399 af
Outflow = 4.10 cfs @ 12.21 hrs, Volume= 0.398 af, Atten= 6%, Lag= 3.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.08 fps, Min. Travel Time= 4.5 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 14.6 min

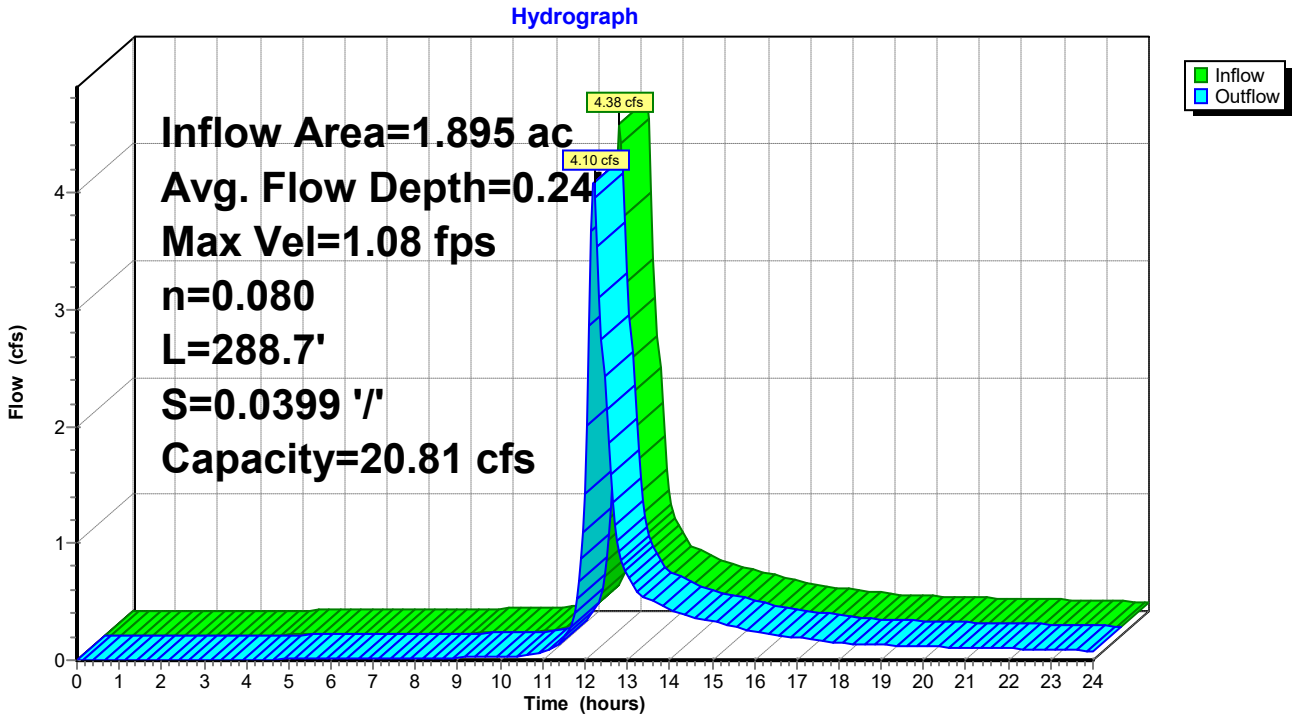
Peak Storage= 1,093 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 0.50' Flow Area= 11.7 sf, Capacity= 20.81 cfs

35.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 288.7' Slope= 0.0399 '/'
Inlet Invert= 166.78', Outlet Invert= 155.25'



‡

Reach 2R: Reach #2



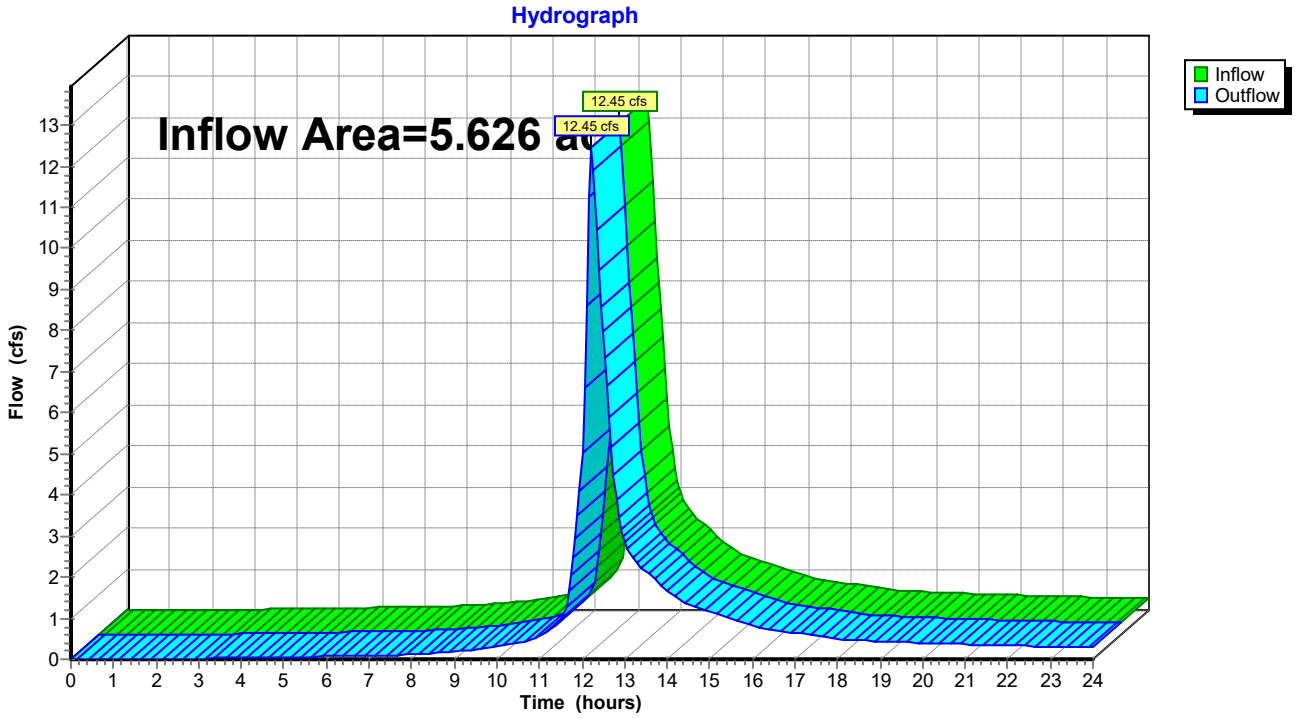
Summary for Reach 100R: Final Reach #100

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

Inflow Area = 5.626 ac, 46.26% Impervious, Inflow Depth > 3.16" for 25YR-24HR event
Inflow = 12.45 cfs @ 12.22 hrs, Volume= 1.482 af
Outflow = 12.45 cfs @ 12.22 hrs, Volume= 1.482 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 100R: Final Reach #100



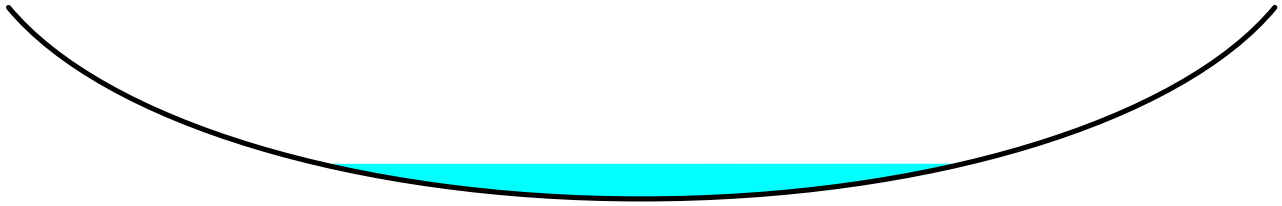
Summary for Reach 101aR: Overland Flow to Wetlands

Inflow Area = 0.643 ac, 83.35% Impervious, Inflow Depth > 4.40" for 25YR-24HR event
Inflow = 0.98 cfs @ 12.47 hrs, Volume= 0.235 af
Outflow = 0.98 cfs @ 12.48 hrs, Volume= 0.235 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.08 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.03 fps, Avg. Travel Time= 0.3 min

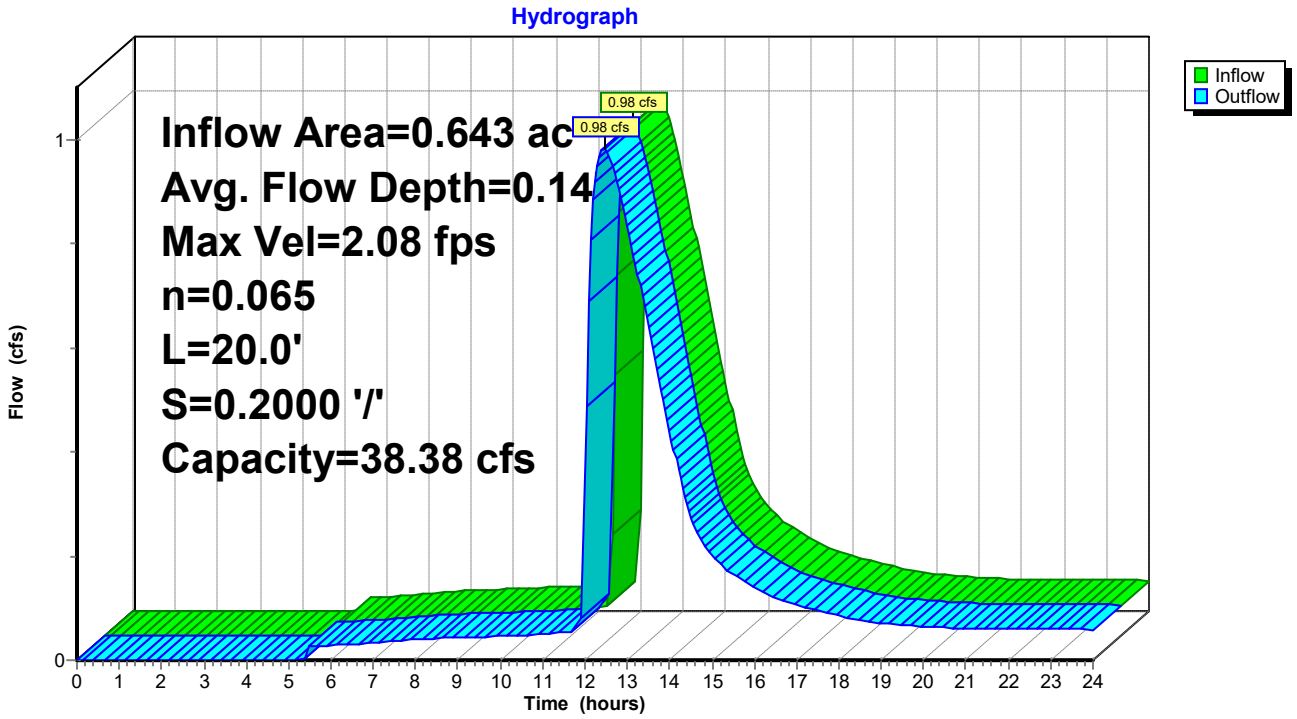
Peak Storage= 9 cf @ 12.48 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 0.75' Flow Area= 6.0 sf, Capacity= 38.38 cfs

12.00' x 0.75' deep Parabolic Channel, n= 0.065
Length= 20.0' Slope= 0.2000 '/'
Inlet Invert= 159.50', Outlet Invert= 155.50'



‡

Reach 101aR: Overland Flow to Wetlands



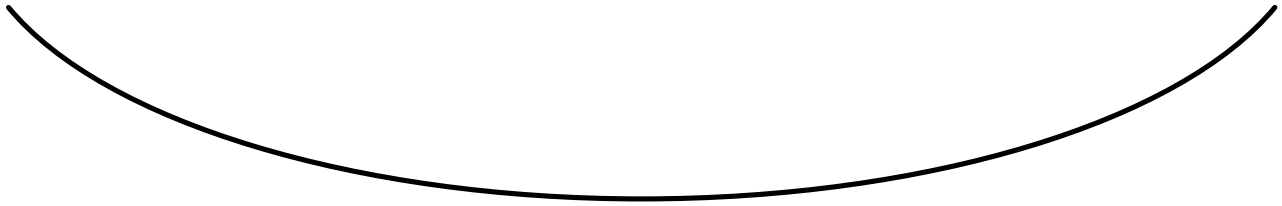
Summary for Reach 101bR: Overland Flow to Wetlands

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

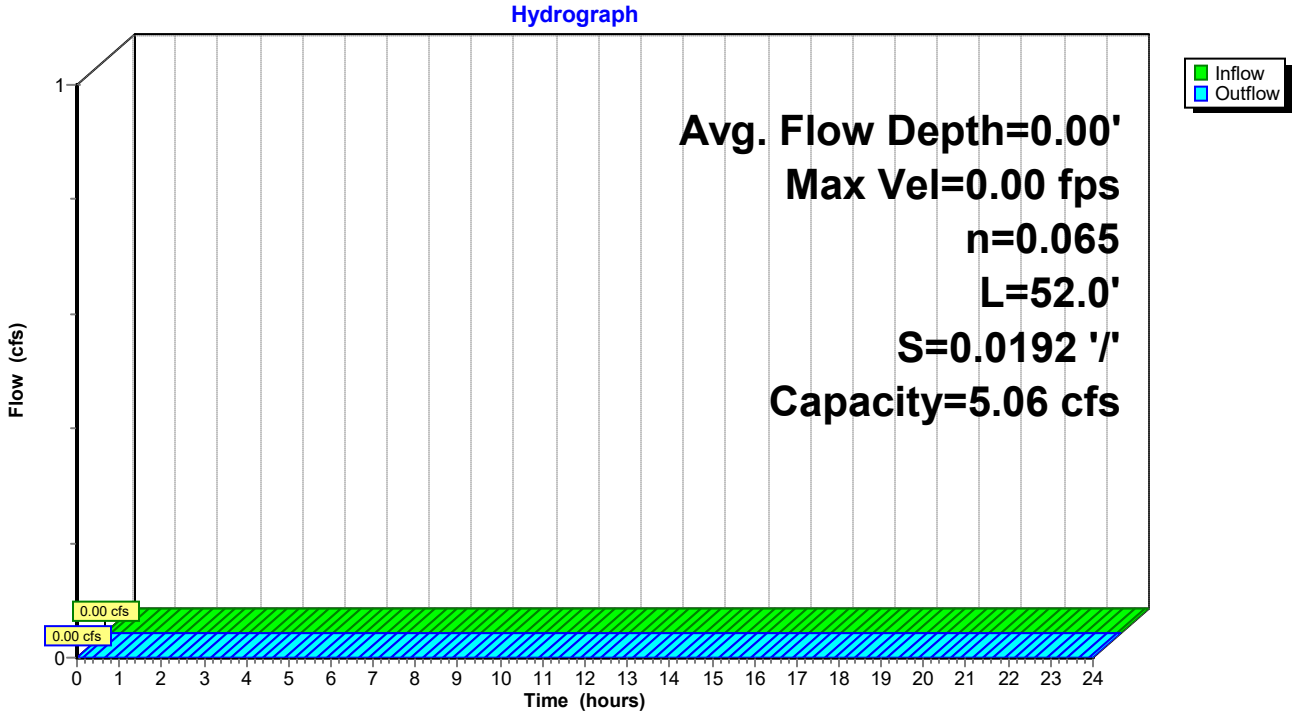
Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 3.3 sf, Capacity= 5.06 cfs

10.00' x 0.50' deep Parabolic Channel, n= 0.065
Length= 52.0' Slope= 0.0192 '/'
Inlet Invert= 161.00', Outlet Invert= 160.00'



‡

Reach 101bR: Overland Flow to Wetlands



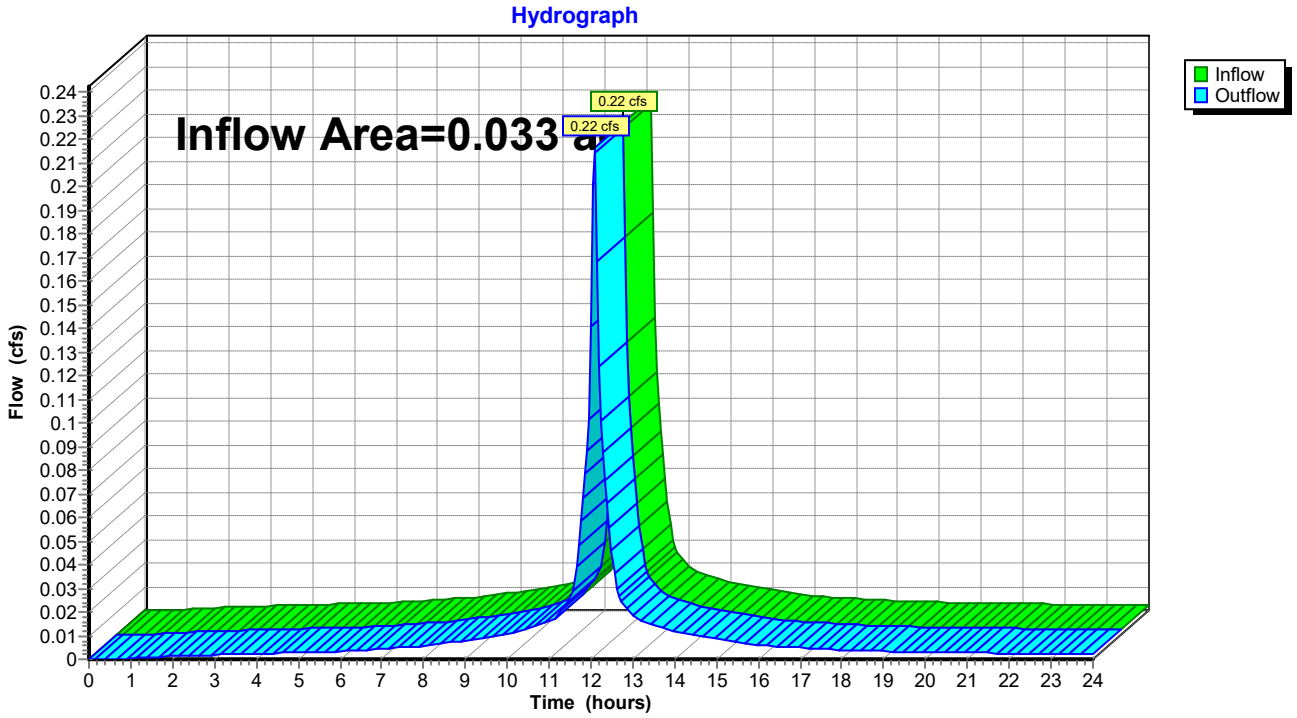
Summary for Reach 200R: Final Reach #200

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

Inflow Area = 0.033 ac,100.00% Impervious, Inflow Depth > 6.61" for 25YR-24HR event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 200R: Final Reach #200



Summary for Pond 1P: Roadside Pond

Inflow Area = 1.794 ac, 37.94% Impervious, Inflow Depth > 2.30" for 25YR-24HR event
Inflow = 3.98 cfs @ 12.15 hrs, Volume= 0.344 af
Outflow = 3.92 cfs @ 12.17 hrs, Volume= 0.344 af, Atten= 2%, Lag= 1.0 min
Primary = 3.92 cfs @ 12.17 hrs, Volume= 0.344 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 170.15' @ 12.17 hrs Surf.Area= 146 sf Storage= 62 cf

Plug-Flow detention time= 0.1 min calculated for 0.344 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (862.3 - 862.2)

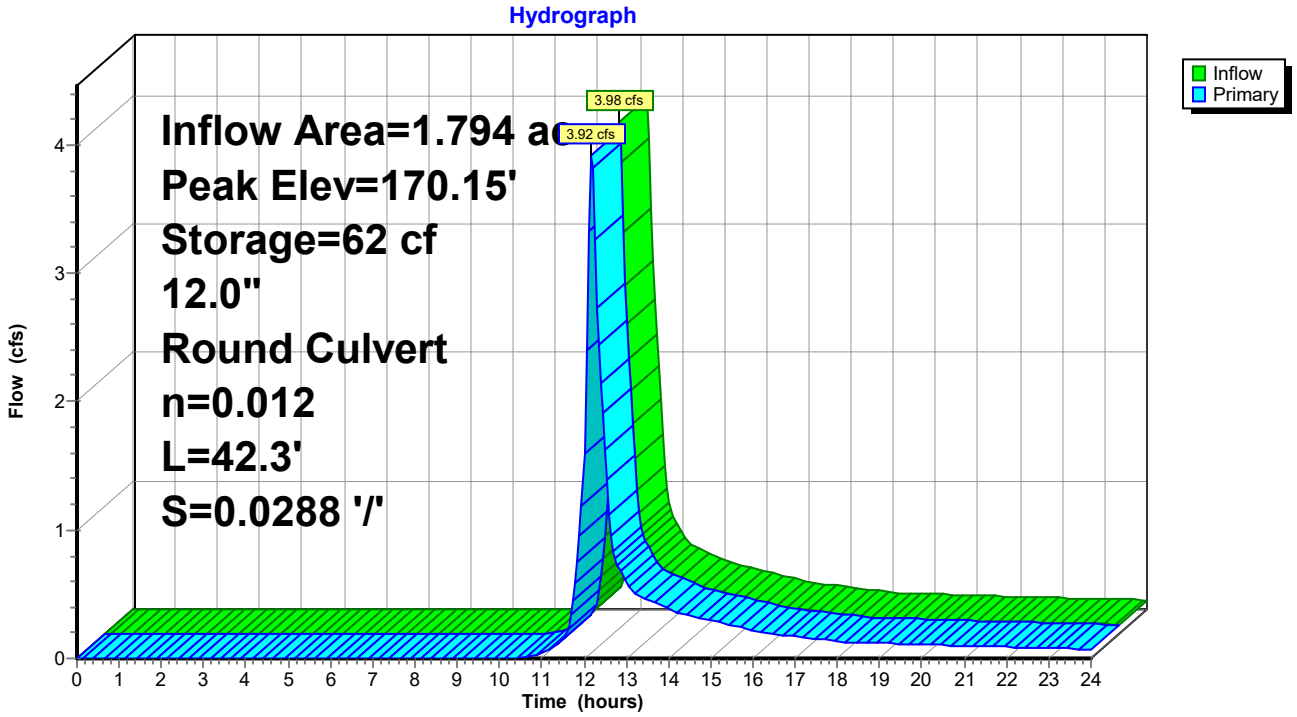
Volume	Invert	Avail.Storage	Storage Description
#1	168.58'	1,980 cf	**Open Water Storage (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
168.58	0	3.2	0	0	0
170.00	93	71.6	44	44	411
171.00	665	272.4	336	380	5,910
172.00	2,778	538.9	1,601	1,980	23,120

Device	Routing	Invert	Outlet Devices
#1	Primary	168.58'	**12.0" Round 12" RCP** L= 42.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.58' / 167.36' S= 0.0288 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.85 cfs @ 12.17 hrs HW=170.11' TW=168.89' (Dynamic Tailwater)
↑**1=12" RCP** (Inlet Controls 3.85 cfs @ 4.90 fps)

Pond 1P: Roadside Pond



Summary for Pond 2P: CB #7325

Inflow Area = 1.895 ac, 41.22% Impervious, Inflow Depth > 2.53" for 25YR-24HR event
Inflow = 4.39 cfs @ 12.16 hrs, Volume= 0.400 af
Outflow = 4.38 cfs @ 12.16 hrs, Volume= 0.399 af, Atten= 0%, Lag= 0.1 min
Primary = 4.38 cfs @ 12.16 hrs, Volume= 0.399 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 168.93' @ 12.16 hrs Surf.Area= 13 sf Storage= 25 cf

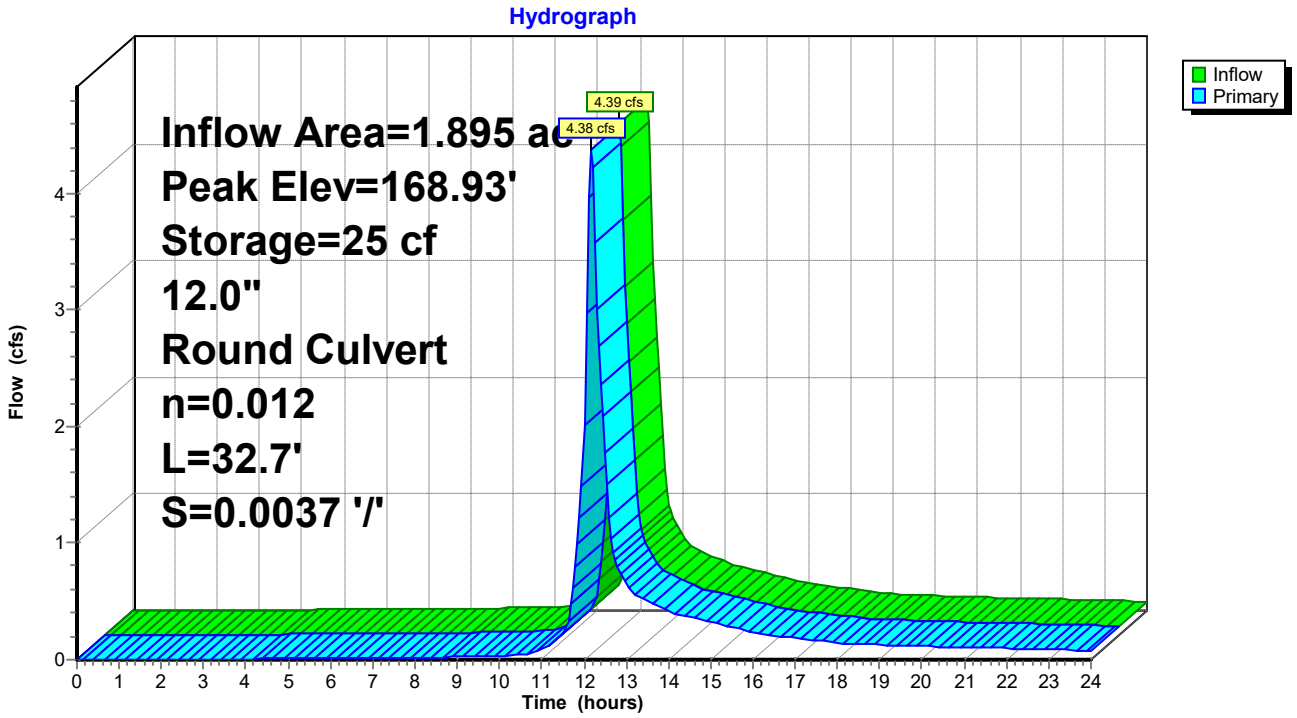
Plug-Flow detention time= 0.2 min calculated for 0.399 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (845.9 - 845.8)

Volume	Invert	Avail.Storage	Storage Description
#1	166.90'	97 cf	**4.00'D x 7.70'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	166.90'	**12.0" Round 12" RCP** L= 32.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.90' / 166.78' S= 0.0037 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.33 cfs @ 12.16 hrs HW=168.90' TW=167.01' (Dynamic Tailwater)
1=12" RCP (Barrel Controls 4.33 cfs @ 5.52 fps)

Pond 2P: CB #7325



Summary for Pond 3P: CB #7323

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.072 ac, 34.19% Impervious, Inflow Depth > 3.50" for 25YR-24HR event
Inflow = 1.88 cfs @ 12.20 hrs, Volume= 0.021 af
Outflow = 1.81 cfs @ 12.20 hrs, Volume= 0.021 af, Atten= 4%, Lag= 0.1 min
Primary = 1.81 cfs @ 12.20 hrs, Volume= 0.021 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 169.64' @ 12.20 hrs Surf.Area= 13 sf Storage= 9 cf

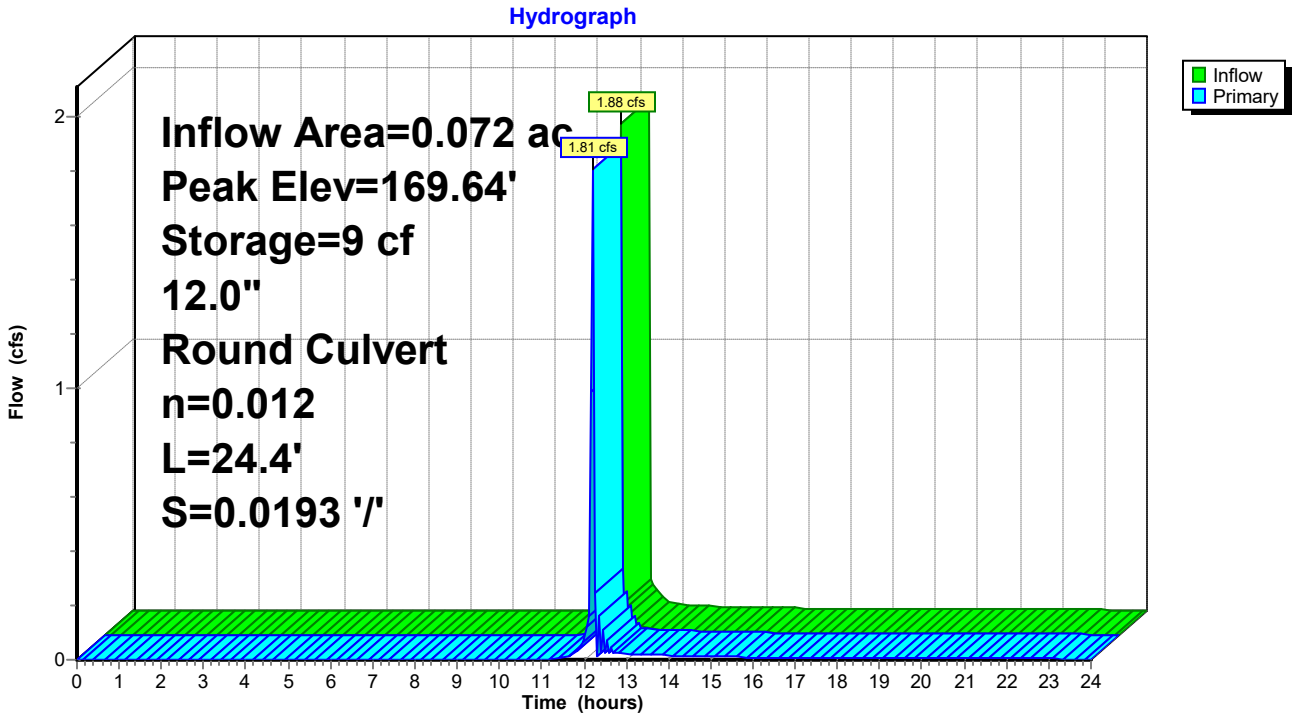
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.3 min (817.0 - 816.7)

Volume	Invert	Avail.Storage	Storage Description
#1	168.90'	40 cf	**4.00'D x 3.20'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	168.90'	**12.0" Round 12" RCP** L= 24.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.90' / 168.43' S= 0.0193 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.67 cfs @ 12.20 hrs HW=169.63' TW=169.16' (Dynamic Tailwater)
↑**1=12" RCP** (Outlet Controls 1.67 cfs @ 3.80 fps)

Pond 3P: CB #7323



Summary for Pond 4P: CB #7324

Inflow Area = 0.186 ac, 74.38% Impervious, Inflow Depth > 5.40" for 25YR-24HR event
Inflow = 2.23 cfs @ 12.20 hrs, Volume= 0.083 af
Outflow = 2.17 cfs @ 12.20 hrs, Volume= 0.083 af, Atten= 3%, Lag= 0.1 min
Primary = 2.17 cfs @ 12.20 hrs, Volume= 0.083 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 169.16' @ 12.20 hrs Surf.Area= 13 sf Storage= 10 cf

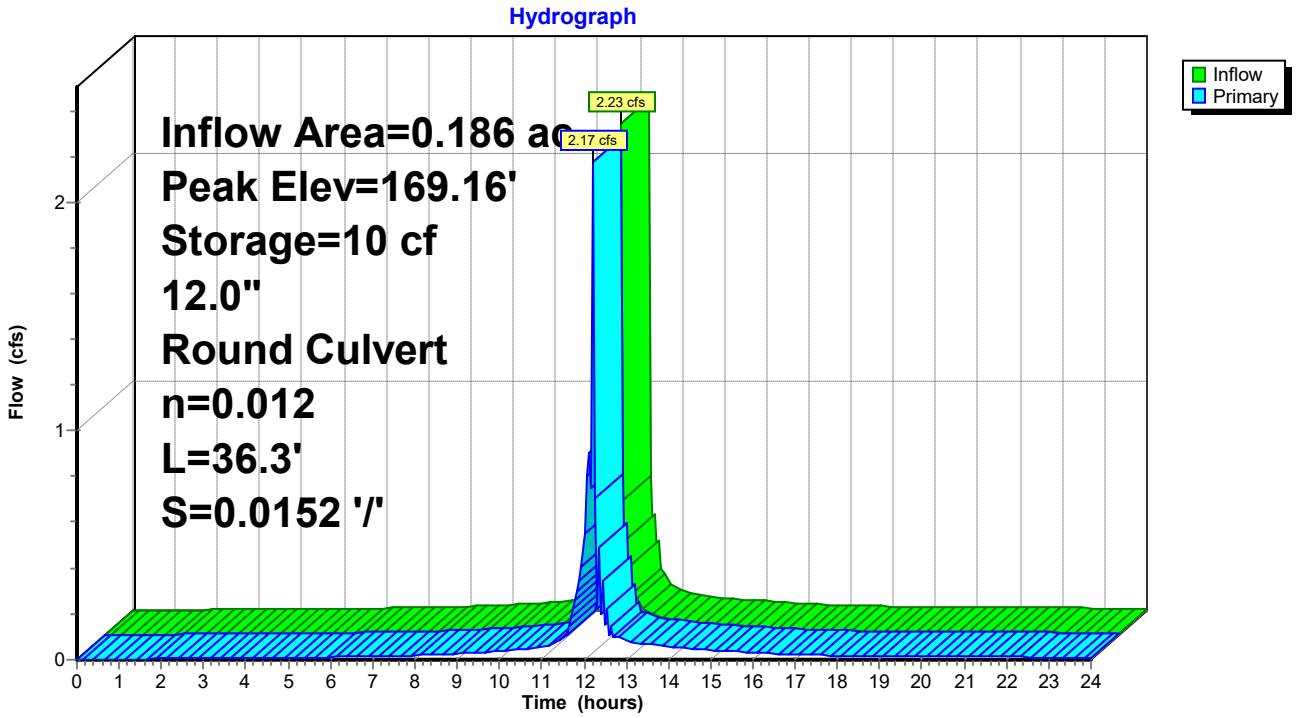
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.3 min (761.8 - 761.5)

Volume	Invert	Avail.Storage	Storage Description
#1	168.33'	47 cf	**4.00'D x 3.75'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	168.33'	**12.0" Round 12" RCP** L= 36.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.33' / 167.78' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.16 cfs @ 12.20 hrs HW=169.16' TW=167.21' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 2.16 cfs @ 3.10 fps)

Pond 4P: CB #7324



Summary for Pond 5P: CB #7320

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=5)

Inflow Area = 0.043 ac,100.00% Impervious, Inflow Depth > 6.81" for 25YR-24HR event
Inflow = 0.34 cfs @ 12.19 hrs, Volume= 0.024 af
Outflow = 0.37 cfs @ 12.20 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.6 min
Primary = 0.37 cfs @ 12.20 hrs, Volume= 0.024 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 169.54' @ 12.18 hrs Surf.Area= 13 sf Storage= 31 cf
Flood Elev= 170.63' Surf.Area= 13 sf Storage= 44 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (743.4 - 742.5)

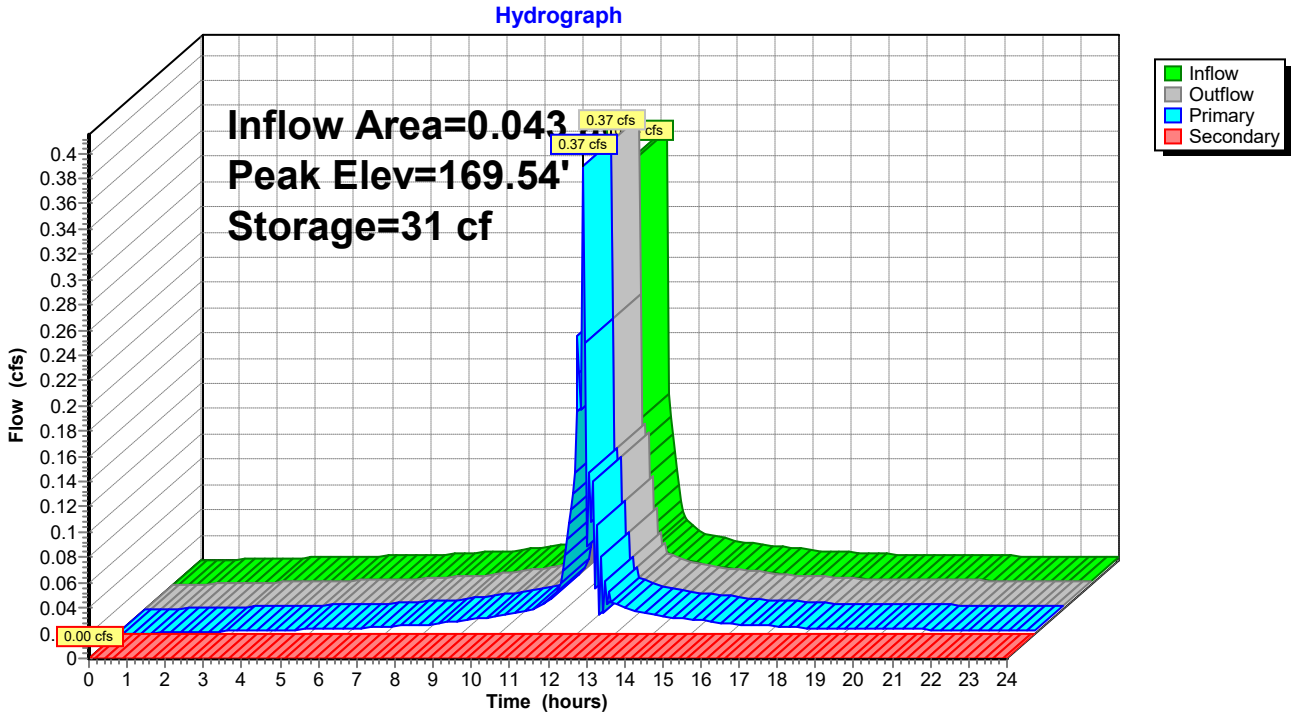
Volume	Invert	Avail.Storage	Storage Description
#1	167.11'	44 cf	**4.00'D x 3.52'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	167.11'	**12.0" Round 12" RCP** L= 25.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 167.11' / 166.51' S= 0.0237 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	170.62'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=3.53 cfs @ 12.20 hrs HW=169.39' TW=168.51' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 3.53 cfs @ 4.50 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.11' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 5P: CB #7320



Summary for Pond 6P: CB #7319

[80] Warning: Exceeded Pond 5P by 0.83' @ 12.10 hrs (3.45 cfs 0.044 af)

Inflow Area =	1.667 ac,	65.50% Impervious,	Inflow Depth >	4.21" for 25YR-24HR event
Inflow =	7.01 cfs @	12.11 hrs,	Volume=	0.584 af
Outflow =	6.98 cfs @	12.11 hrs,	Volume=	0.584 af, Atten= 0%, Lag= 0.1 min
Primary =	6.98 cfs @	12.11 hrs,	Volume=	0.584 af
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 169.53' @ 12.13 hrs Surf.Area= 13 sf Storage= 39 cf
Flood Elev= 170.61' Surf.Area= 13 sf Storage= 52 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (810.1 - 810.0)

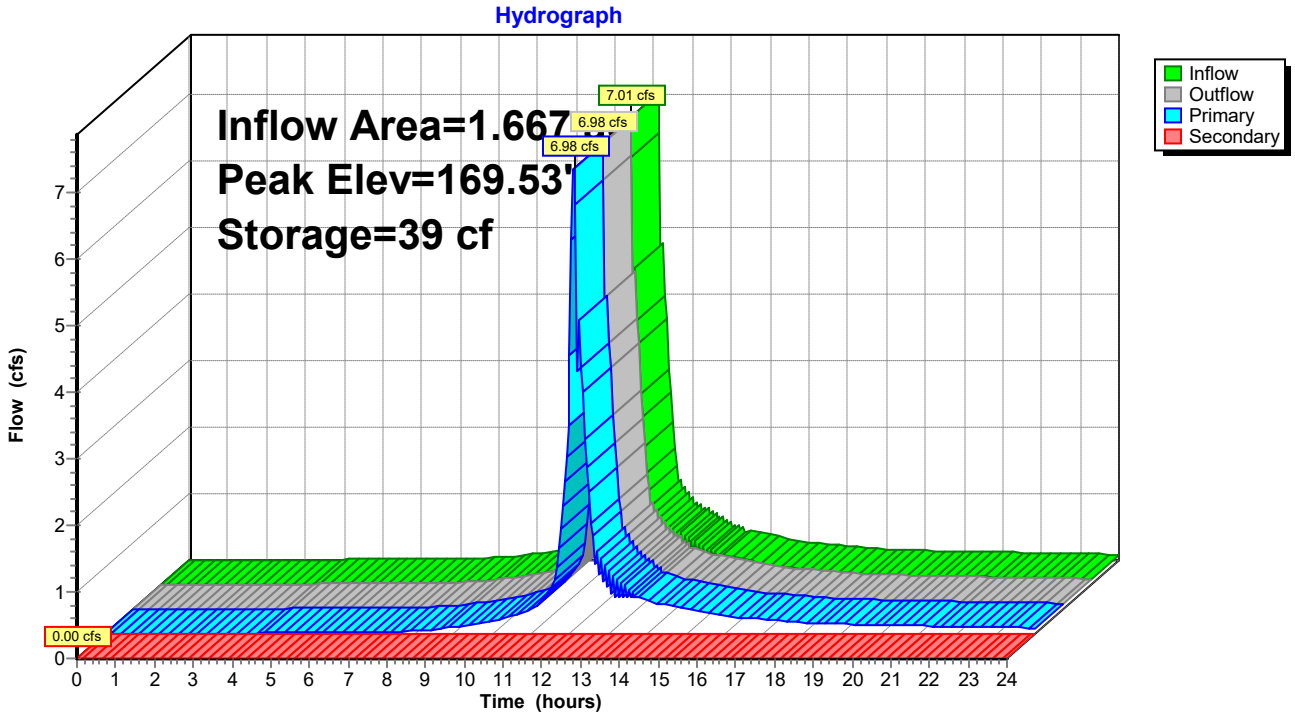
Volume	Invert	Avail.Storage	Storage Description
#1	166.45'	52 cf	**4.00'D x 4.16'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	166.45'	**15.0" Round 15" RCP** L= 8.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.45' / 166.35' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Secondary	170.60'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=6.32 cfs @ 12.11 hrs HW=169.38' TW=168.23' (Dynamic Tailwater)
1=15" RCP (Inlet Controls 6.32 cfs @ 5.15 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=166.45' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 6P: CB #7319



Summary for Pond 7P: CB #3201

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=7)

Inflow Area = 0.078 ac, 53.78% Impervious, Inflow Depth > 3.28" for 25YR-24HR event
Inflow = 0.23 cfs @ 12.20 hrs, Volume= 0.021 af
Outflow = 0.39 cfs @ 12.34 hrs, Volume= 0.021 af, Atten= 0%, Lag= 8.8 min
Primary = 0.39 cfs @ 12.34 hrs, Volume= 0.021 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 176.36' @ 12.29 hrs Surf.Area= 13 sf Storage= 25 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.4 min (842.2 - 841.8)

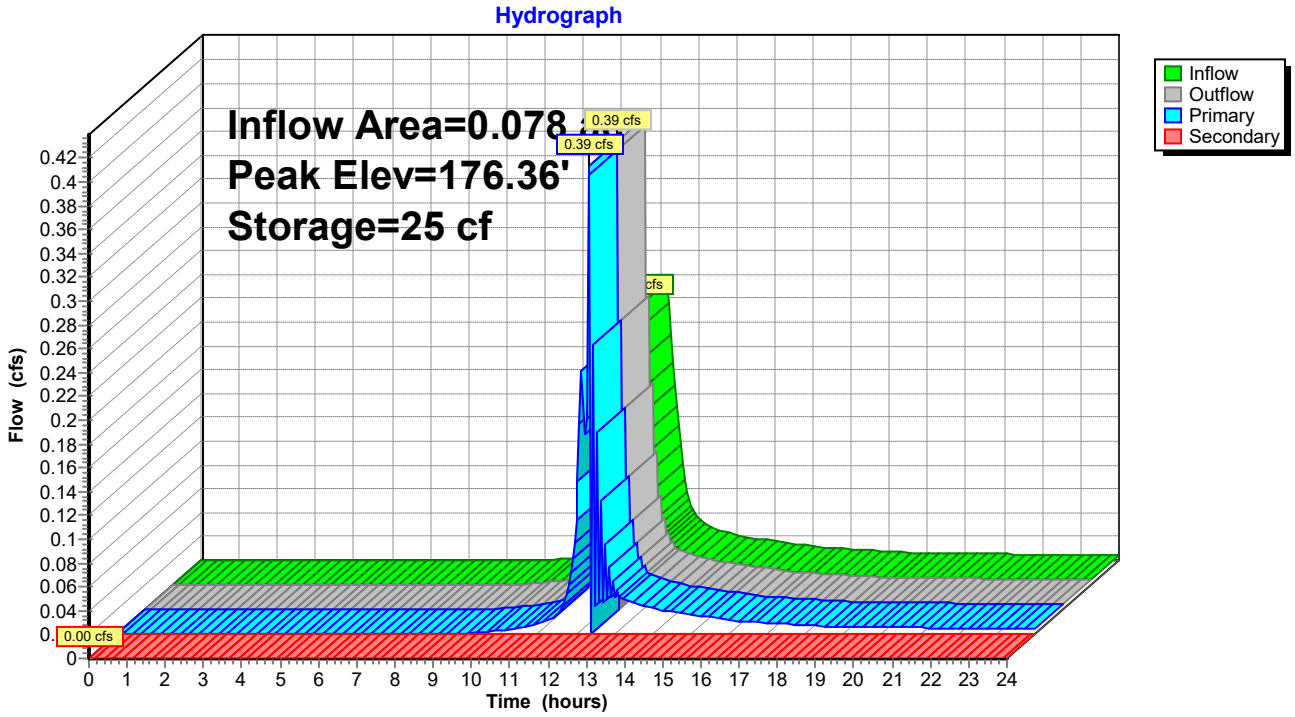
Volume	Invert	Avail.Storage	Storage Description
#1	174.37'	35 cf	**4.00'D x 2.80'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	174.37'	**12.0" Round 12" RCP** L= 17.5' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 174.37' / 173.93' S= 0.0251 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	177.16'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.58 cfs @ 12.34 hrs HW=175.05' TW=174.18' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 1.58 cfs @ 2.80 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=174.37' TW=173.61' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 7P: CB #3201



Summary for Pond 8P: CB #3202

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[80] Warning: Exceeded Pond 7P by 0.82' @ 12.20 hrs (3.14 cfs 0.027 af)

Inflow Area = 0.102 ac, 64.52% Impervious, Inflow Depth > 4.06" for 25YR-24HR event
Inflow = 0.45 cfs @ 12.34 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.31 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.31 hrs, Volume= 0.034 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 176.36' @ 12.24 hrs Surf.Area= 13 sf Storage= 35 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.6 min (805.1 - 804.5)

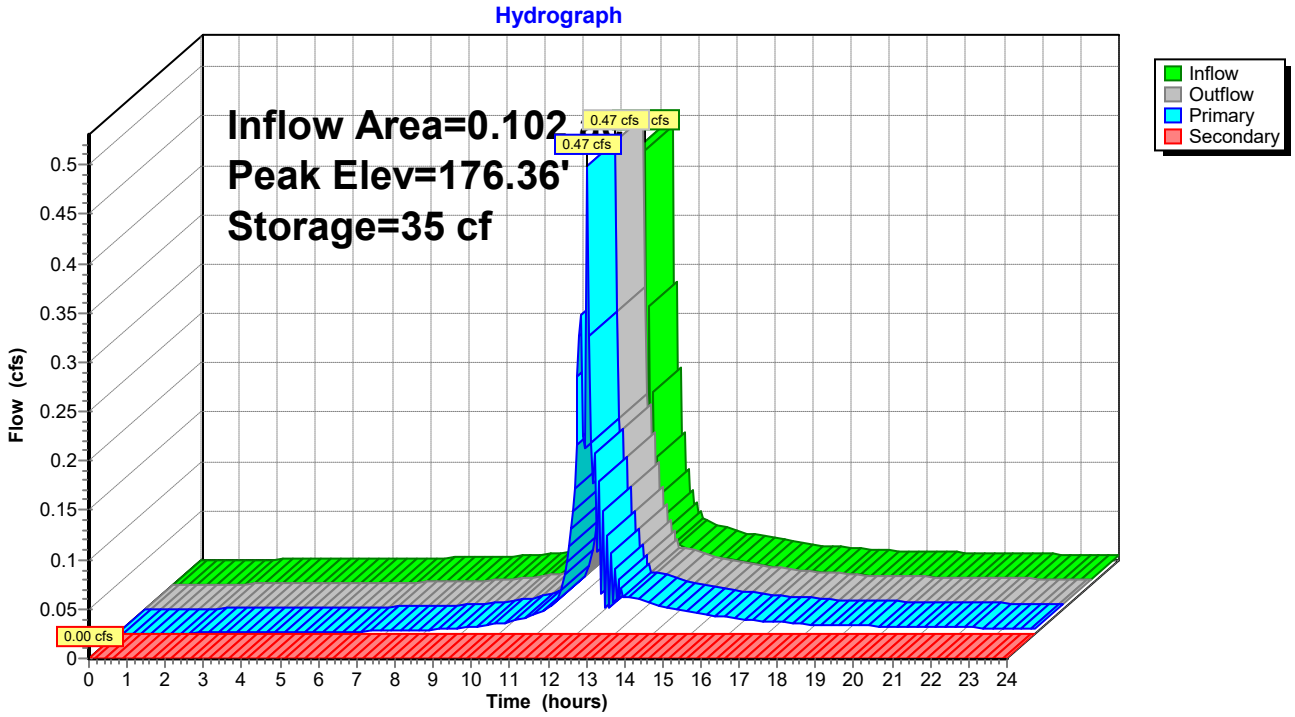
Volume	Invert	Avail.Storage	Storage Description
#1	173.61'	57 cf	**4.00'D x 4.54'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	173.61'	**12.0" Round 12" RCP** L= 25.8' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.61' / 173.31' S= 0.0116 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	178.14'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.72 cfs @ 12.31 hrs HW=174.64' TW=174.02' (Dynamic Tailwater)
1=12" RCP (Barrel Controls 2.72 cfs @ 4.20 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=173.61' TW=173.21' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 8P: CB #3202



Summary for Pond 9P: CB #3203

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=5)
[80] Warning: Exceeded Pond 8P by 0.88' @ 12.15 hrs (3.54 cfs 0.043 af)

Inflow Area = 0.898 ac, 60.71% Impervious, Inflow Depth > 4.02" for 25YR-24HR event
Inflow = 3.77 cfs @ 12.12 hrs, Volume= 0.300 af
Outflow = 3.74 cfs @ 12.11 hrs, Volume= 0.300 af, Atten= 1%, Lag= 0.0 min
Primary = 3.74 cfs @ 12.11 hrs, Volume= 0.300 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 176.36' @ 12.19 hrs Surf.Area= 13 sf Storage= 40 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (819.9 - 819.7)

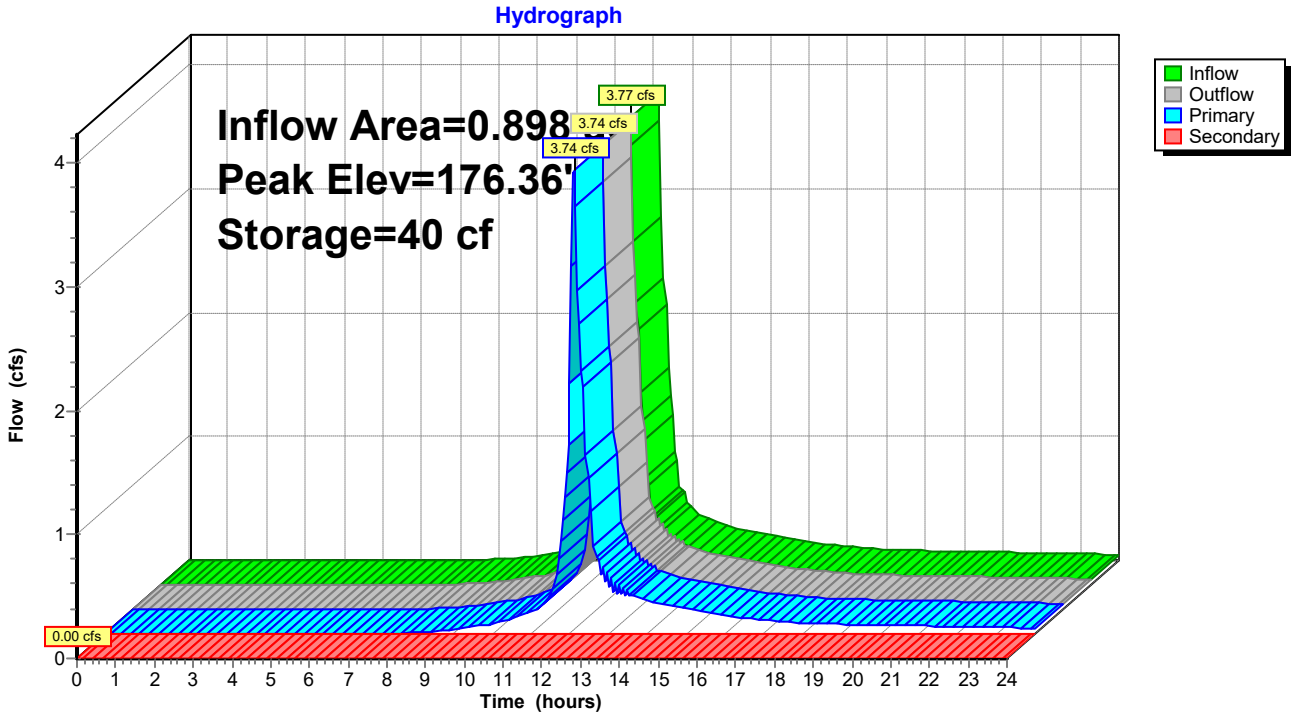
Volume	Invert	Avail.Storage	Storage Description
#1	173.21'	62 cf	**4.00'D x 4.92'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	173.21'	**12.0" Round 12" RCP** L= 208.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.21' / 168.55' S= 0.0223 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	178.12'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.47 cfs @ 12.11 hrs HW=174.88' TW=173.80' (Dynamic Tailwater)
1=12" RCP (Outlet Controls 2.47 cfs @ 3.14 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=173.21' TW=171.40' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: CB #3203



Summary for Pond 10P: CB #7322

[93] Warning: Storage range exceeded by 0.47'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=12)

Inflow Area = 0.571 ac, 62.08% Impervious, Inflow Depth > 3.91" for 25YR-24HR event
Inflow = 2.54 cfs @ 12.10 hrs, Volume= 0.186 af
Outflow = 2.55 cfs @ 12.09 hrs, Volume= 0.186 af, Atten= 0%, Lag= 0.0 min
Primary = 2.55 cfs @ 12.09 hrs, Volume= 0.179 af
Secondary = 1.74 cfs @ 12.20 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 174.62' @ 12.20 hrs Surf.Area= 13 sf Storage= 35 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min (822.8 - 822.7)

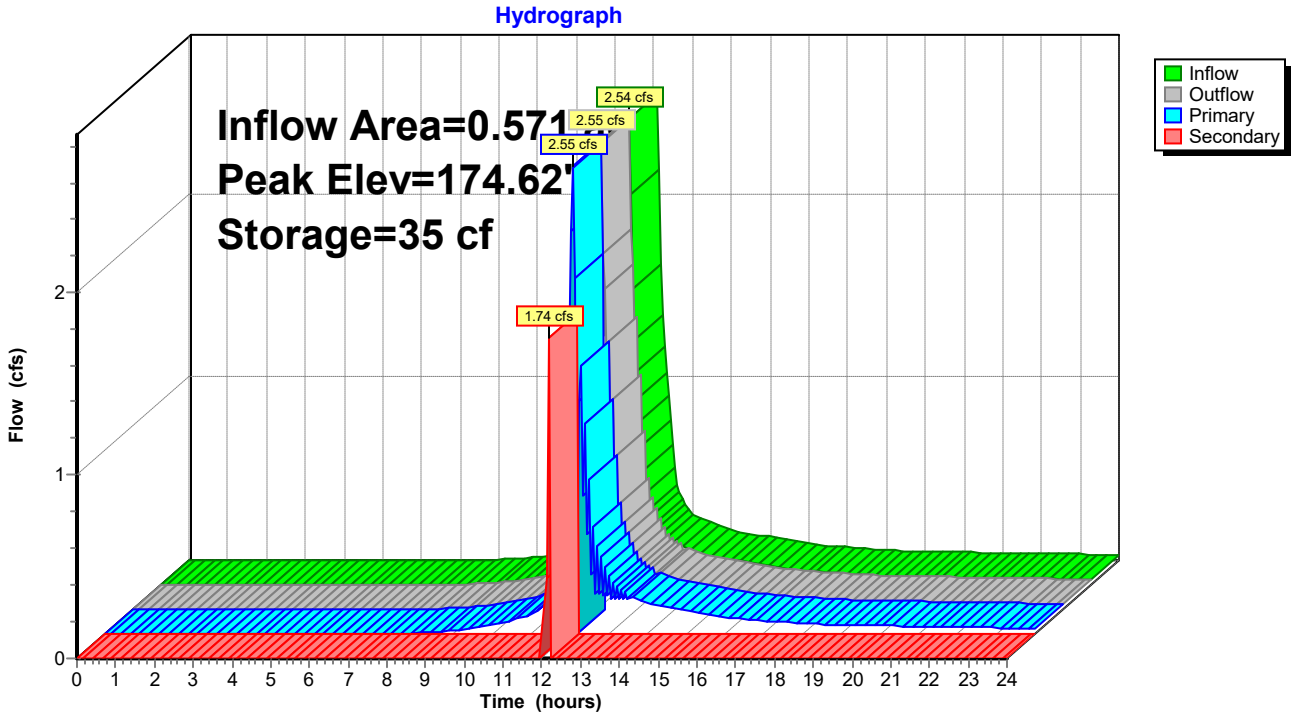
Volume	Invert	Avail.Storage	Storage Description
#1	171.40'	35 cf	**4.00'D x 2.75'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	171.40'	**12.0" Round 12" RCP** L= 1.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 171.40' / 170.45' S= 0.9500 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	174.14'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=172.33' TW=173.13' (Dynamic Tailwater)
1=12" RCP (Controls 0.00 cfs)

Secondary OutFlow Max=1.74 cfs @ 12.20 hrs HW=174.62' TW=169.64' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 1.74 cfs @ 1.81 fps)

Pond 10P: CB #7322



Summary for Pond 11P: CB #7321

[93] Warning: Storage range exceeded by 0.34'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=99)

Inflow Area = 0.104 ac,100.00% Impervious, Inflow Depth > 6.61" for 25YR-24HR event
Inflow = 0.69 cfs @ 12.09 hrs, Volume= 0.058 af
Outflow = 0.59 cfs @ 12.06 hrs, Volume= 0.057 af, Atten= 14%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.06 hrs, Volume= 0.057 af
Secondary = 0.18 cfs @ 12.20 hrs, Volume= 0.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 173.31' @ 12.18 hrs Surf.Area= 13 sf Storage= 73 cf

Plug-Flow detention time= 6.2 min calculated for 0.057 af (99% of inflow)
Center-of-Mass det. time= 3.4 min (746.2 - 742.8)

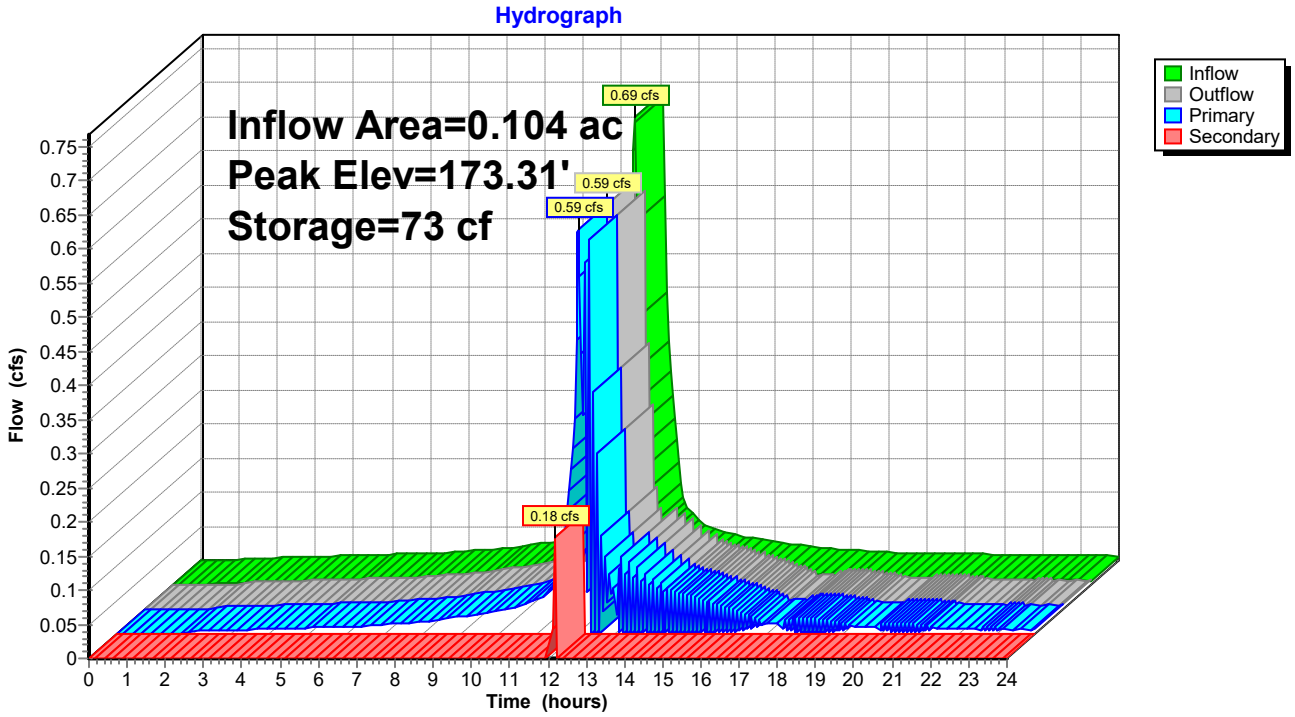
Volume	Invert	Avail.Storage	Storage Description
#1	167.17'	73 cf	**4.00'D x 5.80'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	167.86'	**12.0" Round 12" RCP** L= 25.8' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 167.17' / 167.86' S= -0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	172.96'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 12.06 hrs HW=169.71' TW=171.27' (Dynamic Tailwater)
1=12" RCP (Controls 0.00 cfs)

Secondary OutFlow Max=0.18 cfs @ 12.20 hrs HW=173.07' TW=169.46' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.18 cfs @ 0.83 fps)

Pond 11P: CB #7321



Summary for Pond 101P: Rain Garden #101

[80] Warning: Exceeded Pond C03P by 0.12' @ 12.20 hrs (0.56 cfs 0.013 af)
[80] Warning: Exceeded Pond D01P by 0.04' @ 12.20 hrs (1.15 cfs 0.035 af)

Inflow Area = 0.643 ac, 83.35% Impervious, Inflow Depth > 6.00" for 25YR-24HR event
Inflow = 3.92 cfs @ 12.09 hrs, Volume= 0.321 af
Outflow = 0.98 cfs @ 12.47 hrs, Volume= 0.235 af, Atten= 75%, Lag= 22.7 min
Primary = 0.98 cfs @ 12.47 hrs, Volume= 0.235 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 167.51' @ 12.47 hrs Surf.Area= 804 sf Storage= 6,610 cf
Flood Elev= 168.50' Surf.Area= 804 sf Storage= 9,116 cf

Plug-Flow detention time= 182.3 min calculated for 0.235 af (73% of inflow)
Center-of-Mass det. time= 93.7 min (854.4 - 760.7)

Volume	Invert	Avail.Storage	Storage Description
#1	161.00'	322 cf	**Stone (Irregular)** Listed below (Recalc) -Impervious 804 cf Overall x 40.0% Voids
#2	162.00'	241 cf	**BioMedia (Irregular)** Listed below (Recalc) 1,206 cf Overall x 20.0% Voids
#3	163.50'	8,473 cf	**Open Water (Irregular)** Listed below (Recalc) -Impervious
#4	160.90'	80 cf	**4.00'D x 6.35'H 4' Structure** -Impervious
		9,116 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.00	804	122.6	0	0	804
162.00	804	122.6	804	804	927

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
162.00	804	122.6	0	0	804
163.50	804	122.6	1,206	1,206	988

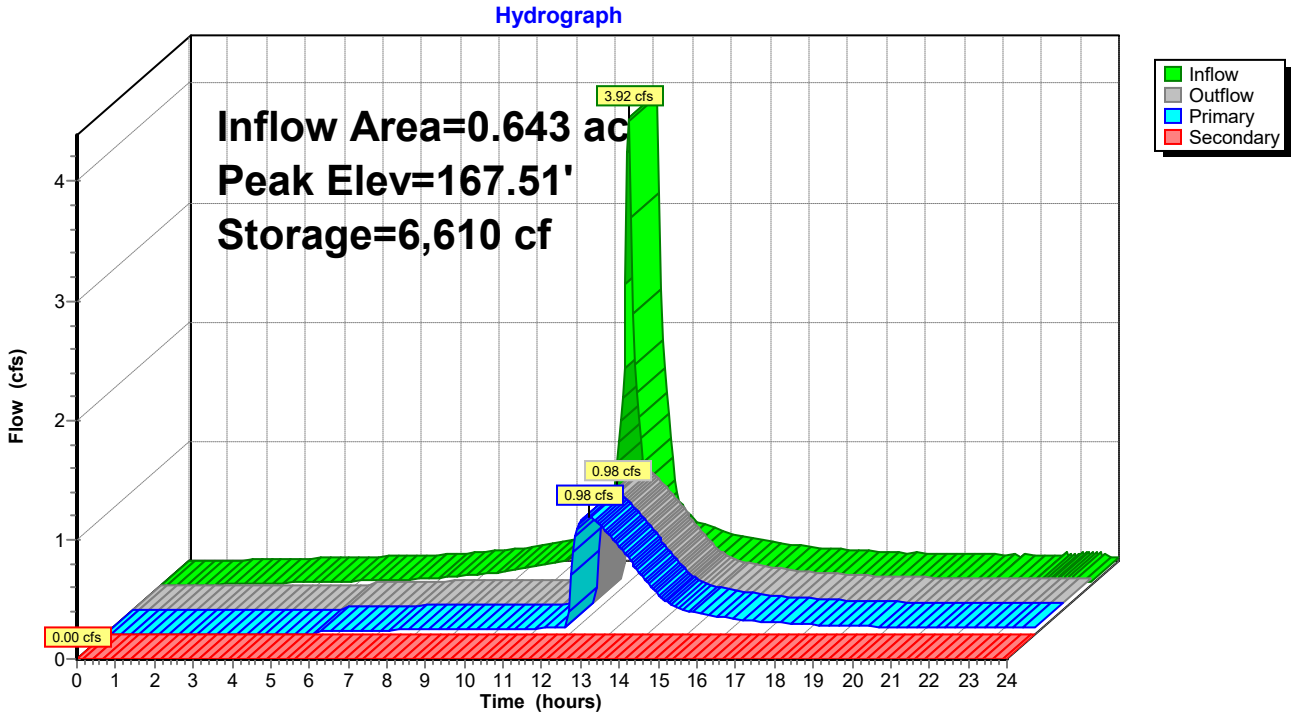
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
163.50	804	122.6	0	0	804
164.00	931	129.4	433	433	954
165.00	1,282	173.0	1,102	1,535	2,014
166.00	1,656	200.0	1,465	3,000	2,837
167.00	2,074	217.0	1,861	4,861	3,439
168.00	2,521	230.0	2,294	7,155	3,952
168.50	2,754	236.3	1,318	8,473	4,213

Device	Routing	Invert	Outlet Devices
#1	Primary	160.90'	**15.0" Round 15" HDPE N-12** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 160.90' / 160.40' S= 0.0250 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	161.00'	**1.0" Vert. 1" Orifice** C= 0.600
#3	Device 1	166.15'	**4.0" Vert. 4" Orifice (2) X 2.00** C= 0.600
#4	Device 1	167.90'	**48.0" Horiz. Top Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	168.00'	**10.0' long x 8.0' breadth E-Spillway** 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
#6	Device 2	162.00'	**10.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.98 cfs @ 12.47 hrs HW=167.51' TW=159.64' (Dynamic Tailwater)
- **1=15" HDPE N-12** (Passes 0.98 cfs of 14.45 cfs potential flow)
  - **2=1" Orifice** (Orifice Controls 0.07 cfs @ 12.24 fps)
    - **6=Exfiltration** (Passes 0.07 cfs of 0.19 cfs potential flow)
  - **3=4" Orifice (2)** (Orifice Controls 0.92 cfs @ 5.25 fps)
  - **4=Top Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=160.90' TW=161.00' (Dynamic Tailwater)
- **5=E-Spillway** (Controls 0.00 cfs)

Pond 101P: Rain Garden #101



Summary for Pond 102P: Entrance Detention Pond

Inflow Area = 2.096 ac, 61.35% Impervious, Inflow Depth > 4.16" for 25YR-24HR event
Inflow = 8.67 cfs @ 12.11 hrs, Volume= 0.726 af
Outflow = 6.42 cfs @ 12.22 hrs, Volume= 0.725 af, Atten= 26%, Lag= 6.8 min
Primary = 6.42 cfs @ 12.22 hrs, Volume= 0.725 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 167.22' @ 12.22 hrs Surf.Area= 1,417 sf Storage= 2,982 cf

Plug-Flow detention time= 6.1 min calculated for 0.724 af (100% of inflow)
Center-of-Mass det. time= 5.0 min (812.4 - 807.4)

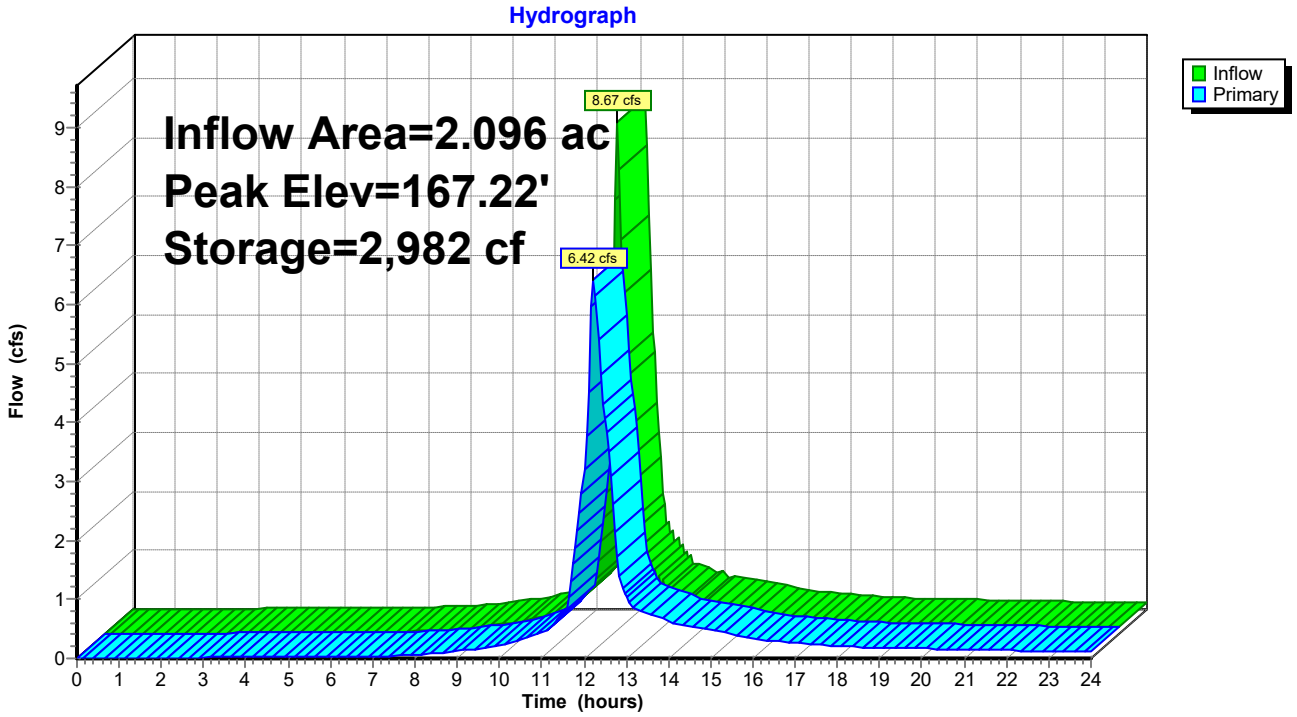
Volume	Invert	Avail.Storage	Storage Description
#1	163.50'	7,133 cf	**Ponding (Irregular)** Listed below (Recalc)
#2	163.50'	118 cf	**5.00'D x 6.00'H 5' Structure**
		7,251 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
163.50	303	101.0	0	0	303
164.00	403	108.0	176	176	431
165.00	646	132.0	520	696	904
166.00	940	156.0	788	1,484	1,473
167.00	1,314	185.0	1,122	2,606	2,278
168.00	1,705	201.0	1,505	4,111	2,806
169.00	2,120	213.0	1,909	6,020	3,252
169.50	2,336	220.0	1,114	7,133	3,517

Device	Routing	Invert	Outlet Devices
#1	Primary	163.50'	**18.0" Round 18" HDPE N-12** L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 163.50' / 163.25' S= 0.0060 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	163.50'	**10.0" Vert. 10" Orifice** C= 0.600
#3	Device 1	166.50'	**12.0" W x 6.0" H Vert. 12"W X 6"T Slot** C= 0.600
#4	Device 1	169.00'	**60.0" Horiz. 5' Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.36 cfs @ 12.22 hrs HW=167.20' TW=0.00' (Dynamic Tailwater)
└**1=18" HDPE N-12** (Passes 6.36 cfs of 14.62 cfs potential flow)
  ├**2=10" Orifice** (Orifice Controls 4.76 cfs @ 8.73 fps)
  ├**3=12"W X 6"T Slot** (Orifice Controls 1.60 cfs @ 3.20 fps)
  └**4=5' Grate** (Controls 0.00 cfs)

Pond 102P: Entrance Detention Pond



Summary for Pond 4198P: DMH #4198

[93] Warning: Storage range exceeded by 0.90'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=12)
[80] Warning: Exceeded Pond 10P by 1.24' @ 12.15 hrs (4.22 cfs 0.034 af)

Inflow Area = 1.468 ac, 61.24% Impervious, Inflow Depth > 3.92" for 25YR-24HR event
Inflow = 6.26 cfs @ 12.10 hrs, Volume= 0.479 af
Outflow = 6.10 cfs @ 12.11 hrs, Volume= 0.479 af, Atten= 3%, Lag= 0.2 min
Primary = 6.10 cfs @ 12.11 hrs, Volume= 0.479 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 174.95' @ 12.15 hrs Surf.Area= 13 sf Storage= 70 cf

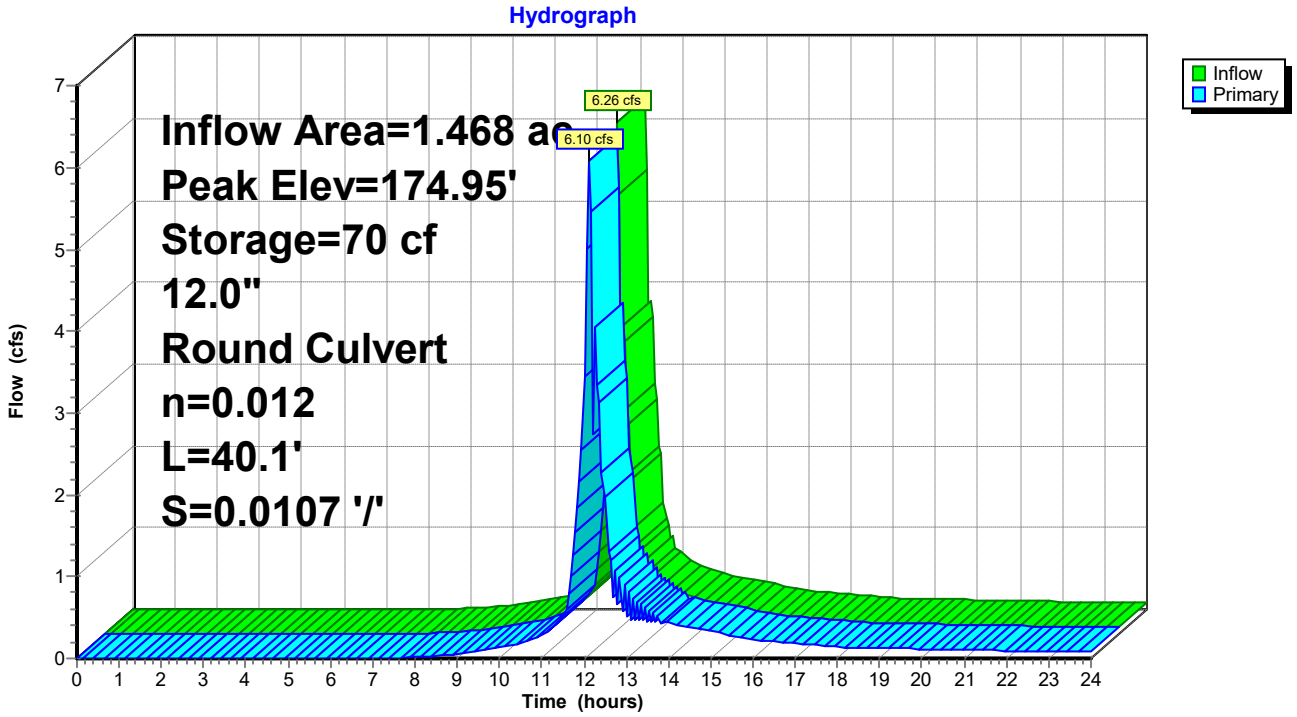
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (822.5 - 822.3)

Volume	Invert	Avail.Storage	Storage Description
#1	168.45'	70 cf	**4.00'D x 5.60'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	168.45'	**12.0" Round 12" RCP** L= 40.1' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.45' / 168.02' S= 0.0107 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.31 cfs @ 12.11 hrs HW=173.65' TW=172.88' (Dynamic Tailwater)
↑**1=12" RCP** (Inlet Controls 3.31 cfs @ 4.22 fps)

Pond 4198P: DMH #4198



Summary for Pond 8054P: DMH #8054

[93] Warning: Storage range exceeded by 0.34'
[80] Warning: Exceeded Pond 11P by 1.98' @ 12.10 hrs (5.32 cfs 0.144 af)

Inflow Area = 1.573 ac, 63.82% Impervious, Inflow Depth > 4.09" for 25YR-24HR event
Inflow = 6.61 cfs @ 12.10 hrs, Volume= 0.536 af
Outflow = 6.51 cfs @ 12.11 hrs, Volume= 0.536 af, Atten= 2%, Lag= 0.3 min
Primary = 6.51 cfs @ 12.11 hrs, Volume= 0.536 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 173.30' @ 12.13 hrs Surf.Area= 13 sf Storage= 64 cf

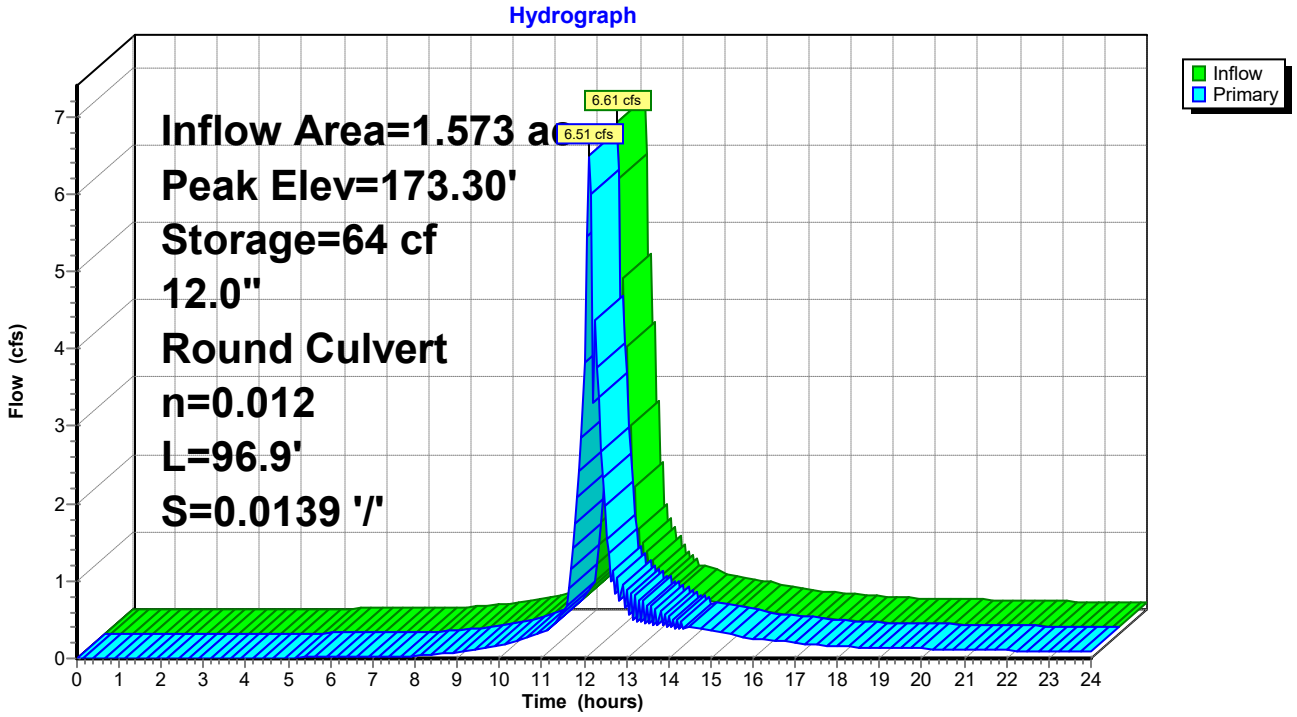
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (814.6 - 814.4)

Volume	Invert	Avail.Storage	Storage Description
#1	167.86'	64 cf	**4.00'D x 5.10'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	167.86'	**12.0" Round 12" RCP** L= 96.9' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 167.86' / 166.51' S= 0.0139 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.84 cfs @ 12.11 hrs HW=172.89' TW=169.38' (Dynamic Tailwater)
↑—**1=12" RCP** (Outlet Controls 5.84 cfs @ 7.44 fps)

Pond 8054P: DMH #8054



Summary for Pond C01P: CB #1

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=106)

Inflow Area = 0.212 ac,100.00% Impervious, Inflow Depth > 6.61" for 25YR-24HR event
Inflow = 1.39 cfs @ 12.09 hrs, Volume= 0.117 af
Outflow = 1.37 cfs @ 12.09 hrs, Volume= 0.116 af, Atten= 2%, Lag= 0.0 min
Primary = 1.37 cfs @ 12.09 hrs, Volume= 0.116 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 167.52' @ 12.54 hrs Surf.Area= 13 sf Storage= 29 cf

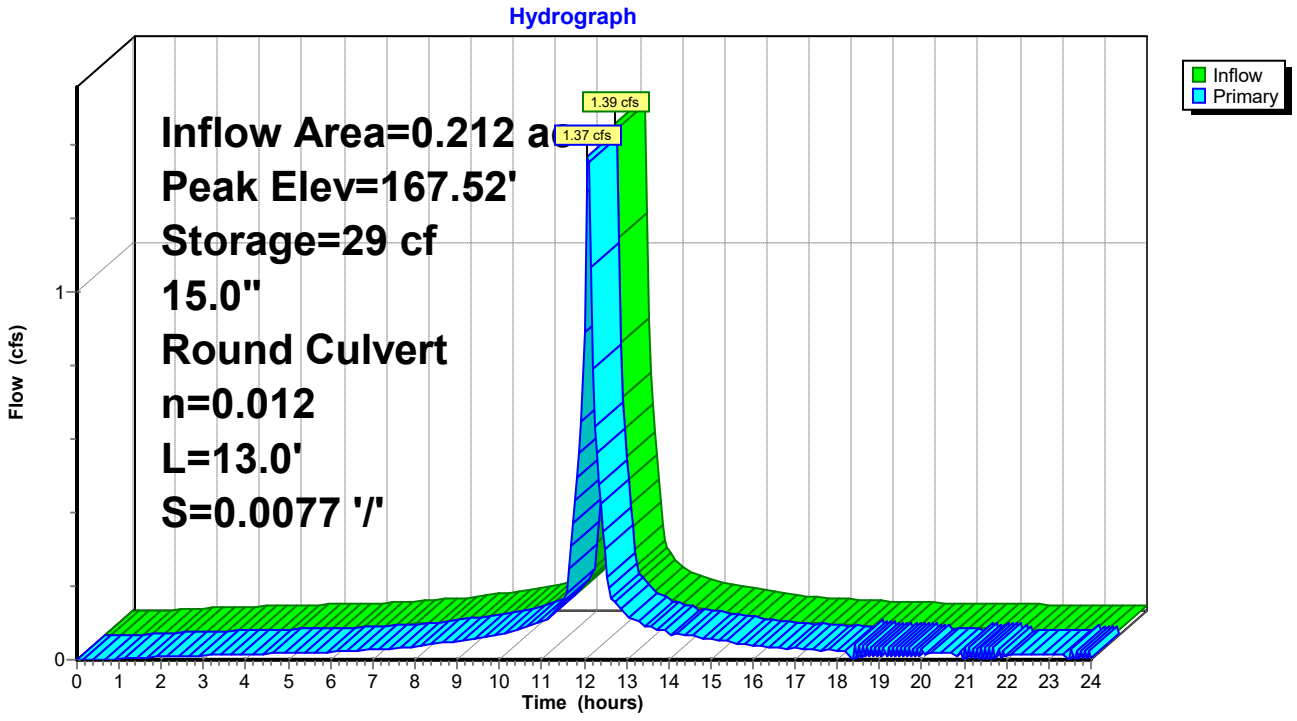
Plug-Flow detention time= 2.4 min calculated for 0.116 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (743.3 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1	165.20'	46 cf	**4.00'D x 3.67'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	165.20'	**15.0" Round 15" HDPE N-12** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 165.20' / 165.10' S= 0.0077 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=166.56' TW=166.82' (Dynamic Tailwater)
1=15" HDPE N-12 (Controls 0.00 cfs)

Pond C01P: CB #1



Summary for Pond C02P: CB #2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=46)

Inflow Area = 0.288 ac, 93.85% Impervious, Inflow Depth > 6.14" for 25YR-24HR event
Inflow = 1.85 cfs @ 12.09 hrs, Volume= 0.147 af
Outflow = 1.82 cfs @ 12.09 hrs, Volume= 0.147 af, Atten= 1%, Lag= 0.0 min
Primary = 1.82 cfs @ 12.09 hrs, Volume= 0.147 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 167.52' @ 12.54 hrs Surf.Area= 13 sf Storage= 29 cf

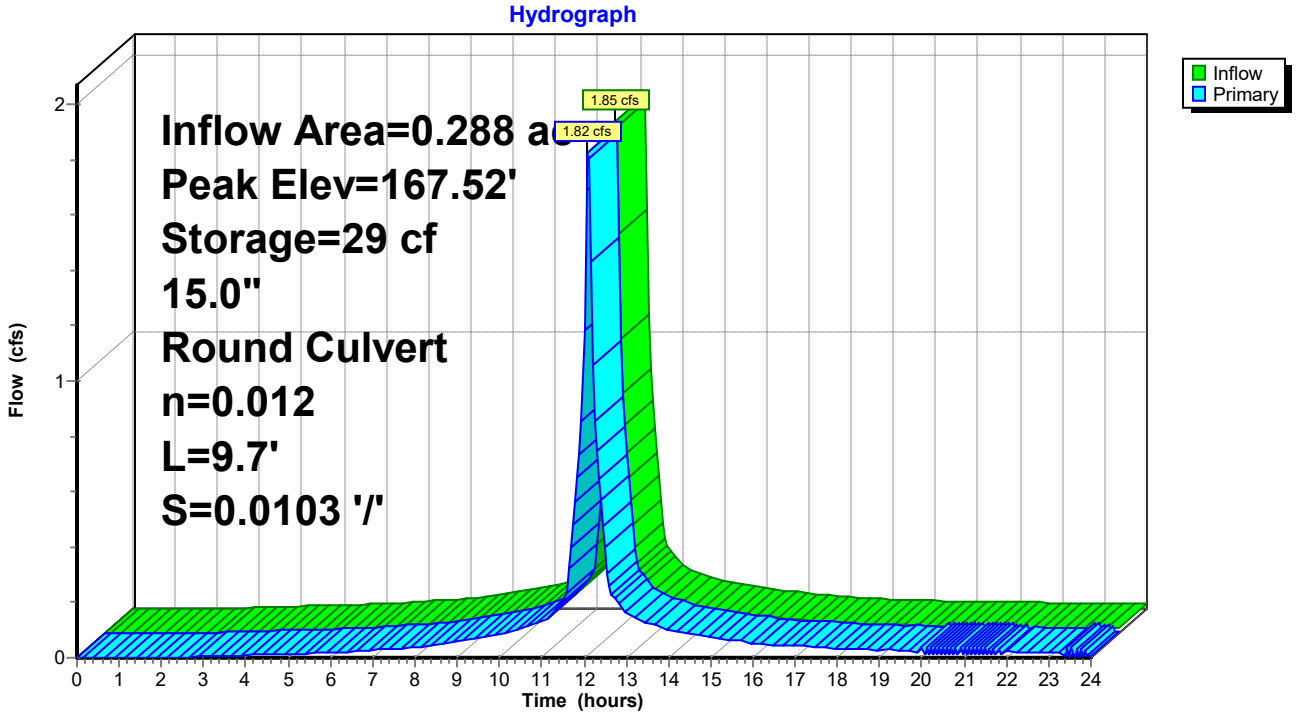
Plug-Flow detention time= 1.8 min calculated for 0.147 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (765.1 - 764.7)

Volume	Invert	Avail.Storage	Storage Description
#1	165.20'	42 cf	**4.00'D x 3.31'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	165.20'	**15.0" Round 15" HDPE N-12** L= 9.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 165.20' / 165.10' S= 0.0103 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=166.60' TW=166.83' (Dynamic Tailwater)
1=15" HDPE N-12 (Controls 0.00 cfs)

Pond C02P: CB #2



Summary for Pond C03P: CB #3

Inflow Area = 0.053 ac,100.00% Impervious, Inflow Depth > 6.61" for 25YR-24HR event
Inflow = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af
Outflow = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 167.51' @ 12.51 hrs Surf.Area= 13 sf Storage= 10 cf

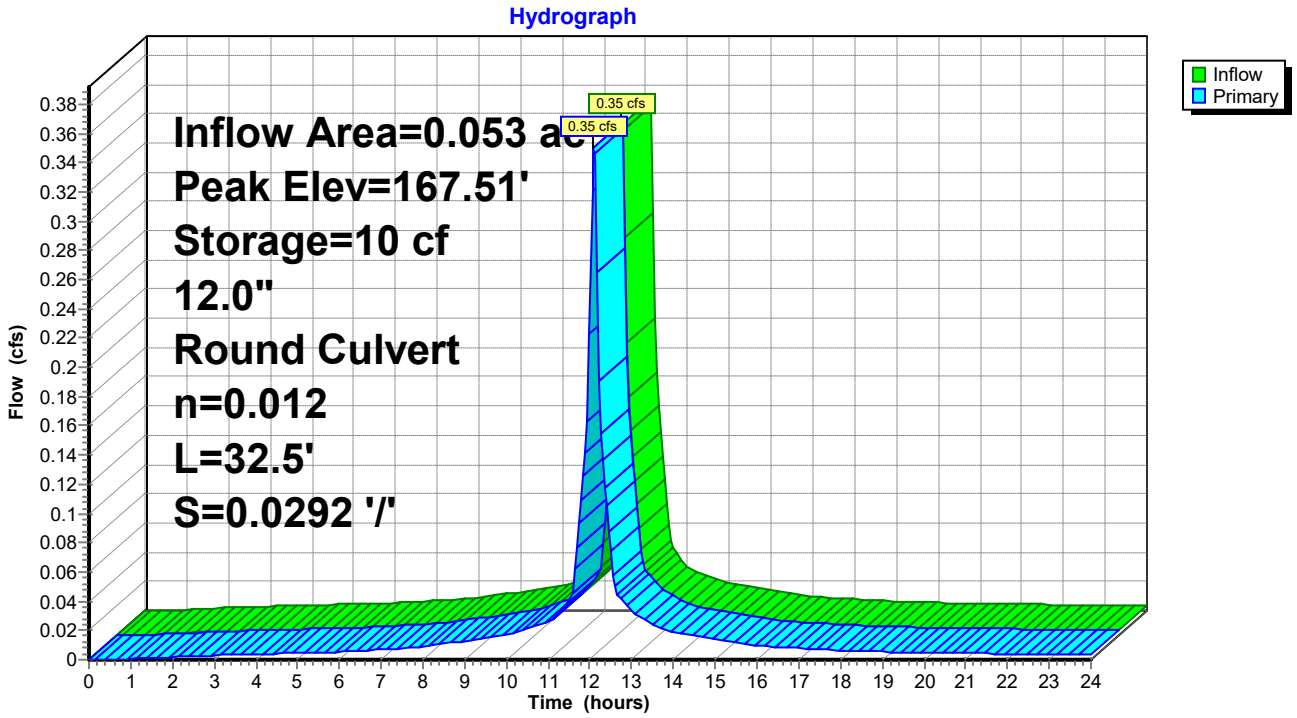
Plug-Flow detention time= 1.0 min calculated for 0.029 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (743.7 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1	166.70'	41 cf	**4.00'D x 3.25'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	166.70'	**12.0" Round 12" HDPE N-12** L= 32.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.70' / 165.75' S= 0.0292 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.09 hrs HW=166.99' TW=166.80' (Dynamic Tailwater)
1=12" HDPE N-12 (Outlet Controls 0.23 cfs @ 1.82 fps)

Pond C03P: CB #3



Summary for Pond D01P: DMH #1

[80] Warning: Exceeded Pond C01P by 0.27' @ 12.10 hrs (3.04 cfs 0.134 af)
[80] Warning: Exceeded Pond C02P by 0.22' @ 12.10 hrs (2.80 cfs 0.107 af)

Inflow Area = 0.500 ac, 96.46% Impervious, Inflow Depth > 6.32" for 25YR-24HR event
Inflow = 3.19 cfs @ 12.09 hrs, Volume= 0.263 af
Outflow = 3.17 cfs @ 12.09 hrs, Volume= 0.263 af, Atten= 1%, Lag= 0.0 min
Primary = 3.17 cfs @ 12.09 hrs, Volume= 0.263 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 167.52' @ 12.49 hrs Surf.Area= 13 sf Storage= 32 cf
Flood Elev= 168.94' Surf.Area= 13 sf Storage= 47 cf

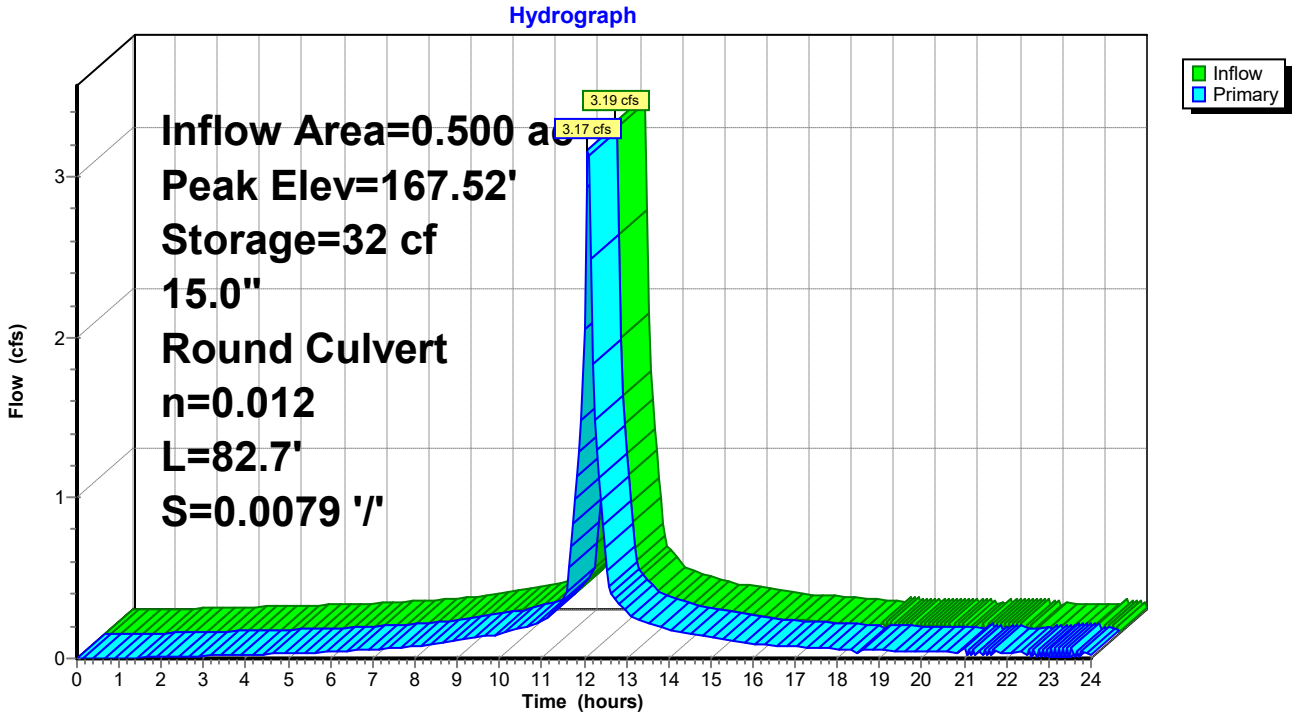
Plug-Flow detention time= 1.2 min calculated for 0.263 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (755.8 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	165.00'	47 cf	**4.00'D x 3.77'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	165.00'	**15.0" Round 15" HDPE N-12** L= 82.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 165.00' / 164.35' S= 0.0079 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.85 cfs @ 12.09 hrs HW=166.83' TW=166.80' (Dynamic Tailwater)
1=15" HDPE N-12 (Outlet Controls 0.85 cfs @ 0.69 fps)

Pond D01P: DMH #1



Summary for Pond D02P: DMH #2

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

Inflow Area = 1.667 ac, 65.50% Impervious, Inflow Depth > 4.21" for 25YR-24HR event
Inflow = 6.98 cfs @ 12.11 hrs, Volume= 0.584 af
Outflow = 6.98 cfs @ 12.11 hrs, Volume= 0.584 af, Atten= 0%, Lag= 0.1 min
Primary = 6.98 cfs @ 12.11 hrs, Volume= 0.584 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 168.26' @ 12.11 hrs Surf.Area= 13 sf Storage= 25 cf
Flood Elev= 171.35' Surf.Area= 13 sf Storage= 64 cf

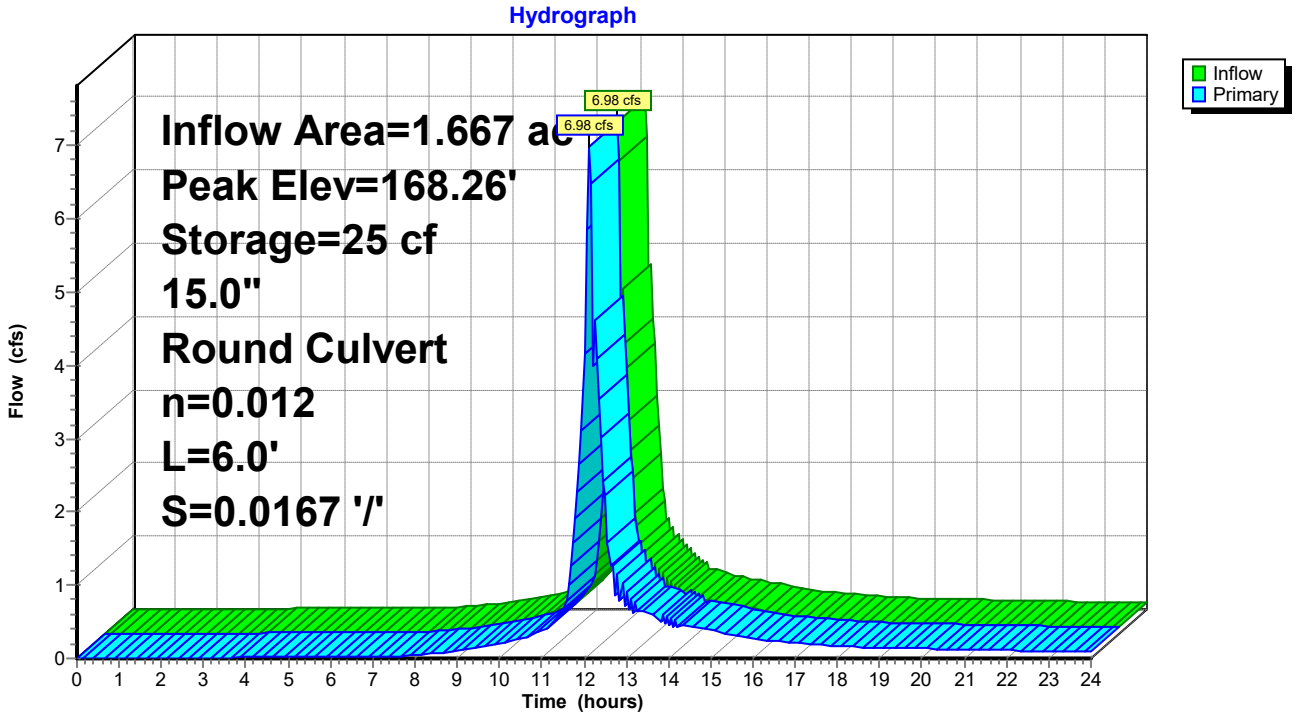
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (810.2 - 810.1)

Volume	Invert	Avail.Storage	Storage Description
#1	166.25'	64 cf	**4.00'D x 5.10'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	166.25'	**15.0" Round 15" HDPE N-12** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.25' / 166.15' S= 0.0167 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=6.88 cfs @ 12.11 hrs HW=168.23' TW=166.72' (Dynamic Tailwater)
↑—**1=15" HDPE N-12** (Inlet Controls 6.88 cfs @ 5.60 fps)

Pond D02P: DMH #2



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>0.49"
Flow Length=326' Tc=10.1 min CN=58 Runoff=0.55 cfs 0.073 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.028 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>0.49"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.02 cfs 0.003 af

Subcatchment 4S: Quality Way SE Runoff Area=4,938 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.032 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,203 sf 88.56% Impervious Runoff Depth>2.63"
Tc=6.0 min CN=91 Runoff=0.15 cfs 0.011 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>0.96"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.06 cfs 0.006 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>1.37"
Flow Length=257' Tc=7.9 min CN=75 Runoff=1.15 cfs 0.091 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>1.31"
Flow Length=151' Tc=6.4 min CN=74 Runoff=0.82 cfs 0.062 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.029 af

Subcatchment 12S: Remainder of Existing Runoff Area=43,238 sf 0.00% Impervious Runoff Depth>0.19"
Flow Length=296' Tc=16.0 min CN=49 Runoff=0.05 cfs 0.016 af

Subcatchment 13S: Venture Drive Runoff Area=1,436 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment 20S: Subcatchment #20 Runoff Area=10,628 sf 23.04% Impervious Runoff Depth>0.76"
Tc=6.0 min CN=64 Runoff=0.18 cfs 0.015 af

Subcatchment 21S: Subcatchment #21 Runoff Area=9,242 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.73 cfs 0.059 af

Subcatchment 22S: Subcatchment #22 Runoff Area=12,546 sf 93.85% Impervious Runoff Depth>2.93"
Tc=6.0 min CN=94 Runoff=0.92 cfs 0.070 af

Subcatchment 23S: Subcatchment #23 Runoff Area=2,316 sf 100.00% Impervious Runoff Depth>3.36"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.015 af

Subcatchment 24S: Area Around Pond Runoff Area=3,890 sf 0.00% Impervious Runoff Depth>1.31"
Tc=6.0 min CN=74 Runoff=0.13 cfs 0.010 af

Reach 2R: Reach #2 Avg. Flow Depth=0.10' Max Vel=0.62 fps Inflow=0.78 cfs 0.102 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=0.65 cfs 0.101 af

Reach 100R: Final Reach #100 Inflow=3.26 cfs 0.465 af
Outflow=3.26 cfs 0.465 af

Reach 101aR: Overland Flow to Avg. Flow Depth=0.05' Max Vel=1.09 fps Inflow=0.12 cfs 0.081 af
n=0.065 L=20.0' S=0.2000 '/' Capacity=38.38 cfs Outflow=0.12 cfs 0.081 af

Reach 101bR: Overland Flow to Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.065 L=52.0' S=0.0192 '/' Capacity=5.06 cfs Outflow=0.00 cfs 0.000 af

Reach 200R: Final Reach #200 Inflow=0.11 cfs 0.009 af
Outflow=0.11 cfs 0.009 af

Pond 1P: Roadside Pond Peak Elev=168.95' Storage=1 cf Inflow=0.55 cfs 0.073 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=0.55 cfs 0.073 af

Pond 2P: CB #7325 Peak Elev=167.45' Storage=7 cf Inflow=0.77 cfs 0.102 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=0.78 cfs 0.102 af

Pond 3P: CB #7323 Peak Elev=168.97' Storage=1 cf Inflow=0.02 cfs 0.003 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=0.02 cfs 0.003 af

Pond 4P: CB #7324 Peak Elev=168.64' Storage=4 cf Inflow=0.40 cfs 0.035 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=0.40 cfs 0.035 af

Pond 5P: CB #7320 Peak Elev=167.47' Storage=5 cf Inflow=0.15 cfs 0.012 af
Primary=0.14 cfs 0.012 af Secondary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.012 af

Pond 6P: CB #7319 Peak Elev=167.46' Storage=13 cf Inflow=2.70 cfs 0.218 af
Primary=2.70 cfs 0.218 af Secondary=0.00 cfs 0.000 af Outflow=2.70 cfs 0.218 af

Pond 7P: CB #3201 Peak Elev=174.49' Storage=1 cf Inflow=0.06 cfs 0.006 af
Primary=0.06 cfs 0.006 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.006 af

Pond 8P: CB #3202 Peak Elev=173.86' Storage=3 cf Inflow=0.12 cfs 0.013 af
Primary=0.12 cfs 0.013 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.013 af

Pond 9P: CB #3203 Peak Elev=173.80' Storage=7 cf Inflow=1.27 cfs 0.104 af
Primary=1.27 cfs 0.104 af Secondary=0.00 cfs 0.000 af Outflow=1.27 cfs 0.104 af

Pond 10P: CB #7322 Peak Elev=171.86' Storage=6 cf Inflow=0.82 cfs 0.062 af
Primary=0.82 cfs 0.062 af Secondary=0.00 cfs 0.000 af Outflow=0.82 cfs 0.062 af

Pond 11P: CB #7321 Peak Elev=168.77' Storage=20 cf Inflow=0.36 cfs 0.029 af
Primary=0.34 cfs 0.029 af Secondary=0.00 cfs 0.000 af Outflow=0.34 cfs 0.029 af

Pond 101P: Rain Garden #101 Peak Elev=166.26' Storage=4,077 cf Inflow=1.95 cfs 0.154 af
Primary=0.12 cfs 0.081 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.081 af

Pond 102P: Entrance Detention Pond Peak Elev=164.91' Storage=668 cf Inflow=3.27 cfs 0.268 af
Outflow=2.62 cfs 0.267 af

Pond 4198P: DMH #4198 Peak Elev=169.29' Storage=11 cf Inflow=2.09 cfs 0.166 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=2.08 cfs 0.166 af

Pond 8054P: DMH #8054 Peak Elev=168.76' Storage=11 cf Inflow=2.42 cfs 0.195 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=2.42 cfs 0.195 af

Pond C01P: CB #1 Peak Elev=166.26' Storage=13 cf Inflow=0.73 cfs 0.059 af
15.0" Round Culvert n=0.012 L=13.0' S=0.0077 '/' Outflow=0.72 cfs 0.059 af

Pond C02P: CB #2 Peak Elev=166.26' Storage=13 cf Inflow=0.92 cfs 0.070 af
15.0" Round Culvert n=0.012 L=9.7' S=0.0103 '/' Outflow=0.92 cfs 0.070 af

Pond C03P: CB #3 Peak Elev=166.91' Storage=3 cf Inflow=0.18 cfs 0.015 af
12.0" Round Culvert n=0.012 L=32.5' S=0.0292 '/' Outflow=0.18 cfs 0.015 af

Pond D01P: DMH #1 Peak Elev=166.26' Storage=16 cf Inflow=1.64 cfs 0.129 af
15.0" Round Culvert n=0.012 L=82.7' S=0.0079 '/' Outflow=1.64 cfs 0.129 af

Pond D02P: DMH #2 Peak Elev=167.21' Storage=12 cf Inflow=2.70 cfs 0.218 af
15.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=2.70 cfs 0.218 af

Total Runoff Area = 5.659 ac Runoff Volume = 0.550 af Average Runoff Depth = 1.17"
53.43% Pervious = 3.024 ac 46.57% Impervious = 2.636 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>1.40"
Flow Length=326' Tc=10.1 min CN=58 Runoff=2.28 cfs 0.210 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.52 cfs 0.043 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>1.40"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.10 cfs 0.008 af

Subcatchment 4S: Quality Way SE Runoff Area=4,938 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.59 cfs 0.049 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.019 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,203 sf 88.56% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=91 Runoff=0.24 cfs 0.018 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>2.18"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.15 cfs 0.014 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.010 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>2.79"
Flow Length=257' Tc=7.9 min CN=75 Runoff=2.41 cfs 0.185 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>2.70"
Flow Length=151' Tc=6.4 min CN=74 Runoff=1.75 cfs 0.128 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.54 cfs 0.045 af

Subcatchment 12S: Remainder of Existing Runoff Area=43,238 sf 0.00% Impervious Runoff Depth>0.81"
Flow Length=296' Tc=16.0 min CN=49 Runoff=0.47 cfs 0.067 af

Subcatchment 13S: Venture Drive Runoff Area=1,436 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment 20S: Subcatchment #20 Runoff Area=10,628 sf 23.04% Impervious Runoff Depth>1.86"
Tc=6.0 min CN=64 Runoff=0.50 cfs 0.038 af

Subcatchment 21S: Subcatchment #21 Runoff Area=9,242 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=1.10 cfs 0.092 af

Subcatchment 22S: Subcatchment #22 Runoff Area=12,546 sf 93.85% Impervious Runoff Depth>4.72"
Tc=6.0 min CN=94 Runoff=1.44 cfs 0.113 af

Subcatchment 23S: Subcatchment #23 Runoff Area=2,316 sf 100.00% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.023 af

Subcatchment 24S: Area Around Pond Runoff Area=3,890 sf 0.00% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=74 Runoff=0.28 cfs 0.020 af

Reach 2R: Reach #2 Avg. Flow Depth=0.18' Max Vel=0.91 fps Inflow=2.66 cfs 0.253 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=2.38 cfs 0.252 af

Reach 100R: Final Reach #100 Inflow=7.53 cfs 0.998 af
Outflow=7.53 cfs 0.998 af

Reach 101aR: Overland Flow to Avg. Flow Depth=0.12' Max Vel=1.88 fps Inflow=0.70 cfs 0.165 af
n=0.065 L=20.0' S=0.2000 '/' Capacity=38.38 cfs Outflow=0.71 cfs 0.165 af

Reach 101bR: Overland Flow to Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.065 L=52.0' S=0.0192 '/' Capacity=5.06 cfs Outflow=0.00 cfs 0.000 af

Reach 200R: Final Reach #200 Inflow=0.17 cfs 0.014 af
Outflow=0.17 cfs 0.014 af

Pond 1P: Roadside Pond Peak Elev=169.44' Storage=10 cf Inflow=2.28 cfs 0.210 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=2.27 cfs 0.210 af

Pond 2P: CB #7325 Peak Elev=168.12' Storage=15 cf Inflow=2.66 cfs 0.253 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=2.66 cfs 0.253 af

Pond 3P: CB #7323 Peak Elev=169.05' Storage=2 cf Inflow=0.10 cfs 0.008 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=0.10 cfs 0.008 af

Pond 4P: CB #7324 Peak Elev=168.75' Storage=5 cf Inflow=0.68 cfs 0.057 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=0.68 cfs 0.057 af

Pond 5P: CB #7320 Peak Elev=168.41' Storage=16 cf Inflow=0.22 cfs 0.019 af
Primary=0.20 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.019 af

Pond 6P: CB #7319 Peak Elev=168.41' Storage=25 cf Inflow=5.16 cfs 0.420 af
Primary=5.13 cfs 0.420 af Secondary=0.00 cfs 0.000 af Outflow=5.13 cfs 0.420 af

Pond 7P: CB #3201 Peak Elev=174.56' Storage=2 cf Inflow=0.15 cfs 0.014 af
Primary=0.15 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.014 af

Pond 8P: CB #3202 Peak Elev=174.20' Storage=7 cf Inflow=0.24 cfs 0.024 af
Primary=0.24 cfs 0.024 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.024 af

Pond 9P: CB #3203 Peak Elev=174.18' Storage=12 cf Inflow=2.63 cfs 0.209 af
Primary=2.63 cfs 0.209 af Secondary=0.00 cfs 0.000 af Outflow=2.63 cfs 0.209 af

Pond 10P: CB #7322 Peak Elev=172.12' Storage=9 cf Inflow=1.75 cfs 0.128 af
Primary=1.75 cfs 0.128 af Secondary=0.00 cfs 0.000 af Outflow=1.75 cfs 0.128 af

Pond 11P: CB #7321 Peak Elev=170.32' Storage=40 cf Inflow=0.54 cfs 0.045 af
Primary=0.49 cfs 0.045 af Secondary=0.00 cfs 0.000 af Outflow=0.49 cfs 0.045 af

Pond 101P: Rain Garden #101 Peak Elev=166.89' Storage=5,277 cf Inflow=3.06 cfs 0.247 af
Primary=0.70 cfs 0.165 af Secondary=0.00 cfs 0.000 af Outflow=0.70 cfs 0.165 af

Pond 102P: Entrance Detention Pond Peak Elev=166.44' Storage=1,988 cf Inflow=6.29 cfs 0.515 af
Outflow=4.17 cfs 0.514 af

Pond 4198P: DMH #4198 Peak Elev=171.22' Storage=35 cf Inflow=4.37 cfs 0.338 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=4.30 cfs 0.338 af

Pond 8054P: DMH #8054 Peak Elev=170.31' Storage=31 cf Inflow=4.77 cfs 0.383 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=4.74 cfs 0.383 af

Pond C01P: CB #1 Peak Elev=166.90' Storage=21 cf Inflow=1.10 cfs 0.092 af
15.0" Round Culvert n=0.012 L=13.0' S=0.0077 '/' Outflow=1.09 cfs 0.091 af

Pond C02P: CB #2 Peak Elev=166.90' Storage=21 cf Inflow=1.44 cfs 0.113 af
15.0" Round Culvert n=0.012 L=9.7' S=0.0103 '/' Outflow=1.43 cfs 0.113 af

Pond C03P: CB #3 Peak Elev=166.96' Storage=3 cf Inflow=0.28 cfs 0.023 af
12.0" Round Culvert n=0.012 L=32.5' S=0.0292 '/' Outflow=0.28 cfs 0.023 af

Pond D01P: DMH #1 Peak Elev=166.90' Storage=24 cf Inflow=2.52 cfs 0.204 af
15.0" Round Culvert n=0.012 L=82.7' S=0.0079 '/' Outflow=2.51 cfs 0.204 af

Pond D02P: DMH #2 Peak Elev=167.76' Storage=19 cf Inflow=5.13 cfs 0.420 af
15.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=5.13 cfs 0.420 af

Total Runoff Area = 5.659 ac Runoff Volume = 1.097 af Average Runoff Depth = 2.33"
53.43% Pervious = 3.024 ac 46.57% Impervious = 2.636 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>2.30"
Flow Length=326' Tc=10.1 min CN=58 Runoff=3.98 cfs 0.344 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.66 cfs 0.055 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>2.30"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.17 cfs 0.014 af

Subcatchment 4S: Quality Way SE Runoff Area=4,938 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.74 cfs 0.062 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,203 sf 88.56% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=91 Runoff=0.31 cfs 0.024 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>3.28"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.23 cfs 0.021 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>4.01"
Flow Length=257' Tc=7.9 min CN=75 Runoff=3.46 cfs 0.266 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>3.91"
Flow Length=151' Tc=6.4 min CN=74 Runoff=2.54 cfs 0.186 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.058 af

Subcatchment 12S: Remainder of Existing Runoff Area=43,238 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=296' Tc=16.0 min CN=49 Runoff=1.07 cfs 0.123 af

Subcatchment 13S: Venture Drive Runoff Area=1,436 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment 20S: Subcatchment #20 Runoff Area=10,628 sf 23.04% Impervious Runoff Depth>2.88"
Tc=6.0 min CN=64 Runoff=0.80 cfs 0.059 af

Subcatchment 21S: Subcatchment #21 Runoff Area=9,242 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=1.39 cfs 0.117 af

Subcatchment 22S: Subcatchment #22 Runoff Area=12,546 sf 93.85% Impervious Runoff Depth>6.14"
Tc=6.0 min CN=94 Runoff=1.85 cfs 0.147 af

Subcatchment 23S: Subcatchment #23 Runoff Area=2,316 sf 100.00% Impervious Runoff Depth>6.61"
Tc=6.0 min CN=98 Runoff=0.35 cfs 0.029 af

Subcatchment 24S: Area Around Pond Runoff Area=3,890 sf 0.00% Impervious Runoff Depth>3.91"
Tc=6.0 min CN=74 Runoff=0.40 cfs 0.029 af

Reach 2R: Reach #2 Avg. Flow Depth=0.24' Max Vel=1.08 fps Inflow=4.38 cfs 0.399 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=4.10 cfs 0.398 af

Reach 100R: Final Reach #100 Inflow=12.45 cfs 1.482 af
Outflow=12.45 cfs 1.482 af

Reach 101aR: Overland Flow to Avg. Flow Depth=0.14' Max Vel=2.08 fps Inflow=0.98 cfs 0.235 af
n=0.065 L=20.0' S=0.2000 '/' Capacity=38.38 cfs Outflow=0.98 cfs 0.235 af

Reach 101bR: Overland Flow to Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.065 L=52.0' S=0.0192 '/' Capacity=5.06 cfs Outflow=0.00 cfs 0.000 af

Reach 200R: Final Reach #200 Inflow=0.22 cfs 0.018 af
Outflow=0.22 cfs 0.018 af

Pond 1P: Roadside Pond Peak Elev=170.15' Storage=62 cf Inflow=3.98 cfs 0.344 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=3.92 cfs 0.344 af

Pond 2P: CB #7325 Peak Elev=168.93' Storage=25 cf Inflow=4.39 cfs 0.400 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=4.38 cfs 0.399 af

Pond 3P: CB #7323 Peak Elev=169.64' Storage=9 cf Inflow=1.88 cfs 0.021 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=1.81 cfs 0.021 af

Pond 4P: CB #7324 Peak Elev=169.16' Storage=10 cf Inflow=2.23 cfs 0.083 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=2.17 cfs 0.083 af

Pond 5P: CB #7320 Peak Elev=169.54' Storage=31 cf Inflow=0.34 cfs 0.024 af
Primary=0.37 cfs 0.024 af Secondary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.024 af

Pond 6P: CB #7319 Peak Elev=169.53' Storage=39 cf Inflow=7.01 cfs 0.584 af
Primary=6.98 cfs 0.584 af Secondary=0.00 cfs 0.000 af Outflow=6.98 cfs 0.584 af

Pond 7P: CB #3201 Peak Elev=176.36' Storage=25 cf Inflow=0.23 cfs 0.021 af
Primary=0.39 cfs 0.021 af Secondary=0.00 cfs 0.000 af Outflow=0.39 cfs 0.021 af

Pond 8P: CB #3202 Peak Elev=176.36' Storage=35 cf Inflow=0.45 cfs 0.034 af
Primary=0.47 cfs 0.034 af Secondary=0.00 cfs 0.000 af Outflow=0.47 cfs 0.034 af

Pond 9P: CB #3203 Peak Elev=176.36' Storage=40 cf Inflow=3.77 cfs 0.300 af
Primary=3.74 cfs 0.300 af Secondary=0.00 cfs 0.000 af Outflow=3.74 cfs 0.300 af

Pond 10P: CB #7322 Peak Elev=174.62' Storage=35 cf Inflow=2.54 cfs 0.186 af
Primary=2.55 cfs 0.179 af Secondary=1.74 cfs 0.007 af Outflow=2.55 cfs 0.186 af

Pond 11P: CB #7321 Peak Elev=173.31' Storage=73 cf Inflow=0.69 cfs 0.058 af
Primary=0.59 cfs 0.057 af Secondary=0.18 cfs 0.001 af Outflow=0.59 cfs 0.057 af

Pond 101P: Rain Garden #101 Peak Elev=167.51' Storage=6,610 cf Inflow=3.92 cfs 0.321 af
Primary=0.98 cfs 0.235 af Secondary=0.00 cfs 0.000 af Outflow=0.98 cfs 0.235 af

Pond 102P: Entrance Detention Pond Peak Elev=167.22' Storage=2,982 cf Inflow=8.67 cfs 0.726 af
Outflow=6.42 cfs 0.725 af

Pond 4198P: DMH #4198 Peak Elev=174.95' Storage=70 cf Inflow=6.26 cfs 0.479 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=6.10 cfs 0.479 af

Pond 8054P: DMH #8054 Peak Elev=173.30' Storage=64 cf Inflow=6.61 cfs 0.536 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=6.51 cfs 0.536 af

Pond C01P: CB #1 Peak Elev=167.52' Storage=29 cf Inflow=1.39 cfs 0.117 af
15.0" Round Culvert n=0.012 L=13.0' S=0.0077 '/' Outflow=1.37 cfs 0.116 af

Pond C02P: CB #2 Peak Elev=167.52' Storage=29 cf Inflow=1.85 cfs 0.147 af
15.0" Round Culvert n=0.012 L=9.7' S=0.0103 '/' Outflow=1.82 cfs 0.147 af

Pond C03P: CB #3 Peak Elev=167.51' Storage=10 cf Inflow=0.35 cfs 0.029 af
12.0" Round Culvert n=0.012 L=32.5' S=0.0292 '/' Outflow=0.35 cfs 0.029 af

Pond D01P: DMH #1 Peak Elev=167.52' Storage=32 cf Inflow=3.19 cfs 0.263 af
15.0" Round Culvert n=0.012 L=82.7' S=0.0079 '/' Outflow=3.17 cfs 0.263 af

Pond D02P: DMH #2 Peak Elev=168.26' Storage=25 cf Inflow=6.98 cfs 0.584 af
15.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=6.98 cfs 0.584 af

Total Runoff Area = 5.659 ac Runoff Volume = 1.590 af Average Runoff Depth = 3.37"
53.43% Pervious = 3.024 ac 46.57% Impervious = 2.636 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>3.24"
Flow Length=326' Tc=10.1 min CN=58 Runoff=5.75 cfs 0.484 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.79 cfs 0.066 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>3.24"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.25 cfs 0.019 af

Subcatchment 4S: Quality Way SE Runoff Area=4,938 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.89 cfs 0.075 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.028 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,203 sf 88.56% Impervious Runoff Depth>7.10"
Tc=6.0 min CN=91 Runoff=0.38 cfs 0.030 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>4.38"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.31 cfs 0.028 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.016 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>5.20"
Flow Length=257' Tc=7.9 min CN=75 Runoff=4.47 cfs 0.345 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>5.08"
Flow Length=151' Tc=6.4 min CN=74 Runoff=3.29 cfs 0.242 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.82 cfs 0.069 af

Subcatchment 12S: Remainder of Existing Runoff Area=43,238 sf 0.00% Impervious Runoff Depth>2.24"
Flow Length=296' Tc=16.0 min CN=49 Runoff=1.74 cfs 0.186 af

Subcatchment 13S: Venture Drive Runoff Area=1,436 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.022 af

Subcatchment 20S: Subcatchment #20 Runoff Area=10,628 sf 23.04% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=64 Runoff=1.10 cfs 0.080 af

Subcatchment 21S: Subcatchment #21 Runoff Area=9,242 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=1.66 cfs 0.140 af

Subcatchment 22S: Subcatchment #22 Runoff Area=12,546 sf 93.85% Impervious Runoff Depth>7.46"
Tc=6.0 min CN=94 Runoff=2.22 cfs 0.179 af

Subcatchment 23S: Subcatchment #23 Runoff Area=2,316 sf 100.00% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af

Subcatchment 24S: Area Around Pond Runoff Area=3,890 sf 0.00% Impervious Runoff Depth>5.08"
Tc=6.0 min CN=74 Runoff=0.52 cfs 0.038 af

Reach 2R: Reach #2 Avg. Flow Depth=0.26' Max Vel=1.16 fps Inflow=5.26 cfs 0.550 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=5.20 cfs 0.548 af

Reach 100R: Final Reach #100 Inflow=15.85 cfs 1.966 af
Outflow=15.85 cfs 1.966 af

Reach 101aR: Overland Flow to Avg. Flow Depth=0.18' Max Vel=2.46 fps Inflow=1.71 cfs 0.303 af
n=0.065 L=20.0' S=0.2000 '/' Capacity=38.38 cfs Outflow=1.72 cfs 0.303 af

Reach 101bR: Overland Flow to Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.065 L=52.0' S=0.0192 '/' Capacity=5.06 cfs Outflow=0.00 cfs 0.000 af

Reach 200R: Final Reach #200 Inflow=0.49 cfs 0.024 af
Outflow=0.49 cfs 0.024 af

Pond 1P: Roadside Pond Peak Elev=171.09' Storage=449 cf Inflow=5.75 cfs 0.484 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=4.86 cfs 0.484 af

Pond 2P: CB #7325 Peak Elev=169.43' Storage=32 cf Inflow=5.29 cfs 0.550 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=5.26 cfs 0.550 af

Pond 3P: CB #7323 Peak Elev=171.32' Storage=30 cf Inflow=5.00 cfs 0.049 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=4.79 cfs 0.049 af

Pond 4P: CB #7324 Peak Elev=170.68' Storage=30 cf Inflow=5.44 cfs 0.124 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=5.26 cfs 0.124 af

Pond 5P: CB #7320 Peak Elev=170.76' Storage=44 cf Inflow=1.17 cfs 0.033 af
Primary=0.83 cfs 0.032 af Secondary=0.26 cfs 0.001 af Outflow=1.08 cfs 0.033 af

Pond 6P: CB #7319 Peak Elev=170.71' Storage=52 cf Inflow=9.49 cfs 0.728 af
Primary=9.21 cfs 0.727 af Secondary=0.18 cfs 0.001 af Outflow=9.38 cfs 0.727 af

Pond 7P: CB #3201 Peak Elev=178.74' Storage=35 cf Inflow=0.31 cfs 0.028 af
Primary=0.77 cfs 0.027 af Secondary=0.45 cfs 0.002 af Outflow=0.77 cfs 0.029 af

Pond 8P: CB #3202 Peak Elev=178.75' Storage=57 cf Inflow=0.83 cfs 0.045 af
Primary=0.65 cfs 0.043 af Secondary=0.20 cfs 0.001 af Outflow=0.66 cfs 0.045 af

Pond 9P: CB #3203 Peak Elev=178.74' Storage=62 cf Inflow=4.82 cfs 0.389 af
Primary=4.63 cfs 0.380 af Secondary=1.79 cfs 0.010 af Outflow=4.60 cfs 0.389 af

Pond 10P: CB #7322 Peak Elev=175.12' Storage=35 cf Inflow=4.53 cfs 0.252 af
Primary=3.42 cfs 0.222 af Secondary=4.76 cfs 0.030 af Outflow=4.66 cfs 0.252 af

Pond 11P: CB #7321 Peak Elev=173.46' Storage=73 cf Inflow=0.82 cfs 0.069 af
Primary=0.66 cfs 0.064 af Secondary=0.90 cfs 0.005 af Outflow=0.90 cfs 0.069 af

Pond 101P: Rain Garden #101 Peak Elev=167.96' Storage=7,691 cf Inflow=4.73 cfs 0.391 af
Primary=1.71 cfs 0.303 af Secondary=0.00 cfs 0.000 af Outflow=1.71 cfs 0.303 af

Pond 102P: Entrance Detention Pond Peak Elev=167.91' Storage=4,041 cf Inflow=11.17 cfs 0.931 af
Outflow=7.83 cfs 0.929 af

Pond 4198P: DMH #4198 Peak Elev=177.75' Storage=70 cf Inflow=8.02 cfs 0.601 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=8.11 cfs 0.601 af

Pond 8054P: DMH #8054 Peak Elev=176.55' Storage=64 cf Inflow=8.48 cfs 0.665 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=8.66 cfs 0.665 af

Pond C01P: CB #1 Peak Elev=168.01' Storage=35 cf Inflow=1.66 cfs 0.140 af
15.0" Round Culvert n=0.012 L=13.0' S=0.0077 '/' Outflow=1.63 cfs 0.140 af

Pond C02P: CB #2 Peak Elev=168.02' Storage=35 cf Inflow=2.22 cfs 0.179 af
15.0" Round Culvert n=0.012 L=9.7' S=0.0103 '/' Outflow=2.19 cfs 0.179 af

Pond C03P: CB #3 Peak Elev=167.96' Storage=16 cf Inflow=0.42 cfs 0.035 af
12.0" Round Culvert n=0.012 L=32.5' S=0.0292 '/' Outflow=0.41 cfs 0.035 af

Pond D01P: DMH #1 Peak Elev=168.00' Storage=38 cf Inflow=3.82 cfs 0.319 af
15.0" Round Culvert n=0.012 L=82.7' S=0.0079 '/' Outflow=3.80 cfs 0.318 af

Pond D02P: DMH #2 Peak Elev=169.18' Storage=37 cf Inflow=9.21 cfs 0.727 af
15.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=9.13 cfs 0.727 af

Total Runoff Area = 5.659 ac Runoff Volume = 2.082 af Average Runoff Depth = 4.42"
53.43% Pervious = 3.024 ac 46.57% Impervious = 2.636 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Quality Way North Runoff Area=78,168 sf 37.94% Impervious Runoff Depth>4.43"
Flow Length=326' Tc=10.1 min CN=58 Runoff=7.98 cfs 0.663 af

Subcatchment 2S: Quality Way SW Runoff Area=4,365 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.94 cfs 0.079 af

Subcatchment 3S: Quality Way Int. Runoff Area=3,147 sf 34.19% Impervious Runoff Depth>4.44"
Flow Length=163' Tc=8.1 min CN=58 Runoff=0.34 cfs 0.027 af

Subcatchment 4S: Quality Way SE Runoff Area=4,938 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=1.06 cfs 0.090 af

Subcatchment 5S: Venture Drive East Runoff Area=1,877 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.40 cfs 0.034 af

Subcatchment 6S: Venture Drive Int. Runoff Area=2,203 sf 88.56% Impervious Runoff Depth>8.66"
Tc=6.0 min CN=91 Runoff=0.46 cfs 0.036 af

Subcatchment 7S: Forward Merch Runoff Area=3,403 sf 53.78% Impervious Runoff Depth>5.74"
Flow Length=57' Slope=0.0176 '/' Tc=13.6 min CN=68 Runoff=0.41 cfs 0.037 af

Subcatchment 8S: Ventur Drive FM Runoff Area=1,031 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.019 af

Subcatchment 9S: Certified Driveway Runoff Area=34,665 sf 60.23% Impervious Runoff Depth>6.65"
Flow Length=257' Tc=7.9 min CN=75 Runoff=5.68 cfs 0.441 af

Subcatchment 10S: Certified Parking Lot Runoff Area=24,868 sf 62.08% Impervious Runoff Depth>6.52"
Flow Length=151' Tc=6.4 min CN=74 Runoff=4.19 cfs 0.310 af

Subcatchment 11S: Venture Drive NE Runoff Area=4,551 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.98 cfs 0.083 af

Subcatchment 12S: Remainder of Existing Runoff Area=43,238 sf 0.00% Impervious Runoff Depth>3.25"
Flow Length=296' Tc=16.0 min CN=49 Runoff=2.63 cfs 0.269 af

Subcatchment 13S: Venture Drive Runoff Area=1,436 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.31 cfs 0.026 af

Subcatchment 20S: Subcatchment #20 Runoff Area=10,628 sf 23.04% Impervious Runoff Depth>5.22"
Tc=6.0 min CN=64 Runoff=1.47 cfs 0.106 af

Subcatchment 21S: Subcatchment #21 Runoff Area=9,242 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=1.99 cfs 0.168 af

Subcatchment 22S: Subcatchment #22 Runoff Area=12,546 sf 93.85% Impervious Runoff Depth>9.03"
Tc=6.0 min CN=94 Runoff=2.66 cfs 0.217 af

Subcatchment 23S: Subcatchment #23 Runoff Area=2,316 sf 100.00% Impervious Runoff Depth>9.51"
Tc=6.0 min CN=98 Runoff=0.50 cfs 0.042 af

Subcatchment 24S: Area Around Pond Runoff Area=3,890 sf 0.00% Impervious Runoff Depth>6.52"
Tc=6.0 min CN=74 Runoff=0.66 cfs 0.049 af

Reach 2R: Reach #2 Avg. Flow Depth=0.28' Max Vel=1.20 fps Inflow=5.90 cfs 0.742 af
n=0.080 L=288.7' S=0.0399 '/' Capacity=20.81 cfs Outflow=5.81 cfs 0.740 af

Reach 100R: Final Reach #100 Inflow=21.50 cfs 2.569 af
Outflow=21.50 cfs 2.569 af

Reach 101aR: Overland Flow to Avg. Flow Depth=0.26' Max Vel=3.13 fps Inflow=3.67 cfs 0.382 af
n=0.065 L=20.0' S=0.2000 '/' Capacity=38.38 cfs Outflow=3.75 cfs 0.382 af

Reach 101bR: Overland Flow to Avg. Flow Depth=0.13' Max Vel=0.62 fps Inflow=0.30 cfs 0.002 af
n=0.065 L=52.0' S=0.0192 '/' Capacity=5.06 cfs Outflow=0.28 cfs 0.002 af

Reach 200R: Final Reach #200 Inflow=0.90 cfs 0.032 af
Outflow=0.90 cfs 0.032 af

Pond 1P: Roadside Pond Peak Elev=171.86' Storage=1,613 cf Inflow=7.98 cfs 0.663 af
12.0" Round Culvert n=0.012 L=42.3' S=0.0288 '/' Outflow=5.45 cfs 0.663 af

Pond 2P: CB #7325 Peak Elev=169.86' Storage=37 cf Inflow=5.92 cfs 0.742 af
12.0" Round Culvert n=0.012 L=32.7' S=0.0037 '/' Outflow=5.90 cfs 0.742 af

Pond 3P: CB #7323 Peak Elev=176.96' Storage=40 cf Inflow=8.18 cfs 0.101 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0193 '/' Outflow=8.41 cfs 0.101 af

Pond 4P: CB #7324 Peak Elev=174.74' Storage=47 cf Inflow=9.33 cfs 0.191 af
12.0" Round Culvert n=0.012 L=36.3' S=0.0152 '/' Outflow=9.58 cfs 0.191 af

Pond 5P: CB #7320 Peak Elev=170.79' Storage=44 cf Inflow=1.43 cfs 0.039 af
Primary=1.00 cfs 0.037 af Secondary=0.31 cfs 0.002 af Outflow=1.27 cfs 0.039 af

Pond 6P: CB #7319 Peak Elev=170.89' Storage=52 cf Inflow=9.85 cfs 0.884 af
Primary=9.54 cfs 0.880 af Secondary=0.75 cfs 0.004 af Outflow=9.67 cfs 0.884 af

Pond 7P: CB #3201 Peak Elev=179.12' Storage=35 cf Inflow=0.41 cfs 0.037 af
Primary=0.54 cfs 0.033 af Secondary=0.51 cfs 0.004 af Outflow=0.57 cfs 0.037 af

Pond 8P: CB #3202 Peak Elev=179.12' Storage=57 cf Inflow=0.70 cfs 0.056 af
Primary=0.88 cfs 0.053 af Secondary=0.48 cfs 0.003 af Outflow=0.88 cfs 0.056 af

Pond 9P: CB #3203 Peak Elev=179.12' Storage=62 cf Inflow=5.96 cfs 0.497 af
Primary=5.11 cfs 0.471 af Secondary=3.76 cfs 0.026 af Outflow=6.01 cfs 0.497 af

Pond 10P: CB #7322 Peak Elev=175.65' Storage=35 cf Inflow=7.54 cfs 0.336 af
Primary=3.73 cfs 0.262 af Secondary=7.85 cfs 0.074 af Outflow=7.49 cfs 0.336 af

Pond 11P: CB #7321 Peak Elev=173.30' Storage=73 cf Inflow=0.98 cfs 0.083 af
Primary=0.89 cfs 0.078 af Secondary=1.03 cfs 0.005 af Outflow=1.03 cfs 0.083 af

Pond 101P: Rain Garden #101 Peak Elev=168.05' Storage=7,935 cf Inflow=5.69 cfs 0.475 af
Primary=3.67 cfs 0.382 af Secondary=0.30 cfs 0.002 af Outflow=3.97 cfs 0.385 af

Pond 102P: Entrance Detention Pond Peak Elev=168.78' Storage=5,661 cf Inflow=14.47 cfs 1.177 af
Outflow=9.22 cfs 1.176 af

Pond 4198P: DMH #4198 Peak Elev=178.55' Storage=70 cf Inflow=8.41 cfs 0.733 af
12.0" Round Culvert n=0.012 L=40.1' S=0.0107 '/' Outflow=8.37 cfs 0.733 af

Pond 8054P: DMH #8054 Peak Elev=177.44' Storage=64 cf Inflow=9.14 cfs 0.810 af
12.0" Round Culvert n=0.012 L=96.9' S=0.0139 '/' Outflow=9.17 cfs 0.810 af

Pond C01P: CB #1 Peak Elev=168.31' Storage=39 cf Inflow=1.99 cfs 0.168 af
15.0" Round Culvert n=0.012 L=13.0' S=0.0077 '/' Outflow=1.95 cfs 0.168 af

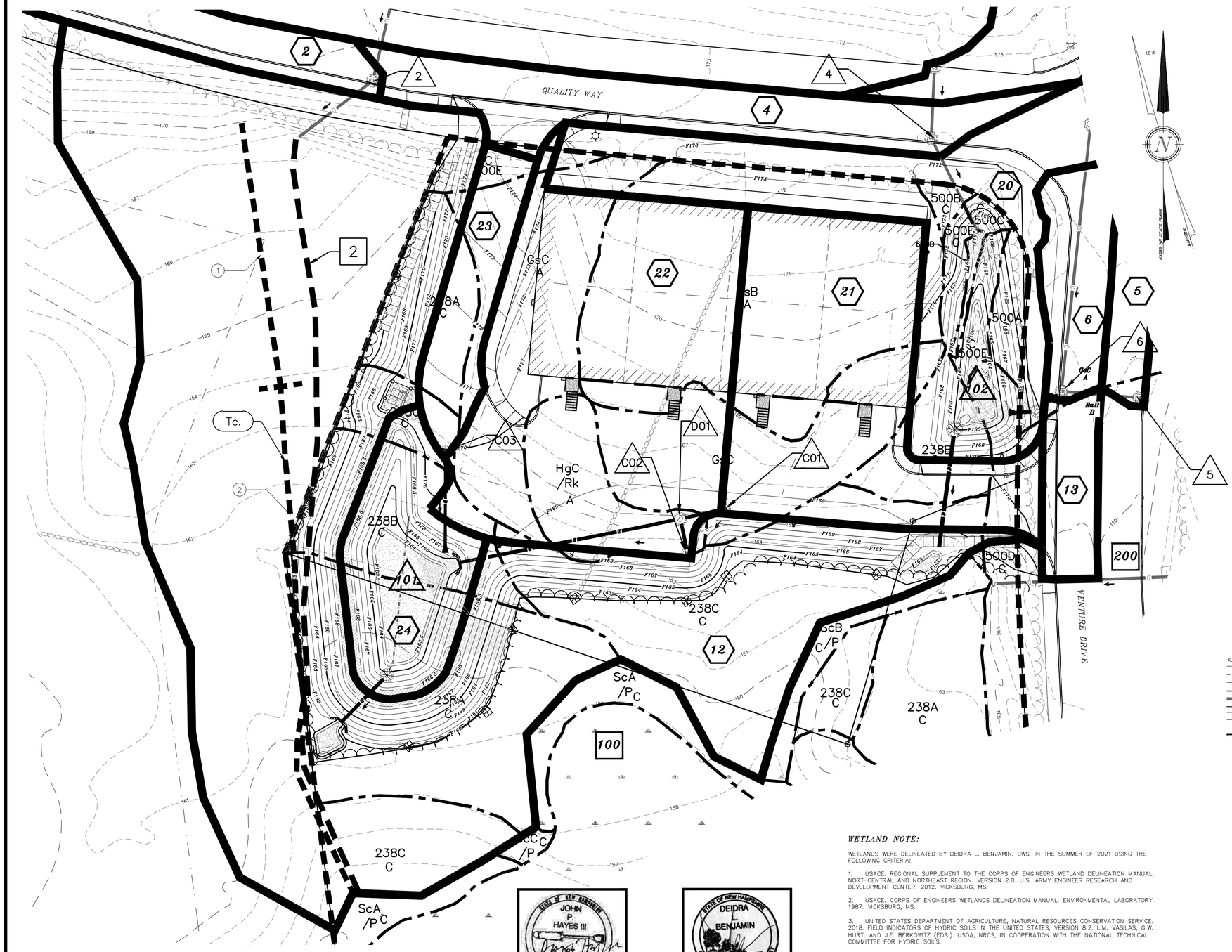
Pond C02P: CB #2 Peak Elev=168.33' Storage=39 cf Inflow=2.66 cfs 0.217 af
15.0" Round Culvert n=0.012 L=9.7' S=0.0103 '/' Outflow=2.62 cfs 0.216 af

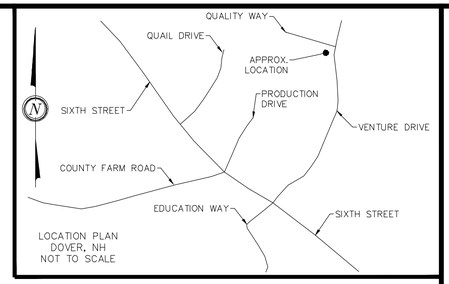
Pond C03P: CB #3 Peak Elev=168.06' Storage=17 cf Inflow=0.50 cfs 0.042 af
12.0" Round Culvert n=0.012 L=32.5' S=0.0292 '/' Outflow=0.48 cfs 0.042 af

Pond D01P: DMH #1 Peak Elev=168.28' Storage=41 cf Inflow=4.57 cfs 0.384 af
15.0" Round Culvert n=0.012 L=82.7' S=0.0079 '/' Outflow=4.55 cfs 0.384 af

Pond D02P: DMH #2 Peak Elev=170.40' Storage=52 cf Inflow=9.54 cfs 0.880 af
15.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=9.38 cfs 0.880 af

Total Runoff Area = 5.659 ac Runoff Volume = 2.696 af Average Runoff Depth = 5.72"
53.43% Pervious = 3.024 ac 46.57% Impervious = 2.636 ac





LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11-5
B.) TAX MAP D, LOT 11-5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 0.99 Ac.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS OF TAX MAP D, LOT 11-5 LOCATED IN DOVER, N.H., AT THE COMPLETION OF THE PROPOSED DEVELOPMENT.

7.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0310E, DATED: SEPTEMBER 30, 2015.

8.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

EXISTING LEGEND:

- STONE BOUND (FND)
- DRILL HOLE (FND)
- IRON BOUND (FND)
- IRON PIPE (FND)
- STEEL STAKE (FND)
- UTILITY POLE / GUY WIRE
- SINGLE POST SIGN
- TEMPORARY BENCHMARK
- TEST PIT
- CURB STOP
- GATE VALVE
- FIRE HYDRANT
- CATCH BASIN
- SEWER MANHOLE

- STONE WALL
- ABUTTING PROPERTY LINE
- BUILDING SETBACK LINE
- EXISTING WATER LINE
- EXISTING SEWER LINE
- EXISTING DRAIN LINE
- OVERHEAD UTILITIES
- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- EXISTING TREELINE
- NRCS SOIL LINE/LABEL

FND FOUND
TYP. TYPICAL
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS

SYMBOLS LEGEND:

- SUBCATCHMENT AREA SYMBOL
- FLOW REACH SYMBOL
- POND DEVICE SYMBOL
- TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

WETLAND NOTE:

WETLANDS WERE DELINEATED BY DEIDRA L. BENJAMIN, CWS, IN THE SUMMER OF 2021 USING THE FOLLOWING CRITERIA:

1. USACE. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. VERSION 2.0. U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER. 2012. VICKSBURG, MS.

2. USACE. CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. ENVIRONMENTAL LABORATORY. 1987. VICKSBURG, MS.

3. UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE. 2018. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2. L.M. VASILAS, G.W. HURT, AND J.F. BERKOWITZ (EDS.). USDA, NRCS, IN COOPERATION WITH THE NATIONAL TECHNICAL COMMITTEE FOR HYDRIC SOILS.

4. NEW ENGLAND HYDRIC SOIL TECHNICAL COMMITTEE. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. VERSION 4. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION. 2019. LOWELL, MA.

5. U.S. ARMY CORPS OF ENGINEERS 2019. NATIONAL WETLAND PLANT LIST, VERSION 3.3. HTTP://WETLAND-PLANTS.USACE.ARMY.MIL/

STATE OF NEW HAMPSHIRE
JOHN P. HAYES III
No. 087
LICENSED SOIL SCIENTIST

JOHN P. HAYES, III CSS #87

STATE OF NEW HAMPSHIRE
DEIDRA L. BENJAMIN
No. 295
CERTIFIED WETLAND SCIENTIST

DEIDRA BENJAMIN, CWS #295

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

W-2 PROPOSED CONDITIONS WATERSHED PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

Appendix III - Calculations, Charts, & Graphs

Extreme Precipitation Tables
Rip-Rap Calculations
NHDES AoT Spreadsheet
USDA / NRCS Websoil
Site Specific Soil Survey Report & Plan
Stormwater System Management: Inspection and Maintenance Manual
Watershed Report Card, 303 (d) List, ORW List
Filtrexx Silt Soxx Specifications Cut Sheets

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.911 degrees West
Latitude	43.223 degrees North
Elevation	0 feet
Date/Time	Tue, 19 Jul 2022 09:17:31 -0400

Extreme Precipitation Estimates

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

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.90	**1yr**	0.64	0.88	0.92	1.25	1.54	2.05	2.46	**1yr**	1.82	2.36	2.94	3.42	4.10	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.15	1.36	1.82	2.35	3.05	3.39	**2yr**	2.70	3.26	3.74	4.46	5.08	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.14	2.77	3.69	4.11	**5yr**	3.26	3.95	4.59	5.39	6.09	**5yr**
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.81	2.44	3.12	4.24	4.77	**10yr**	3.75	4.58	5.30	6.21	6.97	**10yr**
25yr	0.44	0.66	0.83	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.84	3.64	5.08	5.76	**25yr**	4.50	5.54	6.47	7.50	8.35	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.19	**50yr**	1.52	2.14	2.36	3.20	4.08	5.83	6.64	**50yr**	5.16	6.39	7.51	8.63	9.55	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.51	**100yr**	1.74	2.45	2.65	3.58	4.55	6.69	7.65	**100yr**	5.92	7.35	8.72	9.94	10.90	**100yr**
200yr	0.60	0.90	1.14	1.65	2.30	2.87	**200yr**	1.98	2.81	2.96	4.02	5.07	7.66	8.80	**200yr**	6.78	8.46	10.12	11.45	12.46	**200yr**
500yr	0.70	1.04	1.33	1.94	2.75	3.46	**500yr**	2.38	3.39	3.44	4.67	5.87	9.13	10.59	**500yr**	8.08	10.18	12.32	13.81	14.81	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.23	1.73	2.20	2.82	3.07	**1yr**	2.49	2.95	3.37	4.17	4.74	**1yr**
2yr	0.33	0.51	0.62	0.84	1.04	1.24	**2yr**	0.90	1.22	1.47	1.95	2.51	3.24	3.61	**2yr**	2.86	3.47	3.98	4.73	5.39	**2yr**
5yr	0.39	0.60	0.75	1.03	1.31	1.58	**5yr**	1.13	1.54	1.85	2.49	3.19	4.21	4.83	**5yr**	3.73	4.64	5.27	6.20	6.96	**5yr**
10yr	0.46	0.70	0.87	1.21	1.57	1.91	**10yr**	1.35	1.87	2.22	3.03	3.84	5.18	6.02	**10yr**	4.58	5.79	6.63	7.60	8.47	**10yr**
25yr	0.55	0.84	1.05	1.50	1.97	2.46	**25yr**	1.70	2.41	2.87	3.94	4.94	6.81	8.08	**25yr**	6.03	7.77	8.86	10.01	11.03	**25yr**
50yr	0.64	0.97	1.21	1.75	2.35	2.97	**50yr**	2.03	2.90	3.48	4.80	5.99	8.37	10.12	**50yr**	7.41	9.73	11.07	12.30	13.48	**50yr**
100yr	0.75	1.13	1.41	2.04	2.80	3.58	**100yr**	2.42	3.50	4.22	5.87	7.28	10.30	12.68	**100yr**	9.12	12.19	13.81	15.14	16.48	**100yr**
200yr	0.87	1.30	1.65	2.39	3.33	4.34	**200yr**	2.88	4.24	5.13	7.18	8.84	12.71	15.90	**200yr**	11.25	15.29	17.25	18.63	20.18	**200yr**
500yr	1.06	1.58	2.03	2.95	4.19	5.56	**500yr**	3.62	5.44	6.62	9.38	11.45	16.80	21.45	**500yr**	14.87	20.62	23.17	24.55	26.40	**500yr**


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ACIS
Northeast Regional
Climate Center

RIP RAP CALCULATIONS

21-134

Quality & Venture

Dover, NH

Berry Surveying & Engineering

335 Second Crown Point Road

Barrington, NH

6/1/2022/Rev: 9-1-22

Rip Rap equations were obtained from the *Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.* Rip Rap was sized for the 25 year storm event. (Some d50 sizes and T values have been modified)

TAILWATER < HALF THE Do

La = (1.8 x Q) / Do 3/2 + (7 x Do) Q = Peak Flow & Do is Pipe Diameter

W = La + 3*Do or defined channel width

d50 = (0.02 x Q4/3) / (Tw x Do) Tw = Tailwater Depth

T = Largest Stone Size x 1.5

Culvert or Catch Basin	Tailwater (Feet) Tw	Discharge (C.F.S.) Q	Diameter of Pipe Do	Length of Rip Rap La (feet)	Width of Rip Rap W (feet)	d50-Stone Rip Rap d50(ft.)	Actual Size	Thickness
15" HDPE (Pond #101P)	0.25	0.98	1.25	10.0	13.8	0.06	0.50	1.20
18" HDPE (Pond #102P)	0.30	6.42	1.50	16.8	21.3	0.53	0.67	1.75
12" HDPE (Pond #C03P)	0.20	0.35	1.00	7.6	10.6	0.02	0.50	1.20
15" HDPE (Pond #D01P)	0.25	3.17	1.25	12.8	16.6	0.30	0.50	1.20
15" RCP (Pond #D02P)	0.25	6.98	1.25	17.7	21.5	0.85	1.00	2.25
12" RCP (Pond #7324P)	0.20	2.17	1.00	10.9	13.9	0.28	0.50	1.20

Please note that the designer chose to use the 25 Year Event for the dimensional calculations.

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d50 Size =	0.5	Feet	6	Inches
% of Weight Smaller Than the Given d50 Size	Size of Stone (Inches) From		To	
100%	9		12	
85%	8		11	
50%	6		9	
15%	2		3	

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d50 Size =	0.75	Feet	9	Inches
% of Weight Smaller Than the Given d50 Size	Size of Stone (Inches) From		To	
100%	14		18	
50%	9		14	

15%	3	5

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d50 Size =	1	Feet	12	Inches
% of Weight Smaller	Size of Stone (Inches)			
Than the Given d50 Size	From		To	
100%	18		24	
85%	16		22	
50%	12		18	
15%	4		6	

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: _____

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

Yes		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.64	ac	A = Area draining to the practice	
0.54	ac	A_I = Impervious area draining to the practice	
0.83	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.80	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.51	ac-in	WQV= 1" x Rv x A	
1,868	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
467	cf	25% x WQV (check calc for sediment forebay volume)	
1,401	cf	75% x WQV (check calc for surface sand filter volume)	
Deep Sumps		Method of Pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
165.04	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.05	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
20.75	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
162.00	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
161.00	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
160.50	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
156.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
6.00	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
1.50	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
167.96	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
168.50	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
2,013	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	P-101	Note what sheet in the plan set contains the filter course specification	
2.0	:1	Pond side slopes	**≥ 3:1**
Sheet	P-101	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course spec.	**mod. 304.1 (see spec)**

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Summary for Pond 101P: Rain Garden #101

[80] Warning: Exceeded Pond C03P by 0.23' @ 12.15 hrs (1.50 cfs 0.027 af)
[80] Warning: Exceeded Pond D01P by 0.06' @ 11.90 hrs (1.39 cfs 0.028 af)

Inflow Area = 0.643 ac, 83.35% Impervious, Inflow Depth > 7.31" for 50YR-24HR event
Inflow = 4.73 cfs @ 12.09 hrs, Volume= 0.391 af
Outflow = 1.71 cfs @ 12.36 hrs, Volume= 0.303 af, Atten= 64%, Lag= 16.5 min
Primary = 1.71 cfs @ 12.36 hrs, Volume= 0.303 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 167.96' @ 12.36 hrs Surf.Area= 804 sf Storage= 7,691 cf
Flood Elev= 168.50' Surf.Area= 804 sf Storage= 9,116 cf

Plug-Flow detention time= 167.8 min calculated for 0.302 af (77% of inflow)
Center-of-Mass det. time= 86.5 min (844.2 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1	161.00'	322 cf	**Stone (Irregular)** Listed below (Recalc) -Impervious 804 cf Overall x 40.0% Voids
#2	162.00'	241 cf	**BioMedia (Irregular)** Listed below (Recalc) 1,206 cf Overall x 20.0% Voids
#3	163.50'	8,473 cf	**Open Water (Irregular)** Listed below (Recalc) -Impervious
#4	160.90'	80 cf	**4.00'D x 6.35'H 4' Structure** -Impervious
		9,116 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.00	804	122.6	0	0	804
162.00	804	122.6	804	804	927

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
162.00	804	122.6	0	0	804
163.50	804	122.6	1,206	1,206	988

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
163.50	804	122.6	0	0	804
164.00	931	129.4	433	433	954
165.00	1,282	173.0	1,102	1,535	2,014
166.00	1,656	200.0	1,465	3,000	2,837
167.00	2,074	217.0	1,861	4,861	3,439
168.00	2,521	230.0	2,294	7,155	3,952
168.50	2,754	236.3	1,318	8,473	4,213

Device	Routing	Invert	Outlet Devices
#1	Primary	160.90'	**15.0" Round 15" HDPE N-12** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 160.90' / 160.40' S= 0.0250 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	161.00'	**1.0" Vert. 1" Orifice** C= 0.600
#3	Device 1	166.15'	**4.0" Vert. 4" Orifice (2) X 2.00** C= 0.600
#4	Device 1	167.90'	**48.0" Horiz. Top Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	168.00'	**10.0' long x 8.0' breadth E-Spillway** 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
#6	Device 2	162.00'	**10.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=1.68 cfs @ 12.36 hrs HW=167.96' TW=159.68' (Dynamic Tailwater)
└─**1=15" HDPE N-12** (Passes 1.68 cfs of 14.98 cfs potential flow)
  ├─**2=1" Orifice** (Orifice Controls 0.07 cfs @ 12.66 fps)
  │ └─**6=Exfiltration** (Passes 0.07 cfs of 0.19 cfs potential flow)
  ├─**3=4" Orifice (2)** (Orifice Controls 1.08 cfs @ 6.16 fps)
  └─**4=Top Grate** (Weir Controls 0.53 cfs @ 0.77 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=160.90' TW=161.00' (Dynamic Tailwater)
└─**5=E-Spillway** (Controls 0.00 cfs)

Stage-Area-Storage for Pond 101P: Rain Garden #101

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
160.90	0	0
161.00	0	1
161.10	0	35
161.20	0	68
161.30	0	102
161.40	0	135
161.50	0	168
161.60	0	202
161.70	0	235
161.80	0	269
161.90	0	302
162.00	804	335
162.10	804	353
162.20	804	370
162.30	804	387
162.40	804	405
162.50	804	422
162.60	804	439
162.70	804	457
162.80	804	474
162.90	804	491
163.00	804	509
163.10	804	526
163.20	804	543
163.30	804	561
163.40	804	578
163.50	**804**	595
163.60	804	678
163.70	804	764
163.80	804	852
163.90	804	942
164.00	804	1,035
164.10	804	1,131
164.20	804	1,230
164.30	804	1,333
164.40	804	1,439
164.50	804	1,548
164.60	804	1,661
164.70	804	1,778
164.80	804	1,898
164.90	804	2,022
165.00	804	2,150
165.10	804	2,281
165.20	804	2,415
165.30	804	2,554
165.40	804	2,696
165.50	804	2,842
165.60	804	2,991
165.70	804	3,144
165.80	804	3,301
165.90	804	3,462
166.00	804	3,627
166.10	804	3,796
166.20	804	3,969
166.30	804	4,146
166.40	804	4,327
166.50	804	4,512
166.60	804	4,701
166.70	804	4,894
166.80	804	5,092
166.90	804	5,294
167.00	804	5,501
167.10	804	5,712
167.20	804	5,927
167.30	804	6,145
167.40	804	6,368
167.50	804	6,595
167.60	804	6,826
167.70	804	7,062
167.80	804	7,303
167.90	804	7,548
168.00	804	7,798
168.10	804	8,052
168.20	804	8,311
168.30	804	8,575
168.40	804	8,843
168.50	804	**9,116**

Linear Interpolation
Lowest Outlet = 166.15'
Storage Volume = 2,013 CF

Total Storage Table

Stage-Area-Storage for Pond 101P: Rain Garden #101

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
160.90	0	0
161.00	0	1
161.10	0	35
161.20	0	68
161.30	0	102
161.40	0	135
161.50	0	168
161.60	0	202
161.70	0	235
161.80	0	269
161.90	0	302
162.00	804	335
162.10	804	353
162.20	804	370
162.30	804	387
162.40	804	405
162.50	804	422
162.60	804	439
162.70	804	457
162.80	804	474
162.90	804	491
163.00	804	509
163.10	804	526
163.20	804	543
163.30	804	561
163.40	804	578
163.50	**804**	595
163.60	804	678
163.70	804	764
163.80	804	852
163.90	804	942
164.00	804	1,035
164.10	804	1,131
164.20	804	1,230
164.30	804	1,333
164.40	804	1,439
164.50	804	1,548
164.60	804	1,661
164.70	804	1,778
164.80	804	1,898
164.90	804	2,022
165.00	804	2,150
165.10	804	2,281
165.20	804	2,415
165.30	804	2,554
165.40	804	2,696
165.50	804	2,842
165.60	804	2,991
165.70	804	3,144
165.80	804	3,301
165.90	804	3,462
166.00	804	3,627
166.10	804	3,796
166.20	804	3,969
166.30	804	4,146
166.40	804	4,327
166.50	804	4,512
166.60	804	4,701
166.70	804	4,894
166.80	804	5,092
166.90	804	5,294
167.00	804	5,501
167.10	804	5,712
167.20	804	5,927
167.30	804	6,145
167.40	804	6,368
167.50	804	6,595
167.60	804	6,826
167.70	804	7,062
167.80	804	7,303
167.90	804	7,548
168.00	804	7,798
168.10	804	8,052
168.20	804	8,311
168.30	804	8,575
168.40	804	8,843
168.50	804	**9,116**

WQV = 1,868

1,868 + 335 CF (stone) = 2,203 CF

2,203 CF stored at elev: 165.04

WQV Storage Table

Stage-Discharge for Pond 101P: Rain Garden #101

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
160.90	0.00	0.00	0.00
161.00	0.00	0.00	0.00
161.10	0.00	0.00	0.00
161.20	0.00	0.00	0.00
161.30	0.00	0.00	0.00
161.40	0.00	0.00	0.00
161.50	0.00	0.00	0.00
161.60	0.00	0.00	0.00
161.70	0.00	0.00	0.00
161.80	0.00	0.00	0.00
161.90	0.00	0.00	0.00
162.00	0.03	0.03	0.00
162.10	0.03	0.03	0.00
162.20	0.03	0.03	0.00
162.30	0.03	0.03	0.00
162.40	0.03	0.03	0.00
162.50	0.03	0.03	0.00
162.60	0.03	0.03	0.00
162.70	0.03	0.03	0.00
162.80	0.03	0.03	0.00
162.90	0.04	0.04	0.00
163.00	0.04	0.04	0.00
163.10	0.04	0.04	0.00
163.20	0.04	0.04	0.00
163.30	0.04	0.04	0.00
163.40	0.04	0.04	0.00
163.50	0.04	0.04	0.00
163.60	0.04	0.04	0.00
163.70	0.04	0.04	0.00
163.80	0.04	0.04	0.00
163.90	0.04	0.04	0.00
164.00	0.05	0.05	0.00
164.10	0.05	0.05	0.00
164.20	0.05	0.05	0.00
164.30	0.05	0.05	0.00
164.40	0.05	0.05	0.00
164.50	0.05	0.05	0.00
164.60	0.05	0.05	0.00
164.70	0.05	0.05	0.00
164.80	0.05	0.05	0.00
164.90	0.05	0.05	0.00
165.00	0.05	0.05	0.00
165.10	0.05	0.05	0.00
165.20	0.05	0.05	0.00
165.30	0.05	0.05	0.00
165.40	0.05	0.05	0.00
165.50	0.06	0.06	0.00
165.60	0.06	0.06	0.00
165.70	0.06	0.06	0.00
165.80	0.06	0.06	0.00
165.90	0.06	0.06	0.00
166.00	0.06	0.06	0.00
166.10	0.06	0.06	0.00
166.20	0.07	0.07	0.00
166.30	0.16	0.16	0.00
166.40	0.30	0.30	0.00
166.50	0.42	0.42	0.00
166.60	0.51	0.51	0.00
166.70	0.58	0.58	0.00
166.80	0.65	0.65	0.00
166.90	0.71	0.71	0.00
167.00	0.76	0.76	0.00
167.10	0.81	0.81	0.00
167.20	0.86	0.86	0.00
167.30	0.90	0.90	0.00
167.40	0.94	0.94	0.00
167.50	0.98	0.98	0.00
167.60	1.02	1.02	0.00
167.70	1.06	1.06	0.00
167.80	1.09	1.09	0.00
167.90	1.13	1.13	0.00
168.00	2.46	2.46	0.00
168.10	5.64	4.87	0.77
168.20	10.15	7.98	2.17
168.30	15.73	11.65	4.08
168.40	21.92	15.49	6.43
168.50	**24.87**	**15.61**	**9.26**

WQV Elev = 165.04

WQV Discharge = 0.05

WQV Discharge Table

Summary for Pond 102P: Entrance Detention Pond

Inflow Area = 2.096 ac, 61.35% Impervious, Inflow Depth > 5.33" for 50YR-24HR event
Inflow = 11.17 cfs @ 12.11 hrs, Volume= 0.931 af
Outflow = 7.83 cfs @ 12.22 hrs, Volume= 0.929 af, Atten= 30%, Lag= 7.1 min
Primary = 7.83 cfs @ 12.22 hrs, Volume= 0.929 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 167.91' @ 12.22 hrs Surf.Area= 1,686 sf Storage= 4,041 cf

Plug-Flow detention time= 6.1 min calculated for 0.927 af (100% of inflow)
Center-of-Mass det. time= 5.2 min (807.5 - 802.3)

Volume	Invert	Avail.Storage	Storage Description
#1	163.50'	7,133 cf	**Ponding (Irregular)** Listed below (Recalc)
#2	163.50'	118 cf	**5.00'D x 6.00'H 5' Structure**
		7,251 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
163.50	303	101.0	0	0	303
164.00	403	108.0	176	176	431
165.00	646	132.0	520	696	904
166.00	940	156.0	788	1,484	1,473
167.00	1,314	185.0	1,122	2,606	2,278
168.00	1,705	201.0	1,505	4,111	2,806
169.00	2,120	213.0	1,909	6,020	3,252
169.50	2,336	220.0	1,114	7,133	3,517

Device	Routing	Invert	Outlet Devices
#1	Primary	163.50'	**18.0" Round 18" HDPE N-12** L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 163.50' / 163.25' S= 0.0060 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	163.50'	**10.0" Vert. 10" Orifice** C= 0.600
#3	Device 1	166.50'	**12.0" W x 6.0" H Vert. 12"W X 6"T Slot** C= 0.600
#4	Device 1	169.00'	**60.0" Horiz. 5' Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.79 cfs @ 12.22 hrs HW=167.88' TW=0.00' (Dynamic Tailwater)
└**1=18" HDPE N-12** (Passes 7.79 cfs of 16.22 cfs potential flow)
  ├**2=10" Orifice** (Orifice Controls 5.23 cfs @ 9.59 fps)
  ├**3=12"W X 6"T Slot** (Orifice Controls 2.56 cfs @ 5.12 fps)
  └**4=5' Grate** (Controls 0.00 cfs)

Stage-Area-Storage for Pond 102P: Entrance Detention Pond

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
163.50	0	165.58	1,158	167.66	3,637
163.54	13	165.62	1,191	167.70	3,701
163.58	26	165.66	1,225	167.74	3,765
163.62	40	165.70	1,259	167.78	3,830
163.66	54	165.74	1,294	167.82	3,896
163.70	68	165.78	1,330	167.86	3,962
163.74	83	165.82	1,366	167.90	4,029
163.78	98	165.86	1,402	167.94	4,097
163.82	113	165.90	1,439	167.98	4,165
163.86	129	165.94	1,476	168.02	4,234
163.90	145	165.98	1,514	168.06	4,304
163.94	161	166.02	1,552	168.10	4,374
163.98	177	166.06	1,591	168.14	4,445
164.02	194	166.10	1,631	168.18	4,516
164.06	211	166.14	1,671	168.22	4,588
164.10	229	166.18	1,712	168.26	4,661
164.14	247	166.22	1,753	168.30	4,735
164.18	265	166.26	1,794	168.34	4,809
164.22	284	166.30	1,837	168.38	4,884
164.26	303	166.34	1,880	168.42	4,959
164.30	322	166.38	1,923	168.46	5,035
164.34	342	166.42	1,967	168.50	5,112
164.38	362	166.46	2,012	168.54	5,189
164.42	383	166.50	2,057	168.58	5,267
164.46	404	166.54	2,103	168.62	5,346
164.50	425	166.58	2,149	168.66	5,425
164.54	447	166.62	2,196	168.70	5,505
164.58	469	166.66	2,244	168.74	5,586
164.62	491	166.70	2,292	168.78	5,668
164.66	514	166.74	2,341	168.82	5,750
164.70	537	166.78	2,391	168.86	5,833
164.74	561	166.82	2,441	168.90	5,916
164.78	585	166.86	2,492	168.94	6,000
164.82	610	166.90	2,543	168.98	6,085
164.86	635	166.94	2,595	169.02	6,171
164.90	660	166.98	2,648	169.06	6,257
164.94	686	167.02	2,701	169.10	6,344
164.98	712	167.06	2,755	169.14	6,432
165.02	738	167.10	2,810	169.18	6,520
165.06	766	167.14	2,865	169.22	6,609
165.10	793	167.18	2,921	169.26	6,699
165.14	821	167.22	2,977	169.30	6,789
165.18	849	167.26	3,034	169.34	6,880
165.22	878	167.30	3,091	169.38	6,972
165.26	907	167.34	3,149	169.42	7,064
165.30	937	167.38	3,208	169.46	7,157
165.34	967	167.42	3,268	169.50	**7,251**
165.38	998	167.46	3,328		
165.42	1,029	167.50	3,388		
165.46	1,060	167.54	3,449		
165.50	1,092	167.58	3,511		
165.54	1,125	167.62	3,574		

Linear Interpolation
Lowest Outlet above 10" = 166.60'
Storage Volume = 2,173 CF

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,660 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

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

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EaB	Elmwood fine sandy loam, 3 to 8 percent slopes	3.7	26.3%
GlB	Gloucester fine sandy loam, 3 to 8 percent slopes	0.4	2.5%
GsC	Gloucester very stony fine sandy loam, 8 to 15 percent slopes	8.3	59.2%
HcB	Hollis-Charlton fine sandy loams, 3 to 8 percent slopes	0.0	0.1%
ScA	Scantic silt loam, 0 to 3 percent slopes	0.6	4.5%
ScB	Scantic silt loam, 3 to 8 percent slopes	1.0	7.4%
Totals for Area of Interest		**13.9**	**100.0%**

Map Unit Descriptions

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

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

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

mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

John P. Hayes III CSS, CWS,
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North Hampton, NH 03862
603-205-4396
johnphayes@comcast.net

7/11/22

Christopher Berry
Berry Surveying and Engineering
335 Second Crown Point Road
Barrington NH 03825

Job # 21-035

7/8/22
Site Specific Soil Survey
Map D Lot 11-5
Quality Way Dover NH

Dear Chris,

This letter report presents the findings of a Site Specific Soil Survey conducted on the referenced property by John P. Hayes III on July 8, 2022. The soil survey was conducted in accordance with the New Hampshire Supplement of the Site-Specific Soil Mapping Standard For New Hampshire and Vermont, Version 5.0, December 2017, Special Publication # 3, published by the Society of Soil Scientist of Northern New England.

The property that is subject of the soil survey is located on the on the south side of Quality Way, and the west side of Venture Drive, in Dover NH. The pacel is approximately 2 acres in size. The plans used for these soil maps are a 20 scale plan, where 1 inch equals 20 feet, with one foot contours.

The purpose of the soil survey is to provide the client with soils information for urban and suburban or rural land planning. Soil characteristics on the property were evaluated through observation of numerous test pits, and hand auger probes conducted throughout the property. Slope phases were determined with the use of the topography provided on the plan. The Site-specific Soil Map Units identified are taken from the New Hampshire State-Wide Numerical Soils Legend, Issue #10 January 2011, and are briefly described below. Official Series Descriptions (OSD) for each of these soil series are enclosed with this report. The soil map units comply with the Range In Characteristics described in the OSD. Any limiting enclusions on the site, do not exceed 15 percent of any of the soil map units. Dissimilar inclusions, if any, are noted above. Limits of the Site Specific mapping units are highlighted on the plan. The Hydrological Soil Groups for each of the soil series was determined using SSSNNE Publication No. 5 Ksat Values for New Hampshire Soils September 2009. Limits of the Site Specific mapping units are highlighted on the plan.

Soil parent materials on this site include Glacial Till and Glaciolacustrine deposits. Portions of the soil map with the map unit denominator P and VP, are poorly drained, and very poorly drained soils respectively. The portions of the soil map that are identified with the map unit Hg/Rk, are a Hollis/Gloucester soil complex that is shallow to ledge, with varing depths to ledge that are less than 40 in in depth. Portions of the soil map,with the map lable 500, contain disturbed soils that have been excavated and/or regraded, that are loamy in texture, underlain with a layer of silt loam. Portions of the soil map with the map lable 600/P, contain disturbed soils have textures of loam and silt loam, that have been excavated down to, or near the water table. A Disturbed Soil Mapping Unit Supplement for New Hampshire DES AoT Site Specific Soil Maps, is also included. This supplement explains the additional information given about each of the disturbed soil map units that are present on the site.

MAP UNIT #	SOIL TAXANOMIC NAME	SLOPES	HYDRO LOGIC SOIL GROUP	DESCRIPTION
Be VP (State No. 134)	**Maybid**	**A**	**D**	The Maybid series consists of very deep, very poorly drained soils formed in lacustrine or marine sediments. These soil are located on the southeastern of th parcel. These soils are deep to bedrock. The saturated hydraulic conductivity is moderately high or high in the surface layer and very low to moderately high in the subsoil and substratum. Some inclusions of poorly drained Scitico soils may be present, but are less than 10 percent of the map unit. These soils are permanantly saturated.
Ea (State No. 238)	**Elmridge (very stony)**	**A B C D**	**C**	The Elmridge series consists of very deep, moderately well drained soils formed in loamy over clayey sediments.These soils are found throughout the upland portion of the parcel. These soils are deep to bedrock, and very stony. The saturated hydraulic conductivity is high in the upper loamy horizons and low to moderately high in the underlying clayey horizons. Some inclusions of Excessively drained Gloucester, or somewhat poorly drained Boxford may be present, but are less than 10 percent of the map units of the mapped areas. Estimated seasonal high water tables in these soils on site range from 16 to 36 inches.
Gs (State No. 111)	**Gloucester (very stony)**	**B C**	**A**	The Gloucester series consists of very deep, somewhat excessively drained soils formed in sandy till. These soils are found on the northern side of the parcel, near Quality Way. These soils are deep to bedrock, and are very stony.Thre saturated hydraulic conductivity in these soils is high or very high. Some inclusions of moderately well drained Elmridge soils may be present but are less than 10 percent of map units of the mapped areas. Estimated seasonal high water tables in these soils on site range from 38 to 56 inches.

MAP UNIT #	SOIL TAXANOMIC NAME	SLOPES	HYDRO LOGIC SOIL GROUP	DESCRIPTION
Hg Rk (State No. 121)	**Hollis-Gloucester complex (very rocky)**	**C**	**D/A**	The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high.The Gloucester series consists of very deep, somewhat excessively drained soils formed in sandy till. These soils are deep to bedrock, and are very stony.Thre saturated hydraulic conductivity in these soils is high or very high. This soil complex is located in the central portion of the lot. The estimated percentage of the Hollis soil component in the comlplex is 80%. The estimated percentage of Gloucester soil in the complex is 20%. The Hollis component of the complex is shallow to ledge, and has no estimated seasonal high water table. Estimated seasonal high water tables in the Glocester component of the complex ranges from 38 to 50 inches.
Sc P (State No. 233)	**Scitico**	**A B**	**C**	The Scitico series consists of very deep, poorly drained soils formed in silty and clayey sediments.These soil are located on the southeastern of th parcel. They are are deep to bedrock. Saturated hydraulic conductivity is moderately high or high in the upper portion of the profile, and low or moderately slow in the substratum. Some inclusions of very poorly drained Maybid, and somewhat poorly drained soils Boxford soils may be present, but are less than 10 percent of the map unit. Estimated seasonal high water tables in these soils on site are less than 10 inches.
500 (decdc)	**Udorthents loamy**	**A B C D E**	**C**	Udorthents are disturbed soils that have been excavated and/or regraded and are loamy in texture. These disturbed soils are located on the south and east edges of the parcel, adjacent to Venture Drive and Quality Way. of the mapped area. These disturbed soils are mostly derrived mostly from the Elmwood soil series, and are moderately well drained. The soils are deep to bedrock. The saturated hydralic conductivity of this soil is moderately high in the upper portion, and moderately low in the firm substratum. Estimated seasonal high water tables in these soils range from 18 to 36 inches.

MAP UNIT #	SOIL TAXANOMIC NAME	SLOPES	HYDRO LOGIC SOIL GROUP	DESCRIPTION
600 P (fecdc)	**Endoaquents loamy**	**B**	**C**	Endoaquents are disturbed soils that have been excavated down to, or near the water table. Soil material is typically sandy loam, loam or silt loam These disturbed soils are located on the southeast corner of the parcel ia an excaveted drainage swale, that is adjacent to the intersection of Venture Drive and Quality way. These disturbed soils are mostly derrived mostly from substratum of the the Elmwood soil series, and are poorly drained. The soils are deep to bedrock. The saturated hydralic conductivity of this soil is moderately high in the upper portion, and moderately low in the firm substratum. Estimated seasonal high water tables in these soils is less than 10 inches.

Slope Phases

Alpha Slope Symbol	Range
A	0 – 3%
B	3 – 8%
C	8 – 15%
D	15 – 25%
E	25 – 50%
F	> 50%

I trust that this Soil Survey and report meet your current planning needs. Please do not hesitate to contact me if you have any questions.

Sincerely:



John P. Hayes III CSS, CWS

TEST PIT DATA:

TEST PIT #1
0–6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–38 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
38–68 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 68"
REFUSAL @ N/A
P = 10 MIN/IN

TEST PIT #2
0–5 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5–22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–38 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
38–65 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 65"
REFUSAL @ N/A
P = 10 MIN/IN

TEST PIT #3
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–18 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18–30 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
30–55 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 55"
REFUSAL @ N/A
P = 10 MIN/IN

TEST PIT #4
0–6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–24 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24–40 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
40–60 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 40"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 60"
REFUSAL @ N/A
P = 6 MIN/IN

TEST PIT #5
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–38 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
38–64 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 64"
REFUSAL @ N/A
P = 10 MIN/IN

TEST PIT #6
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–30 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 30"
REFUSAL @ 30"
P = 10 MIN/IN

TEST PIT #7
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–38 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
38–64 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 64"
REFUSAL @ N/A
P = 10 MIN/IN

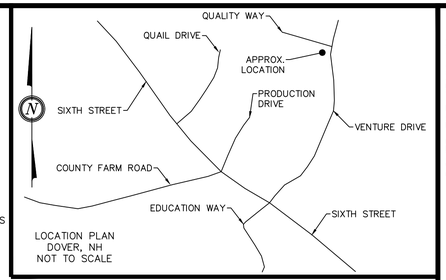
TEST PIT #8
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–24 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 24"
REFUSAL @ 24"
P = 10 MIN/IN

TEST PIT #9
0–5 10YR 4/2 DARK GRAYISH BROWN, SILT LOAM, GRANULAR, FRIABLE
5–12 2.5Y 4/2 DARK GRAYISH BROWN, SILT LOAM, GRANULAR, FRIABLE
12–45 5Y 5/2 OLIVE GRAY SILT LOAM WITH REDOX. FEAT. PRESENT, BLOCKY, FIRM
E.S.H.W.T. @ 12"
RESTRICTIVE LAYER @ 12"
GROUND WATER @ N/A
TERMINATED @ 45"
REFUSAL @ N/A
P = 18 MIN/IN

TEST PIT #10
0–5 10YR 4/2 DARK GRAYISH BROWN, SILT LOAM, GRANULAR, FRIABLE
5–14 2.5Y 4/2 DARK GRAYISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–45 5Y 5/2 OLIVE GRAY SILT LOAM WITH REDOX. FEAT. PRESENT, BLOCKY, FIRM
E.S.H.W.T. @ 14"
RESTRICTIVE LAYER @ 14"
GROUND WATER @ N/A
TERMINATED @ 45"
REFUSAL @ N/A
P = 18 MIN/IN

EXISTING LEGEND:

- STONE BOUND (FND)
- STEEL STAKE (FND)
- TEST PIT
- EXISTING DRAIN LINE
- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- EXISTING TREELINE
- NRCS SOIL LINE/LABEL
- POORLY DRAINED WETLANDS
- 50' WETLAND BUFFER
- SOIL LINE
- LIMIT OF SOIL SURVEY
- 448A SOIL SERIES
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. FOUND
- FND TYPICAL



LOCATION PLAN
DOVER, NH
NOT TO SCALE



NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11–5
B.) TAX MAP D, LOT 11–5SND

3.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

4.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PREFORMED BY BERRY SURVEYING AND ENGINEERING IN 2021 WITH AN ERROR OF CLOSURE BETTER THAN 1 IN 10,000.

5.) VERTICAL DATUM IS BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83 NH STATE PLANE COORDINATES. COORDINATES GATHERED FROM CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING ANALYZED SITE SPECIFIC SOIL CONDITIONS OF THE SITE.

SITE SPECIFIC SOILS LEGEND

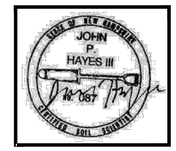
SYMBOL	SLOPES	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
Be	A	MAYBID	D
238	A,B,C,D	ELMRIDGE (VERY STONY)	C
Gs	B,C	GLOUCESTER (VERY STONY)	A
Hg	C	HOLLIS–GLOUCESTER COMPLEX (VERY ROCKY)	A/D
Sc	A,B	SCITICO	C
500	A,B,C,D,E	UDORTHENTS	C
600	B	ENDOAQUENTS	C

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VP = VERY POORLY DRAINED /P = POORLY DRAINED
/Rk = VERY ROCKY



DEIDRA BENJAMIN, CWS #295



JOHN P. HAYES, III CSS #87

WETLAND NOTE:

WETLANDS WERE DELINEATED BY DEIDRA L. BENJAMIN, CWS, IN THE SUMMER OF 2021 USING THE FOLLOWING CRITERIA:

1. USACE. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0. U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER. 2012. VICKSBURG, MS.

2. USACE. CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. ENVIRONMENTAL LABORATORY. 1987. VICKSBURG, MS.

3. UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE. 2018. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2. L.M. VASILAS, G.W. HURT, AND J.F. BERKOWITZ (EDS.). USDA, NRCS, IN COOPERATION WITH THE NATIONAL TECHNICAL COMMITTEE FOR HYDRIC SOILS.

4. NEW ENGLAND HYDRIC SOIL TECHNICAL COMMITTEE. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. VERSION 4. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION. 2019. LOWELL, MA.

5. U.S. ARMY CORPS OF ENGINEERS 2019. NATIONAL WETLAND PLANT LIST, VERSION 3.3. HTTP://WETLAND-PLANTS.USACE.ARMY.MIL/

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DOVER FILE #PXX–XX

REVISION	DATE	DESCRIPTION

SITE SPECIFIC SOILS MAP
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

SHEET 3 OF 26

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

Inspection and Maintenance Manual

Stormwater System Management

Quality Way

Prepared for

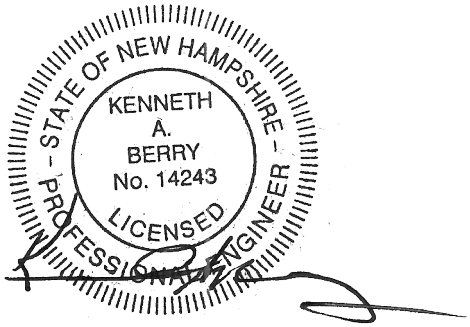
JSR, LLC
17 Fosters Drive
Dover, NH 03820

Land of

JSR, LLC
17 Fosters Drive
Dover, NH 03820

Prepared By

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825
603-332-2863



File Number
DB2021-134

June 1, 2022
Revised: September 1, 2022

Stormwater System Operation and Maintenance Plan

And

Inspection and Maintenance Manual

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Site Plans Attached – 1 Page

Control of Invasive Plants, NH Department of Agriculture Attached – 4 Pages

NHDES Green SnoPro Utilization Chart

Introduction

The Best Management Practices (BMP) described in this manual are specified in more detail within the plan set giving design details and specifications. The New Hampshire Stormwater Manual, Volume 2, Post-Construction Best Management Practices Selection & Design (December 2008, NHDES & US EPA) is included by reference to this manual. Additional details, construction specifications, and example drawings are provided within this reference. (http://des.nh.gov/organization/divisions/water/stormwater/)

The BMP's are covered below in the general order in which the storm water flows. Each BMP has a description and maintenance consideration listed. A Check List table is proved after the narrative to summarize the maintenance responsibilities and schedule. A Log Form is also provided for the owners use.

For details regarding the design of the Storm Water System see also Drainage Analysis & Sediment and Erosion Control Plan also published by Berry Surveying & Engineering originally dated June 1, 2022, as revised. See also plan set completed for JSR, LLC. originally dated June 1, 2022, as revised.

JSR, LLC. is responsible for the Stormwater System Operation and Maintenance. A significant step in this responsibility is the Inspection and Maintenance of each component of the system. Ongoing, semi-annual, and annual inspection and maintenance requirement are documented below and must be taken seriously. Failure of any component of the system can result in surface water run-off ponding and/or freezing in the roadway and parking lots, leaving the developed site untreated, and/or causing violations to issued permits. The owner must maintain, and have available, plans of the Stormwater System in order to properly inspect and maintain the system. (Reduced copies attached.) JSR, LLC, as the owner / operator, is responsible to ensure that any subsequent owner or subcontractor has copies of the Log Form and Annual Report records and fully understands the responsibilities of this plan. The grantor owner will ensure this document is provided to the grantee owner by duplicating the Ownership Responsibility Sheet which is found toward the back of this document, which will be maintained with the Inspection & Maintenance Logs, provided to the City of Dover, Community Services, DPW, Engineering Department, with the Annual Report.

The owner of Tax Map D, Lots 11-5 & 11-5SND, JSR, LLC, is proposing to the construction of a commercial building as well as a driveway connecting Venture Drive and Quality Way with associated parking. There is a rain garden, detention pond, and catch basins proposed to manage the surface water runoff.

The following drainage features will all require periodic inspections and maintenance based on this manual in addition to deep sump catch basins throughout:

Deep Sump Catch Basins

Drain Manholes

Conveyance Swales with Check Dams

Sediment Forebays

Rain Garden #101 w/ Under-drains, outlet structure, and emergency spillway.

Detention Pond #102

Level Spreaders

Catch Basins and Drain Manholes

Design Intent: There are three proposed catch basins with deep sumps on the property.

Description: Deep Sump Catch Basins are used throughout the site as a pretreatment measure to remove sediment and debris from storm water runoff. Deep Sump Catch Basins will be designed with a sump that is four times the depth of the discharge culvert and a minimum of four feet. All pretreatment deep sump catch basins will have an outlet pipe hood which extends one-foot below the outlet invert and will include a hood vent. During construction the catch basins will be protected by inlet protection per the approved construction plans. The practice of street sweeping on a bi-annual basis will help reduce maintenance of these deep sumps.

Maintenance Considerations: Sediment must be removed from Deep Sump Catch Basins and Deep Sump Manholes on a regular basis, at least twice a year and more often if the sumps become half-full. Inspections should be conducted periodically. At a minimum they should be cleaned after snow-melt and after leaf-drop. Damaged outlet hoods must be replaced. It is recommended that a vacuum truck be utilized as contrasted to a clam-shell method to avoid damage to the hood. Hydrocarbons found to be floating in the basin should be removed by skimming, absorbent materials, or other method. Disposal of all material, sediment, and debris must be done in accordance with state and federal regulations. Culvert pipes will be inspected to ensure that surface water runoff is capable of leaving the structures.

Sediment Forebay

Design Intent: A Sediment Forebay is designed to pre-treat surface water runoff from the paved surfaces on the northeasterly portion of the property.

Description: A sediment forebay is designed to reduce the velocity of incoming surface water runoff allowing sediment to fall out of suspension initially pre-treating the runoff before it is sent to a treatment structure. This earthen basin will have vegetated side-slopes and will a check dam to further reduce and pretreat the runoff. At the point of incoming runoff, the basin will be protected by rip rap outlet protection construction and the outgoing edge will be protected with rip rap. The check dam will be constructed from one side of the basin to the other and cause runoff to either go through or over. The volume of the forebay is generally one-tenth the volume of the Water Quality Volume (WQV). Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 2, 4-4 Pretreatment Practices 1, Sediment Forebays.

Maintenance Considerations: The basin and slopes will be periodically mowed, at least twice per year ensuring that woody material does not get an opportunity to grow.

Sediment accumulated in the basin will be removed and properly disposed of when it reaches half the height of the check dam. Erosion or other damage to the basin will be repaired and revegetated. (See Outlet Protection below.)

Bioretention System (Rain Gardens)

Design Intent: Surface water runoff from the proposed building as well as from the pavement section enters the Rain Garden directly through deep sump catch basins. The rain garden is designed to treat the Water Quality Volume from these areas.

Description: Rain Gardens, or bioretention areas are located close to the source of runoff. They are intended to integrate with the site landscaping an become an aesthetically attractive opportunity to provide highly effective stormwater treatment. The rain gardens associated with this proposed development contribute toward recharge of surface water run-off into the ground. It is important that sediment be removed from run-off prior to discharge into the bioretention area to preserve the mulch and soil mix ratio. During construction it is important that the ground surface not be exposed to traffic or construction equipment to preserve the infiltration capabilities of the existing soil. Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 2, 4-3 Treatment Practices, 4c Bioretention System.

Maintenance Considerations:
Rain Gardens should be inspected at least twice annually and following any rainfall event exceeding 2.5 inches in a twenty-four hour period. Maintenance rehabilitation will be conducted as warranted by each inspection. Trash and debris will be removed at each inspection.

On an annual basis the infiltration capabilities need to be confirmed by evaluation the drawdown time. If the bioretention system does not drain within 72-hours following a rainfall event, a qualified professional will assess the condition of the rain garden to determine measures required to restore the infiltration function. This is normally the direct result of sediment accumulation which will be removed to restore the filter media ratio.

Also on an annual basis the vegetation should be inspected to ensure healthy condition. Invasive species need to be removed along with dead or diseased vegetation.

Detention Ponds

Description: Detention Ponds are constructed ponds with the purpose of detaining runoff but not for infiltration purposes. During construction it is important that the ground surface not be exposed to traffic or construction equipment to preserve the infiltration capabilities of the existing soil. Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 2, 4-3 Treatment Practices, 3B, In-ground Infiltration Basin and Section 4-6, Conveyance Practices, 2. Detention Basins.

Maintenance Considerations:
Infiltration Basins and Detention Ponds should be inspected at least twice annually and following any rainfall event exceeding 0.25 inches in a twenty-four-hour period. Maintenance rehabilitation will be conducted as warranted by each inspection. Trash and debris will be removed at each inspection.

On an annual basis the infiltration capabilities need to be confirmed by evaluation the drawdown time. If the infiltration system does not drain within 72-hours following a rainfall event, a qualified professional will assess the condition of the basin to determine measures required to restore the infiltration function. This is normally the direct result of sediment accumulation which will be removed to restore the filter media ratio.

Also, on an annual basis the vegetation should be inspected to ensure healthy condition. Invasive species need to be removed along with dead or diseased vegetation.

Outlet Protection & Level Spreaders

Description: Outlet Protection consists of a riprap apron or preformed scour hole that is designed to provide velocity reduction of the surface water run-off that is leaving a culvert. The design is dependent on the culvert size, soil conditions, velocity, and quantity of the run-off. There are to be no bend or curves at the intersection of the conduit and apron. Level spreaders are intended to provide a level lip where surface water runoff is allowed to continue downhill closer to sheet flow. The level lip is to be constructed as level as possible for the entire length.

Maintenance Considerations: The riprap outlet protection will be inspected annually for damage, which must be corrected immediately. Any sediment buildup will be removed and disposed of correctly. Sediment and subsequent vegetation will build up in the Level Spreader. This material will be cleaned out along with any gross solids and disposed of properly. (See invasive species below) Any rip rap that has been displaced from the original construction will be repaired, especially recreating the level lip.

CONTROL OF INVASIVE PLANTS

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described on the following pages.

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

Annual Report

Description: The owner is responsible to keep an **I & M Activity Log** that documents inspection, maintenance and repairs to the storm water management system, and a **Deicing Log** to track the amount and type of deicing material applied to the site. The original owner is responsible to ensure that any subsequent owner (s) have copies of the Stormwater System Operation and Maintenance Plan & Inspection and Maintenance Manual, copies of past logs and check lists. This includes any owner association for potential condominium conversion of the property. The Annual Report will be prepared and submitted to the City of Dover, Community Services, Engineering Department with copies of both logs and check lists no later than December 15th of each year and made available to NHDES upon request. Upon an ownership change, the Annual Report will include the Transfer of Ownership Responsibility Forms duplicated from the form found below.

The plans that accompanies this manual includes a plan sheet, "Inspection & Maintenance Plan". JSR, LLC will also maintain a complete set of the approved original design plans.

Respectfully
BERRY SURVEYING & ENGINEERING

Christopher R. Berry, SIT 567
Principal, President

Kenneth A. Berry PE, LLS,
CPSWQ, CPESC, CESSWI
Principal, VP – Technical Operations

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Checklist

Quality Way – Dover, NH
JSR, LLC
17 Fosters Drive
Dover, NH 03820

☑	Date	BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
		Pavement Sweeping	Three Times Per Year	N/A	N/A
		Litter/Trash Removal	Routinely	Inspect dumpsters, outdoor waste receptacles area, and yard areas.	Parcel will be free of litter/trash.
		Deicing Agents	N/A	N/A	Use salt as the primary agent for roadway safety during winter.
		Invasive Species	Two times per year.	Inspect for Invasive Species	Remove and dispose invasive species.
		Closed Drainage System:			
		Drainage Pipes	1 time per 2 years	Check for sediment accumulation & clogging.	Less than 2" sediment depth

☑	Date	BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
		Deep Sump Catch Basins	2 times per year	Check for sediment accumulation & clogging.	Sediment accumulated to a depth of 2 feet.
		Rain Gardens,	2 times per year	Check for sediment and debris accumulation buildup.	Remove sediment & debris when required. Remove Invasive Species
		Rain Garden	Annually	72-Hour drawdown time evaluation and vegetation evaluation. Underdrain flushing.	Remove dead & diseased vegetation along with all debris, take corrective measures of filtration media if required. Flush underdrain clean-outs with a hose.
		Riprap Outlet Protection	Annually	Check for sediment buildup and structure damage.	Remove excess sediment and repair damage.
		Winter Maintenance	Ongoing	Remove snow as directed.	Ongoing
		Post Winter Maintenance	Annually	Remove excess sand, gross solids, and repair vegetation and plantings	Parcel will be free of excess sand, litter/trash.
		Annual Report	1 time per year	Submit Annual Report to Dover Engineering Dept. and kept on file by the owner.	Report to be submitted on or before December 15th each year.

Inspection Check List: Page 3

The following drainage features will all require periodic inspections and maintenance based on this manual in addition to deep sump catch basins throughout:

Deep Sump Catch Basins

Drain Manholes

Conveyance Swales with Check Dams

Sediment Forebays

Rain Garden #101 w/ Under-drains, outlet structure, and emergency spillway.

Detention Pond #102

Level Spreaders

Inspection Notes:

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Log Form

Quality Way – Dover, NH
JSR, LLC
17 Fosters Drive
Dover, NH 03820

BMP / System	Date Inspected	Inspector	Cleaning/Repair (List Items & Comments)	Repair Date	Performed By:

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Deicing Log Form

Quality Way – Dover, NH
JSR, LLC
17 Fosters Drive
Dover, NH 03820

Date	Amount Applied	Performed By:	Date	Amount Applied	Performed By:

STORMWATER SYSTEM OPERATION & MAINTENANCE PLAN CERTIFICATION

Owner	Responsibility
Name: JSR, LLC Robinson Whitten Address: 17 Fosters Drive Dover, NH 03820 Telephone: 978-979-2170 (cell) Email: rswhit10@gmail.com	The owner is responsible for the conduct of all construction activities, and ultimate compliance with all the provisions of the Stormwater System Operation & Maintenance Plan and the implementation of the Inspection and Maintenance Manual.

OWNER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

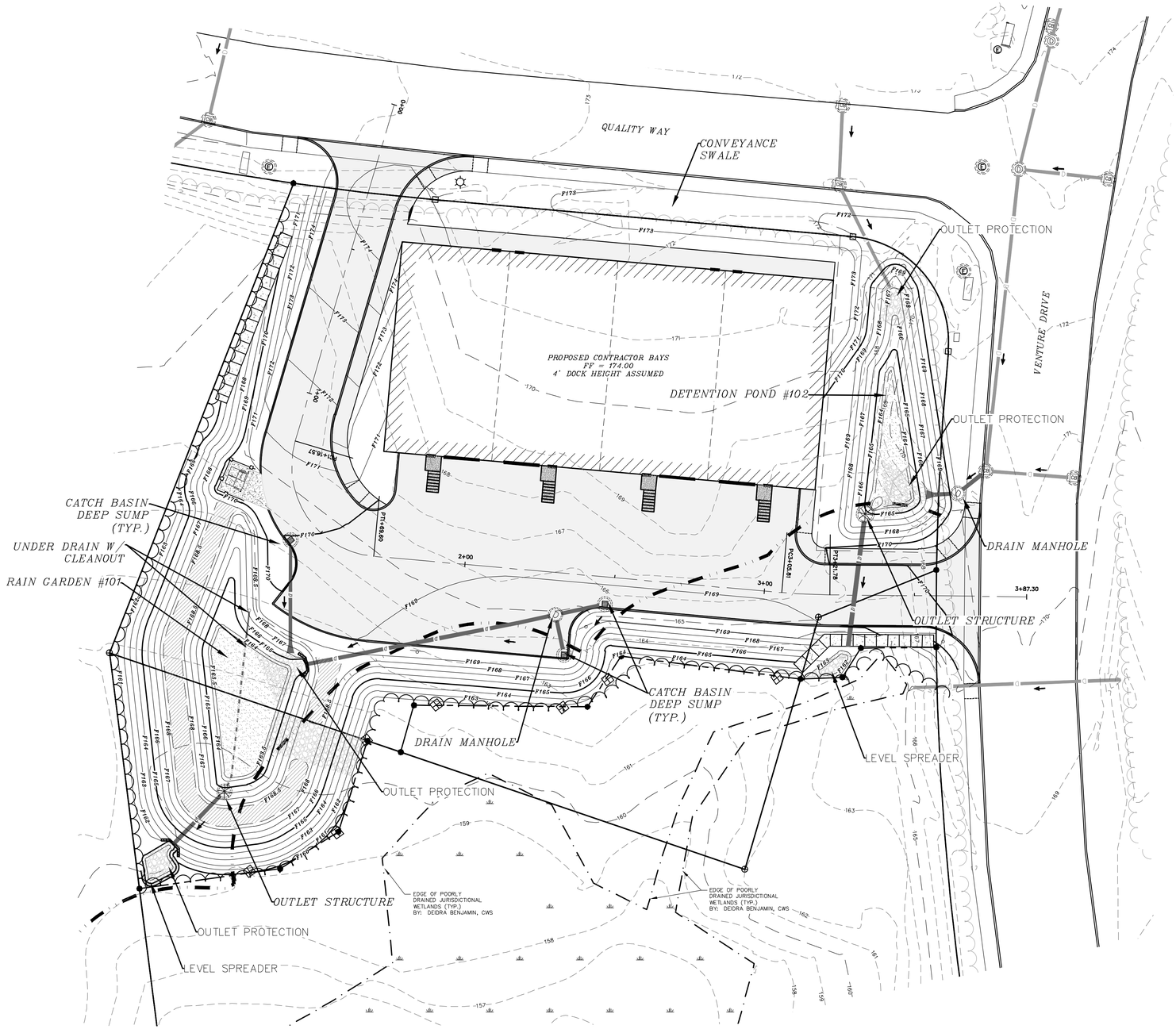
Signed: _____ Date: _____

Printed Name:

Representing:

Quality Way – Dover, NH
JSR, LLC
17 Fosters Drive
Dover, NH 03820

Robinson Whitten
978-979-2170 (cell)
rswhit10@gmail.com



NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11-5
B.) TAX MAP D, LOT 11-5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE DRAINAGE INFRASTRUCTURE THAT REQUIRES PERIODIC INSPECTION AND MAINTENANCE. IT IS TO ACCOMPANY A DOCUMENT ENTITLED "STORMWATER SYSTEM MANAGEMENT: INSPECTION AND MAINTENANCE MANUAL" PUBLISHED BY BERRY SURVEYING & ENGINEERING ON THE SAME DATE.

6.) 11x17" PLANS ARE TWICE THE PUBLISHED SCALE.

LEGEND:

- PROPOSED DRAIN MANHOLE W/ STRUCTURE
- PROPOSED CATCH BASIN W/ STRUCTURE
- PROPOSED STORMWATER BMP OUTLET STRUCTURE
- POORLY DRAINED JURISDICTIONAL WETLAND
- 50' WETLAND BUFFER
- CONTOUR MINOR, EXISTING
- CONTOUR MAJOR, EXISTING
- CONTOUR MINOR, PROPOSED
- CONTOUR MAJOR, PROPOSED
- EXISTING DRAINAGE LINE
- PROPOSED DRAINAGE LINE
- RIP RAP
- STORMWATER BEST MANAGEMENT PRACTICE (BMP)
- BERM

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

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

INSPECTION & MAINTENANCE PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

Welcome to New Hampshire's Watershed Report Cards built from the 2020/2022, 305(b)/303(d)

Each Watershed Report Card covers a single 12-digit Hydrologic Unit Code (HUC12), on average a 34 square mile area. Each Watershed Report Card has three components;

1. REPORT CARD - A one page card that summarizes the overall use support for Aquatic Life Integrity, Primary Contact (i.e. Swimming), and Secondary Contact (i.e. Boating) Designated Uses on every Assessment Unit ID (AUID) within the HUC12.
2. HUC 12 MAP - A map of the watershed with abbreviated labels for each AUID within the HUC12.
3. ASSESSMENT DETAILS - Anywhere from one to forty pages with the detailed assessment information for each and every AUID in the Report Card and Map.

How are the Surface Water Quality Assessment determinations made?

All readily available data with reliable Quality Assurance/Quality Control is used in the biennial surface water quality assessments. For a full understanding of how the Surface Water Quality Standards (Env-Wq 1700) are translated into surface water quality assessments we urge the reader to review the 2020/2022 Consolidated Assessment and Listing Methodology (CALM).

Where can I find more advanced mapping resources?

GIS files are available by assessment cycle at the NHDES FTP site.

I'd like to see the more raw water quality data?

The web mapping tool allows you to download the data used in the assessment of the primary contact and aquatic life designated uses by clicking on the "Data Access Waterbody Data (Aquatic Life and Swimming Uses)" link for any assessment unit.

How are assessments coded in the report card?

Assessment outcomes are displayed on a color scale as well as an alpha numeric scale that provides additional distinctions for the designated use and parameter level assessments as outlined in the table below.

		Severe Not Supporting, Severe	**Poor** Not Supporting, Marginal	**Likely Bad** Insufficient Information – Potentially Not Supporting	**No Data** No Data	**Likely Good** Insufficient Information – Potentially Full Supporting	**Marginal** Full Support, Marginal	**Good** Full Support, Good
CATEGORY	**Description**							
Category 2	Meets standards						2-M or 2-OBS	2-G
Category 3	Insufficient Information			3-PNS	3-ND	3-PAS		
Category 4	Does not Meet Standards;							
4A	TMDL* Completed	4A-P	4A-M or 4A-T					
4B	Other enforceable measure will correct the issue.	4B-P	4B-M or 4B-T					
4C	Non-pollutant (i.e. exotic weeds)	4C-P	4C-M					
Category 5	TMDL* Needed	5-P	5-M or 5-T					

* TMDL stands for Total Maximum Daily Load studies

Watershed 305(b) Assessment Summary Report:

Assessment Cycle: 2020/2022

HUC 12: 010600030608

HUC 12 Name: Lower Cocheco River

(Locator map on next page only applies to this HUC12)

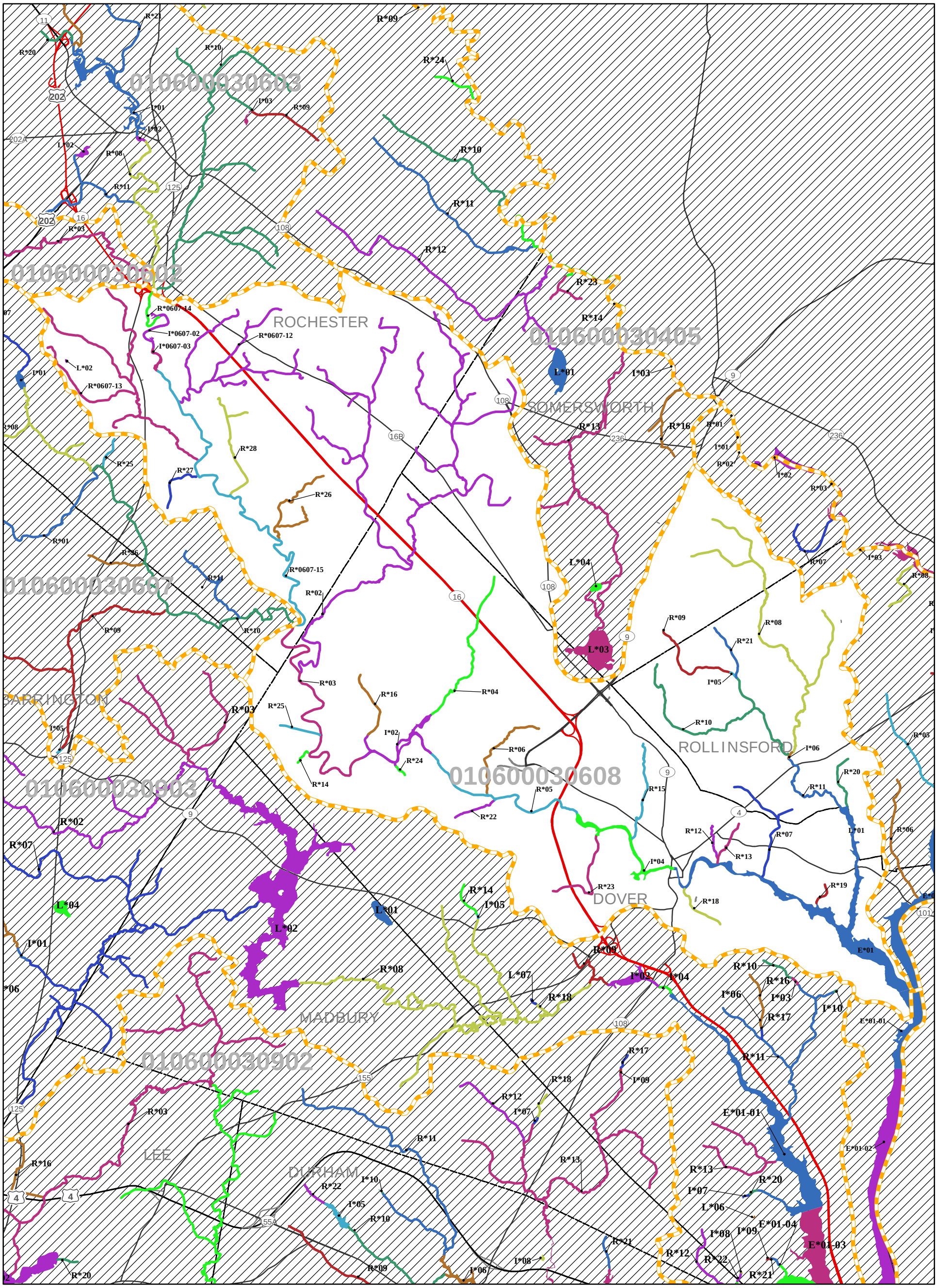
Good	Meets water quality standards/thresholds by a relatively large margin.
Marginal	Meets water quality standards/thresholds but only marginally.
Likely Good	Limited data available, however, the data that is available suggests that the parameter is Potentially Attaining Standards (PAS).
No Current Data	Insufficient information to make an assessment decision.
Likely Bad	Limited data available, however, the data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.
Poor	Not meeting water quality standards/thresholds. The impairment is marginal.
Severe	Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.



Assessment Unit ID	Map Label	Assessment Unit Name	Aquatic Life	Fish Consump.	Swimming	Boating
NHEST600030608-01	E*01	Cocheco River		5-M	5-P	4A-M
NHIMP600030607-02	I*0607-02	Cocheco River - Gonic Dam Pond	5-M	4A-M	4A-P	2-G
NHIMP600030607-03	I*0607-03	Cocheco River - Mill Pond Dam	3-PNS	4A-M	3-ND	3-ND
NHIMP600030608-02	I*02	Cocheco River - Watson Waldron Dam	5-M	4A-M	3-PAS	3-ND
NHIMP600030608-04	I*04	Cocheco River - Central Ave Dam	5-M	4A-M	3-PAS	3-ND
NHIMP600030608-05	I*05	Conservation Pond Dam	3-ND	4A-M	3-ND	3-ND
NHIMP600030608-06	I*06	Fresh Creek - Farm Pond	3-ND	4A-M	3-ND	3-ND
NHLAK600030608-01	L*01	Fresh Creek Pond	5-M	4A-M	4A-P	3-ND
NHLAK600030608-02	L*02	Unnamed Pond	3-ND	4A-M	3-PAS	3-PAS
NHRIV600030607-12	R*0607-12	Unnamed Tributary - To Cocheco River	3-ND	4A-M	3-ND	3-ND
NHRIV600030607-13	R*0607-13	Unnamed Brook - To Cocheco River	3-ND	4A-M	3-ND	3-ND

NHRIV600030607-14	R*0607-14	Cocheco River	3-ND	4A-M	3-ND	3-ND
NHRIV600030607-15	R*0607-15	Cocheco River	5-M	4A-M	2-G	2-G
NHRIV600030608-02	R*02	Blackwater Brook-Clark Brook	3-ND	4A-M	4A-P	3-ND
NHRIV600030608-03	R*03	Cocheco River - Unnamed Brook	5-M	4A-M	4A-M	3-ND
NHRIV600030608-04	R*04	Reyners Brook	3-ND	4A-M	4A-P	3-ND
NHRIV600030608-05	R*05	Cocheco River	5-M	4A-M	4A-M	3-ND
NHRIV600030608-06	R*06	Indian Brook	5-P	4A-M	4A-P	3-ND
NHRIV600030608-07	R*07	Emerson Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-08	R*08	Fresh Creek - Twombly Brook	5-P	4A-M	4A-M	3-ND
NHRIV600030608-09	R*09	Unnamed Brook - Rollins Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-10	R*10	Rollins Brook	5-P	4A-M	4A-P	3-ND
NHRIV600030608-11	R*11	Fresh Creek	3-PNS	4A-M	4A-P	4A-M
NHRIV600030608-12	R*12	Unnamed Tributary - To Cocheco River (Dover (Downstream Of Portland Ave))	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-13	R*13	Unnamed Tributary - To Cocheco River - (Dover (Upstream Of Atlantic Ave))	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-14	R*14	Unnamed Trib. To Cocheco River, Dover (From Landfill)	5-M	4A-M	3-ND	3-ND
NHRIV600030608-15	R*15	Berry Brook	5-M	4A-M	4A-P	2-G
NHRIV600030608-16	R*16	Jackson Brook	3-ND	4A-M	4A-P	3-ND
NHRIV600030608-18	R*18	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-19	R*19	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-20	R*20	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-21	R*21	Unnamed Brook - To Rollins Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-22	R*22	Horn Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-23	R*23	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-24	R*24	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-25	R*25	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-26	R*26	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-27	R*27	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-28	R*28	Unnamed Brook	3-ND	4A-M	3-ND	3-ND

AUIDs For HUC12: 010600030608 - Lower Cocheco River



HUC12 Boundaries
Town Boundaries

Major Roads
Interstate Highway
US Highway
State Highway

Assessment Unit Coloring AUs Ending with:

0 =
1 =
2 =
3 =
4 =
5 =
6 =
7 =
8 =
9 =

N
W E
S

Abbrv. Label	HUC 12
L* 03	010 700060201

AUID = NH L AK700060201 - 03

Assessment Unit IDs are derived from the HUC12 they reside within. The labels have been shortened on this map for presentation purposes.
Example: the Label "L*03" in HUC12 = 010700060201 represents AUID = "NHLAK700060201-03"
In rare cases where an AUID extends beyond the boundary of a single HUC12, additional portions of the end of the HUC 12 number have also been replaced.

0 0.6 1.2 1.8 2.4 Miles

Scale:1:59,820

S:\WD-Watershed\WQ_Planning\305b_303d\2020\Report_Cards\HUC12_maps

Assessment Unit ID: NHRIV600030608-04
Assessment Unit Name: Reyners Brook
Town(s) Primary Town is Listed First: Dover

Size: 1.77 MILES
Assessment Unit Category: 4A-P
Beach: N

2020/2022, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit

Designated Use Description	Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category	TMDL Priority
Aquatic Life Integrity	3-ND	Benthic-Macroinvertebrate Bioassessments (Streams)	N			3-ND	
		CHLORIDE	N	2008	N/A	3-ND	
		Dissolved oxygen saturation	N			3-ND	
		Fishes Bioassessments (Streams)	N			3-ND	
		Oxygen, Dissolved	N			3-ND	
		pH	N			3-ND	
Fish Consumption	4A-M	MERCURY - FISH CONSUMPTION ADVISORY	N			4A-M	
Potential Drinking Water Supply	2-G	ESCHERICHIA COLI	N	2007	2007	3-ND	
Primary Contact Recreation	4A-P	ESCHERICHIA COLI	N	2007	2007	4A-P	
Secondary Contact Recreation	3-ND	ESCHERICHIA COLI	N	2007	N/A	3-ND	
Wildlife	3-ND						

Good	Marginal	Likely Good	No Current Data	Likely Bad	Poor	Severe
Meets water quality standards/thresholds by a relatively large margin.	Meets water quality standards/thresholds but only marginally.	Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	Insufficient information to make an assessment decision.	Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	Not meeting water quality standards/thresholds. The impairment is marginal.	Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality.

2020/2022	NHRIV600030605-14	STONEHOUSE BROOK - HALL BROOK	BARRINGTON, NORTHWOOD, STRAFFORD	7.020	MILES							ORW
2020/2022	NHRIV600030605-15	NIPPO BROOK	BARRINGTON, STRAFFORD	12.125	MILES							ORW
2020/2022	NHRIV600030605-16	ISINGLASS RIVER	STRAFFORD, BARRINGTON	0.778	MILES	Primary Contact Recreation	Escherichia coli	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39273	Review OneStop GIS
2020/2022	NHRIV600030605-17	UNNAMED BROOK	STRAFFORD	1.609	MILES							ORW
2020/2022	NHRIV600030605-18	UNNAMED BROOK	STRAFFORD	0.865	MILES							ORW
2020/2022	NHRIV600030605-19	UNNAMED BROOK	STRAFFORD	0.359	MILES							ORW
2020/2022	NHRIV600030605-20	UNNAMED BROOK	STRAFFORD	0.460	MILES							ORW
2020/2022	NHRIV600030606-03	BERRYS RIVER	STRAFFORD, FARMINGTON, ROCHESTER	5.200	MILES	Aquatic Life Integrity	pH	5-P				Non-ORW
2020/2022	NHRIV600030606-04	BERRYS RIVER - UNNAMED BROOK	STRAFFORD, BARRINGTON	5.705	MILES	Aquatic Life Integrity	Low flow alterations	4C-P				Non-ORW
2020/2022	NHRIV600030606-04	BERRYS RIVER - UNNAMED BROOK	STRAFFORD, BARRINGTON	5.705	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030606-06	BERRY RIVER - FROM LONG POND TO ISINGLASS RIVER	BARRINGTON	0.107	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2020/2022	NHRIV600030606-06	BERRY RIVER - FROM LONG POND TO ISINGLASS RIVER	BARRINGTON	0.107	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M				Non-ORW
2020/2022	NHRIV600030606-06	BERRY RIVER - FROM LONG POND TO ISINGLASS RIVER	BARRINGTON	0.107	MILES	Aquatic Life Integrity	pH	5-P				Non-ORW
2020/2022	NHRIV600030606-07	BERRYS RIVER	BARRINGTON	1.260	MILES	Aquatic Life Integrity	pH	5-P				Non-ORW
2020/2022	NHRIV600030607-01	ISINGLASS RIVER	BARRINGTON, ROCHESTER	7.336	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments (Streams)	5-M				Non-ORW
2020/2022	NHRIV600030607-01	ISINGLASS RIVER	BARRINGTON, ROCHESTER	7.336	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030607-03	AYERS POND BROOK	BARRINGTON	0.128	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M				Non-ORW
2020/2022	NHRIV600030607-03	AYERS POND BROOK	BARRINGTON	0.128	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030607-04	AYERS POND BROOK	BARRINGTON	1.691	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M				Non-ORW
2020/2022	NHRIV600030607-04	AYERS POND BROOK	BARRINGTON	1.691	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030607-08	HANSON BROOK	ROCHESTER, BARRINGTON	2.411	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030607-09	GREEN HILL BROOK	BARRINGTON	3.224	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030607-10	ISINGLASS RIVER	ROCHESTER, BARRINGTON	3.796	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2020/2022	NHRIV600030607-10	ISINGLASS RIVER	ROCHESTER, BARRINGTON	3.796	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030607-10	ISINGLASS RIVER	ROCHESTER, BARRINGTON	3.796	MILES	Primary Contact Recreation	Escherichia coli	4A-M	8/29/2011	58 NH BACTERIA IMPAIRED WATERS	40663	Non-ORW
2020/2022	NHRIV600030607-15	COCHECO RIVER	ROCHESTER	4.414	MILES	Aquatic Life Integrity	Iron	5-M				Non-ORW
2020/2022	NHRIV600030607-15	COCHECO RIVER	ROCHESTER	4.414	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030607-16	SCRUTON POND OUTLET BROOK	BARRINGTON	0.071	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2020/2022	NHRIV600030607-16	SCRUTON POND OUTLET BROOK	BARRINGTON	0.071	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P				Non-ORW
2020/2022	NHRIV600030607-16	SCRUTON POND OUTLET BROOK	BARRINGTON	0.071	MILES	Aquatic Life Integrity	pH	5-P				Non-ORW
2020/2022	NHRIV600030608-02	BLACKWATER BROOK-CLARK BROOK	ROCHESTER, DOVER, SOMERSWORTH	15.228	MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030608-03	COCHECO RIVER - UNNAMED BROOK	DOVER, ROCHESTER	3.267	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2020/2022	NHRIV600030608-03	COCHECO RIVER - UNNAMED BROOK	DOVER, ROCHESTER	3.267	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030608-03	COCHECO RIVER - UNNAMED BROOK	DOVER, ROCHESTER	3.267	MILES	Primary Contact Recreation	Escherichia coli	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030608-04	REYNERS BROOK	DOVER	1.770	MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030608-05	COCHECO RIVER	DOVER	2.060	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030608-05	COCHECO RIVER	DOVER	2.060	MILES	Primary Contact Recreation	Escherichia coli	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030608-06	INDIAN BROOK	DOVER	1.106	MILES	Aquatic Life Integrity	Chloride	5-P				Non-ORW
2020/2022	NHRIV600030608-06	INDIAN BROOK	DOVER	1.106	MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030608-08	FRESH CREEK - TWOMBLY BROOK	ROLLINSFORD, SOMERSWORTH	4.983	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2020/2022	NHRIV600030608-08	FRESH CREEK - TWOMBLY BROOK	ROLLINSFORD, SOMERSWORTH	4.983	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P				Non-ORW
2020/2022	NHRIV600030608-08	FRESH CREEK - TWOMBLY BROOK	ROLLINSFORD, SOMERSWORTH	4.983	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030608-08	FRESH CREEK - TWOMBLY BROOK	ROLLINSFORD, SOMERSWORTH	4.983	MILES	Primary Contact Recreation	Escherichia coli	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030608-10	ROLLINS BROOK	ROLLINSFORD	2.856	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2020/2022	NHRIV600030608-10	ROLLINS BROOK	ROLLINSFORD	2.856	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P				Non-ORW
2020/2022	NHRIV600030608-10	ROLLINS BROOK	ROLLINSFORD	2.856	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030608-10	ROLLINS BROOK	ROLLINSFORD	2.856	MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030608-11	FRESH CREEK	ROLLINSFORD, DOVER	1.126	MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030608-14	UNNAMED TRIB. TO COCHECO RIVER, DOVER (FROM LANDFILL)	DOVER	0.169	MILES	Aquatic Life Integrity	Iron	5-M				Non-ORW
2020/2022	NHRIV600030608-15	BERRY BROOK	DOVER	1.106	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments (Streams)	5-M				Non-ORW
2020/2022	NHRIV600030608-15	BERRY BROOK	DOVER	1.106	MILES	Aquatic Life Integrity	Chloride	5-M				Non-ORW
2020/2022	NHRIV600030608-15	BERRY BROOK	DOVER	1.106	MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030608-16	JACKSON BROOK	DOVER	0.724	MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE BACTERIA	39272	Non-ORW
2020/2022	NHRIV600030701-01	LAMPREY RIVER - AND HEADWATER TRIBUTARIES	NORTHWOOD, DEERFIELD	13.652	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-P				Non-ORW
2020/2022	NHRIV600030701-01	LAMPREY RIVER - AND HEADWATER TRIBUTARIES	NORTHWOOD, DEERFIELD	13.652	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P				Non-ORW
2020/2022	NHRIV600030701-01	LAMPREY RIVER - AND HEADWATER TRIBUTARIES	NORTHWOOD, DEERFIELD	13.652	MILES	Aquatic Life Integrity	pH	5-P				Non-ORW
2020/2022	NHRIV600030701-08	HARTFORD BROOK	DEERFIELD	10.734	MILES	Aquatic Life Integrity	Aluminum	5-M				Non-ORW
2020/2022	NHRIV600030701-08	HARTFORD BROOK	DEERFIELD	10.734	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments (Streams)	5-P				Non-ORW
2020/2022	NHRIV600030701-08	HARTFORD BROOK	DEERFIELD	10.734	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030701-09	LAMPREY RIVER	DEERFIELD	7.767	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-P				Non-ORW
2020/2022	NHRIV600030701-09	LAMPREY RIVER	DEERFIELD	7.767	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P				Non-ORW
2020/2022	NHRIV600030701-09	LAMPREY RIVER	DEERFIELD	7.767	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030701-13	LAMPREY RIVER	DEERFIELD	0.041	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2020/2022	NHRIV600030701-13	LAMPREY RIVER	DEERFIELD	0.041	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030701-14	LAMPREY RIVER	RAYMOND, DEERFIELD	6.776	MILES							Review OneStop GIS
2020/2022	NHRIV600030702-01	TR NORTH BRANCH RIVER - UNNAMED BROOKS	CANDIA	8.629	MILES							ORW
2020/2022	NHRIV600030702-02	UNNAMED BROOKS - TO NORTH BRANCH RIVER	CANDIA	3.680	MILES							ORW
2020/2022	NHRIV600030702-03	UNNAMED BROOK - FROM SPRUCE POND TO BEAVER POND	DEERFIELD	0.131	MILES							ORW
2020/2022	NHRIV600030702-05	NORTH BRANCH RIVER - UNNAMED BROOK	DEERFIELD, CANDIA	3.563	MILES							ORW
2020/2022	NHRIV600030702-06	NORTH BRANCH RIVER - UNNAMED BROOKS	DEERFIELD, CANDIA	5.185	MILES							ORW
2020/2022	NHRIV600030702-07	NORTH BRANCH RIVER - UNNAMED BROOKS	CANDIA, DEERFIELD	10.013	MILES							ORW
2020/2022	NHRIV600030702-08	UNNAMED BROOK - TO NORTH BRANCH RIVER	CANDIA, RAYMOND	1.171	MILES							ORW
2020/2022	NHRIV600030702-09	NORTH BRANCH RIVER	RAYMOND, CANDIA	0.974	MILES							Review OneStop GIS
2020/2022	NHRIV600030702-10	UNNAMED BROOK	CANDIA	1.071	MILES							ORW
2020/2022	NHRIV600030702-11	UNNAMED BROOK	CANDIA	0.839	MILES							ORW
2020/2022	NHRIV600030702-12	UNNAMED BROOK	DEERFIELD	0.590	MILES							ORW
2020/2022	NHRIV600030703-01	UNNAMED BROOK - TO ONWAY LAKE	RAYMOND, CANDIA	5.450	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments (Streams)	5-P				Non-ORW
2020/2022	NHRIV600030703-01	UNNAMED BROOK - TO ONWAY LAKE	RAYMOND, CANDIA	5.450	MILES	Aquatic Life Integrity	Habitat Assessment (Streams)	4C-M				Non-ORW
2020/2022	NHRIV600030703-01	UNNAMED BROOK - TO ONWAY LAKE	RAYMOND, CANDIA	5.450	MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2020/2022	NHRIV600030703-04	DUDLEY BROOK - UNNAMED BROOK	RAYMOND, DEERFIELD, NOTTINGHAM	4.340	MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2020/2022	NHRIV600030703-04	DUDLEY BROOK - UNNAMED BROOK	RAYMOND, DEERFIELD, NOTTINGHAM	4.340	MILES	Aquatic Life Integrity	Lead	5-M				Non-ORW

SWPPP Cut Sheet:

Filtrexx® Sediment Control

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrexx® Sediment control is a three-dimensional tubular sediment control and storm water runoff filtration device typically used for **perimeter control** of sediment and other soluble pollutants (such as phosphorus and petroleum hydrocarbons), on and around construction activities.

APPLICATION

Filtrexx® Sediment control is to be installed down slope of any disturbed area requiring erosion and sediment control and filtration of soluble pollutants from runoff. Sediment control is effective when installed perpendicular to sheet or low concentrated flow. Acceptable applications include:

- Site perimeters
- Above and below disturbed areas subject to sheet runoff, interrill and rill erosion
- Above and below exposed and erodable slopes
- Around area drains or inlets located in a 'sump'
- On compacted soils where trenching of silt fence is difficult or impossible
- Around sensitive trees where trenching of silt fence is not beneficial for tree survival or may unnecessarily disturb established vegetation.
- On frozen ground where trenching of silt fence is impossible.
- On paved surfaces where trenching of silt fence is impossible.

INSTALLATION

1. Sediment control used for perimeter control of sediment and soluble pollutants in storm runoff shall meet Filtrexx® Soxx™ Material Specifications and use Certified Filtrexx® FilterMedia™.
2. Contractor is required to be Filtrexx® Certified™, or use pre-filled Filtrexx® Sediment control products manufactured by a Filtrexx® Certified Manufacturer™ as determined by Filtrexx® International, LLC (440-926-2607 or visit www.filtrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application. Look for the Filtrexx® Certified™ Seal.
3. Sediment control will be placed at locations indicated on plans as directed by the Engineer.
4. Sediment control should be installed parallel to the base of the slope or other disturbed area. In extreme conditions (i.e., 2:1 slopes), a second Sediment control shall be constructed at the top of the slope.
5. Effective Soxx™ height in the field should be as follows: 8" Diameter Sediment control = 6.5" high, 12" Diameter Sediment control = 9.5" high, 18" Diameter SiltSoxx™ = 14.5" high, 24" Diameter Sediment control = 19" high.
6. Stakes shall be installed through the middle of the Sediment control on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) hard wood stakes. In the event staking is not possible, i.e., when Sediment control is used on pavement, heavy concrete blocks shall be used behind the Sediment control to help stabilize during rainfall/runoff events.
7. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
8. Loose compost may be backfilled along the upslope side of the Sediment control, filling the seam between the soil surface and the device, improving filtration and sediment retention.
9. If the Sediment control is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for

establishment of permanent vegetation. The Engineer will specify seed requirements.

10. Filtrexx® Sediment control is not to be used in perennial, ephemeral, or intermittent streams.

See design drawing schematic for correct Filtrexx® Sediment control installation (Figure 1.1).

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Sediment control should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Sediment control may be required to reduce effective slope length or sediment removal may be necessary. Sediment control shall be inspected until area above has been permanently stabilized and construction activity has ceased

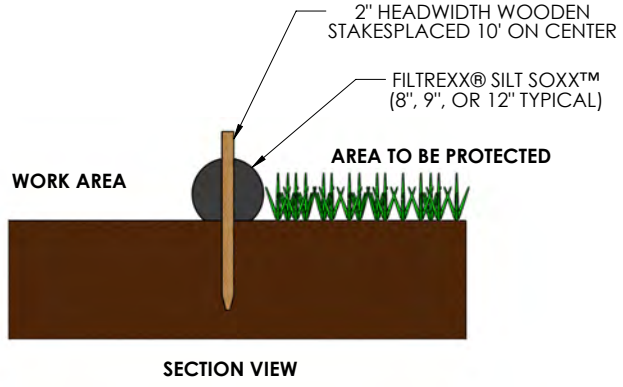
1. The Contractor shall maintain the Sediment control in a functional condition at all times and it shall be routinely inspected.
2. If the Sediment control has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the Sediment control when accumulation has reached 1/2 of the effective height of the Sediment control, or as directed by the Engineer. Alternatively, a new Sediment control can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
4. Sediment control shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
5. The FilterMedia™ will be dispersed on site once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.
6. For long-term sediment and pollution control applications, Sediment control can be seeded at the time of installation to create a vegetative filtering system for prolonged and increased filtration of sediment and soluble pollutants (contained vegetative filter strip). The appropriate seed mix shall be determined by the Engineer.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*				
	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	6.5 in (160 mm)**	9.5 in (240 mm) **	14.5 in (360 mm) **	19 in (480 mm) **	26 in (650 mm) **
2 (or less)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	200 (60)	250 (75)	300 (90)	400 (120)	500 (150)
15	140 (40)	170 (50)	200 (60)	325 (100)	450 (140)
20	100 (30)	125 (38)	140 (42)	260 (80)	400 (120)
25	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

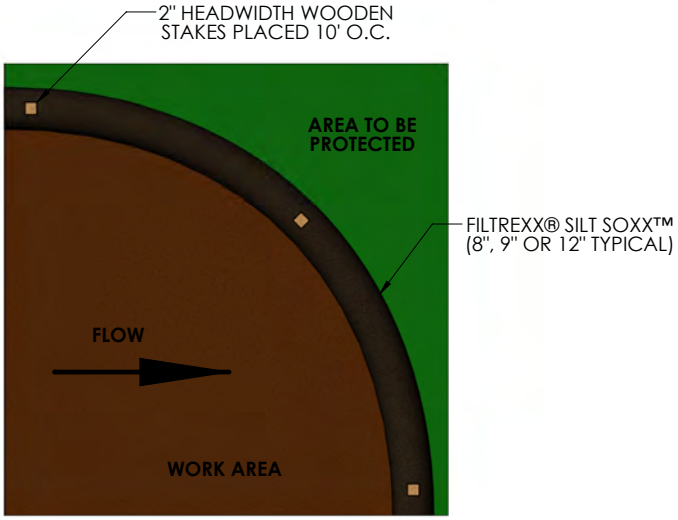
* Based on a failure point of 36 in (0.9 m) super silt fence (wire reinforced) at 1000 ft (303 m) of slope, watershed width equivalent to receiving length of sediment control device, 1 in/ 24 hr (25 mm/24 hr) rain event.

** Effective height of Sediment control after installation and with constant head from runoff as determined by Ohio State University.

FILTREXX® SILT SOXX™

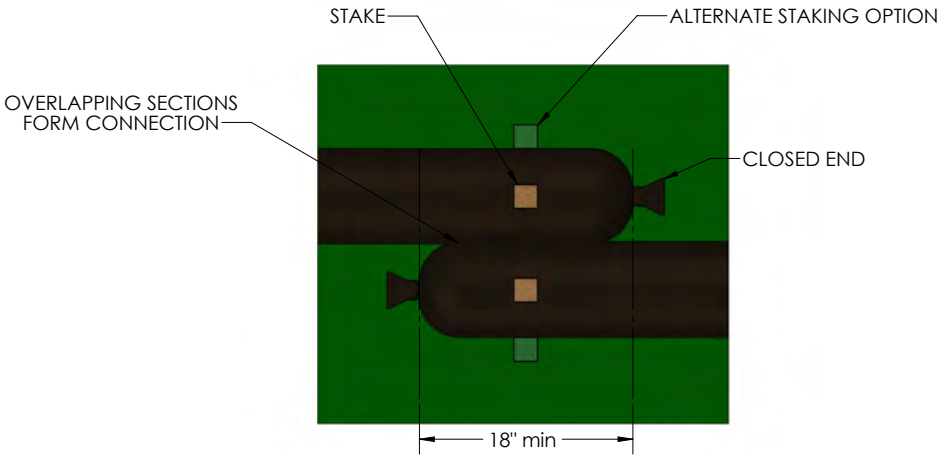


SECTION VIEW

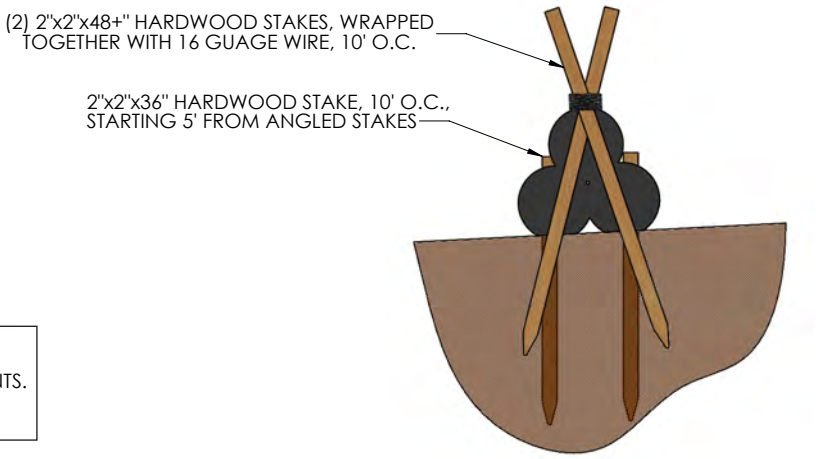


TOP VIEW

COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



FILTREXX® PYRAMID STAKING DETAIL



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

SWPPP Cut Sheet:

Filtrexx® Inlet Protection

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrexx® Inlet protection is a three-dimensional tubular sediment control and storm water runoff filtration device typically used for storm drain **inlet protection** of sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons) on and around construction activities.

APPLICATION

Drain inlets are located in areas that receive runoff from surrounding lands, often exposed and disturbed soils, and are located at a low point, or in a sump. Inlet protection used around drain inlets (or *Drain* Inlet protection) should completely enclose the circumference of the drain and where possible should not be placed on a grade or slope. Inlet protection used around drain inlets should never be the only form of site sediment control and should be accompanied by erosion control/slope stabilization practices, such as Slope protection or rolled erosion control blankets (RECB). Inlet protection should never be placed where they divert runoff flow from the drain inlet, or on top of the inlet, which can cause flooding. Under high runoff and sediment loading conditions placement of 1-2 in (25-50 mm) diameter rock (AASHTO #2) may be placed around the outer circumference of the Inlet protection up to ½ the height of the Inlet protection. This will slow runoff velocity as it contacts the Inlet protection and will reduce sediment build-up and clogging of the Inlet protection.

Curb inlets are generally located on paved surfaces and are designed to rapidly drain storm runoff from roadways to prevent flooding that poses a hazard to vehicular traffic. Inlet protection devices should be placed in a manner which intercepts runoff prior to entering the inlet, but does not block or divert runoff from the inlet. To prevent diversion of runoff, Inlet protection used around curbs (or *Curb* Inlet protection) should be used in low points, or sumps, and minor slopes or grades. Inlet protection should never be placed in or on the curb inlet drain, or placed in a manner than obstructs vehicular traffic. Inlet protection height should be at least 1 in (25 mm) lower than top of curb inlet to allow for overflow into the drain and not over the curb. Maximum sediment removal efficiency occurs when minor ponding exists behind Inlet protection but should never lead to flooding.

Curb sediment containment systems are used to reduce the sediment and pollutant load flowing to a curb inlet. They are generally placed on paved surfaces perpendicular to runoff flow and should be lower than the height of the curb. Curb sediment containment systems should never cause flooding or placed where they are a hazard to vehicular traffic. Inlet protection used for curb sediment containment (or *Curb Sediment Containment* Inlet protection) can be placed on a grade but should never be placed directly upslope from curb inlet where it may inadvertently divert runoff from entering curb inlet.

INSTALLATION

1. Inlet protection used for inlet protection to reduce sediment and soluble pollutants entering storm drains shall meet Filtrexx® FilterSoxx™ Material Specifications and use Certified Filtrexx® FilterMedia™.
2. Contractor is required to be a Filtrexx® Certified™ Installer as determined by Filtrexx® International, LLC (440-926-2607 or visit web site at Filtrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application (current list of installers can be found at www.filtrexx.com). Look for the Filtrexx® Certified™ Installer Seal.

3. Filtrexx® Inlet protection shall be placed at locations indicated on plans as directed by the Engineer. Inlet protection should be installed in a pattern that allows complete protection of the inlet area.
4. Installation of curb Inlet protection will ensure a minimal overlap of at least 1 ft (300mm) on either side of the opening being protected. The Inlet protection will be anchored to the soil behind the curb using staples, stakes or other devices capable of holding the Inlet protection in place.
5. Standard Inlet protection for curb inlet protection and curb sediment containment will use 8 in (200mm) diameter Inlet protection, and drain inlets on soil will use 12 in (300mm) or 18 in (450mm) diameter Inlet protection. In severe flow situations, larger Inlet protection may be specified by the Engineer. During curb installation, Inlet protection shall be compacted to be slightly shorter than curb height.
6. If Inlet protection becomes clogged with debris and sediment, they shall be maintained so as to assure proper drainage and water flow into the storm drain. In severe storm events, overflow of the Inlet protection may be acceptable in order to keep the area from flooding.
7. Curb and drain Inlet protection shall be positioned so as to provide a permeable physical barrier to the drain itself, allowing sediment to collect on the outside of the Inlet protection.
8. For drains and inlets that have only curb cuts, without street grates, a spacer is required in order to keep the Inlet protection away from the drain opening. This spacer should be a hog wire screen bent to overlap the grate opening and keep the sock from falling into the opening. Use at least one spacer for every 4 ft (1.2m) of curb drain opening. The wire grid also prevents other floatable waste from passing over the Inlet protection.
9. Stakes shall be installed through the middle of the drain Inlet protection on 5 ft (1.5m) centers, using 2 in (50mm) x 2 in (50mm) x 3 ft (1m) wood stakes.
10. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Inlet protection should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Inlet protection may be required or sediment removal may be necessary. Inlet protection shall be inspected until contributing drainage area has been permanently stabilized and construction activity has ceased

1. The Contractor shall maintain the Inlet protection in a functional condition at all times and it shall be routinely inspected.
2. If the Inlet protection has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the Inlet protection when accumulation has reached 1/2 of the effective height of the Inlet protection, or as directed by the Engineer. Alternatively, for drain Inlet protection a new Soxx™ may be placed on top of the original increasing the sediment storage capacity without soil disturbance.
4. Inlet protection shall be maintained until disturbed area above or around the device has been permanently stabilized and construction activity has ceased.
5. Regular maintenance includes lifting the Inlet protection and cleaning around and under them as sediment collects.
6. The FilterMedia™ will be removed from paved areas or dispersed on site soil or behind curb once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.

Table 2.4 Spacing for Curb Sediment Containment Systems.

Grade (%)	Spacing (ft)	Spacing (mm)
0.5	100	30
1.0	50	15
2.0	25	8
3.0	16	5
4.0	13	4
5.0	10	3

Source: Fifield, 2001.

Figure 2.1. Engineering Design Drawing for Curb and Drain Inlet Protection

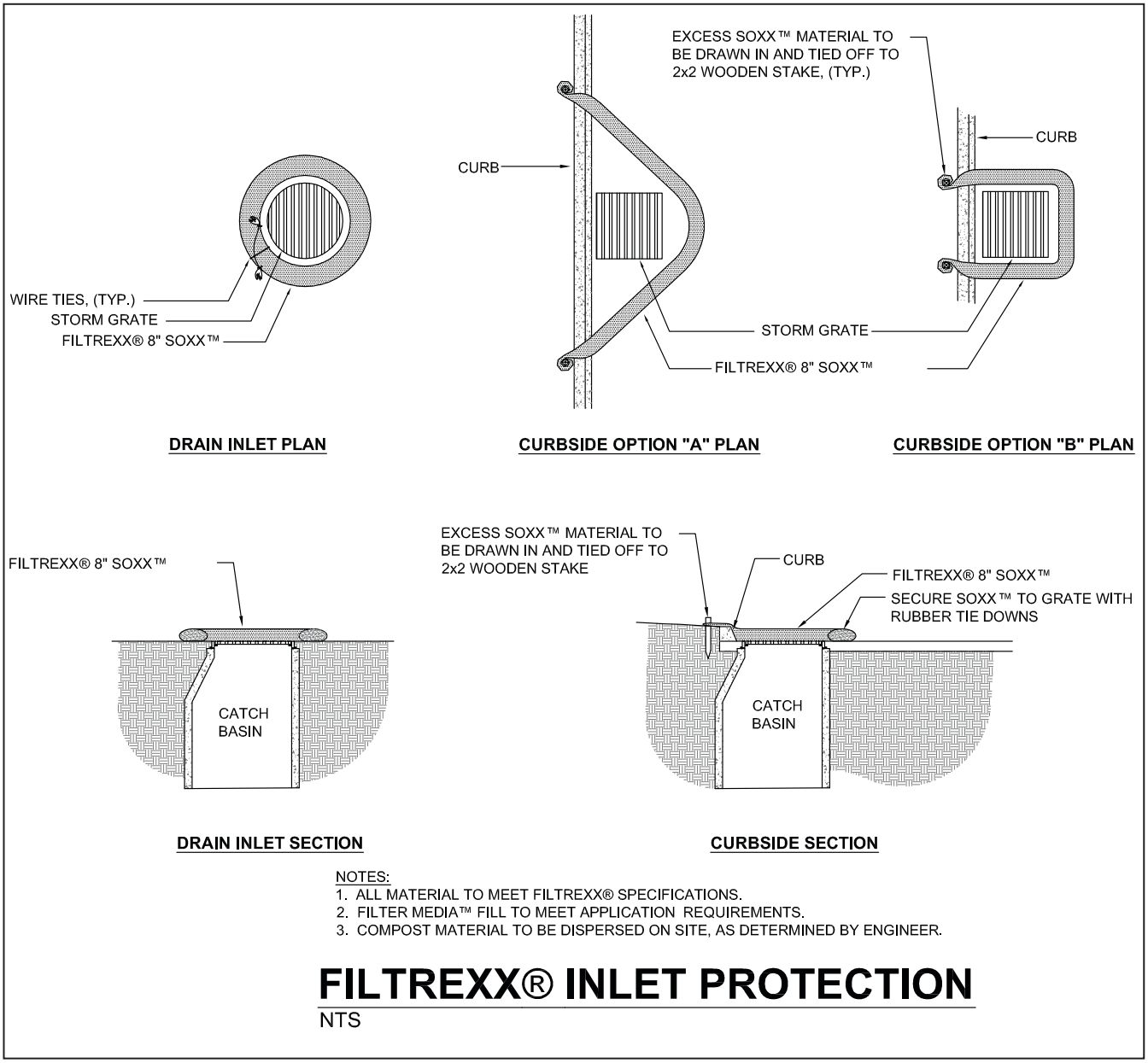
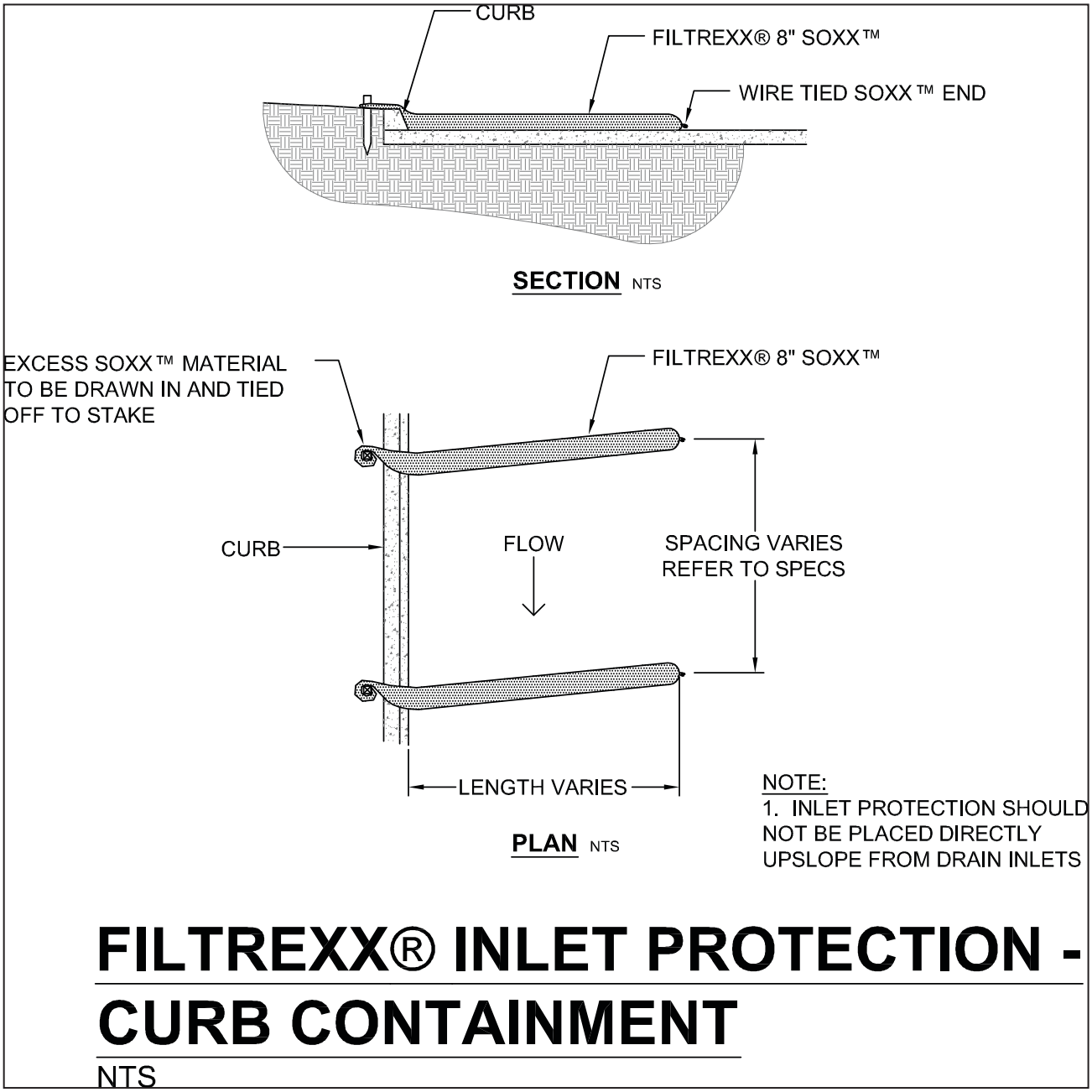


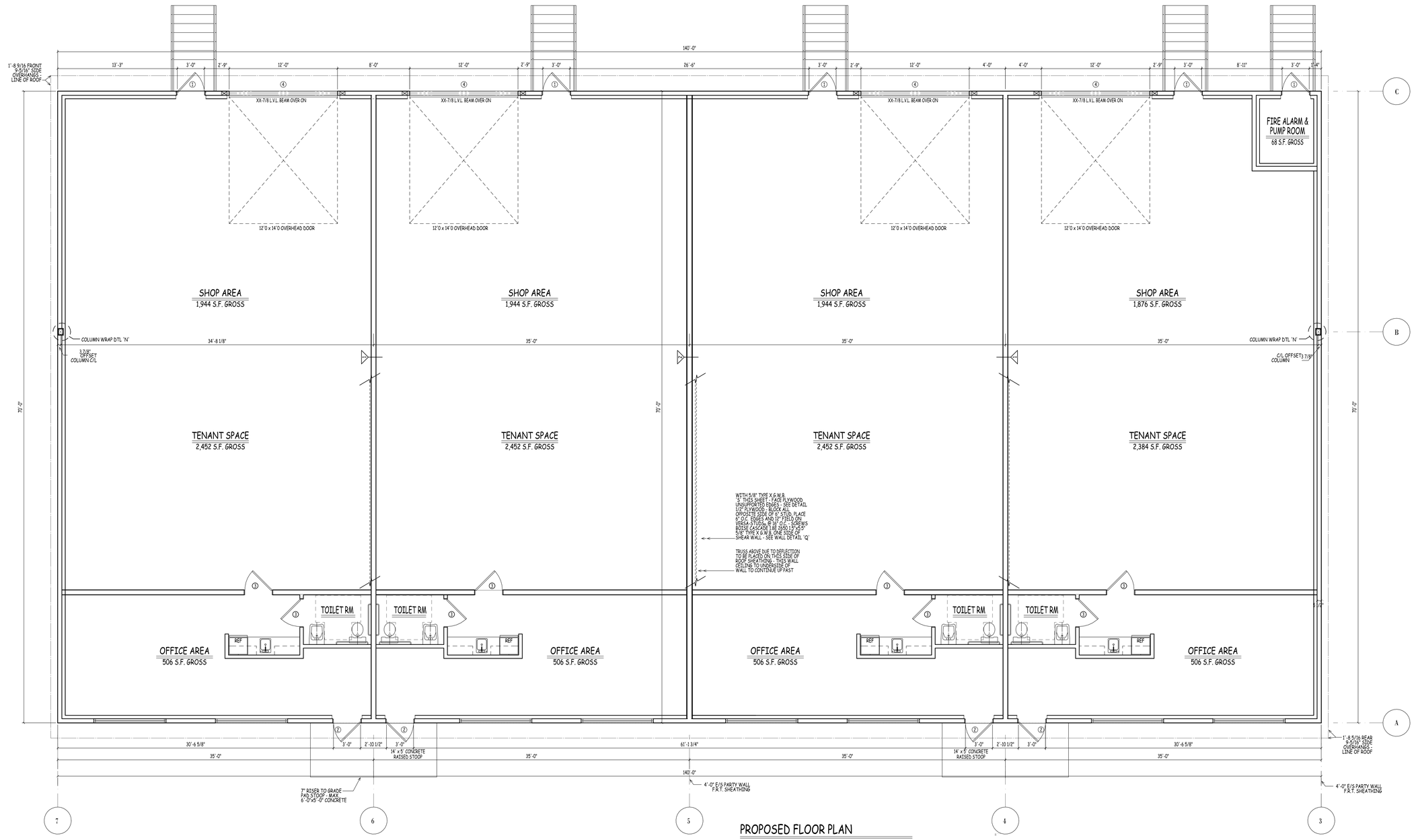
Figure 2.2. Engineering Design Drawing for Curb Sediment Containment Inlet Protection



Pavement Temp. (°F) and Trend (↑ ↓)	Weather Condition	Maintenance Actions	Application Rate (lbs/per 1000 sq.ft.)			
			Salt Prewetted/Pretreated with salt brine	Salt Prewetted/Pretreated with other blends	Dry salt	Winter sand
>30 ↑	Snow	Plow, treat intersections only				Not recommended
	Frz. Rain	Apply chemical				Not recommended
30 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				Not recommended
25 - 30 ↑	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				Not recommended
25 - 30 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
20 - 25 ↑	Snow or frz. Rain	Plow and Apply chemical				3.25 for frz. Rain
20 - 25 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
15 - 20 ↑	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
15 - 20 ↓	Snow or Frz. Rain	Plow and apply chemical				3.25 for frz. Rain
0 to 15 ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended		Not recommended	5.0 and spot-treat as needed
< 0	Snow	Plow, treat with blends, sand hazardous areas	Not recommended		Not recommended	5.0 and spot-treat as needed

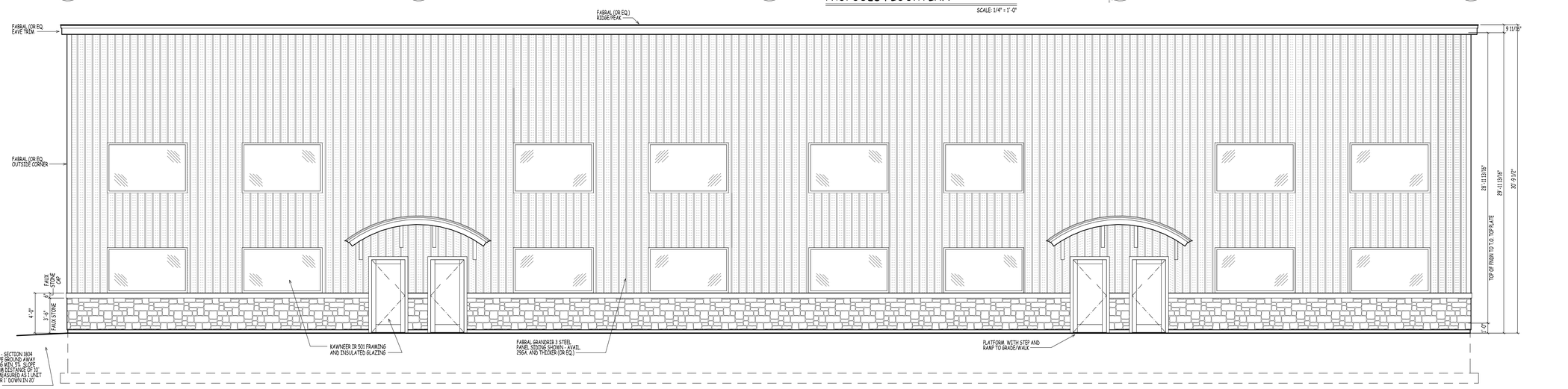
Table 19. Application Rates for Deicing

These rates & table format are based on road application guidelines (Mn Snow & Ice Control Field Handbook, Manual 2005-1). Develop your own application rates by adjusting your current rates incrementally downward toward these guidelines. Where temperature categories overlap, select the rate most applicable to your situation.



PROPOSED FLOOR PLAN

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



PROPOSED FRONT ELEVATION

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

STRUCTURAL ENGINEERING
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Flint, MI 48503
(810) 813-2993
aaron.m.lachance@gmail.com

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(517) 669-9667 FAX (517) 669-9668

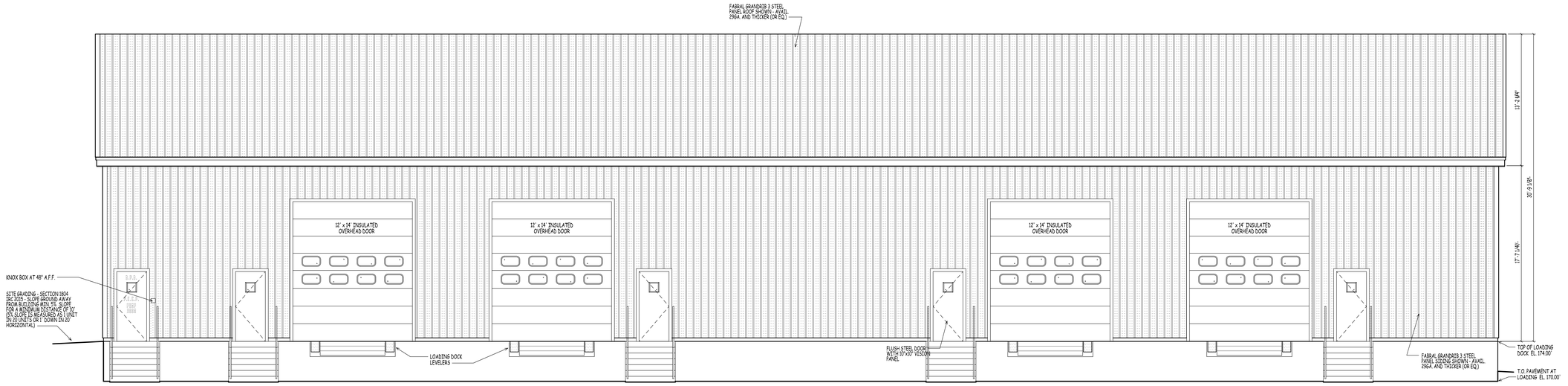
PROJECT LOCATION:
Proposed 140' x 70' Bldg. for Venture Dr. & Quality Way

PREPARED FOR:
Rob Whitten

DRAWN BY:	PD
CHECKED BY:	AD/AL
DATE DRAWN:	5/20/22
DATE ISSUED:	6/xx/22
SCALE:	AS NOTED
JOB NO.:	FSM22-22548N

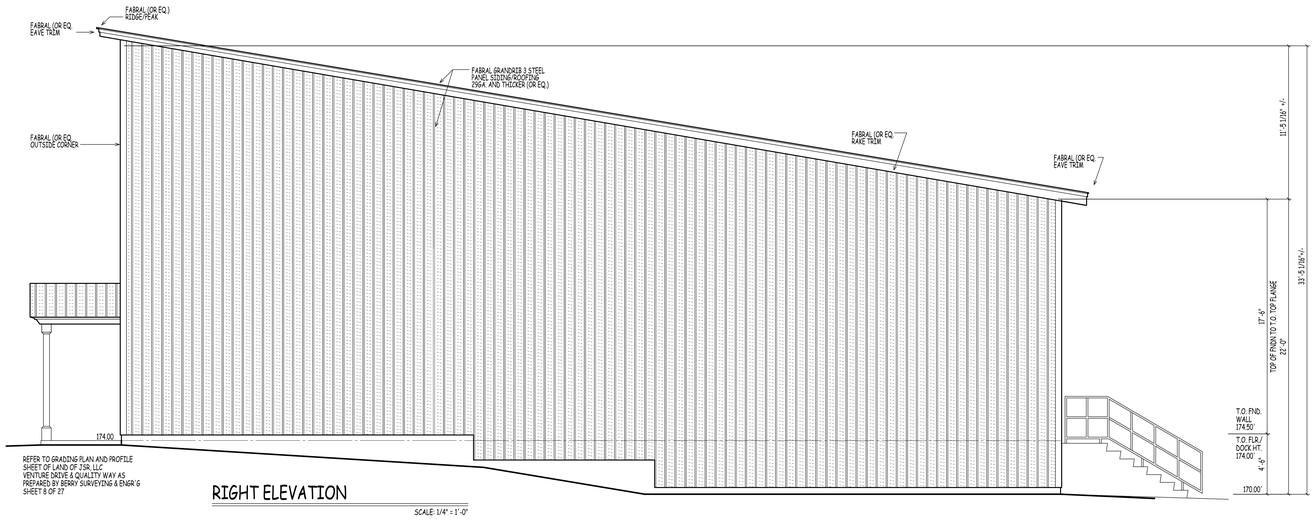
REVISIONS

NO.	DATE	DESCRIPTION
1	6/1/22	DRAFTING/PLANNING REVIEW
2	7/22/22	BUILDING SIZE
3	10/2/22	TRUSS LOCATIONS
4		



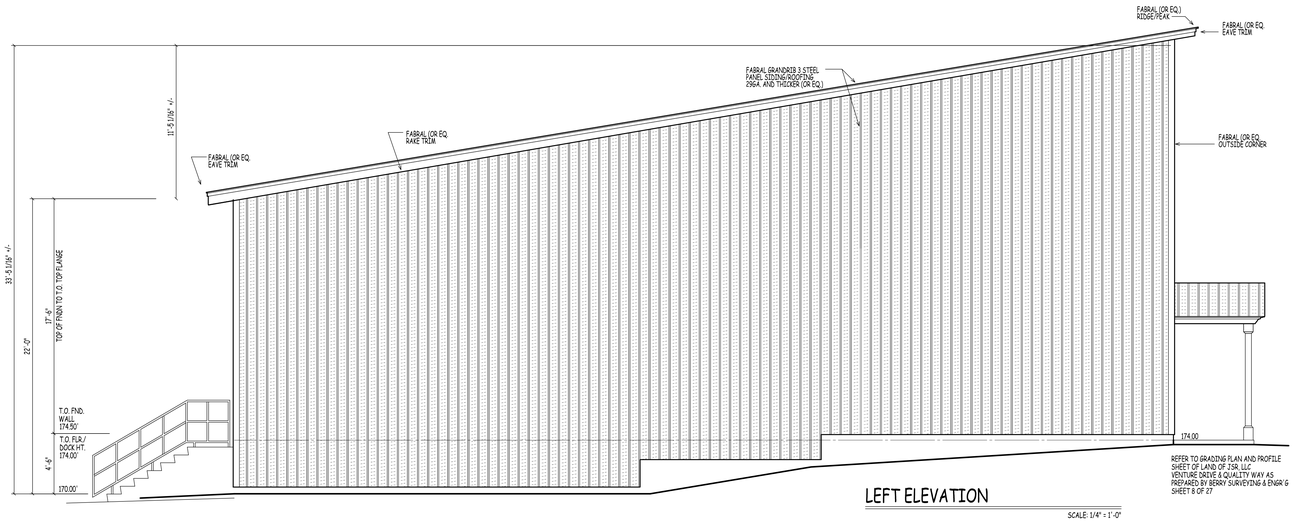
PROPOSED REAR ELEVATION

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



RIGHT ELEVATION

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



LEFT ELEVATION

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

INFORMATION OF SIGNIFICANCE AND/OR COPYRIGHT
WHILE IT IS OUR INTENTION TO DESIGN A BUILDING THAT WILL BE FREE FROM DEFECTS, WE CANNOT ASSUME RESPONSIBILITY FOR THE CONSTRUCTION OF THE BUILDING. WE ASSUME NO RESPONSIBILITY FOR CONSTRUCTION METHODS OR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. WE ASSUME NO RESPONSIBILITY FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS OR ANY OTHER PERSONS OR ENTITIES PERFORMING ANY OF THE WORK. WE ASSUME NO RESPONSIBILITY FOR ANY CHANGES IN THE PLANS AND/OR SPECIFICATIONS MADE BY ANY OTHER PERSONS OR ENTITIES. THESE PLANS ARE NOT TO BE USED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN CONSENT OF THE UNDERSIGNED PROFESSIONAL ENGINEER

STRUCTURAL ENGINEERING
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Bow, NH 03304
(603) 856-7993
aaron.m.lachance@gmail.com

FSM DRAWINGS
1 DWELL CT, STE 3B #1440 CONCORD, NH 03301
603-856-7993 FSMDRAWINGS@GMAIL.COM

PROJECT LOCATION: Proposed 140' x 70' Bldg. for Venture Dr. & Quality Way
PREPARED FOR: Rob Whitten

DRAWN BY:	PD
CHECKED BY:	AD/AL
DATE DRAWN:	5/20/22
DATE ISSUED:	5/xx/'22
SCALE:	AS NOTED
JOB NO.:	FSM22-22548N

REVISIONS

NO	DATE	DESCRIPTION
1	6/9/22	DRAFT PRELIMINARY PLAN FOR REVIEW
2	7/12/22	BUILDING SIZE
3	10/3/22	TRC REVISIONS
4		

October 17, 2022

Wetland Delineation Report
Venture Drive and Quality Way, Dover, NH
Tax Map D, Lots 11-5 and 11-5SND

On August 21, 2021 I was on the above referenced property to complete a wetland delineation. The wetlands onsite were delineated using the following standards:

1. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, (Version 2.0) January 2012, U.S. Army Corps of Engineers.
2. Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 8.2, 2018, United States Department of Agriculture
3. Regional Wetland Plant List, Version 3.5, 2020. U.S. Army Corps of Engineers.

All wetlands were demarcated in the field using pink flagging utilizing alphanumeric sequencing. Seven wetlands were identified and will be addressed in this report

Wetland 1
This wetland is located primarily on Lot 11-5SND, encompassing the majority of the southern and central portions of that lot. A small finger of the wetland system crosses over the corner of Lot 11-5 corner of the property where it connects to an existing 12" RCP culvert. This wetland is classified as a palustrine, forested with wetland with broad-leaved deciduous plant cover and that is seasonally flooded/saturated (PFO1E).

Soils in this wetland are classified Scitico along wetland edge and Maybid in the interior portions of the system. These are poorly drained and very poorly drained soils, respectively, that are formed in marine sediments. Vegetation in the system consisted of red maple (*Acer rubrum)*, eastern hemlock (*Tsuga canadensis*), sensitive fern (*Onoclea sensibilis*) and jewelweed (*Impatiens capensis*).

The small finger associated with this wetland receives intermittent storm water runoff from an existing 12" culvert under Venture Drive. On its own, it likely wouldn't be jurisdictional, but due to its connectivity to the larger system it is delineated as a jurisdictional wetland. Overall this finger provides little overall function or value to this system.



This is a view of the vegetation seen on the wetland edge.

If there are any questions, please let me know.

Thank you,

Deidra Benjamin CWS, CPESC, CESSWI

October 18, 2022

Function and Value Assessment Report
Venture Drive and Quality Way, Dover, NH
Tax Map D, Lots 11-5 and 11-5SND

On August 21, 2021 I was on the above referenced property to complete a wetland delineation. During that time, I also recorded data in order to complete a function and value assessment. Functions and values were determined utilizing the U.S. Army Corps of Engineers Highway Methodology Workbook Supplement.

There are eight functions and five values that are assessed as part of this method. The functions include Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization and Wildlife Habitat. The values include Recreation, Education/Scientific Value, Uniqueness/Heritage, Visual Quality/Aesthetics and Threatened or Endangered Species. A variety of criteria is review for each function and value and determination is made if the wetland is suitable for that function or value and if so, if it is a principal function or value. A function or value is considered principal if they are an important physical component of a wetland and/or are considered to be of special value to society.

Wetland 1
Wetland 1 is the only wetland system on the above referenced parcels. This wetland is located primarily on Lot 11-5SND, encompassing the majority of the southern and central portions of that lot. A small finger of the wetland system crosses over the corner of Lot 11-5 corner of the property where it connects to an existing 12" RCP culvert. This wetland is classified as a palustrine, forested with wetland with broad-leaved deciduous plant cover and that is seasonally flooded/saturated (PFO1E).

It should be noted that this wetland system continues to adjacent properties and ultimately discharges into Reyners Brook. This report only addresses the functions and values of the portion of the wetland system located on the above referenced parcels.

This wetland has three suitable functions, one of which is considered principal. Sediment/Toxicant Retention and Nutrient Removal are suitable functions. There is a diverse population of emergent vegetation and organic soils found within this wetland that are conducive to trapping sediments and using excess nutrients. These functions are only suitable because the surrounding uplands likely only minimally contribute sediment and/or nutrients into this system. Wildlife Habitat is the principal function of this wetland. This wetland has a

overland connectivity to other wetland systems and is well vegetated. Though this is a principal function of this wetland, its location in the City of Dover likely means this wetland is utilized by forest edge species like squirrels, porcupines, and deer. There is likely varying avian usage depending on the time of year.

If there are any questions, please let me know.

Thank you,

Deidra Benjamin CWS, CPESC, CESSWI

October 17, 2022

Vernal Pool Report
Venture Drive and Quality Way, Dover, NH
Tax Map D, Lots 11-5 and 11-5SND

On August 21, 2021 I was on the above referenced property to complete a wetland delineation. During those visits I also surveyed the onsite wetlands for any potential vernal pools.

All onsite wetlands were flagged and for the purposes of this report and the wetland delineation report, the systems were broken up and numbered. There was one wetland system delineated on the above referenced property. This wetland did not have vernal pool inclusions, within the property limits.

The onsite wetland system is a forested system that has a consistent, gentle slope to the south. The natural slope of this wetland, as it exists within the above referenced property does not support vernal pool habitat.

Other overall site factors are not conducive to vernal pool habitat. Georeferenced data suggests that this wetland system channelizes into an intermittent system to the west of the project properties and outlets into Reyners Brook. The presence of an outlet does not support vernal pool habitat.

If there are any questions, please let me know.

Thank you,

Deidra Benjamin CWS, CPESC, CESSWI

PHOTOS TAKEN 7-22-22

#1



#2



PROJECT PHOTOS
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
DOVER TAX MAP D, LOT 11-5
DOVER TAX D, LOT 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT RD.
BARRINGTON , N.H. 332-2863

SCALE :	NONE
DATE :	JULY 25, 2022
FILE NO. :	DB 2021-134

PHOTOS TAKEN 7-22-22

#3



PROJECT PHOTOS
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
DOVER TAX MAP D, LOT 11-5
DOVER TAX D, LOT 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT RD.
BARRINGTON , N.H. 332-2863

SCALE :	NONE
DATE :	JULY 25, 2022
FILE NO. :	DB 2021-134









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SHEET 6 ~ SITE PLAN
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SHEET 20 ~ D101-DRAINAGE DETAILS
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SHEET 25 ~ L101-LANDSCAPING DETAILS
SHEET 26 ~ W101-WILDLIFE IDENTIFICATION PLAN
SHEET 27 ~ DOVER FIRE TRUCK TURNING TEMPLATE

COMMERCIAL SITE PLAN
FOR
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5 SND

NOTE:

BERRY SURVEYING & ENGINEERING HAS PREPARED AN INSPECTION & MAINTENANCE MANUAL AS PART OF THIS PROJECTS DOCUMENTATION. ALL USERS ARE BOUND TO THIS DOCUMENT AS PART OF THE APPROVAL OF THE PLANNING BOARD. COPIES OF THE YEARLY INSPECTIONS ARE TO BE DELIVERED TO THE CITY OF DOVER COMMUNITY SERVICES DEPARTMENT.

SURVEYOR OF RECORD: KENNETH A. BERRY, PE, LLS
CPSWQ, CPESC, CESSWI
BERRY SURVEYING & ENGINEERING
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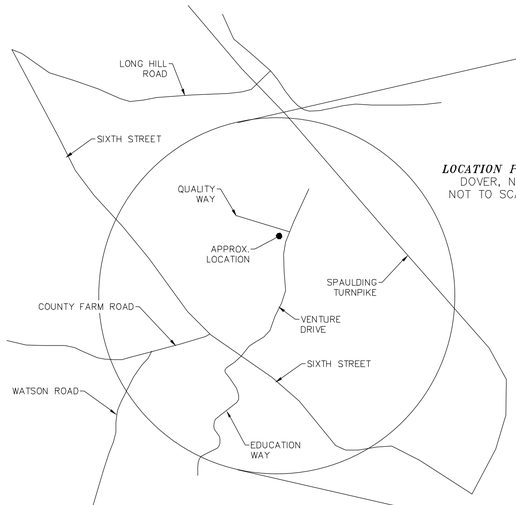
ENGINEER OF RECORD: KENNETH A. BERRY, PE, LLS
CPSWQ, CPESC, CESSWI
BERRY SURVEYING & ENGINEERING
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SOIL SCIENTIST: JOHN P. HAYES, III, CSS, CWS
7 LIMESTONE WAY
NORTH HAMPTON, NH 03862

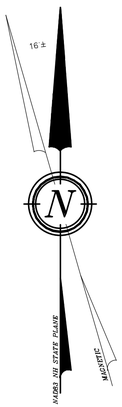
WETLAND SCIENTIST: DEIDRA L. BENJAMIN, CWS
100 LEAVITT ROAD
PITTSFIELD, NH 03263

OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820



LOCATION PLAN
DOVER, NH
NOT TO SCALE



VICINITY SKETCH
DOVER, NH
SCALE: 1" = 500' ±



WHETHER OR NOT OTHERWISE EXPRESSLY RECITED ON THIS SITE PLAN, THE SITE PLAN APPROVAL GRANTED IS CONDITIONED ON FAITHFUL AND DILIGENT ADHERENCE BY THE OWNER/SUBDIVIDER/DEVELOPER OF ALL TERMS, CONDITIONS, PROVISIONS AND SPECIFICATIONS OF THE CITY OF DOVER LAND SITE PLAN REGULATIONS AS AMENDED OR AS MAY LATER BE AMENDED, IN EFFECT ON THE DATE OF APPROVAL, UNLESS OR EXCEPT INSOFAR AS EXPRESSLY WAIVED, IN ANY PARTICULAR, BELOW. NON – ADHERENCE MAY RESULT IN A REVOCATION OF APPROVAL. ANY VARIATION FROM THE APPROVED PLAN WILL REQUIRE A RESUBMISSION FOR SITE PLAN APPROVAL.

REQUIRED PERMITS:

1.) LOCAL SITE PLAN APPROVAL
2.) LOCAL CONDITIONAL USE PERMIT (BUFFERS)
3.) US EPA NOTICE OF INTENT / SWPPP

GENERAL PLAN SET NOTES:

1.) 11x17" PLANS ARE TWICE THE PUBLISHED SCALE.

2.) ALL PLANS ARE CONSIDERED TO BE NOT FOR CONSTRUCTION UNLESS THEY CONTAIN THE APPROVAL STAMP OF THE CITY OF DOVER.

APPROVED DOVER

STATE OF NEW HAMPSHIRE — LICENSED SURVEYOR — No. 805 — KENNETH A. BERRY — SIGNATURE

DOVER PLANNING FILE #XXX5

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

COMMERCIAL SITE PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS SHOWN
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE — KENNETH A. BERRY No. 14141 LICENSED PROFESSIONAL ENGINEER

ABBREVIATION LEGEND:

E.O.P.	EDGE OF PAVEMENT
V.G.C.	VERTICAL GRANITE CURB
S.G.C.	SLOPED GRANITE CURB
BITUM.	BITUMINOUS
E.S.H.W.T	ESTIMATE SEASONAL HIGH WATER TABLE
TYP.	TYPICAL
U.G.E	UNDER GROUND ELECTRIC / UTILITY
CLDI	CONCRETE LINED DUCTILE IRON
DI	DUCTILE IRON
F.P.	FIRE PROTECTION
U.D.	UNDER DRAIN
C.O.	CLEAN OUT
INV.	INVERT
ELEV.	ELEVATION
HDPE	HIGH DENSITY POLYETHYLENE
RCP	REINFORCED CONCRETE PIPE
RECB	ROLLED EROSION CONTROL BLANKET
F.G.	FINISHED GRADE
E.G.	EXISTING GRADE
E.T.W.	EDGE OF TRAVELED WAY
T.B.R.	TO BE REMOVED
PL	PROPERTY LINE
EL	EASEMENT LINE
CL	CENTER LINE
CF	CUBIC FEET
P.C.	POINT OF CURVATURE
P.T.	POINT OF TANGENCY
P.V.C.	POINT OF VERTICAL CURVE
P.V.I.	POINT OF VERTICAL INTERSECTION
P.V.T.	POINT OF VERTICAL TANGENCY
EX.	EXISTING
PROP.	PROPOSED
STA.	STATION
BMP	BEST MANAGEMENT PRACTICE
'/.	FEET / FEET
TP	TEST PIT

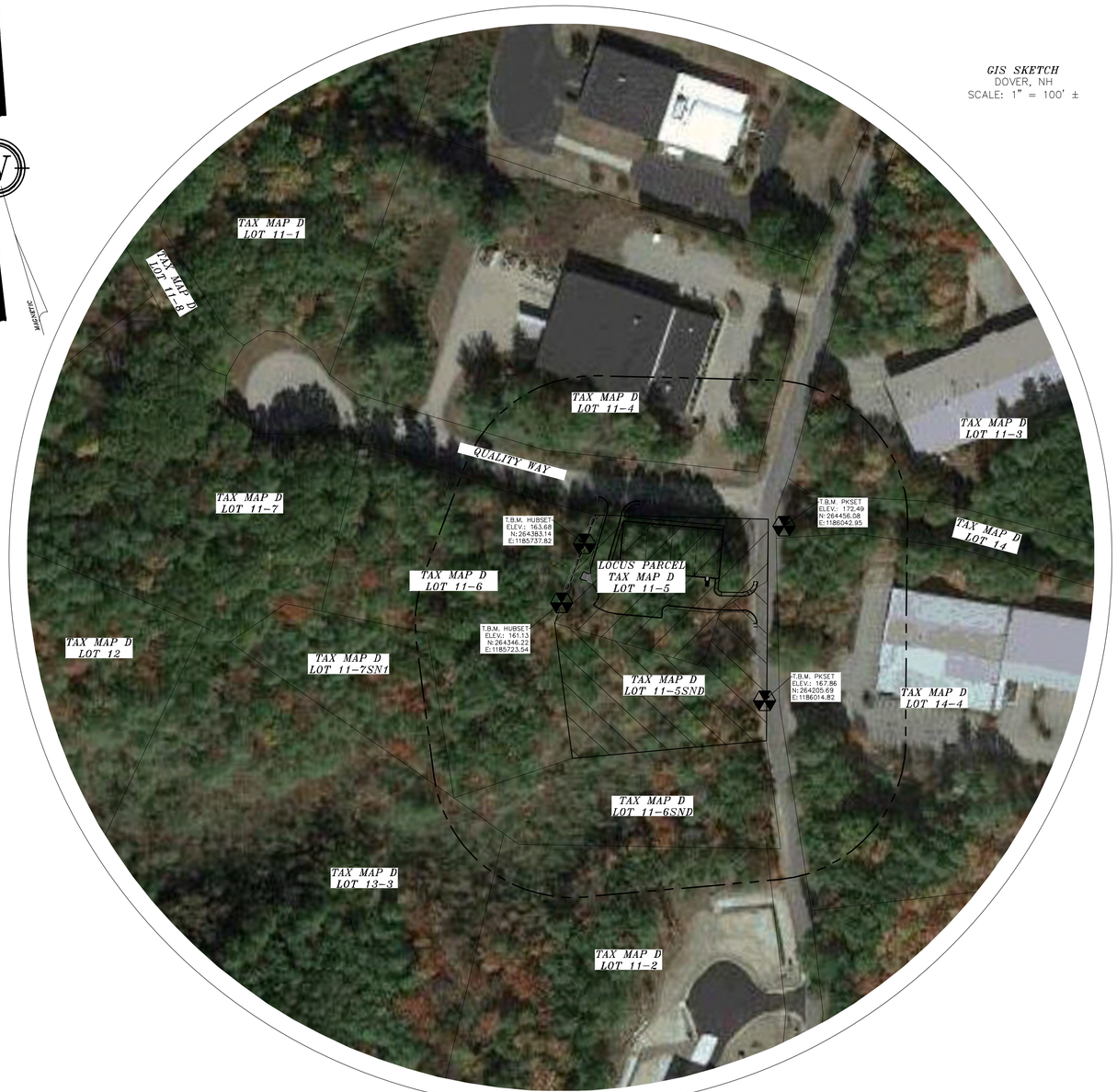
{ | SSL ( ) ~ {SIZE} SINGLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
{ | DSL ( ) ~ {SIZE} DOUBLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
{ | SSB ( ) ~ {SIZE} SINGLE SOLID W/ BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
{ | SBL ( ) ~ {SIZE} SINGLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
{ | DBL ( ) ~ {SIZE} DOUBLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)

LEGEND:

- 3/4" REBAR W/ ID CAP ~TBS~
- GRANITE BOUND ~FND~
- STEEL STAKE ~FND~
- SIGNAGE
- UTILITY POLE
- TEST PIT
- EXISTING SEWER MANHOLE W/ STRUCTURE
- EXISTING/PROPOSED DRAIN MANHOLE W/ STRUCTURE
- EXISTING/PROPOSED CATCH BASIN W/ STRUCTURE
- PROPOSED STORMWATER BMP OUTLET STRUCTURE
- TEMPORARY BENCHMARK (T.B.M.)
- E101 / E6 — DETAIL SHEET / DETAIL
- POORLY DRAINED JURISDICTIONAL WETLAND
- 50' WETLAND BUFFER
- CONTOUR MINOR, EXISTING
- CONTOUR MAJOR, EXISTING
- CONTOUR MINOR, PROPOSED
- CONTOUR MAJOR, PROPOSED
- CENTER LINE
- EXISTING WATER MAIN
- EXISTING SEWER LINE
- EXISTING DRAINAGE LINE
- EXISTING GAS LINE
- PROPOSED WATER MAIN
- PROPOSED SEWER LINE
- PROPOSED DRAINAGE LINE
- PROPOSED GAS LINE
- UNDERGROUND UTILITY
- GATE VALVE
- FIRE HYDRANT
- GAS VALVE
- PROPOSED LIGHT TYPE "A" MOUNTED ON POLE
- PROPOSED LIGHT TYPE "B" MOUNTED ON STRUCTURE
- EXISTING LIGHT TYPE "C" MOUNTED ON POLE
- PROPOSED LIGHT TYPE "D" MOUNTED ON STRUCTURE
- E175.31 / F175.31 — EXISTING SPOT GRADE / PROPOSED SPOT GRADE
- FLOW ARROW
- RIP RAP
- STORMWATER BEST MANAGEMENT PRACTICE (BMP)
- BERM
- SNOW STORAGE
- SILT FENCE / EROSION MIX BERM
- FILTREXX 8" – 12" SILT SOXX AS SPECIFIED
- ORANGE CONSTRUCTION PERIMETER FENCE
- PERIMETER CONTROL
- NRCS SOIL DELINEATION
- SOIL TYPE
- WETLAND BUFFER PLACARD

16 ± — N — MAGNETIC NORTH — NADB3 NH STATE PLANE

GIS SKETCH
DOVER, NH
SCALE: 1" = 100' ±



SIGN ID NUMBER	SIGN SIZE (WIDTH x HEIGHT)	SIGN	TEXT DIMENSIONS	NO. OF SIGNS	BACKGROUND	LEGEND	BORDER	POST SIZE & QUANTITY
R1-1	30"x30"	STOP	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	2	RED	WHITE	WHITE	SQUARE (2)
R7-8	12"x18"	RESERVED PARKING	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	WHITE	GREEN W/ WHITE SYMBOL ON BLUE	RED	SQUARE (1)
R7-8a	12"x6"	VAN ACCESSIBLE	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	WHITE	GREEN	GREEN	SQUARE (0)

ABUTTERS WITHIN 200':

N/F DOVER BUSINESS & IND. DEV. AUTHORITY
F/K/A DOVER IND. DEV. AUTHORITY
288 CENTRAL AVE.
DOVER, NH 03820
TAX MAP D, LOT 11-6
S.C.R.D. BOOK 1559, PAGE 394

N/F DOVER BUSINESS & IND. DEV. AUTHORITY
F/K/A DOVER IND. DEV. AUTHORITY
288 CENTRAL AVE.
DOVER, NH 03820
TAX MAP D, LOT 11-6-SND
S.C.R.D. BOOK 1559, PAGE 394

N/F DOVER BUSINESS & IND. DEV. AUTHORITY
F/K/A DOVER IND. DEV. AUTHORITY
288 CENTRAL AVE.
DOVER, NH 03820
TAX MAP D, LOT 11-7-SN1
S.C.R.D. BOOK 1559, PAGE 394

ABUTTERS WITHIN 200' CONT.:

N/F QUALITY WAY LLC.
55 MAIN STREET
NEWMARKET, NH 03857
TAX MAP D, LOT 11-4
S.C.R.D. BOOK 3973, PAGE 254

N/F MERCHANDISE CENTRAL LLC.
111 VENTURE DRIVE
DOVER, NH 03820
TAX MAP D, LOT 11-3
S.C.R.D. BOOK 4422, PAGE 309

N/F DOVER BUSINESS & IND. DEV. AUTHORITY
288 CENTRAL AVE.
DOVER, NH 03820
TAX MAP D, LOT 14
S.C.R.D. BOOK 4368, PAGE 691

N/F VYGON CORPORATION,
ADVANCED MEDICAL INC,
2750 MORRIS ROAD #A200
LANSDALE, PA 19446-6083
TAX MAP D, LOT 11-4
S.C.R.D. BOOK 1951, PAGE 542

ABUTTERS WITHIN 200' CONT.:

N/F 46 VENTURE DRIVE PROPERTIES LLC.
910 DAY HILL ROAD
WINDSOR, CT 06095
TAX MAP D, LOT 11-2
S.C.R.D. BOOK 4731, PAGE 267

N/F SARNIA PROPOERTIES INC.
1 HAVEN COURT
PORTSMOUTH, NH 03801
TAX MAP D, LOT 13-3
S.C.R.D. BOOK 4850, PAGE 405

STATE OF NEW HAMPSHIRE — No. 805 — KENNETH A. BERRY — LICENSED LAND SURVEYOR
SIGNATURE

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

NEIGHBORHOOD PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS SHOWN
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE — KENNETH A. BERRY — No. 805 — LICENSED PROFESSIONAL ENGINEER

PLAN REFERENCES:

1.) "SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY SIXTH STREET / LONG HILL ROAD EXT. DOVER, NEW HAMPSHIRE" BY: TERRASCAN ENGINEERS SURVEYORS DATED: JANUARY 17, 1992 S.C.R.D. PLAN 41-91

2.) "LOT LINE ADJUST PLAN PREPARED FOR WHITE ENTERPRISES AND DOVER INDUSTRIAL DEVELOPMENT AUTHORITY LONGHILL ROAD, DOVER, NH" BY: MCENEANEY SURVEY ASSOCIATES DATED: JULY 3, 1991 S.C.R.D. PLAN 39-38

3.) "SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY SIXTH STREET / LONG HILL ROAD EXT. DOVER, NEW HAMPSHIRE" BY: TERRASCAN ENGINEERS SURVEYORS DATED: JANUARY 17, 1992 S.C.R.D. PLAN 41-92

4.) "SUBDIVISION OF LAND PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY VENTURE DRIVE DOVER, NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC. DATED: AUGUST 4, 1994 S.C.R.D. PLAN # 45-32

5.) "SUBDIVISION OF LAND PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP H, LOT NO. 11-1 VENTURE DRIVE DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC. DATED: FEBRUARY 25, 2005 S.C.R.D. PLAN # 79-87

PLAN REFERENCES:

6.) "AMENDED SUBDIVISION AND LOT LINE ADJUSTMENT PLAN PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: FEBRUARY 14, 2006 S.C.R.D. PLAN 85-99

7.) "AMENDED SUBDIVISION AND LOT LINE ADJUSTMENT PLAN PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: FEBRUARY 14, 2006 S.C.R.D. PLAN 85-100

8.) "LOT LINE ADJUSTMENT AND SUBDIVISION PLAN OF LAND PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: JUNE 12, 2006 S.C.R.D. PLAN 86-73

STRUCTURES TABLE:

SMH #4349
RIM = 172.22
INV. IN = 155.72 (*SMH #4350*)
INV. OUT = 155.62 (*SMH #4157*)

SMH #4157
RIM = 172.67
INV. IN = 156.27 (*SMH #4349*)
INV. IN = 156.17 (*SMH #4158*)
INV. OUT = 156.07 (*SMH #4156*)

DMH #4198
RIM = 174.05
INV. IN = 170.45 (*CB #7322*)
INV. IN = 168.55 (*CB #3203*)
INV. OUT = 168.45 (*DMH #8054*)

DMH #8054
RIM = 172.96
INV. IN = 168.02 (*DMH #4198*)
INV. IN = 167.86 (*CB #7321*)
INV. OUT = 167.86 (*CB #7319*)

CB #7325
RIM = 174.60
INV. IN = 167.36
INV. OUT = 166.90

CB #7323
RIM = 172.10
INV. OUT = 168.90 (*CB #7324*)

CB #7324
RIM = 172.08
INV. IN = 168.43 (*CB #7323*)
INV. OUT = 168.33

CB #7322
RIM = 174.15
INV. OUT = 171.40 (*DMH #4198*)

CB #7321
RIM = 172.97
INV. OUT = 167.17 (*DMH #8054*)

CB #3201
RIM = 177.17
INV. IN = 174.47
INV. OUT = 174.37 (*CB #3202*)

CB #3202
RIM = 178.15
INV. IN = 173.93 (*CB #3201*)
INV. OUT = 173.61 (*CB #3203*)

CB #3203
RIM = 178.13
INV. IN = 175.15
INV. IN = 173.31 (*CB #3202*)
INV. OUT = 173.21 (*DMH #4198*)

CB #7320
RIM = 170.63
INV. OUT = 167.11 (*CB #7319*)

CB #7319
RIM = 170.61
INV. IN = 166.51 (*DMH #8054*)
INV. IN = 166.51 (*CB #7320*)
INV. OUT = 166.45

SOIL DATA:

EaB ~ ELMWOOD FINE SANDY LOAM, 3 TO 8% SLOPES
GsC ~ GLOUCESTER VERY STONY FINE SANDY LOAM, 8 TO 15% SLOPES
ScB ~ SCANTIC SILT LOAM, 3 TO 8% SLOPES

SEE USDA / NRCS WEBSOIL

DEIDRA L.BENJAMIN, CWS

STATE OF NEW HAMPSHIRE
DEIDRA L. BENJAMIN
No. 295
CERTIFIED WETLAND SCIENTIST

WETLAND NOTE:

WETLANDS WERE DELINEATED BY DEIDRA L. BENJAMIN, CWS, IN THE SUMMER OF 2021 USING THE FOLLOWING CRITERIA:

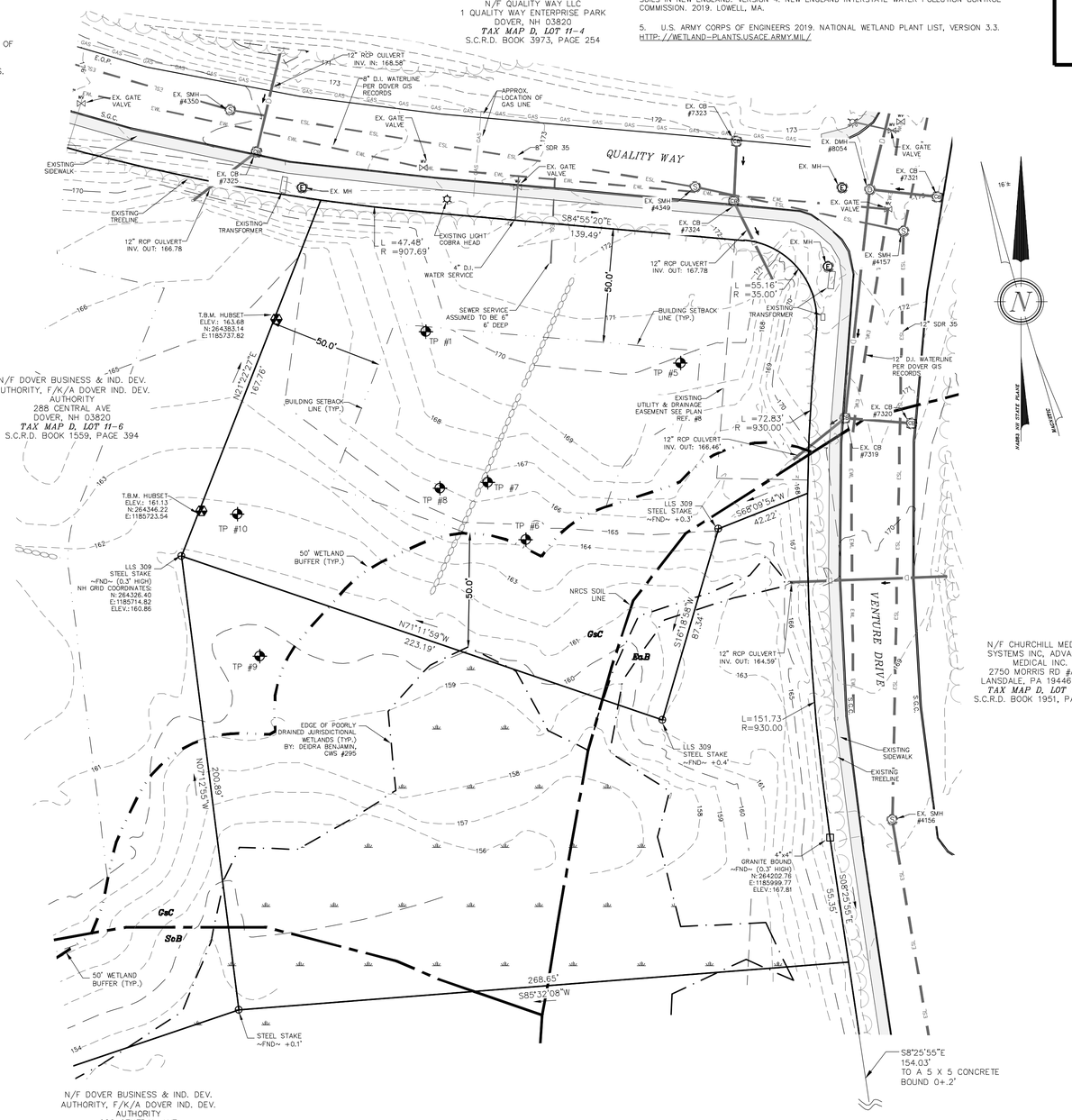
1. USACE. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. VERSION 2.0. U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER. 2012. VICKSBURG, MS.

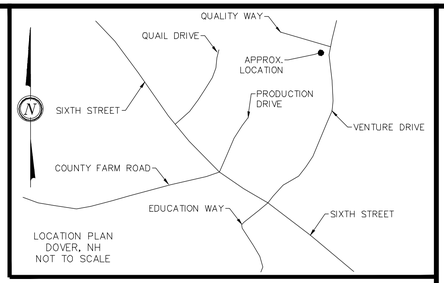
2. USACE. CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. ENVIRONMENTAL LABORATORY. 1987. VICKSBURG, MS.

3. UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE. 2018. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2. L.M. VASILAS, G.W. HURT, AND J.F. BERKOWITZ (EDS.). USDA, NRCS, IN COOPERATION WITH THE NATIONAL TECHNICAL COMMITTEE FOR HYDRIC SOILS.

4. NEW ENGLAND HYDRIC SOIL TECHNICAL COMMITTEE. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. VERSION 4. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION. 2019. LOWELL, MA.

5. U.S. ARMY CORPS OF ENGINEERS 2019. NATIONAL WETLAND PLANT LIST, VERSION 3.3. HTTP://WETLAND-PLANTS.USACE.ARMY.MIL/





NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11-5
B.) TAX MAP D, LOT 11-5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) ZONING: IT – INNOVATIVE TECHNOLOGY
SETBACKS
FRONT ~ 50'
SIDE ~ 50'
REAR ~ 50'
MIN. LOT SIZE: 2 ACRES
MIN. FRONTAGE: 200'
MAX. LOT COVERAGE: 33%
MAX. BUILDING HEIGHT: 55'

6.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING BOUNDARIES AND CONDITIONS OF TAX MAP D, LOT 11-5 & 11-5SND LOCATED IN DOVER, N.H., AS OF THE FIELD SURVEY IN AUGUST 2021.

7.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0310E, DATED: SEPTEMBER 30, 2015.

8.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

9.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN AUGUST OF 2021 WITH AN ERROR OF CLOSURE BETTER THAN 1 PART IN 10,000.

10.) TOPOGRAPHY PROVIDED IS DEMARCATED AT 1' INTERVALS, AND IS THE RESULT OF A FIELD SURVEY PERFORMED IN AUGUST 2021.

11.) THIS SITE IS SERVICED BY MUNICIPAL SEWER AND WATER.

EXISTING LEGEND:

- STONE BOUND (FND)
- STEEL STAKE (FND)
- UTILITY POLE / GUY WIRE
- SINGLE POST SIGN
- TEMPORARY BENCHMARK
- TEST PIT
- CURB STOP
- GATE VALVE
- FIRE HYDRANT
- CATCH BASIN
- SEWER MANHOLE
- STONE WALL
- ABUTTING PROPERTY LINE
- BUILDING SETBACK LINE
- EXISTING WATER LINE
- EXISTING SEWER LINE
- EXISTING DRAIN LINE
- OVERHEAD UTILITIES
- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- EXISTING TREELINE
- NRCS SOIL LINE/LABEL
- POORLY DRAINED WETLANDS
- 50' WETLAND BUFFER

FND FOUND
TYP TYPICAL
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS

GRAPHIC SCALE

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

EXISTING CONDITIONS PLAN
LAND OF
JSR, LLC
& QUALITY WAY
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 30 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

TEST PIT DATA:

TEST PIT #1
0–6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–38 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
38–68 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 68"
REFUSAL @ N/A
P = 10 MIN/IN

TEST PIT #2
0–5 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5–22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–38 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
38–65 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 65"
REFUSAL @ N/A
P = 10 MIN/IN

TEST PIT #3
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–18 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18–30 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
30–55 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 55"
REFUSAL @ N/A
P = 10 MIN/IN

TEST PIT #4
0–6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–24 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24–40 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
40–60 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 40"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 60"
REFUSAL @ N/A
P = 6 MIN/IN

TEST PIT #5
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–38 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
38–64 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 64"
REFUSAL @ N/A
P = 10 MIN/IN

TEST PIT #6
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–30 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 30"
REFUSAL @ 30"
P = 10 MIN/IN

TEST PIT #7
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–38 2.5Y 5/4 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
38–64 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM WITH REDOX. FEAT. PRESENT, MASSIVE, FRIABLE
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 64"
REFUSAL @ N/A
P = 10 MIN/IN

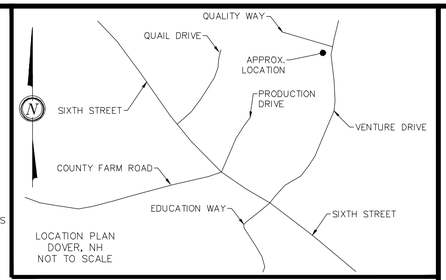
TEST PIT #8
0–6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6–24 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
GROUND WATER @ N/A
TERMINATED @ 24"
REFUSAL @ 24"
P = 10 MIN/IN

TEST PIT #9
0–5 10YR 4/2 DARK GRAYISH BROWN, SILT LOAM, GRANULAR, FRIABLE
5–12 2.5Y 4/2 DARK GRAYISH BROWN, SILT LOAM, GRANULAR, FRIABLE
12–45 5Y 5/2 OLIVE GRAY SILT LOAM WITH REDOX. FEAT. PRESENT, BLOCKY, FIRM
E.S.H.W.T. @ 12"
RESTRICTIVE LAYER @ 12"
GROUND WATER @ N/A
TERMINATED @ 45"
REFUSAL @ N/A
P = 18 MIN/IN

TEST PIT #10
0–5 10YR 4/2 DARK GRAYISH BROWN, SILT LOAM, GRANULAR, FRIABLE
5–14 2.5Y 4/2 DARK GRAYISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–45 5Y 5/2 OLIVE GRAY SILT LOAM WITH REDOX. FEAT. PRESENT, BLOCKY, FIRM
E.S.H.W.T. @ 14"
RESTRICTIVE LAYER @ 14"
GROUND WATER @ N/A
TERMINATED @ 45"
REFUSAL @ N/A
P = 18 MIN/IN

EXISTING LEGEND:

- STONE BOUND (FND)
- STEEL STAKE (FND)
- TEST PIT
- EXISTING DRAIN LINE
- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- EXISTING TREELINE
- NRCS SOIL LINE/LABEL
- POORLY DRAINED WETLANDS
- 50' WETLAND BUFFER
- SOIL LINE
- LIMIT OF SOIL SURVEY
- 448A SOIL SERIES
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. FOUND
- FND TYPICAL



LOCATION PLAN
DOVER, NH
NOT TO SCALE



NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11–5
B.) TAX MAP D, LOT 11–5SND

3.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

4.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PREFORMED BY BERRY SURVEYING AND ENGINEERING IN 2021 WITH AN ERROR OF CLOSURE BETTER THAN 1 IN 10,000.

5.) VERTICAL DATUM IS BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83 NH STATE PLANE COORDINATES. COORDINATES GATHERED FROM CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

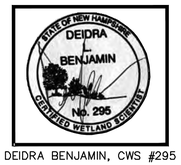
6.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING ANALYZED SITE SPECIFIC SOIL CONDITIONS OF THE SITE.

SITE SPECIFIC SOILS LEGEND

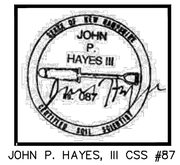
SYMBOL	SLOPES	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
Be	A	MAYBID	D
238	A,B,C,D	ELMRIDGE (VERY STONY)	C
Gs	B,C	GLOUCESTER (VERY STONY)	A
Hg	C	HOLLIS–GLOUCESTER COMPLEX (VERY ROCKY)	A/D
Sc	A,B	SCITICO	C
500	A,B,C,D,E	UDORTHENTS	C
600	B	ENDOAQUENTS	C

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VP = VERY POORLY DRAINED /P = POORLY DRAINED
/Rk = VERY ROCKY



DEIDRA BENJAMIN, CWS #295



JOHN P. HAYES, III CSS #87

WETLAND NOTE:

WETLANDS WERE DELINEATED BY DEIDRA L. BENJAMIN, CWS, IN THE SUMMER OF 2021 USING THE FOLLOWING CRITERIA:

1. USACE. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. VERSION 2.0. U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER. 2012. VICKSBURG, MS.

2. USACE. CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. ENVIRONMENTAL LABORATORY. 1987. VICKSBURG, MS.

3. UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE. 2018. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2. L.M. VASILAS, G.W. HURT, AND J.F. BERKOWITZ (EDS.). USDA, NRCS, IN COOPERATION WITH THE NATIONAL TECHNICAL COMMITTEE FOR HYDRIC SOILS.

4. NEW ENGLAND HYDRIC SOIL TECHNICAL COMMITTEE. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. VERSION 4. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION. 2019. LOWELL, MA.

5. U.S. ARMY CORPS OF ENGINEERS 2019. NATIONAL WETLAND PLANT LIST, VERSION 3.3. HTTP://WETLAND-PLANTS.USACE.ARMY.MIL/

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

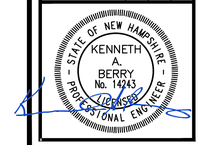
DOVER FILE #P22–55

REVISION	DATE	DESCRIPTION
#3	10–31–22	REVISED PER TRC #2
#2	10–27–22	REVISED PER SEWER APPLICATION
#1	9–1–22	REVISED PER DOVER TRC COMMENT

SITE SPECIFIC SOILS MAP
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134



DEIDRA L.BENJAMIN, CWS

STATE OF NEW HAMPSHIRE
DEIDRA L BENJAMIN
No. 295
CERTIFIED WETLAND SCIENTIST

WETLAND NOTE:

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4. NEW ENGLAND HYDRIC SOIL TECHNICAL COMMITTEE. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. VERSION 4. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION. 2019. LOWELL, MA.

5. U.S. ARMY CORPS OF ENGINEERS 2019. NATIONAL WETLAND PLANT LIST, VERSION 3.3. HTTP://WETLAND-PLANTS.USACE.ARMY.MIL/

PLAN REFERENCES:

1.) "SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY SIXTH STREET / LONG HILL ROAD EXT. DOVER, NEW HAMPSHIRE" BY: TERRASCAN ENGINEERS SURVEYORS DATED: JANUARY 17, 1992 S.C.R.D. PLAN 41-91

2.) "LOT LINE ADJUST PLAN PREPARED FOR WHITE ENTERPRISES AND DOVER INDUSTRIAL DEVELOPMENT AUTHORITY LONGHILL ROAD, DOVER, NH" BY: MCENEANEY SURVEY ASSOCIATES DATED: JULY 3, 1991 S.C.R.D. PLAN 39-38

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5.) "SUBDIVISION OF LAND PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP H, LOT NO. 11-1 VENTURE DRIVE DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC. DATED: FEBRUARY 25, 2005 S.C.R.D. PLAN # 79-87

PLAN REFERENCES:

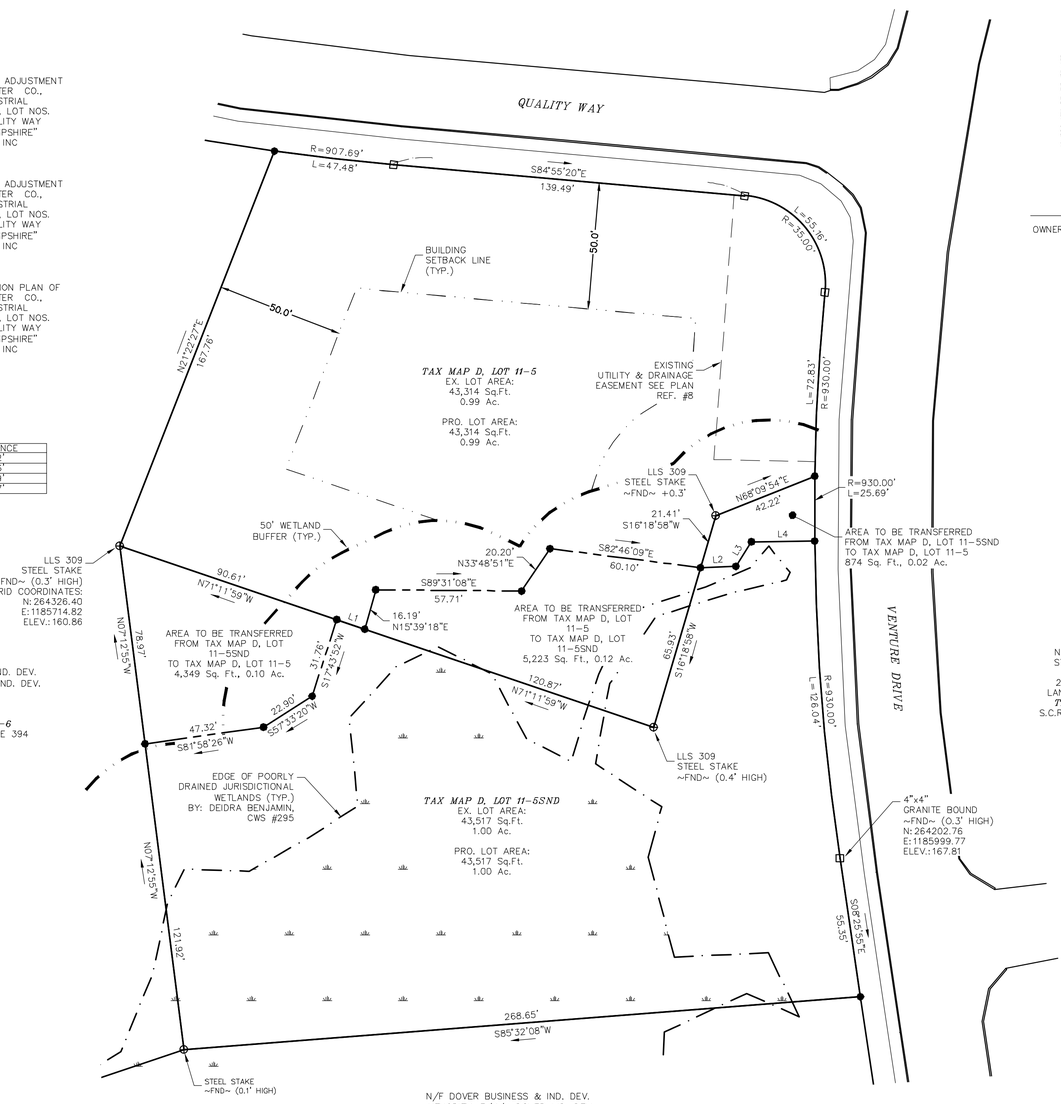
6.) "AMENDED SUBDIVISION AND LOT LINE ADJUSTMENT PLAN PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: FEBRUARY 14, 2006 S.C.R.D. PLAN 85-99

7.) "AMENDED SUBDIVISION AND LOT LINE ADJUSTMENT PLAN PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: FEBRUARY 14, 2006 S.C.R.D. PLAN 85-100

8.) "LOT LINE ADJUSTMENT AND SUBDIVISION PLAN OF LAND PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: JUNE 12, 2006 S.C.R.D. PLAN 86-73

LINE	BEARING	DISTANCE
L1	N71°11'59"W	11.72'
L2	N87°42'08"E	13.96'
L3	N32°16'10"E	11.49'
L4	N89°20'00"E	25.07'

N/F QUALITY WAY LLC
1 QUALITY WAY ENTERPRISE PARK
DOVER, NH 03820
TAX MAP D, LOT 11-4
S.C.R.D. BOOK 3973, PAGE 254



N/F DOVER BUSINESS & IND. DEV. AUTHORITY, F/K/A DOVER IND. DEV. AUTHORITY
288 CENTRAL AVE
DOVER, NH 03820
TAX MAP D, LOT 11-6
S.C.R.D. BOOK 1559, PAGE 394

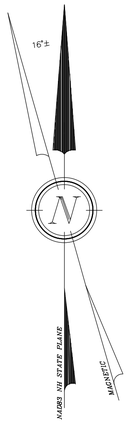
N/F DOVER BUSINESS & IND. DEV. AUTHORITY, F/K/A DOVER IND. DEV. AUTHORITY
288 CENTRAL AVE
DOVER, NH 03820
TAX MAP D, LOT 11-6 SND
S.C.R.D. BOOK 1559, PAGE 394

N/F CHURCHILL MEDICAL SYSTEMS INC, ADVANCED MEDICAL INC.
2750 MORRIS RD #A200
LANSDALE, PA 19446-6083
TAX MAP D, LOT 14-4
S.C.R.D. BOOK 1951, PAGE 542

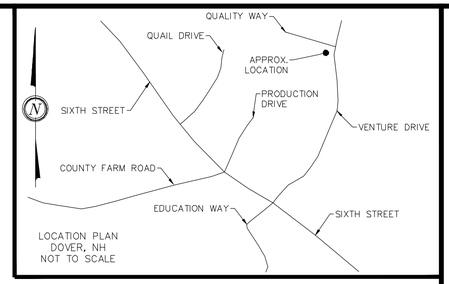
LEGEND:

- ● 3/4" REBAR W/ ID CAP ~TBS~
- ⊡ GRANITE BOUND ~FND OR TBS~
- ⊕ STEEL STAKE ~FND~
- PROPOSED BOUNDARY LINE
- BUILDING SETBACK LINE
- POORLY DRAINED WETLANDS
- 50' WETLAND BUFFER

FND FOUND
TYP TYPICAL
TBS TO BE SET
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS



OWNER



LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

A.) TAX MAP D, LOT 11-5

B.) EXISTING LOT AREA: 43,314 Sq.Ft., 0.99 Ac.
PROPOSED LOT AREA: 43,314 Sq.Ft., 0.99 Ac.

C.) S.C.R.D. BOOK 4980, PAGE 632

2.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

A.) TAX MAP D, LOT 11-5SND

B.) EXISTING LOT AREA: 43,517 Sq.Ft., 1.00 Ac.
PROPOSED LOT AREA: 43,517 Sq.Ft., 1.00 Ac.

C.) S.C.R.D. BOOK 4980, PAGE 63

3.) ZONING: IT - INNOVATIVE TECHNOLOGY
SETBACKS
FRONT ~ 50'
SIDE ~ 50'
REAR ~ 50'
MIN. LOT SIZE: 2 ACRES
MIN. FRONTAGE: 200'
MAX. LOT COVERAGE: 33%
MAX. BUILDING HEIGHT: 55'

4.) THE INTENT OF THIS PLAN IS TO REVISE THE BOUNDARY LINES OF TAX MAP D, LOT 11-5 & 11-5SND. THIS IS AN EQUAL LAND SWAP AND BOTH LOTS WILL HAVE THE SAME LOT AREA AS THE EXISTING.

5.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0310E, DATED: SEPTEMBER 30, 2015.

6.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

7.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN AUGUST OF 2021 WITH AN ERROR OF CLOSURE BETTER THAN 1 PART IN 10,000.

8.) THIS SITE IS SERVICED BY MUNICIPAL SEWER AND WATER.

9.) AN EASEMENT IS PROVIDED TO THE CITY TO MAINTAIN THE POTABLE DRINKING WATER QUALITY THROUGH THE HYDRANT FLUSHING PROGRAM, WHICH INCLUDES PROVIDING ACCESS TO THE WATER CURB BOXES.

GRAPHIC SCALE

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

DOVER APPROVAL

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND THE CITY OF DOVER, N.H. -1:10,000-

11-1-22

KENNETH A. BERRY L.L.S. 805 DATE

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

LOT LINE REVISION
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 30 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A BERRY
LICENSED LAND SURVEYOR
SIGNATURE

DEIDRA L.BENJAMIN, CWS

STATE OF NEW HAMPSHIRE
DEIDRA L BENJAMIN
No. 295
CERTIFIED WETLAND SCIENTIST

WETLAND NOTE:

WETLANDS WERE DELINEATED BY DEIDRA L. BENJAMIN, CWS, IN THE SUMMER OF 2021 USING THE FOLLOWING CRITERIA:

1. USACE. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. VERSION 2.0. U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER. 2012. VICKSBURG, MS.

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3. UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE. 2018. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2. L.M. VASILAS, G.W. HURT, AND J.F. BERKOWITZ (EDS.). USDA, NRCS, IN COOPERATION WITH THE NATIONAL TECHNICAL COMMITTEE FOR HYDRIC SOILS.

4. NEW ENGLAND HYDRIC SOIL TECHNICAL COMMITTEE. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. VERSION 4. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION. 2019. LOWELL, MA.

5. U.S. ARMY CORPS OF ENGINEERS 2019. NATIONAL WETLAND PLANT LIST, VERSION 3.3. HTTP://WETLAND-PLANTS.USACE.ARMY.MIL/

PLAN REFERENCES:

1.) "SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY SIXTH STREET / LONG HILL ROAD EXT. DOVER, NEW HAMPSHIRE" BY: TERRASCAN ENGINEERS SURVEYORS DATED: JANUARY 17, 1992 S.C.R.D. PLAN 41-91

2.) "LOT LINE ADJUST PLAN PREPARED FOR WHITE ENTERPRISES AND DOVER INDUSTRIAL DEVELOPMENT AUTHORITY LONGHILL ROAD, DOVER, NH" BY: MCENEANEY SURVEY ASSOCIATES DATED: JULY 3, 1991 S.C.R.D. PLAN 39-38

3.) "SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY SIXTH STREET / LONG HILL ROAD EXT. DOVER, NEW HAMPSHIRE" BY: TERRASCAN ENGINEERS SURVEYORS DATED: JANUARY 17, 1992 S.C.R.D. PLAN 41-92

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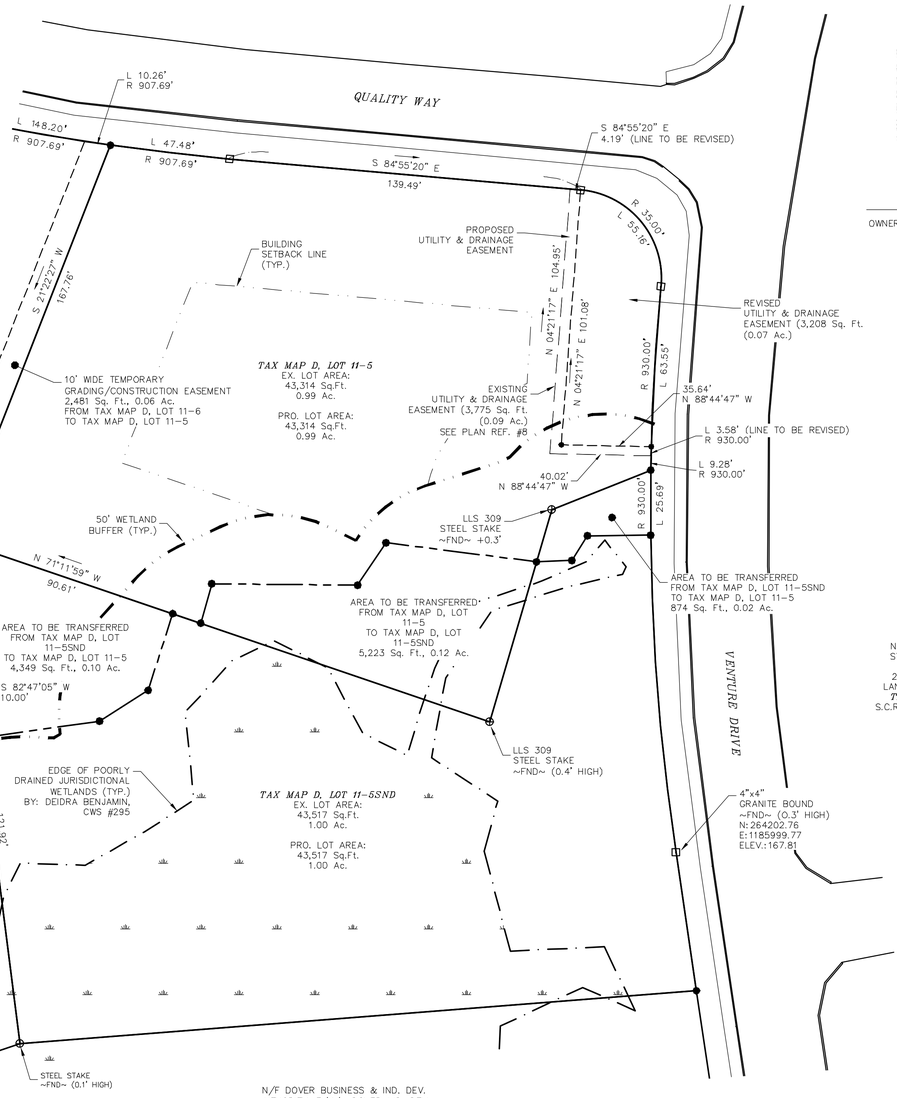
5.) "SUBDIVISION OF LAND PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP H, LOT NO. 11-1 VENTURE DRIVE DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC. DATED: FEBRUARY 25, 2005 S.C.R.D. PLAN # 79-87

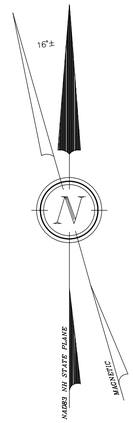
PLAN REFERENCES:

6.) "AMENDED SUBDIVISION AND LOT LINE ADJUSTMENT PLAN PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: FEBRUARY 14, 2006 S.C.R.D. PLAN 85-99

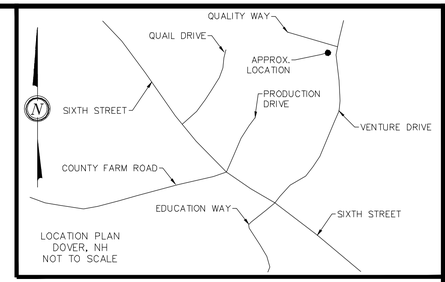
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8.) "LOT LINE ADJUSTMENT AND SUBDIVISION PLAN OF LAND PREPARED FOR GEORGE J. FOSTER CO., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY TAX MAP D, LOT NOS. 9A & 11-1 VENTURE DRIVE AND QUALITY WAY DOVER, STRAFFORD COUNTY NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES INC DATED: JUNE 12, 2006 S.C.R.D. PLAN 86-73





OWNER



NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

A.) TAX MAP D, LOT 11-5

B.) EXISTING LOT AREA: 43,314 Sq.Ft., 0.99 Ac.
PROPOSED LOT AREA: 43,314 Sq.Ft., 0.99 Ac.

C.) S.C.R.D. BOOK 4980, PAGE 632

2.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

A.) TAX MAP D, LOT 11-5SND

B.) EXISTING LOT AREA: 43,517 Sq.Ft., 1.00 Ac.
PROPOSED LOT AREA: 43,517 Sq.Ft., 1.00 Ac.

C.) S.C.R.D. BOOK 4980, PAGE 63

3.) ZONING: IT – INNOVATIVE TECHNOLOGY
SETBACKS
FRONT ~ 50'
SIDE ~ 50'
REAR ~ 50'
MIN. LOT SIZE: 2 ACRES
MIN. FRONTAGE: 200'
MAX. LOT COVERAGE: 33%
MAX. BUILDING HEIGHT: 55'

4.) THE INTENT OF THIS PLAN IS TO SHOW THE REVISION OF A EXISTING UTILITY AND DRAINAGE EASEMENT AND A TEMPORARY GRADING AND CONSTRUCTION EASEMENT ALONG ALONG THE WESTERN BOUNDARY LINE OF THE SUBJECT PARCEL WITH TAX MAP D, LOT 11-6.

5.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0310E, DATED: SEPTEMBER 30, 2015.

6.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

7.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN AUGUST OF 2021 WITH AN ERROR OF CLOSURE BETTER THAN 1 PART IN 10,000.

8.) THIS SITE IS SERVICED BY MUNICIPAL SEWER AND WATER.

9.) THE MAINTENANCE OF THE DETENTION BASIN WITHIN THE REVISED UTILITY AND DRAINAGE EASEMENT IN THE RESPONSIBILITY OF THE APPLICANT/PROPERTY OWNER.

LEGEND:

- ● 3/4" REBAR W/ ID CAP ~TBS~
- ● 1/2" EASEMENT REBAR W/ ID CAP ~TBS~
- ⊡ GRANITE BOUND ~FND OR TBS~
- ⊕ STEEL STAKE ~FND~
- PROPOSED BOUNDARY LINE
- EXISTING EASEMENT LINE TO BE ABANDONED
- EASEMENT LINE
- BUILDING SETBACK LINE
- POORLY DRAINED WETLANDS
- 50' WETLAND BUFFER

FND FOUND
TYP TYPICAL
TBS TO BE SET
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DOVER APPROVAL

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND THE CITY OF DOVER, N.H. –1:10,000–

11-1-22

KENNETH A. BERRY L.L.S. 805 DATE

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

EASEMENT PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 30 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A BERRY
LICENSED LAND SURVEYOR
SIGNATURE

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11-5
B.) TAX MAP D, LOT 11-5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) ZONING: IT – INNOVATIVE TECHNOLOGY

SETBACKS	PROVIDED ORIGINAL TDR
FRONT ~ 50'	15.0'
SIDE ~ 50'	40.1' & 40.9'
REAR ~ 50'	50.0'
MIN. LOT SIZE: 2 ACRES	0.99 Ac.
MIN. FRONTAGE: 200'	267.48'
MIN. LOT COVERAGE: 33%	23.27%
MAX. BUILDING HEIGHT: 55'	31'±

6.) THE INTENT OF THIS PLAN IS TO SHOW THE DETAIL SITE DESIGN FOR FOUR CONTRACTOR STORAGE / OFFICE SPACE. THE BUILDING IS PROPOSED TO BE STEEL FRAME AND IS CURRENTLY ASSUMED TO NOT NEED A FIRE SUPPRESSION SYSTEM. FURTHER DETAILS ARE TO BE WORKED OUT WITH THE OWNER AND INSPECTION SERVICES.

NOTES CONTINUED:

7.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0330E, DATED: SEPTEMBER 30, 2015.

8.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

9.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN AUGUST OF 2021 WITH AN ERROR OF CLOSURE BETTER THAN 1 PART IN 10,000.

10.) LIST ANY VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT OR CONDITIONAL USE PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPOSED USE OR STRUCTURE:
NONE

11.) WETLANDS WERE DELINEATED BY DEIDRA BENJAMIN, CERTIFIED WETLANDS SCIENTIST, IN ACCORDANCE WITH CHAPTER 170–27.1 OF THE ZONING ORDINANCE, IN AUGUST OF 2021.

12.) AS–BUILT PLANS OF THE SITE PLAN 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–BUILTS ARE REQUIRED REGARDLESS OF OWNERSHIP OF ROAD. AS–BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A LL.S. OR P.E. DIGITAL FILES SHALL BE GEO–REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.

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

14.) THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.

NOTES CONTINUED:

15.) 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.

16.) ALL EROSION CONTROL NOTES SHALL INCLUDE PROVISIONS FOR CONSTRUCTION SEQUENCING, TEMPORARY EROSION CONTROL MEASURES, AND PERMANENT STANDARDS SUCH AS LOAM SPREAD RATE FOR DISTURBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION.

17.) ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.

18.) A LETTER OF CREDIT FOR THE COST OF RE–VEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED, AND THE APPROVED CONSTRUCTION SIGN INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS. THE PROPOSED PROJECT WILL CONSIST OF ONE PHASE AND WILL DISTURB 47,000 Sq.Ft. 1.08 Ac.

19.) A PRE–CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

20.) SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY–FRIDAY 7 AM–6 PM, SATURDAY 7 AM–6 PM, NO SUNDAY HOURS OR FEDERAL HOLIDAYS. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE DIRECTOR OF PLANNING AND COMMUNITY DEVELOPMENT.

NOTES CONTINUED:

21.) BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.

22.) THE FOLLOWING FEDERAL AND STATE PERMITS OR UTILITY ORDERS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY:
NO STATE PERMITTING REQUIRED
EPA NOTICE OF INTENT (NOI) & STORMWATER POLUTION PREVENTION PLAN (SWPPP)
EVERSOURCE WORK ORDER NUMBER XXXXX

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

24.) ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES. THE TWO WALLS ONSITE ARE TO BE DESIGNED BY OTHERS, TYPICALLY THE BLOCK MANUFACTURE, AND REVIEWED AND APPROVE BY THE DESIGN ENGINEER AS WELL AS THE CITY ENGINEER.

25.) ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

26.) APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL. https://www.unh.edu/unhsc/ptapp

NOTES CONTINUED:

27.) 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.

28.) FIRE DEPARTMENT ACCESS SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.

29.) EXTERIOR LIGHTING SHALL BE CUT–OFF TYPE FIXTURES PER CHAPTER 153–14–E AND SHALL PROVIDE LIGHTING DIRECTED ON–SITE ONLY.

30.) A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE I, SECTION 45–2 OF THE CODE OF THE CITY OF DOVER.

31.) APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.

32.) THE PROPOSED STRUCTURE SHALL BE SERVED BY A SPRINKLER SYSTEM IF REQUIRED BY CHAPTER 81– 30 OF THE CODE OF THE CITY OF DOVER AND THE ADOPTED STATE OF NH BUILDING AND FIRE CODES.

33.) 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 IF REQUIRED.

34.) 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 IF REQUIRED.

35.) THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL BE ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. (I.E. IBC, ANSI–117.1) AND NH RSA 155–A:5. 1 ADA VAN SPACE IS REQUIRED AND PROVIDED WITH 2% THROUGH THE SPACE AND AISLE.
WALKS ARE DESIGNED AT 5% OR LESS, WITH NO RAMPS NEEDED, AND PROVIDE A CLEAR PATH OF 5' AT ALL TIMES. THE ACCESSIBLE ROUTE FROM THE ADA SPACES IS ACROSS THE DRIVE AISLE, UP THE WALK AND INTO THE FRONT OFFICE AREAS.

36.) EXISTING BUILDING IMPERVIOUS AREA: 0 Sq. Ft. (0%)
EXISTING PAVED/GRAVEL IMPERVIOUS AREA: 0 Sq. Ft. (0%)
TOTAL EXISTING IMPERVIOUS COVER IS 0 Sq. Ft. (0%)
PROPOSED BUILDING IMPERVIOUS AREA: 10,080 Sq. Ft. (23.2%)
PROPOSED PAVED IMPERVIOUS AREA: 13,440 Sq. Ft. (30.9%)
TOTAL PROPOSED IMPERVIOUS COVER IS 23,520 Sq. Ft. (54.1%)

37.) THE SITE IS DESIGNED WITH AN ONSITE DUMPSTER WHICH IS TO BE PLACED ON A CONCRETE PAD AND ENCLOSED WITH A CHAIN LINK FENCE WITH BLACK SLATS.

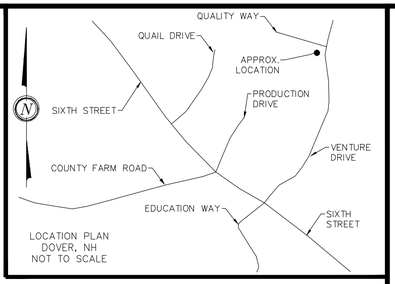
38.) MUNICIPAL SIDEWALK TO REMAIN OPERATIONAL AT ALL TIMES AND SHALL HAVE A 5' WIDTH MINIMUM IN FINAL CONDITION. SIDEWALK TO BE RECONSTRUCTED ALONG SUBJECT PARCEL FRONTAGE.

39.) THE CLOSEST FIRE HYDRANT IS AT THE OPPOSITE CORNER OF VENTURE AVE. AND QUALITY WAY WHICH IS 240'± FROM THE SOUTHERN CORNER OF THE PROPOSED BUILDING AND 84'± FROM THE NORTH EASTERLY CORNER OF THE PROPOSED BUILDING.

40.) THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50' CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBING ACTIVITY. SEE PLACARDS TO BE PLACED AS WELL AS CONSTRUCTION FENCING AND DOUBLE ROW SILTATION PROTECTION REQUIREMENTS ON THE E&S PLANS.

41.) NO OUTDOOR STORAGE OF EQUIPMENT OR MATERIALS IS ALLOWED.

42.) THE CITY OF DOVER HAS A BLANKET EASEMENT OVER THE WATER SYSTEM TO ENSURE POTABLE WATER QUALITY IS AVAILABLE AND TO ENSURE EACH DEVICE IS AVAILABLE FOR FLUSHING AND INSPECTION. PRIVATE UTILITIES ARE THE RESPONSIBILITY OF THE LAND OWNER.



LOCATION PLAN
DOVER, NH
NOT TO SCALE

TRANSFER OF DEVELOPMENT RIGHTS REQUEST (INDUSTRIAL):
REDUCTION OF THE IT FRONT SETBACK FROM 50' TO 15'
REDUCTION OF THE IT SIDE SETBACK FROM 50' TO 40.1'
REDUCTION OF THE MIN. LOT COVERAGE NOW REQUIRED IN THE ZONE FROM 33% TO 23.27%

CONDITIONAL USE PERMITS:
WETLANDS BUFFER IMPACT: 7,935 Sq.Ft.

WAIVER REQUEST:
SUBDIVISION REGULATION ARTICLE 157–32–G: ROAD GRADE WITHIN 75' OF INTERSECTION

PARKING REQUIREMENTS:

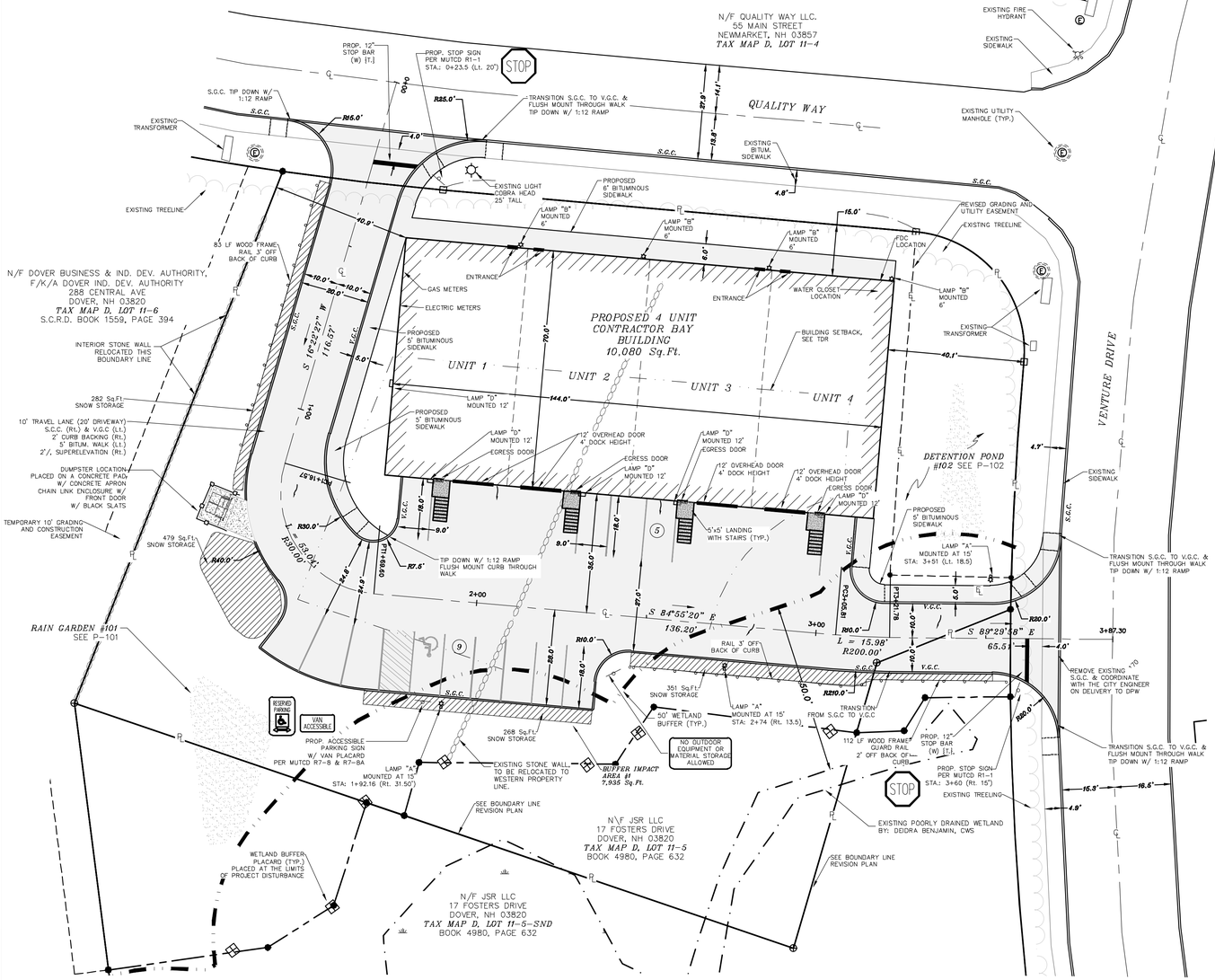
- CHAPTER 153–14D NO USE PRESCRIBED
- ITE LAND USE CODE 110 & 140 CONSULTED
  - 1.1–1.3 PEAK SPACES NEEDED PER 1,000 GFA
  - 14 SPACES REQUIRED

TOTAL PROPOSED = 14 SPACES

SNOW STORAGE CALCULATION:

- STORAGE CALCULATION (6:1 RATIO USED)
  - PAVED AREA = 12,772 Sq.Ft. / 6 = 1100 Sq.Ft.
  - 1380 Sq.Ft. PROVIDED FOR TEMPORARY SNOW STORAGE

SNOW TO BE REMOVED TO AN APPROVED OFF–SITE LOCATION



LEGEND:

- 3/4" REBAR W/ ID CAP ~TBS~
- GRANITE BOUND ~FND~
- STEEL STAKE ~FND~
- SIGNAGE
- WETLAND BUFFER PLACARD
- E101 E6 — DETAIL SHEET / DETAIL
- POORLY DRAINED JURISDICTIONAL WETLAND
- 50' WETLAND BUFFER
- CENTER LINE
- PROPOSED LIGHT TYPE "A" MOUNTED ON POLE
- PROPOSED LIGHT TYPE "B" MOUNTED ON STRUCTURE
- EXISTING LIGHT TYPE "C" MOUNTED ON POLE
- PROPOSED LIGHT TYPE "D" MOUNTED ON STRUCTURE
- STORMWATER BEST MANAGEMENT PRACTICE (BMP)
- SNOW STORAGE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

APPROVED DOVER

DOVER FILE #P22–55

#	DATE	REVISION
#3	10–31–22	REVISED PER TRC #2
#2	10–27–22	REVISED PER SEWER APPLICATION
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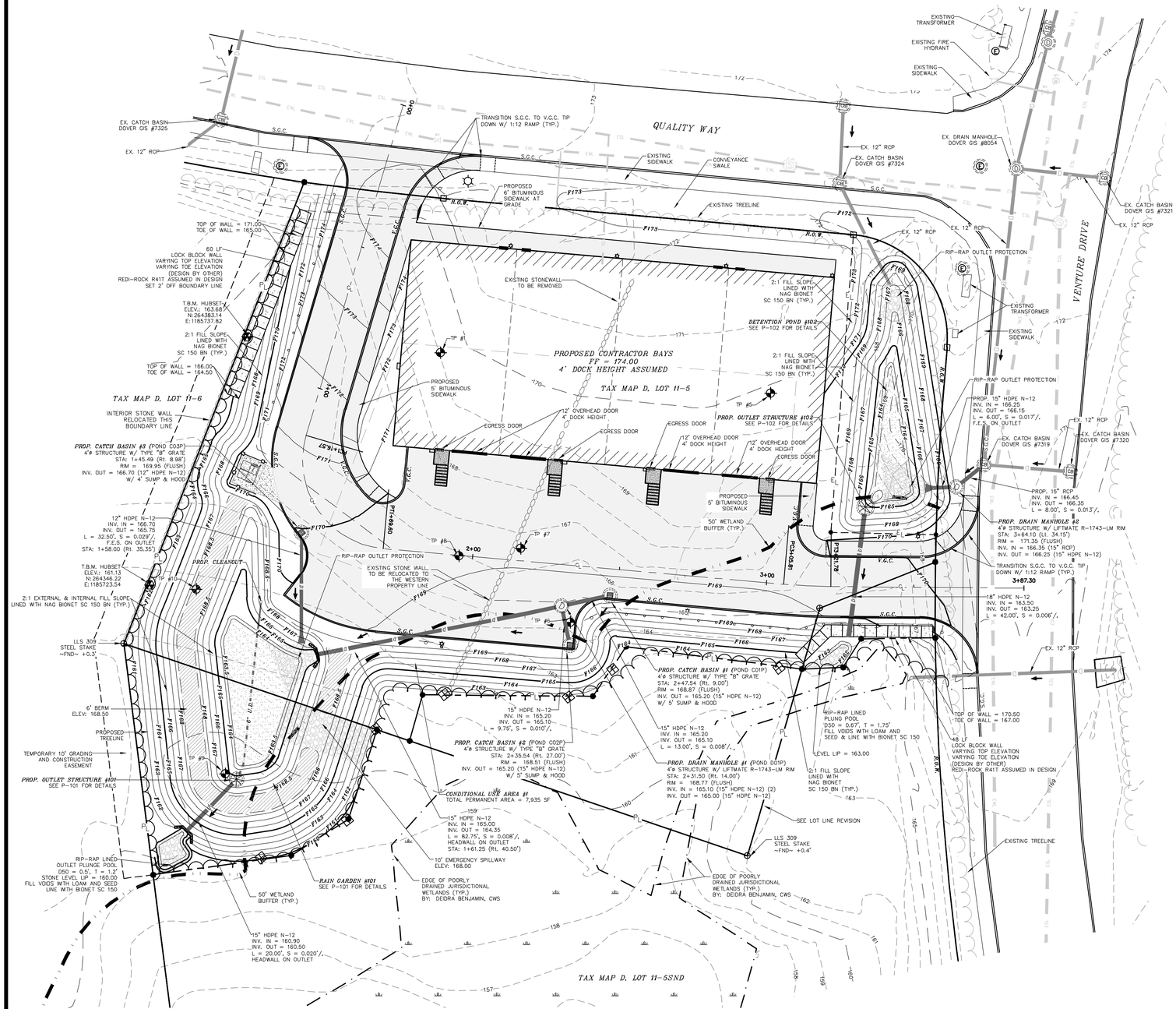
DESCRIPTION

NON–RESIDENTIAL SITE PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY No. 14243 LICENSED PROFESSIONAL ENGINEER



NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11–5
B.) TAX MAP D, LOT 11–5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) THE INTENT OF THIS PLAN IS SHOW THE OVERVIEW GRADING AND DRAINAGE DESIGN FOR THE PROPOSED DEVELOPMENT.

6.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2016. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

7.) CONTRACTOR SHALL TAKE SPECIAL CARE IN NOT DISTURBING EXISTING MONUMENTS BOUNDS, AND OR BENCHMARKS WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION

8.) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTLY AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES CALL "DIG–SAFE" 1–888–DIGSAFE (344–7233) AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION

9.) WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

10.) THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.

11.) AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. LIMIT OF GRADING SHOULD NOT BE EXPANDED WITHOUT CONSULTING THE DESIGN ENGINEER. SEE ALSO E&SC PLAN.

12.) THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE–USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R & R).

13.) ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM PLACED AND SEEDED. THE LOAM SHALL HAVE A MINIMUM DEPTH OF 4 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE.

14.) ALL ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE DESIGN ENGINEER IS TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY. TEMPORARY BENCHMARKS (T.B.M.) ARE TO BE PROVIDED BY THE DESIGN ENGINEER.

15.) PROJECT DISTURBANCE: 47,000 Sq. Ft. (1.08 Ac.) NOTE THAT THE PROJECT IS SUBJECT TO THE EPA NPDES PHASE II. THE NOTICE OF INTENT (NOI) MUST BE FILED ALONG WITH A STORMWATER POLLUTION PREVENTION PLAN (SWPPP). WEEKLY INSPECTIONS WILL BE CONDUCTED BY THE DESIGN ENGINEER OR AFTER A STORM EVENT OF GREATER THAN 0.25".

16.) UPON FINAL COMPLETION AND 85% STABILIZATION THE DRAINAGE SYSTEM IS TO BE CLEANED OF ALL DEBRIS TO INCLUDE THE PUMPING OF THE BASINS. SEE SHEET E102, DETAIL E18 FOR DEFINITION OF STABLE.

17.) ALL DRAINAGE PIPE IS TO BE HDPE N–12. INDIVIDUAL PIPE SIZES ARE SPECIFIED, RECYCLED PIPE IS APPROVED FOR PROJECT SITE. RECYCLED HDPE PIPE "GREEN PIPE" IS ACCEPTABLE FOR THIS PROJECT SITE.

18.) ALL BASINS AND DRAINS ARE TO HAVE BOOTS INSTALLED ON ALL INLETS AND OUTLETS.

19.) ALL TREATMENT SWALE TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS UNLESS OTHERWISE INSTRUCTED BY THE DESIGN ENGINEER DURING CONSTRUCTION.

20.) A LETTER OF CREDIT FOR THE COST OF RE–VEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS, AS MAY BE APPLICABLE.

21.) A PRE–CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND DOVER CITY STAFF SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

22.) WRITTEN DIMENSION ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS TO CONFIRM ALL ELEVATIONS. CONFLICTS WILL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.

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

24.) SEE DETAILS CONCERNING SITE LAYOUT, DRAINAGE, UTILITY, AND SEDIMENT AND EROSION CONTROLS.

25.) SIDEWALK TO REMAIN USABLE AT ALL TIMES DURING RECONSTRUCTION PROCESS.

LEGEND:

- PROPOSED DRAIN MANHOLE W/ STRUCTURE
- PROPOSED CATCH BASIN W/ STRUCTURE
- PROPOSED STORMWATER BMP OUTLET STRUCTURE
- TEMPORARY BENCHMARK (T.B.M.)
- E101 / E6 — DETAIL SHEET / DETAIL
- POORLY DRAINED JURISDICTIONAL WETLAND
- 50' WETLAND BUFFER
- 176 — CONTOUR MINOR, EXISTING
- 175 — CONTOUR MAJOR, EXISTING
- P176 — CONTOUR MINOR, PROPOSED
- P175 — CONTOUR MAJOR, PROPOSED
- CENTER LINE
- EXISTING WATER MAIN
- EXISTING SEWER LINE
- EXISTING DRAINAGE LINE
- PROPOSED WATER MAIN
- PROPOSED SEWER LINE
- PROPOSED DRAINAGE LINE
- E175.31 — EXISTING SPOT GRADE
- F175.31 — PROPOSED SPOT GRADE
- FLOW ARROW
- RIP RAP
- STORMWATER BEST MANAGEMENT PRACTICE (BMP)
- BERM
- TEST PIT

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

DOVER FILE #P22–55

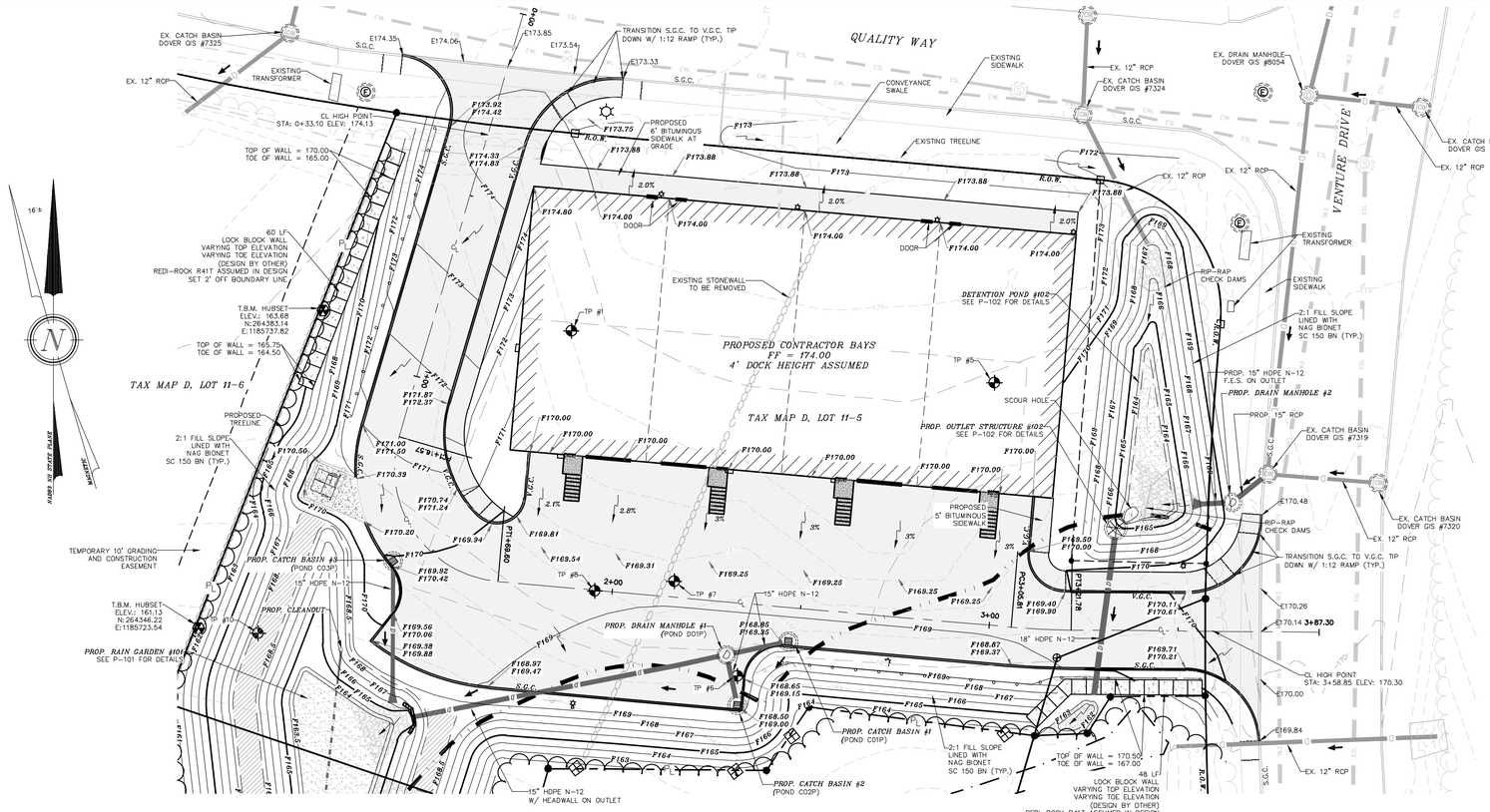
REVISION	DATE	DESCRIPTION
#2	10–27–22	REVISED PER SEWER APPLICATION
#1	9–1–22	REVISED PER DOVER TRC COMMENT

GRADING & DRAINAGE PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

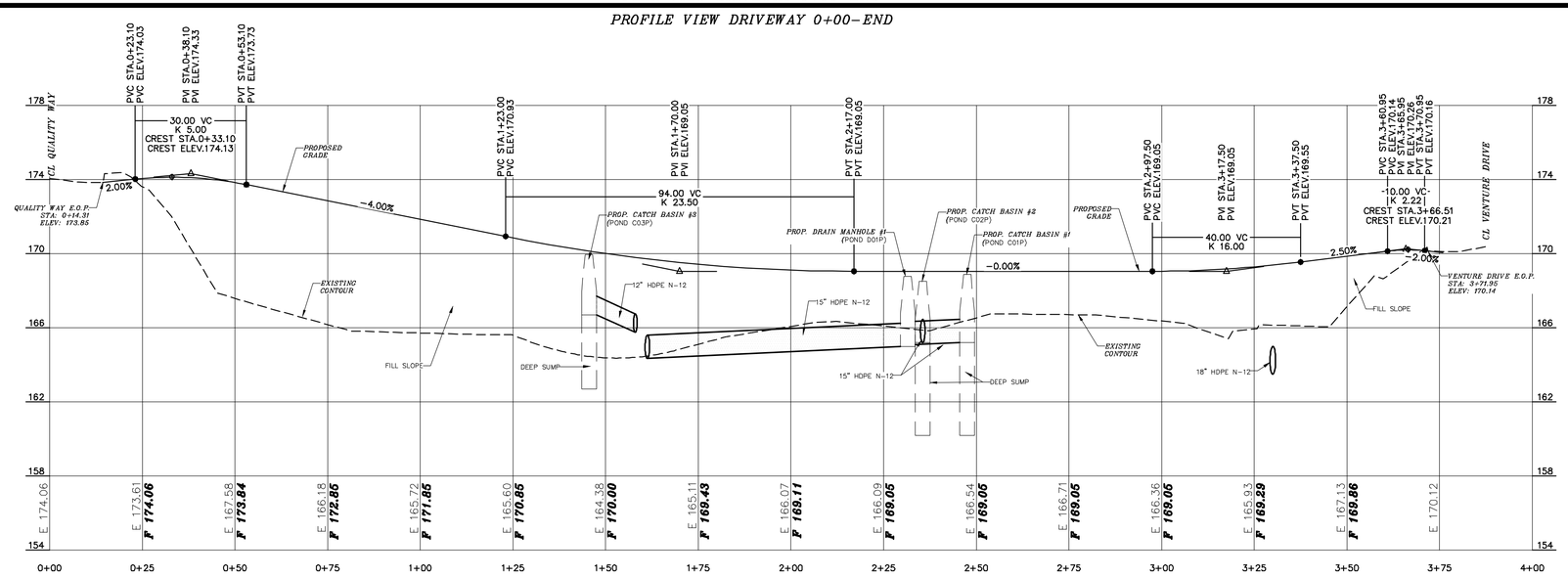
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY No. 14243
PROFESSIONAL ENGINEER



PLAN VIEW DRIVEWAY 0+00–END



NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11–5
B.) TAX MAP D, LOT 11–5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING & ENGINEERING DETAILS OF THE PROPOSED DRIVEWAY OF TAX MAP D, LOT 11–5.

6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS.

LEGEND:

- PROPOSED DRAIN MANHOLE W/ STRUCTURE
- PROPOSED CATCH BASIN W/ STRUCTURE
- PROPOSED STORMWATER BMP OUTLET STRUCTURE
- TEMPORARY BENCHMARK (T.B.M.)
- E101 / E6 — DETAIL SHEET / DETAIL
- POORLY DRAINED JURISDICTIONAL WETLAND
- 50' WETLAND BUFFER
- 176 — CONTOUR MINOR, EXISTING
- 175 — CONTOUR MAJOR, EXISTING
- F176 — CONTOUR MINOR, PROPOSED
- F175 — CONTOUR MAJOR, PROPOSED
- CENTER LINE
- EXISTING WATER MAIN
- EXISTING SEWER LINE
- EXISTING DRAINAGE LINE
- PROPOSED WATER MAIN
- PROPOSED SEWER LINE
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- E175.31 — EXISTING SPOT GRADE
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- RIP RAP
- STORMWATER BEST MANAGEMENT PRACTICE (BMP)
- BERM
- TEST PIT

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 5'

DOVER FILE #P22–55

REVISION	DATE	DESCRIPTION
#2	10–27–22	REVISED PER SEWER APPLICATION
#1	9–1–22	REVISED PER DOVER TRC COMMENT

GRADING PLAN & PROFILE
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14241
PROFESSIONAL ENGINEER

P1

BIORETENTION FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Bioretention Filter Media Option A			
ASTM C-33 concrete sand	50 to 55		
Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5

3/8" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
1/2"	100
3/8"	95 – 100
# 4	22 – 55
# 8	0 – 10

* EQUIVALENT TO STANDARD WASHED STONE – SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

1-1/2" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
2"	100
1-1/2"	90 – 100
1"	20 – 55
1/2"	0 –15
3/8"	0 –5

* EQUIVALENT TO STANDARD WASHED STONE – SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

NOTES

1. WHEN CONTRACTOR EXCAVATES RAIN GARDEN AREA TO SUBGRADE, DESIGN ENGINEER SHALL PERFORM SUBSURFACE EVALUATION PRIOR TO THE PLACEMENT OF ANY SELECT MATERIAL OR OTHER BACKFILL.
2. SOIL BIORETENTION FILTER MEDIA SHALL BE AS SHOWN ABOVE. "BIO MEDIA" MEANS BIORETENTION FILTER MADIA.
3. COMPACTION IS NOT TO OCCUR IN THE RAIN GARDEN AREAS PRIOR TO CONSTRUCTION. SCARIFICATION REQUIRED IN THE EVENT COMPACTION TAKES PLACE.
4. DO NOT PLACE THE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
5. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
6. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

MAINTENANCE REQUIREMENTS

1 SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EXCEEDING 0.25 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS A WARRANTED BY SUCH INSPECTION.

2 PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.

3 AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.

4 VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING, PRUNING, REMOVAL, AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

DESIGN REFERENCES

1 UNH STORMWATER CENTER
2 NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 2, DECEMBER 2008 AS AMENDED.

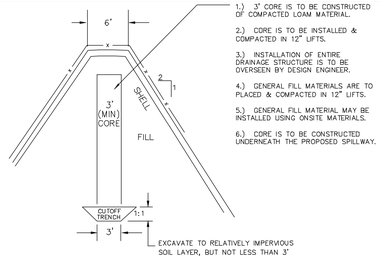
RAIN GARDEN MIX

THE GRASS THAT IS PLANTED WITHIN A RAIN GARDEN BIO-FILTRATION SYSTEM WITHIN THE BIO-MEDIA MUST CONSIST OF A COMBINATION OF WARM SEASON GRASS SEED AND COLD SEASON GRASS SEED IN ORDER FOR THE GRASS TO START GROWING FOR STABILIZATION AND CONTINUE GROWING IN THE SANDY WELL-DRAINED ENVIRONMENT. PLANTING SPECIFICATION WILL MEET THE REQUIREMENTS AS OUTLINED IN "VEGETATION NEW HAMPSHIRE SAND AND GRAVEL PITS" MIX 1 (WARM SEASON GRASSES) (15 LBS/AC) AND INCLUDE ANNUAL AND PERENNIAL RYE GRASS SEED (15 LBS/AC); THE NEW ENGLAND NATIVE WARM SEASON GRASS MIX (23 LBS/AC) BY NEW ENGLAND WETLAND PLANTS, INC.; RAIN GARDEN MIX 180 (15 LBS/AC & 15 LBS/AC OF RYE) / RAIN GARDEN GRASS MIX 180-1 (20 LBS/AC & 10 LBS/AC OF RYE) BY ERNST CONSERVATION SEEDS; OR APPROVED EQUAL.

P2

LOW PERMEABILITY MATERIAL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
#4	95 – 100
#40	60 – 95
#100	40 – 60
#200	25 – 45



1.) 3" CORE IS TO BE CONSTRUCTED OF COMPACTED LOAM MATERIAL.

2.) CORE IS TO BE INSTALLED & COMPACTED IN 12" LIFTS.

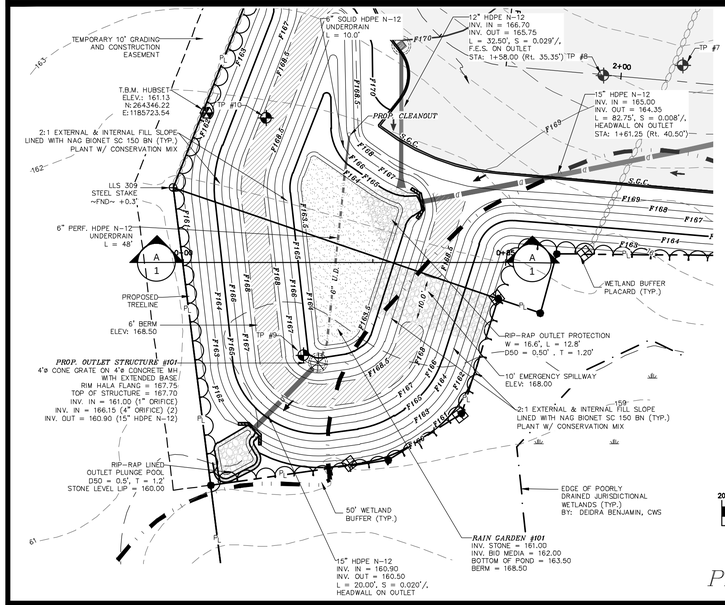
3.) INSTALLATION OF ENTIRE DRAINAGE STRUCTURE IS TO BE OVERSEEN BY DESIGN ENGINEER.

4.) GENERAL FILL MATERIALS ARE TO PLACED & COMPACTED IN 12" LIFTS.

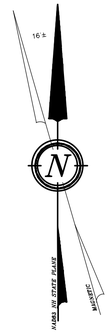
5.) GENERAL FILL MATERIAL MAY BE INSTALLED USING ONSITE MATERIALS.

6.) CORE IS TO BE CONSTRUCTED UNDERNEATH THE PROPOSED SPILLWAY.

P3

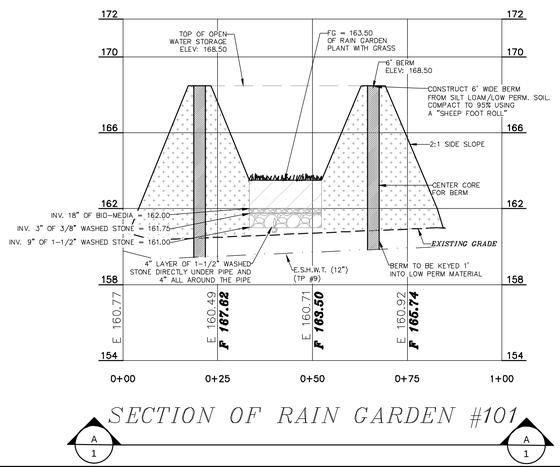


STABILIZATION NOTE:
SEE NOTE #6, SHEET E-102, DETAIL E-18
SIDE SLOPES ARE TO BE STABILIZED WITHIN THREE WORKING DAY UPON COMPLETION OF FINAL GRADE.



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

PLAN VIEW RAIN GARDEN #101



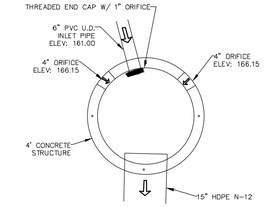
SECTION OF RAIN GARDEN #101

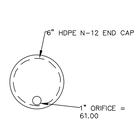
GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

VERTICAL SCALE: 1" = 4'

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES			
d50 SIZE=	0.5	FEET 6	INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE		SIZE OF STONE (INCHES) FROM	TO
100%		9	12
85%		8	11
50%		6	9
15%		2	3

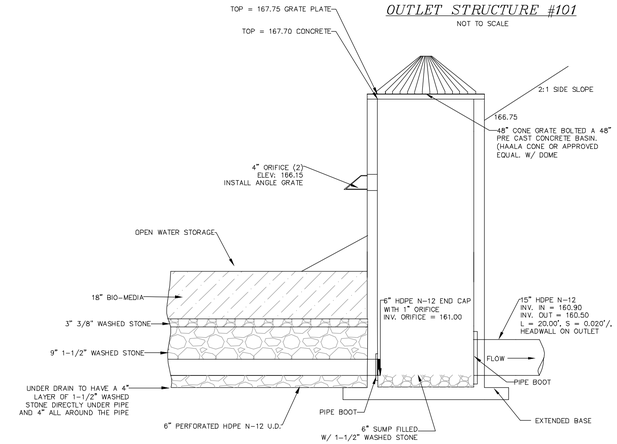
TOP VIEW
NOT TO SCALE





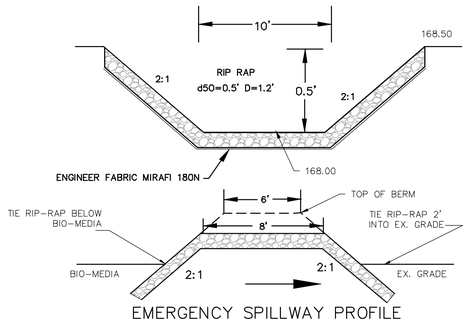
CAP WITH CONTROL ORIFICE
NOT TO SCALE

OUTLET STRUCTURE #101
NOT TO SCALE



P4

SPILLWAY DETAILS
NOT TO SCALE



EMERGENCY SPILLWAY PROFILE

P-101

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

DOVER FILE #P22-55

RAIN GARDEN #101
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY No. 14243
LICENSED PROFESSIONAL ENGINEER

NOTES

1. DO NOT PLACE THE DETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF WATER FROM EXCAVATIONS) TO THE DETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
3. DETENTION AREA TO BE PLANTED WITH ERNMX-126 RETENTION BASIN FLOOR MIX.

MAINTENANCE REQUIREMENTS

1 SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EXCEEDING 0.25 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS A WARRANTED BY SUCH INSPECTION.

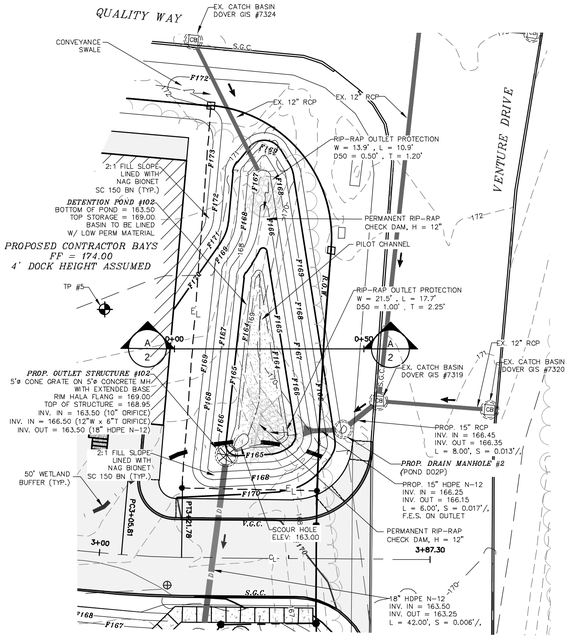
2 PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.

3 VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING, PRUNING, REMOVAL, AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

DESIGN REFERENCES

1 UNH STORMWATER CENTER
2 NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 2, DECEMBER 2008 AS AMENDED.

STABILIZATION NOTE:
SEE NOTE #6, SHEET E-102, DETAIL E-18
SIDE SLOPES ARE TO BE STABILIZED WITHIN THREE WORKING DAY UPON COMPLETION OF FINAL GRADE.



PLAN VIEW DETENTION POND #102

GRAPHIC SCALE

20 0 10 20 40 80

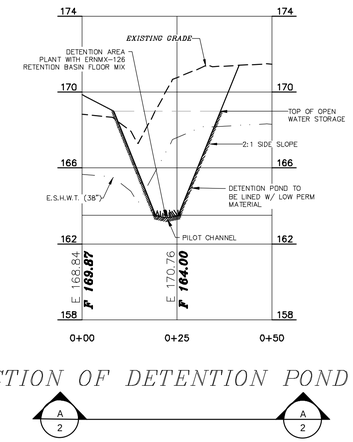
(IN FEET)
1 inch = 20 ft.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

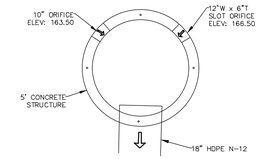
VERTICAL SCALE: 1" = 4'



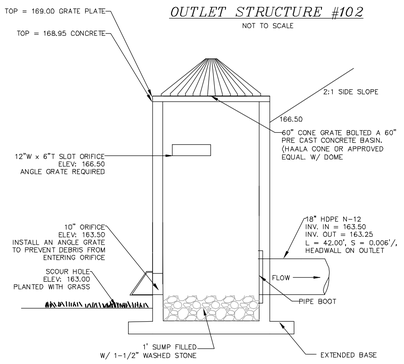
SECTION OF DETENTION POND #102

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES			
d50 SIZE= 0.67	FEET	8	INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM		TO
100%	12		16
85%	10		14
50%	8		12
15%	2		4

TOP VIEW
NOT TO SCALE



OUTLET STRUCTURE #102
NOT TO SCALE



DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

DETENTION POND #102
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

P-102

SOILS & DEWATERING:

Gs	*GLOUCESTER*	*FINE SANDY LOAM*	*K= 0.17*
Hg	*HOLLIS-GLOUCESTER COMPLEX*	*FINE SANDY LOAM*	*K= 0.20*
238	*ELMRIDGE*	*SILT LOAM*	*K= 0.32*
500/600	*ELMWOOD*	*SILT LOAM*	*K= 0.32*

SEE SITE SPECIFIC SOILS MAP (SSSM)
ERODIBILITY FACTOR – K, CPESC MANUAL, ENVIROCERT INTERNATIONAL INC. & ROCKINGHAM COUNTTY SOIL SURVEY, ROCKWEB SOIL ATTRIBUTES.

CONTRACTOR TO BE AWARE OF THE SOIL PROFILES AND ENSURE THAT PROPER EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE TAKEN AT ALL TIMES. ANY DEWATERING REQUIREMENTS IN NEW HAMPSHIRE REQUIRE SPECIAL PROVISIONS IN ACCORDANCE WITH THE "CLARIFICATION OF SECTION 9.1.2 (STATE OF NEW HAMPSHIRE CONDITIONS) AND OTHER NH SPECIFIC INFORMATION FOR THE U.S. EPA 2012 NPDES CONSTRUCTION GENERAL PERMIT (CGP)" DATED MAY 3, 2012 INCLUDED IN THE SWPPP.

COVER MANAGEMENT DURING CONSTRUCTION FOR EXPOSED SOIL WILL INCLUDE HAY / STRAW APPLIED AT A RATE OF 2.0 TONS PER ACRE, TEMPORARY SEEDING OF ANNUAL RYE GRASS, AND PERMANENT SEEDING AT THE EARLIES OPPORTUNITY. SEE ADDITIONAL REQUIREMENT FOR STABILIZATION ON THE EROSION AND SEDIMENT CONTROL DETAIL SHEETS, E-101 AND E-102.

THE CONSTRUCTION SCHEDULE WILL BE MANAGED SO THAT ALL STORMWATER STRUCTURES WILL BE BUILT AND STABILIZED PRIOR TO RECEIVING SURFACE WATER RUNOFF. CONTRACTOR TO BE RESPONSIBLE FOR ALL DIVERSIONS DURING CONSTRUCTION AND FOR INTERIM SEDIMENT AND EROSION CONTROL MEASURES.

LEGEND:

- 3/4" REBAR W/ ID CAP ~TBS~
- GRANITE BOUND ~FND~
- STEEL STAKE ~FND~
- EXISTING/PROPOSED CATCH BASIN W/ STRUCTURE
- PROPOSED STORMWATER BMP OUTLET STRUCTURE
- TEMPORARY BENCHMARK (T.B.M.)
- E101 / E6 — DETAIL SHEET / DETAIL
- POORLY DRAINED JURISDICTIONAL WETLAND
- 50' WETLAND BUFFER
- CONTOUR MINOR, EXISTING
- CONTOUR MAJOR, EXISTING
- CONTOUR MINOR, PROPOSED
- CONTOUR MAJOR, PROPOSED
- CENTER LINE
- EXISTING DRAINAGE LINE
- PROPOSED DRAINAGE LINE
- RIP RAP
- STORMWATER BEST MANAGEMENT PRACTICE (BMP)
- BERM
- SILT FENCE / EROSION MIX BERM
- FILTREXX 8" – 12" SILT SOXX AS SPECIFIED
- ORANGE CONSTRUCTION PERIMETER FENCE
- PERIMETER CONTROL
- (R) RAIN GARDEN BIO-MEDIA PROTECTION
- (P) PERIMETER CONTROL
- (C) RESIDENTIAL/ROADWAY CONSTRUCTION

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11-5
B.) TAX MAP D, LOT 11-5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) THE INTENT OF THIS PLAN IS TO SHOW THE EASTERN EROSION AND SEDIMENT CONTROL DETAIL.

5.) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVE AND BELOW GROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY UTILITY CONFLICTS SHOULD BE REPORTED IMMEDIATELY TO THE DESIGN ENGINEER.

6.) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

7.) ALL DRAINAGE PIPE IS TO BE HDPE N-12. INDIVIDUAL PIPE SIZES ARE SPECIFIED ON GRADING AND DETAIL PLAN SHEETS, GREEN PIPE.

8.) ALL ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE DESIGN ENGINEER IS TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY. TEMPORARY BENCHMARKS (T.B.M.) ARE TO BE PROVIDED BY THE DESIGN ENGINEER.

9.) UPON FINAL COMPLETION AND 85% STABILIZATION, THE DRAINAGE SYSTEM IS TO BE CLEANED OF ALL DEBRIS, SEDIMENT CONTROL PRACTICES REMOVED AND DISPOSED OF PROPERLY, AND ANNUAL MAINTENANCE PREFORMED ON ALL DRAINAGE PRACTICES.

10.) EROSION AND SEDIMENT CONTROL INSPECTIONS TO BE CONDUCTED ONCE PER EVERY SEVEN DAYS AND AT AN INCREASED FREQUENCY INCLUDING WITHIN 24-HOURS OF A 0.25 INCH RAIN EVENT. INSPECTIONS TO BE CONDUCTED BY A "QUALIFIED PERSON" AS DEFINED BY EPA CGP SECTION 6.3. PLEASE NOTE THAT SPECIFIC STORMWATER, EROSION PREVENTION AND SEDIMENT CONTROL TRAINING AND CERTIFICATION IS REQUIRED. INSPECTION REPORTS TO BE SUBMITTED TO THE CITY OF DOVER, NH, ENGINEERING DEPARTMENT WITHIN 24 HOURS IN ACCORDANCE WITH CGP 4.1.7 AND MAINTAINED BY THE OWNER FOR A PERIOD OF THREE YEARS AFTER THE PROJECT IS COMPLETED. SEE ALSO CITY OF DOVER ADDITIONAL INSPECTION REQUIREMENTS BELOW.

11.) CONTRACTOR MAY USE, SILT SOXX OR MULCH BERM FOR PERIMETER CONTROL.

12.) PER EPA CGP 2.1.2.2 (INSTALL PERIMETER CONTROL), "YOU MUST INSTALL SEDIMENT CONTROLS ALONG THOSE PERIMETER AREAS OF YOUR SITE THAT WILL RECEIVE STORMWATER FROM EARTH DISTURBING ACTIVITIES." AS A RESULT OF SWPPP INSPECTIONS, THE CONTRACTOR MAY HAVE TO EXPAND PERIMETER CONTROLS TO MEET THIS REQUIREMENT. THE E&SC PLAN IS INITIATING GUIDANCE AS TO THE ANTICIPATED REQUIREMENTS AND IT THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT STORMWATER VIOLATION DO NOT OCCUR.

13.) CONTRACTOR IS REQUIRED TO INSTALL A CONSTRUCTION ENTRANCE PRIOR TO ANY EARTH DISTURBING ACTIVITIES.

14.) CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE PARKING LOT, SIDEWALKS AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO VENTURE DRIVE OR QUALITY WAY.

15.) CONTRACTOR IS RESPONSIBLE FOR CLEANING AND MAINTAINING THE INLET PROTECTION ONCE INSTALLED.

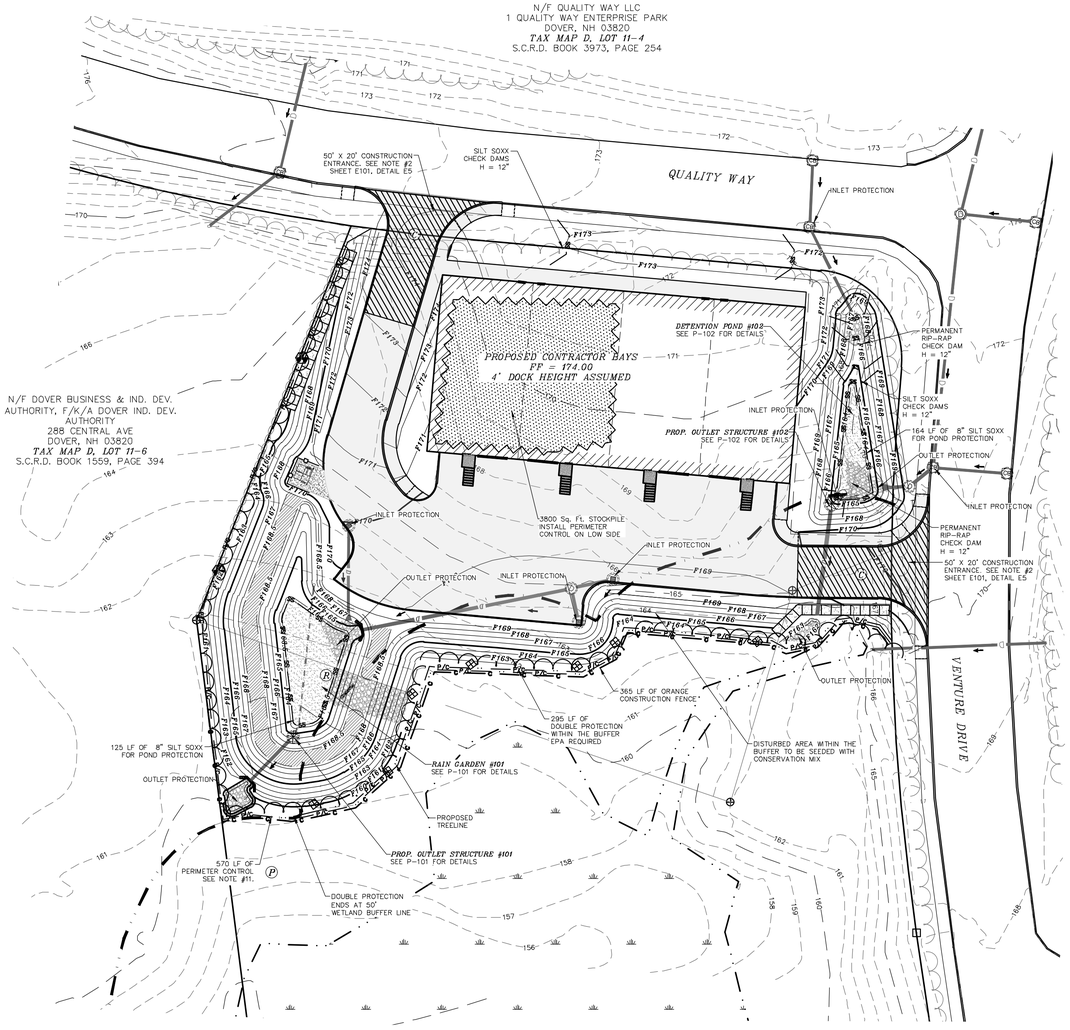
16.) FUGITIVE DUST IS TO BE CONTROLLED THROUGHOUT THE CONSTRUCTION PROCESS IN ACCORDANCE WITH ENV-A 1000.

17.) CONTRACTOR IS TO MEET THE REQUIREMENTS SPECIFIED IN RSA 430:51-57 AND AGR 3800, RELATING TO INVASIVE SPECIES.

18.) CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WATER QUALITY FROM ANY RUN OFF DURING THE CONSTRUCTION PROCESS, IN ACCORDANCE WITH ENV-WQ 1507, IN ORDER TO PREVENT VIOLATIONS OF THE STORM WATER QUALITY STANDARDS.

19.) CITY OF DOVER: IN ACCORDANCE WITH SITE PLAN REVIEW REGULATIONS (153-14) THE FOLLOWING STORMWATER MEASURES ARE REQUIRED.

A.) ALL PROPOSED BMPs WILL CONFORM TO THE NH STORMWATER MANUAL VOLUME 3.
B.) EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY COMMUNITY SERVICE.
C.) TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN SEVEN CALENDAR DAYS FOR EXPOSED SOILS AREAS THAT ARE WITHIN ONE HUNDRED FEET OF A SURFACE WATER BODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN THREE CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOKL AREAS.
D.) ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL STABILIZATION IS ACCOMPLISHED.
E.) COMMUNITY SERVICES DEPARTMENT OR THEIR DESIGNATED AGENT SHALL HAVE ACCESS TO THE SITE TO COMPLETE ROUTINE INSPECTIONS AND SHALL BE NOTIFIED 24-HOURS PRIOR TO INSTALLATION OF A STORMWATER BMP IN ORDER TO SCHEDULE AN INSPECTION, DURING NORMAL WORKING HOURS.
F.) THE PLANNING BOARD OR COMMUNITY SERVICES MAY REQUIRE THE DESIGN ENGINEER AND/OR AN INDEPENDENT, THIRD-PARTY INSPECTION AND OVERSIGHT OF THE CONSTRUCTION OF STORMWATER MANAGEMENT FACILITIES AND EROSION AND SEDIMENT CONTROL AT THEIR DISCRETION. THE OWNER / APPLICANT IS RESPONSIBLE FOR ALL FEES ASSOCIATED WITH INSPECTIONS.
G.) ALL SWPPP 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 (CESSW), OR A CERTIFIED PROFESSIONAL IN STORMWATER QUALITY (CPSWQ). INSPECTION REPORTS WILL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT.



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DOVER FILE #P22-55

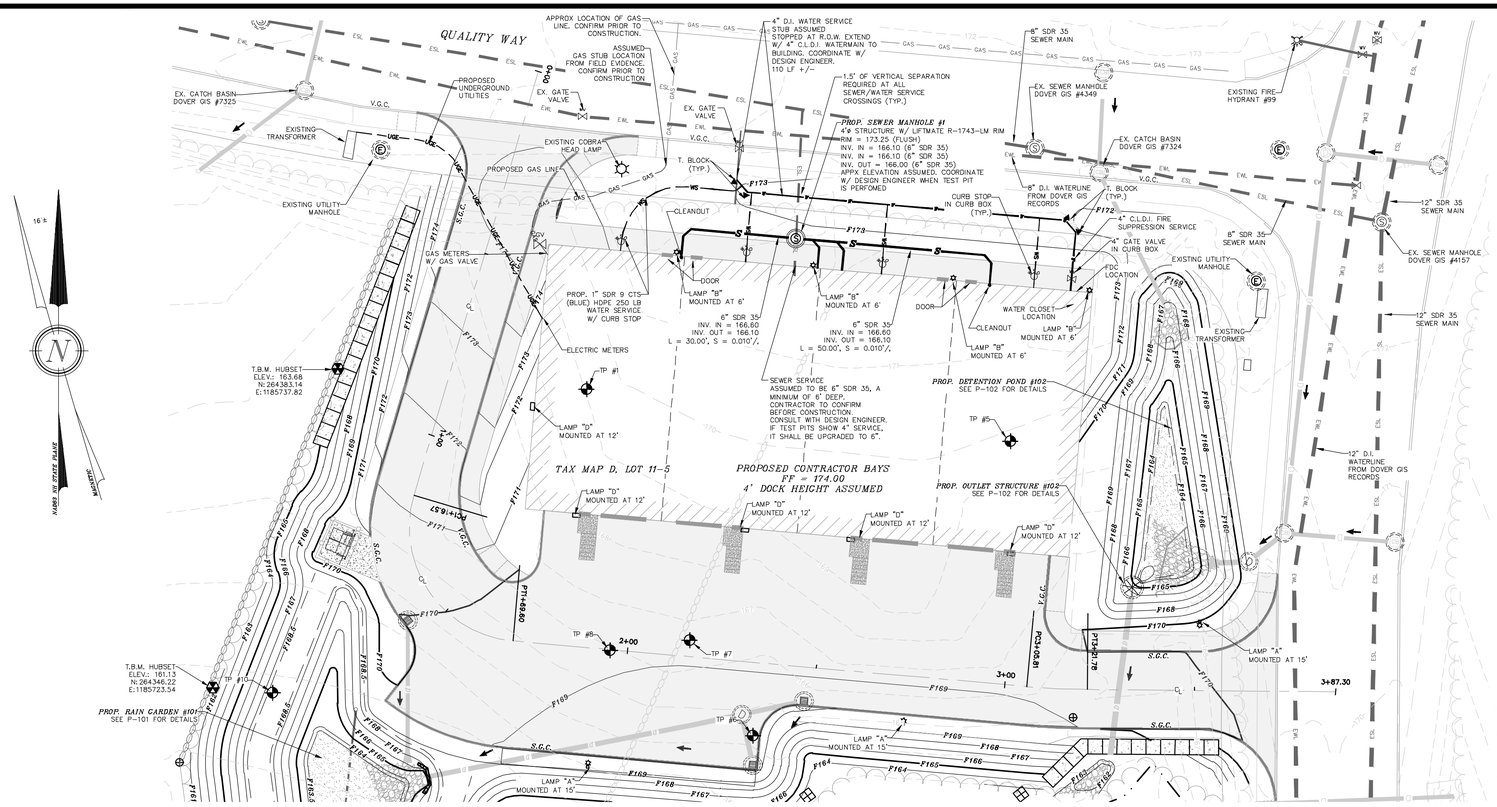
REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

EROSION AND SEDIMENT CONTROL PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 30 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
PROFESSIONAL ENGINEER



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11-5
B.) TAX MAP D, LOT 11-5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) THE INTENT OF THIS PLAN IS TO PROVIDE UTILITY & ENGINEERING DETAILS OF THE PROPOSED SITE DEVELOPMENT OF TAX MAP D, LOT 11-5.

6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS.

LEGEND:

- PROPOSED LIGHT TYPE "A" MOUNTED ON POLE
- PROPOSED LIGHT TYPE "B" MOUNTED ON STRUCTURE
- EXISTING LIGHT TYPE "C" MOUNTED ON POLE
- PROPOSED LIGHT TYPE "D" MOUNTED ON STRUCTURE
- EXISTING SEWER MANHOLE W/ STRUCTURE
- TEMPORARY BENCHMARK (T.B.M.)
- E101 / E6 — DETAIL SHEET / DETAIL
- 76 — CONTOUR MINOR, EXISTING
- 75 — CONTOUR MAJOR, EXISTING
- F76 — CONTOUR MINOR, PROPOSED
- F75 — CONTOUR MAJOR, PROPOSED
- EWL / ESL — EXISTING WATER MAIN / EXISTING SEWER LINE
- EXISTING DRAINAGE LINE
- GAS — EXISTING GAS LINE
- PROPOSED WATER MAIN
- PROPOSED SEWER LINE
- PROPOSED DRAINAGE LINE
- GAS — PROPOSED GAS LINE
- UGE — UNDERGROUND UTILITY
- WV — GATE VALVE
- GV — FIRE HYDRANT
- GAS VALVE

UTILITY NOTES:

1.) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVE AND BELOW GROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY UTILITY CONFLICTS SHOULD BE REPORTED IMMEDIATELY TO THE DESIGN ENGINEER.

2.) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3.) PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES, TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOGF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAGFIC IN SENSITIVE AREAS, AND MAINTAINING AN EGFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL MEETING THE ENGINEERS SPECIFIC RECOMMENDED CRITERIA.

4.) IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER (NOT ALLOWED IN CITY R.O.W.), EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATION. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.

5.) PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION. VOIDS BETWEEN STONES AND CLUMPS OF MATERIAL SHALL BE FILLED WITH FINE MATERIALS.

6.) FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES AND THE DOVER DPW.

7.) CONTRACTOR TO CONTACT DOVER DPW A MINIMUM OF TWO WEEKS PRIOR TO ANY CONSTRUCTION TO COORDINATE ALL WORK CONCERNING INSTALLATION OF ANY PROPOSED WATER LINE IMPROVEMENTS.

8.) ALL WATER MAIN AND SERVICE INSTALLATIONS SHALL CONFORM TO CITY OF DOVER STANDARDS. ALL HIGHWAY CONSTRUCTION WILL MEET THE CITY OF DOVER STANDARDS.

9.) CONTRACTOR SHALL COORDINATE ALL ELECTRICAL INSTALLATIONS WITH EVERSOURCE AT (800) 662-7764. ALL ELECTRIC CONDUIT INSTALLATION SHALL BE INSPECTED BY EVERSOURCE PRIOR TO BACKFILL. A 48-HOUR MINIMUM NOTICE IS REQUIRED.

10.) CONTRACTOR SHALL COORDINATE ALL TELECOMMUNICATIONS INSTALLATIONS WITH FAIRPOINT COMMUNICATIONS AT (603) 427-5525.

11.) CONTRACTOR SHALL COORDINATE ALL CABLE INSTALLATIONS WITH COMCAST.

12.) CURB BOXES SHOULD BE PLACED IN THE LAWN AREA, OR IF PLACED IN PAVEMENT, A ROAD BOX IS REQUIRED.

13.) SEE EXISTING CONDITIONS PLAN FOR DATUM. VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS.

14.) MINIMUM SLOPE FOR ALL SEWER SERVICE CONNECTIONS IS TO BE NO LESS THAN 0.02 FT/FT.

15.) ALL SEWER INSTALLATIONS SHALL CONFORM TO THE REQUIREMENTS OF NHDES & DOVER DPW SEWER DIVISION STANDARDS. ALL PVC SEWER PIPE IS TO CONFORM WITH ENV-WQ 704.05 (c)-(e) FOR SDR 35 GRAVITY SEWER PIPE, CONFORM WITH ENV-WQ 704.08 FOR SDR 21 / 11 / 9 FORCE MAIN PRESSURE PIPE, AND CONFORM WITH ASTM D3034. PVC JOINT SEALS SHALL CONFORM WITH ASTM D3121. THE FORCE MAIN SHALL BE TESTED IN ACCORDANCE WITH ENV-WQ 704.09.

16.) CONTRACTOR TO TRANSFER TEMPORARY BENCHMARK TO A SUITABLE BENCHMARK TO CONTROL CONSTRUCTION. ANY ELEVATION DISCREPANCIES ARE TO BE REPORTED TO THE THE DESIGN ENGINEER IMMEDIATELY.

17.) ALL SEWER AND WATER CROSSINGS ARE TO MAINTAIN A 1.5' OF SEPARATION.

18.) THERE IS TO BE A MINIMUM OF 4' COVER OVER THE SEWER SERVICE AND 5' COVER OVER THE WATER SERVICE. THE CONTRACTOR IS TO REVIEW THE PROPOSED COVER ON UTILITIES AT THE ONSET OF THE PROJECT ONCE THE UTILITY ELEVATIONS ARE ESTABLISHED BEYOND THE CURRENT DESIGN ASSUMPTIONS. IF ADJUSTMENTS ARE NEEDED THE DESIGN ENGINEER IS TO BE NOTIFIED IMMEDIATELY FOR CONSULTATION WITH THE CITY OF DOVER ENGINEERING DEPARTMENT.

19.) THE WATER SERVICE SHALL BE TESTED IN ACCORDANCE WITH CITY OF DOVER STANDARDS.

20.) CLEANOUTS ARE PROPOSED INTERNAL TO THE BUILDING IN THE EVENT CLEANING IS NEEDED OF THE END LINES. CLEANOUTS ARE NOT PERMITTED OUTSIDE THE BUILDING IN THE CITY OF DOVER.

DOVER FILE #P22-55

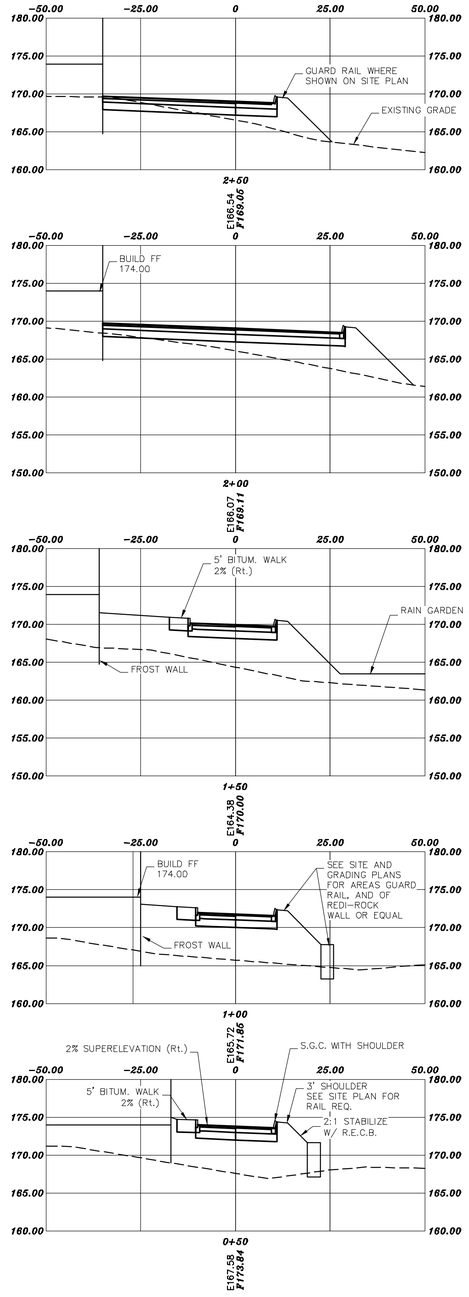
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UTILITY PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

Vertical Scale 1 INCH = 10 FT.

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
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CROSS SECTIONS 0+00 – 3+50

LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.

TAX MAP D, LOTS 11-5 & 11-5SND

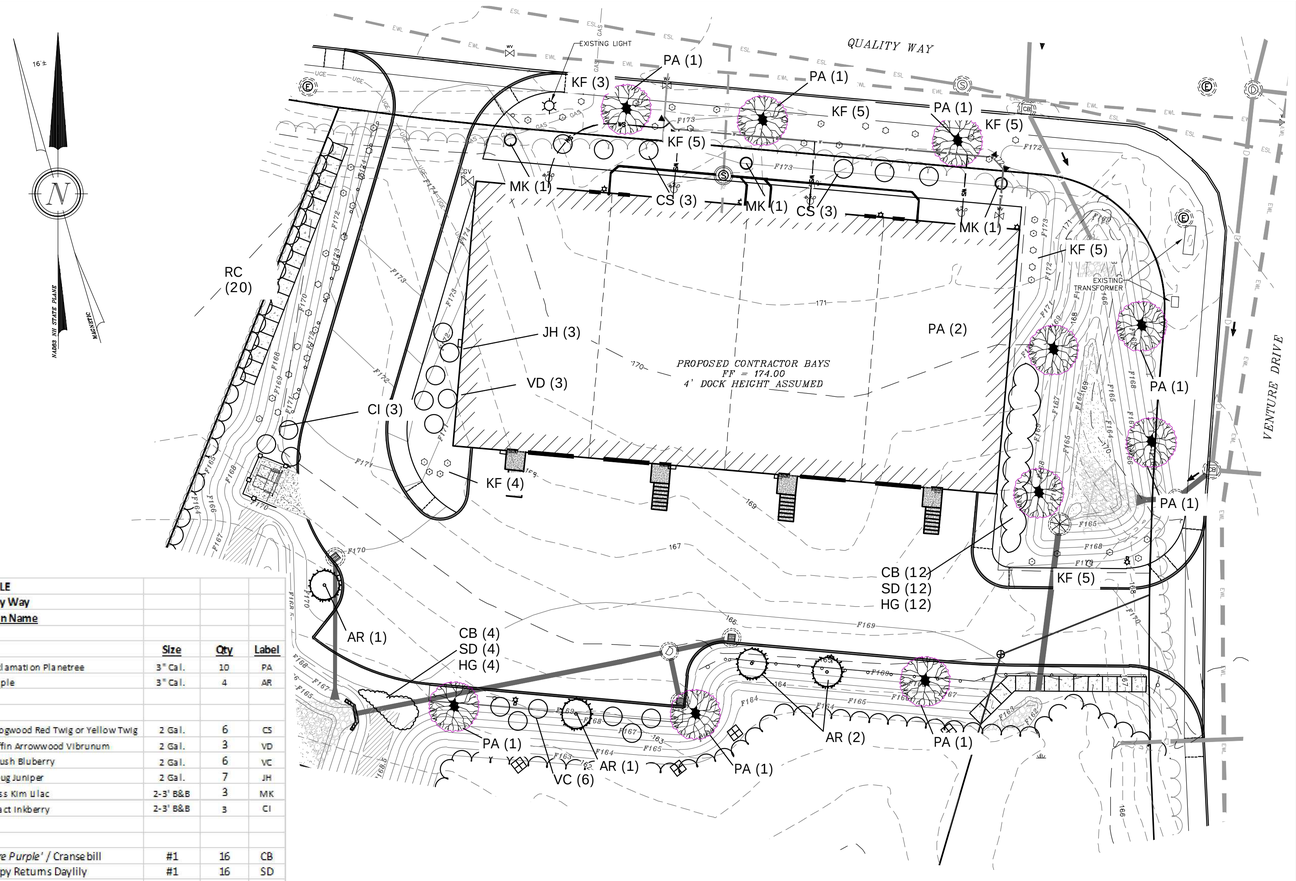
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.

DATE : JUNE 1, 2022

FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
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PLANTING SCHEDULE			
Venture Drive & Quality Way			
Botanical Name/ Common Name			
Trees	**Size**	**Qty**	**Label**
Plantanus acerifolia 'Exclamation'/Exclamation Planetree	3" Cal.	10	PA
Acer Rubrum / Red maple	3" Cal.	4	AR
Shrubs			
Cornus sanguinea 'Midwinter Fire' / Winter Flame Dogwood Red Twig or Yellow Twig	2 Gal.	6	CS
Viburnum Dentatum 'Blue Muffin' / Blue Muffin Arrowwood Vibrunum	2 Gal.	3	VD
Vaccinium corymbosum / High Bush Bluberry	2 Gal.	6	VC
Juniperus hirzontalis / Blue Rug Juniper	2 Gal.	7	JH
Syringa patula 'Miss Kim' / Miss Kim Lilac	2-3' B&B	3	MK
Ilex glabra 'Compacta' / Compact Inkberry	2-3' B&B	3	CI
Perennials			
Geranium sanguineum 'New Hampshire Purple' / Cransebill	#1	16	CB
Hemerocallis 'Happy Returns' / Happy Returns Daylily	#1	16	SD
Rudbeckia fulgida 'Goldstrum' / Goldstrum Black-Eyed Susan	#1	16	HG
Grasses			
Calamagrostis acutifolia 'Karl Foerster' / Feather Reed Grass	#2	31	KF
microbiota decussata / Russian cypress	#2	20	RC

1. CALL DIG SAFE PRIOR TO BEGINNING WORK. (1-888-344-7233). THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF THE SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES, PAVING, WALKS, CURBING, ETC DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO THE OWNER OR GENERAL CONTRACTOR.
2. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL SITE CONDITIONS PRIOR TO CONSTRUCTION BIDDING.
3. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS. VARIATIONS IN QUANTITIES ARE TO BE APPROVED BY THE DESIGN ENGINEER.
4. PROVIDED SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING CONDITIONS.
5. ALL PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN
6. ALL PLANT MATERIALS SHALL BE FREE FROM INSECTS AND DISEASE.
7. ALL PLANTINGS SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING STAKING OR GUYING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE FROM OWNER.
8. ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.
9. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING AND NEWLY PLANTED TREES AND SHRUBS DURING THE CONSTRUCTION PROCESS. WHERE REQUIRED, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING (SNOW OR EQUAL) AROUND EXISTING TREES AND SHRUBS THAT COULD BE IMPACTED BY THE CONSTRUCTION PROCESS. STORAGE OF CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIALS, SNOW STORAGE AND OR VEHICLE PARKING SHALL NOT BE PERMITTED WITHIN THE DRIP LINE OF TREES OR TWENTY FEET WHICH EVER IS GREATER.
10. NEW PLANTINGS SHALL BE INSTALLED PER PROJECT DRAWINGS AND SPECIFICATION THAT INCLUDE FERTILIZATION AND MULCHING AS REQUIRED.
11. ALL SHRUB BEDS AND TREE PITS SHALL BE MULCHED WITH 3" CLEAN SHREDDED BLACK MULCH
12. WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR GROUND COVER AND PERENNIAL BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL-ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.
13. MAINTENANCE OF NEW PLANTINGS AND LAWNS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND OR LANDSCAPE SUBCONTRACTOR UNTIL ACCEPTANCE BY THE OWNER. RESPONSIBILITIES SHALL INCLUDE WATERING WEEDING AND MOWING AS NECESSARY. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE, REPLACEMENT MATERIAL SHALL BE GUARANTEED FOR AND ADDITIONAL YEAR FROM TIME OF INSTALLATION.
14. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY EROSION CONTROL MEASURES DURING THE CONSTRUCTION PHASE AND UNTIL ALL AREAS HAVE BEEN STABILIZED AND ACCEPTED BY THE OWNER. THE GENERAL CONTRACTOR SHALL PROVIDE WEEKLY INSPECTIONS OF EROSION MEASURE AND IMMEDIATELY AFTER STORM EVENTS AND REPAIR AS NECESSARY.
15. THE GENERAL CONTRACTOR AND OR THE LANDSCAPE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL THREE GUYING MATERIAL ONCE PLANT MATERIAL HAS BEEN ESTABLISHED. (MINIMUM OF ONE GROWING SEASON). ALL TEMPORARY EROSION CONTROL MEASURE SHALL BE REMOVED ONCE STABILIZATION OF DISTURBANCE HAS BEEN ACCEPTED BY OWNER.
16. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR A MINIMUM OF TWO MOWINGS FOR ALL TURF AREAS OR UNTIL ACCEPTANCE BY THE OWNER. A MINIMUM UNIFORM 75% CATCH OF TURF IS REQUIRED FOR ACCEPTANCE.
17. ALL PLANTINGS SHALL BE WATERED REGULARLY DURING THEIR FIRST YEAR AND MAINTAINED PERMANENTLY IN GOOD GROWING CONDITION AS AN EFFECTIVE VISUAL SCREEN.
18. SHRUBS OR TREES WHICH DIE SHALL BE REPLACED WITHIN ONE GROWING SEASON WITH NEW SHRUBS OR TREES TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE LANDSCAPING REQUIREMENTS.
19. ALL REQUIRED LANDSCAPING SHALL BE INSTALLED BEFORE OCCUPANCY, OR WITHIN SIX MONTHS IF OCCUPANCY OCCURS DURING WINTER CONDITIONS.
20. TREES ARE TO BE 6' TALL AT PLANTING.
21. ALL PLANT STOCK SHALL CONFORM TO ANSI Z260.1 – NURSERY STOCK, LATEST EDITIONS (AMERICAN ASSOCIATION OF NURSERYMEN, INC.)
22. 4" AGED PINEBARK MULCH AND A WEED BARRIER (TY-PAR FABRIC OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUND COVER BEDS. INSTALL WEED BARRIER AS PER MANUFACTURERS RECOMMENDATIONS.
23. PLANT-PIT BACK-FILL SHALL BE MIXED AT A RATE OF 7 PARTS OF TOPSOIL TO 2 PARTS OF DEHYDRATED COW MANURE. SLOW RELEASE FERTILIZER SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS. USE EXISTING ON-SITE TOPSOIL AS PART OF BACK FILL WHEN AVAILABLE.
24. ALL LANDSCAPED AREAS NOT PLANTED WITH TREES, SHRUBS OR GROUNDCOVER SHALL BE RESTORED WITH SEED OR SOD AS INDICATED ON PLANS.
25. TOPSOIL WILL BE TESTED FOR FERTILIZATION REQUIREMENTS, AND SLOW RELEASE ENVIRONMENTALLY FRIENDLY FERTILIZER WILL BE APPLIED AT THE RECOMMENDED RATES.
26. ALL DISTURBED WETLAND BUFFER AREAS, EXCEPT FOR AREAS THAT ARE PART OF THE DRAINAGE SYSTEM, ARE TO BE RESEEDED WITH A CONSERVATION SEED MIX AND ONLY MOWED TWICE PER YEAR.
27. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER.
28. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ONGOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
29. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
30. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NO LESS THAN ONE FULL YEAR FROM THE TIME OF INSTALLATION. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE OWNER IN WRITING OR OTHERWISE FORFEIT HIS CLAIM.
31. BY THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAS DIED, THAT HAS LOST NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESS PRUNING OR INADEQUATE OR IMPROPER CARE, OR IS, IN THE OPINION OF THE OWNER, IN UNHEALTHY OR UNSIGHTLY CONDITION.
32. THE CONTRACTOR IS TO USE TEMPORARY MEASURES FOR WATERING PLANTS DURING THE ESTABLISHMENT PERIOD. INCLUDING CONNECTING TEMPORARY HOSES TO THE STRUCTURE WATER SUPPLY LINE AND UTILIZING SPRINKLERS UNTIL 85% GROWTH OCCURS.

PLANTING NOTES

1. CONTRACTOR SHALL OBTAIN APPROVAL FROM L.A. PRIOR TO PURCHASING &/OR INSTALLING SUBSTITUTE PLANT MATERIAL PRIOR TO PURCHASE OF ANY SUBSTITUTE MATERIALS.
2. CONSTRUCTION ACCESS WILL BE AS DIRECTED BY L.A. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ACCESS ROUTE AND ALL AREAS DISTURBED BY PLANTING OPERATIONS UPON COMPLETION OF CONSTRUCTION OPERATIONS, AT NO ADDITIONAL COST TO THE OWNER.
3. LAYOUT OF ALL PLANTING BEDS AND LOCATION OF PLANTS TO BE APPROVED BY L.A. ON SITE PRIOR TO CONSTRUCTION AND INSTALLATION.
4. CONTRACTOR TO REMOVE ALL DEBRIS GENERATED BY PLANT INSTALLATION. DEBRIS TO BE DISPOSED OF IN A LEGAL MANNER.
5. ALL PLANT MATERIAL SHALL BE GUARANTEED TO BE IN GOOD, HEALTHY & FLOURISHING CONDITION FOR ONE YEAR FROM THE DATE OF FINAL INSTALLATION APPROVAL BY L.A. CONTRACTOR SHALL REPLACE, WITHOUT COST TO OWNER, AND AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD AND NON-FLOURISHING PLANTS AS DETERMINED BY THE L.A. REPLACEMENT PLANTS SHALL BE BE GUARANTEED IDENTICALLY TO ORIGINAL PLANTS, TIME PERIOD COMMENCING FROM DATE OF REPLACEMENT PLANTING APPROVAL BY L.A.
6. ALL BEDS TO BE MULCHED WITH 3" DEPTH SHREDDED BARK MULCH UNLESS NOTED OTHERWISE.
7. CONTRACTOR TO PROVIDE NECESSARY TEMPORARY IRRIGATION IF NEEDED BASED ON TIME OF YEAR THE PROJECT IS IMPLEMENTED.
8. ALL PLANT MATERIAL TO COMPLY WITH THE CITY OF DOVER'S SITE REVIEW REGULATIONS, 149-14(G), SUCH THAT THERE SHALL BE DECIDUOUS SHADE TREES PLANTED 40 FEET O.C. ALONG THE PERIMTERE OF THE PARKING LOTS AND SHRUBS PLANTED 5 FEET O.C. WITHIN THE PERIMETER BUFFER. SEE PLANT LIST FOR SPECIES AND SIZE OF PLANTS.

TEMPORARY WATERING NOTES

1. CONTRACTOR IS RESPONSIBLE FOR MAKING SURE ALL PLANT MATERIAL HAS ADEQUATE WATER DURING THE ESTABLISHMENT PERIOD.
2. THE USE OF GATOR BAGS, SOAKER HOSE, HAND WATERING AND OTHER TECHNIQUES SHOULD BE USED TO ASSURE PROPER HYDRATION OF THE PLANTINGS IS MAINTAINED.
3. TEMPORARY IRRIGATION SYSTEMS CAN BE SET UP TO ASSIST IN WATERING ACTIVITIES.

terrain
planning & design llc

General Plant Maintenance Guide

General Plant Bed Maintenance:

- All plant maintenance should be performed by a qualified horticulturalist or licensed arborist. Cleaning the dead material out of the planting bed in the fall helps keep litter from building up around the plants and in some cases killing the plants. Watering the first year during dry periods will help get the plants established. Mulching every year is not necessary. Raking the old mulch and turning it over is all that is needed. When necessary only install one inch of mulch and do not place the mulch closer than 3" to the trunks or stems of woody plants.

Trees

- The first year watering during dry periods will be necessary.
- 3" inches of mulch maybe used. The mulch should be kept 3 inches from the trunk.
- Fertilizing is not necessary for the first year. Fertilizing in subsequent years only when and if the foliage is looking weak.
- Fertilization should occur prior to Mat 31st or after trees have dropped their leaves for the year.
- Prune dead wood once a year.
- Depending on the amount of compaction the bed area receives, deep root aeration may be needed over time

Woody Shrubs

- The first year watering during dry periods will be necessary.
- 3" inches of mulch maybe used. The mulch should be kept 3 inches from the stems.
- Fertilizing is not necessary for the first year. Fertilizing in subsequent years only when and if the foliage is looking weak.
- Fertilization should occur prior to Mat 31st or after shrubs have dropped their leaves or gone dormant for the year.
- Prune dead wood once a year.

Grasses

- Grasses only need to be clipped back at the end of the growing season and all the clippings removed from the area.
- Do not over mulch. Too much mulch will prohibit the grass from developing into a strong clump.

Perennials

- All perennials need to be pruned back after the first or second hard frost. A two-step method; first dead head all the flower heads and let drop to the ground for re-seeding. Second cut the stems back to 3" above the ground and remove the stem and leaf litter and place in compost. Do not over mulch. Too much mulch will prohibit the growth and development
- Fertilizing perennials once in the spring with a low phosphate fertilizer will help the plants to get started in the spring.

terrain
planning & design llc
311 kast hill road
hopkinton, nh 03229
603. 491. 2322
terrainplanning.com

VENTURE DRIVE & QUALITY WAY

Site Location:
Venture Drive & Quality Way
Dover, NH
Tax Map: D
Lots: 11-5 & 11-5SND

Prepared For:
Berry Surveying & Engineering
335 Second Crown Point Rd
Barrington, NH 03825

LANDSCAPE PLAN

DATE:

SCALE: 1" = 20'

PROJECT #: 1802

Drawn By: ID

Checked By: ERB

REVISIONS: DATE:
Issued for Client Review

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CERTIFIED LANDSCAPE ARCHITECT ERIC R. BUCK 078 STATE OF NEW HAMPSHIRE

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11–5
B.) TAX MAP D, LOT 11–5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED LIGHTING PLAN FOR THE PROPOSED DEVELOPMENT.

6.) LAMP "A" WILL BE MOUNTED 15 ABOVE GRADE. THESE LAMPS ARE SOLAR.
. LAMP "B" WILL BE MOUNTED 6' ON THE UNITS AND ARE BASIC RESIDENTIAL STYLE / ENTRANCE LAMPS
LAMP "C" IS THE COBRA HEAD LAMP ALONG QUALITY WAY AND IS MODELED FOR USE IN DETERMINING NEED AND IMPACT OF LIGHTING. NO CONSTRUCTION REQUIRED.
LAMP "D" ARE WALL MOUNTED 12' ABOVE EXTERIOR GRADE OF THE STRUCTURE

7.) SEE CONSTRUCTION DETAILS FOR LIGHT CUT SHEETS.

8.) EXTERIOR LIGHTING SHALL BE CUT–OFF TYPE FIXTURES PER CHAPTER 153–14–E AND SHALL PROVIDE LIGHTING DIRECTED ON–SITE ONLY.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	0.8 fc	24.4 fc	0.0 fc	N/A	N/A
Stat Zone # 1	X	1.8 fc	6.5 fc	0.3 fc	21.7:1	6.0:1

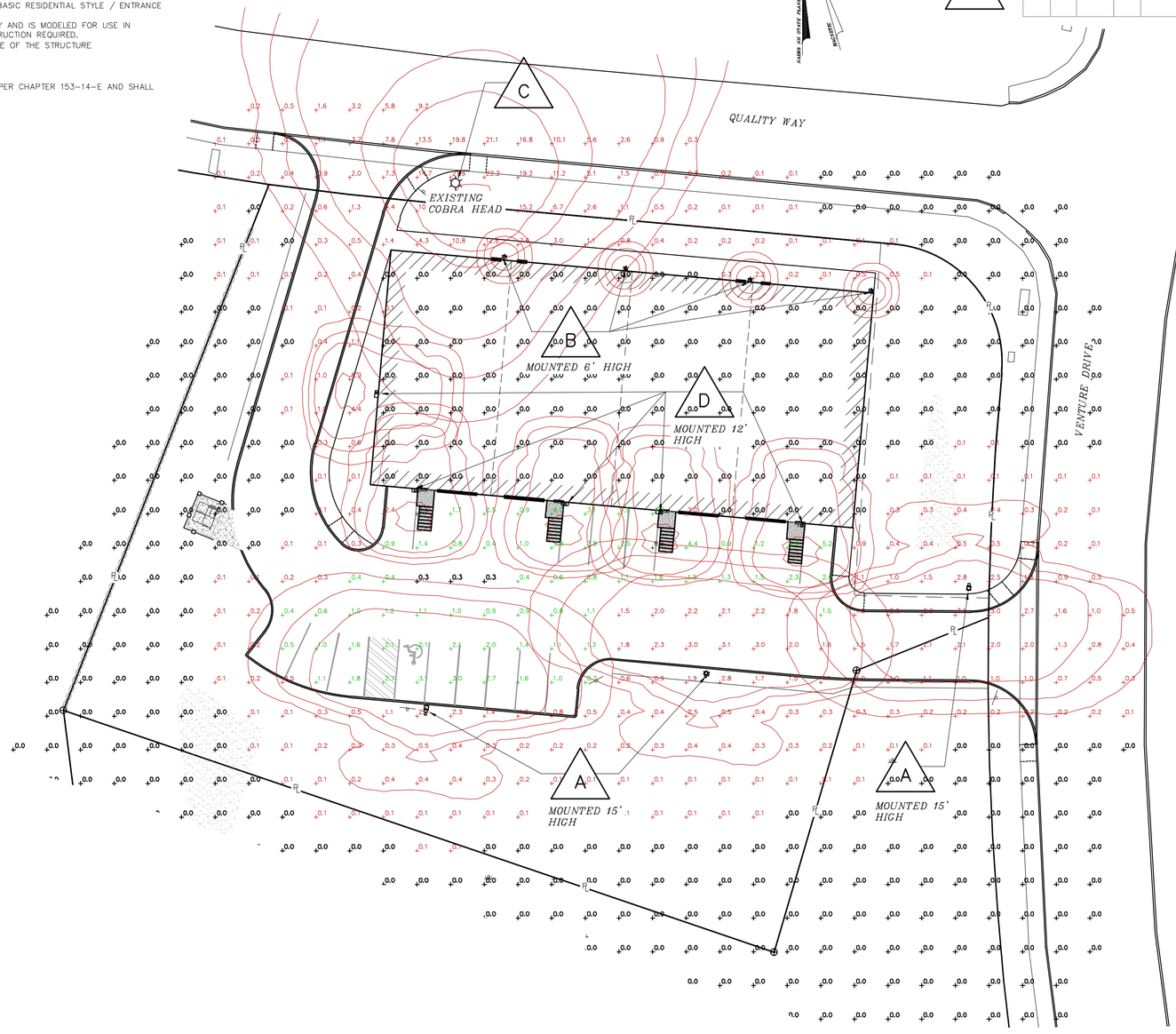
16.8°

N

HUBBS BROOK RIVER PARK

VENTURE DRIVE

Schedule											
Symbol	Label	Image	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage	Plot
A			3	Lithonia Lighting	DSXI LED P1 30K T3M MVOLT	DSXI LED P1 30K T3M MVOLT	1	6279	1	54	
B	B		4	Lithonia Lighting	ODSL10 SRC	CRAFTSTON WALL MOUNTED SMALL DECORATIVE LANTERN, ONE LAMP 13W SPIRAL COMPACT FLUORESCENT, WHITE GLASS DIFFUSER 4.25" DIA. X 6.63" HIGH, ELECTRONIC BALLAST	1	900	1	12.6	
C	C		1	Lithonia Lighting	HLA LED P3 50K TFTM MVOLT R90	HIGH LUMEN AREA, PERFORMANCE PACKAGE 3, 5000 K, FORWARD THROW MEDIUM, 120–277V, RIGHT ROTATED OPTICS	1	59055	1	598	
D	D		5	Lithonia Lighting	WSTM 70M MD	MINIATURE TRAPEZOID ARCHITECTURAL SCONCE, 70–WATT METAL HALIDE, MEDIUM DISTRIBUTION, HYDROFORM REFLECTOR CLEAR, FLAT GLASS LENS MEETS THE NIGHTTIME FRIENDLY CRITERIA	1	5500	0.85	70	



DOVER FILE #P22–55

REVISION	DATE	DESCRIPTION
#3	10–31–22	REVISED PER TRC #2
#2	10–27–22	REVISED PER SEWER APPLICATION
#1	9–1–22	REVISED PER DOVER TRC COMMENT

LIGHTING PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11-5
B.) TAX MAP D, LOT 11-5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

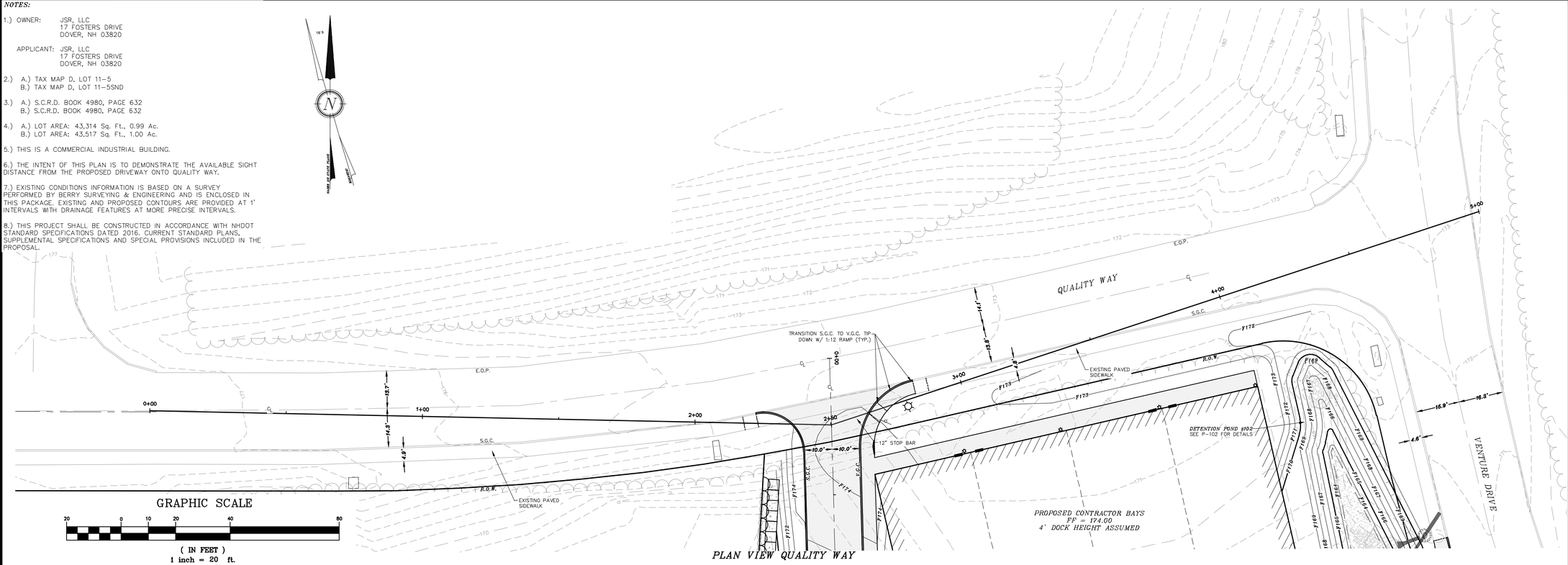
4.) A.) LOT AREA: 43,314 Sq. Ft., 0.99 Ac.
B.) LOT AREA: 43,517 Sq. Ft., 1.00 Ac.

5.) THIS IS A COMMERCIAL INDUSTRIAL BUILDING.

6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE AVAILABLE SIGHT DISTANCE FROM THE PROPOSED DRIVEWAY ONTO QUALITY WAY.

7.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE. EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

8.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2016, CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

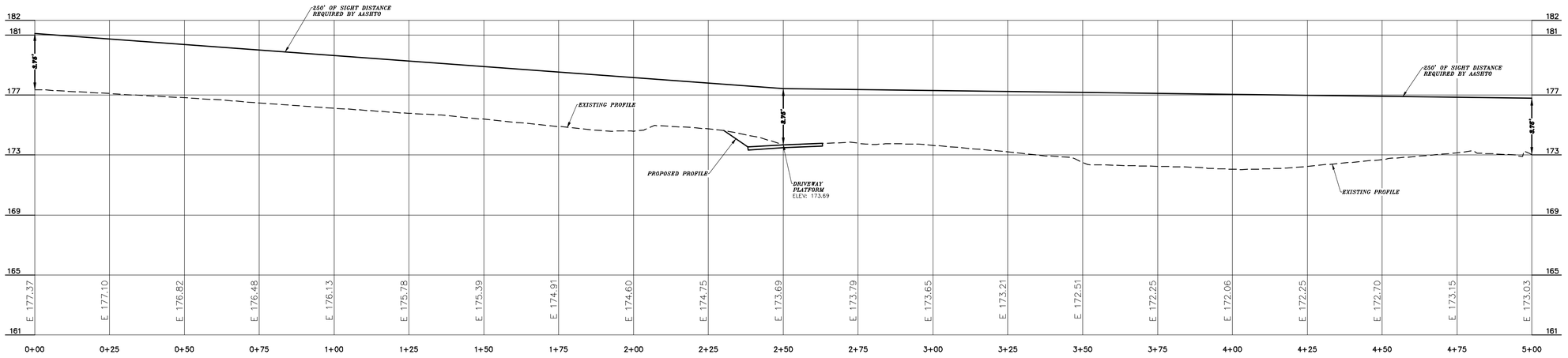
PLAN VIEW QUALITY WAY

PROFILE VIEW SIGHT LINE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 4'



HWY-1

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

ACCESS PLAN QUALITY WAY
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NOTES:

1.) OWNER: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

APPLICANT: JSR, LLC
17 FOSTERS DRIVE
DOVER, NH 03820

2.) A.) TAX MAP D, LOT 11-5
B.) TAX MAP D, LOT 11-5SND

3.) A.) S.C.R.D. BOOK 4980, PAGE 632
B.) S.C.R.D. BOOK 4980, PAGE 632

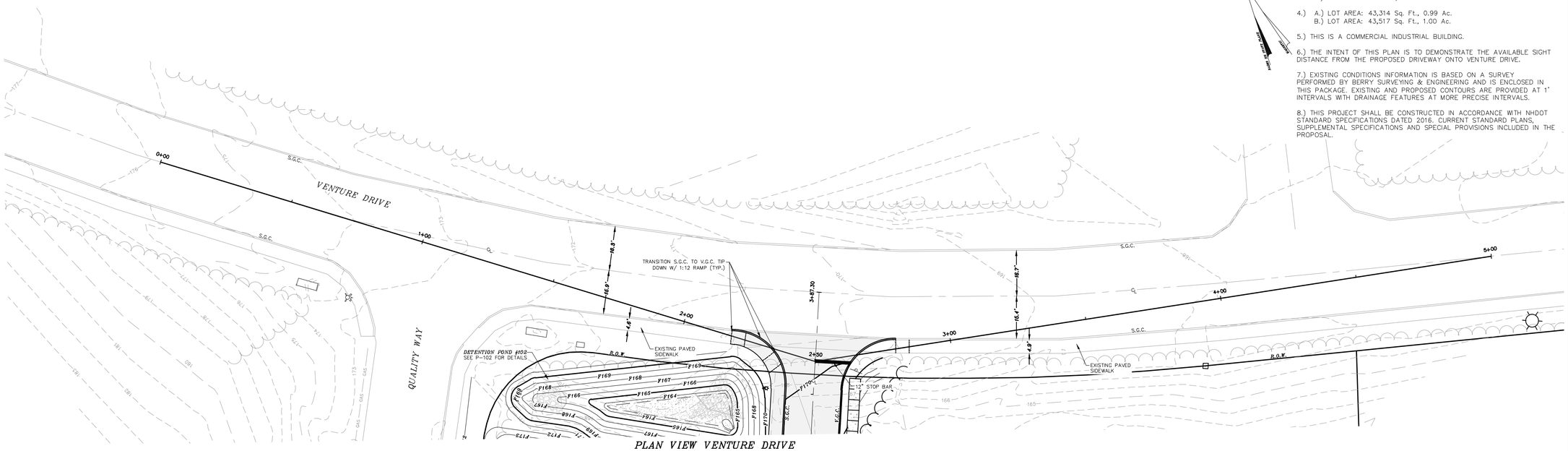
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7.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE. EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

8.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2016. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.



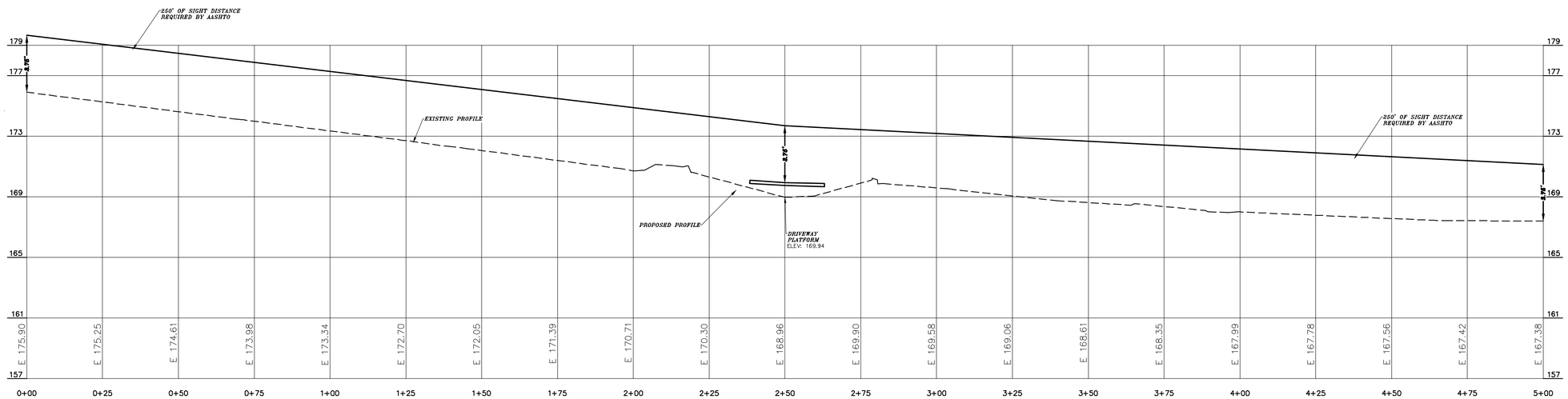
PLAN VIEW VENTURE DRIVE

PROFILE VIEW SIGHT LINE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 4'



HWY-2

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

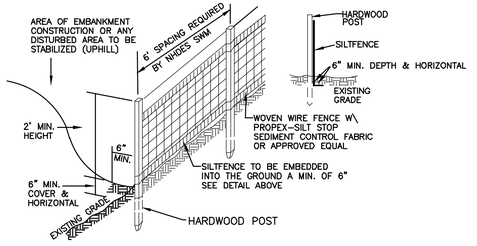
ACCESS PLAN VENTURE DRIVE
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE - KENNETH A. BERRY No. 14243 - LICENSED PROFESSIONAL ENGINEER

E1



SILT FENCE CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES AND FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP MID AND BOTTOM SECTIONS AND BE EMBEDDED INTO GROUND A MINIMUM OF 8" THE FENCE POSTS SHALL BE A MINIMUM 48" LONG, SPACED A MAXIMUM 6' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND PROPERLY DISPOSED OF. SEE MAINTENANCE NOTE BELOW. REMOVAL OF SEDIMENT REQUIRED AT A DEPTH OF 6-INCHES.
4. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
5. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER.
6. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND RE-VEGETATED.
7. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, SILT FENCE, PAGE 90.

SILT FENCE MAINTENANCE

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH SIX-INCHES IN DEPTH.
4. SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SILT FENCE DETAIL
NOT TO SCALE

E2

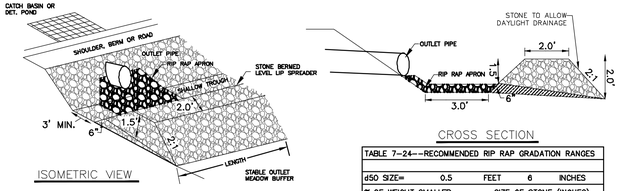
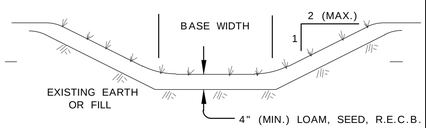


TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES			
d50 SIZE=	0.5	FEET	6 INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM		TO
100%	9		12
85%	8		11
50%	6		9
15%	2		3

1. CONSTRUCT THE LEVEL SPREADER LIP ON A 0% GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
2. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL AND NOT ON FILL.
3. THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING EXCELSIOR ENFORCER MATTING BENEATH THE STONE. EACH STRIP SHALL OVERLAP BY AT LEAST SIX INCHES.
4. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER SHOULD NOT RE-CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
5. MAINTENANCE: THE LEVEL SPREADER SHOULD BE CHECKED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE IF THE LIP HAS BEEN DAMAGED AND THE DESIGN CONDITIONS HAVE NOT CHANGED. ANY DETRIMENTAL SEDIMENT ACCUMULATION SHOULD BE REMOVED. IF STONE REMOVAL HAS TAKEN PLACE ON THE LIP, THEN THE DAMAGE SHOULD BE REPAIRED.
6. REFERENCE IS MADE TO NHDES SWM VOL. 2, 4-6, STONE BERM LEVEL SPREADERS, PAGE 162

STONE BERM LEVEL SPREADER
NOT TO SCALE

E3



GRASS CONVEYANCE SWALE
NOT TO SCALE

INSPECT ANNUALLY FOR EROSION, SEDIMENT ACCUMULATIONS, VEGETATION LOSS, & INVASIVE SPECIES. REPAIR AS NECESSARY.

MOW GRASS ANNUALLY TO A DEPTH OF 4".

INSTALL STABILIZATION MATTING DURING CONSTRUCATION

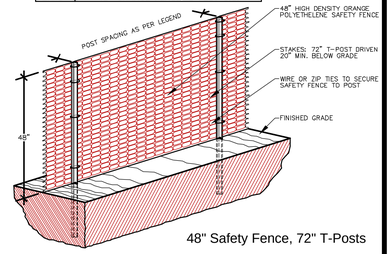
TO BE CONSTRUCTED IAW NH SWM #2 CHAPTER 4, #5 TREATMENT SWALES, PAGE 123.

E4

CONSTRUCTION SAFETY FENCE
NOT TO SCALE

LEGEND

SAF12	48" ORANGE FENCE, 12 FEET O.C.
SAF11	48" ORANGE FENCE, 11 FEET O.C..
SAF10	48" ORANGE FENCE, 10 FEET O.C.
SAF9	48" ORANGE FENCE, 9 FEET O.C.
SAF8	48" ORANGE FENCE, 8 FEET O.C..
SAF7	48" ORANGE FENCE, 7 FEET O.C.
SAF6	48" ORANGE FENCE, 6 FEET O.C.



48" Safety Fence, 72" T-Posts

1. ALL SENSITIVE AREAS SHALL BE PROTECTED AS PER PLAN.
2. ALL TREES IN THE CONSTRUCTION AREA NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE PRESERVED AND PROTECTED WITH HIGH VISIBILITY FENCE AS PER PLAN.
3. WHEN PRACTICABLE, INSTALL HIGH VISIBILITY 3 FEET OUTSIDE OF THE DRIP LINE OF THE TREE.
4. SAFETY FENCE SHOULD BE FASTENED SECURELY TO THE T-POSTS.
5. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE PROTECTIVE FENCING MUST BE APPROVED.

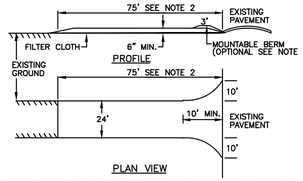
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EROSION & SEDIMENT CONTROL DETAILS
LAND OF
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DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

E5

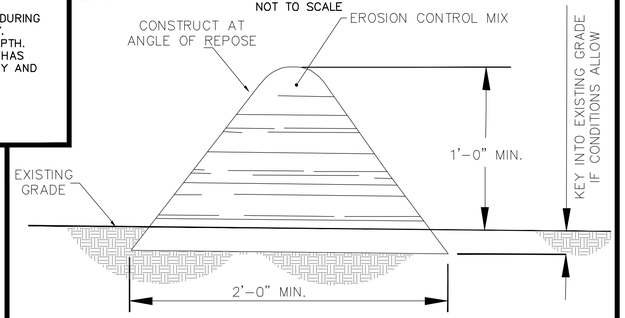
STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH ANGULAR STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 3-INCH TO 6-INCH BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY CONSTRUCTION EXIT, PAGE 124.

E6

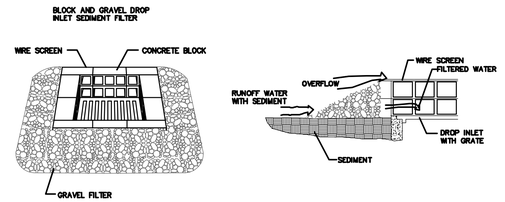
EROSION CONTROL MIX BERM
NOT TO SCALE



EROSION CONTROL MIX BERMS SHALL BE USED ONLY AS FOLLOWS:

1. BERMS SHALL BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE IS NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE BERM.
2. THE BERMS SHALL BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSLY AS POSSIBLE.
3. THE BERMS SHALL BE INSTALLED ON SLOPES LESS THAN 5%.
4. SUBJECT TO (E), BELOW, THE MIX SHALL HAVE AN ORGANIC PORTION BETWEEN 80 AND 100% DRY WEIGHT BASIS, AND BE FIBROUS AND ELONGATED SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS.
5. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS ORGANIC MATERIAL.
6. THE MIX SHALL NOT CONTAIN SILTS, CLAY, OR FINE SANDS.
7. THE MIX SHALL HAVE A PARTICLE SIZE BY WEIGHT OF 70 TO 85% PASSING A 6-INCH SCREEN AND A MAXIMUM OF 85% PASSING THE 0.75-INCH SCREEN.
8. THE MIX PH SHALL BE BETWEEN 5.0 AND 8.0.
9. THE BERM SHALL BE AT LEAST 12 INCHES HIGH AND AT LEAST 2 FEET WIDE.
10. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, EROSION CONTROL MIX BERMS, PAGE 106.

E7



MAINTENANCE

ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAIN STORM AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED OF IN A SUITABLE AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

BLOCK & GRAVEL DROP INLET SEDIMENT FILTER
NOT TO SCALE

TO BE USED IN ALL AREAS WHERE THERE WILL BE NO TRAFFIC.

TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY STORM DRAIN INLET PROTECTION, PAGE 118.

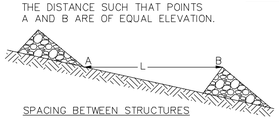
E8

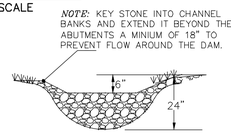
TEMPORARY EROSION CONTROL MEASURES

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA. (SEE SEED SPECIFICATIONS THIS SHEET)
4. ALL DISTURBED AREAS WILL BE RESTABILIZED WITHIN 45 DAYS. AT ANY ONE TIME, NO MORE THAN 5 ACRES, (217,800 Sq. Ft.) WILL BE DISTURBED.
5. SILT FENCES AND PERIMETER BARRIERS SHALL BE INSPECTED PERIODICALLY AND AFTER EVERY RAIN DURING THE LIFE OF THE PROJECT. ALL DAMAGED AREAS SHALL BE REPAIRED, SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
6. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
7. PER THE EPA CGP REQUIREMENTS THERE WILL BE REPORTS OF THE EROSION CONTROL INSPECTIONS IAW SWPPP PREPARED BY BS&E. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER 0.25" OR GREATER RAIN EVENT.
8. DITCHES, SWALES, AND BASINS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
9. DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
10. ROADWAYS, DRIVEWAYS AND CUT AND FILL SLOPES MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINAL GRADE.
11. STABILIZATION MEANS:
    - 11.1. A MINIMUM OF 85% OF VEGETATIVE COVER HAS BEEN ESTABLISHED.
    - 11.2. A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED, OR
    - 11.3. EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
12. THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
13. THE NHDES STORMWATER MANUAL, IN THREE VOLUMES, DATED DECEMBER 2008, IS A PART OF THIS PLAN SET AND THE MORE RESTRICTIVE WILL GOVERN. (NH SWM)

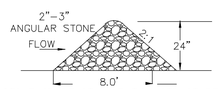
E9

STONE CHECK DAM
NOT TO SCALE



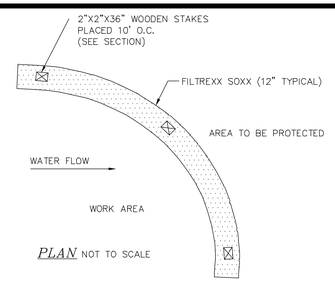


1.) CHECK DAMS SHOULD BE INSTALLED BEFORE RUNOFF IS DIRECTED TO THE SWALE OR DRAINAGE DITCH.
2.) THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE DAM SHOULD BE LESS THEN ONE ACRE.
3.) THE MAXIMUM HEIGHT OF THE DAM SHOULD BE TWO FEET.
4.) THE CENTER OF THE DAM SHOULD BE AT LEAST SIX INCHES LOWER THAN THE OUTER EDGES.
5.) THE MAXIMUM SPACING IS AS SHOWN ON THE PROJECT SITE PLANS.
6.) CHECK DAMS WILL NOT BE USED IN A FLOWING STREAM.
7.) TEMPORARY CHECK DAMS WILL BE REMOVED ONCE THE SWALE OR DITCH IS DETERMINED STABLE.
8.) TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY CHECK DAMS, PAGE 114.



STONE GRADE STABILIZATION STRUCTURE

E10

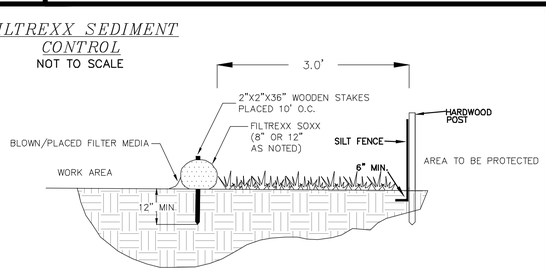


PLAN NOT TO SCALE

NOTES

1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIRMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
4. SILTSOXX MAY BE USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
5. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIRMENTS OF THE SPECIFIC APPLICATION.
6. FILTREXX SOXX IS A REGISTERED TRADEMARK OF FILTREXXIN TERNATIONAL, LLC.
7. SILT FENCE IS NOT A SUBSTITUTION FOR SILT SOXX AND ANY EQUAL SUBSTITUTION TO BE APPROVED.
8. TO BE CONSTRUCTED IAW FILTREXX, SECTION 1:EROSION & SEDIMENT CONTROL (PAGE 323) - CONSTRUCTION ACTIVITIES, SWPPP CUT SHEET: FILTREXX SEDIMENT CONTROL

FILTREXX SEDIMENT CONTROL
NOT TO SCALE

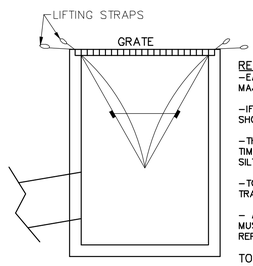


Filtrexx International, LLC
35481 Grafton Eastern Rd | Grafton, Oh 44044
440-926-2607 | fax: 440-926-4021
WWW.FILTREXX.COM
OR APPROVED EQUAL

NOTE: FOR AREAS REQUIRING DOUBLE PERIMETER CONTROL WITHIN 50' OF JURISDICTIONAL WETLANDS AND NOT FOR ALL SILT SOXX APPLICATIONS. THIS DUPLICATION MAY BE SPECIFIED AS 12" SILT SOXX OR ORANGE CONSTRUCTION FENCE AS NOTED.

SECTION NOT TO SCALE

E11



RECOMMENDED MAINTENANCE SCHEDULE

-EACH SILTSACK SHOULD BE INSPECTED AFTER EVERY MAJOR RAIN EVENT, AND MUST BE MAINTAINED.

-IF THERE HAVE BEEN NO MAJOR EVENTS, SILTSACK SHOULD BE INSPECTED EVERY 2-3 WEEKS.

-THE RESTRAINT CORD SHOULD BE VISIBLE AT ALL TIMES. IF CORD IS COVERED WITH SEDIMENT, THE SILTSACK SHOULD BE EMPTIED.

-TO BE USED IN ALL AREAS WHERE THERE WILL BE TRAFFIC.

- ARE SUBJECT TO DAMAGE BY SNOW PLOWS, AND MUST BE INSPECTED AFTER ANY SNOW EVENT AND REPLACED AS REQUIRED.

TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY STORM DRAIN INLET PROTECTION, PAGE 118.

SILTSACK DETAIL
NOT TO SCALE

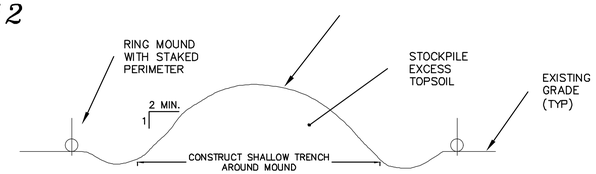
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY No. 14243
LICENSED PROFESSIONAL ENGINEER

E-101

E12



TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, SOIL STOCKPILE PRACTICES, PAGE 46.

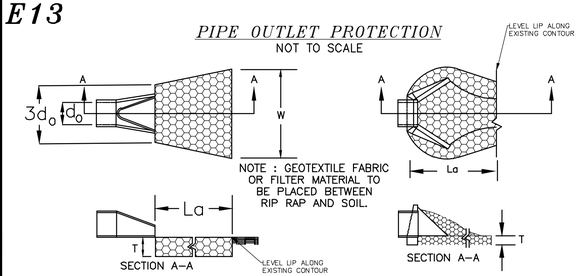
TOPSOIL STOCKPILE MOUND

NOT TO SCALE

E13

PIPE OUTLET PROTECTION

NOT TO SCALE



PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL

PIPE OUTLET TO WELL-DEFINED CHANNEL

PIPE OUTLET PROTECTION CONSTRUCTION SPECIFICATIONS

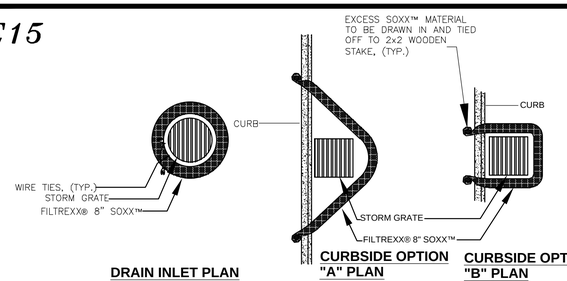
SPECIFIED GRADATION.

2. THE ROCK OR GRAVEL USED FOR FILTER OF RIP RAP SHALL CONFORM TO NHDOT SECTION 583.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP RAP DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. TO BE CONSTRUCTED IAW NH SWM #2 4-6 CONVEYANCE PRACTICES, 6. OUTLET PROTECTION, PAGE 172.

E14

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES			
d50 SIZE=	0.5	FEET 6	INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE		SIZE OF STONE (INCHES) FROM	TO
100%		9	12
85%		8	11
50%		6	9
15%		2	3

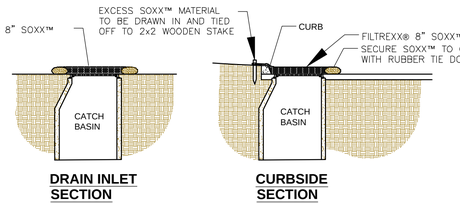
E15



DRAIN INLET PLAN

CURBSIDE OPTION "A" PLAN

CURBSIDE OPTION "B" PLAN



DRAIN INLET SECTION

CURBSIDE SECTION

NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

FILTREXX INLET PROTECTION

NOT TO SCALE

E16

NOTE: THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

NOTE: Temporary seed mix for stabilization of turf shall be winter rye or oats at a rate of 2.5 lbs. per 1000 s.f. and shall be placed prior to OCT. 15, if permanent seeding not yet complete.

SEEDING GUIDE

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	FAIR	GOOD	EXCELLENT
	E	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	GOOD	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	FAIR	GOOD	GOOD	EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	F	FAIR	EXCELLENT	EXCELLENT	2/
	G	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE 7-36.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

RECOMMENDED *

SEEDING RATES

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
C. TALL FESCUE	24	0.55
CREEPING RED FESCUE	24	0.55
BIRDS FOOT TREFOIL	REMOVED	REMOVED
TOTAL	48	1.10
D. TALL FESCUE	30	0.45
FLAT PEA	20	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

CONSERVATION MIX	POUNDS PER ACRE	POUNDS PER 1,000 S.F.
TALL FESCUE (35%)	15	0.35
CREEPING RED FESCUE (25%)	15	0.35
ANNUAL RYEGRASS (12%)	5	0.12
PERENNIAL RYEGRASS (10%)	5	0.12
KENTUCKY BLUEGRASS (10%)	15	0.35
WHITE CLOVER (3%)	7	0.16

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1;3:1 SLOPES OR FLATTER ARE PREFERRED.
   WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEED BED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING
   AND INCORPORATED INTO THE SOIL KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE,
   THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
   AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100LBS. PER 1,000 SQ.FT.
   NITROGEN(N), 50LBS. PER ACRE OR 1.1LBS. PER 1,000 SQ.FT.
   PHOSPHATE(P2O5), 100LBS. PER ACRE OR 2.2LBS. PER 1,000 SQ.FT.
   POTASH(K2O), 100LBS. PER ACRE OR 2.2LBS. PER 1,000 SQ.FT.
   (NOTE: THIS IS THE EQUIVALENT OF 500LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000LBS. PER ACRE OF 5-10-10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO TABLE(G-E1 THIS SHEET) FOR APPROPRIATE SEED MIXTURES AND TABLE(H-E1 THIS SHEET) FOR RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT TREFOIL, AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREA SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIAL STAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.
6. TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, PERMANENT VEGETATION, PAGE 60.
7. SEE RAIN GARDEN AND INFILTRATION DETAIL SHEETS FOR SPECIFIC PLANTING INSTRUCTIONS AND SEEDING.

E17

CONSTRUCTION SEQUENCE:

1.) CUT AND REMOVE TREES IN CONSTRUCTION AREA ONLY AS REQUIRED, RELOCATE ANY PROJECT T.B.M.

2.) CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS SPECIFIED. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY THE COMMUNITY SERVICES DEPARTMENT.

3.) EROSION, SEDIMENT AND DETENTION CONTROL FACILITY SHALL BE INSTALLED & STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.TEMPORARY DIVERSIONS MAY BE REQUIRED. POST CONSTRUCTION STORM WATER MANAGEMENT PRACTICES MUST BE INITIATED AND STABILIZED EARLY IN THE PROCESS. RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPs ARE STABILIZED.

4.) CLEAR, CUT AND DISPOSE OF DEBRIS IN APPROVED FACILITY

5.) CONSTRUCT TEMPORARY CULVERTS AS REQUIRED, OR DIRECTED

6.) CONSTRUCT ROADWAYS FOR ACCESS TO DESIRED CONSTRUCTION AREAS. ALL ROADS SHALL BE STABILIZED IMMEDIATELY. SEE BEST MANAGEMENT PRACTICES FOR BLASTING ON SHEET C-102.

7.) START BUILDING CONSTRUCTION.

8.) INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. INSTALL RAIN GARDENS. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.

9.) BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED. NO AREA IS ALLOWED TO BE DISTURBED FOR A LENGTH OF TIME THAT EXCEEDS 45 DAYS BEFORE BEING STABILIZED, DAILY, OR AS REQUIRED. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. LIMIT THE LENGTH OF EXPOSURE OF UNSTABILIZED SOIL TO 45 DAYS OR LESS.

10.) CONSTRUCT TEMPORARY BERMS, DRAINS DITCHES, SILT FENCES, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.

11.) INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION. ALL SWPPP INSPECTIONS MUST BE CONDUCTED BY A QUALIFIED PROFESSIONAL SUCH AS A PROFESSIONAL ENGINEER (PE), A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC), A CERTIFIED EROSION SEDIMENT AND STORM WATER INSPECTOR (CESSW), OR A CERTIFIED PROFESSIONAL IN STORM WATER QUALITY (CPSWQ). INSPECTION REPORTS SHALL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT. EROSION AND SEDITMENT CONTROL PRACTICES ARE TO BE INSPECTED WEEKLY AND AFTER 0.5" OF RAINFALL.

12.) COMPLETE PERMANENT SEEDING AND LANDSCAPING.

13.) REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE.

14.) SMOOTH AND REVEGETATE ALL DISTURBED AREAS.

15.) FINISH PAVING ALL ROADWAYS.

16.) LOT DISTURBANCE, OTHER THAN THAT SHOWN ON THE APPROVED PLANS, SHALL NOT COMMENCE UNTIL AFTER THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

E18

DEFINITION OF STABLE:

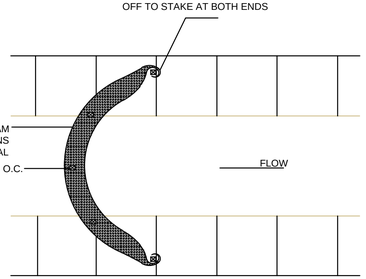
PER ENV-WQ 1500 ALTERATION OF TERRAIN

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

ADDITION STABILIZATION NOTES:

5. HAY MULCH OR OTHER APPROVED METHODS SHALL BE USED TO CONTROL EROSION OF NEWLY GRADED AREAS. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS AFTER THEIR CONSTRUCTION.
6. DISTURBED SOIL AREAS SHALL BE EITHER TEMPORARILY OR PERMANENTLY STABILIZED. IN AREAS WHERE FINAL GRADING HAS NOT OCCURRED, TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN SEVEN (7) CALENDAR DAYS FOR EXPOSED SOIL AREAS THAT ARE WITHIN ONE HUNDRED (100) FEET OF A SURFACE WATER BODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN THREE (3) CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOIL AREAS.

E19

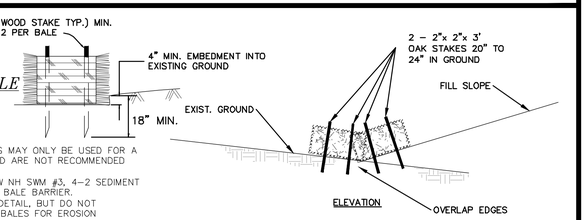


FILTREXX CHECK DAM

NOT TO SCALE

NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. CHECK DAM SHOULD BE USED IN AREAS THAT DRAIN 1 ACRE OR LESS.
3. SEDIMENT SHOULD BE REMOVED FROM BEHIND CHECK DAM ONCE THE ACCUMULATED HEIGHT HAS REACHED ½ THE HEIGHT OF THE CHECK DAM.
4. CHECK DAM CAN BE DIRECT SEEDED AT THE TIME OF INSTALLATION.
5. CONTRACTOR IS REQUIRED TO BE A FILTREXX CERTIFIED™ INSTALLER.

E20

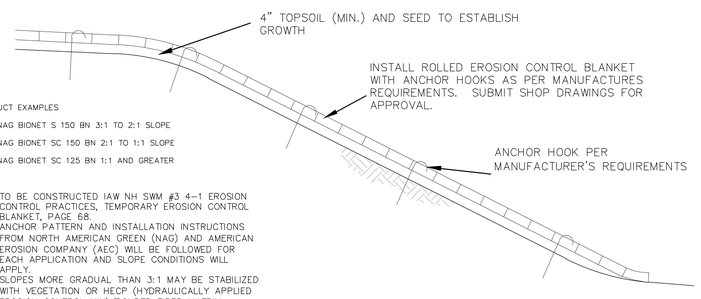


STAKED HAYBALE DETAIL

NOT TO SCALE

1.) HAY BALES BARRIERS MAY ONLY BE USED FOR A MAXIMUM OF 60 DAYS AND ARE NOT RECOMMENDED FOR PERIMETER CONTROL.
2.) TO BE INSTALLED IAW NH SWM #3, 4-2 SEDIMENT CONTROL, STRAW OR HAY BALE BARRIER.
3.) REQUIRED TO SHOW DETAIL, BUT DO NOT RECCOMEND USE OF HAY BALES FOR EROSION CONTROL.

E21



PRODUCT EXAMPLES

1.) NAG BIONET S 150 BN 3:1 TO 2:1 SLOPE
2.) NAG BIONET SC 150 BN 2:1 TO 1:1 SLOPE
3.) NAG BIONET SC 125 BN 1:1 AND GREATER

1. TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, TEMPORARY EROSION CONTROL BLANKET, PAGE 68.
2. ANCHOR PATTERN AND INSTALLATION INSTRUCTIONS FROM NORTH AMERICAN GREEN (NAG) AND AMERICAN EROSION COMPANY (AEC) WILL BE FOLLOWED FOR EACH APPLICATION AND SLOPE CONDITIONS WILL APPLY.
3. SLOPES MORE GRADUAL THAN 3:1 MAY BE STABILIZED WITH VEGETATION OR HECP (HYDRAULICALLY APPLIED EROSION CONTROL MIX)/BONDED FIBER MATRIX. HOWEVER THE ENGINEER RESERVES THE RIGHT TO REQUEST INCREASED RECB TO BE INSTALLED ON ANY SLOPE.
4. ALL RECB IS TO CONSIST OF ALL NATURAL MATERIAL WITH NO SYNTHETIC COMPONENTS (NO PHOTO BIODEGRADABLE NETTING)

ROLLED EROSION CONTROL BLANKET (RECB) SLOPE STABILIZATION DETAIL

E22

WINTER STABILIZATION NOTES

1. ALL DISTURBED AREAS THAT DO NOT HAVE AT LEAST 85% VEGETATIVE COVERAGE PRIOR TO OCTOBER 15TH SHALL BE STABILIZED BY APPLYING MULCH AT A RATE OF 3-4 TONS PER ACRE. ALL SIDE SLOPES, STEEPER THAN 4:1, THAT ARE NOT DIRECTED TO SWALES OR DETENTION BASINS, SHALL BE LINED WITH BIODEGRADABLE/PHOTODEGRADABLE "JUTE MATTING" (EXCELSIOR'S CURLEX II OR EQUAL). ALL OTHER SLOPES SHALL BE MULCHED AND TACKED AT A RATE OF 3-4 TONS PER ACRE. THE APPLICATION OF MULCH AND/OR JUTE MATTING SHALL NOT OCCUR OVER EXISTING SNOW COVER. IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY SNOW THAT ACCUMULATES ON DISTURBED AREAS SHALL BE REMOVED. PRIOR TO SPRING THAW ALL AREAS WILL BE STABILIZED, AS DIRECTED ABOVE.

2. ALL SWALES THAT DO NOT HAVE FULLY ESTABLISHED VEGETATION SHALL BE EITHER LINED WITH TEMPORARY JUTE MATTING OR TEMPORARY STONE CHECK DAMS (APPROPRIATELY SPACED). STONE CHECK DAMS WILL BE MAINTAINED THROUGHOUT THE WINTER MONTHS. IF THE SWALES ARE TO BE MATTED WITH PERMANENT LINERS OR RIPRAP WITH ENGINEERING FABRIC, THIS SHALL BE COMPLETED PRIOR TO WINTER SHUTDOWN OR AS SOON AS THEY ARE PROPERLY GRADED AND SHAPED.

3. PRIOR TO OCT. 15TH ALL ROADWAY AND PARKING AREAS SHALL BE BROUGHT UP TO AND THROUGH THE BANK RUN GRAVEL APPLICATION. IF THESE AREAS' ELEVATIONS ARE PROPOSED TO REMAIN BELOW THE PROPOSED SUBGRADE ELEVATION, THE SUBGRADE MATERIAL SHALL BE ROUGHLY CROWNED AND A 3" LAYER OF CRUSHED GRAVEL SHALL BE PLACED AND COMPACTED. THIS WILL ALLOW THE SUBGRADE TO SHED RUNOFF AND WILL REDUCE ROADWAY EROSION. THIS CRUSHED GRAVEL DOES NOT HAVE TO CONFORM TO NH DOT 304.3, BUT SHALL HAVE BETWEEN 15-25% PASSING THE #200 SIEVE AND THE LARGEST STONE SIZE SHALL BE 2". IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY ACCUMULATED SNOW SHALL BE REMOVED FROM ALL ROADWAY AND PARKING AREAS.

4. AFTER OCTOBER 15TH, THE END OF NEW HAMPSHIRE'S AVERAGE GROWNG SEASON, NO ADDITIONAL LOAM SHALL BE SPREAD ON SIDE SLOPES AND SWALES. THE STOCKPILES THAT WILL BE LEFT UNDISTURBED UNTIL SPRING SHALL BE SEEDED BY THIS DATE. AFTER OCTOBER 15TH, ANY NEW OR DISTURBED PILES SHALL BE MULCHED AT A RATE OF 3-4 TONS PER ACRE. ALL STOCKPILES THAT WILL REMAIN THROUGHOUT THE WINTER SHALL BE SURROUNDED WITH SILT FENCING.

5. ENV-WQ 1505.06 COLD WEATHER SITE STABILIZATION (B)(1) LIMITS AREA OF EXPOSURE TO ONE ACRE OF UNSTABILIZED SOIL WITHOUT OBTAINING A WAIVER AND WINTER CONSTRUCTION PLAN.

E-102

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

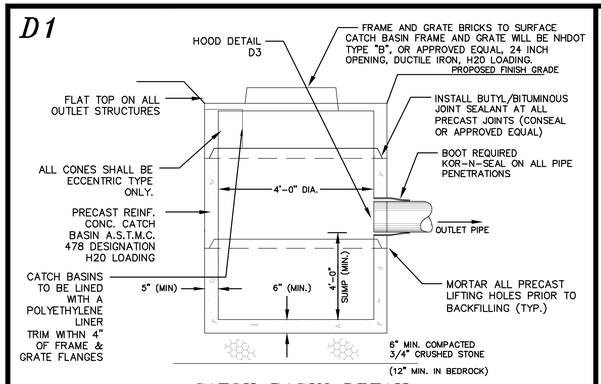
EROSION & SEDIMENT CONTROL DETAILS
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY No. 14243
LICENSED PROFESSIONAL ENGINEER

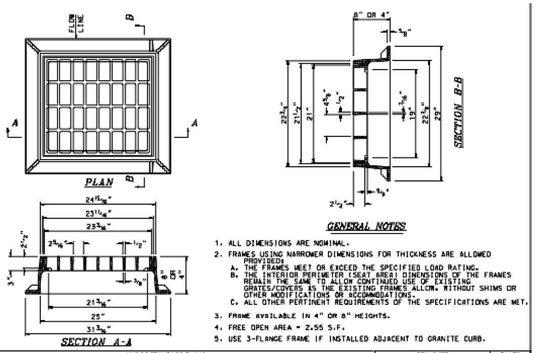
D1



CATCH BASIN DETAIL

NOT TO SCALE

D2



NHDOT STANDARD PLANS

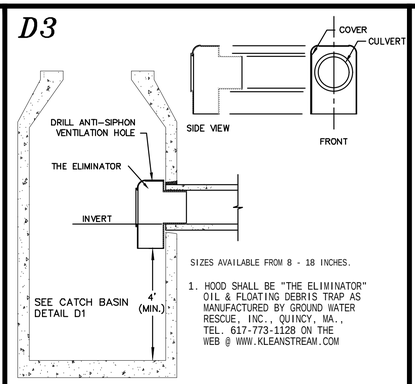
TYPE "B" GRATE & FRAME

REV. DATE	PLATE
06-16-2010	2
08-14-2015	STANDARD DR-1

CATCH BASIN GRATE

NOT TO SCALE

D3



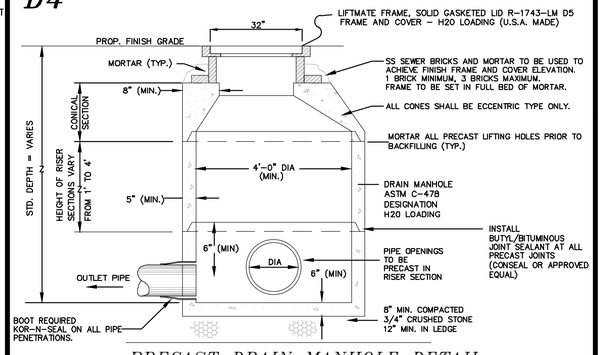
SIZES AVAILABLE FROM 8 - 18 INCHES.

1. HOOD SHALL BE "THE ELIMINATOR" OIL & FLOATING DEBRIS TRAP AS MANUFACTURED BY GROUND WATER RESCUE, INC., QUINCY, MA., TEL. 617-773-1128 ON THE WEB @ WWW.KLEANSTREAM.COM

CATCH BASIN HOOD DETAIL

NOT TO SCALE

D4



PRECAST DRAIN MANHOLE DETAIL

NOT TO SCALE

D5

R-1743-LM

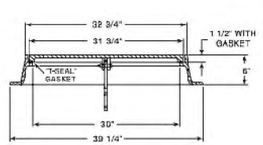
LiftMate Frame, Solid Gasketed Lid

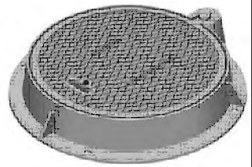
Heavy Duty

Furnished with four 1" anchor holes on 36-7/8" diameter bolt circle.

Hinge plug available for self-seal application.

See p. 13 for LiftMate information.



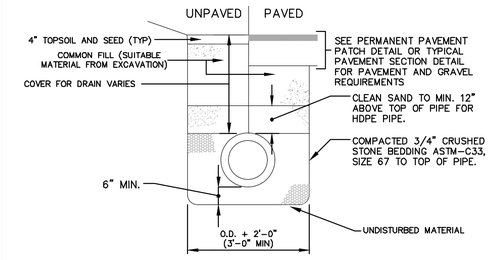


DRAIN MANHOLE FRAME AND GRATE WILL BE LIFTMATE R-1743-LM, OR APPROVED EQUAL, 32 INCH OPENING, CAST IRON, H20 LOADING.

DRAIN MANHOLE COVER DETAIL

NOT TO SCALE

D6



NOTE:

PLASTIC DRAIN PIPE (HDPE) SHALL BE ADS N-12 (CORRUGATED EXTERIOR/SMOOTH INTERIOR) OR EQUAL MEETING AASHTO M-252 AND H-20 LOADING.

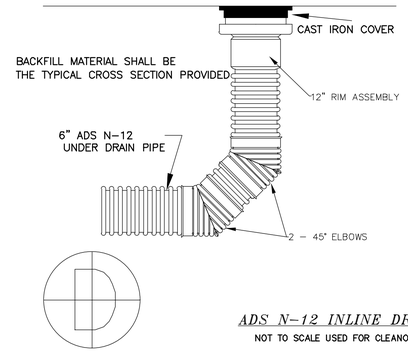
DI DRAIN PIPE SHALL BE CL. 50.

RC DRAIN PIPE SHALL BE CLASS III UNLESS OTHERWISE NOTED.

TYPICAL DRAIN PIPE TRENCH

NOT TO SCALE

D7



ADS N-12 INLINE DRAIN

NOT TO SCALE USED FOR CLEANOUTS

12" CAST IRON COVER

NOT TO SCALE

CASTINGS ARE RATED FOR H20 WHEEL LOAD TRAFFIC

PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT

D8

CONE GRATE

NOT TO SCALE

NOTE:

MUST BE HAALA INDUSTRIES INC. OR EQUAL.



Cone Grates Top Mount

CG12TM
Part No. CG12TM

Save Trees

Top Mount Cone Grates are designed to mount on the top of round manhole inlet or outlet structures to keep debris from entering the storm water system. Top mount cone grates are easy to install and allow for at grade manhole installations but can be used in a variety of applications. Grates 96" and larger are made as a two piece, bolt together design.

- Plate and bar hybrid design is both clean and cost effective
- Made from 1/2" plate with 3/4" or 1" round bars depending on grate size
- Anti vortex plate can be added upon request
- Hinged and lockable access doors can be added upon request
- Galvanized steel construction. Can be made from aluminum or stainless steel.

D9

ANGLE GRATE

NOT TO SCALE

NOTE:

MUST BE HAALA INDUSTRIES INC. OR EQUAL.



Angle Grates For Manholes

AG0808-58
Part No. AG0808-58

Save Trees

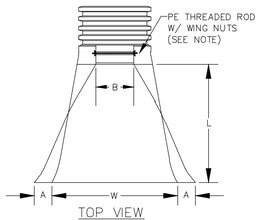
Angle Grates are designed to cover inlet orifices and prevent small to medium debris from passing through. The top angled design helps to minimize the amount of debris that settles on top after the water receeds. All grates are made from plate for a clean and smooth contact surface.

- Plate design for a clean appearance
- Standard 2" openings (other sizes can be made)
- Angled top/front plate to maximize debris deflection
- Mounting flanges on 3 sides allows grate to be mounted at floor level inverts
- Galvanized steel construction. Can be made from aluminum or stainless steel.

D10

PART No.	PIPE SIZE	A	B(MAX)	H	L	W
1510-NP	15" 375 mm	6.5" 165 mm	10" 254 mm	6.5" 165 mm	25" 635 mm	29" 735 mm
1810-NP	18" 450 mm	7.5" 190 mm	15" 380 mm	6.5" 165 mm	32" 812 mm	35" 890 mm
2410-NP	24" 600 mm	7.5" 190 mm	18" 450 mm	6.5" 165 mm	36" 900 mm	45" 1140 mm
3010-NP	30" 750 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm
3610-NP	36" 900 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm

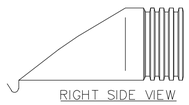
NOTE: PE THREADED ROD W/ WING NUTS PROVIDED FOR END SECTIONS 15"-24". 30" & 36" END SECTIONS TO BE WELDED PER MANUFACTURER'S RECOMMENDATIONS.



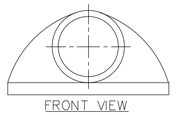
TOP VIEW

ADS N-12 FLARED END SECTIONS

NOT TO SCALE (ALL DIMENSIONS ARE NOMINAL)



RIGHT SIDE VIEW

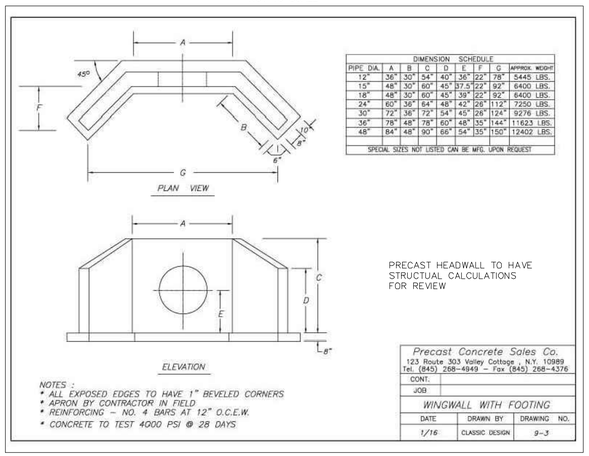


FRONT VIEW

D11

HEADWALL (CONCRETE)

NOT TO SCALE



DIMENSION SCHEDULE								
PIPE DIA.	A	B	C	D	E	F	G	APPROX. WEIGHT
12"	36"	30"	54"	40"	36"	22"	78"	5445 LBS.
15"	48"	30"	60"	45"	37.5"	22"	92"	6400 LBS.
18"	48"	30"	60"	45"	39"	22"	92"	6400 LBS.
24"	60"	36"	64"	48"	42"	26"	112"	7250 LBS.
30"	72"	36"	72"	54"	45"	26"	124"	9276 LBS.
36"	78"	48"	78"	60"	48"	35"	144"	11623 LBS.
48"	84"	48"	90"	66"	54"	35"	150"	12402 LBS.

SPECIAL SIZES NOT LISTED CAN BE MFG. UPON REQUEST

PRECAST HEADWALL TO HAVE STRUCTUAL CALCULATIONS FOR REVIEW

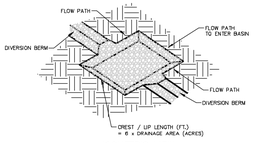
NOTES :
* ALL EXPOSED EDGES TO HAVE 1" BEVELED CORNERS
* APRON BY CONTRACTOR IN FIELD
* REINFORCING - NO. 4 BARS AT 12" O.C.E.W.
* CONCRETE TO TEST 4000 PSI @ 28 DAYS

Precast Concrete Sales Co.
123 Route 303 Valley Cottage , N.Y. 10989
Tel. (845) 268-4949 - Fax (845) 268-4376

CONT.	
JOB	
WINGWALL WITH FOOTING	
DATE	DRAWN BY / DRAWING NO.
1/16	CLASSIC DESIGN / 9-3

D12

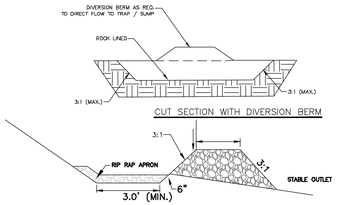
1. TRAP TO BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. THE SIDE SLOPES OF THE TRAP SHALL BE 3:1 OR FLATTER AND SHALL BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION.
5. THE OUTLET OF THE TRAP SHALL BE A MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP AND SHALL DISCHARGE TO A STABILIZED AREA.
6. THE TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. THE MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.



ISOMETRIC VIEW

STONE LINED SEDIMENT TRAP

NOT TO SCALE



CROSS SECTION

SIEVE DESIGNATION	SIZE OF STONE (INCHES)
100%	12
84-100%	6
68-83%	3
42-55%	1
8-12%	NO. 4

REFERENCE IS MADE TO A LONG TERM MAINTENANCE MANUAL PREPARED BY BERRY SURVEYING & ENGINEERING, WHICH IS ON FILE AT THE CITY OF DOVER PLANNING DEPARTMENT, AND CAN BE FOUND AT THE OFFICE OF BERRY SURVEYING & ENGINEERING. (603) 332-2863

D-101

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
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#1	9-1-22	REVISED PER DOVER TRC COMMENT

DRAINAGE DETAILS
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED

DATE : JUNE 1, 2022

FILE NO. : DB 2021 - 134

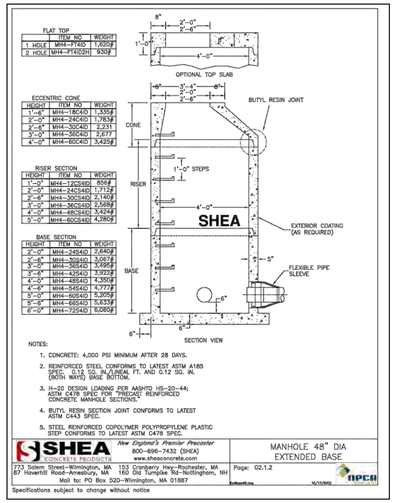
STATE OF NEW HAMPSHIRE - KENNETH A. BERRY No. 14243 LICENSED PROFESSIONAL ENGINEER

SHEET 20 OF 27

D13

48" MANHOLE ROUND EXTENDED BASE

NOT TO SCALE



NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 WELDED WIRE FABRIC, 6"X6"W1.4XW1.4, AND 0.12 SQ. IN. (WITH WAYS) SPLICE BOTTOM.
3. H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS.
4. BUTYL RESIN SECTION JOINT CONFORMS TO LATEST ASTM C443 SPEC.
5. STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.

SHEA CONCRETE PRODUCTS — New England's Premier Precaster
800-696-7432 (SHEA)
www.sheaconcrete.com
273 Salem Street—Wilmington, MA 133 Cranberry Hwy—Rochester, MA
87 Haverhill Road—Amesbury, MA 160 Old Turnpike Rd—Nottingham, NH
Mail to: PO Box 520—Wilmington, MA 01887

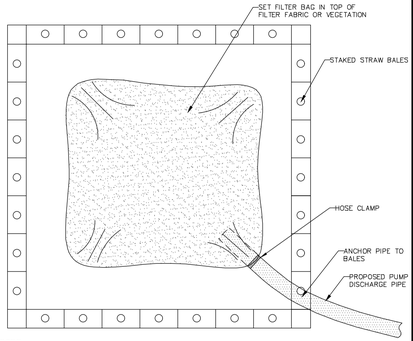
MANHOLE 48" DIA EXTENDED BASE

Page: G2.1.2

NPCA

Specifications subject to change without notice

D14



NOTES:

1.) ENSURE DISCHARGE POINT IS STABILIZED WITH VEGETATION OR PROPER EROSION AND SEDIMENT CONTROL PRACTICES.

2.) USE DIFFUSER NOZZLE OR LOW DISCHARGE RATE TO PREVENT SCOURING.

3.) TO BE PLACED AT AN UPLAND LOCATION THAT WILL ALLOW WATER TO DRAIN INTO THE GROUND.

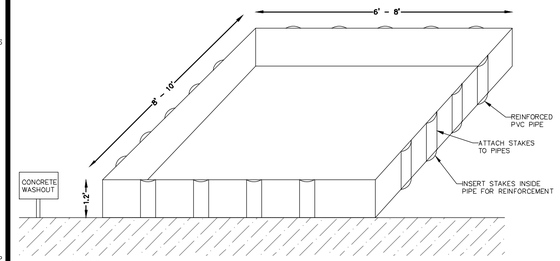
4.) SIZE OF DE-WATERING AREA TO BE 10' X 10', ADJUST SIZE DEPENDING ON VOLUME AND USE.

5.) ADDITIONAL BALES MAY BE USED TO INCREASE RETENTION AND FILTERING.

DE-WATERING BASIN

NOT TO SCALE

D15



NOTES:

1.) CONCRETE WASHOUT SHALL BE INSTALLED PRIOR TO ANY CONCRETE POURS.

2.) SIGNS SHALL BE INSTILLED TO CLEARLY INDICATE WHERE THE LOCATION OF THE WASHOUT AREA IS.

3.) CONTRACTOR IS IRRESPONSIBLE TO MAINTAIN AND REPLACE WASHOUT AREA AS NEEDED.

4.) RESIDUE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.

5.) DO NOT WASH CONCRETE TRUCKS OUT INTO DRAINAGE AREAS, SWALES, STREETS OR UNDISTURBED AREAS.

6.) WASHOUT AREA SHALL BE PLACED AWAY FROM DRAINAGE FEATURES AND OUTSIDE AND WETLAND BUFFERS.

CONCRETE WASHOUT

NOT TO SCALE

DOVER FILE #P22-55

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335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

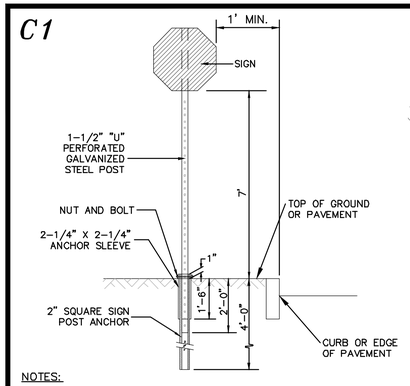
AS NOTED

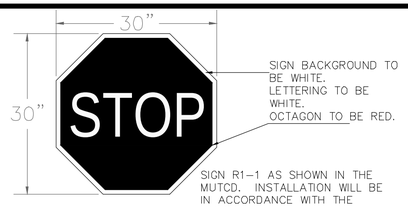
DATE : JUNE 1, 2022

FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE - KENNETH A. BERRY No. 14243 LICENSED PROFESSIONAL ENGINEER

C1





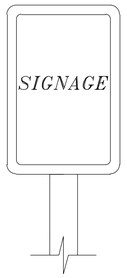
SIGN BACKGROUND TO BE WHITE. LETTERING TO BE WHITE. OCTAGON TO BE RED.

SIGN R1-1 AS SHOWN IN THE MUTCD. INSTALLATION WILL BE IN ACCORDANCE WITH THE MUTCD.

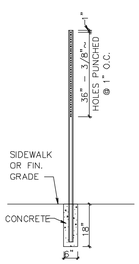
NOTES:

1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.
2. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.
3. THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE CITY OF DOVER DEPARTMENT OF PUBLIC WORKS.

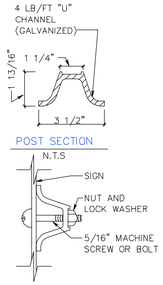
TYPICAL SIGN POST
(NOT TO SCALE)



PARTIAL ELEVATION
N.T.S.



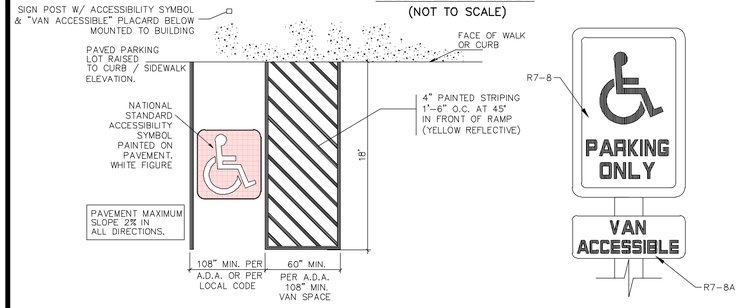
POST
N.T.S.



MOUNTING
N.T.S.

C2

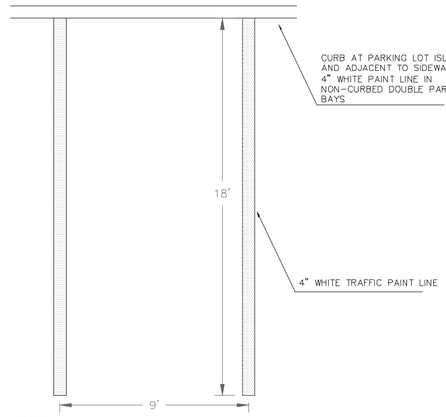
ACCESSIBLE PARKING STALL SIGNAGE
(NOT TO SCALE)



PARTIAL ELEVATION
N.T.S.

C3

PARKING SPACE DETAIL
NOT TO SCALE



NOTES:

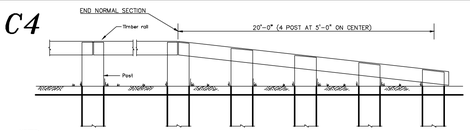
1.) PROVIDE TWO COATS OF PAINT ON ALL PARKING LINES.
2.) SEE PROPOSED SITE PLANS FOR LOCATION OF PARKING SPACES.
3.) PAINTED SPACES ONLY WHERE MARKED ON SITE PLAN

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

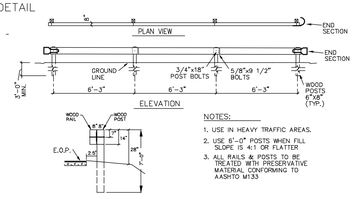
CONSTRUCTION DETAILS
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

C4

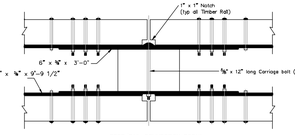


NOTES:
1. POST TYPE : 10" x 12" WOOD
2. BEAM TYPE : 6" x 10" WOOD
3. POST SPACING : 5'-0" O.C.
4. NOMINAL BARRIER HEIGHT : 27"

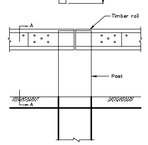
WOOD GUARD RAIL
TERMINAL UNIT DETAIL



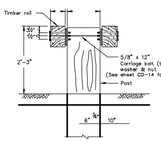
NOTES:
1. USE IN HEAVY TRAFFIC AREAS.
2. USE 6'-0" POSTS WHEN FILL SLOPE IS 4:1 OR FLATTER
3. ALL RAILS & POSTS TO BE TREATED WITH PRESERVATIVE MATERIAL CONFORMING TO AASHTO M133



POST/RAIL CONNECTION DETAIL



POST CONNECTION DETAIL

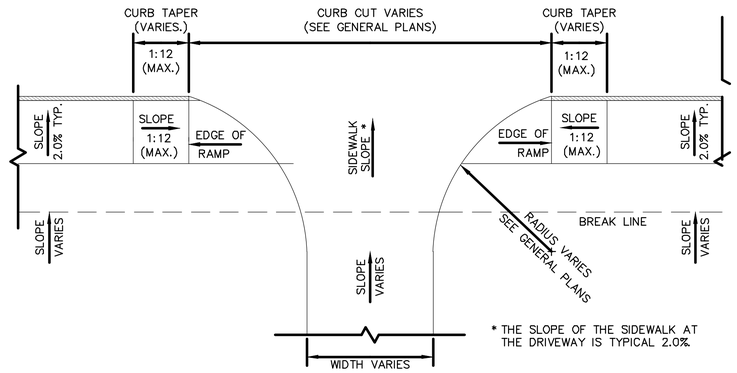


SECTION A-A

NOTES:
1. POST TYPE : 10" x 12" WOOD
2. POST SPACING : 10'-0" O.C.
3. NOMINAL BARRIER HEIGHT : 27"
4. ALL BOLTS & WASHERS TO BE GALVANIZED

WOODEN RAIL GUARD RAIL
NOT TO SCALE

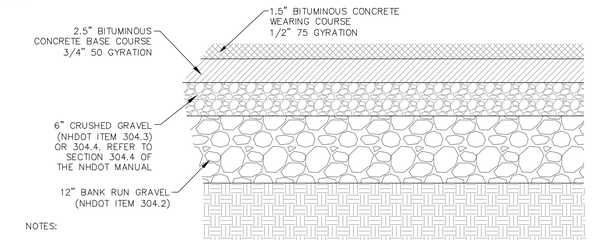
C5



* THE SLOPE OF THE SIDEWALK AT THE DRIVEWAY IS TYPICAL 2.0%

PLAN VIEW (DRIVEWAY & SIDEWALK)
NOT TO SCALE

C6



NOTES:

1.) BITUMINOUS MATERIALS SHALL CONFORM TO NHDOT SPECIFICATION SUBSECTION 401.3.6.

2.) PAVEMENT BASE COURSE AGGEGATE SHALL CONFORM TO NHDOT SPECIFICATION SECTION 304, ITEM 304.3 AND COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY.

3.) PAVEMENT SUBBASE COURSE AGGREGATE AND AGGREGATE FOR SUBGRADE REPAIR AREAS SHALL BE SUITABLE FOR USE AS STRUCTURAL FILL AND BE PROOFROLLED AND COMPABED TO 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY. FOR NEW CONSTRUCTION AREAS ONLY. IN EXISTING PAVEMENT AREAS THE CONTRACTOR IS TO ENSURE THE BASE MATERIAL IS SUITABLE TO THE OWNER FOR RE-PAVING

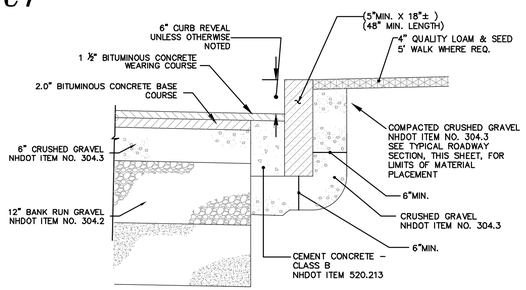
BITUMINOUS CONCRETE PAVEMENT SECTION (NON-POROUS)
NOT TO SCALE

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

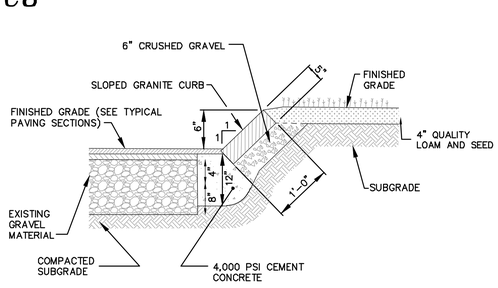
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

C7



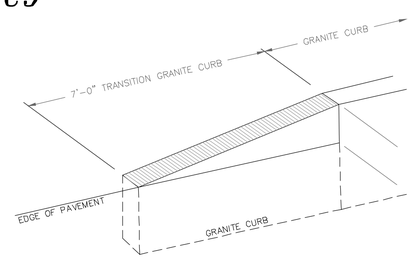
VERTICAL GRANITE CURB DETAIL
NOT TO SCALE

C8



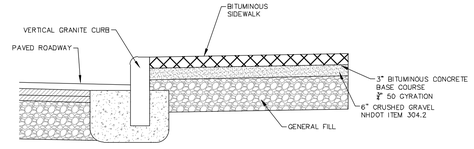
SLOPE GRANITE CURB DETAIL
NOT TO SCALE

C9



CURB TRANSITION DETAIL
NOT TO SCALE
TO BE USED FOR TRANSITION FROM GRANITE CURB TO EDGE OF PAVEMENT

C10



BITUMINOUS SIDEWALK RAISED
NOT TO SCALE

C-101

C11

See Redi-Rock.com for Detailed Section Drawings of Each Condition Shown in the Design Charts

NOTES:

1.) USE THE 41" BOTTOM BLOCK TO INSTALL THE FIRST COURSE. NOTE EMBEDMENT REQUIREMENT. COURSE DEPTH IS 1.5'

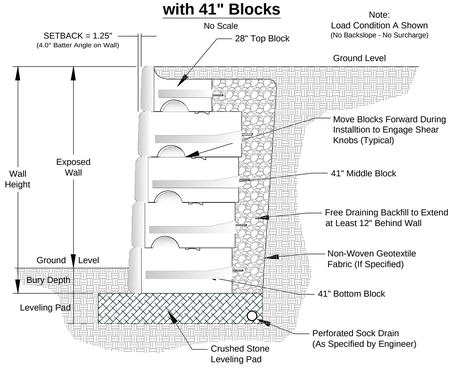
3.) USE 41" MIDDLE BLOCK FOR MIDDLE ROWS, APPROXIMATELY 7 COURSES DEPENDING ON WALL HEIGHT.

4.) USE 41" TOP BLOCK ALONG TOP OF WALL. NOTE WALL DROPS ARE TO BE FULL BLOCK DEPTHS.

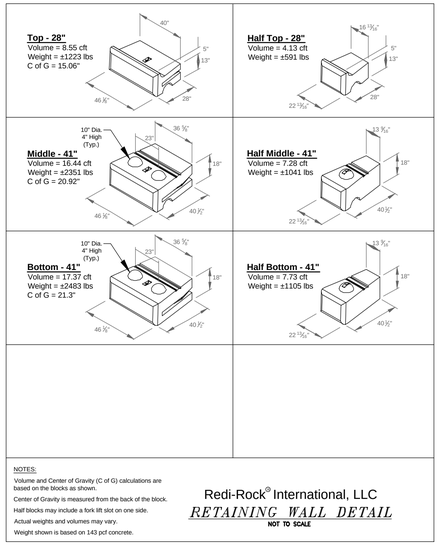
5.) USE 41" HALF BLOCKS FOR RADIAL TURNS AND END SECTIONS.

6.) THE WALL MANUFACTURER TYPICALLY PROVIDES WALL PROFILE AND BLOCK COUNT TO THE CONTRACTOR AS REQUIRED FOR CONSTRUCTION. THIS IS TO BE REVIEWED BY BOTH DPW AND DESIGN ENGINEER FOR CORRELATION WITH PROJECT SITE PLANS AND IS TO BE DESIGNED AND STAMPED BY A STRUCTURAL ENGINEER (OTHERS).

Typical Gravity Wall with 41" Blocks



41" SERIES BLOCKS



NOTES:
Volume and Center of Gravity (C of G) calculations are based on the blocks as shown.
Center of Gravity is measured from the back of the block.
Half blocks may include a fork lift slot on one side.
Actual weights and volumes may vary.
Weight shown is based on 143 pcf concrete.

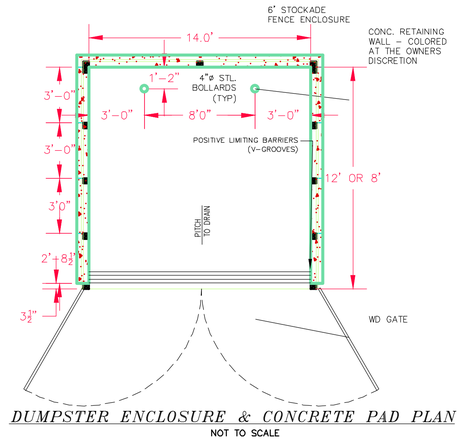
Redi-Rock® International, LLC

RETAINING WALL DETAIL

NOT TO SCALE

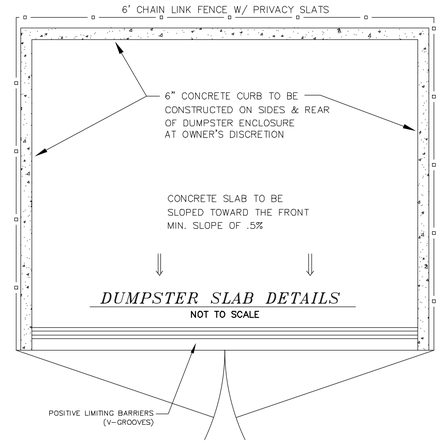
NOTE: RETAINING WALL TO BE DESIGNED BY A LICENSED PROFESSIONAL GEOTECHNICAL/STRUCTURAL ENGINEER.

C12



DUMPSTER ENCLOSURE & CONCRETE PAD PLAN

NOT TO SCALE

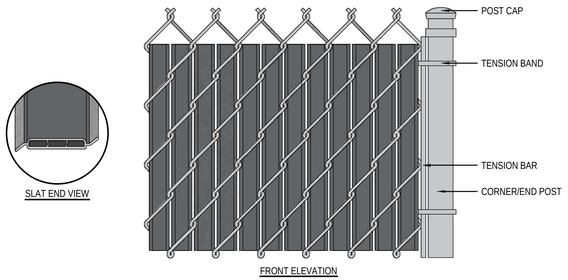


DUMPSTER SLAB DETAILS

NOT TO SCALE

C13

PRIVACYLINK® 3 1/2 IN. X 5 IN. MESH W/ SUPREME PRIVACY SLATS

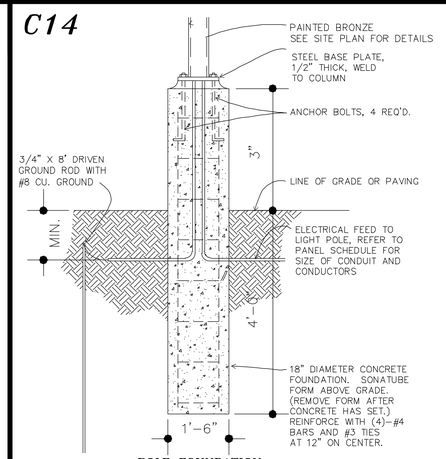


SLAT END VIEW

FRONT ELEVATION

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.

C14



POLE FOUNDATION

LIGHT BASE DETAIL

NOT TO SCALE

C15



D-Series Size 1 Solar
LED Area Luminaire

Catalog Number
Notes
Type

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

Buy American

d-series

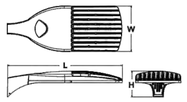
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.

The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density.

Specifications

EPA:	1.01 ft² (0.09 m²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height:	7-1/2" (19.0 cm)
Weight (max):	27 lbs (12.3 kg)



Ordering Information EXAMPLE: DSX1 LED P1 40K T3M SOLAR SPA DDBXD

DSX1 LED

Series	LEDs	Drive Currents	Distribution	Voltage	Mounting	Shipped included	Other Options	Finish
DSX1 LED	Forward optics P1 11,000 lumens	30K 3000K 40K 4000K 50K 5000K	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium TSVS Type V very short TSS Type V short TSM Type V medium TSW Type V wide BLC Backlight control [1] LCCO Left corner cutoff [1] RCCO Right corner cutoff [1]	24 VDC SOLAR 24 Volt DC drivers [2] Compatible with Sol by Sunna [3]	SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor [4] RPUMBA Round pole universal mounting adaptor [4]	SF Shipped separately [5] BAA Buy American(a) Act Compliant	HS House-side shield [6]	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

NOTES
1 Not available with HS.
2 Not available with 24Volt DC systems only. Owner is responsible for confirming that luminaire will work with your system.
3 No driver included, compatible with Sol by Sunna solar panel.
4 Available as a separate combination accessory: TUMBA (Solid U). For retrofit onto metal poles not drilled with Template A8.
5 Also available as a separate accessory; see Accessories information.
6 Not available with BLC, LCCO or RCCO.

LITHONIA LIGHTING® COMMERCIAL OUTDOOR One Lithonia Way • Conyers, Georgia 30012 • Phone: 800-705-SERV (7378) • www.lithonia.com
© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.
DSX1-LED Special Solar Rev. 03/11/21

LAMP "A" MOUNTED 15'

C16

LITHONIA LIGHTING®

Catalog Number
Notes
Type

FEATURES & SPECIFICATIONS

INTENDED USE — For building- and wall-mounted applications.

CONSTRUCTION — Rugged, die-cast, single-piece aluminum housing. Die-cast doorframe has a 1/8" thick tempered glass lens. Doorframe is fully gasketed with one-piece solid silicone.

Finish: Standard finish is textured dark bronze (DDBT) corrosion-resistant polyester powder finish, with other architectural colors available. Striping also is available.

OPTICS — Hydroformed reflector for superior uniformity and control. Medium throw (MD) full cutoff distribution only.

ELECTRICAL — MD utilizes a high-reactance, high-power factor ballast. Ballasts are 100% factory tested. Porcelain, medium-base socket with copper alloy, nickel-plated screw shell and center contact. Quick-disconnect plug easily disconnects reflector from ballast and fixture from supply wires.

INSTALLATION — Easily installed using provided mounting strap. Mount to any non-combustible vertical surface, over a 4" round or square recessed outlet box (by others). Back access through slotted gasket.

LISTINGS — Listed and labeled to UL standards. Listed and labeled to CSA standards (see Options). NOM Certified (see Options). IP65 rated. Wet location listed.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

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

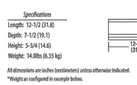
Decorative Wall-Mounted Lighting

WSTM

HIGH PRESSURE SODIUM: 50W

Specifications
Length: 12-1/2 (31.8)
Depth: 7-1/2 (19.1)
Height: 5-3/4 (14.6)
Weight: 14 lbs (6.35 kg)

All dimensions are inches (centimeters) unless otherwise indicated.
*Weight as configured in example below.



ORDERING INFORMATION For shortest lead times, configure product using **standard options (shown in bold).** **Example:** WSTM 70M MD 120 DNAT LPI

WSTM		MD						
Series	Wattage/source	Distribution	Voltage	Ballast	Mounting	Options	Finish [3]	Lamp [7]
WSTM	High pressure sodium 50S	MD Medium throw	120 208 [1] 240 [1] 277 347 TB [2]	(blank) Magnetic	(blank) Surface mount Shipped separately [4] U15 Uplift 15 degrees	Shipped installed in fixture SF Single fuse (120, 277, 347V) [5] DF Double fuse (208, 240V) [5] EC Emergency circuit [6] QRS Quartz restrike system [6] PE Photoelectric cell/button type [6] DFL Diffusing lens CSA CSA Certified NOM NOM Certified Shipped separately [4] WG Wireguard	(blank) Dark bronze, textured DDST Sandstone, textured DNAT Natural aluminum, textured DWHG White, textured DBLB Black, textured CRT Non-stick protective coating [8] Super Durable Finishes DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white	LPI Lamp included L/LP Less lamp

Notes
1. Must specify CWI in Canada.
2. Optional multi-tap ballast (120, 208, 240, 277V) (120/347V in Canada).
3. May be ordered as an accessory with prefix "WS". Must specify finish.
4. Must specify voltage. Not available with TB.
5. Maximum wattage lamp included.
6. Must be ordered with fixture; can not be field installed.
7. See www.lithonia.com/ssrchoolers for additional color options.
8. Black finish only.
9. Must be specified.

OUTDOOR WSTM_DS

LAMP "D" MOUNTED 12'

C17



LAMP "B" MOUNTED 6'

DOVER FILE #P22-55

REVISION	DATE	DESCRIPTION
#3	10-31-22	REVISED PER TRC #2
#2	10-27-22	REVISED PER SEWER APPLICATION
#1	9-1-22	REVISED PER DOVER TRC COMMENT

CONSTRUCTION DETAILS
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY No. 14243
LICENSED PROFESSIONAL ENGINEER

C-102

NOTES ON MANHOLE AND SEWER CONSTRUCTION:

1) IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT AND ADEQUATE JOINTING. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND HS-20-44 LOADING, INCLUDING THE COVER. ALL SMH CONSTRUCTION AND MATERIALS WILL BE IAW ENV.-WQ 704.13 ADOPTED OCTOBER 15, 2014

2) BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE. (IAW ENV.-WQ 704.12 (d))

3) SEWER MANHOLE DIAMETER SHALL BE AS INDICATED ON THE PLANS.

4) PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.

5) GRAVITY SEWER PIPE TESTING WILL BE IN ACCORDANCE WITH ENV.-WQ 704.06 AND MAN HOLE TESTING IAW ENV.-WQ 704.17 DATED OCTOBER 15, 2014.

6) INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. INVERT BRICKS SHALL BE LAID ON EDGE AND THE BASE SECTION SHALL BE FULL AT CHANGES IN DIRECTIONS, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. CARE SHALL BE TAKEN TO ENSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY. (IAW ENV.-WQ 704.13 (a) (9)), MORTAR SHALL CONFORM WITH REQUIREMENTS OF IAW ENV.-WQ 704.13 (c).

7) FRAMES AND COVERS: MANHOLES FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. 3-INCH (MINIMUM HEIGHT) LETTERS WITH THE WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH MANHOLE COVER. (IAW ENV.-WQ 704.13 (a) (4-6)) SEWER MAN HOLE COVERS ARE TO PAMREX.

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

9) HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE DOVER DPW, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATERTIGHTNESS UPON A DOUBLE ROW OF AN OVERLAPPING TYPE ELASTOMERIC OR MASTIC-LIKE GASKET. APPROVED ELASTOMERIC SEALANTS ARE: RAM-NEK, KENT SEAL NO. 2, EZ, OR EQUAL.

10) IN CROSS COUNTRY AREAS OUTSIDE OF THE PAVED ROADWAY SURFACE, THE MANHOLE FRAME ELEVATION SHALL BE A MINIMUM OF 6" ABOVE FINISHED GRADE. GRADE TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE MANHOLE. SEE TYPICAL TRENCH DETAIL ON SHEET D-102.

11.) ALL FRAMES AND GRATES ARE TO BE U.S.A. MADE. MANHOLE STEPS ARE REQUIRED IN THIS MUNICIPALITY AND MUST CONFORM TO THE REQUIREMENTS OF ENV-WQ 704.14.

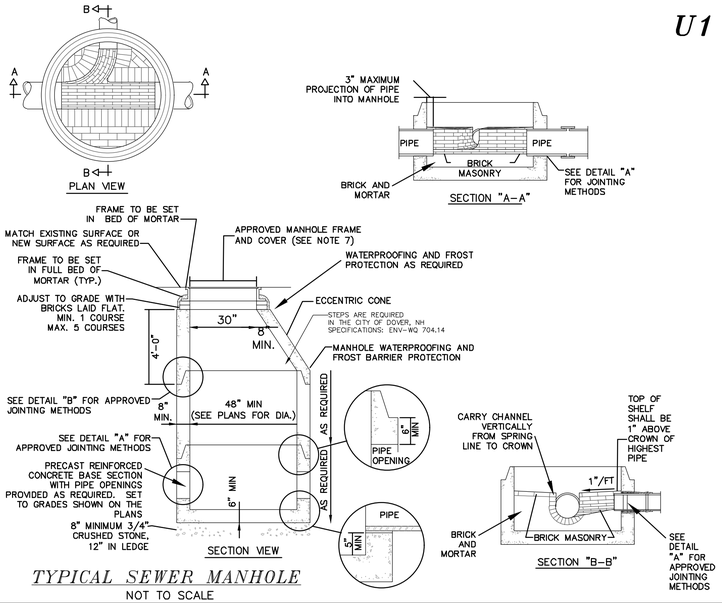
12.) THE CONTRACTOR TO WORK WITH CITY OF DOVER REVIEW ENGINEER AND SEWER DEPARTMENT ON THE MEANS AND METHODS USED TO INSTALL ALL SEWER STRUCTURES.

13.) ANY WORK INVOLVING THE CUTTING INTO THE EXISTING A.C. PIPE SHALL MEET THE REQUIREMENTS OF ENV-A 1800.

14.) THE "CITY OF DOVER, NEW HAMPSHIRE, DEPARTMENT OF COMMUNITY SERVICES, CONSTRUCTION GUIDELINES, PERMITS, RULES, AND REGULATIONS" (DATED MARCH 13, 2018) ARE A PART OF THE CONSTRUCTION DETAILS AND TO BE FOLLOWED.

15.) MANHOLES SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST IN ACCORDANCE WITH THE ASTM C1244 STANDARD AND ENV-WQ 704.17.

U1



TYPICAL SEWER MANHOLE
NOT TO SCALE

U2

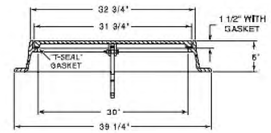
R-1743-LM
LiftMate Frame, Solid Gasketed Lid

Heavy Duty

Furnished with four 1" anchor holes on 36-7/8" diameter bolt circle.

Hinge plug available for self-seal application.

See p. 13 for LiftMate information.

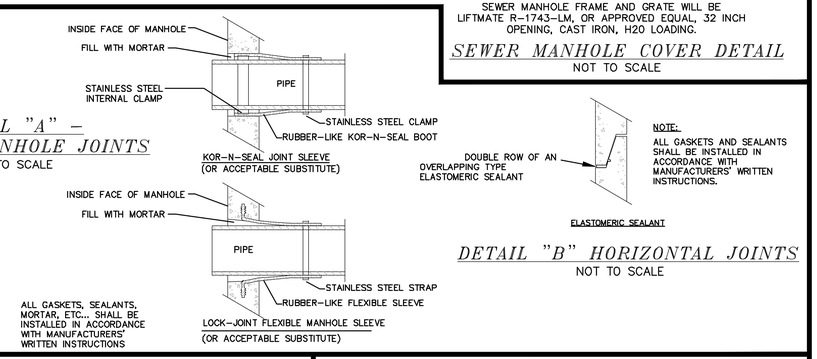




SEWER MANHOLE FRAME AND GRATE WILL BE LIFTMATE R-1743-LM, OR APPROVED EQUAL, 32 INCH OPENING, CAST IRON, H20 LOADING.

SEWER MANHOLE COVER DETAIL
NOT TO SCALE

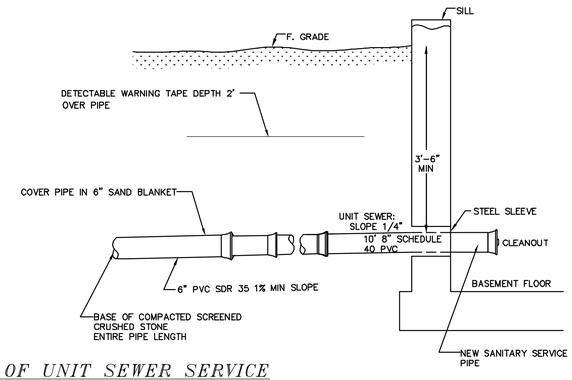
U3



DETAIL "A" - PIPE TO MANHOLE JOINTS
NOT TO SCALE

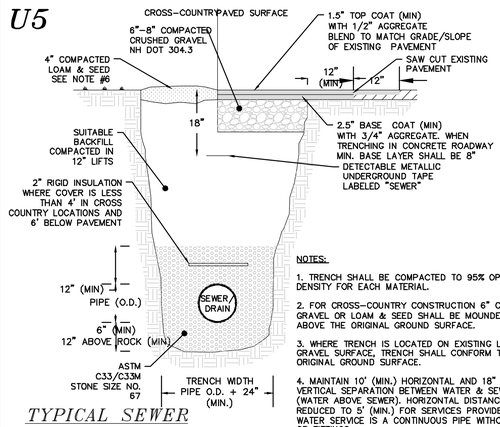
DETAIL "B" HORIZONTAL JOINTS
NOT TO SCALE

U4



DETAIL OF UNIT SEWER SERVICE
NOT TO SCALE

U5

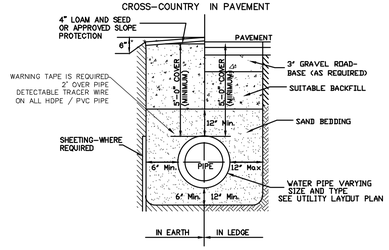


TYPICAL SEWER PIPE TRENCH
NOT TO SCALE

NOTES:

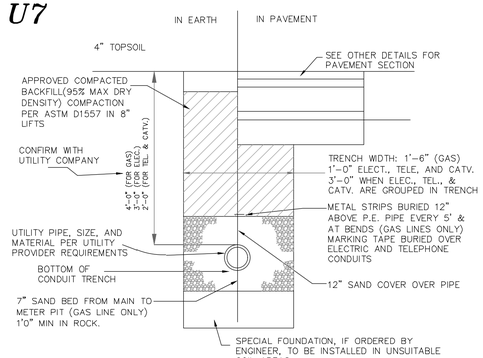
1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY FOR EACH MATERIAL.
2. FOR CROSS-COUNTRY CONSTRUCTION 6" CRUSHED GRAVEL OR LOAM & SEED SHALL BE MOUNDED 6" ABOVE THE ORIGINAL GROUND SURFACE.
3. WHERE TRENCH IS LOCATED ON EXISTING LAWN OR GRAVEL SURFACE, TRENCH SHALL CONFORM TO MATCH ORIGINAL GROUND SURFACE.
4. MAINTAIN 10' (MIN.) HORIZONTAL AND 18" (MIN) VERTICAL SEPARATION BETWEEN WATER & SEWER MAINS (WATER ABOVE SEWER). HORIZONTAL DISTANCE MAY BE REDUCED TO 5' (MIN.) FOR SERVICES PROVIDED THE WATER SERVICE IS A CONTINUOUS PIPE WITHOUT JOINTS OR FITTINGS.
5. BACKFILL MATERIAL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE: DEBRIS, PAVEMENT, ORGANIC MATTER, TOP SOIL, MUCK, PEAT AND ROCKS OVER 6" IN LARGEST DIMENSION
6. LOAM AND SEED SHOULD BE IN COMPLIANCE WITH NH DOT 641, 642, 643, 644 AND 645.

U6



TYPICAL TRENCH DETAIL FOR WATER SYSTEM
NOT TO SCALE

U7



ELECTRICAL, TELEPHONE, AND GAS TRENCH
NOT TO SCALE

DOVER FILE #P22-55

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UTILITY DETAILS
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

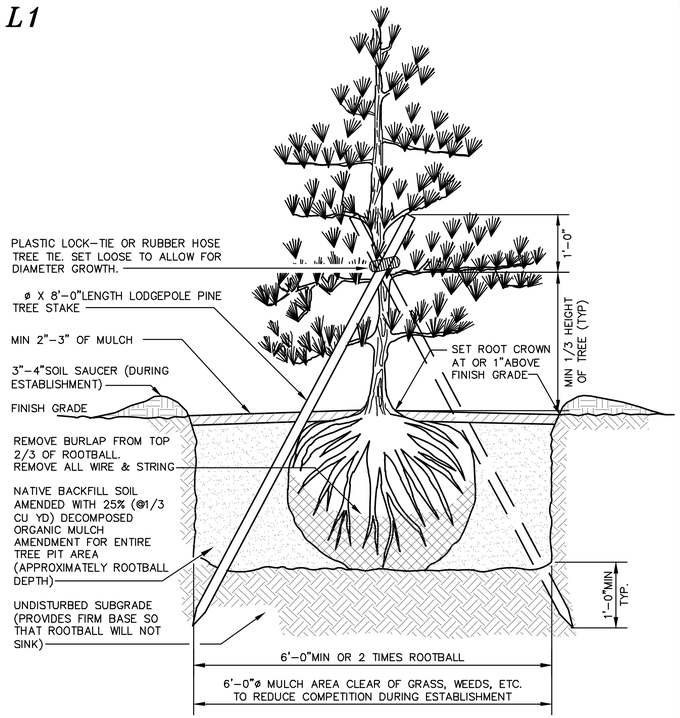
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED
PROFESSIONAL ENGINEER

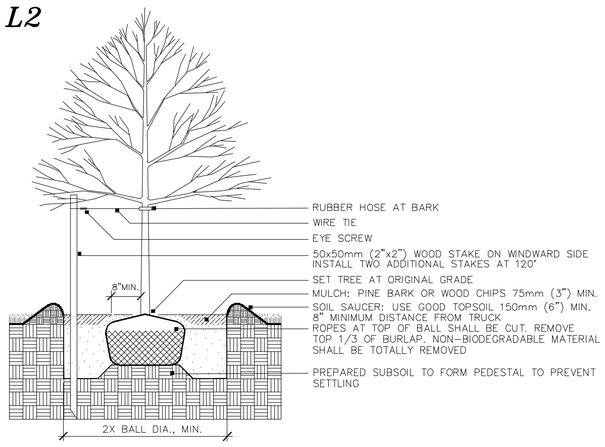
U-101

L1



CONIFEROUS TREE PLANTING

L2



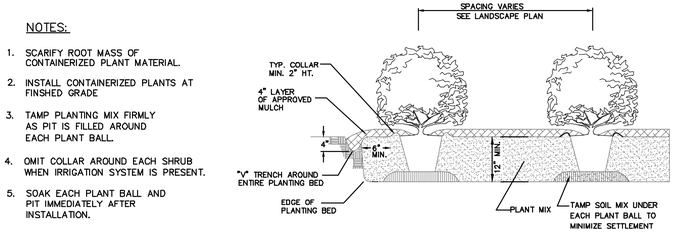
DECIDUOUS TREE PLANTING

NOTE: STAKING TO BE USED IN PARKING ISLANDS AND OTHER CONFINED AREAS AS NECESSARY TO AVOID CONFLICTS WITH PEDESTRIANS

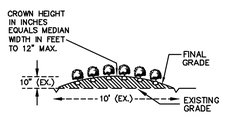
L3

NOTES:

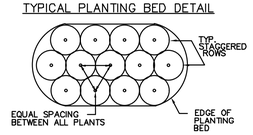
1. SCARIFY ROOT MASS OF CONTAINERIZED PLANT MATERIAL.
2. INSTALL CONTAINERIZED PLANTS AT FINSHED GRADE
3. TAMP PLANTING MIX FIRMLY AS PIT IS FILLED AROUND EACH PLANT BALL.
4. OMIT COLLAR AROUND EACH SHRUB WHEN IRRIGATION SYSTEM IS PRESENT.
5. SOAK EACH PLANT BALL AND PIT IMMEDIATELY AFTER INSTALLATION.



TYPICAL PLANTING BED DETAIL



TYPICAL BED CROWNING

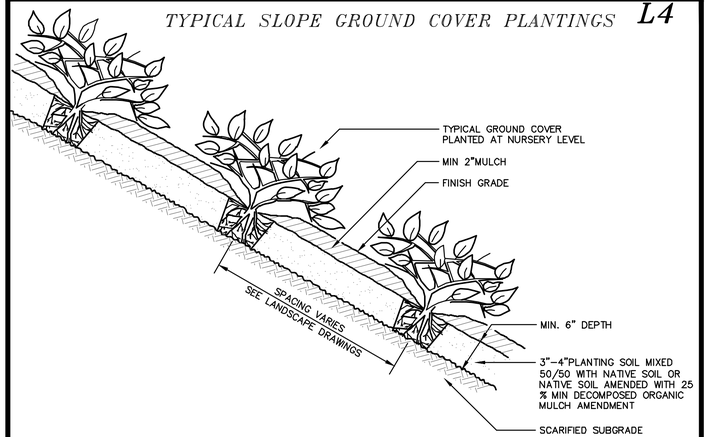


TYPICAL PLANTING BED PLAN

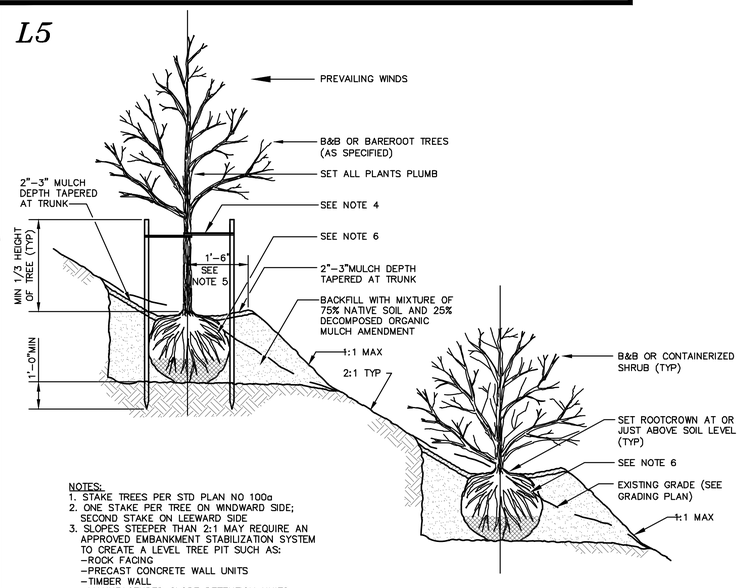
SHRUB & HEDGE PLANTING

L4

TYPICAL SLOPE GROUND COVER PLANTINGS



L5



NOTES:
1. STAKE TREES PER STD PLAN NO 100a
2. ONE STAKE PER TREE ON WINDWARD SIDE; SECOND STAKE ON LEEWARD SIDE
3. SLOPES STEEPER THAN 2:1 MAY REQUIRE AN APPROVED EMBANKMENT STABILIZATION SYSTEM TO CREATE A LEVEL TREE PIT SUCH AS:
   –ROCK FACING
   –PRECAST CONCRETE WALL UNITS
   –TIMBER WALL
   –MANUFACTURED SLOPE RETENTION UNITS
4. CHAINLOCK TREE TIE. LOOP EACH TIE AROUND TREE LOOSELY TO PROVIDE 1" SLACK FOR DIAMETER GROWTH.
5. SHAPE SOIL TO PROVIDE 3' DIAMETER OR ROOTBALL DIAMETER, WHICHEVER IS GREATER, WATERING RING.
6. REMOVE ALL WIRE AND STRING. REMOVE TOP 2/3 OF BURLAP.

TREE PLANTING ON SLOPES

L6

NOTES:

1.) CALL DIG SAFE PRIOR TO BEGINNING WORK. (1–888–344–7233). THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF THE SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES, PAVING, WALKS, CURBING, ETC DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO THE OWNER OR GENERAL CONTRACTOR.

2.) CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL SITE CONDITIONS PRIOR TO CONSTRUCTION BIDDING. SEE NOTE XXX ON OVERALL SITE PLAN.

3.) PROVIDED SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING CONDITIONS.

4.) ALL PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

5.) ALL PLANT MATERIALS SHALL BE FREE FROM INSECTS AND DISEASE.

6.) ALL PLANTINGS SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING STAKING OR GUYING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE FROM OWNER.

7.) ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.

8.) THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING AND NEWLY PLANTED TREES AND SHRUBS DURING THE CONSTRUCTION PROCESS. WHERE REQUIRED, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING (SNOW OR EQUAL) AROUND EXISTING TREES AND SHRUBS THAT COULD BE IMPACTED BY THE CONSTRUCTION PROCESS. STORAGE OF CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIALS, SNOW STORAGE AND OR VEHICLE PARKING SHALL NOT BE PERMITTED WITHIN THE DRIP LINE OF TREES OR TWENTY FEET WHICH EVER IS GREATER.

9.) NEW PLANTINGS SHALL BE INSTALLED PER PROJECT DRAWINGS AND SPECIFICATION THAT INCLUDE FERTILIZATION AND MULCHING AS REQUIRED.

10.) ALL SHRUB BEDS AND TREE PITS SHALL BE MULCHED WITH 3" CLEAN SHREDDED BLACK MULCH.

11.) WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR GROUND COVER AND PERENNIAL BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL–ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.

12.) MAINTENANCE OF NEW PLANTINGS AND LAWNS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND OR LANDSCAPE SUBCONTRACTOR UNTIL ACCEPTANCE BY THE OWNER. RESPONSIBILITIES SHALL INCLUDE WATERING WEEDING AND MOWNG AS NECESSARY. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE, REPLACEMENT MATERIAL SHALL BE GUARANTEED FOR AND ADDITIONAL YEAR FROM TIME OF INSTALLATION.

13.) THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY EROSION CONTROL MEASURES DURING THE CONSTRUCTION PHASE AND UNTIL ALL AREAS HAVE BEEN STABILIZED AND ACCEPTED BY THE OWNER. THE GENERAL CONTRACTOR SHALL PROVIDE WEEKLY INSPECTIONS OF EROSION MEASURE AND IMMEDIATELY AFTER STORM EVENTS AND REPAIR AS NECESSARY.

14.) THE GENERAL CONTRACTOR AND OR THE LANDSCAPE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL THREE GUYING MATERIAL ONCE PLANT MATERIAL HAS BEEN ESTABLISHED. (MINIMUM OF ONE GROWNG SEASON). ALL TEMPORARY EROSION CONTROL MEASURE SHALL BE REMOVED ONCE STABILIZATION OF DISTURBANCE HAS BEEN ACCEPTED BY OWNER.

15.) THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR A MINIMUM OF TWO MOWINGS FOR ALL TURF AREAS OR UNTIL ACCEPTANCE BY THE OWNER. A MINIMUM UNIFORM 75% CATCH OF TURF IS REQUIRED FOR ACCEPTANCE.

16.) ALL PLANTINGS SHALL BE WATERED REGULARLY DURING THEIR FIRST YEAR AND MAINTAINED PERMANENTLY IN GOOD GROWING CONDITION AS AN EFFECTIVE VISUAL SCREEN.

17.) SHRUBS OR TREES WHICH DIE SHALL BE REPLACED WITHIN ONE GROWING SEASON WITH NEW SHRUBS OR TREES TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE LANDSCAPING REQUIREMENTS.

18.) ALL REQUIRED LANDSCAPING SHALL BE INSTALLED BEFORE OCCUPANCY, OR WITHIN SIX MONTHS IF OCCUPANCY OCCURS DURING WINTER CONDITIONS.

19.) TREES ARE TO BE 2–2.5" CALIPER 6" OFF THE ROOT BALL.

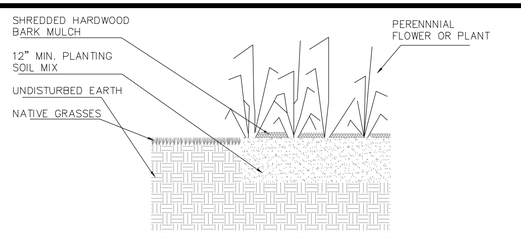
20.) ALL PLANT STOCK SHALL CONFORM TO ANSI Z260.1 – NURSERY STOCK, LATEST EDITIONS (AMERICAN ASSOCIATION OF NURSERYMEN, INC.)

21.) 4" AGED PINEBARK MULCH AND A WEED BARRIER (TY–PAR FABRIC OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUND COVER BEDS. INSTALL WEED BARRIER AS PER MANUFACTURERS RECOMMENDATIONS.

22.) PLANT–PIT BACK–FILL SHALL BE MIXED AT A RATE OF 7 PARTS OF TOPSOIL TO 2 PARTS OF DEHYDRATED COW MANURE. SLOW RELEASE FERTILIZER SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS. USE EXISTING ON–SITE TOPSOIL AS PART OF BACK FILL WHEN AVAILABLE.

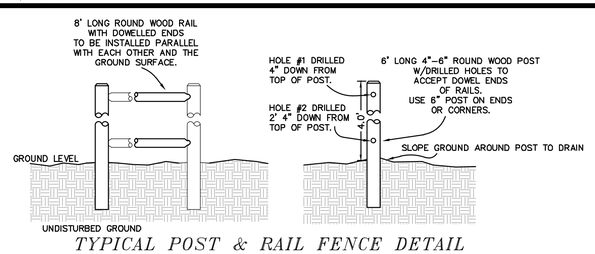
23.) ALL LANDSCAPED AREAS NOT PLANTED WITH TREES, SHRUBS OR GROUNDCOVER SHALL BE RESTORED WITH SEED OR SOD AS INDICATED ON PLANS.

L8



PERENNIAL PLANTING DETAIL

L7



TYPICAL POST & RAIL FENCE DETAIL

N.T.S.

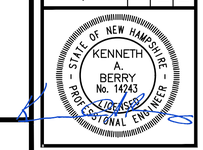
DOVER FILE #P22–55

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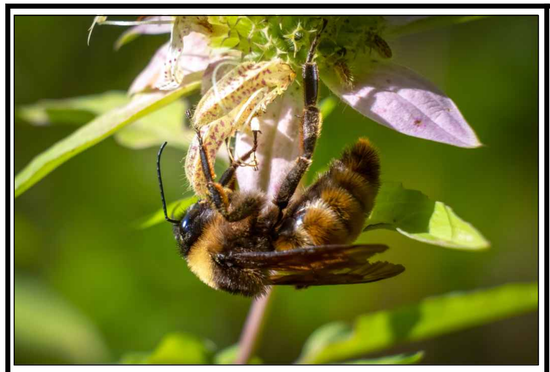
LANDSCAPING DETAILS
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

AS NOTED
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134



L–101



AMERICAN BUMBLE BEE

IDENTIFICATION/DESCRIPTION:

BOMBUS PENSYLVANICUS IS A LARGE BUMBLE BEE WITH THE QUEEN MEASURING 1 IN, THE WORKER FROM 0.5 IN, AND THE MALE FROM 0.75 IN IN LENGTH. THE QUEEN IS MOSTLY BLACK, INCLUDING THE LEGS, SPURS AND TEGULAE (BASE OF WING). TERGITE 1, OR THE MOST ANTERIOR BACK PORTION OF THE QUEEN IS OFTEN YELLOW ESPECIALLY IN THE MIDDLE. WORKER BEES' MIDDLE TERGITES ARE YELLOW, THE TAIL BLACK, AND FACE LONG. THEIR CHEEKS ARE SLIGHTLY LONGER THAN BROAD, AND THE CLYPEUS (NOSE) HAS LARGE PUNCTURES EXCEPT ON THE MID LINE. THE HAIR ON THE TOP OF THE HEAD IS BLACK, SHORT AND EVEN. MALES HAVE A YELLOW ABDOMEN WITH A BLACK HEAD AND BLACK STRIPING IN THE LOWER THORAX.



BLANDINGS TURTLE

IDENTIFICATION/DESCRIPTION:

A 7– TO 9–INCH TURTLE WITH YELLOW SPECKLES THAT OFTEN RUN TOGETHER TO FORM STREAKS ON THE CARAPACE. EASILY IDENTIFIED WHEN BASKING FROM ITS CHARACTERISTIC YELLOW THROAT AND CHIN.



NORTHERN BLACK RACER

IDENTIFICATION/DESCRIPTION:

A SLENDER BLACK SNAKE MEASURING 36–60 INCHES. BLACK RACERS ARE GLOSSY BLACK ON THE TOP AND BOTTOM WITH A WHITE THROAT AND CHIN. YOUNG RACERS ARE PATTERNED WITH BROWN OR REDDISH PATCHES ON A LIGHTER BASE OF GRAY.



SMOOTH GREEN SNAKE

IDENTIFICATION/DESCRIPTION:

A THIN, SLENDER BRIGHT–GREEN SNAKE MEASURING 10–20 INCHES. THE UNDERSIDE IS WHITE OR A PALE YELLOW.



LITTLE BROWN BAT

IDENTIFICATION/DESCRIPTION:

THE LITTLE BROWN BAT IS A SMALL MAMMAL WITH A BODY LENGTH OF 2 1/2 – 4" AND WEIGHING APPROXIMATELY 1/8 TO 1/2 AN OUNCE. THE WINGSPAN OF LITTLE BROWN BATS RANGE FROM 9 – 11". BATS ARE THE ONLY MAMMALS THAT ENGAGE IN TRULY ACTIVE FLIGHT. AS THEIR NAME SUGGESTS THEY ARE GLOSSY BROWN ABOVE WITH A LIGHTER GRAY COLOR BELOW. THESE BATS CAN LIVE 20 TO 30 YEARS.



TRI–COLORED BAT

IDENTIFICATION/DESCRIPTION:

THE TRICOLORED BAT, FORMERLY KNOWN AS THE EASTERN PIPISTRELLE (PIPISTRELLUS SUBFLAVUS), IS A SMALL BAT WEIGHING 0.2 TO 0.3 OUNCES (5 TO 8 GR) AND HAS A WINGSPAN OF 8 TO 10 INCHES. THE TERM "TRICOLORED" REFERS TO THE BAT'S YELLOWISHBROWN COAT THAT IS DARK AT THE BASE, YELLOWISH–BROWN IN THE MIDDLE, AND DARK AT THE TIPS. THE WING MEMBRANES ARE BLACKISH, BUT THE FACE AND EARS HAVE A PINKISH COLOR. AN OBVIOUS IDENTIFYING CHARACTERISTIC OF THIS SPECIES IS THE PINK COLOR OF THE SKIN ON THE RADIUS BONE. THE FEET ARE ALSO RELATIVELY LARGE COMPARED TO ITS BODY SIZE.



NORTHERN LONG–EARED BAT

IDENTIFICATION/DESCRIPTION:

THE NORTHERN LONG–EARED BAT IS A MEDIUM–SIZED BAT WITH A BODY LENGTH OF 3 TO 3.7 INCHES BUT A WINGSPAN OF 9 TO 10 INCHES. THEIR FUR COLOR CAN BE MEDIUM TO DARK BROWN ON THE BACK AND TAWNY TO PALE–BROWN ON THE UNDERSIDE. AS ITS NAME SUGGESTS, THIS BAT IS DISTINGUISHED BY ITS LONG EARS, PARTICULARLY AS COMPARED TO OTHER BATS IN ITS GENUS, MYOTIS



EASTERN SMALL–FOOTED BAT

IDENTIFICATION/DESCRIPTION:

THE EASTERN SMALL–FOOTED BAT HAS BROWNISH FUR, OFTEN WITH A GOLDEN SHEEN, THAT CONTRASTS WITH ITS BLACKISH FACE AND EARS, AND BLACKISH–BROWN WINGS AND TAIL MEMBRANE. IT CAN BE DISTINGUISHED FROM OTHER MYOTIS SPECIES BY ITS BLACK MASK AND SMALL SIZE. THE BODY IS LITTLE MORE THAN 3½ INCHES LONG, INCLUDING A 1½–INCH TAIL. ITS SMALL FEET, WHICH PROVIDE THE COMMON NAME, ARE LESS THAN A HALF–INCH AND ITS WINGSPAN RANGES FROM 8¼ TO 9¾ INCHES. THIS SPECIES FLIES SLOWLY AND ERRATICALLY, USUALLY ABOUT ONE TO THREE YARDS ABOVE THE GROUND.



SILVER HAIRED BAT

IDENTIFICATION/DESCRIPTION:

THE SILVER–HAIRED BAT IS A MEDIUM–SIZED BAT WITH VERY DARK FUR TIPPED WITH SILVER OR WHITE. THE WINGS AND TAIL MEMBRANE ARE BLACK. EARS ARE SHORT AND ROUND WITH A SHORT, BLUNT–TIPPED TRAGUS. THE DORSAL SURFACE OF THE TAIL MEMBRANE IS PARTIALLY FURRED AND THE CALCAR LACKS A KEEL



SPOTTED TURTLE

IDENTIFICATION/DESCRIPTION:

A SMALL 3–5 INCH TURTLE RECOGNIZED BY NUMEROUS YELLOW SPOTS COVERING A DARK CARAPACE. THE NUMBER OF SPOTS IS VARIABLE. SPOTS CAN ALSO BE FOUND ON THE HEAD AND LIMBS.



WOOD TURTLE

IDENTIFICATION/DESCRIPTION:

A 5–8 INCH TURTLE CHARACTERIZED BY ITS HIGHLY SCULPTED SHELL WHERE EACH LARGE SCUTE TAKES AN IRREGULAR PYRAMIDAL SHAPE. THE NECK AND FORELIMBS ARE ORANGE.

NEW HAMPSHIRE FISH AND GAME NOTES:

1.) ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES SHALL BE REPORTED IMMEDIATELY TO THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603–271–2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV, EMAIL SUBJECT LINE: WILDLIFE SPECIES OBSERVATION, SPECIES, VENTURE DRIVE/QUALITY WAY DOVER, NH. PHOTOGRAPHS SHALL BE PROVIDED FOR VERIFICATION AS FEASIBLE

2.) IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE TERM OF THE PERMIT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO CONSULTATION WITH NHFG AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHFG, IF ANY, TO ASSURE THE PROJECT DOES NOT APPRECIABLY JEOPARDIZE THE CONTINUED EXISTENCE OF THREATENED AND ENDANGERED SPECIES AS DEFINED IN FIS 1002.04. THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

W–101

DOVER FILE #P22–55

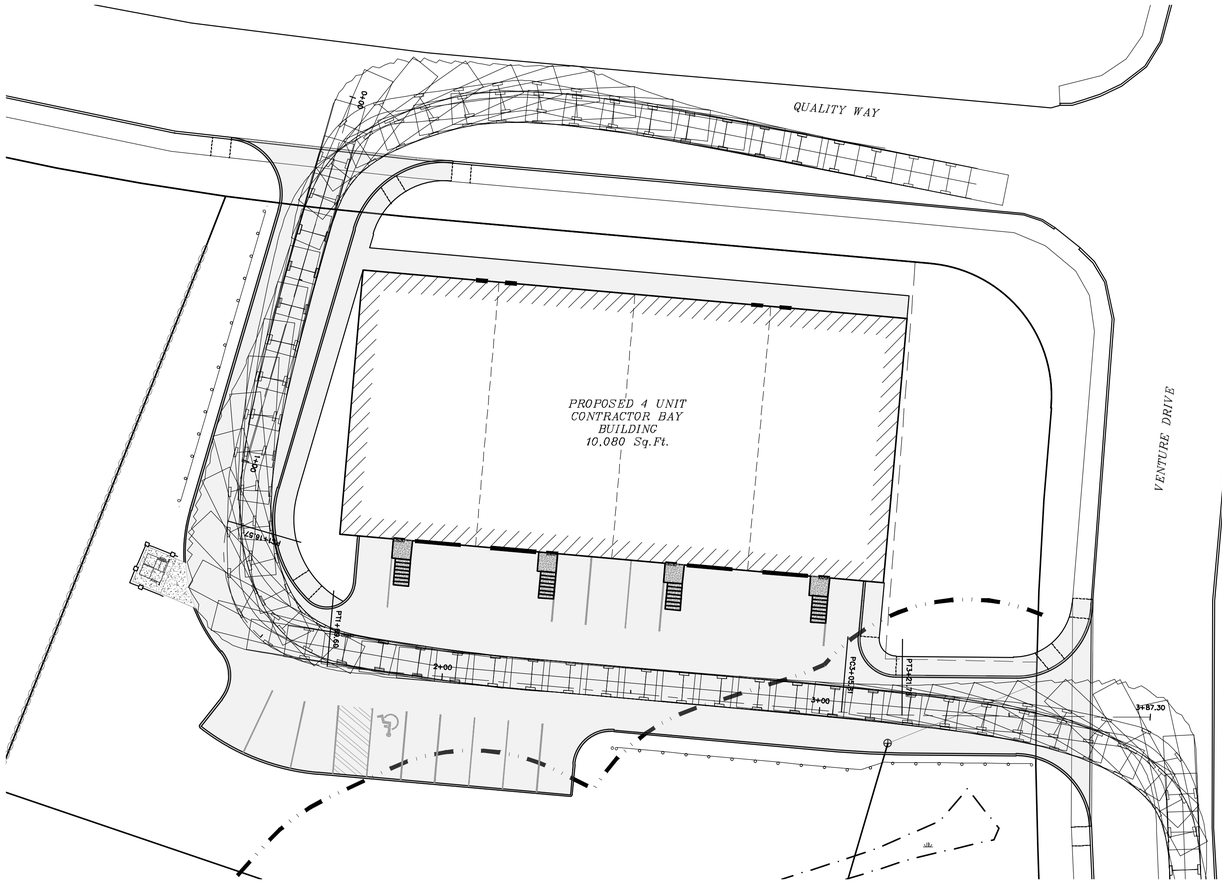
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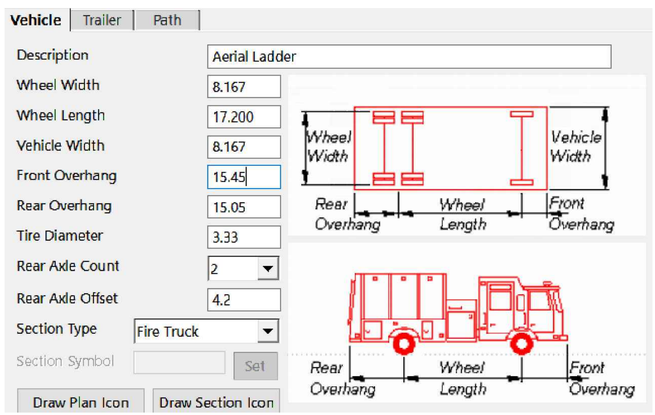
WILDLIFE IDENTIFICATION PLAN
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11–5 & 11–5SND

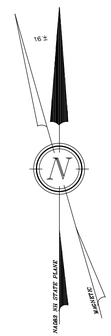
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : NONE
DATE : JUNE 1, 2022
FILE NO. : DB 2021 – 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY No. 14943
LICENSED PROFESSIONAL ENGINEER







GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

DOVER FILE #P22-55

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DOVER FIRE TRUCK TURNING TEMPLATE
LAND OF
JSR, LLC
VENTURE DRIVE & QUALITY WAY
DOVER, N.H.
TAX MAP D, LOTS 11-5 & 11-5SND

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 1, 2022
FILE NO. : DB 2021 - 134

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

City of Dover, New Hampshire
MINOR SUBDIVISION APPLICATION

[Revision Date: July 1, 2021]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Summit Land Development, LLC Telephone # 603-749-2800

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

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

Address of Property Owner: 340 Central Avenue, Suite 202 Dover, NH 03820

E-Mail Address: chad@summitlanddev.com

PROPERTY INFORMATION

Address of Property: Durham Road / NH Route 108

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

Zoning District(s) G (Gateway) Overlay District(s) N/A

Size of Parcel: 378,500 s.f. / 8.69± ac. Property Deed: Book 4468 Page: 979

Existing Use of Property: Vacant Land

SUBDIVISION INFORMATION

Existing Number of Lots: 1 Proposed Number of Lots: 2

TDR Relief sought (Check All That Apply): □ Lot Size □ Frontage □ Setback □ 30' Buffer □ Purchase ____ units

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

N/A

Circle one for each category:

Water: (City) / Well (circle one) How far is city water from the property? at street

Sewer: (City) / Septic (circle one) How far is city sewer from the property? at street

Highway Access City Street / (State Highway) (circle one) | Roadway (Public) or Private Road (circle one)

Refuse removal: Public / (Private) (circle one) | Estimated Length of Proposed Road: N/A feet

Estimated value of construction: N/A New impervious area (in s.f.): N/A

WAIVER REQUESTS

Subdivision Regulations section(s) to be waived: None Requested

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

_____

SURVEYOR INFORMATION

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

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

Professional License #: Kevin McEneaney, LLS 661 E-mail address: kevin@surveynh.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Cory Belden, PE - ALTUS Engineering

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

Professional License #: Cory Belden, PE #14329 E-mail address: cbelden@altus-eng.com

LANDSCAPE ARCHITECT INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Bruce A. Gilday, CSS, CWS BAG Land Consultants

Address 43 Rockingham Street Concord, NH 03301 Telephone #: 603-228-5775

Professional License #: Bruce A. Gilday, CWS #88 E-mail address: bagilday@comcast.net

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.

X Signature of Property Owner: _____ Date: 11/15/22

X 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.

X Signature of Property Owner: _____ Date: 11/15/22

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

I, and my successors, hereby authorize the City of Dover and 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.

X Signature of Property Owner: _____ Date: 11/15/22

X 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.

X Signature of Property Owner: _____ Date: 11/15/22

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

CERTIFICATION OF PUBLIC ROADWAY ACCEPTANCE

I, and my successors, hereby certify that I understand that the acceptance of a roadway as a public road is an action of the City Council in its sole and complete discretion. In order for the City Council to consider accepting a road as public, it must be free of encumbrances. No roadway with private utility easements shall be accepted as a public road by the City unless the easements are expunged prior to the transfer of land to the City. License agreements for any and all private utilities within the right of way may be granted by the City upon acceptance of the unencumbered roadway consistent with applicable state law.

X Signature of Property Owner: _____ Date: 11/15/22

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

City of Dover, New Hampshire
MINOR SUBDIVISION SUBMISSION CHECKLIST

[Revision Date: May 18, 2019]

This review checklist is intended to assist the applicant in the planning process of preparing a Subdivision 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.

Plan Review Fees are due along with three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, 3 weeks prior to the Planning Board meeting. Abutter/Notice Fees will be invoiced and are due 28 hours prior to Planning Board.

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all subdivision requirements. Please refer to the Subdivision Regulations for full details.

APPLICANT: Summit Land Development, LLC File Number: P22-

PROJECT TITLE: Subdivision of Land prepared for 7 West, LLC

PROPERTY LOCATION: Durham Road / NH Route 108 Tax Map: H Lot: 11

	Where/How Provided	Reviewed
1. Completed and signed Application form	✓	
2. Plan Review Fees are provided	FEES TO BE PAID PRIOR TO PLANNING BOARD HEARING	
3. Electronic copy of the surveyed plat layout	✓	
4. Electronic copy of supplementary materials and application	✓	
5. Waiver requests to the Subdivision Regulations, with written justification	✓	
6. Conditional Use Permit applications	N/A	
7. Fifteen folded copies of subdivision plan w/scale of not less than 1"=50' or 1"=100' for larger subdivisions. Plans shall contain the following items as appropriate:	✓	
Location map at appropriate scale	✓	
Proposed subdivision name and title and Planning File #	✓	
Date, north arrow and scale	✓	
Names of all abutting property owners	✓	
Name and address of owners and/or applicants	✓	
Signature & stamp of NH licensed land surveyor and/or engineer	✓	
Zoning District boundaries, including any special or overlay districts	N/A	
Location of Conservation District areas	✓	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	✓	
Location and widths of existing & proposed easements & right of ways	N/A	
Location and widths of existing and proposed sidewalks	✓	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	✓	
Existing and proposed lot areas in square feet	✓	
Existing and proposed topographic information at two foot intervals	✓	
Existing and proposed buildings and structure locations	N/A	
Minimum building setbacks or build to lines on all lots	✓	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	N/A	

CITY OF DOVER SUBDIVISION
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
H	11	7 West, LLC	340 Central Avenue, Suite 202 Dover, NH 03821

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS
	Summit Land Development, LLC	340 Central Avenue, Suite 202 Dover, NH 03821

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Cory Belden, PE	Altus Engineering	133 Court Street Portsmouth, NH 03801
Kevin McEneaney, LLS	McEneaney Survey Associates	24 Chestnut Street Dover, NH 03820

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

P22-39 **DURHAM ROAD**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
H0011-001000	16 DALEY DR	CITY OF DOVER	SCHOOL DEPARTMENT	288 CENTRAL AVE	DOVER	NH	03820
H0011-A00000	DURHAM RD	CITY OF DOVER		288 CENTRAL AVENUE	DOVER	NH	03820
H0011-B00000	25 DURHAM RD	CITY OF DOVER		288 CENTRAL AVE	DOVER	NH	03820
I0007-000000	10 DURHAM RD	10 DURHAM ROAD GROUP LLC		10 DURHAM RD	DOVER	NH	03820
I0008-000000	22 DURHAM RD	SMITH BRIDGET F & ROBERT H III TRUSTEES	SMITH FAMILY LIVING TRUST 2021	10 PONDVIEW DR	DOVER	NH	03820
I0008-A00000	16 DURHAM RD	DONAIS LESLIE &	DONAIS JOHN	16 DURHAM RD	DOVER	NH	03820-4382
I0009-000000	32 DURHAM RD	HADLEY CARA W		32 DURHAM RD	DOVER	NH	03820
I0009-A00000	28 DURHAM RD	WOOD MICHELLE &	WOOD JAMES L	28 DURHAM RD	DOVER	NH	03820-4382
		SUMMIT LAND DEVELOPMENT		340 CENTRAL AVENUE	DOVER	NH	03820
		7 WEST, LLC		P.O. BOX 728	DOVER	NH	03820
		MCENEANEY SURVEY ASSOCIATES	KEVIN MCENEANEY	24 CHESTNUT ST	DOVER	NH	03820
		ALTUS ANGINEERING	CORY BELDEN	113 COURT ST	PORTM	NH	03801
		MARKET SQUARE ARCHITECTS		104 CONGRESS ST	PORTSM	NH	03801
		IRONWOOD DESIGN GROUP	JEFFREY HYLAND	55 MAIN ST #129	NEWMA	NH	03857

	Explain How Provided	Reviewed
Existing and proposed water lines and fire hydrants, including materials and capacity needed	✓	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	N/A	
Existing and proposed septic system, including test pit locations and results and NHDES subdivision permit number	N/A	
Existing and proposed stormwater lines and facilities	N/A	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	✓	
Location of wetlands and buffers	✓	
Existing natural features and/or significant vegetation on property	✓	
Soil types	N/A	
Map and lot numbers for existing and proposed lots as assigned by Tax Assessor	✓	
Location of all land offered for dedication for public use or land to be held in common by property owners of the subdivision	N/A	
Location, material and size of existing and proposed permanent monuments	✓	
Existing railroad lines	N/A	
Note regarding solid waste disposal	N/A	
All applicable Dover Common Subdivision notes	✓	
8. Construction Detail Sheets shall contain the following information (if appropriate):	N/A	
Profiles showing existing & proposed elevations along the center lines of proposed streets & within 100' of intersections with existing streets		
Profiles showing the locations & a typical cross-section detail of streets		
Location of street trees, street lighting poles and street signs		
Location, size and invert elevations of existing and proposed sanitary sewers, stormwater drains and fire hydrants		
Location and size of all water, gas and other underground utilities		
9. Additional Information if appropriate	N/A	
Stormwater Management Plan depicting the existing and proposed storm drainage system and engineered drainage analysis		
Stormwater Management System Operation and Maintenance Plan		
Letter to Serve from Public and Private Utilities		
Erosion and Sedimentation Control Plan		
Proposed restrictive covenants or homeowners association documents		
Dates and permit numbers of all required state and federal permits		
If wetland buffer, indicate placards locations, as applicable		
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required		

REVIEWED BY: _____ DATE_____

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: October 19, 2020]

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

APPLICANT AND OWNER INFORMATION

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

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

E-Mail Address: chad@summitlanddev.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

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

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

Zoning District(s) G (Gateway) Overlay District(s) Wetland Protection and Conservation District

Existing Use of Property: Vacant

CONDITIONAL USE PERMIT INFORMATION

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

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

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

The proposed development is for a medical building which will be three stories and approximately 42,480 square feet (14,160 sq ft per floor). The site will provide on-site parking, as well as associated walkways, utilities, and stormwater management. The proposed site has been designed with a stormwater treatment system that consists of deep sump catch basins, two raingardens, and a sub-surface (Stormtech) chamber system. The project proposes to construct two pipe outfalls that are located within 50 feet of the wetland and have a total of approximately **950 square feet of wetland buffer impact**. It should be noted, that there will be **no direct wetland impacts** for the project.

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

1. NHDES Alteration of Terrain Permit - Pending Application
2. NHDES Shoreland Permit - Pending Application
3. NHDES Sewer Connection Permit
4. USEPA - General Construction Permit

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

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

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

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: 11/7/22

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

Signature of Agent: _____ Date: 11/7/22

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: Approved in Site Plan App Date: 11/7/22

P22-38 **DURHAM ROAD**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
H0011-001000	16 DALEY DR	CITY OF DOVER	SCHOOL DEPARTMENT	288 CENTRAL AVE	DOVER	NH	03820
H0011-A00000	DURHAM RD	CITY OF DOVER		288 CENTRAL AVENUE	DOVER	NH	03820
H0011-B00000	25 DURHAM RD	CITY OF DOVER		288 CENTRAL AVE	DOVER	NH	03820
I0007-000000	10 DURHAM RD	10 DURHAM ROAD GROUP LLC		10 DURHAM RD	DOVER	NH	03820
I0008-000000	22 DURHAM RD	SMITH BRIDGET F & ROBERT H III TRUSTEES	SMITH FAMILY LIVING TRUST 2021	10 PONDVIEW DR	DOVER	NH	03820
I0008-A00000	16 DURHAM RD	DONAIS LESLIE &	DONAIS JOHN	16 DURHAM RD	DOVER	NH	03820-4382
I0009-000000	32 DURHAM RD	HADLEY CARA W		32 DURHAM RD	DOVER	NH	03820
I0009-A00000	28 DURHAM RD	WOOD MICHELLE &	WOOD JAMES L	28 DURHAM RD	DOVER	NH	03820-4382
		SUMMIT LAND DEVELOPMENT		340 CENTRAL AVENUE	DOVER	NH	03820
		7 WEST, LLC		P.O. BOX 728	DOVER	NH	03820
		MCENEANEY SURVEY ASSOCIATES	KEVIN MCENEANEY	24 CHESTNUT ST	DOVER	NH	03820
		ALTUS ANGINEERING	CORY BELDEN	113 COURT ST	PORTM	NH	03801
		MARKET SQUARE ARCHITECTS		104 CONGRESS ST	PORTSM	NH	03801
		IRONWOOD DESIGN GROUP	JEFFREY HYLAND	55 MAIN ST #129	NEWMA	NH	03857

ALTUS ENGINEERING, INC.

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

Conditional Use Permit: Section 170-27.1 Wetlands Protection District

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

From: Cory Belden, PE, Altus Engineering, Inc.
Date: October 3, 2022

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

The project proposes to construct two pipe outfalls that are located within 50 feet of the wetland and have a total of approximately **950 square feet of wetland buffer impact**. It should be noted, that there will be **no direct wetland impacts** for the project.

The outlets have been located down slope to allow for the future City road from the Back River Road / Durham Road intersection that will traverse through the site and provide a future connection to the Dover Elementary and High Schools, alleviating some of the traffic congestion on Durham Road.

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

Attachments:

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

ALTUS ENGINEERING, INC.

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

Memorandum: Conditional Use Permit Approval Criteria

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

From: Cory Belden, PE, Altus Engineering, Inc.
Date: November 7, 2022

The applicant requests a conditional use permit from Section 170-27.1 (Wetlands Protection District) of the Dover Zoning regulations per the attached CUP application and supporting material. This memorandum addresses the five criteria for approval (a-e) from the zoning regulations:

A) Practicable Alternative – The proposed project is the least impactful practicable alternative to the site. The site development has been located in the southeasterly portion of the site to minimize impacts. There are only minor impacts within the wetland buffer for the extension of the drainage pipe outfalls due to the grades on the site. There are no direct wetland impacts.

B) Avoidance - The potential impacts have been avoided to the maximum extent practicable. Stormwater management is provided to reduce all peak runoff volumes from the site. The only impacts in the buffer are for the outfall structures, which are needed due to the grading on the site.

C) Minimization - The impacts have been minimized to avoid direct wetlands impacts and to minimize the extent of the project within the wetland buffer. The total impact in the buffer is 950 square feet for the pipe and outfall construction.

D) Mitigation - The proposed project does not have any direct wetlands impacts, therefore there is not a requirement by the State for compensatory mitigation.

E) Approval - A NHDES Wetlands Permit is not required because there are no direct wetland impacts. A NHDES Shoreland Permit has been submitted to NHDES because there are impacts within the 250 foot shoreland buffer to the Bellamy River. The application approval is pending.

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, November 14, 2022
Meeting Time:	**5:30 pm**

MEMBERS PRESENT: Bill Hunt (Chair), Steve Fellows (Vice Chair), Robert Atwood (Secretary), Amy Kramer-Perry, Abigail Lyon, Bruce Batchelder
Absent (Excused): Kristen Murphy, Jason Aube
STAFF PRESENT: Jackson Kaspari – Resilience Manager
OTHERS PRESENT: Lindsey Williams (City Council)

1. CALL TO ORDER AND ROLL CALL

The meeting was convened at 5:30 PM.
Hunt opened the meeting and did a roll call.

2. CITIZENS' FORUM: Liz Goldman of 44 Rutland Street spoke about open land near the Community Trail which may be a good option to conserve given the proximity the Bellamy River.

3. APPROVAL OF THE PRIOR MEETING MINUTES – September 12, 2022

B. Batchelder moved to approve the September 12, 2022 minutes, R. Atwood seconded. The minutes were approved by unanimous consent.

4. OLD BUSINESS: None

5. NEW BUSINESS:

A. City of Dover Conditional Use Permit for Summit Land Development, (Owner: 7 West, LLC), (Agent: Altus Engineering, Inc.), Assessor's Map H, Lot 11, zoned G, located off Durham Road. Proposal is to construct a three story 42,480 gross square foot medical office building creating 950 square feet of wetland buffer impact associated with two drainage pipe outfalls.

Cory Belden from Berry Surveying and Engineering was present to explain the application.

B. Hunt: Are the pipes coming from the outfalls coming from a catch basin or rain gardens?

C. Belden: From the rain gardens, even in a large storm event the expected flows are not that high but a level spreader will help disperse the water at the outfalls.

C. Belden: The drainage will be looked at by the state and was examined by the City's engineering team as part of the technical review process.

S. Fellows: Compared to the footprint of the building itself there seems to be a lot of parking. How many spaces are there?

C. Belden: Around 205, but many will be used by employees and a standard calculation was used to determine the amount needed for this type of use.

DRAFT

A. Kramer-Perry: Was there any exploration into putting a parking structure onsite to reduce the parking footprint?

C. Belden: There would be significant added cost associated with a parking structure and a zoning variance may also be required.

Discussion ensued about the traffic situation near the Durham Road intersection and how a future City roadway through the lot may help with the traffic patterns. The future potential roadway would provide direct access to the Dover Middle School and is being considered as part of a pending development agreement.

S. Fellows: A. Lyon in your opinion from the waterway perspective, is this going to make a meaningful difference given what's there now?

A. Lyon: The City of Dover has pretty progressive stormwater management standards. As part of those this project is required to not increase the runoff amounts and treat any runoff that is generated. It's not that it couldn't have any impact but it's important to consider what aspects the Commission can weigh in on.

C. Belden described the snow storage areas and removal per A. Lyon's request.

A. Lyon: Who is responsible for maintaining the raingardens?

C. Belden: The owner is responsible.

Belden then proceeded to describe the various proposed treatment options including a storm-tech system that would be put in place.

A. Lyon: Consider using grasses instead of plants for the raingardens. The removal efficiency to maintenance level is optimized for grasses that can be mowed.

The Commission then reviewed a hardcopy of the landscaping plan at the request of the Chair.

A. Lyon motioned to endorse the Conditional Use Permit as proposed, acknowledging: that the outfalls were shifted into the buffer given the potential for a future road and that the project was moved away from the sensitive resources based on TRC feedback. R. Atwood seconded. Vote: 6 yes.

6. REPORT FROM THE CHAIR

A. Review of Correspondence Received from NH Department of Environmental Services

J. Kaspari relayed information to the Commission regarding approved permits for 3 Wentworth Terrace and 5 Landing Way. Kaspari also indicated that NHDES issues a request for more information for the proposal located at 1 Boston Harbor Road.

DRAFT

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: October 19, 2020]

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

APPLICANT AND OWNER INFORMATION

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

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

E-Mail Address: chad@summitlanddev.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

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

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

Zoning District(s) G (Gateway) Overlay District(s) Wetland Protection and Conservation District

Existing Use of Property: Vacant

CONDITIONAL USE PERMIT INFORMATION

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

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

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

The proposed development is for a medical building which will be three stories and approximately 42,480 square feet (14,160 sf footprint) with associated site improvemetns, including parking, walkways, utilities, and stormwater management. The proposed site requires a conditional use permit from Section 170-12.B in the Gateway District, as the building is set back approximately 146 feet from the roadway and the front lot line build-out is 38% where 60% is required.

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

1. NHDES Alteration of Terrain Permit - Pending Application
2. NHDES Shoreland Permit - Pending Application
3. NHDES Sewer Connection Permit
4. USEPA - General Construction Permit

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

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

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

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: 11/7/22

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

Signature of Agent: _____ Date: 11/7/22

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: Approved in Site Plan App Date: 11/7/22

ALTUS ENGINEERING, INC.

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

Conditional Use Permit: Section 170-20 Gateway Zoning District

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

From: Cory Belden, PE, Altus Engineering, Inc.
Date: December 5, 2022 (Revised)

The applicant requests a conditional use permit from the Dover Zoning regulations Section 170-20B. The Gateway District was established to provide a transition area from the less developed areas of the City to the central Business District. As shown on the Neighborhood Site Plan, the proposed lot is surrounded by R-40, R-12, and RM-SU districts. A CUP is requested from Section 170-12B for dimensional requirements of maximum front setback and front lot line buildout.

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

1. **Sections 170-12B, Dimensional Regulations**

    a. 20 Foot Maximum Setback - The Gateway District dimensional regulations require a 5 foot minimum to 20 foot maximum build to line and 60% minimum buildout for the site. The proposed building is set back from the property line by approximately 146 feet. The primary reason for the setback is the presence of ledge on site and the steep grades to the north. To account for the grading, a lower "walk-out" basement level is proposed that will allow a thirteen foot lower entrance to the north. This also minimized the amount of ledge removal required for the project. Due to the lower basement level, only two of the three stories will be visible from the Durham Road level which will reduce the scale of the building.

    b. 60% Frontage Buildout - The building is 146 feet in length, which is approximately 38% of the proposed lot frontage. Because the building is offset from the road, the intent of the build-out requirement does not appear to be relevant, as it is primarily intended for the pedestrian use along the frontage roadway.

2. **Architectural Standards** – A review of the architectural Standards has been prepared by Market Square Architects for compliance with the Gateway Architectural Standards. As requested in 170-2A&B the proposed building is a medical office building and will be located back from the roadway. It is anticipated that the building will have very little pedestrian traffic, however a walkway from the street has been provided as well as 10 bicycle parking stalls.

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

Attachments:

1. Dover, NH Gateway District Architectural Standards – Market Square Architects
2. Gateway District – City of Dover Zoning Summary Sheets

Dover, NH Gateway District Architectural Standards

Required Ground Floor Standards:

1. *No less than 30% of the façade shall be windows.*
   The ground floor of the Durham Road elevation has 30% windows. The other three elevations have 21%-23% of windows on the ground floor.

2. *A pedestrian entrance shall be required at the street side or front façade.*
   A pedestrian main entrance is located on the Durham Road / front elevation.

3. *Residential uses permitted.*
   This building is a commercial office building.

4. *The use of ground floor exterior lighting on the building should offer a feeling of warm security and increase safety to pedestrians without being overwhelming.*
   The exterior lighting will offer a sense of 'warm security' to help increase safety to pedestrians.

Required Building Standards:

1. *Building designs shall be harmonious with neighboring structures in terms of mass, width, height, proportion, spacing and setback.*
   The neighboring buildings around our site include the Dover Middle School, Dover Fire and Rescue and Dover Emergency Room. These buildings range between one- and three-stories and have several different exterior cladding materials including metal panel, concrete, stucco and brick. This proposed building is two-stories in height on the Durham Road side (main entry side) and three-stories in height on the opposite elevation. The proposed materials include three different styles and colors of metal panel, stone veneer and storefront glazing system. The stone veneer is used as a base around the majority of the building up to 4'-0" high. The three different metal panels are used on each of the 4 building elevations above the stone veneer base. These sections of panels differ in height at the roof, creating separate building 'sections' simply by varying the roof parapet. And although there are two building fronts (one facing Durham Rd and one facing Route 16) the rhythm of building materials, styles and colors continues around the entire building perimeter – there is no back to the building.

2. *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.*
   See answer to Required Building Standards #1 above.

3. *Large structures shall be broken into smaller masses to provide human scale, variation and depth.*
   The three different metal panel styles and colors create a rhythm that helps to reduce the overall mass of each elevation.

4. *The design of the building shall incorporate views that are directed to the street and garden/courtyard rather than adjacent neighbors.*
   The proposed building site will be surrounded by trees and windows will provide views to the site landscaping.

5. *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.*
   Due to the heavy traffic on Durham Road and the nature of the proposed building (doctor's offices) there is anticipated to be very little pedestrian traffic to the site. The building is positioned more in the center of the site to accommodate parking. However, an existing sidewalk exists on Durham Road for anyone who chooses to walk.

6. *Building design shall enhance the pedestrian environment and streetscape.*
   See answer to Required Building Standards #5 above.

7. *Utility elements shall be screened in an aesthetically pleasing manner.*
   Utility elements will be screened wherever they are in view.

8. *Use of architectural details and changes in depth are included on building elevations to increase visual interest and scale.*
   See answer to Required Building Standards #1 above.

9. *Garages shall not face the street.* There are no garages in this project.

10. *Solar / Green Roof Standard:*
    -All buildings must be solar ready
    -Commercial and mixed-use buildings that are 25,000 sq ft or more must also incorporate solar panels and a green roof on at least 30% of the roof area.
    The proposed building roof structure was designed to accommodate future roof-top solar panels. The proposed building does not allow public access to the roof so it does not incorporate a green roof.

<u>Optional Standards:</u>

Use of elements that accentuate and/or provide coverage at the entry such as a canopy, porch, recessed entry, etc. are encouraged.
A covered entry canopy is designed at the main entry of the building on the Durham Road building elevation.

Respectfully submitted by Christina O'Brien, Senior Project Architect.

ALTUS ENGINEERING, INC.

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

Conditional Use Permit: Section 170-20.B(1) Gateway District Approval Criteria

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

From: Cory Belden, PE, Altus Engineering, Inc.
Date: December 9, 2022

The applicant requests a conditional use permit from Section 170-12.B (Gateway Zoning District) of the Dover Zoning regulations. Per Sections 170-20.B(1), the Conditional Use Permit relief may be granted if the following conditions are met. This memorandum addresses each criteria for compliance with the standards for approval.

Sections 170-20.B (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.

The proposed project proposes a private building for medical offices. As shown on the plans and as proposed in the owner and City Development Agreement, the owner intends to provide a public right of way for the City of Dover for a new roadway. The proposed landscaping will enhance the public space as shown on the proposed landscape plan.

(b) That development shall adequately accommodate automobiles, while respecting the pedestrian and the spatial form of public areas.

The proposed development site has been designed to provide on-site parking for the projected vehicle parking demand based on the Institute of Transportation Engineers (ITE) parking demands. The existing walkway adjacent to the site will be replaced and onsite walkways are provided with appropriate crosswalks and ADA accessibility.

(c) That the design of STREETs and BUILDINGs shall reinforce safe environments, but not at the expense of accessibility.

ADA accessibility is an important element to the site and the site will comply with all requirements to provide a safe and accessible site.

(d) That architecture and landscape design shall grow from local climate, topography, history, and BUILDING practice.

The proposed landscape plan utilizes local plant species to blend with the environment and climate, while the proposed building is designed to fit into he topography with a walk out basement level utilizing the sloping hillside.

(e) That BUILDINGs shall provide their inhabitants with a clear sense of geography and climate through energy efficient methods.

As noted in the architectural review by Market Square Architects, "The proposed building site will be surrounded by trees and windows will provide views to the site landscaping". In addition, the proposed building roof structure was designed to accommodate future roof-top solar panels.

(f) That CIVIC BUILDINGs and public gathering places shall be provided as locations that reinforce community identity and activity.

Not applicable. The proposed building is not a Civic Building.

(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.

Not applicable. The proposed building is not a Civic Building.

(h) That the preservation and renewal of historic BUILDINGs shall be facilitated.

Not applicable. The existing site is vacant and no historic buildings exist on site.

(i) That the harmonious and orderly evolution of urban areas shall be advanced by the proposed BUILDING and/or use.

The proposed building and site improvements will fit in with the environment and allow for an evolution of the urban area by providing adequate frontage area for future improvements to the Durham Road corridor. Proposed sidewalk improvements, landscaping, and benches will enhance the corridor.

Gateway District

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

STATEMENT OF PURPOSE

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

DIMENSIONAL REGULATIONS*

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

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

PARKING LOCATION STANDARDS (SEE 153-14)

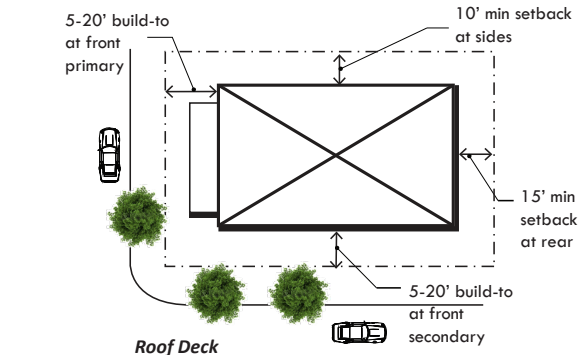
New construction resulting in additional square footage or an increase in residential units must comply with parking standards for the new portion of the building only.

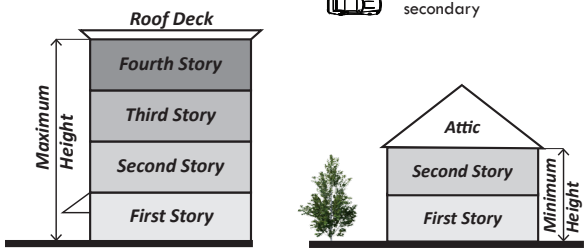
PERMITTED USES*

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

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

PRINCIPAL BUILDING PLACEMENT





PRINCIPAL BUILDING HEIGHTS

SIGN REGULATIONS

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

ARCHITECTURAL STANDARDS*

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

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

Required Ground Floor Standards:

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

Required Building Standards:

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

Optional Standards:

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

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

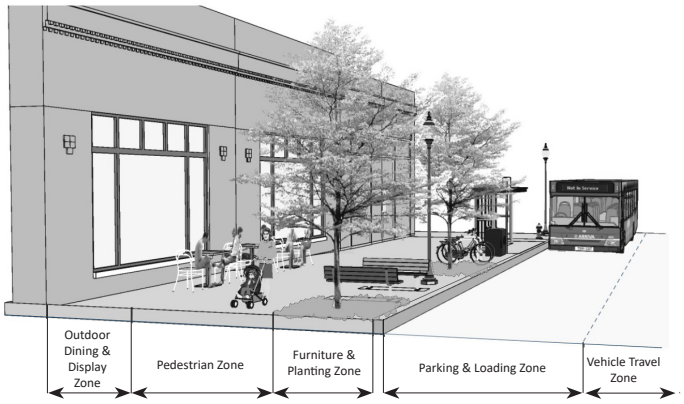
STREETSCAPE STANDARDS

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

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

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

STREETSCAPE ELEMENTS



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

Rooming houses and manufactured homes are considered other uses.

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

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

P22-76 **DURHAM ROAD**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
H0011-001000	16 DALEY DR	CITY OF DOVER	SCHOOL DEPARTMENT	288 CENTRAL AVE	DOVER	NH	03820
H0011-A00000	DURHAM RD	CITY OF DOVER		288 CENTRAL AVENUE	DOVER	NH	03820
H0011-B00000	25 DURHAM RD	CITY OF DOVER		288 CENTRAL AVE	DOVER	NH	03820
I0007-000000	10 DURHAM RD	10 DURHAM ROAD GROUP LLC		10 DURHAM RD	DOVER	NH	03820
I0008-000000	22 DURHAM RD	SMITH BRIDGET F & ROBERT H III TRUSTEES	SMITH FAMILY LIVING TRUST 2021	10 PONDVIEW DR	DOVER	NH	03820
I0008-A00000	16 DURHAM RD	DONAIS LESLIE &	DONAIS JOHN	16 DURHAM RD	DOVER	NH	03820-4382
I0009-000000	32 DURHAM RD	HADLEY CARA W		32 DURHAM RD	DOVER	NH	03820
I0009-A00000	28 DURHAM RD	WOOD MICHELLE &	WOOD JAMES L	28 DURHAM RD	DOVER	NH	03820-4382
		SUMMIT LAND DEVELOPMENT		340 CENTRAL AVENUE	DOVER	NH	03820
		7 WEST, LLC		P.O. BOX 728	DOVER	NH	03820
		MCENEANEY SURVEY ASSOCIATES	KEVIN MCENEANEY	24 CHESTNUT ST	DOVER	NH	03820
		ALTUS ANGINEERING	CORY BELDEN	113 COURT ST	PORTM	NH	03801
		MARKET SQUARE ARCHITECTS		104 CONGRESS ST	PORTSM	NH	03801
		IRONWOOD DESIGN GROUP	JEFFREY HYLAND	55 MAIN ST #129	NEWMA	NH	03857

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P22-39

Application Type:	Site Plan Review
Applicant(s):	Summit Land Development / 7 West LLC
Owner(s):	Summit Land Development / 7 West LLC
Location:	Durham Road (Assessor's Map H, Lot 11)
Meeting Date:	December 13, 2022

INTENT: To develop a 14,160 sf (building footprint) three (3) story medical office building with onsite parking.

LOTS PROPOSED: 2 (1 new lot)

AGENDA ITEM #: 4-H

ACREAGE:
3.31 post subdivision

ZONING DISTRICT: Gateway

EXISTING USE: Vacant

PROPOSED USE: Medical Office Building

SURROUNDING USES: Residential, School, Fire Station, Bellamy River

ZBA ACTION: None

ATTACHMENTS: Application materials including site plan, TRC minutes

APPLICATION IS COMPLETE: Yes

REGIONAL IMPACT: No

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

PERMITS REQUIRED:
-Conditional Use Permits (Wetland Buffer and Dimensional)
-NHDES Sewer Discharge, AOT, & Shoreland permits;
- USEPA General Const. Permit

WAIVERS REQUESTED: None for this case

Summary of Request and Background
The applicant is proposing a minor subdivision, two conditional use permits, and a site plan application. The proposal is for a 14,160 s.f. (footprint) 3-story medical office building.

There are 205 parking spaces provided onsite. This medical office building is similar to the professional office designation rather than the medical use with a per bed calculation which is why the Planning Director is comfortable with 1 parking spaces per about 207 s.f. of GLA

This site plan came to the TRC on June 2nd, 2022 and October 20, 2022.

There is a potential Phase II to this project which would add a connector road, connecting Durham Road at the south eastern corner of the subject lot wrapping north westerly around the lot to connect with the Middle School lot (lot H/11-1). The City and applicant would negotiate a Development Agreement between the applicant or property owner and the City regarding the connector road and a full TRC and Planning Board review would be required.

STAFF RECOMMENDATION-Site Plan:

Consistency with Land Use Regulations
Chapter 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. With the Conditional Use Permits, this plan is consistent with the requirements laid out in 153- 14 for a site plan in the Gateway district, and complies with the zoning.

STAFF RECOMMENDATION:
The Planning Department recommends the Planning Board accept the application and declare no regional impact, hold a public hearing, make findings, and vote to grant final approval of the Site Plan with the following subsequent conditions, as the plans meet the standards outlined:

Subsequent Conditions to Be Met Prior to the Signing of Plans:
1. The Minor Subdivision (P22-75), Conditional Use Permits (P22-76 and P22-56) are granted.
2. Standard Development Agreement between Planning Board and applicant or property owner be reviewed by the City Attorney for legal review, Planning Director for content review and include general CUP language and recorded at SCRD.
3. Provide physical and digital copies (including CAD) of complete plan set which additionally shall include:
   The stamp and signature of the PE, LLA, CWS, Architect, and LLS on the final plans
   - 3.1. Owner's signature
   - 3.2. Revise Planning File number P22-39 for Site Plan
   - 3.3. Remove Planning Board stamp block.

3.4. A note added to the plan that if connector road or another phase is proposed, full Technical Review and Planning Board review may be required.
3.5. Add note to plan that if connector road is added, current proposed driveway would be changed to right-in, right-out only with additional curbing to limit left-turn in on the westerly driveway.
3.6. Revise all references of "Handicap" to "Accessible"
3.7. Add permit numbers when obtained.

Subsequent Conditions to Be Met Prior to any Construction:

4 A site construction sign with the contact information for the general contractor must be located and approved by the City Engineer or Planning Director. Site Construction sign shall indicate level of visibility/noise/vibration disturbance anticipated each day.

5 A pre-blast meeting shall occur prior to any blasting per Chapter 153-10F.

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

6 Property owner or applicant has to present for conveyance the right-of-way from Durham Road to lot H/11-1 to City Council for acceptance.

7 Water and sewer investment fees shall be paid at the time of request of service.

Subsequent Conditions to Be Met Prior to Occupancy:

8 If Development agreement is entered into between the property owner and City/City Council, then any conditions and duties of the Developer contained in Development Agreement be completed and satisfied. If there is no Development agreement entered into between the property owner and City/Council, then this condition shall be of no effect.

9 Issuance of a certificate of occupancy.

10 Impact fees shall be paid per the invoice included with the Notice of Decision.

11 The applicant shall provide a letter of credit or other form of security acceptable to the City for any unfinished work.

P22-39 Durham Road, 250' north of Daley Drive



Property Information

Property ID	H0011-000000
Location	DURHAM RD
Owner	7 WEST LLC
Land Use	390
Zoning Code	R-20

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 5/3/2021
Data updated Daily

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

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P22-38

Application Type:	Site Plan Review & CUPs (Env. & Non-Env.)
Applicant(s):	Summit Land Development
Owner(s):	7 West, LLC
Location:	Durham Road (Assessor's Map H, Lots 11)
Date:	October 20, 2022

INTENT: To develop a 14,160 sf (building footprint) three (3) story medical office building with onsite parking. CUPs for zoning standards related to max. number of off-street parking spaces, permitted use, min. lot coverage, and build to line are requested. An additional CUP for environmental protection is also being sought for wetland impacts to 950 sf of wetlands buffer.

PROPOSED LAND USE: Medical Offices

AGENDA ITEM #: 1

ACREAGE: 8.69± ac / 378,500± s.f.

ZONING DISTRICTS: Gateway (G) Mixed-use, Conservation and Wetland Protection Districts

EXISTING LAND USE: Vacant, SFR demolished 2011

SURROUNDING LAND USE: Residential, School, Fire Station, Bellamy River

ZBA ACTION: None

PERMITS REQUIRED:
- NHDES Sewer Discharge, AOT, & Shoreland permits;
- USEPA General Const. Permit
- CUPs:
  - §170-12.A. – Permitted Uses,
  - §170.12.B. -Min. Lot Coverage, Max. Front Setback,& Frontage Buildout,
- Env. CUP:
  - §170-27.1 - Wetland Protection Dist.

WAIVERS REQUESTED: None

ATTENDANCE:
Donna Benton, Planning
Natasha Kypfer, Zoning
Christopher Parker, Business Development
Jim Maxfield, Fire/Inspection Services
Marn Speidel, Police
Ken Mavrogeorge, Engineering
Frank Torr, Planning Board

Others:
Chad Kageleiry, Summit Land Development
Cory Belden, PE, Altus Engineering
Kim Hazaravartian, PE, TEPP LLC

Previous TRC: June 2, 2022

Approval of September 8, 2022 and October 13, 2022 Minutes:
C. Parker moved to approve the September 8, 2022 and October 13, 2022 TRC Minutes. Seconded by F. Torr. Vote: U/A.

PLAN REVIEW:
Planning:
- Reminder: Impact fees & W/S investment fees
- Traffic study:
  - Traffic study-low rise apartments vs. medical office. ITE?
- Site plan shows conceptual property lines to the N & W parking lots
  - Calculate dimensional relief pre and post potential SD
- Remove access road schematic from plan and indicate in note on plan that an easement is be created instead
- Revise Plan to:
  - Add note about street trees to access road
  - Revise to 3" tree caliper minimum on L1.0 under "Plant Schedule" for Serviceberry and Crabapple
  - Sheet No. on index on cover sheet should match consecutive sheet #'s
  - Revise typos on sheet C-2
  - Add additional streetscape to show other side and label each
  - Revise note 22 to indicate no Federal Holidays
- Common plan notes to add:
  - Owner's signature and PB approval stamp block blank to cover sheet and site plan as a 2" x 2" blank block

Police Department:
- Will the developer maintain ownership of property, and if so, is owner willing to permit the City or School Department use of parking lots (with appropriate indemnification) for excess event parking on weekends/nights for the rare large-scale event at Dover Middle School?

- Consider a speed table at the midpoint of the site roadway
- Police Department supports the development agreement to ensure appropriate conditions are in place to trigger the construction of the connector roadway

Engineering:

- C-2:Look at parking configuration on southwest parking lot. The spots on the ends appear difficult to access. Could the one way out be eliminated to avoid exiting on a steep driveway and improve maneuverability?
- C-2:Snow storage areas conflict with landscaping. Recommend storing snow in areas where landscaping won't get in the way.
- C-2:Median islands near Emergency Drop Off: Clarify purpose of median islands. If they are for pedestrian access, then we recommend crosswalks be provided to connect the sidewalk at the building to the road. If median in middle of the lot is also for pedestrians, provide crosswalk to promote safe passage. Recommend incorporating sidewalk into island instead to get pedestrians out of parking area.
- C-2:Why does the width of the main drive aisle change from 24 to 30 and back to 24? IF for truck turning purposes, please provide the turning plans.
- C-2:Recommend extending sidewalk to the driveway of the fire station.
- Show Accessible parking signage locations on plans.
- C-2:A detail for the Future Driveway Connection is shown but not clear when it will be installed. Please clarify.
- C-3:ADS Infiltration System: Please show the header rows connecting the units. Recommend adding a note that the header rows be sized per manufacturers recommendations.
- C-3:Check the grading along the frontage of Durham Rd near the curb. It is not correct.
- C-3:Please check that there is sufficient shoulder provided wherever guardrail is called out.
- C-3:Will drainage easements required on the phase II lot? Provide if necessary.
- C-4:Add gate valve after the domestic service branch off and reducer to change the pipe diameter.
- C-4:Minimum slope for 6-inch sewer service is 1%. Please revise.
- C-4:Sewer with less than 6 feet of cover below pavement is required to have insulation.
- C-4:Existing water valves in Durham Rd are for existing water services at subject property. Can the development reuse these instead of connecting to the main as proposed?
- C-4:If existing water services are not used, please provide a gate valve adjacent to the tapping sleeve.
- C-4:Consolidate the utility trenches within Durham Rd and provide overlay of entire area of disturbance from curb to curb.
- C-4:Gas service is shown connecting to water main.
- General Comment: Please provide a number or letter for each of the details.
- D-3:Add dimensions to baffle and weir so that they can be constructed. For example: How far from bottom and top of structure? What is the material of the baffle/weir?
- D-5:Evaluate depth of wood guardrail. Depth seems insufficient for use on steep slopes.
- L1.0:Check landscaping conflicts with snow storage and lighting.
- Update references: "accessible" not "handicap"
- Side setback does not follow property line

Fire/Inspections Services:

- *Provide an ambulance turning template to the designated space in the front of the building and exiting the site.*
- *Indicate entrances and exits on the plan.*
- *Sheet 2 appears to indicate a stairway at the lowest level center doorway. To be removed.*
- *Indicate the proposed location of the 2% EV charging stations on Sheet C-2 with compliance with accessibility requirements and include UGE configuration on utility plan.*
- *Indicate how the accessible route is maintained from the most northwesterly accessible parking space.*
- *Plan set to include compliance with NH RSA 155-A :5*
- *Discuss how the additional curb cuts coincide w/ the overall traffic study at the intersection and the overall corridor.*
- *Roof Hatch located within 10' from the roof edge shall have guards.*
- *Provide a street name for the proposed street*

- *Provide specification of retaining wall pedestrian guardrails on detail sheet.*
- Accessible EV required review ADA space layout

Business Development: None.

Planning Board:

- Safety fence: more than just welded wire, replace with rod iron-looking or something similar
- Build-to-line in Gateway
- Turning lane in R108 then replace with island later; CoA – Upon completion connect road that island is in place for RI & RO if connector road is not built or permitted
- White Pine replaced with Hemlock or something similar

Next Steps: Submit for CUP at the Conservation Commission for November 14 meeting. Submit for Planning Board at December 13 meeting; Unofficial TRC prior to review some additional CoA's.

Adjournment:
C. Parker moved to adjourn at 11:24 am. Seconded by F. Torr. Vote: U/A.

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Summit Land Development Telephone # 603.749.2800

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

E-Mail Address: chad@summitlanddev.com

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

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

PROPERTY INFORMATION

Address of Property: Durham Road Dover, New Hampshire

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

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

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

Existing Use of Property: Undeveloped

SITE PLAN INFORMATION

Describe Proposed Use: Medical office building and parking

Area of Parcel to be Developed: 153,600 SQ FT (3.5 ACRES) sq. ft.

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

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

Number of Parking Spaces: Existing 0 Proposed 205

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

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

Disposition of Parcel:

Building Footprint 14,160 sq. ft.

Total Building Area 42,480 sq. ft.

Paved Area 78,500 sq. ft.

Building Setbacks:

Front Yard 145.9 ft.

Rear Yard 142.0 ft.

Side Yard: Right 87.1 ft. Left 107.3 ft.

City Water? X Yes ___ No How far is city water from the property? 23'

City Sewer? X Yes ___ No How far is city sewer from the property? 41'

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

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

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

Relief sought (Check All That Apply):

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

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

_____

_____

_____

BUILDING INFORMATION

Type of Building to be Built: Medical Office Building

Height of Building: 3 Stories Finished Floor Elevation: 68.0 basement
81.0 First Floor

Number of Seats (where applicable) _____

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

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: No Waivers Requested

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

_____

_____

_____

_____

_____

_____

_____

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Kevin McEneaney-McEneaney Survey Ass

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

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

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Cory Belden - Altus Engineering

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

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

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) Market Square Architects

Address 104 Congress St, Portsmouth, NH 03801 Telephone #: 603-501-0202

Professional License #: cobrien@marketsquarearchitects.com E-mail address:

LANDSCAPE ARCHITECT INFORMATION

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

Address 55 Main St #129, Newmarket, NH 03857 Telephone #: 603-772-0590

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

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Bruce Gilday - BAG Land Consultants

Address 43 Rockingham St, Concord, NH 03301 Telephone #: 603-228-5775

Professional License #: Wetlands = #088
Soils = # 012 E-mail address: bagilday@comcast.net

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: Telephone #

Address Easement Holder:

SIGNATURES

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

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

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

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

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

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

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

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

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

CERTIFICATION OF FEES

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

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

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

CITY OF DOVER SITE REVIEW
LIST OF ABUTTERS

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

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

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

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

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

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

APPLICANT: Summit Land Development File Number: 22-38

PROJECT TITLE: 7 West Commercial Development

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

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

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

REVIEWED BY: _____ DATE_____ TRC DATE_____

P22-39 **DURHAM ROAD**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
H0011-001000	16 DALEY DR	CITY OF DOVER	SCHOOL DEPARTMENT	288 CENTRAL AVE	DOVER	NH	03820
H0011-A00000	DURHAM RD	CITY OF DOVER		288 CENTRAL AVENUE	DOVER	NH	03820
H0011-B00000	25 DURHAM RD	CITY OF DOVER		288 CENTRAL AVE	DOVER	NH	03820
I0007-000000	10 DURHAM RD	10 DURHAM ROAD GROUP LLC		10 DURHAM RD	DOVER	NH	03820
I0008-000000	22 DURHAM RD	SMITH BRIDGET F & ROBERT H III TRUSTEES	SMITH FAMILY LIVING TRUST 2021	10 PONDVIEW DR	DOVER	NH	03820
I0008-A00000	16 DURHAM RD	DONAIS LESLIE &	DONAIS JOHN	16 DURHAM RD	DOVER	NH	03820-4382
I0009-000000	32 DURHAM RD	HADLEY CARA W		32 DURHAM RD	DOVER	NH	03820
I0009-A00000	28 DURHAM RD	WOOD MICHELLE &	WOOD JAMES L	28 DURHAM RD	DOVER	NH	03820-4382
		SUMMIT LAND DEVELOPMENT		340 CENTRAL AVENUE	DOVER	NH	03820
		7 WEST, LLC		P.O. BOX 728	DOVER	NH	03820
		MCENEANEY SURVEY ASSOCIATES	KEVIN MCENEANEY	24 CHESTNUT ST	DOVER	NH	03820
		ALTUS ANGINEERING	CORY BELDEN	113 COURT ST	PORTM	NH	03801
		MARKET SQUARE ARCHITECTS		104 CONGRESS ST	PORTSM	NH	03801
		IRONWOOD DESIGN GROUP	JEFFREY HYLAND	55 MAIN ST #129	NEWMA	NH	03857

PROJECT DESCRIPTION

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

Overview

The Applicant, Summit Land Development, is proposing to construct a new commercial development on Durham Road in Dover, NH located on Tax Map H, Lot 11. The proposed development is for a medical building which will be three stories and approximately 42,480 square feet (14,160 sq ft per floor). The existing lot is approximately 8.7 acres in size and abuts the Dover Fire Station and Elementary School to the west, the Bellamy River to the North, and the Spaulding Turnpike (Exit 7) ramps to the east. The site will provide adequate on-site parking to meet the needs of the proposed use, as well as associated walkways, utilities, and stormwater management. The proposed site has been designed with a stormwater treatment system that consists of deep sump catch basins, two raingardens, and a sub-surface (Stormtech) chamber system. The project will require both NHDES Alteration of Terrain and Shoreland Permit approvals.

Existing Site Conditions / Surveys

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

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

Site Layout and Parking

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

The proposed use is not identified in the City of Dover parking calculations table. Therefore. the allowable parking rate is determined by the Director of Planning and Community Development, per Section 153-14.D.1.B. The Institute for Transportation Engineers (ITE) Parking Generation Manual indicates a parking need of 4.3 and 5.3 stalls per 1,000 square feet for medical offices and clinics. Therefore, it is understood that an average of the two uses of 4.8 stalls per 1,000 sf GLA is the acceptable parking for this project. The allowed number of parking stalls is 205, which are provided, therefore a CUP for parking is not required.

The existing driveway entrance to the site, located in the middle of the site, will be relocated to the west side of the site. This location will maximize the distance from the Back River Road / Durham Road intersection. It also provides a clear 400 foot sight distance in each direction. It is understood that the driveway will be revised to remove the left out movement upon completion of the loop road connection behind the site during the second phase of the development.

Drainage Summary

A complete Drainage Report is provided with this application. The Stormwater Modeling Summary table below compares pre- and post-development peak rates of runoff for all analyzed storm events at the Point of Analysis, located downstream from the proposed project:

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

	2-Yr Storm (3.62 inch)	10-Yr Storm (5.46inch)	25-Yr Storm (6.91 inch)	50-Yr Storm (8.26 inch)
POA #1				
Pre	5.25	13.36	20.68	27.91
Post	5.16	12.96	20.65	27.71
Net Change	**-0.09**	**-0.40**	**-0.03**	**-0.20**

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

As shown in the above table, the results from the stormwater modelling indicate a reduction in the peak runoff rates for all analyzed storm events. Therefore, the proposed development will not have an adverse effect on abutting properties and infrastructure as a result of stormwater runoff. The project will treat all proposed impervious areas with two raingardens and a sub-surface infiltration basin. Pre-treatment will be provided with deep sump catch basins. The post-construction peak rates of runoff from the site will managed accordingly for the 2, 10, 25, and 50 year storms. Appropriate steps will be taken to properly mitigate erosion and sedimentation through construction with the use of temporary and permanent Best Management Practices for sediment and erosion control.

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

December 5, 2022

Donna Benton, Director of Planning and Community Development
City of Dover Planning Department
288 Central Ave
Dover, New Hampshire 03820

Re: Application for Site Plan, Subdivision, and Conditional Use Permits
7 West - Durham Road, Dover
Dover Project #P22-38
P4952

Dear Ms. Benton:

On behalf of Summit Land Development, Altus Engineering, Inc. (Altus) is pleased to submit the attached application for a new medical building as depicted on parcel H-11 at the intersection of Durham Road and Back River Road. The proposed project will have an entrance on Durham Road. The project proposes to develop the land and construct a 42,480 square-foot (14,160 sf footprint) three-story office building that will provide medical offices and services for the residents of the City of Dover and surrounding area. The project also proposes the necessary parking, infrastructure, and utilities that will be required for the proposed site. The proposed project included four (4) applications for consideration by the Planning Board as noted below:

1. Site Plan Review
2. Subdivision Review
3. Conditional Use Permits
    a. Wetlands Protections District (Section 170-27.1)
    b. Gateway District (Section 170-12.B)

The applicant met with the Technical Review Committee (TRC) on May 26, and October 20, 2022 and received recommendation for approval. Altus also met with the Conservation Commission on November 14, 2022 and received recommendation for approval. The initial application included a new roadway connection at the Back River Road intersection with a future extension to the Dover Elementary and Middle Schools to the northwest. The applicant and City are currently working on a Development Agreement to address the future road and site development (Phase 2). The current plan shows a Right of Way to be deeded to the City of Dover for the future roadway. This application only includes the proposed site improvements for the Phase 1 development area.

Included in this submittal for consideration at the December 13, 2022 Planning Board meeting are six (6) hard copies and an electronic copy of the following:

- Revised Site Plans, dated December 5, 2022
  (One full size 22"x34" and five 11" x 17")
- Site Review Application and Checklist
- Subdivision Application and Checklist
- Conditional Use Permit Applications
  - CUP Wetlands
  - CUP Gateway
- Project Description
- Soils
  - Site Specific Soils Survey Report
  - Site Specific Soils Survey Map
- Aerial Photographs
- FEMA Map
- Traffic Assessment
- Lighting Cut Sheets
- Drainage Report
- Stormwater Inspection and Maintenance Manual
- Landscape Operations & Maintenance Plan

NHDES Alteration of Terrain (AoT) and Shoreland Permit applications have been submitted and are currently pending approval.

Please call if you have any questions or require additional information.

Sincerely,

ALTUS ENGINEERING, INC.



Cory Belden, P.E.

Electronic Plans
copy: Chad Kageleiry, Summit Land Development

wde/5057_P5 City ltr 7-21-20-cb

BAG

LAND CONSULTANTS

March 28, 2022

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

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

Dear Chad:

Site Specific Soil Survey Technical Letter Report

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

Standards

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

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

Base Map

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

Location

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

Field Findings

The onsite soil test probes were hand dug with shovel and auger. We strategically selected locations on the topography to study our various soil profiles. Our Scantic (233B/P) soil probe [TP#1] showed evidence of estimated high water table less than 12" below the soil surface. Our Charlton (62C) soil probe [TP#2] documented: A-Horizon (0-7") 10YR 3/2, loam texture, weak fine granular, friable//Bw_1, Horizon – (7-12") 10YR 5/6, fine sand loam, moderate fine granular, friable //Bw_2 Horizon – (12-20") 2.5Y 5/4, sandy loam, subangular, friable//C Horizon - (20 – 38") 10YR 5/3, sandy loam, massive, friable (w/distinct & common, 7.5 YR 5/6 redox@36"). In addition, TP#3 & TP#4 recorded soil depths to ledge >40" and both had E.S.H.W.T. greater than 40" below soil surface.

Legend

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

SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	SOIL TAXONOMIC NAME	HSG CLASS	DRAINAGE CLASS
62	Charlton	B	Well Drained
86	Hollis	C	Well Drained
232	Buxton	C	Moderately Well-drained
233/P	Scantic	D	Poorly Drained (P)
200/daade	Udorthents	-	Smooth Fill Refuse Material

[d-moderately well drained / a-no natural soil within 60"/ a-no restrictive layers / d- no Ksat / e- No HSG]

Slope

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

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

Limiting Soil Features

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

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

Sincerely,

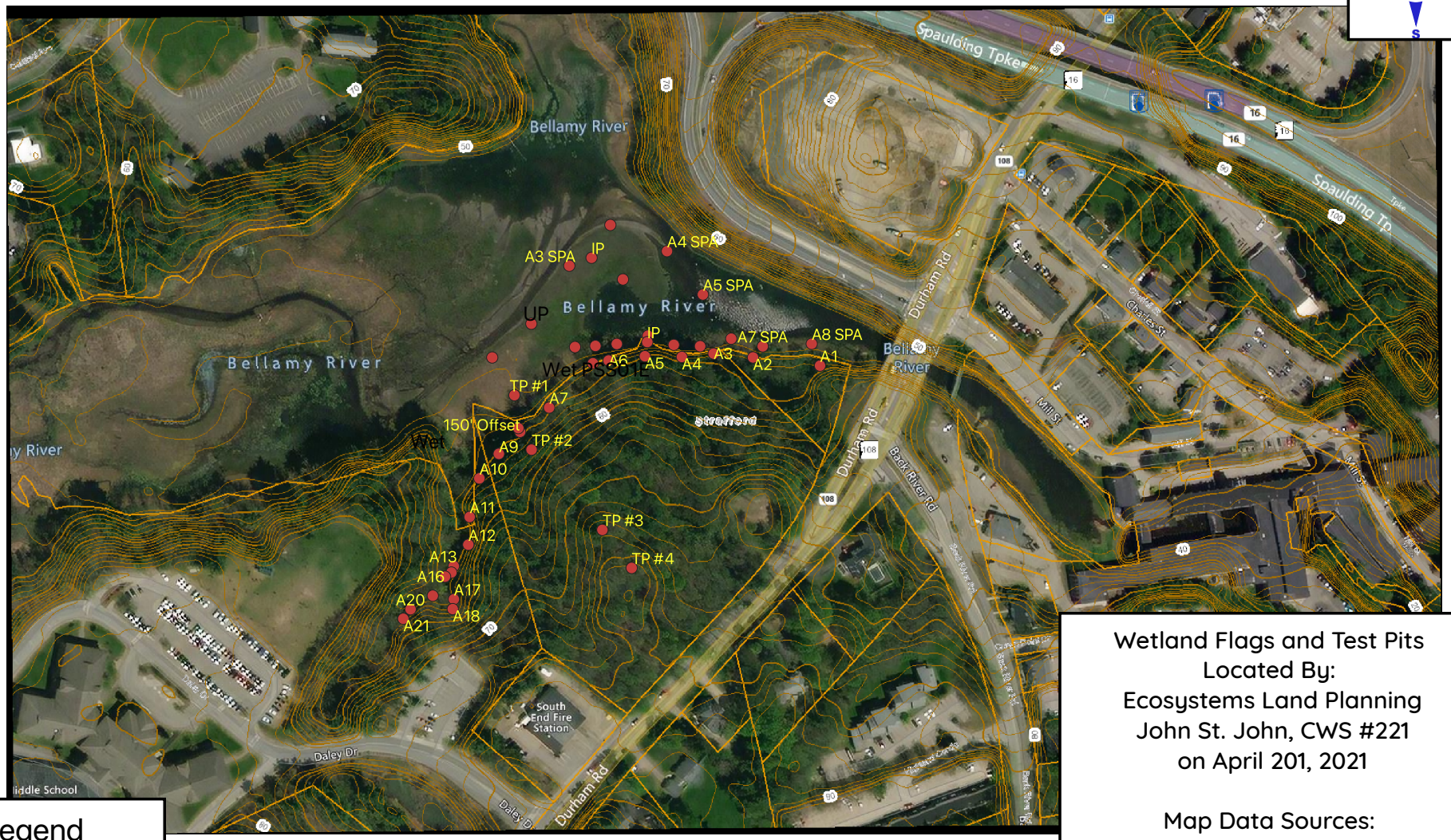
Bruce A. Gilday

Bruce A. Gilday
Certified Soil Scientist

BAG:3238B



11 Durham Rd. Dover



Legend

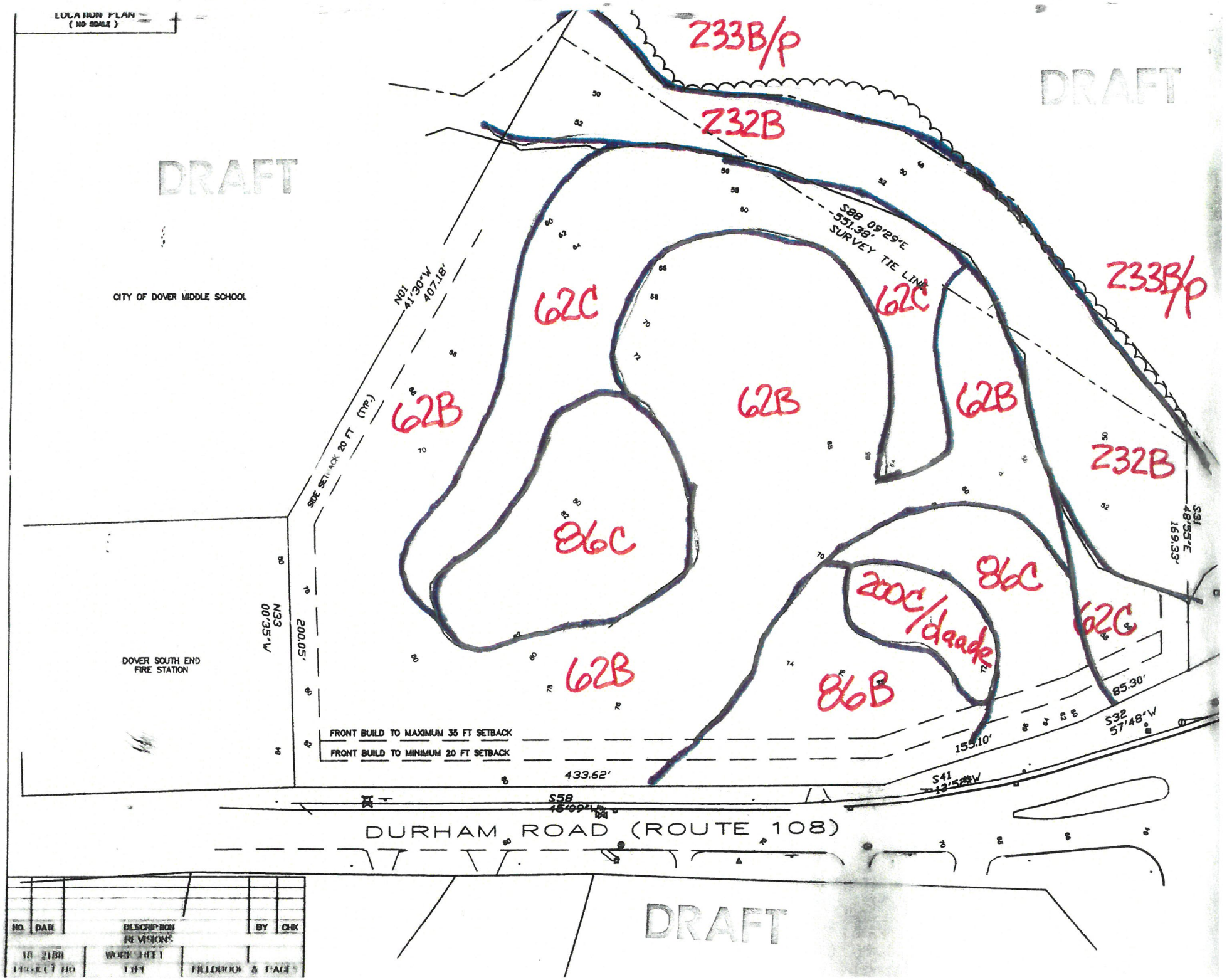
- durham rd

repro-raster map

0 200 400 ft

Wetland Flags and Test Pits
Located By:
Ecosystems Land Planning
John St. John, CWS #221
on April 201, 2021

Map Data Sources:
GraniteView: GIS Base Map with Property Lines
Ecosystems: GPS Field Locations


LOCATION PLAN
(NO SCALE)
DRAFT
DRAFT
DRAFT
233B/p
232B
233B/p
232B
62C
62C
62B
62B
62B
86C
86C
200C/daadc
62C
62B
86B
CITY OF DOVER MIDDLE SCHOOL
DOVER SOUTH END FIRE STATION
N01 41'30"W 407.18'
SIDE SETBACK 20 FT (TYP.)
N33 00'35"W 200.05'
S88 09'29"E 551.39' SURVEY TIE LINE
S81 48'55"E 196.33'
85.30'
S32 57'48"W
155.10'
S41 13'52"W
433.62'
S58 15'09"W
FRONT BUILD TO MAXIMUM 35 FT SETBACK
FRONT BUILD TO MINIMUM 20 FT SETBACK
DURHAM ROAD (ROUTE 108)
NO. DATE DESCRIPTION BY CHK
REVISIONS
10 2BB
WORKSHEET
PROJECT NO
TBT
FIELDBOOK & PAGE

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



Map Scale: 1:1,680 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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Please rely on the bar scale on each map sheet for map measurements.

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

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Survey Area Data: Version 22, Aug 31, 2021

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

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

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W	Water	1.8	22.1%
Totals for Area of Interest		**8.2**	**100.0%**

TEPP LLC TRANSPORTATION ENGINEERING, PLANNING, AND PO ICY

MEMORANDUM

93 Stiles Road, Suite 201, Salem, New Hampshire 03079 USA
800 Turnpike Street, Suite 300, North Andover, Massachusetts 01845 USA
Phone (603) 212-91 Fax (603) 226-
Email tepp@teppllc.com and Web www.teppllc.com

Ref: 1607

Subject: Traffic Assessment
7 West Commercial Development
Durham Road
Dover, New Hampshire

From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
Email keh@teppllc.com

Date: May 5, 2022

DRAFT 1

INTRODUCTION

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

This TAM includes:

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

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

EXISTING SITE

The development site:

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

PROPOSED DEVELOPMENT

The development program provides:

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

ROAD DESCRIPTION

Durham (New Hampshire Route 108):

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

DRAFT 1

PUBLIC TRANSIT

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

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

SIGHT DISTANCES

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

TRIP GENERATION

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

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

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

TRIP DISTRIBUTION

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

DRAFT 1

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

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

Table 1. Calculated weekday trip generation.

Time Period and Direction	Vehicle-Trips[a]
Daily	4
AM-Street-Peak Hour	
In	2
Out	10
Total	37
PM-Street-Peak Hour	
In	22
Out	39
Total	61

[a]Based on ITE, *Trip Generation Manual*, multifamily housing (low rise), land use 220, 42 dwelling units.

DRAFT 1

POTENTIAL TRAFFIC IMPACTS

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

POTENTIAL ROAD

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

CONCLUSION

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

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

TEPP LLC TRANSPORTATION ENGINEERING, PLANNING, AND POLICY

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800 Turnpike Street, Suite 300, North Andover, Massachusetts 01845 USA
Phone (603) 212-9133 and Fax (603) 226-4108
Email tepp@teppllc.com and Web www.teppllc.com

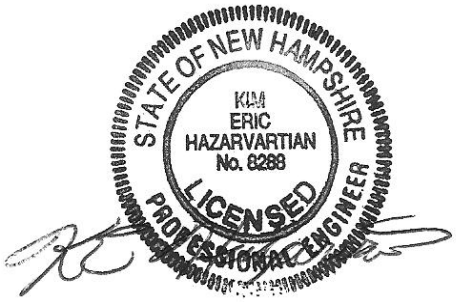
MEMORANDUM

Ref: 1607

Subject: Traffic Assessment
7 West Commercial Development
Durham Road
Dover, New Hampshire

From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
Email keh@teppllc.com

Date: October 6, 2022



INTRODUCTION

Summit Land Development, LLC, retained TEPP LLC to prepare a traffic-assessment memorandum (TAM), with draft 1 dated May 5, 2022. The City of Dover, New Hampshire, retained Sebago Technics, Inc. to conduct a peer review of the TAM draft. Sebago Technics, Inc. provided comments in a memorandum dated August 19, 2022.

Subsequently, TEPP LLC understands that Summit Land Development, LLC, will be submitting a multi-phase application.

Phase 1 (the current project):

- will include only deeding the right of way to the City for the loop road behind the site
- will not construct the loop road behind the site
- will not construct the connection of the loop road to the Durham Road/Back River Road intersection
- will not provide modifications to the Durham Road/Back River Road intersection
- will provide one full-movement driveway along the west side of Durham Road

Phase 2 will involve:

- constructing the loop road behind the site
- constructing the connection of the loop road to the Durham Road/Back River Road intersection
- modifications to the Durham Road/Back River Road intersection

- modifying the full-movement driveway along the west side of Durham Road to right-in-and-right-out only if the City so decides
- potential additional traffic analysis

Comments from Sebago Technics, Inc. are presented below. Responses from TEPP LLC largely look forward to Phase 2.

COMMENT 1

The applicant has completed a trip generation calculation for the development using the 11th Edition of the ITE *Trip Generation Manual* considering LUC 720 - Medical-Dental Office Building utilizing the independent variable based on employees. It is in our professional opinion that the applicant revises the trip generation calculations to also consider the independent variable of gross square footage. The total trip generation of the development can be calculated by averaging the results of the independent variables of the number of employees and gross square footage.

RESPONSE 1

Phase 2 will provide an opportunity to address this comment in the context of full development of the site.

COMMENT 2

Table 1 refers to LUC 220 and 42 dwelling units. The values in the Table correctly reflect the summarized calculations for LUC 720, but the reference should be revised in future submissions for clarity.

RESPONSE 2

This was a typographical error. TEPP LLC notes the comment.

COMMENT 3

A general description of the expected trip distribution is provided in the report. It is requested that a more detailed description be provided, including diagrams indicating the trip distribution/assignment from the site driveways onto the roadway network.

RESPONSE 3

Phase 2 will provide an opportunity to address this comment in the context of full development of the site.

COMMENT 4

Under the "Proposed Development" section, there is a statement that “one unsignalized driveway along the south side of a potential road between the Dover Middle School and Durham Road opposite Back River Road.” The applicant should clarify if this roadway and subsequent new approach opposite Back River Road are proposed regardless of the proposed connection to the Dover Middle School. Furthermore, if constructed, this approach would need to be signalized as part of modifications to the existing Back River Road/Durham Road intersection.

RESPONSE 4

The intention is that the loop road will connect to the Dover Middle School.

COMMENT 5

A capacity and queueing analysis is requested for the intersection of Durham Road at Back River Road to ensure that the addition of a fourth leg to this signal can be adequately accommodated. It should be noted that this traffic signal is also controlled by the signalized intersection of Mill Street / Spaulding Turnpike @ Durham Road and is quite complex and in turn, at times, is over capacity under existing volumes, mainly while school is in session. Given the complexity of this corridor, we have provided a Synchro file containing the existing traffic volumes and signal timings that can be used as the basis for this requested analysis.

RESPONSE 5

Phase 2 will provide an opportunity to address this comment.

COMMENT 6

The requested analysis should include an evaluation for the need for auxiliary turn lanes at the southerly site driveway using guidelines as outlined in the *National Cooperative Highway Research Program (NCHRP) Report 457: Evaluating Intersection Improvements, An Engineering Study Guide*.

RESPONSE 6

Phase 2 involves modifying the full-movement driveway along the west side of Durham Road to right-in-and-right-out only if the City so decides. This would eliminate left turns from Durham Road northbound to the driveway.

COMMENT 7

It is requested a safety analysis be performed for the existing signalized intersection of Back River Road at Durham Road as well as the segment of Route 108 between Back River Road and Daley Drive. Crash data for the three most recent years shall be obtained from the Dover Police Department.

RESPONSE 7

Phase 2 will provide an opportunity to address this comment.

COMMENT 8

Applicant should verify through field measurements that the stated available sight distance of 400' is available from the proposed southerly site driveway.

RESPONSE 8

Field measurements confirm that at least 400 feet of sight distance will be available. See sight-distance plan included in the plan set by Altus Engineering, dated October 5, 2022.

COMMENT 9

Sheet C-2 contains a conceptual plan of improvements to Durham Road at Back River Road intersection. It is requested that further detail be provided regarding the proposed modifications to the existing traffic signal infrastructure and necessary new equipment/structures to accommodate the proposed additional approach.

RESPONSE 9

Phase 2 will provide an opportunity to address this comment.

BAG

LAND CONSULTANTS

March 28, 2022

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

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

Dear Chad:

Site Specific Soil Survey Technical Letter Report

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

Standards

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

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

Base Map

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

Location

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

Field Findings

The onsite soil test probes were hand dug with shovel and auger. We strategically selected locations on the topography to study our various soil profiles. Our Scantic (233B/P) soil probe [TP#1] showed evidence of estimated high water table less than 12" below the soil surface. Our Charlton (62C) soil probe [TP#2] documented: A-Horizon (0-7") 10YR 3/2, loam texture, weak fine granular, friable//Bw_1, Horizon – (7-12") 10YR 5/6, fine sand loam, moderate fine granular, friable //Bw_2 Horizon – (12-20") 2.5Y 5/4, sandy loam, subangular, friable//C Horizon - (20 – 38") 10YR 5/3, sandy loam, massive, friable (w/distinct & common, 7.5 YR 5/6 redox@36"). In addition, TP#3 & TP#4 recorded soil depths to ledge >40" and both had E.S.H.W.T. greater than 40" below soil surface.

Legend

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

SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	SOIL TAXONOMIC NAME	HSG CLASS	DRAINAGE CLASS
62	Charlton	B	Well Drained
86	Hollis	C	Well Drained
232	Buxton	C	Moderately Well-drained
233/P	Scantic	D	Poorly Drained (P)
200/daade	Udorthents	-	Smooth Fill Refuse Material

[d-moderately well drained / a-no natural soil within 60"/ a-no restrictive layers / d- no Ksat / e- No HSG]

Slope

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

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

Limiting Soil Features

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

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Bruce A. Gilday

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Certified Soil Scientist

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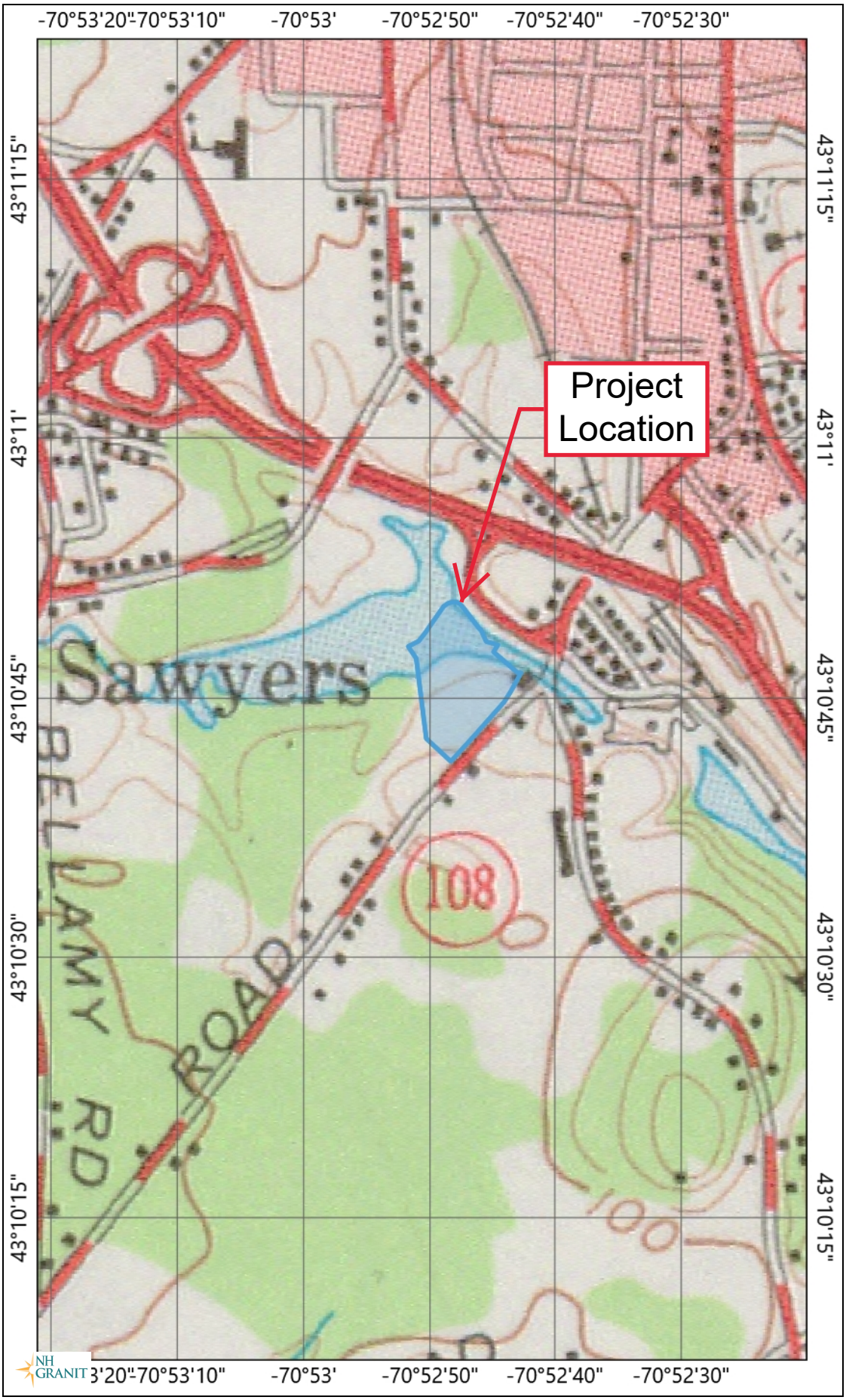
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7 West Commercial Development



Legend

1956 with vegetation

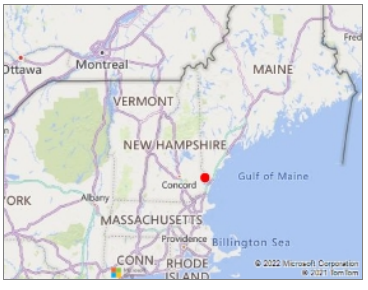
Map Scale

1: 10,000

© NH GRANIT, www.granit.unh.edu

Map Generated: 4/12/2022

Notes





Aerial Photograph
7 West Dover, NH



Aerial Photograph
7 West Dover, NH












SCHOOL
SPEED
LIMIT
20


NH-108


NH-108

National Flood Hazard Layer FIRMette

FEMA

70°53'6"W 43°10'58"N



70°52'29"W 43°10'32"N

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

1:6,000

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

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

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

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

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

TEPP LLC TRANSPORTATION ENGINEERING, PLANNING, AND POLICY

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MEMORANDUM

Ref: 1607

Subject: Traffic Assessment
7 West Commercial Development
Durham Road
Dover, New Hampshire

From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
Email keh@teppllc.com

Date: May 5, 2022

DRAFT 1

INTRODUCTION

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

This TAM includes:

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

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

EXISTING SITE

The development site:

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

PROPOSED DEVELOPMENT

The development program provides:

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

ROAD DESCRIPTION

Durham (New Hampshire Route 108):

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

DRAFT 1

PUBLIC TRANSIT

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

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

SIGHT DISTANCES

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

TRIP GENERATION

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

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

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

TRIP DISTRIBUTION

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

DRAFT 1

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

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

Table 1. Calculated weekday trip generation.

Time Period and Direction	Vehicle-Trips[a]
Daily	406
AM-Street-Peak Hour	
In	27
Out	10
Total	37
PM-Street-Peak Hour	
In	22
Out	39
Total	61

[a]Based on ITE, *Trip Generation Manual*, multifamily housing (low rise), land use 220, 42 dwelling units.

DRAFT 1

POTENTIAL TRAFFIC IMPACTS

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

POTENTIAL ROAD

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

CONCLUSION

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

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

Landscape Maintenance

Introduction

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

Weekly Tasks

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

Annual Tasks

Early Spring

1. Prune winter damage such as broken tree branches that interfere with public safety.
2. Trim dead perennial foliage left in the fall for winter interest to within six inches of the ground.
3. Add new mulch to plant beds where the mulch depth has been reduced to less than 2 inches. Mulch depth shall not exceed two inches (top dressed). Mulch is not required where shrubs or groundcover completely hide the soil surface from view.
4. Gently prune shrubs at appropriate time of year based on species, for shape and form. **Do not shear.**
5. Energize the irrigation system, repair damaged components, test the system, adjust heads, and update 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 basin and linear swales seeded with a variety of native, adaptable, and rugged perennial grasses and flowering plants. There are maintenance tasks associated with stormwater facilities.

Erosion

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

Sediment Accumulation & Clogging

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

Outlet Structure Maintenance

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

Riprap

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

Debris & Litter

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

Plant Maintenance

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

Snow Storage

Snow shall not be dumped directly onto the facility.

Chlorides

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

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

DRAINAGE STUDY

Applicant:

Summit Land Development

340 Central Ave #202

Dover, New Hampshire 03820

Project:

7 West Commercial Development

Tax Map H, Lot 11

Owner:

7 West, LLC

P.O. Box 728 Dover, NH 03821

Prepared October 5, 2022

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

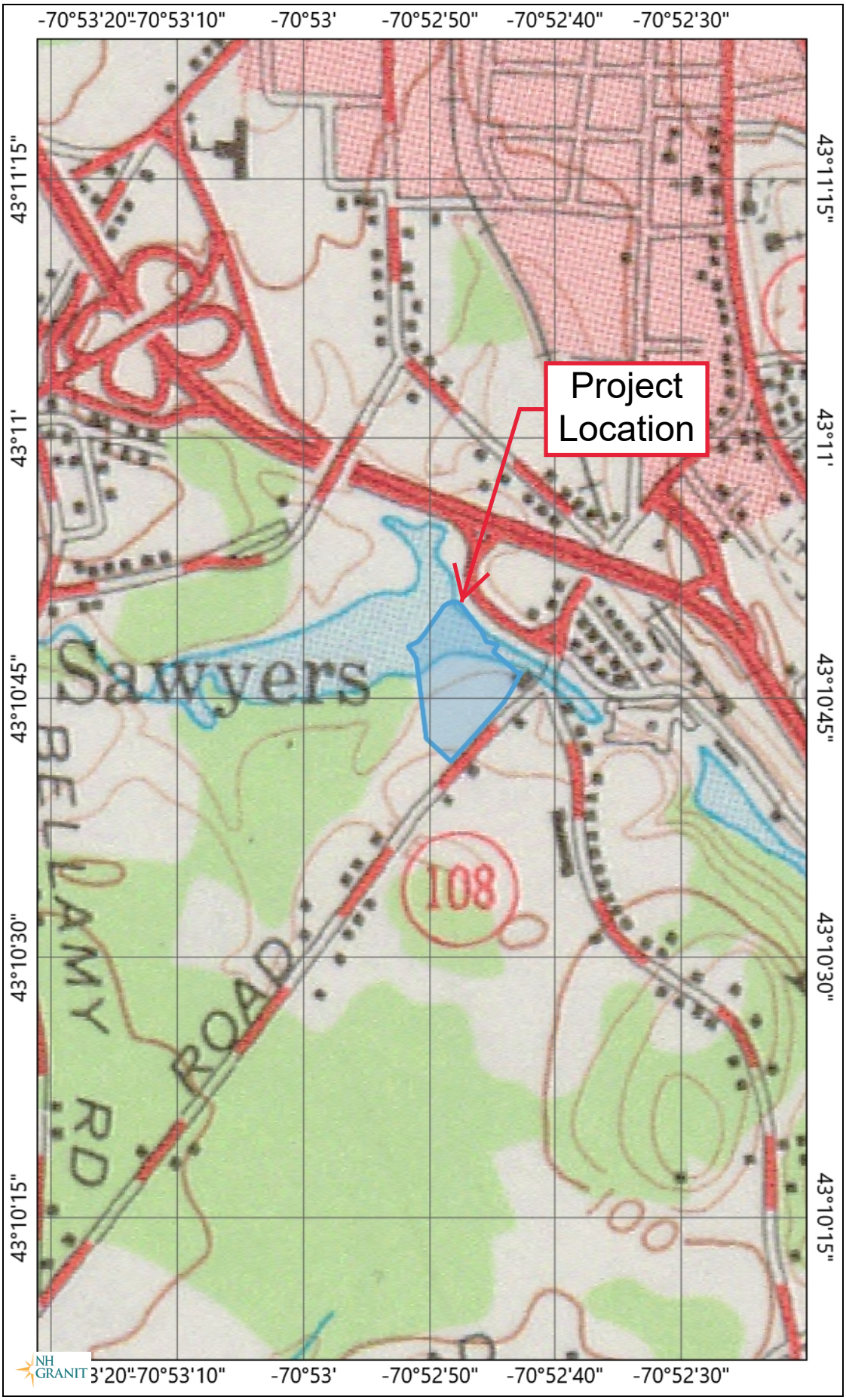
7 West Commercial Development
Dover, NH 03820
(Tax Map H, Lot 11)

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   - Pre-Development Analysis
   - Post Development Analysis
8) Riprap / Plunge Pool Calculations
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11) Inspection and Maintenance Manual

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

7 West Commercial Development



Legend

1956 with vegetation

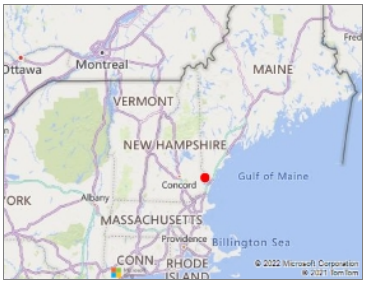
Map Scale

1: 10,000

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Map Generated: 4/12/2022

Notes



SECTION 2

PROJECT NARRATIVE

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

Site Overview

The Applicant, Summit Land Development, is proposing to construct a new commercial development on Durham Road in Dover, NH located on Tax Map H, Lot 11. The proposed development is for a medical office building which will be three stories and approximately 14,160 square feet (footprint). The existing lot is approximately 8.7 acres in size and abuts the Dover Fire Station and Elementary School to the west, the Bellamy River to the North, and the Spaulding Turnpike (Exit 7) ramps to the east. The proposed site has been designed with a stormwater treatment system that consists of deep sump catch basins, raingardens, and a sub-surface chamber system.

Drainage Summary

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

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

	2-Yr Storm (3.62 inch)	10-Yr Storm (5.46inch)	25-Yr Storm (6.91 inch)	50-Yr Storm (8.26 inch)
POA #1				
Pre	5.25	13.36	20.68	27.91
Post	5.16	12.96	20.65	27.71
Net Change	**-0.09**	**-0.40**	**-0.03**	**-0.20**

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

As shown in the above table, the results from the stormwater modelling indicate a reduction in the peak runoff rates for all analyzed storm events.

Pre-Development (Existing Conditions)

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

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

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

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

Site Soils

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

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

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

Post-Development (Proposed Site Design)

The proposed project will construct a new three story medical office building, approximately 42,480 gross square feet (14,160 sf footprint). The new paved surfaces (roadways and parking) will be constructed to provide approximately 205 surface parking stalls, driveway aisles, and sidewalks. The stormwater management system proposed for the site includes deep sump catch basins, two new raingardens, and a sub-surface (Stormtech) chamber system.

The Drainage Summary Table on Page 1 illustrates that the peak flows are managed for the 2, 10, 25, and 50 year 24-hr storm events per Env-Wq 1507.05. The point of analysis for the project is on the Bellamy River just upstream of the Durham Road crossing. The off-site upstream watershed area contributing to his point is approximately 27.2 square miles (17,408 acres) and the peak flow rates in the river at this location are as shown below: The StreamStat program was used to analyze the off-site flows and a report is included in the appendix.

Storm Event	Peak Flow
10 year	725 cfs
50 year	1120 cfs

The Stormwater Modeling Summary on page 1 shows a reduction in the peak runoff rates for all analyzed storm events. Additionally, the site is draining to a river with a 27 square mile watershed. Therefore, the proposed on-site improvements will not impact the overall peak flows for the watershed, including off-site flows at the downstream location from site.

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

Pollutant Removal

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

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

CONCLUSION

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

CALCULATION METHODS

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

Disclaimer

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

SECTION 3

National Heritage Bureau (NHB) Letter

New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

To: Bruce Gilday, BAG Land Consultants
43 Rockingham Street

Concord, NH 03301

From: NH Natural Heritage Bureau
Date: 4/23/2021 (valid until 4/23/2022)
Re: Review by NH Natural Heritage Bureau of request submitted 4/12/2021
Permits: MUNICIPAL POR - Dover, NH, NHDES - Alteration of Terrain Permit, NHDES - Shoreland Standard Permit, USACE - General Permit, USEPA - Stormwater Pollution Prevention

NHB ID: NHB21-1227 **Applicant:** Bruce Gilday

Location: Dover
Durham Road

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

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

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

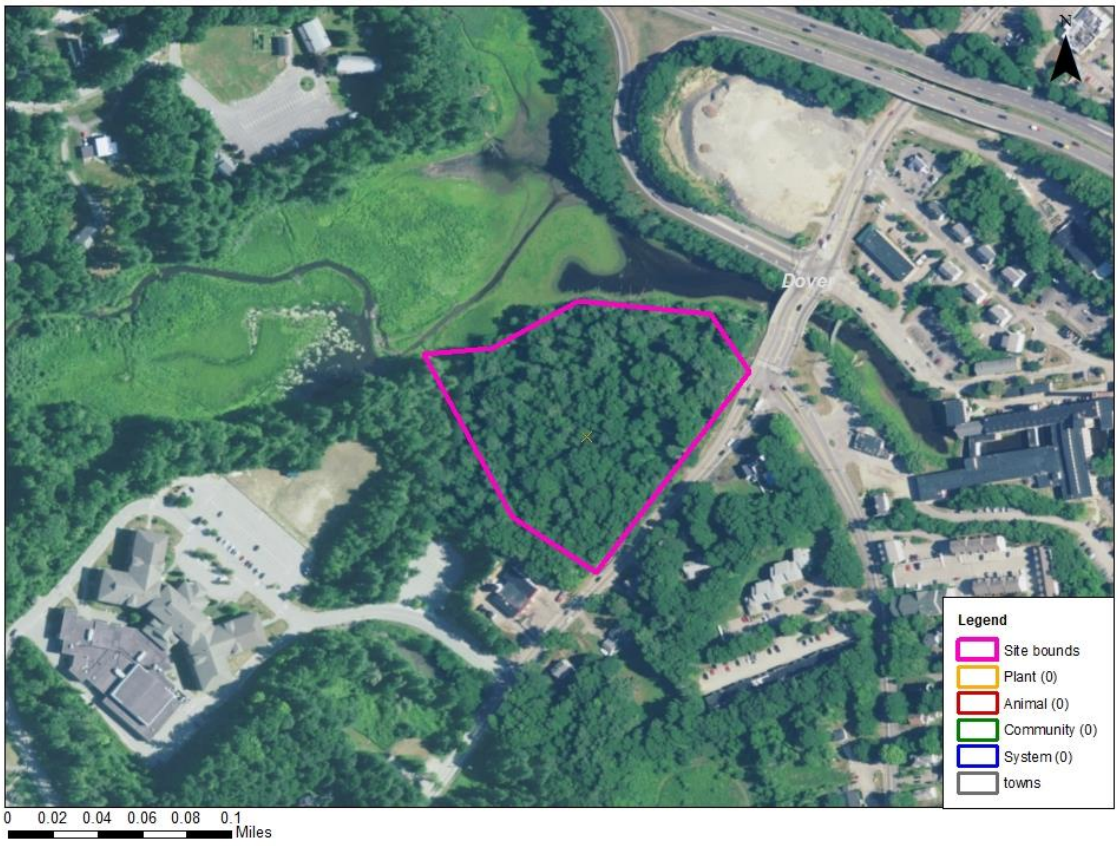
Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

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

NHB21-1227



Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

SECTION 4

Web Soils Survey Map

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



Map Scale: 1:1,760 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

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

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

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

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

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

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

Map Unit Legend

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

SECTION 5

Aerial Photographs



Aerial Photograph
7 West Dover, NH

SECTION 6

BMP Worksheets

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Bioretention (Raingarden) HydroCAD Node 1R**

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

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

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

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

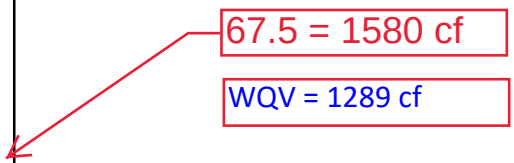
2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

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

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



Stage-Discharge for Pond 1R: Raingarden 1

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



NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Bioretention (Raingarden #2) HydroCAD Node 28P**

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

yes		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
1.15	ac	A = Area draining to the practice	
0.75	ac	A_I = Impervious area draining to the practice	
0.65	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.64	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.73	ac-in	WQV= 1" x Rv x A	
2,659	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
665	cf	25% x WQV (check calc for sediment forebay volume)	
1,994	cf	75% x WQV (check calc for surface sand filter volume)	
deep sump		Method of Pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
1,100	sf	A_{SA} = Surface area of the practice	
2.50	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
yes	Yes/No	(Use the calculations below)	
11.6	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
61.27	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.20	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
7.39	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
59.50	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
58.25	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
60.50	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
58.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.25	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
1.50	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
(1.00)	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
52.95	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
53.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
2,702	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

The raingarden is beign constructed on a steep slope. The estimated SHWT is approximately 40" below ground based on the soils report. The raingarden will require cut and the raingarden will have an underdrain installed. Ledge is present on site, but was not identified at the this location.

Stage-Area-Storage for Pond 28P: Raingarden 2

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
57.75	1,100	1,100	0
57.95	1,100	1,124	88
58.15	1,100	1,147	176
58.35	1,100	1,171	264
58.55	1,100	1,194	352
58.75	1,100	1,218	440
58.95	1,100	1,241	528
59.15	1,100	1,265	616
59.35	1,100	1,288	696
59.55	1,100	1,312	756
59.75	1,100	1,335	778
59.95	1,100	1,359	800
60.15	1,100	1,382	822
60.35	1,100	1,406	844
60.55	1,100	1,429	866
60.75	1,100	1,453	888
60.95	1,100	1,476	910
61.15	1,212	1,596	1,089
61.35	1,370	1,756	1,347
61.55	1,538	1,925	1,638
61.75	1,715	2,105	1,963
61.95	1,902	2,294	2,324
62.15	2,124	2,519	2,726
62.35	2,367	2,764	3,175
62.55	2,624	3,024	3,674
62.75	2,894	3,296	4,226
62.95	**3,177**	**3,582**	**4,832**

Stage-Discharge for Pond 28P: Raingarden 2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
57.75	0.00	59.87	0.10	61.99	0.18
57.79	0.01	59.91	0.10	62.03	0.18
57.83	0.02	59.95	0.10	62.07	0.18
57.87	0.04	59.99	0.10	62.11	0.19
57.91	0.07	60.03	0.10	62.15	0.19
57.95	0.07	60.07	0.10	62.19	0.19
57.99	0.07	60.11	0.10	62.23	0.20
58.03	0.07	60.15	0.10	62.27	0.20
58.07	0.07	60.19	0.10	62.31	0.22
58.11	0.07	60.23	0.10	62.35	0.34
58.15	0.07	60.27	0.10	62.39	0.53
58.19	0.07	60.31	0.10	62.43	0.76
58.23	0.07	60.35	0.11	62.47	1.04
58.27	0.07	60.39	0.11	62.51	1.35
58.31	0.07	60.43	0.11	62.55	1.71
58.35	0.07	60.47	0.11	62.59	2.11
58.39	0.07	60.51	0.11	62.63	2.55
58.43	0.07	60.55	0.11	62.67	3.03
58.47	0.07	60.59	0.11	62.71	3.54
58.51	0.08	60.63	0.11	62.75	4.10
58.55	0.08	60.67	0.11	62.79	4.69
58.59	0.08	60.71	0.11	62.83	5.33
58.63	0.08	60.75	0.11	62.87	6.00
58.67	0.08	60.79	0.11	62.91	6.69
58.71	0.08	60.83	0.11	62.95	7.33
58.75	0.08	60.87	0.11	62.99	**7.98**
58.79	0.08	60.91	0.11		
58.83	0.08	60.95	0.12		
58.87	0.08	60.99	0.12		
58.91	0.08	61.03	0.12		
58.95	0.08	61.07	0.12		
58.99	0.08	61.11	0.12		
59.03	0.08	61.15	0.12		
59.07	0.08	61.19	0.13		
59.11	0.08	61.23	0.13		
59.15	0.09	61.27	0.13		
59.19	0.09	61.31	0.13		
59.23	0.09	61.35	0.14		
59.27	0.09	61.39	0.14		
59.31	0.09	61.43	0.14		
59.35	0.09	61.47	0.14		
59.39	0.09	61.51	0.15		
59.43	0.09	61.55	0.15		
59.47	0.09	61.59	0.15		
59.51	0.09	61.63	0.15		
59.55	0.09	61.67	0.16		
59.59	0.09	61.71	0.16		
59.63	0.09	61.75	0.16		
59.67	0.09	61.79	0.16		
59.71	0.09	61.83	0.17		
59.75	0.10	61.87	0.17		
59.79	0.10	61.91	0.17		
59.83	0.10	61.95	0.18		

SECTION 7

Drainage Analysis

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

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.874 degrees West
Latitude	43.198 degrees North
Elevation	0 feet
Date/Time	Thu, 27 May 2021 09:14:57 -0400

Extreme Precipitation Estimates

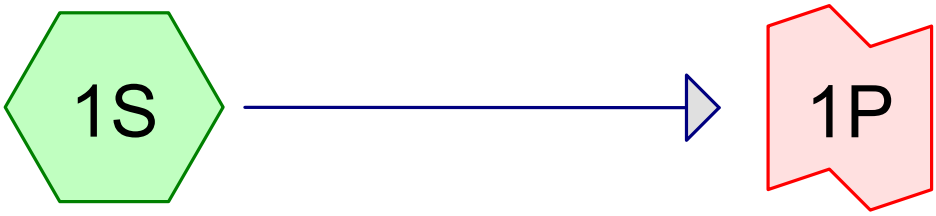
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2d
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.20	1.54	2.00	2.60	2.87	**1yr**	2.31	2.7
2yr	0.32	0.49	0.61	0.81	1.01	1.29	**2yr**	0.88	1.17	1.50	1.91	2.45	3.15	3.51	**2yr**	2.79	3.3
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.39	3.08	3.98	4.50	**5yr**	3.53	4.3
10yr	0.40	0.63	0.80	1.09	1.42	1.85	**10yr**	1.23	1.69	2.18	2.83	3.66	4.75	5.43	**10yr**	4.21	5.2
25yr	0.46	0.74	0.94	1.30	1.72	2.27	**25yr**	1.49	2.09	2.70	3.53	4.61	6.01	6.96	**25yr**	5.32	6.7
50yr	0.52	0.83	1.06	1.49	2.00	2.67	**50yr**	1.73	2.46	3.18	4.19	5.49	7.18	8.41	**50yr**	6.35	8.0
100yr	0.58	0.94	1.21	1.71	2.33	3.13	**100yr**	2.01	2.89	3.75	4.96	6.53	8.58	10.16	**100yr**	7.59	9.7
200yr	0.64	1.05	1.36	1.96	2.71	3.68	**200yr**	2.34	3.40	4.44	5.90	7.80	10.26	12.28	**200yr**	9.08	11.
500yr	0.76	1.25	1.63	2.36	3.31	4.55	**500yr**	2.86	4.22	5.51	7.38	9.82	12.99	15.78	**500yr**	11.50	15.

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2da
1yr	0.24	0.37	0.45	0.60	0.74	0.90	**1yr**	0.64	0.88	0.92	1.26	1.58	2.14	2.45	**1yr**	1.90	2.3
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.16	1.36	1.83	2.35	3.04	3.40	**2yr**	2.69	3.2
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.15	2.77	3.71	4.13	**5yr**	3.29	3.9
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.81	2.44	3.12	4.27	4.78	**10yr**	3.78	4.6
25yr	0.44	0.66	0.83	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.83	3.64	4.92	5.78	**25yr**	4.36	5.5
50yr	0.48	0.73	0.91	1.31	1.76	2.19	**50yr**	1.52	2.14	2.35	3.19	4.09	5.61	6.67	**50yr**	4.97	6.4
100yr	0.54	0.81	1.01	1.47	2.01	2.51	**100yr**	1.73	2.45	2.63	3.56	4.56	6.38	7.68	**100yr**	5.65	7.3
200yr	0.59	0.89	1.13	1.64	2.29	2.87	**200yr**	1.97	2.80	2.93	3.99	5.09	7.26	8.84	**200yr**	6.42	8.5
500yr	0.69	1.03	1.33	1.93	2.74	3.45	**500yr**	2.36	3.37	3.40	4.61	5.89	8.57	10.64	**500yr**	7.58	10.2

Upper Confidence Limits

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



PRE-DEVELOPMENT

Point of Anlaysis

Subcat Reach Pond Link

Routing Diagram for 4952 Pre test
Prepared by Altus Engineering, Inc., Printed 10/5/2022
HydroCAD® 10.00-22 s/n 01222 © 2018 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.069	61	>75% Grass cover, Good, HSG B (1S)
0.172	74	>75% Grass cover, Good, HSG C (1S)
2.476	80	Pasture/grassland/range, Good, HSG D (1S)
3.869	55	Woods, Good, HSG B (1S)
1.681	70	Woods, Good, HSG C (1S)
0.792	72	Woods/grass comb., Good, HSG C (1S)
9.059	**67**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
3.938	HSG B	1S
2.645	HSG C	1S
2.476	HSG D	1S
0.000	Other	
9.059		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.069	0.172	0.000	0.000	0.241	>75% Grass cover, Good	1S
0.000	0.000	0.000	2.476	0.000	2.476	Pasture/grassland/range, Good	1S
0.000	3.869	1.681	0.000	0.000	5.550	Woods, Good	1S
0.000	0.000	0.792	0.000	0.000	0.792	Woods/grass comb., Good	1S
0.000	**3.938**	**2.645**	**2.476**	**0.000**	**9.059**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 1P: Point of Anlaysis Inflow=13.36 cfs 1.466 af
Primary=13.36 cfs 1.466 af

Subcatchment 1S: PRE-DEVELOPMENT Runoff Area=394,608 sf 0.00% Impervious Runoff Depth>1.94"
Flow Length=955' Tc=25.5 min CN=67 Runoff=13.36 cfs 1.466 af

Total Runoff Area = 9.059 ac Runoff Volume = 1.466 af Average Runoff Depth = 1.94"
100.00% Pervious = 9.059 ac 0.00% Impervious = 0.000 ac

Summary for Link 1P: Point of Anlaysis

Inflow Area = 9.059 ac, 0.00% Impervious, Inflow Depth > 1.94" for 10-yr event
Inflow = 13.36 cfs @ 12.37 hrs, Volume= 1.466 af
Primary = 13.36 cfs @ 12.37 hrs, Volume= 1.466 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: PRE-DEVELOPMENT

Runoff = 13.36 cfs @ 12.37 hrs, Volume= 1.466 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46"

Area (sf)	CN	Description
3,000	61	>75% Grass cover, Good, HSG B
7,500	74	>75% Grass cover, Good, HSG C
168,522	55	Woods, Good, HSG B
73,224	70	Woods, Good, HSG C
34,505	72	Woods/grass comb., Good, HSG C
107,857	80	Pasture/grassland/range, Good, HSG D
394,608	67	Weighted Average
394,608		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	75	0.0350	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
10.4	700	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	180	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
25.5	955	Total			

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 1P: Point of Anlaysis Inflow=5.25 cfs 0.619 af
Primary=5.25 cfs 0.619 af

Subcatchment 1S: PRE-DEVELOPMENT Runoff Area=394,608 sf 0.00% Impervious Runoff Depth>0.82"
Flow Length=955' Tc=25.5 min CN=67 Runoff=5.25 cfs 0.619 af

Total Runoff Area = 9.059 ac Runoff Volume = 0.619 af Average Runoff Depth = 0.82"
100.00% Pervious = 9.059 ac 0.00% Impervious = 0.000 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 1P: Point of Anlaysis Inflow=20.68 cfs 2.246 af
Primary=20.68 cfs 2.246 af

Subcatchment 1S: PRE-DEVELOPMENT Runoff Area=394,608 sf 0.00% Impervious Runoff Depth>2.97"
Flow Length=955' Tc=25.5 min CN=67 Runoff=20.68 cfs 2.246 af

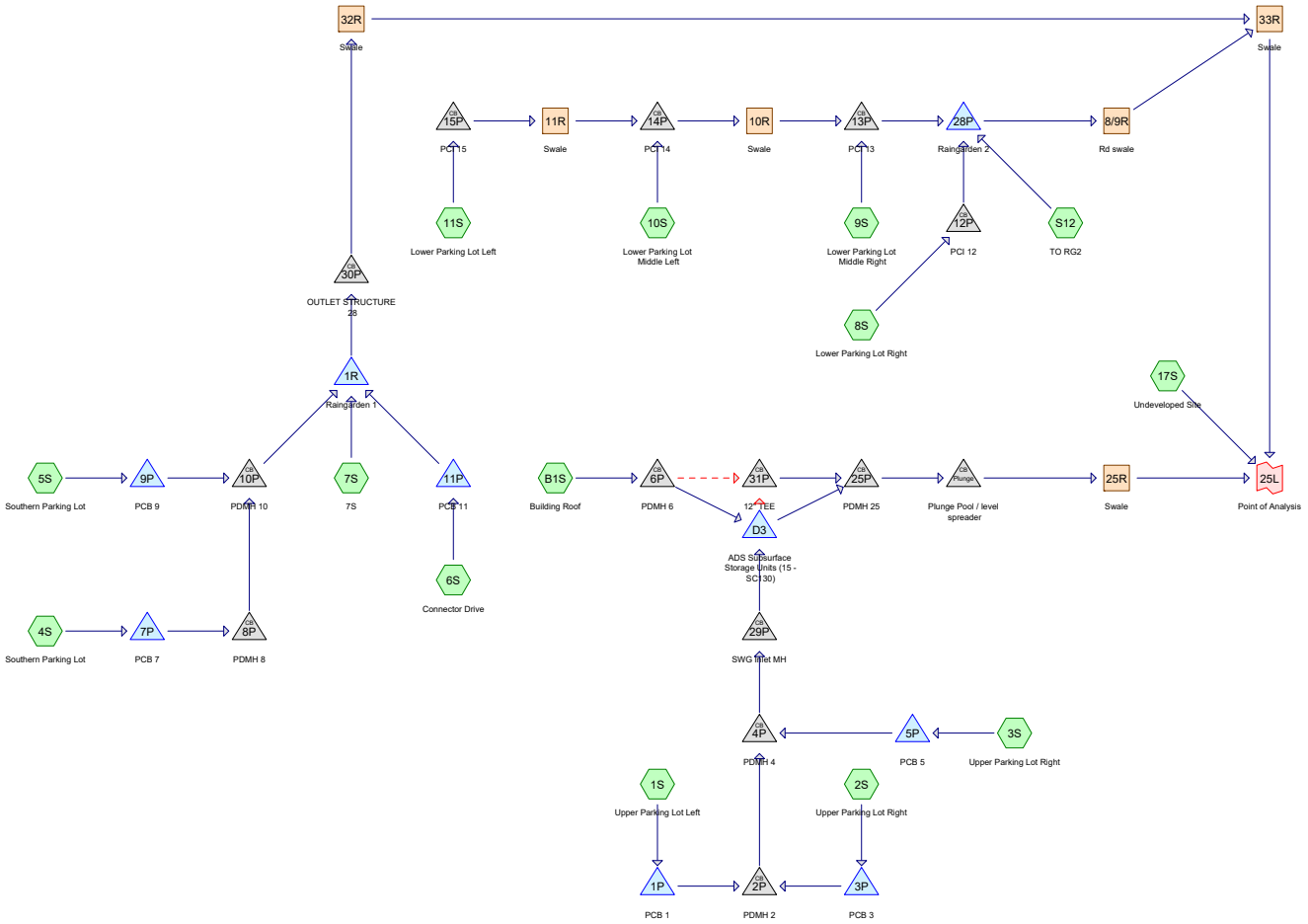
Total Runoff Area = 9.059 ac Runoff Volume = 2.246 af Average Runoff Depth = 2.97"
100.00% Pervious = 9.059 ac 0.00% Impervious = 0.000 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 1P: Point of Anlaysis Inflow=27.91 cfs 3.026 af
Primary=27.91 cfs 3.026 af

Subcatchment 1S: PRE-DEVELOPMENT Runoff Area=394,608 sf 0.00% Impervious Runoff Depth>4.01"
Flow Length=955' Tc=25.5 min CN=67 Runoff=27.91 cfs 3.026 af

Total Runoff Area = 9.059 ac Runoff Volume = 3.026 af Average Runoff Depth = 4.01"
100.00% Pervious = 9.059 ac 0.00% Impervious = 0.000 ac



Subcat Reach Pond Link

Routing Diagram for 4952 Post 090122
Prepared by Altus Engineering, Inc., Printed 10/5/2022
HydroCAD® 10.00-22 s/n 01222 © 2018 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.366	61	>75% Grass cover, Good, HSG B (1S, 2S, 5S, 6S, 7S, 8S, 9S, 10S, 11S)
0.484	74	>75% Grass cover, Good, HSG C (1S, 6S, 9S, 17S, S12)
2.476	78	Meadow, non-grazed, HSG D (17S)
1.653	98	Paved parking, HSG B (1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 10S, 11S)
0.193	98	Paved parking, HSG C (1S, 2S, 6S, 9S)
0.046	98	Roofs, HSG B (B1S)
0.280	98	Roofs, HSG C (B1S)
0.045	98	Unconnected pavement, HSG B (1S, 2S, 3S, 9S)
0.054	98	Unconnected pavement, HSG C (1S, 2S, 9S)
1.828	55	Woods, Good, HSG B (17S)
0.842	70	Woods, Good, HSG C (17S)
0.792	72	Woods/grass comb., Good, HSG C (17S)
9.059	**76**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
3.938	HSG B	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 17S, B1S
2.645	HSG C	1S, 2S, 6S, 9S, 17S, B1S, S12
2.476	HSG D	17S
0.000	Other	
9.059		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.366	0.484	0.000	0.000	0.850	>75% Grass cover, Good	1S, 2S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 17S, S12
0.000	0.000	0.000	2.476	0.000	2.476	Meadow, non-grazed	17S
0.000	1.653	0.193	0.000	0.000	1.846	Paved parking	1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 10S, 11S
0.000	0.046	0.280	0.000	0.000	0.325	Roofs	B1S
0.000	0.045	0.054	0.000	0.000	0.099	Unconnected pavement	1S, 2S, 3S, 9S
0.000	1.828	0.842	0.000	0.000	2.670	Woods, Good	17S
0.000	0.000	0.792	0.000	0.000	0.792	Woods/grass comb., Good	17S
0.000	**3.938**	**2.645**	**2.476**	**0.000**	**9.059**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	75.20	74.40	157.8	0.0051	0.012	12.0	0.0	0.0
2	1R	62.76	62.75	1.0	0.0100	0.012	12.0	0.0	0.0
3	2P	74.30	74.10	43.0	0.0047	0.012	12.0	0.0	0.0
4	3P	74.60	74.40	23.7	0.0084	0.012	12.0	0.0	0.0
5	4P	74.00	73.75	54.3	0.0046	0.012	12.0	0.0	0.0
6	5P	74.25	74.10	23.7	0.0063	0.012	12.0	0.0	0.0
7	6P	74.60	74.55	5.0	0.0100	0.012	12.0	0.0	0.0
8	6P	75.10	75.00	10.0	0.0100	0.012	12.0	0.0	0.0
9	7P	73.80	73.60	23.7	0.0084	0.012	12.0	0.0	0.0
10	8P	73.50	73.10	75.0	0.0053	0.012	12.0	0.0	0.0
11	9P	72.70	72.50	46.2	0.0043	0.012	12.0	0.0	0.0
12	10P	72.40	66.00	41.0	0.1561	0.012	12.0	0.0	0.0
13	11P	66.60	66.00	35.0	0.0171	0.012	12.0	0.0	0.0
14	25P	72.90	60.10	60.0	0.2133	0.012	15.0	0.0	0.0
15	28P	57.75	54.00	50.0	0.0750	0.012	6.0	0.0	0.0
16	29P	73.65	73.60	5.0	0.0100	0.012	12.0	0.0	0.0
17	30P	62.75	61.50	140.0	0.0089	0.012	12.0	0.0	0.0
18	31P	75.00	74.90	10.0	0.0100	0.012	12.0	0.0	0.0
19	D3	75.05	74.90	5.0	0.0300	0.012	12.0	0.0	0.0
20	D3	75.05	75.00	5.0	0.0100	0.012	12.0	0.0	0.0
21	D3	73.10	73.00	1.0	0.1000	0.012	6.0	0.0	0.0

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

Pond 1P: PCB 1 Peak Elev=76.03' Storage=0.000 af Inflow=1.85 cfs 0.150 af
12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=1.85 cfs 0.150 af

Pond 1R: Raingarden 1 Peak Elev=66.49' Storage=675 cf Inflow=2.48 cfs 0.190 af
Outflow=1.70 cfs 0.188 af

Subcatchment 1S: Upper Parking Lot Left Runoff Area=15,579 sf 94.04% Impervious Runoff Depth=5.05"
Tc=6.0 min CN=97 Runoff=1.85 cfs 0.150 af

Pond 2P: PDMH 2 Peak Elev=76.01' Inflow=3.70 cfs 0.302 af
12.0" Round Culvert n=0.012 L=43.0' S=0.0047 '/' Outflow=3.70 cfs 0.302 af

Subcatchment 2S: Upper Parking Lot Right Runoff Area=15,439 sf 98.23% Impervious Runoff Depth=5.15"
Tc=6.0 min CN=97 Runoff=1.84 cfs 0.152 af

Pond 3P: PCB 3 Peak Elev=75.43' Storage=0.000 af Inflow=1.84 cfs 0.152 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=1.85 cfs 0.152 af

Subcatchment 3S: Upper Parking Lot Right Runoff Area=6,296 sf 100.00% Impervious Runoff Depth>5.22"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.063 af

Pond 4P: PDMH 4 Peak Elev=76.22' Inflow=4.45 cfs 0.365 af
12.0" Round Culvert n=0.012 L=54.3' S=0.0046 '/' Outflow=4.45 cfs 0.365 af

Subcatchment 4S: Southern Parking Lot Runoff Area=4,115 sf 100.00% Impervious Runoff Depth>5.22"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.041 af

Pond 5P: PCB 5 Peak Elev=74.76' Storage=0.000 af Inflow=0.75 cfs 0.063 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0063 '/' Outflow=0.76 cfs 0.063 af

Subcatchment 5S: Southern Parking Lot Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=4.11"
Tc=6.0 min CN=88 Runoff=0.80 cfs 0.060 af

Pond 6P: PDMH 6 Peak Elev=75.37' Inflow=1.70 cfs 0.142 af
Primary=1.45 cfs 0.139 af Secondary=0.25 cfs 0.003 af Outflow=1.70 cfs 0.142 af

Subcatchment 6S: Connector Drive Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=4.05"
Tc=6.0 min CN=87 Runoff=0.94 cfs 0.070 af

Pond 7P: PCB 7 Peak Elev=74.18' Storage=0.000 af Inflow=0.49 cfs 0.041 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.49 cfs 0.041 af

Subcatchment 7S: 7S Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=61 Runoff=0.25 cfs 0.019 af

Reach 8/9R: Rd swale Avg. Flow Depth=0.37' Max Vel=3.91 fps Inflow=4.47 cfs 0.400 af
n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=4.30 cfs 0.400 af

Pond 8P: PDMH 8 Peak Elev=73.89' Inflow=0.49 cfs 0.041 af
12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=0.49 cfs 0.041 af

Subcatchment 8S: Lower Parking Lot Right Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=85 Runoff=0.79 cfs 0.058 af

Pond 9P: PCB 9 Peak Elev=73.24' Storage=0.000 af Inflow=0.80 cfs 0.060 af
12.0" Round Culvert n=0.012 L=46.2' S=0.0043 '/' Outflow=0.80 cfs 0.060 af

Subcatchment 9S: Lower Parking Lot Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=4.93"
Tc=6.0 min CN=96 Runoff=1.55 cfs 0.124 af

Pond 10P: PDMH 10 Peak Elev=73.00' Inflow=1.30 cfs 0.101 af
12.0" Round Culvert n=0.012 L=41.0' S=0.1561 '/' Outflow=1.30 cfs 0.101 af

Reach 10R: Swale Avg. Flow Depth=0.28' Max Vel=2.52 fps Inflow=2.01 cfs 0.159 af
n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=1.97 cfs 0.159 af

Subcatchment 10S: Lower Parking Lot Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=4.45"
Tc=6.0 min CN=91 Runoff=1.19 cfs 0.091 af

Pond 11P: PCB 11 Peak Elev=67.10' Storage=0.000 af Inflow=0.94 cfs 0.070 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0171 '/' Outflow=0.94 cfs 0.070 af

Reach 11R: Swale Avg. Flow Depth=0.17' Max Vel=1.99 fps Inflow=0.84 cfs 0.068 af
n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=0.82 cfs 0.068 af

Subcatchment 11S: Lower Parking Lot Left Runoff Area=7,040 sf 96.31% Impervious Runoff Depth=5.06"
Tc=6.0 min CN=97 Runoff=0.84 cfs 0.068 af

Pond 12P: PCI 12 Peak Elev=63.59' Inflow=0.79 cfs 0.058 af
Outflow=0.79 cfs 0.058 af

Pond 13P: PCI 13 Peak Elev=63.71' Inflow=3.50 cfs 0.284 af
Outflow=3.50 cfs 0.284 af

Pond 14P: PCI 14 Peak Elev=64.45' Inflow=2.01 cfs 0.159 af
Outflow=2.01 cfs 0.159 af

Pond 15P: PCI 15 Peak Elev=65.20' Inflow=0.84 cfs 0.068 af
Outflow=0.84 cfs 0.068 af

Subcatchment 17S: Undeveloped Site Runoff Area=266,171 sf 0.00% Impervious Runoff Depth=2.31"
Flow Length=700' Tc=28.6 min CN=69 Runoff=9.37 cfs 1.176 af

Link 25L: Point of Analysis Inflow=12.96 cfs 2.006 af
Primary=12.96 cfs 2.006 af

Pond 25P: PDMH 25 Peak Elev=73.80' Inflow=3.07 cfs 0.242 af
15.0" Round Culvert n=0.012 L=60.0' S=0.2133 '/' Outflow=3.07 cfs 0.242 af

Reach 25R: Swale Avg. Flow Depth=0.52' Max Vel=0.48 fps Inflow=3.07 cfs 0.242 af
n=0.400 L=200.0' S=0.0700 '/' Capacity=26.53 cfs Outflow=2.57 cfs 0.242 af

Pond 28P: Raingarden 2 Peak Elev=62.78' Storage=3,926 cf Inflow=5.04 cfs 0.400 af
Outflow=4.47 cfs 0.400 af

Pond 29P: SWG Inlet MH Peak Elev=75.52' Inflow=4.45 cfs 0.365 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=4.45 cfs 0.365 af

Pond 30P: OUTLET STRUCTURE 28 Peak Elev=63.46' Inflow=1.70 cfs 0.188 af
12.0" Round Culvert n=0.012 L=140.0' S=0.0089 '/' Outflow=1.70 cfs 0.188 af

Pond 31P: 12" TEE Peak Elev=75.50' Inflow=0.75 cfs 0.017 af
12.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=0.75 cfs 0.017 af

Reach 32R: Swale Avg. Flow Depth=0.19' Max Vel=2.28 fps Inflow=1.70 cfs 0.188 af
n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=1.70 cfs 0.188 af

Reach 33R: Swale Avg. Flow Depth=0.47' Max Vel=0.69 fps Inflow=5.97 cfs 0.588 af
n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=3.65 cfs 0.588 af

Subcatchment B1S: Building Roof Runoff Area=14,178 sf 100.00% Impervious Runoff Depth>5.22"
Tc=6.0 min CN=98 Runoff=1.70 cfs 0.142 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=75.56' Storage=4,922 cf Inflow=5.90 cfs 0.504 af
Discarded=0.33 cfs 0.265 af Primary=2.32 cfs 0.225 af Secondary=0.73 cfs 0.015 af Outflow=3.38 cfs 0.504 af

Pond Plunge: Plunge Pool / level spreader Peak Elev=63.25' Inflow=3.07 cfs 0.242 af
Outflow=3.07 cfs 0.242 af

Subcatchment S12: TO RG2 Runoff Area=11,155 sf 0.00% Impervious Runoff Depth=2.74"
Flow Length=75' Slope=0.0200 '/' Tc=7.8 min CN=74 Runoff=0.76 cfs 0.058 af

Total Runoff Area = 9.059 ac Runoff Volume = 2.273 af Average Runoff Depth = 3.01"
74.94% Pervious = 6.789 ac 25.06% Impervious = 2.271 ac

Summary for Pond 1P: PCB 1

Inflow Area = 0.358 ac, 94.04% Impervious, Inflow Depth = 5.05" for 10-yr event
Inflow = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af
Outflow = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.1 min
Primary = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 76.03' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.150 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (757.5 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1	75.20'	0.001 af	**4.00'D x 3.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	75.20'	**12.0" Round Culvert** L= 157.8' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.20' / 74.40' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=76.02' (Free Discharge)
1=Culvert (Barrel Controls 1.80 cfs @ 3.56 fps)

Summary for Pond 1R: Raingarden 1

[79] Warning: Submerged Pond 10P Primary device # 1 OUTLET by 0.49'
[79] Warning: Submerged Pond 11P Primary device # 1 OUTLET by 0.49'

Inflow Area = 0.617 ac, 58.83% Impervious, Inflow Depth > 3.70" for 10-yr event
Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.190 af
Outflow = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af, Atten= 31%, Lag= 5.3 min
Primary = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 66.49' @ 12.18 hrs Surf.Area= 698 sf Storage= 675 cf

Plug-Flow detention time= 16.8 min calculated for 0.188 af (99% of inflow)
Center-of-Mass det. time= 9.2 min (801.9 - 792.6)

Volume	Invert	Avail.Storage	Storage Description
#1	62.75'	3,834 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
62.75	500	0.0	0	0
64.25	500	40.0	300	300
64.50	500	33.0	41	341
66.00	500	5.0	38	379
67.00	900	100.0	700	1,079
68.00	1,357	100.0	1,129	2,207
69.00	1,897	100.0	1,627	3,834

Device	Routing	Invert	Outlet Devices
#1	Primary	62.76'	**12.0" Round Outlet Structure** L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 62.76' / 62.75' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	67.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	63.25'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 3	62.75'	**10.00 cfs Exfiltration at all elevations**

Primary OutFlow Max=1.70 cfs @ 12.18 hrs HW=66.48' (Free Discharge)
└**1=Outlet Structure** (Passes 1.70 cfs of 6.79 cfs potential flow)
  └**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 1.70 cfs @ 8.66 fps)
    └**4=Exfiltration** (Passes 1.70 cfs of 10.00 cfs potential flow)

Summary for Subcatchment 1S: Upper Parking Lot Left

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

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

Area (sf)	CN	Description
10,819	98	Paved parking, HSG B
2,621	98	Paved parking, HSG C
150	98	Unconnected pavement, HSG B
1,061	98	Unconnected pavement, HSG C
63	61	>75% Grass cover, Good, HSG B
865	74	>75% Grass cover, Good, HSG C
15,579	97	Weighted Average
928		5.96% Pervious Area
14,651		94.04% Impervious Area
1,211		8.27% Unconnected

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

Summary for Pond 2P: PDMH 2

[57] Hint: Peaked at 76.01' (Flood elevation advised)
[79] Warning: Submerged Pond 1P Primary device # 1 INLET by 0.80'
[81] Warning: Exceeded Pond 3P by 0.57' @ 12.10 hrs

Inflow Area = 0.712 ac, 96.12% Impervious, Inflow Depth = 5.10" for 10-yr event
Inflow = 3.70 cfs @ 12.09 hrs, Volume= 0.302 af
Outflow = 3.70 cfs @ 12.09 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min
Primary = 3.70 cfs @ 12.09 hrs, Volume= 0.302 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 76.01' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.30'	**12.0" Round Culvert** L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.30' / 74.10' S= 0.0047 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.60 cfs @ 12.09 hrs HW=75.97' (Free Discharge)
1=Culvert (Barrel Controls 3.60 cfs @ 4.59 fps)

Summary for Subcatchment 2S: Upper Parking Lot Right

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

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

Area (sf)	CN	Description
10,297	98	Paved parking, HSG B
3,646	98	Paved parking, HSG C
571	98	Unconnected pavement, HSG B
651	98	Unconnected pavement, HSG C
274	61	>75% Grass cover, Good, HSG B
15,439	97	Weighted Average
274		1.77% Pervious Area
15,165		98.23% Impervious Area
1,222		8.06% Unconnected

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

Summary for Pond 3P: PCB 3

Inflow Area = 0.354 ac, 98.23% Impervious, Inflow Depth = 5.15" for 10-yr event
Inflow = 1.84 cfs @ 12.09 hrs, Volume= 0.152 af
Outflow = 1.85 cfs @ 12.09 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.1 min
Primary = 1.85 cfs @ 12.09 hrs, Volume= 0.152 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 75.43' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.152 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (751.9 - 751.6)

Volume	Invert	Avail.Storage	Storage Description
#1	74.60'	0.001 af	**4.00'D x 3.60'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	74.60'	**12.0" Round Culvert** L= 23.7' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.60' / 74.40' S= 0.0084 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=75.42' (Free Discharge)
1=Culvert (Barrel Controls 1.80 cfs @ 3.57 fps)

Summary for Subcatchment 3S: Upper Parking Lot Right

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

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

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

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

Summary for Pond 4P: PDMH 4

[57] Hint: Peaked at 76.22' (Flood elevation advised)
[81] Warning: Exceeded Pond 2P by 0.20' @ 12.10 hrs
[81] Warning: Exceeded Pond 5P by 1.45' @ 12.10 hrs

Inflow Area = 0.857 ac, 96.78% Impervious, Inflow Depth = 5.12" for 10-yr event
Inflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af
Outflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.0 min
Primary = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 76.22' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.00'	**12.0" Round Culvert** L= 54.3' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.00' / 73.75' S= 0.0046 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.34 cfs @ 12.09 hrs HW=76.15' (Free Discharge)
1=Culvert (Barrel Controls 4.34 cfs @ 5.53 fps)

Summary for Subcatchment 4S: Southern Parking Lot

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 5.22"

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

Area (sf)	CN	Description
4,115	98	Paved parking, HSG B
4,115		100.00% Impervious Area

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

Summary for Pond 5P: PCB 5

Inflow Area = 0.145 ac,100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
Inflow = 0.75 cfs @ 12.09 hrs, Volume= 0.063 af
Outflow = 0.76 cfs @ 12.09 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.1 min
Primary = 0.76 cfs @ 12.09 hrs, Volume= 0.063 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 74.76' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.8 min calculated for 0.063 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (747.3 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	74.20'	0.001 af	**4.00'D x 4.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	74.25'	**12.0" Round Culvert** L= 23.7' CMP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 74.25' / 74.10' S= 0.0063 '/' Cc= 0.900
n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.09 hrs HW=74.75' (Free Discharge)
↑**1=Culvert** (Barrel Controls 0.74 cfs @ 2.75 fps)

Summary for Subcatchment 5S: Southern Parking Lot

Runoff = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 4.11"

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

Area (sf)	CN	Description
5,570	98	Paved parking, HSG B
2,061	61	>75% Grass cover, Good, HSG B
7,631	88	Weighted Average
2,061		27.01% Pervious Area
5,570		72.99% Impervious Area

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

Summary for Pond 6P: PDMH 6

[57] Hint: Peaked at 75.37' (Flood elevation advised)

Inflow Area = 0.325 ac,100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
Inflow = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af
Outflow = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min
Primary = 1.45 cfs @ 12.09 hrs, Volume= 0.139 af
Secondary = 0.25 cfs @ 12.09 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 75.37' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.60'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.60' / 74.55' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	75.10'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.10' / 75.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.42 cfs @ 12.09 hrs HW=75.36' (Free Discharge)
1=Culvert (Barrel Controls 1.42 cfs @ 3.08 fps)

Secondary OutFlow Max=0.23 cfs @ 12.09 hrs HW=75.36' (Free Discharge)
2=Culvert (Barrel Controls 0.23 cfs @ 2.18 fps)

Summary for Subcatchment 6S: Connector Drive

Runoff = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af, Depth= 4.05"

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

Area (sf)	CN	Description
5,097	98	Paved parking, HSG B
1,033	98	Paved parking, HSG C
1,945	61	>75% Grass cover, Good, HSG B
963	74	>75% Grass cover, Good, HSG C
9,038	87	Weighted Average
2,908		32.18% Pervious Area
6,130		67.82% Impervious Area

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

Summary for Pond 7P: PCB 7

Inflow Area = 0.094 ac,100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af
Outflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.1 min
Primary = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 74.18' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.041 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (747.2 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	73.80'	0.001 af	**4.00'D x 4.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	73.80'	**12.0" Round Culvert** L= 23.7' Ke= 0.500 Inlet / Outlet Invert= 73.80' / 73.60' S= 0.0084 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=74.17' (Free Discharge)
1=Culvert (Barrel Controls 0.48 cfs @ 2.68 fps)

Summary for Subcatchment 7S: 7S

Runoff = 0.25 cfs @ 12.10 hrs, Volume= 0.019 af, Depth= 1.65"

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

Area (sf)	CN	Description
6,098	61	>75% Grass cover, Good, HSG B
6,098		100.00% Pervious Area

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

Summary for Reach 8/9R: Rd swale

[81] Warning: Exceeded Pond 28P by 4.25' @ 1.00 hrs

Inflow Area = 1.150 ac, 65.51% Impervious, Inflow Depth = 4.18" for 10-yr event
Inflow = 4.47 cfs @ 12.15 hrs, Volume= 0.400 af
Outflow = 4.30 cfs @ 12.18 hrs, Volume= 0.400 af, Atten= 4%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.91 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.10 fps, Avg. Travel Time= 3.5 min

Peak Storage= 265 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 1.50' Flow Area= 9.8 sf, Capacity= 83.37 cfs

2.00' x 1.50' deep channel, n= 0.025
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 233.0' Slope= 0.0258 '/'
Inlet Invert= 62.00', Outlet Invert= 56.00'



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Summary for Pond 8P: PDMH 8

[57] Hint: Peaked at 73.89' (Flood elevation advised)
[79] Warning: Submerged Pond 7P Primary device # 1 INLET by 0.09'

Inflow Area = 0.094 ac,100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af
Outflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 73.89' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.50'	**12.0" Round Culvert** L= 75.0' Ke= 0.500 Inlet / Outlet Invert= 73.50' / 73.10' S= 0.0053 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=73.89' (Free Discharge)
1=Culvert (Barrel Controls 0.48 cfs @ 2.54 fps)

Summary for Subcatchment 8S: Lower Parking Lot Right

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af, Depth= 3.81"

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

Area (sf)	CN	Description
5,229	98	Paved parking, HSG B
2,779	61	>75% Grass cover, Good, HSG B
8,008	85	Weighted Average
2,779		34.70% Pervious Area
5,229		65.30% Impervious Area

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

Summary for Pond 9P: PCB 9

Inflow Area = 0.175 ac, 72.99% Impervious, Inflow Depth = 4.11" for 10-yr event
Inflow = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af
Outflow = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.1 min
Primary = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 73.24' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (795.2 - 794.7)

Volume	Invert	Avail.Storage	Storage Description
#1	72.70'	0.001 af	**4.00'D x 4.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	72.70'	**12.0" Round Culvert** L= 46.2' Ke= 0.500 Inlet / Outlet Invert= 72.70' / 72.50' S= 0.0043 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.09 hrs HW=73.23' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.78 cfs @ 2.67 fps)

Summary for Subcatchment 9S: Lower Parking Lot Middle Right

Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.124 af, Depth= 4.93"

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

Area (sf)	CN	Description
10,057	98	Paved parking, HSG B
1,128	98	Paved parking, HSG C
265	98	Unconnected pavement, HSG B
621	98	Unconnected pavement, HSG C
499	61	>75% Grass cover, Good, HSG B
601	74	>75% Grass cover, Good, HSG C
13,171	96	Weighted Average
1,100		8.35% Pervious Area
12,071		91.65% Impervious Area
886		7.34% Unconnected

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

Summary for Pond 10P: PDMH 10

[57] Hint: Peaked at 73.00' (Flood elevation advised)
[79] Warning: Submerged Pond 9P Primary device # 1 INLET by 0.30'

Inflow Area = 0.270 ac, 82.45% Impervious, Inflow Depth > 4.50" for 10-yr event
Inflow = 1.30 cfs @ 12.09 hrs, Volume= 0.101 af
Outflow = 1.30 cfs @ 12.09 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.09 hrs, Volume= 0.101 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 73.00' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	72.40'	**12.0" Round Culvert** L= 41.0' Ke= 0.500 Inlet / Outlet Invert= 72.40' / 66.00' S= 0.1561 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.27 cfs @ 12.09 hrs HW=72.99' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.27 cfs @ 2.62 fps)

Summary for Reach 10R: Swale

Inflow Area = 0.407 ac, 87.40% Impervious, Inflow Depth = 4.69" for 10-yr event
Inflow = 2.01 cfs @ 12.09 hrs, Volume= 0.159 af
Outflow = 1.97 cfs @ 12.10 hrs, Volume= 0.159 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.52 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.72 fps, Avg. Travel Time= 1.6 min

Peak Storage= 56 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.50' Flow Area= 9.8 sf, Capacity= 62.10 cfs

2.00' x 1.50' deep channel, n= 0.025
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 70.0' Slope= 0.0143 '/'
Inlet Invert= 63.00', Outlet Invert= 62.00'



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Summary for Subcatchment 10S: Lower Parking Lot Middle Left

Runoff = 1.19 cfs @ 12.09 hrs, Volume= 0.091 af, Depth= 4.45"

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

Area (sf)	CN	Description
8,724	98	Paved parking, HSG B
1,975	61	>75% Grass cover, Good, HSG B
10,699	91	Weighted Average
1,975		18.46% Pervious Area
8,724		81.54% Impervious Area

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

Summary for Pond 11P: PCB 11

Inflow Area = 0.207 ac, 67.82% Impervious, Inflow Depth = 4.05" for 10-yr event
Inflow = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af
Outflow = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.1 min
Primary = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 67.10' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.4 min calculated for 0.070 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (796.8 - 796.5)

Volume	Invert	Avail.Storage	Storage Description
#1	66.60'	0.001 af	**4.00'D x 4.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	66.60'	**12.0" Round Culvert** L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 66.60' / 66.00' S= 0.0171 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.92 cfs @ 12.09 hrs HW=67.09' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.92 cfs @ 2.39 fps)

Summary for Reach 11R: Swale

Inflow Area = 0.162 ac, 96.31% Impervious, Inflow Depth = 5.06" for 10-yr event
Inflow = 0.84 cfs @ 12.09 hrs, Volume= 0.068 af
Outflow = 0.82 cfs @ 12.10 hrs, Volume= 0.068 af, Atten= 2%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.99 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 1.8 min

Peak Storage= 26 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 1.50' Flow Area= 9.8 sf, Capacity= 65.46 cfs

2.00' x 1.50' deep channel, n= 0.025
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 63.0' Slope= 0.0159 '/'
Inlet Invert= 64.00', Outlet Invert= 63.00'



‡

Summary for Subcatchment 11S: Lower Parking Lot Left

Runoff = 0.84 cfs @ 12.09 hrs, Volume= 0.068 af, Depth= 5.06"

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

Area (sf)	CN	Description
6,780	98	Paved parking, HSG B
260	61	>75% Grass cover, Good, HSG B
7,040	97	Weighted Average
260		3.69% Pervious Area
6,780		96.31% Impervious Area

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

Summary for Pond 12P: PCI 12

[57] Hint: Peaked at 63.59' (Flood elevation advised)

Inflow Area = 0.184 ac, 65.30% Impervious, Inflow Depth = 3.81" for 10-yr event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 63.59' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	63.40'	**36.0" W x 16.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.77 cfs @ 12.09 hrs HW=63.59' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.77 cfs @ 1.38 fps)

Summary for Pond 13P: PCI 13

[57] Hint: Peaked at 63.71' (Flood elevation advised)
[63] Warning: Exceeded Reach 10R INLET depth by 0.43' @ 12.10 hrs

Inflow Area = 0.710 ac, 89.21% Impervious, Inflow Depth = 4.79" for 10-yr event
Inflow = 3.50 cfs @ 12.10 hrs, Volume= 0.284 af
Outflow = 3.50 cfs @ 12.10 hrs, Volume= 0.284 af, Atten= 0%, Lag= 0.0 min
Primary = 3.50 cfs @ 12.10 hrs, Volume= 0.284 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 63.71' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	63.20'	**36.0" W x 16.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.47 cfs @ 12.10 hrs HW=63.71' (Free Discharge)
1=Orifice/Grate (Orifice Controls 3.47 cfs @ 2.28 fps)

Summary for Pond 14P: PCI 14

[57] Hint: Peaked at 64.45' (Flood elevation advised)
[63] Warning: Exceeded Reach 11R INLET depth by 0.28' @ 12.10 hrs

Inflow Area = 0.407 ac, 87.40% Impervious, Inflow Depth = 4.69" for 10-yr event
Inflow = 2.01 cfs @ 12.09 hrs, Volume= 0.159 af
Outflow = 2.01 cfs @ 12.09 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min
Primary = 2.01 cfs @ 12.09 hrs, Volume= 0.159 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 64.45' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	64.10'	**36.0" W x 16.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.97 cfs @ 12.09 hrs HW=64.45' (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.97 cfs @ 1.89 fps)

Summary for Pond 15P: PCI 15

[57] Hint: Peaked at 65.20' (Flood elevation advised)

Inflow Area = 0.162 ac, 96.31% Impervious, Inflow Depth = 5.06" for 10-yr event
Inflow = 0.84 cfs @ 12.09 hrs, Volume= 0.068 af
Outflow = 0.84 cfs @ 12.09 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.09 hrs, Volume= 0.068 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 65.20' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	**36.0" W x 16.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.81 cfs @ 12.09 hrs HW=65.19' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.81 cfs @ 1.41 fps)

Summary for Subcatchment 17S: Undeveloped Site

Runoff = 9.37 cfs @ 12.42 hrs, Volume= 1.176 af, Depth= 2.31"

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

Area (sf)	CN	Description
12,110	55	Woods, Good, HSG B
31,711	70	Woods, Good, HSG C
107,850	78	Meadow, non-grazed, HSG D
11,780	55	Woods, Good, HSG B
14,590	55	Woods, Good, HSG B
4,985	70	Woods, Good, HSG C
41,150	55	Woods, Good, HSG B
7,490	74	>75% Grass cover, Good, HSG C
34,505	72	Woods/grass comb., Good, HSG C
266,171	69	Weighted Average
266,171		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.9	100	0.0070	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
6.7	600	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
28.6	700	Total			

Summary for Link 25L: Point of Analysis

Inflow Area = 9.059 ac, 25.06% Impervious, Inflow Depth = 2.66" for 10-yr event
Inflow = 12.96 cfs @ 12.50 hrs, Volume= 2.006 af
Primary = 12.96 cfs @ 12.50 hrs, Volume= 2.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 25P: PDMH 25

[57] Hint: Peaked at 73.80' (Flood elevation advised)
[79] Warning: Submerged Pond D3 Primary device # 3 INLET by 0.69'

Inflow Area = 1.182 ac, 97.67% Impervious, Inflow Depth = 2.46" for 10-yr event
Inflow = 3.07 cfs @ 12.22 hrs, Volume= 0.242 af
Outflow = 3.07 cfs @ 12.22 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
Primary = 3.07 cfs @ 12.22 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 73.80' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	72.90'	**15.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.90' / 60.10' S= 0.2133 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.99 cfs @ 12.22 hrs HW=73.79' (Free Discharge)
1=Culvert (Inlet Controls 2.99 cfs @ 3.21 fps)

Summary for Reach 25R: Swale

Inflow Area = 1.182 ac, 97.67% Impervious, Inflow Depth = 2.46" for 10-yr event
Inflow = 3.07 cfs @ 12.22 hrs, Volume= 0.242 af
Outflow = 2.57 cfs @ 12.43 hrs, Volume= 0.242 af, Atten= 16%, Lag= 12.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.48 fps, Min. Travel Time= 6.9 min
Avg. Velocity = 0.15 fps, Avg. Travel Time= 22.7 min

Peak Storage= 1,073 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 26.53 cfs

5.00' x 1.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 35.00'
Length= 200.0' Slope= 0.0700 '/'
Inlet Invert= 62.00', Outlet Invert= 48.00'



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Summary for Pond 28P: Raingarden 2

Inflow Area = 1.150 ac, 65.51% Impervious, Inflow Depth = 4.18" for 10-yr event
Inflow = 5.04 cfs @ 12.10 hrs, Volume= 0.400 af
Outflow = 4.47 cfs @ 12.15 hrs, Volume= 0.400 af, Atten= 11%, Lag= 3.0 min
Primary = 4.47 cfs @ 12.15 hrs, Volume= 0.400 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 62.78' @ 12.15 hrs Surf.Area= 2,626 sf Storage= 3,926 cf

Plug-Flow detention time= 110.1 min calculated for 0.400 af (100% of inflow)
Center-of-Mass det. time= 110.3 min (894.2 - 783.9)

Volume	Invert	Avail.Storage	Storage Description
#1	57.75'	4,550 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
57.75	1,100	0.0	0	0	1,100
59.25	1,100	40.0	660	660	1,276
59.50	1,100	33.0	91	751	1,306
61.00	1,100	10.0	165	916	1,482
62.00	1,650	100.0	1,366	2,281	2,047
63.00	2,950	100.0	2,269	4,550	3,358

Device	Routing	Invert	Outlet Devices
#1	Primary	62.30'	**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
#2	Primary	57.75'	**6.0" Round Culvert** L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 57.75' / 54.00' S= 0.0750 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#3	Device 2	57.75'	**2.500 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 50.00'

Primary OutFlow Max=4.45 cfs @ 12.15 hrs HW=62.78' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 4.22 cfs @ 1.78 fps)
└─**2=Culvert** (Passes 0.23 cfs of 2.05 cfs potential flow)
└─**3=Exfiltration** (Controls 0.23 cfs)

Summary for Pond 29P: SWG Inlet MH

[57] Hint: Peaked at 75.52' (Flood elevation advised)
[79] Warning: Submerged Pond 4P Primary device # 1 INLET by 1.51'

Inflow Area = 0.857 ac, 96.78% Impervious, Inflow Depth = 5.12" for 10-yr event
Inflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af
Outflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.0 min
Primary = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 75.52' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.65'	**12.0" Round Culvert** L= 5.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.65' / 73.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.34 cfs @ 12.09 hrs HW=75.47' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.34 cfs @ 5.53 fps)

Summary for Pond 30P: OUTLET STRUCTURE 28

[57] Hint: Peaked at 63.46' (Flood elevation advised)
[79] Warning: Submerged Pond 1R Primary device # 1 INLET by 0.70'

Inflow Area = 0.617 ac, 58.83% Impervious, Inflow Depth = 3.66" for 10-yr event
Inflow = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af
Outflow = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af, Atten= 0%, Lag= 0.0 min
Primary = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 63.46' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	62.75'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 62.75' / 61.50' S= 0.0089 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.70 cfs @ 12.18 hrs HW=63.46' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.70 cfs @ 2.86 fps)

Summary for Pond 31P: 12" TEE

[57] Hint: Peaked at 75.50' (Flood elevation advised)
[81] Warning: Exceeded Pond 6P by 0.34' @ 12.25 hrs
[81] Warning: Exceeded Pond D3 by 0.80' @ 12.00 hrs

Inflow	=	0.75 cfs @	12.21 hrs, Volume=	0.017 af	
Outflow	=	0.75 cfs @	12.21 hrs, Volume=	0.017 af,	Atten= 0%, Lag= 0.0 min
Primary	=	0.75 cfs @	12.21 hrs, Volume=	0.017 af	

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 75.50' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.00' / 74.90' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 12.21 hrs HW=75.49' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.72 cfs @ 2.77 fps)

Summary for Reach 32R: Swale

Inflow Area =		0.617 ac, 58.83% Impervious, Inflow Depth =		3.66"	for 10-yr event
Inflow	=	1.70 cfs @	12.18 hrs, Volume=	0.188 af	
Outflow	=	1.70 cfs @	12.25 hrs, Volume=	0.188 af,	Atten= 0%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.28 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.78 fps, Avg. Travel Time= 6.4 min

Peak Storage= 224 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.50' Flow Area= 15.8 sf, Capacity= 114.38 cfs

3.00' x 1.50' deep channel, n= 0.040
Side Slope Z-value= 5.0 '/' Top Width= 18.00'
Length= 300.0' Slope= 0.0467 '/'
Inlet Invert= 58.00', Outlet Invert= 44.00'



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Summary for Reach 33R: Swale

Inflow Area = 1.767 ac, 63.18% Impervious, Inflow Depth = 4.00" for 10-yr event
Inflow = 5.97 cfs @ 12.18 hrs, Volume= 0.588 af
Outflow = 3.65 cfs @ 12.78 hrs, Volume= 0.588 af, Atten= 39%, Lag= 35.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.69 fps, Min. Travel Time= 21.9 min
Avg. Velocity = 0.18 fps, Avg. Travel Time= 82.9 min

Peak Storage= 4,809 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 3.00' Flow Area= 57.0 sf, Capacity= 110.82 cfs

10.00' x 3.00' deep channel, n= 0.040
Side Slope Z-value= 3.0 '/' Top Width= 28.00'
Length= 900.0' Slope= 0.0011 '/'
Inlet Invert= 43.00', Outlet Invert= 42.00'



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Summary for Subcatchment B1S: Building Roof

Runoff = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af, Depth> 5.22"

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

Area (sf)	CN	Description
1,996	98	Roofs, HSG B
12,182	98	Roofs, HSG C
14,178	98	Weighted Average
14,178		100.00% Impervious Area

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

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

[81] Warning: Exceeded Pond 6P by 0.40' @ 12.25 hrs
[81] Warning: Exceeded Pond 29P by 1.01' @ 12.55 hrs

Inflow Area =	1.182 ac, 97.67% Impervious, Inflow Depth > 5.12"	for 10-yr event		
Inflow =	5.90 cfs @	12.09 hrs, Volume=	0.504 af	
Outflow =	3.38 cfs @	12.22 hrs, Volume=	0.504 af, Atten= 43%, Lag= 8.0 min	
Discarded =	0.33 cfs @	12.22 hrs, Volume=	0.265 af	
Primary =	2.32 cfs @	12.22 hrs, Volume=	0.225 af	
Secondary =	0.73 cfs @	12.22 hrs, Volume=	0.015 af	

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 75.56' @ 12.22 hrs Surf.Area= 2,720 sf Storage= 4,922 cf

Plug-Flow detention time= 29.9 min calculated for 0.504 af (100% of inflow)
Center-of-Mass det. time= 29.8 min (781.5 - 751.7)

Volume	Invert	Avail.Storage	Storage Description
#1	72.50'	3,785 cf	**55.50'W x 49.00'L x 4.50'H Prismatoid** 12,238 cf Overall - 2,776 cf Embedded = 9,462 cf x 40.0% Voids
#2	73.50'	2,776 cf	**ADS_StormTech SC-740 +Cap @ 7.17' L** x 60 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.17'L = 46.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 10 Rows of 6 Chambers
		6,561 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	75.05'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.05' / 74.90' S= 0.0300 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	75.05'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.05' / 75.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Primary	73.10'	**6.0" Round Culvert** L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.10' / 73.00' S= 0.1000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#4	Discarded	72.50'	**3.000 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 66.00'

Discarded OutFlow Max=0.33 cfs @ 12.22 hrs HW=75.55' (Free Discharge)
└**4=Exfiltration** (Controls 0.33 cfs)

Primary OutFlow Max=2.27 cfs @ 12.22 hrs HW=75.55' (Free Discharge)
├**1=Culvert** (Barrel Controls 0.87 cfs @ 3.25 fps)
└**3=Culvert** (Inlet Controls 1.40 cfs @ 7.14 fps)

Secondary OutFlow Max=0.69 cfs @ 12.22 hrs HW=75.55' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.69 cfs @ 2.59 fps)

Summary for Pond Plunge: Plunge Pool / level spreader

[57] Hint: Peaked at 63.25' (Flood elevation advised)
[79] Warning: Submerged Pond 25P Primary device # 1 OUTLET by 3.15'

Inflow Area = 1.182 ac, 97.67% Impervious, Inflow Depth = 2.46" for 10-yr event
Inflow = 3.07 cfs @ 12.22 hrs, Volume= 0.242 af
Outflow = 3.07 cfs @ 12.22 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
Primary = 3.07 cfs @ 12.22 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 63.25' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	63.00'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=2.99 cfs @ 12.22 hrs HW=63.24' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 2.99 cfs @ 1.22 fps)

Summary for Subcatchment S12: TO RG2

Runoff = 0.76 cfs @ 12.11 hrs, Volume= 0.058 af, Depth= 2.74"

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

Area (sf)	CN	Description
11,155	74	>75% Grass cover, Good, HSG C
11,155		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.15"

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

Pond 1P: PCB 1 Peak Elev=75.84' Storage=0.000 af Inflow=1.21 cfs 0.096 af
12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=1.21 cfs 0.096 af

Pond 1R: Raingarden 1 Peak Elev=65.01' Storage=354 cf Inflow=1.43 cfs 0.109 af
Outflow=1.26 cfs 0.107 af

Subcatchment 1S: Upper Parking Lot Left Runoff Area=15,579 sf 94.04% Impervious Runoff Depth=3.22"
Tc=6.0 min CN=97 Runoff=1.21 cfs 0.096 af

Pond 2P: PDMH 2 Peak Elev=75.38' Inflow=2.42 cfs 0.194 af
12.0" Round Culvert n=0.012 L=43.0' S=0.0047 '/' Outflow=2.42 cfs 0.194 af

Subcatchment 2S: Upper Parking Lot Right Runoff Area=15,439 sf 98.23% Impervious Runoff Depth=3.31"
Tc=6.0 min CN=97 Runoff=1.21 cfs 0.098 af

Pond 3P: PCB 3 Peak Elev=75.24' Storage=0.000 af Inflow=1.21 cfs 0.098 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=1.21 cfs 0.098 af

Subcatchment 3S: Upper Parking Lot Right Runoff Area=6,296 sf 100.00% Impervious Runoff Depth=3.39"
Tc=6.0 min CN=98 Runoff=0.50 cfs 0.041 af

Pond 4P: PDMH 4 Peak Elev=75.38' Inflow=2.92 cfs 0.235 af
12.0" Round Culvert n=0.012 L=54.3' S=0.0046 '/' Outflow=2.92 cfs 0.235 af

Subcatchment 4S: Southern Parking Lot Runoff Area=4,115 sf 100.00% Impervious Runoff Depth=3.39"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Pond 5P: PCB 5 Peak Elev=74.65' Storage=0.000 af Inflow=0.50 cfs 0.041 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0063 '/' Outflow=0.50 cfs 0.041 af

Subcatchment 5S: Southern Parking Lot Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=2.38"
Tc=6.0 min CN=88 Runoff=0.47 cfs 0.035 af

Pond 6P: PDMH 6 Peak Elev=75.23' Inflow=1.12 cfs 0.092 af
Primary=1.05 cfs 0.091 af Secondary=0.07 cfs 0.001 af Outflow=1.12 cfs 0.092 af

Subcatchment 6S: Connector Drive Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=2.33"
Tc=6.0 min CN=87 Runoff=0.55 cfs 0.040 af

Pond 7P: PCB 7 Peak Elev=74.10' Storage=0.000 af Inflow=0.33 cfs 0.027 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.33 cfs 0.027 af

Subcatchment 7S: 7S Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=0.63"
Tc=6.0 min CN=61 Runoff=0.08 cfs 0.007 af

Reach 8/9R: Rd swale Avg. Flow Depth=0.21' Max Vel=2.87 fps Inflow=1.61 cfs 0.238 af
n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=1.58 cfs 0.238 af

Pond 8P: PDMH 8 Peak Elev=73.82' Inflow=0.33 cfs 0.027 af
12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=0.33 cfs 0.027 af

Subcatchment 8S: Lower Parking Lot Right Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=2.13"
Tc=6.0 min CN=85 Runoff=0.45 cfs 0.033 af

Pond 9P: PCB 9 Peak Elev=73.11' Storage=0.000 af Inflow=0.47 cfs 0.035 af
12.0" Round Culvert n=0.012 L=46.2' S=0.0043 '/' Outflow=0.48 cfs 0.035 af

Subcatchment 9S: Lower Parking Lot Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=3.11"
Tc=6.0 min CN=96 Runoff=1.00 cfs 0.078 af

Pond 10P: PDMH 10 Peak Elev=72.86' Inflow=0.80 cfs 0.061 af
12.0" Round Culvert n=0.012 L=41.0' S=0.1561 '/' Outflow=0.80 cfs 0.061 af

Reach 10R: Swale Avg. Flow Depth=0.22' Max Vel=2.19 fps Inflow=1.26 cfs 0.098 af
n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=1.24 cfs 0.098 af

Subcatchment 10S: Lower Parking Lot Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=2.67"
Tc=6.0 min CN=91 Runoff=0.73 cfs 0.055 af

Pond 11P: PCB 11 Peak Elev=66.97' Storage=0.000 af Inflow=0.55 cfs 0.040 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0171 '/' Outflow=0.55 cfs 0.040 af

Reach 11R: Swale Avg. Flow Depth=0.13' Max Vel=1.73 fps Inflow=0.55 cfs 0.044 af
n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=0.53 cfs 0.044 af

Subcatchment 11S: Lower Parking Lot Left Runoff Area=7,040 sf 96.31% Impervious Runoff Depth=3.23"
Tc=6.0 min CN=97 Runoff=0.55 cfs 0.044 af

Pond 12P: PCI 12 Peak Elev=63.53' Inflow=0.45 cfs 0.033 af
Outflow=0.45 cfs 0.033 af

Pond 13P: PCI 13 Peak Elev=63.58' Inflow=2.22 cfs 0.177 af
Outflow=2.22 cfs 0.177 af

Pond 14P: PCI 14 Peak Elev=64.36' Inflow=1.26 cfs 0.098 af
Outflow=1.26 cfs 0.098 af

Pond 15P: PCI 15 Peak Elev=65.15' Inflow=0.55 cfs 0.044 af
Outflow=0.55 cfs 0.044 af

Subcatchment 17S: Undeveloped Site Runoff Area=266,171 sf 0.00% Impervious Runoff Depth=1.03"
Flow Length=700' Tc=28.6 min CN=69 Runoff=3.92 cfs 0.526 af

Link 25L: Point of Analysis Inflow=5.16 cfs 0.994 af
Primary=5.16 cfs 0.994 af

Pond 25P: PDMH 25 Peak Elev=73.40' Inflow=1.11 cfs 0.124 af
15.0" Round Culvert n=0.012 L=60.0' S=0.2133 '/' Outflow=1.11 cfs 0.124 af

Reach 25R: Swale Avg. Flow Depth=0.34' Max Vel=0.38 fps Inflow=1.11 cfs 0.124 af
n=0.400 L=200.0' S=0.0700 '/' Capacity=26.53 cfs Outflow=1.08 cfs 0.124 af

Pond 28P: Raingarden 2 Peak Elev=62.54' Storage=3,345 cf Inflow=3.02 cfs 0.238 af
Outflow=1.61 cfs 0.238 af

Pond 29P: SWG Inlet MH Peak Elev=74.90' Inflow=2.92 cfs 0.235 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=2.92 cfs 0.235 af

Pond 30P: OUTLET STRUCTURE 28 Peak Elev=63.34' Inflow=1.26 cfs 0.107 af
12.0" Round Culvert n=0.012 L=140.0' S=0.0089 '/' Outflow=1.26 cfs 0.107 af

Pond 31P: 12" TEE Peak Elev=75.13' Inflow=0.07 cfs 0.001 af
12.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=0.07 cfs 0.001 af

Reach 32R: Swale Avg. Flow Depth=0.15' Max Vel=2.01 fps Inflow=1.26 cfs 0.107 af
n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=1.14 cfs 0.107 af

Reach 33R: Swale Avg. Flow Depth=0.27' Max Vel=0.49 fps Inflow=2.55 cfs 0.344 af
n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=1.45 cfs 0.344 af

Subcatchment B1S: Building Roof Runoff Area=14,178 sf 100.00% Impervious Runoff Depth=3.39"
Tc=6.0 min CN=98 Runoff=1.12 cfs 0.092 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=74.73' Storage=3,517 cf Inflow=3.97 cfs 0.326 af
Discarded=0.29 cfs 0.203 af Primary=1.11 cfs 0.123 af Secondary=0.00 cfs 0.000 af Outflow=1.40 cfs 0.326 af

Pond Plunge: Plunge Pool / level spreader Peak Elev=63.13' Inflow=1.11 cfs 0.124 af
Outflow=1.11 cfs 0.124 af

Subcatchment S12: TO RG2 Runoff Area=11,155 sf 0.00% Impervious Runoff Depth=1.32"
Flow Length=75' Slope=0.0200 '/' Tc=7.8 min CN=74 Runoff=0.36 cfs 0.028 af

Total Runoff Area = 9.059 ac Runoff Volume = 1.199 af Average Runoff Depth = 1.59"
74.94% Pervious = 6.789 ac 25.06% Impervious = 2.271 ac

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

Pond 1P: PCB 1 Peak Elev=76.19' Storage=0.000 af Inflow=2.35 cfs 0.194 af
12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=2.35 cfs 0.194 af

Pond 1R: Raingarden 1 Peak Elev=67.09' Storage=1,160 cf Inflow=3.34 cfs 0.258 af
Outflow=1.85 cfs 0.256 af

Subcatchment 1S: Upper Parking Lot Left Runoff Area=15,579 sf 94.04% Impervious Runoff Depth=6.50"
Tc=6.0 min CN=97 Runoff=2.35 cfs 0.194 af

Pond 2P: PDMH 2 Peak Elev=76.57' Inflow=4.70 cfs 0.388 af
12.0" Round Culvert n=0.012 L=43.0' S=0.0047 '/' Outflow=4.70 cfs 0.388 af

Subcatchment 2S: Upper Parking Lot Right Runoff Area=15,439 sf 98.23% Impervious Runoff Depth>6.59"
Tc=6.0 min CN=97 Runoff=2.34 cfs 0.195 af

Pond 3P: PCB 3 Peak Elev=75.58' Storage=0.000 af Inflow=2.34 cfs 0.195 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=2.34 cfs 0.195 af

Subcatchment 3S: Upper Parking Lot Right Runoff Area=6,296 sf 100.00% Impervious Runoff Depth>6.67"
Tc=6.0 min CN=98 Runoff=0.96 cfs 0.080 af

Pond 4P: PDMH 4 Peak Elev=77.12' Inflow=5.66 cfs 0.469 af
12.0" Round Culvert n=0.012 L=54.3' S=0.0046 '/' Outflow=5.66 cfs 0.469 af

Subcatchment 4S: Southern Parking Lot Runoff Area=4,115 sf 100.00% Impervious Runoff Depth>6.67"
Tc=6.0 min CN=98 Runoff=0.63 cfs 0.053 af

Pond 5P: PCB 5 Peak Elev=74.83' Storage=0.000 af Inflow=0.96 cfs 0.080 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0063 '/' Outflow=0.96 cfs 0.080 af

Subcatchment 5S: Southern Parking Lot Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=5.51"
Tc=6.0 min CN=88 Runoff=1.06 cfs 0.080 af

Pond 6P: PDMH 6 Peak Elev=75.46' Inflow=2.15 cfs 0.181 af
Primary=1.74 cfs 0.175 af Secondary=0.42 cfs 0.006 af Outflow=2.15 cfs 0.181 af

Subcatchment 6S: Connector Drive Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=5.45"
Tc=6.0 min CN=87 Runoff=1.24 cfs 0.094 af

Pond 7P: PCB 7 Peak Elev=74.23' Storage=0.000 af Inflow=0.63 cfs 0.053 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.63 cfs 0.053 af

Subcatchment 7S: 7S Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=2.64"
Tc=6.0 min CN=61 Runoff=0.41 cfs 0.031 af

Reach 8/9R: Rd swale Avg. Flow Depth=0.43' Max Vel=4.27 fps Inflow=6.02 cfs 0.532 af
n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=5.87 cfs 0.532 af

Pond 8P: PDMH 8 Peak Elev=73.95' Inflow=0.63 cfs 0.053 af
12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=0.63 cfs 0.053 af

Subcatchment 8S: Lower Parking Lot Right Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=5.18"
Tc=6.0 min CN=85 Runoff=1.06 cfs 0.079 af

Pond 9P: PCB 9 Peak Elev=73.33' Storage=0.000 af Inflow=1.06 cfs 0.080 af
12.0" Round Culvert n=0.012 L=46.2' S=0.0043 '/' Outflow=1.06 cfs 0.080 af

Subcatchment 9S: Lower Parking Lot Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=6.38"
Tc=6.0 min CN=96 Runoff=1.98 cfs 0.161 af

Pond 10P: PDMH 10 Peak Elev=73.10' Inflow=1.69 cfs 0.133 af
12.0" Round Culvert n=0.012 L=41.0' S=0.1561 '/' Outflow=1.69 cfs 0.133 af

Reach 10R: Swale Avg. Flow Depth=0.32' Max Vel=2.72 fps Inflow=2.59 cfs 0.208 af
n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=2.54 cfs 0.208 af

Subcatchment 10S: Lower Parking Lot Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=5.87"
Tc=6.0 min CN=91 Runoff=1.54 cfs 0.120 af

Pond 11P: PCB 11 Peak Elev=67.19' Storage=0.000 af Inflow=1.24 cfs 0.094 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0171 '/' Outflow=1.24 cfs 0.094 af

Reach 11R: Swale Avg. Flow Depth=0.19' Max Vel=2.15 fps Inflow=1.06 cfs 0.088 af
n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=1.05 cfs 0.088 af

Subcatchment 11S: Lower Parking Lot Left Runoff Area=7,040 sf 96.31% Impervious Runoff Depth=6.51"
Tc=6.0 min CN=97 Runoff=1.06 cfs 0.088 af

Pond 12P: PCI 12 Peak Elev=63.63' Inflow=1.06 cfs 0.079 af
Outflow=1.06 cfs 0.079 af

Pond 13P: PCI 13 Peak Elev=63.80' Inflow=4.50 cfs 0.368 af
Outflow=4.50 cfs 0.368 af

Pond 14P: PCI 14 Peak Elev=64.52' Inflow=2.59 cfs 0.208 af
Outflow=2.59 cfs 0.208 af

Pond 15P: PCI 15 Peak Elev=65.23' Inflow=1.06 cfs 0.088 af
Outflow=1.06 cfs 0.088 af

Subcatchment 17S: Undeveloped Site Runoff Area=266,171 sf 0.00% Impervious Runoff Depth=3.45"
Flow Length=700' Tc=28.6 min CN=69 Runoff=14.21 cfs 1.758 af

Link 25L: Point of Analysis Inflow=20.65 cfs 2.893 af
Primary=20.65 cfs 2.893 af

Pond 25P: PDMH 25 Peak Elev=74.44' Inflow=5.66 cfs 0.347 af
15.0" Round Culvert n=0.012 L=60.0' S=0.2133 '/' Outflow=5.66 cfs 0.347 af

Reach 25R: Swale Avg. Flow Depth=0.68' Max Vel=0.56 fps Inflow=5.66 cfs 0.347 af
n=0.400 L=200.0' S=0.0700 '/' Capacity=26.53 cfs Outflow=4.43 cfs 0.347 af

Pond 28P: Raingarden 2 Peak Elev=62.87' Storage=4,184 cf Inflow=6.65 cfs 0.532 af
Outflow=6.02 cfs 0.532 af

Pond 29P: SWG Inlet MH Peak Elev=76.38' Inflow=5.66 cfs 0.469 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=5.66 cfs 0.469 af

Pond 30P: OUTLET STRUCTURE 28 Peak Elev=63.50' Inflow=1.85 cfs 0.256 af
12.0" Round Culvert n=0.012 L=140.0' S=0.0089 '/' Outflow=1.85 cfs 0.256 af

Pond 31P: 12" TEE Peak Elev=75.92' Inflow=2.02 cfs 0.042 af
12.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=2.02 cfs 0.042 af

Reach 32R: Swale Avg. Flow Depth=0.20' Max Vel=2.34 fps Inflow=1.85 cfs 0.256 af
n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=1.85 cfs 0.256 af

Reach 33R: Swale Avg. Flow Depth=0.57' Max Vel=0.77 fps Inflow=7.64 cfs 0.788 af
n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=5.11 cfs 0.788 af

Subcatchment B1S: Building Roof Runoff Area=14,178 sf 100.00% Impervious Runoff Depth>6.67"
Tc=6.0 min CN=98 Runoff=2.15 cfs 0.181 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=75.93' Storage=5,399 cf Inflow=7.39 cfs 0.644 af
Discarded=0.35 cfs 0.303 af Primary=3.64 cfs 0.305 af Secondary=1.81 cfs 0.036 af Outflow=5.81 cfs 0.644 af

Pond Plunge: Plunge Pool / level spreader Peak Elev=63.37' Inflow=5.66 cfs 0.347 af
Outflow=5.66 cfs 0.347 af

Subcatchment S12: TO RG2 Runoff Area=11,155 sf 0.00% Impervious Runoff Depth=3.96"
Flow Length=75' Slope=0.0200 '/' Tc=7.8 min CN=74 Runoff=1.10 cfs 0.085 af

Total Runoff Area = 9.059 ac Runoff Volume = 3.198 af Average Runoff Depth = 4.24"
74.94% Pervious = 6.789 ac 25.06% Impervious = 2.271 ac

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

Pond 1P: PCB 1 Peak Elev=76.38' Storage=0.000 af Inflow=2.82 cfs 0.234 af
12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=2.82 cfs 0.234 af

Pond 1R: Raingarden 1 Peak Elev=67.57' Storage=1,670 cf Inflow=4.15 cfs 0.322 af
Outflow=2.18 cfs 0.320 af

Subcatchment 1S: Upper Parking Lot Left Runoff Area=15,579 sf 94.04% Impervious Runoff Depth>7.84"
Tc=6.0 min CN=97 Runoff=2.82 cfs 0.234 af

Pond 2P: PDMH 2 Peak Elev=77.20' Inflow=5.63 cfs 0.468 af
12.0" Round Culvert n=0.012 L=43.0' S=0.0047 '/' Outflow=5.63 cfs 0.468 af

Subcatchment 2S: Upper Parking Lot Right Runoff Area=15,439 sf 98.23% Impervious Runoff Depth>7.94"
Tc=6.0 min CN=97 Runoff=2.80 cfs 0.235 af

Pond 3P: PCB 3 Peak Elev=75.73' Storage=0.000 af Inflow=2.80 cfs 0.235 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=2.80 cfs 0.235 af

Subcatchment 3S: Upper Parking Lot Right Runoff Area=6,296 sf 100.00% Impervious Runoff Depth>8.02"
Tc=6.0 min CN=98 Runoff=1.14 cfs 0.097 af

Pond 4P: PDMH 4 Peak Elev=78.15' Inflow=6.77 cfs 0.565 af
12.0" Round Culvert n=0.012 L=54.3' S=0.0046 '/' Outflow=6.77 cfs 0.565 af

Subcatchment 4S: Southern Parking Lot Runoff Area=4,115 sf 100.00% Impervious Runoff Depth>8.02"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.063 af

Pond 5P: PCB 5 Peak Elev=74.89' Storage=0.000 af Inflow=1.14 cfs 0.097 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0063 '/' Outflow=1.15 cfs 0.097 af

Subcatchment 5S: Southern Parking Lot Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=6.82"
Tc=6.0 min CN=88 Runoff=1.30 cfs 0.100 af

Pond 6P: PDMH 6 Peak Elev=75.54' Inflow=2.58 cfs 0.217 af
Primary=1.99 cfs 0.208 af Secondary=0.59 cfs 0.009 af Outflow=2.58 cfs 0.217 af

Subcatchment 6S: Connector Drive Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=6.76"
Tc=6.0 min CN=87 Runoff=1.52 cfs 0.117 af

Pond 7P: PCB 7 Peak Elev=74.28' Storage=0.000 af Inflow=0.75 cfs 0.063 af
12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.75 cfs 0.063 af

Subcatchment 7S: 7S Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=3.64"
Tc=6.0 min CN=61 Runoff=0.58 cfs 0.043 af

Reach 8/9R: Rd swale Avg. Flow Depth=0.48' Max Vel=4.52 fps Inflow=7.37 cfs 0.657 af
n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=7.22 cfs 0.657 af

Pond 8P: PDMH 8 Peak Elev=73.99' Inflow=0.75 cfs 0.063 af
12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=0.75 cfs 0.063 af

Subcatchment 8S: Lower Parking Lot Right Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=85 Runoff=1.31 cfs 0.099 af

Pond 9P: PCB 9 Peak Elev=73.41' Storage=0.000 af Inflow=1.30 cfs 0.100 af
12.0" Round Culvert n=0.012 L=46.2' S=0.0043 '/' Outflow=1.30 cfs 0.100 af

Subcatchment 9S: Lower Parking Lot Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=7.72"
Tc=6.0 min CN=96 Runoff=2.37 cfs 0.195 af

Pond 10P: PDMH 10 Peak Elev=73.20' Inflow=2.05 cfs 0.163 af
12.0" Round Culvert n=0.012 L=41.0' S=0.1561 '/' Outflow=2.05 cfs 0.163 af

Reach 10R: Swale Avg. Flow Depth=0.36' Max Vel=2.87 fps Inflow=3.12 cfs 0.253 af
n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=3.07 cfs 0.253 af

Subcatchment 10S: Lower Parking Lot Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=7.20"
Tc=6.0 min CN=91 Runoff=1.87 cfs 0.147 af

Pond 11P: PCB 11 Peak Elev=67.26' Storage=0.000 af Inflow=1.52 cfs 0.117 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0171 '/' Outflow=1.53 cfs 0.117 af

Reach 11R: Swale Avg. Flow Depth=0.21' Max Vel=2.28 fps Inflow=1.27 cfs 0.106 af
n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=1.25 cfs 0.106 af

Subcatchment 11S: Lower Parking Lot Left Runoff Area=7,040 sf 96.31% Impervious Runoff Depth>7.86"
Tc=6.0 min CN=97 Runoff=1.27 cfs 0.106 af

Pond 12P: PCI 12 Peak Elev=63.66' Inflow=1.31 cfs 0.099 af
Outflow=1.31 cfs 0.099 af

Pond 13P: PCI 13 Peak Elev=63.88' Inflow=5.43 cfs 0.448 af
Outflow=5.43 cfs 0.448 af

Pond 14P: PCI 14 Peak Elev=64.57' Inflow=3.12 cfs 0.253 af
Outflow=3.12 cfs 0.253 af

Pond 15P: PCI 15 Peak Elev=65.26' Inflow=1.27 cfs 0.106 af
Outflow=1.27 cfs 0.106 af

Subcatchment 17S: Undeveloped Site Runoff Area=266,171 sf 0.00% Impervious Runoff Depth=4.59"
Flow Length=700' Tc=28.6 min CN=69 Runoff=18.94 cfs 2.335 af

Link 25L: Point of Analysis Inflow=27.71 cfs 3.761 af
Primary=27.71 cfs 3.761 af

Pond 25P: PDMH 25 Peak Elev=75.18' Inflow=7.61 cfs 0.449 af
15.0" Round Culvert n=0.012 L=60.0' S=0.2133 '/' Outflow=7.61 cfs 0.449 af

Reach 25R: Swale Avg. Flow Depth=0.79' Max Vel=0.61 fps Inflow=7.61 cfs 0.449 af
n=0.400 L=200.0' S=0.0700 '/' Capacity=26.53 cfs Outflow=6.21 cfs 0.449 af

Pond 28P: Raingarden 2 Peak Elev=62.95' Storage=4,416 cf Inflow=8.15 cfs 0.657 af
Outflow=7.37 cfs 0.657 af

Pond 29P: SWG Inlet MH Peak Elev=77.35' Inflow=6.77 cfs 0.565 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=6.77 cfs 0.565 af

Pond 30P: OUTLET STRUCTURE 28 Peak Elev=63.58' Inflow=2.18 cfs 0.320 af
12.0" Round Culvert n=0.012 L=140.0' S=0.0089 '/' Outflow=2.18 cfs 0.320 af

Pond 31P: 12" TEE Peak Elev=76.26' Inflow=3.04 cfs 0.067 af
12.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=3.04 cfs 0.067 af

Reach 32R: Swale Avg. Flow Depth=0.22' Max Vel=2.45 fps Inflow=2.18 cfs 0.320 af
n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=2.14 cfs 0.320 af

Reach 33R: Swale Avg. Flow Depth=0.65' Max Vel=0.83 fps Inflow=9.09 cfs 0.977 af
n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=6.44 cfs 0.977 af

Subcatchment B1S: Building Roof Runoff Area=14,178 sf 100.00% Impervious Runoff Depth>8.02"
Tc=6.0 min CN=98 Runoff=2.58 cfs 0.217 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=76.19' Storage=5,680 cf Inflow=8.76 cfs 0.773 af
Discarded=0.36 cfs 0.333 af Primary=4.58 cfs 0.382 af Secondary=2.62 cfs 0.058 af Outflow=7.57 cfs 0.773 af

Pond Plunge: Plunge Pool / level spreader Peak Elev=63.44' Inflow=7.61 cfs 0.449 af
Outflow=7.61 cfs 0.449 af

Subcatchment S12: TO RG2 Runoff Area=11,155 sf 0.00% Impervious Runoff Depth=5.16"
Flow Length=75' Slope=0.0200 '/' Tc=7.8 min CN=74 Runoff=1.43 cfs 0.110 af

Total Runoff Area = 9.059 ac Runoff Volume = 4.097 af Average Runoff Depth = 5.43"
74.94% Pervious = 6.789 ac 25.06% Impervious = 2.271 ac

SECTION 8

Riprap / Plunge Pool Calculations

OUTLET PROTECTION

FOR A PIPE FLOWING FULL WITH LOW TAILWATER

RIPRAP SIZE - D50 (inches)

PIPE DIAMETER

DISCHARGE	12"	15"	18"	21"	24"	27"	30"	36"	42"	48"	54"	60"
3cfs	4											
5cfs	4											
8cfs	5	4										
10cfs	6	5	4									
12cfs	8	6	6									
15cfs	8	6	8	5								
17cfs		8	8	5								
20cfs		10	10	6	5							
25cfs		12	12	6	6							
30cfs				8	8	6						
40cfs				12	10	8	6					
50cfs				16	12	10	8	6				
60cfs				18	16	12	10	8				
70cfs					18	15	12	8				
80cfs					20	16	15	10	8			
90cfs						18	16	12	10			
100cfs						20	18	12	10			
125cfs						24	20	16	12	10		
150cfs							24	20	16	12	10	
200cfs								24	20	18	15	12

PP#1 = 15" Pipe
3.0 cfs For 10 year

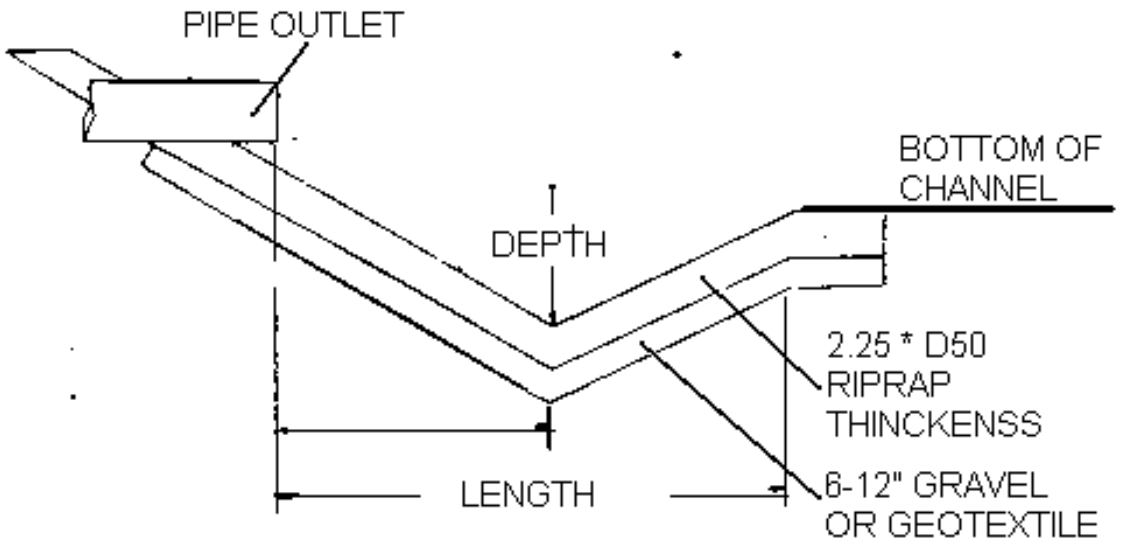
MINIMUM LENGTH OF APRON (FEET)

PIPE DIAMETER

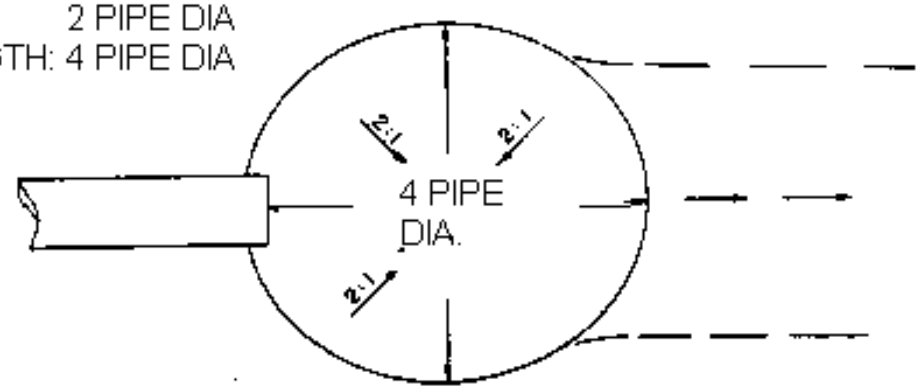
DISCHARGE	12"	15"	18"	21"	24"	27"	30"	36"	42"	48"	54"	60"
3cfs	8											
5cfs	8											
8cfs	11	10										
10cfs	14	12	10									
15cfs	18	16	14	12								
20cfs		18	18	16	12							
30cfs			22	20	18	16						
40cfs			26	24	24	20	18					
50cfs				26	26	24	22	18				
70cfs					30	30	28	25				
100cfs						36	36	33	27			
150cfs						42	42	42	38	33	28	
200cfs								48	45	42	37	32

PP#1 = 15" Pipe
3.0 cfs For 10 year

From USDA Soild Conservation Service



PLUNGE POOL
DEPTH: 1 PIPE DIA
SIDE: 2 PIPE DIA
LENGTH: 4 PIPE DIA



OUTLET PLUNGE POOL

SECTION 9

Site Specific Soil Survey Report

B A G

LAND CONSULTANTS

July 26, 2021

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

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

Dear Chad:

Site Specific Soil Survey Technical Letter Report

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

Standards

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

The Site-specific Soil Map Units identified on this property come from the *New Hampshire State-wide Numerical Soils Legend*, Issue 10, January 2011. This document

represents the latest release of the permanent New Hampshire State-Wide Numerical Soils Legend since originally developed and adopted by the NRCS of NH in 1985.

Base Map

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

Location

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

Geomorphology

The site is situated in an area of predominant upland glacial till (ice dropped) parent materials. We did encounter large areas where the moderately-well drained soils showed evidence of weak restrictive (hardpan) layers in the subsoil. There is evidence of marine / lacustrine based parent material near and surrounding both sides of the Bellamey River.

Legend

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

SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	SOIL TAXONOMIC NAME	HSG CLASS	DRAINAGE CLASS
62	Charlton	B	Well Drained
86	Hollis	C	Well Drained
232	Buxton	C	Moderately Well-drained
233/P	Scantic	D	Poorly Drained (P)
200/daade	Udorthents	-	Smooth Fill Refuse Material

[d-moderately well drained / a-no natural soil within 60"/ a-no restrictive layers / d- no Ksat / e- No HSG]

Slope

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

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

Limiting Soil Features

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

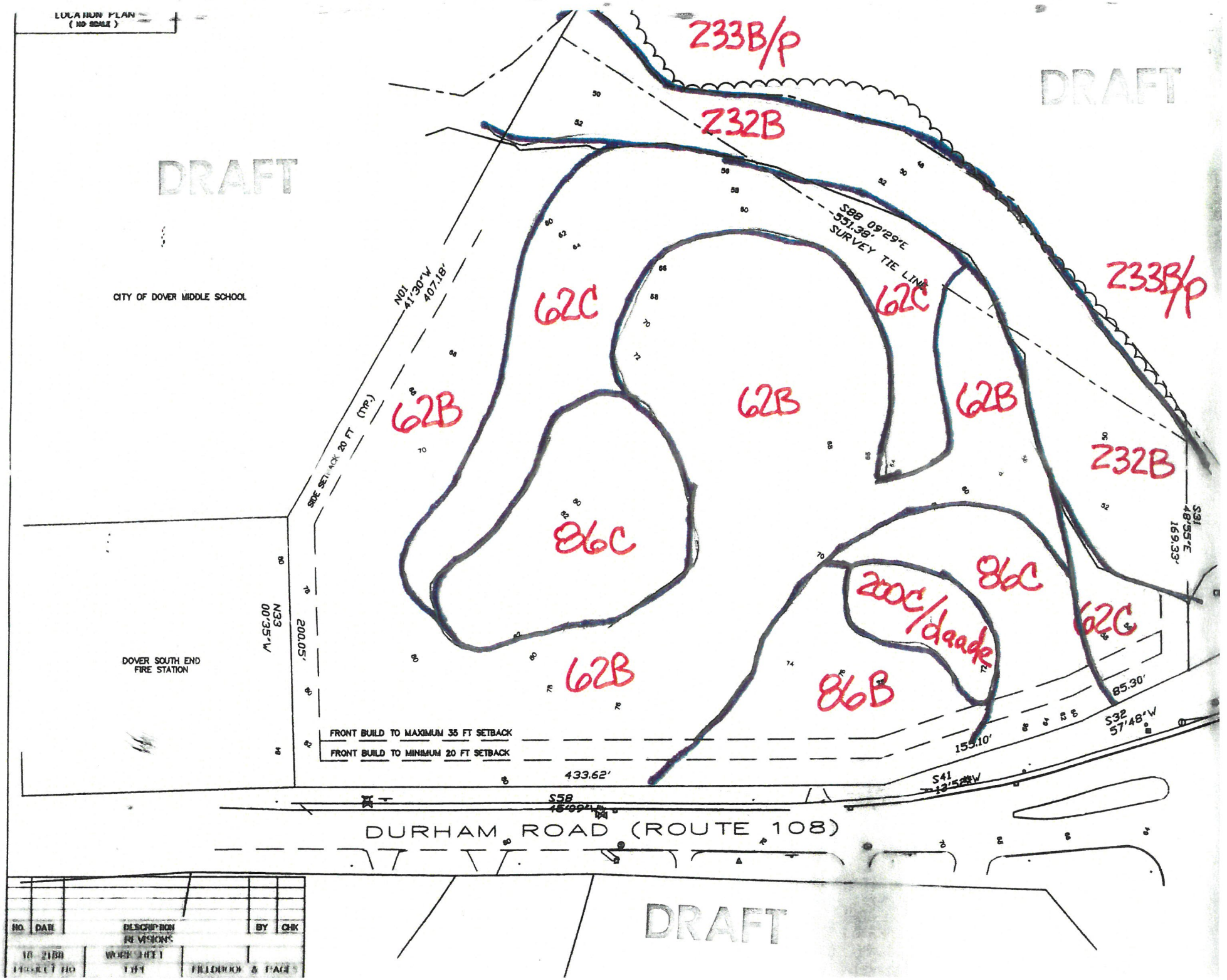
The moderately well drained Buxton **(232)** soils have slow infiltration rates when thoroughly wetted and very slow permeability in the substratum. This soil was given a HSG 'C' hydrologic grouping assignment. In the lowest elevations, in close proximity to the Bellamy River, we mapped areas of poorly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

Sincerely,

Bruce A. Gilday

Bruce A. Gilday
Certified Soil Scientist
BAG:3238B
Attachment: NCSS Soil Map



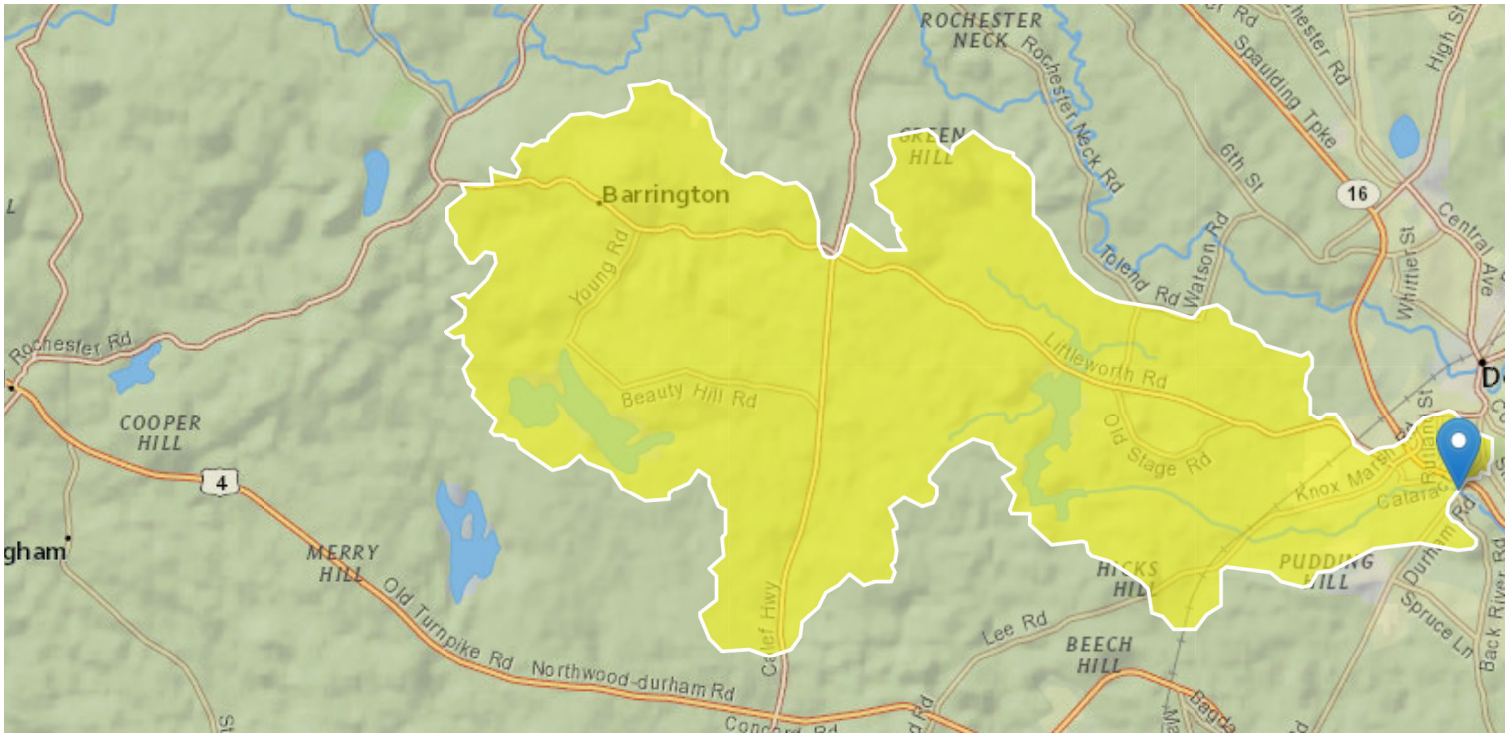

LOCATION PLAN
(NO SCALE)
DRAFT
DRAFT
DRAFT
233B/p
232B
233B/p
232B
62C
62C
62B
62B
62B
86C
86C
200C/daadc
62C
62B
86B
CITY OF DOVER MIDDLE SCHOOL
DOVER SOUTH END FIRE STATION
N01 41'30"W 407.18'
SIDE SETBACK 20 FT (TYP.)
N33 00'35"W 200.05'
S88 09'29"E 551.39' SURVEY TIE LINE
S81 48'55"E 196.33'
85.30'
S32 57'48"W
155.10'
S41 13'52"W
433.62'
S58 15'09"W
FRONT BUILD TO MAXIMUM 35 FT SETBACK
FRONT BUILD TO MINIMUM 20 FT SETBACK
DURHAM ROAD (ROUTE 108)
NO. DATE DESCRIPTION BY CHK
REVISIONS
10 2BB
WORKSHEET
PROJECT NO
TBT
FIELDBOOK & PAGE

SECTION 10

StreamStats Results for Bellamy River

StreamStats Report - Bellamy River

Region ID: NH
Workspace ID: NH20220503021953247000
Clicked Point (Latitude, Longitude): 43.17996, -70.87840
Time: 2022-05-02 22:20:13 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
APRAVPRE	Mean April Precipitation	4.23	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	4.06	percent
CONIF	Percentaqe of land surface covered by coniferous forest	15.1759	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	12.4	feet per mi
DRNAREA	Area that drains to a point on a stream	27.2	square miles
ELEVMAX	Maximum basin elevation	513.485	feet
MINTEMP_W	Mean winter minimum air temperature over basin surface area	16.403	degrees F
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	26.1062	percent
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	7.68	inches
PREBC_1112	Mean annual precipitation of basin centroid for November 1 to December 31 period	8.86	inches

Parameter Code	Parameter Description	Value	Unit
PRECIPCENT	Mean Annual Precip at Basin Centroid	42.8	inches
PRECIPOUT	Mean annual precip at the stream outlet (based on annual PRISM precip data in inches from 1971-2000)	43.2	inches
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	9.3	inches
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	16.9	inches
SNOFALL	Mean Annual Snowfall	60.646	inches
TEMP	Mean Annual Temperature	46.742	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	62.546	degrees F
WETLAND	Percentage of Wetlands	16.7571	percent

Peak-Flow Statistics Parameters [Peak Flow Statewide SIR2008 5206]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	0.7	1290
APRAVPRE	Mean April Precipitation	4.23	inches	2.79	6.23
WETLAND	Percent Wetlands	16.7571	percent	0	21.8
CSL10_85	Stream Slope 10 and 85 Method	12.4	feet per mi	5.43	543

Peak-Flow Statistics Flow Report [Peak Flow Statewide SIR2008 5206]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	ASEp	Equiv. Yrs.
50-percent AEP flood	349	ft^3/s	213	571	30.1	3.2
20-percent AEP flood	557	ft^3/s	336	922	31.1	4.7
10-percent AEP flood	725	ft^3/s	429	1220	32.3	6.2
4-percent AEP flood	944	ft^3/s	541	1650	34.3	8
2-percent AEP flood	1120	ft^3/s	622	2020	36.4	9
1-percent AEP flood	1340	ft^3/s	719	2500	38.6	9.8
0.2-percent AEP flood	1860	ft^3/s	921	3760	44.1	11

Peak-Flow Statistics Citations

Olson, S.A.,2009, Estimation of flood discharges at selected recurrence intervals for streams in New Hampshire: U.S.Geological Survey Scientific Investigations Report 2008-5206, 57 p. (http://pubs.usgs.gov/sir/2008/5206/)

Low-Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	3.26	689
TEMP	Mean Annual Temperature	46.742	degrees F	36	48.7
PREG_06_10	Jun to Oct Gage Precipitation	16.9	inches	16.5	23.1

Low-Flow Statistics Flow Report [Low Flow Statewide]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	ASEp
7 Day 2 Year Low Flow	1.41	ft^3/s	0.518	2.93	55.7	55.7
7 Day 10 Year Low Flow	0.558	ft^3/s	0.134	1.42	79.4	79.4

Low-Flow Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p. (http://pubs.water.usgs.gov/wrir02-4298)

Recharge Statistics Parameters [Groundwater Recharge Statewide 2004 5019]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
PRECIPOUT	Mean Annual Precip at Gage	43.2	inches	35.83	53.11
TEMP	Mean Annual Temperature	46.742	degrees F	36.05	48.69
MINTEMP_W	Mean Winter Min Temperature	16.403	degrees F	0.8	19.88
CONIF	Percent Coniferous Forest	15.1759	percent	3.07	56.18
PREG_03_05	Mar to May Gage Precipitation	9.3	inches	6.83	11.54
SNOFALL	Mean Annual Snowfall	60.646	inches	54.46	219.07
PREG_06_10	Jun to Oct Gage Precipitation	16.9	inches	16.46	23.11
MIXFOR	Percent Mixed Forest	26.1062	percent	6.21	46.13
PREBC_1112	Nov to Dec Basin Centroid Precip	8.86	inches	6.57	15.2
PRECIPCENT	Mean Annual Precip at Basin Centroid	42.8	inches	37.44	75.91

Recharge Statistics Flow Report [Groundwater Recharge Statewide 2004 5019]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
GW_Recharge_Jan_to_Mar15	5.56	in	15.5
GW_Recharge_Mar16_to_May	7.4	in	12.4

Statistic	Value	Unit	ASEp
GW_Recharge_Jun_to_Oct	1.97	in	26.5
GW_Recharge_Nov_to_Dec	4.07	in	15.8
GW_Recharge_Ann	20.6	in	12.4

Recharge Statistics Citations

Flynn, R.H. and Tasker, G.D.,2004, Generalized Estimates from Streamflow Data of Annual and Seasonal Ground-Water-Recharge Rates for Drainage Basins in New Hampshire, U.S. Geological Survey Scientific Investigations Report 2004-5019, 67 p. (http://pubs.usgs.gov/sir/2004/5019/http://pubs.usgs.gov/sir/2004/5019/)

Bankfull Statistics Parameters [Appalachian Highlands D Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	0.07722	940.1535

Bankfull Statistics Parameters [New England P Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	3.799224	138.999861

Bankfull Statistics Parameters [USA Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	0.07722	59927.7393

Bankfull Statistics Flow Report [Appalachian Highlands D Bieger 2015]

Statistic	Value	Unit
Bieger_D_channel_width	59.8	ft
Bieger_D_channel_depth	2.89	ft
Bieger_D_channel_cross_sectional_area	176	ft^2

Bankfull Statistics Flow Report [New England P Bieger 2015]

Statistic	Value	Unit
Bieger_P_channel_width	63.7	ft
Bieger_P_channel_depth	2.84	ft
Bieger_P_channel_cross_sectional_area	187	ft^2

Bankfull Statistics Flow Report [USA Bieger 2015]

Statistic	Value	Unit
Bieger_USA_channel_width	39.6	ft

Statistic	Value	Unit
Bieger_USA_channel_depth	2.44	ft
Bieger_USA_channel_cross_sectional_area	102	ft^2

Bankfull Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
Bieger_D_channel_width	59.8	ft
Bieger_D_channel_depth	2.89	ft
Bieger_D_channel_cross_sectional_area	176	ft^2
Bieger_P_channel_width	63.7	ft
Bieger_P_channel_depth	2.84	ft
Bieger_P_channel_cross_sectional_area	187	ft^2
Bieger_USA_channel_width	39.6	ft
Bieger_USA_channel_depth	2.44	ft
Bieger_USA_channel_cross_sectional_area	102	ft^2

Bankfull Statistics Citations

Bieger, Katrin; Rathjens, Hendrik; Allen, Peter M.; and Arnold, Jeffrey G.,2015, Development and Evaluation of Bankfull Hydraulic Geometry Relationships for the Physiographic Regions of the United States, Publications from USDA-ARS / UNL Faculty, 17p. (https://digitalcommons.unl.edu/usdaarsfacpub /1515?utm_source=digitalcommons.unl.edu%2Fusdaarsfacpub%2F1515&utm_medium=PDF& utm_campaign=PDFCoverPages)

Seasonal Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	3.26	689
CONIF	Percent Coniferous Forest	15.1759	percent	3.07	56.2
PREBC0103	Jan to Mar Basin Centroid Precip	7.68	inches	5.79	15.1
BSLDEM30M	Mean Basin Slope from 30m DEM	4.06	percent	3.19	38.1
MIXFOR	Percent Mixed Forest	26.1062	percent	6.21	46.1
PREG_03_05	Mar to May Gage Precipitation	9.3	inches	6.83	11.5
TEMP	Mean Annual Temperature	46.742	degrees F	36	48.7
TEMP_06_10	Jun to Oct Mean Basinwide Temp	62.546	degrees F	52.9	64.4
PREG_06_10	Jun to Oct Gage Precipitation	16.9	inches	16.5	23.1
ELEVMAX	Maximum Basin Elevation	513.485	feet	260	6290

Seasonal Flow Statistics Flow Report [Low Flow Statewide]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE:

Standard Error (other -- see report)

Statistic	Value	Unit	PIl	PIu	SE	ASEp
Jan to Mar15 60 Percent Flow	21.2	ft^3/s	14.7	29.3	21.2	21.2
Jan to Mar15 70 Percent Flow	18.2	ft^3/s	12.8	25	20.7	20.7
Jan to Mar15 80 Percent Flow	15.2	ft^3/s	11.1	20.2	18.2	18.2
Jan to Mar15 90 Percent Flow	11.6	ft^3/s	8.34	15.6	19.3	19.3
Jan to Mar15 95 Percent Flow	9.13	ft^3/s	6.41	12.5	20.7	20.7
Jan to Mar15 98 Percent Flow	7.17	ft^3/s	4.49	10.7	27.1	27.1
Jan to Mar15 7 Day 2 Year Low Flow	15	ft^3/s	11.2	19.5	17.2	17.2
Jan to Mar15 7 Day 10 Year Low Flow	8.69	ft^3/s	6.01	12	21.5	21.5
Mar16 to May 60 Percent Flow	44.3	ft^3/s	35.4	54.6	12.2	12.2
Mar16 to May 70 Percent Flow	36.1	ft^3/s	29.4	43.8	11.4	11.4
Mar16 to May 80 Percent Flow	29	ft^3/s	23.2	35.8	12.4	12.4
Mar16 to May 90 Percent Flow	22.2	ft^3/s	17.3	28	13.7	13.7
Mar16 to May 95 Percent Flow	17.4	ft^3/s	13.3	22.3	14.8	14.8
Mar16 to May 98 Percent Flow	12.4	ft^3/s	8.93	16.8	18.1	18.1
Mar16 to May 7 Day 2 Year Low Flow	20.9	ft^3/s	16.3	26.2	14.5	14.5
Mar16 to May 7 Day 10 Year Low Flow	11.9	ft^3/s	9.02	15.3	16.2	16.2
Jun to Oct 60 Percent Flow	3.69	ft^3/s	1.95	6.33	36.7	36.7
Jun to Oct 70 Percent Flow	2.66	ft^3/s	1.33	4.75	39.9	39.9
Jun to Oct 80 Percent Flow	1.92	ft^3/s	0.878	3.63	44.5	44.5
Jun to Oct 90 Percent Flow	1.18	ft^3/s	0.483	2.39	50.7	50.7
Jun to Oct 95 Percent Flow	0.828	ft^3/s	0.304	1.79	57	57
Jun to Oct 98 Percent Flow	0.629	ft^3/s	0.215	1.42	61.1	61.1
Jun to Oct 7 Day 2 Year Low Flow	1.37	ft^3/s	0.5	2.87	55.6	55.6
Jun to Oct 7 Day 10 Year Low Flow	0.538	ft^3/s	0.132	1.35	78.5	78.5
Nov to Dec 60 Percent Flow	17.8	ft^3/s	11.7	25.9	23.3	23.3
Nov to Dec 70 Percent Flow	12.6	ft^3/s	7.88	19	25.9	25.9
Nov to Dec 80 Percent Flow	8.47	ft^3/s	5.12	13.1	27.8	27.8
Nov to Dec 90 Percent Flow	5.06	ft^3/s	2.85	8.27	31.6	31.6
Nov to Dec 95 Percent Flow	3.24	ft^3/s	1.61	5.78	38.3	38.3
Nov to Dec 98 Percent Flow	1.93	ft^3/s	0.761	3.97	50.6	50.6
Oct to Nov 7 Day 2 Year Low Flow	8.83	ft^3/s	5.67	13	23.3	23.3
Oct to Nov 7 Day 10 Year Low Flow	2.83	ft^3/s	1.4	5.03	36.6	36.6

Seasonal Flow Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-

Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p. (http://pubs.water.usgs.gov/wrir02-4298)

Flow-Duration Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	3.26	689
PREG_06_10	Jun to Oct Gage Precipitation	16.9	inches	16.5	23.1
TEMP	Mean Annual Temperature	46.742	degrees F	36	48.7

Flow-Duration Statistics Flow Report [Low Flow Statewide]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIl	PIu	SE	ASEp
60 Percent Duration	14.3	ft^3/s	10.5	19	18	18
70 Percent Duration	8.97	ft^3/s	6.27	12.4	20.6	20.6
80 Percent Duration	5.05	ft^3/s	3.09	7.75	28	28
90 Percent Duration	2.45	ft^3/s	1.26	4.26	37.5	37.5
95 Percent Duration	1.47	ft^3/s	0.674	2.76	44.1	44.1
98 Percent Duration	0.917	ft^3/s	0.351	1.93	54.3	54.3

Flow-Duration Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p. (http://pubs.water.usgs.gov/wrir02-4298)

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Application Version: 4.8.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

SECTION 11

Stormwater Inspection and Maintenance Manual

INSPECTION AND MAINTENANCE MANUAL
FOR
STORMWATER MANAGEMENT / BMP FACILITIES

7 West Commercial Development

15 Durham Road
Dover, New Hampshire 03820
Tax Map H, Lot 11

Proper inspection, maintenance, and repair are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality. The following responsible parties shall be in charge of managing the stormwater facilities:

RESPONSIBLE PARTIES:

Owner / Permittee		***Summit Land Development***	
	Name	*Company*	*Phone*
Inspection/ Maintenance			
	Name	*Company*	*Phone*

NOTE: Inspection and maintenance responsibilities transfer to future property owners.

Included in this Inspection and Maintenance Manual are the following components:

- Drainage Features and Site BMP Functions and Maintenance Descriptions
- Guidelines for Control of Invasive Species
- Regular Inspection and Maintenance Guidance for Bioretention Systems
- Checklists for Inspection of Bioretention Systems
- Inspection and Maintenance Checklist
- Stormwater System Operations and Maintenance Report Form
- Site Drainage Plan

RAINGARDENS AND FILTRATION BASINS

Function – Raingardens and filtration ponds provide treatment to runoff prior to directing it to stormwater systems by filtering sediment and suspended solids, trapping them in the bottom of the garden and in the filter media itself. Additional treatment is provided by the native water-tolerant vegetation which removes nutrients and other pollutants through bio-uptake. Stormwater detention and infiltration can also be provided as the filtering process slows runoff, decreases the peak rate of discharge and promotes groundwater recharge.

Detention ponds temporarily store runoff and allow for its controlled release during and after a storm event, decreasing peak rates of runoff and minimizing flooding.

Raingardens, infiltration ponds, and detention ponds shall be managed (Per AGR 3800 and RSA 430:53) to: prevent and control the spread of invasive plant, insect, and fungal species; minimize the adverse environmental and economic effects invasive species cause to agriculture, forests, wetlands, wildlife, and other natural resources of the state; and protect the public from potential health problems attributed to certain invasive species.

Maintenance

- Inspect annually and after significant rainfall event.
- If a raingarden does not completely drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore its filtration and/or infiltration function(s), including but not limited to removal of accumulated sediments and/or replacement or reconstruction of the filter media.
- Replace any riprap dislodged from spillways, inlets and outlets.
- Remove any obstructions, litter and accumulated sediment or debris as warranted but no less than once a year.
- Mowing of any grassed area in or adjacent to a raingarden shall be performed on a monthly basis (when areas are not inundated) to keep the vegetation in vigorous condition. The cut grass shall be removed to prevent the decaying organic litter from clogging the filter media or choking other vegetation.
- Select vegetation should be maintained in healthy condition. This may include pruning, removal and replacement of dead or diseased vegetation.
- Remove any invasive species, Per AGR 3800 and RSA 430:53.

(See Control of Invasive Plants, pg 7)

SUB-SURFACE STORMWATER TREATMENT SYSTEM

Function – Sub-Surface treatment systems treat runoff prior to directing it to surface stormwater systems by filtering sediment and suspended solids, trapping them in the isolation rows and in the filter rock. Stormwater detention and infiltration can also be provided as the filtering process slows runoff, decreases the peak rate of discharge and promotes groundwater recharge.

The Sub-Surface Stormwater Treatment System shall be inspected and maintained at m a minimum of every 6 months for the first year and annually thereafter. Inspections shall comply with to the requirements of the manufacturer. At a minimum, the following inspection and maintenance requirements are included:

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT

A. Inspection ports (if present)
   - a.1. Remove/open lid on nyloplast inline drain
   - a.2. Remove and clean flexstorm filter if installed
   - a.3. Using a flashlight and stadia rod, measure depth of sediment and record on maintenance log
   - a.4. Lower a camera into isolator row for visual inspection of sediment levels (optional)
   - a.5. If sediment is at, or above, 3" (80 mm) proceed to step 2. if not, proceed to step 3.

B. All isolator rows
   - b.1. Remove cover from structure at upstream end of isolator row
   - b.2. using a flashlight, inspect down the isolator row through outlet pipe
     - i) Mirrors on poles or cameras may be used to avoid a confined space entry
     - ii) Follow osha regulations for confined space entry if entering manhole
   - b.3. If sediment is at, or above, 3" (80 mm) proceed to step 2. if not, proceed to step 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS

A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION AND ANNUALLY EVERY YEAR THEREAFTER. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

CULVERTS AND DRAINAGE PIPES

Function – Culverts and drainage pipes convey stormwater away from buildings, walkways, and parking areas and to surface waters or closed drainage systems.

Maintenance

- Culverts and drainage pipes shall be inspected semi-annually, or more often as needed, for accumulation of debris and structural integrity. Leaves and other debris shall be removed from the inlet and outlet to insure the functionality of drainage structures. Debris shall be disposed of on site where it will not concentrate back at the drainage structures or at a solid waste disposal facility.

- Riprap Areas - Culvert outlets and inlets shall be inspected during annual maintenance and operations for erosion and scour. If scour or creek erosion is identified, the outlet owner shall take appropriate means to prevent further erosion. Increased lengths of riprap may require a NHDES Wetlands Permit modification.

CATCH BASINS

Function – Catch basins collect stormwater, primarily from paved surfaces and roofs. Stormwater from paved areas often contains sediment and contaminants. Catch basin sumps serve to trap sediment, trace metals, nutrients and debris. Hooded catch basins trap hydrocarbons and floating debris.

Maintenance

- Remove leaves and debris from structure grates on an as-needed basis.

- Sumps shall be inspected and cleaned (as needed) on an annual basis to protect water quality and infiltration capacity. Catch basin debris shall be disposed of at a solid waste disposal facility.

VEGETATIVE SWALES

Function – Vegetative swales filter sediment from stormwater, promote infiltration, and the uptake of contaminates. They are designed to treat runoff and dispose of it safely into the natural drainage system.

Maintenance

- Timely maintenance is important to keep a swale in good working condition. Mowing of grassed swales shall be monthly to keep the vegetation in vigorous condition. The cut vegetation shall be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale.

- Fertilizing shall be bi-annual or as recommended from soil testing.

- Inspect swales following significant rainfall events.

- Woody vegetation shall not be allowed to become established in the swales or rock riprap outlet protection and if present shall be removed.

- Accumulated debris disrupts flow and leads to clogging and erosion. Remove debris and litter as necessary.

- Inspect for eroded areas. Determine cause of erosion and correct deficiency as required. Monitor repaired areas.

LEVEL SPREADERS AND PLUNGE POOLS

Function – Level spreaders and plunge pools covert concentrated stormwater flows into less-erosive sheet flow, minimizing erosion and maximizing the treatment capabilities of associated buffers. Vegetated buffers, either forested or meadow, slow runoff which promotes and reduced peak rates of runoff. The reduced velocities and the presence of vegetation encourage the filtration of sediment and the limited bio-uptake of nutrients.

Maintenance

- Inspect level spreaders and buffers at least annually for signs of erosion, sediment buildup, or vegetation loss.

- If a meadow buffer, provide periodic mowing as needed to maintain a healthy stand of herbaceous vegetation.

- If a forested buffer, then the buffer should be maintained in an undisturbed condition, unless erosion occurs.

- If erosion of the buffer (forested or meadow) occurs, eroded areas should be repaired and replanted with vegetation similar to the remaining buffer. Corrective action should include eliminating the source of the erosion problem and may require retrofit or reconstruction of the level spreader.

- Remove debris and accumulated sediment and dispose of properly.

LANDSCAPED AREAS - FERTILIZER MANAGEMENT

Function – Fertilizer management involves controlling the rate, timing and method of fertilizer application so that the nutrients are taken up by the plants thereby reducing the chance of polluting the surface and ground waters. Fertilizer management can be effective in reducing the amounts of phosphorus and nitrogen in runoff from landscaped areas, particularly lawns.

Maintenance

- Have the soil tested by your landscaper or local Soil Conservation Service for nutrient requirements and follow the recommendations.

- Do not apply fertilizer to frozen ground.
- Clean up any fertilizer spills.
- Do not allow fertilizer to be broadcast into water bodies.
- When fertilizing a lawn, water thoroughly, but do not create a situation where water runs off the surface of the lawn.

LANDSCAPED AREAS - LITTER CONTROL

Function – Landscaped areas tend to filter debris and contaminates that may block drainage systems and pollute the surface and ground waters.

Maintenance

- Litter Control and lawn maintenance involves removing litter such as trash, leaves, lawn clippings, pet wastes, oil and chemicals from streets, parking lots, and lawns before materials are transported into surface waters.
- Litter control shall be implemented as part of the grounds maintenance program.

DE-ICING CHEMICAL USE AND STORAGE

Function – Sand and salt are used for de-icing of drives.

The project is located within a watershed of a chloride-impaired waterbody. Therefore,

Salt use shall be minimized for de-icing activities.

The responsible party shall employ a New Hampshire Certified Salt Applicator for winter snow and ice management activities.

Maintenance

- **Salt use shall be minimized.** Sand shall be used for de-icing activities when possible. Salt is highly water-soluble. Contamination of fresh water wetlands and other sensitive areas can occur when salt is stored in open areas. Owner shall not store salt piles on site.

CONTROL OF INVASIVE PLANTS

Function – Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

Maintenance

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described in the attached "Methods for Disposing Non-Native Invasive Plant" prepared by the UNH cooperative Extension.

GENERAL CLEAN UP

Upon completion of the project, the contractor shall remove all temporary stormwater structures (i.e., temporary stone check dams, silt fence, temporary diversion swales, catch basin inlet basket, etc.). Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded. Remove any sediment in catch basins and clean drain pipes that may have accumulated during construction.

Once in operation, all paved areas of the site should be swept at least once annually, preferably at the end of winter prior to significant spring rains.

CONTROL OF INVASIVE PLANTS

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described on the following pages.

Background:

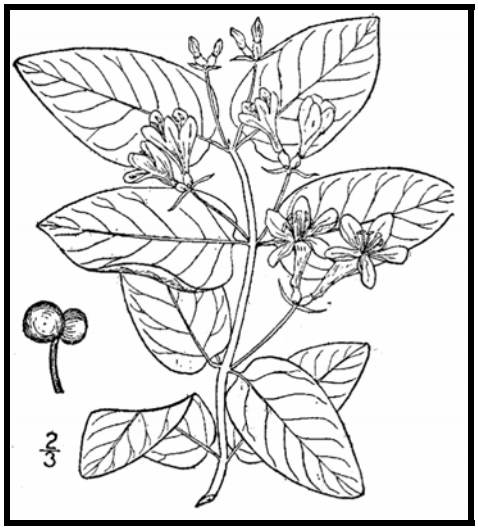
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- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

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

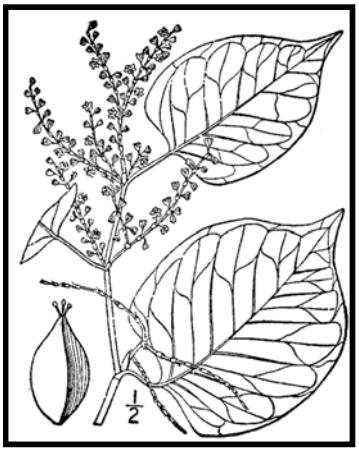
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

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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Regular Inspection and Maintenance Guidance for Bioretention Systems / Tree Filters

Maintenance of bioretention systems and tree filters can typically be performed as part of standard landscaping. Regular inspection and maintenance is critical to the effective operation of bioretention systems and tree filters to insure they remain clear of leaves and debris and free draining. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less frequent maintenance needs depending on a variety of factors including but not limited to: the occurrence of large storm events, overly wet or dry periods, regional hydrologic conditions, and the upstream land use.

ACTIVITIES

The most common maintenance activity is the removal of sediment and organic debris from the system and bypass structures. Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system, including infiltration rate and nutrient uptake. Vegetation care is important to system productivity and health.

ACTIVITY	FREQUENCY
CLOGGING AND SYSTEM PERFORMANCE	
A record should be kept of the time to drain for the system completely after a storm event. The system should drain completely within 72 hours.	After every major storm in the first few months, then annually at minimum.
Check to insure the filter surface remains well draining after storm events. **Remedy**: If filter bed is clogged, draining poorly, or standing water covers more than 50% of the surface 48 hours after a precipitation event, then remove top few inches of discolored material. Till, or rake remaining material as needed.	
Check inlets and outlets for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet and overflow if obstructed.	Quarterly initially, annually as a minimum thereafter.
Check for animal burrows and short-circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets, outlets, sidewalls.	
VEGETATION	
Check for robust vegetation coverage throughout the system and dead or dying plants. **Remedy:** Vegetation should cover > 75% of the system and should be cared for as needed.	Annually or as needed

CHECKLIST FOR INSPECTION OF BIORETENTION SYSTEM / TREE FILTERS

Location:
Inspector:
Date:
Time:
Site Conditions:
Days Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Initial Inspection After Planting and Mulching		
Plants are stable, roots not exposed	**S** **U**	
Surface is at design level, no evidence of preferential flow/shoving	**S** **U**	
Inlet and outlet/bypass are functional	**S** **U**	
2. Debris Cleanup (1 time/year minimum, Spring/Fall)		
Litter, leaves, and dead vegetation removed from the system	**S** **U**	
Prune/mow vegetation	**S** **U**	
3. Standing Water (1 time/year and/or after large storm events)		
No evidence of standing water after 24-48 hours since rainfall	**S** **U**	
4. Vegetation Condition and Coverage		
Vegetation condition good with good coverage (typically > 75%)	**S** **U**	
5. Other Issues		
Note any additional issues not previously covered.	**S** **U**	

Corrective Action Needed	Due Date
1.	
2.	
3.	
Inspector Signature	**Date**

Inspection & Maintenance Checklist

BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance/ Cleanout Threshold
Paved surfaces:			
Pavement Sweeping	Routinely	N/A	N/A
Litter & Trash Removal	Routinely	N/A	Parcel will be free of litter/trash.
Deicing Agents	N/A	Keep De-Icing Log	**Low Salt**
Closed Drainage System:			
Drainage Pipes	1 time per 2 years	Check for sediment accumulation & clogging.	Less than 2" sediment depth
Catch Basins	Annually	Check for sediment accumulation (Less than 24" sediment), blocked hood, and floating debris.	Clean Sumps. Remove all floating debris.
Drain Manhole	Annually	Check for sediment, debris, and obstructions.	Remove all Obstructions.

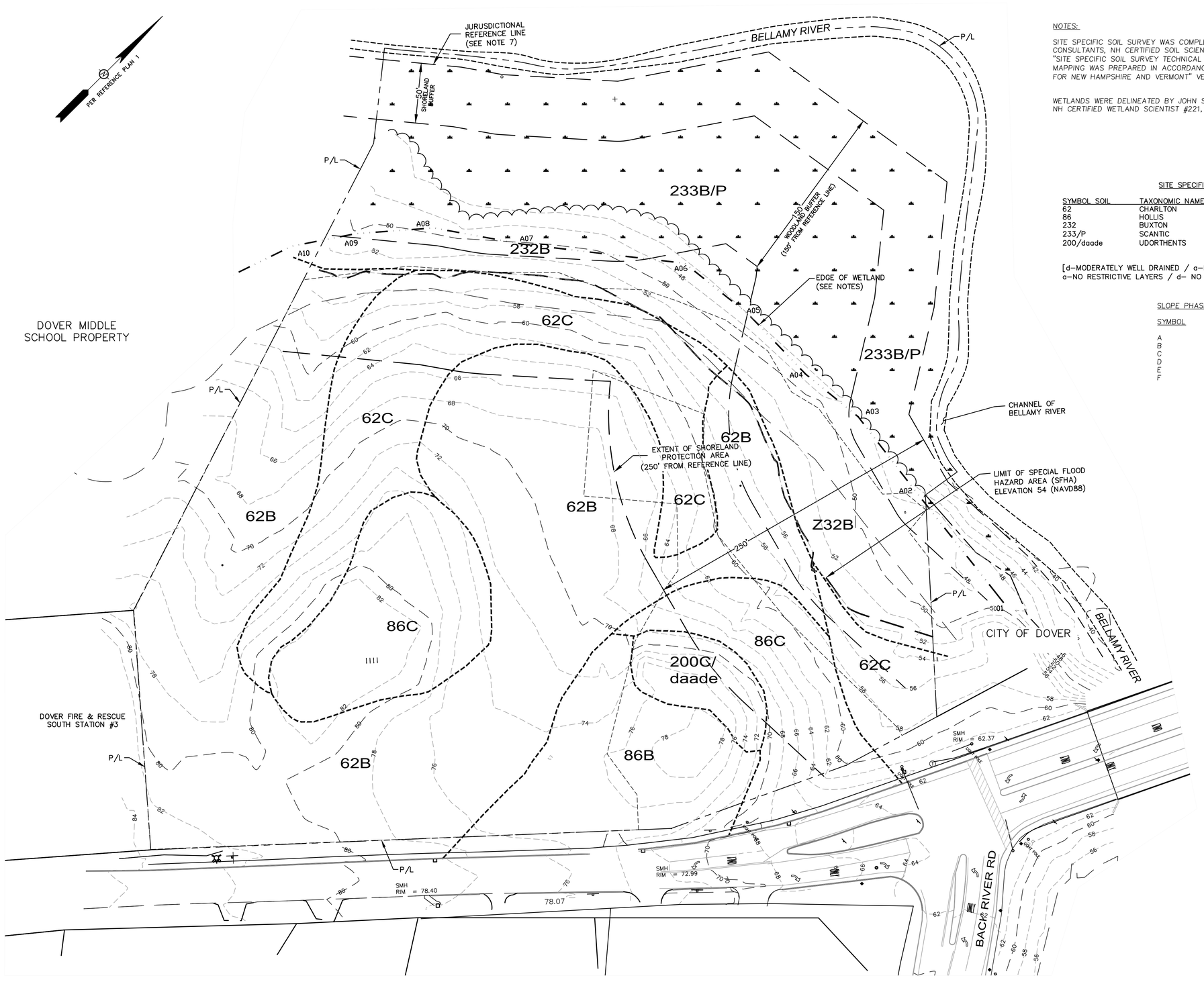
BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
BMPs:			
Raingardens or Infiltration Pond	Annually	• Check infiltration rates and filter media. • Check for trash & debris. • Check for sediment buildup. • Check for vegetation stability. • Check for excess woody vegetation growth. • Check for invasive species.	Remove trash & debris, sediment, woody vegetation, and invasive species. Side slopes and berm are to be mowed. Replant vegetation if required.
Vegetated Swale	Annually	Check for sediment buildup, vegetation loss and invasive species, debris, and damage.	Remove sediment, debris and invasive species, repair damage, and mow grass monthly to a depth of 4 inches.
Riprap Outlet Protection	Annually	Check for sediment buildup and structure damage.	Remove excess sediment and repair damage.
Stone Berm Level Spreader	Annually	Check for sediment buildup, debris and signs of erosion.	Remove sediment and debris. Immediately repair.

STORM WATER SYSTEM OPERATION AND MAINTENANCE REPORT

General Information		
Project Name		
Owner		
Inspector's Name(s)		
Inspector's Contact Information		
Date of Inspection	**Start Time:**	**End Time:**
Type of Inspection: ☐ Annual Report ☐ Post-storm event ☐ Due to a discharge of significant amounts of sediment		
Notes:		

General Site Questions and Discharges of Significant Amounts of Sediment			
Subject		**Status**	**Notes**
A discharge of significant amounts of sediment may be indicated by (but is not limited to) observations of the following. Note whether any are observed during this inspection:			*Notes/ Action taken:*
1	Do the current site conditions reflect the attached site plan?	❑Yes ❑No	
2	Is the site permanently stabilized, temporary erosion and sediment controls are removed, and stormwater discharges from construction activity are eliminated?	❑Yes ❑No	
3	Is there evidence of the discharge of significant amounts of sediment to surface waters, or conveyance systems leading to surface waters?	❑Yes ❑No	
4	Is there evidence of concentrated flows of stormwater such as rills or channels that cause erosion when such flows are not filtered, settled or otherwise treated to remove sediment?	❑Yes ❑No	
5	Is there evidence of deposits of sediment from the site on any adjacent property or stormwater system.	❑Yes ❑No	
6	Is there evidence of discharges from the site to streams running through or along the site where visual observations indicate significant amounts of sediment present in them.	❑Yes ❑No	
7	Is there evidence of invasive species within the stormwater treatment areas?	❑Yes ❑No	

Permit Coverage and Plans				
#	BMP/Facility	Inspected	Corrective Action Needed and Notes	Date Corrected
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		☐Yes ☐No		
		☐Yes ☐No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
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		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		



NOTES:

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

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

SITE SPECIFIC SOIL MAP UNIT KEY

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

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

SLOPE PHASES

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

LEGEND

- PROPERTY LINE
- WETLANDS
- 60 EXISTING CONTOUR
- 26 SOIL SYMBOL
- SOIL BOUNDARY

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

P4951

LAND CONSULTANTS

43 ROCKINGHAM ST
CONCORD, NH 03301

(603)228-5775

ALTUS ENGINEERING, INC.

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

STATE OF NEW HAMPSHIRE CORY D. BELDEN NO. 14289 LICENSED PROFESSIONAL ENGINEER

5/6/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: DESIGN AND PERMITTING

ISSUE DATE: MAY 5, 2022

REVISIONS

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

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

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

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

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

PROJECT:
7 WEST COMMERCIAL DEVELOPMENT

TAX MAP H, LOT 11
DOVER, NH

TITLE:
SITE SPECIFIC SOILS SURVEY

SHEET NUMBER:
S-1



NOTES:

SITE SPECIFIC SOIL SURVEY WAS COMPLETED BY BRUCE A. GILDAY OF BAG LAND CONSULTANTS, NH CERTIFIED SOIL SCIENTIST #012, AND SHOWN ACCORDING TO THE "SITE SPECIFIC SOIL SURVEY TECHNICAL REPORT" DATED MARCH 28, 2022. THE SOIL MAPPING WAS PREPARED IN ACCORDANCE WITH "SITE SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT" VERSION. 7.0, MARCH 2021.

WETLANDS WERE DELINEATED BY BRUCE A. GILDAY OF BAG LAND CONSULTANTS, NH CERTIFIED WETLAND SCIENTIST #088, ON APRIL 20, 2021.

SITE SPECIFIC SOIL MAP UNIT KEY

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

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

SLOPE PHASES

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

LEGEND

- PROPERTY LINE
- WETLAND/SOILS BOUNDARY
- 60 EXISTING CONTOUR
- EXISTING PAVEMENT/CURB
- EXISTING TREELINE
- WATERSHED BOUNDARY
- Tc PATH
- SURFACE FLOW DIRECTION
- 1 1 1 SUBCATCHMENT/POND/REACH
- POA POINT OF ANALYSIS

SOILS LEGEND

HYDROLOGIC GROUP

- SOILS - HSG A
- SOILS - HSG B
- SOILS - HSG C
- SOILS - HSG D
- IMPERVIOUS (BLDGS/ROADS)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

P4951

LAND CONSULTANTS

43 ROCKINGHAM ST
CONCORD, NH 03301

(603)228-5775

Ecosystems Land Planning

36 DUNKLEE STREET
CONCORD,NH 03301
(603)224-6244

ALTUS ENGINEERING, INC.

133 COURT STREET PORTSMOUTH, NH 03801
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ISSUED FOR: DRAINAGE DESIGN

ISSUE DATE: May 5, 2022

REVISIONS

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

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

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

OWNER:
7 WEST, LLC
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DOVER, NH 03821

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

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

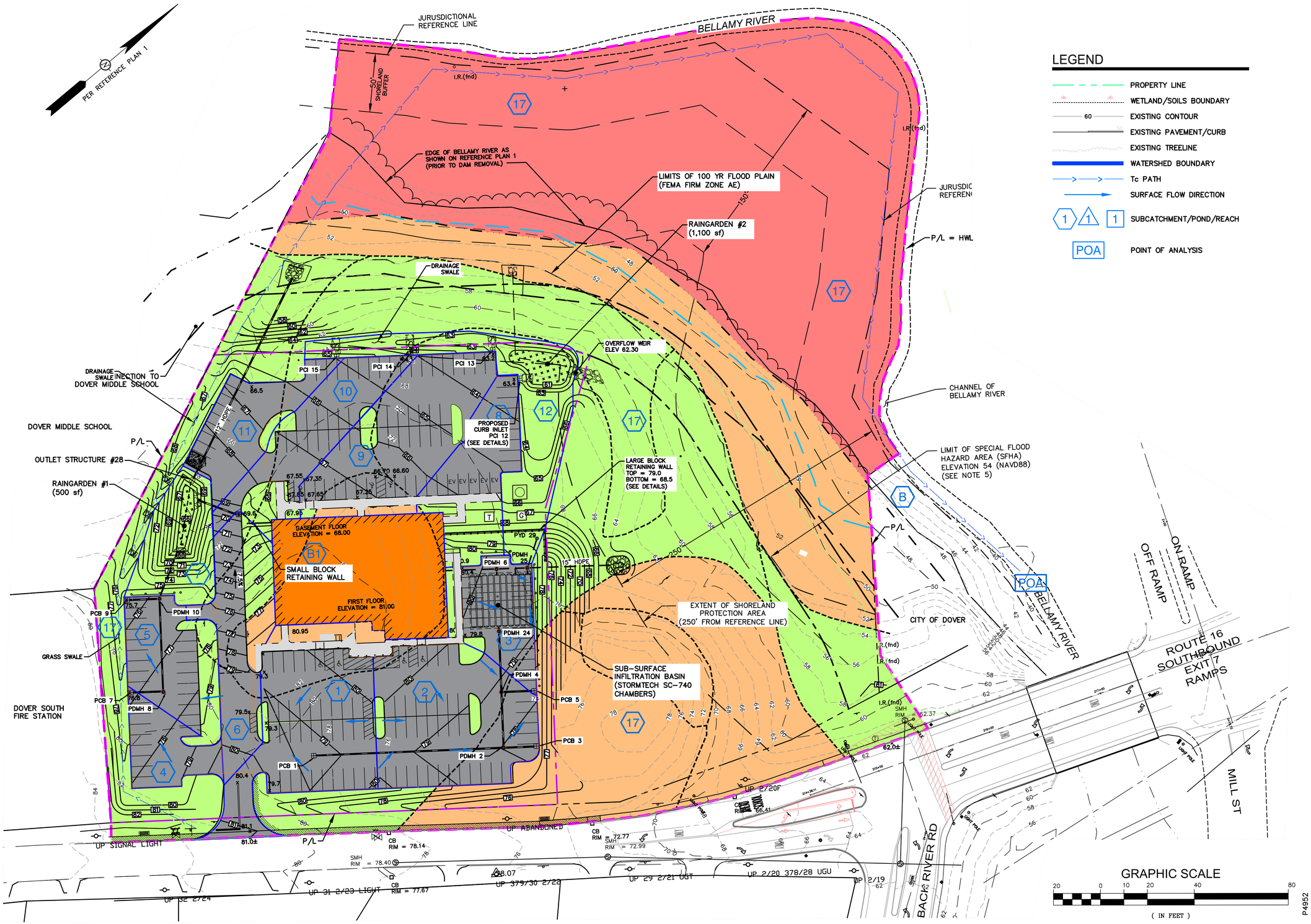
TAX MAP H, LOT 11
DOVER, NH

TITLE:

PRE-DEVELOPMENT

SHEET NUMBER:

DA-1



ENGINEER:

ALTUS ENGINEERING, INC.

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

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: DRAINAGE DESIGN

ISSUE DATE: OCTOBER 5, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22

DRAWN BY: CDB

APPROVED BY: EDW

DRAWING FILE: 4390-DESIGN.dwg

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

OWNER:

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

APPLICANT:

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

PROJECT:

7 WEST
COMMERCIAL
DEVELOPMENT

(FILE NO. P18-__)
TAX MAP H, LOT 11-C
DOVER, NH

TITLE:

POST DEVELOPMENT DRAINAGE AREA PLAN

SHEET NUMBER:

DA-2

SUBDIVISION AND SITE PLAN REVIEW
CITY OF DOVER DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT
FILE NO. P22-38

7 WEST COMMERCIAL DEVELOPMENT

PLANNING BOARD APPROVAL

Signature: _____

Date: _____

Owner:

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

Owner's signature: _____

Date: _____

Applicant:

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

Civil Engineer:

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

Surveyor:

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

Wetland/Soil Scientist:

B A G
LAND CONSULTANTS
43 ROCKINGHAM ST.
CONCORD, NH 03301
(603)228-5775

Architect:

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

Landscape Architect:

Ironwood
Landscape Architecture • Planning
FEWOOD.COM | WEB SITE
603.772.0590 | OFFICE PHONE

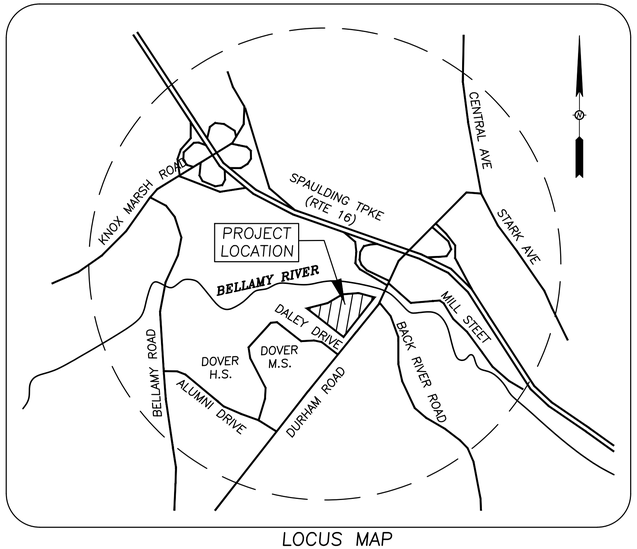
Tax Map H, Lot 11

DOVER, NEW HAMPSHIRE

ISSUED FOR PLANNING BOARD APPLICATION

Plan Issue Date:
December 5, 2022





LOCUS MAP
Scale: 1" = 1000'±

Permit Summary

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

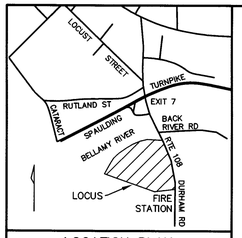
Sheet Index Title	*Sheet No.:*		*Rev.*	*Date*
Cover Sheet	1	1 of 1	1	11/22/22
Existing Conditions Plan (by McEneaney Survey)	2	1 of 1	1	04/22/22
Subdivision Plan of Land (by McEneaney Survey)	3	1 of 1	0	11/10/22
General Notes	4	GN-1	2	10/05/22
General Notes	5	GN-2	1	10/05/22
Neighborhood Site Plan	6	C-1	0	05/05/22
Site Plan	7	C-2	4	12/01/22
Grading and Drainage and Erosion and Sediment Control Plan	8	C-3	2	11/22/22
Utility Plan	9	C-4	1	11/22/22
Sight Distance Plan	10	C-5	0	10/05/22
Site Specific Soils Plan	11	S-1	1	05/05/22
Wetlands Conditional Use Plan	12	CUP-1	1	10/05/22
Details	13	D-1	2	11/22/22
Details	14	D-2	2	11/22/22
Details	15	D-3	2	11/22/22
Details	16	D-4	2	11/22/22
Details	17	D-5	2	11/22/22
Details	18	D-6	2	11/22/22
Details	19	D-7	2	11/22/22
Details	20	D-8	2	11/22/22
Details	21	D-9	2	11/22/22
SC-740 Stormtech Standard Details	22	D-10	0	10/05/22
Site Lighting Plan (by Visible Light, Inc.)	23	1 of 1	0	05/05/22
Landscape Plan (by Ironwood Design Group)	24	L1.0	2	11/22/22
Landscape Details	25	L2.0	2	11/22/22
Landscape Details	26	L2.1	2	11/22/22
Truck Turning (Dover T-1)	27	T-1	0	10/05/22
Truck Turning (Dover T-1)	28	T-2	0	10/05/22
Architectural Plans (by Market Square Architects)				
Floor Plans	29-31	3 SHTS	0	02/25/22
Building Elevations	32-33	2 SHTS	0	02/25/22
Building Renderings	34-35	2 SHTS	0	12/05/22

TOTAL = 35 SHEETS

Conditional Use Permits:

1. Section 170-27.1 – Wetlands Protection District
2. Section 170-20B – Gateway District Standards

P4852 SHEET NO. 1



LOCATION PLAN
(NO SCALE)

LEGEND

- EDGE OF PAVEMENT
- 100 YEAR FLOOD PLANE BOUNDARY
- UTILITY POLE
- IRON PIPE OR PIN
- WATER SHUT OFF VALVE
- HIGHEST OBSERVED TIDE LINE
- APPROX. TREE LINE
- HYDRANT
- WETLANDS
- S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
- 48 – CONTOUR LINE
- SEWER MANHOLE
- WV VGC – VERTICAL GRANITE CURB
- WATER GATE VALVE
- CB – CATCH BASIN
- SIGN

SITE SPECIFIC SOIL MAP UNIT KEY

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

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

SLOPE PHASES

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

REFERENCE PLANS:

1.) SUBDIVISION OF LAND FOR THE DOVER SCHOOL DISTRICT, DURHAM ROAD (NH ROUTE 108), DOVER, NEW HAMPSHIRE; SCALE: 1" = 40'; DATED: 3/3/98; BY: DOUCET SURVEY, INC.; RECORDED S.C.R.D. PLAN 51-56.

2.) PLAN OF PROPOSED FEDERAL AID PRIMARY PROJECT FG-BRF-043-1(1), N.H. PROJECT NO. C-3556, DURHAM ROAD, (N.H. ROUTE 108); BY: STATE OF NEW HAMPSHIRE PUBLIC WORKS AND HIGHWAYS; APPROVED 1/18/85.

3.) PROPERTY ACQUIRED BY STATE OF NEW HAMPSHIRE FROM SALVATORE BONANNO IN DOVER, N.H. STRAFFORD COUNTY; SCALE: 1" = 20'; DATED: 28 MAY 1984; RECORDED S.C.R.D. PLAN 17E-68.

4.) PLAN OF LAND IN DOVER, N.H. FOR D2M ASSOCIATES, SHEET 2 OF 2; SCALE: 1" = 40'; DATED: 6/28/83; BY: KIMBALL CHASE COMPANY, INC.; RECORDED S.C.R.D. PLAN 24-46.

5.) PLAN OF PROPERTY OF THE SAWYER MILLS OWNED BY AMERICAN WOOLEN CO.; SCALE: 1" = 100'; DATED: APRIL 1932; BY: JOHN FRANKLIN, CE; RECORDED S.C.R.D. PLAN 1, POCKET 7, FOLDER 2.

6.) PLAN OF LOT ON CENTRAL AVENUE OWNED BY CHAS H. SAWYER; SCALE: 1" = 40'; DATED: JUNE 30, 1905; BY: WM A. GROVER; RECORDED S.C.R.D. PLAN 20, POCKET 10, FOLDER 1.

NOTES:

1.) OWNER OF RECORD:
7 WEST, LLC
C/O SUMMIT LAND DEVELOPMENT, LLC
340 CENTRAL AVE STE 202
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOLUME 4468, PAGE 979

2.) H / 11 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) PARCEL AREA = 378,500± S.F. / 8.69± Ac.

4.) THE INTENT OF THIS PLAN IS TO DEPICT THE PARCELS BOUNDARIES AND EXISTING SITE CONDITIONS AS OF JUNE 1, 2021.

5.) ZONING DISTRICT: G (GATEWAY)
DIMENSIONAL REQUIREMENTS:

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

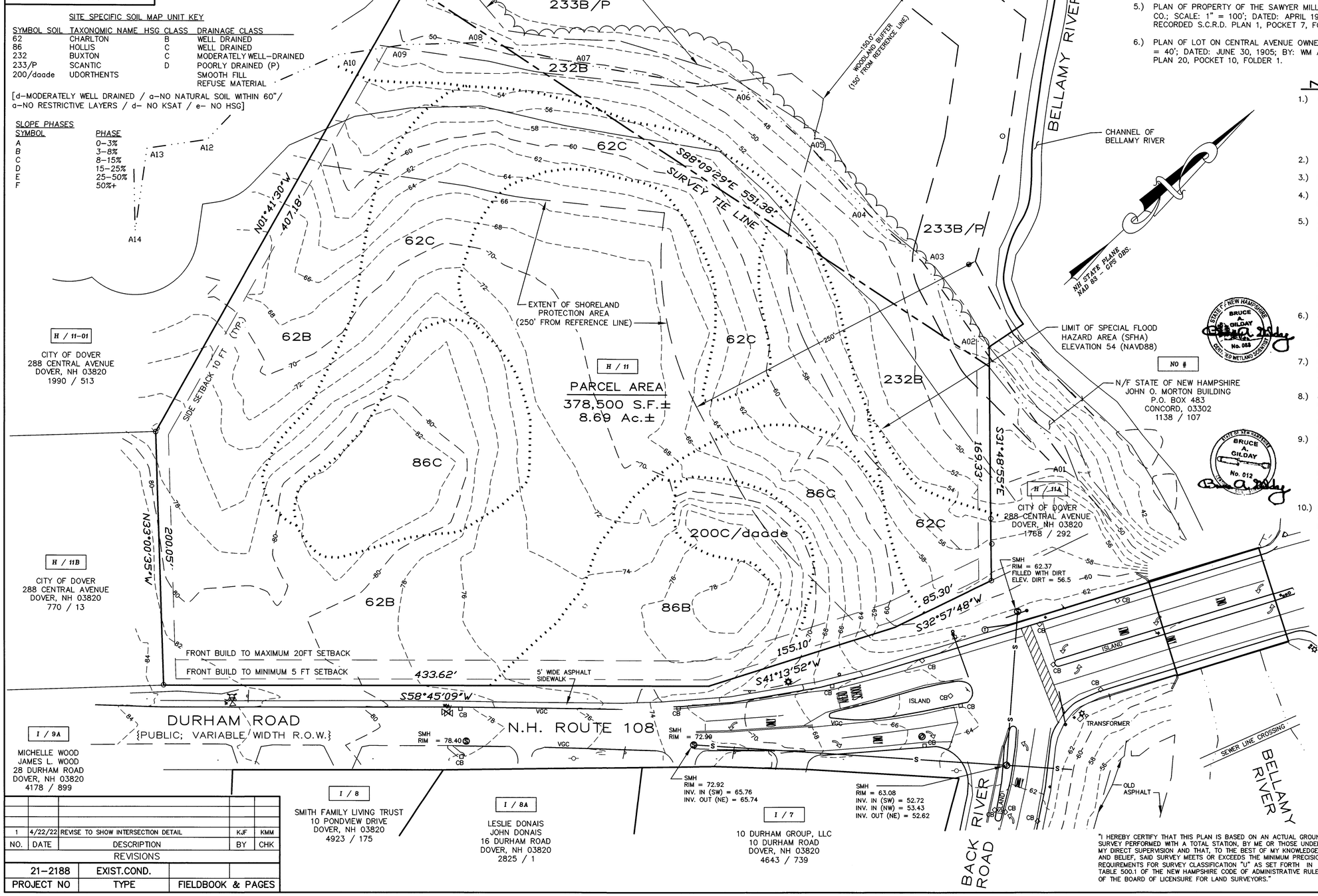
6.) A PORTION OF THE SUBJECT PARCEL IS LOCATED WITHIN THE SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1 PERCENT ANNUAL CHANCE FLOOD, ZONE AE (BASE FLOOD ELEVATION 54.0); AS SHOWN ON FLOOD INSURANCE RATE MAP 33017C0320E; EFFECTIVE DATE 9/30/2015.

7.) BASIS OF BEARING IS NH STATE PLANE (NAD83) BASED ON GPS OBSERVATION DATED .
VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATED .

8.) JURISDICTIONAL WETLANDS DELINEATED AND REFERENCE LINE IDENTIFIED AND FLAGGED BY BRUCE A. GILDAY, N.H.C.W.S. #088 OF BAG LAND CONSULTANTS, CONCORD, NH APRIL 21, 2021 AND FIELD LOCATED BY THIS OFFICE.
NO VERNAL POOLS WERE FOUND ON PROPERTY.

9.) SITE SPECIFIC SOIL SURVEY COMPLETED BY BRUCE A. GILDAY OF BAG LAND CONSULTANT, NH CERTIFIED SOIL SCIENTIST #012 AND SHOWN ACCORDINGLY TO THE "SITE SPECIFIC SOIL SURVEY TECHNICAL REPORT" DATED JULY 26, 2021. THE SOIL MAPPING WAS PREPARED IN ACCORDANCE WITH "SITE SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT" VERSION 7.0 MARCH 2021.

10.) PORTIONS OF THE PARCELS ARE SUBJECT TO THE RULES OF THE SHORELAND WATER QUALITY PROTECTION ACT (NH RSA 483-B), THOSE AREAS WITHIN TWO HUNDRED AND FIFTY (250) FEET OF THE BELLAMY RIVER REFERENCE LINE.



NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		
1	4/22/22	REVISE TO SHOW INTERSECTION DETAIL	KJF	KMM
21-2188		EXIST.COND.		
PROJECT NO		TYPE	FIELDBOOK & PAGES	

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

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

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

40 20 0 20 40 80 120 160

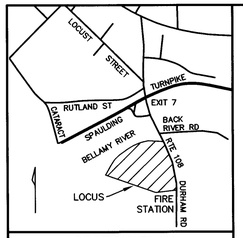
STATE OF NEW HAMPSHIRE – BRUCE A. GILDAY – No. 088 – WETLAND SCIENTIST

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

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

SHEET NO. 2

11/2/2022 10:04:37 File: \\onesever\1MSA Projects\2188\Drawings\21-2188-3.dwg Layout: 2188 EC



LOCATION PLAN
(NO SCALE)

LEGEND

- EDGE OF PAVEMENT
- 100 YEAR FLOOD PLANE BOUNDARY
- UTILITY POLE
- IRON PIPE OR PIN
- WATER SHUT OFF VALVE
- HIGHEST OBSERVED TIDE LINE
- APPROX. TREE LINE
- HYDRANT
- WETLANDS
- S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
- 48 – CONTOUR LINE
- SEWER MANHOLE
- VGC – VERTICAL GRANITE CURB
- WATER GATE VALVE
- CB – CATCH BASIN
- SIGN
- LIGHT POLE

No.	Central Angle	Radius	Arc Length	Chord Length	Chord Bearing
C1	22°47'23"	175.00'	69.61'	69.15'	N54°02'21"E
C2	13°41'59"	175.00'	41.84'	41.74'	N71°15'39"W
C3	59°14'42"	175.00'	180.95'	173.00'	S72°16'00"W
C4	59°14'42"	225.00'	232.65'	222.43'	N72°16'00"E

No.	Bearing	Distance
L1	S16°51'18"W	29.50'
L2	N64°24'40"W	38.69'
L3	N17°48'00"W	57.48'
L4	S16°51'18"W	55.80'
L5	S42°38'39"W	52.97'

NH STATE PLANE NAD 83 - GPS OBS.

H / 11-01
CITY OF DOVER
288 CENTRAL AVENUE
DOVER, NH 03820
1990 / 513

CHANNEL OF THE BELLAMY RIVER

840'± ALONG CENTERLINE OF CHANNEL

N38°30'33"W 80'± 50.0' SHORELAND BUFFER

30.1'

126.05'

N17°48'00"W

EDGE OF BELLAMY RIVER AS SHOWN ON REFERENCE PLAN 1 (PRIOR TO DAM REMOVAL)

REFERENCE LINE SEE NOTE 8

250'

EDGE OF WETLANDS (TYP)

50.0' WETLAND BUFFER

150.0' WOODLAND BUFFER

BELLAMY RIVER

CHANNEL OF THE BELLAMY RIVER

N42°38'39"E 223.69'

N75°44'01"E 551.38' TIE LINE

C4

L3

I.R.(tbs)

N42°38'39"E 252.04'

C1

C3

135.46'

S28°41'31"E

223.65'

N17°48'00"W

LIMIT OF SPECIAL FLOOD HAZARD AREA (SFHA) ELEVATION 54 (NAVD88)

EXTENT OF SHORELAND PROTECTION AREA (250' FROM REFERENCE LINE)

250'

N09°01'27"E 32.62'

NO #
N/F STATE OF NEW HAMPSHIRE
JOHN O. MORTON BUILDING
P.O. BOX 483
CONCORD, 03302
1138 / 107

15.7'

S78°06'39"E 211.36'

N78°06'39"W 199.52'

S47°55'25"E 100.21'

PROPOSED 50' WIDE R.O.W.

S47°55'25"E 69.12'

C2

I.R.(fnd)

H / 11-2
LOT 1
PARCEL AREA
144,316 S.F.
3.31 Ac.

H / 11
LOT 2
PARCEL AREA
234,200 S.F.±
5.38 Ac.±

H / 11A
CITY OF DOVER
288 CENTRAL AVENUE
DOVER, NH 03820
1768 / 292

H / 11B
CITY OF DOVER
288 CENTRAL AVENUE
DOVER, NH 03820
770 / 13

N49°07'05"W 200.05'

252.50'

S47°21'21"E

L1 L2 L4

155.10'

S25°07'25"W

L5

380.65'

S42°38'39"W

S.S.(fnd)

5' WIDE ASPHALT SIDEWALK

I.R.(tbs)

NHHD(fnd)

TRAFFIC SIGNAL MAST ARM

ISLAND

TRANSFORMER

SEWER LINE CROSSING

DURHAM ROAD
{PUBLIC; VARIABLE WIDTH R.O.W.}

N.H. ROUTE 108

EDGE OF PAVEMENT

SMH RIM = 78.40

SMH RIM = 72.99

VGC

CB

I / 9A
MICHELLE WOOD
JAMES L. WOOD
28 DURHAM ROAD
DOVER, NH 03820
4178 / 899

I / 8
SMITH FAMILY LIVING TRUST
10 PONDVIEW DRIVE
DOVER, NH 03820
4923 / 175

I / 8A
LESLIE DONAIS
JOHN DONAIS
16 DURHAM ROAD
DOVER, NH 03820
2825 / 1

I / 7
10 DURHAM GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820
4643 / 739

BACK RIVER ROAD

BELLAMY RIVER

REFERENCE PLANS:

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NOTES:

1.) OWNER OF RECORD:
7 WEST, LLC
C/O SUMMIT LAND DEVELOPMENT, LLC
340 CENTRAL AVE STE 202
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOLUME 4468, PAGE 979

2.) H / 11 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) PARCEL AREA = 378,500± S.F. / 8.69± Ac.

4.) THE INTENT OF THIS PLAN IS TO SUBDIVIDE THE SUBJECT PARCEL INTO TWO LOTS SERVICED BY MUNICIPAL SEWER AND WATER.

5.) ZONING DISTRICT: G (GATEWAY)
DIMENSIONAL REQUIREMENTS:

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

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

7.) BASIS OF BEARING IS NH STATE PLANE (NAD83) BASED ON GPS OBSERVATION DATED JULY 2, 2018.
VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATED JULY 2, 2018.

8.) JURISDICTIONAL WETLANDS DELINEATED AND REFERENCE LINE IDENTIFIED AND FLAGGED BY BRUCE A. GILDAY, N.H.C.W.S. #088 OF BAG LAND CONSULTANTS, CONCORD, NH APRIL 21, 2021 AND FIELD LOCATED BY THIS OFFICE.
NO VERNAL POOLS WERE FOUND ON PROPERTY.

9.) PORTIONS OF THE PARCELS ARE SUBJECT TO THE RULES OF THE SHORELAND WATER QUALITY PROTECTION ACT (NH RSA 483–B), THOSE AREAS WITHIN TWO HUNDRED AND FIFTY (250) FEET OF THE BELLAMY RIVER REFERENCE LINE.

STATE OF NEW HAMPSHIRE
BRUCE A. GILDAY
No. 088
CERTIFIED WETLAND SCIENTIST

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

NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		

21–2188	SUBDIVISION	
PROJECT NO	TYPE	FIELDBOOK & PAGES

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

DRAWN BY: KJF	FILE: MSA\2188\DWG\21–2188S
SCALE: 1" = 40'	DATE: NOVEMBER 10, 2022

40 20 0 20 40 80 120 160

STATE OF NEW HAMPSHIRE
No. 661
KEVIN M. McENEANEY
SIGNATURE
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

SHEET NO. 3

11/18/2022 10:38:17 File: \\CNEserver1\MSA Projects\2188\Drawings\21-2188S.dwg Layout: SUBDIVISION

LEGEND

- PROPERTY LINE
- PROPOSED EASEMENT
- WETLAND BOUNDARY
- BUILDING SETBACK
- 100' CITY WETLAND BUFFER
- 50' LIMITED CUT ZONE
- EXISTING PAVEMENT/CURB
- VGC SGC — PROP. PAVEMENT/VERTICAL OR SLOPED GRANITE CURB
- SAWCUT LINE/MATCH EXISTING
- EXISTING/PROPOSED GUARDRAIL
- PROPOSED FENCE
- 60 — EXISTING CONTOUR
- 60 — PROPOSED CONTOUR
- x 100.00 / x 100.50T 100.00B — PROPOSED SPOT GRADE/TOP & BOTTOM (WHERE NECESSARY)
- PROPOSED RETAINING WALL
- PROPOSED STONE RETAINING WALL
- W — EXISTING WELL/WATER LINE/CURBSTOP/VALVE/HYDRANT
- S — EXISTING SEWER/MANHOLE
- G — EXISTING GAS/VALVE
- OHW UGE — EXIST. OVER/UNDERGROUND UTILITIES/POLE
- D — EXISTING DRAINAGE/CB/DMH
- W — PROPOSED THRUST BLOCK/WATER/CURB STOP/VALVE/HYDRANT
- S CO — PROPOSED SEWER/MANHOLE/CLEANOUT
- FM — PROPOSED SEWER FORCEMAIN
- G — PROPOSED GAS
- OHW — PROPOSED OVERHEAD UTILITIES/UTILITY POLE
- UGE — PROPOSED UNDERGROUND ELECTRIC/PHONE/TV
- PROPOSED DRAINAGE (HARD PIPE)/CB/DCB/DMH/FES
- PROPOSED CATCH BASIN INLET PROTECTION
- FD CO — PROPOSED DRAINAGE (FNDTN. DRAIN/PERF. PIPE)/CLEANOUT
- PROPOSED GROUND SLOPE DIRECTION
- SILTFENCE/SEDIMENT BARRIER/CONST. FENCE/CLEARING LIMITS
- STABILIZED CONSTRUCTION EXIT
- LIMIT OF DISTURBANCE/CLEARING
- EXISTING TREE/DRIP LINE
- PROPOSED TREELINE
- EXISTING/PROPOSED SHRUB LINE
- 44 — TREE PROTECTION/TREE REMOVAL/PARKING COUNT PER ROW
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED RIPRAP
- PROPOSED CONCRETE
- PROPOSED DRIPEDGE
- PROPOSED PAVERS
- PROPOSED PAVEMENT RECLAMATION OR REMOVAL
- PROPOSED CONCRETE RECLAMATION OR REMOVAL
- PROPOSED RAINGARDEN w/ 3/4" STONE
- PROPOSED STONE VELOCITY REDUCTION APRON
- PROPOSED 100' CITY WETLAND BUFFER IMPACT

GENERAL SITE NOTES:

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

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

   NO KNOWN EASEMENTS
8. ZONING DIMENSIONAL AND DENSITY REQUIREMENTS ARE SHOWN IN TABLE LOCATED ON THE SITE PLAN, SHEET C-2:
9. VARIANCE OR SPECIAL EXCEPTIONS - NO VARIANCES OR SPECIAL EXEMPTIONS HAVE BEEN GRANTED BY THE ZONING BOARD OF ADJUSTMENT FOR THE PROPOSED DEVELOPMENT

   CONDITIONAL USE PERMIT - THREE CONDITIONAL USE PERMITS ARE REQUIRE:
   > WETLANDS CONDITIONAL USE PERMIT
   > CONDITIONAL USE PERMIT OF ADDITIONAL PARKING
   > CONDITIONAL USE PERMIT FOR GATEWAY ARCHITECTURAL AND DIMENSIONAL STANDARDS
10. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES , INC.

    AS REFERENCED IN THE ATTACHED "EXISTING CONDITIONS PLAN", DATED APRIL 22, 2022.
11. SUBJECT PARCEL IS LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA.

    FROM SURVEYOR
12. WETLANDS WERE FLAGGED BY ECOSYSTEMS LAND PLANNING, JOHN ST. JOHN, CERTIFIED WETLANDS SCIENTIST #221, IN ACCORDANCE WITH CHAPTER 170-27.1 OF THE ZONING ORDINANCE AND SURVEYED BY MCENEANEY SURVEY INC.

    ADDITIONALLY, A SITE SPECIFIC SOILS REPORT WAS PREPARED BY BRUCE GILDAY (CERT #022), ON MARCH 28, 2022.
    THE SOILS SURVEY WAS COMPLETED IN ACCORDANCE WITH THE SITE-SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT, VERSION 4.0 BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND AND STANDARDS ESTABLISHED BY THE NATIONAL COOPERATIVE SOIL SURVEY. THE SOIL SURVEY IS ALSO MEETS THE STANDARDS FOR AN ORDER 1 SOIL SURVEY AS DEFINED IN THE NH STATE-WIDE NUMERICAL SOIL LEGEND.
13. AS-BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON PAPER AND IN A DIGITAL FORMAT IN PDF AND AUTOCAD DWG, AUTOCAD DXF OR AN ESRI FORMAT TO THE CITY OF DOVER ENGINEER'S OFFICE UPON COMPLETION OF PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E. DIGITAL FILES SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
14. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
15. THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.
16. ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND WITH THE CITY OF DOVER COMMUNITY SERVICES REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
17. SHEET D-1 PROVIDES EROSION CONTROL NOTES AND REQUIREMENTS.

    ALL EROSION CONTROL NOTES SHALL INCLUDE PROVISIONS FOR CONSTRUCTION SEQUENCING, TEMPORARY EROSION CONTROL MEASURES, AND PERMANENT STANDARDS SUCH AS LOAM SPREAD RATE FOR DISTURBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION.
18. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR ANY EARTH DISTURBING ACTIVITY OCCURS.
19. NO TREATMENT SWALES ARE PROPOSED FOR THIS PROJECT.
20. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED, AND THE APPROVED CONSTRUCTION SIGN INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
21. A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.
22. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO:

    MONDAY-FRIDAY 7 AM-6 PM,
    SATURDAY 9 AM-4 PM.
    SUNDAY - NO WORK ALLOWED WITHOUT APPROVAL FROM CITY
    NO WORK ON FEDERAL HOLIDAYS
23. BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
24. THE PROPOSED USE FOR THE SITE COMMERCIAL . APPROXIMATELY 42,480 SQUARE FEET OF GLA OF COMMERCIAL SPACE WILL BE PROVIDED IN THE NEW BUILDING.
25. THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY AND CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS OF PERMITS :

    NHDES SHORELAND PERMIT *(PERMIT: #_____)*
    NHDES ALTERATION OF TERRAIN PERMIT *(PERMIT: #_____)*
    NHDES SEWER CONNECTION PERMIT *(PERMIT: #_____)*
    EPA NPDES CONSTRUCTION GENERAL PERMIT *(TO BE PROVIDED 2 WEEKS PRIOR TO CONSTRUCTION)*
26. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM WITH DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
27. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES AND SHALL BE STAMPED BY A STRUCTURAL ENGINEER.
28. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
29. APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL. https://www.unh.edu/unhsc/ptapp
30. THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASERS TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.
31. FIRE DEPARTMENT ACCESS ROAD(S) SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.
32. THE MAXIMUM PARKING SPACE CALCULATION IS 255 SPACES (BASED ON 1 STALL PER 275 GLA) AND 210 SPACES ARE PROVIDED. A CONDITIONAL USE PERMIT IS REQUIRED.
33. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
34. TOPOGRAPHIC SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. IN MARCH/APRIL OF 2020 AND UPDATED IN APRIL 2022.
35. VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATA.

    BASIS OF BEARING IS NH STATE PLANE (NAD83) BASED ON GPS OBSERVATION.
36. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 58, ARTICLE I, SECTION 58-2 OF THE CODE OF THE CITY OF DOVER.
37. APPROVED BACKFLOW PREVENTORS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
38. THE *PROPOSED* STRUCTURES SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 109- 30 OF THE CODE OF THE CITY OF DOVER AND THE 2015 STATE BUILDING CODES.
39. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED AND APPROVED BY INSPECTION SERVICES PRIOR TO CONNECTION OF THE BACKFLOW DEVICE.
40. FIRE DEPARTMENT CONNECTION(S) SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13. ACCESS TO THE FDC SHALL MAINTAIN A CLEAR AND UNOBSTRUCTED PATH AT ALL TIMES.
41. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL BE ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.

CONDITIONS OF APPROVAL:

THE CITY OF DOVER PLANNING BOARD GRANTED CONDITIONAL APPROVAL FOR THE PROPOSED SITE PLAN AT THE _____ PLANNING BOARD MEETING, FILE #22–38. THE CONDITIONS TO BE MET PRIOR TO THE PLANNING BOARD CHAIR SIGNING OF THE PLANS ARE COMPLETED AND INCLUDED IN THIS SUBMITTAL. THE FOLLOWING ADDITIONAL CONDITIONS SHALL BE NET BY AS REQUIRED PRIOR TO CONSTRUCTION, ISSUANCE OF A BUILDING PERMIT, AND FOR OCCUPANCY:

CONDITIONS TO BE MET PRIOR TO ANY CONSTRUCTION ACTIVITY:

TO BE COMPLETED AFTER PLANNING BOARD CONDITIONAL APPROVAL

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

TO BE COMPLETED AFTER PLANNING BOARD CONDITIONAL APPROVAL

CONDITIONS TO BE MET PRIOR TO OCCUPANCY:

TO BE COMPLETED AFTER PLANNING BOARD CONDITIONAL APPROVAL

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

STATE OF NEW HAMPSHIRE — CORY D. BELDEN — NO. 14239 — LICENSED PROFESSIONAL ENGINEER — 11/22/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	10/14/21
1	PLANNING BOARD	CDB	05/05/22
2	TRC COMMENTS	CDB	10/05/22
3	PB SUBMITTAL	CDB	11/22/22

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

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

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

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

PROJECT:
7 WEST COMMERCIAL DEVELOPMENT

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

TITLE:
GENERAL NOTES

SHEET NUMBER:
4 (GN-1)

P4952

DEMOLITION NOTES

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

SITE NOTES

1. ALL BONDS AND FEES SHALL BE PAID/POSTED PRIOR TO INITIATING CONSTRUCTION.
2. ALL CONDITIONS OF APPROVAL SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
3. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF DOVER & NHDOT'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
4. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINE WITH RS-1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
5. THE CONTRACTOR SHALL VERIFY ALL BENCHMARKS AND TOPOGRAPHY IN THE FIELD PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION. ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR RESOLUTION.
7. AREA OF DISTURBANCE IS OVER 43,560 SF, SO COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT IS REQUIRED (NOI TO BE PREPARED AND SUBMITTED BY CONTRACTOR, SWPPP AND INSPECTIONS TO BE PREPARED AND PERFORMED BY CONTRACTOR).
8. SITEWORK ACTIVITIES ARE OVER 100,000 SF. NHDES ALTERATION OF TERRAIN PERMIT IS REQUIRED.
9. SNOW SHALL BE STORED AT THE EDGE OF PAVEMENT, IN UPLAND AREAS SHOWN THEREON. NO SNOW STORAGE SHALL BE PROVIDED IN THE LANDSCAPED ISLAND BETWEEN THE DRIVEWAY ENTRANCE AND EXIT THAT WOULD RESTRICT SITE VEHICULAR AND PEDESTRIAN SIGHT DISTANCE. IF ADEQUATE ON-SITE SNOW STORAGE IS NOT AVAILABLE, THE SNOW SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED.
10. PAVEMENT MARKINGS SHALL BE CONSTRUCTED USING WHITE, YELLOW, OR BLUE TRAFFIC PAINT (WHERE SPECIFIED) MEETING THE REQUIREMENTS OF AASHTO M248, TYPE F OR EQUAL. PAINTED ISLANDS AND LOADING ZONES SHALL BE 4"-WIDE DIAGONAL WHITE LINES 3'-0" O.C. BORDERED BY 4"-WIDE WHITE LINES. PARKING STALLS SHALL BE SEPARATED BY 4"-WIDE WHITE LINES. SEE DETAILS FOR HANDICAP SYMBOLS, SIGNS AND SIGN DETAILS. PAVEMENT MARKINGS SHALL BE INSTALLED AT LEAST 14-DAYS AFTER INSTALLATION OF WEARING COURSE PAVEMENT. CONTRACTOR SHALL APPLY TWO (2) COATS OF ALL PAVEMENT MARKINGS.
11. PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC DEVICES," "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE AMERICANS WITH DISABILITIES ACT (ADA), LATEST EDITIONS.
12. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE DOVER PLANNING DIRECTOR.
13. SITEWORK CONTRACTOR SHALL PREPARE A LICENSED LAND SURVEYOR (LLS) STAMPED AS-BUILT SITE PLAN & PROVIDE A DIGITAL (CAD FORMAT) COPY FOR THE CITY'S G.I.S. DATA BASE.
14. THE PROPOSED LIGHTING SHALL BE DARK SKY FRIENDLY.
15. THE SITE SHALL BE CONSTRUCTED ON ACCORDANCE WITH ALL APPLICABLE STANDARDS IN ACCORDANCE WITH THE AMERICAN DISABILITIES ACT (ADA).
16. IT IS THE INTENT THAT THE PLANS PROVIDED COMPLY WITH ADA STANDARDS AND NH RSA 155-A:5. THE CONTRACTOR SHALL OBTAIN AND SUBMIT TO THE OWNER OF THE PUBLIC BUILDING A WRITTEN CERTIFICATION FROM A PERSON QUALIFIED UNDER RSA 155-A:5-B THAT THE CONSTRUCTION DRAWINGS FOR THE PROPOSED NEW CONSTRUCTION MEETS THE ACCESSIBILITY STANDARDS OF THE STATE BUILDING CODE.

GRADING AND DRAINAGE NOTES

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

UTILITY NOTES

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

GENERAL NOTES

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

BEST MANAGEMENT PRACTICES FOR BLASTING

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

(1) Loading practices. The following blasthole loading practices to minimize environmental effects shall be followed:

a. Drilling logs shall be maintained by the driller and communicated directly to the blaster. The logs shall indicate depths and lengths of voids, cavities, and fault zones or other weak zones encountered as well as groundwater conditions.

b. Explosive products shall be managed on-site so that they are either used in the borehole, returned to the the delivery vehicle, or placed in secure containers for off-site disposal.

c. Spillage around the borehole shall either be placed in the borehole or cleaned up and returned to an appropriate vehicle for handling or placement in secured containers for off-site disposal.

d. Loaded explosives shall be detonated as soon as possible and shall not be left in the blastholes overnight, unless weather or other safety concerns reasonably dictate that detonation should be postponed.

e. Loading equipment shall be cleaned in an area where wastewater can be properly contained and handled in a manner that prevents release of contaminants to the environment.

f. Explosives shall be loaded to maintain good continuity in the column load to promote complete detonation. Industry accepted loading practices for priming, stemming, decking and column rise need to be attended to.

(2) Explosive Selection. The following BMPs shall be followed to reduce the potential for groundwater contamination when explosives are used:

a. Explosive products shall be selected that are appropriate for site conditions and safe blast execution.

b. Explosive products shall be selected that have the appropriate water resistance for the site conditions present to minimize the potential for hazardous effect of the product upon groundwater.

(1) Prevention of Misfires. Appropriate practices shall be developed and implemented to prevent misfires.

(2) Muck Pile Management. Muck piles (the blasted pieces of rock) and rock piles shall be managed in a manner to reduce the potential for contamination by implementing the following measures:

a. Remove the muck pile from the blast area as soon as reasonably possible.

b. Manage the interaction of blasted rock piles and stormwater to prevent contamination of water supply wells or surface water.

(5) Spill Prevention Measures and Spill Mitigation. Spill prevention and spill mitigation measures shall be implemented to prevent the release of fuel and other related substances to the environment. The measures shall include at a minimum:

a. The fuel storage requirements shall include:

1. Storage of regulated substances on an impervious surface.
2. Secure storage areas against unauthorized entry.
3. Label regulated containers clearly and visibly.
4. Inspect storage areas weekly.
5. Cover regulated containers in outside storage areas.
6. Wherever possible, keep regulated containers that are stored outside more than 50 feet from surface water and storm drains, 75 feet from private wells, and 400 feet from public wells.
7. Secondary containment is required for containers containing regulated substances stored outside, except for on premise use heating fuel tanks, or aboveground or underground storage tanks otherwise regulated.

b. The fuel handling requirements shall include:

1. Except when in use, keep containers containing regulated substances closed and sealed.
2. Place drip pans under spigots, valves, and pumps.
3. Have spill control and containment equipment readily available in all work areas.
4. Use funnels and drip pans when transferring regulated substances.
5. Perform transfers of regulated substances over an impervious surface.

c. The training of on-site employees and the on-site posting of release response information describing what to do in the event of a spill of regulated substances.

d. Fueling and maintenance of excavation, earthmoving and other construction related equipment will comply with the regulations of the New Hampshire Department of Environmental Services [note these requirements are summarized in WD-DWGB-22-6 Best Management Practices for Fueling and Maintenance of Excavation and Earthmoving Equipment" or its successor document. (see http://des.nh.gov/organization/commisioner/pip/factsheets/dwgb/documents/dwgb-22-6.pdf)

ALTUS ENGINEERING, INC.
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STATE OF NEW HAMPSHIRE
CORY D. BELDEN
No. 14289
LICENSED
PROFESSIONAL ENGINEER
11/22/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22
2	PB SUBMITTAL	CDB	11/22/22

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

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

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

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

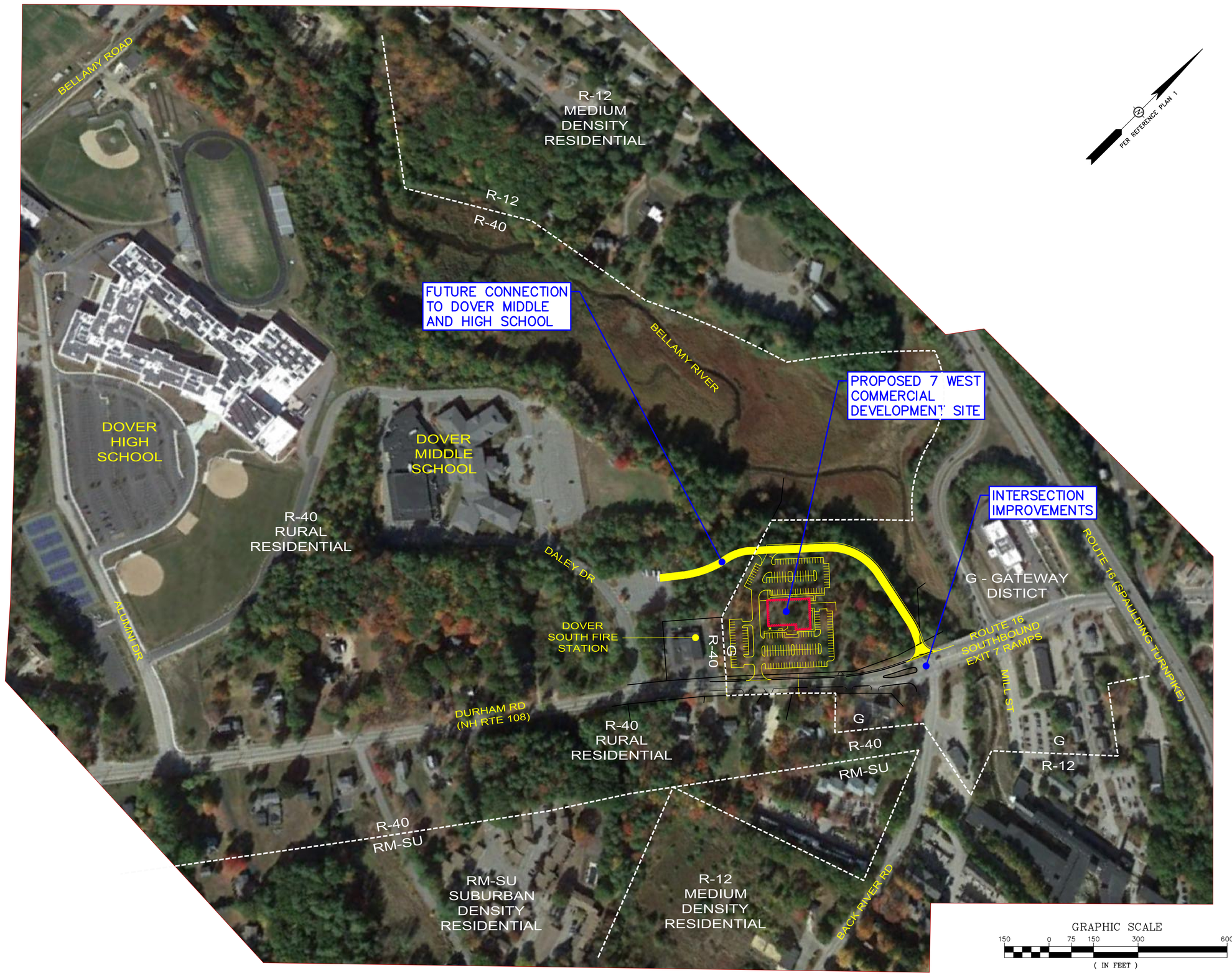
PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

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

TITLE:
GENERAL NOTES

SHEET NUMBER:
5 (GN-2)

P4952



GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)

ALTUS
ENGINEERING, INC.

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

CORY D. BELDEN No. 14283 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

5/6/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
MAY 5, 2022

REVISIONS

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

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

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

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

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

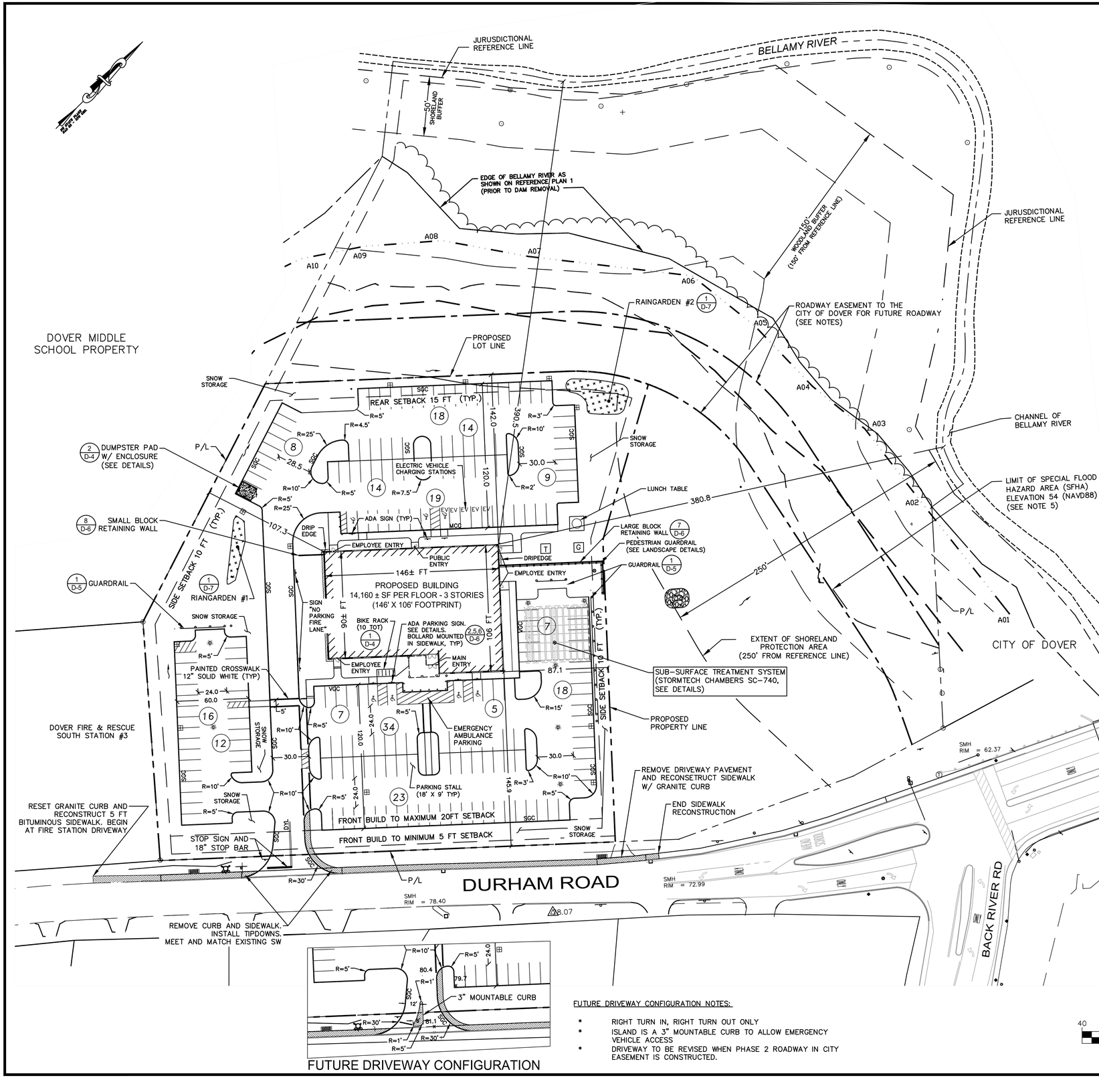
PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

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

TITLE:
NEIGHBORHOOD
SITE PLAN

SHEET NUMBER:
C-1

P4951



PARKING CALCULATIONS:
PER SECTION 153-14.D.1.B. AND AS DETERMINED BY DOVER DIRECTOR OF PLANNING AND COMMUNITY DEVELOPMENT.

ALLOWED (4.8 PARKING SPACES/1000 SF GLA)	=	205 PARKING SPACES
PROPOSED	=	205 SPACES PROVIDED

* 2% OF THE TOTAL NUMBER OF NEW PARKING SPACES SHALL HAVE ELECTRIC VEHICLE SUPPLY EQUIPMENT PER, SITE PLAN REGULATION 153-14.D.3
* BICYCLE PARKING SHALL BE PROVIDED FOR 5% OF VEHICLE PARKING SPACES.

LEGEND:
(XX) = NUMBER OF PARKING STALLS

FUTURE DRIVEWAY CONFIGURATION NOTES:
* RIGHT TURN IN, RIGHT TURN OUT ONLY
* ISLAND IS A 3" MOUNTABLE CURB TO ALLOW EMERGENCY VEHICLE ACCESS
* DRIVEWAY TO BE REVISED WHEN PHASE 2 ROADWAY IN CITY EASEMENT IS CONSTRUCTED.

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

P4952

PLANNING BOARD APPROVAL

Signature: _____

Date: _____

NOTES:

BASE PLAN IS FROM "EXISTING CONDITIONS PLAN" FOR 7 WEST, LLC PERFORMED BY MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND, DATED AUGUST 9, 2021 AND REVISED APRIL 22, 2022.

1.) OWNER OF RECORD:
7 WEST, LLC
C/O SUMMIT LAND DEVELOPMENT, LLC
340 CENTRAL AVE STE 202
DOVER, NEW HAMPSHIRE 03820
S.C.R.D, VOLUME 4468, PAGE 979

2.) H / 11 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) PARCEL AREA = 378,500± S.F. S.F. / 8.69± Ac.

4.) ZONING DISTRICT: G (GATEWAY)
WETLAND PROTECTION AND CONSERVATION DISTRICT

DIMENSIONAL REQUIREMENTS:		PROVIDED
MINIMUM LOT SIZE	= N/A	
LOT COVERAGE	= 50% MINIMUM	9.8 %
FRONTAGE BUILD-OUT	= 60% MINIMUM	38.4%
BUILDING SETBACK REQUIREMENTS:		
FRONT BUILD TO	= 5-25 FEET	145.9 FEET
SIDE SETBACK	= 10 FEET	87.1 FEET
REAR SETBACK	= 15 FEET	142.0 FEET
BUILDING HEIGHT	= 2-4 STORY	3 STORIES

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

* THE FLOOD ZONE MAPPING DOES NOT ACCOUNT FOR THE REMOVAL OF THE SAWYER MILL DAM IN 2019 ADJACENT TO THE PROJECT SITE. A FEMA LETTER OF MAP REVISION (LOMR) IS BEING PREPARED (BY OTHERS) TO ADJUST THE FLOOD ZONE ELEVATION IN THE PROJECT AREA BASED ON THE DAM REMOVAL. DATES FOR SUBMITTALS, APPROVAL, AND WHEN THE NEW ELEVATIONS BECOME EFFECTIVE ARE UNKNOWN.

6.) BASIS OF BEARING IS NH STATE PLANE (NAD83) BASED ON GPS OBSERVATION. VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION.

7.) JURISDICTIONAL WETLANDS AND REFERENCE LINE IDENTIFIED AND FLAGGED BY JOHN ST. JOHN, N.H.C.W.S. 221 OF ECOSYSTEMS LAND PLANNING ON APRIL 21, 2021 AND FIELD LOCATED BY THIS OFFICE.

8.) PORTIONS OF THE PARCELS ARE SUBJECT TO THE RULES OF THE SHORELAND WATER QUALITY PROTECTION ACT (NH RSA 483-B), THOSE AREAS WITHIN TWO HUNDRED AND FIFTY (250) FEET OF THE BELLAMY RIVER REFERENCE LINE.

9.) A ROADWAY EASEMENT WILL BE PROVIDED TO THE CITY OF DOVER FOR THE NEXT PHASE OF DEVELOPMENT OF THE SITE. A DEVELOPMENT AGREEMENT IS BEING PROCESSED WITH CONDITIONS FOR THE ROADWAY AND EASEMENT.

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

CORY D BELDEN No. 14239 PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
12/1/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

Owner's signature: _____

Date: _____

ISSUED FOR: PLANNING BOARD

ISSUE DATE: DECEMBER 1, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	02/16/22
1	PRE-TRC COMMENTS	CDB	05/05/22
2	TRC COMMENTS	CDB	10/05/22
3	PB SUBMITTAL	CDB	11/22/22
4	PB APPROVAL	CDB	12/01/22

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

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

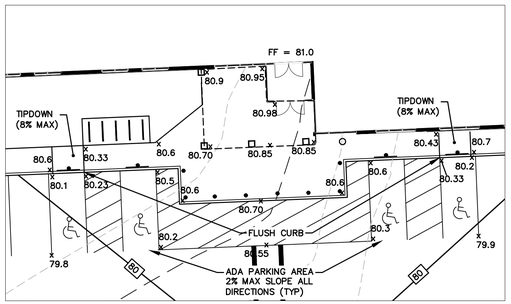
OWNER:
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

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

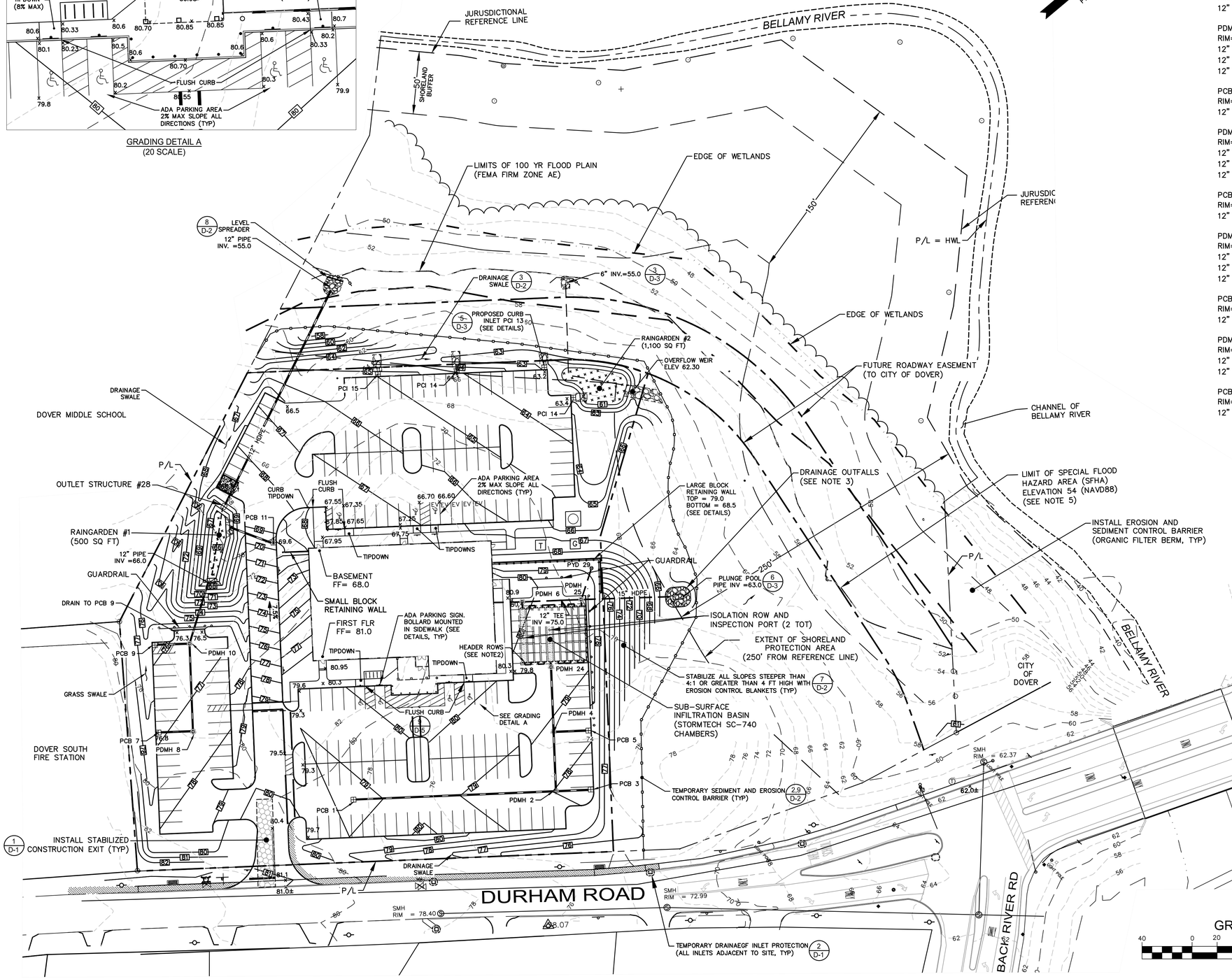
PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT
(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:
SITE PLAN

SHEET NUMBER:
7 (C-2)



GRADING DETAIL A
(20 SCALE)



NOTES

1. SEE SHEET GN–1 FOR SITE NOTES.
2. STORMTECH HEADER ROW AND MANIFOLD PIPE CONNECTION SIZES TO BE VERIFIED WITH MANUFACTURER.
3. DRAINAGE OUTFALLS ARE ON ADJACENT PROPERTY. A DRAINAGE EASEMENT SHALL BE PROVIDED IF EITHER PROPERTY CHANGES OWNERSHIP.

PROPOSED DRAINAGE STRUCTURES

PCB 1
RIM=78.70
12" INV. OUT= 75.20

PDMH 2
RIM=78.00
12" INV. IN=74.40 (PCB 1)
12" INV. IN=74.40 (PCB 3)
12" INV OUT=74.30

PCB 3
RIM= 77.50
12" INV OUT= 74.60

PDMH 4
RIM= 78.80
12" INV IN= 74.10 (PDMH 2)
12" INV IN= 74.10 (PCB 5)
12" INV OUT= 74.00

PCB 5
RIM=78.2
12" INV OUT= 74.25

PDMH 6
RIM=79.8
12" INV. IN= 74.70 (BLDG)
12" INV. OUT= 74.60 (SWG)
12" INV. OUT= 75.10 (PDMH 25)

PCB 7
RIM=76.80
12" INV OUT= 73.80

PDMH 8
RIM=77.60
12" INV IN= 73.60 (PCB 7)
12" INV. OUT= 73.50

PCB 9
RIM= 75.70
12" INV OUT= 72.70

PDMH 10
RIM= 76.30
12" INV. IN= 72.50 (PCB 9)
12" INV. IN=73.10 (PDMH 8)
12" INV. OUT= 72.40

PCB 11
RIM= 69.60
12" INV. OUT= 66.60
8" INV. IN = 66.70 (PYD 29)

PCI 12
RIM=63.40
INV. OUT= 62.40

PCI 13
RIM= 63.20
INV. OUT= 62.20

PCI 14
RIM= 64.10
INV. OUT=63.10

PCI 15
RIM=65.00
INV. OUT=64.00

PDMH 24 (INLET TO SWG)
RIM= 79.5
12" INV. IN= 73.75 (PCB 4)
12" INV. OUT= 73.65 (SWG)

PDMH 25
8" INV. IN = 74.50 (PYD 30)
12" INV. IN = 75.0 (PDMH6)
6" INV. IN = 73.0 (SWG–UD)
12" INV. IN = 75.0 (SWG)
15" INV. OUT = 72.9 (PDMH 26)

PYD 29
RIM = 78.50
8" INV OUT = 74.70 (PDMH 25)

PROPOSED STORMWATER TREATMENT PRACTICES

RAINGARDEN #1
BOTTOM AREA = 500 SF
BOTTOM ELEV = 66.0
UD ELEV = 63.25

OUTLET STRUCTURE #28
18" BEEHIVE GATE = 67.50
6" INV IN = 63.25
12" INV OUT = 62.75

RAINGARDEN #2
BOTTOM AREA = 1100 SF
BOTTOM ELEV = 61.0
UD ELEV = 58.25

OVERFLOW WEIR
ELEV = 62.30

SUB–SURFACE INFILTRATION BASIN (STORMTECH SC–740)
60 CHAMBERS (10 X 6)
STONE: 49.0L X 55.5W X 4.5H
12" STONE BASE = 72.5
CHAMBER BASE = 73.5
(SEE DETAILS)

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STATE OF NEW HAMPSHIRE
CORY D. BELDEN
No. 14239
LICENSED PROFESSIONAL ENGINEER
11/22/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22
2	PB SUBMITTAL	CDB	11/22/22

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

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

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

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

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

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

SHEET NUMBER:
8 (C-3)

P4952

LEGEND

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

PER REFERENCE PLAN 1

EDGE OF BELLAMY RIVER AS SHOWN ON REFERENCE PLAN 1 (PRIOR TO DAM REMOVAL)

I.R.(fnd)

A01 A02 A03 A04 A05 A06 A07 A08 A09 A10

P/L

12" HDPE

PROVIDE ELEC EV CHARGING STATION READINESS FOR 5 STALLS (ONE ADA ACCESSIBLE)

EV EV EV EV EV

NEW TRANSFORMER/ ELECTRICAL SERVICE (COORDINATE WITH EVERSOURCE)

NEW GENERATOR (COORDINATE WITH EVERSOURCE)

T G PG

15" HDPE

FIRE DEPT CONNECTION (FDC)

6" SEWER OUT = 73.75 W/ CLEANOUT VERIFY WITH PLUMBING PLANS

PROPOSED GAS (COORDINATE SIZING WITH MECHANICAL AND UNITIL) 4 D-8

6" FIRE SUPPRESSION SERVICE VERIFY SIZE W/MECH. DWGS

7 D-8 6" DI WATER (CL 52)

4 D-9 6" PVC SEWER (SDR 35) (S=0.010 MIN)

2" DOMESTIC WATER SERVICE W/ 2" GATE VALVE VERIFY SIZE W/MECH. ENGINEER

6" X 2" TEE (REDUCER)

REMOVE ABANDONED POLE (COORDINATE WITH CITY TO RELOCATE SIGNS ("FIRE STATION", "SIGNAL AHEAD")

PROVIDE INSULATION WHERE PIPE COVER IS LESS THAN 6 FT (TYP)

PROPOSED UG ELECTRICAL SERVICE 5 D-8

EXISTING GAS

DOVER FIRE & RESCUE SOUTH STATION #3

CORE NEW 6" SEWER INV. = 71.90 (VIF)

CUT AND CAP SERVICE (SEE NOTE 26)

UP ABANDONED

CB RIM = 72.77 SMH RIM = 72.99

6" GATE VALVE 1 D-8

EXISTING 12" D.I. WATER MAIN (VERIFY IN FIELD)

UP SIGNAL LIGHT

EXISTING HYDRANT

DURHAM ROAD

CB RIM = 78.14

SMH RIM = 78.40

CB RIM = 77.6

UP 32 2/24

UP 31 2/23 LIGHT

UP 29 2/21 UGT

UP 2/20 378/28 UGU

UP 2/19

UP 379/30 2/22

UGE 68.07

CONNECT TO 12" WATER MAIN 12" X 6" STAINLESS STEEL TAPPING SLEEVE DOMESTIC WATER & FIRE SERVICE (VERIFY SIZES WITH MECHANICAL, TYP)

TRENCH & REPAIR DURHAM ROAD FOR ALL NEW SERVICE CONNECTIONS. COORDINATE WITH DOVER DPW AND UTILITY. POLICE DETAIL REQUIRED FOR ALL WORK IN ROADWAY. OVERLAY CURB TO CURB FOR NEW UTILITY CONNECTIONS.

PROVIDE NEW ELECTRIC SERVICE FROM SOUTH SIDE OF DURHAM RD. COORDINATE WITH EVERSOURCE.

CITY OF DOVER

(BELLAMY RIVER)

ON RAMP

OFF RAMP

ROUTE 16 SOUTHBOUND EXIT 7 RAMPS

ADJUST ELEC MH COVER TO GRADE

ADJUST SMH COVER TO GRADE

RELOCATE MAST ARM (PENDING INTERSECTION DESIGN)

I.R.(fnd) SMH RIM = 62.37

UP 2/20F

CB RIM = 66.41

Light Pole

MILL ST

BACK RIVER RD

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

P4951

UTILITY NOTES:

1. COORDINATE UTILITY WORK WITH UTILITY COMPANIES.
   UNITIL: DAVID BEAULIEU – (603) 294–5144
   EVERSOURCE: NICK KOSKO – (603) 332–4227
   CONSOLIDATED COMMUNICATIONS: JASON CUNHA – (603) 325–2041
   CITY OF DOVER, COMMUNITY SERVICES: BILL BOULANGER – (603) 516–6450
2. UNDERGROUND UTILITIES INSTALLATION SHALL MEET THE MINIMUM REQUIREMENTS OF THE UTILITY COMPANIES AND THE CITY OF DOVER
   CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
3. ALL ELECTRIC, CABLE, AND TELECOMMUNICATION SERVICES AND CONDUITS SHALL BE LOCATED UNDERGROUND.
4. THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.
5. CONTRACTOR SHALL VERIFY THE EXACT LOCATION & ELEVATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. ANY DISCREPANCIES BETWEEN FIELD AND PLAN SHALL BE IMMEDIATELY REPORTED TO ENGINEER.
6. ALL SEWER INSTALLATIONS SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF THE DOVER PUBLIC WORKS DEPARTMENT AND THE NHDES. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
7. A NHDES SEWER CONNECTION PERMIT HAS BEEN ISSUED FOR THIS PROJECT (D2020–0603). ALL PIPE MATERIALS, INSTALLATION, AND INSPECTION SHALL CONFORM TO THE PERMIT REQUIREMENTS AND PROJECT SPECIFICATIONS. PVC SEWER PIPE SHALL CONFORM WITH ASTM D3034 AND ASTM D2412 AND ALL PVC PIPE JOINT SEALS SHALL CONFORM WITH ASTM D3212
8. ALL WATER, SEWER, AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (LATEST ADDITION) AND SHALL COMPLY WITH APPLICABLE CITY OF DOVER STANDARDS.
9. VERIFY LOCATION OF UTILITY BOXES WITH OWNER AND UTILITY COMPANIES.
10. COORDINATE WATER MAIN AND HYDRANT INSTALLATION WITH THE DOVER WATER DEPARTMENT.
11. CONTRACTOR SHALL TEST WATER AND SEWER SERVICES PER DOVER SEWER DEPARTMENT REQUIREMENTS.
12. CONTRACTOR SHALL MAINTAIN WATER SERVICE AT ALL TIMES TO USERS AT ADJACENT PROPERTIES. CONTRACTOR SHALL PROVIDE PLANS IN ADVANCE OF TESTING AND CONNECTION TO EXISTING SYSTEM FOR ADDRESSING WATER SERVICE TO ADJACENT PROPERTIES.
13. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBMS) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR ANY DAMAGE DONE TO EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES (IF REQUIRED) AT NO EXTRA COST TO THE OWNER. UTILITY CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DOVER DPW, AND APPROPRIATE UTILITY COMPANIES.
15. SEWER AND WATER CONSTRUCTION PLANS AND SPECIFICATIONS SHALL BE SUBMITTED TO THE CITY OF DOVER SEWER AND WATER DEPARTMENT FOR APPROVAL PRIOR TO CONSTRUCTION.
16. SEWER MANHOLES SHALL HAVE STEPS AT THE REQUEST OF THE CITY OF DOVER.
17. THE PROPOSED STRUCTURES SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 81, ARTICLE IV, SECTION 81–27 OF THE CODE OF THE CITY OF DOVER.
18. 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.
19. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
20. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 58, ARTICLE I, SECTION 58–2 OF THE CODE OF THE CITY OF DOVER
21. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
22. TRANSFORMERS TO BE SCREENED WITH ENCLOSURE. PLANTINGS MAY BE USED AS SCREENING AS APPROVED BY THE CITY OF DOVER BUILDING INSPECTION DEPT.
23. ALL METERING OF SERVICES SUCH AS WATER, ELECTRIC AND GAS WILL BE INTERIOR TO BUILDINGS.
24. VERIFY LOCATION OF EXISTING ELECTRICAL LINES PRIOR TO INSTALLATION OF CATCH BASINS. RELOCATE ELECTRICAL LINES AS NEEDED. COORDINATE WITH EVERSOURCE.
25. 2% OF THE TOTAL NUMBER OF NEW PARKING SPACES SHALL HAVE ELECTRIC VEHICLE SUPPLY EQUIPMENT PER, SITE PLAN REGULATION 153–14.D.3
26. CUT AND CAP EXISTING WATER SERVICE PER CITY OF DOVER WATER DEPT REQUIREMENTS. CHECK WATER SERVICE CONNECTION FOR RE–USE FOR NEW DEVELOPMENT. IF ADEQUATE, USE EXISTING SERVICE CONNECTION.

ALTUS ENGINEERING, INC.

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

STATE OF NEW HAMPSHIRE CORY D. BELDEN No. 14230 LICENSED PROFESSIONAL ENGINEER
11/22/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	PB SUBMITTAL	CDB	11/22/22

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

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

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

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

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

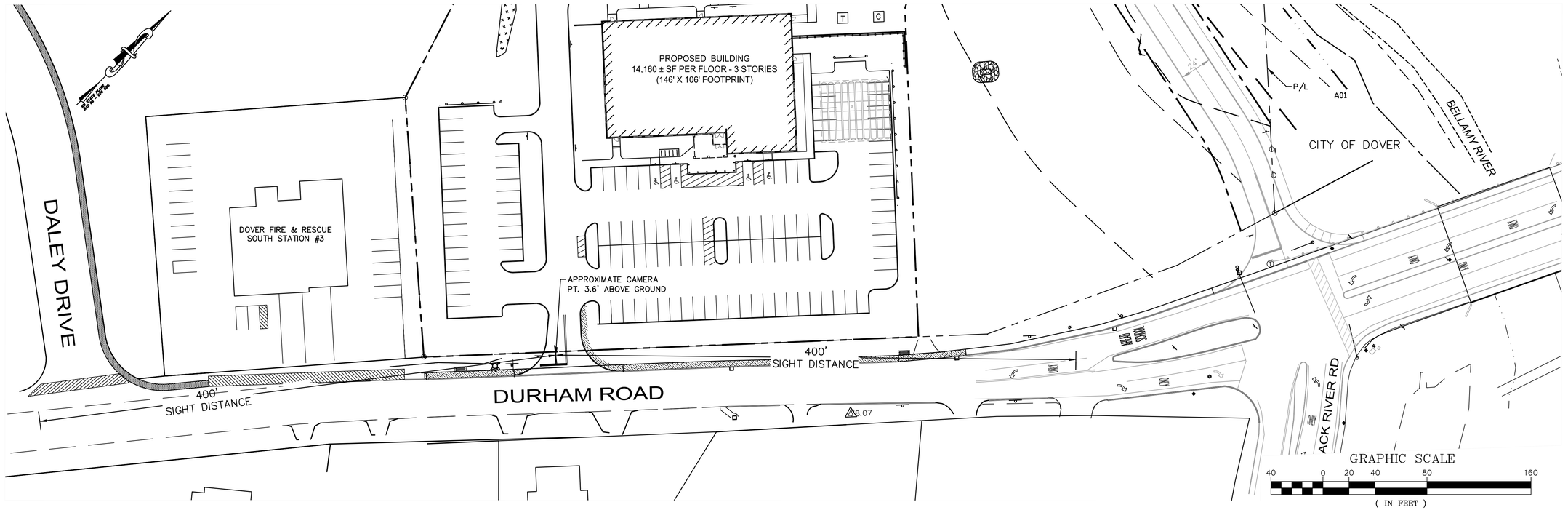
(FILE NO. P22–38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

UTILITIES PLAN

SHEET NUMBER:

9 (C-4)





SOUTH-WEST SIGHT LINE



NORTH-EAST SIGHT LINE

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ENGINEERING, INC.
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(603) 433-2335 www.ALTUS-ENG.com

STATE OF NEW HAMPSHIRE
CORY D. BELDEN
No. 14239
LICENSED
PROFESSIONAL ENGINEER
10/5/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
OCTOBER 5, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	10/05/22

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

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

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

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

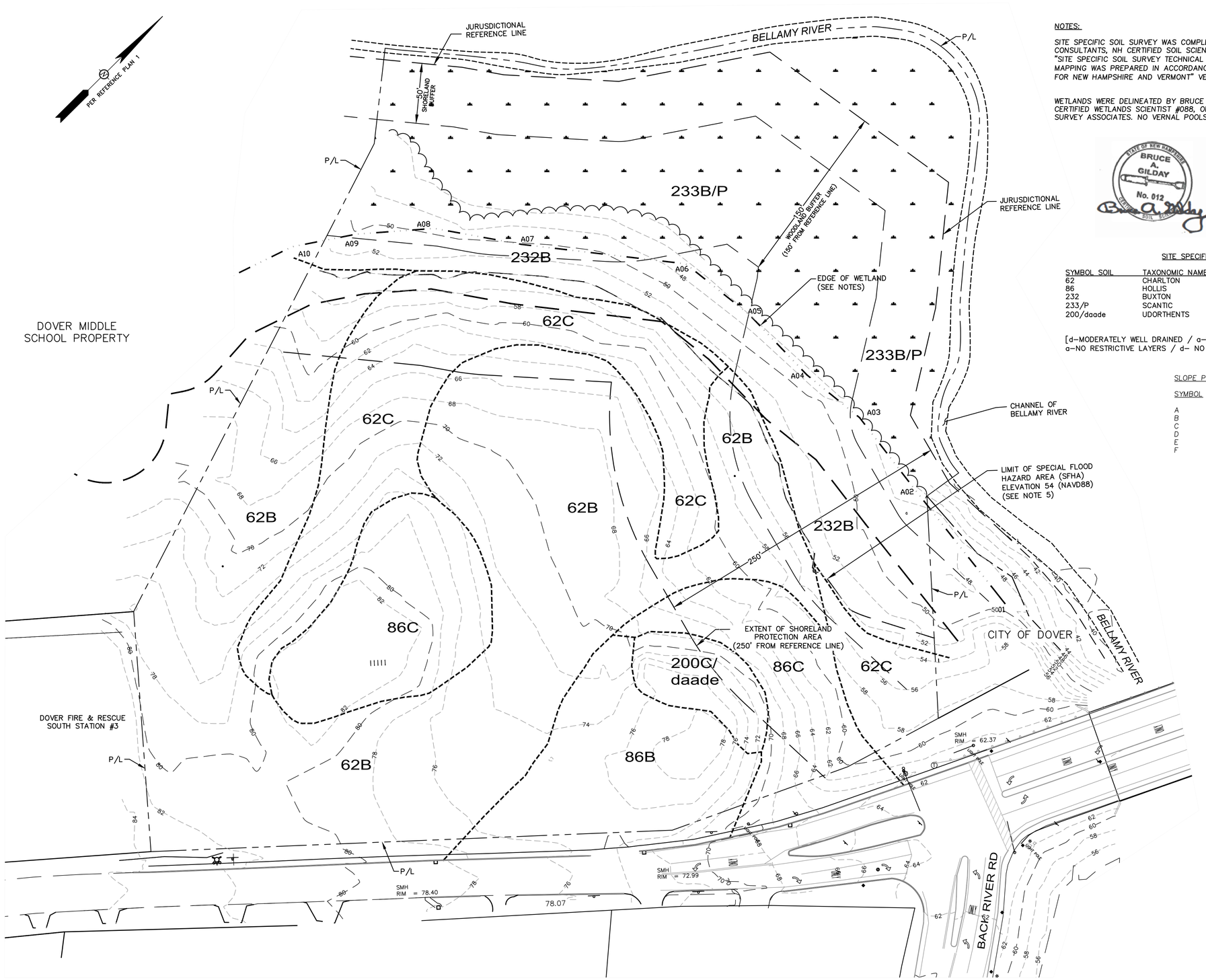
PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

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

TITLE:
SIGHT DISTANCE

SHEET NUMBER:
C-5

P4952



NOTES:

SITE SPECIFIC SOIL SURVEY WAS COMPLETED BY BRUCE A. GILDAY OF BAG LAND CONSULTANTS, NH CERTIFIED SOIL SCIENTIST #012, AND SHOWN ACCORDING TO THE "SITE SPECIFIC SOIL SURVEY TECHNICAL REPORT" DATED MARCH 28, 2022. THE SOIL MAPPING WAS PREPARED IN ACCORDANCE WITH "SITE SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT" VERSION. 7.0, MARCH 2021.

WETLANDS WERE DELINEATED BY BRUCE A. GILDAY OF BAG LAND CONSULTANTS, NH CERTIFIED WETLANDS SCIENTIST #088, ON APRIL 20, 2021 AND SURVEYED BY MCENEANEY SURVEY ASSOCIATES. NO VERNAL POOLS WERE FOUND ON THE PROPERTY.

STATE OF NEW HAMPSHIRE — BRUCE A. GILDAY — No. 012 — CERTIFIED SOIL SCIENTIST

STATE OF NEW HAMPSHIRE — BRUCE A. GILDAY — No. 088 — CERTIFIED WETLAND SCIENTIST

SITE SPECIFIC SOIL MAP UNIT KEY

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

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

SLOPE PHASES

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

LEGEND

- PROPERTY LINE
- WETLANDS
- 60 EXISTING CONTOUR
- 26 SOIL SYMBOL
- SOIL BOUNDARY

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

P4952

B A G
LAND CONSULTANTS
43 ROCKINGHAM ST
CONCORD, NH 03301
(603)228-5775

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

STATE OF NEW HAMPSHIRE — CORY D. BELDEN — No. 14239 — LICENSED PROFESSIONAL ENGINEER — 10/22/22

ISSUED FOR:
DESIGN AND PERMITTING

ISSUE DATE:
OCTOBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	08/06/21
1	SURVEY UPDATE	CDB	05/05/22
2	NOTES REVISED	CDB	10/22/22

DRAWN BY: CDB
APPROVED BY: EDW
DRAWING FILE: 4952-SITE 22.07.21.dwg

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

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

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

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

TAX MAP H, LOT 11
DOVER, NH

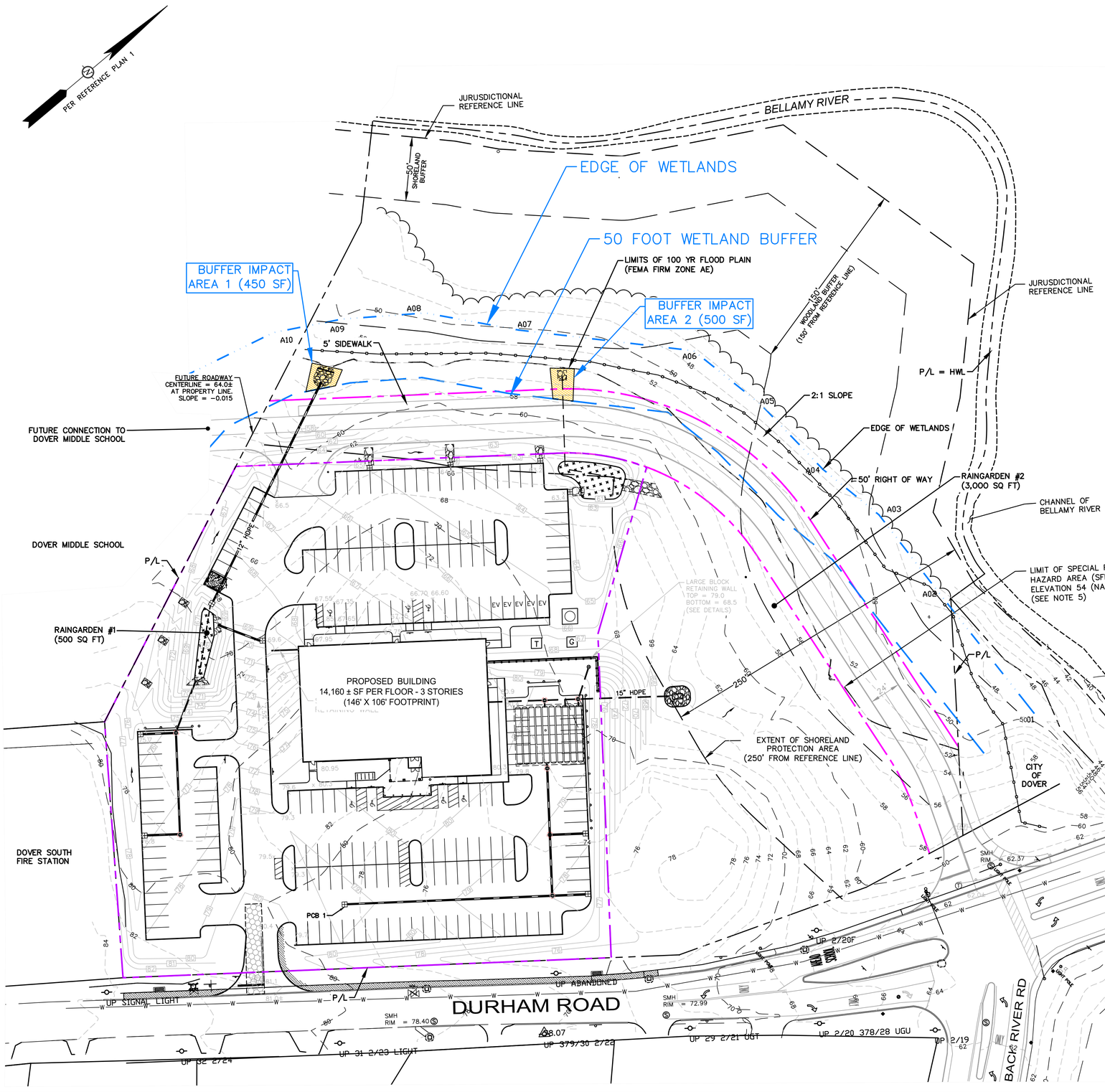
TITLE:

SITE SPECIFIC SOILS PLAN

SHEET NUMBER:

S-1

SHEET NO. 11



NOTES:

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

WETLAND IMPACT TABLE

Lot H-11	DIRECT IMPACTS	BUFFER IMPACTS
Area 1	0	450 SF
Area 2	0	500 SF
TOTAL	0 SF	950 SF

WETLAND BUFFER IMPACTS

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

STATE OF NEW HAMPSHIRE
CORY D. BELDEN
No. 14239
LICENSED PROFESSIONAL ENGINEER
10/5/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: OCTOBER 5, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22

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

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

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

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

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

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

TITLE:
WETLANDS
CONDITIONAL
USE PLAN

SHEET NUMBER:
CUP-1

P4952

SEDIMENT AND EROSION CONTROL NOTES

PROJECT NAME AND LOCATION

7 WEST COMMERCIAL DEVELOPMENT
DURHAM ROAD
DOVER, NEW HAMPSHIRE

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

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

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

DESCRIPTION

The project consists of a single 3-Story commercial building approximately 14,160 square feet in size (footprint). The site will provide associated site improvements including parking, walkways, lighting, utilities, stormwater management and landscaping improvements. The project is located on an 8.4 acre lot identified as Assessor's parcel Tax Map H, Lot 11 in the City of Dover, NH.

DISTURBED AREA

The total area to be disturbed for the site development improvements is approximately ±153,604 SF (±3.5 acres).

NAME OF RECEIVING WATER

The site drains to the Bellamy River.

NPDES CONSTRUCTION GENERAL PERMIT

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

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

SEQUENCE OF MAJOR ACTIVITIES

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

CONSTRUCTION SEQUENCE / EROSION CONTROL

- THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
- PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
- TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC) MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.
- PONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE (BEFORE ROUGH GRADING THE SITE).
- ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
- ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
- THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 55,000 SQUARE FEET AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - ** BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
  - ** A MINIMUM OF 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED.
  - ** A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED.
  - ** OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.

TEMPORARY EROSION & SEDIMENT CONTROL AND STABILIZATION PRACTICES

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

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

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

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

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

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

A. GENERAL

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

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

B. MULCHING

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

1. Timing – In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this:
   a. Apply mulch prior to any storm event. This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
   b. Required Mulching within a specified time period. The time period can range from 21 to 28 days of inactivity on a area, the length of time varying with site conditions. Professional judgment 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.

2. Guidelines for Winter Mulch Application –

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

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

C. TEMPORARY GRASS COVER

1. Seedbed Preparation –
   Apply fertilizer at the rate of 600 pounds per acre of 10-10-10. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of three (3) tons per acre.

10. Seeding –
    a. Utilize annual rye grass at a rate of 40 lbs/acre.
    b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.
    c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseedings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

3. Maintenance –
   Temporary seedings shall be periodically inspected. At a minimum, 95% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

D. FILTERS

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

Physical Property	Test	Requirements
Filtering Efficiency	VTM-51	75% minimum
Tensile Strength at 20% Maximum Elongation*	VTM-52	Extra Strength 50 lb/in in (min) Standard Strength 30 lb/in in (min)
Flow Rate	VTM-51	0.3 gal/sf/min (min)

   * Requirements reduced by 50 percent after six (6) months of installation.

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

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

   b. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location or as recommended by the manufacturer and driven securely into the ground (minimum of 16 inches).
   c. A trench shall be excavated approximately six (6) inches wide and eight (8) inches deep along the line of posts and upslope from the barrier.
   d. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire shall extend no more than 36 inches above the original ground surfaces.
   e. The "standard strength" filter fabric shall be stapled or wired to the fence, and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.
   f.
   g. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of item (g) applying.
   h. The trench shall be backfilled and the soil compacted over the filter fabric.
   i. Silt fences shall be removed when they have served their useful purpose but not before the upslope areas has been permanently stabilized.

2. Sequence of Installation –
   Sediment barriers shall be installed prior to any soil disturbance of the contributing upslope drainage area.

3. Maintenance –
   a. Silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water, the sediment barriers shall be replaced with a temporary stone check dam.
   b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
   c. Sediment deposits must be removed when deposits reach approximately one-third (1/3) the height of the barrier.
   d. Any sediment deposits remaining in place after the silt fence or other barrier is no longer required shall be removed. The area shall be prepared and seeded.
   e. Additional stone may have to be added to the construction entrance, rock barrier and riprap lined swales, etc., periodically to maintain proper function of the erosion control structure.

E. PERMANENT SEEDING –

1. Bedding – stones larger than 1", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 5" to prepare a seedbed and mix fertilizer into the soil.

2. Fertilizer – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied:

   Agricultural Limestone @ 100 lbs. per 1,000 s.f.
   10-20-20 fertilizer @ 12 lbs. per 1,000 s.f.

3. Seed Mixture (recommended):

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

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

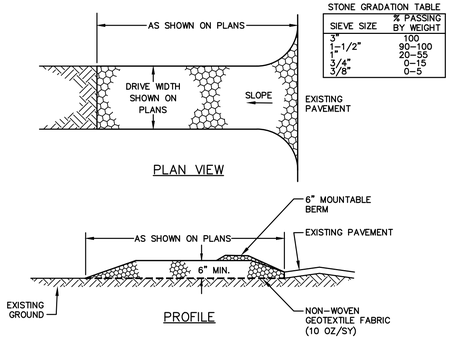
Type	Min. Purity (%)	Min. Germination (%)	Kg./Hectare (Lbs/Acre)
Creeping Red Fescue (b)	96	85	45 (40)
Perennial Rye Grass (a)	98	90	35 (30)
Redtop	95	80	5 (5)
Alsike Clover	97	90	5 (5)
		Total	90 (80)

   a. Ryegrass shall be a certified fine-textured variety such as Pennfine, Fiesta, Yorktown, Diplomat, or equal.
   b. Fescue varieties shall include – Creeping Red and/or Hard Reliant, Scaldis, Koket, or Jamestown.

4. Sodding – sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.C.S. Handbook. Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt), etc.

WINTER CONSTRUCTION NOTES

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



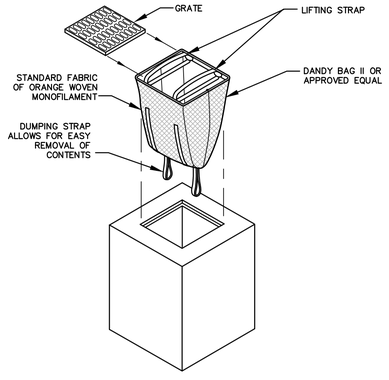
STONE GRADATION TABLE

SIEVE SIZE	% PASSING BY WEIGHT
3"	100
1-1/2"	90-100
3/4"	20-55
3/8"	0-15
	0-5

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – NHDOT STANDARD STONE SIZE #4 – SECTION 703 OF NHDOT STANDARD.
2. LENGTH – DETAILED ON PLANS (50 FOOT MINIMUM).
3. THICKNESS – SIX (6) INCHES (MINIMUM).
4. WIDTH – FULL DRIVE WIDTH UNLESS OTHERWISE SPECIFIED.
5. FILTER FABRIC – MIRAFI 600X OR EQUAL APPROVED BY ENGINEER.
6. SURFACE WATER CONTROL – ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AT ALL ENTRANCES TO PUBLIC RIGHTS-OF-WAY, AT LOCATIONS SHOWN ON THE PLANS, AND/OR WHERE AS DIRECTED BY THE ENGINEER.

1 / D-1 STABILIZED CONSTRUCTION EXIT NOT TO SCALE



INSTALLATION AND MAINTENANCE:

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

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

UNACCEPTABLE INLET PROTECTION METHOD:

A SIMPLE SHEET OF GEOTEXTILE UNDER THE GRATE IS NOT ACCEPTABLE.

2 / D-1 STORM DRAIN INLET PROTECTION NOT TO SCALE

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

STATE OF NEW HAMPSHIRE
CORY D. BELDEN
No. 14229
LICENSED PROFESSIONAL ENGINEER
11/22/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD
ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22
2	PB SUBMITTAL	CDB	11/22/22

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

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

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

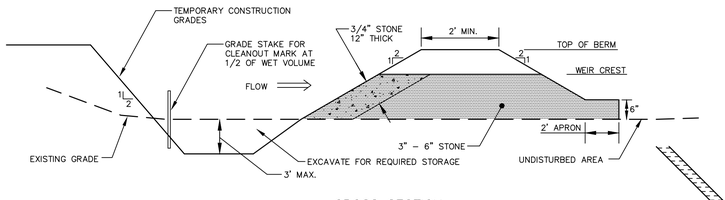
APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

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

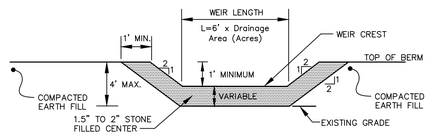
TITLE:
DETAILS

SHEET NUMBER:
13 (D-1)

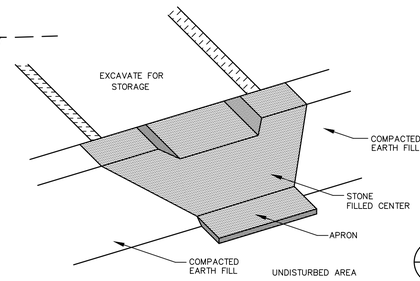
P4952



CROSS SECTION



PROFILE

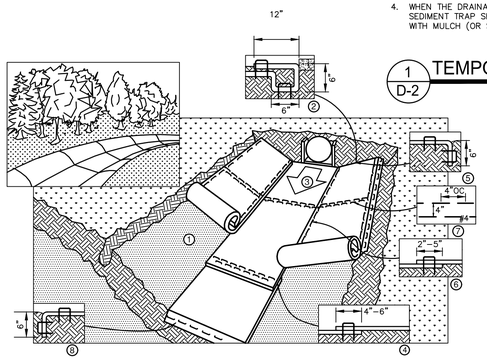


ISOMETRIC VIEW

MAINTENANCE

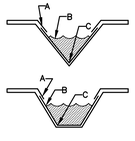
1. SEDIMENT SHALL BE REMOVED AND THE TRAP SHALL BE RESTORED TO ITS ORIGINAL CAPACITY WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN STORAGE VOLUME. SEDIMENT REMOVED SHALL BE DISPOSED OF SO THAT IT DOES NOT CAUSE A SEDIMENT PROBLEM AT ANOTHER LOCATION.
2. THE STRUCTURE SHALL BE CHECKED BI-WEEKLY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

1 D-2 TEMPORARY SEDIMENT TRAP (TST) OUTLET — NOT TO SCALE



NOTES

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (DEPENDING ON BLANKET TYPE) AND STAPLED. TO INSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.



CRITICAL POINTS:

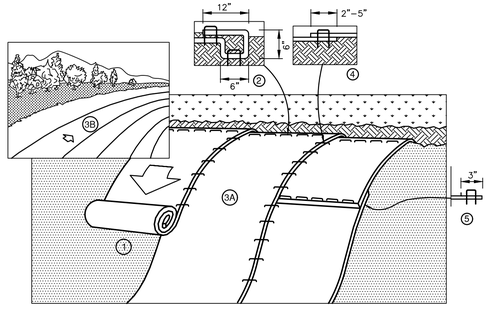
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTES:

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

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

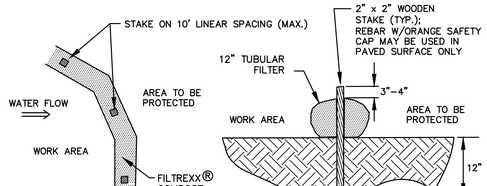
6 D-2 EROSION CONTROL BLANKET - SWALE — NOT TO SCALE



NOTES

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

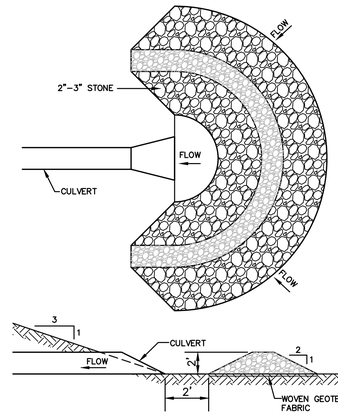
7 D-2 EROSION CONTROL BLANKET - SLOPE — NOT TO SCALE



NOTES:

1. SILTSOXX OR APPROVED EQUAL SHALL BE USED FOR TUBULAR SEDIMENT BARRIERS.
2. ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS.
3. COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
4. ALL SEDIMENT TRAPPED BY BARRIER SHALL BE DISPOSED OF PROPERLY.

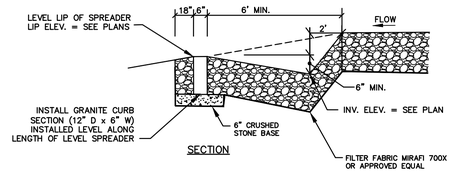
2 D-2 TUBULAR SEDIMENT BARRIER — NOT TO SCALE

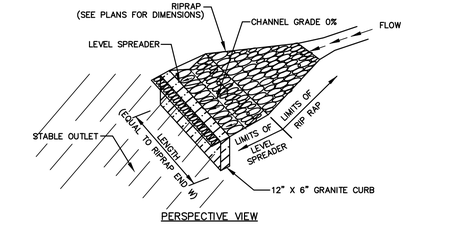


NOTES:

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

4 D-2 TEMPORARY CULVERT INLET PROTECTION CHECK DAM — NOT TO SCALE

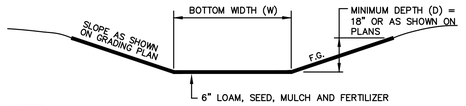




NOTES

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

8 D-2 LEVEL SPREADER — NOT TO SCALE

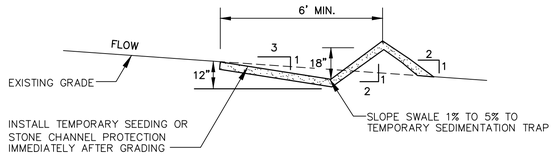


NOTES

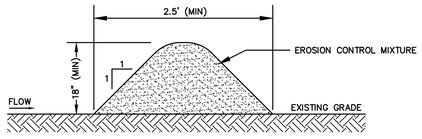
1. THE FOUNDATION AREA OF THE SWALE SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
2. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE DESIGN CRITERIA AND BE FREE OF IRREGULARITIES.
3. EARTH FILLS REQUIRED TO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

3 D-2 VEGETATED SWALE — NOT TO SCALE

SWALE SHALL BE FREE OF IRREGULARITIES WHICH MAY CAUSE PONDING. COMPACT FILLS AS NECESSARY TO STABILIZE MATERIAL.



5 D-2 TEMPORARY DIVERSION SWALE — NOT TO SCALE



NOTES

1. ORGANIC FILTER BERMS MAY BE UTILIZED IN LIEU OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
2. THE EROSION CONTROL MIXTURE USED IN FILTER BERMS SHALL BE A WELL-GRADED MIX OF PARTICLE SIZES THAT MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER, STUMP GRINDINGS, SHREDDED OR COMPOSTED BARK, AND/OR ACCEPTABLE MANUFACTURED PRODUCTS AND SHALL BE FREE OF REFUSE, PHYSICAL CONTAMINANTS AND MATERIAL TOXIC TO PLANT GROWTH. EROSION CONTROL MIXTURE SHALL MEET THE FOLLOWING STANDARDS:
   a) THE ORGANIC CONTENT SHALL BE 80-100% OF DRY WEIGHT.
   b) PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN, AND 70-85% PASSING A 0.75" SCREEN.
   c) THE ORGANIC PORTION SHALL BE FIBROUS AND ELONGATED.
   d) LARGE PORTIONS OF SILTS, CLAYS, OR FINE SANDS SHALL NOT BE INCLUDED IN THE MIXTURE.
   e) SOLUBLE SALTS CONTENT SHALL BE >4.0mmhos/cm.
   f) THE pH SHALL BE BETWEEN 5.0 AND 8.0.
3. ORGANIC FILTER BERMS SHALL BE INSTALLED ALONG A RELATIVELY LEVEL CONTOUR. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BERM.
4. ON SLOPES LESS THAN 5%, OR AT THE BOTTOM OF SLOPES NO STEEPER THAN 3:1 AND UP TO 20' LONG, THE BERM SHALL BE A MINIMUM OF 12" HIGH (AS MEASURED ON THE UPHILL SIDE) AND A MINIMUM OF 36" WIDE. ON LONGER AND/OR STEEPER SLOPES, THE BERM SHALL BE TALLER AND WIDER TO ACCOMMODATE THE POTENTIAL FOR ADDITIONAL RUNOFF (MAXIMUM HEIGHT SHALL NOT EXCEED 2').
5. FROZEN GROUND, OUTCROPS OF BEDROCK, AND VERY ROOTED FORESTED AREAS PRESENT THE MOST PRACTICAL AND EFFECTIVE LOCATIONS FOR ORGANIC FILTER BERMS. OTHER BMP'S SHOULD BE USED AT LOW POINTS OF CONCENTRATED RUNOFF, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS, AND AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT HAVE A LARGE CONTRIBUTING AREA.
6. SEDIMENT SHALL BE REMOVED FROM BEHIND THE FILTER BERMS WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE BERM.
7. ORGANIC FILTER BERMS MAY BE LEFT IN PLACE ONCE THE SITE IS STABILIZED PROVIDED ANY SEDIMENT DEPOSITS TRAPPED BY THEM ARE REMOVED AND DISPOSED OF PROPERLY.
8. FILTER BERMS ARE PROHIBITED AT THE BASE OF SLOPES STEEPER THAN 8% OR WHERE THERE IS FLOWING WATER WITHOUT THE SUPPORT OF ADDITIONAL MEASURES SUCH AS SILTFENCE.

9 D-2 ORGANIC FILTER BERM — NOT TO SCALE

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



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ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
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APPROVED BY: EDW
DRAWING FILE: 4952-DETAILS.dwg

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

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

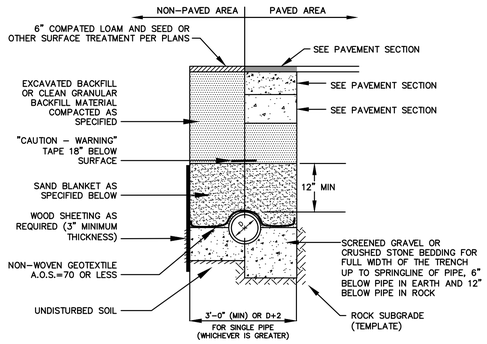
APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

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

TITLE:
DETAILS

SHEET NUMBER:
14 (D-2)

P4952



NOTES

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

SAND BLANKET/BARRIER

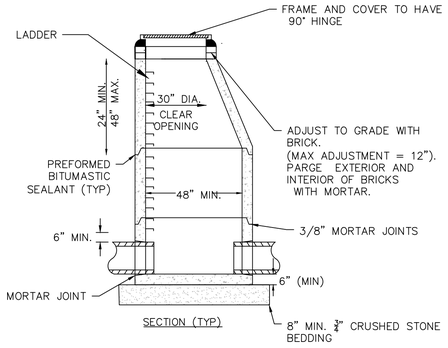
SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 - 100
200	0 - 15

SCREENED GRAVEL OR CRUSHED STONE BEDDING*

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

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

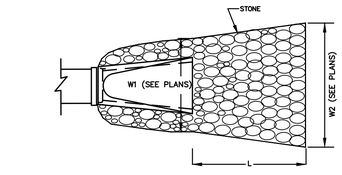
1 D-3 DRAINAGE TRENCH — NOT TO SCALE



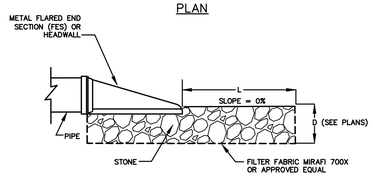
NOTES

1. CORINGS TO BE SEPARATED BY 6" (MINIMUM) OF MONOLITHIC SECTION
2. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4000 psi).
3. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
4. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
5. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
6. ALL MANHOLE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
7. USE H-20 LOADING SLAB TOP SECTION IN LIEU OF ECCENTRIC TOP WHERE PIPE INVERT IS WITHIN 4 FT OF GRADE.
8. CITY OF DOVER INSTALLS STEPS IN DRAIN MANHOLES.

2 D-3 DRAIN MANHOLE DETAIL — NOT TO SCALE



PLAN



SECTION

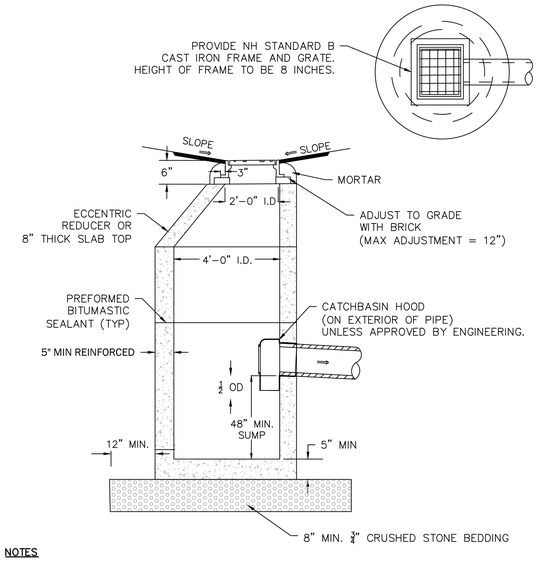
MAINTENANCE

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

CONSTRUCTION SPECIFICATIONS

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

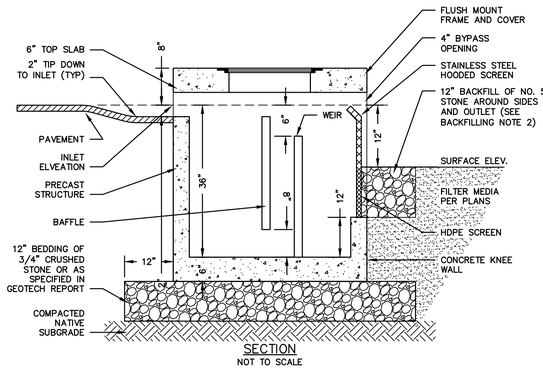
3 D-3 RIPRAP OUTLET PROTECTION — NOT TO SCALE



NOTES

1. ENTIRE STRUCTURE SHALL BE H-20 LOAD RATED. PROVIDE MANUFACTURER REINFORCEMENT DETAILS TO THE CITY ENGINEER UPON REQUEST. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4000 PSI).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. USE H20 LOADING SLAB TOP SECTION IN LIEU OF ECCENTRIC TOP WHERE PIPE INVERT IS WITHIN 4' OF FINISH GRADE.
7. FRAME AND GRATE DIMENSIONS ARE TYPICAL BUT MAY VARY BASED ON PRODUCT SELECTED OR EQUIVALENT APPROVED BY THE ENGINEER.

4 D-3 CATCH BASIN — NOT TO SCALE



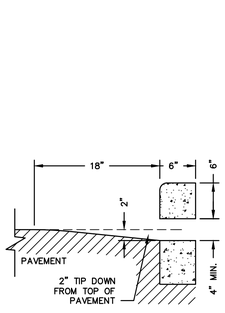
NOTES

INSTALLATION -

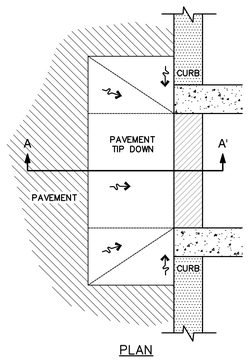
1. PLACE THE PRECAST SYSTEM TO NECESSARY ELEVATION.
2. VERIFY ELEVATIONS FOR ADJACENT CURBS, EDGE OF PAVEMENT, PAVEMENT GRADING FOR INLET GRATE FOR PRETX-DROP, SIDEWALK, PIPE INVERTS FOR INLETS AND OUTLETS, OUTLET INVERT FOR KNEE WALL.
3. VERIFY ELEVATIONS FOR ADJACENT CURBS.
4. VERIFY EDGE OF PAVEMENT TIP DOWN PAVEMENT GRADING FOR INLET GRATE.
5. VERIFY CURB ELEVATION IN RELATION TO PAVEMENT AND TIP DOWN.
6. VERIFY OUTLET INVERT FOR KNEE WALL IN RELATION TO FILTER MEDIA.
7. INSTALL BAFFLES, WEIR, AND SCREENS AS INDICATED ON DRAWINGS.
8. VERIFY MAINTENANCE ACCESS THROUGH GRATE OR COVER AND CLEARANCE FOR VACTOR.
9. INSTALL TOP OF STRUCTURE LEVEL WITH ADJACENT CURB OR SIDEWALK AS PER MANUFACTURERS SPECIFICATIONS.
10. ENGINEER FIELD VISIT REQUIRED PRIOR TO BACKFILLING.

BACKFILLING -

1. BACKFILL WITH APPROVED SOIL AND STONE TO THE DESIGN GRADE AS SPECIFIED IN THE DRAWINGS.
2. BACKFILL WITH 12" OF NO. 57 STONE AROUND REAR, LEFT, AND RIGHT SIDES TO LEVEL WITH TOP OF HDPE SCREEN. DO NOT MATCH NO. 57 STONE TO OUSF OR RAINGARDEN UNDERDRAIN STONE.
3. BACKFILL WITH BIORETENTION SOIL MIX BEYOND STONE BACKFILL TO EQUAL ELEVATION OF THE TOP OF HDPE SCREEN.
4. DO NOT BACKFILL SOIL OR STONE AGAINST STAINLESS SCREEN.
5. DO NOT COMPACT ADJACENT FILTRATION SYSTEM SOIL WITH MECHANICAL EQUIPMENT.
6. STABILIZE All REMAINING DISTURBED AREAS AND SIDE SLOPES WITH SEEDING, HYDROSEEDING, AND/ OR EROSION CONTROL BLANKETS AS INDICATED ON DRAWINGS.

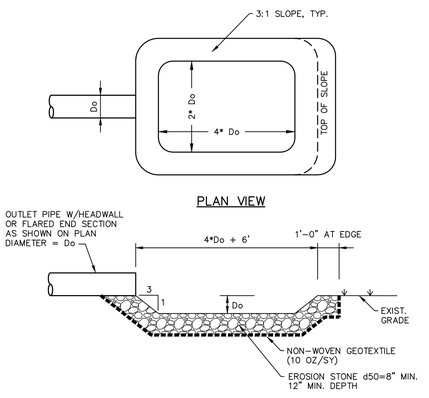


SECTION A-A'



PLAN

5 D-3 PRETEX CURB INLET PRETREATMENT DEVICE — NOT TO SCALE



PLAN VIEW

SECTION

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT PLUNGE POOL TO THE WIDTHS AND LENGTHS SHOWN ON THE PLAN.
2. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIPRAP SHALL BE PREPARED TO LINES AND GRADES SHOWN ON THE PLANS.
3. EROSION STONE USED FOR THE PLUNGE POOL SHALL MEET THE FOLLOWING GRADATION.
4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE EROSION STONE. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 18 INCHES.
5. THE EROSION STONE MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

6 D-3 PLUNGE POOL DETAIL — NOT TO SCALE

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

STATE OF NEW HAMPSHIRE — CORY D. BELDEN No. 14239 LICENSED PROFESSIONAL ENGINEER
11/22/22

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ISSUED FOR: PLANNING BOARD

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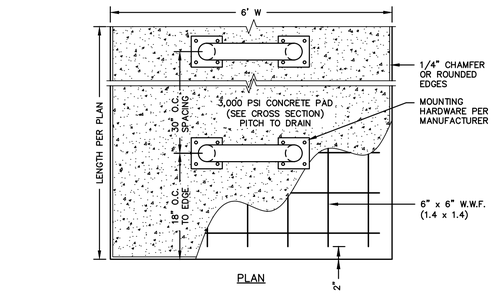
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PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT
(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:
DETAILS

SHEET NUMBER:
15 (D-3)

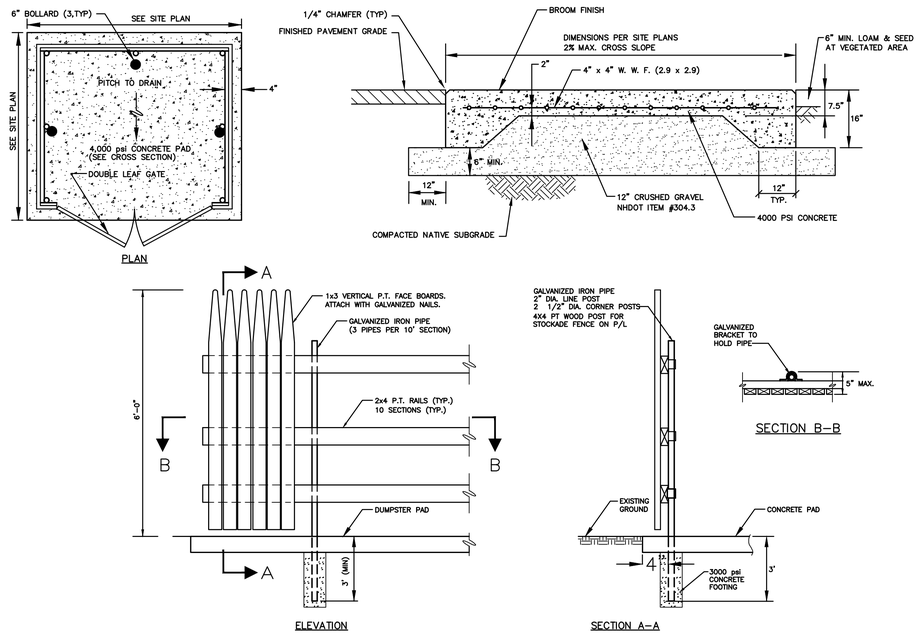
P4952



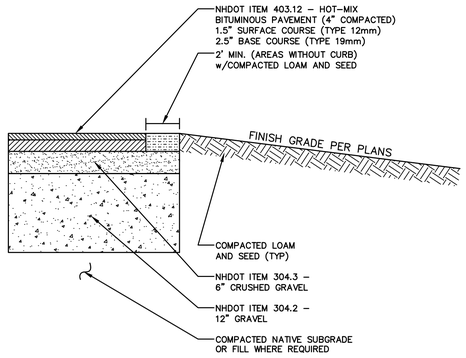
NOTES

1. ALL STEEL PIPE SHALL MEET ASTM A53.
2. ALL STEEL PLATES SHALL MEET ASTM A36.
3. RACK(S) TO BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.

1 D-4 BICYCLE RACK AND PAD NOT TO SCALE



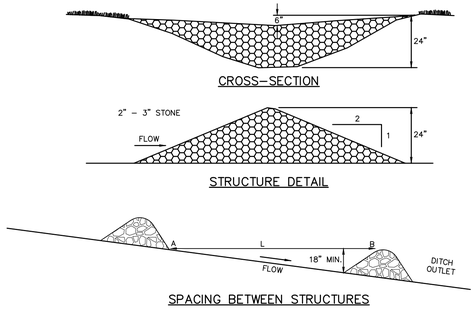
2 D-4 DUMPSTER PAD AND ENCLOSURE DETAIL NOT TO SCALE



NOTES

1. PROJECT GEOTECHNICAL REPORT MAY REQUIRE A DIFFERENT PAVEMENT CROSS SECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING AND FOLLOWING ALL RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. IN THE EVENT THAT THE REPORT AND CIVIL PLANS DIFFER, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. ALL EXISTING FILL, BURIED ORGANIC MATTER, CLAY, LOAM, MUCK, AND/OR OTHER QUESTIONABLE MATERIAL SHALL BE REMOVED FROM BELOW ALL PAVEMENT, SHOULDERS AND UNDERGROUND PIPING/UTILITIES TO DEPTHS RECOMMENDED IN GEOTECHNICAL REPORT.
3. SUBGRADE SHALL BE PROOFROLLED A MINIMUM OF 6 PASSES WITH A 10-TON VIBRATORY COMPACTOR OPERATING AT PEAK RATED FREQUENCY OR BY MEANS APPROVED BY THE ENGINEER.
4. FILL BELOW PAVEMENT GRADES SHALL BE GRANULAR BORROW COMPACTED PER DOT REQUIREMENTS.
5. SITEWORK CONTRACTOR SHALL COORDINATE GEOTECHNICAL ENGINEERING INSPECTIONS WITH THE CONSTRUCTION MANAGER PRIOR TO PLACING GRAVELS.
6. TACK COAT SHALL BE APPLIED BETWEEN SUCCESSIVE LIFTS OF ASPHALT.
7. THE BITUMINOUS PAVEMENT SHALL BE COMPACTED TO 95 PERCENT OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D-2041. THE BASE AND SUBBASE MATERIALS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THEIR MAXIMUM DRY DENSITIES AS DETERMINED BY ASTM D-1557.

3 D-4 SITE PAVEMENT CROSS SECTION NOT TO SCALE
(VERIFY WITH GEOTECHNICAL RECOMMENDATIONS)



1. L = DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION
2. CHECK DAM SHALL BE CONSTRUCTED OF 2" TO 3" STONE WITH COMPLETE COVERAGE OF DITCH OR SWALE TO INSURE THAT THE CENTER OF THE STRUCTURE IS LOWER THAN THE EDGES.

MAINTENANCE

TEMPORARY GRADE STABILIZATION STRUCTURES SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED STORMS. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED, AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.

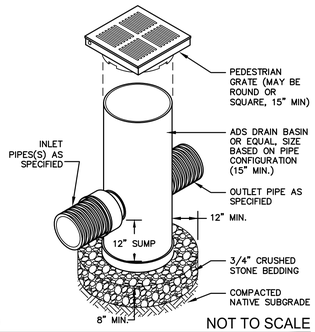
CONSTRUCTION SPECIFICATIONS

1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
3. SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATE VEGETATIVE BMP.
4. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.

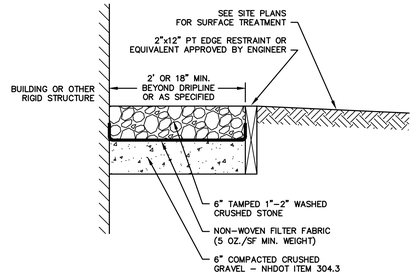
5 D-4 STONE CHECK DAM NOT TO SCALE

NOTES:

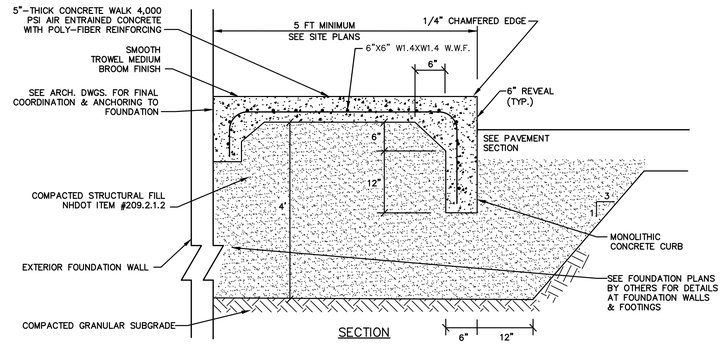
1. FRAMES AND GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN AND DETAILS.
3. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE, N-12HP AND PVC SEWER.
4. INLINE DRAIN TO BE PVC, DIAMETER AS SPECIFIED AND AS MANUFACTURED BY ADS OR APPROVED EQUAL.
5. THE CONTRACTOR SHALL INSTALL THE DRAIN BASIN PER THE MANUFACTURER'S RECOMMENDATIONS AND AS SHOWN ON THE DRAWINGS.
6. FOR INSTALLATION IN PEDESTRIAN AND LANDSCAPE AREAS ONLY.



4 D-4 YARD DRAIN (YD) NOT TO SCALE



6 D-4 STONE DRIP EDGE NOT TO SCALE



7 D-4 CONCRETE SLAB (SIDEWALKS) DETAILS @ BLDG. ENTRANCE NOT TO SCALE

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No. 14239
LICENSED PROFESSIONAL ENGINEER
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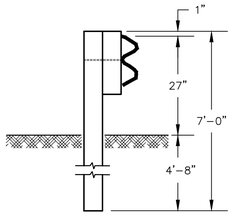
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SHEET NUMBER:
16 (D-4)

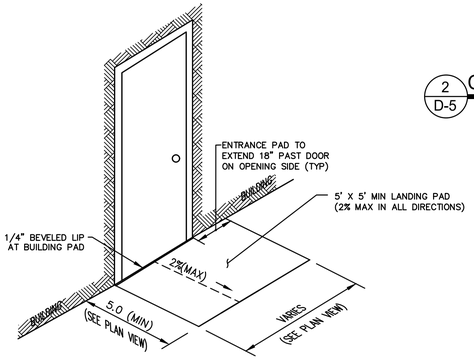
P4952



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

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

1 D-5 "W" BEAM GUARDRAIL DETAIL (WOOD POSTS) NOT TO SCALE

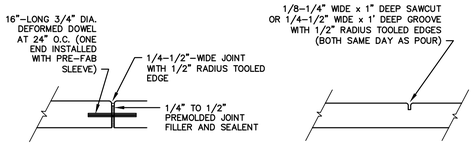


4 D-5 ADA ACCESSIBLE ENTRANCE PAD NOT TO SCALE

NOTES APPLICABLE TO ALL CURB RAMPS:

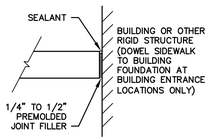
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF AN ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 2%
2. THE MAXIMUM ALLOWABLE RUNNING SLOPE OF AN ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%
3. THE MAXIMUM ALLOWABLE RUNNING SLOPE OF AN ACCESSIBLE ROUTE (SIDEWALK) CURB RAMP SHALL BE 8.3% FOR A MAXIMUM ELEVATION CHANGE OF 6".
4. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
5. BASE OF RAMP SHALL BE GRADED TO PREVENT THE PONDING OF WATER.
6. SEE CONCRETE SIDEWALK SECTION FOR RAMP CONSTRUCTION.
7. ALL CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AMERICANS WITH DISABILITIES ACT (ADA), PROWAG R305.21 AND ALL APPLICABLE CODES.
8. FLUSH CURB SECTIONS SHALL HAVE A MAXIMUM LIP REVEAL OF 1/4" WITH A BEVEL AT THE EDGE OF PAVEMENT.
9. EDGES OF CONCRETE SIDEWALK FOOTINGS ALONG FLUSH CURBS SHALL BE HAUNCHED SO AS TO EXTEND TO A MINIMUM DEPTH OF 1' BELOW FINISH GRADE.
10. NO RAMP SHALL BE LESS THAN 4' IN WIDTH.
11. CURB RAMPS SHALL HAVE A FLAT 2% MAX LANDING AT THE TOP AND BOTTOM OF THE RAMPS WHEN THERE IS A CHANGE IN DIRECTION.

7 D-5 CURB RAMP NOTES NOT TO SCALE

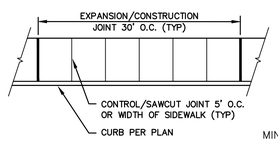


EXPANSION/CONSTRUCTION JOINT

CONTROL/SAWCUT JOINT

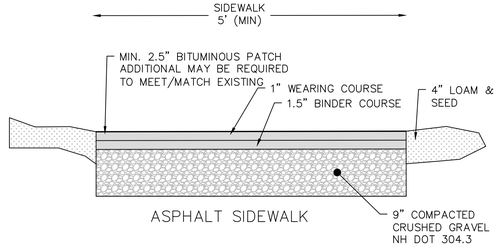


ISOLATION JOINT

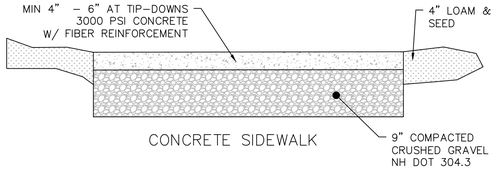


PLAN

2 D-5 CONCRETE SIDEWALK NOT TO SCALE



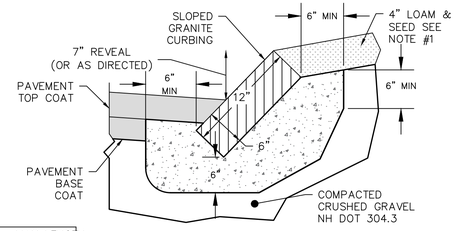
ASPHALT SIDEWALK



CONCRETE SIDEWALK

NOTES:

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

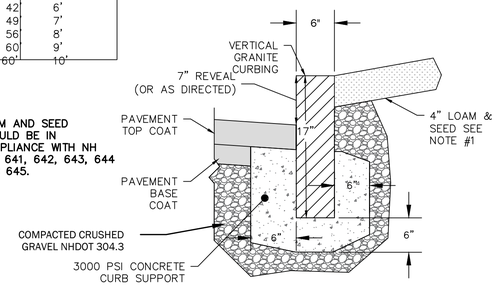


RADIUS	MAX LENGTH
< 21'	USE CURVED CURB
12'	3'
22' - 28	4'
29' - 35	5'
36' - 42	6'
43' - 49	7'
50' - 56	8'
57' - 60	9'
OVER 60'	10'

SLOPED GRANITE CURB

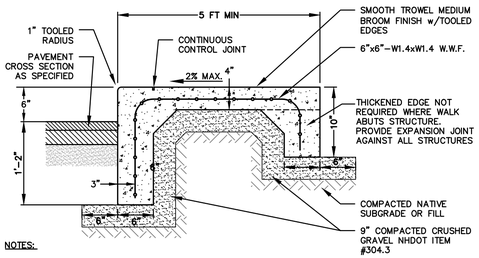
NOTES:

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



VERTICAL GRANITE CURB

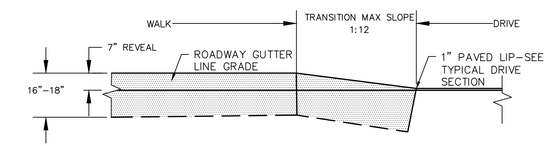
3 D-5 GRANITE CURBS NOT TO SCALE



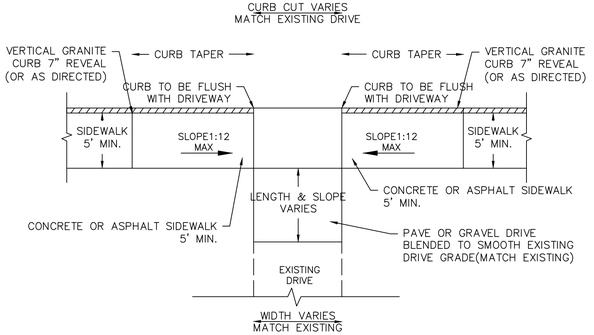
NOTES:

1. CONCRETE TO BE 4,000 PSI AIR ENTRAINED WITH POLY-FIBER REINFORCING.
2. JOINT SPACING TO BE EQUAL TO SIDEWALK WIDTH. SEE CONCRETE SIDEWALK DETAIL.
3. SEAL ALL JOINTS PER DETAILS AND SPECIFICATIONS.

6 D-5 MONOLITHIC CONCRETE CURB AND SIDEWALK

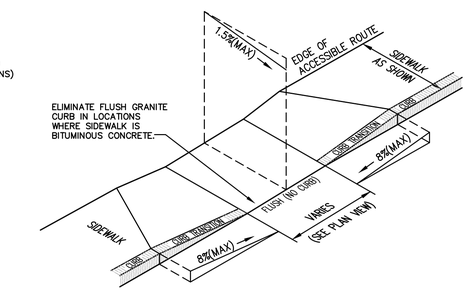


GRANITE CURB TRANSITION AT TIP DOWN

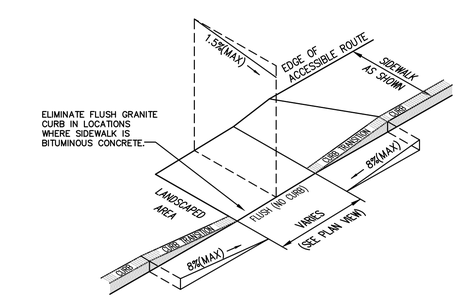


DRIVEWAY PLAN WITH SIDEWALK TIP DOWNS

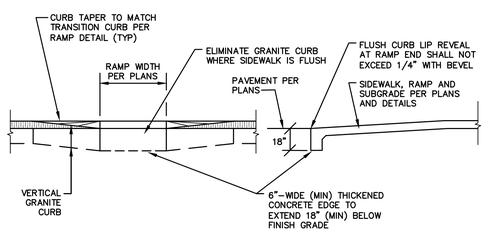
10 D-5 SIDEWALK TIPDOWN AT DRIVEWAY NOT TO SCALE



5 D-5 CURB RAMP (TYPE 'A') NOT TO SCALE



8 D-5 CURB RAMP (TYPE 'I') NOT TO SCALE



9 D-5 FLUSH CURB AT RAMP DETAIL NOT TO SCALE

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

STATE OF NEW HAMPSHIRE CORY D. BELDEN No. 14239 LICENSED PROFESSIONAL ENGINEER
11/22/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22
2	PB SUBMITTAL	CDB	11/22/22

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

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

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

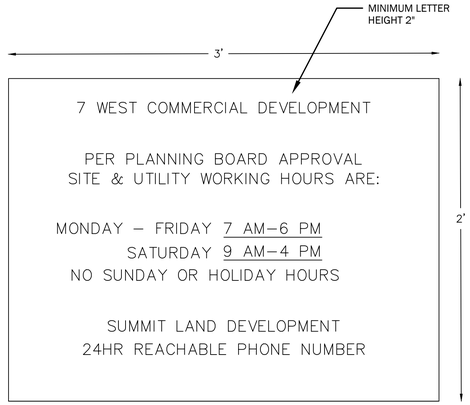
APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

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

TITLE:
DETAILS

SHEET NUMBER:
17 (D-5)

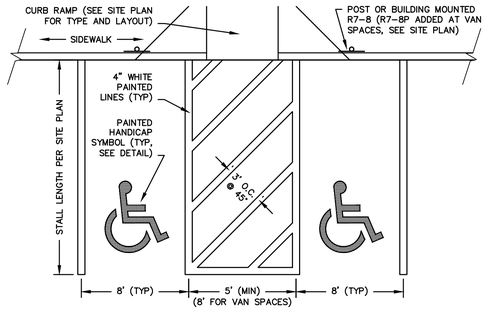
4952



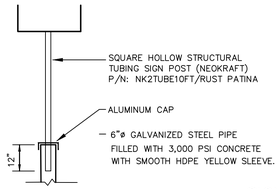
NOTES:

1. SIGN SHALL HAVE BLACK LETTERS ON A WHITE BACKGROUND
2. SIGN SHALL BE WEATHER RESISTANT AND SECURED TO THE GROUND

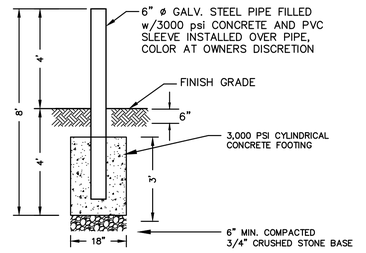
1 D-6 **CONSTRUCTION SIGN** NOT TO SCALE



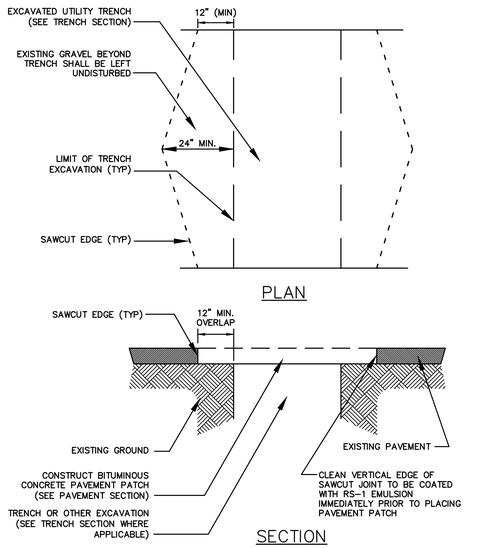
2 D-6 **ADA ACCESSIBLE PARKING STALL** NOT TO SCALE



SIGN INSTALLATION



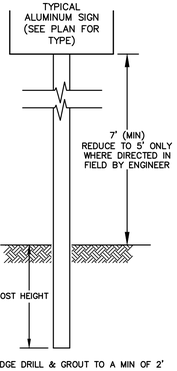
3 D-6 **BOLLARD** NOT TO SCALE

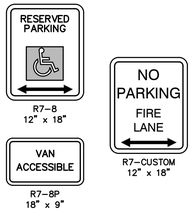


NOTES

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

4 D-6 **TYPICAL TRENCH PATCH** NOT TO SCALE





LENGTH: AS REQUIRED

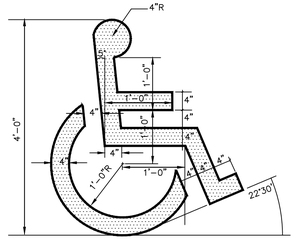
WEIGHT PER LINEAR FOOT: 1.50 LBS (MIN.)

STEEL: 2–3/8" 16 GAUGE RUST–RESISTANT GALVANIZED TUBULAR STEEL, 0.065" MIN. WALL THICKNESS

NOTES

1. ALL SIGNS SHALL MEET THE REQUIREMENTS OF AND BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

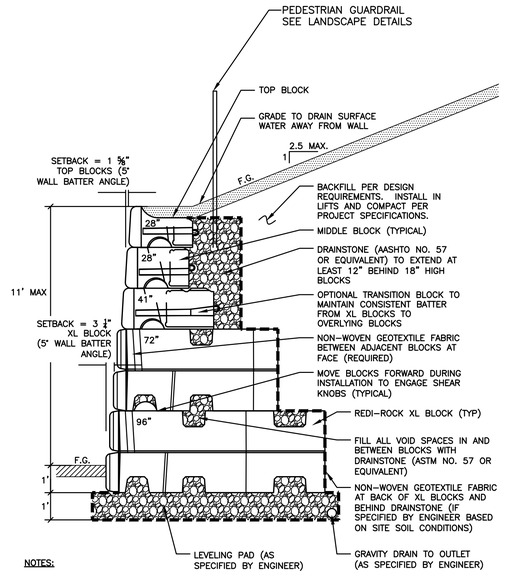
5 D-6 **SIGN DETAILS** NOT TO SCALE



NOTES

1. SYMBOL TO BE PAINTED IN ALL HANDICAPPED ACCESSIBLE SPACES IN WHITE PAINT (BLUE–PAINTED SQUARE BACKGROUND AND WHITE BORDER OPTIONAL).

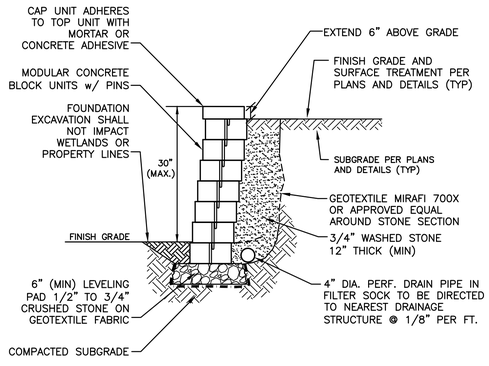
6 D-6 **PAINTED HANDICAP SYMBOL** NOT TO SCALE



NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY TEMPORARY SHORING, SHEETING AND/OR BRACING OF EXCAVATION WALLS AGAINST PROPERTY LINES OR OTHER AREAS THAT ARE NOT TO BE UNDERMINED.
2. WALL SHALL BE REDI–ROCK OR APPROVED EQUAL.
3. NO RETAINING WALL ELEMENTS SHALL EXTEND BEYOND THE LIMITS OF THE PROPRTY.
4. THIS DRAWING IS FOR REFERENCE ONLY. FINAL PROJECT DESIGNS, INCLUDING ALL CONSTRUCTION DETAILS, SHALL BE PREPARED BY A NH LICENSED PROFESSIONAL STRUCTURAL ENGINEER USING THE ACTUAL CONDITIONS OF THE PROPOSED SITE. FINAL WALL DESIGN MUST ADDRESS BOTH INTERNAL AND EXTERNAL DRAINAGE AND ALL MODES OF WALL STABILITY.
5. FINAL WALL DESIGN PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

7 D-6 **LARGE BLOCK RETAINING WALL** NOT TO SCALE



NOTES:

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

8 D-6 **SMALL BLOCK RETAINING WALL** NOT TO SCALE

ALTUS ENGINEERING, INC.
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STATE OF NEW HAMPSHIRE CORY D. BELDEN No. 14239 LICENSED PROFESSIONAL ENGINEER
11/22/22

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ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22
2	PB SUBMITTAL	CDB	11/22/22

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

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

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

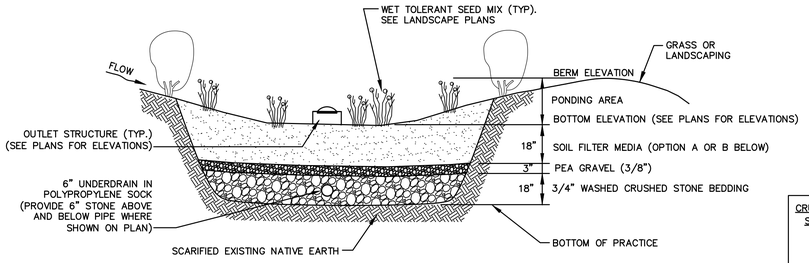
APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

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

TITLE:
DETAILS

SHEET NUMBER:
18 (D-6)

P4952



NOTES

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

MAINTENANCE REQUIREMENTS

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

DESIGN REFERENCES

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

CRUSHED STONE BEDDING *

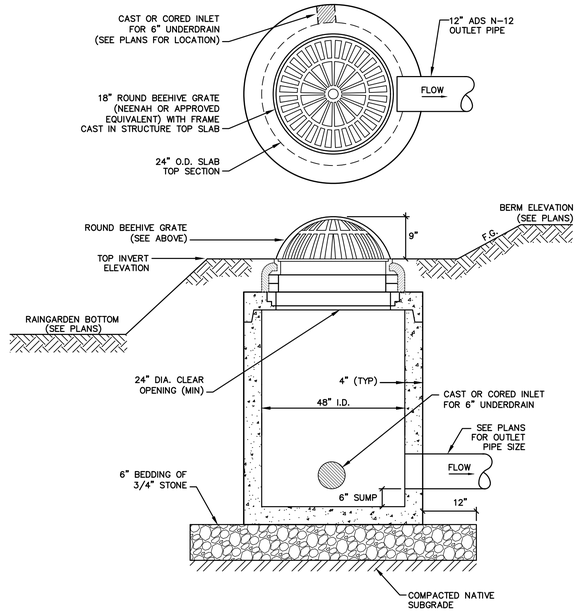
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	20 – 55
# 4	0 –10
# 8	0 – 5

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

FILTER MEDIA MIXTURES

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

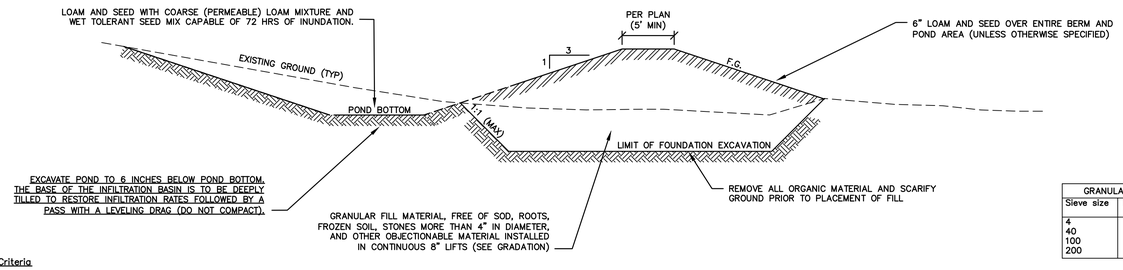
1 D-7 TYPICAL RAINGARDEN — NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. OUTLET STRUCTURE SHALL BE CONSTRUCTED ONSITE OR PRECAST TO EQUAL DIMENSIONS.
2. ALL JOINTS AND PIPE OPENINGS SHALL BE SEALED WATERTIGHT WITH MORTAR.
3. STRUCTURE IS TO BE BUILT TO WITHSTAND H20 LOADING.
4. SOIL UNDERLYING THE STRUCTURE'S GRAVEL BASE PAD AND THE PAD ITSELF ARE TO BE COMPACTED TO 95% MODIFIED PROCTOR.
5. ALL CONCRETE SHALL BE 4,000 PSI MINIMUM.

2 D-7 OUTLET STRUCTURE DETAIL — NOT TO SCALE



GRANULAR FILL GRADATION

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

Berm Construction Criteria

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

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

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

   Foundation areas shall be kept free of standing water when fill is being placed on them.

2. Granular Fill Placement -- The material placed in the fill shall be free of sod, roots, frozen soil, stones more than 4 inches in diameter and other objectionable material.

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

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

   The distribution and gradation of materials shall be such that no lenses, pockets, streaks, or layers of material differ substantially in texture of gradation from the surrounding material. If it is necessary to use materials of varying texture and gradation, the more impervious material shall be placed in the center and upstream parts of the fill. If zoned fills of substantially differing materials are specified, the zones shall be placed according to the lines and grades shown on the drawings. The complete work shall conform to the lines, grades, and elevations shown on the drawings or as staked in the field.

3. Moisture Control -- The moisture content of the fill material shall be adequate for obtaining the required compaction. Material that is too wet shall be dried to meet this requirement, and material that is too dry shall have water added and mixed until the requirement is met.

4. Compaction of berms -- Construction equipment shall be operated over the areas of each layer of fill to insure that the required compaction is obtained. Special equipment shall be used if needed to obtain the required compaction.

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

   Fill adjacent to structures, pipe conduits, and drainage diaphragm shall be compacted to a density equivalent to that of the surrounding fill by means of hand tamping or manually directed power tamper or plate vibrators. Fill adjacent to concrete structures shall not be compacted until the concrete is strong enough to support the load.

5. Protection -- A protective cover of vegetation shall be established on all exposed surfaces of the embankment, spillway, and borrow area in accordance with the plans. If soil or climatic conditions preclude the use of vegetation and protection is needed, non-vegetative means, such as mulches or gravel, may be used. In some places, temporary vegetation may be used until conditions permit establishment of permanent vegetation.

Maintenance

Maintenance is necessary if detention/retention basins are to continue to function as originally designed. A local government, a designated group such as a homeowners' association, or an individual must be assigned responsibility for maintaining the structures and the basin area. A maintenance plan should be developed that outlines the maintenance operations and a schedule for carrying out the procedures.

The following should be considered in formulating a maintenance plan:

1. Embankment -- The embankment should be inspected annually to determine if rodent burrows, wet areas, or erosion of the fill is taking place.
2. Vegetation -- The vegetated areas of the structure should be protected from damage by fire, grazing, traffic, and dense weed growth. Lime and fertilizer should be applied as necessary as determined by soil tests. Trees and shrubs should be kept off the embankment and emergency spillway areas.
3. Sediment -- Sediment should be continually checked in the basin. When sediment accumulations reach the predetermined design elevation, then the sediment should be removed and properly disposed of.
4. Safety Inspections -- All permanent impoundments should be inspected by a qualified professional engineer on a periodic basis. If there is potential for significant damage or loss of life downstream, then the inspection should be carried out annually.

3 D-7 BERM DETAIL — NOT TO SCALE

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STATE OF NEW HAMPSHIRE
CORY D. BELDEN
No. 14229
LICENSED
PROFESSIONAL ENGINEER
11/22/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22
2	PB SUBMITTAL	CDB	11/22/22

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

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

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

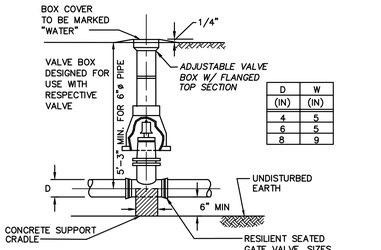
APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

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

TITLE:
DETAILS

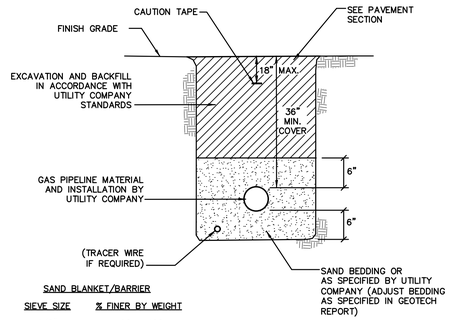
SHEET NUMBER:
19 (D-7)

P4952



D (IN)	W (IN)
4	5
6	5
8	9

1 D-8 WATER VALVE — NOT TO SCALE



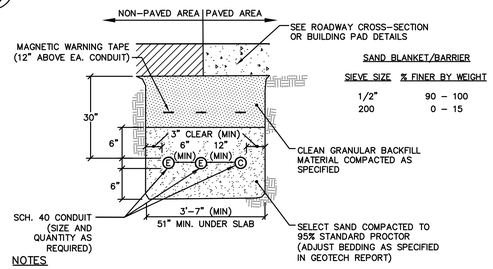
SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES

1. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY AND PROVIDE ALL EXCAVATION, COMPACTION AND BACKFILL REQUIRED FOR PIPE INSTALLATION.
2. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

4 D-8 GAS TRENCH — NOT TO SCALE



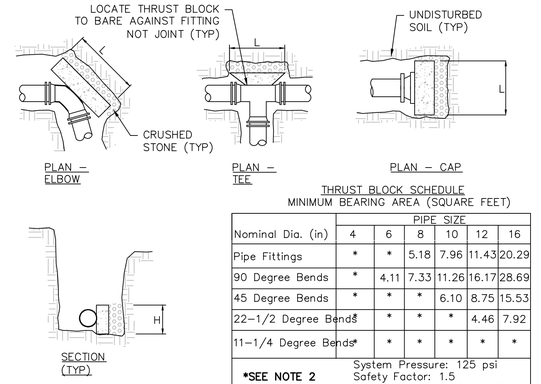
SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES

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

5 D-8 ELECTRIC / COMMUNICATION TRENCH — NOT TO SCALE



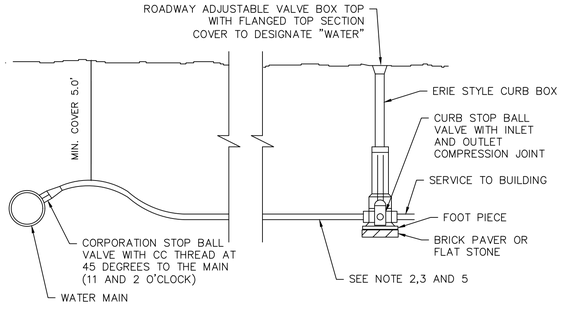
THRUST BLOCK SCHEDULE
MINIMUM BEARING AREA (SQUARE FEET)

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

NOTES:

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

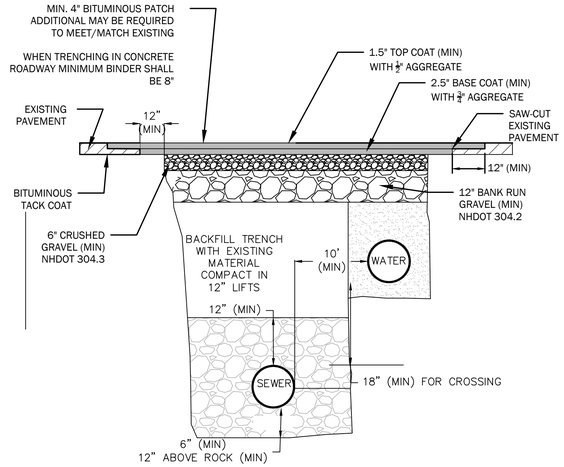
2 D-8 THRUST BLOCKING — NOT TO SCALE



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. ¾"– COPPER, CTS
   1"– COPPER, CTS
   2"– CTS, HDPE, IPS

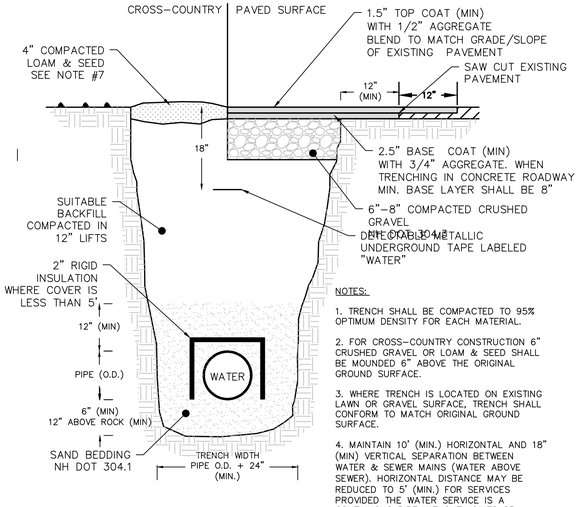
6 D-8 WATER SERVICE CONNECTION — NOT TO SCALE



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.

3 D-8 CITY OF DOVER TYPICAL TRENCH — 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.

7 D-8 WATER MAIN TRENCH — NOT TO SCALE

ALTUS ENGINEERING, INC.
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STATE OF NEW HAMPSHIRE — CORY D. BELDEN No. 14239 LICENSED PROFESSIONAL ENGINEER
11/22/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22
2	PB SUBMITTAL	CDB	11/22/22

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

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

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

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

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

TITLE:
DETAILS

SHEET NUMBER:
20 (D-8)

P4952

MANHOLE NOTES:

1. IT IS THE INTENTION OF THE NHDES WASTEWATER BUREAU THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY BY THE BUREAU FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH REINFORCEMENT IN ANY APPROVED MANHOLE. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE, A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
2. BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED.
3. PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.
4. LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE NHDES REQUIREMENTS. SEE SEWER SPECIFICATIONS – 02500 SEWERS AND 02550 SEWER MANHOLES.
5. INVERTS AND SHELVES MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES, OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
6. FRAMES AND COVERS MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. THE MANHOLE COVER SHALL HAVE THE WORD "SEWER" IN 3-INCH LETTERS CAST INTO THE TOP SURFACE.
7. BEDDING SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33.

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

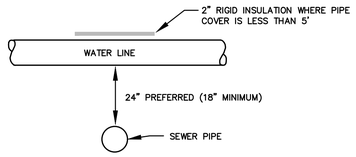
   WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1-1/2" TO 1/2" SHALL BE USED.
8. CONCRETE FOR DROP SUPPORT SHALL CONFORM TO THE REQUIREMENT FOR CLASS A (3000 LBS.) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS:

   CEMENT 6.0 BAGS PER CUBIC YARD
   WATER 5.75 GALLONS PER BAG CEMENT
   MAXIMUM SIZE OF AGGREGATE 1 INCH
9. FLEXIBLE JOINT A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:

   PVC PIPE – 60"
   RCP & CI PIPE – ALL SIZES – 48"
   AC & VC PIPE – UP THROUGH 12" DIAMETER – 18"
   AC & VC PIPE – LARGER THAN 12" DIAMETER – 36"
10. SHALLOW MANHOLE IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.

STANDARD TRENCH NOTES

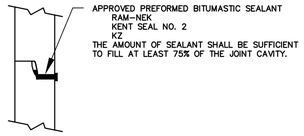
1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWING.
2. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. WHERE ORDERED BY THE ENGINEER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



NOTES

1. A MINIMUM HORIZONTAL DISTANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN WATER AND SEWER MAINS. A MINIMUM VERTICAL DISTANCE WITH WATER ABOVE SEWER SHALL BE MAINTAINED.
2. SEWER PIPE JOINTS SHALL BE LOCATED A MINIMUM OF 6 FEET HORIZONTALLY FROM WATER MAIN.
3. IF THE REQUIRED CONFIGURATION CANNOT BE MET, THE SEWER MAIN SHALL BE CONSTRUCTED TO MEET THE NHDES REQUIREMENTS FOR FORCE MAIN CONSTRUCTION.

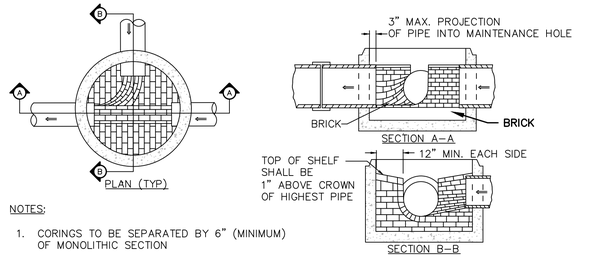
WATER MAIN / SEWER CROSSING NOT TO SCALE



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

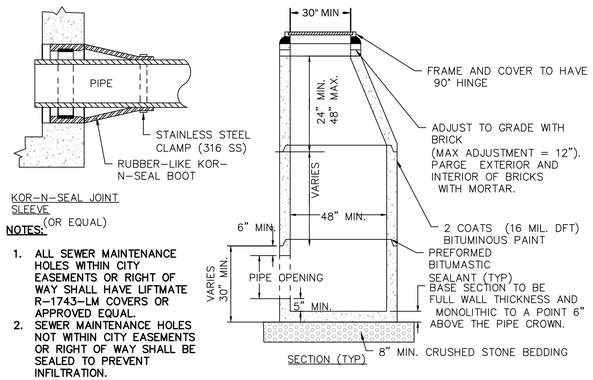
DETAIL-B
(APPROVED MANHOLE SECTION JOINTING METHODS)

1 D-9 SEWER MANHOLE JOINT DETAIL NOT TO SCALE



NOTES:

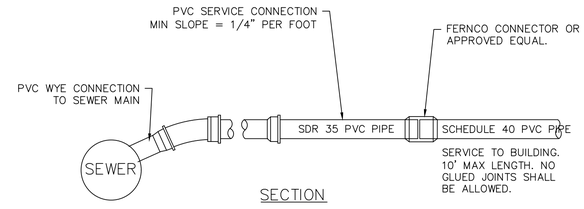
1. CORINGS TO BE SEPARATED BY 6" (MINIMUM) OF MONOLITHIC SECTION

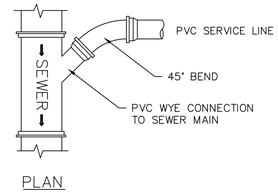


NOTES:

1. **ALL SEWER MAINTENANCE HOLES WITHIN CITY EASEMENTS OR RIGHT OF WAY SHALL HAVE LIFTMATE R-1743-LM COVERS OR APPROVED EQUAL.**
2. **SEWER MAINTENANCE HOLES NOT WITHIN CITY EASEMENTS OR RIGHT OF WAY SHALL BE SEALED TO PREVENT INFILTRATION.**

3 D-9 SEWER MANHOLE DETAILS NOT TO SCALE

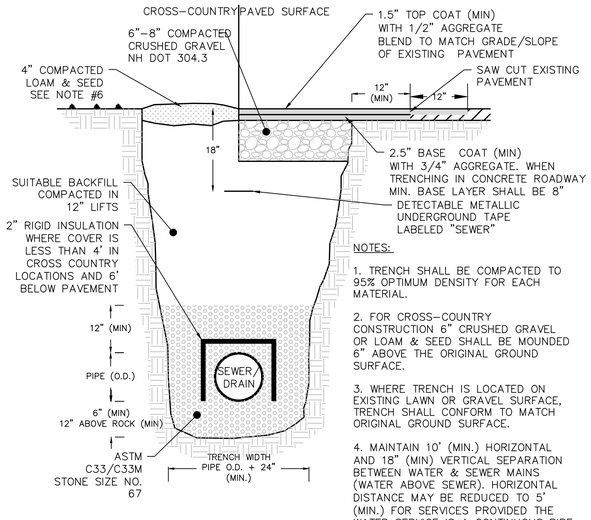




NOTES:

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

2 D-9 SEWER SERVICE NOT TO SCALE



NOTES:

1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY FOR EACH MATERIAL.
2. FOR CROSS-COUNTRY CONSTRUCTION 6" CRUSHED GRAVEL OR LOAM & SEED SHALL BE MOUNDED 6" ABOVE THE ORIGINAL GROUND SURFACE.
3. WHERE TRENCH IS LOCATED ON EXISTING LAWN OR GRAVEL SURFACE, TRENCH SHALL CONFORM TO MATCH ORIGINAL GROUND SURFACE.
4. MAINTAIN 10' (MIN.) HORIZONTAL AND 18" (MIN) VERTICAL SEPARATION BETWEEN WATER & SEWER MAINS (WATER ABOVE SEWER). HORIZONTAL DISTANCE MAY BE REDUCED TO 5' (MIN.) FOR SERVICES PROVIDED THE WATER SERVICE IS A CONTINUOUS PIPE WITHOUT JOINTS OR FITTINGS.
5. BACKFILL MATERIAL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE; DEBRIS, PAVEMENT, ORGANIC MATTER, TOP SOIL, MUCK, PEAT AND ROCKS OVER 6" IN LARGEST DIMENSION
6. LOAM AND SEED SHOULD BE IN COMPLIANCE WITH NH DOT 641, 642, 643, 644 AND 645.

4 D-9 SEWER TRENCH NOT TO SCALE

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

STATE OF NEW HAMPSHIRE CORY D. BELDEN No. 14229 LICENSED PROFESSIONAL ENGINEER
11/22/22

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: NOVEMBER 22, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22
1	TRC COMMENTS	CDB	10/05/22
2	FB SUBMITTAL	CDB	11/22/22

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

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

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

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

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

TITLE:
DETAILS

SHEET NUMBER:
21 (D-9)

P4952

ADVANCED DRAINAGE SYSTEMS, INC.

SiteASSIST by StormTech

FOR STORMTECH INSTRUCTIONS, DOWNLOAD THE INSTALLATION APP

SC-740 STORMTECH CHAMBER SPECIFICATIONS

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

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

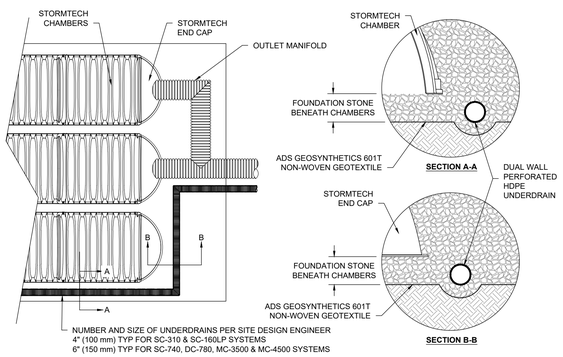
1. STORMTECH SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO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

NOTES FOR CONSTRUCTION EQUIPMENT

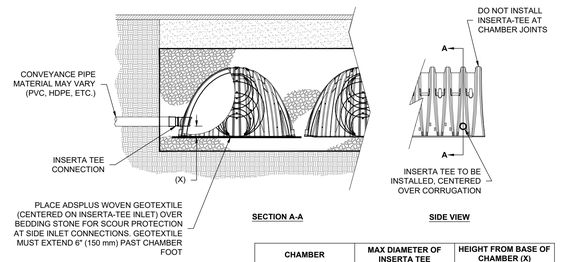
1. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE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

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

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



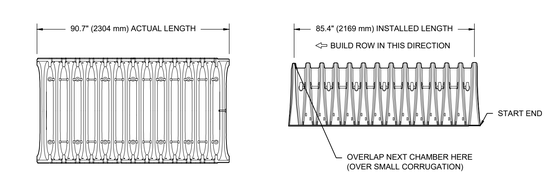
5 UNDERDRAIN DETAIL



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

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

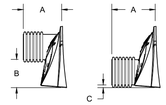
6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET	(2.12 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

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



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

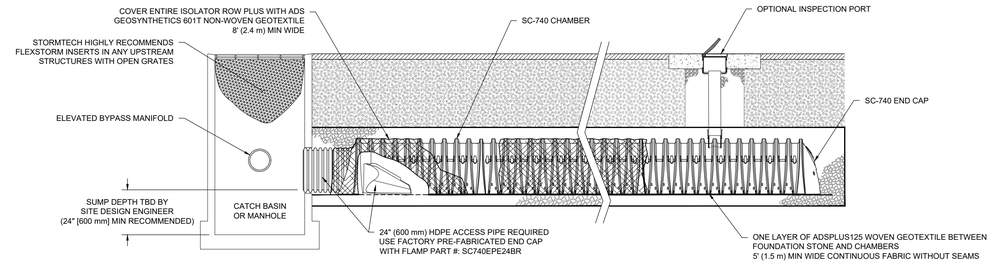
PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T /SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)
SC740EPE24BR*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

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

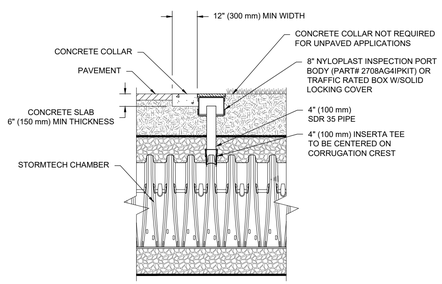
* FOR THE SC740EPE24B/SC740EPE24BR THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

2 SC-740 TECHNICAL SPECIFICATIONS



3 SC-740 ISOLATOR ROW PLUS DETAIL



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

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

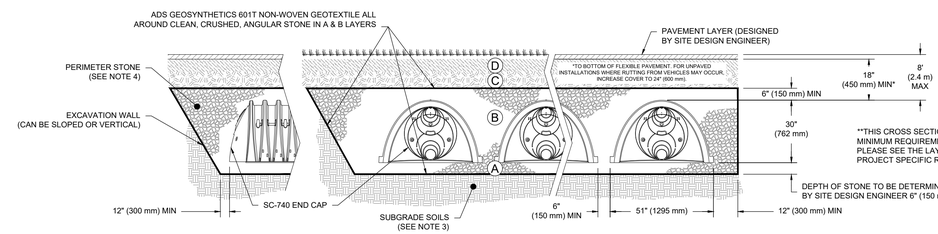
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

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

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

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



NOTES:

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

1 SC-740 CROSS SECTION DETAIL

DRAWN: | DATE:
REVIEWED: | PROJECT NO:
REV: | NOT TO SCALE

SC-740 STANDARD DETAILS

StormTech
Chamber Systems
70 INWOOD ROAD, SUITE 3 | ROCKY HILL, CT 06067
866-329-8791 | 888-892-2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

ADS
ADVANCED DRAINAGE SYSTEMS, INC.

SHEET
22 (D-10)

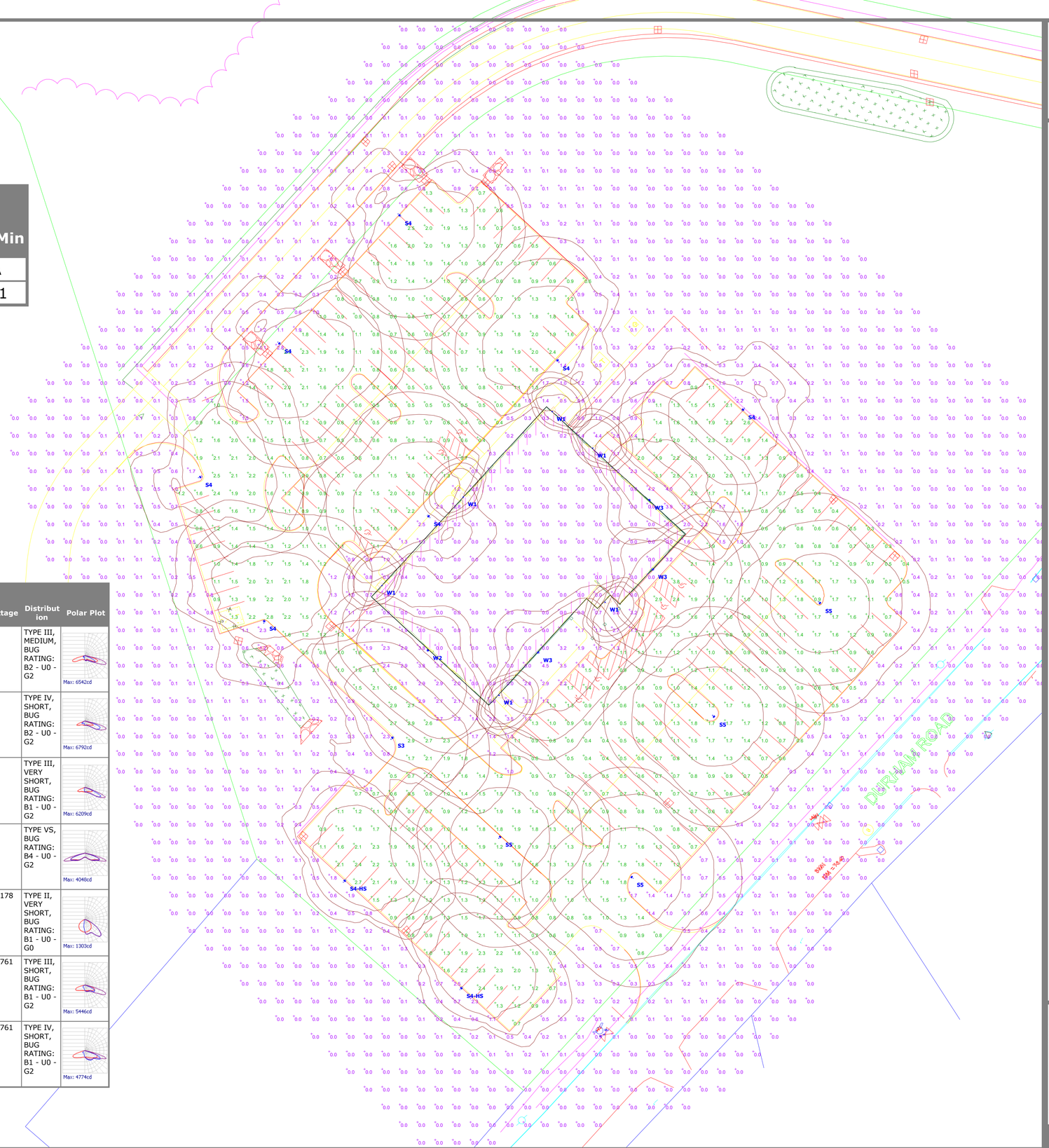
ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON REFERENCED STANDARDS. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT. NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS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

Statistics

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

Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog Number	Description	Lamp	Filename	Lumens per Lamp	LLF	Wattage	Distribution	Polar Plot
	S3		1	Lithonia Lighting	DSX0 LED P4 30K T3M MVOLT SPA DDBXD with SSS 18 4C DM19AS DDBXD	DSX0 LED Area Fixture; mounted at 20ft (18ft pole on 2ft base)	LED	DSX0_LED_P4_30K_T3M_MVOLT.ies	9520	0.9	92	TYPE III, MEDIUM, BUG RATING: B2 - U0 - G2	
	S4		7	Lithonia Lighting	DSX0 LED P4 30K TFTM MVOLT SPA DDBXD with SSS 18 4C DM19AS DDBXD	DSX0 LED Area Fixture; mounted at 20ft (18ft pole on 2ft base)	LED	DSX0_LED_P4_30K_TFTM_MVOLT.ies	9800	0.9	92	TYPE IV, SHORT, BUG RATING: B2 - U0 - G2	
	S4-HS		2	Lithonia Lighting	DSX0 LED P4 30K TFTM MVOLT HS SPA DDBXD with SSS 18 4C DM19AS DDBXD	DSX0 LED Area Fixture with houseside shield; mounted at 20ft (18ft pole on 2ft base)	LED	DSX0_LED_P4_30K_TFTM_MVOLT_HS.ies	7652	0.9	92	TYPE III, VERY SHORT, BUG RATING: B1 - U0 - G2	
	S5		4	Lithonia Lighting	DSX0 LED P4 30K T5M MVOLT SPA DDBXD with SSS 18 4C DM19AS DDBXD	DSX0 LED Area Fixture; mounted at 20ft (18ft pole on 2ft base)	LED	DSX0_LED_P4_30K_T5M_MVOLT.ies	10175	0.9	92	TYPE VS, BUG RATING: B4 - U0 - G2	
	W1		6	Lithonia Lighting	WDGE1 LED P2 30K 80CRI VF SRM DDBXD	WDGE1 LED Wallpack; mounted at 10ft	LED	WDGE1_LED_P2_30K_80CRI_VF.ies	1872	0.9	15.0178	TYPE II, VERY SHORT, BUG RATING: B1 - U0 - G0	
	W2		1	Lithonia Lighting	WDGE3 LED P2 80CRI R3 30K SRM DDBXD	WDGE3 LED Wallpack; mounted at 18ft	LED	WDGE3_LED_P2_70CRI_R3_30K.ies	7851	0.9	59.2761	TYPE III, SHORT, BUG RATING: B1 - U0 - G2	
	W3		3	Lithonia Lighting	WDGE3 LED P2 80CRI R4 30K SRM DDBXD	WDGE3 LED Wallpack; mounted at 18ft	LED	WDGE3_LED_P2_70CRI_R4_30K.ies	8090	0.9	59.2761	TYPE IV, SHORT, BUG RATING: B1 - U0 - G2	

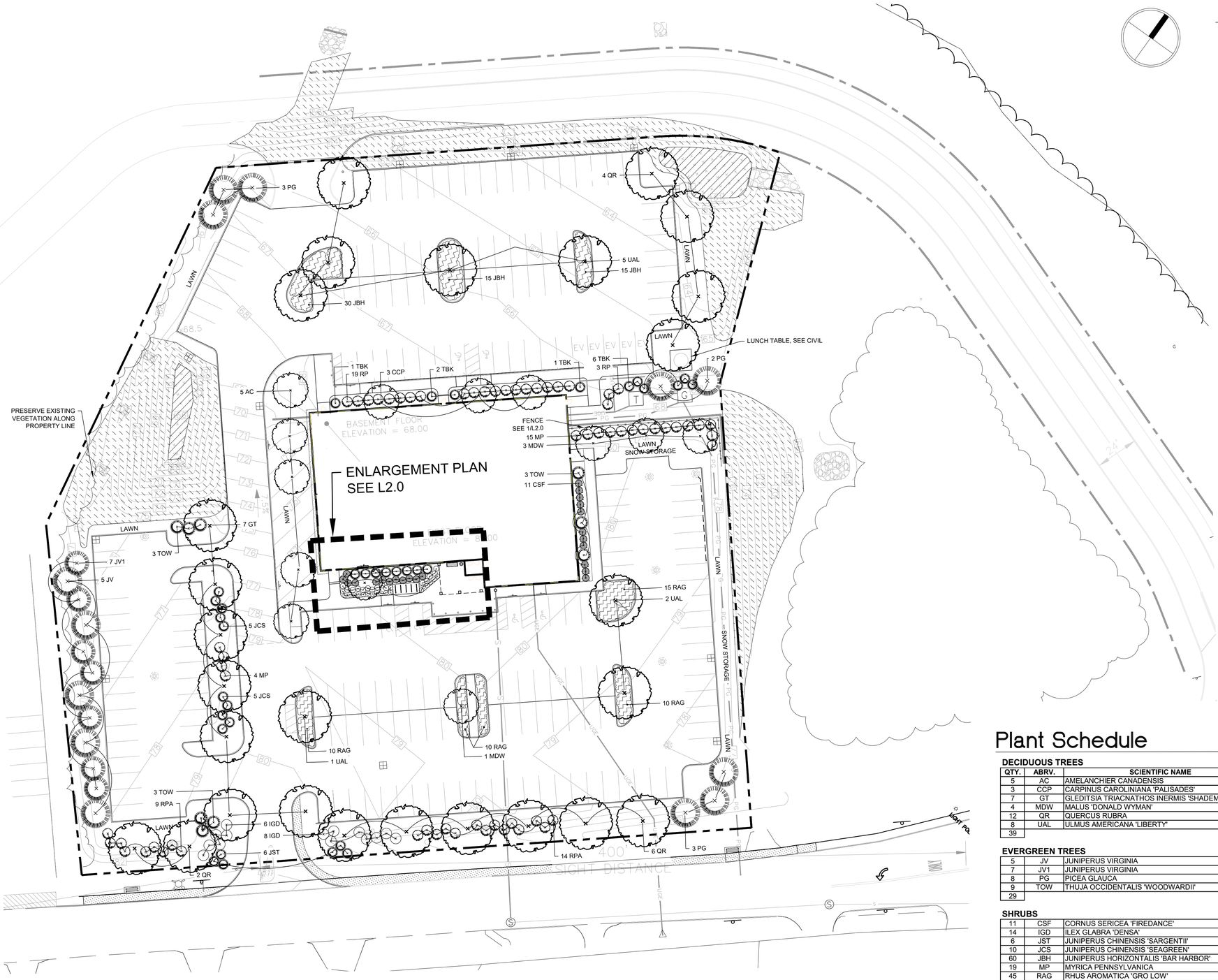


VISUAL

7 WEST-DOVER
Site Lighting Layout

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

Summary



Legend

- DECIDUOUS SINGLE-STEMMED TREE PLANTING, SEE 1/L2.1 & 2/L2.1
- EVERGREEN TREE PLANTING, SEE 3/L2.1
- SHRUB PLANTING, SEE 4/L2.1
- PERENNIAL / ORNAMENTAL GRASS PLANTING, SEE 5/L2.1
- GROUNDCOVER, SEE 5/L2.1
- LAWN — LOAM AND LAWN SEED MIX, SEE 6/L2.1
- EROSION CONTROL / RESTORATION SEED MIX, SEE 7/L2.1
- LOAM AND WET MEADOW SEED MIX, SEE 8/L2.1

GENERAL NOTES:

1. SEE CIVIL DRAWINGS FOR INFORMATION NOT DEPICTED ON THE LANDSCAPE DRAWINGS.
2. TREES LOCATED ADJACENT TO BUILDING TO BE ALIGNED BETWEEN WINDOWS.
3. PLANT LOCATIONS SHOWN ON THE PLANTING PLAN ARE SUBJECT TO FIELD MODIFICATION TO ACCOMMODATE EXISTING CONDITIONS. FIELD ADJUSTMENTS SHALL BE COORDINATED WITH THE LANDSCAPE ARCHITECT.
4. CONTACT DIGSAFE PRIOR TO BEGINNING WORK.
5. SEE ADDITIONAL PLANTING NOTES ON L2.1

Plant Schedule

DECIDUOUS TREES

QTY.	ABRV.	SCIENTIFIC NAME	COMMON NAME	SIZE	REMARKS
5	AC	AMELANCHIER CANADENSIS	SERVICEBERRY	2"-2 1/2" CAL*	B&B
3	CCP	CARPINUS CAROLINIANA 'PALISADES'	PALISADE AMERICAN HORNBEAM	3"-3 1/2" CAL	B&B
7	GT	GLEDITSIA TRIACNATHOS INERMIS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	3"-3 1/2" CAL	B&B
4	MDW	MALUS 'DONALD WYMAN'	DONALD WYMAN CRABAPPLE	2"-2 1/2" CAL*	B&B
12	QR	QUERCUS RUBRA	RED OAK	3"-3 1/2" CAL	B&B
8	UAL	ULMUS AMERICANA 'LIBERTY'	LIBERTY ELM	3"-3 1/2" CAL	B&B
39					

EVERGREEN TREES

5	JV	JUNIPERUS VIRGINIA	EASTERN RED CEDAR	6'-7' HT	B&B
7	JV1	JUNIPERUS VIRGINIA	EASTERN RED CEDAR	5'-6' HT	B&B
8	PG	PICEA GLAUCA	WHITE SPRUCE	7'-8' HT	B&B
9	TOW	THUJA OCCIDENTALIS 'WOODWARDII'	WOODWARD GLOBAL ARBORVITAE	5'-6' HT	B&B
29					

SHRUBS

11	CSF	CORNUS SERICEA 'FIREDANCE'	FIREDANCE RED OSIER DOGWOOD	2'-2 1/2' HT	CONTAINER
14	IGD	ILEX GLABRA 'DENSA'	DENSA INKBERRY	2'-2 1/2' HT	CONTAINER
6	JST	JUNIPERUS CHINENSIS 'SARGENTII'	SARGENT JUNIPER	#5	CONTAINER
10	JCS	JUNIPERUS CHINENSIS 'SEAGREEN'	SEAGREEN JUNIPER	2'-2 1/2' HT	CONTAINER
60	JBH	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	#2	CONTAINER
19	MP	MYRICA PENNSYLVANICA	NORTHERN BAYBERRY	2'-2 1/2' HT	CONTAINER
45	RAG	RHUS AROMATICA 'GRO LOW'	GROUNDCOVER SUMAC	#2	CONTAINER
19	RP	RHODODENDRON PJM	PJM RHODODENRON	2'-2 1/2' HT	CONTAINER
23	RPA	RHODODENDRON PJM ALBA	WHITE PJM RHODODENDRON	2'-2 1/2' HT	CONTAINER
15	TBK	TAXUS MEDIA 'BLACK KNIGHT'	LITTLE GIANT ARBORVITAE	#5	CONTAINER
211					

*TREES SPECIFIED ABOVE LESS THAN 3"-3 1/2" CAL ARE SMALL FLOWERING TREES, NOT SHADE TREES. THEY HAVE BEEN INCLUDED TO PROVIDE VISUAL AND SEASONAL INTEREST.

DRAWING SUBMITTED FOR CITY REVIEW

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7 WEST COMMERCIAL DEVELOPMENT
DOVER, NH 03820

SHEET TITLE
LANDSCAPE PLAN

REVISION LOG

REV#	DATE	DESCRIPTION
1	10-04-2022	PER CITY REVIEW
2	11-20-2022	REV PER UPDATED CIVIL BASE

PROJECT NO.	21060.0
DESIGN BY	J. HYLAND / K.OSGOOD
DRAWN BY	K.OSGOOD
CHECKED BY	J. HYLAND
DATE	MAY 5, 2022
SCALE	0' 30' 60' SCALE: 1" = 30'-0"

SEAL
JEFFREY R. HYLAND 026 — LICENSED LANDSCAPE ARCHITECT — STATE OF NEW HAMPSHIRE

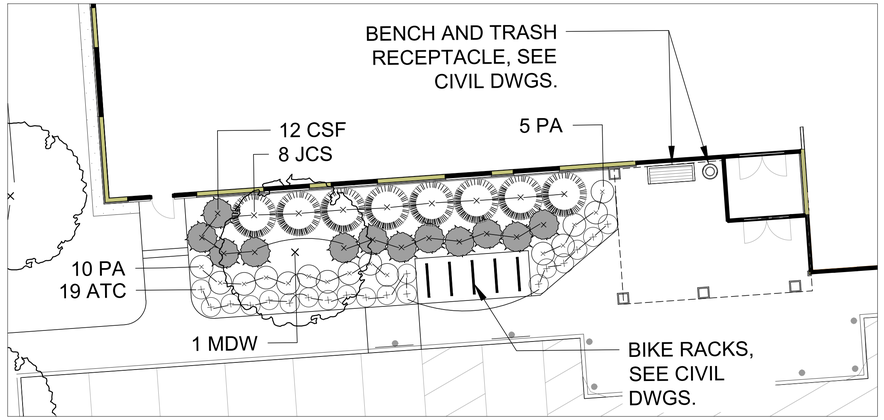
SHEET NO. 24
L1.0

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PLANTING NOTES:

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



Enlargement Plan: Front Entrance

0' 10' 20'
SCALE: 1" = 10-0"

Legend

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

EVERGREEN TREE PLANTING, SEE 3/L2.1

SHRUB PLANTING, SEE 4/L2.1

PERENNIAL / ORNAMENTAL GRASS PLANTING, SEE 5/L2.1

Plant Schedule

DECIDUOUS TREES

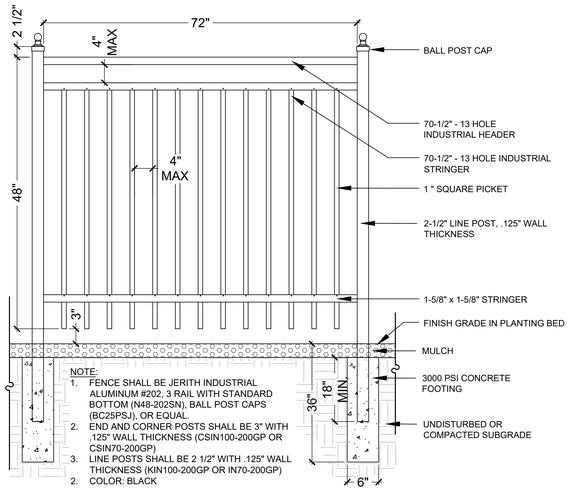
QTY.	ABRV.	SCIENTIFIC NAME	COMMON NAME	SIZE	REMARKS
1	MDW	MALUS 'DONALD WYMAN'	DONALD WYMAN CRABAPPLE	2"-2 1/2" CAL*	B&B
1					

SHRUBS

12	CSF	CORNUS SERICEA 'FIREDANCE'	FIREDANCE RED OSIER DOGWOOD	2'-2 1/2' HT	CONTAINER
8	JCS	JUNIPERUS CHINENSIS 'SEAGREEN'	SEAGREEN JUNIPER	2'-2 1/2' HT	CONTAINER
20					

PERENNIALS

19	ATC	ACHILLEA 'TERRA COTTA'	TERRA COTTA YARROW	#1	CONTAINER
15	PA	PEROVSKIA ATRIPLICIFOLIA	RUSSIAN SAGE	#1	CONTAINER
34					



NOTE:
1. FENCE SHALL BE JERITH INDUSTRIAL ALUMINUM #202, 3 RAIL WITH STANDARD BOTTOM (N48-202SN), BALL POST CAPS (BC25PSJ), OR EQUAL.
2. END AND CORNER POSTS SHALL BE 3" WITH .125" WALL THICKNESS (CSIN100-200GP OR CSIN70-200GP)
3. LINE POSTS SHALL BE 2 1/2" WITH .125" WALL THICKNESS (KIN100-200GP OR IN70-200GP)
2. COLOR: BLACK

Ornamental Fence

Not to Scale

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1
L2.0

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

7 WEST COMMERCIAL DEVELOPMENT
DOVER, NH 03820

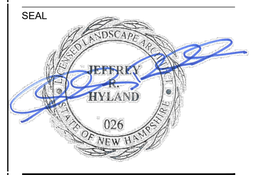
SHEET TITLE
LANDSCAPE DETAILS

REVISION LOG

REV#	DATE	DESCRIPTION
1	10-04-2022	PER CITY REVIEW
2	11-20-2022	REV PER UPDATED CIVIL BASE

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

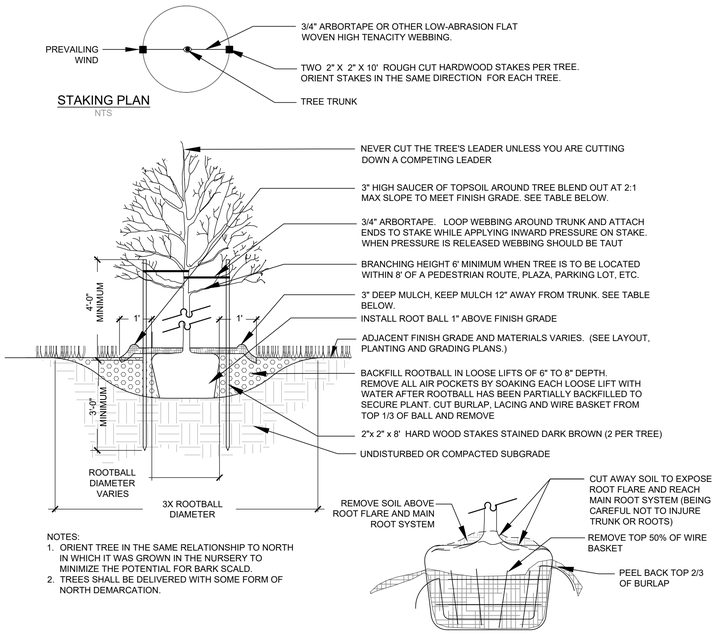
SEAL



SHEET NO. 25
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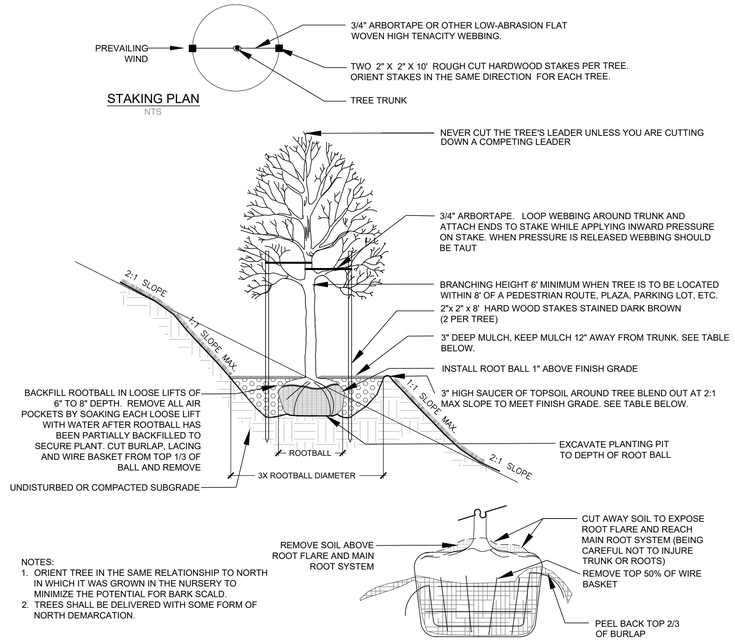


Deciduous Tree Planting

Not to Scale

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1 L2.1

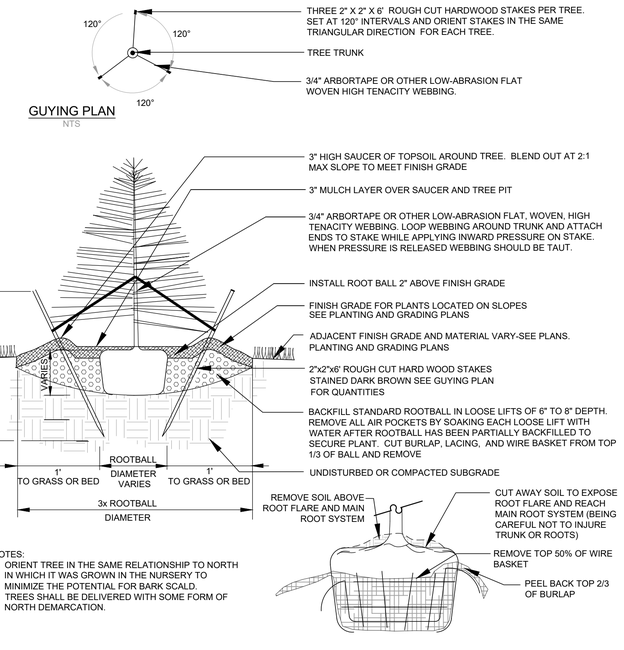


Deciduous Tree Planting: on Slope

Not to Scale

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2 L2.1

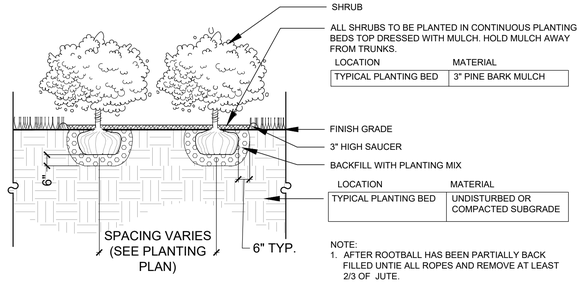


Evergreen Tree Planting

Not to Scale

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3 L2.1

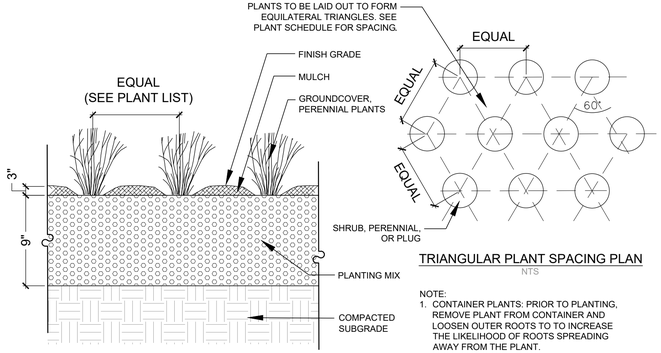


Shrub Planting

Not to Scale

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4 L2.1

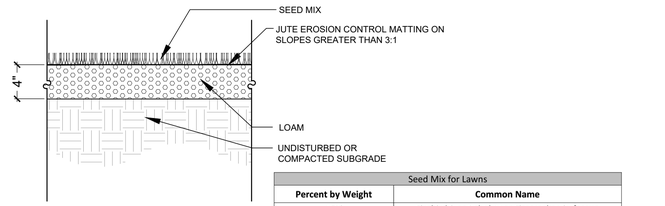


Perennial / Orn. Grass / Ground Cover Planting

Not to Scale

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5 L2.1



Seed Mix for Lawns	
Percent by Weight	**Common Name**
45%	Firebird 2 or Rebel IV or Firecracker SL fescue
20%	Grand slam GLD or Confetti II perennial ryegrass
15%	Radar or Compass chewings fescue
10%	Sword or Gladiator hard fescue
5%	Side Oats Grama
5%	White Dutch clover

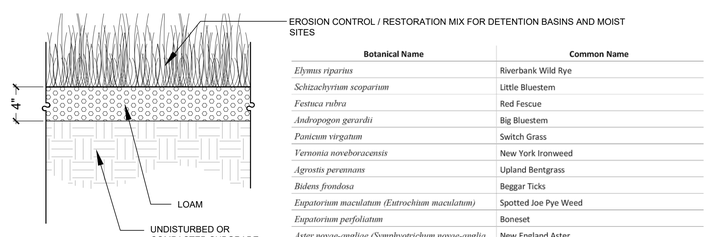
Apply this seed mix at a rate of 305 lbs/acre (7lbs per 1000sf)

Loam and Lawn Seed Mix

Not to Scale

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6 L2.1



Botanical Name	Common Name
Elymus riparius	Riverbank Wild Rye
Schizachyrium scoparium	Little Bluestem
Festuca rubra	Red Fescue
Andropogon gerardii	Big Bluestem
Panicum virgatum	Switch Grass
Vernonia noveboracensis	New York Ironweed
Agrostis perennans	Upland Bentgrass
Bidens frondosa	Beggar Ticks
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed
Eupatorium perfoliatum	Boneset
Aster novae-angliae (Symphyotrichium novae-anglia	New England Aster
Scirpus cyperinus	Wool Grass
Juncus effusus	Soft Rush

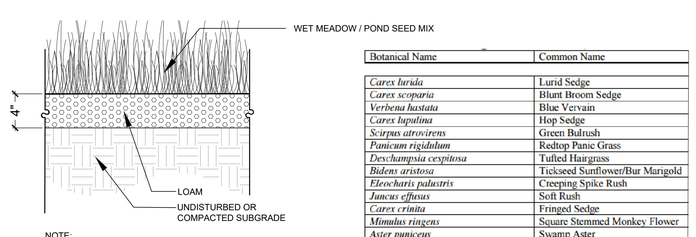
Apply at rate of 231bs/acre. New England Wildflower Mix available at New England Wetland Plants, Ma: www.newp.com . Approved equal may be substituted.

Erosion Control / Restoration Seed Mix

Not to Scale

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7 L2.1



Botanical Name	Common Name
Carex lurida	Lurid Sedge
Carex scoparia	Blunt Broom Sedge
Verbena hastata	Blue Vervain
Carex lupulina	Hop Sedge
Scirpus atrovirens	Green Bulrush
Panicum rigidulum	Redtop Panic Grass
Deschampsia cespitosa	Tufted Hairgrass
Bidens aristosa	Tickseed SunFlower/Bur Marigold
Eleocharis palustris	Creeping Spike Rush
Juncus effusus	Soft Rush
Carex crinita	Fringed Sedge
Mimulus ringens	Square Stemmed Monkey Flower
Aster puniceus	Swamp Aster
Eupatorium perfoliatum	Boneset
Glyceria canadensis	Rattlesnake Grass
Asclepias incarnata	Swamp Milkweed
Helenium autumnale	Common Sneezeweed
Penthorum sedoides	Ditch Stonecrop

Apply at rate of 231bs/acre. New England Wildflower Mix available at New England Wetland Plants, Ma: www.newp.com . Approved equal may be substituted.

Loam and Wet Meadow / Pond Seed Mix

Not to Scale

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8 L2.1

DRAWING SUBMITTED FOR CITY REVIEW

Ironwood
Landscape Architecture • Planning
Newmarket, NH | Portland, ME | 603.772.0590 | www.FeWood.com

7 WEST COMMERCIAL DEVELOPMENT
DOVER, NH 03820

SHEET TITLE

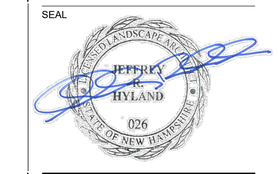
LANDSCAPE DETAILS

REVISION LOG

REV#	DATE	DESCRIPTION
1	10-04-2022	PER CITY REVIEW
2	11-20-2022	REV PER UPDATED CIVIL BASE

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

SEAL

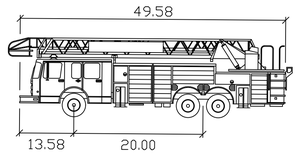


SHEET NO. 26

L2.1

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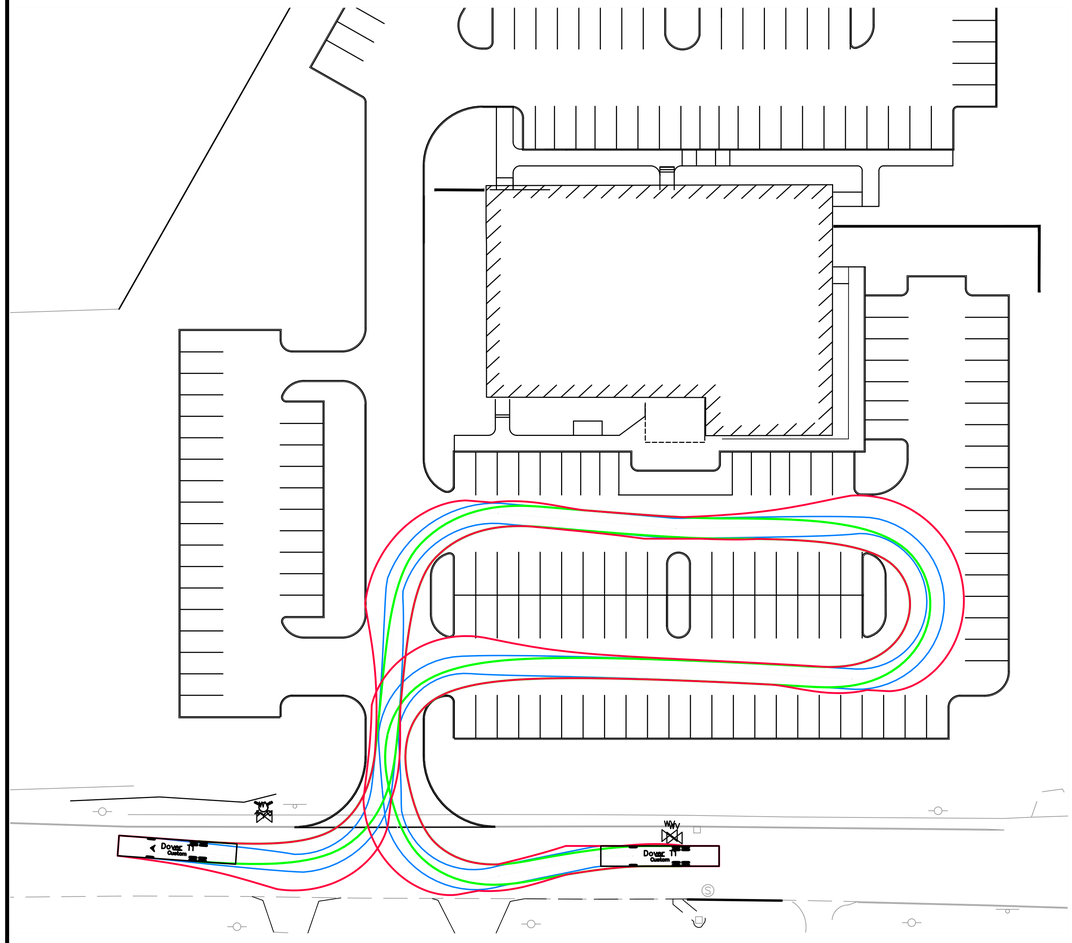
Dover T-1 FIRE

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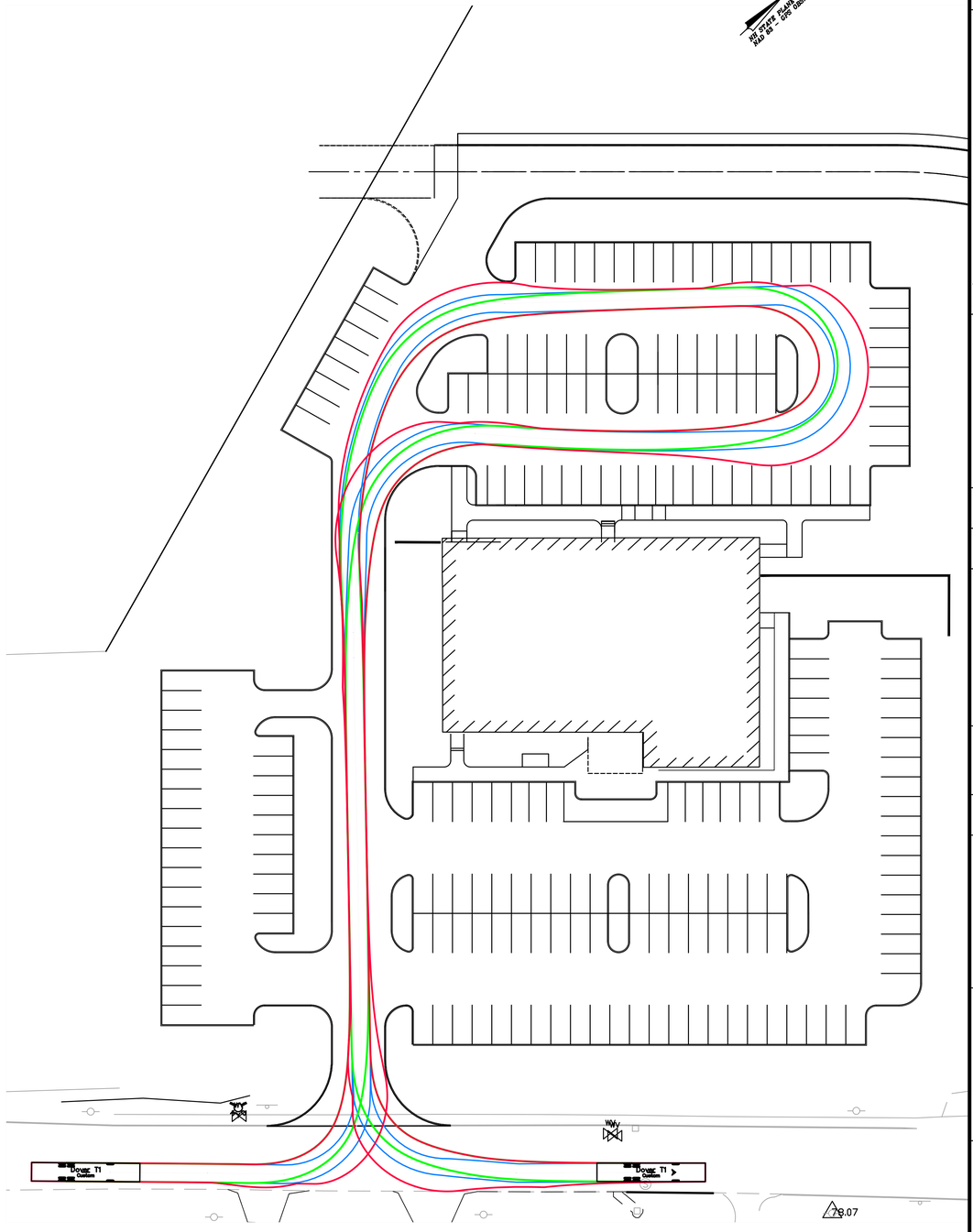
VEHICLE MODELED – DOVER T-1 FIRE TRUCK

LEGEND

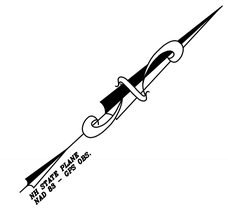
FRONT WHEEL PATH
REAR WHEEL PATH
VEHICLE BODY



DOVER T-1 FIRE TRUCK
(WESTBOUND IN / OUT)



DOVER T-1 FIRE TRUCK
(EASTBOUND IN / OUT)



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

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
OCTOBER 5, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	10/05/22

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

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

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

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

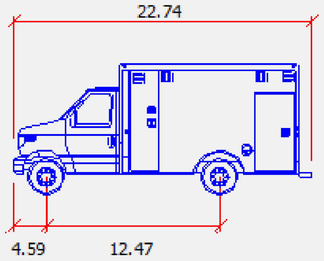
PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

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

TITLE:
TRUCK TURNING (DOVER T-1)

SHEET NUMBER:
27 / T-1

P4952

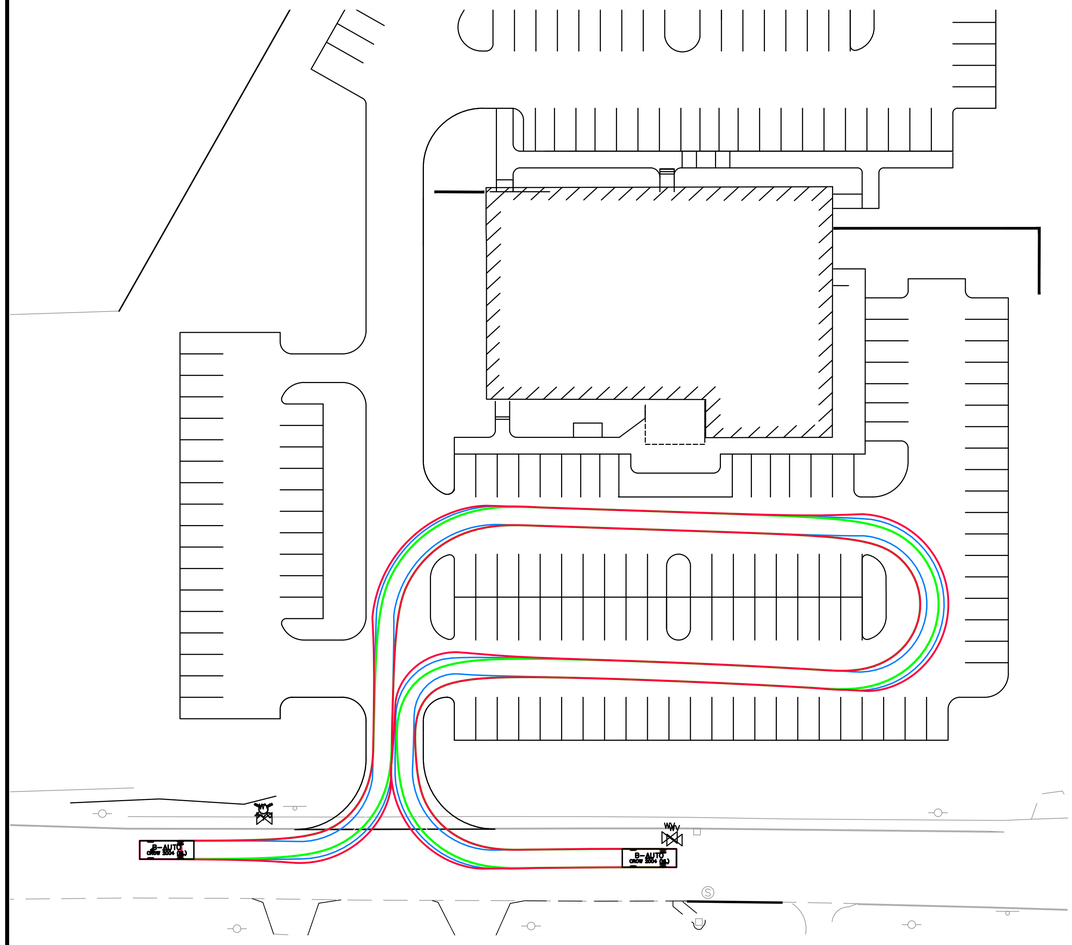


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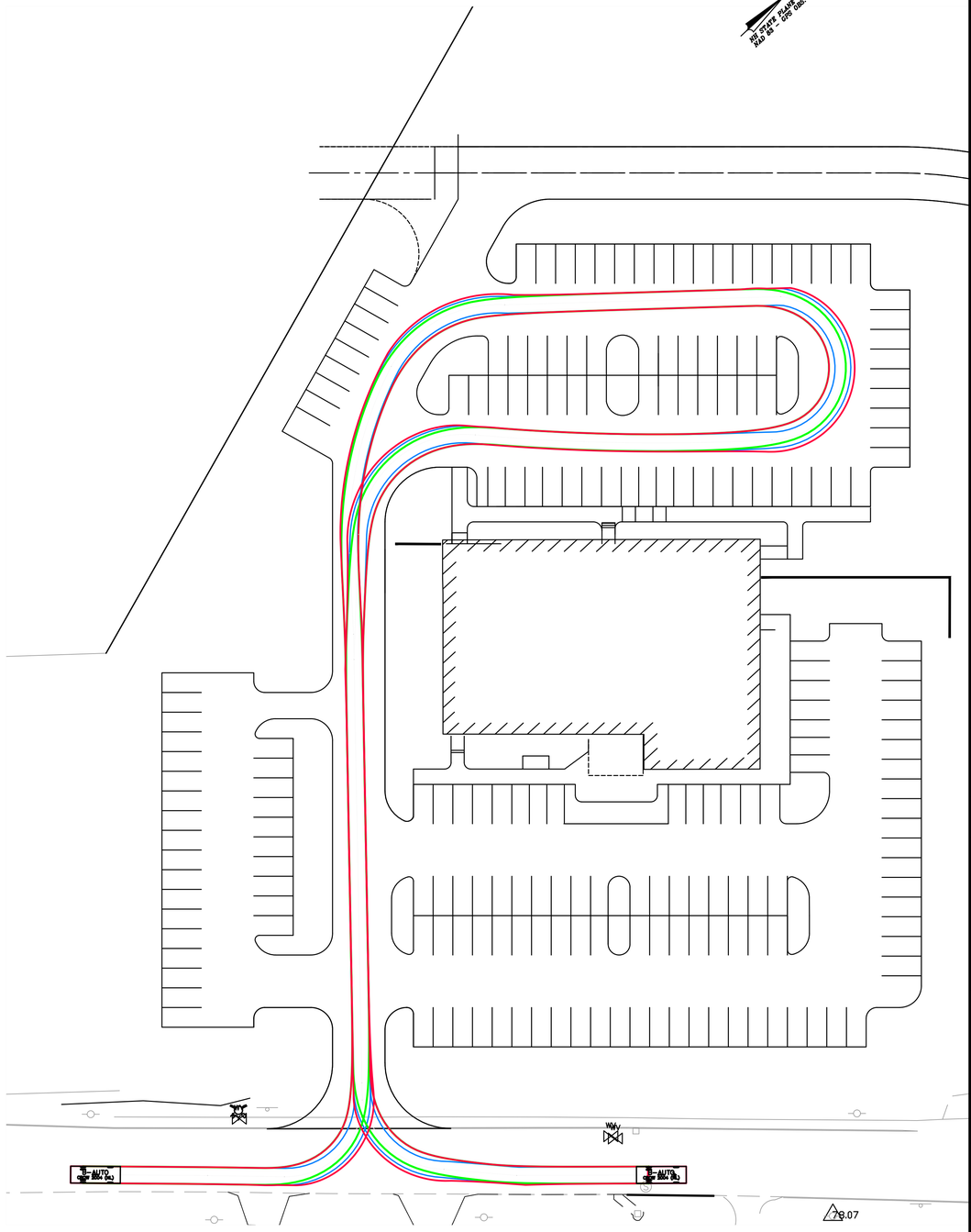
VEHICLE MODELED – AMBULANCE

LEGEND

FRONT WHEEL PATH
REAR WHEEL PATH
VEHICLE BODY



AMBULANCE
(WESTBOUND IN / OUT)



AMBULANCE
(EASTBOUND IN / OUT)

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

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ISSUED FOR: PLANNING BOARD

ISSUE DATE: OCTOBER 5, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	10/05/22

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

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

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

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

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

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

TITLE:
TRUCK TURNING (AMBULANCE)

SHEET NUMBER:
28 / T-2

P4952

GENERAL PLAN NOTES

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

GRID LEGEND - NEW

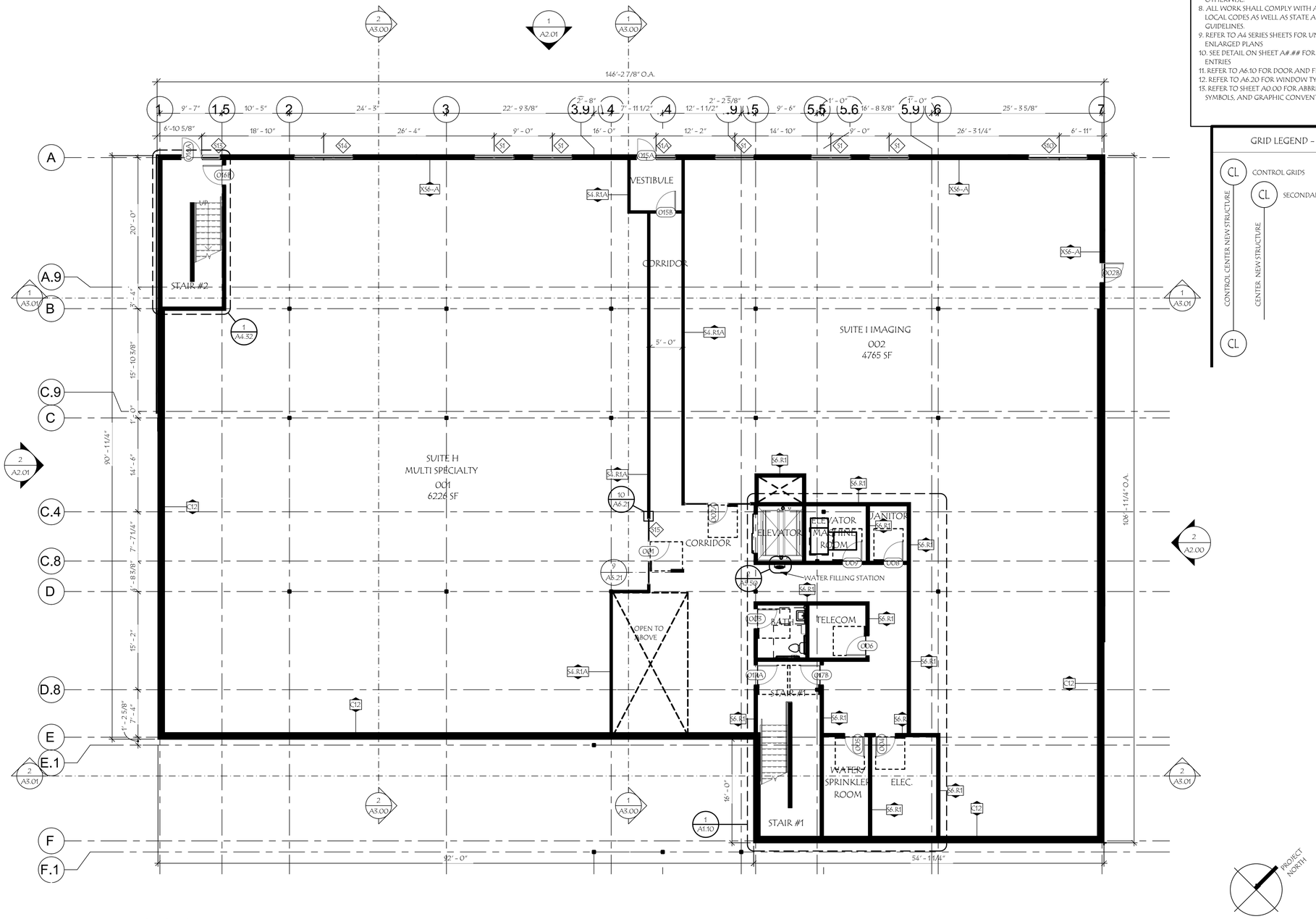
CL. CONTROL GRIDS

CL. SECONDARY GRIDS

CONTROL CENTER: NEW STRUCTURE

CENTER: NEW STRUCTURE

CL.



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

104 Congress St., STE 205
Portsmouth, NH 03801
PH: 603.501.0302

DOVER MEDICAL OFFICE BUILDING

DURHAM ROAD
DOVER, NH

NOT FOR CONSTRUCTION

Revisions:
Description | Date

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

Title: OVERALL LOWER LEVEL PLAN

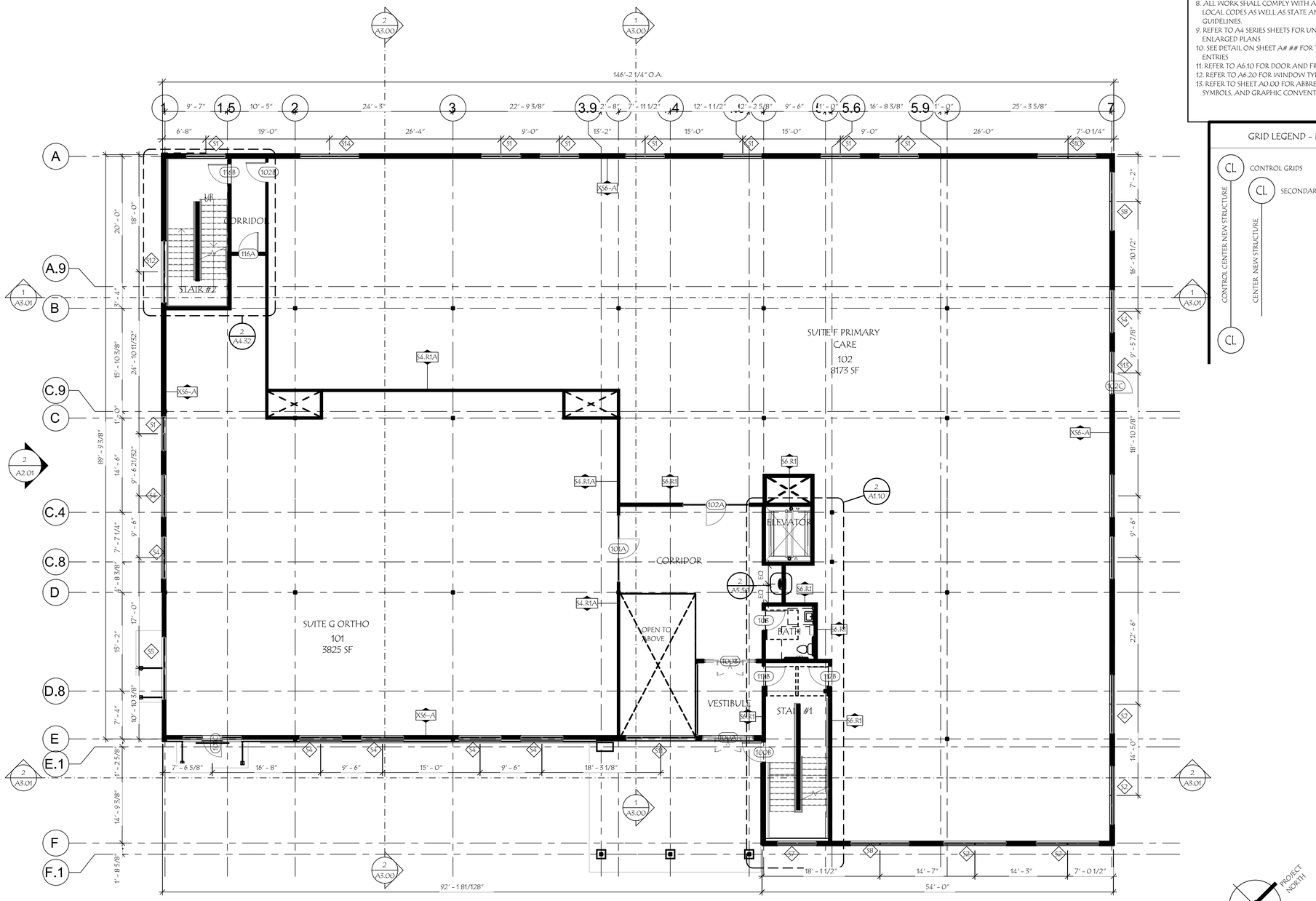
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3/28/2022 10:08:25 AM

GENERAL PLAN NOTES

1. GENERAL CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT IF FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE DRAWINGS. REFERENCE LIFE SAFETY DRAWINGS A0.20-A0.2# FOR ADDITIONAL INFORMATION
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12. REFER TO A6.20 FOR WINDOW TYPES.
13. REFER TO SHEET A0.00 FOR ABBREVIATIONS, SYMBOLS, AND GRAPHIC CONVENTIONS.



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

GRID LEGEND - NEW

CL CONTROL GRIDS

CL SECONDARY GRIDS

CONTROL: CENTER: NEW STRUCTURE

CENTER: NEW STRUCTURE

CL

PROJECT NORTH

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Portsmouth, NH 03801
PH: 603.501.0302

DOVER MEDICAL OFFICE BUILDING

DURHAM ROAD
DOVER, NH

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Revisions:
Description Date

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

Title: OVERALL FIRST FLOOR PLAN

A1.01

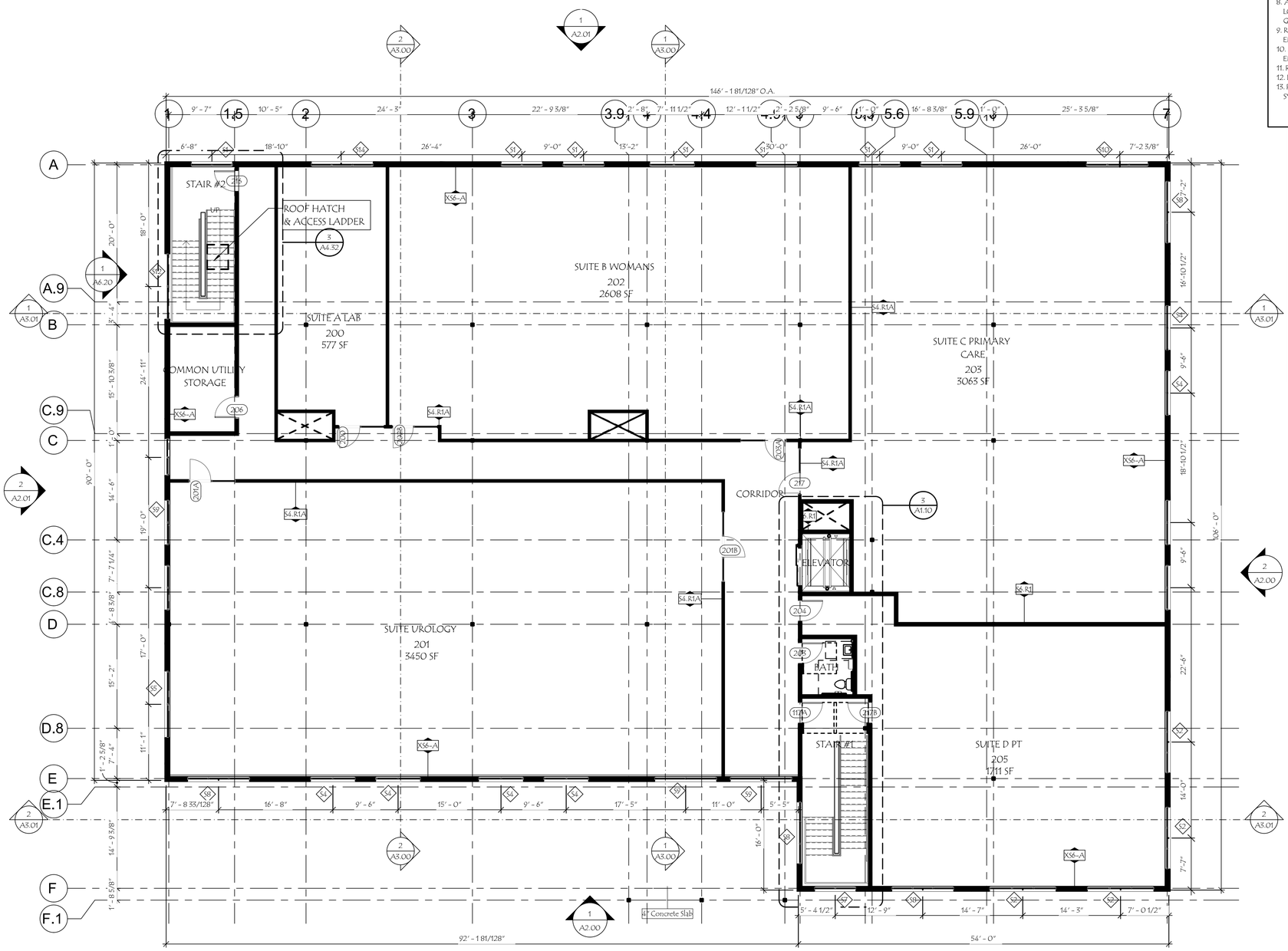
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5/28/2022 10:08:31 AM

P22-38 SHT 30

GENERAL PLAN NOTES

1. GENERAL CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT IF FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE DRAWINGS. REFERENCE LIFE SAFETY DRAWINGS A0.20-A0.2# FOR ADDITIONAL INFORMATION
2. REFERENCE DRAWING A0.01 THROUGH A0.04 FOR ROOF-CEILING ASSEMBLIES, FLOOR-CEILING ASSEMBLIES AND EXTERIOR WALL & PARTITION TYPES.
3. REFERENCE DRAWING A0.01 THROUGH A0.04 FOR PARTITION AND ROOF-CEILING FRAMING DETAILS.
4. ACCESSIBLE CLEARANCES ARE REQUIRED AT ALL ACCESSIBLE FIXTURES AND EQUIPMENT.
5. ALL DOORS SHALL BE INSTALLED WITH HINGED SIDE OF FINISHED OPENING 6" FROM ADJACENT WALL, OR CENTERED WITHIN WALL, UNLESS NOTED OTHERWISE.
6. ALL DOORS INTENDED FOR PASSAGE MUST MEET ACCESSIBILITY MANEUVERING CLEARANCES.
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12. REFER TO A6.20 FOR WINDOW TYPES.
13. REFER TO SHEET A0.00 FOR ABBREVIATIONS, SYMBOLS, AND GRAPHIC CONVENTIONS.



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

GRID LEGEND - NEW

CL. CONTROL GRIDS

CL. SECONDARY GRIDS

CONTROL: CENTER: NEW STRUCTURE

CL

PROJECT NORTH

DOVER MEDICAL OFFICE BUILDING

DURHAM ROAD
DOVER, NH

104 Congress St., STE 205
Portsmouth, NH 03801
PH: 603.501.0302

NOT FOR CONSTRUCTION

Revisions:
Description — Date

Scale: As indicated
Drawn By: VA
Checked By: Checker
Project No.: 2021048
PROGRESS DRAWINGS
Date: Feburary 25, 2022

Title: OVERALL SECOND FLOOR PLAN

A1.02

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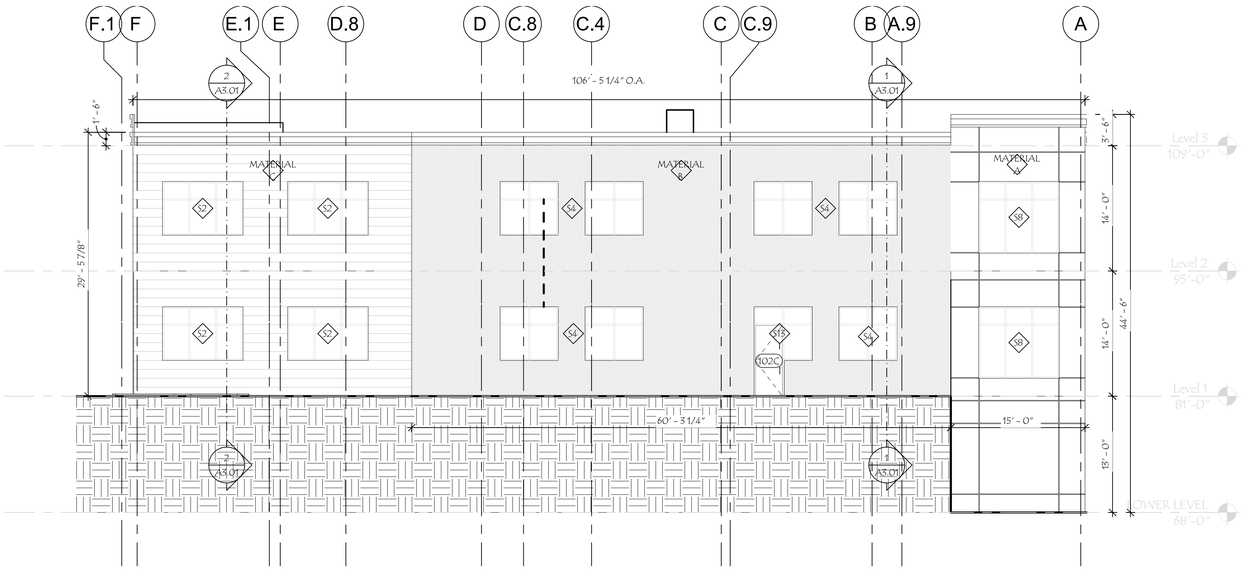
P22-38 SHT 31

EXTERIOR FINISH NOTES :

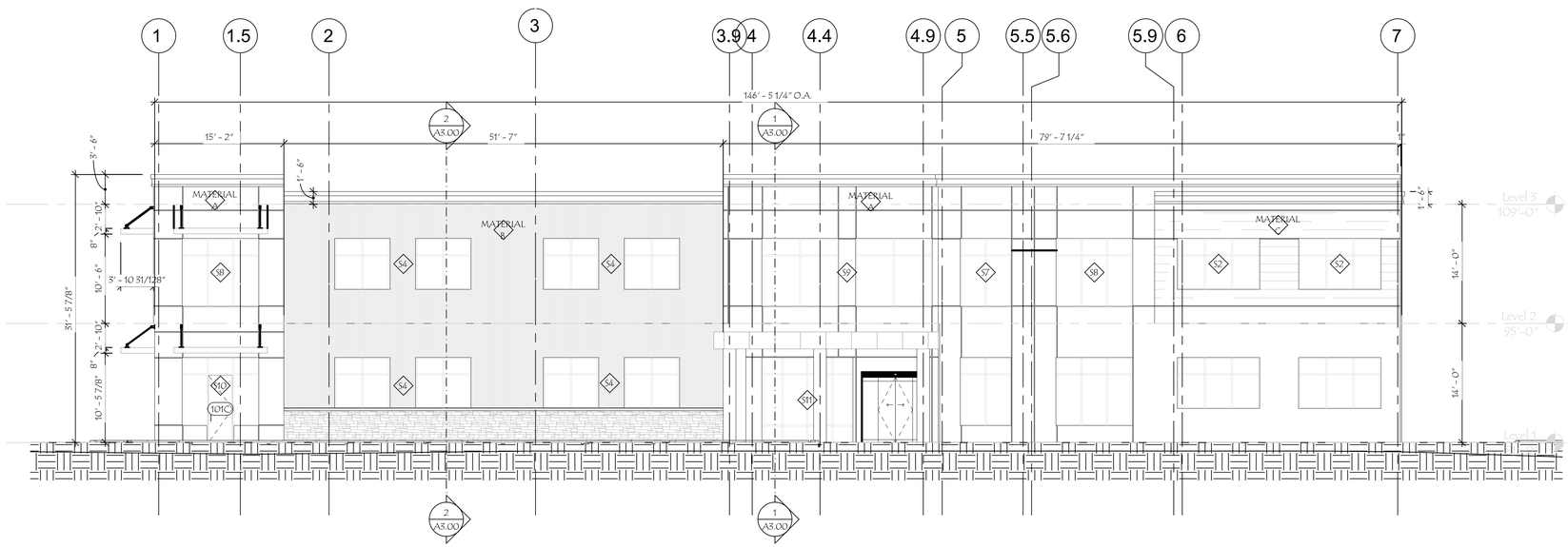
1. MATERIAL A = ALPOLIC / PE METAL COMPOSITE PANELS, OR EQUIVALENT.

2. MATERIAL B = ALPOLIC / PE METAL COMPOSITE PANELS, OR EQUIVALENT.

3. MATERIAL C = NICHIHA HORIZONTAL FIBER CEMENT SIDING, OR EQUIVALENT.



2 EXTERIOR ELEVATION - EAST
1/8" = 1'-0"



1 EXTERIOR ELEVATION - NORTH
1/8" = 1'-0"

104 Congress St., STE 205
Portsmouth, NH 03801
PH: 603.501.0302

DOVER MEDICAL OFFICE BUILDING

DURHAM ROAD
DOVER, NH

NOT FOR CONSTRUCTION

Revisions:
Description | Date

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

Title: EXTERIOR ELEVATIONS

A2.00

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8/28/2023 10:08:48 AM

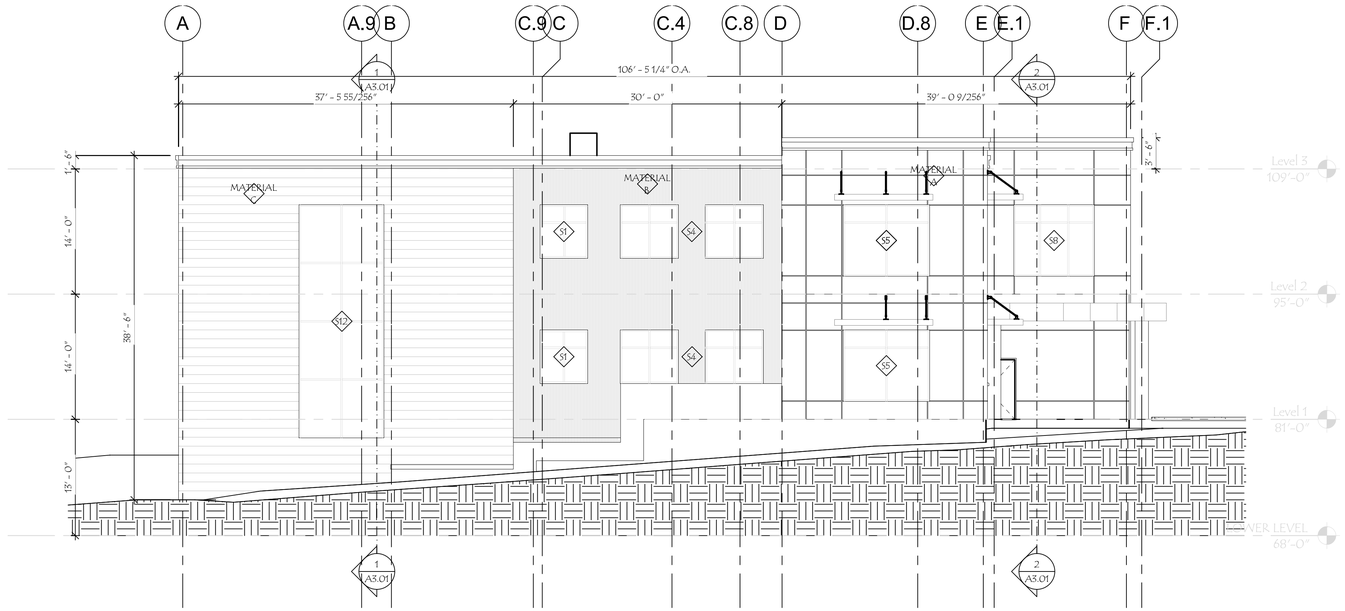
P22-38 SHT 32

EXTERIOR FINISH NOTES :

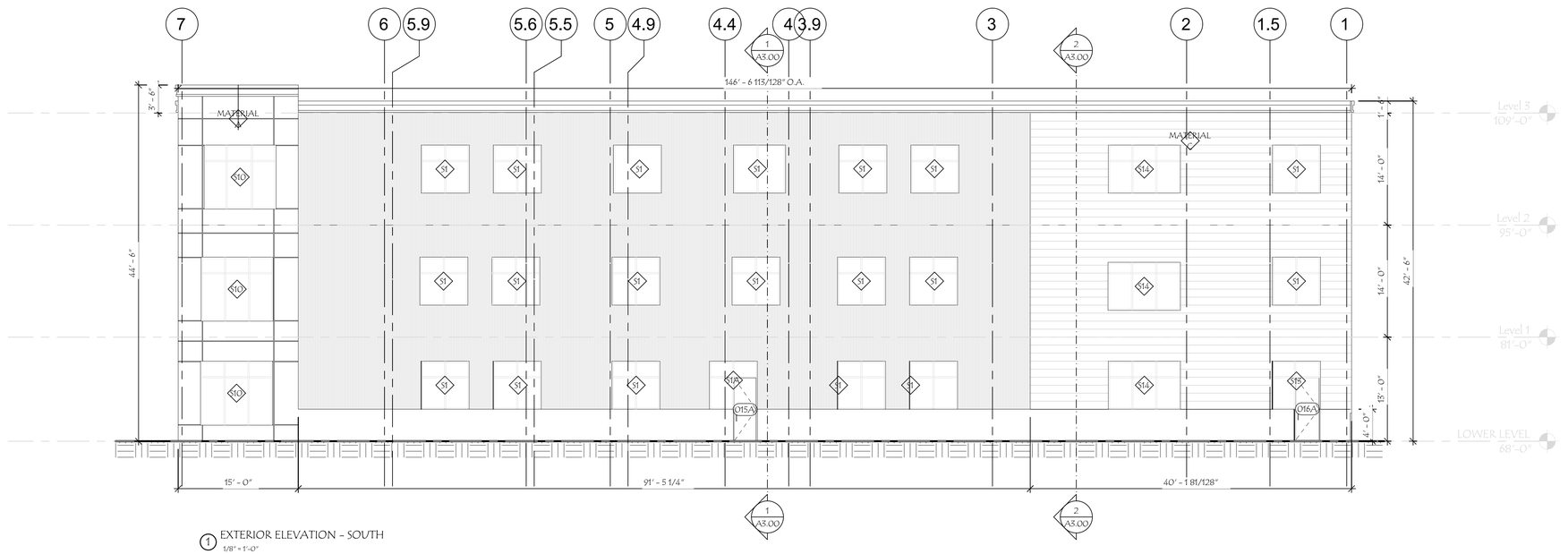
1. MATERIAL A = ALPOLIC / PE METAL COMPOSITE PANELS, OR EQUIVALENT.

2. MATERIAL B = ALPOLIC / PE METAL COMPOSITE PANELS, OR EQUIVALENT.

3. MATERIAL C = NICHIHA HORIZONTAL FIBER CEMENT SIDING, OR EQUIVALENT.



2 EXTERIOR ELEVATION - WEST
1/8" = 1'-0"



1 EXTERIOR ELEVATION - SOUTH
1/8" = 1'-0"

104 Congress St., STE 205
Portsmouth, NH 03801
PH: 603.501.0302

DOVER MEDICAL OFFICE BUILDING

DURHAM ROAD
DOVER, NH

NOT FOR CONSTRUCTION

Revisions:
Description | Date

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

Title: EXTERIOR ELEVATIONS

A2.01

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P22-38 SHT 33


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