BOLTON PLANNING & ZONING COMMISSION
Regular Meeting
7:30 p.m., Wednesday, April 13, 2022
Virtual
Minutes & Motions

Members Present: Chairman Tom Manning, Vice Chairman James Cropley, Brittany Clark, Thomas Robbins, Jeffrey Scala (7:37p.m.) and Alternates Tom Crockett, Rodney Fournier and Kawan Gordon 7:37 p.m.

Members Excused: Arlene Fiano, Jeremy Flick.

Staff Present: Patrice Carson, AICP, Consulting Director of Community Development, Mike D'Amato, Interim Zoning Enforcement Officer, and Yvonne Filip, Recording Secretary.

Others Present: Nathaniel Fleming, Fedus Engineering, LLC, and Asif Choudhry; Atty Curtis Roggi, Andrew Bushnell, Matt, and Ed Grace from Bolton Vet Hospital; Peyton Rutledge.

1. Call to Order: T. Manning called the meeting to order at 7:31 p.m.
T. Manning seated T. Crockett for J. Scala, K. Gordon for J. Flick, and R. Fournier for A. Fiano.

2. Approval of Minutes: March 2, 2022, Regular Meeting Minutes
J. Cropley moved to approve the minutes of the March 2, 2022, Regular Meeting as presented. **R. Fournier seconded**. Vote: 7-0-0. Motion passed.

3. Residents' Forum: No one present wished to speak on non-agenda items.

4. Staff Reports
P. Carson reported:
- Has been working with the intern for the Affordable Housing Plan. The final touches on the draft will be going out shortly.
- Has been working on the applications before the PZC.

M. D'Amato reported:
- Has also been working with the intern on the Affordable Housing Plan and presentation.
- Enforcement issues are those discussed at previous meetings. The Town Engineer has submitted comments for 17 Howard Road. He has been working with the owner's engineer.
- The next checkpoint is coming up for the Boston Turnpike property under enforcement.

The State does not have to respond to the Affordable Housing Plan per P. Carson and T. Manning. T. Manning has been the PZC's representative to Desegregate CT. Discussion has been about transit oriented development around train stations which Bolton does not have.

5. Public Hearings (begin at 7:45 p.m.)
a. Special Permit Application for Gas Station/Convenience Store, 271 Hop River Road, Nathan Fleming (#PL-22-2)

Nathaniel Fleming presented the application. This is an auto repair site with debris scattered throughout. There is a pervious gravel driveway to the back. The front will remain as is. The

building size will be reduced. Two rain gardens are proposed to contain storm water. The septic system is shown. The lighting plan shows eleven lights. Most of the site is staying the same other than the clean-up operation. All Town staff comments have been addressed. The applicant is in contact with CTDOT for the work in the right-of-way. A waiver has been requested for the back parking area to be pervious instead of paved.

Owner Asif Choudhry said 90% of the site has been cleaned up. When the new tanks and monitoring values were installed the contaminated soil was removed and the area dewatered. Three properties next to his came in clean during monitoring. The building has been 50% - 60% cleaned. The Building Inspector has been checking on this. There will be seven lights for the back parking area and two to three for the sidewalk. A wall pack could be used to light the sidewalk. The canopy lights will light the filling area.

B. Clark asked if the town requires a photometric plan - that plan would be helpful. P. Carson said yes, staff has asked for one. R. Fournier said this site is on Route 6 and kind of secluded. Is the front going to be lit up enough? Make sure the lighting in front is sufficient.

J. Scala: Are there any angles to take a left turn out of the site for traffic safety? N. Fleming: Nothing is being changed in the front so left turning will be as existing. You can get out of the property by taking a left. T. Crockett: Traffic comes up and down the hill quickly. N. Fleming: CT DOT did not comment on the left turn. Asif: The same situation takes place down the road. They always want a one-way entrance and a one-way exit. The left turn has okay sight lines.

J. Scala complimented the applicant in cleaning up the yard. There are 20 parking spaces on the west side and behind the building. Do you need that many or want that many? N. Fleming: Per regulations only eleven are needed but 20 spaces are proposed with a handicapped van space. The maximum we could have is twenty-five. Asif: If there is a donut shop in the future five to six spaces would be used by employees. Parking is easy to get to with a back entry door to the building. He prefers more parking than the minimum on this large site. There is no parking in the front except at the gas pump stations.

J. Scala noted that a waiver was requested for the back parking to be gravel. Did the applicant account for this area to be gravel or paved with the stormwater calculations? N. Fleming answered calculations were based on the pervious surface. J. Scala: If the back parking area is paved in the future how will the stormwater be addressed? N. Fleming: Rain garden one can be expanded if necessary; it is capable of catching more than is necessary now. P. Carson: The applicant would have to come back before the PZC because that is a large area. J. Cropley: Won't winter maintenance be difficult on the gravel driveway? N. Fleming: It is not as easy as a paved surface. There is a proposed maintenance plan. The trade-off is there is less impervious coverage. J. Scala: Is there concern about slip and fall issues? Asif: He has several stations where salt and sand are used. Salt is used on icy sidewalks and sand is used in the parking lot. P. Carson: What is the maintenance requirement to keep the gravel area pervious? N. Fleming: The area is coarse gravel on top with a fine gravel base. These surfaces can move. The maintenance would be to make sure there are no washed out areas. The coarse gravel layer is ~12" on top of a 3" pea stone base. B. Clark: would like to know the long term life of the gravel area. P. Carson said some of staff's comments were addressed on the revised plans. There was a question about the turning radius for delivery trucks and fire apparatus. The turning radius is

now shown on the plans. The southeast corner is tight but a box truck should be able to make the turn.

P. Carson stated the architectural elevations were received. The PZC needs to review those and determine if they are in line with the regulations. With the parking in the rear Staff did discuss making the back rear entry more of a public entrance and match the front of the building with faux windows. There is a single door going into the back of the building. Asif: We could make that a double door. The layout inside the building has been changed. Those plans are not the latest layout. The electrical room has been moved.

The erosion and sediment bond has a revised estimate. J. Scala had sent an email to P. Carson indicating the bond estimate is on the low side looking at DOT unit prices. P. Carson stated another staff comment was about open space and connectivity from the site to the Hop River Trail. The health district has not sent a review to see if all of their comments have been addressed. A Phase 1A well site approval is needed also.

A. Choudhry said it is a jungle in the back of the property and believes it is more liability to have the trail behind his property. T. Crockett said that seems to be a liability for the owner. A. Choudhry said the septic and well approval have been applied for. The areas have been staked out; the inspector will be out next week to view the locations.

T. Manning said he did not see anything about signage for this application. Is there a plan to have a drive-up window? A. Choudhry stated if he ever got a donut or sandwich shop space rented out then there would be a drive-up window. Dunkin' likes to put up their own buildings. P. Carson said for something like that he would need a site permit modification.

T. Manning would like to see coordination between all of the different plans when they are resubmitted. They seem to be disjointed and difficult to be able to see that everything works together. All of the exterior lighting is to be shown. Does the applicant need to approve a continuance of the public hearing and are we still in the statutory timeframes on the application? P. Carson answered that the hearing was opened for first time this evening and have 35 days to close it. If it goes beyond the next meeting the Commission would have to get permission from the applicant for a continuance.

Regarding connectivity to the Hop River Trail, T. Manning stated that although the applicant has concerns about liability he would like the applicant to talk to the Bolton Land Trust. This is a very active group of trail makers and they are interested in promoting recreation and connections to everything in Bolton including commerce. He recommends this conversation take place between the applicant and the Bolton Land Trust. T. Crockett felt the connection to the trail could be a little more than you bargain for with garbage and dog droppings.

T. Manning asked for public comment. No one from the public wished to comment.

T. Manning moved to continue the public hearing on Special Permit Application for Gas Station/Convenience Store, 271 Hop River Road, Nathan Fleming (#PL-22-2) to Wednesday, May 11, 2022, at 7:45 p.m. via a virtual, hybrid, or in person meeting. **J. Scala seconded**. Vote: 7-0-0. Motion passed.

6. Old Business

a. Discussion/Possible Decision: Special Permit Application for Gas Station/Convenience Store, 271 Hop River Road, Nathan Fleming (#PL-22-2)

No action to be taken since the public hearing is continued.

b. Other: There was none.

7. New Business:

a. Special Permit Application for Veterinary Hospital/Veterinary Emergency Care, 233 Boston Turnpike & 12 Williams Road (Bolton Vet), Veterinarians of Eastern Connecticut LLC (#PL-22-3)

T. Manning: The Commission is receiving this application tonight.

T. Manning moved to hold a public hearing for Special Permit Application for Veterinary Hospital/Veterinary Emergency Care, 233 Boston Turnpike & 12 Williams Road (Bolton Vet), Veterinarians of Eastern Connecticut LLC (#PL-22-3) at 7:45 p.m. on Wednesday, May 11, 2022, via a virtual, hybrid, or in person meeting. **R. Fournier seconded**. Vote: 7-0-0. Motion passed.

b. Other: There was none.

8. Correspondence:

P. Carson: T. Manning is our current representative to CRCOG. The Commission needs to appoint a representative and a backup to the Council.

T. Manning: Is willing to continue as representative. CRCOG meets four to five times per year. You get to meet with other town's PZC representatives and how that town is handling and dealing with issues. There is usually a major presentation on what is going on legislatively or conceptually

P. Carson: T. Manning will be the representative and R. Fournier will be the backup.

9. Adjournment:

J. Scala moved to adjourn the meeting at 8:54 p.m. T. Robbins **seconded.**

Respectfully Submitted,

Yvonne B. Filip

Yvonne B. Filip, Planning & Zoning Commission Recording Secretary

Please see minutes of subsequent meetings for approval of these minutes and any corrections hereto.

PL-22-2

Planning Permit

Status: Active

Date Created: Feb 2, 2022

Applicant

Nathaniel Fleming
nfleming@fedusenginneering.com
70 ESSEX STREET
Mystic , CT 06355
8024406130

Location

271 HOP RIVER RD
BOLTON, CT 06043

Owner:

IMS Petroleum, LLC
271 HOP RIVER RD BOLTON, CT 06043

Permit Info

Permit For
Special Permit Application

Building Type
Commercial

Development Title
271 Hop River Road

Occupancy Type
Commercial

Project Cost
--

Project Description
An existing auto repair shop to be converted into a convenience store. Existing debris areas on the site to be cleaned and removed.

Is this a modification of a previously approved application?
No, this is a new application.

Comments
--

Additional Applicant Info

Applicant Type
Other

Application Contact Name
Nathaniel Fleming

Additional Project Info

Date of Receipt
--

Hearing Not Required
☐

Legal Notice Date 1
--

Legal Notice Date 2
--

Hearings Commencement Deadline
--

Hearings Completion Deadline
--

Decision Deadline
--

Extended
☐

Existing Gross Sqft
--

Proposed Gross Sqft
--

Existing Parking Spaces
--

Proposed Parking Spaces
22

Total Acreage / Sqft
639,104

Linear Feet of Frontage
180

Distance to Town Line
--

Parcels Included in Project

MBL / Parcel ID
8/108

Land Records: Vol.
185

Land Records: Page
947

Internal Use

Conditions
--

Petition Received?
--

Date of Newspaper Publication for Public Hearing
--

Date of Newspaper Publication of Planning and Zoning Commission Action
--

Summary of Planning and Zoning Commission Action
--

Bond Required?
--

Legal/Technical Review NOT Required
☐

Date of Planning and Zoning Commission Action
--

Date Application Received by Inland/Wetlands Commission (if applicable)
--

Date in Inland/Wetlands Commission Action (if applicable)
--

Construction Progress

Construction Progress
0

Time Spent (hrs)
0

Setbacks

Front Required
35

Front Provided
50.3

Back Required
30

Back Provided
1,088.7

Left Required
10

Left Provided
40.8

Right Required
10

Right Provided
84.2

Open Space Required
20

Open Space Provided
--

Lot Coverage Required
15

Lot Coverage Provided
0.8

Engineer Information

Company Name
--

Engineer Name
--

Address
--

City
--

State
--

Zip
--

Phone
--

Registration #
--

Insurance Expiration
--

AOR
--

Email
gfedus@fedusengineering.com

Architect Information

Company Name

Architect Name

--

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Registration #

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License Expiration

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Address

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City

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State

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Zip

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Phone

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Email

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AOR

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Attorney Info

Name

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Address

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City

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State

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Zip

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Phone

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Email

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Zoning Site Plan and Special Permit Checklist

All draft deeds for any roads, road widenings and easements for drainage, conservation, driveways, utilities

Not Included

Evidence of request for approval by the Health District and/or Sewer Authority for review, as appropriate

Included

Evidence of submission of application to the Inland Wetlands Commission if it is within that Commission's jurisdiction

Included

Evidence of submission of a request for review and approval by the Fire Marshal and Fire Chief of the water supply for fire protection

Included

Copies of any required applications to other local, state or federal regulatory approvals

Included

Written evidence of applicant's legal interest in the subject property (deed, lease option to purchase, bond for deed, etc.)

Included

List of mailing address of all current property owners within 500 feet of the subject property, from the Town Assessor records (for special permit only)

Included

List of all hazardous or potentially hazardous materials which will be present on the property with a full description of procedures that will be used to assure safety with the material safety data sheets

Not Included

Digital copy of plans in DXF or DGN format if available

Not Included

Paper and digital copies of all reports including hydrology, hydraulic and drainage computations and

Not Included

14 sets of complete stamped and signed site plans measuring 24" x 36

Included

A-2 boundary survey of the subject property showing all existing and proposed boundary lines and markers, easements, adjoining property lines and the names of all current abutting property owners

Included

Names of abutting lot owners

Included

USDA Soils boundaries and types

Not Included

Plan title block in the extreme lower right corner (not sideways) to include the name of the town of Bolton

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All plan sheets numbered with the format "sheet x of y"

Included

Clear legible plans with all lines, symbols and features readily identifiable

Included

North arrow on each plan including the reference meridian

Included

Graphic bar scale on each plan sheet, not smaller than 1"= 40' unless otherwise approved by the Commission

Included

Overall plan of site at a smaller scale, with sheet index, if the site does not fit on one sheet at a scale of 1"=40'

Included

Key map at a scale of 1"= 500' showing the relation of the site to abutting properties and streets, shown on plan and zoning district boundaries within 500' of site

Included

Original and revision plan dates and revision explanations shown on the affected plan sheets

Included

Existing and proposed grading with two foot contours to T-2 standards, for all ground surfaces, shown on plan

Included

Existing and proposed structures and features, their uses and those to be removed, shown on the plan

Included

HVAC equipment located outside the building(s)

Not Included

Existing and proposed driveway entrances to street, parking, loading areas, fire lanes, sidewalks and construction detail drawings, shown on plan

Included

Sight distances from property entrances along public roads shown on plan and on profile if grading is needed

Not Included

Soil test locations and soil test results shown on plan

Included

Existing and proposed sewage disposal systems and design information, shown on plan

Included

Outside Storage Areas\tField

Included

Underground / overhead utilities, existing and proposed

Included

Existing and proposed water supply shown on plan

Included

Existing wells and sewage disposal systems on other properties that could conflict with proposed site improvements, shown on plan

Included

Existing and proposed footing drains, curtain drains and dry wells, shown on plan

Included

Existing and proposed drainage systems, any affected floodway or floodplain and construction detail drawings, shown on plan, including base flood elevation and floor elevation data.

Included

Existing and proposed bridges and culverts on or adjacent to the site, shown on plan

Not Included

Existing and proposed signs with dimensions and construction detail drawings, shown on plan

Not Included

Existing and proposed fences and walls with dimensions and construction detail drawings, shown on plan

Included

Zoning district boundaries affecting the site, shown on plan

Included

Table shown on plan of zoning dimensions required and provided for lot area, street frontage, lot width, yard setbacks, impervious area, building coverage and the height and floor area of each building

Included

Table on plan of parking / loading spaces required / provided

Included

Fire lanes

Not Included

New Sidewalks and other pedestrian waysField

Not Included

Off-site traffic improvements

Included

Limits of wetlands as delineated by a certified soil scientist with the soil scientist's signed certification, shown on plan or a certification signed by a soil scientist that no wetlands are within 100 feet

Included

Natural features including 100 year flood plain areas, ponds, vernal pools, aquifers, slopes steeper than 25% and potential areas of endangered species, shown on plan

Not Included

Landscaping plan including the locations, numbers, installed sizes, anticipated mature sizes, species and common names of proposed plants plus cost estimate based on published Connecticut DOT unit prices

Not Included

Existing trees of 6" caliper or greater

Not Included

Significant archaeological sites

Not Included

Lighting plan including the location, size, height, light intensity coverage areas and manufacturer's product descriptions for each light type

Not Included

Erosion and Sedimentation Control Plan, with narrative and construction detail drawings, in accordance with the latest Connecticut Guidelines for Soil Erosion and Sediment Control

Included

Best management practices to remove contaminants, including sediments and oils, from runoff water, shown on plan, in construct detail drawings, and explained in a report by a qualified professional

Not Included

Architectural elevation drawings of proposed buildings

Included

Architectural floor plans of existing and proposed buildings

Included

Perspective color drawings or digital views of the site as seen from adjacent roads and from abutting property lines showing the proposed conditions including buildings, landscaping and appurtenant features

Not Included

Traffic Impact Report for applicable sites as described in Zoning Regulations Section 16A.2.k.

Not Included

Thorough, well organized drainage design report for before and after development conditions, that conforms to the latest Conn. Dept. of Transportation and Conn. Dept. of Environmental Protection guidelines and requirements with appropriate calculations, maps, graphics and narrative descriptions of hydrology, hydraulics, assumptions, erosion controls, drainage paths and systems for the 1, 2, 10, 50 and 100 year storm events

Not Included

Thorough, well organized drainage design report for before and after development conditions, that conforms to the latest Conn. Dept. of Transportation and Conn. Dept. of Environmental Protection guidelines and requirements with appropriate calculations, maps, graphics and narrative descriptions of hydrology, hydraulics, assumptions, erosion controls, drainage paths and systems for the 1, 2, 10, 50 and 100 year storm events

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Statement in drainage report that the after development flows for all storm events do not exceed the before development flows

Not Included

Sanitary Waste Disposal Plan (if community sewerage system)

Not Included

Evaluation of the impact of proposed development upon existing and potential public surface and ground drinking water supplies, pursuant to CGS, Section 8-2

Not Included

Certified copy of Certificate of Public Convenience and Necessity in connection with a "water company", in accordance with CGS, Section 8-25a

Not Included

Existing and proposed Covenants or Restrictions

Not Included

Engineer's itemized cost estimate for the installation of all erosion and sediment controls based on published Connecticut DOT unit prices

Not Included

Engineer's itemized cost estimate for public improvements based on published Connecticut DOT unit prices as basis for the establishment of a performance bond.

Not Included

Engineer's itemized cost estimate in connection with any restoration guarantee required pursuant to Section 12

Not Included

Application Submission and Certification

I hereby certify that I am the owner of the record of the named property or that the proposed work is authorized by the owner of record and I have been authorized to make this application as agent, and we agree to conform to all applicable laws, regulations, and ordinances. All information contained within is true and accurate to the best of my knowledge.

Electronic Signature

Nathaniel Fleming
02/02/2022

Applicant Name

Nathaniel Fleming

Attachments

pdf Payment Receipt - Septic Review.pdf
Uploaded by Nathaniel Fleming on Feb 2, 2022 at 3:23 pm

pdf 21-000985 - Bolton - 271 Hop River Road - Asif Choudrey - Site Plan - Planning and Zoning Rev. 3.pdf
Uploaded by Nathaniel Fleming on Feb 2, 2022 at 3:25 pm

pdf 21-000985 - Bolton - 271 Hop River Road - Asif Choudrey - A2 and Class D Survey.pdf
Uploaded by Nathaniel Fleming on Feb 2, 2022 at 3:24 pm

pdf 21-000985 - Bolton - 271 Hop River Road - Asif Choudrey - Abutters List 500'.pdf
Uploaded by Nathaniel Fleming on Feb 2, 2022 at 3:25 pm

IMG_3620.jpg
Uploaded by Nathaniel Fleming on Feb 2, 2022 at 3:27 pm

pdf NCPhaseIA App 2021-0194.pdf
Uploaded by Nathaniel Fleming on Feb 2, 2022 at 3:29 pm

pdf Bolton - 271 Hop River Rd soil removal plan.pdf
Uploaded by Danielle Palazzini on Feb 3, 2022 at 8:24 am

pdf 271HopRiver.LegalandTechRvwBond.Rcvd020322.pdf
Uploaded by Danielle Palazzini on Feb 3, 2022 at 11:32 am

pdf Signature Page.pdf
Uploaded by Danielle Palazzini on Feb 4, 2022 at 7:33 am

pdf

271 Hop River Road environmental status 2322.pdf
Uploaded by Danielle Palazzini on Feb 4, 2022 at 9:48 am

History

Date	Activity
Feb 2, 2022 at 12:50 pm	Nathaniel Fleming started a draft of Record PL-22-2
Feb 2, 2022 at 3:24 pm	Nathaniel Fleming added attachment 21-000985 - Bolton - 271 Hop River Road - Asif Choudrey - A2 and Class D Survey.pdf to Record PL-22-2
Feb 2, 2022 at 3:25 pm	Nathaniel Fleming added attachment 21-000985 - Bolton - 271 Hop River Road - Asif Choudrey - Abutters List 500'.pdf to Record PL-22-2
Feb 2, 2022 at 3:27 pm	Nathaniel Fleming added attachment IMG_3620.jpg to Record PL-22-2
Feb 2, 2022 at 3:29 pm	Nathaniel Fleming added attachment NCPhaseIA App 2021-0194.pdf to Record PL-22-2
Feb 2, 2022 at 3:29 pm	Nathaniel Fleming submitted Record PL-22-2
Feb 3, 2022 at 8:24 am	Danielle Palazzini added attachment Bolton - 271 Hop River Rd soil removal plan.pdf to Record PL-22-2
Feb 3, 2022 at 11:28 am	completed payment step Permit Fee on Record PL-22-2
Feb 3, 2022 at 11:28 am	approval step Application Review was assigned to Danielle Palazzini on Record PL-22-2
Feb 3, 2022 at 11:32 am	Danielle Palazzini added attachment 271HopRiver.LegalandTechRvwBond.Rcvd020322.pdf to Record PL-22-2
Feb 3, 2022 at 12:26 pm	Danielle Palazzini approved approval step Application Review on Record PL-22-2
Feb 3, 2022 at 12:26 pm	approval step Legal/Technical Review was assigned to Patrice Carson on Record PL-22-2
Feb 4, 2022 at 7:33 am	Danielle Palazzini added attachment Signature Page.pdf to Record PL-22-2
Feb 4, 2022 at 9:48 am	Danielle Palazzini added attachment 271 Hop River Road environmental status 2322.pdf to Record PL-22-2

Timeline

Label	Status	Activated	Completed	Assignee	Due Date
Permit Fee	Paid	Feb 2, 2022 at 3:29 pm	Feb 3, 2022 at 11:28 am	-	-
Application Review	Complete	Feb 3, 2022 at 11:28 am	Feb 3, 2022 at 12:26 pm	Danielle Palazzini	-
Legal/Technical Review	Active	Feb 3, 2022 at 12:26 pm	-	Patrice Carson	-
Engineering Approval	Inactive	-	-	-	-
Fire Marshal Approval	Inactive	-	-	-	-
Planning Approval	Inactive	-	-	-	-
Application Approval	Inactive	-	-	-	-
Bond Received	Inactive	-	-	-	-
Legal/Technical Review Release	Inactive	-	-	-	-

13. Project Engineer: _____

Address _____ Zip _____

Phone # _____ Fax # _____ E-mail _____

14. Project Architect: _____

Address _____ Zip _____

Phone # _____ Fax # _____ E-mail _____

15. Other Experts Retained by Applicant: _____

_____

_____

16. Briefly describe the proposed use of the subject property. Provide greater detail in Project Narrative.

_____

_____

_____

17. Square footage of new / expanded space: _____ # of new parking spaces _____

18. List the Section(s) of the Zoning Regulations under which application is made: _____

_____

19. Provide all the applicable items for a complete application including a completed Checklist for Site Plan Review and Special Permit Applications. A completed checklist must be provided to comprise a complete application.

20. Applicant's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature _____ Date 2/3/22

21. Owner's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature _____ Date 2/3/22

NOTE: If there are any material changes to this application, the Applicant shall immediately notify the Town Staff in writing.

Applicants may be subject to Supplemental Review fees to defray the cost of Professional Review Services such as engineering or legal reviews.

PLANNING & ZONING SUBMISSION

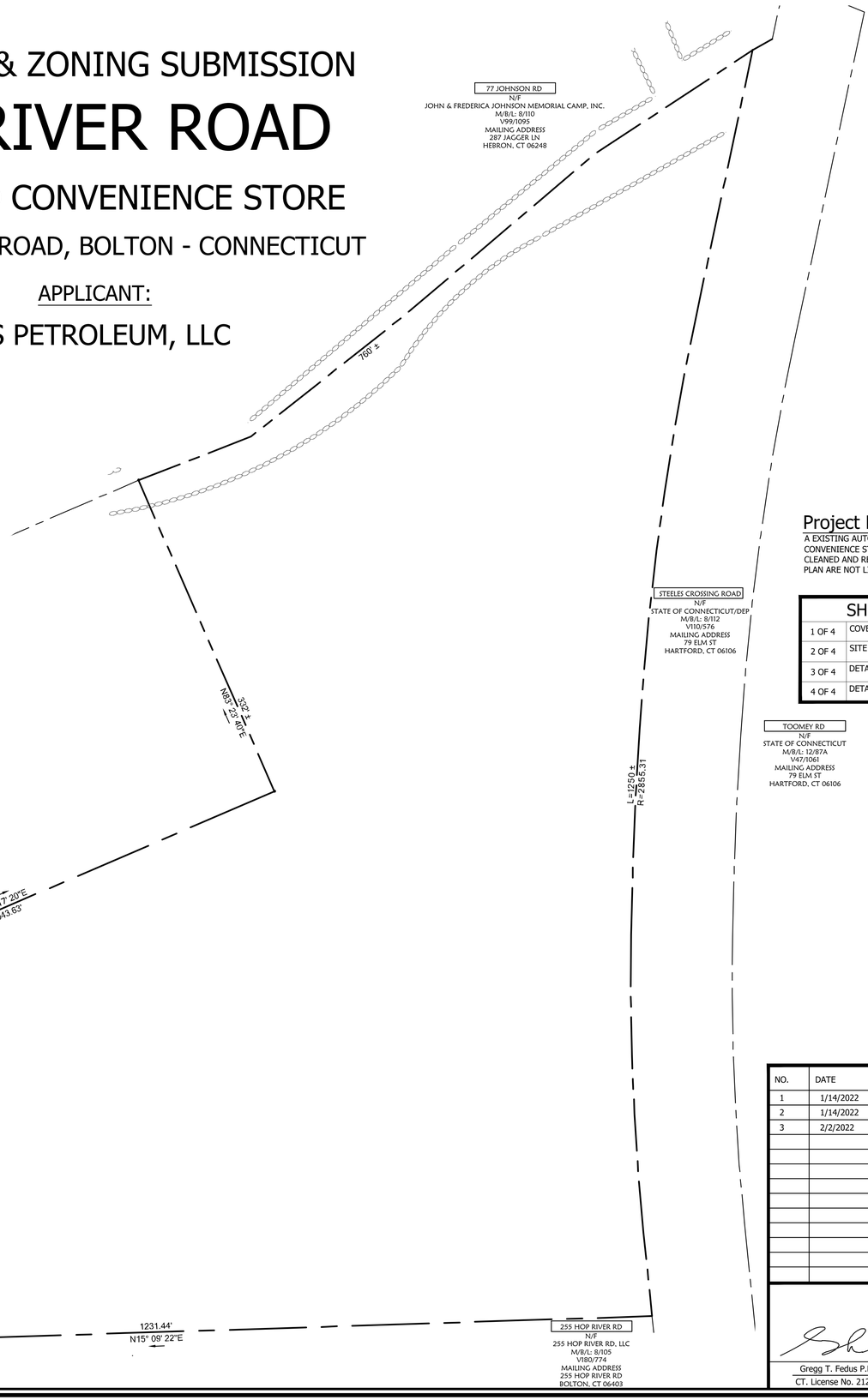
271 RIVER ROAD

PROPOSED CONVENIENCE STORE

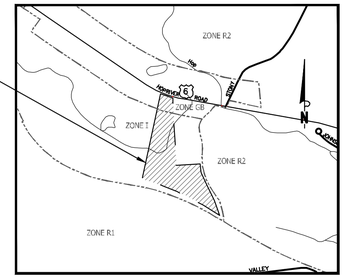
271 HOP RIVER ROAD, BOLTON - CONNECTICUT

APPLICANT:

IMS PETROLEUM, LLC



271 Hop River Road
Bolton, Connecticut



Location Map

Scale: 1"=1000'

0 500 1000 2000

Project Description

A EXISTING AUTO REPAIR SHOP TO BE CONVERTED INTO A CONVENIENCE STORE. EXISTING DEBRIS AREAS ON SITE TO BE CLEANED AND REMOVED. DEBRIS AREAS DEPICTED ON SITE PLAN ARE NOT LIMITED TO CLEAN UP AREAS.

SHEET LIST TABLE

Legend

EXISTING

SYMBOL	DESCRIPTION
	MONUMENT
	EX. IP / REBAR
	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
x—x—x	FENCE LINE
	WATER VALVE
o/w	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF-XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	HIGH TIDE LINE
	COUNTY JURISDICTIONAL LINE
	ZONE LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
W	EXISTING WATER LINE
SS	EXISTING SEWER LINE
N/F	NOW OR FORMERLY
	CATCH BASIN
(TYP.)	TYPICAL
5.8	SPOT ELEVATION
DH	DRILL HOLE
(POB)	POINT OF BEGINNING
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
S	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

	IRON PIN TO BE SET

Subject Parcel Information

OWNER:	IMS PETROLEUM, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 185 PAGE 947
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · LICENSED PROFESSIONAL ENGINEER

Cover Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20'

0 10 20 40

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 1 OF 4 | JOB NO. 21-000985 | DRAWN BY: CAC

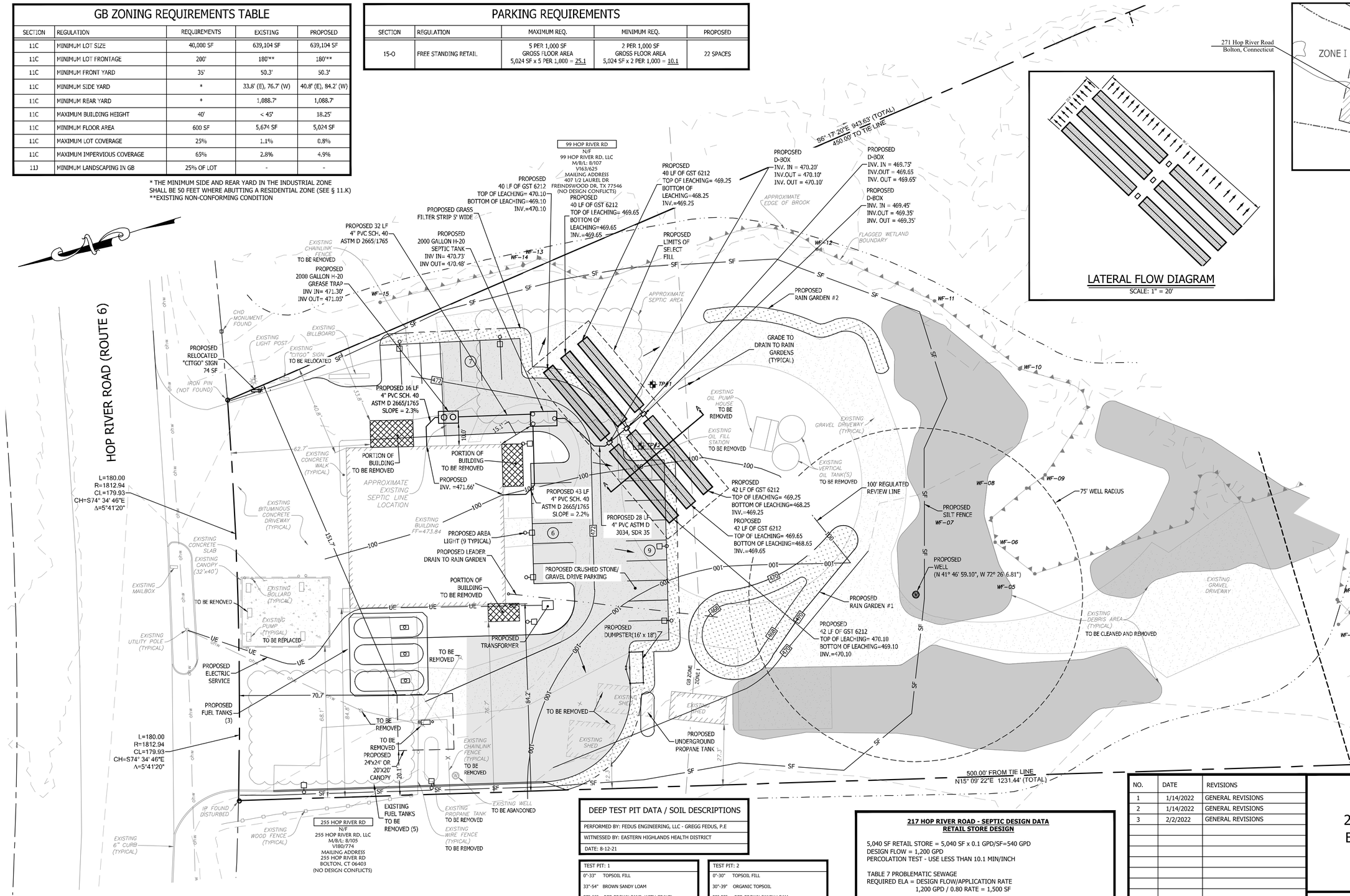
GB ZONING REQUIREMENTS TABLE

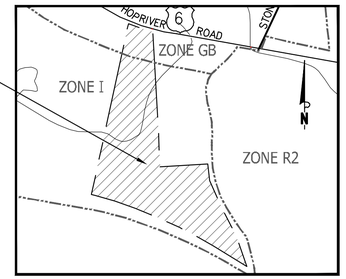
SECTION	REGULATION	REQUIREMENTS	EXISTING	PROPOSED
11C	MINIMUM LOT SIZE	40,000 SF	639,104 SF	639,104 SF
11C	MINIMUM LOT FRONTAGE	200'	180'**	180'**
11C	MINIMUM FRONT YARD	35'	50.3'	50.3'
11C	MINIMUM SIDE YARD	*	33.8' (E), 76.7' (W)	40.8' (E), 84.2' (W)
11C	MINIMUM REAR YARD	*	1,088.7'	1,088.7'
11C	MAXIMUM BUILDING HEIGHT	40'	< 45'	18.25'
11C	MINIMUM FLOOR AREA	600 SF	5,674 SF	5,024 SF
11C	MAXIMUM LOT COVERAGE	25%	1.1%	0.8%
11C	MAXIMUM IMPERVIOUS COVERAGE	65%	2.8%	4.9%
11J	MINIMUM LANDSCAPING IN GB	25% OF LOT	-	-

* THE MINIMUM SIDE AND REAR YARD IN THE INDUSTRIAL ZONE SHALL BE 50 FEET WHERE ABUTTING A RESIDENTIAL ZONE (SEE § 11.K)
**EXISTING NON-CONFORMING CONDITION

PARKING REQUIREMENTS

SECTION	REGULATION	MAXIMUM REQ.	MINIMUM REQ.	PROPOSED
15-O	FREE STANDING RETAIL	5 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 5 PER 1,000 = 25.1	2 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 2 PER 1,000 = 10.1	22 SPACES





Location Map
Scale: 1"=1000'
0 500 1000 2000

Legend

EXISTING

SYMBOL	DESCRIPTION
	MONUMENT
	EX. IP / REBAR
	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
	FENCE LINE
	WATER VALVE
	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF-XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	HIGH TIDE LINE
	COUNTY JURISDICTIONAL LINE
	ZONE LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
W	EXISTING WATER LINE
SS	EXISTING SEWER LINE
N/F	NOW OR FORMERLY
	CATCH BASIN
(TYP.)	TYPICAL
5.8	SPOT ELEVATION
DH	DRILL HOLE
(POB)	POINT OF BEGINNING
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
S	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

	IRON PIN TO BE SET

Subject Parcel Information

OWNER:	IMS PETROLEUM, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 185 PAGE 947
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

DEEP TEST PIT DATA / SOIL DESCRIPTIONS

PERFORMED BY: FEDUS ENGINEERING, LLC - GREGG FEDUS, P.E
WITNESSED BY: EASTERN HIGHLANDS HEALTH DISTRICT
DATE: 8-12-21

TEST PIT: 1	
0"-33"	TOPSOIL FILL
33"-54"	BROWN SANDY LOAM
57"-66"	RED BROWN SAND, WITH GRAVEL
66"-95"	BROWN SILTY SAND
MOTTLES:	66"
GROUNDWATER:	95"
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	66"

TEST PIT: 2	
0"-30"	TOPSOIL FILL
30"-39"	ORGANIC TOPSOIL
39"-53"	RED-BROWN SANDY LOAM
53"-96"	GRAVEL/BROWN SILTY LOAM
MOTTLES:	53"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

217 HOP RIVER ROAD - SEPTIC DESIGN DATA
RETAIL STORE DESIGN

5,040 SF RETAIL STORE = 5,040 SF x 0.1 GPD/SF=540 GPD
DESIGN FLOW = 1,200 GPD
PERCOLATION TEST - USE LESS THAN 10.1 MIN/INCH

TABLE 7 PROBLEMATIC SEWAGE
REQUIRED ELA = DESIGN FLOW/APPLICATION RATE
1,200 GPD / 0.80 RATE = 1,500 SF

LEACHING TRENCH GST 6212 = 10.0 SF/LF
MINIMUM REQUIRED TRENCH = 150.00 LF

TRENCH PROVIDED =246
EFFECTIVE LEACHING PROVIDED = 2,460 SF

MLSS = HF x FF x PF RS = 36"
HF = 28.0 HYDRAULIC GRADIENT = (471.19'-467.61')/72' =4.97%
FF = 4.0
PF = 1.0
MLSS = 28 x 4.0 x 1.0 = 112 LF
PROVIDED 88 + 25 = 113 LF. NEEDED 112 LF OKAY WITH 2 SIDE LATERAL FLOW.

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS

Site Plan
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20' 0 10 20 40

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT GREGG T. FEDUS NO. 21231 LICENSED PROFESSIONAL ENGINEER

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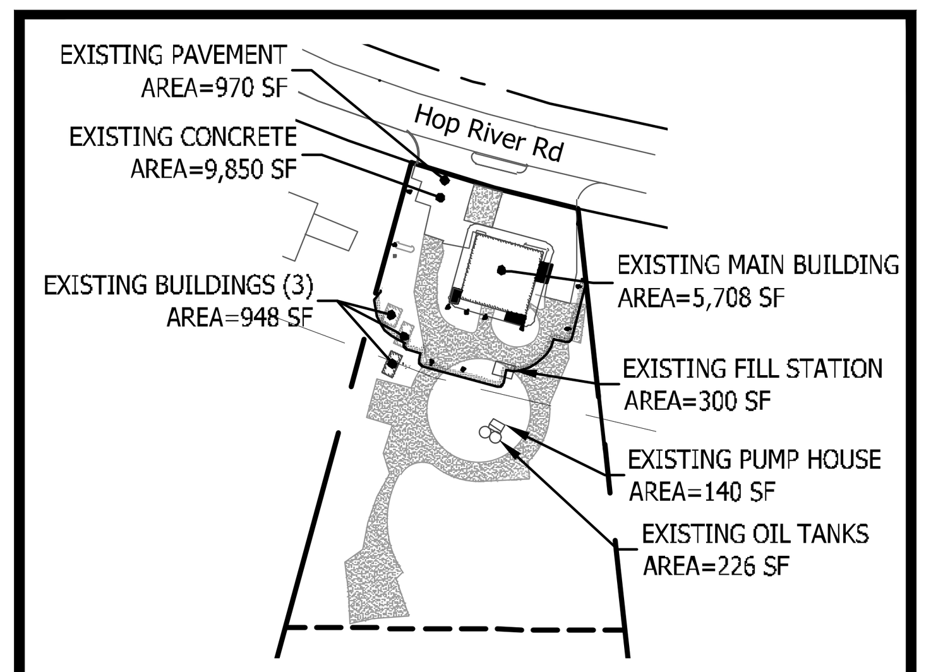
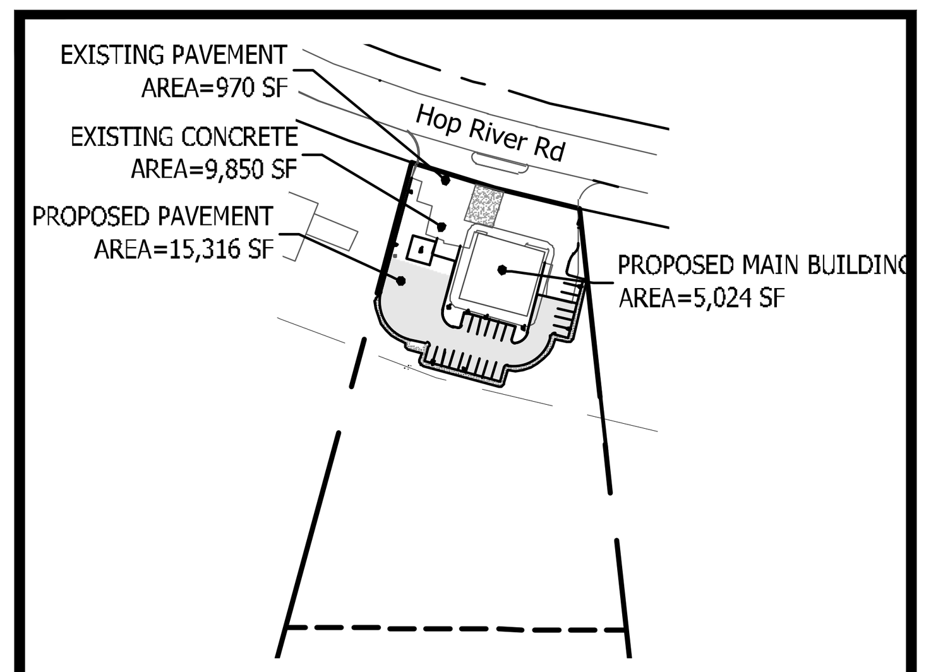
SHEET NO. 2 OF 4 | JOB NO. 21-000985 | DRAWN BY: CAC



EXISTING IMPERVIOUS AREA

	AREA
EXISTING PAVEMENT	10,820 SF
EXISTING MAIN BUILDING	5,708 SF
EXISTING BUILDINGS (3)	948 SF
EXISTING FILL STATION	300 SF
EXISTING PUMP HOUSE	140 SF
EXISTING OIL TANKS	226 SF
TOTAL IMPERVIOUS AREA	18,142 SF
SITE AREA	639,104 SF
IMPERVIOUS AREA / SITE AREA =	2.8%

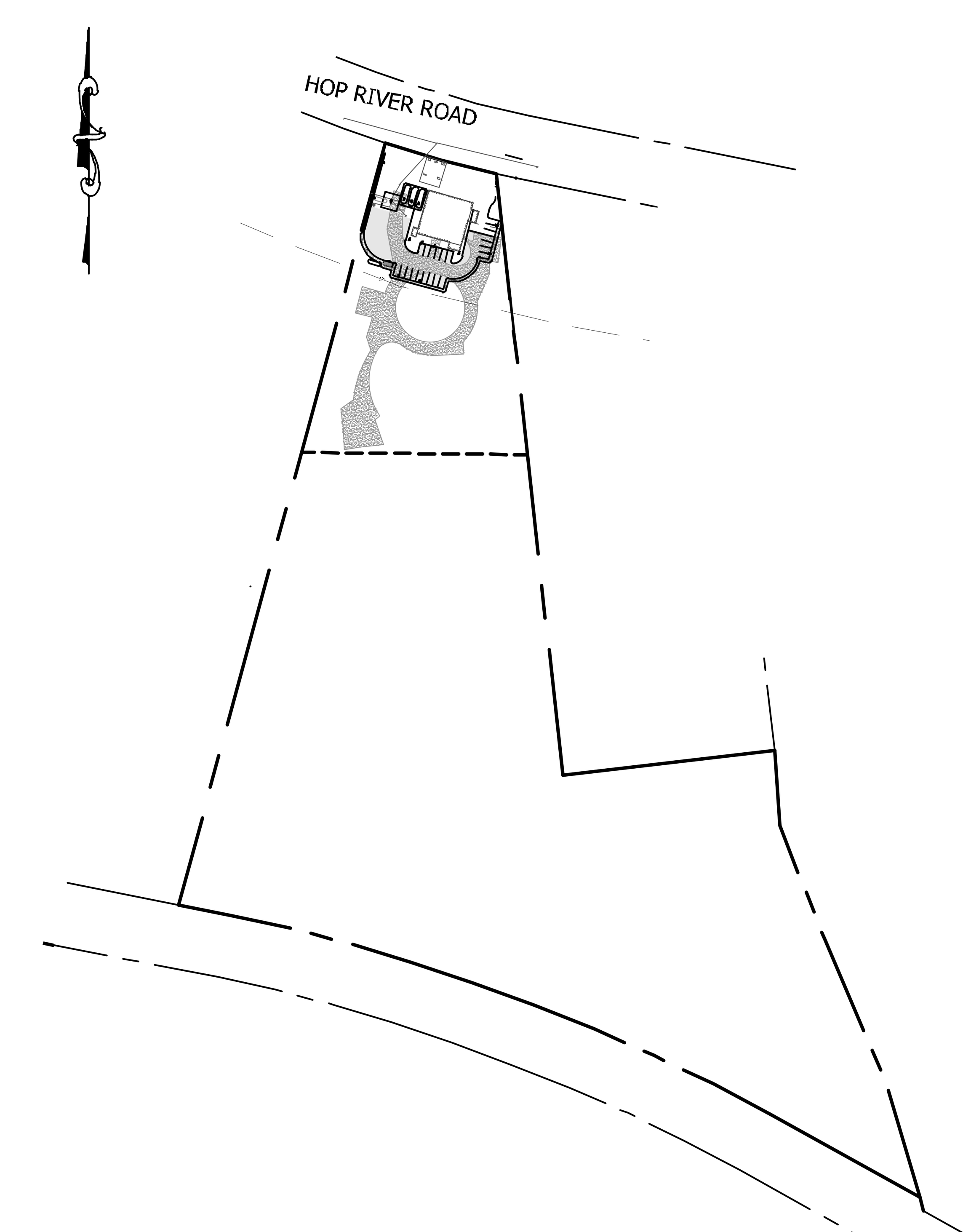
EXISTING IMPERVIOUS AREA
SCALE:1"=200'



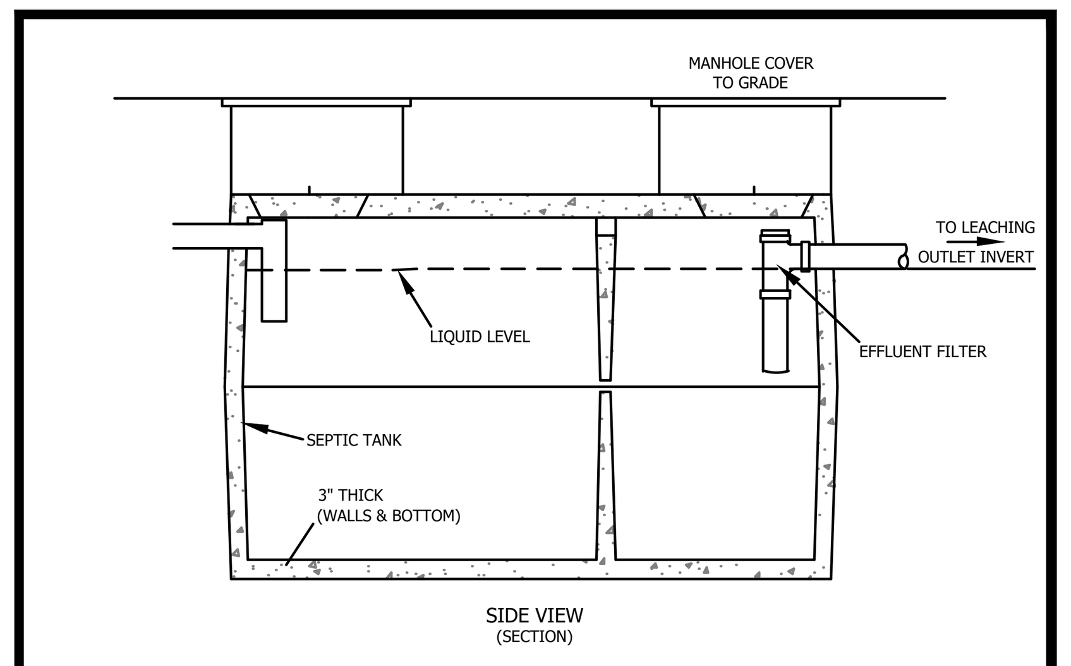
PROPOSED IMPERVIOUS AREA

	AREA
EXISTING PAVEMENT	10,820 SF
PROPOSED PAVEMENT	15,316 SF
PROPOSED MAIN BUILDING	5,024 SF
TOTAL IMPERVIOUS AREA	31,160 SF
SITE AREA	639,104 SF
IMPERVIOUS AREA / SITE AREA =	4.9%

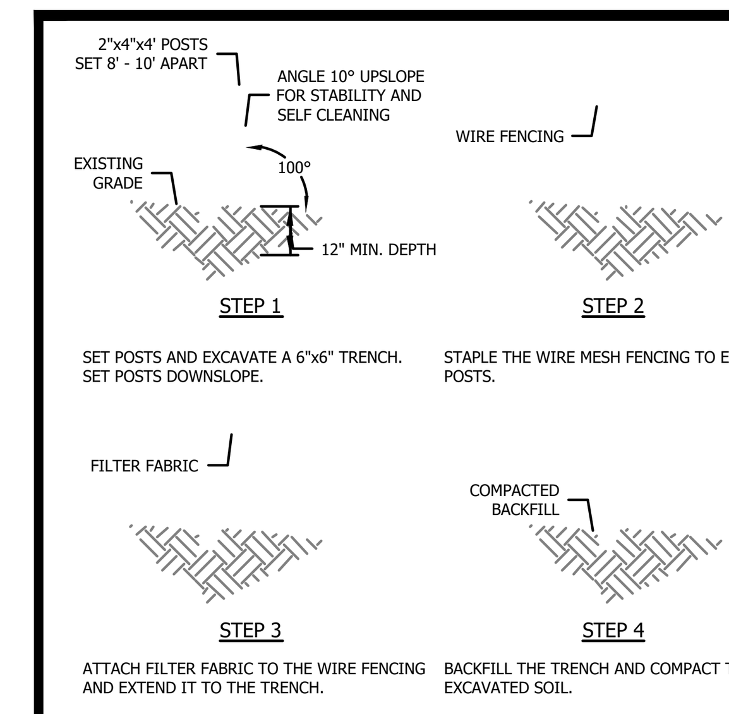
PROPOSED IMPERVIOUS AREA
SCALE:1"=200'



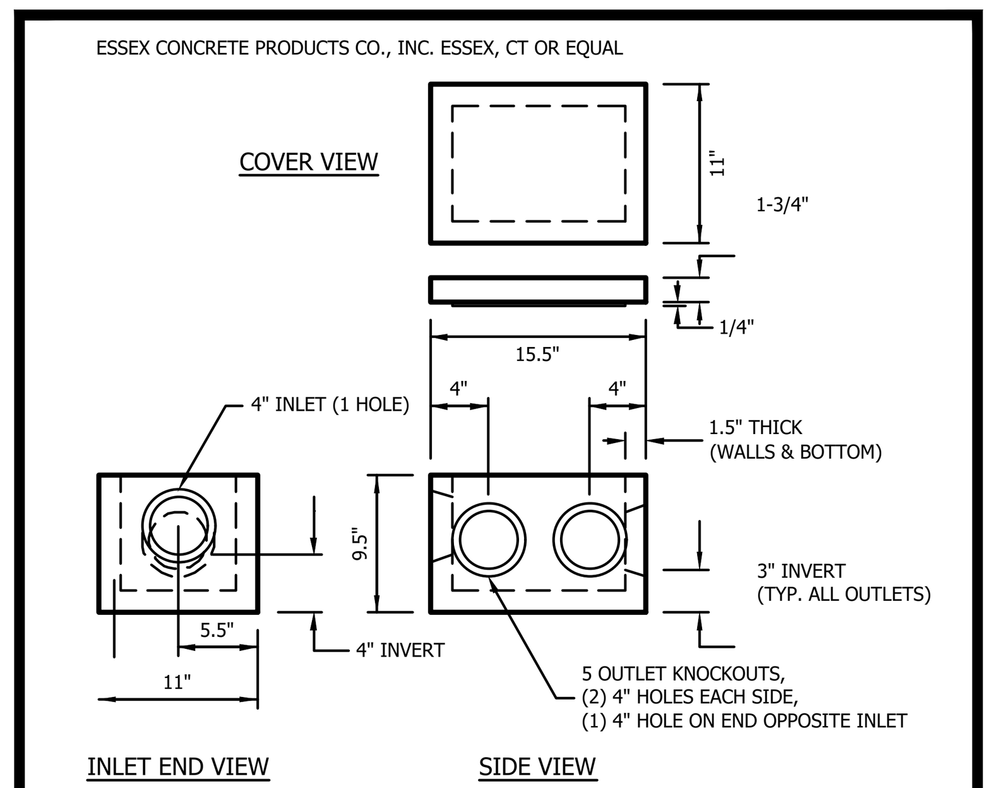
OVERALL SITE MAP
SCALE:1"=200'



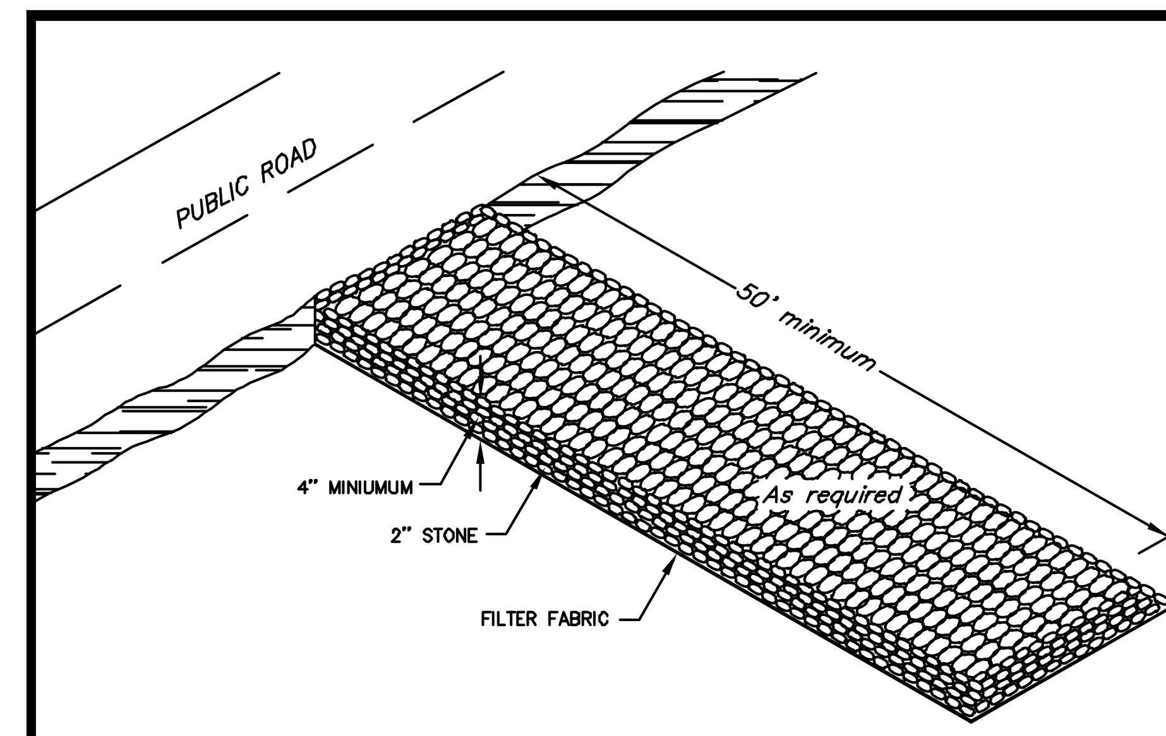
H-20 SEPTIC TANK DETAIL
SCALE: NOT TO SCALE



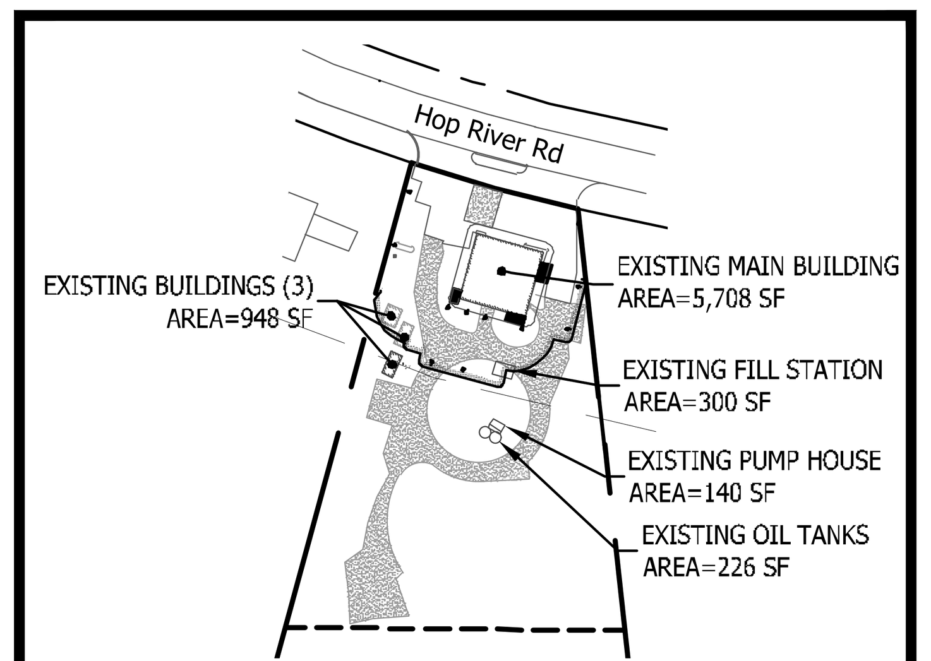
SILT FENCE INSTALLATION
SCALE: NOT TO SCALE



DISTRIBUTION BOX DETAIL
SCALE: NOT TO SCALE



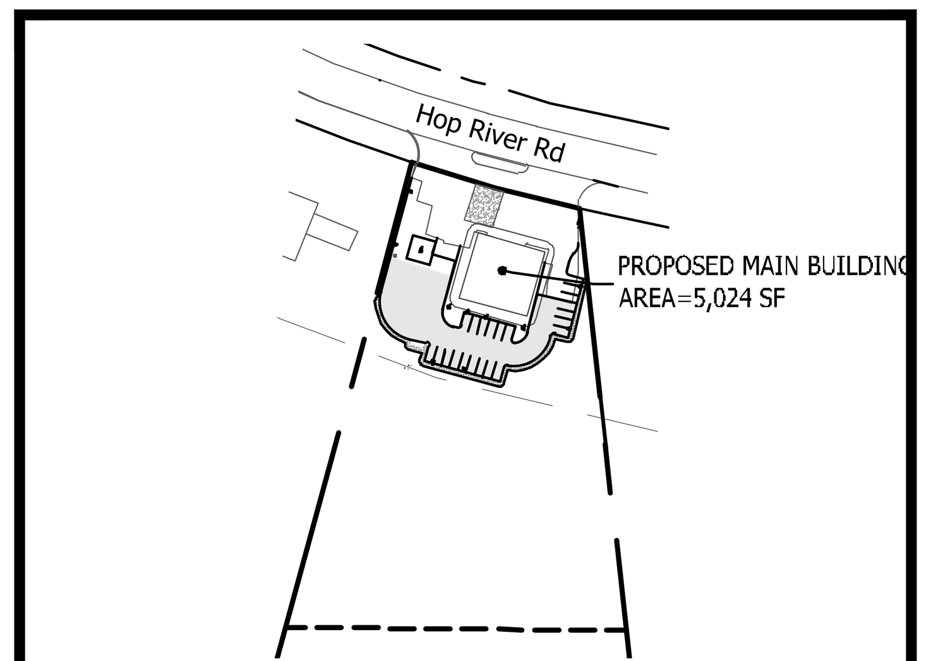
ANTI-TRACKING PAD
N.T.S.



EXISTING LOT COVERAGE

	AREA
EXISTING MAIN BUILDING	5,708 SF
EXISTING BUILDINGS (3)	948 SF
EXISTING FILL STATION	300 SF
EXISTING PUMP HOUSE	140 SF
EXISTING OIL TANKS	226 SF
TOTAL COVERAGE AREA	7,322 SF
SITE AREA	639,104 SF
LOT COVERAGE / SITE AREA =	1.1%

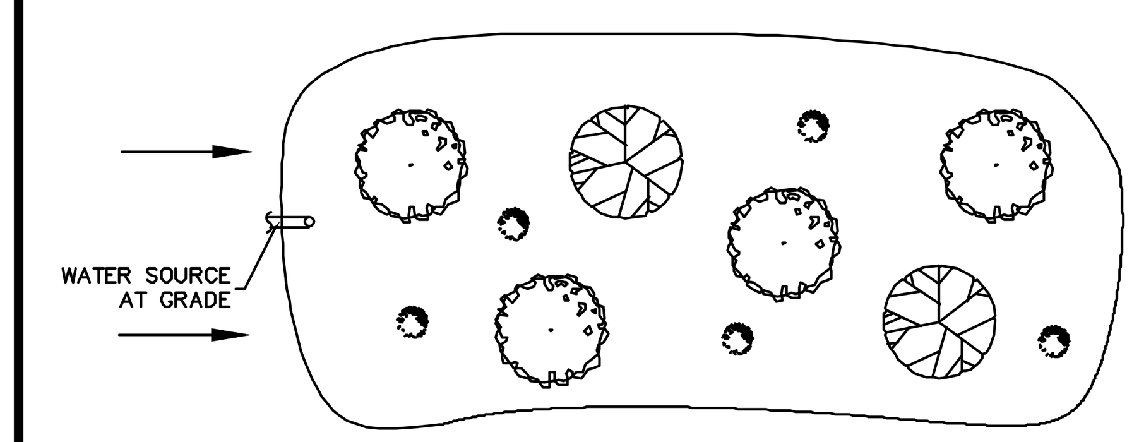
EXISTING LOT COVERAGE
SCALE:1"=200'



PROPOSED LOT COVERAGE

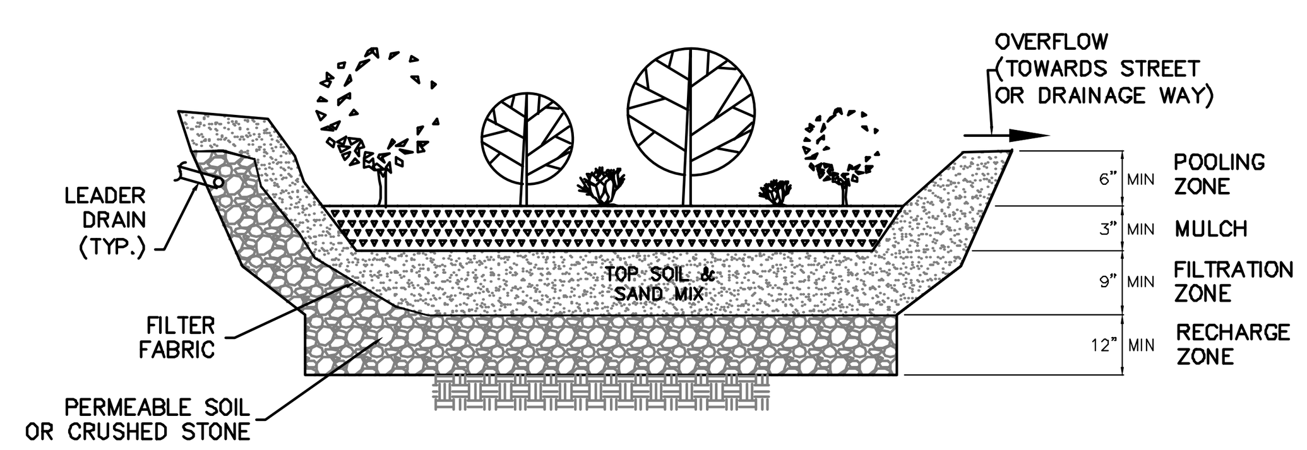
	AREA
PROPOSED MAIN BUILDING	5,024 SF
TOTAL COVERAGE AREA	5,024 SF
SITE AREA	639,104 SF
LOT COVERAGE / SITE AREA =	0.8%

PROPOSED LOT COVERAGE
SCALE:1"=200'



PLAN VIEW

NOTE:
BEFORE PLANTING ADD LAYER OF POTTING SOIL AND FERTILIZER



CROSS SECTION

The first inch of rainfall from the leader drains is
1/12" x 5,024 SF = 418.67 CF

The proposed rain garden storage capability is
6/12" x 700 + 1' x 40% x 700 + 1' x 40% x 700 = 910 CF

Rain garden will contain the first inch of roof runoff

The following plants are acceptable in the proposed rain garden:

Trees
Red Maple, Acer rubrum
Shadblow, Amelanchier arborea
River Birch, Betula nigra
Gray Birch, Betula populifolia
Red–Panicled Dogwood, Cornus racemosa
White Ash, Fraxinus americana
Green Ash, Fraxinus pennsylvanica
Witchhazel, Hammamelis virginiana
Red Cedar, Juniperus virginiana
American Sweetgum, Liquidambar styraciflua
Tupelo, Nyssa sylvatica
American Hop Hornbeam, Ostrya virginiana
Swamp White Oak, Quercus bicolor
Pin Oak, Quercus palustris
Red Oak, Quercus rubra

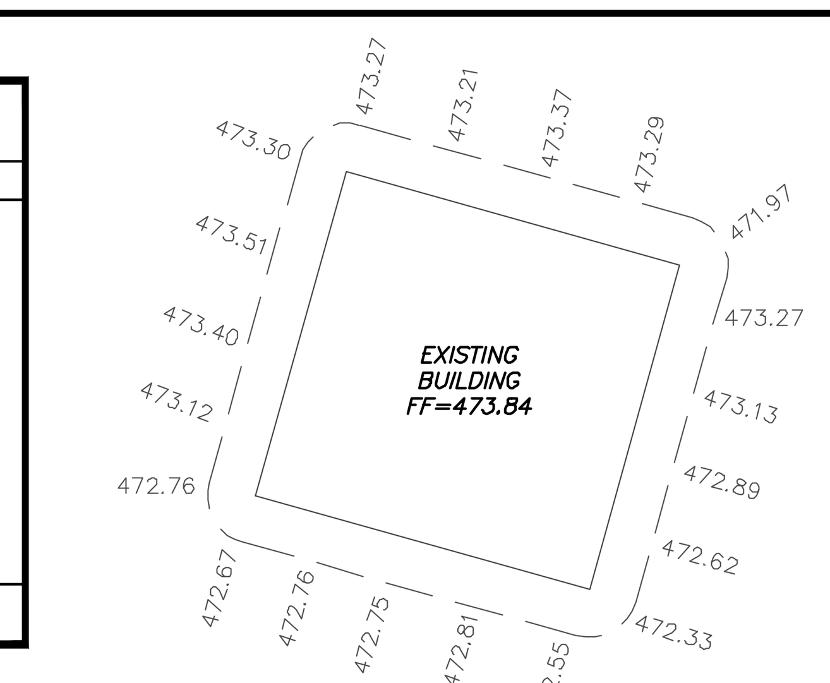
Shrubs and Vines
Red Chokeberry, Aronia arbutifolia
Black Chokeberry, Aronia melanocarpa
Wild Clematis, Clematis virginiana
Sweet Pepperbush, Clethra alnifolia
Red Twig Dogwood, Cornus sericea
Black Huckleberry, Gaylussacia baccata
Inkberry, Ilex glabra
American Holly, Ilex opaca
Winterberry Holly, Ilex verticillata
Mountain–laurel, Kalmia latifolia
*Northern Spicebush, Lindera benzoin
Trumpet Honeysuckle, Lonicera sempervirens
Northern Bayberry, Myrica pensylvanica
Virginia Creeper, Parthenocissus quinquefolia
Rosebud Azalea, Rhododendron periclymenoides
*Great Rhododendron, Rhododendron maximum
Shining Sumac, Rhus copallinum
*Small Pussy–Willow, Salix humilis
Elderberry, Sambucus canadensis
American Arborvitae, Thuja occidentalis
Late Lowbush Blueberry, Vaccinium angustifolium
Highbush Blueberry, Vaccinium corymbosum
Witherod, Viburnum cassinoides
*Northern Arrowwood, Viburnum dentatum
Nannyberry, Viburnum lentago

Perennials and Herbaceous Plants
Northern Maidenhair Fern, Adiantum pedatum
*Jack–in–the–pulpit, Arisaema triphyllum
*Wild Columbine, Aquilegia canadensis
*Bushy Aster, Aster dumosus
*Heath Aster, Aster ericoides
New England Aster, Aster novae–angliae
Dwarf Cornel, Cornus Canadensis
Glade–fern, Deparia acrostichoides
Tufted Hair Grass, Deschampsia cespitosa
Carolina Lovegrass, Eragrostis pectinacea
*Sweet Joe–Pye Weed, Eupatorium purpureum
*Grass–leaved Goldenrod, Euthamia graminifolia and Euthamia tenuifolia
Wintergreen, Gaultheria procumbens
Interrupted Fern, Osmunda claytoniana
Switchgrass, Panicum virgatum
*Torrey's Mountain Mint, Pycnanthemum verticillatum
*Virginia Mountain Mint, Pycnanthemum virginianum
*Rough Goldenrod, Solidago rugosa
New York Fern, Thelypteris noveboracensis

RAIN GARDEN DETAIL
NOT TO SCALE

SPOT GRADES

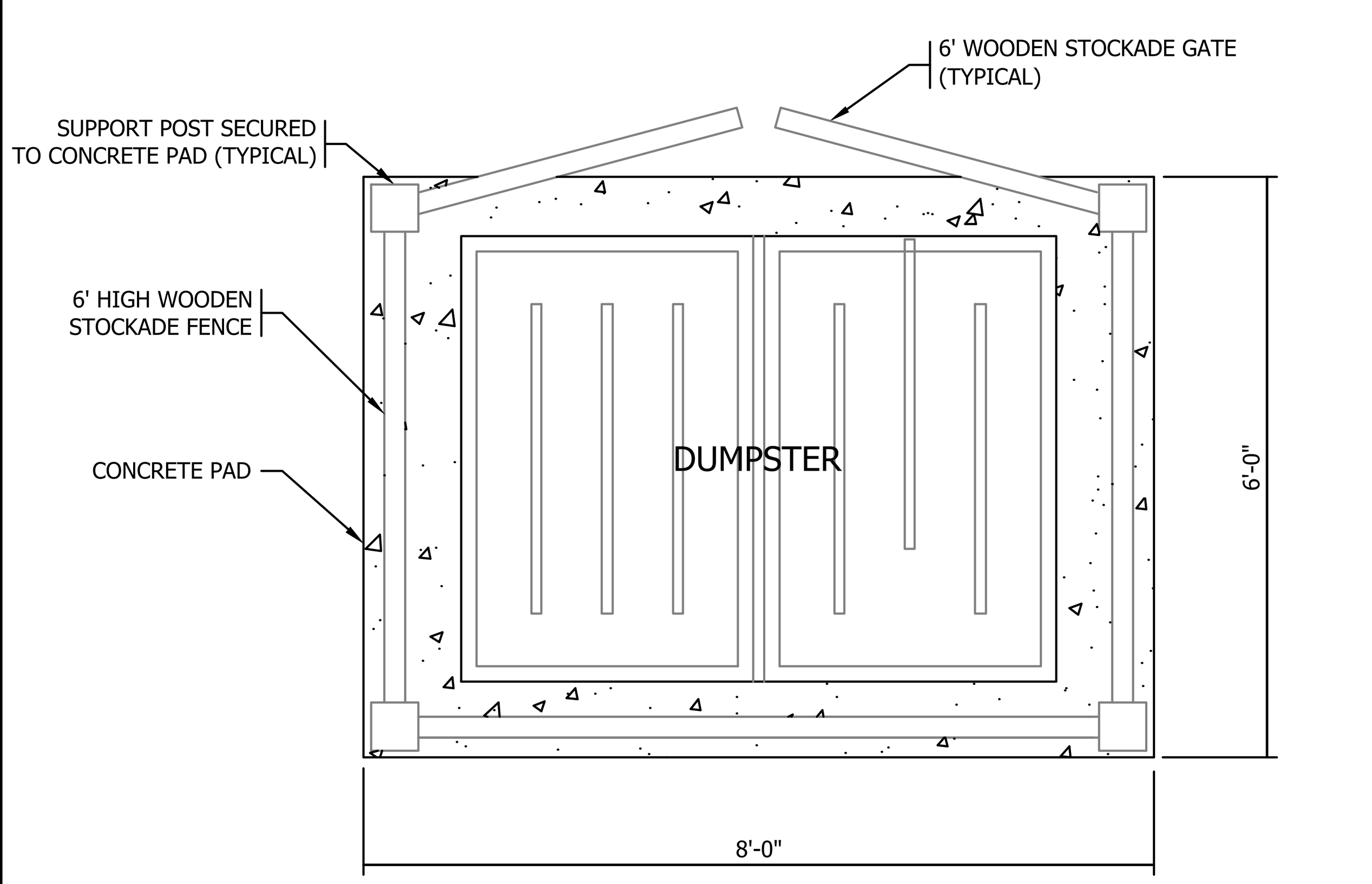
473.27	472.55
473.21	472.81
473.37	472.79
473.29	472.76
471.97	472.67
473.27	472.76
473.13	473.12
472.89	473.40
472.62	473.51
472.33	473.30
TOTAL 9459.02	
9411.21 ÷ 20 =	472.95 AVG



BUILDING HEIGHT CALCULATION

HIGHEST RIDGE ELEV.	491.20
AVERAGE EXISTING GRADE	472.95
AVG. - HIGHET RIDGE = PROP. BUILDING HEIGHT	18.25

BUILDING HEIGHT DETAIL
SCALE:1"=40'



DUMPSTER ENCLOSURE DETAIL
NOT TO SCALE

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
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Detail Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20' 0 10 20 40

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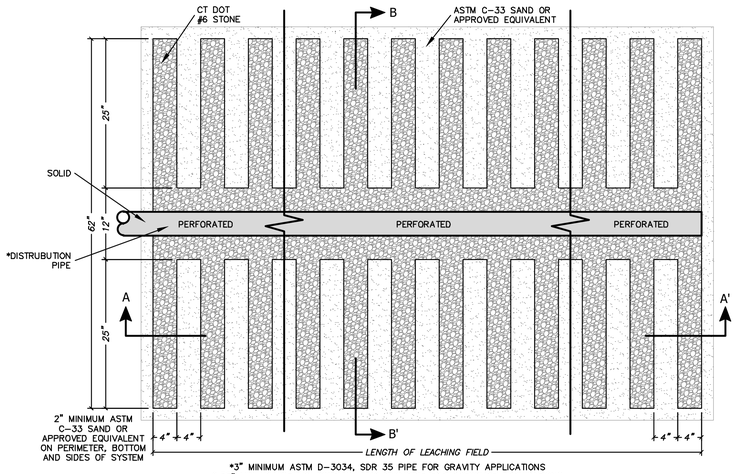
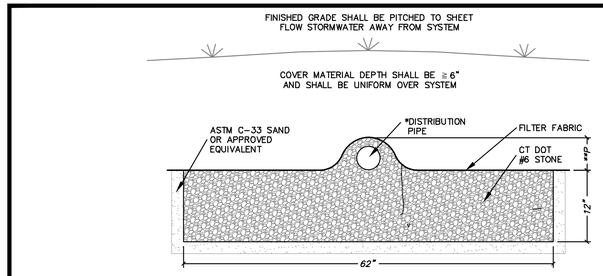


*3" MINIMUM ASTM D-3034, SDR 35 PIPE FOR GRAVITY APPLICATIONS
0.75" MIN I.D., STM D-2665, SCH 40 PVC PIPE FOR PRESSURE APPLICATIONS

GeoMATRIX GST 6212 LEACHING TRENCH - PLAN VIEW

SCALE: 1"=1'



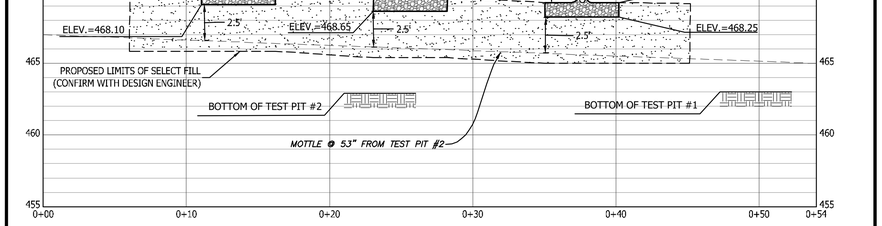
*3" MINIMUM ASTM D-3034, SDR 35 PIPE FOR GRAVITY APPLICATIONS
0.75" MIN I.D., STM D-2665, SCH 40 PVC PIPE FOR PRESSURE APPLICATIONS

**P = 2"-5.5"

2" MINIMUM ASTM C-33 SAND OR APPROVED EQUIVALENT ON PERIMETER, BOTTOM AND SIDES OF SYSTEM

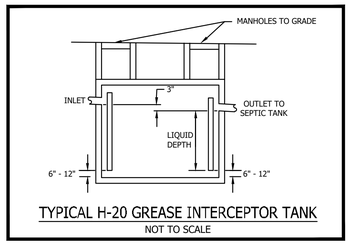
GeoMATRIX GST 6212 LEACHING TRENCH - CROSS-SECTION B-B

SCALE: 1"=1'



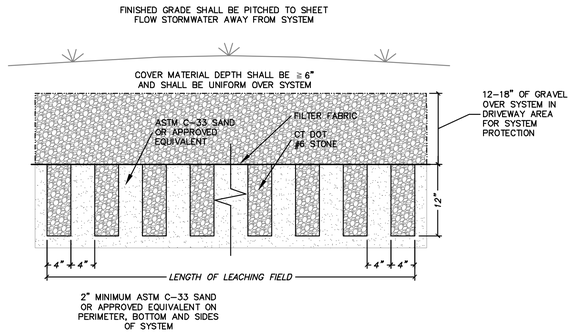
SECTION A-A LEACHING SYSTEM CROSS SECTION (LOOKING NORTHEAST

SCALE: 1"=5'



TYPICAL H-20 GREASE INTERCEPTOR TANK

NOT TO SCALE



2" MINIMUM ASTM C-33 SAND OR APPROVED EQUIVALENT ON PERIMETER, BOTTOM AND SIDES OF SYSTEM

GeoMATRIX GST 6212 LEACHING TRENCH - CROSS-SECTION A-A

SCALE: 1"=1'

NOTES - SEPTIC SYSTEM

1. PROPOSED CONSTRUCTION TO CONFORM TO THE LATEST REVISION OF THE STATE OF CONNECTICUT PUBLIC HEALTH CODE.
2. ELEVATIONS BASED ON INFORMATION GATHERED BY LICENSED SURVEYOR.
3. ENGINEER AND SANITARIAN WILL BE CONTACTED IF SOIL CONDITIONS OTHER THAN THOSE SHOWN ON PLAN ARE ENCOUNTERED AND WORK WILL BE HALTED PENDING REVIEW OF THOSE CONDITIONS.
4. ELEVATIONS SHOWN REFER TO THE INVERT (FLOW LINE) OF THE PROPOSED LEACHING SYSTEM UNLESS NOTED OTHERWISE.
5. SEPTIC TANK CONSTRUCTION JOINTS SHALL BE SEALED WITH ASPHALT CEMENT. ALL PIPE CONNECTIONS TO THE SEPTIC TANK AND DISTRIBUTION BOXES SHALL BE SEALED WITH A POLYETHYLENE GASKET ("POLYLOK" OR APPROVED EQUAL).
6. SEPTIC TANK BAFFLES SHALL CONFORM TO TECHNICAL STANDARDS OF THE PUBLIC HEALTH CODE.
7. SEPTIC TANKS SHALL HAVE AN APPROVED NON-BYPASS EFFLUENT FILTER AT THE OUTLET.
8. SEPTIC TANK SHALL BE TWO COMPARTMENT TANK WITH HEAVY DUTY STEEL HANDLES FOR MANHOLE ACCESS COVERS AND GAS BAFFLES INSTALLED AT OUTLET PIPING. TANKS TO BE WATER TIGHT.
9. ALL PIPES DOWNSTREAM OF THE SEPTIC TANK SHALL BE 4" DIAMETER SCH 40 ASTM D1785 OR D2665. ALL PIPES UPSTREAM OF THE SEPTIC TANK SHALL BE 4" DIAMETER SCH 40 ASTM D1785 OR D2665.
10. NO DEVIATIONS FROM THE APPROVED DESIGN PLAN SHALL BE ALLOWED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND SANITARIAN.
11. EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO FIELD MODIFICATION AS REQUIRED BY THE DESIGN ENGINEER OR TOWN OFFICIALS TO INCREASE EROSION AND SEDIMENT CONTROL MEASURES.
12. ALL FILTER FABRIC SHALL BE 1.5 OZ./YD. (ASTM D-5261), PERMEABILITY OF 1.0 SEC. (ASTM D-4491) AND A TRAPEZOID TEAR OF 15 LBS. (ASTM D-4533) OR EQUAL.
13. ALL DISTURBED AREAS SHALL BE TOPSOILED AND TURF ESTABLISHED.
14. BASED ON AVAILABLE RECORDS AT THE TOWN OF EAST HADDAM HEALTH DEPARTMENT, NO SEPARATING DISTANCE CONFLICTS ARE PRESENT WITH WELLS, SEPTIC SYSTEMS AND HOUSES ON ADJACENT LOTS.
15. BUILDINGS HAVE NO GARBAGE GRINDERS, OR LARGE TUBS OVER 100 GALLONS.
16. NO FOOTING DRAINS SHALL BE INSTALLED WITHIN 25' OF PROPOSED SEPTIC SYSTEM.
17. LICENSED SURVEYOR TO STAKE SYSTEM. LICENSED SEPTIC INSTALLER TO DO SITE PREPARATION WORK. BENCH MARK TO BE SET IN FIELD.
18. NO WORK (OTHER THAN TREE CLEARING) SHALL COMMENCE IN THE SYSTEM AREA UNTIL A SEPTIC PERMIT HAS BEEN TAKEN OUT BY THE LICENSED INSTALLER.
19. STRIP INSPECTIONS SHALL BE DONE BY BOTH THE ENGINEER AND SANITARIAN.
20. TEN FOOT SEPARATION FROM WATER LINE TO SYSTEM TO BE VERIFIED IN FIELD.
21. SYSTEM AREA SHOULD BE RE-STRIPPED AND REFILLED PRIOR TO START OF CONSTRUCTION TO PREVENT HEAVY EQUIPMENT COMPACTION FROM DRIVEWAY.

INSTALLATION NOTES

1. LAYOUT SYSTEM.
2. PREPARE SITE AND REMOVE ANY TREES WITH A DRIP LINE FALLING WITHIN 10 FEET OF THE LEACHING SYSTEM.
3. EXCAVATE TRENCH TO A DEPTH THAT IS AT LEAST 2" BELOW THE BASE ELEVATION OF THE GST TO ACCOMMODATE A MINIMUM OF 2" OF SAND. TRENCH WIDTH SHOULD BE A MINIMUM OF 45" FOR THE GST 37 SERIES AND 70" FOR GST 62 SERIES.
4. RAKE/SCARIFY SIDEWALLS AND BOTTOM OF TRENCH TO ADDRESS ANY SMEARING OF FINES, AND THEN DO NOT WALK IN TRENCH BOTTOM.
5. PLACE A MINIMUM OF 2" OF ASTM C-33 SAND OR APPROVED EQUIVALENT (SAND) IN THE BOTTOM OF THE EXCAVATION TO SERVE AS BASE FOR GST, RAKE AND LEVEL AND UNIFORMLY COMPACT. IF A 2" LIFT OF SAND IS PRESENT SIMPLY WALKING ON IT SHOULD PROVIDE SUFFICIENT COMPACTION.
6. SET THE GST FORMS IN CENTER OF TRENCH.
7. PLACE COVERS OVER ENTIRE CENTER STONE CHANNEL AND ALTERNATING STONE FINGER COMPARTMENTS.
8. PLACE SAND INTO VOID SPACE BETWEEN TRENCH SIDEWALL AND GST FORM. ALSO FILL THE SAND FINGER VOIDS IN THE FORMS AND UNIFORMLY COMPACT.
9. REMOVE ALL COVERS FROM OVER ENTIRE CENTER STONE CHANNEL AND STONE FINGER COMPARTMENTS.
10. PLACE CLEAN CT DOT #6 (3/4") STONE INTO THE INTERIOR OF THE GST FORM.
11. PULL FIRST GST FORM AND "LEAP FROG" FORM AHEAD OF THE LAST GST FORM.
12. REPEAT SEQUENCE UNTIL DESIRED TRENCH LENGTH IS INSTALLED.
13. ENSURE THAT SAND AND BACKFILL MATERIALS ARE COMPACTED TO PREVENT SETTLEMENT.
14. INSTALL APPROVED DISTRIBUTION PIPING ON TOP OF THE 12" CENTRAL STONE CHANNEL.
15. PLACE STONE AROUND THE DISTRIBUTION PIPE.
16. PUT APPROVED FILTER FABRIC OVER THE SYSTEM.
17. BACKFILL SYSTEM TO ENSURE THAT UNIFORM COVER AND COMPACTION EXISTS OVER THE TOP OF THE SYSTEM (A MINIMUM OF 6" OF COVER IS REQUIRED). WHEN GST IS INSTALLED BELOW AREAS SUBJECT TO H-20 LOADING, SEE NOTE BELOW.
18. FINISH GRADE OVER THE SYSTEM SHOULD ENSURE THAT STORM WATER SHEET FLOW IS DIVERTED AWAY FROM THE LEACHING SYSTEM, TANK(S) AND PUMP TANK(S) IF PRESENT.
19. SEED AND HAY DISTURBED AREA. THE USE OF WOOD CHIPS AS COVER MATERIAL IS NOT RECOMMENDED.
20. MAINTAIN THE AREA TO PREVENT TREE ROOTS FROM IMPACTING THE SYSTEM.
21. PROPERLY SERVICE THE SEPTIC TANK EVERY 3-5 YEARS; OR AS ADVISED BY THE REGULATORY AGENCY OR YOUR SERVICE PROVIDER.

SELECT FILL SPECIFICATIONS:

SELECT FILL PLACED WITHIN AND ADJACENT TO LEACHING SYSTEM AREAS SHALL BE A CLEAN MATERIAL COMPRISED OF SAND, OR SAND AND GRAVEL, FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES. THE SELECT FILL SHALL MEET THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE APPROVED BY THE DESIGN ENGINEER. SELECT FILL EXCEEDING 6 PERCENT PASSING THE #200 SIEVE BASED ON A WET SIEVE TEST CANNOT BE APPROVED BY THE DESIGN ENGINEER.

1. THE SELECT FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THE THREE (3) INCH SIEVE.
2. UP TO 45% OF THE DRY WEIGHT OF THE REPRESENTATIVE SAMPLE MAY BE RETAINED (GRAVEL PORTION) ON THE #4 SIEVE.
3. THE MATERIAL THAT PASSES THE #4 SIEVE IS THEN REWEIGHED AND THE SIEVE ANALYSIS STARTED.
4. THE REMAINING SAMPLE SHALL MEET THE FOLLOWING GRADATION CRITERIA:

SIEVE SIZE	PERCENT PASSING WET SIEVE	PERCENT PASSING DRY SIEVE
#4	100	100
#10	70 - 100	70 - 100
#40	10 - 50*	10 - 75
#100	0 - 20	0 - 5
#200	0 - 5	0 - 2.5

* PERCENT PASSING THE #40 SIEVE CAN BE INCREASED TO NO GREATER THAN 75 IF THE PERCENT PASSING THE #100 SIEVE DOES NOT EXCEED 10 AND THE #200 SIEVE DOES NOT EXCEED 5.

SELECT FILL THAT DOES NOT MEET THE DRY SIEVE GRADATION CRITERIA BUT MEETS THE WET SIEVE GRADATION CRITERIA IS ACCEPTABLE. SIEVE TESTING OF SELECT FILL IS REQUIRED FOR LARGE (2,000 GPD OR GREATER) SYSTEMS WHENEVER THE LEACHING SYSTEM IS LOCATED TOTALLY IN SELECT FILL. THE LOCAL DIRECTOR OF HEALTH MAY REQUIRE SIEVE TESTING OF SELECT FILL ON SMALL SSDSS IN ACCORDANCE WITH PHC SECTION 19-13-B103E (D) (6).

THE LICENSED INSTALLER IS RESPONSIBLE FOR PREPARING THE LEACHING AREA WITH NECESSARY SELECT FILL. TOPSOIL IN THE LEACHING SYSTEM AREA SHALL BE REMOVED AND THE SUBSOIL SCARIFIED PRIOR TO SELECT FILL PLACEMENT, UNLESS OTHERWISE DIRECTED BY THE DESIGN ENGINEER. THE INSTALLER SHALL TAKE THE NECESSARY STEPS TO PROTECT THE UNDERLYING RECEIVING SOIL FROM OVER COMPACTION/DAMAGE. THE INSTALLER IS RESPONSIBLE FOR PROPERLY COMPACTING SELECT FILL TO FACILITATE CONSTRUCTION AND TO PREVENT SETTLING. SELECT FILL SHALL EXTEND A MINIMUM OF 5 FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE LEACHING SYSTEM.

THE COMMISSIONER OF PUBLIC HEALTH SHALL APPROVE MANUFACTURED FILL. ROCK OR OTHER PRODUCT USED TO PRODUCE MANUFACTURED FILL SHALL HAVE A LOSS OF ABRASION OF NOT MORE THAN 50 PERCENT USING AASHTO METHOD T-96, AND WHEN TESTED FOR SOUNDNESS USING AASHTO METHOD T 104 NOT HAVE A LOSS OF MORE THAN 15 PERCENT AT THE END OF 5 CYCLES. SUPPLIERS OF MANUFACTURED FILL SHALL MAKE APPLICATION FOR APPROVAL TO THE COMMISSIONER OF PUBLIC HEALTH. DOCUMENTATION SHALL BE SUBMITTED ON THE MANUFACTURED FILL OPERATION AND PRODUCTION PROCESS. FILL SPECIFICATIONS (GRADATION, PERMEABILITY, ETC.) AND A NARRATIVE OF THE QUALITY CONTROL/QUALITY ASSURANCE PROGRAM SHALL ALSO BE INCLUDED FOR ALL ACTIVE PRODUCTION SITES. APPROVED MANUFACTURED FILL PRODUCERS SHALL PROVIDE ANNUAL PRODUCT REGISTRATIONS TO THE COMMISSIONER OF PUBLIC HEALTH BY JULY 1ST OF EACH YEAR.

"SELECT FILL" SHOULD BE PLACED ON THE EDGE OF THE SITE AND SPREAD OVER THE PREPARED AREA WITH A BULLDOZER. NO TRUCKS SHOULD RUN OVER THE FILL UNTIL 12 INCHES OF FILL HAS BEEN PLACED. THE REMAINDER OF THE FILL SHOULD BE PLACED IN LAYERS 8 TO 12 INCHES DEEP AND COMPACTED BY NORMAL BULLDOZING OR OTHER CONSTRUCTION EQUIPMENT. FILLING AND COMPACTION SHOULD BE DISCONTINUED DURING RAIN STORMS AND FOR 24 HOURS THEREAFTER. ALL FILL SHOULD BE PLACED AND COMPACTED BEFORE ANY OF THE LEACHING SYSTEM IS INSTALLED.

SYSTEM SITE PREPARATION

1. A MINIMUM OF 24 HOURS, BUT PREFERABLY 48 HOURS NOTICE SHALL BE GIVEN BY THE INSTALLER TO THE ENGINEER AND SANITARIAN BEFORE ANY STRIPPING IS DONE FOR THE SYSTEM.
2. THE LICENSED INSTALLER SHALL BE ON SITE DURING SYSTEM CONSTRUCTION WORK WILL BE STOPPED BY THE HEALTH DEPARTMENT IF THIS REQUIREMENT IS NOT COMPLIED WITH.
3. NO SYSTEM IS TO BE BACKFILLED UNTIL THE SANITARIAN HAS GIVEN THE OK. THE OK WILL NOT BE GIVEN UNTIL THE ENGINEER HAS PROVIDED WRITTEN OR VERBAL COMMUNICATION THAT THE SYSTEM IS INSTALLED IN COMPLIANCE WITH THE HEALTH CODE AND THEIR DESIGN, OR WITH ACCEPTABLE MODIFICATIONS.

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS

Gregg T. Fedus P.E.
CT. License No. 21231

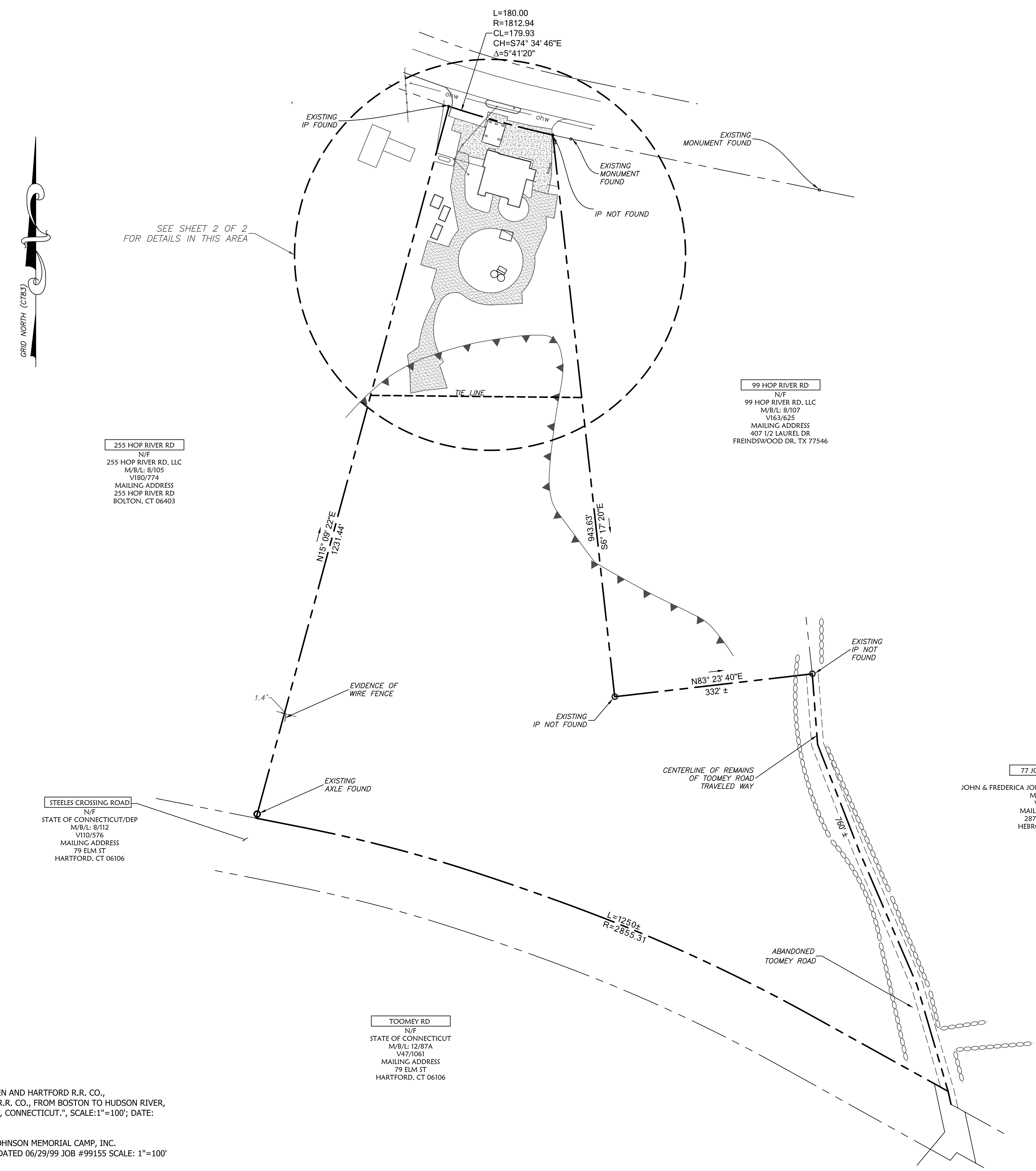
STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · LICENSED PROFESSIONAL ENGINEER

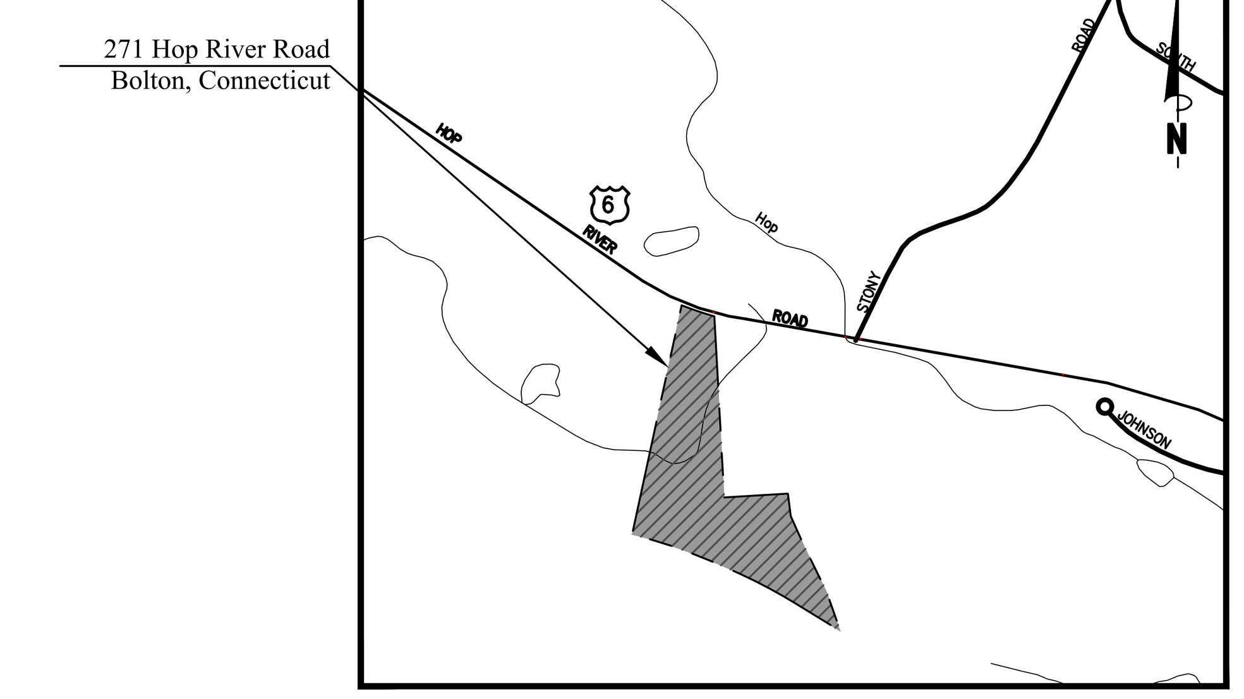
Detail Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20' (0 10 20 40)

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 4 OF 4 | JOB NO. 21-000985 | DRAWN BY: CAC





Location Map

Scale: 1"=1000'

0 500 1000 2000

Survey Notes:

1. THIS SURVEY PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20–300B–1 THROUGH 20–300B–20 OF THE CONNECTICUT STATE AGENCIES – "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

   A. TYPE OF SURVEY: PROPERTY SURVEY/EXISTING CONDITIONS SURVEY

   B. BOUNDARY DETERMINATION: DEPENDANT RE–SURVEY.

   C. THE PORTION OF THIS SURVEY, NORTH OF THE TIE LINE, CONFORMS TO THE STANDARDS AND THE ACCURACY OF CLASS: A–2 HORIZONTAL.
   THAT PORTION OF THIS SURVEY SOUTH OF THE TIE LINE CONFORMS TO THE STANDARDS OF CLASS D HORIZONTAL.
   THIS PORTION OF THE SURVEY WAS COMPILED FROM OTHER MAPS, RECORD RESEARCH OR OTHER SOURCES OF INFORMATION. IT IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD SURVEY AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE

   D. THE PORTION OF SURVEY NORTH OF THE TIE LINE CONFORMS TO THE STANDARDS AND THE ACCURACY OF CLASS: T–3 VERTICAL.

2. BOUNDARY LINES OF ADJOINING PROPERTIES ARE SHOWN FOR GENERAL INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE CONSTRUED AS BEING ACCURATELY LOCATED OR DEPICTED.

3. THE WORD "CERTIFY" AS USED IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE SURVEYOR. IT IS A DECLARATORY STATEMENT, WHICH IS BASED ON HIS BEST KNOWLEDGE, INFORMATION AND BELIEF. AS SUCH IT CONSTITUTES NEITHER GUARANTEE NOR WARRANTY, EXPRESSED OR IMPLIED, OF ANY INFORMATION CONTAINED HEREON. NO CERTIFICATION IS EXPRESSED OR IMPLIED ON ANY ORIGINAL OR ANY DUPLICATE OF THIS MAP UNLESS IT BEARS AN ORIGINAL STAMP OR SEAL AND ORIGINAL SIGNATURE OF THE INDIVIDUAL WHOSE REGISTRATION NUMBER APPEARS HEREON.

4. THIS MAP IS THE PROPERTY OF FEDUS ENGINEERING, LLC AND HAS BEEN SPECIFICALLY PREPARED FOR THE OWNER OF THIS PROJECT OR PROPERTY. IT IS NOT TO BE DUPLICATED OR USED IN PART OR WHOLE FOR ANY OTHER PURPOSE, PROJECT, LOCATION, OR OWNER WITHOUT THE EXPRESS WRITTEN CONSENT OF FEDUS ENGINEERING, LLC.

5. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING AND LIMITED FIELD MEASUREMENTS. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE OF WHICH ARE UNKNOWN TO FEDUS ENGINEERING, LLC. THE SIZE LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG 1–800–922–4455.

6. THE STONEWALLS, TIDAL DITCHES AND/OR FENCES SHOWN AS BOUNDARIES MAY HAVE IRREGULARITIES OF COURSE BETWEEN PRINCIPAL POINTS OF COURSE INDICATED.

Legend

EXISTING

SYMBOL	DESCRIPTION
	CONNECTICUT HIGHWAY DEPARTMENT MONUMENT
	EX. IP / REBAR
	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
x—x—x	FENCE LINE
	WATER VALVE
— ohw —	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF–XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	HIGH TIDE LINE
	COASTAL JURISDICTIONAL LINE
	ZONE LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
— W —	EXISTING WATER LINE
— SS —	EXISTING SEWER LINE
N/F	NOW OR FORMERLY
	CATCH BASIN
(TYP.)	TYPICAL
x5.8	SPOT ELEVATION
DH	DRILL HOLE
(POB)	POINT OF BEGINNING
(PRM)	PER REFERENCE MAP
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

SYMBOL	DESCRIPTION
	IRON PIN TO BE SET

Subject Parcel Information

OWNER:	M&M OIL, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 99 PAGE 120
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

Reference Maps:

1. "RIGHT OF WAY AND TRACK MAP, THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO., OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO., FROM BOSTON TO HUDSON RIVER, STATION 5230+00 TO STATION 5282+80, TOWN OF BOLTON, CONNECTICUT.", SCALE:1"=100'; DATE: JUNE 30, 1915.

2. COMPILATION PLAN PROPERTY OF: JOHN AND FREDERICA JOHNSON MEMORIAL CAMP, INC. JOHNSON RD., BOLTON, CT., SHEET NO. 1 OF 2 AND 2 OF 2 DATED 06/29/99 JOB #99155 SCALE: 1"=100' BY: FUSS AND ONEIL INC.

3. "CONNECTICUT STATE HIGHWAY DEPARTMENT, RIGHT OF WAY MAP, TOWN OF BOLTON, HARTFORD-WILLIMANTIC ROAD FROM BOLTON NOTCH SOUTHEASTERLY ABOUT 5,400 FEET. ROUTE NO. 87", SCALE: 1"=40', DATED: JULY 29, 1932, NUMBER 12-01, SHEET NO. 2 OF 2 APPROVED BY JOHN A. MACDONALD.

4. "SURVEY MAP PREPARED FOR THE STATE OF CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR PROPERTY OF DAVID C. TOOMEY JR. NORTH OF TOOMEY ROAD LOCATED IN BOLTON, CONNECTICUT", SCALE: 1"=100', DATE: OCTOBER, 2001 PREPARED BY JC SOMMERS ASSOCIATES, INC. VERNON, CONNECTICUT.

N:\2021\21-000985 - BOLTON - 271 HOP RIVER ROAD - ASIF CHOUDREY - A2 SURVEY\SURVEYING\21-000985 - BOLTON - 271 HOP RIVER ROAD - ASIF CHOUDREY - A2 SURVEY

NO.	DATE	REVISIONS

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

STATE OF CONNECTICUT ANTONIUS P. J. T. HENDRIKS No. 10834 LICENSED LAND SURVEYOR

ANTHONY HENDRIKS LS — 10834 CT. LICENSE NUMBER

Property Survey

Map Depicting Existing Conditions of

271 Hop River Road

Bolton, Connecticut

Prepared For:

ASIF CHOUDRY

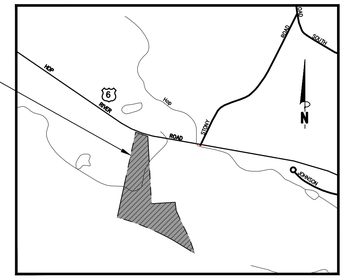
APRIL 26, 2021

DRAWING SCALE: 1"=20' — 0 10 20 40

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 1 OF 2 | JOB NO. 2-000985 | DRAWN BY: DC

271 Hop River Road
Bolton, Connecticut



Location Map

Scale: 1"=1000'

0 500 1000 2000

Legend

EXISTING

SYMBOL	DESCRIPTION
	MONUMENT
	EX. IP / REBAR
	DRILL HOLE
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X—X—X	FENCE LINE
	WATER VALVE
ohw	OVERHEAD WIRES
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	COUNTY JURISDICTIONAL LINE
	ZONE LINE
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(POB)	POINT OF BEGINNING
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

	IRON PIN TO BE SET

SEE SHEET 1 OF 2

CHD MONUMENT FOUND

S75° 11' 21"E 423.19'

99 HOP RIVER RD
N/F
99 HOP RIVER RD, LLC
M/B/L: 8/107
V163/625
MAILING ADDRESS
407 1/2 LAUREL DR
FREINDSWOOD DR, TX 77546

S6° 17' 20"E 943.63' (TOTAL)
450.00' TO TIE LINE

WETLAND LINE PER TOWN OF BOLTON GIS

N89° 24' 40"W 352.51'

TIE LINE

CHD MONUMENT FOUND

EXISTING "CITGO" SIGN

EXISTING BILLBOARD

EXISTING CHAINLINK FENCE

EXISTING LIGHT POST

IRON PIN PER REFERENCE MAP (NOT FOUND)

EXISTING OIL PUMP HOUSE

EXISTING OIL FILL STATION

EXISTING VERTICAL OIL TANK(S)

EXISTING CONCRETE WALK (TYPICAL)

EXISTING CONCRETE DRIVEWAY

EXISTING BUILDING FF=473.84

EXISTING GRAVEL DRIVEWAY

EXISTING CANOPY

EXISTING CONCRETE SLAB

EXISTING CONCRETE WALK (TYPICAL)

EXISTING MAILBOX

EXISTING BOLLARD (TYPICAL)

EXISTING PUMP (TYPICAL)

50.3'

EXISTING CANOPY

EXISTING BITUMINOUS DRIVEWAY

68.1'

84.3'

EXISTING SHED

EXISTING SHED

EXISTING SHED

EXISTING CHAINLINK FENCE

27.3'

12.3'

L=180.00
R=1812.94
CL=179.93
CH=S74° 34' 46"E
Δ=5°41'20"

IP FOUND DISTURBED

EXISTING UTILITY POLE (TYPICAL)

EXISTING PROPANE TANK

EXISTING WOOD FENCE (TYPICAL)

EXISTING WIRE FENCE (TYPICAL)

EXISTING 6" CURB (TYPICAL)

500.00' FROM TIE LINE
N15° 09' 22"E 1231.44' (TOTAL)

255 HOP RIVER RD
N/F
255 HOP RIVER RD, LLC
M/B/L: 8/105
V180/774
MAILING ADDRESS
255 HOP RIVER RD
BOLTON, CT 06403

Subject Parcel Information

OWNER:	M&M OIL, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 99 PAGE 120
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

NO.	DATE	REVISIONS

Property Survey

Map Depicting Existing Conditions of
271 Hop River Road
Bolton, Connecticut

Prepared For:
ASIF CHOUDRY

APRIL 26, 2021

DRAWING SCALE: 1"=20'

0 10 20 40

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

STATE OF CONNECTICUT ANTHONY P. J. T. HENDRIKS No. 10834 LICENSED LAND SURVEYOR

ANTHONY HENDRIKS LS — 10834 — CT. LICENSE NUMBER

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 2 OF 2 | JOB NO. 21-000985 | DRAWN BY: DC

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH & DEPARTMENT OF PUBLIC UTILITY CONTROL
APPLICATION FOR A ***NON-COMMUNITY***
CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY (CPCN)
Pursuant to CGS Sec. 16-262m

This application process is separated into three phases – Phase I-A, Phase I-B, & Phase II. Only complete one phase at a time. Do not move on to a subsequent phase until the Department of Public Health – Drinking Water Section has formally reviewed the preceding phase and written confirmation has been received to continue the process.

PHASE I-A (Non-Community)

DPH-DWS PROJECT #:2021-0194 (as assigned by this office)

DPUC DOCKET #: _____ (as assigned by DPUC)

Facility/PWS Name:Bestway Bolton PWSID: CT _____ (if applicable)

(Facility name as on the water company screening application)

The following must be submitted for the Phase I-A ***Non-Community*** CPCN review, as required per the letter of determination of water company screening application review (check off each that is included with this submission):

☒ 1. Copy of the DWS's letter of determination of water company screening application review

☒ 2. Completed 'Application for Public Water System Well Site Approval' for each proposed well

☒ 3. Evaluation of the quantity of water necessary to provide adequate supply (use Attachment 1 – ADD calculation worksheet)

☒ 4. Plan for controlling pollution sources that might affect the well(s)

☒ 5. Topographical map showing the relationship and location of the proposed project to the surrounding area

☒ 6. Completed "TMF Capacity Evaluation" questionnaire (see Attachment 2)
Attach an additional sheet(s) of paper as necessary to properly and fully answer all questions, referencing question numbers.

☒ 7. Description of the groundwater quality as classified by the CT Department of Environmental Protection and subsurface soils as classified by the United States Department of Agriculture – Natural Resources Conservation Service, for the project area

☐ 8. Name and certificate number of proposed/existing water system certified operator (if applicable)

☒ 9. Provide a detailed letter from the town's planning department indicating any known probable future building areas within one mile of this property

Signature of Property Owner/Legal Contact: _____ Date: 1/20/22

Signature of ESA provider (if applicable): _____ Date: _____

(If no ESA provider: signature of representative of regulated water company that is to own & operate the proposed water system, if applicable)

FOR DWS USE ONLY
DWS Project #: _____ DPUC Docket#: _____
Authorized to proceed with Phase I-B: ☐ Yes ☐ No
Date of determination: _____ Revised: 10/6/05

ITEM #1

DWS LETTER OF DETERMINATION – SCREENING APPLICATION REVIEW

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

Manisha Juthani, MD
Commissioner

Ned Lamont
Governor

Susan Bysiewicz
Lt. Governor

Drinking Water Section

10/18/21

Mr. Asif Choudry
96 Route 32
Franklin, CT 06245

Public Water System/Applicant: Bestway Bolton
DPH Project #: 2021-0194
Project Location: 271 Hop River Road, Bolton, CT
Date of Project Submission: 9/29/21

Dear Mr. Choudry:

This Department is in receipt of a completed Public Water Screening (PWS) Screening Form for Bestway, 271 Hop River Road in Bolton, CT. The information provided on the completed form which has been verified by DWS staff indicated that the conversion of this property will result in the creation of a regulated Public Water System (PWS), (classified as a Transient Non-Community (TNC) PWS). Due to the substantial redevelopment of this property the Department requires the property owner to obtain a Certificate of Public Convenience and Necessity (CPCN) for this PWS.

The CPCN process reviews the design of the PWS fro]m the well site location to the piping system that will bring the water to the consumer. One purpose of the "Certificate process" is to ensure that all new public water systems are built to particular specifications and have adequate Technical, Managerial, and Financial capacity to maintain compliance with regulations after the system is put into operation. The entire CPCN application is separated into three phases:

- Phase I-A (site location for source of supply),
- Phase I-B (development of the source of supply),
- Phase II (water distribution, storage, treatment).

The CPCN application forms are available on the DPH – Drinking Water Section website at: http://portal.ct.gov/DPH/Drinking-Water/DWS/Certificate-of-Public-Convenience-and-Necessity Please be sure to follow the links for a Non-Community PWS. If you have any questions about how to start this process, please contact someone from the Source Protection Unit at (860) 509-7333.

Sincerely,

Mandy B. Smith
Supervising Sanitary Engineer
Drinking Water Section

c: Robert Miller, Director of Health, Eastern Highlands Health District
Eric McPhee, Source Water Assessment and Protection Unit
Chris Stone, Central WUCC Chair, MDC
Ryan Goad, Consulting Engineer, CMG Environmental

ITEM #2

APPLICATION FOR WELL SITE APPROVAL

STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER SECTION

APPLICATION FOR A PUBLIC WATER SYSTEM WELL SITE SUITABILITY CERTIFICATION

PLEASE REFER TO INSTRUCTIONS FOR COMPLETING THE APPLICATION FOR A PUBLIC WATER SYSTEM WELL SITE SUITABILITY CERTIFICATION PRIOR TO FILLING OUT.
Application will be returned if it is incomplete

Section A. Public Water System and Applicant Information

PWS Name: Bestway Bolton

Project Name: Bestway Bolton

Project Address: 271 Hop River Road, Bolton CT 06043

PWSID Number: CT _____ PWS Type (select one): ☐ Community ☐ NTNC ☒ TNC

Town: Bolton DPH Project Number (if known): 2021-0194

Print Name of PWS Administrative Official: Asif Choudhry

Title: Manager

Address: IMS Petroleum, LLC
96 Route 32
Franklin, CT 06254

Phone Number: (860) 287-7181

Fax Number: _____

E-mail Address: asifman500@gmail.com

Name of Consultant C. Ryan Goad

Company Name: CMG Environmental, Inc.

Address: 67 Hall Road
Sturbridge, MA 01566

Phone Number: (774) 241-0901 x105 or (860) 729-4957 [mobile]

Name of Licensed Well Driller (must be licensed in CT): LaFramboise Water Service, Inc.

CT License Number: WWC.0000013-W1

Address: 647 Thompson Road (P.O. Box 303), Thompson CT 06277

Phone Number: (860) 923-9543

Section B. Well Information

1. Purpose of proposed well (Check One):
☒ New Public Water System Source ☐ Replacement Well ☐ Supplemental Well

2. Name of Proposed Well: Well #1

Type: ☒Bedrock ☐Gravel Packed ☐ Other ____

3. Desired Withdrawal Rate (check one):
☒ <10 gallons per minute (gpm) ☐ 10-50 gpm ☐ >50 gpm

4. Indicate address where well will be located or closest town road or intersection:

271 Hop River Road, Bolton CT 06043 (U.S. Route 6)

5. Latitude and Longitude of proposed well site:

Lat: N 41° 46' 59.10" Long: W 72° 26' 06.81"

6. Is proposed well site staked or marked in the field? ☒ Yes ☐ No

Section C. Well Site Characteristics

1. Is the proposed well site located above the FEMA100-year flood elevation? ☒ Yes ☐ No (See RCSA Section 19-13-B102(d)(1)(A) and instructions for completing.) **Determination by Fedus Engineering for PZC Site Plan Review using FIRM 09011C0228G dated 6/1/1981.**

2. Does the public water system have full control (ownership) of the entire sanitary radius of the proposed well? If the public water system does not have control of the sanitary radius, indicate below how control will be obtained. **YES**

3. Indicate the locations of all nearby existing public and private wells, their corresponding distances to the proposed well and provide a brief description of potential effects the proposed new source of supply may have on these nearby systems.

On-site private supply well to be abandoned and replaced with subject well. Bolton has no municipal public water supply, so all properties in the vicinity use private wells. There are 6 properties with private wells within 500 feet. The low pumping rate of the planned well is unlikely to affect these properties.

Section D. Map Information

Attach a scaled site or street/zoning map certified by a Professional Engineer or Land Surveyor licensed in the State of Connecticut containing the following items:

1. ☒ Location of proposed well(s) with GPS points noted
2. ☐ Adjacent public and private active/inactive well(s) that will be tested for interference during the yield test, if applicable (CGS 25-33(b))
3. ☒ Show the appropriate sanitary radius as listed in Section E Table 2.
4. ☐ Sanitary Land conservation easement boundary, if applicable
5. ☒ Existing and potential sources of pollution within 200 feet (see Section E Table 2)
6. ☒ Topographic contours appropriate for the scale of the map.
7. ☐ 100-year flood elevation contour, if applicable
8. ☒ North arrow
9. ☒ Annual high water mark, wetland delineation, surface water bodies and watercourses (perennial and intermittent)

Section E. Sources of Pollution

1. Are there any known existing contaminated areas, as classified by the CT Department of Environmental Protection within a 1,500-foot radius of the proposed well site? ☒ Yes ☐ No; If yes, then describe below the current condition of the area and indicate separating distances from proposed well site. **See attached narrative.**

.

2. Complete the following table:

Pollution Source	Required separation distances (feet) based on well pumping rate			Actual Separation Distance (feet)
	< 10 gpm	10-50 gpm	> 50 gpm	
Subsurface Sewage System (septic tank/leaching fields)	75	150	200	97
Sanitary Sewer-Minimum separating distances may be reduced under specific conditions. Refer to the instructions for details.	75	150	200	N/A
Storm Drain	25	50	50	>75
Foundation, Floor Drain	25	50	50	>75
Dry Well	75	150	200	>75
High Water Mark for Surface Water Body	25	50	50	>75
Liquid Fuel Storage Tank/Piping	75	150	200	145

Section F. Dioxin, Endothall, Beta Particle and Photon Emitter Assessment

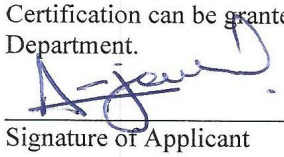
The purpose of this section is to obtain an assessment to determine if the proposed site of a source of supply/well will be required to be tested for Dioxin, Endothall and /or Beta Particle and Photon Emitters.

1. Complete and attach "Certification Form for Dioxin and Endothall". Required only for Community and Non-Transient Non-Community Water Systems; refer to the instructions for guidance.

2. Complete and Attach "Certification Form for Beta Particle and Photon Emitters". Analyses required only for Community Water Systems, refer to the instructions for guidance

Section G. Certification Statement

I certify to the best of my knowledge that the information provided in this application is complete and correct. I understand that the information I provide will be used by the Department of Public Health, Drinking Water Section to determine if a Well Site Suitability Certification can be granted. I further understand that if an approval is issued, the well must be drilled in the location approved by the Department.



Signature of Applicant — Date: 1/20/22

Asif Choudhry, Manager, IMS Petroleum, LLC

Name of Applicant (print or type)

Manager

Title (if applicable)

This application along with additional information on the public water system well approval process is located on the DPH Drinking Water Section's web page: **www.ct.gov/dph** click on "Programs and Services" then "Drinking Water"

Drinking Water Section Use Only
Date Stamped: _____
Assigned Staff Person: _____ Project No: _____

GB ZONING REQUIREMENTS TABLE

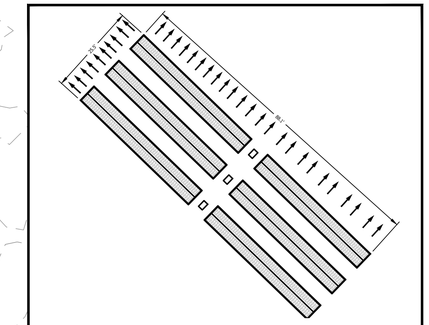
SECTION	REGULATION	REQUIREMENTS	EXISTING	PROPOSED
11C	MINIMUM LOT SIZE	40,000 SF	639,104 SF	639,104 SF
11C	MINIMUM LOT FRONTAGE	200'	180'**	180'**
11C	MINIMUM FRONT YARD	35'	50.3'	50.3'
11C	MINIMUM SIDE YARD	*	33.8' (E), 76.7' (W)	40.8' (E), 84.2' (W)
11C	MINIMUM REAR YARD	*	1,088.7'	1,088.7'
11C	MAXIMUM BUILDING HEIGHT	40'	< 45'	18.25'
11C	MINIMUM FLOOR AREA	600 SF	5,674 SF	5,024 SF
11C	MAXIMUM LOT COVERAGE	25%	1.1%	0.8%
11C	MAXIMUM IMPERVIOUS COVERAGE	65%	2.8%	4.9%
11J	MINIMUM LANDSCAPING IN GB	25% OF LOT	-	-

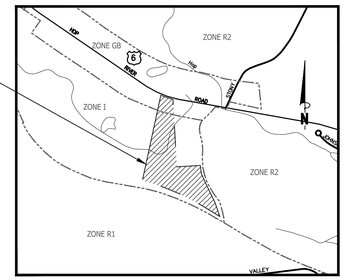
* THE MINIMUM SIDE AND REAR YARD IN THE INDUSTRIAL ZONE SHALL BE 50 FEET WHERE ABUTTING A RESIDENTIAL ZONE (SEE § 11.K)
**EXISTING NON-CONFORMING CONDITION

PARKING REQUIREMENTS

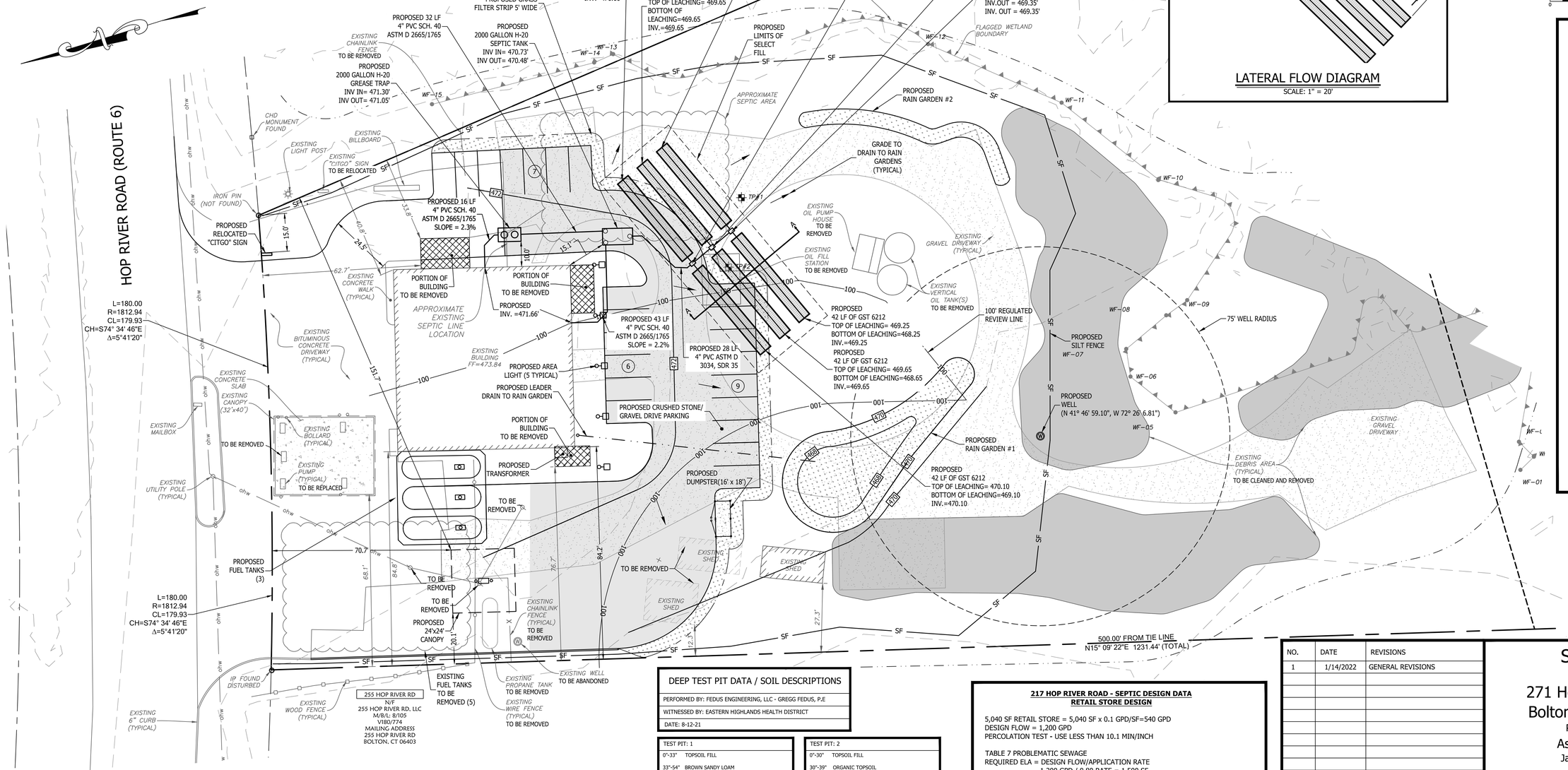
SECTION	REGULATION	MAXIMUM REQ.	MINIMUM REQ.	PROPOSED
15-O	FREE STANDING RETAIL	5 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 5 PER 1,000 = 25.1	2 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 2 PER 1,000 = 10.1	22 SPACES

271 Hop River Road
Bolton, Connecticut





Location Map
Scale: 1"=1000'
0 500 1000 2000



Legend

EXISTING

SYMBOL	DESCRIPTION
	MONUMENT
	EX. IP / REBAR
	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
X—X—X	FENCE LINE
	WATER VALVE
ohw	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF-XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	HIGH TIDE LINE
	COUNTY JURISDICTIONAL LINE
	ZONE LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
W	EXISTING WATER LINE
SS	EXISTING SEWER LINE
N/F	NOW OR FORMERLY
	CATCH BASIN
(TYP.)	TYPICAL
5.8	SPOT ELEVATION
DH	DRILL HOLE
(POB)	POINT OF BEGINNING
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
S	SEWER MANHOLE
	HYDRANT
W	WATER SHUTOFF

PROPOSED

	IRON PIN TO BE SET

DEEP TEST PIT DATA / SOIL DESCRIPTIONS

PERFORMED BY: FEDUS ENGINEERING, LLC - GREGG FEDUS, P.E
WITNESSED BY: EASTERN HIGHLANDS HEALTH DISTRICT
DATE: 8-12-21

TEST PIT: 1	
0"-33"	TOPSOIL FILL
33"-54"	BROWN SANDY LOAM
57"-66"	RED BROWN SAND, WITH GRAVEL
66"-95"	BROWN SILTY SAND
MOTTLES:	66"
GROUNDWATER:	95"
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	66"

TEST PIT: 2	
0"-30"	TOPSOIL FILL
30"-39"	ORGANIC TOPSOIL
39"-53"	RED-BROWN SANDY LOAM
53"-96"	GRAVEL/BROWN SILTY LOAM
MOTTLES:	53"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

Subject Parcel Information

OWNER:	IMS PETROLEUM, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 185 PAGE 947
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

217 HOP RIVER ROAD - SEPTIC DESIGN DATA
RETAIL STORE DESIGN

5,040 SF RETAIL STORE = 5,040 SF x 0.1 GPD/SF=540 GPD
DESIGN FLOW = 1,200 GPD
PERCOLATION TEST - USE LESS THAN 10.1 MIN/INCH

TABLE 7 PROBLEMATIC SEWAGE
REQUIRED ELA = DESIGN FLOW/APPLICATION RATE
1,200 GPD / 0.80 RATE = 1,500 SF

LEACHING TRENCH GST 6212 = 10.0 SF/LF
MINIMUM REQUIRED TRENCH = 150.00 LF

TRENCH PROVIDED =246
EFFECTIVE LEACHING PROVIDED = 2,460 SF

MLSS = HF x FF x PF RS = 36"
HF = 28.0 HYDRAULIC GRADIENT = (471.19'-467.61')/72' =4.97%
FF = 4.0
PF = 1.0
MLSS = 28 x 4.0 x 1.0 = 112 LF
PROVIDED 88 + 25 = 113 LF. NEEDED 112 LF OKAY WITH 2 SIDE LATERAL FLOW.

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT GREGG T. FEDUS NO. 21231 LICENSED PROFESSIONAL ENGINEER

Site Plan
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
Asif Choudrey
January 3, 2022

DRAWING SCALE: 1"=20' 0 10 20 40

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO.	JOB NO.	DRAWN BY:
2 OF 4	21-000985	CAC

SECTION E ADDENDUM

TO APPLICATION FOR A PUBLIC WATER SYSTEM
WELLSITE SUITABILITY CERTIFICATION

TO: CT Department of Public Health

FROM: C. Ryan Goad, Hydrogeologist

SUBJECT: Section E. – Sources of Pollution, 271 Hop River Road, Bolton CT

DATE: 1/18/2022

CMG contracted Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut for a review of state and federal environmental database listings on October 20, 2021. The following summarizes results of that database review for properties within 1,500' of the subject Site.

FEDERAL RECORDS (EPA)

No records of polluted sites (e.g., National Priority List [NPL, a/k/a Superfund] sites. The easterly-adjoining property at 299 Hop River Road is a Superfund Enterprise Management System [SEMS, formerly CERCLIS]) site that underwent federal investigation in the 1980s. However, EPA referred it to the Department of Environmental Protection (DEP[1]) for additional action (i.e., it is not a Superfund site).

STATE RECORDS (DEEP)

EDR identifies a Significant Environmental Hazard notification for the 299 Hop River Road property in 2017. The entry indicated groundwater contaminants present at that property threaten its supply well, and DEEP directed the owners to sample nearby water supply well. The 299 Hop River Road property is on the list of Contaminated and Potentially Contaminated Sites due to a 2015 Form III submittal under the Connecticut Transfer Act (a Form III indicates operations at an 'Establishment' resulted in environmental contamination, but its degree & extent is not fully known at the time of property transfer).

However, publicly-available DEEP files (visit date 12/14/21) contain no information on 299 Hop River Road beyond mid-1980s notices to its former operators (Clark Dewatering, Ltd. & Griffin Dewatering) to submit annual hazardous waste generator reports. There were no readily available files regarding remediation at that property or potential risks to human health and the environment.

The subject 271 Hop River Road property has a number of reported oil and/or chemical spills from the 1990s to present. The majority of those were releases of petroleum due to site activities and did not exceed 50 gallons (the Site operated as a home heating oil distributor for many years, in addition to its operation as a gasoline filling station up until approximately 2015). DEEP lists all spills up to September 2021 as 'Closed."

[1] DEP merged with the Department of Public Utility Control in July 2011 to become the Department of Energy and Environmental Protection (DEEP).

In September 2021, the current owner removed the former filling station's gasoline and diesel fuel underground storage tanks (USTs) and notified DEEP of a UST release during their closure assessment on 9/28/2021. DEEP assigned case #2021-04234 to identify the release, and assigned Leaking Underground Storage Tank (LUST) identification #61784 to the Site.

CMG was unable to identify any further information regarding this release (which we identified from DEEP's public records search page; the information in the EDR database did not yet include this spill case at the time we ordered it).

CMG notes the former UST area is outside the sanitary radius of the planned supply well (as is the planned UST area).

A copy of the EDR report is attached.

ITEM #3 [ATTACHMENT #1]

ATTACHMENT #1 – ADD CALCULATION WORKSHEET

Non-Community Phase I-A Certificate of Public Convenience and Necessity (CPCN)

Average Daily Demand (ADD) Calculation Worksheet for Item #4

The average daily demand (ADD) in gallons per day (GPD) for a system shall be calculated based on "Design Flows" identified in Section IV of the most recent revision of the "Technical Standards for Subsurface Sewage Disposal Systems". Documentation from the local building official for the town in which the project is to be constructed with regards to the use of building space may be necessary to determine the design flow. If demonstrated to and approved by the DPH, historic or available water use data for a specific facility times a safety factor of 1.5 may be used in lieu of calculated daily design flows.

The most recent version of the Technical Standards referenced above is 1/1/2004, and are available by using this link: http://www.ct.gov/dph/lib/dph/environmental_health/environmental_engineering/pdf/Technical_Standards_2011Final_Master.pdf

The "# Persons" is the number of pupils, employees, camp spaces, beds, seats, etc. as indicated on the Design Flows table in the Technical Standards. Indicate which category used. If more than one category is used, calculate each category separately and sum.

Is historic or other available water use data being used in lieu of calculated design flows (Y/N)? N
If yes, submit justification for the use of that data and use the following calculation:

ADD:_____ X 1.5 (factor of safety) =_____

If using the referenced technical standards, use the following table for calculating the ADD.

# Persons		GPD per person (from Tech. Stds.)		Total GPD
Category:	Planned septic discharge			
_____	X	_____	=	2,000
Category:	_____			
_____	X	_____	=	_____
Category:	_____			
_____	X	_____	=	_____
Category:	_____			
_____	X	_____	=	_____
Category:	_____			
	X	_____	=	_____
				_____

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DWS Project #:_____ DPUC Docket#:_____
Review: ☐ Satisfactory ☐ Unsatisfactory

Date of determination:_____ Revised: 11/2/05

Total projected ADD = 2,000 GPD

ITEM #4

PLAN FOR CONTROLLING POLLUTION SOURCES

PHASE IA, QUESTION #4 ADDENDUM
TO APPLICATION FOR A NON-COMMUNITY CPCN

TO: CT Department of Public Health

FROM: C. Ryan Goad, Hydrogeologist

SUBJECT: Phase IA, Item #4 (Plan for Controlling Pollution Sources), 271 Hop River Road, Bolton CT [DPH Project #2021-0194]

DATE: 12/1/2021

1. SITE DESIGN

The planned pumping rate is <10 gpm, which results in a 75' sanitary radius for the planned well. The planned USTs and septic system are outside this sanitary radius. The double-walled USTs and piping will utilize the latest Veeder-Root™ automated inventory control and release detection system, and USTs will comply with all DEEP requirements for release prevention and detection. The supply well casing will be grouted into bedrock to minimize potential migration of overburden groundwater into the bedrock aquifer beyond what is naturally-occurring.

2. INITIAL WATER QUALITY TESTING

Initial supply well water quality analyses will include volatile organic compounds (VOCs) by EPA Method 524.2, polynuclear aromatic hydrocarbons (PAHs) by EPA Method 625 SIM, dissolved lead, extractable total petroleum hydrocarbons (ETPH), and per- and poly-fluoroalkyl substances (PFAS) by EPA Method 537.1 in addition to required analyses for a TNC well. CMG may substitute the Massachusetts VPH/EPH methodology in lieu of ETPH. This will allow identification of and more precise discrimination between gasoline and diesel fuel/fuel oil impacts within the bedrock aquifer. CMG currently has no reason to suspect petroleum impacts to the bedrock aquifer at the Site (based on previous Site bedrock well analyses), but we nonetheless believe these analyses are prudent due to installation of a new supply well and documented petroleum releases to overburden at the property.

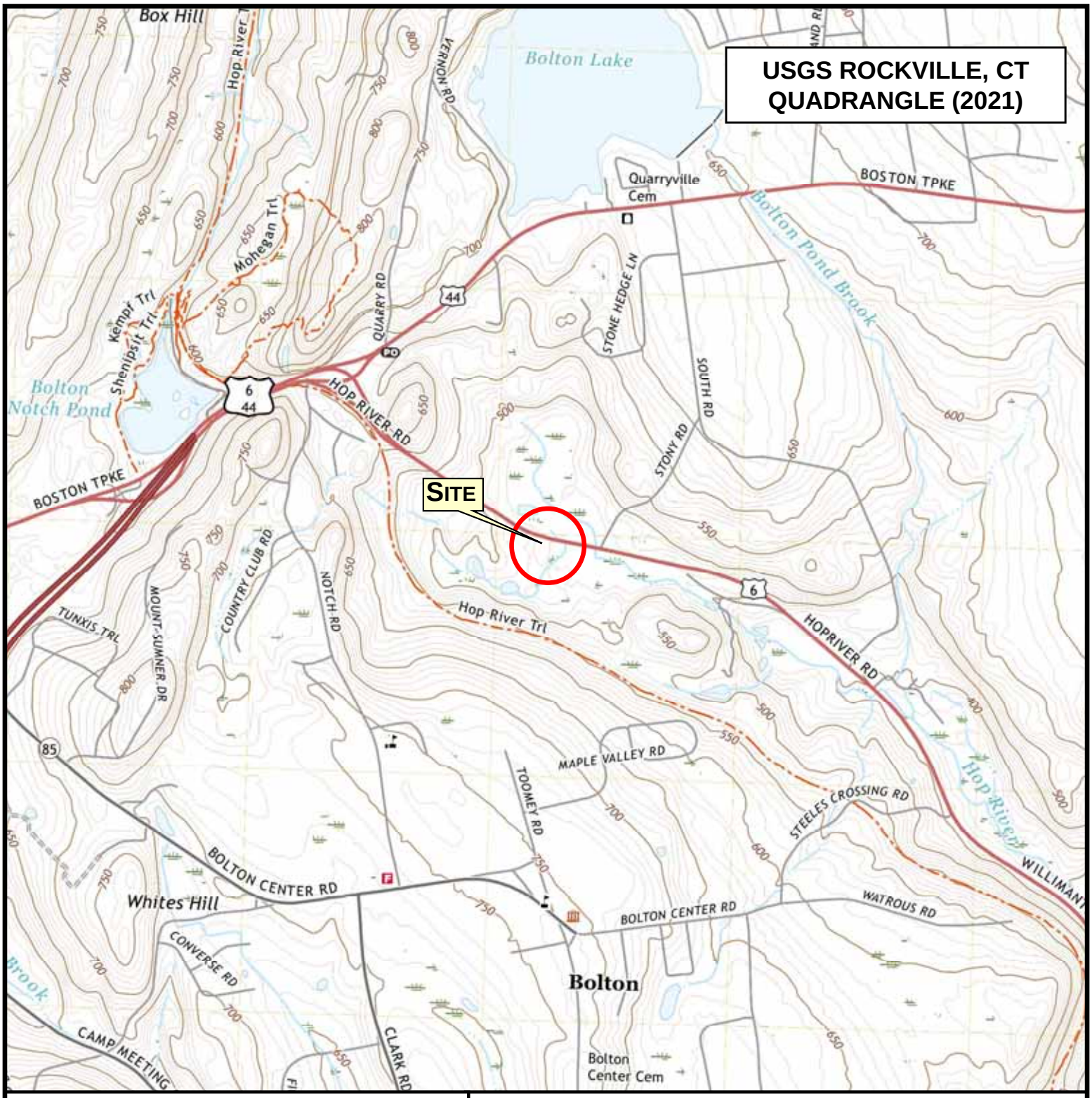
In the event initial testing identifies petroleum impacts, CMG will contract installation of a granular activated carbon point-of-entry treatment system to remove such impacts. Any treatment system design will incorporate appropriate treatment methodologies to remove sediment, metals, correct hardness, etc. and will be determined based on water quality results to be determined during the water quantity and quality testing process.

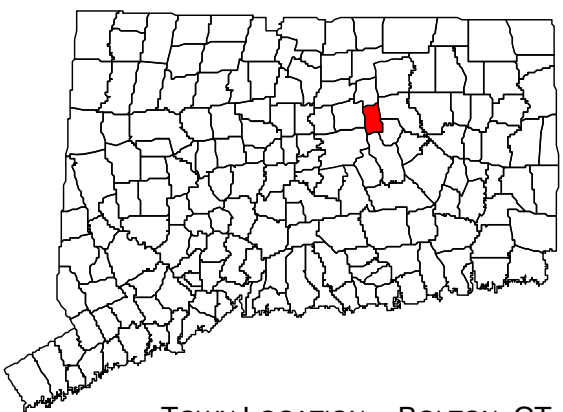
3. HOUSEKEEPING & EMERGENCY RESPONSE

The Site operators will keep it in general and the sanitary radius in particular in a clean and orderly manner to minimize potential impacts to drinking water quality from spills or improper material storage. Any evidence of a potential petroleum release will be investigated immediately, and will include collection of untreated water samples for petroleum constituent analyses. Any evidence of septic system "breakout" will be likewise addressed, and will include drinking water analyses for coliform bacteria and nitrates/nitrites.

ITEM #5

TOPOGRAPHIC MAP





TOWN LOCATION – BOLTON, CT

SITE LOCATION

271 HOP RIVER ROAD
BOLTON, CONNECTICUT
CMG ID 2021-179

SCALE 1:24,000

0.5 0 0.5 Miles

N

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

67 HALL ROAD, STURBRIDGE MA 01566

ITEM #6 [ATTACHMENT #21]

ATTACHMENT #2 – TMF CAPACITY EVALUATION

TECHNICAL, MANAGERIAL, & FINANCIAL (TMF) CAPACITY EVALUATION

All new public water systems must develop and maintain adequate financial, managerial, and technical capacity to meet the requirements of state and federal regulations. The answers given to the following questions will be used to evaluate the knowledge and awareness of the property owner with the responsibility of owning a public water system.

General Questions (Managerial Capacity)

1. Do you have any experience with the ownership and/or operation of a business?
☒ Yes ☐ No If yes, describe. Operation of retail gasoline filling stations with convenience stores (Bestway).

2. Do you have previous experience with the ownership and/or operation of a public water system?
☒ Yes ☐ No If yes, describe. Two operating Bestway convenience stores (Bozrah & Franklin CT), one under construction in Montville CT.

3. Are you familiar with the state and federal regulations regarding public water systems?
☒ Yes ☐ No
Have you read these regulations?
☒ Yes ☐ No

4. Who will be responsible for management of the water system?IMS Petroleum, LLC, 96 Route 32, Franklin CT 06254

Proposed Water System Information/Operation (Technical Capacity)

5. Is the proposed building site suitable for drinking water source development?
☒ Yes ☐ No

6. How will the drinking water source of supply sanitary radius be protected and adequate sanitary conditions maintained? Site design by Professional Engineer Gregg T. Fedus (PEN.0021231) to meet sanitary radii for PWS well pumping <10 gpm

7. What local approvals are required (zoning, construction, etc.)? Which, if any, have been obtained? Septic system approval by Eastern Highlands Health District; Town of Bolton Planning & Zoning and Inland Wetlands Commissions approvals. IWC approved, PZC application pending.

8. Have you contracted with a Professional Engineer or water system professional for the design of the proposed water system?
☒ Yes ☐ No If yes, who? LaFramboise Water Service, Inc.

9. What classification of water system will the facility be? (C, NTNC, or TNC)	10. Will this proposed water system require a certified operator? ☐ Yes ☒ No

11. What are the water quality monitoring requirements for this public water system classification? Quarterly per TNC

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DWS Project #:_____ DPUC Docket#:_____

requirements.

12. Have you contacted a Connecticut-certified laboratory(ies) regarding water quality monitoring costs?
☒ Yes ☐ No
What lab(s) and what is estimated cost? Microbac Laboratories, Inc.; Initial testing ~$1,000; quarterly TNC testing ~$50-$100 along with $20-$50 annual test.

13. What services are the lab(s) you contacted offering to provide? (This may include reporting to the DWS.) Microbac is DPH certified laboratory #PH-0465. They provide a full range of Safe Drinking Water Act analyses suitable for CT public water systems. Drinking water analyses are segregated from other analyses (Clean Water Act & RCRA) to prevent cross-contamination and ensure low reporting limits protective of human health in accordance with 40 CFR Part 141 (National Primary Drinking Water Regulations).

14. Are you aware that future regulations may result in additional monitoring requirements for public water systems?
☒ Yes ☐ No

15. Are you aware that the water system may need continuous water treatment, depending on results of water quality tests?
☒ Yes ☐ No

Financial Capacity Information

16. How will construction of the water system be paid for?
Owner-financed

17. Name of Lending Institution (if applicable)
N/A

18. What is the cost estimate for the proposed water system?
$50,000

19. If none, when will it be completed?

20. Are you aware of future costs associated with a public water system?
☒ Yes ☐ No

21. How will the annual costs be paid for?
Operations revenue (fuel, food & gen. merch. sales)

22. Estimated Annual Monitoring Cost
$1,000

23. Estimated Annual Operating Cost $1,500

24. Estimated Annual Maintenance Cost
$1,000

25. How do you plan to handle emergency repair situations?
Owner-financed

26. How will emergency costs be paid for?
Owner-financed

27. Do you plan to, or have you, set up a reserve fund for annual/emergency costs?
☐ Yes ☒ No
If so, what type(s)? (e.g. escrow)

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DWS Project #:_____ DPUC Docket#:_____
Evaluation Review: ☐ Satisfactory ☐ Unsatisfactory
Date of determination:_____

Signature of Property Owner/Legal Contact: Asif Choudhry

Date: 1/12/22

Print name: Asif Choudhry

FOR DWS USE ONLY

DWS Project #: _____ DPUC Docket#: _____
Evaluation Review: ☐ Satisfactory ☐ Unsatisfactory
Date of determination: _____

ITEM #7

DESCRIPTION OF GROUNDWATER QUALITY & SUBSURFACE SOILS

PHASE IA, QUESTION #7 ADDENDUM
TO APPLICATION FOR A NON-COMMUNITY CPCN

TO: CT Department of Public Health

FROM: C. Ryan Goad, Hydrogeologist

SUBJECT: Phase IA, Item #7 (Groundwater Class. & Soil Type, 271 Hop River Road, Bolton CT [DPH Project #2021-0194]

DATE: 12/1/2021

GROUNDWATER QUALITY CLASSIFICATION

DEEP classifies Site & vicinity groundwater as GA-Impaired. This identifies areas of groundwater normally classified GA (which DEEP assigns to all groundwater unless otherwise indicated) but that do not meet GA groundwater quality standards due to documented oil and/or hazardous materials impacts. Source: CTECO Advanced Map Viewer:

https://cteco.uconn.edu/viewer/index.html?viewer=advanced

SOIL CLASSIFICATION

The USDA Natural Resources Conservation Service identifies soils within the planned well's sanitary radius as "Udorthents." These consist of human-reworked loamy soils with slow infiltration rates that impede downward movement of water (or soils with moderately fine or fine textures). However, USDA and Environmental Data Resources, Inc. (EDR, of Shelton CT, an environmental records database provider) further identifies these as "well drained" with "moderate" corrosion potential to uncoated steel.

EDR's database report further classifies this type of soil as follows (generally):

- 0-5": loam – fine-grained soils, silts and clays, with saturated hydraulic conductivity (K) between 4 and 14 µm/s (1-4 ft/day);
- 5-21": gravelly loam – coarse-grained soils, sands, sands with fines, silty sand, with saturated K between 0.01 and 703 µm/s (0.003-200 ft/day); and
- 21-79": very gravelly sandy loam – coarse-grained soils, sands, sands with fines, silty sand, with saturated K between 0.01 and 703 µm/s (0.003-200 ft/day).

ITEM #8

---CERTIFIED OPERATOR NOT REQUIRED FOR TNC SYSTEM---

ITEM #9

LETTER FROM BOLTON PLANNING DEPARTMENT

Town of Bolton

222 Bolton Center Road • Bolton, CT 06043

Land Use Department
(860) 649-8066 Phone
(860) 643-0021 Fax

January 19, 2022

State of CT
Dept. of Public Health
Dept. of Public Utility Control

Re: 271 Hop River RD
DPH-DWS Project #2021-0194

Dear Sir/Madam:

The Town of Bolton is in receipt of a request to provide a detailed letter from the Planning Department indicating any known, probable future building areas within one (1) mile of the above-referenced property address. Please be advised that this property, along with several parcels within the designated one (1) mile radius fall within the General Business and Industrial zones, which allow for commercial development subject to Sections 8 & 9 of the Bolton Zoning Regulations. While this department is unable to provide a definitive determination of future building areas and/or development within a one mile radius of the subject property, it can, at this time, identify the following possible and/or probable future project:

1 Notch Rd (aka 17 Wall St) - Special Permit issued in May, 2021 for Excavation Business, Equipment Storage & Material Processing Areas.

Please be advised that the Town does not attest to the foregoing, and that the information provided is subject to change. Also, the Coventry town line is slightly located within that one (1) mile radius and the Town of Bolton cannot determine or attest to any possible, future development within that town. Please do not hesitate to contact this department should you have any further questions or need additional information.

Regards,

Patrice Carson
AICP, Director of Community Development

GEOSCIENCE TECHNICAL SERVICES INC.
P.O. Box 1036
Old Lyme CT 06371
(860) 434-3144

February 3, 2022

Town of Bolton
222 Bolton Center Road
Bolton CT 06043
attn: Planning and Zoning

re: 271 Hop River Road, Bolton

Ladies and Gentlemen:

This letter summarizes the status of environmental investigation and remediation of property at 271 Hop River Road in Bolton (the Site). The Site was formerly occupied by M&M Plumbing & Heating who sold heating oil and motor fuels, serviced/repaired company and private vehicles, and were a plumbing/heating contractor. Environmental issues being addressed at the Site include removal of motor fuel underground storage tanks (UST's), excavation of petroleum-impacted soil associated with the UST's, cleanup of the building interior, cleanup of the grounds, and removal of two aboveground heating oil storage tanks (AST's).

removal of UST's Five UST's containing gasoline (four tanks) and diesel fuel (one tank) were removed in September 2021. The tanks ranged in volume from 5,000 to 7,000 gallons and were located west and northwest of the building. Associated product transfer lines and dispensers were also removed. Soil samples were collected from the tank graves, beneath transfer lines, and beneath dispensers and analyzed for potential contaminants associated with the product in question. Samples from four tank graves and from beneath the diesel dispenser contained contaminants with concentrations exceeding criteria established by the Connecticut Department of Energy & Environmental Protection (DEEP). The tank grave samples showed that the contamination associated with the UST's was located below the water table which was about 8 feet deep.

excavation of soil associated with the UST's Soil excavation is underway at the present time in connection with installation of replacement UST's. Three new tanks are being installed. The installation process includes excavation of soil to several feet below the water table. This is enabled by dewatering: pumping of ground water to large frac tanks, treatment of the water, and discharge to the local storm water drainage system. The area of installation coincides with former locations of three leaking tanks. Additional excavation is planned at three locations outside the new tank area: two associated with former UST's and one the former diesel dispenser. The soil is being screened during removal and segregated into clean and contaminated stockpiles. Samples

collected after excavation are being analyzed to document the effectiveness of removal. Stockpiled contaminated soil is being disposed at a licensed facility (Clean Earth, Plainville CT). We anticipate that several hundred tons of soil will be disposed. Also, about twenty-thousand gallons of contaminated ground water will be treated which serves a significant remedial purpose.

One additional UST was discovered recently, a smaller tank that contained heating oil for the building furnace. This tank will be removed and underlying soil excavated if sampling so dictates.

cleanup of the building interior M&M departed the Site in January. They left a substantial accumulation of auto-related debris, papers, and miscellaneous items in the building. The cleanup process will include removing debris/miscellaneous items, removal/proper disposal of contents of three oil AST's and smaller containers of waste oil and automotive liquids, removal of inground hydraulic lifts, and checking/remediation of soil associated with the lifts and floor drains. To date, we have segregated and performed some testing of the oil and liquid containers in preparation for disposal. Removal of lifts will take place following completion of UST soil removal. We are soliciting quotes for removal of debris which can be categorized as solid waste.

cleanup of grounds Before their departure, M&M removed most of the large quantity of empty tanks, vehicles, and debris behind the building. A few remaining vehicles and two sheds have to be removed. In December, we identified about a dozen areas of oil-stained soil on the ground surface which will be excavated. This can take place after the ground has thawed. Sampling also took place at several areas of concern identified in our Phase I assessment and no further action is required at three.

heating oil AST's The two 20,000-gallon heating oil tanks located behind the building are to be removed by the Site tank contractor, Service Station Equipment. Prior to removal, any residual oil will be pumped from the tanks. Removal of the tanks and associated piping and pumps will allow investigation of underlying soil. Preliminary sampling has revealed areas where soil removal will be necessary. We hope to address the heating oil AST's this spring and summer.

interaction with DEEP A DEEP inspector visited the site during the UST removals and we filed a spill incident report regarding contaminated soil in the tank graves. DEEP's UST unit is following up on associated remediation and will review our report. We obtained a permit from DEEP for the discharge of treated ground water generated by dewatering. Like most remediation projects in the State, the work is being performed by the Site owner on a voluntary basis following DEEP protocols and guidelines with guidance/approvals as necessary.

In conclusion, 271 Hop River Road is a complicated site with many environmental issues to be addressed. We are addressing the issues methodically as time and resources permit.

Please call me if you have any questions.

Yours truly,

David O. Cook

David O. Cook, Ph.D.
President

ID	Site Address	Owner Name	Owner Address	Owner City	Owner State	Owner Zip
08-106	271 HOP RIVER ROAD	IMS PETROLEUM, LLC	271 HOP RIVER ROAD	BOLTON	CT	6043
08-110	77 JOHNSON ROAD	JOHN & FREDERICA JOHNSON MEMORIAL CAMP INC.	287 JAGER LANE	HEBRON	CT	6248
08-107	299 HOP RIVER ROAD	299 HOP RIVER ROAD LLC	407 1/2 LAREL DRIVE	FRIENDWOOD	TX	77546
08-138	254 HOP RIVER ROAD	262 HOP RIVER, LLC	8 WEST STREET EXT	ANDOVER	CT	6232
08-112	TOOMEY ROAD	STATE OF CONNECTICUT	79 ELM STREET	HARTFORD	CT	6106
08-108	71 JOHNSON ROAD	ASPINALL MARGARET	71 JOHNSON ROAD	BOLTON	CT	6043
08-132A	HOP RIVER ROAD	STAVENS BROTHETRS INC.	PO BOX 406	WALLINGTON	CT	6279
08-105	255 HOP RIVER ROAD	255 HOP RIVER ROAD LLC	255 HOP RIVER ROAD	BOLTON	CT	6043
08-104	239 HOP RIVER ROAD	GOUCHOE BERNARD	239 HOP RIVER ROAD	BOLTON	CT	6043
08-103	229 HOP RIVER ROAD	TIMOTHY D. & SHELLEY M. ERICSON	229 HOP RIVER ROAD	BOLTON	CT	6043
08-136	310 HOP RIVER ROAD	MICHAEL R. MARTIN LLC	25 WATROUS ROAD	BOLTON	CT	6044
08-137	HOP RIVER ROAD	TOWN OF BOLTON	222 BOLTON CENTER RD	BOLTON	CT	6045

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
PHILADELPHIA PA 19255-0023

Date of this notice: 04-19-2021

Employer Identification Number:
86-3242509

Form: SS-4

Number of this notice: CP 575 G

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB OF THIS NOTICE.

000562.328871.188549.22024 1 MB 0.450 530

IMS PETROLEUM LLC
ASIF CHOUDHRY SOLE MBR
96 ROUTE 32
N FRANKLIN CT 06254

000562

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN 86-3242509. This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear-off stub and return it to us.

A limited liability company (LLC) may file Form 8832, Entity Classification Election, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, Election by a Small Business Corporation. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

IMPORTANT REMINDERS:

* Keep a copy of this notice in your permanent records. This notice is issued only one time and IRS will not be able to generate a duplicate copy for you. You may give a copy of this document to anyone asking for proof of your EIN.
* Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.
* Refer to this EIN on your tax-related correspondence and documents.
* Provide future officers of your organization with a copy of this notice.

Your name control associated with this EIN is IMSP. You will need to provide this information, along with your EIN, if you file your returns electronically.

If you have questions about your EIN, you can contact us at the phone number or address listed at the top of this notice. If you write, please tear off the stub at the bottom of this notice and include it with your letter. Thank you for your cooperation.

Eastern Highlands Health District, CT

$134.88 Paid

via Credit Card ending in 2208

Thanks for using the Online Service Center

Nathaniel Fleming
Septic Plan Review #SPR-22-19
February 2, 2022

Permit Fee	$130.00
Processing Fee	$4.88
Total Paid	**$134.88**

Powered by the ViewPoint Cloud platform

Receipt number #6437

Town of Bolton
222 Bolton Center Road • Bolton, CT 06043

Date: February 24, 2022

To: Planning & Zoning Commission
From: Patrice L. Carson, AICP, Consulting Director of Community Development

Subject: Nathaniel Fleming's Special Permit Application at 271 Hop River Road for Gas Station/Convenience Store

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INFORMATION
Application No.: VP#PL-22-2
Application Date: February 3, 2022
Receipt Date: February 9, 2022
Wetlands Permit Effective: October 26, 2021
Wetlands Permit Expires: October 25, 2023
Public Notification: Published in ***Hartford Courant*** February 18, 2022 & February 25, 2022
Public Hearing Date(s): March 2, 2022
Applicant(s): Nathaniel Fleming
Owner(s): IMS Petroleum, LLC

Applicant Nathaniel Fleming, Fedus Engineering, of 70 Essex Street, Mystic, CT, is seeking a Special Permit approval to convert an existing auto repair shop into a convenience store and gas fueling operation, cleaning and removing existing debris on the front portion of a 14.6 acre lot at 271 Hop River Road. The application proposes a new septic system, new underground fuel tanks and existing fuel tanks to be removed, new parking areas and driveway, and two canopies over fuel pumps, as well as renovations to the existing building. The current driveway access/egress will not change.

Located on the south side of Hop River Road (Route 6) just west of Stony Road, the property sits in two zones: the front 300 feet is zoned GB and the remainder of the property (in the rear) is zoned I. The surrounding properties are also zoned in the same fashion. Non-residential uses and vacant land surround the property. The property also abuts the very well-used multi-use Hop River Trail to the rear. A fueling station has already existed on this property.

There are wetlands on the property. The Inland Wetlands Agency has reviewed a permit for the project and has issued its decision and permit approval.

As stated, the site backs up to the multi-use Hop River Rail Trail. The proximity would lend itself to trail users (walkers and bikers) coming to the convenience store for drinks and snacks, and the gas station possibly air for bicycle tires. From a planning and connectivity perspective, we would like the applicant to address this possible connection.

The use and proposal is a logical reuse of the site in an area zoned for this type of use. The removal of debris and junk stored on the property will help to clean up the site both visually and environmentally and should be a condition of any approval. It appears that all buildings, pumps, underground storage tanks and outdoor spaces will be updated and new, although no architectural plans, building plans or elevations have been submitted. Although there is lighting shown on the plan, a photometric lighting plan needs to be submitted showing the fixtures to be used and no spillover of light from the site onto adjacent properties. Proposed parking and dumpster location/treatment appears adequate and in accordance with the Zoning Regulations. The plan does not seem to show a charging station for electric vehicles – is an EV station proposed?

Notification was made to the applicant but the applicant did not make abutter notifications in time to meet the Zoning Regulation requirements so the Commission will need to postpone opening the public hearing to a later date so the requirements are met. An affidavit about when the sign was posted in accordance with the Zoning Regulations and State Statutes also needs to be submitted. Please see below for individual staff comments. As the plans are revised, there may be additional staff comments that the applicant will need to address.

REPORTS RECEIVED

- Site Plan Checklist – completed
- 02/10/22 review email from Barbara Kelly, Inland Wetlands Agent with comments
- 02/07/22 Public Health Code review email from Thad Kind, EHHD with comments
- 02/16/22 review letter from Joseph Dillon, PE with 8 issues to address
- 02/22/22 review email from Bruce Dixon, Fire Chief with comments

ADDITIONAL INFORMATION RECEIVED

- Site Development Plan & Details (unknown accuracy, various dates and revisions – 4 sheets)
- A-2 and Class D Survey of Site April 26, 2021 (2 pages)
- Abutter List
- Engineering & Legal Review Fee of $2,000

ADDITIONAL CONSIDERATION OF INFORMATION TO RECEIVE

- Architectural Floor Plans & Elevations
- Landscaping Plan
- Lighting Plan
- Drainage Plan
- E&S Bond Estimate
- Site Development Bond Estimate
- Warranty Deed
- Any requested waivers allowable under the Zoning Regulations

STAFF ANALYSIS
The use fits the zone of the property and is a good reuse of the site. There are reports and information still needed for the staff to recommend a decision on this application.

- The town of Bolton shall be cc'd on copies of any referrals to CTDOT.
- Intended signage, including directional signage, should be submitted including location of that signage.
- A Lighting Detail (fixtures & cut sheets) and Isometric map/lighting plan in accordance with the Town Engineer's comment #4 needs to be submitted for the site indicating proposed new and existing lighting.
- A Landscaping Plan in accordance with the Town Engineer's comment #3 needs to be submitted.
- Section 16A.3.x. – Buildings and Structures: Architectural and Design Requirements & Section 16B.4.l. – Architectural Character, Historic Preservation, Site Design. The Commission needs to determine if the design of the proposed building renovation is adequate to meet these standards. Building architectural plans and elevations need to be submitted.
- The applicant needs to provide an affidavit for the posting of a sign.
- Addressing additional comments outlined in Staff Reports attached with this report.

STAFF RECOMMENDATION

The staff has determined that:

- the use is compatible with other uses in the neighborhood, and is in keeping with the zone in which it is located.
- the Commission needs to wait for its meeting in April to open the public hearing to allow the required amount of time to notify abutters in accordance with the Zoning Regulations. This will also give the applicant time to submit items still needed and address any concerns.

At this time, Staff recommends placing this application on the next regularly scheduled PZC meeting of April 13 for the public hearing to begin. This is within the 65-day time period to begin the public hearing so no extension is needed.

From: Thad D. King [mailto:KingTD@ehhd.org]
Sent: Monday, February 07, 2022 3:54 PM
To: Carson, Patrice <pcarson@boltonct.org>
Subject: RE: Staff Review Requested: Special Permit Application for Gas Station/Convenience Store, 271 Hop River Road, Nathan Fleming (VP#PL-22-2)

The septic plan review is attached. Revisions are required with additional soil testing observations for groundwater conditions. The system required design flow is 540 GPD but the proposed design flow is 1200 GPD.

The CTDPH phase I application must be approved for the septic plan to be approved.

EHHD will need additional information on the food service operation for licensing classification but that will not affect site plan approval.

Thad King MPH REHS
Eastern Highlands Health District
4 South Eagleville Rd
Mansfield CT 06268
860 429 3325 W
860 208 9940 C

EHHD
Eastern Highlands Health District

4 South Eagleville Road Phone: (860) 429-3325 Fax: (860) 429-3321 Web: www.EEHD.org

Eastern Highlands Health District

Revisions Required

February 4, 2022

Nathaniel Fleming 70
ESSEX STREET
Mystic CT 06355

RE: Septic Plan Review, Surveyor or Engineered for 271 HOP RIVER RD. Reference #SPR-22-19

Dear Nathaniel Fleming:

The above referenced Project has been reviewed for compliance with the Connecticut Public Health Code and Technical Standards.

Additional Information is Required:

1. The MLSS calculation requires a perc test in the naturally occurring soil, at TP2 its 39-53 inches.
2. Provide clear existing contour lines over the leaching area or spot elevations.
3. The leaching row elevations on sheet 2 are inconsistent with the cross section detail on sheet 4, mislabeled.
4. Indicate cleanouts in sewer lines, change of directions > 45 degrees.
5. Provide Geomatrix detail sheet for GST H20 loading.
6. Consider a level distribution system for uniform distribution.
7. Select fill placement is proposed to the mottling elevation. Observations for groundwater were made in August. Placing select fill to the groundwater level made create a conduit for vertical movement of ground water. Check groundwater conditions prior to construction.

If you have any questions, please contact me. Sincerely,

Thad King, MPH, REHS RS 860-429-3325(Mansfield) 860-649-8066 x6108 (Bolton)

kingtd@ehhd.org

Preventing Illness & Promoting Wellness for Communities In Eastern Connecticut

*Andover * Ashford * Bolton * Chaplin * Columbia * Coventry * Mansfield * Scotland * Tolland * Willington*

Jacobson

February 16, 2022

Ms. Patrice Carson, AICP
Director of Community Development
Town Office Building
222 Bolton Center Road
Bolton, CT 06043

Re: IMS Petroleum, LLC
271 Hop River Road
Site Plan Review
NLJA #0968-0051

Dear Ms. Carson:

As requested, we have reviewed the following information received for the subject project at our office through February 8, 2022:

Item 1: Set of four (4) drawings titled "271 Hop River Road, Bolton, Connecticut prepared for IMS Petroleum, LLC", scales as noted, dated January 3, 2022, last revised 2/2/22, prepared by Fedus Engineering, LLC.

Item 2: Set of two (2) drawings titled "Property Survey Map Depicting Existing Conditions of 271 Hop River Road, Bolton, Connecticut", dated April 26, 2021, prepared by Fedus Engineering, LLC.

Item 3: Letter from David O. Cook of Geoscience Technical Services, Inc. to Town of Bolton dated February 2, 2022.

Item 4: State of Connecticut Department of Public Health & Department of Public Utility Control Application for a Non-Community Certificate of Public Convenience and Necessity (CPCN) signed and dated January 20, 2022.

We have the following comments:

1. Referral should be made to the Connecticut Department of Transportation (CTDOT) for work occurring within the CTDOT right-of-way.

2. Section 15D. of the Bolton Zoning Regulations states "All parking areas consisting of greater than five spaces shall be provided with an asphalt or bituminous paved, all-weather surface or other dust free, structurally suitable, stable material as approved by the Commission and suitable sub-base throughout their entirety." The regulations also states "Notwithstanding the above, the Commission may waive certain requirements of this section as appropriate to implement the Low Impact Development requirements of Section 16A.2.1 Stormwater Management, and the flexible design standards set down in Section 15.P, Waivers and Exceptions." The application should state whether it intends to request a waiver from this regulation.

Nathan L. Jacobson & Associates, Inc.
Nathan L. Jacobson & Associates, P.C. (NY)
86 Main Street P.O. Box 337 Chester, Connecticut 06412-0337
Tel 860.526.9591 Fax 860.526.5416
Consulting Civil and Environmental Engineers Since 1972

Jacobson

Ms. Patrice Carson, AICP
Director of Community
Development Re: IMS
Petroleum, LLC
271 Hop River
Road Site Plan
Review NLJ #0968-
0051
February 16, 2022

3. A Landscaping Plan in accordance with Section 16A.3.q of the Town of Bolton Zoning Regulations should be provided.

4. A Lighting Plan in accordance with Section 16A.3.j of the Town of Bolton Zoning Regulations should be provided.

5. Sizing calculations should be provided for the proposed stormwater management features. The calculations should address water quality volume as well as mitigation of runoff with respect to the proposed increase in impervious surfaces.

6. A standard detail for the proposed grass filter strip should be provided.

7. Labels for the existing contours elevations should be provided.

8. The site plan proposes 22 parking spaces. A minimum of one van-accessible parking space should be provided.

Should you have any questions, please feel free to contact our office.

Very truly yours,

NATHAN L. JACOBSON & ASSOCIATES, INC.

Joseph M. Dillon, P.E.

JMD:jmd

cc: James Rupert
Barbara
Kelly File

From: Kelly, Barbara
Sent: Thursday, February 10, 2022 10:51 AM
To: Carson, Patrice <pcarson@boltonct.org>
Subject: RE: Staff Review Requested: Special Permit Application for Gas Station/Convenience Store, 271 Hop River Road, Nathan Fleming (VP#PL-22-2)

Hi Patrice,

The Inland Wetlands Commission granted a permit for the 271 Hop River Road site work at its October 2021 meeting. A link to ViewPoint #C-21-9 follows. The attachments include the permit that was issued and the site plan that was approved.
https://boltonct.viewpointcloud.io/#/explore/records/7944/attachment/18262

If the proposed changes in use require further site plan changes, Inland Wetlands should be contacted.

Take care,
BK
Barbara Kelly, Agent
Inland Wetlands Commission
Town of Bolton
860.649.8066, x6113

Town of Bolton
222 Bolton Center Road • Bolton, CT 06043

INLAND WETLANDS COMMISSION OF THE TOWN OF BOLTON
INLAND WETLANDS PERMIT # 2021-9 (C-21-9)

Name and Address of Applicant:
Nathaniel Fleming 70
Essex Street
Mystic, CT 06355

Property to which this permit applies:
271 Hop River Road
Bolton, CT 06043

This authorization refers to an application to conduct a regulated activity in or within 100 feet of inland wetlands and/or watercourses in the Town of Bolton.

The permitted activities, within the wetlands and the upland review area, are:

- Removal of portions of the existing building and site renovations;
- Installation of new leaching field;
- Construction of rain gardens and a filter strip;
- Removal of debris and any associated contamination; and
- Grading, including excavation and filling, associated with the construction noted above.

The Bolton Inland Wetlands Commission, as the Inland Wetlands and Watercourses Agency of the Town of Bolton, following investigation, and after reviewing the full record, has considered the application with due regard for the criteria found in the Inland Wetland Regulations of the Town of Bolton. The agency believes that the proposed activity, subject to the specified conditions, conforms with the purpose of Town regulations and does not violate any of its provisions or regulations governing wetlands and/or watercourses. Therefore, this authorization will constitute the permit required pursuant to Section 11.1 of the Inland Wetland Regulations of the Town of Bolton.

This permit is issued with the following specific conditions and/or modifications and with the attached general conditions:

1. Work shall be done in accordance with the plan titled "Site Plan of 271 Hop River Road, Bolton, Connecticut" prepared by Fedus Engineering, LLC and revised 9/27/2021.
2. Site remediation shall be done under the direction of a Connecticut Licensed Environmental Professional (LEP). Communication shall be maintained with town staff as work progresses. Appropriate soil erosion and sediment control measures shall be utilized in disturbed areas.
3. Soil erosion and sediment control measures shall be installed, adjusted, or maintained in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

This permit is subject to, and in no way derogates, any present or future property right or any other rights or powers of the Town of Bolton. This permit conveys no property rights in real estate or materials or any exclusive privileges.

No permission, either express or implied, is given for any regulated activities other than those authorized in this permit.

The applicant will notify the Agency 3 days before the permitted activity begins.

The applicant will notify the Agency within 7 days of the completion date that the permitted activity has been finished.

Effective date of permit: 10/26/21
Expiration date of permit: 10/25/23

Ross Jolley

Bolton Inland Wetlands Commission

ALL INLAND WETLAND PERMITS ARE SUBJECT TO THE FOLLOWING GENERAL CONDITIONS:

1. No person shall conduct a regulated activity in a regulated area without first obtaining a permit from the Agency. (Section 7.1)

2. Permits shall be valid for a time specified by the Agency. (Section 11.6)

3. All permits shall be in writing, including any special conditions of the permit. One copy shall be maintained in the agency files and one copy furnished to the Applicant.

4. This permit shall not be construed as relieving the permittee of the obligation to obey all applicable federal, state, and local laws or to obtain any other applicable federal, state, and local permits.

5. The agency or its designated agent may enter at all reasonable times upon any private or public property to inspect for and investigate any possible violations of the Inland Wetlands Regulations of the Town of Bolton. (Sections 14.1 and 14.2)

Original to: Applicant
Copy to: Inland Wetlands Commission files IMS
Petroleum, Asif Choudrey

From: Bruce Dixon [mailto:boltonchief34@gmail.com]
Sent: Tuesday, February 22, 2022 10:27 AM
To: Carson, Patrice <pcarson@boltonct.org>
Cc: A Michael Eremita <meremita@att.net>; Rupert, Jim <jrupert@boltonct.org>
Subject: Re: Staff Review Requested: Special Permit Application for Gas Station/Convenience Store, 271 Hop River Road, Nathan Fleming (VP#PL-22-2)

Good morning Patrice, and I am sorry for my tardiness in responding back to you about this location.

As we spoke earlier, I see no glaring issues today with the plan. Joe Dillion has commented on some good points. If the footprint of the driveways and parking stay the same, and driveway access does not change, unless there are some regulations that escape me, I am fine with the current layout.

Traffic will always be an issue in the area. As we see with accidents in front of Munsons and the ice palace, with more traffic entering and exiting this new establishment, unfortunately more accidents potentially will also occur.

I would appreciate continued conversation as the project advances towards completion.

Best regards,

Bruce A. Dixon
Fire Chief
Bolton Fire Department
168 Bolton Center Road
Bolton, CT 06043
860-649-3910 Office

PLANNING & ZONING SUBMISSION

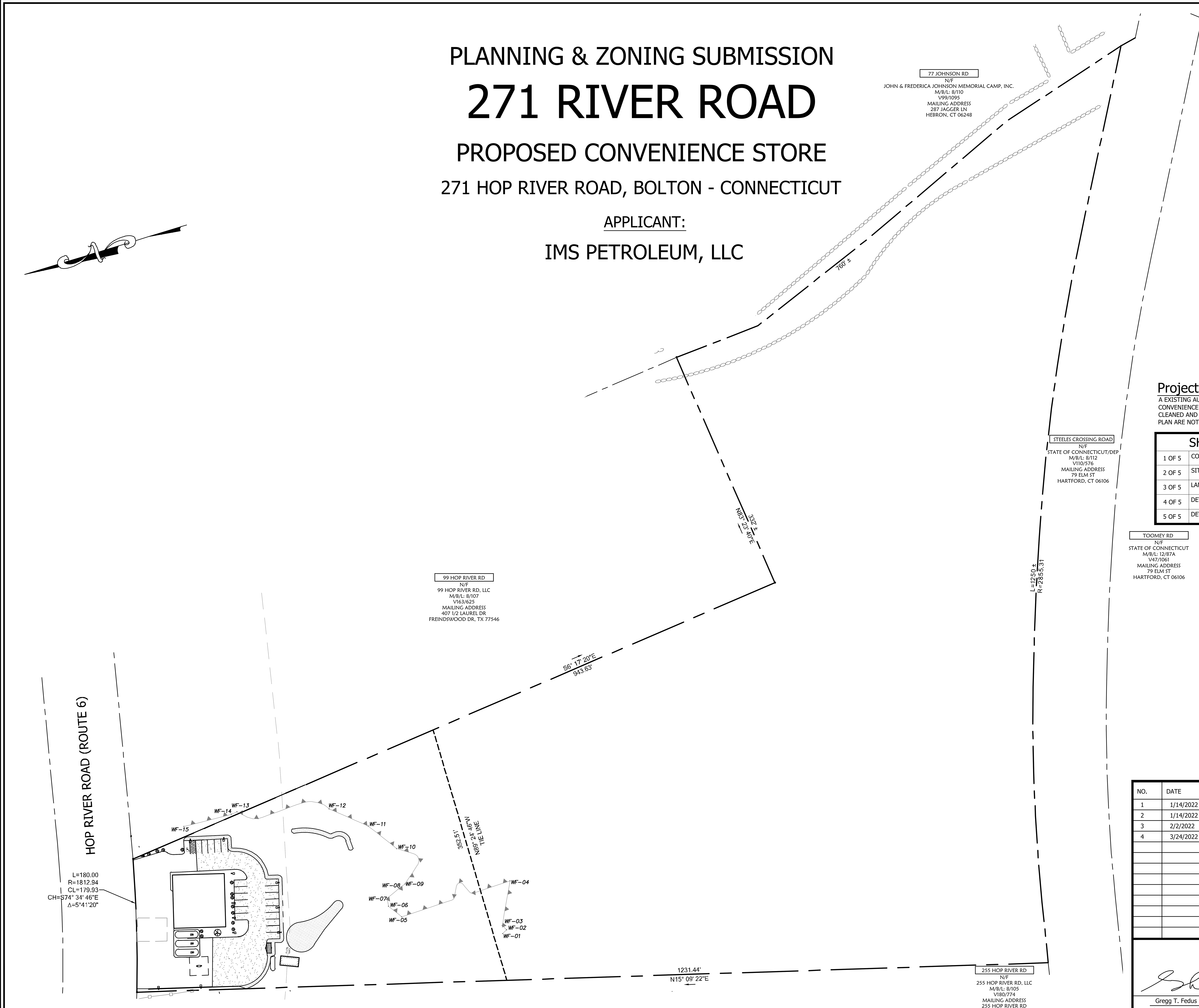
271 RIVER ROAD

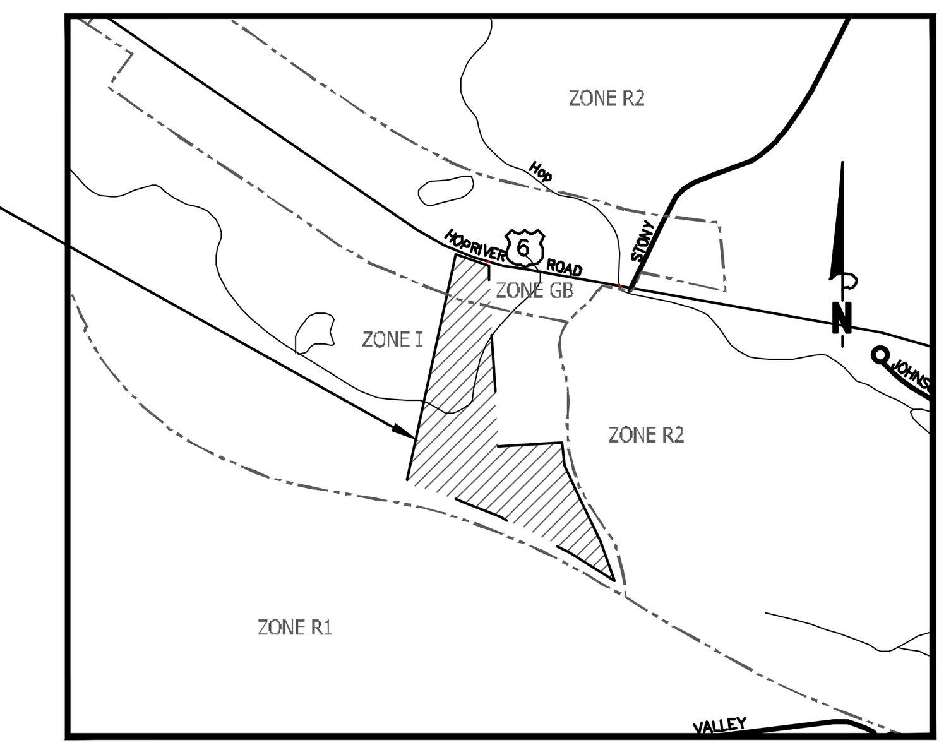
PROPOSED CONVENIENCE STORE

271 HOP RIVER ROAD, BOLTON - CONNECTICUT

APPLICANT:

IMS PETROLEUM, LLC





Location Map

Scale: 1"=1000'

0 500 1000 2000

Legend

EXISTING

SYMBOL	DESCRIPTION
	MONUMENT
	EX. IP / REBAR
	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
	FENCE LINE
	WATER VALVE
ohw	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF-XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	HIGH TIDE LINE
	COUNTY JURISDICTIONAL LINE
	ZONE LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
W	EXISTING WATER LINE
SS	EXISTING SEWER LINE
N/F	NOW OR FORMERLY
	CATCH BASIN
(TYP.)	TYPICAL
5.8	SPOT ELEVATION
DH	DRILL HOLE
(POB)	POINT OF BEGINNING
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

	IRON PIN TO BE SET

Project Description

A EXISTING AUTO REPAIR SHOP TO BE CONVERTED INTO A CONVENIENCE STORE. EXISTING DEBRIS AREAS ON SITE TO BE CLEANED AND REMOVED. DEBRIS AREAS DEPICTED ON SITE PLAN ARE NOT LIMITED TO CLEAN UP AREAS.

SHEET LIST TABLE	
1 OF 5	COVER SHEET
2 OF 5	SITE PLAN
3 OF 5	LANDSCAPING & LIGHTING PLAN
4 OF 5	DETAIL SHEET
5 OF 5	DETAIL SHEET

Subject Parcel Information

OWNER:	IMS PETROLEUM, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 185 PAGE 947
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS
4	3/24/2022	TOWN ENGINEER COMMENTS

Cover Sheet

of

271 Hop River Road

Bolton, Connecticut

Prepared For:

IMS PETROLEUM, LLC

January 3, 2022

DRAWING SCALE: 1"=20'

0 10 20 40

Gregg T. Fedus P.E.

CT. License No. 21231

STATE OF CONNECTICUT GREGG T. FEDUS NO. 21231 LICENSED PROFESSIONAL ENGINEER

FEDUS ENGINEERING, LLC

CIVIL ENGINEERS

Mailing Address: 70 Essex Street Mystic, Connecticut 06355

Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 1 OF 5 | JOB NO. 21-000985 | DRAWN BY: CAC

GB ZONING REQUIREMENTS TABLE

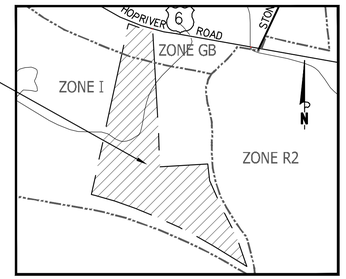
SECTION	REGULATION	REQUIREMENTS	EXISTING	PROPOSED
11C	MINIMUM LOT SIZE	40,000 SF	639,104 SF	639,104 SF
11C	MINIMUM LOT FRONTAGE	200'	180'**	180'**
11C	MINIMUM FRONT YARD	35'	50.3'	50.3'
11C	MINIMUM SIDE YARD	*	33.8' (E), 76.7' (W)	40.8' (E), 84.2' (W)
11C	MINIMUM REAR YARD	*	1,088.7'	1,088.7'
11C	MAXIMUM BUILDING HEIGHT	40'	< 45'	18.25'
11C	MINIMUM FLOOR AREA	600 SF	5,674 SF	5,024 SF
11C	MAXIMUM LOT COVERAGE	25%	1.1%	0.8%
11C	MAXIMUM IMPERVIOUS COVERAGE	65%	3.1%	3.1%
11J	MINIMUM LANDSCAPING IN GB	25% OF LOT	-	-

* THE MINIMUM SIDE AND REAR YARD IN THE INDUSTRIAL ZONE SHALL BE 50 FEET WHERE ABUTTING A RESIDENTIAL ZONE (SEE § 11.K)
**EXISTING NON-CONFORMING CONDITION

PARKING REQUIREMENTS

SECTION	REGULATION	MAXIMUM REQ.	MINIMUM REQ.	PROPOSED
15-O	FREE STANDING RETAIL	5 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 5 PER 1,000 = 25.1	2 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 2 PER 1,000 = 10.1	20 SPACES
15-0	VAN-ACCESSIBLE PARKING	NA	1 SPACE REQUIRED	1 SPACES

271 Hop River Road
Bolton, Connecticut



Location Map
Scale: 1"=1000'
0 500 1000 2000

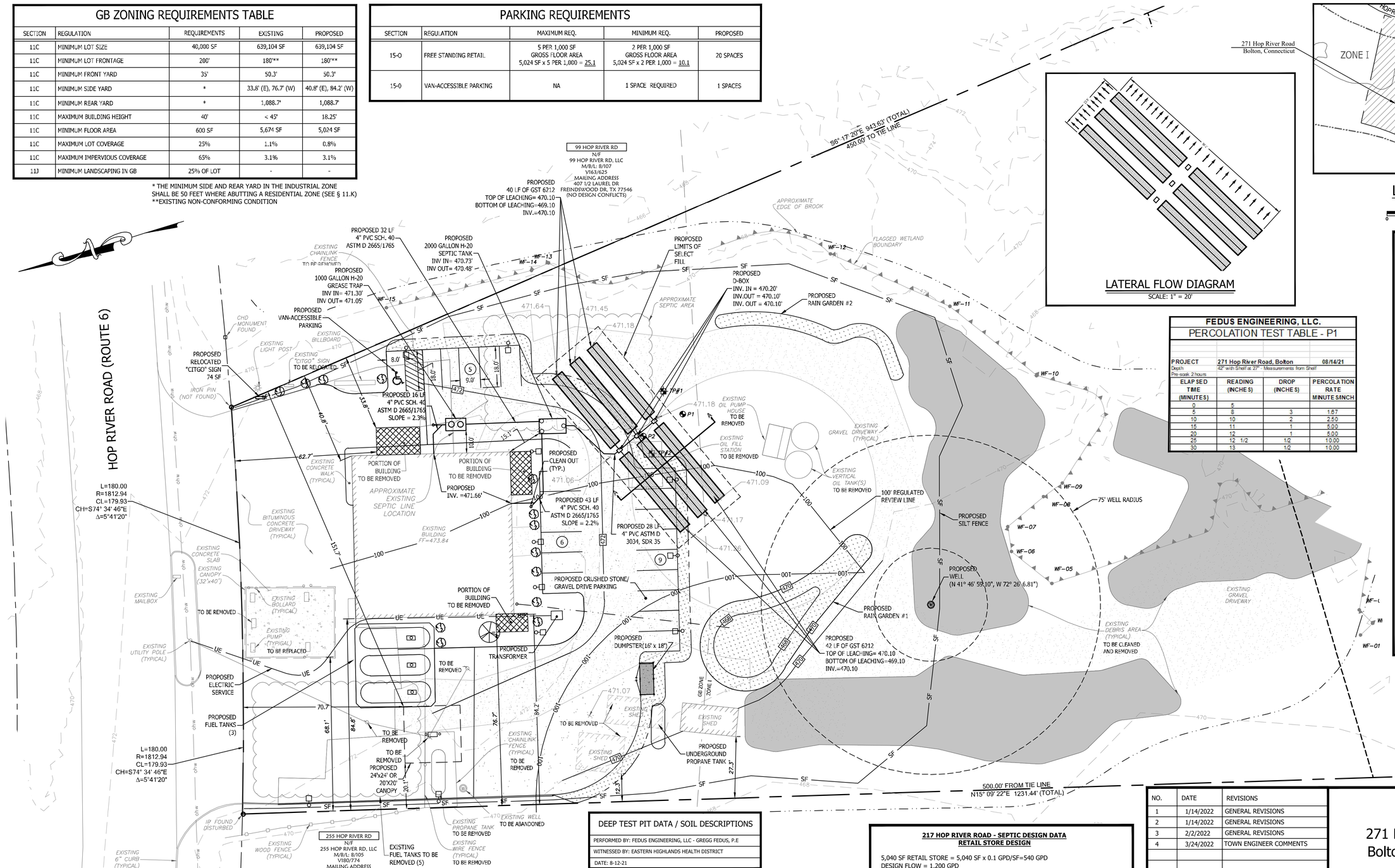
Legend

EXISTING

SYMBOL	DESCRIPTION
	MONUMENT
	EX. IP / REBAR
	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
	FENCE LINE
	WATER VALVE
OHW	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF-XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	HIGH TIDE LINE
	COUNTY JURISDICTIONAL LINE
	ZONE LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
W	EXISTING WATER LINE
SS	EXISTING SEWER LINE
N/F	NOW OR FORMERLY
	CATCH BASIN
(TYP.)	TYPICAL
5.8	SPOT ELEVATION
DH	DRILL HOLE
(POB)	POINT OF BEGINNING
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
S	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

	IRON PIN TO BE SET



FEDUS ENGINEERING, LLC.
PERCOLATION TEST TABLE - P1

PROJECT	271 Hop River Road, Bolton		08/14/21
Depth	42" with Shelf at 27" - Measurements from Shelf		
Pre-soak 2 hours			
ELAPSED TIME (MINUTES)	READING (INCHES)	DROP (INCHES)	PERCOLATION RATE MINUTE S/INCH
0	5		
5	8	3	1.67
10	10	2	2.50
15	11	1	5.00
20	12	1	5.00
25	12 1/2	1/2	10.00
30	13	1/2	10.00

FEDUS ENGINEERING, LLC.
PERCOLATION TEST TABLE - P2

PROJECT	271 Hop River Road, Bolton		08/14/21
Depth	50" with Shelf at 38" - Measurements from Shelf		
Pre-soak 2 hours			
ELAPSED TIME (MINUTES)	READING (INCHES)	DROP (INCHES)	PERCOLATION RATE MINUTE S/INCH
0	2		
5	4	2	2.50
10	5	1	5.00
15	6	1	5.00
20	7	1	5.00
25	7 3/4	3/4	6.67
30	8 1/2	3/4	6.67
35	9	1/2	10.00
40	9 1/2	1/2	10.00

DEEP TEST PIT DATA / SOIL DESCRIPTIONS

PERFORMED BY: FEDUS ENGINEERING, LLC - GREGG FEDUS, P.E	
WITNESSED BY: EASTERN HIGHLANDS HEALTH DISTRICT	
DATE: 8-12-21	

TEST PIT: 1	
0"-33"	TOPSOIL FILL
33"-54"	BROWN SANDY LOAM
57"-66"	RED BROWN SAND, WITH GRAVEL
66"-95"	BROWN SILTY SAND
MOTTLES:	66"
GROUNDWATER:	95"
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	66"

TEST PIT: 2	
0"-30"	TOPSOIL FILL
30"-39"	ORGANIC TOPSOIL
39"-53"	RED-BROWN SANDY LOAM
53"-96"	GRAVEL/BROWN SILTY LOAM
MOTTLES:	53"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

Subject Parcel Information

OWNER:	IMS PETROLEUM, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 185 PAGE 947
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

217 HOP RIVER ROAD - SEPTIC DESIGN DATA
RETAIL STORE DESIGN

5,040 SF RETAIL STORE = 5,040 SF x 0.1 GPD/SF=540 GPD
DESIGN FLOW = 1,200 GPD
PERCOLATION TEST - USE LESS THAN 10.1 MIN/INCH

TABLE 7 PROBLEMATIC SEWAGE
REQUIRED ELA = DESIGN FLOW/APPLICATION RATE
1,200 GPD / 0.80 RATE = 1,500 SF

LEACHING TRENCH GST 6212 = 10.0 SF/LF
MINIMUM REQUIRED TRENCH = 150.00 LF

TRENCH PROVIDED =246
EFFECTIVE LEACHING PROVIDED = 2,460 SF

MLSS = HF x FF x PF RS = 36"
HF = 28.0 HYDRAULIC GRADIENT = (471.19'-467.61')/72' =4.97%
FF = 4.0
PF = 1.0
MLSS = 28 x 4.0 x 1.0 = 112 LF
PROVIDED 88 + 25 = 113 LF. NEEDED 112 LF OKAY WITH 2 SIDE LATERAL FLOW.

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS
4	3/24/2022	TOWN ENGINEER COMMENTS

Site Plan
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20'
0 10 20 40

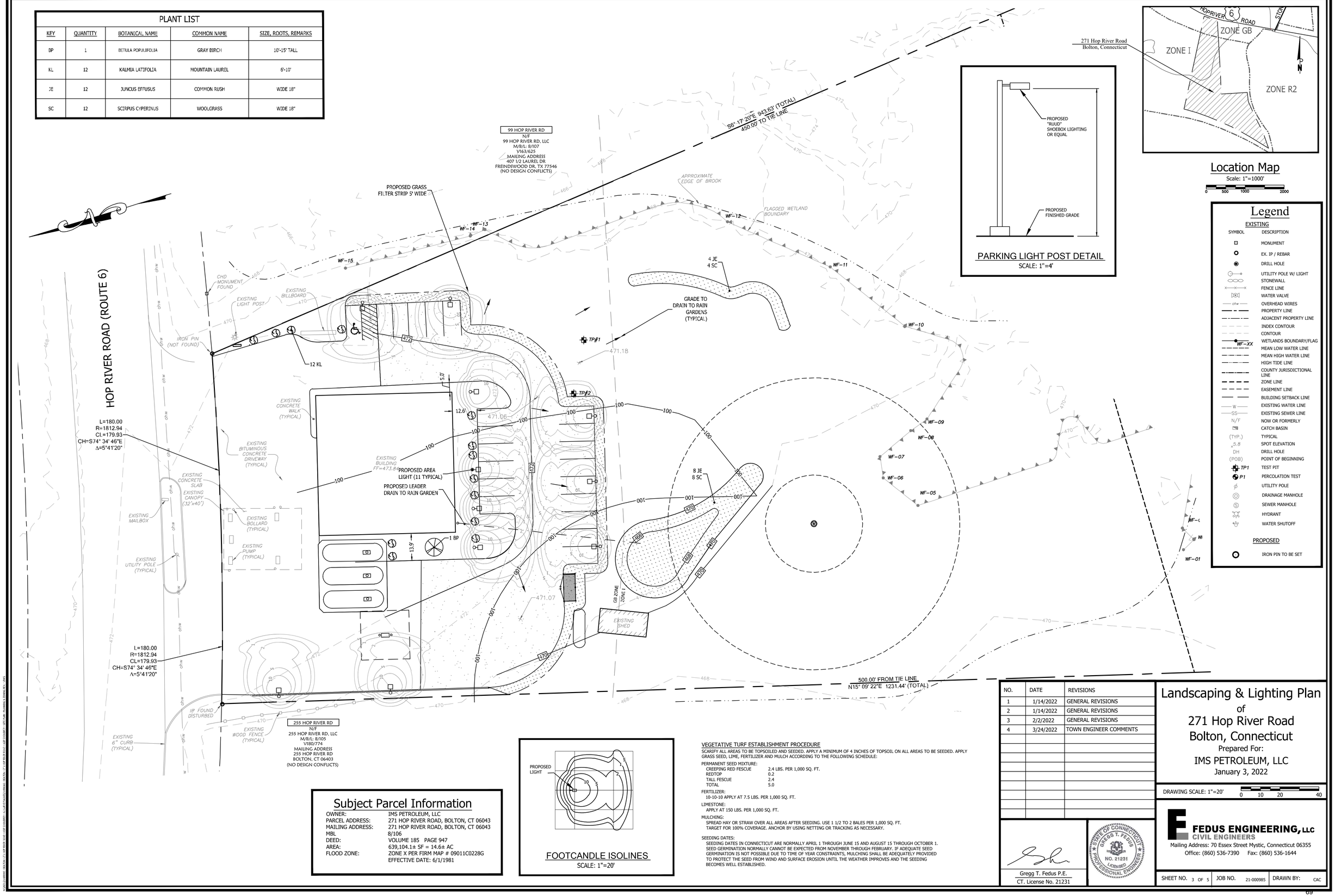
Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · LICENSED PROFESSIONAL ENGINEER

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 2 OF 5 | JOB NO. 21-000985 | DRAWN BY: CAC

PLANT LIST				
KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE, ROOTS, REMARKS
BP	1	BETULA POPULIFOLIA	GRAY BIRCH	10'-15' TALL
KL	12	KALMIA LATIFOLIA	MOUNTAIN LAUREL	6'-10'
JE	12	JUNCUS EFFUSUS	COMMON RUSH	WIDE 18"
SC	12	SCIRPUS CYPERINUS	WOOLGRASS	WIDE 18"



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DEED:	VOLUME 185 PAGE 947
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FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

FOOTCANDLE ISOLINES
SCALE: 1"=20'

271 Hop River Road
Bolton, Connecticut

PARKING LIGHT POST DETAIL
SCALE: 1"=4'

Location Map
Scale: 1"=1000'
0 500 1000 2000

Legend

EXISTING

SYMBOL	DESCRIPTION
	MONUMENT
	EX. IP / REBAR
	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
x—x—x	FENCE LINE
	WATER VALVE
o/h/w	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF-XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	HIGH TIDE LINE
	COUNTY JURISDICTIONAL LINE
	ZONE LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
W	EXISTING WATER LINE
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(POB)	POINT OF BEGINNING
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

	IRON PIN TO BE SET

VEGETATIVE TURF ESTABLISHMENT PROCEDURE

SCARIFY ALL AREAS TO BE TOPSOILED AND SEEDED. APPLY A MINIMUM OF 4 INCHES OF TOPSOIL ON ALL AREAS TO BE SEEDED. APPLY GRASS SEED, LIME, FERTILIZER AND MULCH ACCORDING TO THE FOLLOWING SCHEDULE:

PERMANENT SEED MIXTURE:

CREEPING RED FESCUE	2.4 LBS. PER 1,000 SQ. FT.
REDTOP	0.2
TALL FESCUE	2.4
TOTAL	5.0

FERTILIZER:
10-10-10 APPLY AT 7.5 LBS. PER 1,000 SQ. FT.

LIMESTONE:
APPLY AT 150 LBS. PER 1,000 SQ. FT.

MULCHING:
SPREAD HAY OR STRAW OVER ALL AREAS AFTER SEEDING. USE 1 1/2 TO 2 BALES PER 1,000 SQ. FT.
TARGET FOR 100% COVERAGE. ANCHOR BY USING NETTING OR TRACKING AS NECESSARY.

SEEDING DATES:
SEEDING DATES IN CONNECTICUT ARE NORMALLY APRIL 1 THROUGH JUNE 15 AND AUGUST 15 THROUGH OCTOBER 1. SEED GERMINATION NORMALLY CANNOT BE EXPECTED FROM NOVEMBER THROUGH FEBRUARY. IF ADEQUATE SEED GERMINATION IS NOT POSSIBLE DUE TO TIME OF YEAR CONSTRAINTS, MULCHING SHALL BE ADEQUATELY PROVIDED TO PROTECT THE SEED FROM WIND AND SURFACE EROSION UNTIL THE WEATHER IMPROVES AND THE SEEDING BECOMES WELL ESTABLISHED.

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS
4	3/24/2022	TOWN ENGINEER COMMENTS

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · LICENSED PROFESSIONAL ENGINEER

Landscaping & Lighting Plan
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20' 0 10 20 40

FEDUS ENGINEERING, LLC
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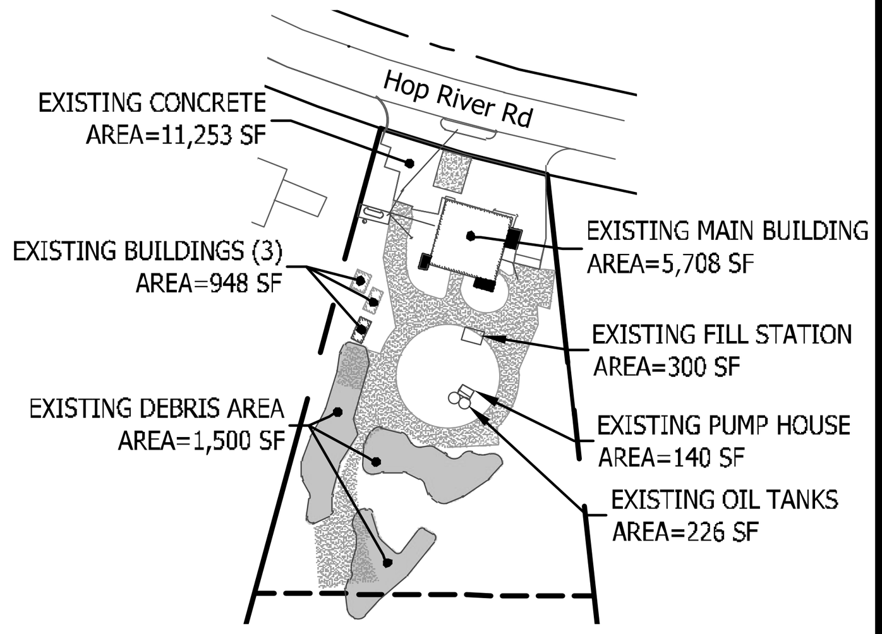
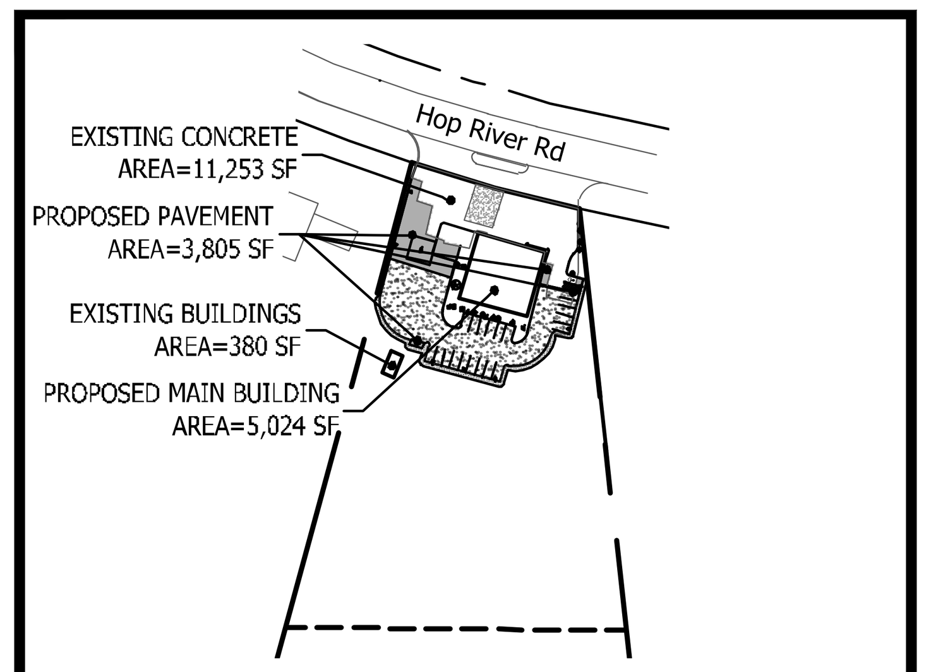
SHEET NO. 3 OF 5 | JOB NO. 21-000985 | DRAWN BY: CAC



EXISTING IMPERVIOUS AREA

	AREA
EXISTING PAVEMENT	11,253 SF
EXISTING MAIN BUILDING	5,708 SF
EXISTING BUILDINGS (3)	948 SF
EXISTING FILL STATION	300 SF
EXISTING PUMP HOUSE	140 SF
EXISTING DEBRIS AREA	1,500 SF
EXISTING OIL TANKS	226 SF
TOTAL IMPERVIOUS AREA	20,075 SF
SITE AREA	639,104 SF
IMPERVIOUS AREA / SITE AREA =	3.1%

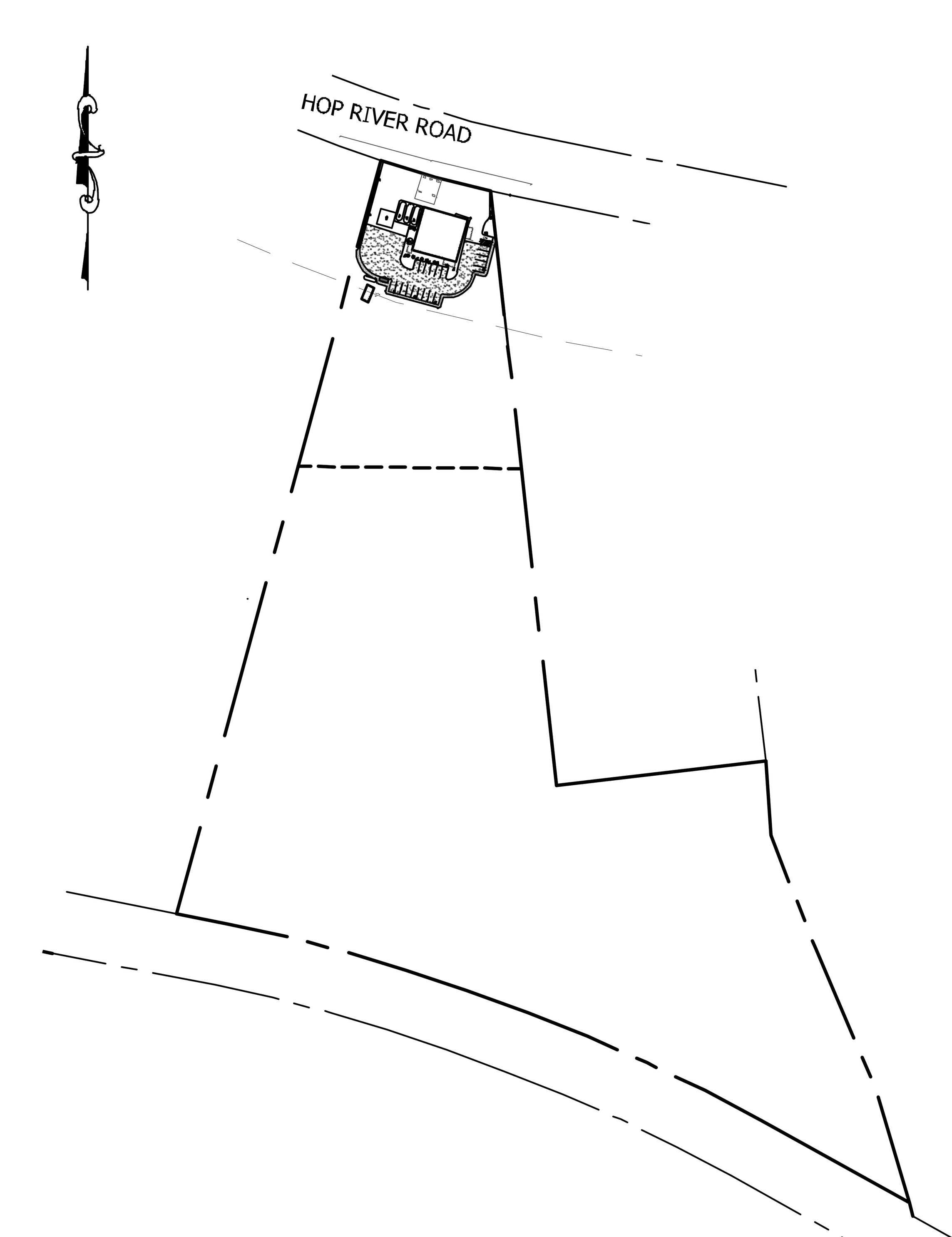
EXISTING IMPERVIOUS AREA
SCALE:1"=200'



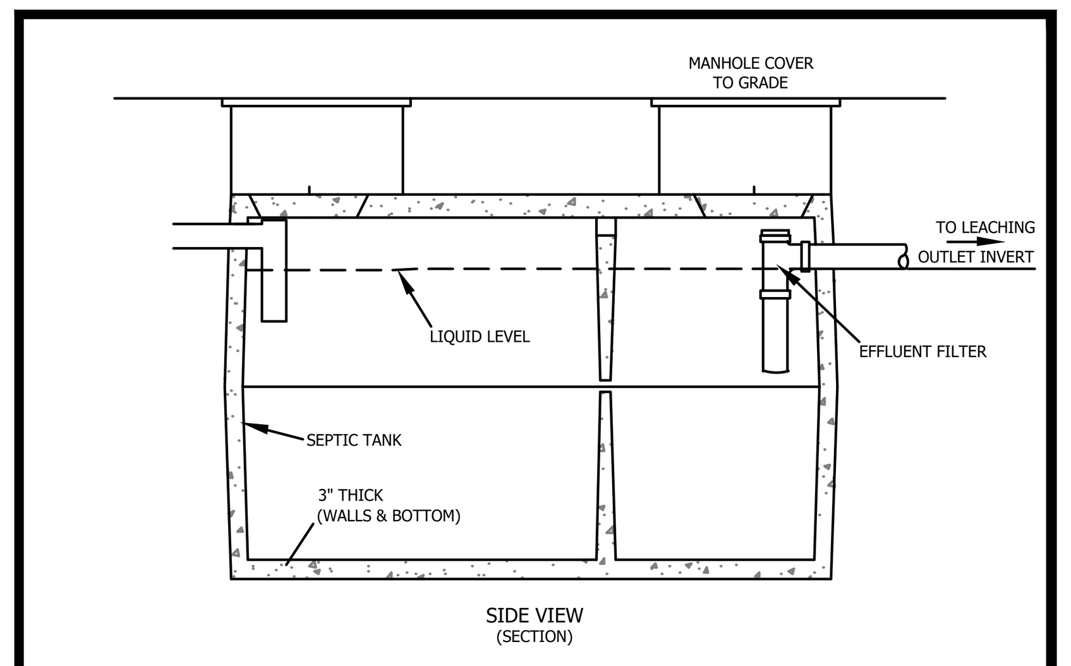
PROPOSED IMPERVIOUS AREA

	AREA
EXISTING PAVEMENT	11,253 SF
EXISTING SHED	380 SF
EXISTING PAVEMENT REMOVED	487 SF
PROPOSED PAVEMENT	3,753 SF
PROPOSED MAIN BUILDING	5,024 SF
TOTAL IMPERVIOUS AREA	19,923 SF
SITE AREA	639,104 SF
IMPERVIOUS AREA / SITE AREA =	3.1%

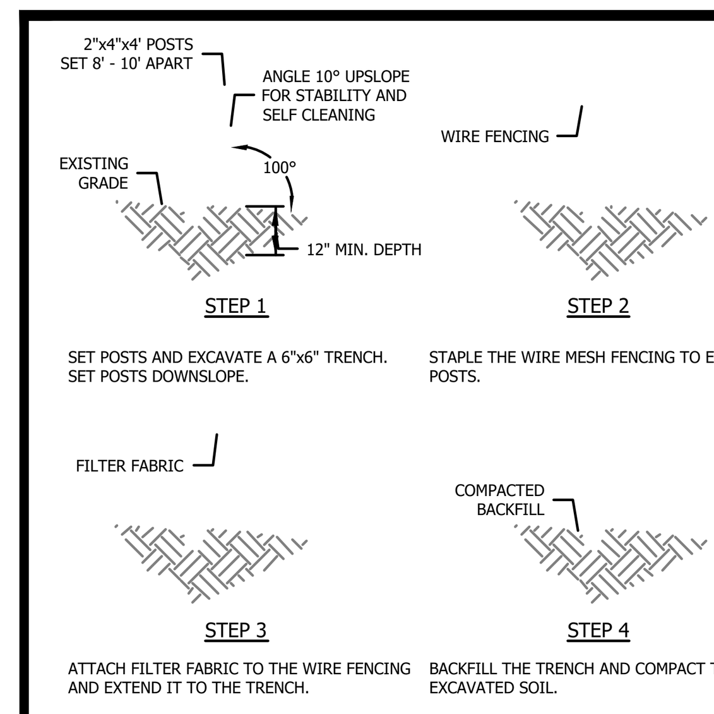
PROPOSED IMPERVIOUS AREA
SCALE:1"=200'



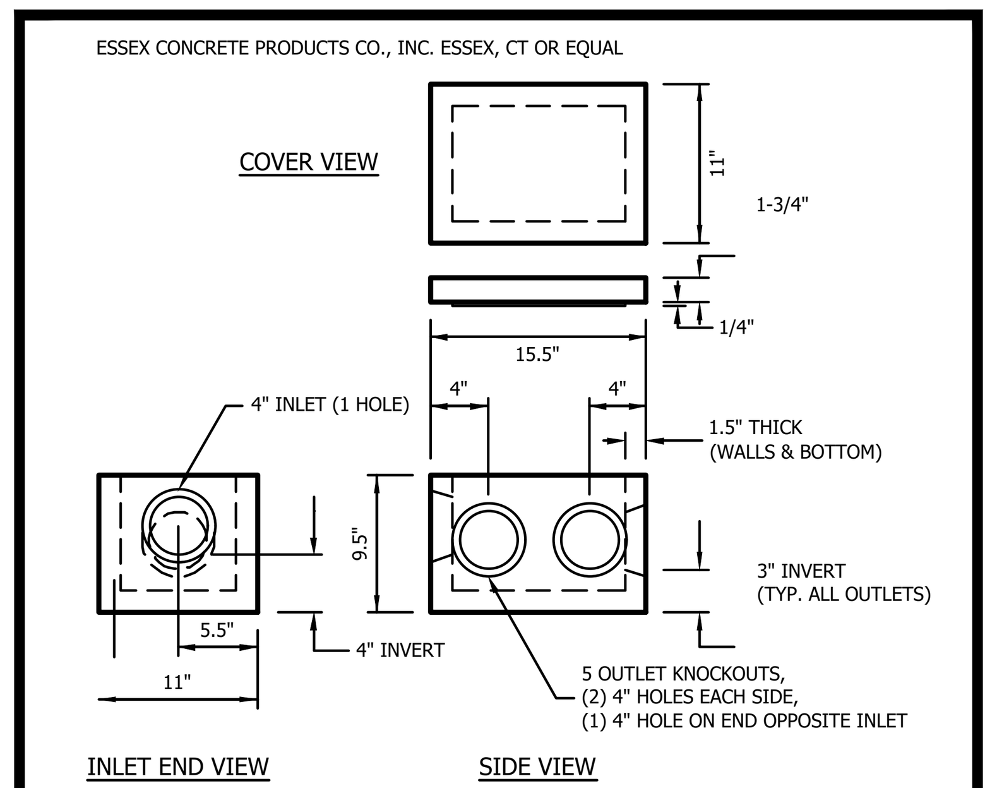
OVERALL SITE MAP
SCALE:1"=200'



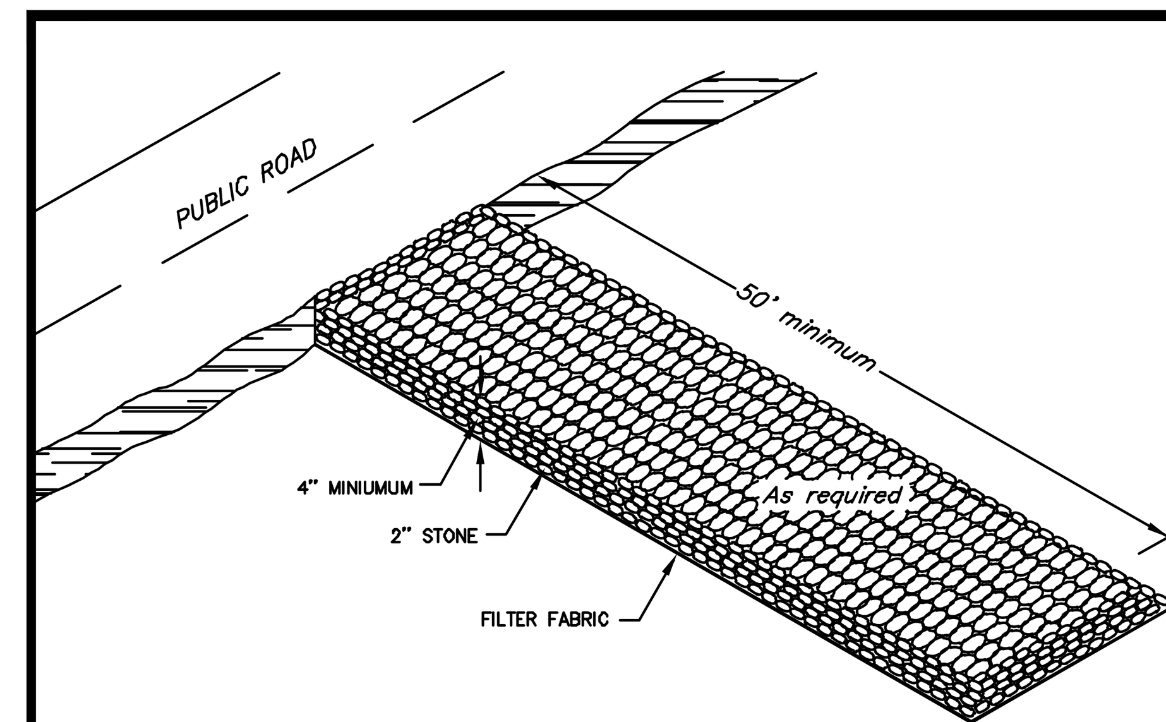
H-20 SEPTIC TANK DETAIL
SCALE: NOT TO SCALE



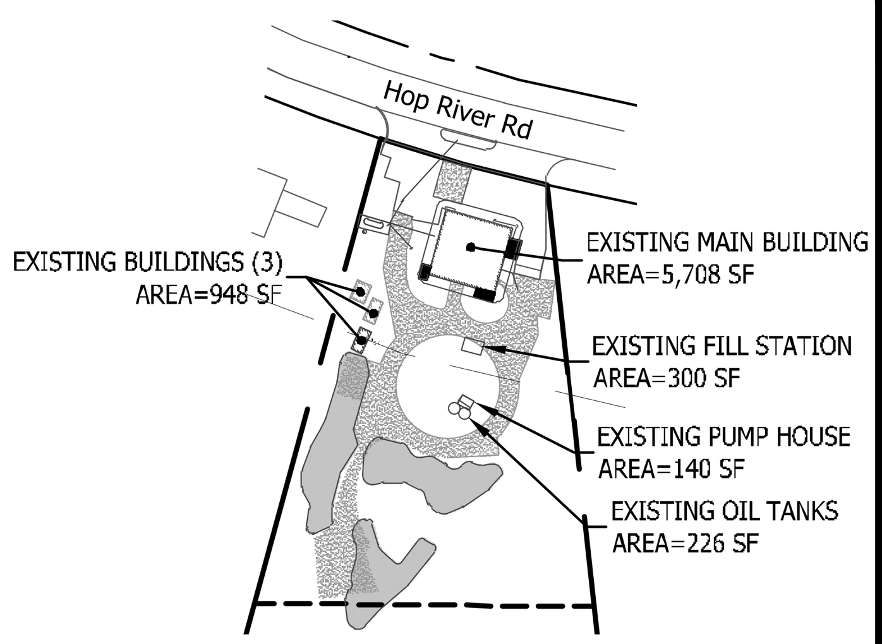
SILT FENCE INSTALLATION
SCALE: NOT TO SCALE



DISTRIBUTION BOX DETAIL
SCALE: NOT TO SCALE



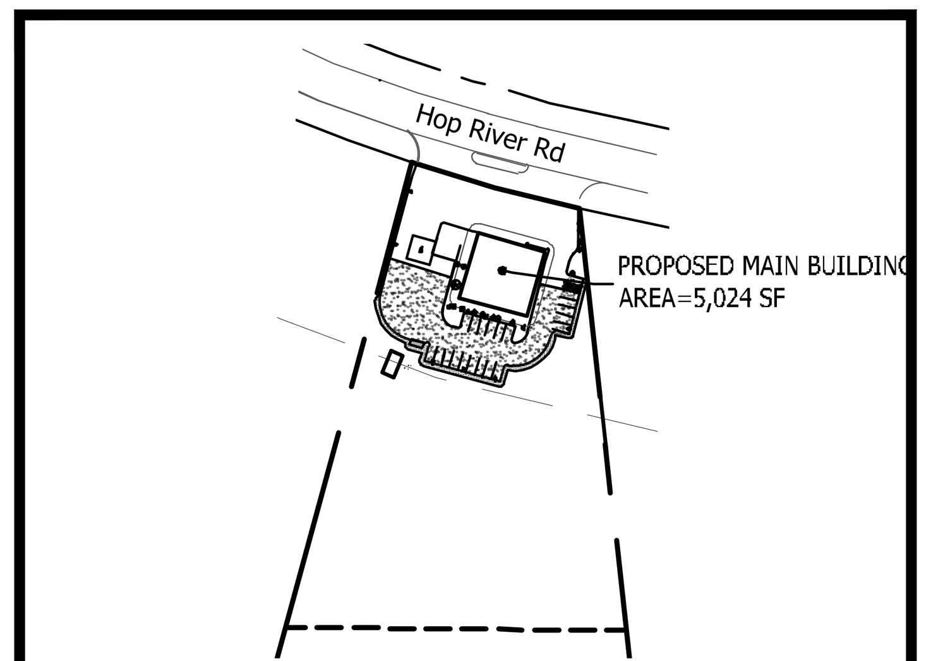
ANTI-TRACKING PAD
N.T.S.



EXISTING LOT COVERAGE

	AREA
EXISTING MAIN BUILDING	5,708 SF
EXISTING BUILDINGS (3)	948 SF
EXISTING FILL STATION	300 SF
EXISTING PUMP HOUSE	140 SF
EXISTING OIL TANKS	226 SF
TOTAL COVERAGE AREA	7,322 SF
SITE AREA	639,104 SF
LOT COVERAGE / SITE AREA =	1.1%

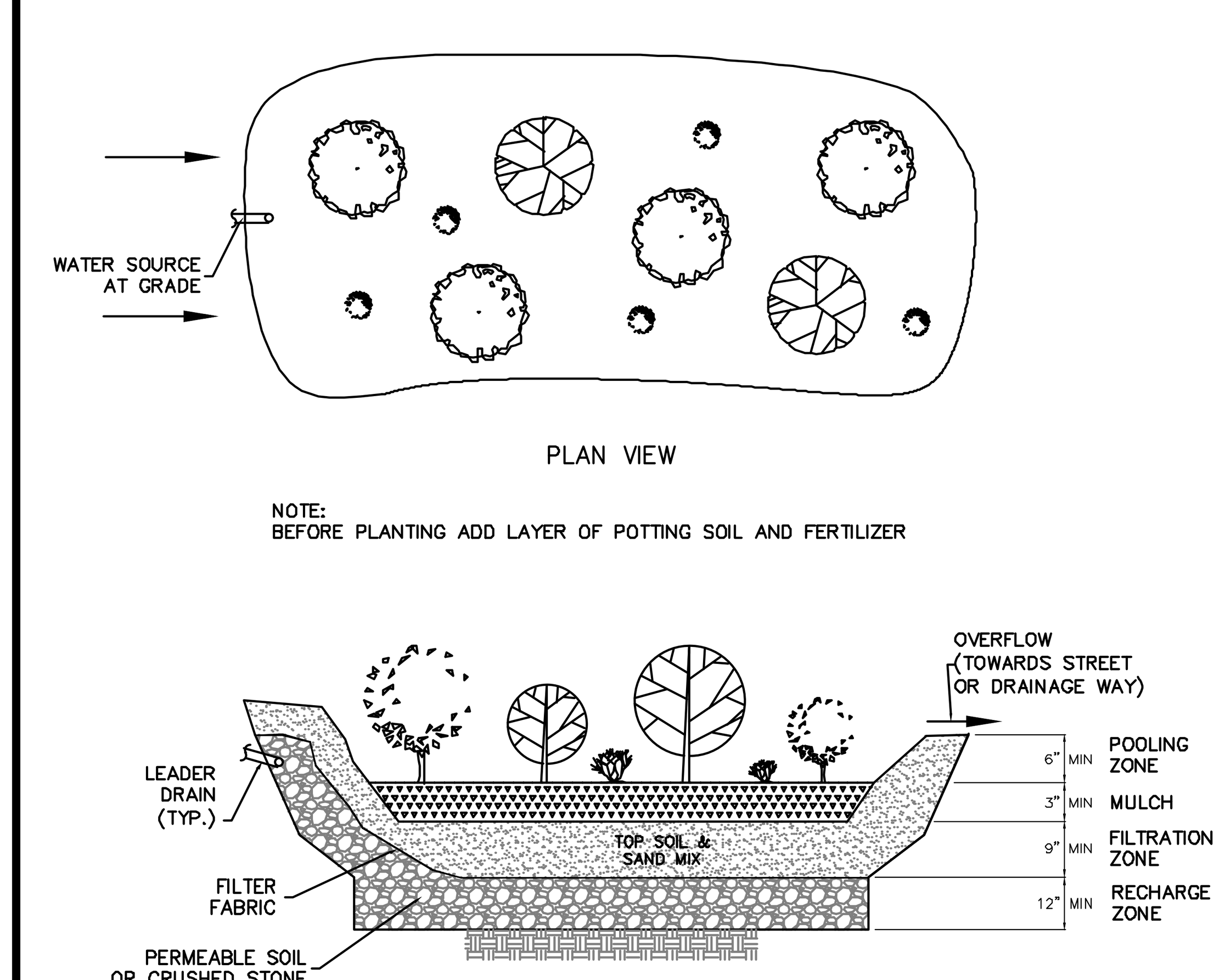
EXISTING LOT COVERAGE
SCALE:1"=200'



PROPOSED LOT COVERAGE

	AREA
PROPOSED MAIN BUILDING	5,024 SF
TOTAL COVERAGE AREA	5,024 SF
SITE AREA	639,104 SF
LOT COVERAGE / SITE AREA =	0.8%

PROPOSED LOT COVERAGE
SCALE:1"=200'



The first inch of rainfall from the leader drains is
1/12" x 5,024 SF = 418.67 CF

The proposed rain garden storage capability is
6/12" x 700 + 1' x 40% x 700 + 1' x 40% x 700 = 910 CF

Rain garden will contain the first inch of roof runoff

The following plants are acceptable in the proposed rain garden:

Trees
Red Maple, Acer rubrum
Shadblow, Amelanchier arborea
River Birch, Betula nigra
Gray Birch, Betula populifolia
Red—Panicled Dogwood, Cornus racemosa
White Ash, Fraxinus americana
Green Ash, Fraxinus pennsylvanica
Witchhazel, Hammamelis virginiana
Red Cedar, Juniperus virginiana
American Sweetgum, Liquidambar styraciflua
Tupelo, Nyssa sylvatica
American Hop Hornbeam, Ostrya virginiana
Swamp White Oak, Quercus bicolor
Pin Oak, Quercus palustris
Red Oak, Quercus rubra

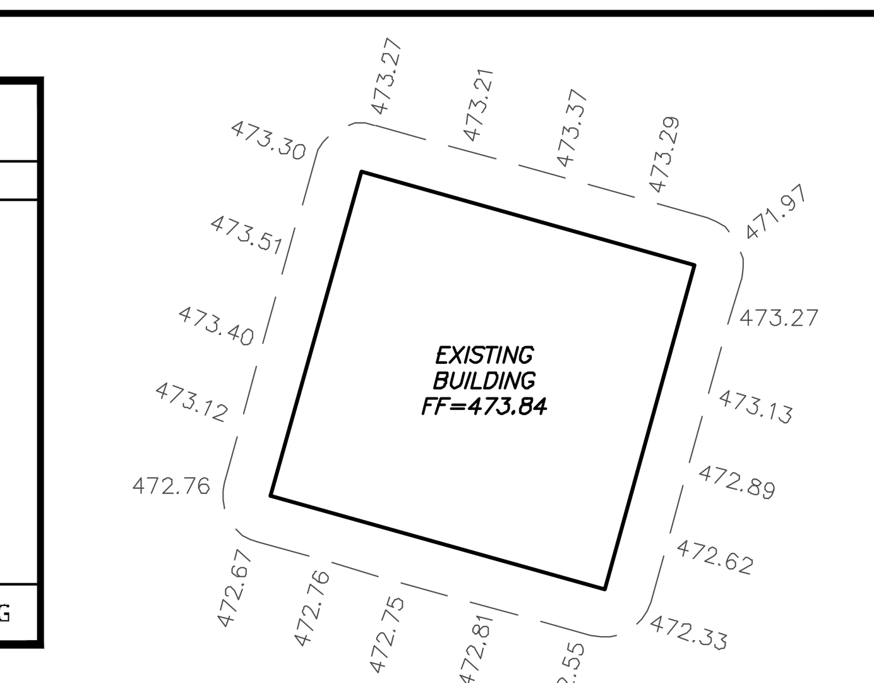
Shrubs and Vines
Red Chokeberry, Aronia arbutifolia
Black Chokeberry, Aronia melanocarpa
Wild Clematis, Clematis virginiana
Sweet Pepperbush, Clethra alnifolia
Red Twig Dogwood, Cornus sericea
Black Huckleberry, Gaylussacia baccata
Inkberry, Ilex glabra
American Holly, Ilex opaca
Winterberry Holly, Ilex verticillata
Mountain—laurel, Kalmia latifolia
*Northern Spicebush, Lindera benzoin
Trumpet Honeysuckle, Lonicera sempervirens
Northern Bayberry, Myrica pensylvanica
Virginia Creeper, Parthenocissus quinquefolia
Rosebud Azalea, Rhododendron periclymenoides
*Great Rhododendron, Rhododendron maximum
Shining Sumac, Rhus copallinum
*Small Pussy—Willow, Salix humilis
Elderberry, Sambucus canadensis
American Arborvitae, Thuja occidentalis
Late Lowbush Blueberry, Vaccinium angustifolium
Highbush Blueberry, Vaccinium corymbosum
Witherod, Viburnum cassinoides
*Northern Arrowwood, Viburnum dentatum
Nannyberry, Viburnum lentago

Perennials and Herbaceous Plants
Northern Maidenhair Fern, Adiantum pedatum
*Jack—in—the—pulpit, Arisaema triphyllum
*Wild Columbine, Aquilegia canadensis
*Bushy Aster, Aster dumosus
*Heath Aster, Aster ericoides
New England Aster, Aster novae—angliae
Dwarf Cornel, Cornus Canadensis
Glade—fern, Deparia acrostichoides
Tufted Hair Grass, Deschampsia cespitosa
Carolina Lovegrass, Eragrostis pectinacea
*Sweet Joe—Pye Weed, Eupatorium purpureum
*Grass—leaved Goldenrod, Euthamia graminifolia and Euthamia tenuifolia
Wintergreen, Gaultheria procumbens
Interrupted Fern, Osmunda claytoniana
Switchgrass, Panicum virgatum
*Torrey's Mountain Mint, Pycnanthemum verticillatum
*Virginia Mountain Mint, Pycnanthemum virginianum
*Rough Goldenrod, Solidago rugosa
New York Fern, Thelypteris noveboracensis

RAIN GARDEN DETAIL
NOT TO SCALE

SPOT GRADES

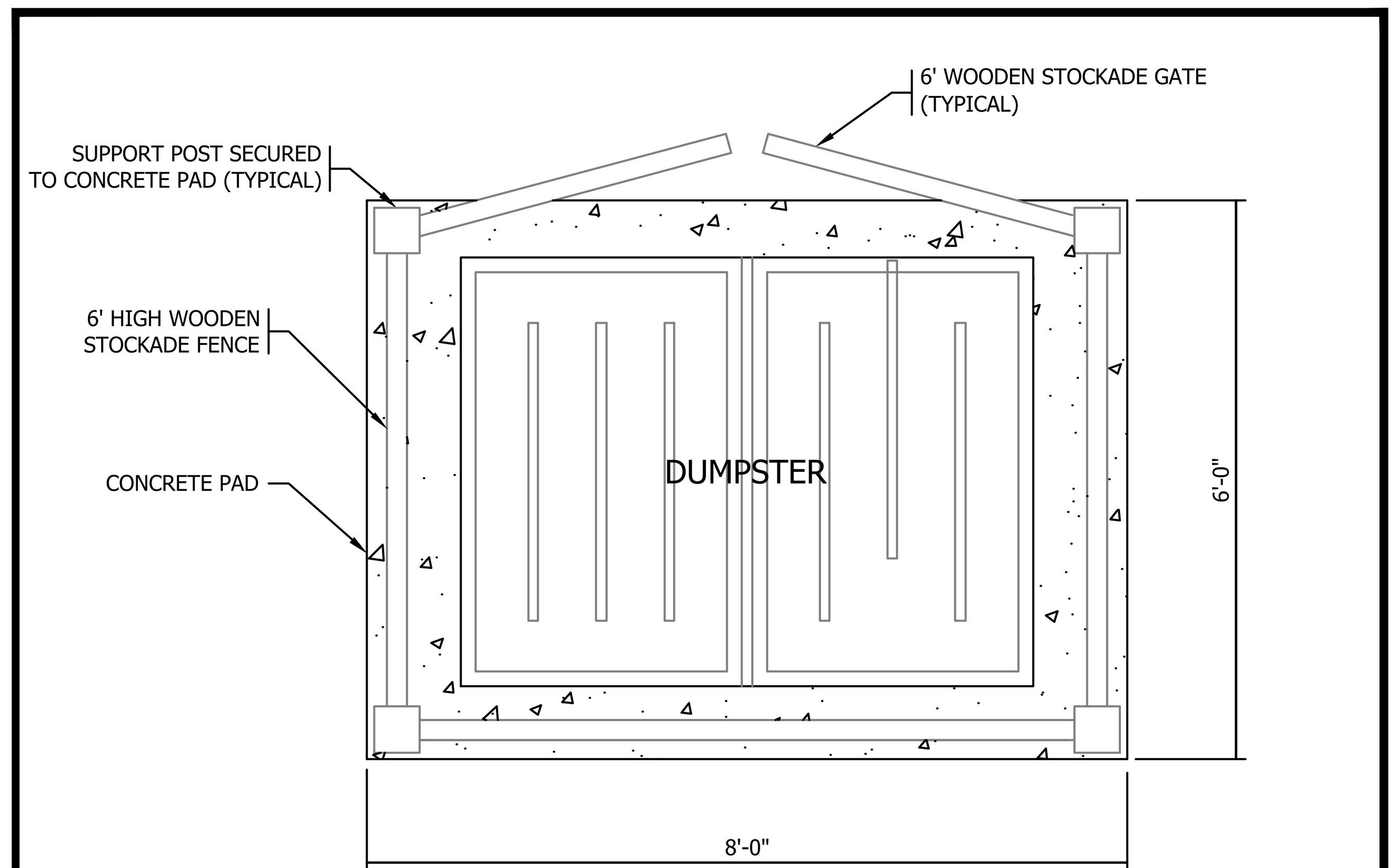
473.27	472.55
473.21	472.81
473.37	472.79
473.29	472.76
471.97	472.67
473.27	472.76
473.13	473.12
472.89	473.40
472.62	473.51
472.33	473.30
TOTAL 9459.02	
9411.21 ÷ 20 =	472.95 AVG



BUILDING HEIGHT CALCULATION

HIGHEST RIDGE ELEV.	491.20
AVERAGE EXISTING GRADE	472.95
AVG. - HIGHET RIDGE = PROP. BUILDING HEIGHT	18.25

BUILDING HEIGHT DETAIL
SCALE:1"=40'



DUMPSTER ENCLOSURE DETAIL
NOT TO SCALE

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
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4	3/24/2022	TOWN ENGINEER COMMENTS

Detail Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20' 0 10 20 40

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CT. License No. 21231

STATE OF CONNECTICUT GREGG T. FEDUS NO. 21231 LICENSED PROFESSIONAL ENGINEER

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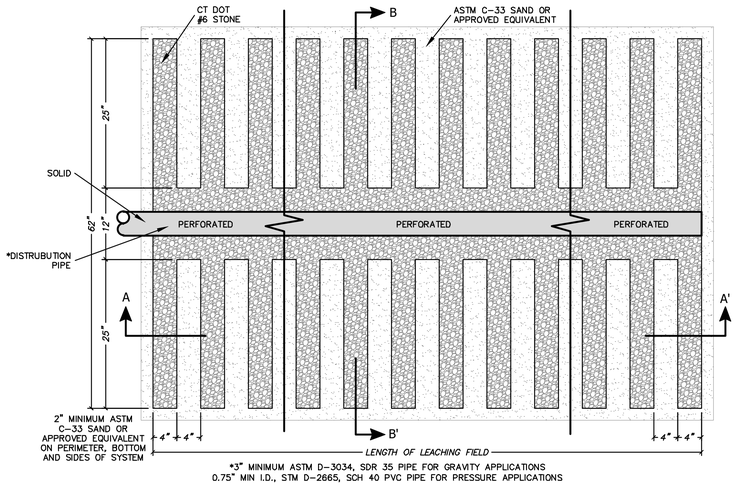
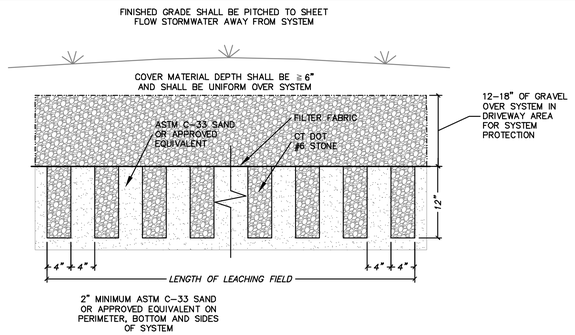
SHEET NO. 4 OF 5 | JOB NO. 21-000985 | DRAWN BY: CAC



*3" MINIMUM ASTM D-3034, SDR 35 PIPE FOR GRAVITY APPLICATIONS
0.75" MIN I.D., STM D-2665, SCH 40 PVC PIPE FOR PRESSURE APPLICATIONS

GeoMATRIX GST 6212 LEACHING TRENCH - PLAN VIEW

SCALE: 1"=1'



GeoMATRIX GST 6212 LEACHING TRENCH - CROSS-SECTION A-A

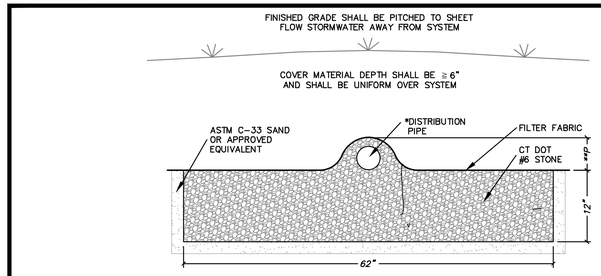
SCALE: 1"=1'

NOTES - SEPTIC SYSTEM

1. PROPOSED CONSTRUCTION TO CONFORM TO THE LATEST REVISION OF THE STATE OF CONNECTICUT PUBLIC HEALTH CODE.
2. ELEVATIONS BASED ON INFORMATION GATHERED BY LICENSED SURVEYOR.
3. ENGINEER AND SANITARIAN WILL BE CONTACTED IF SOIL CONDITIONS OTHER THAN THOSE SHOWN ON PLAN ARE ENCOUNTERED AND WORK WILL BE HALTED PENDING REVIEW OF THOSE CONDITIONS.
4. ELEVATIONS SHOWN REFER TO THE INVERT (FLOW LINE) OF THE PROPOSED LEACHING SYSTEM UNLESS NOTED OTHERWISE.
5. SEPTIC TANK CONSTRUCTION JOINTS SHALL BE SEALED WITH ASPHALT CEMENT. ALL PIPE CONNECTIONS TO THE SEPTIC TANK AND DISTRIBUTION BOXES SHALL BE SEALED WITH A POLYETHYLENE GASKET ("POLYLOK" OR APPROVED EQUAL).
6. SEPTIC TANK BAFFLES SHALL CONFORM TO TECHNICAL STANDARDS OF THE PUBLIC HEALTH CODE.
7. SEPTIC TANKS SHALL HAVE AN APPROVED NON-BYPASS EFFLUENT FILTER AT THE OUTLET.
8. SEPTIC TANK SHALL BE TWO COMPARTMENT TANK WITH HEAVY DUTY STEEL HANDLES FOR MANHOLE ACCESS COVERS AND GAS BAFFLES INSTALLED AT OUTLET PIPING. TANKS TO BE WATER TIGHT.
9. ALL PIPES DOWNSTREAM OF THE SEPTIC TANK SHALL BE 4" DIAMETER SCH 40 ASTM D1785 OR D2665. ALL PIPES UPSTREAM OF THE SEPTIC TANK SHALL BE 4" DIAMETER SCH 40 ASTM D1785 OR D2665.
10. NO DEVIATIONS FROM THE APPROVED DESIGN PLAN SHALL BE ALLOWED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND SANITARIAN.
11. EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO FIELD MODIFICATION AS REQUIRED BY THE DESIGN ENGINEER OR TOWN OFFICIALS TO INCREASE EROSION AND SEDIMENT CONTROL MEASURES.
12. ALL FILTER FABRIC SHALL BE 1.5 OZ./YD. (ASTM D-5261), PERMEABILITY OF 1.0 SEC. (ASTM D-4491) AND A TRAPEZOID TEAR OF 15 LBS. (ASTM D-4533) OR EQUAL.
13. ALL DISTURBED AREAS SHALL BE TOPSOILED AND TURF ESTABLISHED.
14. BASED ON AVAILABLE RECORDS AT THE TOWN OF EAST HADDAM HEALTH DEPARTMENT, NO SEPARATING DISTANCE CONFLICTS ARE PRESENT WITH WELLS, SEPTIC SYSTEMS AND HOUSES ON ADJACENT LOTS.
15. BUILDINGS HAVE NO GARBAGE GRINDERS, OR LARGE TUBS OVER 100 GALLONS.
16. NO FOOTING DRAINS SHALL BE INSTALLED WITHIN 25' OF PROPOSED SEPTIC SYSTEM.
17. LICENSED SURVEYOR TO STAKE SYSTEM. LICENSED SEPTIC INSTALLER TO DO SITE PREPARATION WORK. BENCH MARK TO BE SET IN FIELD.
18. NO WORK (OTHER THAN TREE CLEARING) SHALL COMMENCE IN THE SYSTEM AREA UNTIL A SEPTIC PERMIT HAS BEEN TAKEN OUT BY THE LICENSED INSTALLER.
19. STRIP INSPECTIONS SHALL BE DONE BY BOTH THE ENGINEER AND SANITARIAN.
20. TEN FOOT SEPARATION FROM WATER LINE TO SYSTEM TO BE VERIFIED IN FIELD.
21. SYSTEM AREA SHOULD BE RE-STRIPPED AND REFILLED PRIOR TO START OF CONSTRUCTION TO PREVENT HEAVY EQUIPMENT COMPACTION FROM DRIVEWAY.

INSTALLATION NOTES

1. LAYOUT SYSTEM.
2. PREPARE SITE AND REMOVE ANY TREES WITH A DRIP LINE FALLING WITHIN 10 FEET OF THE LEACHING SYSTEM.
3. EXCAVATE TRENCH TO A DEPTH THAT IS AT LEAST 2" BELOW THE BASE ELEVATION OF THE GST TO ACCOMMODATE A MINIMUM OF 2" OF SAND. TRENCH WIDTH SHOULD BE A MINIMUM OF 45" FOR THE GST 37 SERIES AND 70" FOR GST 62 SERIES.
4. RAKE/SCARIFY SIDEWALLS AND BOTTOM OF TRENCH TO ADDRESS ANY SMEARING OF FINES, AND THEN DO NOT WALK IN TRENCH BOTTOM.
5. PLACE A MINIMUM OF 2" OF ASTM C-33 SAND OR APPROVED EQUIVALENT (SAND) IN THE BOTTOM OF THE EXCAVATION TO SERVE AS BASE FOR GST, RAKE AND LEVEL AND UNIFORMLY COMPACT. IF A 2" LIFT OF SAND IS PRESENT SIMPLY WALKING ON IT SHOULD PROVIDE SUFFICIENT COMPACTION.
6. SET THE GST FORMS IN CENTER OF TRENCH.
7. PLACE COVERS OVER ENTIRE CENTER STONE CHANNEL AND ALTERNATING STONE FINGER COMPARTMENTS.
8. PLACE SAND INTO VOID SPACE BETWEEN TRENCH SIDEWALL AND GST FORM. ALSO FILL THE SAND FINGER VOIDS IN THE FORMS AND UNIFORMLY COMPACT.
9. REMOVE ALL COVERS FROM OVER ENTIRE CENTER STONE CHANNEL AND STONE FINGER COMPARTMENTS.
10. PLACE CLEAN CT DOT #6 (3/4") STONE INTO THE INTERIOR OF THE GST FORM.
11. PULL FIRST GST FORM AND "LEAP FROG" FORM AHEAD OF THE LAST GST FORM.
12. REPEAT SEQUENCE UNTIL DESIRED TRENCH LENGTH IS INSTALLED.
13. ENSURE THAT SAND AND BACKFILL MATERIALS ARE COMPACTED TO PREVENT SETTLEMENT.
14. INSTALL APPROVED DISTRIBUTION PIPING ON TOP OF THE 12" CENTRAL STONE CHANNEL.
15. PLACE STONE AROUND THE DISTRIBUTION PIPE.
16. PUT APPROVED FILTER FABRIC OVER THE SYSTEM.
17. BACKFILL SYSTEM TO ENSURE THAT UNIFORM COVER AND COMPACTION EXISTS OVER THE TOP OF THE SYSTEM (A MINIMUM OF 6" OF COVER IS REQUIRED). WHEN GST IS INSTALLED BELOW AREAS SUBJECT TO H-20 LOADING, SEE NOTE BELOW.
18. FINISH GRADE OVER THE SYSTEM SHOULD ENSURE THAT STORM WATER SHEET FLOW IS DIVERTED AWAY FROM THE LEACHING SYSTEM, TANK(S) AND PUMP TANK(S) IF PRESENT.
19. SEED AND HAY DISTURBED AREA. THE USE OF WOOD CHIPS AS COVER MATERIAL IS NOT RECOMMENDED.
20. MAINTAIN THE AREA TO PREVENT TREE ROOTS FROM IMPACTING THE SYSTEM.
21. PROPERLY SERVICE THE SEPTIC TANK EVERY 3-5 YEARS; OR AS ADVISED BY THE REGULATORY AGENCY OR YOUR SERVICE PROVIDER.



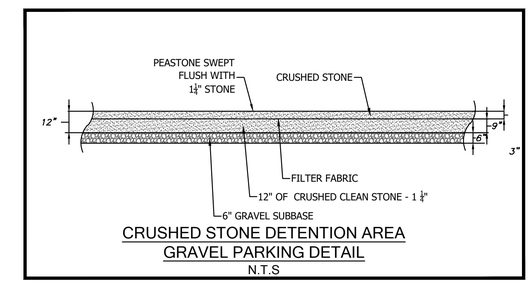
*3" MINIMUM ASTM D-3034, SDR 35 PIPE FOR GRAVITY APPLICATIONS
0.75" MIN I.D., STM D-2665, SCH 40 PVC PIPE FOR PRESSURE APPLICATIONS

**P = 2"-5.5"

2" MINIMUM ASTM C-33 SAND OR APPROVED EQUIVALENT ON PERIMETER, BOTTOM AND SIDES OF SYSTEM

GeoMATRIX GST 6212 LEACHING TRENCH - CROSS-SECTION B-B

SCALE: 1"=1'



CRUSHED STONE DETENTION AREA GRAVEL PARKING DETAIL

N.T.S

SYSTEM SITE PREPARATION

1. A MINIMUM OF 24 HOURS, BUT PREFERABLY 48 HOURS NOTICE SHALL BE GIVEN BY THE INSTALLER TO THE ENGINEER AND SANITARIAN BEFORE ANY STRIPPING IS DONE FOR THE SYSTEM.
2. THE LICENSED INSTALLER SHALL BE ON SITE DURING SYSTEM CONSTRUCTION WORK WILL BE STOPPED BY THE HEALTH DEPARTMENT IF THIS REQUIREMENT IS NOT COMPLIED WITH.
3. NO SYSTEM IS TO BE BACKFILLED UNTIL THE SANITARIAN HAS GIVEN THE OK. THE OK WILL NOT BE GIVEN UNTIL THE ENGINEER HAS PROVIDED WRITTEN OR VERBAL COMMUNICATION THAT THE SYSTEM IS INSTALLED IN COMPLIANCE WITH THE HEALTH CODE AND THEIR DESIGN, OR WITH ACCEPTABLE MODIFICATIONS.

SELECT FILL SPECIFICATIONS:

SELECT FILL PLACED WITHIN AND ADJACENT TO LEACHING SYSTEM AREAS SHALL BE A CLEAN MATERIAL COMPRISED OF SAND, OR SAND AND GRAVEL, FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES. THE SELECT FILL SHALL MEET THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE APPROVED BY THE DESIGN ENGINEER. SELECT FILL EXCEEDING 6 PERCENT PASSING THE #200 SIEVE BASED ON A WET SIEVE TEST CANNOT BE APPROVED BY THE DESIGN ENGINEER.

1. THE SELECT FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THE THREE (3) INCH SIEVE.
2. UP TO 45% OF THE DRY WEIGHT OF THE REPRESENTATIVE SAMPLE MAY BE RETAINED (GRAVEL PORTION) ON THE #4 SIEVE.
3. THE MATERIAL THAT PASSES THE #4 SIEVE IS THEN REWEIGHED AND THE SIEVE ANALYSIS STARTED.
4. THE REMAINING SAMPLE SHALL MEET THE FOLLOWING GRADATION CRITERIA:

SIEVE SIZE	PERCENT PASSING WET SIEVE	PERCENT PASSING DRY SIEVE
#4	100	100
#10	70 - 100	70 - 100
#40	10 - 50*	10 - 75
#100	0 - 20	0 - 5
#200	0 - 5	0 - 2.5

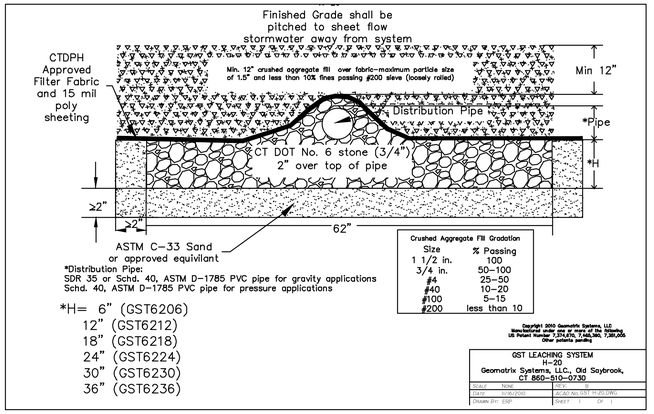
* PERCENT PASSING THE #40 SIEVE CAN BE INCREASED TO NO GREATER THAN 75 IF THE PERCENT PASSING THE #100 SIEVE DOES NOT EXCEED 10 AND THE #200 SIEVE DOES NOT EXCEED 5.

SELECT FILL THAT DOES NOT MEET THE DRY SIEVE GRADATION CRITERIA BUT MEETS THE WET SIEVE GRADATION CRITERIA IS ACCEPTABLE. SIEVE TESTING OF SELECT FILL IS REQUIRED FOR LARGE (2,000 GPD OR GREATER) SYSTEMS WHENEVER THE LEACHING SYSTEM IS LOCATED TOTALLY IN SELECT FILL. THE LOCAL DIRECTOR OF HEALTH MAY REQUIRE SIEVE TESTING OF SELECT FILL ON SMALL SSDSS IN ACCORDANCE WITH PHC SECTION 19-13-B103E (D) (6).

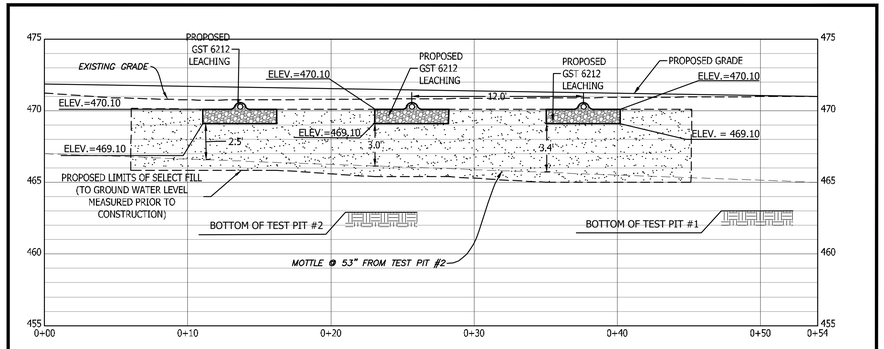
THE LICENSED INSTALLER IS RESPONSIBLE FOR PREPARING THE LEACHING AREA WITH NECESSARY SELECT FILL. TOPSOIL IN THE LEACHING SYSTEM AREA SHALL BE REMOVED AND THE SUBSOIL SCARIFIED PRIOR TO SELECT FILL PLACEMENT, UNLESS OTHERWISE DIRECTED BY THE DESIGN ENGINEER. THE INSTALLER SHALL TAKE THE NECESSARY STEPS TO PROTECT THE UNDERLYING RECEIVING SOIL FROM OVER COMPACTION/DAMAGE. THE INSTALLER IS RESPONSIBLE FOR PROPERLY COMPACTING SELECT FILL TO FACILITATE CONSTRUCTION AND TO PREVENT SETTLING. SELECT FILL SHALL EXTEND A MINIMUM OF 5 FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE LEACHING SYSTEM.

THE COMMISSIONER OF PUBLIC HEALTH SHALL APPROVE MANUFACTURED FILL. ROCK OR OTHER PRODUCT USED TO PRODUCE MANUFACTURED FILL SHALL HAVE A LOSS OF ABRASION OF NOT MORE THAN 50 PERCENT USING AASHTO METHOD T-96, AND WHEN TESTED FOR SOUNDNESS USING AASHTO METHOD T 104 NOT HAVE A LOSS OF MORE THAN 15 PERCENT AT THE END OF 5 CYCLES. SUPPLIERS OF MANUFACTURED FILL SHALL MAKE APPLICATION FOR APPROVAL TO THE COMMISSIONER OF PUBLIC HEALTH. DOCUMENTATION SHALL BE SUBMITTED ON THE MANUFACTURED FILL OPERATION AND PRODUCTION PROCESS. FILL SPECIFICATIONS (GRADATION, PERMEABILITY, ETC.) AND A NARRATIVE OF THE QUALITY CONTROL/QUALITY ASSURANCE PROGRAM SHALL ALSO BE INCLUDED FOR ALL ACTIVE PRODUCTION SITES. APPROVED MANUFACTURED FILL PRODUCERS SHALL PROVIDE ANNUAL PRODUCT REGISTRATIONS TO THE COMMISSIONER OF PUBLIC HEALTH BY JULY 1ST OF EACH YEAR.

"SELECT FILL" SHOULD BE PLACED ON THE EDGE OF THE SITE AND SPREAD OVER THE PREPARED AREA WITH A BULLDOZER. NO TRUCKS SHOULD RUN OVER THE FILL UNTIL 12 INCHES OF FILL HAS BEEN PLACED. THE REMAINDER OF THE FILL SHOULD BE PLACED IN LAYERS 8 TO 12 INCHES DEEP AND COMPACTED BY NORMAL BULLDOZING OR OTHER CONSTRUCTION EQUIPMENT. FILLING AND COMPACTION SHOULD BE DISCONTINUED DURING RAIN STORMS AND FOR 24 HOURS THEREAFTER. ALL FILL SHOULD BE PLACED AND COMPACTED BEFORE ANY OF THE LEACHING SYSTEM IS INSTALLED.

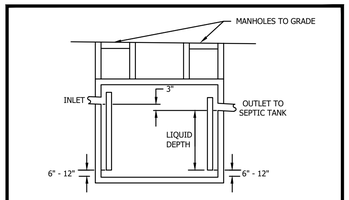


*H= 6" (GST6206)
12" (GST6212)
18" (GST6218)
24" (GST6224)
30" (GST6230)
36" (GST6236)



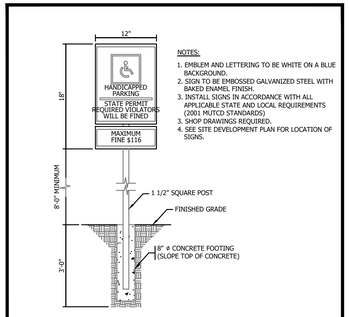
SECTION A-A LEACHING SYSTEM CROSS SECTION (LOOKING NORTHEAST

SCALE: 1"=5'



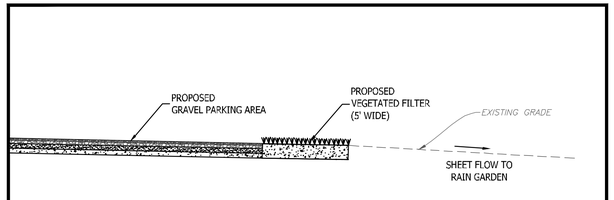
TYPICAL H-20 GREASE INTERCEPTOR TANK

NOT TO SCALE



HANDICAPPED PARKING SIGN DETAIL

NOT TO SCALE



VEGETATED FILTER STRIP DETAIL

NOT TO SCALE

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS
4	3/24/2022	TOWN ENGINEER COMMENTS

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT GREGG T. FEDUS NO. 21231 LICENSED PROFESSIONAL ENGINEER

Detail Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20' (0 10 20 40)

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 5 OF 5 | JOB NO. 21-000985 | DRAWN BY: CAC

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS

70 Essex Street, Unit 2C, Mystic, CT 06355 ■ Phone: 860-536-7390

April 5, 2022

Planning and Zoning
Town of Bolton
222 Bolton Center Road
Groton, CT 06340

Re: Planning & Zoning Commission – 271 Hop River Road Town Engineer Comments & Health Department Comments

Dear Ms. Carson,

In response to the letter dated February 24, 2022 and the Towns comments regarding the subject property we have developed the following point by point response:

Town Engineer Comments 2/16/2022

1. Referral should be made to the Connecticut Department of Transportation (CTDOT) for work occurring within the CTDOT right-of-way. – **Noted. CTDOT was copied on this submission.**

2. Section 15D. of the Bolton Zoning Regulations states "All parking areas consisting of greater than five spaces shall be provided with an asphalt or bituminous paved, all-weather surface or other dust free, structurally suitable, stable material as approved by the Commission and suitable sub-base throughout their entirety.' The regulations also states "Notwithstanding the above, the Commission may waive certain requirements of this section as appropriate to implement the Low Impact Development requirements of Section 16A.2.1 Stormwater Management, and the flexible design standards set down in Section 15.P, Waivers and Exceptions." The application should state whether it intends to request a waiver from this regulation. – **Waiver requested for dustless gravel parking area. See attached waiver.**

3. A Landscaping Plan in accordance with Section 16A.3.g of the Town of Bolton Zoning Regulations should be provided. – **Landscaping plan added sheet 3 of 5.**

4. A Lighting Plan in accordance with Section 16A.3j of the Town of Bolton Zoning Regulations should be provided. – **Lighting Plan added sheet 3 of 5.**

5. Sizing calculations should be provided for the proposed stormwater management features. The calculations should address water quality volume as well as mitigation of runoff with respect to the proposed increase in impervious surfaces. – **We have calculated stormwater runoff for the first-inch Detail/Calculation provided on sheet 5 of 5. There is no proposed increase of impervious surfaces on the site. The gravel parking area on the rear side of the building is dustless and allows for water to infiltrate the natural soils. An aerial photo taken with a low flying drone shows evidence of structures and debris not previously accounted for in the existing imperious calculation. With the removal of the debris and reducing the footprint of the building, the impervious area remains at 3.1%.**

6. A standard detail for the proposed grass filter strip should be provided. – **Added to sheet 5 of 5.**

7. Labels for the existing contours elevations should be provided. – **Addressed.**

8. The site plan proposes 22 parking spaces. A minimum of one van-accessible parking space should be provided. – **Addressed on Site Plan sheet 2 of 5.**

Health Department Comments 2/4/2022

1. The MLSS calculation requires a perc test in the naturally occurring soil, at TP2 its 39-53 inches. – **Percolation tests added to Site Plan. Sheet 2 of 5.**

2. Provide clear existing contour lines over the leaching area or spot elevations. – **Addressed on the Site Plan. Sheet 2 of 5.**

3. The leaching row elevations on sheet 2 are inconsistent with the cross section detail on sheet 4, mislabeled. – **Addressed on Detail sheet and Site Plan.**

4. Indicate cleanouts in sewer lines, change of directions > 45 degrees. – **Addressed on Site Plan. Sheet 2 of 5.**

5. Provide Geomatrix detail sheet for GST H20 loading. – **Added to Sheet 5 of 5.**

6. Consider a level distribution system for uniform distribution. – **Redesigned for level distribution system.**

7. Select fill placement is proposed to the mottling elevation. Observations for groundwater were made in August. Placing select fill to the groundwater level made create a conduit for vertical movement of ground water. Check groundwater conditions prior to construction. – **Note added on Sheet 5 of 5.**

If you have any questions or require anything further please let us know at your earliest convenience.

Sincerely,

Nathaniel Fleming

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS

70 Essex Street, Unit 2C, Mystic, CT 06355 ■ Phone: 860-536-7390 ■ Fax: 860-536-1644

April 5, 2022

Planning and Zoning
Town of Bolton
222 Bolton Center Road
Groton, CT 06340

Re: Planning & Zoning 271 Hop River Road, Driveway Waiver

Dear Planning & Zoning Commission:

We respectfully request the following waiver for the subject location:

Section 15D. of the Bolton Zoning Regulations states "All parking areas consisting of greater than five spaces shall be provided with an asphalt or bituminous paved, all-weather surface or other dust free, structurally suitable, stable material as approved by the Commission and suitable sub-base throughout their entirety.' The regulations also states "Notwithstanding the above, the Commission may waive certain requirements of this section as appropriate to implement the Low Impact Development requirements of Section 16A.2.1 Stormwater Management, and the flexible design standards set down in Section 15.P, Waivers and Exceptions." The application should state whether it intends to request a waiver from this regulation.

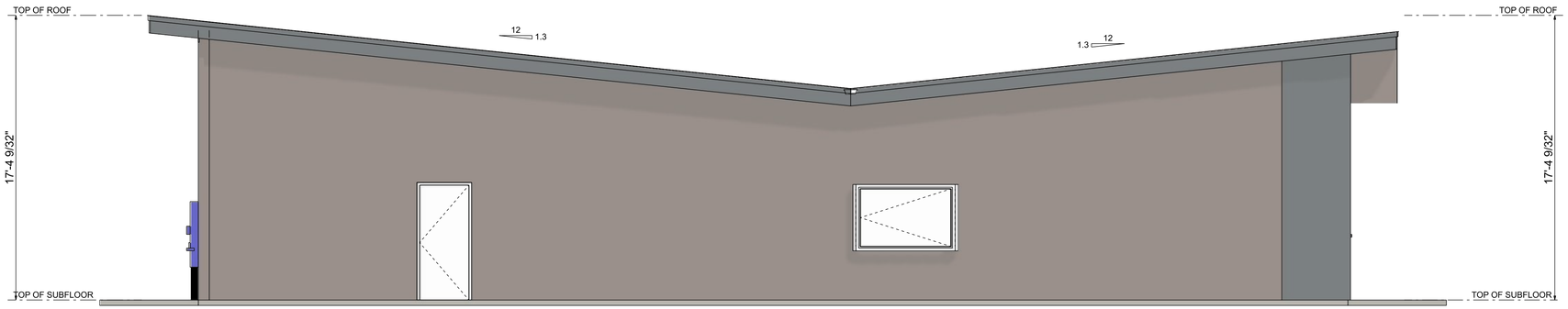
Thank you for your consideration of our request. Attached is the maintenance schedule for the proposed gravel driveway/parking area. If you have any questions or require further information, please contact our office at (860) 536-7390 or via email.

Sincerely,

Nathaniel Fleming

FRONT ELEVATION

SCALE: 1/4" = 1'-0"



LEFT ELEVATION

SCALE: 1/4" = 1'-0"

REAR ELEVATION

SCALE: 1/4" = 1'-0"

DO NOT SCALE

CONTRACTOR TO VERIFY ALL DIMENSIONS

THESE PLANS HAVE BEEN PREPARED TO MEET TOP PROFESSIONAL STANDARDS AND PRACTICES HOWEVER,BUILDING CODE REQUIREMENTS VARY WITH LOCATION AND CHANGE TIME TO TIME BEFORE STARTING CONSTRUCTION THE CONTRACTOR SHOULD CHECK AND BE RESPONSIBLE
FOR ANY DIMENSIONS AND OTHER DETAILS, AND SHOULD REVIEW THE PLANS TO
INSURE THEY MEET CURRENT REQUIREMENTS

REVISIONS

NO.	DATE	BY	DESCRIPTION

PHASE;

CONCEPT SET

PROJECT DETAILS

ADDITIONS AND ALTERATIONS TO THE EXISTING BUILDING
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

PREPARED FOR:

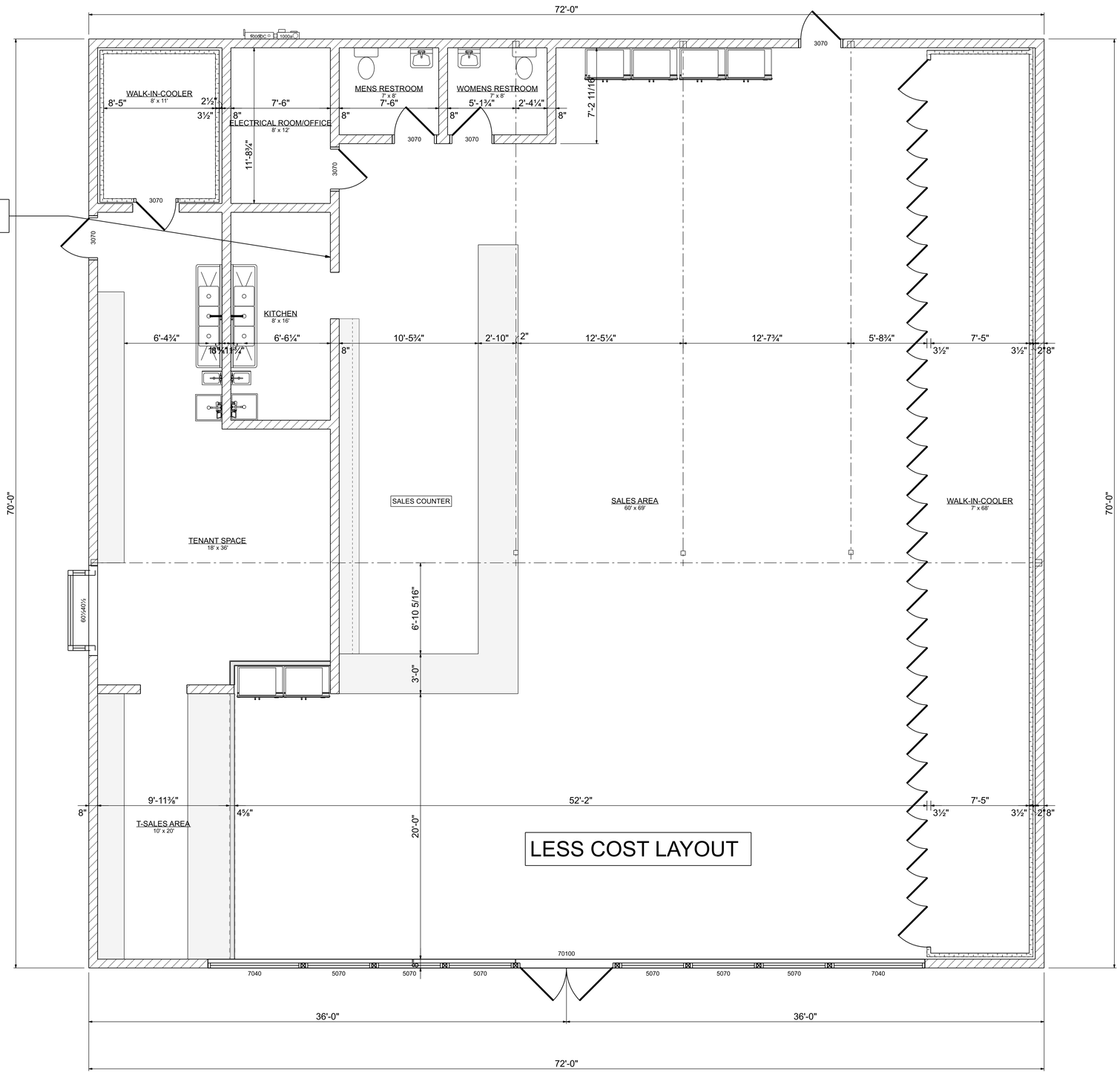
ASIF CHOUDHRY
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
NATIONAL-N.C. T-5-B-M-U-NS
BW-CS-271-HOP RVR-RD-BLTN.-CT

DESIGN # 06043-2877181-1	
CODE REF: 2018 IBC	
DRAWN BY WWC	
DESIGN DATE 06-15-21	PAGE A2

W.W. CRAVEN & SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388

ASIF THIS WALL NEEDS TO STAY



DO NOT SCALE

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REVISIONS

NO.	DATE	BY	DESCRIPTION

PHASE;

CONCEPT SET

PROJECT DETAILS

ADDITIONS AND ALTERATIONS TO THE EXISTING BUILDING
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

PREPARED FOR:

ASIF CHOUDHRY
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
NATIONAL-N.C. T-5-B-M-U-NS
BW-CS-271-HOP RVR-RD-BLTN.-CT

DESIGN # 06043-2877181-1

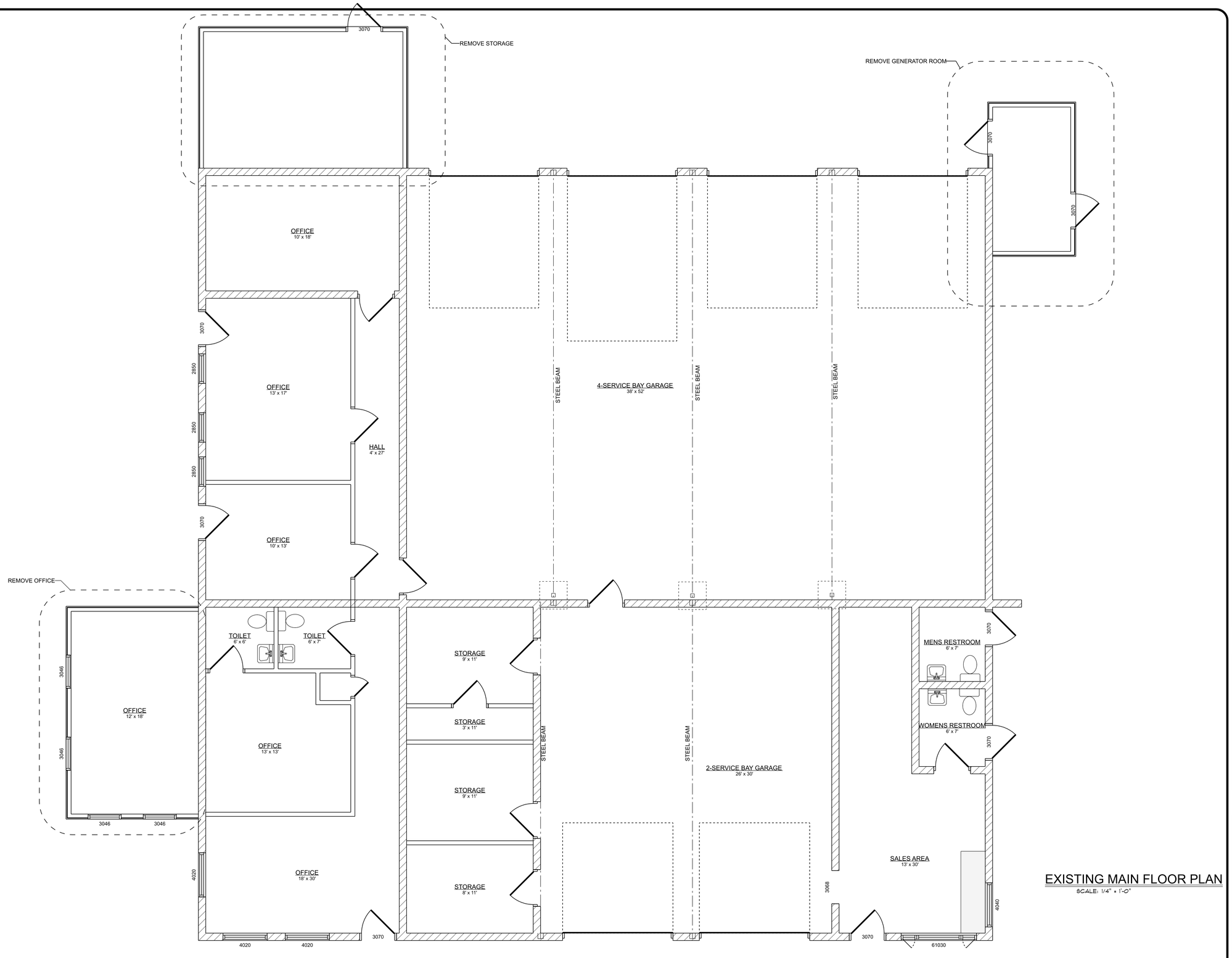
CODE REF: 2018 IBC

DRAWN BY WWC

DESIGN DATE 06-15-21

PAGE A1

W.W. CRAVEN & SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388



EXISTING MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"

DO NOT SCALE

CONTRACTOR TO VERIFY ALL DIMENSIONS

THESE PLANS HAVE BEEN PREPARED TO MEET TOP PROFESSIONAL STANDARDS AND PRACTICES HOWEVER,BUILDING CODE REQUIREMENTS VARY WITH LOCATION AND CHANGE TIME TO TIME
BEFORE STARTING CONSTRUCTION THE CONTRACTOR SHOULD CHECK AND BE RESPONSIBLE
FOR ANY DIMENSIONS AND OTHER DETAILS, AND SHOULD REVIEW THE PLANS TO
INSURE THEY MEET CURRENT REQUIREMENTS

REVISIONS

NO.	DATE	BY	DESCRIPTION

PHASE;

CONCEPT SET

PROJECT DETAILS

ADDITIONS AND ALTERATIONS TO THE EXISTING BUILDING
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

PREPARED FOR:

ASIF CHOUDHRY
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
NATIONAL-N.C. T-5-B-M-U-NS
BW-CS-271-HOP RVR-RD-BLTN.-CT

DESIGN # 06043-2877181-1	
CODE REF: 2018 IBC	
DRAWN BY WWC	
DESIGN DATE 06-15-21	PAGE AB1

W.W. CRAVEN & SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388

Return to:
IMS Petroleum LLC
96 Route 32
Franklin CT 06245

Doc ID: 000544040002 Type: WARR
BK 185 PG 947-948

WARRANTY DEED - STATUTORY FORM

TO ALL PEOPLE TO WHOM THESE PRESENTS SHALL COME GREETING:

KNOW YE, THAT **M & M OIL, LLC**, a Connecticut limited liability company with an office and place of business in the Town of Bolton, County of Tolland, and State of Connecticut for the consideration paid of FOUR HUNDRED FIFTY THOUSAND AND 00/100THS ($450,000.00) DOLLARS, grants to **IMS PETROLEUM LLC**, a Connecticut limited liability company with an office and place of business in the Town of Bolton, County of Tolland and State of Connecticut, with **WARRANTY COVENANTS**, any and all right, title, interest and claim it has in and to that certain piece or parcel of land known as **271 Hop River Road, Bolton, Connecticut** which is more fully described on Schedule A attached hereto and made a part hereof.

Said premises being the same parcel conveyed to the predecessor grantor by Warranty Deed from Edward J. Holl to Charles J. Minicucci, Jr. dated August 5, 1958 and recorded in Volume 32 at Page 312 of the Bolton Land Records.

Said premises being the same parcel conveyed to the grantor herein by Quit Claim Deed from Charles J. Minicucci, Jr. to M & M Oil, LLC, a Connecticut limited liability company by Quit Claim Deed dated December 30, 1999 and recorded in Volume 99 at Page 120 of the Bolton Land Records.

Signed this 15th day of April, 2021.

Signed and delivered in the presence of:

Naomi Noti Witness

Dawn Collins Witness

M & M Oil, LLC

By: Thomas S. Fiorentino, Attorney-in-Fact for Janet Minicucci, Its Member, Duly Authorized

STATE OF CONNECTICUT:
: SS. Manchester April 15, 2021
COUNTY OF HARTFORD :

Personally appeared, Thomas S. Fiorentino, Signer and Sealer of the foregoing Instrument, whose name is subscribed as Attorney-in-Fact for Janet Minicucci and acknowledged that he executed the same as the act of his principal as member for the purposes therein contained, before me.

Peter J. Petrone
Commissioner of the Superior Court

CONVEYANCE TAX RECEIVED
TOWN: $1,125.00 STATE: $5,625.00
Elizabeth C. Waters
TOWN OF BOLTON, CT TOWN CLERK

Schedule A

That certain piece or parcel of land situated in the Town of Bolton, County of Tolland and State of Connecticut, bounded and described as follows:

Northerly: By U.S. Route 6, one hundred eighty (180) feet; Easterly: By land now or formerly of Robert J. McKinney, nine hundred fourteen (914) feet, more or less; Northerly: By land now or formerly of Robert J. McKinney, three hundred twelve (312) feet; Easterly: By land of others, seven hundred thirty-nine (739) feet, more or less; Southerly: By land now or formerly of the New York, New Haven and Hartford Railroad Company, one thousand one hundred ninety-four (1,194) feet, more or less; and Westerly: By land of others, one thousand two hundred twenty (1,220) feet.

Being the same premises conveyed to the Grantor herein by deeds recorded in the Bolton Land Records, Volume 20, Page 574; and Volume 25, Page 415. Reference is also made to a deed recorded in the said Land Records, Volume 20, Page 377.

The premises above-described are the same premises designated as "Edward J. Holl" and abutted by Robert J. McKinney on a certain map entitled "Property of Edward J. Holl U.S. Route No. 6, Bolton, Conn. Scale 1" = 100' Oct. 1948 Hayden L. Griswold".

Together with the right, in common with others, at all times hereafter, by foot or by vehicle, to pass and repass over and upon that certain piece or parcel of land situated int eh said Town of Bolton, known and designated as the westerly one-half of the Old Road leading from Connecticut State Highway Route No. 6 to Bolton Center, as such Old Road presently exists, the center line of said Old Road being the easterly boundary of land now or formerly of The Clark Wellpoint Corporation.

The right of way herein granted shall be for all purposes for which a highway may be used, and is the same right of way conveyed to the Grantor herein by deed recorded in the said Land Records, Volume 33, Page 173.

Received for Record at Town of Bolton, CT
On 04/26/2021 At 2:40:00 pm
Elizabeth C. Waters

AFFIDAVIT

PLANNING & ZONING COMMISSION

POSTING OF PUBLIC HEARING NOTICE SIGN

I hereby attest that the Public Hearing sign provided by the Land Use Department in connection with the application of 271 Hop River Road,
located at 271 Hop River Road, Bolton, CT,
has been posted for a period of at least seven (7) days before the commencement of the Public Hearing on said application, which hearing is scheduled to commence on the 13 day of April, 2022, and in a manner specified in "Instructions for Posting Public Hearing Notice Signs," dated 09/21/11.

Applicant's Signature

3/4/2022
Date

State of Connecticut)
) ss: Bolton
County of Tolland)

SUBSCRIBED AND SWORN to before me this 4 day of March, 2022.

Emily Glasfeld
Notary Public, State of Connecticut
My Commission Expires 11/13/2025

BY: _____
Notary Public

My Commission Expires: 11/13/2025

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
FEDUS ENGINEERING, LLC CIVIL ENGINEERS Fedus Engineering, LLC 70 Essex Street Mystic, CT 06355	13	13	WEST MYSTIC, CT 06388 FEB 22 2022 USPS
	Postmaster, per *(name of receiving employee)* Gary Collins		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	State of Connecticut 79 Elm Street Hartford, CT 06106				
2.	299 Hop River Road, LLC 407 ½ Laurel Drive Friendswood, TX 77546				
3.	Michael R. Martin, LLC 25 Watrous Road Bolton, CT 06043				
4.	Real M & Shirley A. Toomey & Surv 38 Toomey Lane Bolton, CT 06043				
5.	Dolores & Ronald G. Haberern 43 London Road Hebron, CT 06248				
6.	Margaret Aspinall 71 Johnson Road Bolton, CT 06043				

UNITED STATES POSTAL SERVICE®
0000

U.S. POSTAGE PAID
WEST MYSTIC, CT
06388
FEB 22, 22
AMOUNT
$6.11
R2305K134682-18

82

UNITED STATES POSTAL SERVICE®

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	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Timothy D. & Shelley M. Ericson 229 Hop River Road Bolton, CT 06043				
2.	Loren H. Jr. & Lu Gouchoe 239 Hop River Road Bolton, CT 06043				
3.	John & Frederica Johnson Memorial Camp Inc 287 Jagger Lane Hebron, CT 06248				
4.	Stavens Brothers Inc. PO Box 406 Willington, CT 06279				
5.	262 Hop River, LLC 8 West St Ext Andover, CT 06232				
6.	255 Hop River, LLC 255 Hop River Road Bolton, CT 06043				

83

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USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Town of Bolton 222 Bolton Center Road Bolton, CT 06043				
2.					
3.					
4.					
5.					
6.					

271 Hop River Road

4/11/2022

271 Hop River Road, Bolton, CT

Erosion and Sedimentation Control Bond	Unit	Unit Cost	Quantity	Cost
Silt Fence	L.F.	$3.00	821	$2,463.00
Anti-tracking pad	Lump Sum	$500.00	1	$500.00

	Subtotal	$2,963.00
15%	Contingency	$444
	Total	$3,407

PLANNING & ZONING SUBMISSION

271 HOP RIVER ROAD

PROPOSED CONVENIENCE STORE

271 HOP RIVER ROAD, BOLTON - CONNECTICUT

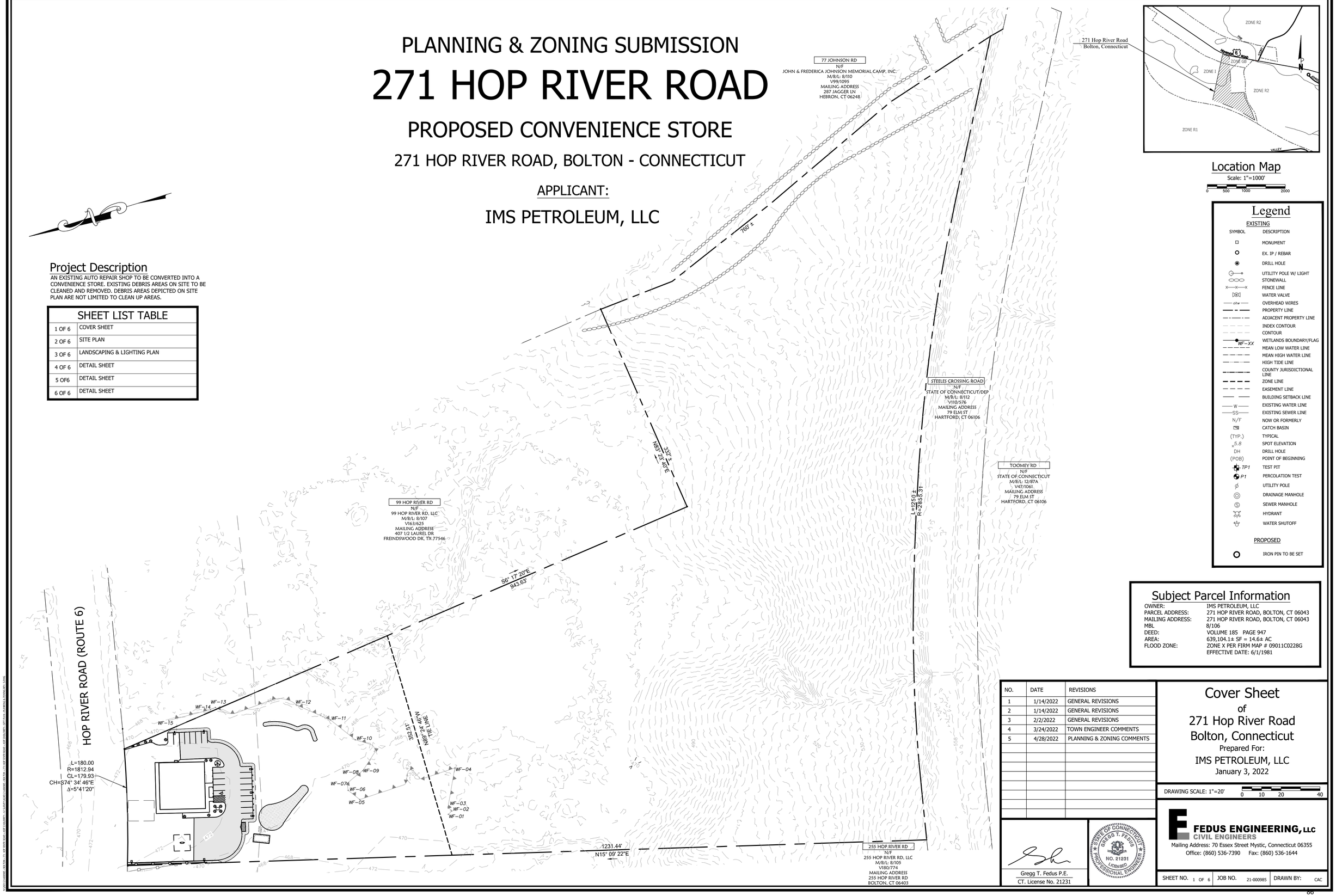
APPLICANT:

IMS PETROLEUM, LLC

Project Description

AN EXISTING AUTO REPAIR SHOP TO BE CONVERTED INTO A CONVENIENCE STORE. EXISTING DEBRIS AREAS ON SITE TO BE CLEANED AND REMOVED. DEBRIS AREAS DEPICTED ON SITE PLAN ARE NOT LIMITED TO CLEAN UP AREAS.

SHEET LIST TABLE	
1 OF 6	COVER SHEET
2 OF 6	SITE PLAN
3 OF 6	LANDSCAPING & LIGHTING PLAN
4 OF 6	DETAIL SHEET
5 OF6	DETAIL SHEET
6 OF 6	DETAIL SHEET



Location Map

Scale: 1"=1000'

0 500 1000 2000

Legend

EXISTING

SYMBOL	DESCRIPTION
□	MONUMENT
○	EX. IP / REBAR
◉	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
X—X—X	FENCE LINE
	WATER VALVE
OHW	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF—XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	HIGH TIDE LINE
	COUNTY JURISDICTIONAL LINE
	ZONE LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
W	EXISTING WATER LINE
SS	EXISTING SEWER LINE
N/F	NOW OR FORMERLY
	CATCH BASIN
(TYP.)	TYPICAL
5.8	SPOT ELEVATION
DH	DRILL HOLE
(POB)	POINT OF BEGINNING
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

○	IRON PIN TO BE SET

Subject Parcel Information

OWNER:	IMS PETROLEUM, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 185 PAGE 947
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS
4	3/24/2022	TOWN ENGINEER COMMENTS
5	4/28/2022	PLANNING & ZONING COMMENTS

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · LICENSED PROFESSIONAL ENGINEER

Cover Sheet of 271 Hop River Road Bolton, Connecticut

Prepared For:

IMS PETROLEUM, LLC

January 3, 2022

DRAWING SCALE: 1"=20' 0 10 20 40

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO.	JOB NO.	DRAWN BY:
1 OF 6	21-000985	CAC

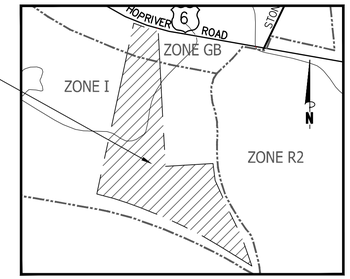
GB ZONING REQUIREMENTS TABLE

SECTION	REGULATION	REQUIREMENTS	EXISTING	PROPOSED
11C	MINIMUM LOT SIZE	40,000 SF	639,104 SF	639,104 SF
11C	MINIMUM LOT FRONTAGE	200'	180'**	180'**
11C	MINIMUM FRONT YARD	35'	50.3'	50.3'
11C	MINIMUM SIDE YARD	*	33.8' (E), 76.7' (W)	40.8' (E), 84.2' (W)
11C	MINIMUM REAR YARD	*	1,088.7'	1,088.7'
11C	MAXIMUM BUILDING HEIGHT	40'	< 45'	18.25'
11C	MINIMUM FLOOR AREA	600 SF	5,674 SF	5,024 SF
11C	MAXIMUM LOT COVERAGE	25%	1.1%	0.8%
11C	MAXIMUM IMPERVIOUS COVERAGE	65%	3.1%	3.1%
11J	MINIMUM LANDSCAPING IN GB	25% OF LOT	-	-

* THE MINIMUM SIDE AND REAR YARD IN THE INDUSTRIAL ZONE SHALL BE 50 FEET WHERE ABUTTING A RESIDENTIAL ZONE (SEE § 11.K)
**EXISTING NON-CONFORMING CONDITION

PARKING REQUIREMENTS

SECTION	REGULATION	MAXIMUM REQ.	MINIMUM REQ.	PROPOSED
15-O	FREE STANDING RETAIL	5 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 5 PER 1,000 = 25.1	2 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 2 PER 1,000 = 10.1	20 SPACES
15-O	VAN-ACCESSIBLE PARKING	NA	1 SPACE REQUIRED	1 SPACES

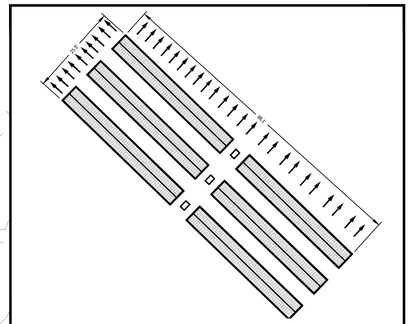


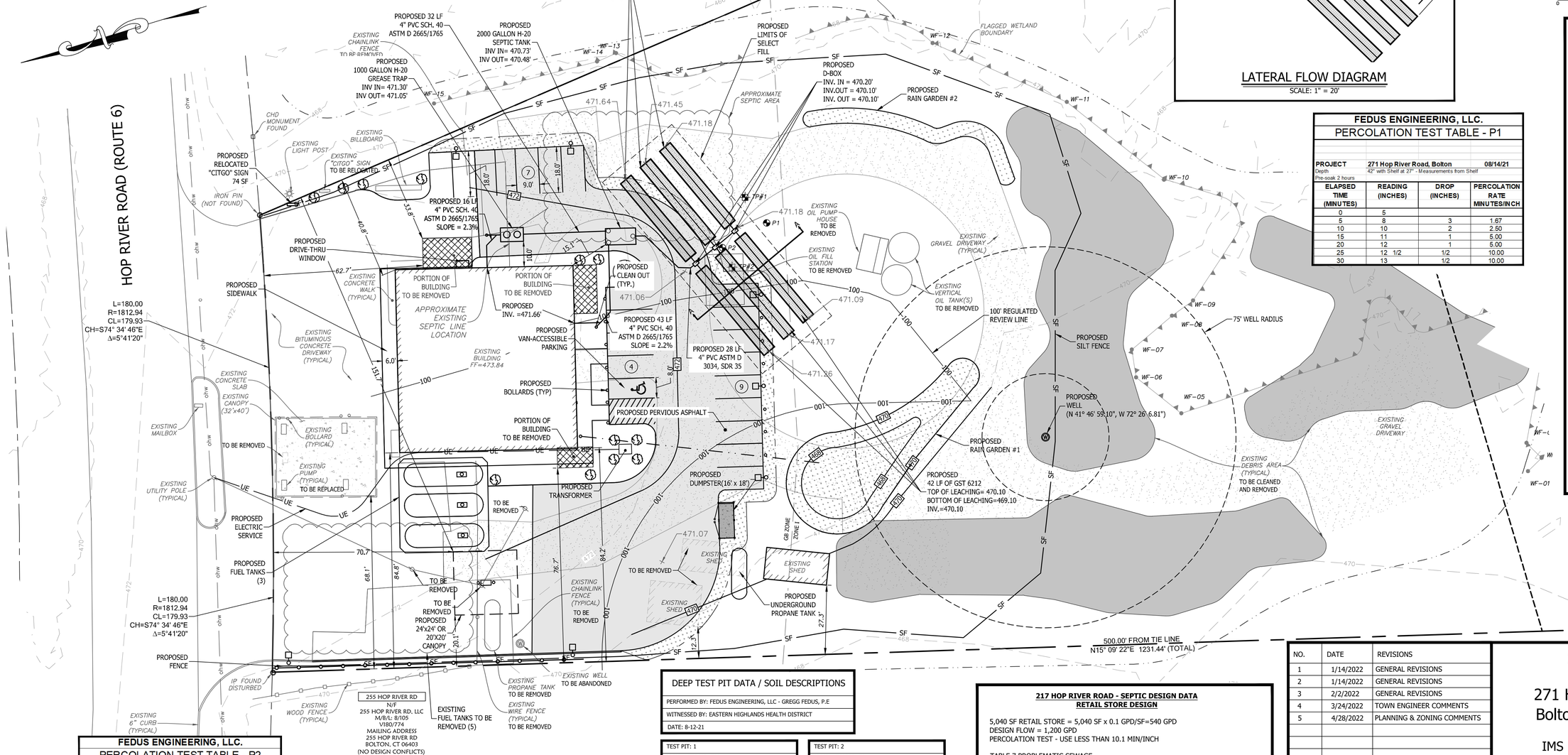
271 Hop River Road
Bolton, Connecticut

Location Map

Scale: 1"=1000'

0 500 1000 2000





Legend

EXISTING

SYMBOL	DESCRIPTION
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	UTILITY POLE W/ LIGHT
	STONEWALL
x—x—x	FENCE LINE
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ohw	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF-XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
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TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
S	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

○	IRON PIN TO BE SET

FEDUS ENGINEERING, LLC.
PERCOLATION TEST TABLE - P1

PROJECT	**271 Hop River Road, Bolton**		**08/14/21**
Depth	42" with Shelf at 27" - Measurements from Shelf		
Pre-soak 2 hours			
ELAPSED TIME (MINUTES)	**READING (INCHES)**	**DROP (INCHES)**	**PERCOLATION RATE MINUTES/INCH**
0	5		
5	8	3	1.67
10	10	2	2.50
15	11	1	5.00
20	12	1	5.00
25	12 1/2	1/2	10.00
30	13	1/2	10.00

FEDUS ENGINEERING, LLC.
PERCOLATION TEST TABLE - P2

PROJECT	**271 Hop River Road, Bolton**		**08/14/21**
Depth	50" with Shelf at 38" - Measurements from Shelf		
Pre-soak 2 hours			
ELAPSED TIME (MINUTES)	**READING (INCHES)**	**DROP (INCHES)**	**PERCOLATION RATE MINUTES/INCH**
0	2		
5	4	2	2.50
10	5	1	5.00
15	6	1	5.00
20	7	1	5.00
25	7 3/4	3/4	6.67
30	8 1/2	3/4	6.67
35	9	1/2	10.00
40	9 1/2	1/2	10.00

DEEP TEST PIT DATA / SOIL DESCRIPTIONS

PERFORMED BY: FEDUS ENGINEERING, LLC - GREGG FEDUS, P.E
WITNESSED BY: EASTERN HIGHLANDS HEALTH DISTRICT
DATE: 8-12-21

TEST PIT: 1	
0"-33"	TOPSOIL FILL
33"-54"	BROWN SANDY LOAM
57"-66"	RED BROWN SAND, WITH GRAVEL
66"-95"	BROWN SILTY SAND
MOTTLES:	66"
GROUNDWATER:	95"
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	66"

TEST PIT: 2	
0"-30"	TOPSOIL FILL
30"-39"	ORGANIC TOPSOIL
39"-53"	RED-BROWN SANDY LOAM
53"-96"	GRAVEL/BROWN SILTY LOAM
MOTTLES:	53"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

Subject Parcel Information

OWNER:	IMS PETROLEUM, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 185 PAGE 947
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

217 HOP RIVER ROAD - SEPTIC DESIGN DATA
RETAIL STORE DESIGN

5,040 SF RETAIL STORE = 5,040 SF x 0.1 GPD/SF=540 GPD
DESIGN FLOW = 1,200 GPD
PERCOLATION TEST - USE LESS THAN 10.1 MIN/INCH

TABLE 7 PROBLEMATIC SEWAGE
REQUIRED ELA = DESIGN FLOW/APPLICATION RATE
1,200 GPD / 0.80 RATE = 1,500 SF

LEACHING TRENCH GST 6212 = 10.0 SF/LF
MINIMUM REQUIRED TRENCH = 150.00 LF

TRENCH PROVIDED =246
EFFECTIVE LEACHING PROVIDED = 2,460 SF

MLSS = HF x FF x PF RS = 36"
HF = 28.0 HYDRAULIC GRADIENT = (471.19'-467.61')/72' =4.97%
FF = 4.0
PF = 1.0
MLSS = 28 x 4.0 x 1.0 = 112 LF
PROVIDED 88 + 25 = 113 LF. NEEDED 112 LF OKAY WITH 2 SIDE LATERAL FLOW.

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS
4	3/24/2022	TOWN ENGINEER COMMENTS
5	4/28/2022	PLANNING & ZONING COMMENTS

Site Plan
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20' 0 10 20 40

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · LICENSED PROFESSIONAL ENGINEER

FEDUS ENGINEERING, LLC
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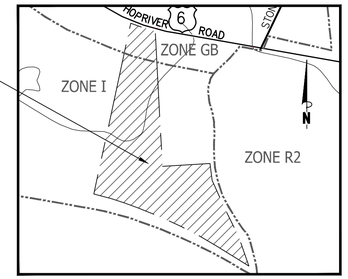
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 2 OF 6 | JOB NO. 21-000985 | DRAWN BY: CAC

PLANT LIST				
KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE, ROOTS, REMARKS
BP	1	BETULA POPULIFOLIA	GRAY BIRCH	10'-15' TALL
KL	12	KALMIA LATIFOLIA	MOUNTAIN LAUREL	6'-10'
JE	12	JUNCUS EFFUSUS	COMMON RUSH	WIDE 18"
SC	12	SCIRPUS CYPERINUS	WOOLGRASS	WIDE 18"



271 Hop River Road
Bolton, Connecticut

Location Map

Scale: 1"=1000'

0 500 1000 2000

99 HOP RIVER RD
N/F
99 HOP RIVER RD, LLC
M/B/L: 8/107
V163/625
MAILING ADDRESS
407 1/2 LAUREL DR
FREINDSWOOD DR, TX 77546
(NO DESIGN CONFLICTS)

S6° 17' 20"E 943.63' (TOTAL)
450.00' TO TIE LINE

APPROXIMATE EDGE OF BROOK

FLAGGED WETLAND BOUNDARY

PROPOSED GRASS FILTER STRIP 5' WIDE

WF-15 WF-14 WF-13 WF-12 WF-11 WF-10 WF-09 WF-08 WF-07 WF-06 WF-05 WF-01

CHD MONUMENT FOUND

EXISTING LIGHT POST

EXISTING BILLBOARD

IRON PIN (NOT FOUND)

PROPOSED SIGN LIGHT

12 KL

PROPOSED BILLBOARD LIGHT

4 JE
4 SC

GRADE TO DRAIN TO RAIN GARDENS (TYPICAL)

TP#1
471.18

TP#2
471.06

1 BP

EXISTING CONCRETE WALK (TYPICAL)

PROPOSED HALO LIGHTS (15 TYP.)

EXISTING BITUMINOUS CONCRETE DRIVEWAY (TYPICAL)

PROPOSED WALL PACKS (2 TYPICAL)

EXISTING BUILDING FF=473.84

PROPOSED LEADER DRAIN TO RAIN GARDEN

PROPOSED AREA LIGHT (7 TYPICAL)

8 JE
8 SC

EXISTING CONCRETE SLAB

EXISTING CANOPY (32'x40')

EXISTING MAILBOX

EXISTING BOLLARD (TYPICAL)

EXISTING PUMP (TYPICAL)

PROPOSED LANDSCAPING AREA WITH GRASS

EXISTING UTILITY POLE (TYPICAL)

PROPOSED CANOPY LIGHTS (6 TYP.)

PROPOSED CANOPY LIGHTS (4 TYP.)

471.07

GB ZONE
ZONE I

EXISTING SHED

PROPOSED TRAIL CONNECTION

HOP RIVER ROAD (ROUTE 6)

L=180.00
R=1812.94
CL=179.93
CH=S74° 34' 46"E
Δ=5°41'20"

L=180.00
R=1812.94
CL=179.93
CH=S74° 34' 46"E
Δ=5°41'20"

IP FOUND DISTURBED

EXISTING 6" CURB (TYPICAL)

EXISTING WOOD FENCE (TYPICAL)

255 HOP RIVER RD
N/F
255 HOP RIVER RD, LLC
M/B/L: 8/105
V180/774
MAILING ADDRESS
255 HOP RIVER RD
BOLTON, CT 06403
(NO DESIGN CONFLICTS)

500.00' FROM TIE LINE
N15° 09' 22"E 1231.44' (TOTAL)

NOTE:
ALL LIGHTING PHOTOMETRICS WERE DONE BY USING "COOPER PHOTOMETRIC TOOLBOX" FROM COOPER LIGHTING SOLUTIONS.

Legend

EXISTING

SYMBOL	DESCRIPTION
	MONUMENT
	EX. IP / REBAR
	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
X—X—X	FENCE LINE
WV	WATER VALVE
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	UTILITY POLE
	DRAINAGE MANHOLE
S	SEWER MANHOLE
	HYDRANT
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PROPOSED

	IRON PIN TO BE SET

Subject Parcel Information

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FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

VEGETATIVE TURF ESTABLISHMENT PROCEDURE

SCARIFY ALL AREAS TO BE TOPSOILED AND SEEDED. APPLY A MINIMUM OF 4 INCHES OF TOPSOIL ON ALL AREAS TO BE SEEDED. APPLY GRASS SEED, LIME, FERTILIZER AND MULCH ACCORDING TO THE FOLLOWING SCHEDULE:

PERMANENT SEED MIXTURE:

CREEPING RED FESCUE	2.4 LBS. PER 1,000 SQ. FT.
REDTOP	0.2
TALL FESCUE	2.4
TOTAL	5.0

FERTILIZER:
10-10-10 APPLY AT 7.5 LBS. PER 1,000 SQ. FT.

LIMESTONE:
APPLY AT 150 LBS. PER 1,000 SQ. FT.

MULCHING:
SPREAD HAY OR STRAW OVER ALL AREAS AFTER SEEDING. USE 1 1/2 TO 2 BALES PER 1,000 SQ. FT.
TARGET FOR 100% COVERAGE. ANCHOR BY USING NETTING OR TRACKING AS NECESSARY.

SEEDING DATES:
SEEDING DATES IN CONNECTICUT ARE NORMALLY APRIL 1 THROUGH JUNE 15 AND AUGUST 15 THROUGH OCTOBER 1. SEED GERMINATION NORMALLY CANNOT BE EXPECTED FROM NOVEMBER THROUGH FEBRUARY. IF ADEQUATE SEED GERMINATION IS NOT POSSIBLE DUE TO TIME OF YEAR CONSTRAINTS, MULCHING SHALL BE ADEQUATELY PROVIDED TO PROTECT THE SEED FROM WIND AND SURFACE EROSION UNTIL THE WEATHER IMPROVES AND THE SEEDING BECOMES WELL ESTABLISHED.

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
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3	2/2/2022	GENERAL REVISIONS
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Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · LICENSED PROFESSIONAL ENGINEER

Landscaping & Lighting Plan
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20' 0 10 20 40

FEDUS ENGINEERING, LLC
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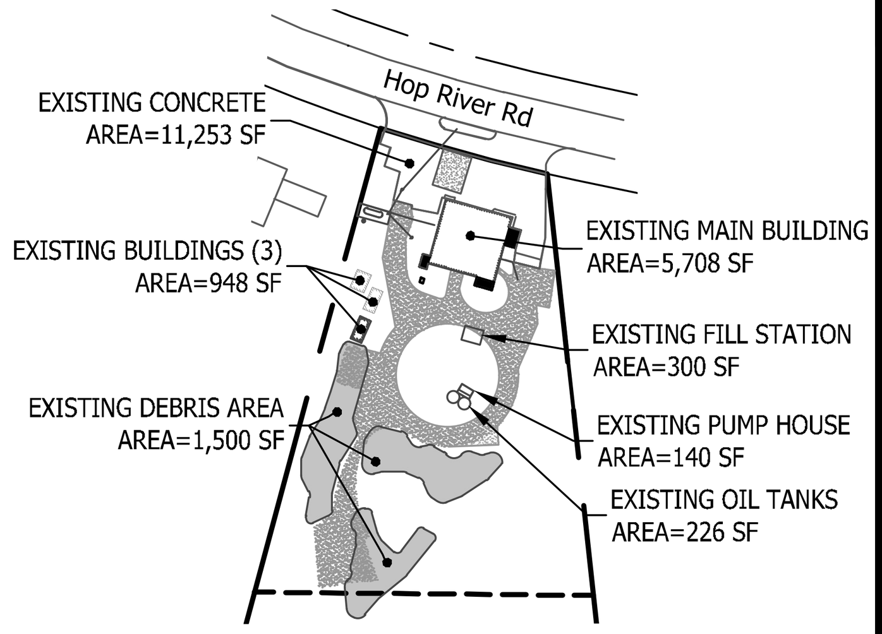
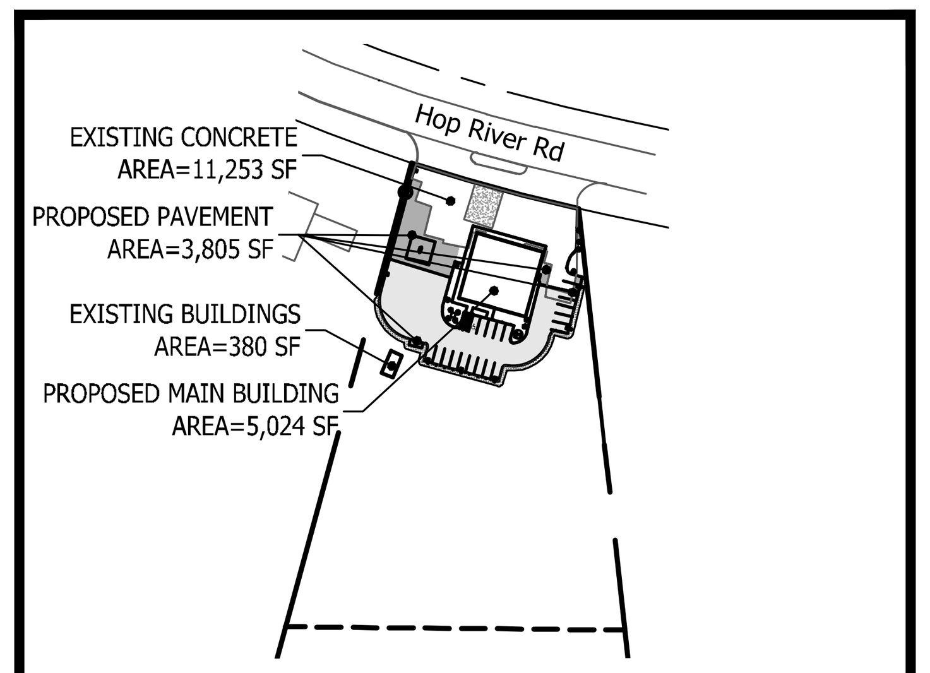
SHEET NO.	JOB NO.	DRAWN BY:
3 OF 6	21-000985	CAC



EXISTING IMPERVIOUS AREA

	AREA
EXISTING PAVEMENT	11,253 SF
EXISTING MAIN BUILDING	5,708 SF
EXISTING BUILDINGS (3)	948 SF
EXISTING FILL STATION	300 SF
EXISTING PUMP HOUSE	140 SF
EXISTING DEBRIS AREA	1,500 SF
EXISTING OIL TANKS	226 SF
TOTAL IMPERVIOUS AREA	20,075 SF
SITE AREA	639,104 SF
IMPERVIOUS AREA / SITE AREA =	3.1%

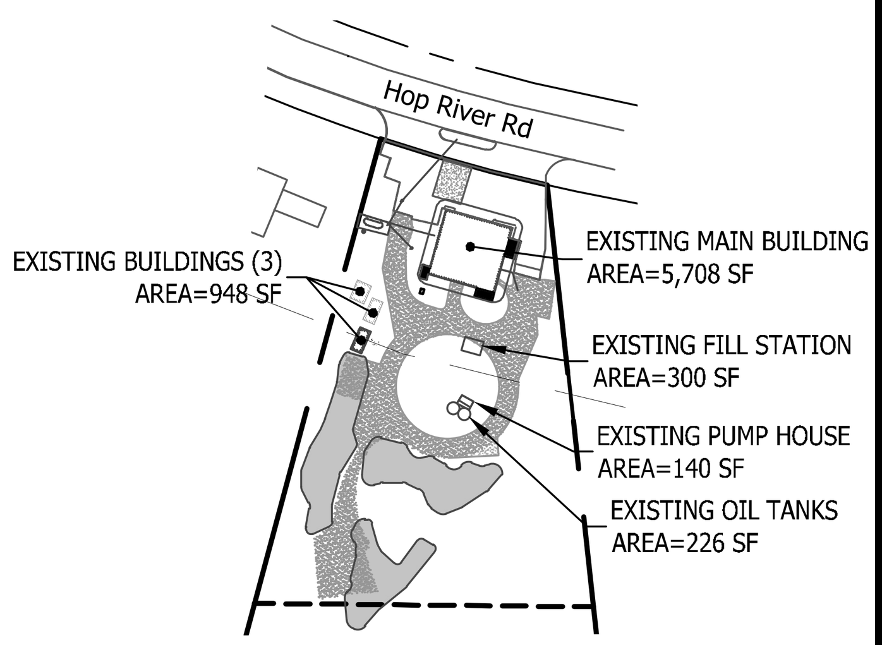
EXISTING IMPERVIOUS AREA
SCALE:1"=200'



PROPOSED IMPERVIOUS AREA

	AREA
EXISTING PAVEMENT	11,253 SF
EXISTING SHED	380 SF
EXISTING PAVEMENT REMOVED	487 SF
PROPOSED PAVEMENT	3,753 SF
PROPOSED MAIN BUILDING	5,024 SF
TOTAL IMPERVIOUS AREA	19,923 SF
SITE AREA	639,104 SF
IMPERVIOUS AREA / SITE AREA =	3.1%

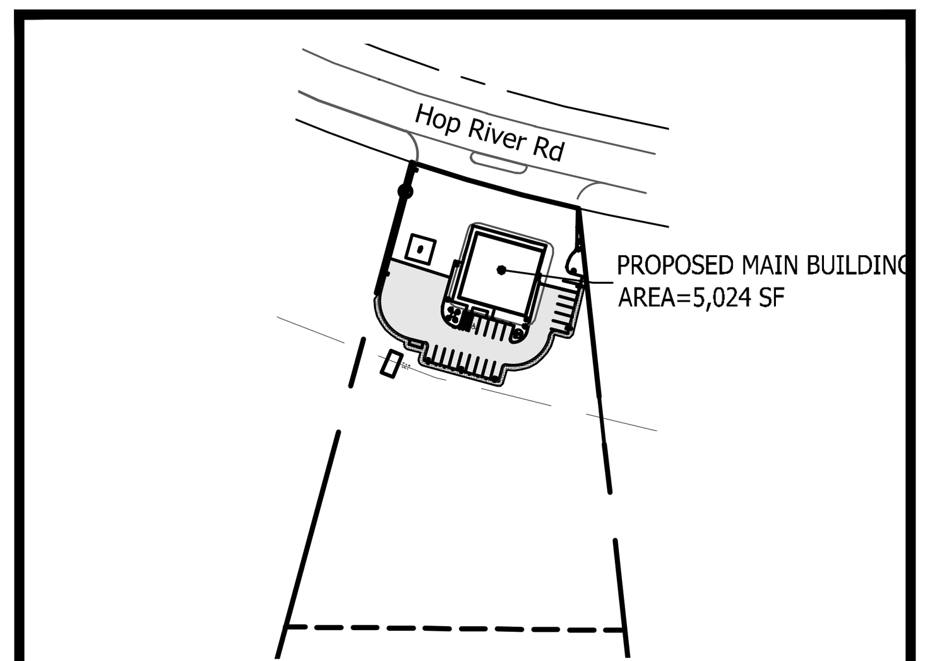
PROPOSED IMPERVIOUS AREA
SCALE:1"=200'



EXISTING LOT COVERAGE

	AREA
EXISTING MAIN BUILDING	5,708 SF
EXISTING BUILDINGS (3)	948 SF
EXISTING FILL STATION	300 SF
EXISTING PUMP HOUSE	140 SF
EXISTING OIL TANKS	226 SF
TOTAL COVERAGE AREA	7,322 SF
SITE AREA	639,104 SF
LOT COVERAGE / SITE AREA =	1.1%

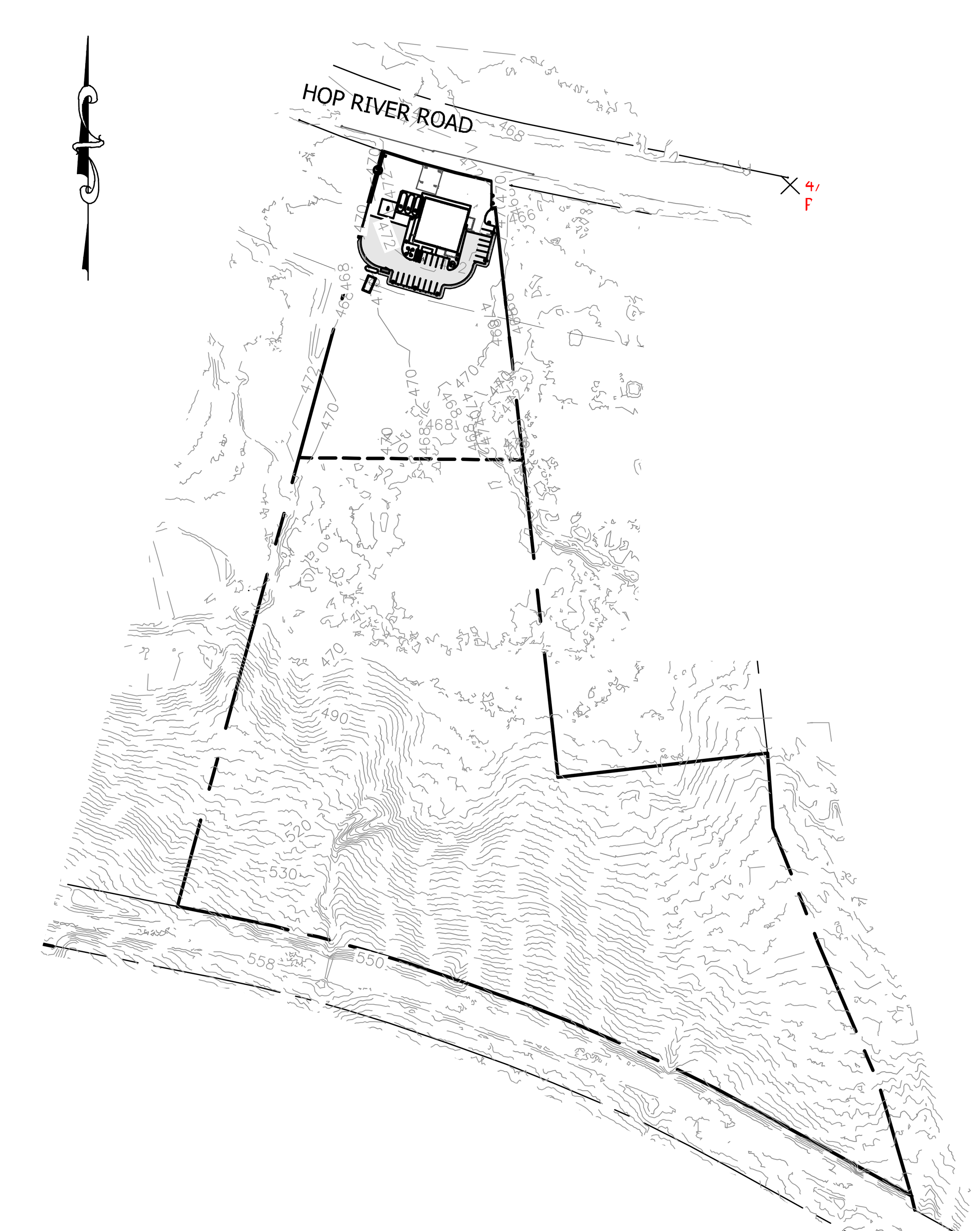
EXISTING LOT COVERAGE
SCALE:1"=200'



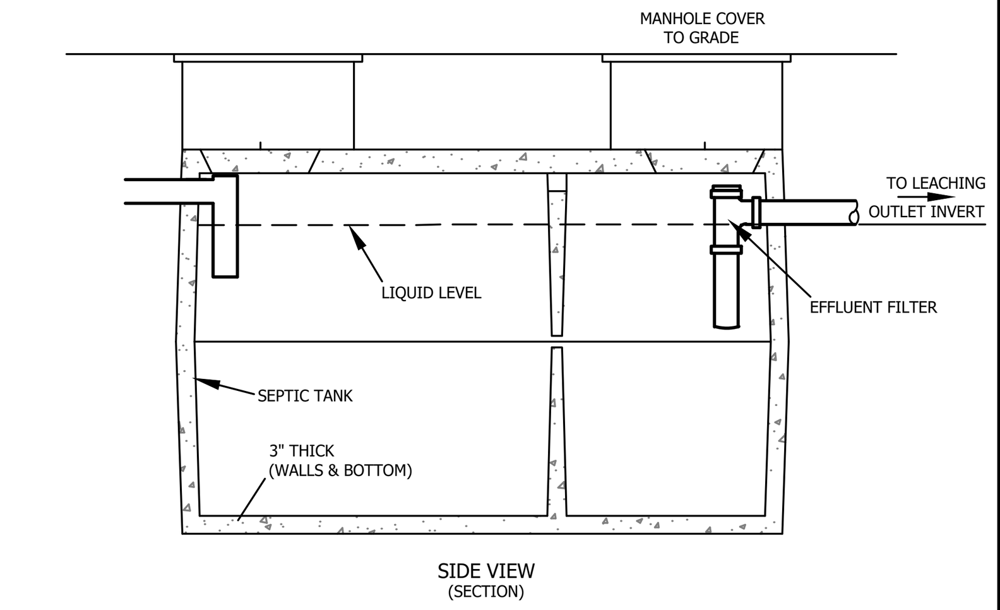
PROPOSED LOT COVERAGE

	AREA
PROPOSED MAIN BUILDING	5,024 SF
TOTAL COVERAGE AREA	5,024 SF
SITE AREA	639,104 SF
LOT COVERAGE / SITE AREA =	0.8%

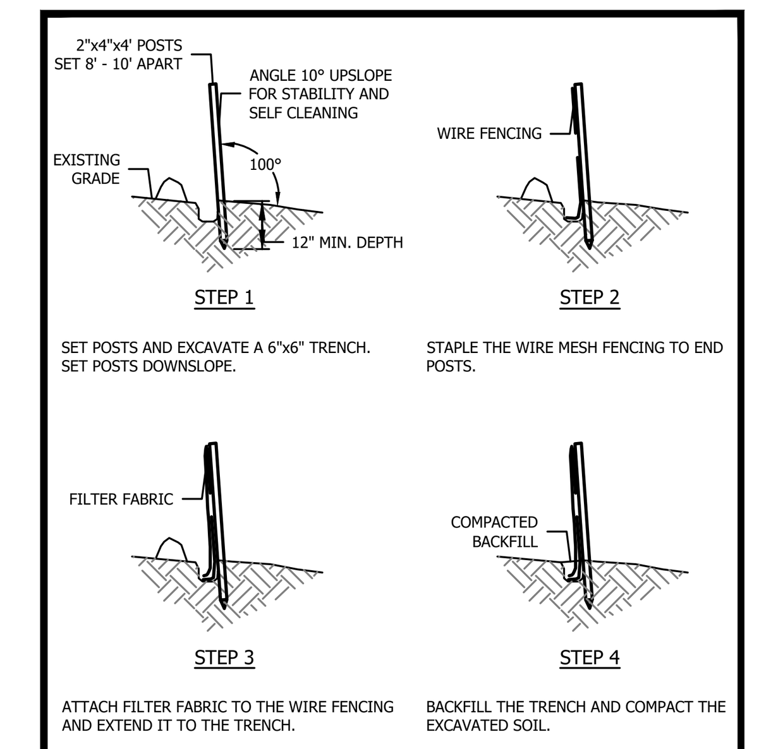
PROPOSED LOT COVERAGE
SCALE:1"=200'



OVERALL SITE MAP
SCALE:1"=200'

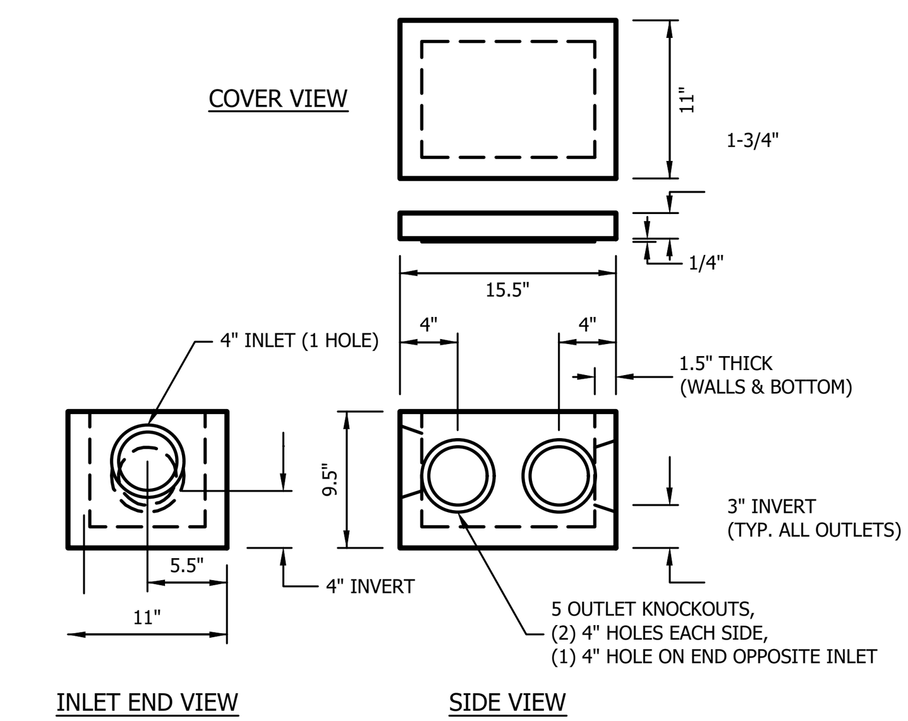


H-20 SEPTIC TANK DETAIL
SCALE: NOT TO SCALE

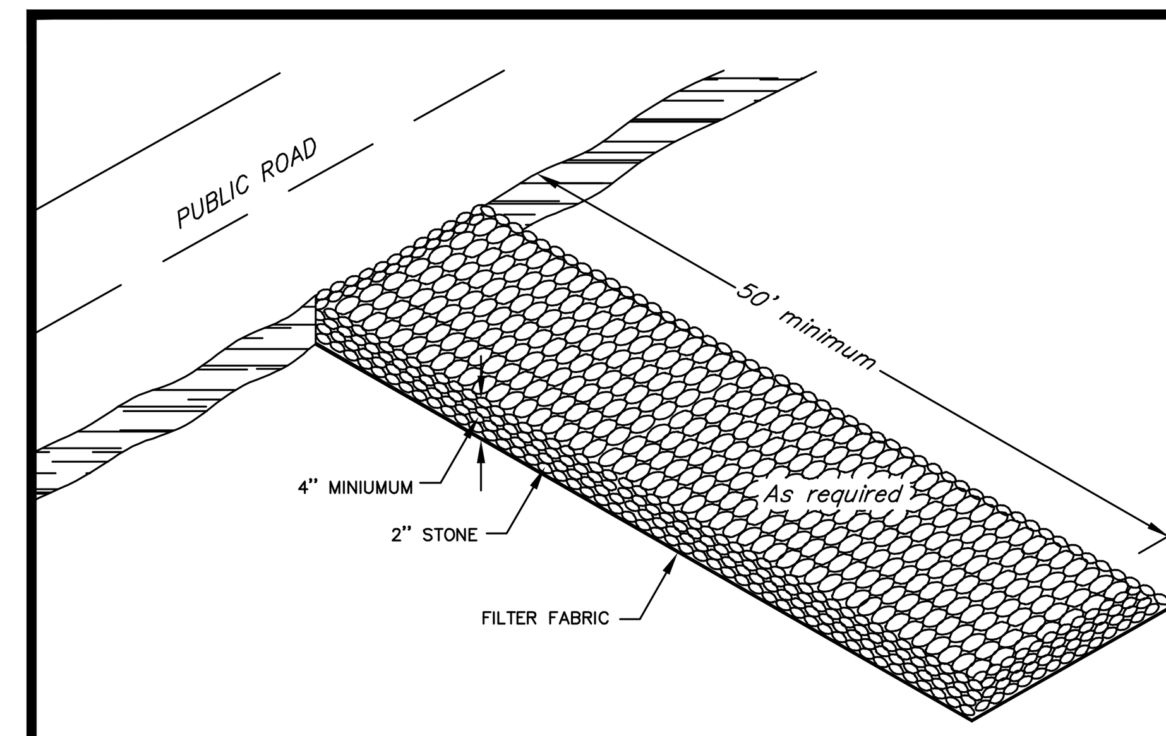


SILT FENCE DETAIL
NOT TO SCALE

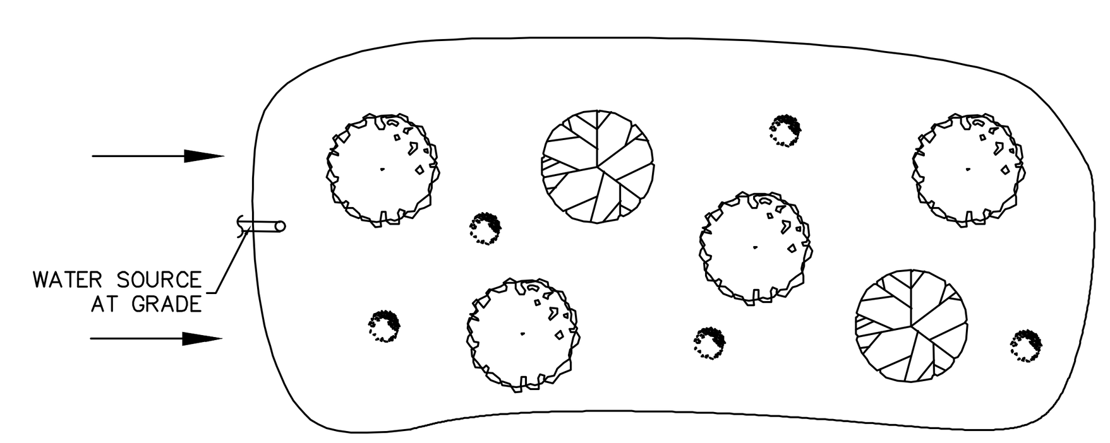
ESSEX CONCRETE PRODUCTS CO., INC. ESSEX, CT OR EQUAL



DISTRIBUTION BOX DETAIL
SCALE: NOT TO SCALE

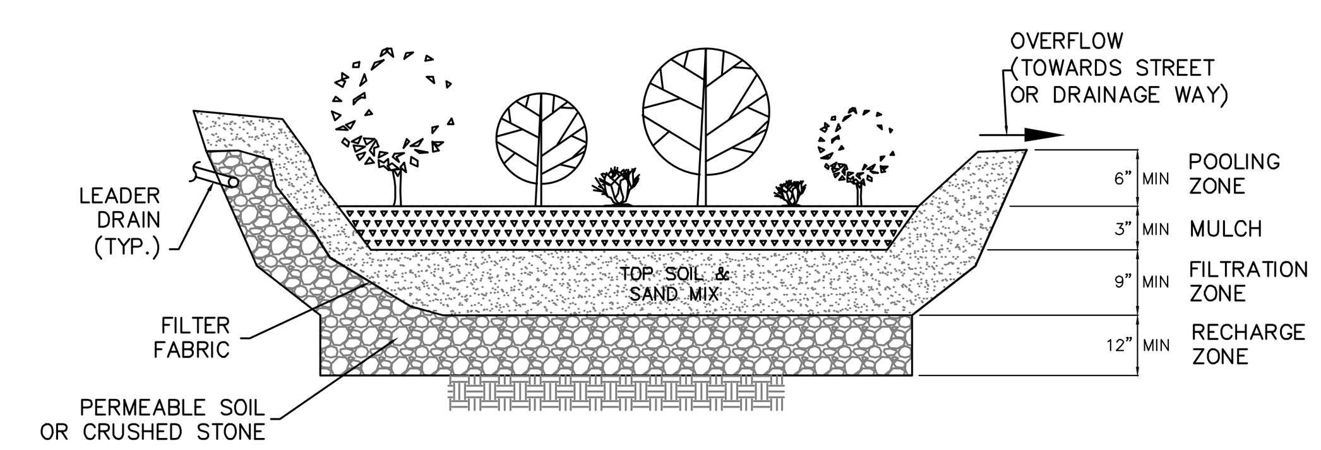


ANTI-TRACKING PAD
N.T.S.



PLAN VIEW

NOTE:
BEFORE PLANTING ADD LAYER OF POTTING SOIL AND FERTILIZER



CROSS SECTION

The first inch of rainfall from the leader drains is
1/12" x 5,024 SF = 418.67 CF

The proposed rain garden storage capability is
6/12" x 700 + 1' x 40% x 700 + 1' x 40% x 700 = 910 CF

Rain garden will contain the first inch of roof runoff

RAIN GARDEN DETAIL
NOT TO SCALE

The following plants are acceptable in the proposed rain garden:

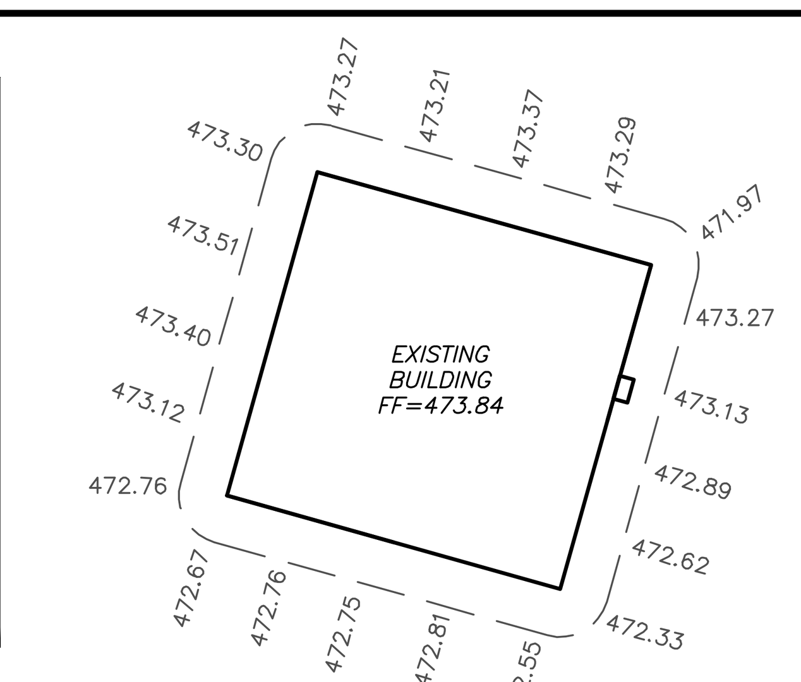
Trees
Red Maple, Acer rubrum
Shadblow, Amelanchier arborea
River Birch, Betula nigra
Gray Birch, Betula populifolia
Red–Panicled Dogwood, Cornus racemosa
White Ash, Fraxinus americana
Green Ash, Fraxinus pennsylvanica
Witchhazel, Hammamelis virginiana
Red Cedar, Juniperus virginiana
American Sweetgum, Liquidambar styraciflua
Tupelo, Nyssa sylvatica
American Hop Hornbeam, Ostrya virginiana
Swamp White Oak, Quercus bicolor
Pin Oak, Quercus palustris
Red Oak, Quercus rubra

Shrubs and Vines
Red Chokeberry, Aronia arbutifolia
Black Chokeberry, Aronia melanocarpa

Wild Clematis, Clematis virginiana
Sweet Pepperbush, Clethra alnifolia
Red Twig Dogwood, Cornus sericea
Black Huckleberry, Gaylussacia baccata
Inkberry, Ilex glabra
American Holly, Ilex opaca
Winterberry Holly, Ilex verticillata
Mountain–laurel, Kalmia latifolia
*Northern Spicebush, Lindera benzoin
Trumpet Honeysuckle, Lonicera sempervirens
Northern Bayberry, Myrica pensylvanica
Virginia Creeper, Parthenocissus quinquefolia
Rosebud Azalea, Rhododendron periclymenoides
*Great Rhododendron, Rhododendron maximum
Shining Sumac, Rhus copallinum
*Small Pussy–Willow, Salix humilis
Elderberry, Sambucus canadensis
American Arborvitae, Thuja occidentalis
Late Lowbush Blueberry, Vaccinium angustifolium
Highbush Blueberry, Vaccinium corymbosum
Witherod, Viburnum cassinoides
*Northern Arrowwood, Viburnum dentatum
Nannyberry, Viburnum lentago

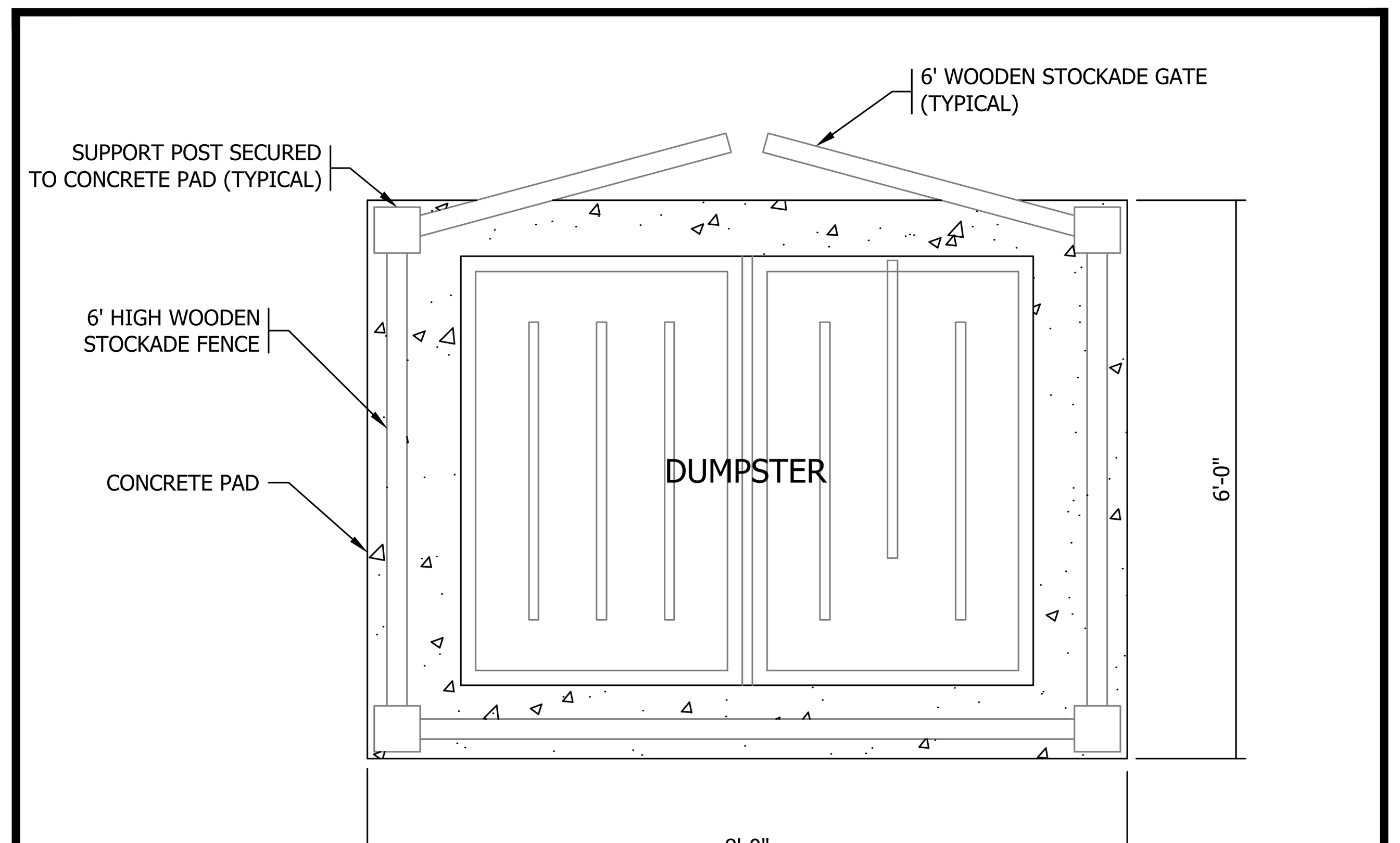
Perennials and Herbaceous Plants
Northern Maidenhair Fern, Adiantum pedatum
*Jack–in–the–pulpit, Arisaema triphyllum
*Wild Columbine, Aquilegia canadensis
*Bushy Aster, Aster dumosus
*Heath Aster, Aster ericoides
New England Aster, Aster novae–angliae
Dwarf Cornel, Cornus Canadensis
Glade–fern, Deparia acrostichoides
Tufted Hair Grass, Deschampsia cespitosa
Carolina Lovegrass, Eragrostis pectinacea
*Sweet Joe–Pye Weed, Eupatorium purpureum
*Grass–leaved Goldenrod, Euthamia graminifolia
and Euthamia tenuifolia
Wintergreen, Gaultheria procumbens
Interrupted Fern, Osmunda claytoniana
Switchgrass, Panicum virgatum
*Torrey's Mountain Mint, Pycnanthemum verticillatum
*Virginia Mountain Mint, Pycnanthemum virginianum
*Rough Goldenrod, Solidago rugosa
New York Fern, Thelypteris noveboracensis

SPOT GRADES	
473.27	472.55
473.21	472.81
473.37	472.79
473.29	472.76
471.97	472.67
473.27	472.76
473.13	473.12
472.89	473.40
472.62	473.51
472.33	473.30
TOTAL 9459.02	
9411.21 ÷ 20 =	472.95 AVG



BUILDING HEIGHT CALCULATION	
HIGHEST RIDGE ELEV.	491.20
AVERAGE EXISTING GRADE	472.95
AVG. - HIGHET RIDGE = PROP. BUILDING HEIGHT	18.25

BUILDING HEIGHT DETAIL
SCALE:1"=40'



DUMPSTER ENCLOSURE DETAIL
NOT TO SCALE

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS
4	3/24/2022	TOWN ENGINEER COMMENTS
5	4/28/2022	PLANNING & ZONING COMMENTS

Detail Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

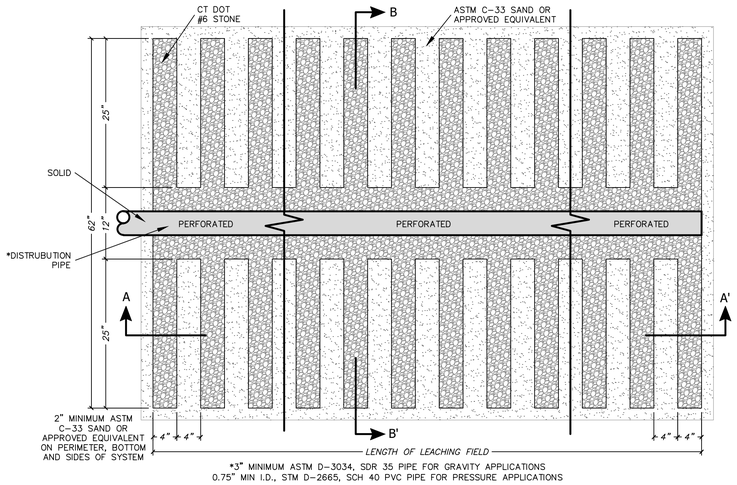
DRAWING SCALE: 1"=20' 0 10 20 40

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · LICENSED · PROFESSIONAL ENGINEER

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

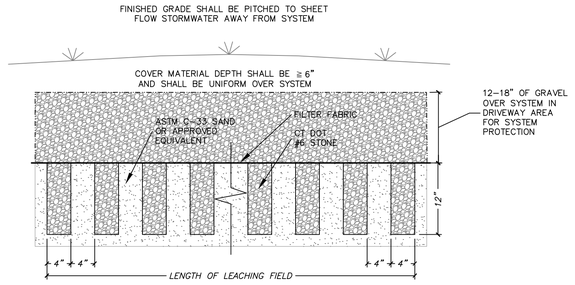
SHEET NO. 4 OF 6 | JOB NO. 21-000985 | DRAWN BY: CAC



*3" MINIMUM ASTM D-3034, SDR 35 PIPE FOR GRAVITY APPLICATIONS
0.75" MIN I.D., STM D-2665, SCH 40 PVC PIPE FOR PRESSURE APPLICATIONS

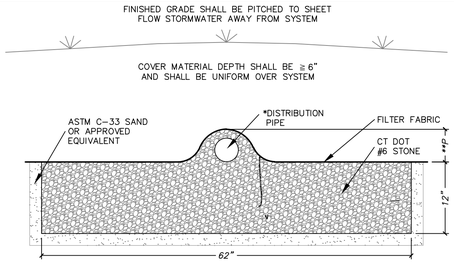
GeoMATRIX GST 6212 LEACHING TRENCH - PLAN VIEW

SCALE: 1"=1'



GeoMATRIX GST 6212 LEACHING TRENCH - CROSS-SECTION A-A

SCALE: 1"=1'



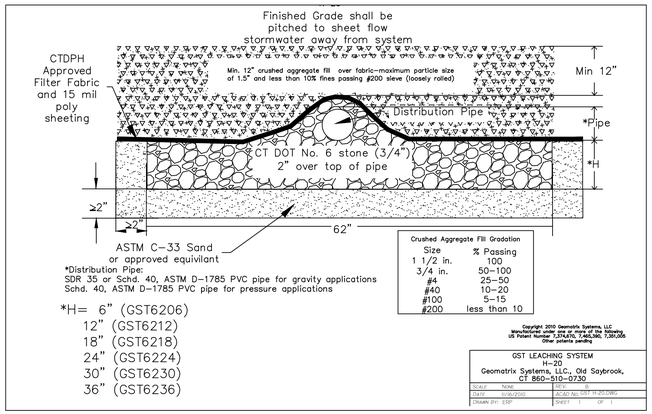
*3" MINIMUM ASTM D-3034, SDR 35 PIPE FOR GRAVITY APPLICATIONS
0.75" MIN I.D., STM D-2665, SCH 40 PVC PIPE FOR PRESSURE APPLICATIONS

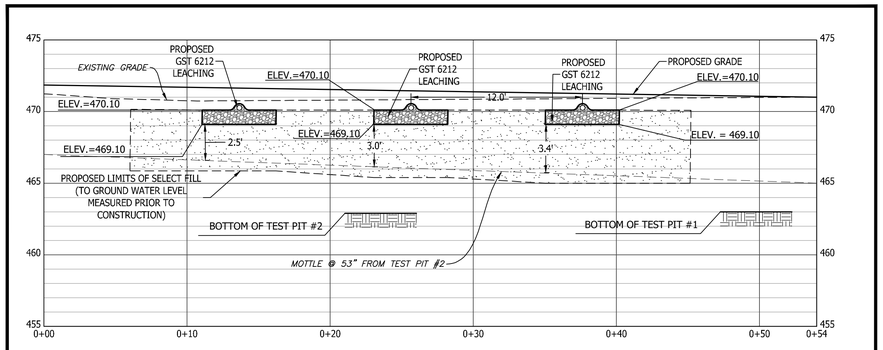
**P = 2"-5.5"

2" MINIMUM ASTM C-33 SAND
OR APPROVED EQUIVALENT ON
PERIMETER, BOTTOM AND SIDES
OF SYSTEM

GeoMATRIX GST 6212 LEACHING TRENCH - CROSS-SECTION B-B

SCALE: 1"=1'





SECTION A-A LEACHING SYSTEM CROSS SECTION (LOOKING NORTHEAST

SCALE: 1"=5'

SYSTEM SITE PREPARATION

1. A MINIMUM OF 24 HOURS, BUT PREFERABLY 48 HOURS NOTICE SHALL BE GIVEN BY THE INSTALLER TO THE ENGINEER AND SANITARIAN BEFORE ANY STRIPPING IS DONE FOR THE SYSTEM.
2. THE LICENSED INSTALLER SHALL BE ON SITE DURING SYSTEM CONSTRUCTION WORK WILL BE STOPPED BY THE HEALTH DEPARTMENT IF THIS REQUIREMENT IS NOT COMPLIED WITH.
3. NO SYSTEM IS TO BE BACKFILLED UNTIL THE SANITARIAN HAS GIVEN THE OK. THE OK WILL NOT BE GIVEN UNTIL THE ENGINEER HAS PROVIDED WRITTEN OR VERBAL COMMUNICATION THAT THE SYSTEM IS INSTALLED IN COMPLIANCE WITH THE HEALTH CODE AND THEIR DESIGN, OR WITH ACCEPTABLE MODIFICATIONS.

SELECT FILL SPECIFICATIONS:

SELECT FILL PLACED WITHIN AND ADJACENT TO LEACHING SYSTEM AREAS SHALL BE A CLEAN MATERIAL COMPRISED OF SAND, OR SAND AND GRAVEL, FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES. THE SELECT FILL SHALL MEET THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE APPROVED BY THE DESIGN ENGINEER. SELECT FILL EXCEEDING 6 PERCENT PASSING THE #200 SIEVE BASED ON A WET SIEVE TEST CANNOT BE APPROVED BY THE DESIGN ENGINEER.

1. THE SELECT FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THE THREE (3) INCH SIEVE.
2. UP TO 45% OF THE DRY WEIGHT OF THE REPRESENTATIVE SAMPLE MAY BE RETAINED (GRAVEL PORTION) ON THE #4 SIEVE.
3. THE MATERIAL THAT PASSES THE #4 SIEVE IS THEN REWEIGHED AND THE SIEVE ANALYSIS STARTED.
4. THE REMAINING SAMPLE SHALL MEET THE FOLLOWING GRADATION CRITERIA:

SIEVE SIZE	PERCENT PASSING WET SIEVE	PERCENT PASSING DRY SIEVE
#4	100	100
#10	70 - 100	70 - 100
#40	10 - 50*	10 - 75
#100	0 - 20	0 - 5
#200	0 - 5	0 - 2.5

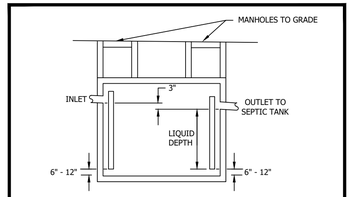
* PERCENT PASSING THE #40 SIEVE CAN BE INCREASED TO NO GREATER THAN 75 IF THE PERCENT PASSING THE #100 SIEVE DOES NOT EXCEED 10 AND THE #200 SIEVE DOES NOT EXCEED 5.

SELECT FILL THAT DOES NOT MEET THE DRY SIEVE GRADATION CRITERIA BUT MEETS THE WET SIEVE GRADATION CRITERIA IS ACCEPTABLE. SIEVE TESTING OF SELECT FILL IS REQUIRED FOR LARGE (2,000 GPD OR GREATER) SYSTEMS WHENEVER THE LEACHING SYSTEM IS LOCATED TOTALLY IN SELECT FILL. THE LOCAL DIRECTOR OF HEALTH MAY REQUIRE SIEVE TESTING OF SELECT FILL ON SMALL SSDSS IN ACCORDANCE WITH PHC SECTION 19-13-B103E (D) (6).

THE LICENSED INSTALLER IS RESPONSIBLE FOR PREPARING THE LEACHING AREA WITH NECESSARY SELECT FILL. TOPSOIL IN THE LEACHING SYSTEM AREA SHALL BE REMOVED AND THE SUBSOIL SCARIFIED PRIOR TO SELECT FILL PLACEMENT, UNLESS OTHERWISE DIRECTED BY THE DESIGN ENGINEER. THE INSTALLER SHALL TAKE THE NECESSARY STEPS TO PROTECT THE UNDERLYING RECEIVING SOIL FROM OVER COMPACTION/DAMAGE. THE INSTALLER IS RESPONSIBLE FOR PROPERLY COMPACTING SELECT FILL TO FACILITATE CONSTRUCTION AND TO PREVENT SETTLING. SELECT FILL SHALL EXTEND A MINIMUM OF 5 FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE LEACHING SYSTEM.

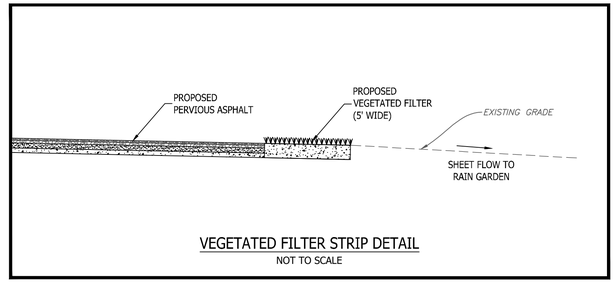
THE COMMISSIONER OF PUBLIC HEALTH SHALL APPROVE MANUFACTURED FILL. ROCK OR OTHER PRODUCT USED TO PRODUCE MANUFACTURED FILL SHALL HAVE A LOSS OF ABRASION OF NOT MORE THAN 50 PERCENT USING AASHTO METHOD T-96, AND WHEN TESTED FOR SOUNDNESS USING AASHTO METHOD T 104 NOT HAVE A LOSS OF MORE THAN 15 PERCENT AT THE END OF 5 CYCLES. SUPPLIERS OF MANUFACTURED FILL SHALL MAKE APPLICATION FOR APPROVAL TO THE COMMISSIONER OF PUBLIC HEALTH. DOCUMENTATION SHALL BE SUBMITTED ON THE MANUFACTURED FILL OPERATION AND PRODUCTION PROCESS. FILL SPECIFICATIONS (GRADATION, PERMEABILITY, ETC.) AND A NARRATIVE OF THE QUALITY CONTROL/QUALITY ASSURANCE PROGRAM SHALL ALSO BE INCLUDED FOR ALL ACTIVE PRODUCTION SITES. APPROVED MANUFACTURED FILL PRODUCERS SHALL PROVIDE ANNUAL PRODUCT REGISTRATIONS TO THE COMMISSIONER OF PUBLIC HEALTH BY JULY 1ST OF EACH YEAR.

"SELECT FILL" SHOULD BE PLACED ON THE EDGE OF THE SITE AND SPREAD OVER THE PREPARED AREA WITH A BULLDOZER. NO TRUCKS SHOULD RUN OVER THE FILL UNTIL 12 INCHES OF FILL HAS BEEN PLACED. THE REMAINDER OF THE FILL SHOULD BE PLACED IN LAYERS 8 TO 12 INCHES DEEP AND COMPACTED BY NORMAL BULLDOZING OR OTHER CONSTRUCTION EQUIPMENT. FILLING AND COMPACTION SHOULD BE DISCONTINUED DURING RAIN STORMS AND FOR 24 HOURS THEREAFTER. ALL FILL SHOULD BE PLACED AND COMPACTED BEFORE ANY OF THE LEACHING SYSTEM IS INSTALLED.



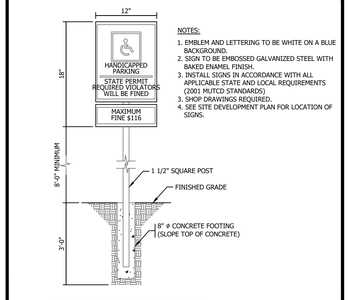
TYPICAL H-20 GREASE INTERCEPTOR TANK

NOT TO SCALE



VEGETATED FILTER STRIP DETAIL

NOT TO SCALE



HANDICAPPED PARKING SIGN DETAIL

NOT TO SCALE

NOTES - SEPTIC SYSTEM

1. PROPOSED CONSTRUCTION TO CONFORM TO THE LATEST REVISION OF THE STATE OF CONNECTICUT PUBLIC HEALTH CODE.
2. ELEVATIONS BASED ON INFORMATION GATHERED BY LICENSED SURVEYOR.
3. ENGINEER AND SANITARIAN WILL BE CONTACTED IF SOIL CONDITIONS OTHER THAN THOSE SHOWN ON PLAN ARE ENCOUNTERED AND WORK WILL BE HALTED PENDING REVIEW OF THOSE CONDITIONS.
4. ELEVATIONS SHOWN REFER TO THE INVERT (FLOW LINE) OF THE PROPOSED LEACHING SYSTEM UNLESS NOTED OTHERWISE.
5. SEPTIC TANK CONSTRUCTION JOINTS SHALL BE SEALED WITH ASPHALT CEMENT. ALL PIPE CONNECTIONS TO THE SEPTIC TANK AND DISTRIBUTION BOXES SHALL BE SEALED WITH A POLYETHYLENE GASKET ("POLYLOK" OR APPROVED EQUAL).
6. SEPTIC TANK BAFFLES SHALL CONFORM TO TECHNICAL STANDARDS OF THE PUBLIC HEALTH CODE.
7. SEPTIC TANKS SHALL HAVE AN APPROVED NON-BYPASS EFFLUENT FILTER AT THE OUTLET.
8. SEPTIC TANK SHALL BE TWO COMPARTMENT TANK WITH HEAVY DUTY STEEL HANDLES FOR MANHOLE ACCESS COVERS AND GAS BAFFLES INSTALLED AT OUTLET PIPING. TANKS TO BE WATER TIGHT.
9. ALL PIPES DOWNSTREAM OF THE SEPTIC TANK SHALL BE 4" DIAMETER SCH 40 ASTM D1785 OR D2665. ALL PIPES UPSTREAM OF THE SEPTIC TANK SHALL BE 4" DIAMETER SCH 40 ASTM D1785 OR D2665.
10. NO DEVIATIONS FROM THE APPROVED DESIGN PLAN SHALL BE ALLOWED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND SANITARIAN.
11. EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO FIELD MODIFICATION AS REQUIRED BY THE DESIGN ENGINEER OR TOWN OFFICIALS TO INCREASE EROSION AND SEDIMENT CONTROL MEASURES.
12. ALL FILTER FABRIC SHALL BE 1.5 OZ./YD. (ASTM D-5261), PERMEABILITY OF 1.0 SEC. (ASTM D-4491) AND A TRAPEZOID TEAR OF 15 LBS. (ASTM D-4533) OR EQUAL.
13. ALL DISTURBED AREAS SHALL BE TOPSOILED AND TURF ESTABLISHED.
14. BASED ON AVAILABLE RECORDS AT THE TOWN OF EAST HADDAM HEALTH DEPARTMENT, NO SEPARATING DISTANCE CONFLICTS ARE PRESENT WITH WELLS, SEPTIC SYSTEMS AND HOUSES ON ADJACENT LOTS.
15. BUILDINGS HAVE NO GARBAGE GRINDERS, OR LARGE TUBS OVER 100 GALLONS.
16. NO FOOTING DRAINS SHALL BE INSTALLED WITHIN 25' OF PROPOSED SEPTIC SYSTEM.
17. LICENSED SURVEYOR TO STAKE SYSTEM. LICENSED SEPTIC INSTALLER TO DO SITE PREPARATION WORK. BENCH MARK TO BE SET IN FIELD.
18. NO WORK (OTHER THAN TREE CLEARING) SHALL COMMENCE IN THE SYSTEM AREA UNTIL A SEPTIC PERMIT HAS BEEN TAKEN OUT BY THE LICENSED INSTALLER.
19. STRIP INSPECTIONS SHALL BE DONE BY BOTH THE ENGINEER AND SANITARIAN.
20. TEN FOOT SEPARATION FROM WATER LINE TO SYSTEM TO BE VERIFIED IN FIELD.
21. SYSTEM AREA SHOULD BE RE-STRIPPED AND REFILLED PRIOR TO START OF CONSTRUCTION TO PREVENT HEAVY EQUIPMENT COMPACTION FROM DRIVEWAY.

INSTALLATION NOTES

1. LAYOUT SYSTEM.
2. PREPARE SITE AND REMOVE ANY TREES WITH A DRIP LINE FALLING WITHIN 10 FEET OF THE LEACHING SYSTEM.
3. EXCAVATE TRENCH TO A DEPTH THAT IS AT LEAST 2" BELOW THE BASE ELEVATION OF THE GST TO ACCOMMODATE A MINIMUM OF 2" OF SAND. TRENCH WIDTH SHOULD BE A MINIMUM OF 45" FOR THE GST 37 SERIES AND 70" FOR GST 62 SERIES.
4. RAKE/SCARIFY SIDEWALLS AND BOTTOM OF TRENCH TO ADDRESS ANY SMEARING OF FINES, AND THEN DO NOT WALK IN TRENCH BOTTOM.
5. PLACE A MINIMUM OF 2" OF ASTM C-33 SAND OR APPROVED EQUIVALENT (SAND) IN THE BOTTOM OF THE EXCAVATION TO SERVE AS BASE FOR GST, RAKE AND LEVEL AND UNIFORMLY COMPACT. IF A 2" LIFT OF SAND IS PRESENT SIMPLY WALKING ON IT SHOULD PROVIDE SUFFICIENT COMPACTION.
6. SET THE GST FORMS IN CENTER OF TRENCH.
7. PLACE COVERS OVER ENTIRE CENTER STONE CHANNEL AND ALTERNATING STONE FINGER COMPARTMENTS.
8. PLACE SAND INTO VOID SPACE BETWEEN TRENCH SIDEWALL AND GST FORM. ALSO FILL THE SAND FINGER VOIDS IN THE FORMS AND UNIFORMLY COMPACT.
9. REMOVE ALL COVERS FROM OVER ENTIRE CENTER STONE CHANNEL AND STONE FINGER COMPARTMENTS.
10. PLACE CLEAN CT DOT #6 (3/4") STONE INTO THE INTERIOR OF THE GST FORM.
11. PULL FIRST GST FORM AND "LEAP FROG" FORM AHEAD OF THE LAST GST FORM.
12. REPEAT SEQUENCE UNTIL DESIRED TRENCH LENGTH IS INSTALLED.
13. ENSURE THAT SAND AND BACKFILL MATERIALS ARE COMPACTED TO PREVENT SETTLEMENT.
14. INSTALL APPROVED DISTRIBUTION PIPING ON TOP OF THE 12" CENTRAL STONE CHANNEL.
15. PLACE STONE AROUND THE DISTRIBUTION PIPE.
16. PUT APPROVED FILTER FABRIC OVER THE SYSTEM.
17. BACKFILL SYSTEM TO ENSURE THAT UNIFORM COVER AND COMPACTION EXISTS OVER THE TOP OF THE SYSTEM (A MINIMUM OF 6" OF COVER IS REQUIRED). WHEN GST IS INSTALLED BELOW AREAS SUBJECT TO H-20 LOADING, SEE NOTE BELOW.
18. FINISH GRADE OVER THE SYSTEM SHOULD ENSURE THAT STORM WATER SHEET FLOW IS DIVERTED AWAY FROM THE LEACHING SYSTEM, TANK(S) AND PUMP TANK(S) IF PRESENT.
19. SEED AND HAY DISTURBED AREA. THE USE OF WOOD CHIPS AS COVER MATERIAL IS NOT RECOMMENDED.
20. MAINTAIN THE AREA TO PREVENT TREE ROOTS FROM IMPACTING THE SYSTEM.
21. PROPERLY SERVICE THE SEPTIC TANK EVERY 3-5 YEARS; OR AS ADVISED BY THE REGULATORY AGENCY OR YOUR SERVICE PROVIDER.

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS
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5	4/28/2022	PLANNING & ZONING COMMENTS

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT
GREGG T. FEDUS
NO. 21231
LICENSED PROFESSIONAL ENGINEER

Detail Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

DRAWING SCALE: 1"=20' (0 10 20 40)

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 5 OF 6 | JOB NO. 21-000985 | DRAWN BY: CAC

Project		Catalog #		Type	
Prepared by		Notes		Date	

Lumark
Prevail Discrete LED

Area / Site Luminaire

Product Features

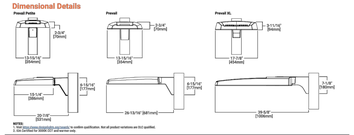
Interactive Menu

Product Certifications

Quick Facts
- Direct-mounted discrete light engine for improved optical uniformity and visual comfort
- Lumen packages range from 4,300 - 41,000 nominal lumens (30W - 350W)
- Replaces 70W up to 1,000W HID equivalents
- Efficacies up to 148 lumens per watt
- Standard universal quick mount arm with universal drill pattern

Connected Systems
- WaveLinx

Dimensional Details



NOTES:
1. For other pole mounting accessories to confirm qualification. Not all product variations as ALO qualified.
2. Not certified for DesignLights Consortium.

COOPER Lighting Solutions

P800005SEN page 1
February 14, 2022 2:57 PM

HALO®

Catalog #		Type
Project		
Comments		Date
Prepared by		

Description

The Halo RL560 is a complete LED Baffle-Trim Module for 5" and 6" aperture recessed downlights; suitable for new construction, remodel and retrofit installation. The RL560 is cULus Listed for use with Halo and AirPro, and is UL Classified for use with other compatible 5" and 6" housings. The RL560 delivers 2700K, 3000K, 3500K, 4000K, or 5000K CCT, 90 CRI light that provides uniform illumination and wet location listing. Precision construction makes any housing AIR-TITE for added HVAC savings and code compliance. Compliant with NFPA 70, NEC section 410.16 (A)(1) and 410.16 (C)(3).

Specification Features

MECHANICAL

Module - Trim
- Module construction includes LED, heat sink, reflector, lens, baffle and trim ring
- Integrated baffle
- Heat sink designed to conduct heat away from the LED keeping the junction temperatures below specified maximums, even when used in fully enclosed insulated environments. L70 at 50,000 hours
- Designer trim finish options sold separately
  - White (Paintable) Trim Ring
  - Satin Nickel Trim Ring
  - Tuscan Bronze Trim Ring

Lens
- Regressed lens
- Impact-resistant polycarbonate
- Convex form for lamp-like appearance
- Diffusing for even illumination

Mounting
- Integral torsion springs and Push-N-Stab clips offer two mounting options
  - Torsion springs are pre-installed and adjust to fit 5" or 6" compatible housings
  - Push-N-Stab clips for installation. Friction blades provided are designed to fit 5" or 6" compatible housings

Housing Compatibility
See Housing Compatibility

LED
- Color Temperature (CCT) Options: 2700K, 3000K, 3500K, 4000K, and 5000K
- 90 CRI can be used for California Title 24 compliance/certified to Title 20
- Every Halo LED is quality tested, measured, and serialized in a permanent record to register: Lumens, Color (CCT & CRI)
- Halo LED serialized testing and measurement ensures color and lumen consistency on a per-unit basis, and validates long-term product consistency over time

ELECTRICAL

Power Connections
- Push-in wire connection screw base luminaire disconnect offering easy installation with the matching Halo 5" and 6" LED housings.
- LED Connector meets California Title 24 JA8-2016 connector requirement for a non-screw base socket, and where required to qualify as a high efficacy luminaire
- The included E26 medium (standard) screw base adapter provides easy retrofit of incandescent housings (see Housing Compatibility)

Ground Connection
Separate grounding cable included on the module for attachment to the housing during installation.

LED Driver
- With the latest "driveron-board" electronic technology, the driver is integrated into the module.
- 120V-50/60 Hz constant current dimmable driver provides high-efficiency operation
- Driver meets FCC 47CFR Part 15, Class B consumer limits for use in residential and commercial installations
- Driver features high power factor and low THD and has integral thermal protection for the event of over temperature or internal failure
- If dimming is not required the fixture can be operated from a standard wall switch

Dimming
- Designed for continuous dimming capability to nominally 5% with many 120V Leading Edge (LE) and Trailing Edge (TE) type wall dimmers. Dimmers with low-end trim adjustment offer greater assurance of achieving 5% level.)
- Consult dimmer manufacturer for performance and suitability of use
- **Note:** some dimmers require a neutral in the wallbox.

Warranty
Cooper Lighting Solutions provides a five year limited warranty on RL56 LED.

Compliance Labels
- UL Certified 1598 Luminaire with Halo housings and others - see Housing Compatibility
- UL Certified for Damp Location
- UL Certified for Wet Location
- May be installed in housings in direct contact with insulation** and combustible material

Compliance
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 75 Pascals pressure difference)
- Can be used for International Energy Conservation Code (IECC) high efficiency luminaire compliance.
- Suitable for use in closets. Compliant with NFPA 70, NEC Sec. 410.16 (A)(1) and 410.16 (C)(3).
- Can be used for Washington State Energy Code compliance
- ENERGY STAR® Certified luminaire - consult ENERGY STAR® Certified Product List*
- ENERGY STAR® Certified, when specified per FCC 47CFR Part 15, Class B Consumer limits, suitable for use in residential and commercial installations
- Contains no mercury or lead and is RoHS compliant.
- Photometric testing in accordance with IES LM-79
- Lumen maintenance projections in accordance with IES LM-80 and TM-21

RL560*
White

1200 Series 5/6-Inch LED Recessed Retrofit Module-Trim

90CRI
2700K, 3000K, 3500K, 4000K, 5000K

FOR USE IN INSULATED CEILING AND NON- INSULATED CEILING RATED HOUSINGS

HIGH-EFFICACY LED WITH INTEGRAL DRIVER - DIMMABLE

Refer to ENERGY STAR® Qualified Products List. Can be used to comply with California Title 24 High Efficacy requirements. Certified to California Appliance Efficiency Database under JA8.

COOPER Lighting Solutions

* Refer to ENERGY STAR®-Certified Products List and CEC 2133 Appliance Database for listings.
** Not for use with housings in direct contact with spray foam insulation.
† See ordering information table for available models.

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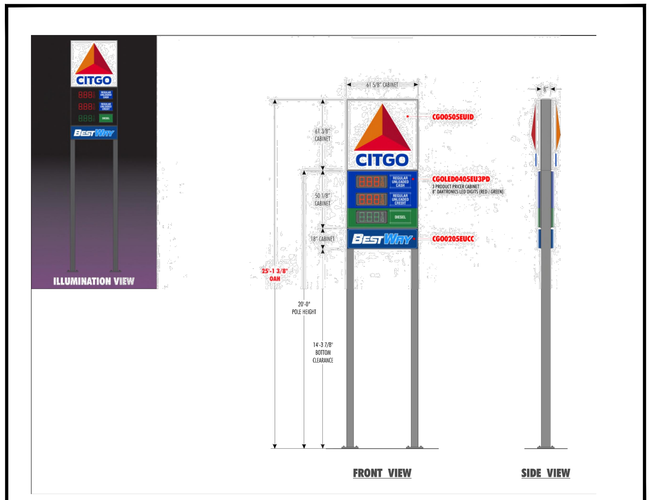


Galasy II
PETROLEUM GAS CANOPY

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

FEATURES
- Value focused, budget-friendly canopy lighting solution
- Available in 4 wattages-30, 65, 100 and 120 Watts
- Low glare, even illumination and no pixelation for outstanding illumination
- High efficacy up to 155 LPW for maximum energy savings
- Universal retrofit solution for HID replacements for various sizes
- Driver accessible and field serviceable under canopy
- Pendant or surface mount options with ¾" conduit
- IP66 rating to keep water and insects out

IP66 WET LOCATION DLC DLC PREMIUM

SPECIFICATIONS

CONSTRUCTION
- Die-cast aluminum, low profile housing
- New construction or retrofit solution
- Targets a large range of applications
- Easy installation
- White powder coat finish
- Heat sink design to disperse heat away from fixture
- Suitable for wet locations

OPTICS
- Textured glass drop lens
- Type V distribution
- Low glare

INSTALLATION
- Surface or pendant mounted
- Easy installation and serviceable below the deck

ELECTRICAL
- Universal 120-277 input voltage
- Power Factor > 0.9 at full load
- Total Harmonic Distortion < 20% at full load
- 6 kV Surge Protection
- 0-10 Volt Dimmable Driver
- Operating temperature: -40°C to +40°C

CERTIFICATIONS
- UL Listed
- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Please refer to the DLC website for specific product qualifications at www.designlights.org
- Wet Location Listed
- IP66 Rated

WARRANTY
- 5 year warranty
- See HLI Standard Warranty for additional information

ORDERING GUIDE

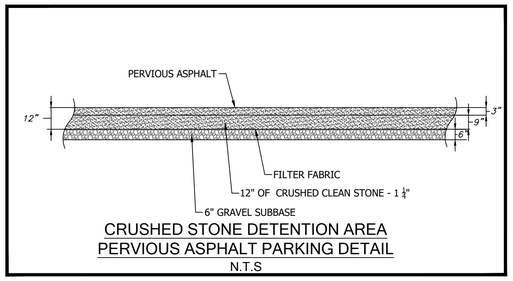
Example: GSY-100-4K7

CATALOG # _____

GSY	–		–	
Series		Wattage		Color Temp
GSY Galasy II		**30** 30W		**4K7** 4000K, 70 CRI
		65 65W		**5K7** 5000K, 70 CRI
		100 100W		
		130 130W		

KEY DATA	
Lumen Range	4,757 – 19,880
Wattage Range	30 – 127.9 Watts
Efficacy Range (LPW)	149 – 157
Reported Life (Hours)	≥ 60,000

HUBBELL Lighting



CRUSHED STONE DETENTION AREA
PERVIOUS ASPHALT PARKING DETAIL
N.T.S

PERVIOUS ASPHALT MAINTENANCE:

A. PREVENT CLOGGING OF PAVEMENT SURFACE WITH SEDIMENT
- •A. VACUUM PAVEMENT TWICE PER YEAR
- •B. MAINTAIN PLANTED AREAS ADJACENT TO PAVEMENT
- •C. IMMEDIATELY CLEAN ANY SOIL DEPOSITED ON PAVEMENT
- •D. DO NOT ALLOW CONSTRUCTION STAGING, SOIL/MULCH STORAGE, ETC. ON UNPROTECTED PAVEMENT SURFACE CLEAN INLETS DRAINING TO THE SUBSURFACE BED TWICE PER YEAR

B. SNOW/ICE REMOVAL
- •A. POROUS PAVEMENT SYSTEMS GENERALLY PERFORM BETTER AND REQUIRE LESS TREATMENT THAN STANDARD PAVEMENTS
- •B. DO NOT APPLY ABRASIVES SUCH AS SAND OR CINDERS ON OR ADJACENT TO POROUS PAVEMENT
- •C. SNOW PLOWING IS FINE BUT SHOULD BE DONE CAREFULLY (I.E. SET THE BLADE SLIGHTLY HIGHER THAN USUAL)
- •D. SALT APPLICATION IS ACCEPTABLE, ALTHOUGH MORE ENVIRONMENTALLY-BENIGN DEICERS ARE PREFERABLE

Project		Catalog #		Type	
Prepared by		Notes		Date	

Lumark
Axcent

Wall Mount Luminaire

Product Features

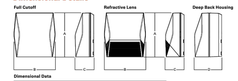
Interactive Menu

Product Certifications

Quick Facts
- Available in 14W - 123W (1,800 - 17,000 lumens) models
- Full cutoff and refractive lens models available
- Energy and maintenance savings up to 95% compared to HID
- Energy efficient illumination results in up to 144 LPW
- Replaces 70W up to 450W HID equivalents

Connected Systems
- WaveLinx Lite
- Enlighted

Dimensional Details



Dimensional Data		
	AXCS Small	AXCL Large
A	8" [203mm]	11-1/2" [292mm]
B	7-1/2" [190mm]	10-3/4" [273mm]
C	3-5/8" [94mm]	4-7/8" [124mm]
D	6-1/8" [155mm]	7-5/8" [194mm]

COOPER Lighting Solutions

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October 26, 2021 8:08 PM

NO.	DATE	REVISIONS
1	1/14/2022	GENERAL REVISIONS
2	1/14/2022	GENERAL REVISIONS
3	2/2/2022	GENERAL REVISIONS
4	3/24/2022	TOWN ENGINEER COMMENTS
5	4/28/2022	PLANNING & ZONING COMMENTS

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · REGISTERED PROFESSIONAL ENGINEER

Detail Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
IMS PETROLEUM, LLC
January 3, 2022

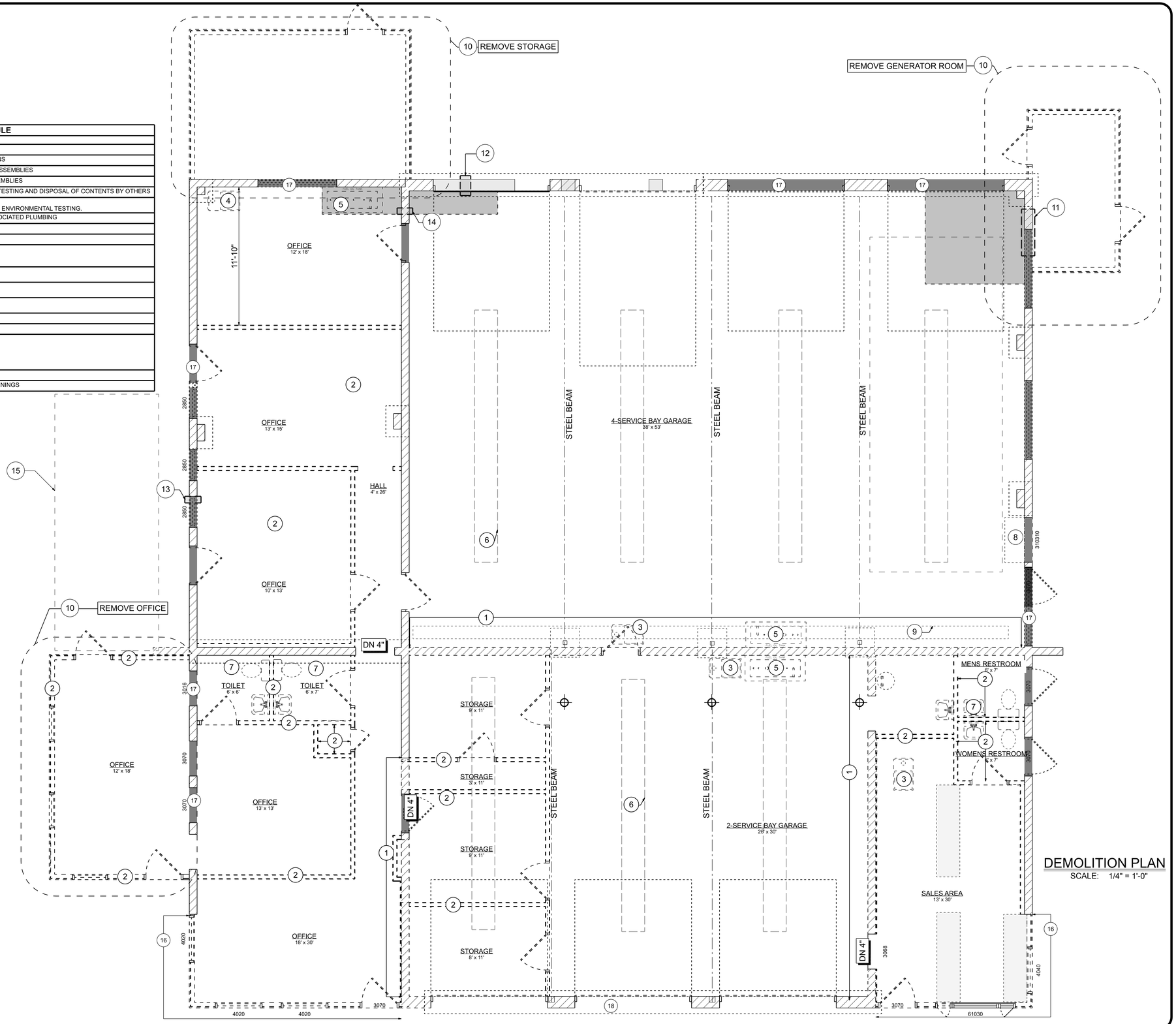
DRAWING SCALE: 1"=20' 0 10 20 40

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO. 6 OF 6 | JOB NO. 21-000985 | DRAWN BY: CAC

KEYNOTE SCHEDULE

ID	NOTE
1	REMOVE EXISTING 8" CMU WALL
2	REMOVE EXISTING DWB AND WOOD FRAMED NON BEARING PETITIONS
3	REMOVE CEILING MOUNTED OIL FIRED FURNACE AND ASSOCIATED ASSEMBLIES
4	REMOVE FLOOR MOUNTED OIL FIRED BOILER AND ASSOCIATED ASSEMBLIES
5	REMOVAL OF EXISTING FUEL STORAGE TANK ,POST ENVIROMENTAL TESTING AND DISPOSAL OF CONTENTS BY OTHERS
6	TYP. REMOVAL OF HYDRAULIC LIFT ASSEMBLIES UPON CLEARANCE FROM ENVIRONMENTAL TESTING.
7	TYP. REMOVE ALL EXISTING PLUMBING FIXTURES FAUCETS AND ASSOCIATED PLUMBING
8	REMOVE EXHAUST DUCTWORK AND LOUVER
9	REMOVE EXISTING DUCTWORK AND ASSOCIATED ASSEMBLIES
10	REMOVE OF EXISTING STRUCTURE CONCRETE FOUNDATIONS,FLOOR, ROOF AND WALLS
11	PROVIDE 4'-0"w x 6"h THRU WALL PENETRATION COORDINATE W/ PETROL.CNTR.
12	PROVIDE 6" DIAMETER THRU-WALL PENETRATION SOIL INV. @ 471.66
13	PROVIDE 6" DIAMETER THRU-WALL PENETRATION GREASE INV. @ 471.66
14	PROVIDE 6" DIAM.THRU-WALL PENETRATION
15	REMOVE STEEL CONTAINER
16	REMOVE EXISTING WOOD FRAMED EXTERIOR BEARING WALL. CORE EXISTING FOOTING VIF. -FOOTING/FOUNDATION ,FROST DEPTH ,SIZE AND THICKNESS . -SOIL CONDITIONS/WATER TABLES
17	TYP. PATCH AND FILL,w/ SAME TYPE AS EXISTING .
18	COORDINATE EXTENT OF INFIELD DEMOLITION WITH PROPOSED OPENINGS



DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

DO NOT SCALE

CONTRACTOR TO VERIFY ALL DIMENSIONS

THESE PLANS HAVE BEEN PREPARED TO MEET TOP PROFESSIONAL STANDARDS AND PRACTICES HOWEVER,BUILDING CODE REQUIREMENTS VARY WITH LOCATION AND CHANGE TIME TO TIME BEFORE STARTING CONSTRUCTION THE CONTRACTOR SHOULD CHECK AND BE RESPONSIBLE
FOR ANY DIMENSIONS AND OTHER DETAILS, AND SHOULD REVIEW THE PLANS TO INSURE THEY MEET CURRENT REQUIREMENTS

REVISIONS

NO.	DATE	BY	DESCRIPTION

PHASE:

CONCEPT SET

PROJECT DETAILS

ADDITIONS AND ALTERATIONS TO THE EXISTING BUILDING
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

PREPARED FOR:

IMF PETROLEUM LLC
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
NATIONAL-N.C. T-5-B-M-U-NS
BW-CS-271-HOP RVR-RD-BLTN.-CT

DESIGN # 06043-2877181-1

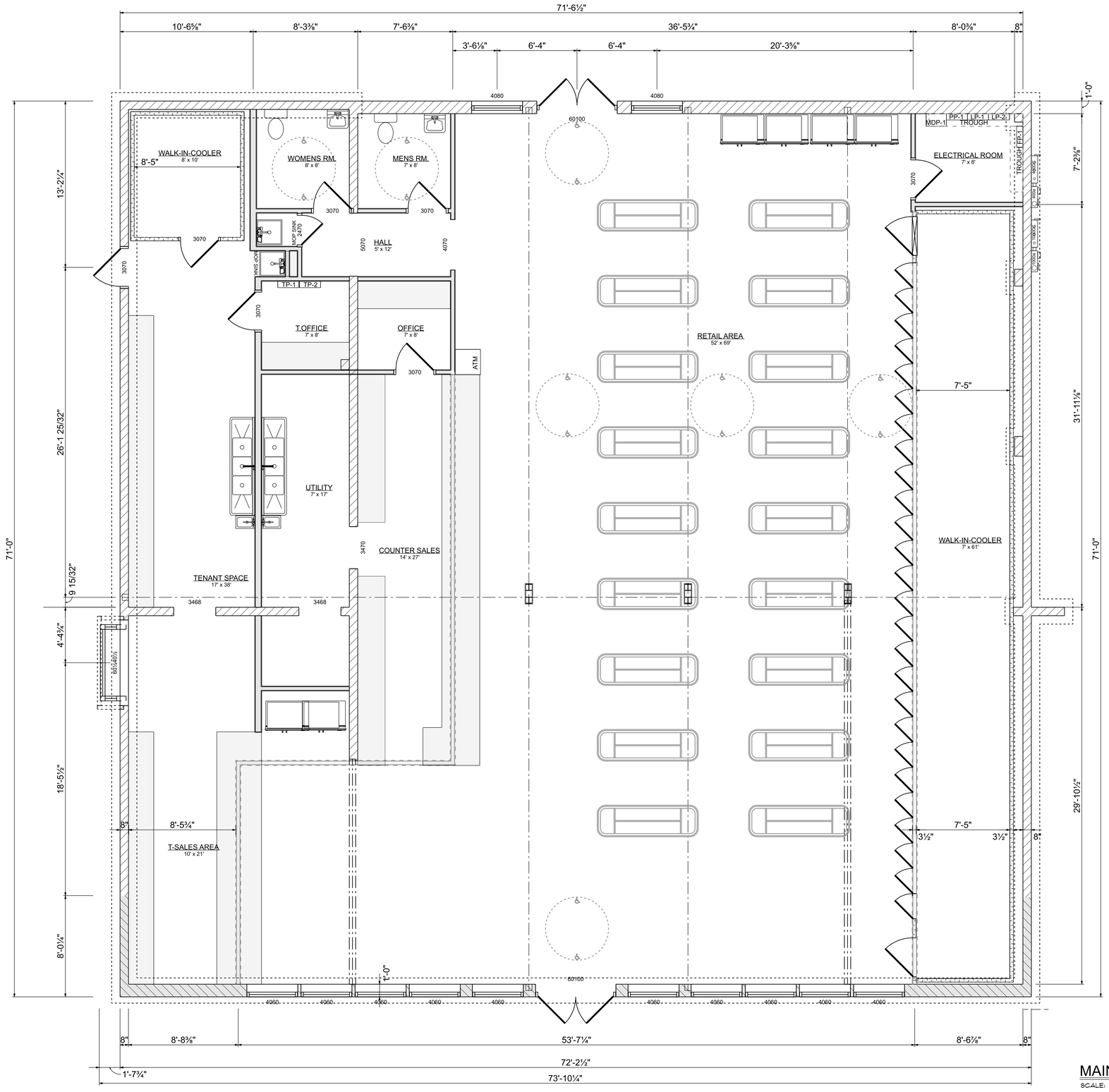
CODE REF: 2018 IBC

DRAWN BY WWC

DESIGN DATE 06-15-21

PAGE D1

W.W. CRAVEN & SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388



MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"

DO NOT SCALE

CONTRACTOR TO VERIFY ALL DIMENSIONS

THESE PLANS HAVE BEEN PREPARED TO MEET TOP PROFESSIONAL STANDARDS AND PRACTICES HOWEVER,BUILDING CODE REQUIREMENTS VARY WITH LOCATION AND CHANGE TIME TO TIME BEFORE STARTING CONSTRUCTION THE CONTRACTOR SHOULD CHECK AND BE RESPONSIBLE FOR ANY DIMENSIONS AND OTHER DETAILS, AND SHOULD REVIEW THE PLANS TO INSURE THEY MEET CURRENT REQUIREMENTS

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ADDITIONS AND ALTERATIONS TO THE EXISTING BUILDING
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

PREPARED FOR:

IMF PETROLEUM LLC
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
NATIONAL-N.C. T-5-B-M-U-NS
BW-CS-271-HOP RVR-RD-BLTN.-CT

DESIGN # 06043-2877181-1

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DRAWN BY WWC

DESIGN DATE 06-15-21

PAGE A1

W.W. CRAVEN & SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388

PLANNING & ZONING SUBMISSION

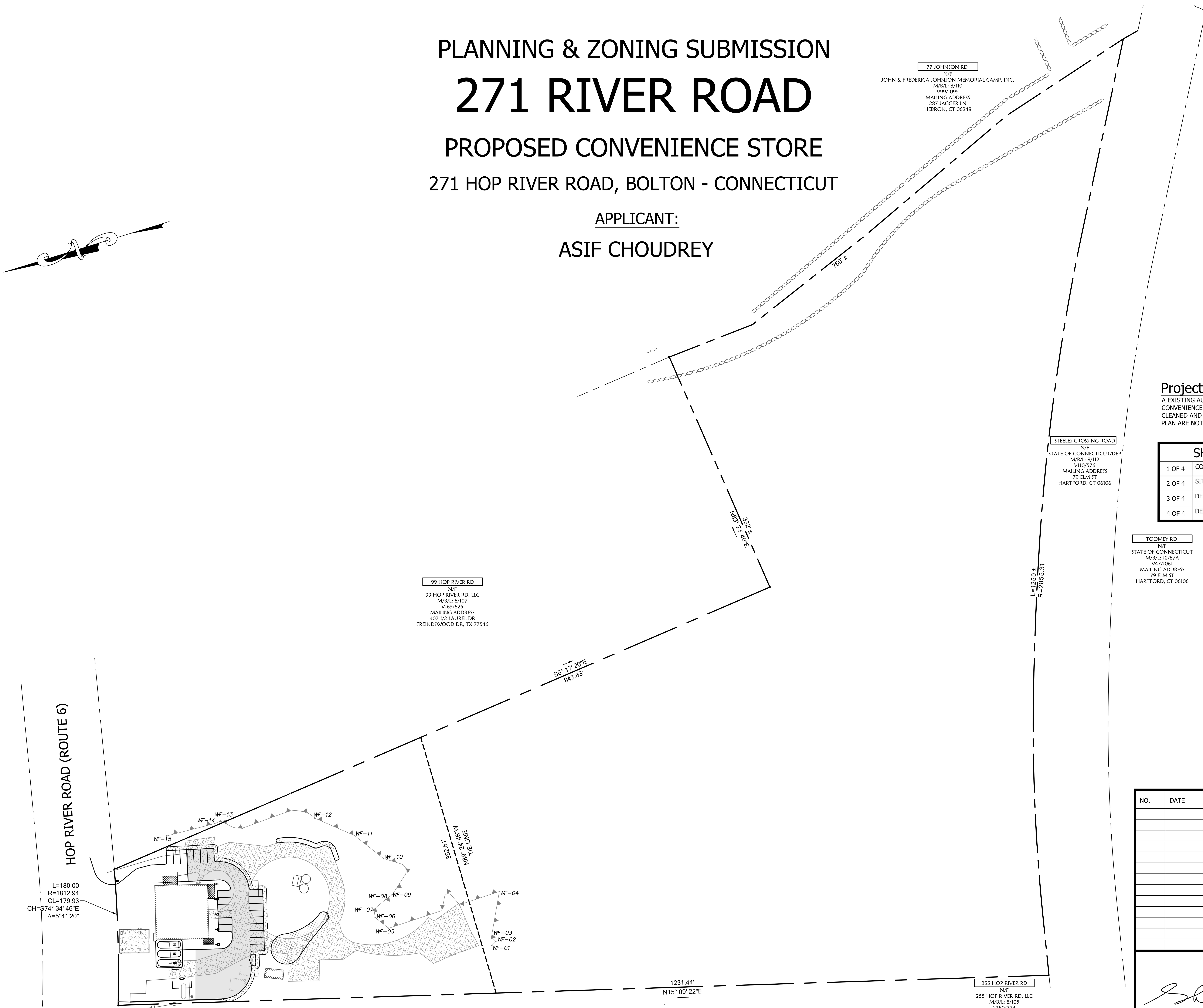
271 RIVER ROAD

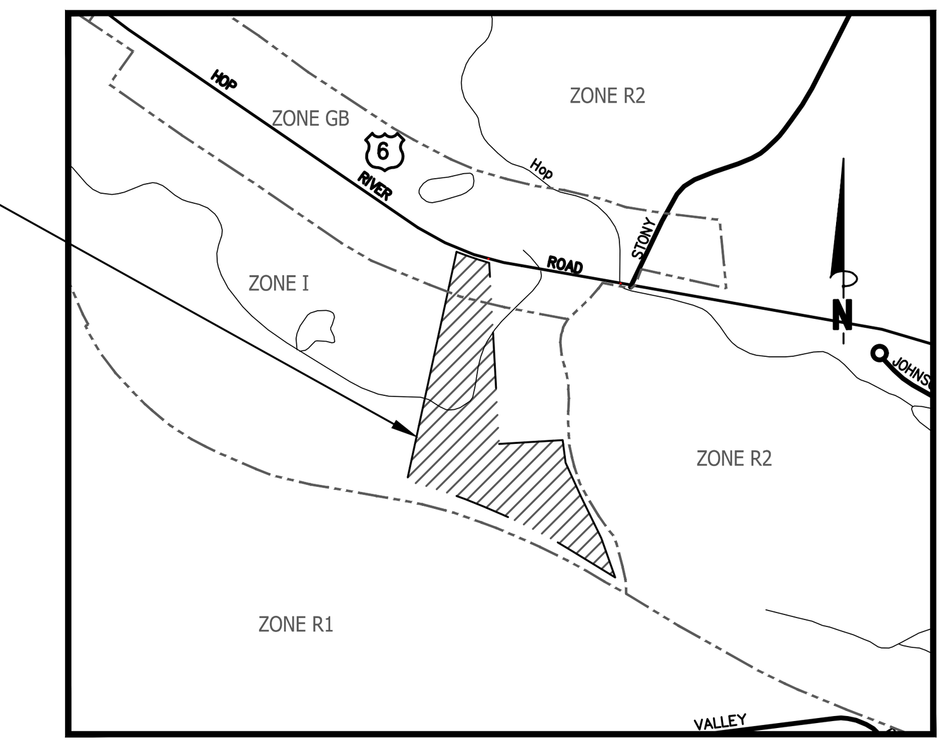
PROPOSED CONVENIENCE STORE

271 HOP RIVER ROAD, BOLTON - CONNECTICUT

APPLICANT:

ASIF CHOUDREY





Location Map

Scale: 1"=1000'

0 500 1000 2000

Legend

EXISTING

SYMBOL	DESCRIPTION
	MONUMENT
	EX. IP / REBAR
	DRILL HOLE
	UTILITY POLE W/ LIGHT
	STONEWALL
	FENCE LINE
	WATER VALVE
ohw	OVERHEAD WIRES
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	INDEX CONTOUR
	CONTOUR
WF–XX	WETLANDS BOUNDARY/FLAG
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	HIGH TIDE LINE
	COUNTY JURISDICTIONAL LINE
	ZONE LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
W	EXISTING WATER LINE
SS	EXISTING SEWER LINE
N/F	NOW OR FORMERLY
	CATCH BASIN
(TYP.)	TYPICAL
5.8	SPOT ELEVATION
DH	DRILL HOLE
(POB)	POINT OF BEGINNING
TP1	TEST PIT
P1	PERCOLATION TEST
	UTILITY POLE
	DRAINAGE MANHOLE
	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

SYMBOL	DESCRIPTION
	IRON PIN TO BE SET

Project Description

A EXISTING AUTO REPAIR SHOP TO BE CONVERTED INTO A CONVENIENCE STORE. EXISTING DEBRIS AREAS ON SITE TO BE CLEANED AND REMOVED. DEBRIS AREAS DEPICTED ON SITE PLAN ARE NOT LIMITED TO CLEAN UP AREAS.

SHEET LIST TABLE	
1 OF 4	COVER SHEET
2 OF 4	SITE PLAN
3 OF 4	DETAIL SHEET
4 OF 4	DETAIL SHEET

Subject Parcel Information

OWNER:	M&M OIL, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 99 PAGE 120
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE X PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

NO.	DATE	REVISIONS

Cover Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
Asif Choudrey
January 3, 2022

DRAWING SCALE: 1"=20' 0 10 20 40

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT
GREGG T. FEDUS
NO. 21231
LICENSED
PROFESSIONAL ENGINEER

SHEET NO. 1 OF 4 | JOB NO. 21-000985 | DRAWN BY: CAC

GB ZONING REQUIREMENTS TABLE

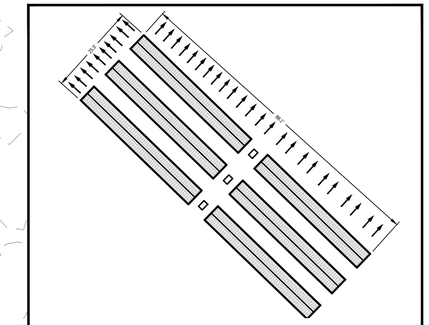
SECTION	REGULATION	REQUIREMENTS	EXISTING	PROPOSED
11C	MINIMUM LOT SIZE	40,000 SF	639,104 SF	639,104 SF
11C	MINIMUM LOT FRONTAGE	200'	180'**	180'**
11C	MINIMUM FRONT YARD	35'	50.3'	50.3'
11C	MINIMUM SIDE YARD	*	33.8' (E), 76.7' (W)	40.8' (E), 84.2' (W)
11C	MINIMUM REAR YARD	*	1,088.7'	1,088.7'
11C	MAXIMUM BUILDING HEIGHT	40'	< 45'	18.25'
11C	MINIMUM FLOOR AREA	600 SF	5,674 SF	5,024 SF
11C	MAXIMUM LOT COVERAGE	25%	1.1%	0.8%
11C	MAXIMUM IMPERVIOUS COVERAGE	65%	2.8%	4.9%
11J	MINIMUM LANDSCAPING IN GB	25% OF LOT	-	-

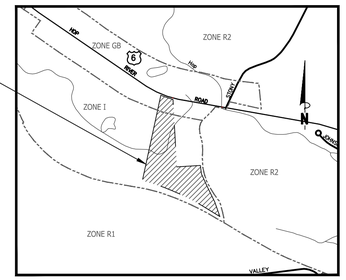
* THE MINIMUM SIDE AND REAR YARD IN THE INDUSTRIAL ZONE SHALL BE 50 FEET WHERE ABUTTING A RESIDENTIAL ZONE (SEE § 11.K)
**EXISTING NON-CONFORMING CONDITION

PARKING REQUIREMENTS

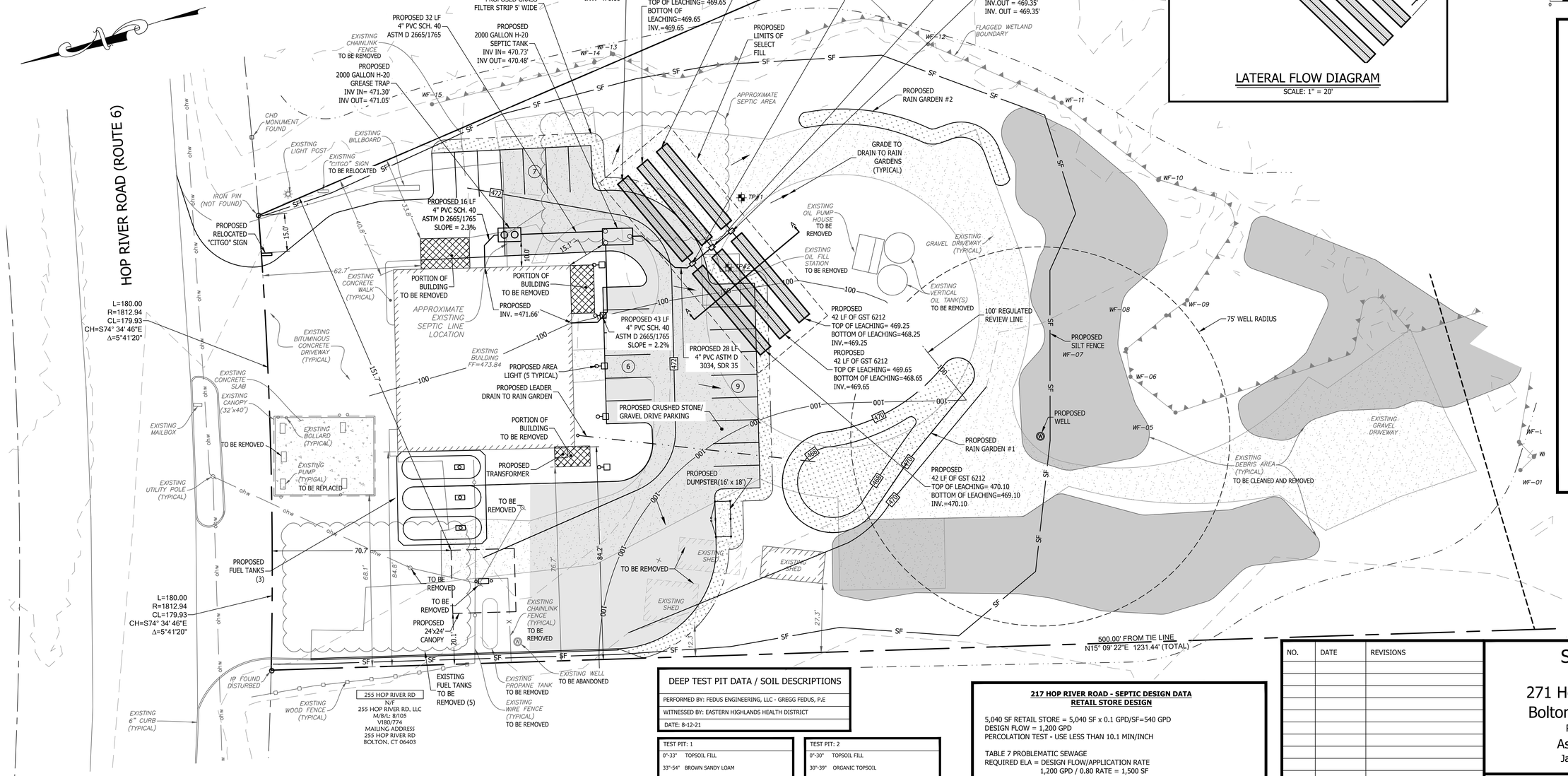
SECTION	REGULATION	MAXIMUM REQ.	MINIMUM REQ.	PROPOSED
15-O	FREE STANDING RETAIL	5 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 5 PER 1,000 = 25.1	2 PER 1,000 SF GROSS FLOOR AREA 5,024 SF x 2 PER 1,000 = 10.1	22 SPACES

271 Hop River Road
Bolton, Connecticut





Location Map
Scale: 1"=1000'
0 500 1000 2000



Legend

EXISTING

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P1	PERCOLATION TEST
ø	UTILITY POLE
	DRAINAGE MANHOLE
S	SEWER MANHOLE
	HYDRANT
	WATER SHUTOFF

PROPOSED

○	IRON PIN TO BE SET

DEEP TEST PIT DATA / SOIL DESCRIPTIONS

PERFORMED BY: FEDUS ENGINEERING, LLC - GREGG FEDUS, P.E	
WITNESSED BY: EASTERN HIGHLANDS HEALTH DISTRICT	
DATE: 8-12-21	

TEST PIT: 1	
0"-33" TOPSOIL FILL	
33"-54" BROWN SANDY LOAM	
57"-66" RED BROWN SAND, WITH GRAVEL	
66"-95" BROWN SILTY SAND	
MOTTLES:	66"
GROUNDWATER:	95"
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	66"

TEST PIT: 2	
0"-30" TOPSOIL FILL	
30"-39" ORGANIC TOPSOIL	
39"-53" RED-BROWN SANDY LOAM	
53"-96" GRAVEL/BROWN SILTY LOAM	
MOTTLES:	53"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

Subject Parcel Information

OWNER:	M&M OIL, LLC
PARCEL ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MAILING ADDRESS:	271 HOP RIVER ROAD, BOLTON, CT 06043
MBL	8/106
DEED:	VOLUME 99 PAGE 120
AREA:	639,104.1± SF = 14.6± AC
FLOOD ZONE:	ZONE A PER FIRM MAP # 09011C0228G EFFECTIVE DATE: 6/1/1981

217 HOP RIVER ROAD - SEPTIC DESIGN DATA
RETAIL STORE DESIGN

5,040 SF RETAIL STORE = 5,040 SF x 0.1 GPD/SF=540 GPD
DESIGN FLOW = 1,200 GPD
PERCOLATION TEST - USE LESS THAN 10.1 MIN/INCH

TABLE 7 PROBLEMATIC SEWAGE
REQUIRED ELA = DESIGN FLOW/APPLICATION RATE
1,200 GPD / 0.80 RATE = 1,500 SF

LEACHING TRENCH GST 6212 = 10.0 SF/LF
MINIMUM REQUIRED TRENCH = 150.00 LF

TRENCH PROVIDED =246
EFFECTIVE LEACHING PROVIDED = 2,460 SF

MLSS = HF x FF x PF RS = 36"
HF = 28.0 HYDRAULIC GRADIENT = (471.19'-467.61')/72' =4.97%
FF = 4.0
PF = 1.0
MLSS = 28 x 4.0 x 1.0 = 112 LF
PROVIDED 88 + 25 = 113 LF. NEEDED 112 LF OKAY WITH 2 SIDE LATERAL FLOW.

NO.	DATE	REVISIONS

Site Plan
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
Asif Choudrey
January 3, 2022

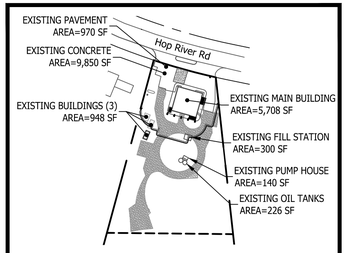
DRAWING SCALE: 1"=20' 0 10 20 40

Gregg T. Fedus P.E.
CT. License No. 21231

STATE OF CONNECTICUT GREGG T. FEDUS NO. 21231 LICENSED PROFESSIONAL ENGINEER

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

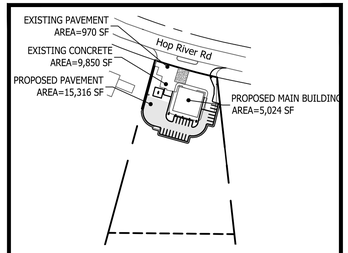
SHEET NO.	JOB NO.	DRAWN BY:
2 OF 4	21-000985	CAC



EXISTING IMPERVIOUS AREA

	AREA
EXISTING PAVEMENT	10,820 SF
EXISTING MAIN BUILDING	5,708 SF
EXISTING BUILDINGS (3)	948 SF
EXISTING FILL STATION	300 SF
EXISTING PUMP HOUSE	140 SF
EXISTING OIL TANKS	226 SF
TOTAL IMPERVIOUS AREA	18,142 SF
SITE AREA	639,104 SF
IMPERVIOUS AREA / SITE AREA =	2.8%

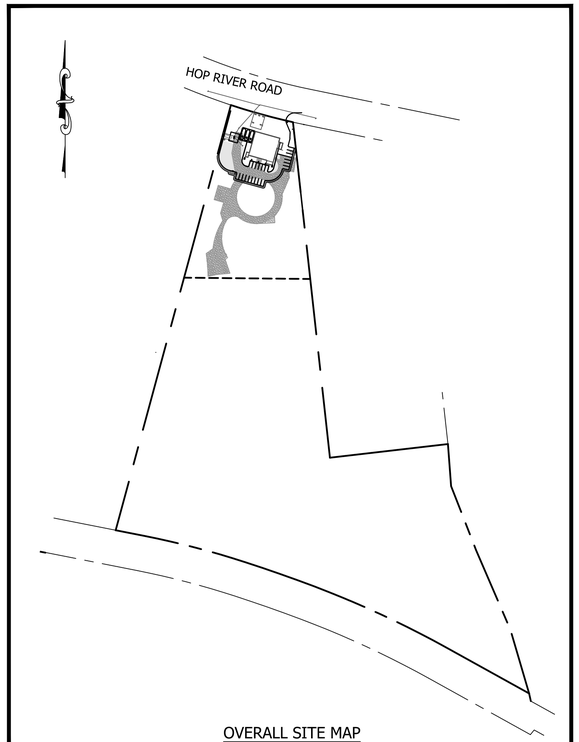
EXISTING IMPERVIOUS AREA
SCALE:1"=200'



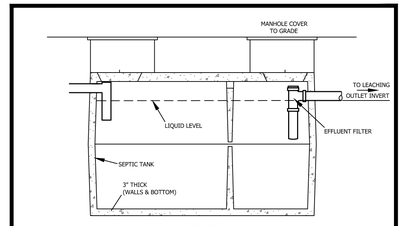
PROPOSED IMPERVIOUS AREA

	AREA
EXISTING PAVEMENT	10,820 SF
PROPOSED PAVEMENT	15,316 SF
PROPOSED MAIN BUILDING	5,024 SF
TOTAL IMPERVIOUS AREA	31,160 SF
SITE AREA	639,104 SF
IMPERVIOUS AREA / SITE AREA =	4.9%

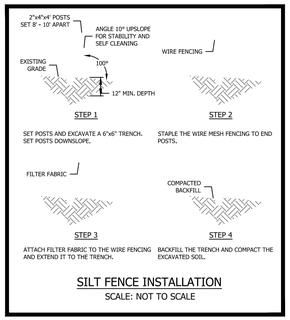
PROPOSED IMPERVIOUS AREA
SCALE:1"=200'



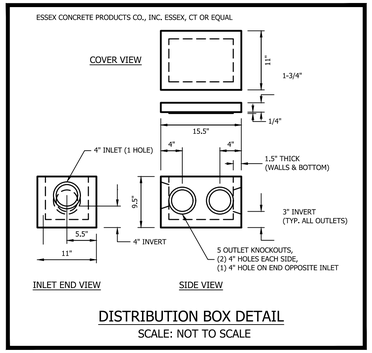
OVERALL SITE MAP
SCALE:1"=200'



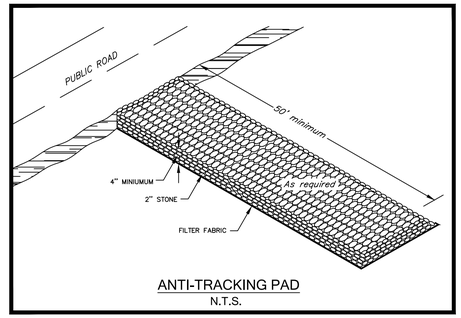
H-20 SEPTIC TANK DETAIL
SCALE: NOT TO SCALE



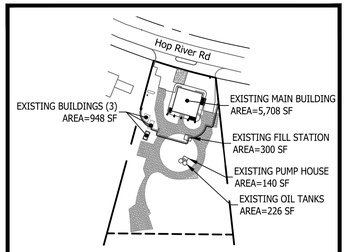
SILT FENCE INSTALLATION
SCALE: NOT TO SCALE



DISTRIBUTION BOX DETAIL
SCALE: NOT TO SCALE



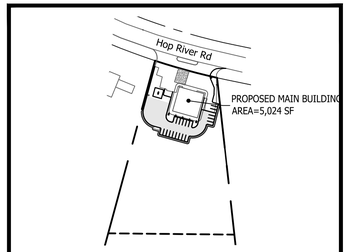
ANTI-TRACKING PAD
N.T.S.



EXISTING LOT COVERAGE

	AREA
EXISTING MAIN BUILDING	5,708 SF
EXISTING BUILDINGS (3)	948 SF
EXISTING FILL STATION	300 SF
EXISTING PUMP HOUSE	140 SF
EXISTING OIL TANKS	226 SF
TOTAL COVERAGE AREA	7,322 SF
SITE AREA	639,104 SF
LOT COVERAGE / SITE AREA =	1.1%

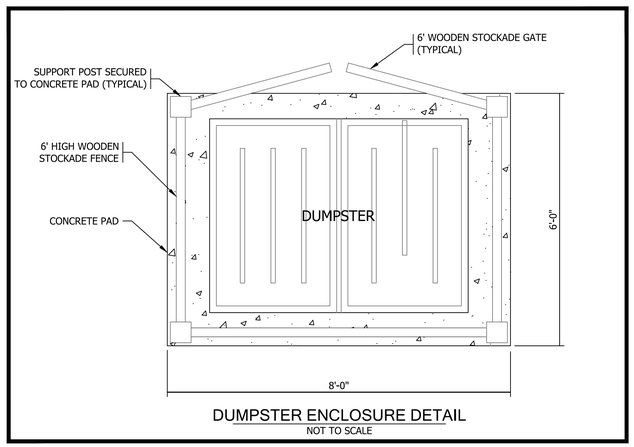
EXISTING LOT COVERAGE
SCALE:1"=200'



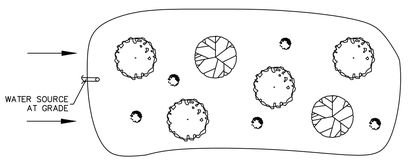
PROPOSED LOT COVERAGE

	AREA
PROPOSED MAIN BUILDING	5,024 SF
TOTAL COVERAGE AREA	5,024 SF
SITE AREA	639,104 SF
LOT COVERAGE / SITE AREA =	0.8%

PROPOSED LOT COVERAGE
SCALE:1"=200'

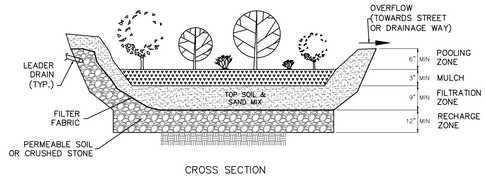


DUMPSTER ENCLOSURE DETAIL
NOT TO SCALE



PLAN VIEW

NOTE:
BEFORE PLANTING ADD LAYER OF POTTING SOIL AND FERTILIZER



CROSS SECTION

The first inch of rainfall from the leader drains is
1/12" x 5,024 SF = 418.67 CF

The proposed rain garden storage capability is
6/12" x 700 + 1' x 40% x 700 + 1' x 40% x 700 = 910 CF

Rain garden will contain the first inch of roof runoff

RAIN GARDEN DETAIL
NOT TO SCALE

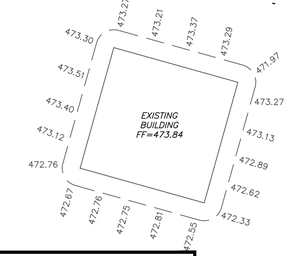
The following plants are acceptable in the proposed rain garden:

Trees
Red Maple, Acer rubrum
Shadblow, Amelanchier arborea
River Birch, Betula nigra
Gray Birch, Betula populifolia
Red-Panicled Dogwood, Cornus racemosa
White Ash, Fraxinus americana
Green Ash, Fraxinus pennsylvanica
Witchhazel, Hammamelis virginiana
Red Cedar, Juniperus virginiana
American Sweetgum, Liquidambar styraciflua
Tupelo, Nyssa sylvatica
American Hop Hornbeam, Ostrya virginiana
Swamp White Oak, Quercus bicolor
Pin Oak, Quercus palustris
Red Oak, Quercus rubra

Shrubs and Vines
Red Chokeberry, Aronia arbutifolia
Black Chokeberry, Aronia melanocarpa
Wild Clematis, Clematis virginiana
Sweet Pepperbush, Clethra alnifolia
Red Twig Dogwood, Cornus sericea
Black Huckleberry, Gaylussacia baccata
Inkberry, Ilex glabra
American Holly, Ilex opaca
Winterberry Holly, Ilex verticillata
Mountain-laurel, Kalmia latifolia
*Northern Spicebush, Lindera benzoin
Trumpet Honeysuckle, Lonicera sempervirens
Northern Bayberry, Myrica pensylvanica
Virginia Creeper, Parthenocissus quinquefolia
Rosebud Azalea, Rhododendron periclymenoides
*Great Rhododendron, Rhododendron maximum
Shining Sumac, Rhus copallinum
*Small Pussy-Willow, Salix humilis
Elderberry, Sambucus canadensis
American Arborvitae, Thuja occidentalis
Late Lowbush Blueberry, Vaccinium angustifolium
Highbush Blueberry, Vaccinium corymbosum
Witherod, Viburnum cassinoides
*Northern Arrowwood, Viburnum dentatum
Nannyberry, Viburnum lentago

Perennials and Herbaceous Plants
Northern Maidenhair Fern, Adiantum pedatum
*Jack-in-the-pulpit, Arisaema triphyllum
*Wild Columbine, Aquilegia canadensis
*Bushy Aster, Aster dumosus
*Heath Aster, Aster ericoides
New England Aster, Aster novae-angliae
Dwarf Cornel, Cornus Canadensis
Glade-fern, Deparia acrostichoides
Tufted Hair Grass, Deschampsia cespitosa
Carolina Lovegrass, Eragrostis pectinacea
*Sweet Joe-Pye Weed, Eupatorium purpureum
*Grass-leaved Goldenrod, Euthamia graminifolia and Euthamia tenuifolia
Wintergreen, Gaultheria procumbens
Interrupted Fern, Osmunda claytoniana
Switchgrass, Panicum virgatum
*Torrey's Mountain Mint, Pycnanthemum verticillatum
*Virginia Mountain Mint, Pycnanthemum virginianum
*Rough Goldenrod, Solidago rugosa
New York Fern, Thelypteris noveboracensis

SPOT GRADES	
473.27	472.55
473.21	472.81
473.37	472.79
473.29	472.76
471.97	472.67
473.27	472.76
473.13	473.12
472.89	473.40
472.62	473.51
472.33	473.30
TOTAL 9459.02	
9411.21 ÷ 20 =	472.95 AVG



BUILDING HEIGHT CALCULATION	
HIGHEST RIDGE ELEV.	491.20
AVERAGE EXISTING GRADE	472.95
AVG. - HIGHET RIDGE = PROP. BUILDING HEIGHT	18.25

BUILDING HEIGHT DETAIL
SCALE:1"=40'

NO.	DATE	REVISIONS

Gregg T. Fedus P.E.
CT. License No. 21231

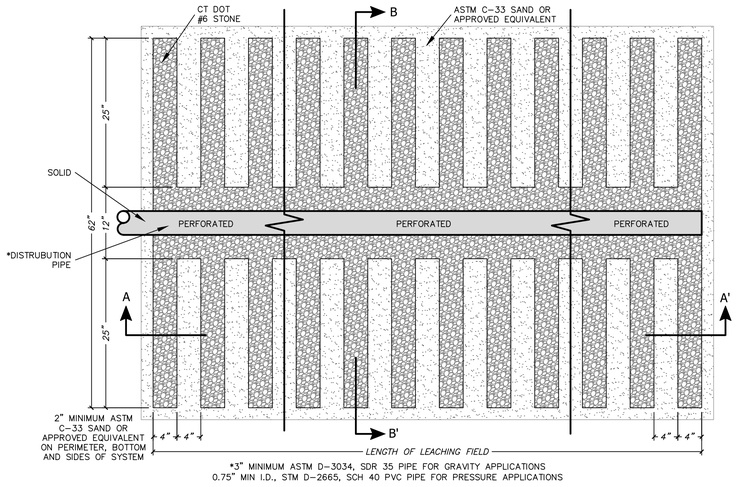
STATE OF CONNECTICUT
GREGG T. FEDUS
NO. 21231
LICENSED
PROFESSIONAL ENGINEER

Detail Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
Asif Choudrey
January 3, 2022

DRAWING SCALE: 1"=20' (0 10 20 40)

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

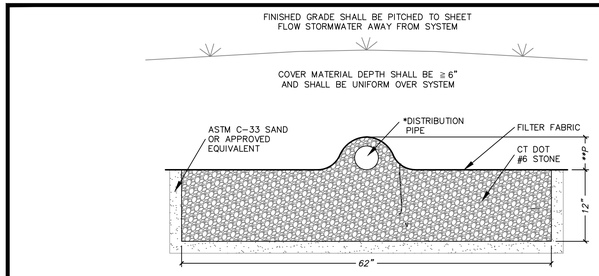
SHEET NO. 3 OF 4 | JOB NO. 21-000985 | DRAWN BY: CAC



*3" MINIMUM ASTM D-3034, SDR 35 PIPE FOR GRAVITY APPLICATIONS
0.75" MIN I.D., STM D-2665, SCH 40 PVC PIPE FOR PRESSURE APPLICATIONS

GeoMATRIX GST 6212 LEACHING TRENCH - PLAN VIEW

SCALE: 1"=1'



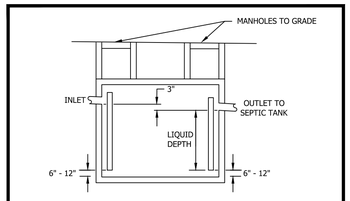
*3" MINIMUM ASTM D-3034, SDR 35 PIPE FOR GRAVITY APPLICATIONS
0.75" MIN I.D., STM D-2665, SCH 40 PVC PIPE FOR PRESSURE APPLICATIONS

**P = 2"-5.5"

2" MINIMUM ASTM C-33 SAND
OR APPROVED EQUIVALENT ON
PERIMETER, BOTTOM AND SIDES
OF SYSTEM

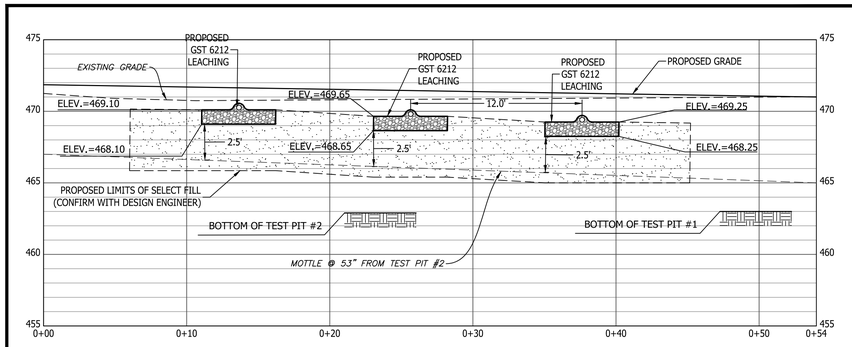
GeoMATRIX GST 6212 LEACHING TRENCH - CROSS-SECTION B-B

SCALE: 1"=1'



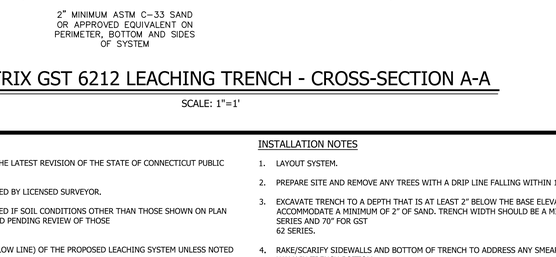
TYPICAL H-20 GREASE INTERCEPTOR TANK

NOT TO SCALE



SECTION A-A LEACHING SYSTEM CROSS SECTION (LOOKING NORTHEAST

SCALE: 1"=5'



2" MINIMUM ASTM C-33 SAND
OR APPROVED EQUIVALENT ON
PERIMETER, BOTTOM AND SIDES
OF SYSTEM

GeoMATRIX GST 6212 LEACHING TRENCH - CROSS-SECTION A-A

SCALE: 1"=1'

NOTES - SEPTIC SYSTEM

1. PROPOSED CONSTRUCTION TO CONFORM TO THE LATEST REVISION OF THE STATE OF CONNECTICUT PUBLIC HEALTH CODE.
2. ELEVATIONS BASED ON INFORMATION GATHERED BY LICENSED SURVEYOR.
3. ENGINEER AND SANITARIAN WILL BE CONTACTED IF SOIL CONDITIONS OTHER THAN THOSE SHOWN ON PLAN ARE ENCOUNTERED AND WORK WILL BE HALTED PENDING REVIEW OF THOSE CONDITIONS.
4. ELEVATIONS SHOWN REFER TO THE INVERT (FLOW LINE) OF THE PROPOSED LEACHING SYSTEM UNLESS NOTED OTHERWISE.
5. SEPTIC TANK CONSTRUCTION JOINTS SHALL BE SEALED WITH ASPHALT CEMENT. ALL PIPE CONNECTIONS TO THE SEPTIC TANK AND DISTRIBUTION BOXES SHALL BE SEALED WITH A POLYETHYLENE GASKET ("POLYLOK" OR APPROVED EQUAL).
6. SEPTIC TANK BAFFLES SHALL CONFORM TO TECHNICAL STANDARDS OF THE PUBLIC HEALTH CODE.
7. SEPTIC TANKS SHALL HAVE AN APPROVED NON-BYPASS EFFLUENT FILTER AT THE OUTLET.
8. SEPTIC TANK SHALL BE TWO COMPARTMENT TANK WITH HEAVY DUTY STEEL HANDLES FOR MANHOLE ACCESS COVERS AND GAS BAFFLES INSTALLED AT OUTLET PIPING. TANKS TO BE WATER TIGHT.
9. ALL PIPES DOWNSTREAM OF THE SEPTIC TANK SHALL BE 4" DIAMETER SCH 40 ASTM D1785 OR D2665. ALL PIPES UPSTREAM OF THE SEPTIC TANK SHALL BE 4" DIAMETER SCH 40 ASTM D1785 OR D2665.
10. NO DEVIATIONS FROM THE APPROVED DESIGN PLAN SHALL BE ALLOWED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND SANITARIAN.
11. EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO FIELD MODIFICATION AS REQUIRED BY THE DESIGN ENGINEER OR TOWN OFFICIALS TO INCREASE EROSION AND SEDIMENT CONTROL MEASURES.
12. ALL FILTER FABRIC SHALL BE 1.5 OZ./YD. (ASTM D-5261), PERMEABILITY OF 1.0 SEC. (ASTM D-4491) AND A TRAPEZOID TEAR OF 15 LBS. (ASTM D-4533) OR EQUAL.
13. ALL DISTURBED AREAS SHALL BE TOPSOILED AND TURF ESTABLISHED.
14. BASED ON AVAILABLE RECORDS AT THE TOWN OF EAST HADDAM HEALTH DEPARTMENT, NO SEPARATING DISTANCE CONFLICTS ARE PRESENT WITH WELLS, SEPTIC SYSTEMS AND HOUSES ON ADJACENT LOTS.
15. BUILDINGS HAVE NO GARBAGE GRINDERS, OR LARGE TUBS OVER 100 GALLONS.
16. NO FOOTING DRAINS SHALL BE INSTALLED WITHIN 25' OF PROPOSED SEPTIC SYSTEM.
17. LICENSED SURVEYOR TO STAKE SYSTEM. LICENSED SEPTIC INSTALLER TO DO SITE PREPARATION WORK. BENCH MARK TO BE SET IN FIELD.
18. NO WORK (OTHER THAN TREE CLEARING) SHALL COMMENCE IN THE SYSTEM AREA UNTIL A SEPTIC PERMIT HAS BEEN TAKEN OUT BY THE LICENSED INSTALLER.
19. STRIP INSPECTIONS SHALL BE DONE BY BOTH THE ENGINEER AND SANITARIAN.
20. TEN FOOT SEPARATION FROM WATER LINE TO SYSTEM TO BE VERIFIED IN FIELD.
21. SYSTEM AREA SHOULD BE RE-STRIPPED AND REFILLED PRIOR TO START OF CONSTRUCTION TO PREVENT HEAVY EQUIPMENT COMPACTION FROM DRIVEWAY.

INSTALLATION NOTES

1. LAYOUT SYSTEM.
2. PREPARE SITE AND REMOVE ANY TREES WITH A DRIP LINE FALLING WITHIN 10 FEET OF THE LEACHING SYSTEM.
3. EXCAVATE TRENCH TO A DEPTH THAT IS AT LEAST 2" BELOW THE BASE ELEVATION OF THE GST TO ACCOMMODATE A MINIMUM OF 2" OF SAND. TRENCH WIDTH SHOULD BE A MINIMUM OF 45" FOR THE GST 37 SERIES AND 70" FOR GST 62 SERIES.
4. RAKE/SCARIFY SIDEWALLS AND BOTTOM OF TRENCH TO ADDRESS ANY SMEARING OF FINES, AND THEN DO NOT WALK IN TRENCH BOTTOM.
5. PLACE A MINIMUM OF 2" OF ASTM C-33 SAND OR APPROVED EQUIVALENT (SAND) IN THE BOTTOM OF THE EXCAVATION TO SERVE AS BASE FOR GST, RAKE AND LEVEL AND UNIFORMLY COMPACT. IF A 2" LIFT OF SAND IS PRESENT SIMPLY WALKING ON IT SHOULD PROVIDE SUFFICIENT COMPACTION.
6. SET THE GST FORMS IN CENTER OF TRENCH.
7. PLACE COVERS OVER ENTIRE CENTER STONE CHANNEL AND ALTERNATING STONE FINGER COMPARTMENTS.
8. PLACE SAND INTO VOID SPACE BETWEEN TRENCH SIDEWALL AND GST FORM. ALSO FILL THE SAND FINGER VOIDS IN THE FORMS AND UNIFORMLY COMPACT.
9. REMOVE ALL COVERS FROM OVER ENTIRE CENTER STONE CHANNEL AND STONE FINGER COMPARTMENTS.
10. PLACE CLEAN CT DOT #6 (3/4") STONE INTO THE INTERIOR OF THE GST FORM.
11. PULL FIRST GST FORM AND "LEAP FROG" FORM AHEAD OF THE LAST GST FORM.
12. REPEAT SEQUENCE UNTIL DESIRED TRENCH LENGTH IS INSTALLED.
13. ENSURE THAT SAND AND BACKFILL MATERIALS ARE COMPACTED TO PREVENT SETTLEMENT.
14. INSTALL APPROVED DISTRIBUTION PIPING ON TOP OF THE 12" CENTRAL STONE CHANNEL.
15. PLACE STONE AROUND THE DISTRIBUTION PIPE.
16. PUT APPROVED FILTER FABRIC OVER THE SYSTEM.
17. BACKFILL SYSTEM TO ENSURE THAT UNIFORM COVER AND COMPACTION EXISTS OVER THE TOP OF THE SYSTEM (A MINIMUM OF 6" OF COVER IS REQUIRED). WHEN GST IS INSTALLED BELOW AREAS SUBJECT TO H-20 LOADING, SEE NOTE BELOW.
18. FINISH GRADE OVER THE SYSTEM SHOULD ENSURE THAT STORM WATER SHEET FLOW IS DIVERTED AWAY FROM THE LEACHING SYSTEM, TANK(S) AND PUMP TANK(S) IF PRESENT.
19. SEED AND HAY DISTURBED AREA. THE USE OF WOOD CHIPS AS COVER MATERIAL IS NOT RECOMMENDED.
20. MAINTAIN THE AREA TO PREVENT TREE ROOTS FROM IMPACTING THE SYSTEM.
21. PROPERLY SERVICE THE SEPTIC TANK EVERY 3-5 YEARS; OR AS ADVISED BY THE REGULATORY AGENCY OR YOUR SERVICE PROVIDER.

SELECT FILL SPECIFICATIONS:

SELECT FILL PLACED WITHIN AND ADJACENT TO LEACHING SYSTEM AREAS SHALL BE A CLEAN MATERIAL COMPRISED OF SAND, OR SAND AND GRAVEL, FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES. THE SELECT FILL SHALL MEET THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE APPROVED BY THE DESIGN ENGINEER. SELECT FILL EXCEEDING 6 PERCENT PASSING THE #200 SIEVE BASED ON A WET SIEVE TEST CANNOT BE APPROVED BY THE DESIGN ENGINEER.

1. THE SELECT FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THE THREE (3) INCH SIEVE.
2. UP TO 45% OF THE DRY WEIGHT OF THE REPRESENTATIVE SAMPLE MAY BE RETAINED (GRAVEL PORTION) ON THE #4 SIEVE.
3. THE MATERIAL THAT PASSES THE #4 SIEVE IS THEN REWEIGHED AND THE SIEVE ANALYSIS STARTED.
4. THE REMAINING SAMPLE SHALL MEET THE FOLLOWING GRADATION CRITERIA:

SIEVE SIZE	PERCENT PASSING WET SIEVE	DRY SIEVE
#4	100	100
#10	70 - 100	70 - 100
#40	10 - 50*	10 - 75
#100	0 - 20	0 - 5
#200	0 - 5	0 - 2.5

* PERCENT PASSING THE #40 SIEVE CAN BE INCREASED TO NO GREATER THAN 75 IF THE PERCENT PASSING THE #100 SIEVE DOES NOT EXCEED 10 AND THE #200 SIEVE DOES NOT EXCEED 5.

SELECT FILL THAT DOES NOT MEET THE DRY SIEVE GRADATION CRITERIA BUT MEETS THE WET SIEVE GRADATION CRITERIA IS ACCEPTABLE. SIEVE TESTING OF SELECT FILL IS REQUIRED FOR LARGE (2,000 GPD OR GREATER) SYSTEMS WHENEVER THE LEACHING SYSTEM IS LOCATED TOTALLY IN SELECT FILL. THE LOCAL DIRECTOR OF HEALTH MAY REQUIRE SIEVE TESTING OF SELECT FILL ON SMALL SSDSS IN ACCORDANCE WITH PHC SECTION 19-13-B103E (D) (6).

THE LICENSED INSTALLER IS RESPONSIBLE FOR PREPARING THE LEACHING AREA WITH NECESSARY SELECT FILL. TOPSOIL IN THE LEACHING SYSTEM AREA SHALL BE REMOVED AND THE SUBSOIL SCARIFIED PRIOR TO SELECT FILL PLACEMENT, UNLESS OTHERWISE DIRECTED BY THE DESIGN ENGINEER. THE INSTALLER SHALL TAKE THE NECESSARY STEPS TO PROTECT THE UNDERLYING RECEIVING SOIL FROM OVER COMPACTION/DAMAGE. THE INSTALLER IS RESPONSIBLE FOR PROPERLY COMPACTING SELECT FILL TO FACILITATE CONSTRUCTION AND TO PREVENT SETTLING. SELECT FILL SHALL EXTEND A MINIMUM OF 5 FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE LEACHING SYSTEM.

THE COMMISSIONER OF PUBLIC HEALTH SHALL APPROVE MANUFACTURED FILL. ROCK OR OTHER PRODUCT USED TO PRODUCE MANUFACTURED FILL SHALL HAVE A LOSS OF ABRASION OF NOT MORE THAN 50 PERCENT USING AASHTO METHOD T-96, AND WHEN TESTED FOR SOUNDNESS USING AASHTO METHOD T 104 NOT HAVE A LOSS OF MORE THAN 15 PERCENT AT THE END OF 5 CYCLES. SUPPLIERS OF MANUFACTURED FILL SHALL MAKE APPLICATION FOR APPROVAL TO THE COMMISSIONER OF PUBLIC HEALTH. DOCUMENTATION SHALL BE SUBMITTED ON THE MANUFACTURED FILL OPERATION AND PRODUCTION PROCESS. FILL SPECIFICATIONS (GRADATION, PERMEABILITY, ETC.) AND A NARRATIVE OF THE QUALITY CONTROL/QUALITY ASSURANCE PROGRAM SHALL ALSO BE INCLUDED FOR ALL ACTIVE PRODUCTION SITES. APPROVED MANUFACTURED FILL PRODUCERS SHALL PROVIDE ANNUAL PRODUCT REGISTRATIONS TO THE COMMISSIONER OF PUBLIC HEALTH BY JULY 1ST OF EACH YEAR.

"SELECT FILL" SHOULD BE PLACED ON THE EDGE OF THE SITE AND SPREAD OVER THE PREPARED AREA WITH A BULLDOZER. NO TRUCKS SHOULD RUN OVER THE FILL UNTIL 12 INCHES OF FILL HAS BEEN PLACED. THE REMAINDER OF THE FILL SHOULD BE PLACED IN LAYERS 8 TO 12 INCHES DEEP AND COMPACTED BY NORMAL BULLDOZING OR OTHER CONSTRUCTION EQUIPMENT. FILLING AND COMPACTION SHOULD BE DISCONTINUED DURING RAIN STORMS AND FOR 24 HOURS THEREAFTER. ALL FILL SHOULD BE PLACED AND COMPACTED BEFORE ANY OF THE LEACHING SYSTEM IS INSTALLED.

SYSTEM SITE PREPARATION

1. A MINIMUM OF 24 HOURS, BUT PREFERABLY 48 HOURS NOTICE SHALL BE GIVEN BY THE INSTALLER TO THE ENGINEER AND SANITARIAN BEFORE ANY STRIPPING IS DONE FOR THE SYSTEM.
2. THE LICENSED INSTALLER SHALL BE ON SITE DURING SYSTEM CONSTRUCTION WORK WILL BE STOPPED BY THE HEALTH DEPARTMENT IF THIS REQUIREMENT IS NOT COMPLIED WITH.
3. NO SYSTEM IS TO BE BACKFILLED UNTIL THE SANITARIAN HAS GIVEN THE OK. THE OK WILL NOT BE GIVEN UNTIL THE ENGINEER HAS PROVIDED WRITTEN OR VERBAL COMMUNICATION THAT THE SYSTEM IS INSTALLED IN COMPLIANCE WITH THE HEALTH CODE AND THEIR DESIGN, OR WITH ACCEPTABLE MODIFICATIONS.

NO.	DATE	REVISIONS

Gregg T. Fedus P.E.
CT. License No. 21231

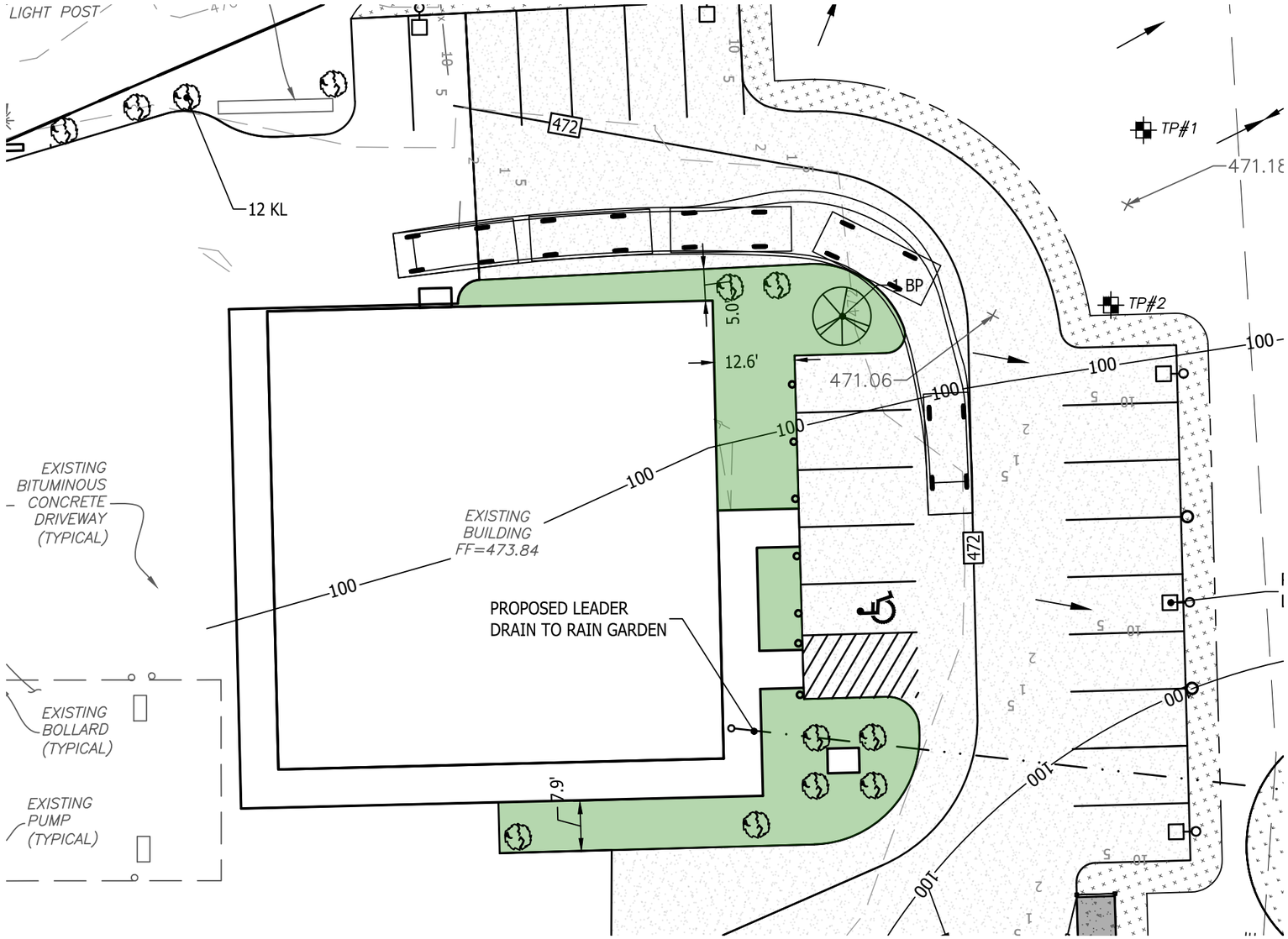
STATE OF CONNECTICUT · GREGG T. FEDUS · NO. 21231 · LICENSED PROFESSIONAL ENGINEER

Detail Sheet
of
271 Hop River Road
Bolton, Connecticut
Prepared For:
Asif Choudrey
January 3, 2022

DRAWING SCALE: 1"=20' (0 10 20 40)

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
Mailing Address: 70 Essex Street Mystic, Connecticut 06355
Office: (860) 536-7390 Fax: (860) 536-1644

SHEET NO.	JOB NO.	DRAWN BY:
4 OF 4	21-000985	CAC


LIGHT POST
12 KL
472
TP#1
471.18
BP
TP#2
5.0'
12.6'
471.06
100
EXISTING
BUILDING
FF=473.84
PROPOSED LEADER
DRAIN TO RAIN GARDEN
7.9'
EXISTING
BITUMINOUS
CONCRETE
DRIVEWAY
(TYPICAL)
EXISTING
BOLLARD
(TYPICAL)
EXISTING
PUMP
(TYPICAL)

HOP RIVER ROAD (ROUTE

FOUND

EXISTING LIGHT POST

EXISTING BILLBOARD

IRON PIN (NOT FOUND)

12 KL

TP#1

471.18

TP#2

1 BP

5.0'

12.6'

471.06

L=180.00
R=1812.94
CL=179.93
CH=S74° 34' 46"E
Δ=5°41'20"

EXISTING BITUMINOUS CONCRETE DRIVEWAY (TYPICAL)

EXISTING BUILDING FF=473.84

PROPOSED LEADER DRAIN TO RAIN GARDEN

EXISTING CONCRETE SLAB

EXISTING CANOPY (32'x40')

EXISTING MAILBOX

EXISTING BOLLARD (TYPICAL)

EXISTING PUMP (TYPICAL)

EXISTING UTILITY POLE (TYPICAL)

7.9'

MG-40 - Intermediate Semi-Trailer

471.07

GB ZONE

ZONE I

EXISTIN SHED

L=180.00
R=1812.94
CL=179.93
CH=S74° 34' 46"E

FEDUS ENGINEERING, LLC
CIVIL ENGINEERS
70 Essex Street, Unit 2C, Mystic, CT 06355

4/28/2022

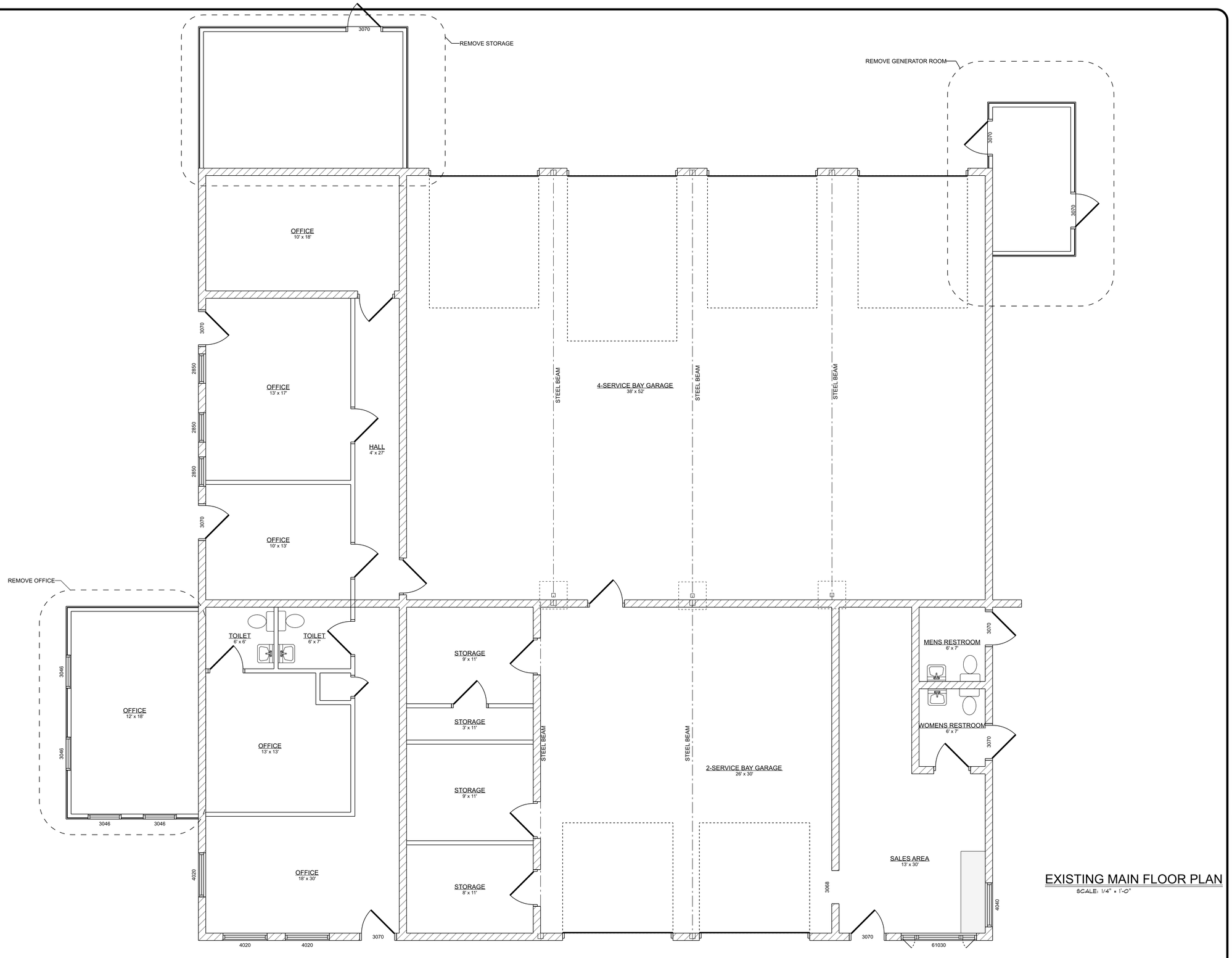
271 Hop River Rd
271 Hop River Rd
Bolton, Connecticut

Public Improvements - Estimate for Bonding

NO.	ITEM DESCRIPTION	QTY.	UNIT	UNIT COST	EXTENDED COST	% WORK COMPLETED	% WORK REMAINING	REMAINING COST
1	Clearing & Grubbing	1	LS	$1,500.00	$1,500.00	0%	100%	$1,500.00
2	Earth Excavation	0	PER CY	$5.00	$0.00	0%	100%	$0.00
3	Rock Excavation	0	PER CY	$50.00	$0.00	0%	100%	$0.00
4	Channel Excavation - Earth	0	PER CY	$25.00	$0.00	0%	100%	$0.00
5	Channel Excavation - Rock	0	PER CY	$50.00	$0.00	0%	100%	$0.00
6	Unsuitable Material Excavation	0	PER CY	$30.00	$0.00	0%	100%	$0.00
7	Cut Bituminous Pavement	0	PER LF	$20.00	$0.00	0%	100%	$0.00
8	Trench Excavation 0-4' Deep	0	PER CY	$8.00	$0.00	0%	100%	$0.00
9	Rock in Trench Excavation - 0-4' Deep	0	PER CY	$50.00	$0.00	0%	100%	$0.00
10	Trench Excavation 0-10' Deep	2	PER CY	$16.00	$32.00	0%	100%	$32.00
11	Rock in Trench Excavation - 0-10' Deep	0	PER CY	$50.00	$0.00	0%	100%	$0.00
12	Borrow	0	PER CY	$20.00	$0.00	0%	100%	$0.00
13	Formation of Subgrade	0	PER SY	$6.00	$0.00	0%	100%	$0.00
14	Water Pollution Control	1	LS	$150,000.00	$150,000.00	0%	100%	$150,000.00
15	Retention/Detention Basin	1	LS	$45,000.00	$45,000.00	0%	100%	$45,000.00
16	Bank Run Gravel Subbase	0	PER CY	$35.00	$0.00	0%	100%	$0.00
17	Processed Gravel Base	0	PER CY	$40.00	$0.00	0%	100%	$0.00
18	General Fill	0	PER CY	$50.00	$0.00	0%	100%	$0.00
19	Bituminous Concrete Class I	263	Ton	$170.00	$44,710.00	0%	100%	$44,710.00
20	Bituminous Concrete Class II	198	Ton	$170.00	$33,660.00	0%	100%	$33,660.00
21	Tack Coat Material	0	Gallon	$100.00	$0.00	0%	100%	$0.00
22	Type "C" Catch Basin	0	EACH	$3,000.00	$0.00	0%	100%	$0.00
23	Type "C" Catch Basin Over 10'	0	EACH	$3,000.00	$0.00	0%	100%	$0.00
24	Type "C" Catch Basin Double	0	EACH	$4,500.00	$0.00	0%	100%	$0.00
25	Type "C-L" Catch Basin	0	EACH	$3,000.00	$0.00	0%	100%	$0.00
26	Type "C-L" Catch Basin Over 10'	0	EACH	$3,000.00	$0.00	0%	100%	$0.00
27	Type "C-L" Catch Basin Double	0	EACH	$4,500.00	$0.00	0%	100%	$0.00
28	Manhole	0	EACH	$3,000.00	$0.00	0%	100%	$0.00
29	Manhole Over 10' Deep	0	EACH	$4,500.00	$0.00	0%	100%	$0.00
30	Lawn Drain	1	EACH	$35.00	$35.00	0%	100%	$35.00
31	15" Storm Drain Pipe	0	PER LF	$35.00	$0.00	0%	100%	$0.00
32	18" Storm Drain Pipe	0	PER LF	$45.00	$0.00	0%	100%	$0.00
33	24" Storm Drain Pipe	0	PER LF	$55.00	$0.00	0%	100%	$0.00
34	30" Storm Drain Pipe	0	PER LF	$65.00	$0.00	0%	100%	$0.00
35	15" Culvert End	0	EACH	$500.00	$0.00	0%	100%	$0.00
36	18" Culvert End	0	EACH	$600.00	$0.00	0%	100%	$0.00
37	24" Culvert End	0	EACH	$35.00	$0.00	0%	100%	$0.00
38	30" Culvert End	0	EACH	$35.00	$0.00	0%	100%	$0.00
39	Modified Riprap	0	PER CY	$75.00	$0.00	0%	100%	$0.00
40	Intermediate Riprap	0	PER CY	$95.00	$0.00	0%	100%	$0.00
41	Standard Riprap	0	PER CY	$105.00	$0.00	0%	100%	$0.00
42	6" Pavement Underdrain	0	PER LF	$25.00	$0.00	0%	100%	$0.00
43	Concrete Headwall	0	EACH	$1,500.00	$0.00	0%	100%	$0.00
44	Paved Channel/Ditch	0	PER SY	$25.00	$0.00	0%	100%	$0.00
45	6" Bituminous Concrete Curb	200	PER LF	$7.00	$1,400.00	0%	100%	$1,400.00
46	Metal Beam Rail	0	PER LF	$35.00	$0.00	0%	100%	$0.00
47	Concrete Sidewalk	0	PER SF	$12.00	$0.00	0%	100%	$0.00
48	Bituminous Concrete Driveway	3,805	PER SF	$4.00	$15,220.00	0%	100%	$15,220.00
49	Object Marker	0	EACH	$50.00	$0.00	0%	100%	$0.00
50	Water for Dust Control	5,000	Gallon	$0.50	$2,500.00	0%	100%	$2,500.00
51	Calcium Chloride for Dust Control	10	Ton	$200.00	$2,000.00	0%	100%	$2,000.00
52	Sweeping for Dust Control	40	HOUR	$60.00	$2,400.00	0%	100%	$2,400.00
53	Furnishing and Placing Topsoil	3,500	PER SY	$4.00	$14,000.00	0%	100%	$14,000.00

54	Liming	0	PER SY	$0.50	$0.00	0%	100%	$0.00
55	Erosion Control Fabric/Matting	0	PER SY	$12.00	$0.00	0%	100%	$0.00
56	Turf Establishment	3,500	PER SY	$1.00	$3,500.00	0%	100%	$3,500.00
57	Temporary Turf Establishment	0	PER SY	$35.00	$0.00	0%	100%	$0.00
58	Maintenance and Protection of Traffic	1	LS	$2,500.00	$2,500.00	0%	100%	$2,500.00
59	Construction Staking	1	LS	$5,000.00	$5,000.00	0%	100%	$5,000.00
60	Stop Sign and Post	1	EACH	$400.00	$400.00	0%	100%	$400.00
61	Road Sign and Post	1	EACH	$600.00	$600.00	0%	100%	$600.00
62	Speed Limit Sign and Post	0	EACH	$400.00	$0.00	0%	100%	$0.00
63	4" Line Striping - White or Yellow	400	PER LF	$2.50	$1,000.00	0%	100%	$1,000.00
64	Monuments and Pins	27	EACH	$120.00	$3,240.00	0%	100%	$3,240.00
65	As-Built Plans	1	LS	$3,500.00	$3,500.00	0%	100%	$3,500.00
66	Underground Utilities	300	PER LF	$35.00	$10,500.00	0%	100%	$10,500.00
67	1/4" Gauge Chain & Bolt for CB	0	EACH	$150.00	$0.00	0%	100%	$0.00
68	Clean Sediment from Catch Basin	0	EACH	$200.00	$0.00	0%	100%	$0.00

TOTAL BOND REQUIRED **$342,697.00**



EXISTING MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"

DO NOT SCALE

CONTRACTOR TO VERIFY ALL DIMENSIONS

THESE PLANS HAVE BEEN PREPARED TO MEET TOP PROFESSIONAL STANDARDS AND PRACTICES HOWEVER,BUILDING CODE REQUIREMENTS VARY WITH LOCATION AND CHANGE TIME TO TIME
BEFORE STARTING CONSTRUCTION THE CONTRACTOR SHOULD CHECK AND BE RESPONSIBLE
FOR ANY DIMENSIONS AND OTHER DETAILS, AND SHOULD REVIEW THE PLANS TO
INSURE THEY MEET CURRENT REQUIREMENTS

REVISIONS

NO.	DATE	BY	DESCRIPTION

PHASE;

CONCEPT SET

PROJECT DETAILS

ADDITIONS AND ALTERATIONS TO THE EXISTING BUILDING
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

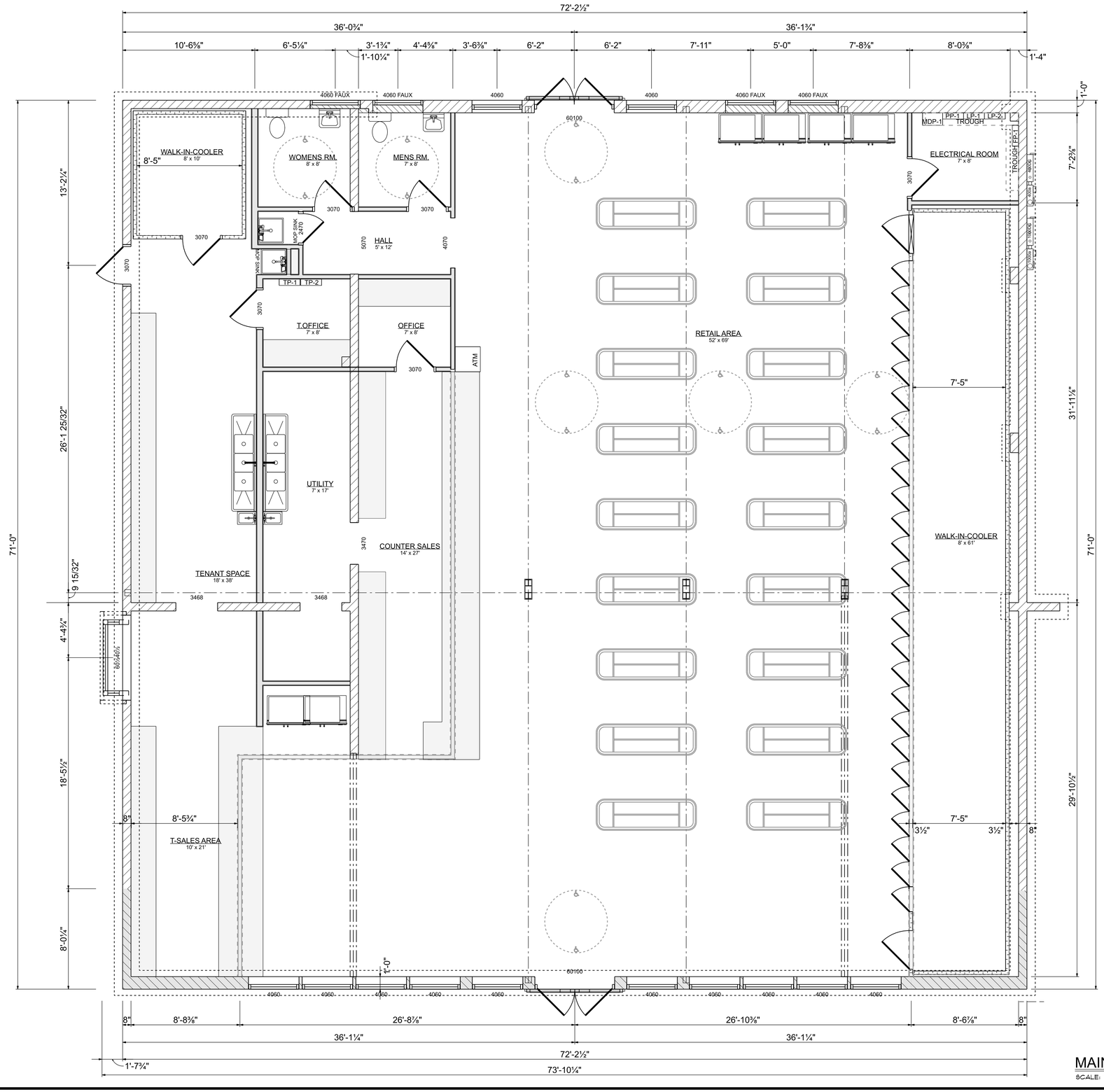
PREPARED FOR:

ASIF CHOUDHRY
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
NATIONAL-N.C. T-5-B-M-U-NS
BW-CS-271-HOP RVR-RD-BLTN.-CT

DESIGN # 06043-2877181-1	
CODE REF: 2018 IBC	
DRAWN BY WWC	
DESIGN DATE 06-15-21	PAGE AB1

W.W. CRAVEN & SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388



MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"

DO NOT SCALE

CONTRACTOR TO VERIFY ALL DIMENSIONS

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REVISIONS

NO.	DATE	BY	DESCRIPTION

PHASE;

CONCEPT SET

PROJECT DETAILS

ADDITIONS AND ALTERATIONS TO THE EXISTING BUILDING
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

PREPARED FOR:

IMF PETROLEUM LLC
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
NATIONAL-N.C. T-5-B-M-U-NS
BW-CS-271-HOP RVR-RD-BLTN.-CT

DESIGN # 06043-2877181-1

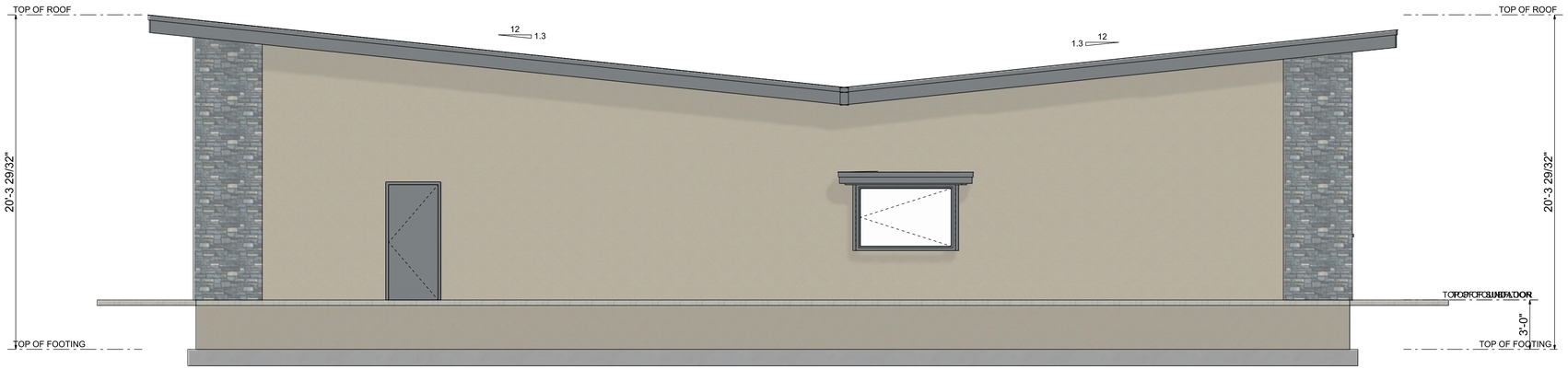
CODE REF: 2018 IBC

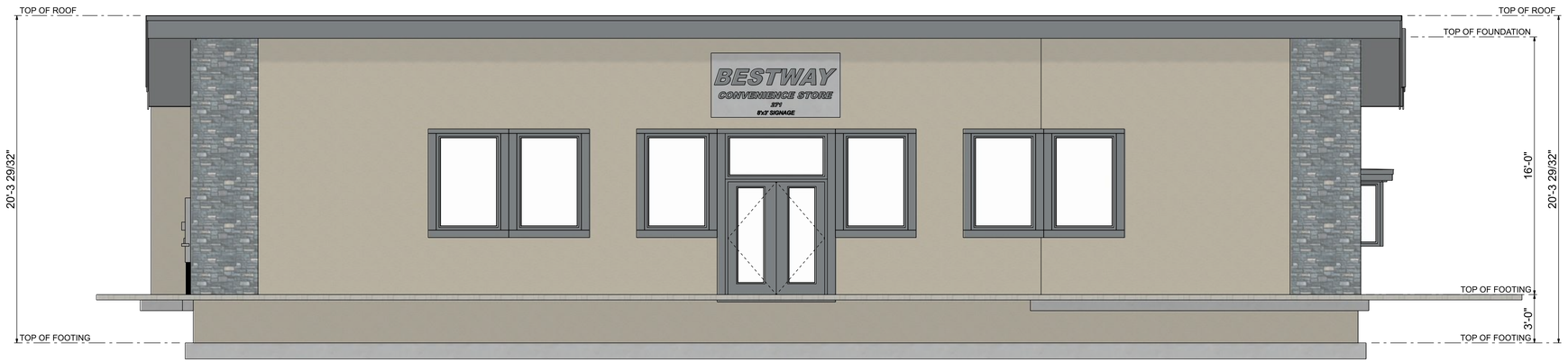
DRAWN BY WWC

DESIGN DATE 06-15-21

PAGE A1

W.W. CRAVEN & SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388





DO NOT SCALE

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THESE PLANS HAVE BEEN PREPARED TO MEET TOP PROFESSIONAL STANDARDS AND PRACTICES HOWEVER,BUILDING CODE REQUIREMENTS VARY WITH LOCATION AND CHANGE TIME TO TIME
BEFORE STARTING CONSTRUCTION THE CONTRACTOR SHOULD CHECK AND BE RESPONSIBLE
FOR ANY DIMENSIONS AND OTHER DETAILS, AND SHOULD REVIEW THE PLANS TO INSURE THEY MEET CURRENT REQUIREMENTS

REVISIONS

NO.	DATE	BY	DESCRIPTION

PHASE;

CONCEPT SET

PROJECT DETAILS

ADDITIONS AND ALTERATIONS TO THE EXISTING BUILDING
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

PREPARED FOR:

IMF PETROLEUM LLC
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
NATIONAL-N.C. T-5-B-M-U-NS
BW-CS-271-HOP RVR-RD-BLTN.-CT

DESIGN # 06043-2877181-1

CODE REF: 2018 IBC

DRAWN BY WWC

DESIGN DATE 06-15-21

PAGE A2

W.W. CRAVEN & SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388

Town of Bolton
222 Bolton Center Road • Bolton, CT 06043

Date: February 24, 2022 – *Revised April 13, 2022*

To: Planning & Zoning Commission
From: Patrice L. Carson, AICP, Consulting Director of Community Development

Subject: Nathaniel Fleming's Special Permit Application at 271 Hop River Road for Gas Station/Convenience Store

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INFORMATION
Application No.: VP#PL-22-2
Application Date: February 3, 2022
Receipt Date: February 9, 2022
Wetlands Permit Effective: October 26, 2021
Wetlands Permit Expires: October 25, 2023
Public Notification: Published in ***Hartford Courant*** February 18, 2022 & February 25, 2022
Public Hearing Date(s): March 2, 2022 – *opening hearing delayed until April 13, 2022*
Applicant(s): Nathaniel Fleming
Owner(s): IMS Petroleum, LLC

Applicant Nathaniel Fleming, Fedus Engineering, of 70 Essex Street, Mystic, CT, is seeking a Special Permit approval to convert an existing auto repair shop into a convenience store and gas fueling operation, cleaning and removing existing debris on the front portion of a 14.6 acre lot at 271 Hop River Road. The application proposes a new septic system, new underground fuel tanks and existing fuel tanks to be removed, new parking areas and driveway, and two canopies over fuel pumps, as well as renovations to the existing building. The current driveway access/egress will not change.

Located on the south side of Hop River Road (Route 6) just west of Stony Road, the property sits in two zones: the front 300 feet is zoned GB and the remainder of the property (in the rear) is zoned I. The surrounding properties are also zoned in the same fashion. Non-residential uses and vacant land surround the property. The property also abuts the very well-used multi-use Hop River Trail to the rear. A fueling station has already existed on this property.

There are wetlands on the property. The Inland Wetlands Agency has reviewed a permit for the project and has issued its decision and permit approval.

As stated, the site backs up to the multi-use Hop River Rail Trail. The proximity would lend itself to trail users (walkers and bikers) coming to the convenience store for drinks and snacks, and the gas station possibly air for bicycle tires. From a planning and connectivity perspective, we would like the applicant to address this possible connection. – *Not addressed*

The use and proposal is a logical reuse of the site in an area zoned for this type of use. The removal of debris and junk stored on the property will help to clean up the site both visually and environmentally and should be a condition of any approval. It appears that all buildings, pumps, underground storage tanks and outdoor spaces will be updated and new, although no architectural plans, building plans or elevations have been submitted. Although there is lighting shown on the plan, a photometric lighting plan needs to be submitted showing the fixtures to be used and no spillover of light from the site onto adjacent properties. Proposed parking and dumpster location/treatment appears adequate and in accordance with the Zoning Regulations. The plan does not seem to show a charging station for electric vehicles – is an EV station proposed?

Notification was made to the applicant but the applicant did not make abutter notifications in time to meet the Zoning Regulation requirements so the Commission will need to postpone opening the public hearing to a later date so the requirements are met. An affidavit about when the sign was posted in accordance with the Zoning Regulations and State Statutes also needs to be submitted. Please see below for individual staff comments. As the plans are revised, there may be additional staff comments that the applicant will need to address.

REPORTS RECEIVED

- Site Plan Checklist – completed
- 02/10/22 review email from Barbara Kelly, Inland Wetlands Agent with comments
- 02/07/22 Public Health Code review email from Thad Kind, EHHD with comments
- 02/16/22 review letter from Joseph Dillon, PE with 8 issues to address
- 02/22/22 review email from Bruce Dixon, Fire Chief with comments

ADDITIONAL INFORMATION RECEIVED

- Site Development Plan & Details (unknown accuracy, various dates and revisions – 4 sheets)
- A-2 and Class D Survey of Site April 26, 2021 (2 pages)
- Abutter List
- Engineering & Legal Review Fee of $2,000

ADDITIONAL CONSIDERATION OF INFORMATION TO RECEIVE

- Architectural Floor Plans & Elevations – *submitted, Commission needs to review*
- Landscaping Plan – *submitted, see staff analysis for comments*
- Lighting Plan – *need additional information*
- Drainage Plan – *submitted, town engineer approved*
- E&S Bond Estimate – *submitted, needs review and approval from the town engineer*
- Site Development Bond Estimate – *not submitted*
- Warranty Deed - *submitted*
- Any requested waivers allowable under the Zoning Regulations – *Waiver requested of Section 15D of the Zoning Regulations requiring asphalt or bituminous paved parking spaces. The PZC has waived this before and staff has no issue.*

STAFF ANALYSIS

The use fits the zone of the property and is a good reuse of the site. There are reports and information still needed for the staff to recommend a decision on this application.

- The town of Bolton shall be cc'd on copies of any referrals to CTDOT. – *Applicant states that DOT was cc'd on submission to the town. This comment is also referring to any separate application/paperwork submitted to DOT.*
- Intended signage, including directional signage, should be submitted including location of that signage.
- A Lighting Detail (fixtures & cut sheets) and Isometric map/lighting plan in accordance with the Town Engineer's comment #4 needs to be submitted for the site indicating proposed new and existing lighting. - *A photometric plan has not been provided. There are some orbs shown around the light fixtures, but an isodiagram needs to be submitted. Also, the applicant needs to clarify if there are any wall packs planned to be on the building.*
- A Landscaping Plan in accordance with the Town Engineer's comment #3 needs to be submitted. - *The planting areas surrounding the curbing in the parking areas don't seem like a great solution in that staff suspects they will not survive snow removal. Some landscaping in the front island should be included or at least have it grassed.*
- *There appears to be a sidewalk around the building with landscaping in the sidewalk. Applicant needs to clarify why the plantings appear to be in the sidewalk around the building.*
- Section 16A.3.x. – Buildings and Structures: Architectural and Design Requirements & Section 16B.4.l. – Architectural Character, Historic Preservation, Site Design. The Commission needs to determine if the design of the proposed building renovation is adequate to meet these standards. Building architectural plans and elevations need to be submitted. – *submitted, Commission needs to review and approve*
- *The rear of the building is going to be heavily used since the majority of the parking spaces will be located behind the building. The rear elevation should be improved as it will need to be a public entrance. Staff recommends adding a double rear-entry door to match the front elevation and faux windows.*
- The applicant needs to provide an affidavit for the posting of a sign. - *submitted*
- Addressing additional comments outlined in Staff Reports attached with this report.
- *Provide a turning radius template for traveling throughout the parking area to ensure that anticipated delivery trucks can successfully navigate the lot.*
- *There is a billboard on the northeast corner of the property on Route 6 – will this be taken down?*
- *The applicant has not addressed providing a possible connection/trail/path from the convenience store to the Hop River Trail which directly abuts the rear of 271 Hop River Road.*
- *Although the applicant has answered comments from the Health Department, the Health Department review is not complete. If the Commission approves the plan, they should include the items in the Health Department letter of February 4, 2022 and subject to final review and approval by EHHD. The applicant will also need their Phase 1A well site approval.*

STAFF RECOMMENDATION

The staff has determined that:

- the use is compatible with other uses in the neighborhood, and is in keeping with the zone in which it is located.

- the Commission needs to wait for its meeting in April to open the public hearing to allow the required amount of time to notify abutters in accordance with the Zoning Regulations. This will also give the applicant time to submit items still needed and address any concerns.

At this time, Staff recommends placing this application on the next regularly scheduled PZC meeting of April 13 for the public hearing to begin. This is within the 65-day time period to begin the public hearing so no extension is needed.

From: Thad D. King [mailto:KingTD@ehhd.org]
Sent: Monday, February 07, 2022 3:54 PM
To: Carson, Patrice <pcarson@boltonct.org>
Subject: RE: Staff Review Requested: Special Permit Application for Gas Station/Convenience Store, 271 Hop River Road, Nathan Fleming (VP#PL-22-2)

The septic plan review is attached. Revisions are required with additional soil testing observations for groundwater conditions. The system required design flow is 540 GPD but the proposed design flow is 1200 GPD.

The CTDPH phase I application must be approved for the septic plan to be approved.

EHHD will need additional information on the food service operation for licensing classification but that will not affect site plan approval.

Thad King MPH REHS
Eastern Highlands Health District
4 South Eagleville Rd
Mansfield CT 06268
860 429 3325 W
860 208 9940 C

EHHD
Eastern Highlands Health District

4 South Eagleville Road Phone: (860) 429-3325 Fax: (860) 429-3321 Web: www.EEHD.org

Eastern Highlands Health District

Revisions Required

February 4, 2022

Nathaniel Fleming 70
ESSEX STREET
Mystic CT 06355

RE: Septic Plan Review, Surveyor or Engineered for 271 HOP RIVER RD. Reference #SPR-22-19

Dear Nathaniel Fleming:

The above referenced Project has been reviewed for compliance with the Connecticut Public Health Code and Technical Standards.

Additional Information is Required:

1. The MLSS calculation requires a perc test in the naturally occurring soil, at TP2 its 39-53 inches.
2. Provide clear existing contour lines over the leaching area or spot elevations.
3. The leaching row elevations on sheet 2 are inconsistent with the cross section detail on sheet 4, mislabeled.
4. Indicate cleanouts in sewer lines, change of directions > 45 degrees.
5. Provide Geomatrix detail sheet for GST H20 loading.
6. Consider a level distribution system for uniform distribution.
7. Select fill placement is proposed to the mottling elevation. Observations for groundwater were made in August. Placing select fill to the groundwater level made create a conduit for vertical movement of ground water. Check groundwater conditions prior to construction.

If you have any questions, please contact me. Sincerely,

Thad King, MPH, REHS RS 860-429-3325(Mansfield) 860-649-8066 x6108 (Bolton)

kingtd@ehhd.org

Preventing Illness & Promoting Wellness for Communities In Eastern Connecticut

*Andover * Ashford * Bolton * Chaplin * Columbia * Coventry * Mansfield * Scotland * Tolland * Willington*

Jacobson

February 16, 2022

Ms. Patrice Carson, AICP
Director of Community Development
Town Office Building
222 Bolton Center Road
Bolton, CT 06043

Re: IMS Petroleum, LLC
271 Hop River Road
Site Plan Review
NLJA #0968-0051

Dear Ms. Carson:

As requested, we have reviewed the following information received for the subject project at our office through February 8, 2022:

Item 1: Set of four (4) drawings titled "271 Hop River Road, Bolton, Connecticut prepared for IMS Petroleum, LLC", scales as noted, dated January 3, 2022, last revised 2/2/22, prepared by Fedus Engineering, LLC.

Item 2: Set of two (2) drawings titled "Property Survey Map Depicting Existing Conditions of 271 Hop River Road, Bolton, Connecticut", dated April 26, 2021, prepared by Fedus Engineering, LLC.

Item 3: Letter from David O. Cook of Geoscience Technical Services, Inc. to Town of Bolton dated February 2, 2022.

Item 4: State of Connecticut Department of Public Health & Department of Public Utility Control Application for a Non-Community Certificate of Public Convenience and Necessity (CPCN) signed and dated January 20, 2022.

We have the following comments:

1. Referral should be made to the Connecticut Department of Transportation (CTDOT) for work occurring within the CTDOT right-of-way.

2. Section 15D. of the Bolton Zoning Regulations states "All parking areas consisting of greater than five spaces shall be provided with an asphalt or bituminous paved, all-weather surface or other dust free, structurally suitable, stable material as approved by the Commission and suitable sub-base throughout their entirety." The regulations also states "Notwithstanding the above, the Commission may waive certain requirements of this section as appropriate to implement the Low Impact Development requirements of Section 16A.2.1 Stormwater Management, and the flexible design standards set down in Section 15.P, Waivers and Exceptions." The application should state whether it intends to request a waiver from this regulation.

Nathan L. Jacobson & Associates, Inc.
Nathan L. Jacobson & Associates, P.C. (NY)
86 Main Street P.O. Box 337 Chester, Connecticut 06412-0337
Tel 860.526.9591 Fax 860.526.5416
Consulting Civil and Environmental Engineers Since 1972

3. A Landscaping Plan in accordance with Section 16A.3.q of the Town of Bolton Zoning Regulations should be provided.

4. A Lighting Plan in accordance with Section 16A.3.j of the Town of Bolton Zoning Regulations should be provided.

5. Sizing calculations should be provided for the proposed stormwater management features. The calculations should address water quality volume as well as mitigation of runoff with respect to the proposed increase in impervious surfaces.

6. A standard detail for the proposed grass filter strip should be provided.

7. Labels for the existing contours elevations should be provided.

8. The site plan proposes 22 parking spaces. A minimum of one van-accessible parking space should be provided.

Should you have any questions, please feel free to contact our office.

Very truly yours,

NATHAN L. JACOBSON & ASSOCIATES, INC.

Joseph M. Dillon, P.E.

JMD:jmd

cc: James Rupert
Barbara
Kelly File

From: Kelly, Barbara
Sent: Thursday, February 10, 2022 10:51 AM
To: Carson, Patrice <pcarson@boltonct.org>
Subject: RE: Staff Review Requested: Special Permit Application for Gas Station/Convenience Store, 271 Hop River Road, Nathan Fleming (VP#PL-22-2)

Hi Patrice,

The Inland Wetlands Commission granted a permit for the 271 Hop River Road site work at its October 2021 meeting. A link to ViewPoint #C-21-9 follows. The attachments include the permit that was issued and the site plan that was approved.
https://boltonct.viewpointcloud.io/#/explore/records/7944/attachment/18262

If the proposed changes in use require further site plan changes, Inland Wetlands should be contacted.

Take care,
BK
Barbara Kelly, Agent
Inland Wetlands Commission
Town of Bolton
860.649.8066, x6113

Town of Bolton
222 Bolton Center Road • Bolton, CT 06043

INLAND WETLANDS COMMISSION OF THE TOWN OF BOLTON
INLAND WETLANDS PERMIT # 2021-9 (C-21-9)

Name and Address of Applicant:
Nathaniel Fleming 70
Essex Street
Mystic, CT 06355

Property to which this permit applies:
271 Hop River Road
Bolton, CT 06043

This authorization refers to an application to conduct a regulated activity in or within 100 feet of inland wetlands and/or watercourses in the Town of Bolton.

The permitted activities, within the wetlands and the upland review area, are:

- Removal of portions of the existing building and site renovations;
- Installation of new leaching field;
- Construction of rain gardens and a filter strip;
- Removal of debris and any associated contamination; and
- Grading, including excavation and filling, associated with the construction noted above.

The Bolton Inland Wetlands Commission, as the Inland Wetlands and Watercourses Agency of the Town of Bolton, following investigation, and after reviewing the full record, has considered the application with due regard for the criteria found in the Inland Wetland Regulations of the Town of Bolton. The agency believes that the proposed activity, subject to the specified conditions, conforms with the purpose of Town regulations and does not violate any of its provisions or regulations governing wetlands and/or watercourses. Therefore, this authorization will constitute the permit required pursuant to Section 11.1 of the Inland Wetland Regulations of the Town of Bolton.

This permit is issued with the following specific conditions and/or modifications and with the attached general conditions:

1. Work shall be done in accordance with the plan titled "Site Plan of 271 Hop River Road, Bolton, Connecticut" prepared by Fedus Engineering, LLC and revised 9/27/2021.
2. Site remediation shall be done under the direction of a Connecticut Licensed Environmental Professional (LEP). Communication shall be maintained with town staff as work progresses. Appropriate soil erosion and sediment control measures shall be utilized in disturbed areas.
3. Soil erosion and sediment control measures shall be installed, adjusted, or maintained in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

This permit is subject to, and in no way derogates, any present or future property right or any other rights or powers of the Town of Bolton. This permit conveys no property rights in real estate or materials or any exclusive privileges.

No permission, either express or implied, is given for any regulated activities other than those authorized in this permit.

The applicant will notify the Agency 3 days before the permitted activity begins.

The applicant will notify the Agency within 7 days of the completion date that the permitted activity has been finished.

Effective date of permit: 10/26/21
Expiration date of permit: 10/25/23

Ross Dalley

Bolton Inland Wetlands Commission

ALL INLAND WETLAND PERMITS ARE SUBJECT TO THE FOLLOWING GENERAL CONDITIONS:

1. No person shall conduct a regulated activity in a regulated area without first obtaining a permit from the Agency. (Section 7.1)

2. Permits shall be valid for a time specified by the Agency. (Section 11.6)

3. All permits shall be in writing, including any special conditions of the permit. One copy shall be maintained in the agency files and one copy furnished to the Applicant.

4. This permit shall not be construed as relieving the permittee of the obligation to obey all applicable federal, state, and local laws or to obtain any other applicable federal, state, and local permits.

5. The agency or its designated agent may enter at all reasonable times upon any private or public property to inspect for and investigate any possible violations of the Inland Wetlands Regulations of the Town of Bolton. (Sections 14.1 and 14.2)

Original to: Applicant
Copy to: Inland Wetlands Commission files IMS
Petroleum, Asif Choudrey

From: Bruce Dixon [mailto:boltonchief34@gmail.com]
Sent: Tuesday, February 22, 2022 10:27 AM
To: Carson, Patrice <pcarson@boltonct.org>
Cc: A Michael Eremita <meremita@att.net>; Rupert, Jim <jrupert@boltonct.org>
Subject: Re: Staff Review Requested: Special Permit Application for Gas Station/Convenience Store, 271 Hop River Road, Nathan Fleming (VP#PL-22-2)

Good morning Patrice, and I am sorry for my tardiness in responding back to you about this location.

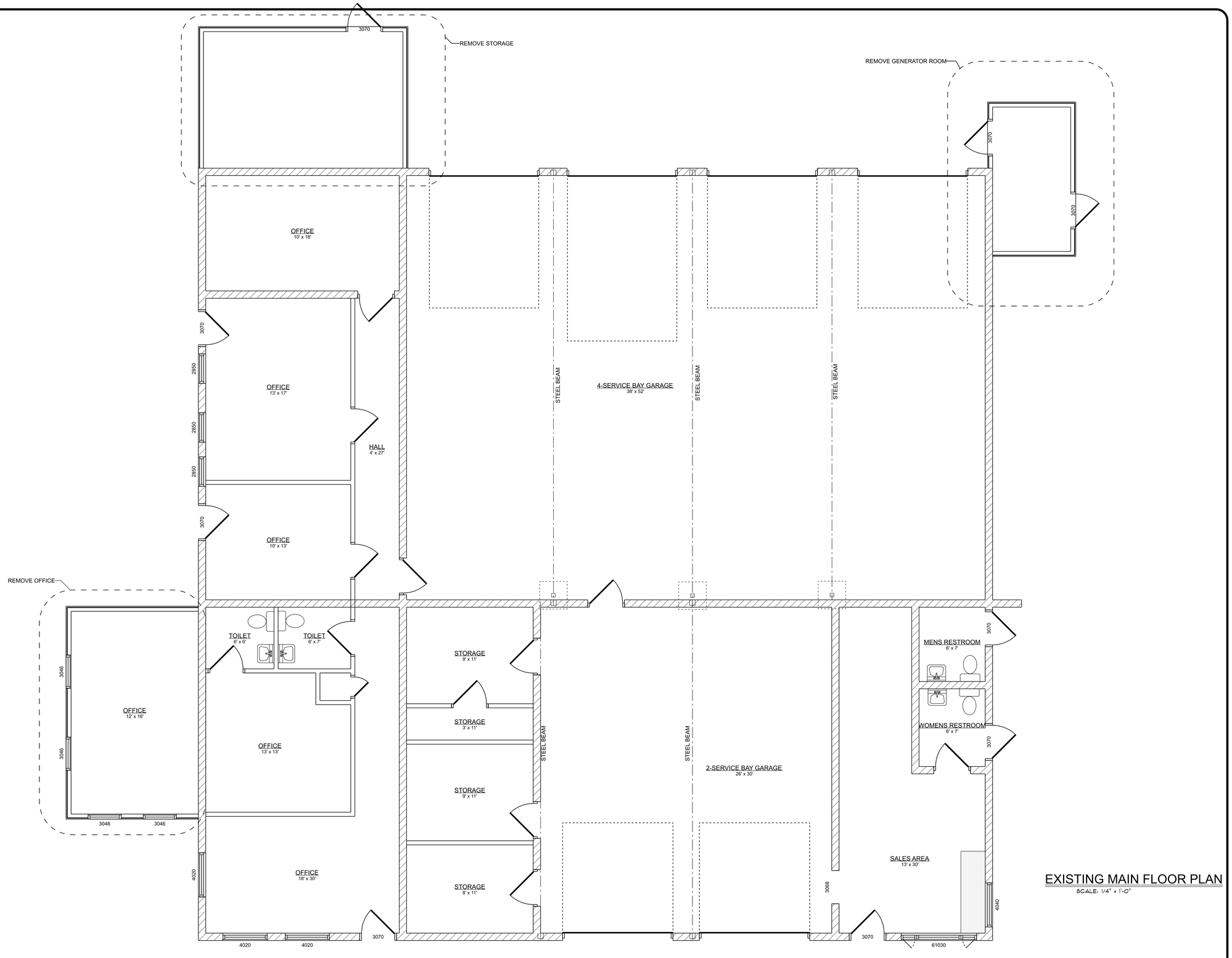
As we spoke earlier, I see no glaring issues today with the plan. Joe Dillion has commented on some good points. If the footprint of the driveways and parking stay the same, and driveway access does not change, unless there are some regulations that escape me, I am fine with the current layout.

Traffic will always be an issue in the area. As we see with accidents in front of Munsons and the ice palace, with more traffic entering and exiting this new establishment, unfortunately more accidents potentially will also occur.

I would appreciate continued conversation as the project advances towards completion.

Best regards,

Bruce A. Dixon
Fire Chief
Bolton Fire Department
168 Bolton Center Road
Bolton, CT 06043
860-649-3910 Office



EXISTING MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"

DO NOT SCALE

CONTRACTOR TO VERIFY ALL DIMENSIONS

THESE PLANS HAVE BEEN PREPARED TO MEET TOP PROFESSIONAL STANDARDS AND PRACTICES HOWEVER,BUILDING CODE REQUIREMENTS VARY WITH LOCATION AND CHANGE TIME TO TIME
BEFORE STARTING CONSTRUCTION THE CONTRACTOR SHOULD CHECK AND BE RESPONSIBLE
FOR ANY DIMENSIONS AND OTHER DETAILS, AND SHOULD REVIEW THE PLANS TO
INSURE THEY MEET CURRENT REQUIREMENTS

REVISIONS

NO.	DATE	BY	DESCRIPTION

PHASE;

CONCEPT SET

PROJECT DETAILS

ADDITIONS AND ALTERATIONS TO THE EXISTING BUILDING
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

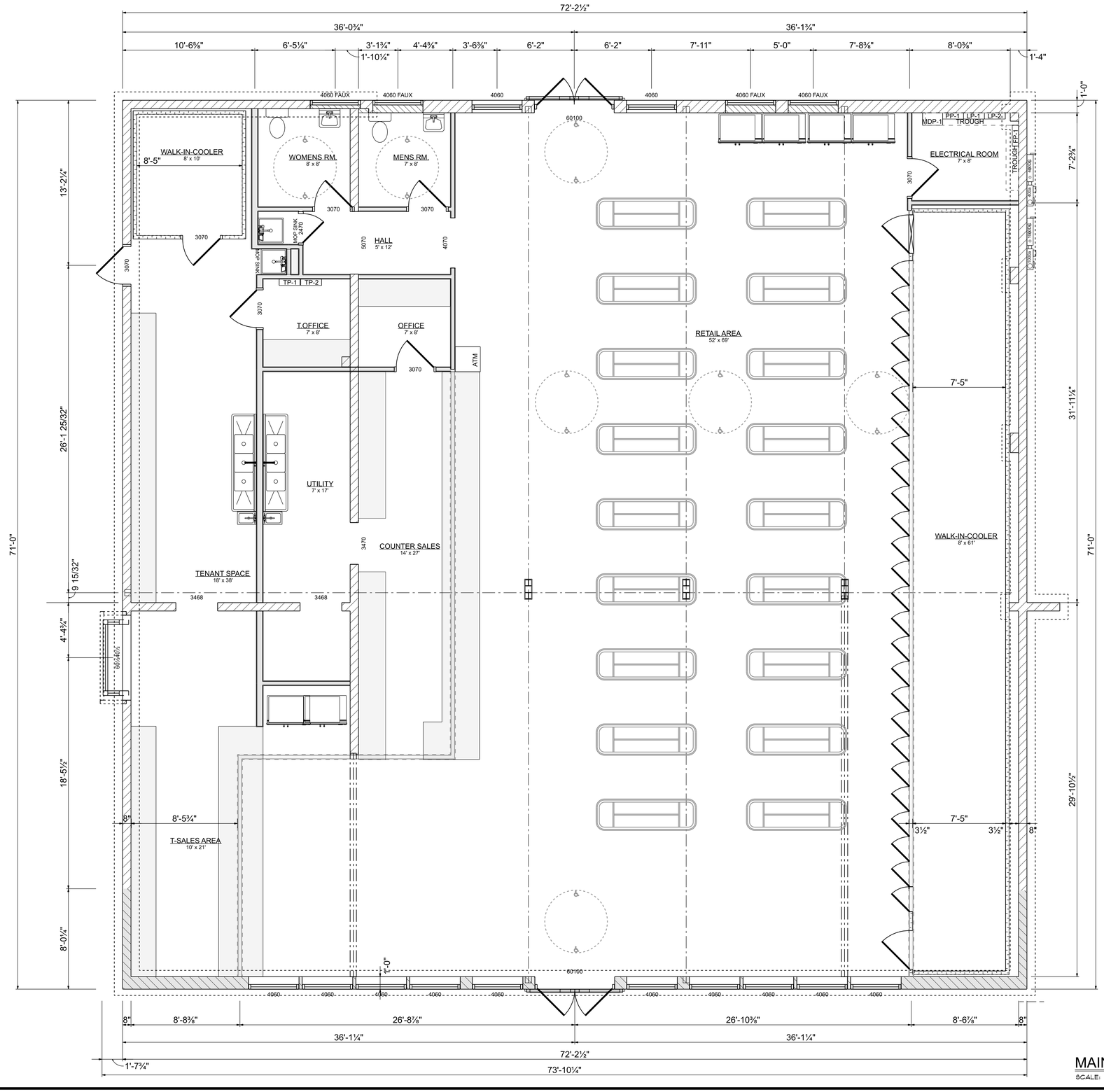
PREPARED FOR:

ASIF CHOUDHRY
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
NATIONAL-N.C. T-5-B-M-U-NS
BW-CS-271-HOP RVR-RD-BLTN.-CT

DESIGN # 06043-2877181-1	
CODE REF: 2018 IBC	
DRAWN BY WWC	
DESIGN DATE 06-15-21	PAGE AB1

W.W. CRAVEN & SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388



MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"

DO NOT SCALE

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REVISIONS

NO.	DATE	BY	DESCRIPTION

PHASE;

CONCEPT SET

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271 HOP RIVER ROAD
BOLTON,CONNECTICUT

PREPARED FOR:

IMF PETROLEUM LLC
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

FILE REF:
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PAGE A1

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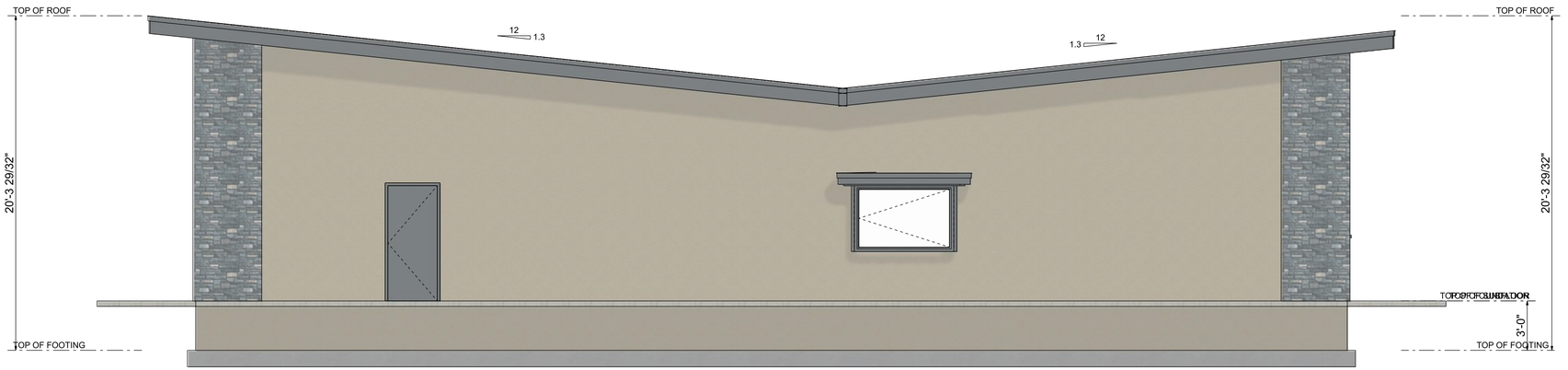

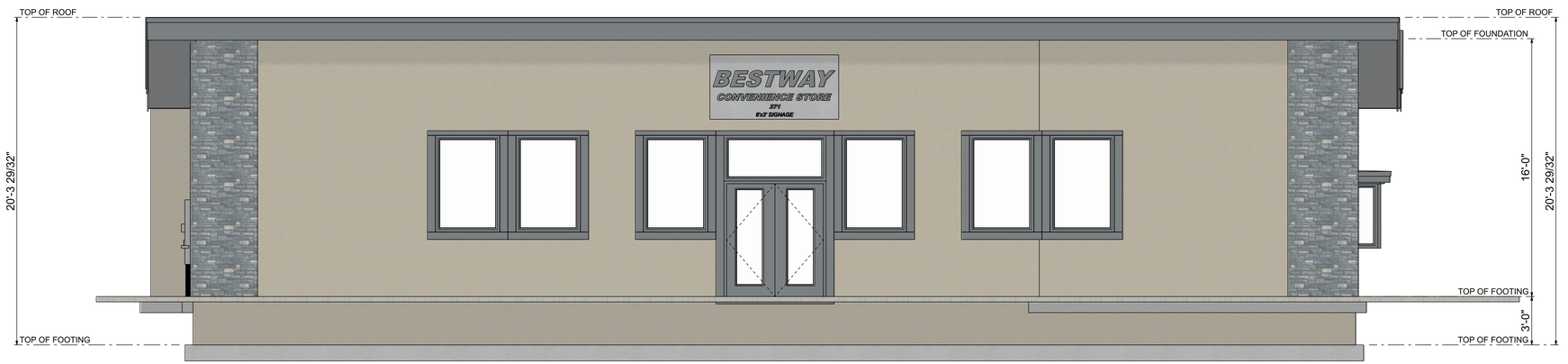

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BOLTON,CONNECTICUT

PREPARED FOR:

IMF PETROLEUM LLC
271 HOP RIVER ROAD
BOLTON,CONNECTICUT

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&
SONS INC.
COMMERCIAL ,RESIDENTIAL
DESIGN, PLANNING
CONSTRUCTION
P.O. BOX 353
GALES FERRY, CT. 06335
860-460-6388

Town of Bolton

222 Bolton Center Road • Bolton, CT 06043

BOLTON PLANNING AND ZONING COMMISSION

APPLICATION FOR SPECIAL PERMIT, SITE PLAN REVIEW OR MODIFICATION OF A PREVIOUSLY APPROVED APPLICATION

1. Application Title: VETERINARIANS OF EASTERN CONNECTICUT LLC

2. Check all that apply:

_X_ Special Permit Application _____ Modification of an Approved Special Permit Application*

/_Site _____ Plan Review Application _____ Modification of an Approved Site Plan Review Application* *

The Commission may require a new application if the proposed modification significantly alters the previously approved application.

3. Street Address of subject property: Parcel (1) 233 Boston Turnpike, Bolton, CT
Parcel (2) 12 Williams Road, Bolton, CT

4. Deed Reference (Bolton Land Records) Parcel (1) Volume 173 Page 05, Parcel (2) Volume 164 Page 456

5. Assessor's Records Reference: Map 07 Lot 55 & Map 07 Lot 54

6. Current zone(s) of subject property Acreage: 3.5 Zone: GMUIZ &/R-1

7. In Aquifer Protection District? Yes X No

8. In FEMA Flood Area? Yes No X

9. Wetlands Application Required? Yes No X

10. Applicant(s) VETERINARIANS OF EASTERN CONNECTICUT LLC

Address 223 BOSTON TURNPIKE, BOLTON, CT 06043

Phone # 860-646-6134 Fax #860-643-0418 E-mail: matthew.mecca@boltonvet.com

11. Owner(s) of subject property Parcel (1) NORMAN J. PREUSS Jr. and SHARON B. PREUSS

18 TUNXIS TRAIL, BOLTON, CT 06043

Parcel (2) MARIO ANSALDI, 12 WILLIAMS ROAD, BOLTON, CT

12 Official Contact / Representative regarding this Application: ANDREW BUSHNELL, BUSHNELL ASSOCIATES

Address 563 WOODBRIDGE STREET, MANCHESTER, CT 06042

Phone # 860-643-7875 Fax # E-mail: abushnell@bushnellassociatesllc.com

13. Project Engineer: ANDREW BUSHNELL, BUSHNELL ASSOCIATES LLC

Address: 563 WOODBRIDGE STREET, MANCHESTER, CT 06042

Phone # 860-643-7875 Fax # E-mail: abushnell@bushnellassociatesllc.com

14. Project Architect: BDA ARCHITECTURE

Address: 901 LAMBERTON PINE, ALBUQUERQUE, NM 87107

Phone # 800-247-5387 Fax # E-mail Davidmadden@bdaarc.com

15. Other Experts Retained by Applicant:

VLIET & O'NEIL, TRAFFIC ENGINEERING, 41 PROSPECT ST., MANCHESTER, CT 06040 860-533-1210
LENARD ENGINEERING INC., 2210 MAIN STREET, GLASTONBURY, CT 06033 860-659-3100
DESIGN PROFESSIONALS, 21 JEFFREY DRIVE, SOUTH WINDSOR, CT 06074 860-291-8755
CURTIS H. ROGGI, ATTORNEY, 83 BOULDER AVE, STONINGTON, CT 06378 860-558-3645

16. Briefly describe the proposed use of the subject property. Provide greater detail in Project Narrative.

VETERINARY HOSPITAL / VETERINARY EMERGENCY CARE

17. Square footage of new / expanded space: 31,187 SQ. FT. # of new parking spaces: 100

18. List the Section(s) of the Zoning Regulations under which application is made:

SECTION 9. INDUSTRIAL ZONE (I) AND GATEWAY MIXED USE INDUSTRIAL ZONE
SPECIAL PERMIT. Section. 9B.2.b

19. Provide all the applicable items for a complete application including a completed Checklist for Site Plan Review and Special Permit Applications. A completed checklist must be provided to comprise a complete application.

20. Applicant's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature. Edward K. Grace Date 3/30/22
VETERINARIANS OF EASTERN CONNECTICUT LLC
BY: EDWARD K. GRACE, Duly Authorized

21. Owner's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature SEE ATTACHED PROPERTY OWNER'S SIGNATURE SHEET

NOTE: If there are any material changes to this application, the Applicant shall immediately notify the Town Staff in writing.

Applicants may be subject to Supplemental Review fees to defray the cost of Professional Review

Services such as engineering or legal reviews.

22. Owner's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature Cheryl Estock Date 3/28/22

MARIO ANSALDI

BY CHERYL ESTOCK , ATTY IN FACT

Owner's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature _____ Date _____

NORMAN J. PREUSS Jr.

Owner's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature _____ Date _____

SHARON B. PREUSS

1

OWNER'S SIGNATURES

22. Owner's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature _____ Date _____

MARIO ANSALDI
BY CHERYL ESTOCK , ATTY IN FACT

Owner's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature _____ Date 3-24-2022

NORMAN J. PREUSS Jr.

Owner's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature Sharon B Preuss Date 03/24/2022

SHARON B. PREUSS

For Town Use only

Base Fee Paid_____ Check #_____

Date application received by Inland Wetlands Commission (if applicable) _____

Date of Inland Wetlands Commission action (if applicable)_____

Date application received by Planning and Zoning Commission_____

Date of public hearing (if required)_____

Date of Planning and Zoning Commission action _____

Date of newspaper publication of Planning and Zoning Commission action_____

Summary of Planning and Zoning Commission action_____

Revised March 11, 2009

VETERINARIANS OF EASTERN CONNECTICUT LLC

222 BOSTON TURNPIKE, BOLTON, CONNECTICUT

WRITTEN NARRATIVE

In support of Veterinarians of Eastern Connecticut LLC applications for Planning & Zoning Commission approval pursuant to Bolton Zoning Regulation sections:

9B.3.a Application for approval of Preliminary Development Plan; and
9B.2.b Application for Special Permit with Site Plan review.

The plans for the new Veterinary Hospital are designed to meet the purposes of the Bolton Gateway Mixed Use Industrial Development zone. They incorporate the principles of Low Impact Development (LID) to provide quality sustainable development while maintaining the character of the neighborhood and preserve the surface and groundwater quality.

The New Veterinary Hospital proposed is a 31,187 square foot, three-story (including the basement) colonial style building. The building shall have a pitched asphalt shingled roof and earth tone fiber-cement board siding. The main entrance is inviting and typically colonial with a carport for inclement weather. Signage shall be colonial styling and exterior lit. All exterior lighting is designed to prevent splash and keep the light on premises.

The proposed development site consists of two parcels of land known as 233 Boston Turnpike and 12 Williams Road forming the corner of Boston Turnpike and Williams Road. Combined they have an area of approximately 5.17 acres. The site is generally flat. 60% of the site is wooded. There is a cleared area near Boston Turnpike and an existing home at the southerly most part of the parcel. The property has approximately 267 feet of frontage on Boston Turnpike and 669.17 feet of frontage along Williams Road. There are no wetlands on the proposed site.

The new Veterinary Hospital operations shall be very similar to the current operations of Bolton Veterinary Hospital. It will have a 24-hour emergency room, operating rooms and other specialty rooms necessary for hospital operations. Excepting the ER, operating hours M-F 8am to 6pm, Saturday 8am to 1pm. The hospital shall be staffed by approximately 35 to 40 persons during the day and a lesser staff at night. It is anticipated the the Hospital shall have 37 vehicles either enter or leave the premises per hour during the week. Data is based on current records of Bolton Veterinary Hospital. The Pet Store Next Door, which sells food and supplies, shall also be relocating to the new facility.

The owner and developer of the property is Veterinarians of Eastern Connecticut LLC. The tenant and operator of the new Veterinary Hospital shall be Bolton Veterinary Hospital P.C. The LLC and P.C. are different entities but have the same principals.

Our traffic engineer has concluded that relocating the hospital across the street should not generate any increase in traffic. The plans locate the entrance for the hospital on Williams Road approximately 370 feet south of Boston Turnpike to avoid any congestion at the intersection of Williams Road and Boston Turnpike. The entrance has a 380-foot site line to the north and over 500 feet to the south.
All employee, customer and visitor parking shall be on site. We have proposed 100 initial parking spaces with a future area reserve for an additional 84 spaces. Pedestrian traffic from the parking area is guided by marked pedestrian crossings leading to a sidewalk system adjacent to the building. Vehicular traffic design permits emergency, service and delivery vehicles to access the site. The building and parking areas are ADA compliant. Different floors within the building maybe accessed by an elevator.

The buffer along Boston Turnpike and Williams Road will be supplemented as provided in the landscaping plans. The plans provide mix of additional trees, shrubs, flowers and grass on the site which shall be professionally maintained. Dumpsters shall be enclosed.

All stormwater is retained on site. The water from the roof and parking areas is collected and directed into two basins. Both basins are lined with engineered "Infiltrators" to regenerate the water back into the ground water. The basins shall be covered with grass. A "Water Quality Forebay" is located adjacent to the southern basin. There shall be a schedule for the monitoring and maintenance of the basins and water forebay. Site plan notes instruct the contractor to not allow vehicles into the basins after they have been excavated to avoid compaction of soils.

Extensive erosion and sediment control measures shall be installed and maintained. The main construction entrance will contain rip rap. Silt fencing shall be installed and maintained in all areas of possible erosion. During dry conditions the construction area shall be watered to reduce dust.

Black and gray water water shall be piped into the sanitary sewer system located on Boston Turnpike. Water shall be supplied by two wells to be drilled and located on site. The water system will be approved by CT Department of Health and be professionally monitored. Electric power shall be supplied from Boston Turnpike.

The Veterinary Hospital is not a "regulated activity" and does not use or store chemicals or materials considered "hazardous material" and as defined in the Town of Bolton Aquifer Protection Area Regulations.

All medical waste is isolated, contained and removed by Connecticut licensed professionals.

The Applicant respectfully requests that the Bolton Planning and Zoning Commission take the following action:

1. **Approve our 9B.3.a Application for approval of Preliminary Development Plan together with a waiver of section 9.B.7 a of the Bolton Zoning Regulations in that a portion of the proposed building will be located greater than 25 feet from the street line along Williams Road and a waiver of section 15G of the Bolton Zoning Regulations in that a portion of the parking space area in the northern portion of the site will be located closer than 50 feet to the front property line along Boston Turnpike; and**

2. **Approve our 9B.2.b Application for approval of Special Permit with Site Plan Review.**

Respectfully submitted,

Veterinarians of Eastern Connecticut LLC

Ed K. Grace

By Edward K. Grace, Duly Authorized

BOLTON VETERINARY HOSPITAL

SITE PLAN/SPECIAL PERMIT

233 BOSTON TURNPIKE (ROUTE 44) ~ BOLTON ~ CT

PARCEL ID 2079

N/F 500' ABUTTERS

KEY	OWNER	OWNER ADDRESS	TOWN
1	UNITED CABLE TELEVISION CORP	1701 JOHN F KENNEDY BLVD	PHILADELPHIA, PA 19103
2	SIMONIZ USA INC	201 BOSTON TPKE	BOLTON, CT 06043
3	BU LEIVA CELSO F	18 WILLIAMS RD	BOLTON, CT 06043
4	MICHALEK SETH	22 WILLIAMS RD	BOLTON, CT 06043
5	STEELE EDWARD P & JACQUELINE A	21 WILLIAMS RD	BOLTON, CT 06043
6	TOCE MARK A	17 WILLIAMS RD	BOLTON, CT 06043
7	SIMONIZ USA INC	201 BOSTON TPKE	BOLTON, CT 06043
8	SYNDET PRODUCTS INC	201 BOSTON TPKE	BOLTON, CT 06043
9	GORRA JENNIE TRUSTEE	201 BOSTON TURNPIKE	BOLTON, CT 06043
10	GORRA JENNIE TRUSTEE	201 BOSTON TURNPIKE	BOLTON, CT 06043
11	VPC ASSOCIATES LLC	222 BOSTON TPKE	BOLTON, CT 06043
12	PREUSS W H SONS INC	228 BOSTON TPKE	BOLTON, CT 06043
13	FIANO LAWRENCE F & ROSE D	240 BOSTON TPKE	BOLTON, CT 06043
14	FIANO LAWRENCE F & ROSE D	240 BOSTON TPKE	BOLTON, CT 06043
15	BOLTON EXXON LLC	262 BOSTON TPKE	BOLTON, CT 06043
16	BOLTON SENIOR COMMUNITY LLC	1622 MAIN STREET	EAST HARTFORD, CT 06108
17	TSAMBIKA LLC	275 BOSTON TPKE	BOLTON, CT 06043
18	263 BOSTON TURNPIKE LLC	263 BOSTON TPKE	BOLTON, CT 06043
19	ANSALDI ANDREW JR EST OF &	39 TUNXIS TRAIL	BOLTON, CT 06043
20	ANSALDI ANDREW JR EST OF &	39 TUNXIS TRAIL	BOLTON, CT 06043
21	BU LEIVA CELSO F	18 WILLIAMS ROAD	BOLTON, CT 06043

ZONING TABLE

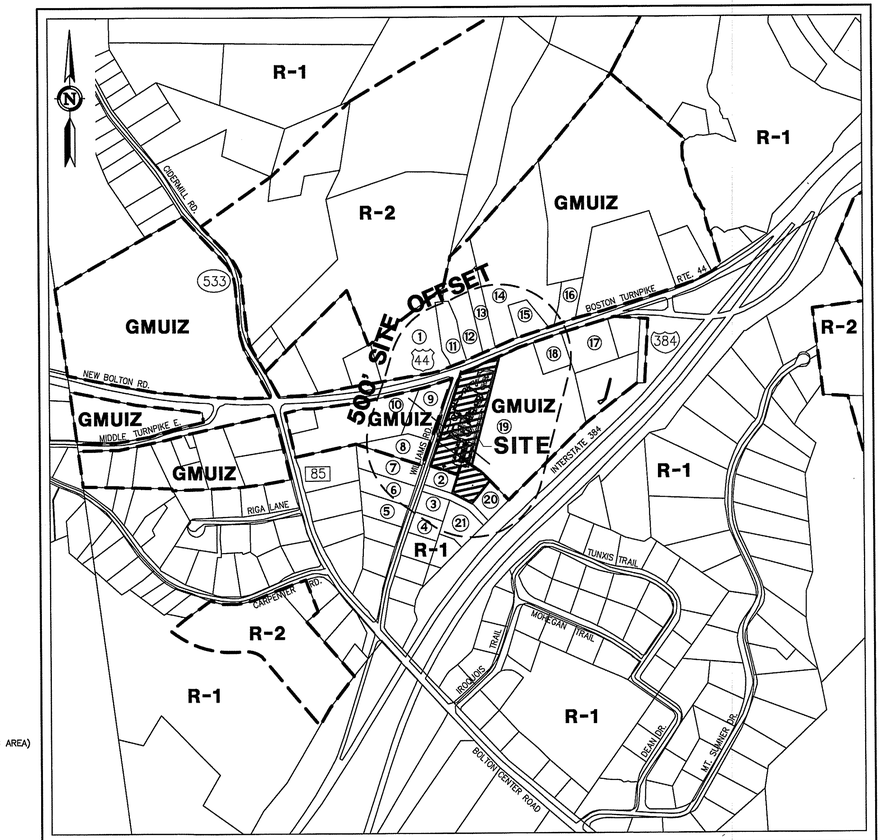
ZONE: GMUIZ – GATEWAY MIXED USE INDUSTRIAL ZONE

ITEM	REQUIRED/ ALLOWED	PROPOSED
MINIMUM LOT AREA	120,000 SF	222,561 SF
MINIMUM LOT FRONTAGE	200'	297'
MINIMUM FRONT YARD	25'	19.32'
MINIMUM SIDE/REAR YARD	25'	70.5'
MAXIMUM BUILDING HEIGHT	40' OR 3 STORIES	<40'
MINIMUM FLOOR AREA	600 SF	24,836 SF
MAXIMUM LOT COVERAGE	25%	11.2%
MAXIMUM IMPERVIOUS COVERAGE	50%	35.4%

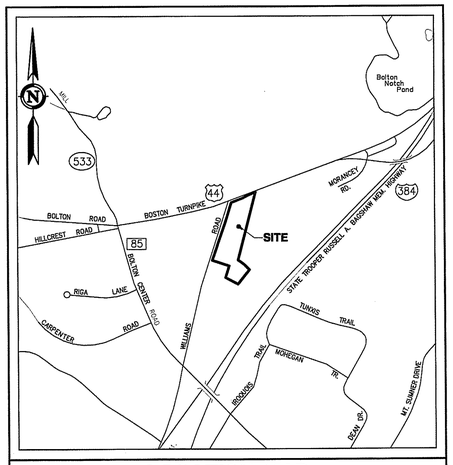
PARKING CALCULATION:
MINIMUM 4 SPACES REQUIRED PER 1,000 SF OF GROSS FLOOR AREA
24,836 BUILDING GFA/1,000 SF = 24.836
24.836 x 4 SPACES = 99.3 SPACES REQUIRED
100 SPACES PROVIDED (64 ADDITIONAL PARKING SPACES IN FUTURE PARKING AREA)

LOADING SPACE CALCULATION
ONE LOADING SPACE IS REQUIRED FOR EACH 20,000 SF OF BUILDING FLOOR AREA. BUILDING FLOOR AREA = 24,836 SF
24,836/20,000 = 1.24 LOADING SPACES REQUIRED.
2 LOADING SPACES PROVIDED.

BICYCLE SPACE CALCULATION
ONE BICYCLE IS REQUIRED PER 25 PARKING SPACES FOR OFFICE SPACE.
164 TOTAL PARKING SPACES/25 = 6.56 BICYCLE SPACES REQUIRED.
(164 PARKING SPACES INCLUDES FUTURE SPACES)
7 BICYCLE SPACES PROVIDED (ONE BICYCLE RACK)



KEY MAP
SCALE: 1"=500'



LOCATION MAP
SCALE: 1"=800'

SHEET INDEX

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

BOLTON PLANNING AND ZONING COMMISSION, BOLTON, CT
DATE APPROVED
_____
_____ CHAIRMAN
_____ SECRETARY

THE STATUTORY FIVE-YEAR PERIOD FOR COMPLETION OF ALL PHYSICAL IMPROVMENTS EXPIRES ON _____, 20___.

PRELIMINARY
NOT FOR CONSTRUCTION
THESE PLANS ARE FOR PLANNING PURPOSES ONLY INTENDED TO SECURE REGULATORY APPROVALS. ONLY FINAL PLANS STAMPED APPROVED BY THE TOWN SHALL BE USED FOR CONSTRUCTION PURPOSES.

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BDA ARCHITECTURE, P.C.
BUILDING DESIGN FOR ANIMALS, LLC
901 LAMBERTON Pl. NE
ALBUQUERQUE, NM 87107
505-858-0180

LAND SURVEYOR:
BUSHNELL ASSOCIATES LLC.
563 WOODBRIDGE STREET
MANCHESTER, CT. 06042
860-643-7875

NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: CMM
DRAWN BY: CMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

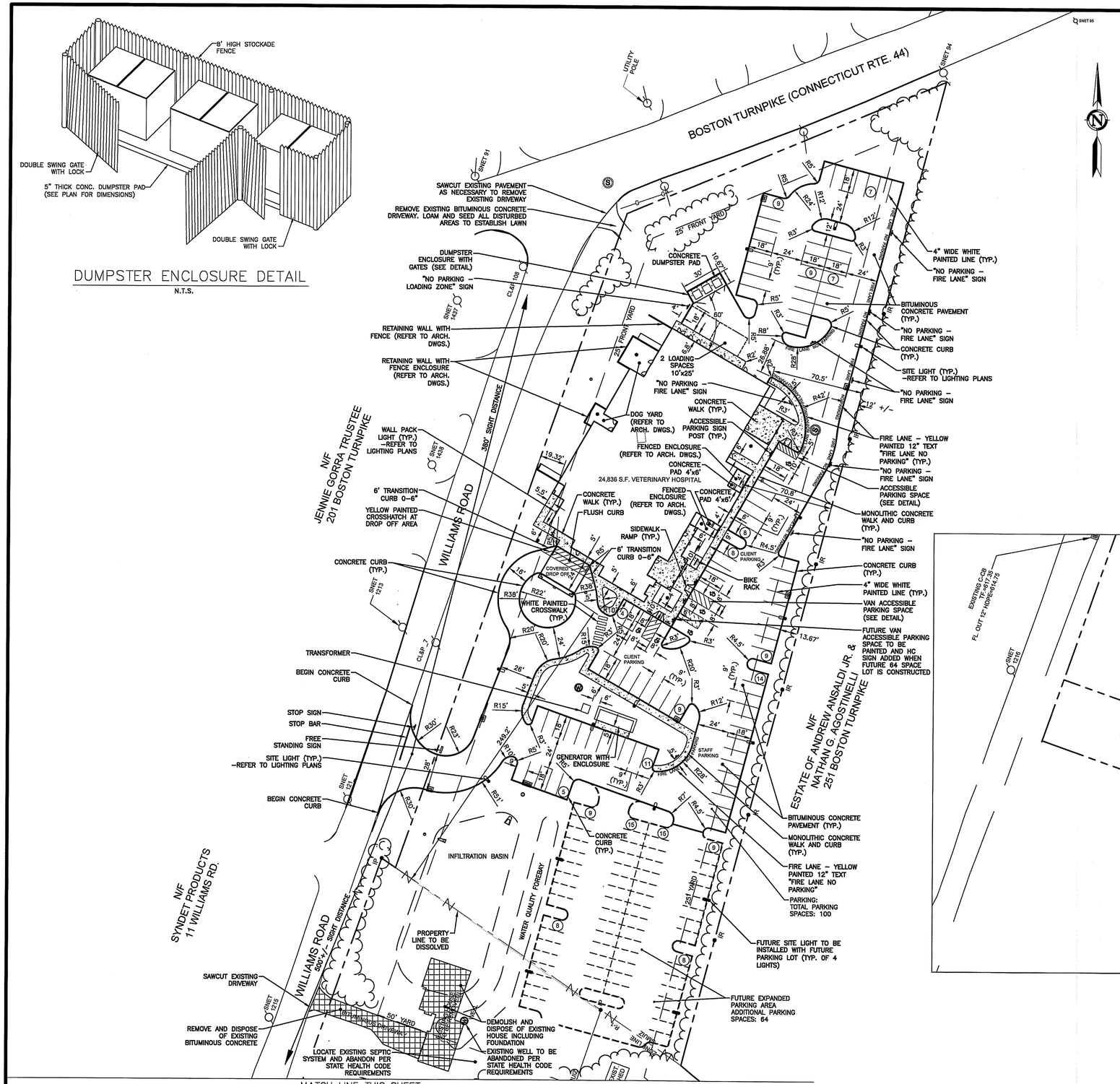
COVER SHEET

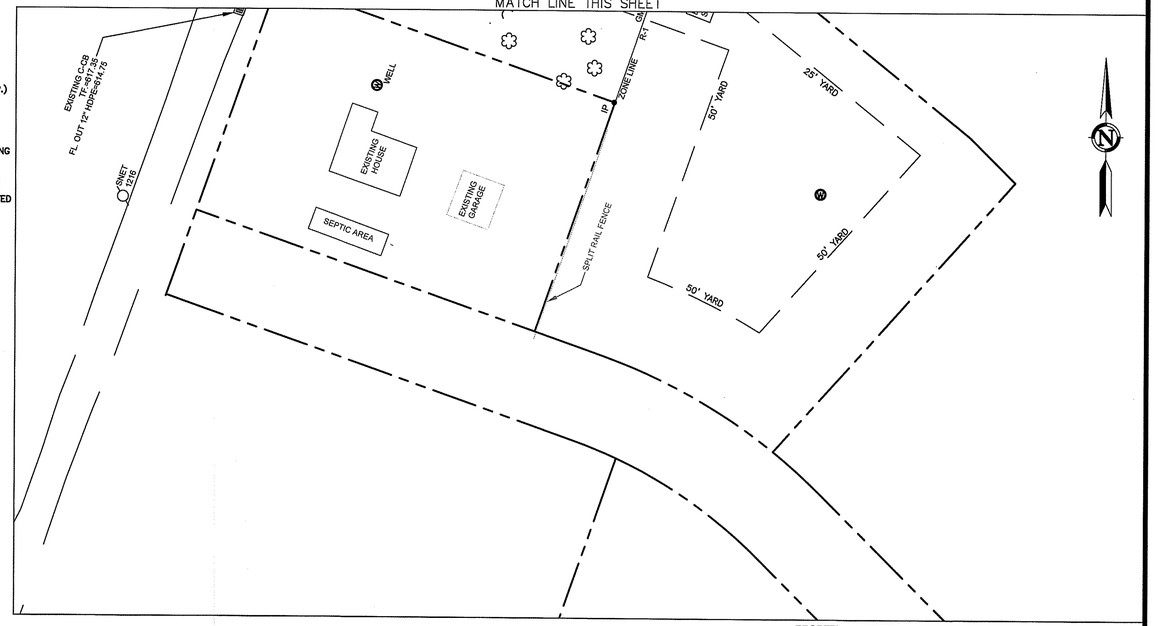
SHEET
C-T1
SHEET 1 OF 13

File: G:\Jobs\4798\Engineering\AutoCAD\4798 Cover Sheet.mxdwg Layout: 01 C-T1 Plotted: 3/21/2022 3:22 PM Last Saved: 3/11/2022 5:5 PM Last Saved By: gkennedy

DUMPSTER ENCLOSURE DETAIL

N.T.S.





LEGEND

EXISTING	DESCRIPTION	PROPOSED
BORINGS		
TP	BORING / TEST PIT LOCATION	TP
COMMUNICATION		
C_E	UNDERGROUND COMMUNICATION LINES	C
DOMESTIC WATER		
W_E	WATER MAIN	W
WS_E	WATER SERVICE	WS
F_E	FIRE SERVICE LINE	F
NPW_E	NON–POTABLE WATER LINE	NPW
WV W	WATER VALVE / FIXTURES	WV
	FIRE HYDRANT	
LIQUID FUEL		
LF_E	MAIN LIQUID FUEL LINE	LF
LFS_E	LIQUID FUEL SERVICE LINE	LFS
LF_E	LIQUID FUEL LINE, ABANDONED	
IRRIGATION		
I_E	IRRIGATION LINES	I
LIGHTING		
	POLE / GROUND MOUNTED LIGHT	
NATURAL GAS		
G	GAS MAIN	G
GS	GAS SERVICE LINE	GS
POWER		
ED_E	ELECTRICAL LINES, OVERHEAD	ED
EU_E	ELECTRICAL LINES, UNDERGROUND	EU
$^{C}D_{P}$	UTILITY POLE	$^{C}D_{P}$

PROPERTY		
	PROPERTY LINE	
	EASEMENT LINE	
	IRON PIPE	
	IRON ROD	
	MONUMENT	
ROADS		
	GUARD RAIL	
EROSION CONTROL		
	SILT FENCE	SF
SITE FEATURES		
	4" DOUBLE SOLID YELLOW LINE	DSYL
	4" SINGLE SOLID WHITE LINE	SSWL
	BIT. CONC. LIP CURB	BCLC
	PRECAST CONCRETE CURB	PCC
SANITARY SEWER		
S_E	SANITARY SEWER MAIN	S
SS_E	SANITARY SEWER SERVICE LINE	SS
S	SANITARY SEWER MANHOLE	
STORM SEWER		
	STORM DRAIN PIPE	
RL_E	ROOF LEADER	RL
UD	UNDERDRAIN	UD
D	STORM DRAIN MANHOLE	D
	CURB INLET	CBI
	CATCH BASIN	CBI
	YARD DRAIN	
TOPOGRAPHY		
95	CONTOUR	95
×61.95	SPOT ELEVATION	95
OTHER		
	RAMP	R
	LANDSCAPE AREA	LSA

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MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

REFERENCES:
THIS PLAN REFERS TO THE FOLLOWING:
1. PLAN ENTITLED "PRELIMINARY SITE PLAN, 233 BOSTON TURNPIKE, BOLTON, CONNECTICUT" DATED REVISED 10/26/2021 PREPARED BY BUSHNELL ASSOCIATES, LLC., CIVIL ENGINEERING AND LAND SURVEYING, 563 WOODBRIDGE STREET, MANCHESTER, CT 06042.

SITE LAYOUT PLAN NOTES:
1. 'CALL BEFORE YOU DIG' – CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF PENDING EXCAVATION AT OR NEAR PUBLIC UTILITIES. CALL 811 AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION.
2. THIS PLAN SHALL BE USED FOR SITE LAYOUT ONLY
3. (9) INDICATES NUMBER OF PARKING SPACES IN ROW.

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NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

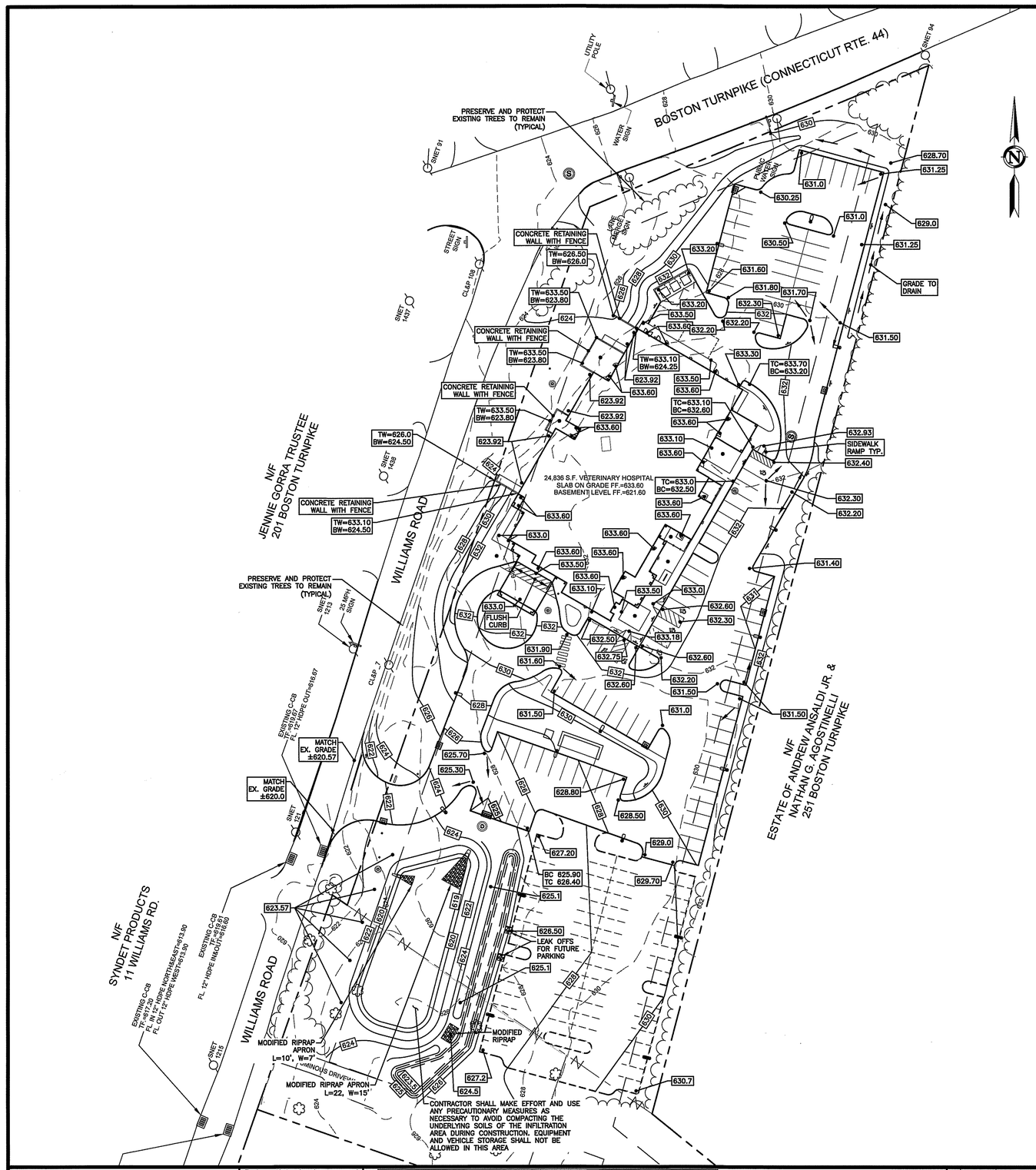
PROJECT NO.:	4798
DATE:	3/21/22
DESIGN BY:	CMM
DRAWN BY:	CMM
CHECKED BY:	SPC

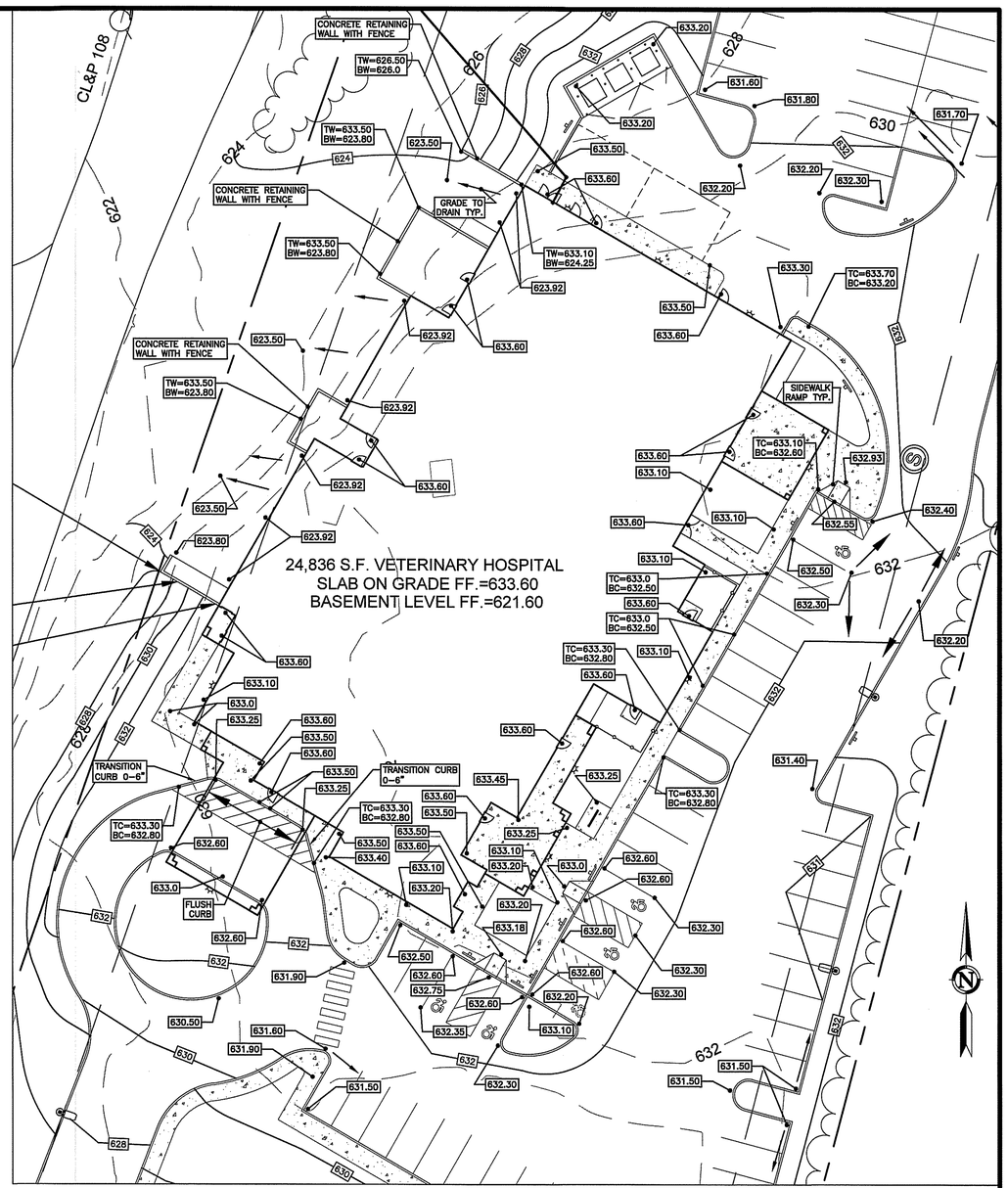
PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

SITE PLAN

SCALE: 1" = 40' (0, 20', 40', 80')

SHEET
C-SP1
SHEET 2 OF 13





GRADING ENLARGEMENT PLAN

1"=20'-0"

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

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4. ALL PROPOSED PAVEMENT SPOT ELEVATIONS INDICATE TOP OF PAVEMENT. TOP OF CURB ELEVATIONS SHALL BE SIX INCHES ABOVE THE ADJACENT PAVEMENT ELEVATION UNLESS NOTED OTHERWISE.
5. THIS PLAN SHALL BE USED FOR GRADING & DRAINAGE PURPOSES ONLY
6. REFER TO NOTES SHEET FOR CONSTRUCTION NOTES

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NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

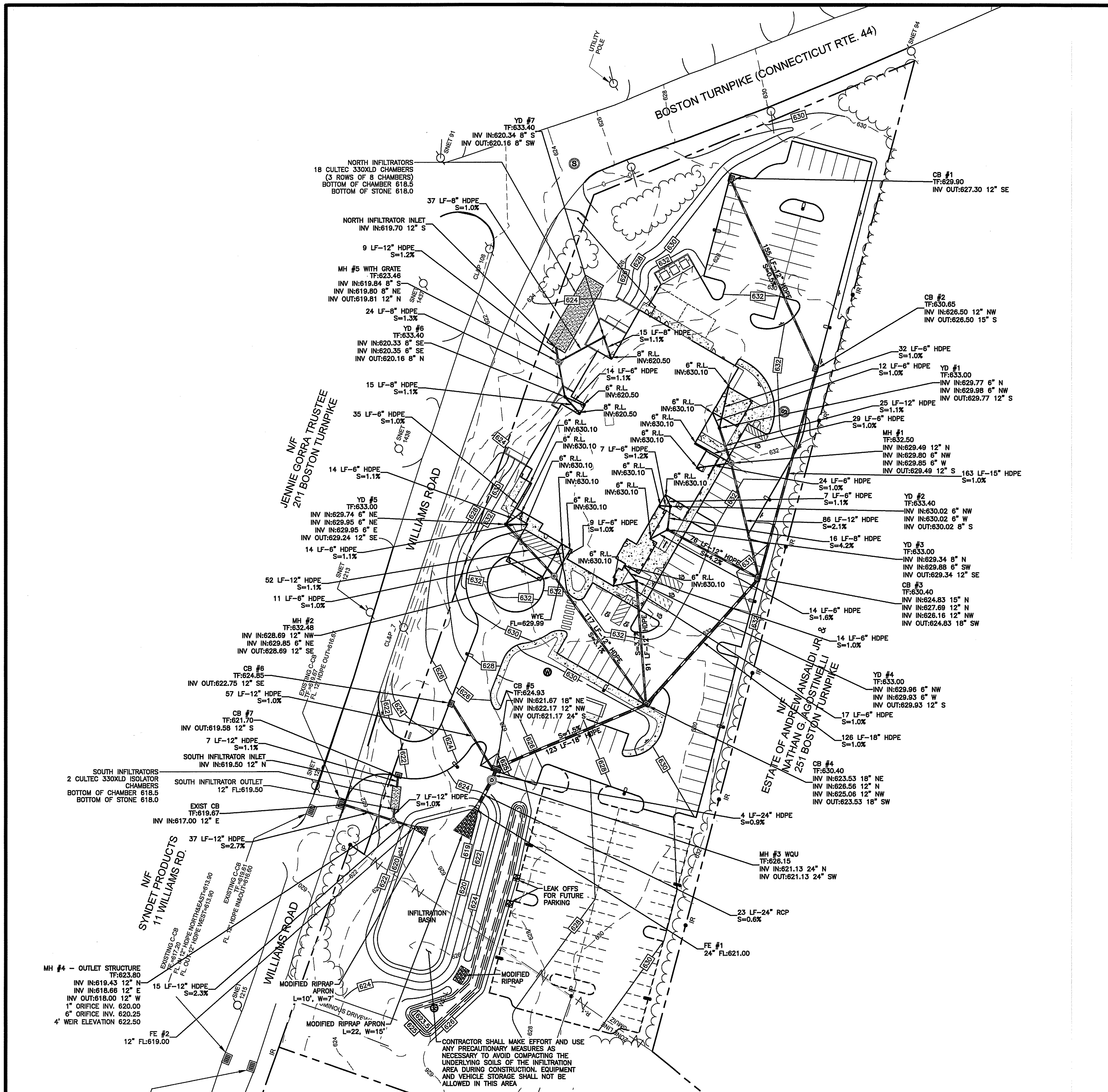
PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: CMM
DRAWN BY: CMM
CHECKED BY: SPC

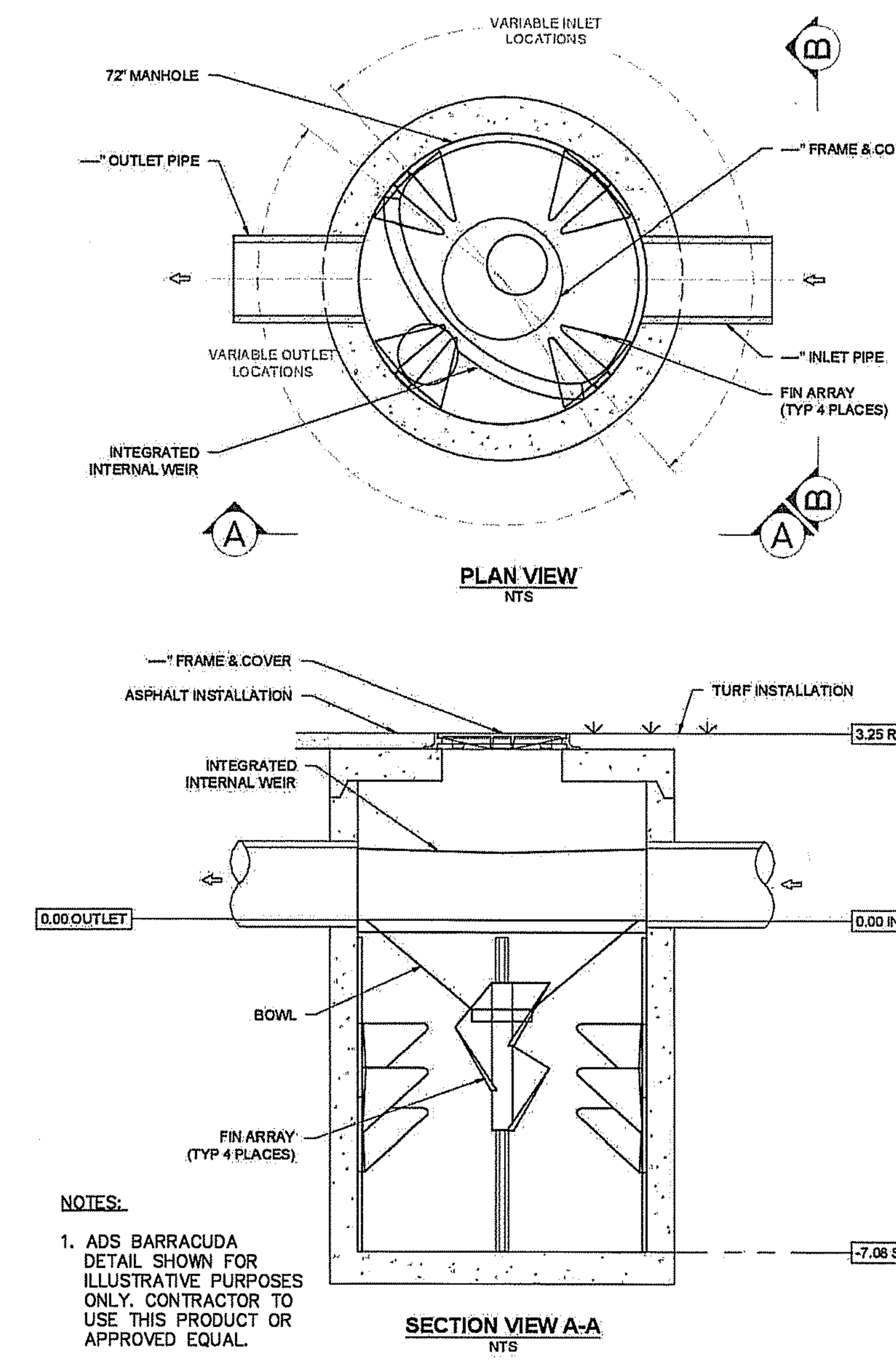
PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

GRADING PLAN

SCALE: 1" = 40' (0, 20', 40', 80')

SHEET C-GD1
SHEET 3 OF 13





NOTES:

1. ADS BARRACUDA DETAIL SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR TO USE THIS PRODUCT OR APPROVED EQUAL.

BARRACUDA S6 (CONC)

N.T.S

LEGEND

EXISTING	DESCRIPTION	PROPOSED
BORINGS		
TP	BORING / TEST PIT LOCATION	TP
COMMUNICATION		
— — — Cx — — — Cx —	UNDERGROUND COMMUNICATION LINES	——— C ———
DOMESTIC WATER		
— — — Wx — — — Wx —	WATER MAIN	——— W ———
——— — — WSx ———	WATER SERVICE	——— WS ———
— — — Fx — — — Fx —	FIRE SERVICE LINE	——— F ———
——— — — NPWx ———	NON-POTABLE WATER LINE	——— NPW ———
W W	WATER VALVE / FIXTURES	WV
	FIRE HYDRANT	
LIQUID FUEL		
——— — — LFx ———	MAIN LIQUID FUEL LINE	——— LF ———
——— — — LFSx ———	LIQUID FUEL SERVICE LINE	——— LFS ———
——— — — LFa ———	LIQUID FUEL LINE, ABANDONED	
IRRIGATION		
— — — Ix — — — Ix —	IRRIGATION LINES	——— I ———
LIGHTING		
/	POLE / GROUND MOUNTED LIGHT	/
NATURAL GAS		
—— ——G—— —— ——	GAS MAIN	——— G ———
—— ——GS—— —— ——	GAS SERVICE LINE	——— GS ———
POWER		
——— EOx ———	ELECTRICAL LINES, OVERHEAD	——— EO ———
——— — — EUx ———	ELECTRICAL LINES, UNDERGROUND	——— EU ———
	UTILITY POLE	
PROPERTY		
——— — — ———	PROPERTY LINE	——— — — ———
—— —— —— ——	EASEMENT LINE	—— —— —— ——
	IRON PIPE	
	IRON ROD	
	MONUMENT	
ROADS		
	GUARD RAIL	
EROSION CONTROL		
	SILT FENCE	——— SF ———
SITE FEATURES		
	4" DOUBLE SOLID YELLOW LINE	DSYL
	4" SINGLE SOLID WHITE LINE	SSWL
	BIT. CONC. LIP CURB	BCLC
	PRECAST CONCRETE CURB	PCC
SANITARY SEWER		
— — — Sx — — — Sx —	SANITARY SEWER MAIN	——— S ———
— — — SSx — — — SSx —	SANITARY SEWER SERVICE LINE	——— SS ———
S	SANITARY SEWER MANHOLE	S
STORM SEWER		
— — — — — — — —	STORM DRAIN PIPE	
— — — RLx — — — RLx —	ROOF LEADER	——— RL ———
— — — UD — — — UD —	UNDERDRAIN	— — — UD — — — UD —
D	STORM DRAIN MANHOLE	D
	CURB INLET	
	CATCH BASIN	
	YARD DRAIN	
TOPOGRAPHY		
— — — — 95 — — — —	CONTOUR	——— 95 ———
X61.95	SPOT ELEVATION	95
OTHER		
	RAMP	R
	LANDSCAPE AREA	LSA

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NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

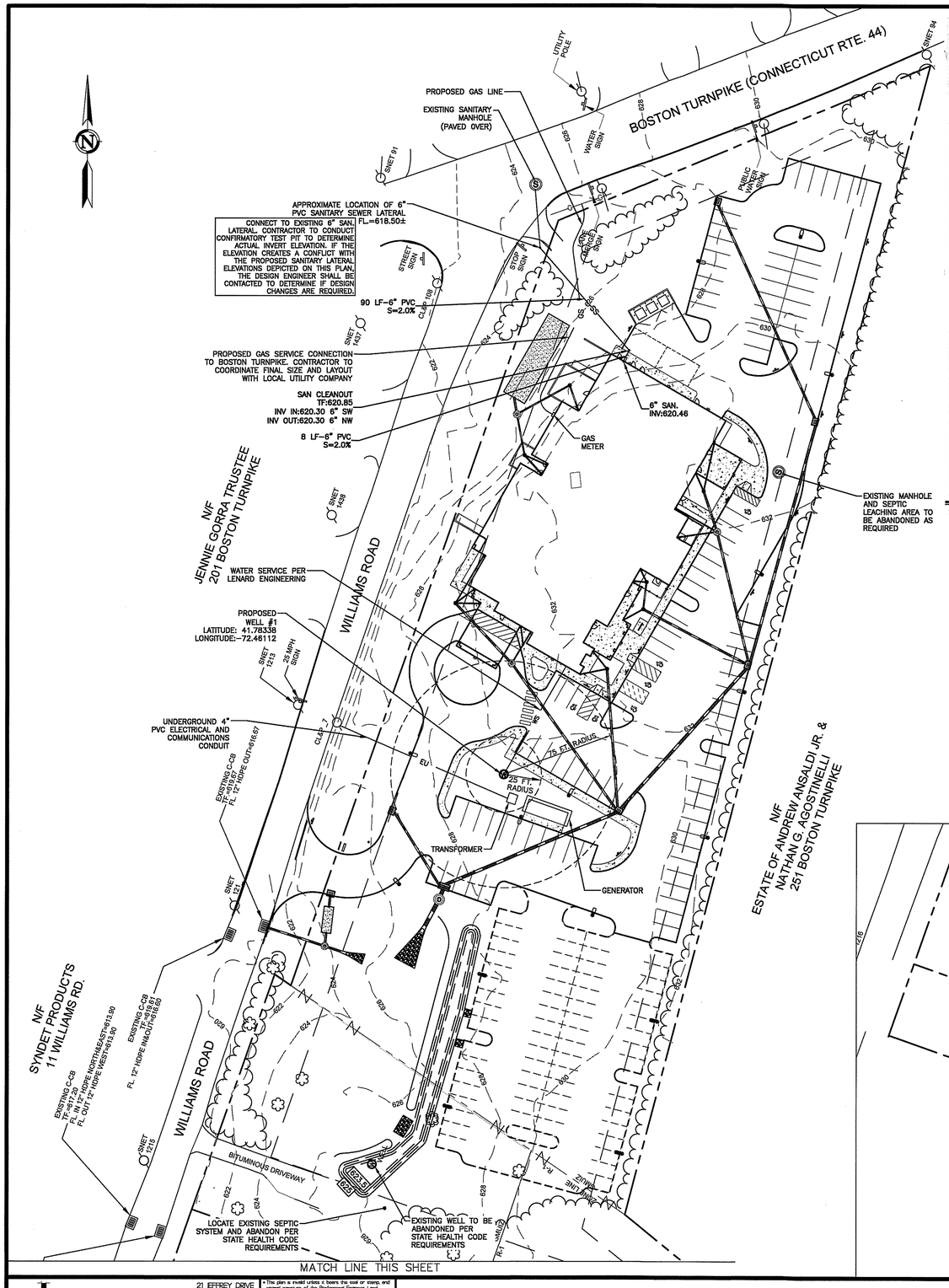
PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: GMM
DRAWN BY: GMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

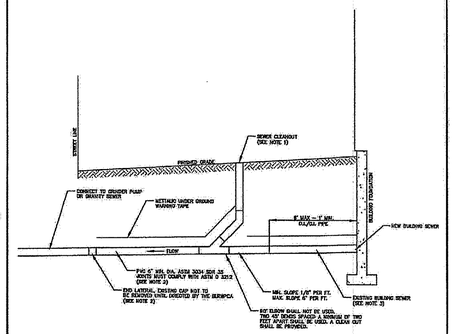
DRAINAGE PLAN

SCALE: 1" = 40' (0, 20', 40', 80')

SHEET C-DR1
SHEET 4 OF 13



BOLTON LAKES REGIONAL WATER POLLUTION CONTROL AUTHORITY
(BLRWPCA)
SANITARY SEWER DETAILS



GRAVITY LATERAL CONNECTION TO BUILDING SEWER

SCALE: N.T.S.

FIGURE 05A
JULY 2012

DesignandConstructionStandardsforSanitarySewers

BOLTON LAKES REGIONAL WATER POLLUTION CONTROL AUTHORITY
(BLRWPCA)
SANITARY SEWER DETAILS

GRAVITY LATERAL CONNECTION NOTES

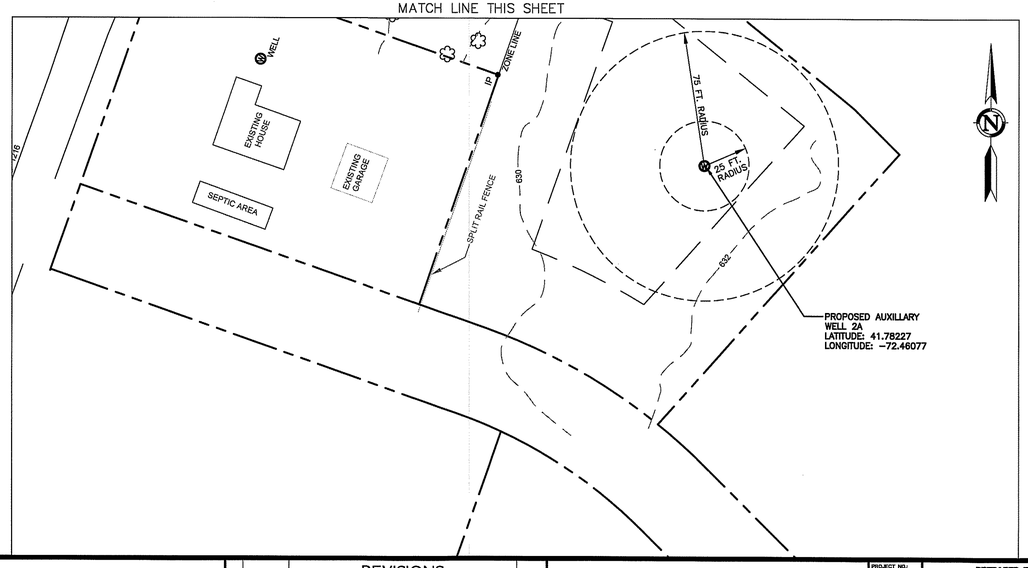
1. CLEANOUTS ARE REQUIRED:
   - WITHIN 100 LINEAR FEET OF THE SEWER MAIN AND EVERY 100 LINEAR FEET THEREAFTER.
   - IMMEDIATELY UPSTREAM OF BENDS GREATER THAN 45° AND EVERY 3 BENDS REGARDLESS OF DEGREE.
   - WITHIN 10 FEET OF THE BUILDING FOUNDATION (INSIDE OR OUTSIDE) UNLESS A PRE-EXISTING INDOOR CLEANOUT IS NOT EASILY ACCESSIBLE IN WHICH CASE AN ADDITIONAL CLEANOUT WILL BE REQUIRED OUTSIDE OF THE FOUNDATION.
   - CLEANOUTS MAY BE LEFT ABOVE GRADE BUT MAY NOT BE LESS THAN 6 INCHES BELOW GRADE.
   - THE BLRWPCA ADMINISTRATOR (OR HIS AUTHORIZED AGENT) RESERVES THE RIGHT TO DETERMINE ACTUAL LOCATION OF CLEANOUTS.
2. TYPE OF PIPE:
   - MINIMUM SDX (6) INCH DIAMETER SDR–35 PIPE SHALL BE USED FOR ALL LATERAL SERVICE CONNECTIONS. COMMERCIAL CONNECTIONS MAY REQUIRE THE USE OF LARGER DIAMETER PIPE AS TO BE DETERMINED BY THE BLRWPCA. ANY DEVIATION FROM SDR–35 REQUIRES APPROVAL FROM THE BLRWPCA.
   - GASKETTED BELL & SPIGOT PIPE OR SOLVENT WELDED PIPE MAY BE USED.
   - PIPE SHALL BE LAID AT A MINIMUM PITCH OF 1% BUT 2% IS PREFERRED.
3. CONNECTIONS TO EXISTING BUILDING SEWERS (THE EXISTING SEPTIC LINE IS USED)
   - A STEEL BANDED FLEXIBLE COUPLING (FERNCO) MAY BE USED TO CONNECT EXISTING CAST IRON/DUCTILE IRON PIPE TO SDR–35, FOUR (4) BANDED FLEXIBLE COUPLINGS.
   - THE BLRWPCA RESERVES THE RIGHT TO DETERMINE IF THE CONDITION OF THE EXISTING BUILDING SEWER IS SUITABLE FOR MAKING THE SEWER CONNECTION. FIBER CONDUIT (ORANGEBURG) AND CLAY PIPES SHALL NOT BE USED.
   - ROLL–ON DONUT TYPE GASKETS NOT ACCEPTED IF USED WITHIN 25' OF FOUNDATION WALL OR 75' OF WELL.
5. TRENCHING/PIPE BEDDING:
   - ALL SEWER LINES MUST BE BEDDED IN 3/4 INCH STONE. FILTER FABRIC IS RECOMMENDED BUT NOT REQUIRED.
   - NATURAL CLAY OR SILT DAMS SHALL BE PLACED IN THE TRENCH IN AREAS OF HIGH GROUNDWATER TABLE.
   - AT LEAST 3 FEET OF COVER MUST BE PROVIDED; MORE IF PIPE IS LAID UNDER A DRIVEWAY OR OTHER AREA IN WHICH VEHICLES OR OTHER HEAVY OBJECTS ARE LIKELY TO PASS OR BE PLACED. IF BUILDING SEWER EXITS FOUNDATION HIGHER THAN 3 FEET BELOW GRADE; 3 FEET OF COVER MUST BE ATTAINED AS SOON AS IS REASONABLY POSSIBLE.
   - IN NO CASE WILL THE TRENCH BE DRAINED OF GROUNDWATER THROUGH THE SANITARY SEWER LATERAL.

FIGURE 05B
JULY 2012

DesignandConstructionStandardsforSanitarySewers

LEGEND

EXISTING	DESCRIPTION	PROPOSED
BORINGS		
TP	BORING / TEST PIT LOCATION	TP
COMMUNICATION		
C_U	UNDERGROUND COMMUNICATION LINES	C
DOMESTIC WATER		
W_A	WATER MAIN	W
WS_A	WATER SERVICE	WS
F_A	FIRE SERVICE LINE	F
NPW_A	NON–POTABLE WATER LINE	NPW
W	WATER VALVE / FIXTURES	WV
	FIRE HYDRANT	
LIQUID FUEL		
LF_U	MAIN LIQUID FUEL LINE	LF
LFS_U	LIQUID FUEL SERVICE LINE	LFS
LF_B	LIQUID FUEL LINE, ABANDONED	
IRRIGATION		
I_X	IRRIGATION LINES	I
LIGHTING		
	POLE / GROUND MOUNTED LIGHT	
NATURAL GAS		
G	GAS MAIN	G
GS	GAS SERVICE LINE	GS
POWER		
ED_A	ELECTRICAL LINES, OVERHEAD	ED
EU_A	ELECTRICAL LINES, UNDERGROUND	EU
	UTILITY POLE	
PROPERTY		
	PROPERTY LINE	
	EASEMENT LINE	
	IRON PIPE	
	IRON ROD	
	MONUMENT	
ROADS		
	GUARD RAIL	
EROSION CONTROL		
	SILT FENCE	SF
SITE FEATURES		
	4" DOUBLE SOLID YELLOW LINE	DSYL
	4" SINGLE SOLID WHITE LINE	SSWL
	BIT. CONC. LIP CURB	BCLC
	PRECAST CONCRETE CURB	PCC
SANITARY SEWER		
S_A	SANITARY SEWER MAIN	S
SS_A	SANITARY SEWER SERVICE LINE	SS
S	SANITARY SEWER MANHOLE	
STORM SEWER		
	STORM DRAIN PIPE	
RL_A	ROOF LEADER	RL
UD	UNDERDRAIN	UD
	STORM DRAIN MANHOLE	
	CURB INLET	
	CATCH BASIN	
	YARD DRAIN	
TOPOGRAPHY		
95	CONTOUR	95
×61.95	SPOT ELEVATION	95
OTHER		
	RAMP	R
	LANDSCAPE AREA	LSA



PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
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21 JEFFREY DRIVE
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PLANNERS / LANDSCAPE ARCHITECTS

UTILITY PLAN NOTES:
1. 'CALL BEFORE YOU DIG' – CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF PENDING EXCAVATION BY CALLING 811 AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING EXCAVATION.
2. THIS PLAN SHALL BE USED FOR UTILITY PURPOSES ONLY
3. REFER TO NOTES SHEET FOR CONSTRUCTION NOTES

NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

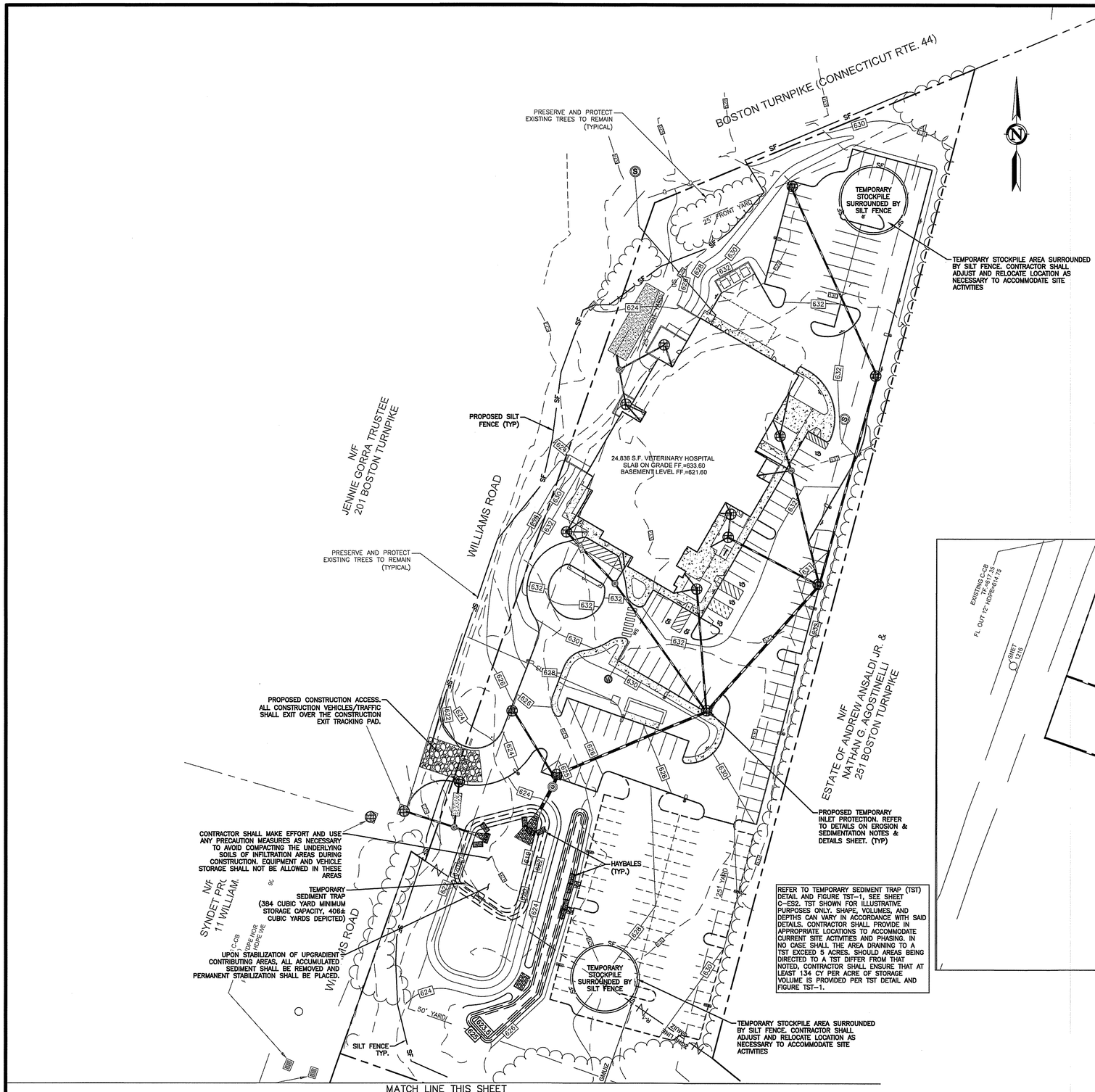
PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: GMM
DRAWN BY: GMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

UTILITIES PLAN

SCALE: 1" = 40' (0, 20', 40', 80')

SHEET
C-UT1
SHEET 5 OF 13



PROPERTY OWNERS:
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SHARON B PREUSS TR
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EROSION & SEDIMENTATION CONTROL PLAN NOTES:
1. "CALL BEFORE YOU DIG" – CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF PENDING EXCAVATION BY CALLING 811 AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING EXCAVATION.
2. THIS PLAN SHALL BE USED FOR EROSION & SEDIMENTATION CONTROL PURPOSES ONLY.
3. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL PLANS.
4. REFER TO EROSION & SEDIMENTATION CONTROL NOTES & DETAILS SHEET FOR EROSION & SEDIMENTATION CONTROL NOTES.

NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

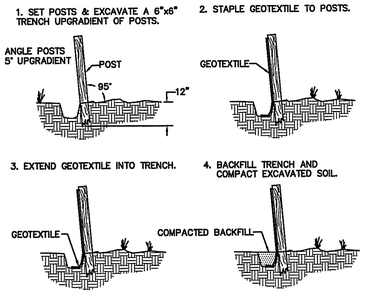
PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: CMM
DRAWN BY: CMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

EROSION & SEDIMENTATION CONTROL PLAN

SCALE: 1" = 40' (0, 20', 40', 80')

SHEET
C-ES1
SHEET 6 OF 13



SILT FENCE

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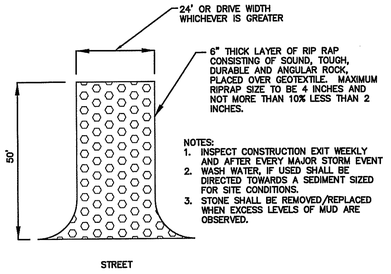

CONSTRUCTION ACCESS

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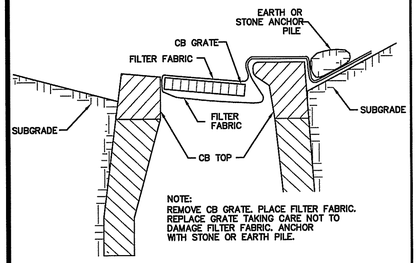

CATCH BASIN GRATE SEDIMENTATION CONTROL

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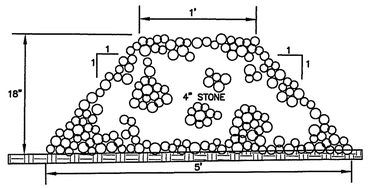

STONE CHECK DAM

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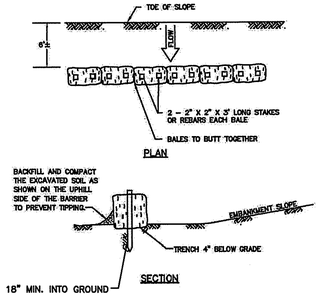

STRAW BALES FOR EROSION CONTROL

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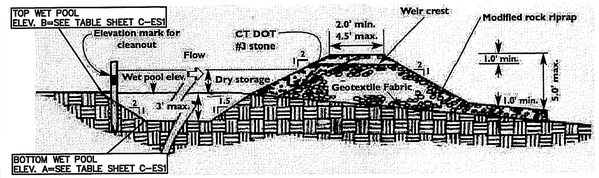


REFER TO 2002 CT GUIDELINES FOR SOIL AND SEDIMENT CONTROL FOR ADDITIONAL DETAIL AND REQUIREMENTS.

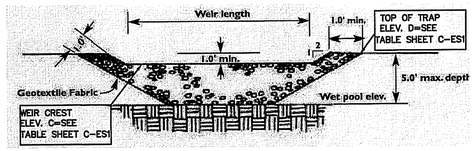


Figure TST-1 Formula for Figuring Temporary Sediment Trap Storage Requirements

Wet storage volume may be approximated as follows:

$$V_W = 0.85 \times A_W \times D_W$$

where,

V_W = the wet storage volume in cubic feet
A_W = the surface area of the flooded area at the base of the stone outlet in square feet
D_W = the maximum depth in feet, measured from the low point in the trap to the base of the stone outlet.

Dry storage volume may be approximated as follows:

$$V_d = \frac{(A_W + A_d)}{2} \times D_d$$

where,

V_d = the dry storage volume
A_W = the surface area of the flooded area at the base of the stone outlet in square feet.
A_d = the surface area of the flooded area at the top of the stone outlet (over flow mechanism), in square feet
D_d = the depth in feet, measured from the base of the stone outlet to the top of the stone outlet

Note: Conversion between cubic feet and cubic yards is: cubic feet x 0.037 = cubic yards.

NOTE:

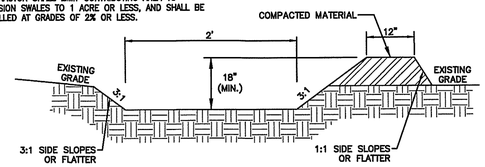
1. VOLUME OF TST SHALL BE A MINIMUM OF 134 CUBIC YARDS PER ACRE DRAINING TO IT. HALF OF THE REQUIRED VOLUME SHALL BE FOR WET STORAGE WHILE THE OTHER HALF SHALL BE FOR DRY STORAGE. REFER TO GENERAL SIZING CALCULATIONS FOR TST BELOW.

TEMPORARY SEDIMENT TRAP

N.T.S.

NOTES:

1) CONTRACTOR SHALL LIMIT CONTRIBUTING AREA TO DIVERSION SWALES TO 1 ACRE OR LESS, AND SHALL BE INSTALLED AT GRADES OF 2% OR LESS.



TEMPORARY DIVERSION SWALE

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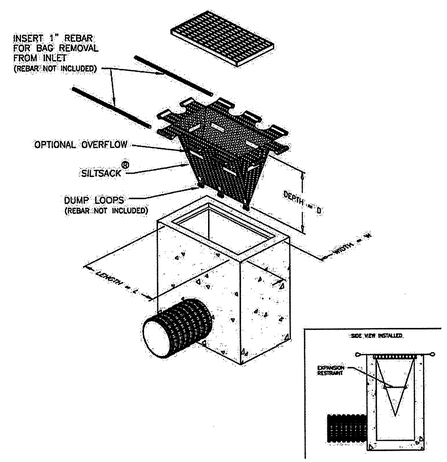


CURB-LESS INLET PROTECTION DETAIL

N.T.S.

CONSTRUCTION SEQUENCE:

1. INSTALL CONSTRUCTION ACCESS AT DRIVEWAYS OR OTHER LOCATIONS AS SHOWN ON PLANS. MAINTAIN THE CONSTRUCTION ENTRANCE IN A CONDITION WHICH WILL PREVENT TRACKING AND WASHING OF SEDIMENT ONTO ABUTTING PAVED SURFACES. ADD STONE OR INCREASE THE LENGTH AS CONDITIONS DEMAND.
2. STAKE-OUT THE LIMITS OF CLEARING AND GRUBBING. INSTALL EROSION AND SEDIMENTATION CONTROL MEASURES AT LIMITS OF CLEARING AND GRUBBING. CONTRACTOR TO CONDUCT ALL CONSTRUCTION ACTIVITIES WITHIN LIMITS SHOWN ON PLAN.
3. CONSTRUCT TEMPORARY SEDIMENT TRAP AS SHOWN ON THE PLANS.
4. REMOVE TOPSOIL FROM AREAS OF DISTURBANCE AND STOCKPILE. POSSIBLE STOCKPILE LOCATIONS ARE SHOWN ON THE SITE PLANS. HOWEVER, LOCATIONS SHALL BE DETERMINED BY CONTRACTOR WITH APPROVAL BY THE ENGINEER & LOCAL AUTHORITY HAVING JURISDICTION. RING SOIL STOCKPILES WITH A ROW OF SILT FENCE.
5. ESTABLISH VEGETATION ON ALL DISTURBED SOIL THAT WILL REMAIN EXPOSED FOR LONGER THAN 30 DAYS. SEED WITHIN 7 DAYS AFTER THE SUSPENSION OF GRADING WORK WITH A TEMPORARY SEED MIXTURE PER SECTION 5-3 "VEGETATIVE SOIL COVER" OF THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL."
6. CREATE TEMPORARY DIVERSION SWALES AS REQUIRED.
7. ANY DEWATERING ACTIVITIES SHALL BE PUMPED TO TEMPORARY SEDIMENT BASIN AT THE TOP OF THE SLOPE. PUMPED DISCHARGE MUST UTILIZE SILT-SAC OR APPROVED EQUAL. MONITOR TO ENSURE DISCHARGE FROM BASIN IS NOT CAUSING EROSION DOWNSTREAM.
8. INSTALL STORM DRAINAGE SYSTEM. PROTECT CATCHBASINS AND CULVERT INLETS/OUTLETS WITH INLET PROTECTION AS SHOWN IN THE DETAILS.
9. INSTALL PAVEMENT, SIDEWALKS, CURBING, TOPSOIL, GRASS SEED, AND MULCH.
10. AFTER STABILIZATION OF UPGRADIENT CONTRIBUTING AREAS TO THE TEMPORARY SEDIMENT BASINS AND/OR TRAPS, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED AND PERMANENT STABILIZATION SHALL BE PLACED.
11. MINOR ADJUSTMENTS TO THE EXCAVATION LIMITS MAY BE WARRANTED WITH APPROVAL OF LOCAL AUTHORITY HAVING JURISDICTION TO ALLOW FOR PRESERVATION OF EXISTING VEGETATION.
12. ALL EROSION CONTROL DEVICES SHALL REMAIN FUNCTIONAL AND IN PLACE THROUGHOUT THE CONSTRUCTION EFFORT UNTIL THE SITE IS FULLY STABILIZED WITH VEGETATION.

STORM DRAINAGE SYSTEM MAINTENANCE AND OPERATION:

THE FOLLOWING MAINTENANCE SHALL BE REQUIRED TO ENSURE EFFICIENT OPERATION OF THE STORM DRAINAGE SYSTEM, DETENTION BASIN, AND UNDERGROUND BASINS. THE MAINTENANCE SCHEDULE IS INTENDED TO BE A GUIDE. AN INSPECTION OF ALL STORM DRAINAGE COMPONENTS IS REQUIRED FOLLOWING LARGE STORM EVENTS (0.5 INCHES OR GREATER) THAT COULD CAUSE THE DEPOSITION OF EXCESS DEBRIS.

PIPE OUTLET LOCATIONS: PIPE OUTLETS AND ASSOCIATED RIPRAP SHALL BE INSPECTED ANNUALLY AND CLEANED OF SILT AND/OR DEBRIS. RIPRAP SHALL BE RE-SHAPED AND REPLENISHED AS REQUIRED.

CATCHBASINS: SHALL BE INSPECTED ANNUALLY AND SUMPS CLEANED WHEN DEPTH OF MATERIAL REACHES TWELVE INCHES.

PAVEMENT SWEEPING: PAVEMENT AREAS SHALL BE SWEPT AT LEAST TWICE PER YEAR. ONCE IN THE SPRING SHORTLY AFTER THE END OF THE SNOW SEASON, AND IN THE FALL AFTER THE LEAVES HAVE FALLEN. DURING CONSTRUCTION KEEP PAVEMENT FREE OF SEDIMENTS TO REDUCE THE TRANSFER OF SEDIMENTS OFFSITE.

OUTLET STRUCTURE: SHALL BE INSPECTED ANNUALLY AND SUMP CLEANED WHEN DEPTH OF MATERIAL REACHES TWELVE INCHES. IN THE EVENT OF A MAJOR RAINSTORM, (0.5 INCHES OF RAIN OR MORE) THE OUTLET STRUCTURE SHALL BE INSPECTED TO ENSURE PROTECTIVE SCREENS ARE CLEAR OF ANY DEBRIS OR OBSTRUCTING ITEMS.

UNDERGROUND DETENTION/INFILTRATION SYSTEM: SHALL BE INSPECTED BI-ANNUALLY. REFER TO MANUFACTURING MAINTENANCE REQUIREMENTS.

INFILTRATION BASIN: SHALL BE INSPECTED BIANNUALLY. ALL LARGE WOODY NON LANDSCAPE GROWTH THAT MAY AFFECT THE FLOW OF WATER OR THE STABILITY OF THE BASIN SHALL BE REMOVED. RIPRAP SHALL BE RE-ARRANGED AND ADDED TO AS REQUIRED. ANY EROSION OR OTHER PROBLEMS THAT MAY AFFECT THE PROPER OPERATION OF THE BASIN SHALL BE REPAIRED PROMPTLY. ACCUMULATED SEDIMENT SHALL BE REMOVED.

WATER QUALITY UNIT: UNIT SHALL BE INSPECTED POST-CONSTRUCTION, PRIOR TO BEING PUT INTO SERVICE. INSPECT EVERY SIX MONTHS FOR THE FIRST YEAR OF OPERATION TO DETERMINE THE OIL AND SEDIMENT ACCUMULATION RATE. IN SUBSEQUENT YEARS, INSPECTIONS CAN BE BASED ON FIRST-YEAR OBSERVATIONS OR LOCAL REQUIREMENTS. CLEANING IS RECOMMENDED ONCE THE SEDIMENT DEPTH REACHES 15% OF STORAGE CAPACITY, (GENERALLY TAKING ONE YEAR OR LONGER). REFER TO MANUFACTURING MAINTENANCE REQUIREMENTS.

EROSION & SEDIMENTATION CONTROL MAINTENANCE AND INSPECTION PROGRAM (WEEKLY CONSTRUCTION REPORTS):

PER RECOMMENDATIONS MADE IN THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL PLAN, THE CONTRACTOR SHALL MAINTAIN WEEKLY REPORTS ON THE CONDITION OF ALL EROSION CONTROL MEASURES AND MAKE THEM AVAILABLE UPON REQUEST OF OWNER, LOCAL AUTHORITY HAVING JURISDICTION, OR ENGINEER. IN THE EVENT OF A MAJOR RAINSTORM, (0.5 INCHES OR GRATER) REPORTS SHALL BE PREPARED WITHIN 24 HOURS OF SAID EVENT.

EROSION & SEDIMENTATION CONTROL NARRATIVE

1. PRIOR TO THE START OF CONSTRUCTION, ALL EROSION CONTROL DEVICES SHALL BE INSTALLED IN CONFORMANCE WITH THESE PLANS.
2. CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION OF ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHOWN ON THESE PLANS. THIS RESPONSIBILITY INCLUDES IMPLEMENTATION AS WELL AS MAINTENANCE. ANY PROPOSED CHANGES TO THIS PLAN MUST BE APPROVED BY THE ENGINEER AND/OR THE LOCAL AUTHORITY HAVING JURISDICTION.
3. CONSTRUCTION ACCESS SHALL BE INSPECTED REGULARLY TO ENSURE PROPER OPERATION. STONE SHALL BE ADDED OR REPLACED AS REQUIRED.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADJACENT ROADWAYS, (BOTH PUBLIC & COMPLETED PORTIONS OF THE PROJECT) FREE FROM ACCUMULATED DUST AND DIRT. STREETS SHALL BE SWEPT CLEAN AT ALL TIMES.
5. AREAS WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED OR WHEN FINAL GRADES ARE REACHED IN ANY PORTION OF THE SITE, SHALL BE STABILIZATION WITH FINAL VEGETATION WITHIN 7 DAYS. AREAS TO BE LEFT BARE FOR MORE THAN 30 DAYS SHALL BE TREATED WITH AIR DRIED WOOD CHIP MULCH (6 CYDS / 1000 S.F.) OR SEEDED WITH PERENNIAL RYE-GRASS UNTIL FINAL GRADING AND STABILIZATION TAKES PLACE. WINTER STABILIZATION SHALL INCLUDE MULCH/STRAW OR HAY APPLIED AT THE SAME RATE WITH A TACKIFIER PER RECOMMENDATIONS MADE IN THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.
6. ALL DISTURBED SLOPES EXCEEDING A 3:1 SLOPE SHALL IMMEDIATELY RECEIVE MULCH AND TEMPORARY SEEDING IN ACCORDANCE WITH THE FOLLOWING APPLICATION RATES:

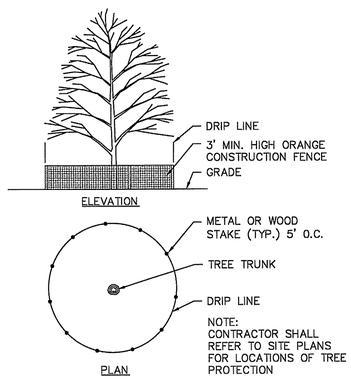
MULCH:	RATE:
STRAW	90# / 1000 S.F.
TEMPORARY SEEDING:	**RATE:**
PERENNIAL RYEGRASS	1.0# / 1000 S.F.

7. CONTRACTOR SHALL CLEAN CATCHBASIN SUMPS, DIVERSION SWALES, & TEMPORARY SETTLING SUMPS AS REQUIRED DURING CONSTRUCTION.
8. DURING EARTHWORK OPERATIONS, CONTRACTOR SHALL MANAGE STORMWATER RUNOFF SO THAT NO DIRECT DISCHARGE OF RUNOFF THAT CONTAINS SUSPENDED PARTICLES, FLOWS INTO RECEIVING WATERS. RUNOFF SHALL BE DIRECTED INTO TEMPORARY SEDIMENT SUMPS AND TREATED.
9. AT NO TIME DURING THE CONSTRUCTION EFFORT SHALL THERE BE ANY OPEN AND DISTURBED AREA GREATER THAN 5 ACRES WITHOUT SILT FENCE PERIMETER OF SET AREA.
10. AFTER ALL SITE WORK IS COMPLETED, INCLUDING THE SPREADING OF TOPSOIL AND SEEDING, THE CONTRACTOR SHALL CLEAN ANY SILT OR DEBRIS FROM ALL STORM DRAINAGE STRUCTURES AND CULVERTS.
11. AT ALL TIMES DURING THE CONSTRUCTION EFFORT, THE CONTRACTOR SHALL HAVE AVAILABLE THE APPROPRIATE EQUIPMENT FOR WATER APPLICATION FOR THE PURPOSES OF ALLAYING DUST. APPLY WATER, SUITABLE MATERIALS, OR COVERS TO MATERIAL STOCKPILES AND OTHER SURFACES THAT CAN GIVE RISE TO AIRBORNE PARTICULATE MATTER. COVER, WHILE IN MOTION, OPEN-BODIED TRUCKS OR OPEN-BODIED TRAILERS. MINIMIZE THE VOLUME OF WATER SPRAYED FOR CONTROLLING DUST AS TO PREVENT THE RUNOFF OF WATER. NO DISCHARGE OF DUST CONTROL WATER SHALL CONTAIN OR CAUSE A VISIBLE OIL SHEEN, FLOATING SOLIDS, VISIBLE DISCOLORATION, OR FOAMING IN THE RECEIVING STREAM.
12. THE DEVELOPER SHALL ENSURE THAT CONSTRUCTION ACTIVITIES COMPLY WITH THE NOISE ORDINANCES OF THE AUTHORITY HAVING JURISDICTION.
13. THE CONTRACTOR SHALL EXCAVATE A PIT TO BE DESIGNATED AS A WASHOUT AREA FOR CONCRETE, PAINT, AND OTHER MATERIALS. THIS AREA SHALL BE CLEARLY FLAGGED AND CONSTRUCTED TO BE ENTIRELY SELF-CONTAINED. THIS AREA SHALL BE OUTSIDE OF ANY BUFFERS AND AT LEAST 50 FEET FROM ANY STREAM, WETLAND, OR OTHER SENSITIVE SOURCE. DUMPING OF LIQUID WASTES IN STORM SEWERS IS PROHIBITED. THE WASHOUT AREA SHALL BE INSPECTED AT LEAST ONCE A WEEK TO ENSURE STRUCTURAL INTEGRITY, ADEQUATE HOLDING CAPACITY, AND TO CHECK FOR LEAKS AND OVERFLOWS. ACCUMULATED DEBRIS SHOULD BE REMOVED ONCE THE WASHOUT AREA REACHES HALF WAY FULL OR IS DEEMED NECESSARY TO AVOID OVERFLOWS. REMOVE AND DISPOSE OF HARDENED CONCRETE WASTE CONSISTENT WITH PRACTICES DEVELOPED FOR THE WASTE DISPOSAL.
14. THE CONTRACTOR SHALL DESIGNATE A WASTE DISPOSAL AREA FOR TEMPORARY STORAGE OF MATERIALS TO BE REMOVED FROM THE SITE. THE DESIGNATED WASTE AREA SHALL BE SELECTED AS TO MINIMIZE TRUCK TRAVEL THROUGH THE SITE. THE AREA WILL NOT DRAIN DIRECTLY TO ADJACENT WETLANDS. PICKUPS SHALL BE SCHEDULED REGULARLY TO PREVENT THE CONTAINERS FROM OVERFILLING. SPILLS SHALL BE CLEANED UP IMMEDIATELY. DEFECTIVE CONTAINERS THAT MAY CAUSE LEAKS OR SPILLS WILL BE IDENTIFIED THROUGH REGULAR INSPECTION. ANY FOUND TO BE DEFECTIVE WILL BE REPAIRED OR REPLACED IMMEDIATELY. ANY STOCKPILING OF MATERIALS SHOULD BE CONFINED TO THE DESIGNATED AREA AS DEFINED BY THE CONTRACTOR.
15. ALL CHEMICAL AND PETROLEUM PRODUCT CONTAINERS STORED ON THE SITE (EXCLUDING THOSE CONTAINED WITHIN VEHICLES AND EQUIPMENT) SHALL BE PROVIDED WITH IMPERMEABLE CONTAINMENT WHICH WILL HOLD AT LEAST 110% OF THE VOLUME OF THE LARGEST CONTAINER, OR 10% OF THE TOTAL VOLUME OF ALL CONTAINERS IN THE AREA, WHICHEVER IS LARGER, WITHOUT OVERFLOW FROM THE CONTAINMENT AREA. ALL CHEMICALS AND THEIR CONTAINERS SHALL BE STORED UNDER A ROOFED AREA EXCEPT FOR THOSE CHEMICALS STORED IN CONTAINERS OF 100 GALLON CAPACITY OR MORE, IN WHICH CASE A ROOF IS NOT REQUIRED. DOUBLE-WALLED TANKS SATISFY THIS REQUIREMENT.
16. CONTRACTOR SHALL COORDINATE WITH THE PROPER AGENCIES FOR RELOCATION OF ANY UTILITIES OR SIGNS.
17. IF REQUIRED, AN APPROVED EROSION CONTROL BOND SHALL BE PREPARED BEFORE THE START OF ANY CONSTRUCTION ACTIVITY.
18. FROZEN MATERIAL SHALL NOT BE USED FOR FILL NOR SHALL FILL BE PLACED OR COMPACTED ON FROZEN GROUND.

ESTIMATED CONSTRUCTION START DATE – SUMMER 2022
ESTIMATED COMPLETION DATE – SPRING 2023

CONSTRUCTION DUST CONTROL NOTES

- IDENTIFY AND ADDRESS SOURCES OF DUST GENERATED BY CONSTRUCTION ACTIVITIES. LIMIT CONSTRUCTION TRAFFIC TO PREDETERMINED ROUTES. PAVED SURFACES REQUIRE MECHANICAL SWEEPERS TO REMOVE SOIL THAT HAS BEEN DEPOSITED OR TRACKED ONTO THE PAVEMENT. ON UNPAVED TRAVELWAYS AND TEMPORARY HAUL ROADS, USE ROAD CONSTRUCTION STABILIZATION MEASURES AND/OR WATER AS NEEDED TO KEEP SURFACE DAMP. STATIONARY SOURCES OF DUST, SUCH AS ROCK CRUSHERS, USE FINE WATER SPRAYS TO CONTROL DUST. IF WATER IS EXPECTED TO BE NEEDED FOR DUST CONTROL, IDENTIFY THE SOURCE OF WATER IN ADVANCE. PUMPING FROM STREAMS, POND AND SIMILAR WATERBODIES MAY REQUIRE APPROVAL FROM THE MUNICIPAL INLAND WETLAND AGENCY.
- IDENTIFY AND ADDRESS SOURCES OF WIND GENERATED DUST. PROVIDE SPECIAL CONSIDERATION TO HILL TOPS AND LONG REACHES OF OPEN GROUND WHERE SLOPES MAY BE EXPOSED TO HIGH WINDS. CONSIDER BREAKUP LONG REACHES WITH TEMPORARY WINDBREAKS CONSTRUCTED FROM BRUSH PILES, GEOTEXTILE SILT FENCES OR HAY BALES. PLAN ON STABILIZING SLOPES EARLY. MULCH FOR SEED WILL REQUIRE ANCHORING WHEN USED.
- CONSIDER WATER QUALITY WHEN SELECTING THE METHOD AND/OR MATERIALS USED FOR DUST CONTROL. WHEN CONSIDERING THE USE OF CALCIUM CHLORIDE, BE AWARE OF THE FOLLOWING: THE RECEIVING SOIL'S PERMEABILITY SO AS TO PREVENT GROUNDWATER CONTAMINATION; THE TIMING OF THE APPLICATION TO RAINFALL TO PREVENT WASHING OF SALTS INTO SENSITIVE AREAS SUCH AS WETLANDS AND WATERCOURSES; AND PROXIMITY TO SENSITIVE AREAS SUCH AS WATERCOURSES, PONDS, ESTABLISHED OR SOON TO BE ESTABLISHED AREA OF PLANTINGS, WHERE SALTS COULD IMPAIR OR DESTROY PLANT AND ANIMAL LIFE. ADDITIONALLY, SOME MATERIALS USED FOR DUST CONTROL MAY BE RENDERED INEFFECTIVE BY DEGRADED WATER QUALITY IF IT IS USED FOR MIXING.
- CONSIDER USING DUST CONTROL MEASURES ONLY AFTER IT IS DETERMINED THAT OTHER MEASURES FOR SOIL STABILIZATION CANNOT BE PRACTICALLY APPLIED.
- USE MECHANICAL SWEEPING ON PAVED AREAS WHERE DUST AND FINE MATERIALS ACCUMULATE AS A RESULT OF TRUCK TRAFFIC, PAVEMENT SAW CUTTING SPILLAGE, AND WIND OR WATER DEPOSITION FROM ADJACENT DISTURBED AREAS. SWEEP DAILY IN HEAVILY TRAFFICKED AREAS.
- PERIODICALLY MOISTEN EXPOSED SOIL SURFACES ON UNPAVED TRAVELWAYS TO KEEP THE TRAVELWAY DAMP.
- NON-ASPHALTIC SOIL TACKIFIER CONSISTS OF AN EMULSIFIED LIQUID SOIL STABILIZER OF ORGANIC, INORGANIC OR MINERAL ORIGIN, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING: MODIFIED RESINS, CALCIUM CHLORIDE, COMPLEX SURFACTANT, COPOLYMERS OR HIGH GRADE LATEX ACRYLICS. THE SOLUTIONS SHALL BE NONASPHALTIC, NONTOXIC TO HUMAN, ANIMAL AND PLANT LIFE, NONCORROSIVE AND NONFLAMMABLE. MATERIALS USED SHALL MEET LOCAL, STATE AND FEDERAL GUIDELINES FOR INTENDED USE. ALL MATERIALS ARE TO BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND ALL SAFETY GUIDELINES SHALL BE FOLLOWED IN STORING, HANDLING AND APPLYING MATERIALS.
- REPEAT APPLICATION OF DUST CONTROL MEASURES WHEN FUGITIVE DUST BECOMES EVIDENT.



TREE PROTECTION

N.T.S.

PROJECT CONTACT INFO:

ED GRACE
(860)646-6134

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
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APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
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CIVIL & TRAFFIC ENGINEERS / LAND SURVEYORS
PLANNERS / LANDSCAPE ARCHITECTS

NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO:	4798
DATE:	3/21/22
DESIGN BY:	CMM
DRAWN BY:	CMM
CHECKED BY:	SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

EROSION & SEDIMENTATION DETAILS & NOTES

SHEET
C-ES2
SHEET 7 OF 13

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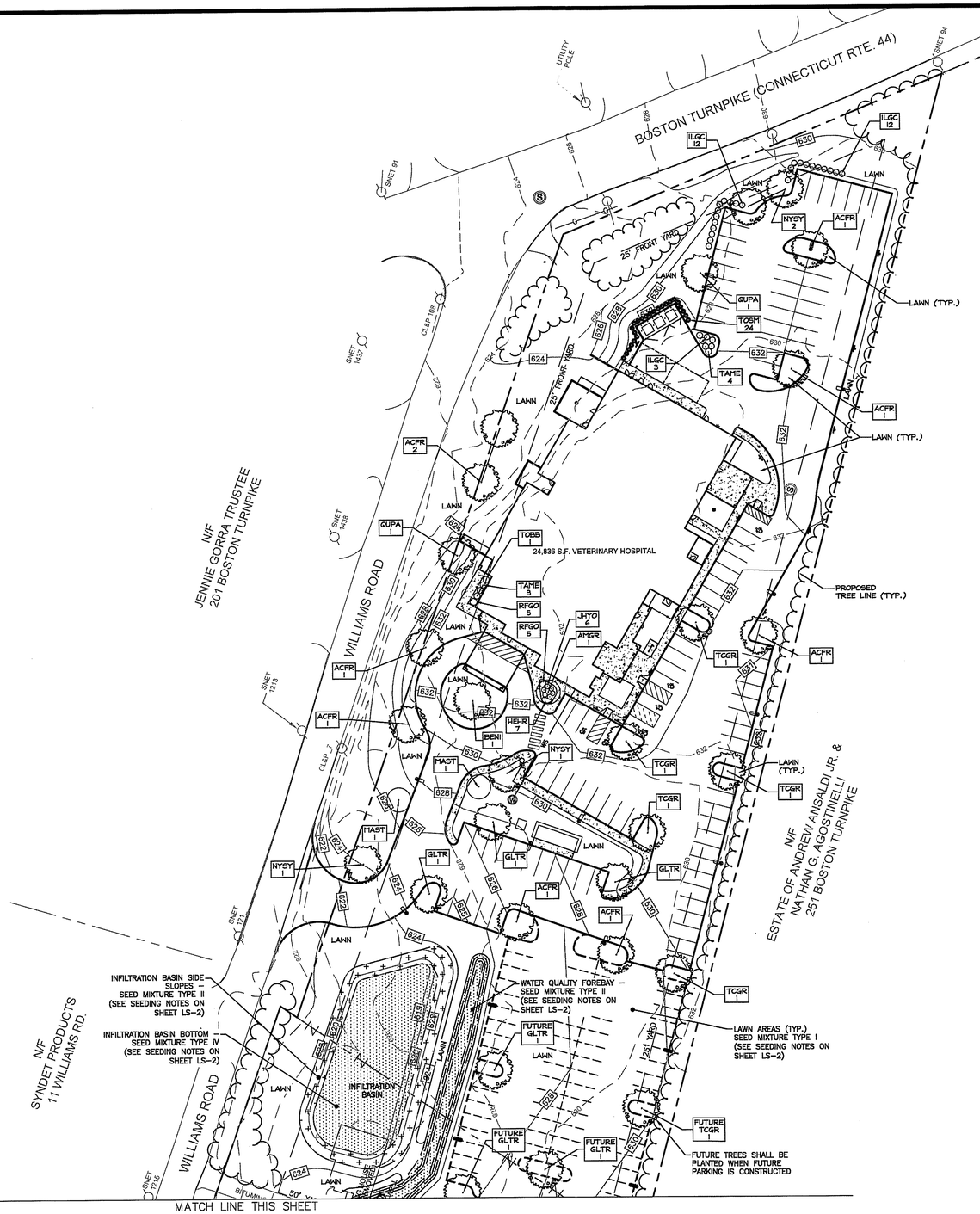
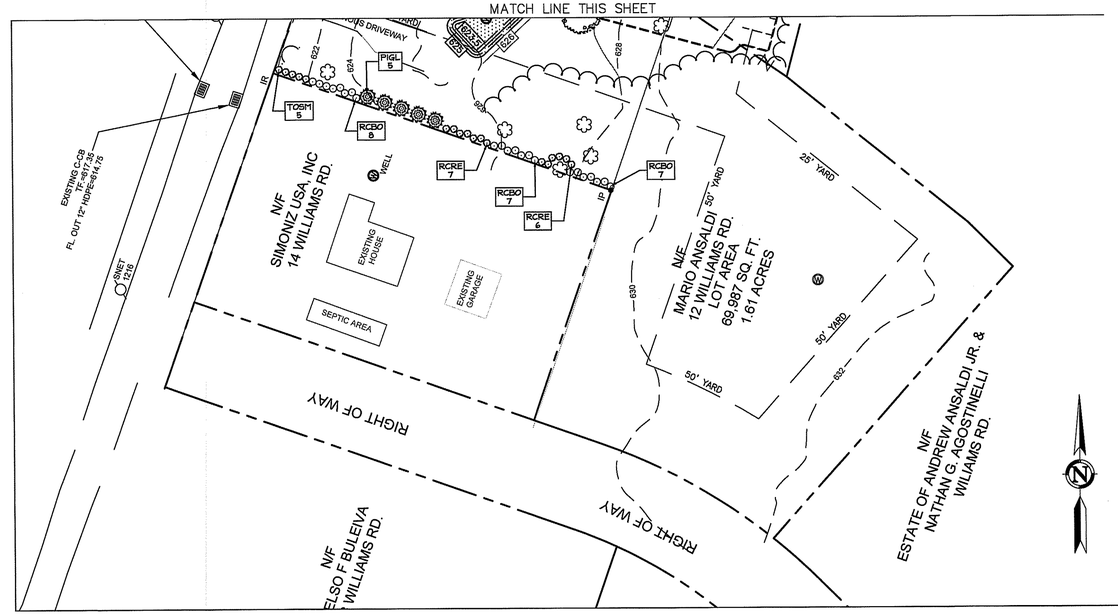


LANDSCAPE PLANTING SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	NOTES
DECIDUOUS TREES						
ACFR	9	Acer x. freemanii 'Jeffer's Red'	Autumn Blaze Maple	3" cal.	B&B	PLANT AS SHOWN
AMGR	1	Amelanchier x. grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	2" cal.	B&B	PLANT AS SHOWN – SINGLE STEM
BENI	1	Betula nigra 'Heritage'	Heritage River Birch	8'–10' HT.	B&B	MULTI–STEM
GLTR	6	Gleditsia triacanthos var. inermis 'Skyline'	Skyline Honeylocust	3" cal.	B&B	PLANT AS SHOWN
MAST	2	Malus 'Sugar Tyme'	Sugar Tyme Crabapple	3" cal.	B&B	PLANT AS SHOWN
NYSY	4	Nyssa sylvatica 'Wildfire'	Wildfire Black Tupelo	3" cal.	B&B	PLANT AS SHOWN
QUPA	2	Quercus palustris	Pin Oak	3" cal.	B&B	PLANT AS SHOWN
TCGR	6	Tilia cordata 'Greenspire'	Greenspire Littleleaf Linden	3" cal.	B&B	PLANT AS SHOWN
EVERGREENS						
PIGL	5	Picea glauca	White Spruce	6'–8' Ht.	B&B	PLANT AS SHOWN
SHRUBS						
ILGC	27	Ilex glabra 'Compacta'	Compact Inkberry	No. 3	CONT.	4' O.C.
JHYO	6	Juniperus horizontalis 'Youngstown'	Youngstown Andorra Juniper	No. 3	CONT.	3' O.C.
RCBO	22	Rhododendron catawbiense 'Borsault'	Borsault Rhododendron	24"–30"	CONT.	4' O.C.
RCRE	13	Rhododendron catawbiense 'Roseum Elegans'	Roseum Elgans Rhododendron	24"–30"	CONT.	4' O.C.
TAME	7	Taxus x. media 'Densiformis'	Dense Spreading Yew	No. 3	CONT.	3' O.C.
TOSM	29	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	4'–5' ht.	B&B	3' O.C.
TOBB	1	Thuja occidentalis 'Mr. Bowling Ball'	Mr. Bowling Ball Arborvitae	No. 3	CONT.	3' O.C.
PERENNIALS						
HEHR	7	Hemerocallis 'Happy Returns'	Happy Returns Daylily	No. 1	CONT.	2' O.C.
RFGO	10	Rudbeckia fulgida 'Goldstrum'	Goldstrum Black–eyed Susan	No. 1	CONT.	2' O.C.

LANDSCAPING NOTES:

1. ONE TREE IS REQUIRED PER 20 PARKING SPACES. 164 TOTAL PARKING SPACES/20 = 8.2 TREES REQUIRED. 21 SHADE TREES PROVIDED IN PARKING ISLANDS AND ADJACENT TO PARKING AREAS.
2. 20 SQUARE FEET OF LANDSCAPED AREA WITHIN THE PERIMETER OF THE PARKING AREA PER PARKING SPACE IS REQUIRED. 164 PARKING SPACES (INCLUDES FUTURE SPACES) x 20 SF = 3280 SF LANDSCAPED AREA REQUIRED. 3677 SF LANDSCAPED AREA PROVIDED.



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STATE OF CONNECTICUT · GLEN M. MARTIN · NO. 778 · REGISTERED LANDSCAPE ARCHITECT

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LANDSCAPE PLAN NOTES:
1. "CALL BEFORE YOU DIG" – CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF PENDING EXCAVATION AT OR NEAR PUBLIC UTILITIES. CALL 811 AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION.
2. THIS PLAN SHALL BE USED FOR LANDSCAPING ONLY
3. REFER TO LANDSCAPE DETAILS & NOTES SHEET FOR LANDSCAPE AND SEEDING NOTES

NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO: 4798
DATE: 3/21/22
DESIGN BY: GMM
DRAWN BY: GMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

LANDSCAPE PLAN

SCALE: 1" = 40' (0, 20', 40', 80')

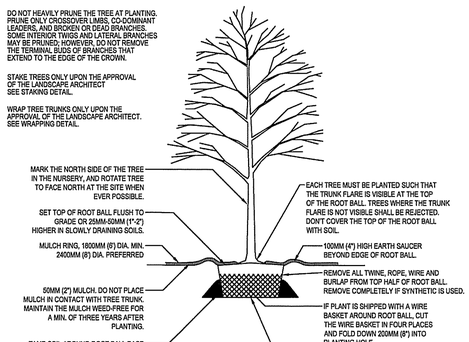
SHEET
C-LS1
SHEET 8 OF 13

LANDSCAPE NOTES:

1. ALL EXISTING TREES TO REMAIN SHALL BE SHAPED OR PRUNED WITHIN THE DEVELOPMENT AND ALONG THE PERIMETER OF CONSTRUCTION LIMIT UNDER THE DIRECTION OF A LICENSED ARBORIST.
2. DEBRIS AND DEAD, UNHEALTHY EXISTING TREES AND INVASIVE SPECIES SHALL BE REMOVED FROM WETLANDS AND RESIDENTIAL LANDSCAPE BUFFER AREAS.
3. ALL AREAS DESIGNATED TO BE SEEDED SHALL RECEIVE FOUR (4) INCHES OF TOPSOIL, SOIL AMENDMENTS AND MULCH. WATER AND MAINTAIN LAWN AREAS UNTIL ALL AREAS ARE STABILIZED AND ACCEPTED BY OWNER'S REPRESENTATIVE.
4. PLANTS: ALL PLANTS SHALL COMPLY WITH THE RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD OF NURSERY STOCK." PROVIDE PLANTS TYPICAL OF THEIR SPECIES OR VARIETY WITH NORMAL, DENSELY-DEVELOPED BRANCHES AND VIGOROUS, FIBROUS ROOT SYSTEMS. PROVIDE ONLY SOUND, HEALTHY, VIGOROUS PLANTS FREE FROM INSECT PESTS, DISEASES, AND PHYSICAL INJURY. ALL PLANTS SHALL HAVE A FULLY DEVELOPED FORM WITHOUT VOIDS AND OPEN SPACES.
5. BALLED AND BURLAPPED PLANTS: DIG BALLED AND BURLAPPED PLANTS WITH FIRM, NATURAL BALLS OF EARTH OF SUFFICIENT DIAMETER AND DEPTH TO ENCOMPASS THE FIBROUS AND FEEDING ROOT SYSTEM NECESSARY FOR FULL RECOVERY OF PLANT. PROVIDE BALL SIZES COMPLYING WITH THE LATEST EDITION OF THE "AMERICAN STANDARD FOR NURSERY STOCK". CRACKED OR MUSHROOMED BALLS ARE NOT ACCEPTABLE.
5.A. BARE-ROOT PLANTS: DIG WITH ADEQUATE FIBROUS ROOTS, COVERED WITH A UNIFORMLY THICK COATING OF MUD BY BEING PUDDLED IMMEDIATELY AFTER THEY ARE DUG, OR PACKED IN MOIST STRAW OR PEAT MOSS.
5.B. CONTAINER-GROWTH STOCK: GROWN IN A CONTAINER FOR SUFFICIENT LENGTH OF TIME FOR THE ROOT SYSTEM TO HAVE DEVELOPED TO HOLD ITS SOIL TOGETHER, FIRM AND WHOLE.
5.B.A. CONTAINER STOCK SHALL NOT BE POT BOUND.
5.B.B. CONTAINER STOCK SHALL NOT BE LOOSE IN THE CONTAINER.
5.C. ALL PLANTS SHALL BE NURSERY GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT, FOR AT LEAST ONE YEAR.
6. CONTRACTOR RESPONSIBLE TO WARRANT PLANT MATERIAL TO REMAIN ALIVE AND BE HEALTHY, VIGOROUS CONDITION FOR A PERIOD OF 1 YEAR AFTER FINAL ACCEPTANCE OF ENTIRE PROJECT INCLUDING DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM NEGLECT BY OWNER, ABUSE OR DAMAGE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS WHICH ARE BEYOND CONTRACTOR'S CONTROL.
7. CONTRACTOR TO REMOVE AND REPLACE TREES, SHRUBS, OR OTHER PLANTS FOUND TO BE DEAD OR IN UNHEALTHY CONDITION DURING WARRANTY PERIOD AT CONTRACTOR'S EXPENSE. REPLACE TREES AND SHRUBS WHICH ARE IN DOUBTFUL CONDITION AT END OF WARRANTY PERIOD, AND EXTEND WARRANTY PERIOD FOR AN ADDITIONAL GROWING SEASON FOR THE REPLACEMENT PLANTS.
8. CONTRACTOR RESPONSIBLE FOR PLANTING UNDER FAVORABLE WEATHER CONDITIONS AND RECOMMENDED SEASON FOR PLANT SURVIVAL AND ESTABLISHMENT. AT OPTION OF, AND UNDER FULL RESPONSIBILITY OF CONTRACTOR, PLANTING OPERATIONS MAY BE CONDUCTED UNDER UNSEASONABLE CONDITIONS, BUT WITHOUT ADDITIONAL COMPENSATION. IF SPECIAL CONDITIONS EXIST TO REQUIRE PLANTING OUTSIDE THE ABOVE SPECIFIED DATES, THE CONTRACTOR SHALL SUBMIT IN WRITING FOR PERMISSION BY THE OWNER'S REPRESENTATIVE. ANY VARIANCE IN THE PLANTING SEASON WILL NOT AFFECT THE ONE YEAR PLANTING GUARANTEE PERIOD.
9. DO NOT MAKE SUBSTITUTIONS. IF SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON-AVAILABILITY TO OWNER TOGETHER WITH PROPOSAL FOR USE OF EQUIVALENT MATERIAL. SUBSTITUTION OF PLANTS WILL NOT BE PERMITTED UNLESS APPROVED IN WRITING BY THE OWNER.
9.A. ROOT TYPES MAY BE FREELY SUBSTITUTED IN THE CASE OF BALLED AND BURLAPPED, OR CONTAINER GROWN, ALL OTHER SPECIFICATIONS REMAINING UNCHANGED. BARE ROOT OR COLLECTED PLANTS ARE NOT ACCEPTABLE AS SUBSTITUTES WITHOUT RECEIPT OF A CHANGE ORDER.
10. PROVIDE A MINIMUM OF 12" OF PLANTING SOIL MIXTURE IN ALL PLANTING BEDS.
11. PLANTING SOIL MIXTURE (BY VOLUME) SHALL BE EQUAL TO:
    A. BARK MULCH/COMPOST 10%-12%
    B. COARSE SAND 40-45%
    C. TOPSOIL 45-50%
12. PRIOR TO PLANTING, THE CONTRACTOR SHALL OBTAIN SOIL TEST FROM A CERTIFIED SOIL LABORATORY FOR ALL AREAS OF THE SITE WITH RECOMMENDATIONS FOR APPROPRIATE SOIL AMENDMENTS FOR THE TYPES OF PLANTS SPECIFIED.
12.A. LIME SHALL BE PELLETIZED LIME MANUFACTURED TO MEET AGRICULTURAL STANDARDS AND CONTAIN A MAXIMUM OF 60% OXIDE. (I.E., CALCIUM OXIDE PLUS MAGNESIUM OXIDE.)
12.B. FERTILIZER SHALL BE OF A FORMULA INDICATED BY THE SOIL TESTING TO ACHIEVE A MINIMUM OF ONE POUND OF NITROGEN PER 1,000 S.F. OF LAWN AREA. FERTILIZER SHALL BE A MINIMUM OF 50% ORGANIC SLOW-RELEASE COMPOSITION.
12.C. NO SOIL AMENDMENTS OR FERTILIZER SHALL BE USED FOR AREA DISTURBED WITHIN WETLANDS OR CREATED WATER QUALITY BASINS
12.D. CONTRACTOR TO HAVE FERTILIZER MATERIALS DELIVERED IN ORIGINAL, UNOPENED, AND UNDAMAGED CONTAINERS SHOWING WEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. STORE IN MANNER TO PREVENT WETTING AND DETERIORATION.
12.E. DELAY MIXING FERTILIZER IF PLANTING WILL NOT FOLLOW PLACING OF PLANTING SOIL WITHIN A FEW DAYS.
13. DAYLILLIES AND PERENNIALS SHALL BE INSTALLED AT 24" O.C., UNLESS NOTED OTHERWISE. APPLY 2" OF BARK MULCH, IN AREAS OF GROUND COVER AND PERENNIALS OR OWNER SELECTED ANNUALS.
14. NO PLANT, EXCEPT GROUND COVERS, GRASSES, OR VINES, SHALL BE PLANTED LESS THAN TWO FEET FROM STRUCTURES, EDGE OF PAVEMENT, OR BACK OF CURB.
15. TREES IN EXCESS OF 3" CALIPER SHALL BE SUBJECT TO INSPECTION FOR CONFORMITY TO THE SPECIFICATIONS AND APPROVAL OF LANDSCAPE ARCHITECT AT TIME OF PLACE OF GROWTH AND UPON DELIVERY. WRITTEN REQUEST SHALL BE SUBMITTED 10 DAYS PRIOR.
16. CONTRACTOR RESPONSIBLE TO SUBMIT CERTIFICATES OF INSPECTION AS REQUIRED BY GOVERNMENTAL AUTHORITIES. LANDSCAPE MATERIALS TO BE SHIPPED WITH CERTIFICATES OF INSPECTION REQUIRED BY GOVERNMENTAL AUTHORITIES. COMPLY WITH REGULATIONS APPLICABLE TO LANDSCAPE MATERIALS AND CONTRACTOR TO SUBMIT MANUFACTURER'S OR VENDOR'S CERTIFIED ANALYSIS FOR FERTILIZER MATERIALS.
17. MOVING AND STORAGE OF PLANT MATERIALS: CONTRACTOR TO TAKE ALL PRECAUTIONS CUSTOMARY IN GOOD TRADE PRACTICE IN PREPARING PLANTS FOR MOVING. WORKMANSHIP THAT FAILS TO MEET THE HIGHEST STANDARDS WILL BE REJECTED.
17.A. SPRAY DECIDUOUS PLANTS IN FOLIAGE WITH AN APPROVED ANTITRANSPIRANT IMMEDIATELY AFTER DIGGING TO PREVENT DEHYDRATION.
17.B. LEGIBLY TAG PLANTS WITH BOTANICAL NAME AND SIZE IN ACCORDANCE WITH THE STANDARDS OF PRACTICE OF THE AMERICAN ASSOCIATION OF NURSERYMEN.
17.C. DIG, PACK, TRANSPORT, AND HANDLE PLANTS WITH CARE TO ENSURE PROTECTION AGAINST INJURY. FULLY PROTECT PLANTS FROM DAMAGE BY SUN, WIND, DROUGHT, WATER AND OTHER INJURIOUS CONDITIONS DURING TRANSPORTATION TO SITE AND DURING TEMPORARY STORAGE BEFORE PLANTING.
17.D. INSPECTION CERTIFICATES REQUIRED BY LAW SHALL ACCOMPANY EACH SHIPMENT INVOICE OR ORDER TO STOCK AND ON ARRIVAL. THE CERTIFICATE SHALL BE FILED WITH THE OWNER.
17.E. NO PLANT SHALL BE BOUND WITH ROPE OR WIRE IN A MANNER THAT COULD DAMAGE OR BREAK THE BRANCHES.
18. A COMPLETE LIST OF PLANTS, INCLUDING A SCHEDULE OF SIZES, QUANTITIES, AND OTHER REQUIREMENTS IS SHOWN ON THE DRAWINGS. IN THE EVENT THAT QUANTITY DISCREPANCIES OR MATERIAL OMISSIONS OCCUR IN THE PLANT MATERIALS LIST, THE PLANTING PLANS SHALL GOVERN.
19. STOCK FURNISHED SHALL BE AT LEAST THE MINIMUM SIZE INDICATED ON THE DRAWINGS. LARGER STOCK IS ACCEPTABLE, AT NO ADDITIONAL COST AND PROVIDING THE LARGER PLANTS WILL NOT BE CUT BACK TO THE SIZE INDICATED ON THE DRAWINGS.
20. THE HEIGHT OF THE TREE, MEASURED FROM THE CROWN OF THE ROOTS TO THE AVERAGE HEIGHT OF THE TOP OF THE TREE, SHALL NOT BE LESS THAN THE MINIMUM SIZE DESIGNATED IN THE PLANT LIST.
21. SHRUBS AND SMALL PLANTS SHALL MEET THE REQUIREMENTS FOR SPREAD AND HEIGHT INDICATED IN THE PLANT LIST.
22. NO PRUNING WOUNDS SHALL BE PRESENT WITH A DIAMETER OF MORE THAN 1 INCH AND SUCH WOUNDS MUST SHOW VIGOROUS BARK ON ALL EDGES.
23. ANTITRANSPIRANT: PROVIDE PROTECTIVE FILM EMULSION PROVIDING A PROTECTIVE FILM OVER PLANT SURFACES; PERMEABLE TO PERMIT TRANSPIRATION. MIXED AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
24. WATER IS TO BE SUPPLIED FOR PLANTS THAT IS CLEAN, FREE FROM TOXIC AMOUNTS OF SALT, OIL, ACID ALKALI, ORGANIC MATTER OR OTHER SUBSTANCES HARMFUL TO PLANTS.
25. CONTRACTOR TO PRUNE AND REPAIR PLANTS AS FOLLOWS:
25.A. REMOVE OR CUT BACK, BROKEN, DAMAGED, AND UNSYMMETRICAL GROWTH OF NEW WOOD.
25.B. "MULTIPLE LEADER PLANTS: PRESERVE THE CENTRAL LEADER WHICH WILL BEST PROMOTE THE SYMMETRY OF THE PLANT. CUT BRANCHES FLUSH AT THE BRANCH COLLAR WITH THE TRUNK OR MAIN BRANCH.
25.C. PRUNE NEEDLE-LEAF EVERGREEN TREES ONLY TO REMOVE BROKEN OR DAMAGED BRANCHES.
25.D. ALL TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7 FEET ABOVE FINISH GRADE.
26. MULCH TO BE APPLIED AS FOLLOWS:
26.A. AREAS TO RECEIVE MULCH: ALL PLANT BEDS AND OTHER AREAS AS DESIGNATED ON DRAWINGS SHALL BE MULCHED.
26.B. PLACEMENT: PLACE MULCH TO REQUIRED UNIFORM DEPTH SOON AFTER PLANTING TO PREVENT DRYING OF PLANTING SOIL AROUND ROOTS. DO NOT PLACE MULCH WITHIN 3" OF TREE TRUNKS.
26.C. APPLY BARK MULCH TO A UNIFORM DEPTH OF 2 INCHES.
26.D. MULCH SHALL BE 6 MONTHS OLD, WELL-ROTTED, SHREDDED, NATIVE HARDWOOD BARK, NOT LARGER THAN 4" IN LENGTH AND 1/2" IN WIDTH, FREE OF WOOD CHIPS AND SAWDUST.
27. CONTRACTOR RESPONSIBLE FOR MAINTENANCE OF PLANT MATERIALS:
27.A. MAINTAIN PLANTINGS UNTIL FINAL ACCEPTANCE OF WORK.
27.B. "MAINTENANCE SHALL INCLUDE PRUNING, WEEDING, WATERING, AND APPLICATION OF APPROPRIATE INSECTICIDES AND FUNGICIDES NECESSARY TO MAINTAIN PLANTS FREE OF INSECTS AND DISEASE.
27.C. RESET SETTLED PLANTS TO PROPER GRADE AND POSITION. RESTORE PLANTING SAUCER AND ADJACENT MATERIAL AND REMOVE DEAD MATERIAL.
27.D. CORRECT DEFECTIVE WORK AS SOON AS POSSIBLE AFTER DEFICIENCIES BECOME APPARENT AND WEATHER AND SEASON PERMIT.
27.E. WATER PLANTINGS IN A SATISFACTORY MANNER DURING AND IMMEDIATELY FOLLOWING PLANTING, THICE PER WEEK, OR LESS UNDER WET CONDITIONS, UNTIL ACCEPTANCE BY OWNER. PROVIDE ADDITIONAL WATERING DURING EXCESSIVE DRY PERIODS DURING THE MAINTENANCE PERIOD AS DIRECTED BY THE OWNER.
27.F. REPLACEMENT OF PLANTS: ANY PLANTS TO BE REPLACED PRIOR TO ACCEPTANCE OF WORK, OR UNDER TERMS OF GUARANTY SHALL BE INSTALLED FOLLOWING PROCEDURES SET FORTH ABOVE.
28. LANDSCAPE CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING CONSTRUCTION.
29. LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
30. LANDSCAPE CONTRACTOR SHALL CONTACT CALL BEFORE YOU DIG 1-800-922-4455 AT LEAST TWO FULL WORKING DAYS PRIOR TO INSTALLATION.
31. LANDSCAPE CONTRACTOR TO REMOVE AND DISPOSE OF ALL CONSTRUCTION DEBRIS FROM SITE PER GOVERNING REGULATIONS.
32. CONSTRUCTION SITE IS TO BE IN A CLEAN, ORDERLY CONDITION AT ALL TIMES.
33. ALL REQUIRED PERMITS ARE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
34. LANDSCAPE CONTRACTOR SHALL PROVIDE FINE GRADING WORK FOR THE ENTIRE PROJECT. THIS WILL INCLUDE ALL AREAS TO BE GRASSED OR LANDSCAPED. GRADING MUST PROVIDE PROPER POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS AND NOT LEAVE ANY POCKETS WHERE STANDING WATER MAY COLLECT.
34.A. TOPSOIL SHALL NOT BE SPREAD UNDER FROZEN OR MUDDY CONDITIONS.
35. THE LOCATION OF ALL TREES AND SHRUBS SHALL BE STAKED FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

SEEDING NOTES:

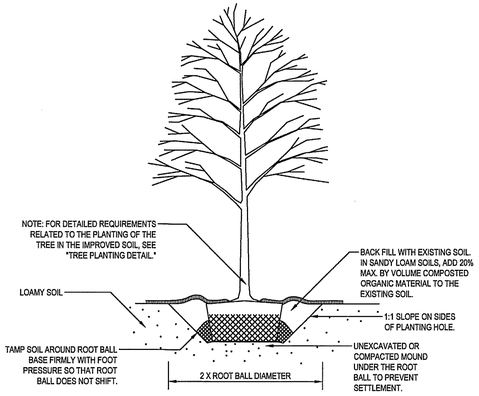
1. SEEDING MIXTURE TYPE I (LAWN AREAS):
   BLUEGRASS BLEND (3 VARIETIES) 50% OF MIXTURE
   CHEWINGS RED FESCUE 30% OF MIXTURE
   PERENNIAL RYEGRASS 20% OF MIXTURE
   APPLICATION RATE: 4.5LBS. PER 1000 S.F.
2. SEEDING MIXTURE TYPE II (BASIN SLOPES)
   RETENTION BASIN WILDLIFE MIX - ERNMX-127
   BY Ernst Conservation Seeds, 9006 Mercer Pike, Meadville, PA 16335 (800) 873-3321
   APPLICATION RATE: 0.50 LBS PER 1,000 S.F., 20 LBS PER ACRE
3. SEEDING MIXTURE TYPE IV (BASIN BOTTOM)
   PERENNIAL RYEGRASS 10% OF MIXTURE
   CREEPING RED FESCUE 10% OF MIXTURE
   ALDIKE CLOVER 5% OF MIXTURE
   RED TOP 5% OF MIXTURE
   TURF-TYPE TALL FESCUE 70% OF MIXTURE
   APPLICATION RATE: 5.00 LBS PER 1,000 S.F.
3. LAWN AREAS SHALL HAVE A MINIMUM 4" DEPTH OF TOPSOIL. FLOOR AND SIDES OF INFILTRATION BASIN SHALL NOT RECEIVE TOPSOIL TO PROMOTE INFILTRATION.
4. SEED MIXES IN AND AROUND DETENTION BASINS SHALL BE SUBSTANTIALLY ESTABLISHED PRIOR TO DISCHARGING RUNOFF FROM THE STORMWATER SYSTEM.
5. SEEDING OF BASIN SLOPES (SEEDING MIXTURE TYPE II) SHALL BE BY HYDROSEEDING AND HYDRO-MULCHING. ADD AN ADDITIONAL 15% TO SEEDING MIXTURE WHEN HYDRO-SEEDING IS USED. HYDROMULCH SHALL BE EQUAL TO CONWED 2000 AND APPLIED AT THE RATE OF 1,400LBS. PER ACRE.
6. CONTRACTOR RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SEEDED AREAS UNTIL SATISFACTORY GROWTH AS DETERMINED BY THE OWNER. REPLANT BARE AND REPAIR ERODED AREAS UNTIL END OF MAINTENANCE PERIOD. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURES, UNLESS OTHERWISE NOTED, SHALL BE SEEDED TO LAWN.



NOTE: FOR DIMENSIONS OF PLANTING AREAS, TYPES OF SOIL AMENDMENTS, OR SOIL REPLACEMENT, SEE "SOIL IMPROVEMENT DETAILS."

NOTES:
1. NO MULCH WITHIN 3" OF TREE TRUNK
2. THIS DETAIL ASSUMES THAT THE PLANTING SPACE IS LARGER THAN 2400 MM (8 FT.) SQUARE, OPEN TO THE SKY, AND NOT COVERED BY ANY PAVING OR GRATING.

1 TREE PLANTING DETAIL
Not to Scale



LOAMY SOILS INCLUDE THE FOLLOWING USDA TEXTURAL CLASSIFICATIONS AND HAVE A CLAY CONTENT OF BETWEEN 15 TO 27%: LOAM, SANDY LOAM AND SILT LOAM. NOTE THAT SOILS AT THE OUTER LIMITS OF THE LOAM CLASSIFICATIONS MAY PRESENT SPECIAL PLANTING PLANTING PROBLEMS NOT ANTICIPATED BY THIS DETAIL.

LOAMY SOILS ARE DEFINED AS GRANULAR OR BLOCKY FRIABLE SOILS, A MIXTURE OF SAND, SILT AND CLAY PARTICLES WITH A MINIMUM OF 1.5% BY DRY WEIGHT ORGANIC MATTER. THE SOIL MUST NOT BE SO COMPACTED AS TO IMPEDE ROOT GROWTH OR DRAINAGE. THE SOIL STRUCTURE SHALL NOT BE PLATY OR MASSIVE. THE SOIL MUST BE TESTED FOR TEXTURE, DRAINAGE CAPABILITY, PH, AND NUTRIENT VALUES PRIOR TO DETERMINING PLANT SELECTIONS AND ANY ADDITIONAL SOIL IMPROVEMENTS.

NOTES:
1. FOR TREES PLANTED IN NON-RESTRICTED SOIL CONDITIONS.
2. THIS DETAIL ASSUMES THAT THE AREA OF LOAMY SOIL AVAILABLE TO EACH TREE IS A MINIMUM OF 45 SQ. M (500 SQ. FT)

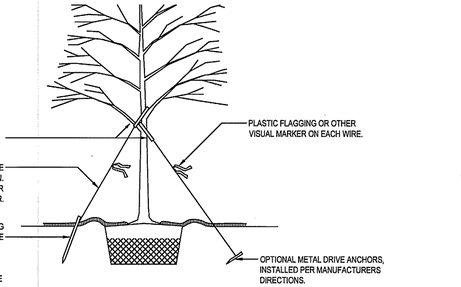
2 SOIL IMPROVEMENT DETAIL
Not to Scale

WIRE OR CABLE SIZES SHALL BE AS FOLLOWS:
TREES UP TO 65 MM (2.5 IN.) CALIPER - 14 GAUGE
TREES 65 MM (2.5 IN.) TO 75 MM (3 IN.) CALIPER - 12 GAUGE

TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 35MM (1.5 IN.) OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE.

TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED.

INSTALL THREE GUY WIRES PER TREE, SPACED EVENLY AROUND THE TRUNK.



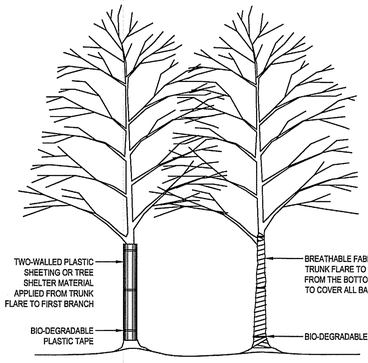
ALL STAKES SHALL BE DRIVEN OUTSIDE THE EDGE OF THE ROOT BALL.

ASSURE THAT THE BEARING SURFACE OF THE PROTECTIVE COVERING OF THE WIRE OR CABLE AGAINST THE TREE TRUNK IS A MINIMUM OF 12 MM (0.5 IN.).

REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING.

TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF. THE FOLLOWING ARE REASONS WHY TREES DO NOT REMAIN STRAIGHT.
- TREES WITH POOR-QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE.
- TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE.
- PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND THE ROOT BALL. CORRECT THE PLANTING PROCEDURE.
- ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
- ROOT BALLS WITH VERY SANDY SOIL OR VERY WET CLAY SOIL. STAKING ADVISABLE.
- TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.

3 TREE STAKING DETAIL (LARGER THAN 3" CAL.)
Not to Scale



APPLY THE PLASTIC SHEETING LOOSELY AROUND THE TRUNK TO LEAVE A 12MM (0.5") GAP BETWEEN THE TRUNK AND THE SHEETING.

OPTION 1 OPTION 2

TREE WRAP SHOULD BE INSTALLED AT TIME OF PLANTING AND BE REMOVED WHEN DIRECTED BY THE LANDSCAPE ARCHITECT, BUT NO LATER THAN 12 MONTHS AFTER PLANTING.

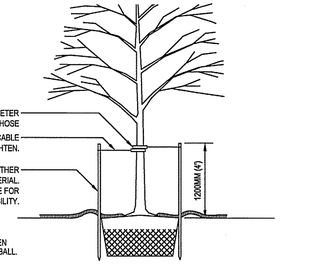
TREES WHOSE NORTH ORIENTATION IS NOT CHANGED FROM THE NURSERY DO NOT NEED TO BE WRAPPED EXCEPT TREES WITH VERY THIN BARK, SUCH AS RED MAPLE, SHOULD BE WRAPPED IF APPROVED BY THE LANDSCAPE ARCHITECT.

4 TREE WRAPPING DETAIL
Not to Scale

WIRE OR CABLE SIZES SHALL BE AS FOLLOWS:
TREES UP TO 65 MM (2.5 IN.) CALIPER - 14 GAUGE
TREES 65 MM (2.5 IN.) TO 75 MM (3 IN.) CALIPER - 12 GAUGE

TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 35MM (1.5 IN.) OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE.

TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED.

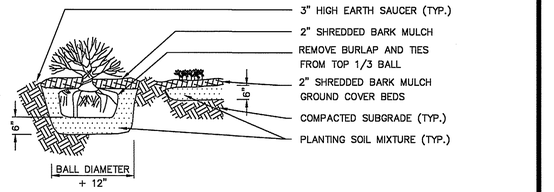


ASSURE THAT THE BEARING SURFACE OF THE PROTECTIVE COVERING OF THE WIRE OR CABLE AGAINST THE TREE TRUNK IS A MINIMUM OF 12 MM (0.5 IN.).

REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING.

TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF. THE FOLLOWING ARE REASONS WHY TREES DO NOT REMAIN STRAIGHT.
- TREES WITH POOR QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE.
- TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE.
- PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND THE ROOT BALL. CORRECT THE PLANTING PROCEDURE.
- ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
- ROOT BALLS WITH VERY SANDY SOIL OR VERY WET CLAY SOIL. STAKING ADVISABLE.
- TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.

5 TREE STAKING DETAIL (3" CAL. OR SMALLER)
Not to Scale



6 SHRUB & GROUNDCOVER PLANTING DETAIL
Not to Scale

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

STATE OF CONNECTICUT · GLENN M. MARTIN · No. 779 · REGISTERED LANDSCAPE ARCHITECT

design professionals
21 JEFFREY DRIVE
P.O. BOX 1857
SOUTH WINDSOR, CT 06074
860-291-8755 – T
860-291-8757 – F
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NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO: 4798
DATE: 3/21/22
DESIGN BY: CMM
DRAWN BY: CMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike (Route 44)
Bolton, CT 06043

LANDSCAPE DETAILS & NOTES

SHEET
C-LS2
SHEET 9 OF 13

File: G:\jobs\4798\Landscape Arch\AutoCAD\4798 LS-LT Plan.dwg Layout: 09 C-LS2 Plotted: 3/22/2022 9:57 AM Last Saved: 3/22/2022 9:45 AM Last Saved By: glenmartin

CONSTRUCTION NOTES:

1. At least two full business days prior to starting any site activity or demolition, the contractor shall contact the applicable state utility location service by dialing 811 or submitting an online ticket request. The utilities shall be marked in all areas of proposed disturbance.

2. It is the contractor's responsibility to review all construction contract documents associated with the project scope of work, including, but not limited to, all drawings and specifications, architectural plans, boundary and topographic survey, wetlands assessment and reports, geotechnical reports, environmental reports, and approval conditions, prior to the commencement of construction. Should the contractor find conflict and/or discrepancy between the documents relative to the plans, specifications, reports, or the relative or applicable codes, regulations, laws, rules, statutes and/or ordinances, it is the contractor's sole responsibility to notify the Engineer, in writing, of said conflict and/or discrepancy prior to the start of construction.

3. The contractor shall be responsible for adhering to any conditions of approval placed on the project by the authorities having jurisdiction.

4. The contractor must comply, to the fullest extent, with the latest Occupational Safety and Health (OSHA) standards and regulations, and/or any other agency with jurisdiction for construction activities. The contractor is solely responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with work on the Project. The Engineer will not be responsible for the contractor's safety, schedules, or failure to carry out its work in accordance with the contract documents. The Engineer will not have control over or charge of acts or omissions of the contractor, subcontractors, or their agents or employees, or of any persons performing portions of work on the Project.

5. Contractor must notify the Engineer in writing if there are any questions concerning the accuracy or intent of these plans or related specifications. If such notification is given, no demolition or site activity may begin until such time that the Engineer provides a written response to same.

6. Contractor shall adhere to and is responsible for compliance with all details, notes, plans and specifications contained herein. It is the responsibility of the contractor to ensure that all work performed by their subcontractors is in full compliance with these requirements.

7. The contractor shall confirm that they are in receipt of the current version of the referenced documents prior to the commencement of any work.

8. Prior to commencing work, the contractor shall review and correlate all consultants plans and specifications including the entire site plan and the latest architectural plans (including, but not limited to, structural, mechanical, electrical, plumbing, and fire suppression plans, where applicable), in particular for building utility connection locations, grease trap requirements/ details, door access, and exterior grading. Contractor must immediately notify the Architect and the Engineer, in writing, of any conflicts, discrepancies or ambiguities which exist, and receive a written resolution prior to commencing construction.

9. Prior to commencing work, contractor is required to secure all necessary and/or required permits and approvals for the construction of the project, including, but not limited to, demolition work, and all off site material sources and disposal facilities. Copies of all permits and approvals shall be maintained on site throughout the duration of the project. The contractor shall thoroughly review and understand all permits and permit conditions prior to fabrication of any materials or products to be used as part of the project.

10. The contractor is responsible for independently verifying all existing onsite utilities within and adjacent to the limits of the project activities. Underground utility, structure and facility locations depicted and noted on the plans have been compiled, in part, from record mapping supplied by the respective utility companies or governmental agencies, from parol testimony, and from other sources. These locations must be considered as approximate in nature. Additionally, other such features may exist on the site, the existence of which are unknown to the Engineer.

11. The contractor is responsible for ensuring the installation of all improvements comply with all requirements of utility companies with jurisdiction and/or control of the site.

12. Locations of all existing and proposed services are approximate. Final utility service sizes and locations, including, but not limited to, the relocation and/or installation of utility poles, or the relocation and/or installation of transformers, are at the sole discretion of the respective utility companies.

13. Prior to commencement of any work, the contractor shall independently coordinate and confirm with the appropriate utility companies to finalize all utility services and/or relocations to ensure no conflict with the design plans and that proper depths can be achieved. All discrepancies must immediately be reported to the Engineer in writing. Should a conflict arise due to the final designs of the utility company, the contractor shall notify the Engineer in writing and await a written resolution prior to proceeding with further utility installations.

14. Prior to commencing construction, the contractor shall field verify all existing conditions, topographic information, utility invert elevations, and proposed layout dimensions, and must immediately notify the Engineer in writing if actual site conditions differ or are in conflict with the proposed work. No extra compensation will be paid to the contractor for work which has to be redone or repaired due to dimensions or grades shown incorrectly on these plans unless the contractor receives written permission from Owner/developer giving authorization to proceed with such additional work.

15. Where utilities are proposed to cross/traverse existing underground utilities, the elevations of the existing utilities shall be verified in the field prior to construction by excavating a test pit at the proposed utility crossing point. Should the field verified existing utility be in conflict with the proposed site designs, the contractor shall notify the Engineer in writing and shall not proceed with said utility construction until further direction is given from the Engineer.

16. At least 72 hours prior to starting any site activity or demolition, the contractor shall notify, at a minimum, the building official, municipal engineer, department of public works, planning and zoning commission, the Engineer, and local inland wetland commission, as applicable. The contractor shall also attend a pre-construction meeting with the local municipality, if required, prior to commencing any site activity or demolition.

17. Prior to starting any site activity or demolition, the contractor shall implement the soil erosion and sediment control measures as noted on the plans. Refer to the Erosion and Sedimentation Control Notes.

18. No work, including but not limited to tree clearing, beyond the limits of disturbance shown shown on the approved plans shall be completed without approval. No trees and/or vegetation outside the limits shown on the drawings shall be removed. Any items desired to be removed outside the limits shown must be approved in writing by the engineer and the local authorities having jurisdiction. All equipment and construction activities must be confined to the property, right-of-way, and designated work space.

19. The demolition plan or existing features designated to be removed are intended to provide only general information regarding items to be demolished and/or removed. The contractor shall review all site plans (and architectural drawings as applicable) to assure that all demolition activities and incidental work necessary for the construction of the new site improvements are completed.

20. The contractor shall protect and maintain the operation and service of all active utilities and systems that are not being removed during all construction activities. Should a temporary interruption of utility services be required as part of the proposed construction activities, the contractor shall coordinate with appropriate utility companies and the affected end users to minimize impact and service interruption.

21. The contractor shall arrange for and coordinate with the appropriate utility companies for all services that require temporary or permanent termination for the project, whether shown on the site plans or not. Termination of utilities shall be performed in compliance with all local, state and/or federal regulations.

22. Contractor must prepare record drawings depicting the location of existing utilities that are capped, abandoned in place, or relocated and provide to the Owner and the Engineer of record.

23. Should hazardous material be discovered/encountered, which was not anticipated/addressed in the project plans and specifications, cease all work immediately and notify Owner and Engineer regarding the discovery of same. Do not continue work in the area until written instructions are received from an environmental professional.

24. The contractor is responsible for preventing movement, settlement, damage, or collapse of existing structures, and any other improvements that are to remain. If any existing structures that are to remain are damaged during construction, repairs shall be made using new product/materials resulting in a pre-damage condition, or better. Contractor is responsible for all repair costs. Contractor shall document all existing damage and to notify the Owner prior to the start of construction.

25. The use of explosives, if required, must comply with all local, state and federal regulations. The contractor shall obtain all permits that are required by the federal, state and local governments, and shall also responsible for all notification, inspection, monitoring or testing as may be required.

26. All debris from removal operations must be removed from the site at the time of excavation. Stockpiling of demolition debris will not be permitted. Debris shall not be burned or buried on site. All demolition materials to be disposed of, including, but not limited to, stumps, limbs, and brush, shall be done in accordance with all municipal, county, state, and federal laws and applicable codes. The contractor must maintain records of all disposal activities.

27. The contractor is responsible for repairing all damage to any existing utilities during construction, at its own expense.

28. All property monumentation shall be protected during construction. It is the contractor's sole responsibility to protect all property monumentation. If monumentation is disturbed, it is the contractor's reponsibility to have a licensed land surveyor in the State of Connecticut replace the monumentation to town or state standards.

29. All new utilities/services, including electric, telephone, cable tv, etc. are to be installed underground unless noted otherwise on the plans. The Contractor shall be responsible for installing all new utilities/services in accordance with the utility/service provider's written installation specifications and standards.

30. All earthwork activities must be performed in accordance with these plans and specifications and the recommendations set forth in the geotechnical report completed for this project. In the absence of a geotechnical report, all earthwork activities must comply with the standard state Department of Transportation (DOT) specifications (latest edition) and any amendments or revisions thereto. All earthwork activities must comply all applicable requirements, rules, statutes, laws, ordinances and codes for the jurisdictions where the work is being performed.

31. The contractor is responsible for removing and replacing unsuitable materials with suitable materials. All excavated or filled areas must be properly compacted. Moisture content at time of placement must be submitted in a compaction report prepared by a qualified geotechnical engineer, licensed in the state where the work is performed, verifying that all filled areas and subgrade areas within the building pad area and areas to be paved have been compacted in accordance with these plans, specifications and the recommendations. Subbase material for building pads, sidewalks, curb, or asphalt must be free of organics and other unsuitable materials. Should subbase be deemed unsuitable by Owner/developer or Owner/developer's representative, subbase is to be removed and filled with suitable material and properly compacted at the contractor's expense. All fill, compaction, and backfill materials required for utility installation must be coordinated with the applicable utility company specifications. The Engineer shall have no liability or responsibility for or as related to fill, compaction, backfill, or the balancing of earthwork.

32. Pavement must be saw cut into straight lines and must extend to the full depth of the existing pavement, except for edge of butt joints.

33. The tops of existing manholes, inlet structures, and sanitary cleanout tops must be adjusted as necessary, to match proposed grades.

34. Where retaining walls (whether or not they meet the jurisdictional definition) are identified on plans, elevations identified herein are for the exposed portion of the wall. Wall footing/foundation elevations are not identified herein and are to be set/determined by the contractor based on final structural design shop drawings prepared by an appropriate professional licensed in the state where the construction occurs.

35. Unless indicated otherwise or required by the authority having jurisdiction, all pipes shall be as follows:

    Reinforced Concrete pipe (RCP) shall meet the requirements of AASHTO M 170 Class IV with silt tight joints.

    High-Density Polyethylene pipe (HDPE) shall conform to AASHTO M 294, Type S (smooth interior with angular corrugations) with gaskets for silt tight joints.

    Polyvinyl chloride (PVC) pipe for roof drain connections shall be SDR 35 gasket pipe. Polyvinyl Chloride (PVC) pipe for sanitary sewer pipe shall be SDR 35 gasket pipe.

36. Storm sewer pipe lengths indicated are approximate and measured to the inside of inlet and/or manhole structure. Sanitary sewer pipe lengths indicated are approximate and measured to center of inlet and/or manhole structure to center of structure.

37. Stormwater roof drain locations are approximate and are based on preliminary architectural plans. Contractor is responsible for reviewing and coordinating the final architectural plans to verify final locations and sizes of all roof drains.

38. Sewers crossing streams and/or location within 10 feet of the stream embankment, or where site conditions so indicate, must be constructed of steel, reinforced concrete, ductile iron or other suitable material. Sewers conveying sanitary flow, combined sanitary and stormwater flow or industrial flow must be separated from water mains by a distance of at least 10 feet horizontally. If such lateral separations are not possible, the pipes must be in separate trenches with the sewer at least 18 inches below the bottom of the water main, or such other separation as approved by the agency with jurisdiction over same. Where appropriate separation from a water main is not possible, the sewer must be encased in concrete, or constructed of ductile iron pipe using mechanical or slip-on joints for a distance of at least 10 feet on either side of the crossing. In addition, one full length of sewer pipe should be located so both joints will be as far from the water line as possible. Where a water main crosses under a sewer, adequate structural support for the sewer must be provided.

39. Contractor's price for water service must include all fees, costs and appurtenances required by the utility to provide full and complete working service.

40. Contractor must contact the applicable water company to confirm the proper water meter and vault, prior to commencing construction. Water main and water service piping shall be installed in accordance with the requirements and specifications of the water authority having jurisdiction. In the absence of such specifications, water main piping must ductile iron (DIP) minimum Class 54. All work and materials must comply with the applicable American Water Works Association (AWWA) standards in effect at the time of the service application.

41. The contractor shall ensure that all work located in existing pavement be repaired in accordance with municipal, county and/or DOT details as applicable. Contractor is responsible to coordinate the permitting, inspection and approval of completed work with the agency having jurisdiction over the proposed work.

42. Where sump pumps are installed, all discharges must be connected to the storm sewer or discharged to an approved location.

43. For single and multi-family residential projects, spot elevation(s) adjacent to the buildings are schematic for non-specific building footprints. Grades must be adjusted based on final architectural plans and shall provide a minimum of six (6) inches below top of foundation/concrete and/or six (6) inches below the façade treatment, whichever is lower, and must provide positive drainage away from the structure (minimum of 2%). All areas shall be graded to preclude ponding adjacent to buildings, and on or adjacent to walks/driveways leading to the buildings. All construction, including grading, must comply with all applicable building codes, local, state and federal requirements, regulations and ordinances.

44. Contractor shall maintain and control traffic on and offsite in conformance with the current Federal Highway Administration (FHWA) "Manual on Uniform Traffic Control Devices" (MUTCD), and the federal, state, and local regulations for all aspects of demolition and site work. If a Maintenance of Traffic Plan is required for work that affects public travel either on or offsite, the contractor shall be responsible for the cost and implementation of said plan.

45. All temporary and permanent onsite and offsite signage and pavement markings shall conform to MUTCD, ADA, state DOT, and/or local approval requirements.

46. Contractor shall prevent the emission of dust, sediment, and debris from the site, and shall be responsible for corrective measures such as street sweeping, and clean-up work as deemed necessary by the Engineer orthe authority having jurisdiction.

47. All concrete must be air entrained with a minimum compressive strength of 4,000 psi at 28 days unless otherwise specified on the plans, details and/or geotechnical report.

48. The Engineer will review contractor submittals which the contractor is required to submit, but only for the sole purpose of checking for general conformance with the intent of the design and contract documents. The Engineer is not responsible for any deviations from the construction documents unless contractor received explicit direction to do so, in writing, from the Engineer. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, and for techniques of assembly and/or fabrication processes.

49. All dimensions are to face of curb, edge of pavement, or edge of building, unless noted otherwise.

50. The contractor shall install and/or construct all aspects of the project in strict compliance with and accordance with manufacturer's written installation standards, recommendations and specifications.

51. All pumped discharge must utilize silt-sac or approved equal. Monitor to ensure dewatering activities do not cause erosion downstream. Stabilize area utilizing winter stabilization if appropriate for season of construction. Dewatering activities shall be completed in accordance with the 2002 CT Guidelines for Soil Erosion and Sediment Control.

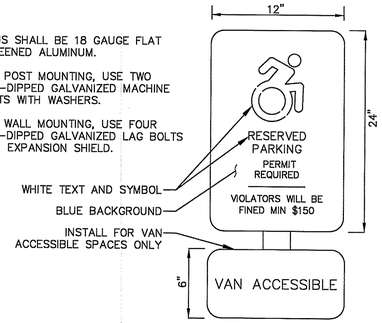
AMERICANS WITH DISABILITY ACT NOTES TO CONTRACTOR:

The contractor shall review the proposed construction with the local building official prior to the start of construction. Contractors shall be precise in the construction of Americans with Disabilities Act (ADA) accessible parking, components, and accessible routes for the project. These components shall comply with all applicable state and local accessibility laws and regulations and the current ADA regulations and construction standards. These components include, but are not limited to the following:

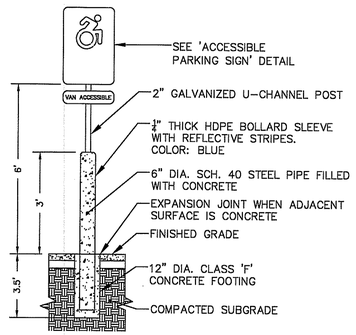
- Parking spaces and parking aisles shall not exceed a 1:50 (nominally 2.0%) slope in any direction.
- Accessible routes shall be a minimum of 36" wide (unobstructed). Handrails and car overhangs may not obstruct these areas. Longitudinal slopes (direction of travel) shall not exceed 1:20 (5.0%) and shall have a cross slope no greater than 1:50 (2.0%).
- Accessible routes exceeding 1:20 (5.0%) shall be considered a "ramp". Maximum slopes of a ramp shall be 1:12 (8.3%) in the direction of travel, and a cross slope of 1:50 (2.0%). Ramps shall have maximum rise of thirty (30) inches, shall be equipped with hand rails on both sides, and landings at the top and bottom of the ramp. Landings shall not exceed 1:50 (2.0%) in any direction and have positive drainage away from the landing.
- A landing shall be provided at the exterior of all doors and at each end of ramps. Landings shall not exceed 1:50 (2.0%) in any direction and have positive drainage away from the landing and/or building. The landing shall be no less than 60 inches long unless permitted otherwise per the ADA regulations.
- Curb ramps- shall not exceed a 1:12 (8.3%) slope for a maximum length of six (6) feet or a maximum rise of six (6) inches.
- The contractor shall verify all existing elevations shown on the plan in areas of existing doorways, accessible routes or other areas where re-construction is proposed. The contractor shall immediately notify the Owner and Engineer in writing if any of the proposed work intended to meet ADA requirements is incapable of doing so, or if there is any ambiguity regarding which design components are intended to meet ADA requirements. The contractor shall not commence the work in the affected area until receiving written resolution from Engineer.

NOTES:

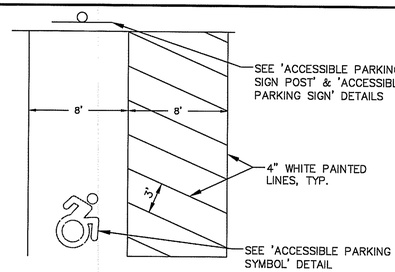
1. SIGNS SHALL BE 18 GAUGE FLAT SCREENED ALUMINUM.
2. FOR POST MOUNTING, USE TWO HOT-DIPPED GALVANIZED MACHINE BOLTS WITH WASHERS.
3. FOR WALL MOUNTING, USE FOUR HOT-DIPPED GALVANIZED LAG BOLTS WITH EXPANSION SHIELD.



ACCESSIBLE PARKING SIGN
N.T.S.



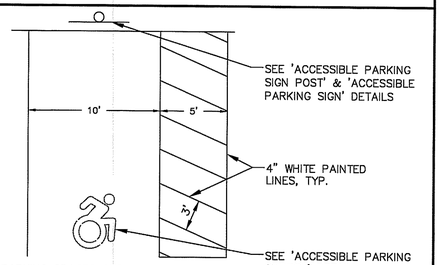
ACCESSIBLE PARKING SIGN POST
N.T.S.



NOTES:

1. ACCESSIBLE PARKING SPACES AND ADA PASSENGER LOADING AREAS SHALL BE GRADED WITH A MAXIMUM SLOPE OF 1:50 (2%) IN ALL DIRECTIONS.

VAN ACCESSIBLE PARKING SPACE
N.T.S.



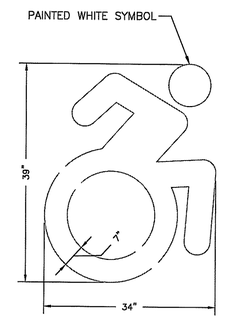
NOTES:

1. ACCESSIBLE PARKING SPACES AND ADA PASSENGER LOADING AREAS SHALL BE GRADED WITH A MAXIMUM SLOPE OF 1:50 (2%) IN ALL DIRECTIONS.

ACCESSIBLE PARKING SPACE
N.T.S.

LEGEND

EXISTING	DESCRIPTION	PROPOSED
BORINGS		
TP	BORING / TEST PIT LOCATION	TP
COMMUNICATION		
——— C_X ——— C_X ———	UNDERGROUND COMMUNICATION LINES	——— C ———
DOMESTIC WATER		
——— W_X ——— W_X ———	WATER MAIN	——— W ———
——— WS_X ———	WATER SERVICE	——— WS ———
——— F_X ——— F_X ———	FIRE SERVICE LINE	——— F ———
——— NPW ———	NON-POTABLE WATER LINE	——— NPW ———
WV	WATER VALVE / FIXTURES	WV
	FIRE HYDRANT	
LIQUID FUEL		
——— LF_X ——— LF_X ———	MAIN LIQUID FUEL LINE	——— LF ———
——— LFS_X ———	LIQUID FUEL SERVICE LINE	——— LFS ———
——— LF_X ———	LIQUID FUEL LINE, ABANDONED	
IRRIGATION		
——— I_X ——— I_X ———	IRRIGATION LINES	——— I ———
LIGHTING		
☼ / ◁	POLE / GROUND MOUNTED LIGHT	✱ / ◀
NATURAL GAS		
——— G_X ——— G_X ———	GAS MAIN	——— G ———
——— GS_X ———	GAS SERVICE LINE	——— GS ———
POWER		
——— ED_X ———	ELECTRICAL LINES, OVERHEAD	——— ED ———
——— EU_X ———	ELECTRICAL LINES, UNDERGROUND	——— EU ———
UP	UTILITY POLE	UP
PROPERTY		
	PROPERTY LINE	
	EASEMENT LINE	
	IRON PIPE	●
	IRON ROD	●
	MONUMENT	■
ROADS		
	GUARD RAIL	
EROSION CONTROL		
	SILT FENCE	——— SF ———
SITE FEATURES		
	4" DOUBLE SOLID YELLOW LINE	DSYL
	4" SINGLE SOLID WHITE LINE	SSWL
	BIT. CONC. LIP CURB	BCLC
	PRECAST CONCRETE CURB	PCC
SANITARY SEWER		
——— S_X ——— S_X ———	SANITARY SEWER MAIN	——— S ———
——— SS_X ——— SS_X ———	SANITARY SEWER SERVICE LINE	——— SS ———
(S)	SANITARY SEWER MANHOLE	(S)
STORM SEWER		
———	STORM DRAIN PIPE	———
——— RL_X ——— RL_X ———	ROOF LEADER	——— RL ———
——— UD ——— UD ———	UNDERDRAIN	——— UD ——— UD ———
D	STORM DRAIN MANHOLE	D
	CURB INLET	
	CATCH BASIN	
	YARD DRAIN	
TOPOGRAPHY		
——— 95 ———	CONTOUR	95
X61.95	SPOT ELEVATION	95
OTHER		
	RAMP	R
	LANDSCAPE AREA	LSA



ACCESSIBLE PARKING SYMBOL
N.T.S.

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

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SOUTH WINDSOR, CT 06074
860-291-8755 - T
860-291-8757 - F
www.designprofessionalsinc.com

NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

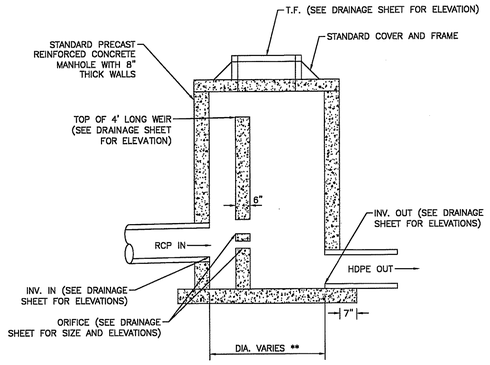
PROJECT NO: 4798
DATE: 3/21/22
DESIGN BY: CMM
DRAWN BY: CMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

NOTES, LEGEND, & DETAILS

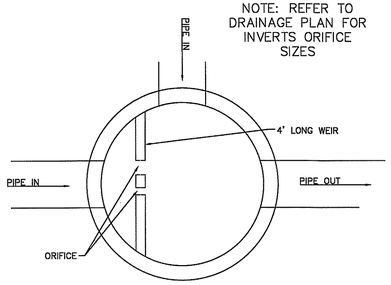
SHEET
C-D1
SHEET 10 OF 13

File: C:\jobs\4798\Engineering\AutoCAD\4798 Details.dwg Layout: 10 C-D1 Plotted: 3/22/2022 10:00 AM Last Saved: 3/21/2022 3:49 PM Last Saved By: gkrmartin

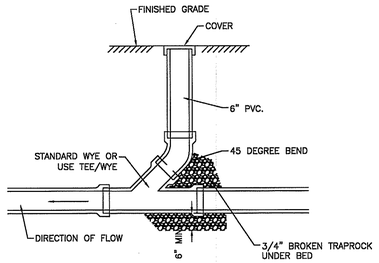


OUTLET CONTROL STRUCTURE #1 – #6

N.T.S.



DRAINAGE MANHOLE WITH DIVERSION WEIR

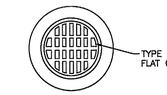


NOTES:

1. IF CLEANOUT IS LOCATED IN PAVEMENT OR SIDEWALK, PROVIDE STEEL FRAME AND GRATE. SPECIFICATIONS TO BE APPROVED BY TOWN ENGINEER.

ROOF LEADER CLEAN OUT

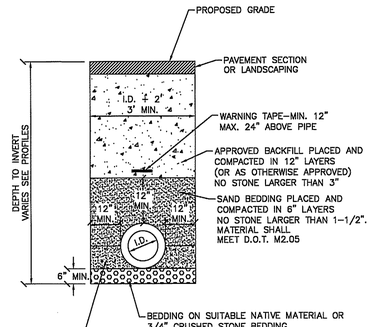
N.T.S



NOTE:
FRAME & GRATE TO BE: NEENAH FOUNDRY, NEENAH, WI
PH. NO. (920) 725–7000
CATALOG REFERENCE NO. R–2250
OR APPROVED EQUAL

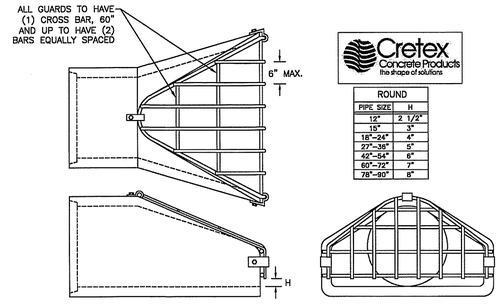
DRAIN MANHOLE FRAME & GRATE

N.T.S



STORM SEWER TRENCH SECTION

N.T.S



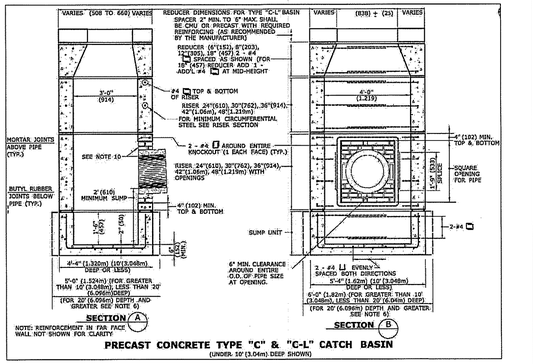
BAR SIZES							
STANDARD DESIGN				HEAVY DESIGN			
PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE	PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE
12"–24"	3/4"	5/8"	5/8"	12"–18"	3/4"	5/8"	3/4"
27"–48"	7/8"	3/4"	3/4"	21"–42"	7/8"	3/4"	1"
54"–90"	1 1/8"	1"	1"	48"–90"	1 1/8"	1"	1 1/4"
BOLT LENGTH = PIPE WALL THICKNESS + 2 1/2"							

NOTES:

1. CRETEX CONCRETE PRODUCTS, FLARED END TRASH GUARD SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL USE THIS PRODUCT OR APPROVED EQUAL.

FLARED END TRASH GUARD

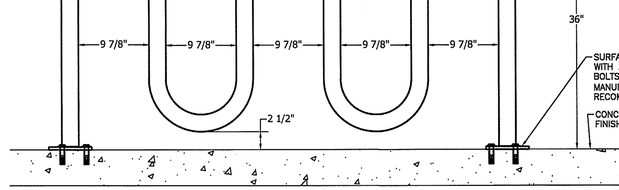
N.T.S.



REFER TO CONNDOT STANDARD SHEET HW–0507–04 FOR ADDITIONAL NOTES, SECTIONS AND INSTALLATION REQUIREMENTS
REFER TO CONNDOT STANDARD SHEET HW–507–08 FOR FRAME AND GRATE REQUIREMENTS

CATCH BASINS

N.T.S.

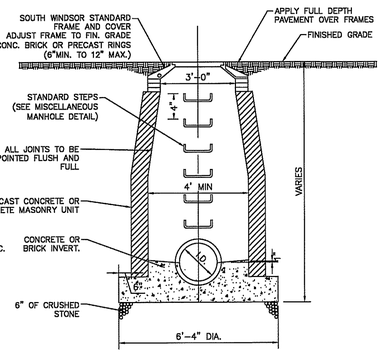


NOTES:

1. BIKE RACK SHALL BE STEEL 5 LOOP BIKE RACK MODEL BRCS–105, AS MANUFACTURED BY VICTOR STANLEY, DUNKIRK, MD PH. NO. (800) 368–2573 OR APPROVED EQUAL.
2. BIKE RACK SHALL HAVE POLYESTER POWDER COATING, COLOR BLACK.

BIKE RACK

N.T.S.

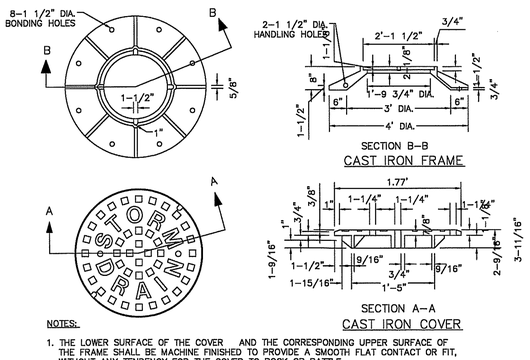


NOTES:

1. WALL THICKNESS SHALL BE SUFFICIENT TO MEET HS 20 LOADING.
2. WALL THICKNESS FOR STRUCTURES OVER 10' HIGH IS 12" FOR CONCRETE BLOCK UNITS. INSIDE DIMENSIONS REMAIN THE SAME.
3. ALL PIPES SHALL BE CUT FLUSH WITH INSIDE WALLS.

DRAIN MANHOLE

N.T.S

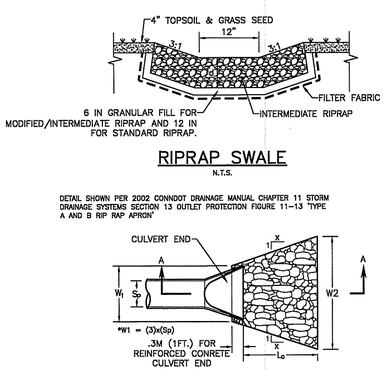


NOTES:

1. THE LOWER SURFACE OF THE COVER AND THE CORRESPONDING UPPER SURFACE OF THE FRAME SHALL BE MACHINE FINISHED TO PROVIDE A SMOOTH FLAT CONTACT OR FIT, WITHOUT ANY TENDENCY FOR THE COVER TO ROCK OR RATTLE.
2. SANITARY SEWER MANHOLES SHALL BE EQUIPPED WITH VENT HOLE IN CENTER.

MANHOLE FRAME AND COVER

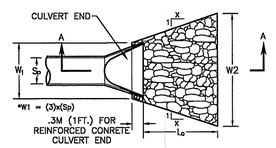
N.T.S



RIPRAP SWALE

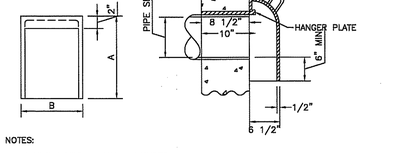
N.T.S

DETAIL SHOWN PER 2002 CONNDOT DRAINAGE MANUAL CHAPTER 11 STORM DRAINAGE SYSTEMS SECTION 13 OUTLET PROTECTION FIGURE 11–13 TYPE A AND B RIP RAP APRON"



RIPRAP APRON PLAN VIEW

N.T.S



NOTES:

1. MANUFACTURER CATALOG NUMBER TO BE INDICATED ON SHOP DRAWINGS FOR CAST IRON TRAPS.
2. TRAP HOODS TO BE INSTALLED ON OUTGOING PIPES OF ALL CATCH BASINS AND CONCRETE YARD DRAINS UNLESS NOTED OTHERWISE.

A	B	PIPE SIZE	WT. LBS.	SETTING METHOD
16"	12"	TO 6"	70	2 HOOKS
18"	12"	8"	75	2 HOOKS
20"	12"	10"	85	2 HOOKS
22"	16"	12"	100	2 HOOKS
25"	17"	15"	135	2 HOOKS
28"	20"	18"	155	2 HOOKS

CATCH BASIN TRAP HOOD

N.T.S

PROPERTY OWNERS:
NORMAN J PREUSS JR TR & SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

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VETERINARIANS OF EASTERN CONNECTICUT LLC
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NO.	DATE	REVISIONS	BY

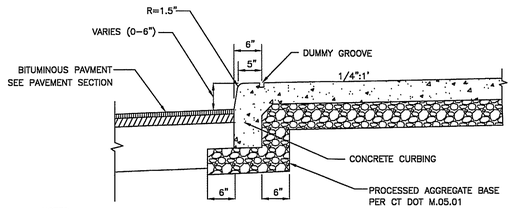
BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO:	4798
DATE:	3/21/22
DESIGN BY:	CMM
DRAWN BY:	CMM
CHECKED BY:	SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

DETAILS

SHEET
C-D2
SHEET 11 OF 13

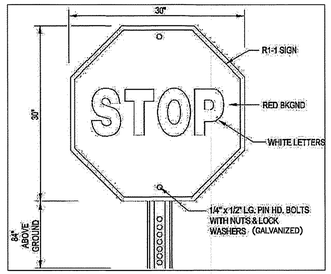


NOTES:

1. ALL CONCRETE FOR SIDEWALKS SHALL BE CLASS 'F'. MEET CONNECTICUT D.O.T. SPECIFICATIONS. REFER TO FORM 818.
2. CONCRETE SURFACE TO BE SCORED AT 5 FOOT INTERVALS.
3. EXPANSION JOINTS SHALL BE INSTALLED EVERY 15 FEET.
4. PROVIDE BROOMED FINISH PERPENDICULAR TO TRAVEL PATH

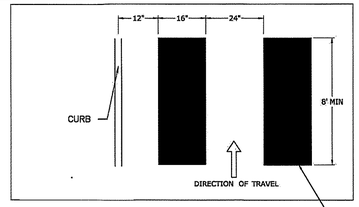
MONOLITHIC CONCRETE WALK AND CURB

N.T.S.



STOP SIGN

N.T.S.

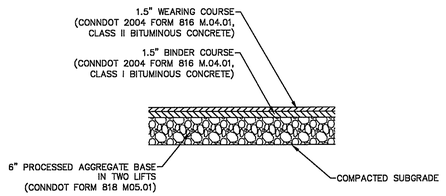


NOTE:

1. CROSSWALK LINES SHALL BE PARALLEL TO VEHICULAR DIRECTION OF TRAVEL.
2. CROSSWALK DETAIL TAKEN FROM CTDOT STANDARD SHEET "TR-1210_04: PAVEMENT MARKING LINES AND SYMBOLS".

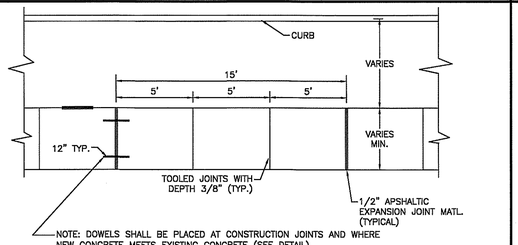
CROSSWALK

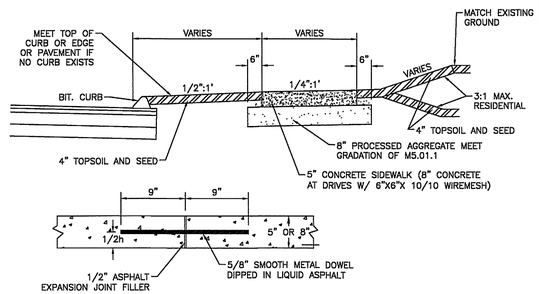
N.T.S.



BITUMINOUS CONCRETE PAVEMENT SECTION STANDARD DUTY

N.T.S.





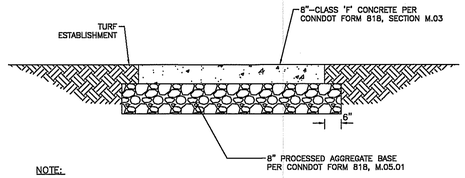
EXPANSION JOINT

NOTES:

1. ALL CONCRETE FOR SIDEWALKS SHALL BE CLASS 'F'. MEET CONNECTICUT D.O.T. SPECIFICATIONS. REFER TO FORM 817.
2. CONCRETE SURFACE TO BE SCORED AT 5 FOOT INTERVALS.
3. EXPANSION JOINTS SHALL BE INSTALLED EVERY 15 FEET.
4. PROVIDE BROOMED FINISH PERPENDICULAR TO TRAVEL PATH

CONCRETE SIDEWALK

N.T.S.

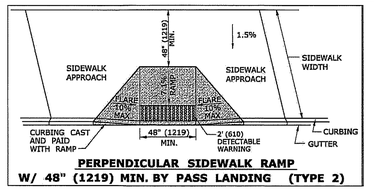


NOTE:

SEE SHEET SITE PLANS FOR LAYOUT AND DIMENSIONS.

CONCRETE DUMPSTER PAD

N.T.S.



NOTE:

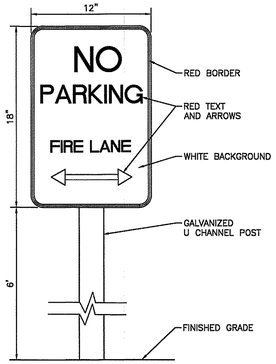
DETAILS TAKEN FROM CONNECTICUT DOT STANDARD GUIDE SHEETS ~ SIDEWALK RAMPS

SIDEWALK RAMP

N.T.S.

NOTES:

1. SIGNS SHALL BE 18 GAUGE FLAT SCREENED ALUMINUM
2. SECURE SIGN TO POST WITH 1/4"x1/2" GALVANIZED LG. PIN HD BOLTS WITH NUTS & LOCK WASHERS

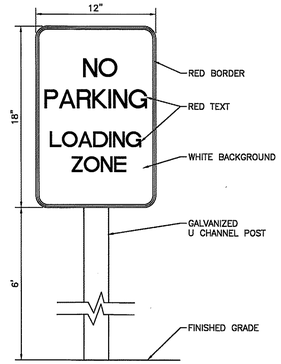


FIRE LANE NO PARKING SIGN

N.T.S.

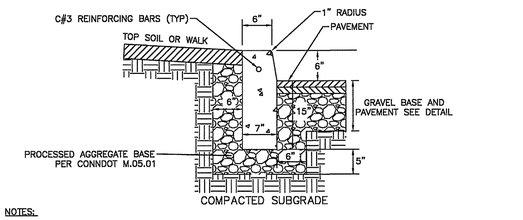
NOTES:

1. SIGNS SHALL BE 18 GAUGE FLAT SCREENED ALUMINUM
2. SECURE SIGN TO POST WITH 1/4"x1/2" GALVANIZED LG. PIN HD BOLTS WITH NUTS & LOCK WASHERS



NO PARKING LOADING ZONE SIGN

N.T.S.

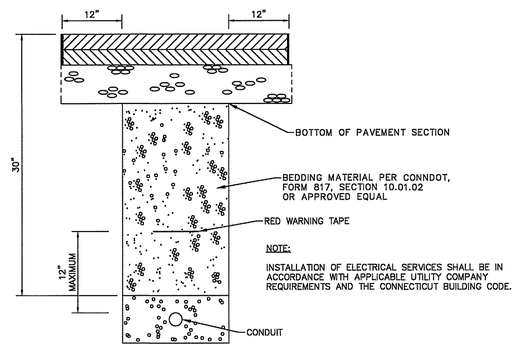


NOTES:

1. ALL CONCRETE FOR CURBS SHALL BE CLASS 'F'. MEET CONNECTICUT D.O.T. SPECIFICATIONS. REFER TO FORM 816.
2. THE END OF CURB SECTIONS SHALL BE CHAMFERED ½ INCH.
3. CURB, CURB CORNERS OR EDGING SHALL MATCH THE ADJACENT CURB IN SIZE, COLOR AND FINISH.
4. CURBS, CURB CORNERS OR EDGING SHALL BE FITTED TOGETHER AS CLOSELY AS POSSIBLE.
5. EXPANSION JOINTS SHALL BE INSTALLED AT A MAXIMUM OF 20 FEET ON CENTER USING PREFORMED EXPANSIONS JOINT FILLER HAVING A THICKNESS OF 1/2.
6. WHEN ABUTTING CONCRETE WALKS, INSTALL PREFORMED EXPANSIONS JOINT FILLER HAVING A THICKNESS OF ½ ALONG LENGTH OF WALK

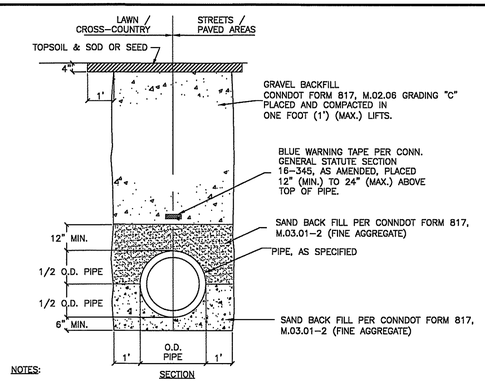
PRECAST CONCRETE CURB

N.T.S.



ELECTRIC TRENCH

N.T.S.

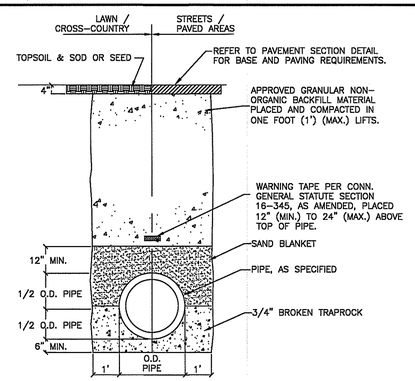


NOTES:

FINAL INSTALLATION REQUIREMENTS FOR DOMESTIC WATER SUPPLY AND FIRE SERVICE MAINS SHALL BE COORDINATED WITH THE WATER COMPANY.

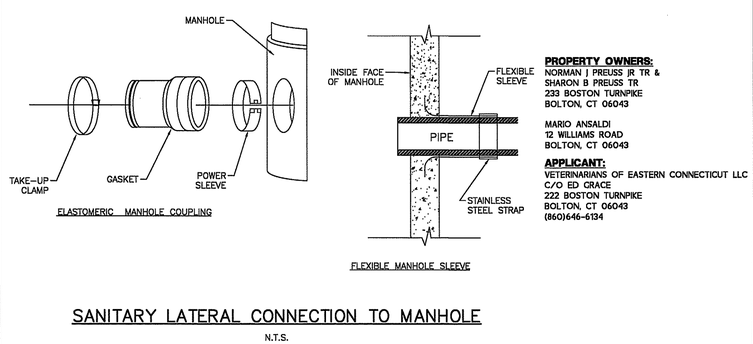
WATER TRENCH SECTION

N.T.S



SANITARY SEWER TRENCH SECTION

N.T.S



PROPERTY OWNERS:
NORMAN J PREUSS JR TR & SHARON B PREUSS TR
232 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

SANITARY LATERAL CONNECTION TO MANHOLE

N.T.S.

Design Professionals
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NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: CMM
DRAWN BY: CMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike (Route 44)
Bolton, CT 06043

DETAILS

SHEET
C-D3
SHEET 12 OF 13

CULTEC RECHARGER® 330XLHD PRODUCT SPECIFICATIONS

GENERAL
CULTEC RECHARGER 330XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT, USA. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 330XLHD SHALL BE 30.5 INCHES (775 mm) TALL, 52 INCHES (1321 mm) WIDE AND 8.5 FEET (2.59 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 330XLHD SHALL BE 7 FEET (2.13 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 24 INCHES (600 mm).
8. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL DIMENSIONS OF EACH SIDE PORTAL SHALL BE 10.5 INCHES (267 mm) HIGH BY 11.5 INCHES (292 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 11.75 INCHES (298 mm).
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 330XLHD CHAMBER SHALL BE 7.459 FT³ / FT (0.693 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 330XLHD SHALL BE 52.213 FT³ / UNIT (1.478 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
12. THE RECHARGER 330XLHD CHAMBER SHALL HAVE FIFTY-SIX DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 330XLHD CHAMBER SHALL HAVE 18 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, SHALL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 330XLRHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
16. THE RECHARGER 330XLSHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 14 INCHES (356 mm) HIGH X 34.5 INCHES (876 mm) WIDE.
17. THE RECHARGER 330XLIHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 14 INCHES (356 mm) HIGH X 34.5 INCHES (876 mm) WIDE.
18. THE RECHARGER 330XLEHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE RECHARGER 330XLHD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. THE CHAMBER SHALL HAVE A 6 INCH (152 mm) DIAMETER RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
22. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
23. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.
24. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED TO MEET THE MATERIAL AND STRUCTURAL REQUIREMENTS OF IAPMO PS 63-2019, INCLUDING RESISTANCE TO AASHTO H-10 AND H-20 HIGHWAY LIVE LOADS, WHEN INSTALLED IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS.
25. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS OF NSAI IRISH AGREEMENT BOARD CERTIFICATE FOR CULTEC ATTENUATION AND INFILTRATION.
26. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.66 m)
27. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.

CULTEC HVLV FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL
CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER MODEL 330XLHD STORMWATER CHAMBERS.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

CULTEC NO. 4800™ WOVEN GEOTEXTILE

CULTEC NO. 4800 WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

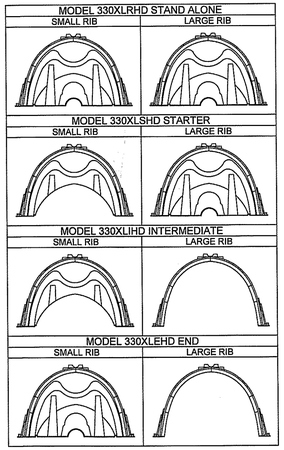
GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 550 X 550 LBS (2,448 X 2,448 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 20 X 20% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 5,070 X 5,070 LBS/FT (74 X 74 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 2% STRAIN OF 960 X 1,096 LBS/FT (14 X 16 KN/M) PER ASTM D4595 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 5% STRAIN OF 2,740 X 2, 740 LBS/FT (40 X 40 KN/M) PER ASTM D4595 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 10% STRAIN OF 4,800 X 4,800 LBS/FT (70 X 70 KN/M) PER ASTM D4595 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,700 LBS (7,560 N) PER ASTM D6241 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 180 X 180 LBS (801 X 801 N) PER ASTM D4533 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.15 SEC-1 PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 11.5 GPM/FT2 (470 LPM/M2) PER ASTM D4491 TESTING METHOD.
14. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 80% @ 500 HRS. PER ASTM D4355 TESTING METHOD.

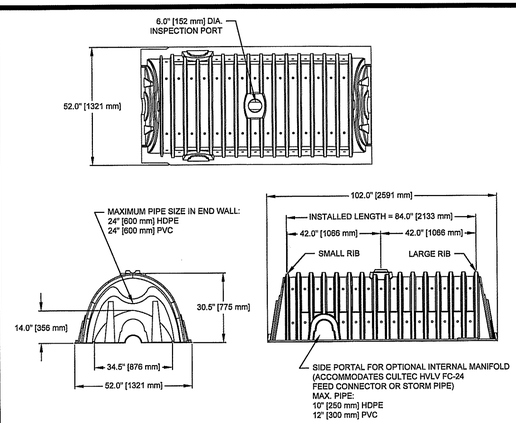
330XLHD 1.0

GENERAL NOTES

330XLHD 2.0

CULTEC RECHARGER 330XLHD HEAVY DUTY THREE VIEW

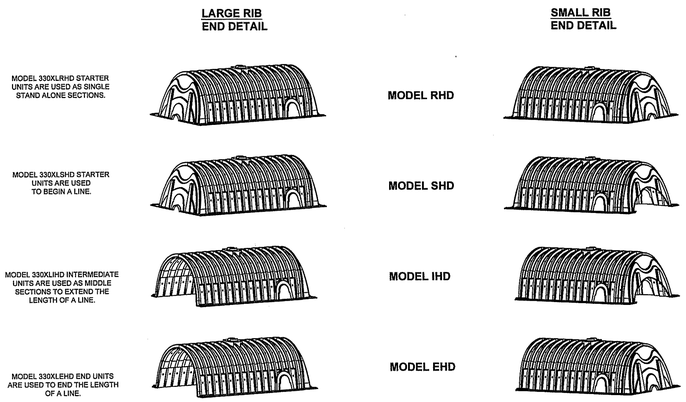




CULTEC RECHARGER 330XLHD CHAMBER STORAGE = 7.459 CF/FT [0.693 m³/m]
INSTALLED LENGTH ADJUSTMENT = 1.5' [0.46 m]
SIDE PORTAL ACCEPTS CULTEC HVLV FC-24 FEED CONNECTOR

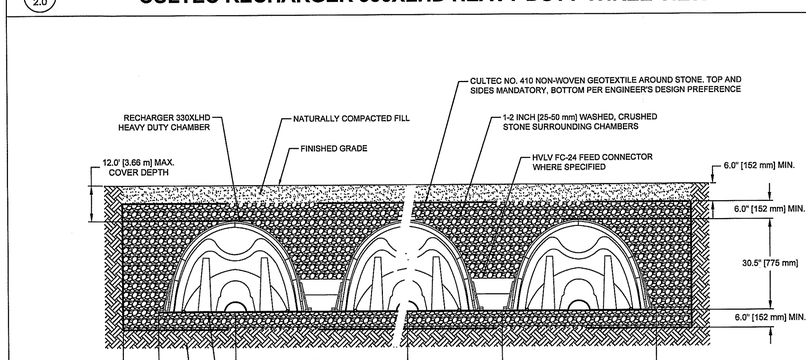
330XLHD 3.0

CULTEC RECHARGER 330XLHD HEAVY DUTY END DETAIL INFORMATION



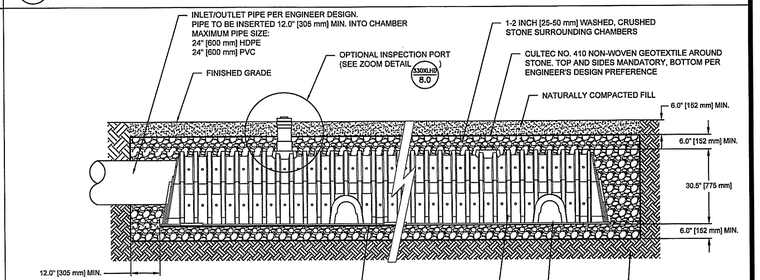
330XLHD 4.0

CULTEC RECHARGER 330XLHD HEAVY DUTY CROSS SECTION



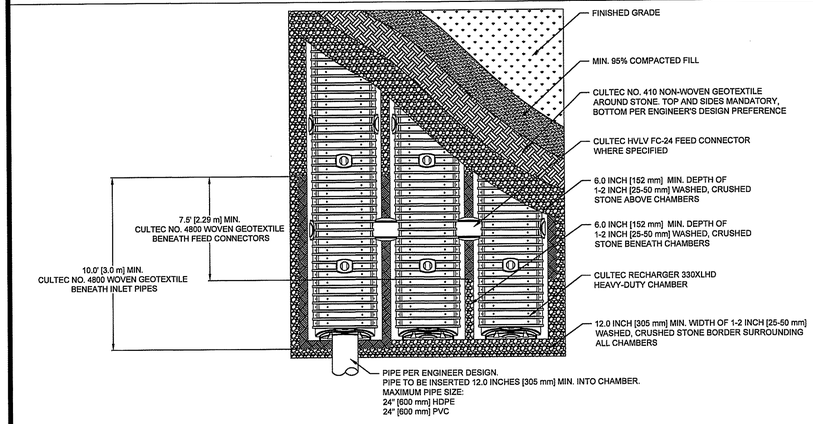
330XLHD 5.0

CULTEC RECHARGER 330XLHD HEAVY DUTY TYPICAL INTERLOCK



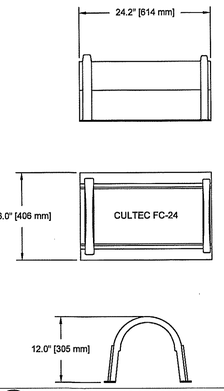
330XLHD 6.0

CULTEC RECHARGER 330XLHD HEAVY DUTY PLAN VIEW



330XLHD 7.0

CULTEC HVLV FC-24 FEED CONNECTOR THREE VIEW



330XLHD 8.0

OPTIONAL INSPECTION PORT- ZOOM DETAIL

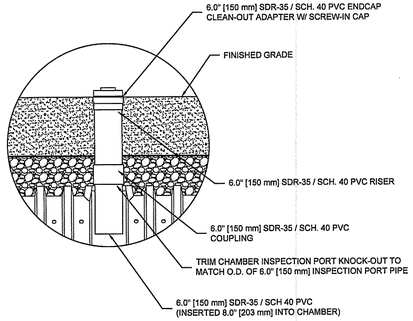
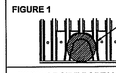


FIGURE 1



ZOOM OF SIDE PORTAL SHOWING MAX. PIPE O.D.

330XLHD 9.0

CULTEC INTERNAL MANIFOLD- OPTIONAL INSPECTION PORT DETAIL

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NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO.:	4798
DATE:	3/21/22
DESIGN BY:	CMM
DRAWN BY:	CMM
CHECKED BY:	SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

DETAILS

SHEET
C-D4
SHEET 13 OF 13

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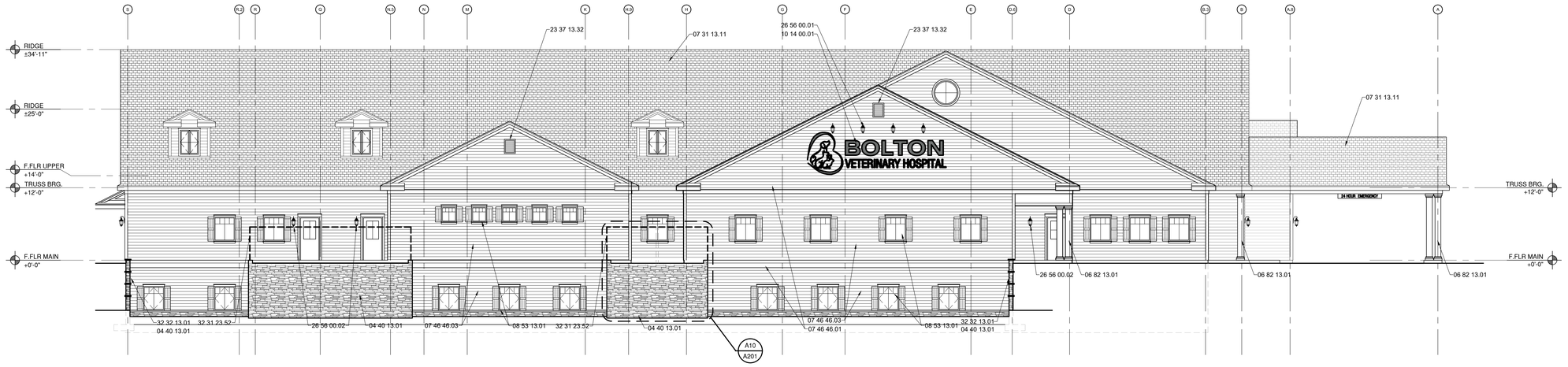
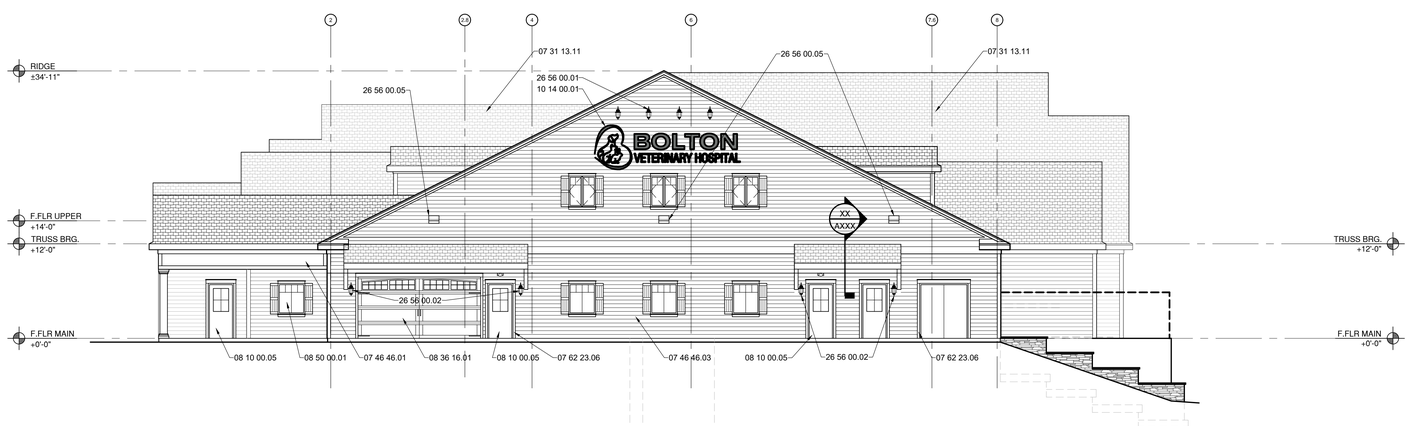


D2 WEST ELEVATION

1/8" = 1'-0"



A2 NORTH ELEVATION

1/8" = 1'-0"

REFERENCE KEYNOTES

DIVISION 04 - MASONRY
04 40 13.01 - STONE VENEER

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES
06 82 13.01 - FIBERGLASS COLUMN WRAP

DIVISION 07 - THERMAL AND MOISTURE PROTECTION
07 31 13.11 - ASPHALT SHINGLES
07 46 46.01 - FIBER CEMENT BOARD PANEL SYSTEM
07 46 46.03 - FIBER CEMENT BOARD LAP SIDING
07 62 23.06 - FIBER CEMENT TRIM BOARD

DIVISION 08 - OPENINGS
08 10 00.05 - DOOR AND FRAME AS SCHEDULED
08 36 16.01 - SECTIONAL OVERHEAD DOOR
08 50 00.01 - EXTERIOR WINDOW
08 53 13.01 - EXTERIOR VINYL WINDOW AS SCHEDULED

DIVISION 10 - SPECIALTIES
10 14 00.01 - SIGNAGE BY OWNER

DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING
23 37 13.32 - LOUVER - SEE MECHANICAL

DIVISION 26 - ELECTRICAL
26 56 00.01 - EXTERIOR LIGHT FIXTURE
26 56 00.02 - ORNAMENTAL BUILDING LIGHTING
26 56 00.05 - EXTERIOR WALL PACK LIGHT FIXTURE

DIVISION 32 - EXTERIOR IMPROVEMENTS
32 31 23.52 - 6' HIGH VINYL FENCE
32 32 13.01 - CONCRETE RETAINING WALL

NOT FOR CONSTRUCTION

THIS DESIGN DRAWING IS PROVIDED BY THE DESIGN CONSULTANT. CONSTRUCTION DOCUMENTS TO BE COMPLETED BY THE ARCHITECT OF RECORD AS REQUIRED BY LOCAL AUTHORITIES.

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BDA CMP

BOLTON VETERINARY HOSPITAL

233 Boston Turnpike
Bolton, Connecticut 06043
VPC Associates, LLC

EXTERIOR ELEVATIONS

REV #	DATE	COMMENTS
-		REVISION:
-		REVISION:
-		REVISION:
-		REVISION:

REVIEWS	
INITIALS	
-	BDA DSGN. REV.
-	BDA TECH REV.
-	CMP TECH REV.

GRACE

PROJECT NO.: 1936
DRAWN: -
DATE: 3/21/2022

A201

- OF -

Save Date: March 15, 2022 - 5:02 PM - DavidM
Plot Date: March 21, 2022 - 4:14 PM
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REFERENCE KEYNOTES

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES
06 82 13.01 - FIBERGLASS COLUMN WRAP

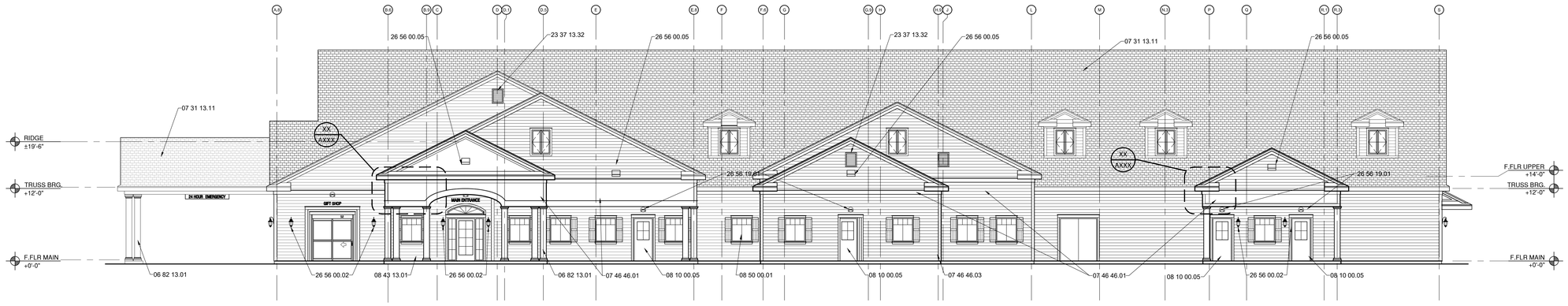
DIVISION 07 - THERMAL AND MOISTURE PROTECTION
07 31 13.11 - ASPHALT SHINGLES
07 46 46.01 - FIBER CEMENT BOARD PANEL SYSTEM
07 46 46.03 - FIBER CEMENT BOARD LAP SIDING
07 62 23.06 - FIBER CEMENT TRIM BOARD
07 77 00.01 - GABLE END WALL VENT

DIVISION 08 - OPENINGS
08 10 00.05 - DOOR AND FRAME AS SCHEDULED
08 43 13.01 - STOREFRONT SYSTEM
08 50 00.01 - EXTERIOR WINDOW

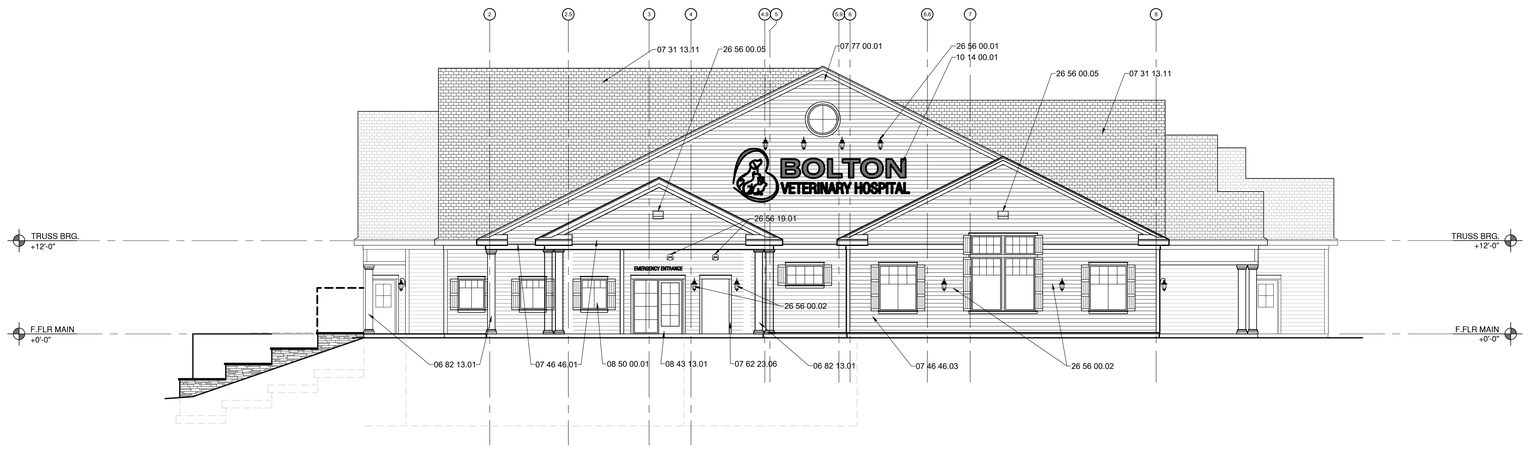
DIVISION 10 - SPECIALTIES
10 14 00.01 - SIGNAGE BY OWNER

DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING
23 37 13.32 - LOUVER - SEE MECHANICAL

DIVISION 26 - ELECTRICAL
26 56 00.01 - EXTERIOR LIGHT FIXTURE
26 56 00.02 - ORNAMENTAL BUILDING LIGHTING
26 56 00.05 - EXTERIOR WALL PACK LIGHT FIXTURE
26 56 19.01 - EXTERIOR EMERGENCY LIGHT



D2 **EAST ELEVATION**
1/8" = 1'-0"



A2 **SOUTH ELEVATION**
1/8" = 1'-0"

NOT FOR CONSTRUCTION

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BDA CMP

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VPC Associates, LLC

EXTERIOR ELEVATIONS

REV.#	DATE	COMMENTS
-		REVISION:
-		REVISION:
-		REVISION:
-		REVISION:

REVIEWS	
INITIALS	
-	BDA DSGN. REV.
-	BDA TECH REV.
-	CMP TECH REV.

GRACE

PROJECT NO.: 1936
DRAWN: -
DATE: 3/21/2022

A202

- OF -

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C1 NTS AERIAL VIEW

EXTERIOR RENDERINGS

	REV.#	DATE	COMMENTS
REVISION:	-		
REVISION:	-		
REVISION:	-		
REVISION:	-		

INITIALS	REVIEWS
-	BDA FOREMAN REV
-	BDA TECH REV
-	CMP TECH REV

PROJECT NO.: 1936
GRACE
DRAWN: CF
DATE: 3/28/2022

I301
1 OF 4

BOLTON VETERINARY HOSPITAL

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F1 BIRDS EYE- NORTH
NTS

F7 BIRDS EYE- EAST
NTS

A1 BIRD EYE- SOUTH
NTS

A7 BIRDS EYE- WEST
NTS

BDA Architecture, P.C.
Building Design for Animals, LLC
901 Lamberton Pl. NE
Albuquerque, NM 87107
Phone: (505) 888-0190
Fax: (505) 884-4141
Email: info@bdaarc.com

BDA CMP

BOLTON VETERINARY HOSPITAL
---
233 Boston Turnpike
Bolton, Connecticut 06043
VPC Associates, LLC

EXTERIOR RENDERINGS

REV.#	DATE	COMMENTS
REVISION: -		
REVISION: -		
REVISION: -		
REVISION: -		

REVIEWS

INITIALS	
-	BDA DSGN. REV.
-	BDA TECH REV.
-	CMP TECH REV.

GRACE

PROJECT NO.: 1936
DRAWN: CF
DATE: 3/28/2022

I302

2 OF 4

Save Date: March 28, 2022 - 11:25 AM - CrystalF
Plot Date: March 28, 2022 - 11:35 AM
Drawing Name: C:\Revit 2017\1936 Grace\BDA DWGS\Cho\Bolton Veterinary Hospital\Sheets\1936-I302 EXTERIOR RENDERINGS.dwg

F1 NORTH
NTS

F7 NORTH EAST
NTS

A1 EAST
NTS

A7 SOUTH EAST
NTS

BDA Architecture, P.C.
Building Design for Animals, LLC
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Email: info@bdaarc.com

BDA

CMP

BOLTON VETERINARY HOSPITAL
---
233 Boston Turnpike
Bolton, Connecticut 06043
VPC Associates, LLC

EXTERIOR RENDERINGS

REV.#	DATE	COMMENTS
REVISION: -		
REVISION: -		
REVISION: -		
REVISION: -		

REVIEWS

INITIALS	
-	BDA DSGN. REV.
-	BDA TECH REV.
-	CMP TECH REV.

GRACE

PROJECT NO.: 1936
DRAWN: CF
DATE: 3/28/2022

I303

3 OF 4

Save Date: March 28, 2022 - 11:26 AM - CrystalF
Plot Date: March 28, 2022 - 11:35 AM
Drawing Name: C:\Revit 2017\1936 Grace\BDA DWGS\Cho\Bolton Veterinary Hospital\Sheets\1936-I303 EXTERIOR RENDERINGS.dwg

F1 SOUTH
SOUTH

F8 SOUTH WEST
NTS

A1 WEST
NTS

A8 NORTH WEST
NTS

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Building Design for Animals, LLC
901 Lamberton Pl. NE
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BDA CMP

BOLTON VETERINARY HOSPITAL
---
233 Boston Turnpike
Bolton, Connecticut 06043
VPC Associates, LLC

EXTERIOR RENDERINGS

REV.#	DATE	COMMENTS
REVISION: -		
REVISION: -		
REVISION: -		
REVISION: -		

REVIEWS	
INITIALS	
-	BDA DSGN. REV.
-	BDA TECH REV.
-	CMP TECH REV.

GRACE

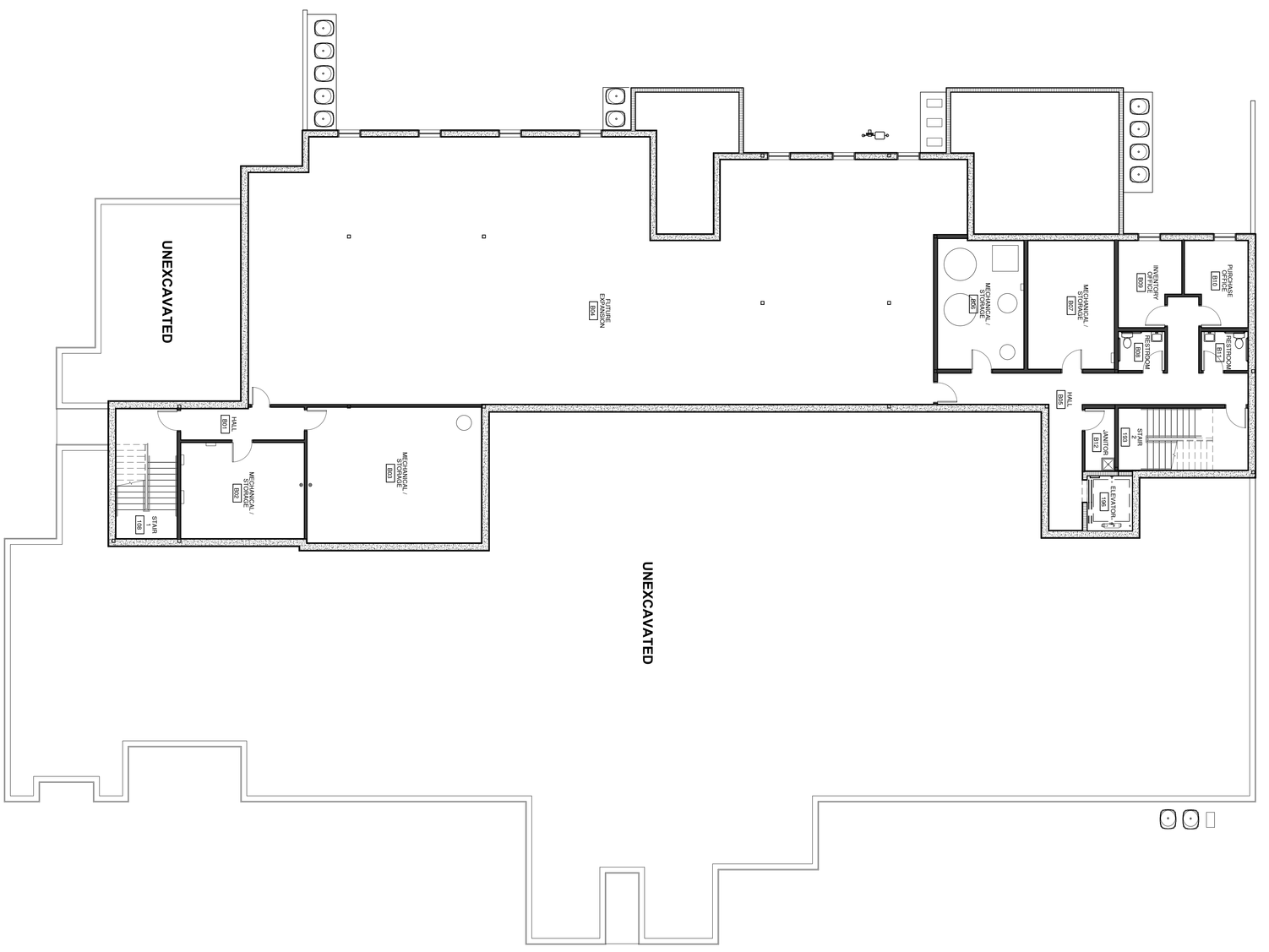
PROJECT NO.: 1936
DRAWN: CF
DATE: 3/28/2022

I304

4 OF 4

Save Date: March 28, 2022 - 11:25 AM - CrystalF
Plot Date: March 28, 2022 - 11:36 AM
Drawing Name: C:\Revit 2017\1936 Grace\BDA\DWGS\Cho\Bolton Veterinary Hospital\Sheets\1936-I304 Exterior Renderings.dwg

Save Date: March 21, 2022 - 3:27 PM - DavidM
Plot Date: March 21, 2022 - 4:10 PM
Drawing Name: G:\Archive\2019\1936-Grace\BDA\DWGS\CDs\Bolton Veterinary Hospital\Sheets\1936-A001 Lower Level Floor Plan.dwg



A2 LOWER LEVEL FLOOR PLAN

1/8"=1'-0"

3,399 SF - FINISHED
4,088 SF - FUTURE
7,484 SF - TOTAL

NORTH

NOT FOR CONSTRUCTION

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PROJECT NO.: 1936 GRACE
DRAWN: -
DATE: 3/21/2022

A001
- OF -

INITIALS REVIEWS
- - BDA DESIGN REV
BDA TECH REV
CMP TECH REV

LOWER LEVEL FLOOR PLAN

	REV.#	DATE	COMMENTS
REVISION:	-		
REVISION:	-		
REVISION:	-		
REVISION:	-		

BOLTON VETERINARY HOSPITAL

233 Boston Turnpike
Bolton, Connecticut 06043
VPC Associates, LLC

BDA Architecture, P.C.
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901 Lamberton Pl. NE
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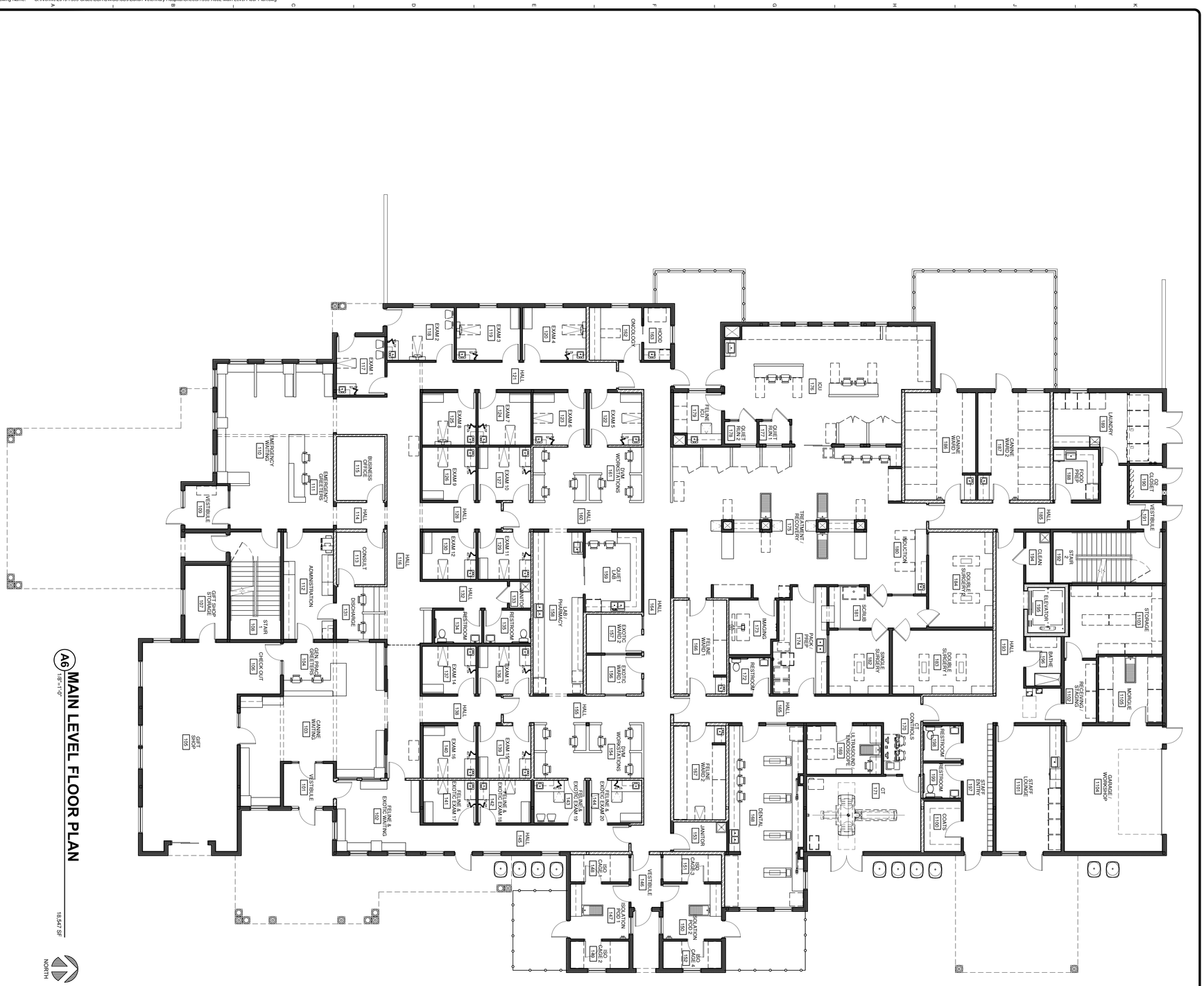
Save Date: March 21, 2022 - 4:53 PM - DavidM
Plot Date: March 21, 2022 - 4:54 PM
Drawing Name: G:\Archive\2019\1936-Grace\BDA\DWGS\CDs\Bolton Veterinary Hospital\Sheets\1936-A002 Main Level Floor Plan.dwg



A6 MAIN LEVEL FLOOR PLAN

1/8"=1'-0"

18,547 SF

NORTH

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GRACE
PROJECT NO.: 1936
DRAWN: -
DATE: 3/21/2022

A002
- OF -

REVIEWS	INITIALS
-	-
BDA WORK REV	
BDA TECH REV	
CMP TECH REV	

MAIN LEVEL FLOOR PLAN

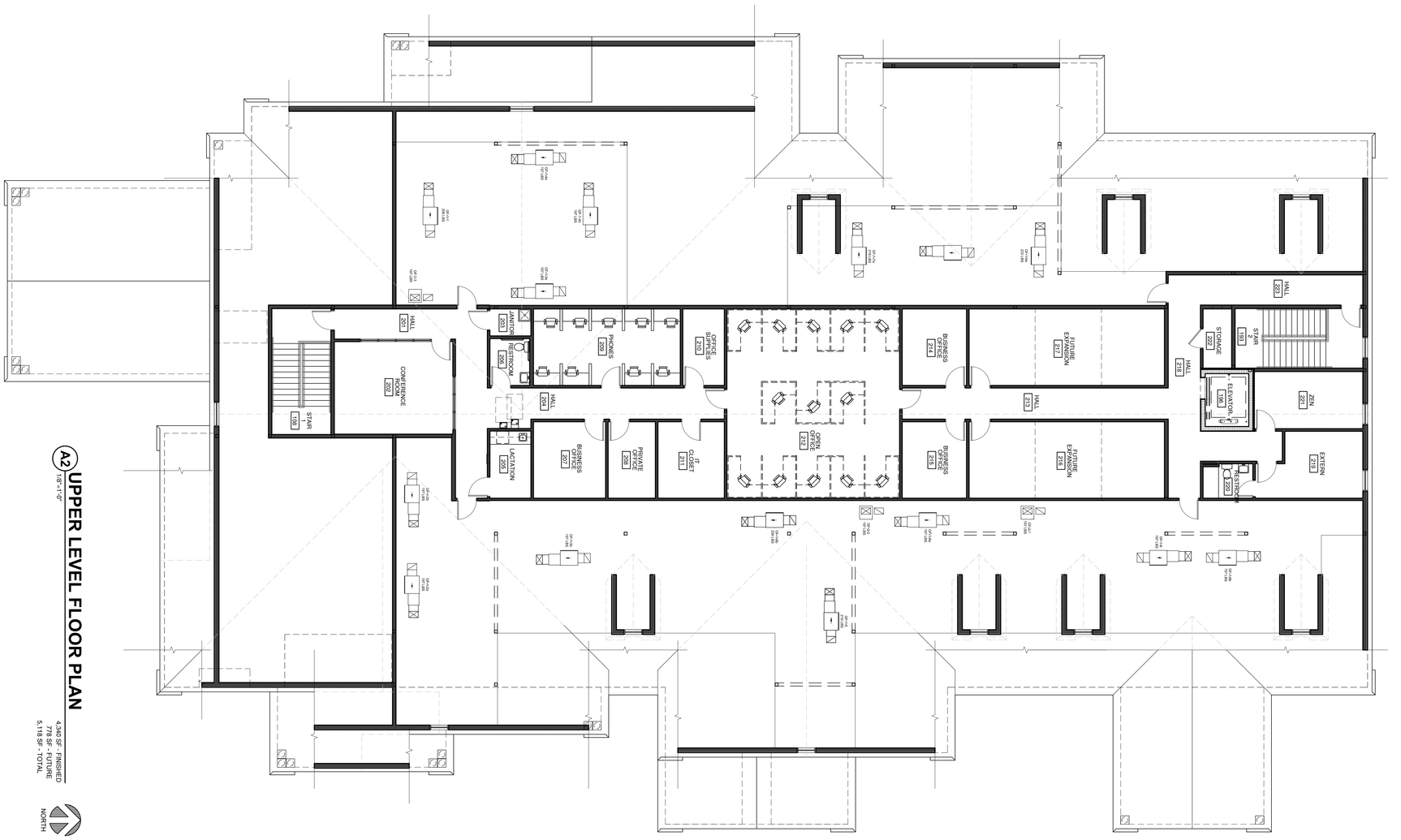
	REV.#	DATE	COMMENTS
REVISION:	-		
REVISION:	-		
REVISION:	-		
REVISION:	-		

BOLTON VETERINARY HOSPITAL

233 Boston Turnpike
Bolton, Connecticut 06043
VPC Associates, LLC

BDA Architecture, P.C.
Building Design for Animals, LLC
901 Lamberton Pl. NE
Albuquerque, NM 87107
Phone: (505) 858-0180
Fax: (505) 858-0111
Email: info@bdaarc.com

Save Date: March 21, 2022 - 3:27 PM - DavidM
Plot Date: March 21, 2022 - 4:11 PM
Drawing Name: G:\Archive\2019\1936-Grace\BDA\DWGS\CDs\Bolton Veterinary Hospital\Sheets\1936-A003 Upper Level Floor Plan.dwg



A2 UPPER LEVEL FLOOR PLAN

1/8"-1'-0"

4,340 SF - FINISHED
778 SF - FUTURE
5,118 SF - TOTAL

NORTH

NOT FOR CONSTRUCTION

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PROJECT NO.: 1936
DRAWN: -
DATE: 3/21/2022

GRACE

A003

- OF -

REVIEWS	INITIALS
BOH/OWNER REV	-
BDA TECH REV	-
CMP TECH REV	-

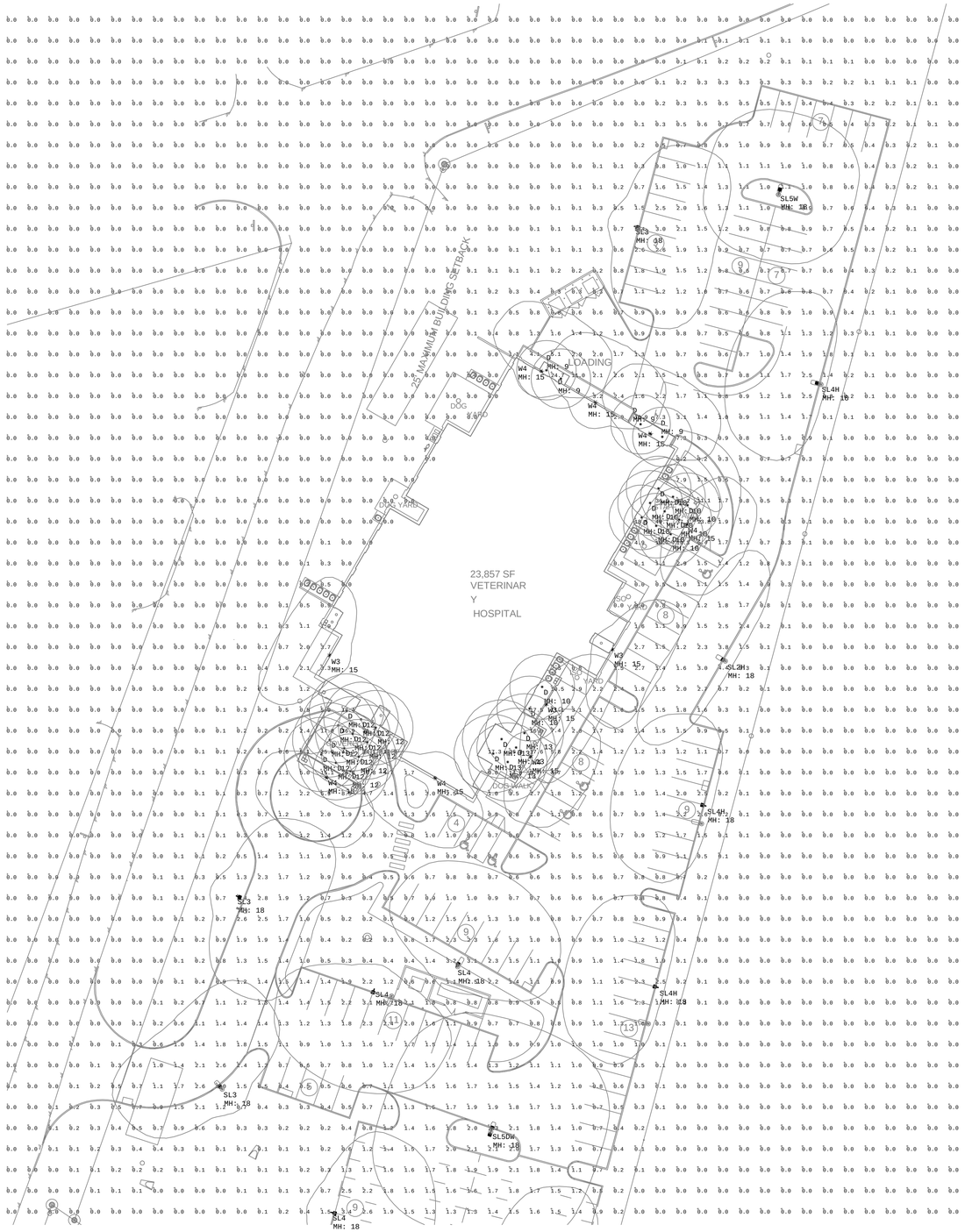
UPPER LEVEL FLOOR PLAN

	REV.#	DATE	COMMENTS
REVISION:	-		
REVISION:	-		
REVISION:	-		
REVISION:	-		

BOLTON VETERINARY HOSPITAL

233 Boston Turnpike
Bolton, Connecticut 06043
VPC Associates, LLC

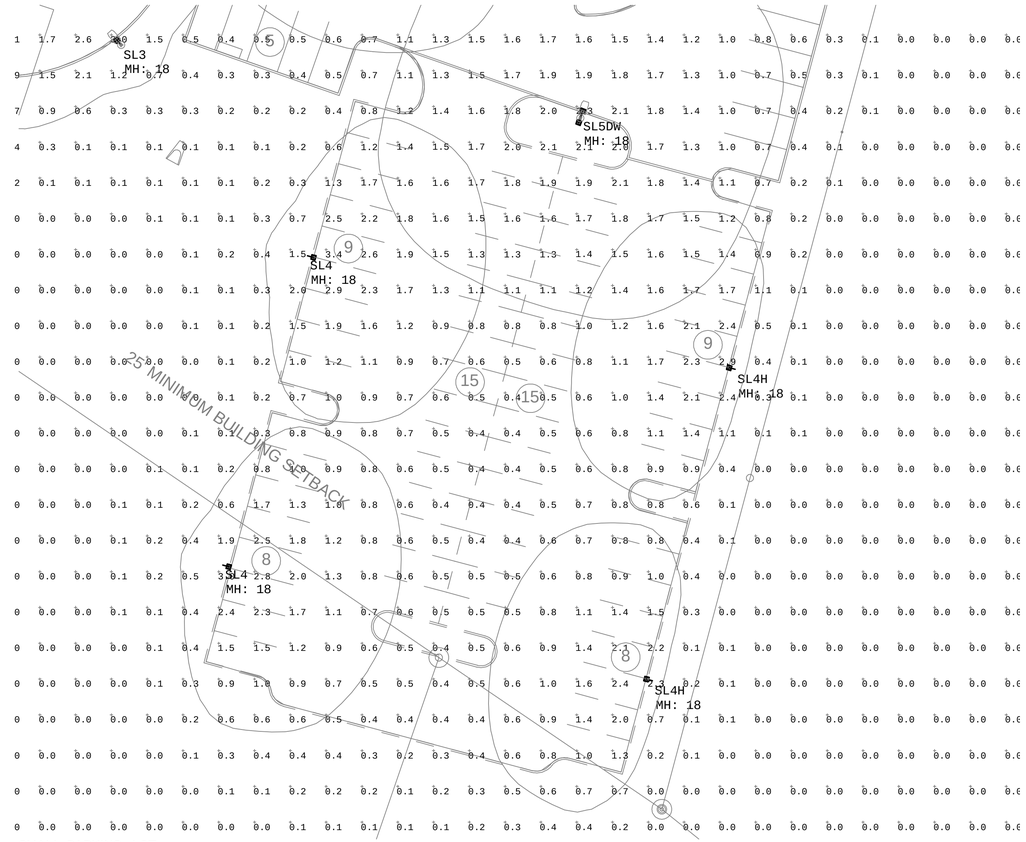
BDA Architecture, P.C.
Building Design for Animals, LLC
901 Lamberton Pl. NE
Albuquerque, NM 87107
Phone: (505) 858-0180
Fax: (505) 858-0111
Email: info@bdaarc.com



JOB NAME: 1936 - GRACE/BOLTON VETERINARY HOSPITAL
APEX LIGHTING SOLUTIONS
WORKPLANE/CALC PLANE: @ FINISH GRADE
MOUNTING HEIGHT: SEE LUMINAIRE SCHEDULE
APPS: LC
SALES: KV

Luminaire Schedule							
Qty	Label	Arrangement	Lumens	Input Watts	LLF	BUG Rating	Description
32	D	SINGLE	3259	30.3	0.927	B2-U0-G0	LIGHTOLIER 6RN-P6RDL30840CLZ10U / RECESSED IN CEILING
1	SL2H	SINGLE	5772	55.7	0.850	B1-U0-G1	GARDCO ECF-S-32L-530-NW-G2-AR-2-UNV-HIS-FINISH / SSS-CB-4-16-D1-DT5-FINISH / ON 24IN EXPOSED CONCRETE BASE
3	SL3	SINGLE	7426	55.7	0.850	B1-U0-G2	GARDCO ECF-S-32L-530-NW-G2-AR-3-UNV-FINISH / SSS-CB-4-16-D1-DT5-FINISH / ON 24IN EXPOSED CONCRETE BASE
4	SL4	SINGLE	7713	55.7	0.850	B1-U0-G2	GARDCO ECF-S-32L-530-NW-G2-AR-4-UNV-FINISH / SSS-CB-4-16-D1-DT5-FINISH / ON 24IN EXPOSED CONCRETE BASE
5	SL4H	SINGLE	6048	55.7	0.850	B1-U0-G2	GARDCO ECF-S-32L-530-NW-G2-AR-4-UNV-HIS-FINISH / SSS-CB-4-16-D1-DT5-FINISH / ON 24IN EXPOSED CONCRETE BASE
1	SL5DW	BACK-BACK	7667	55.7	0.850	B3-U0-G2	GARDCO ECF-S-32L-530-NW-G2-AR-5W-UNV-FINISH / SSS-CB-4-16-D2-DT5-FINISH / ON 24IN EXPOSED CONCRETE BASE
1	SL5W	SINGLE	7667	55.7	0.850	B3-U0-G2	GARDCO ECF-S-32L-530-NW-G2-AR-5W-UNV-FINISH / SSS-CB-4-16-D1-DT5-FINISH / ON 24IN EXPOSED CONCRETE BASE
3	W3	SINGLE	4003	34.3	0.850	B1-U0-G1	STONCO LPW16-30W-NW-G3-3-UNV-FINISH / WALL MOUNTED @15FT AFG TO BOF
7	W4	SINGLE	3950	34.3	0.850	B1-U0-G1	STONCO LPW16-30W-NW-G3-4-UNV-FINISH / WALL MOUNTED @15FT AFG TO BOF

Calculation Summary						
Label	Grid Height	Avg	Max	Min	Avg/Min	Max/Min
SITE	0	0.27	41.1	0.0	N.A.	N.A.
PARKWAY AND DRIVEWAY		1.51	41.1	0.2	7.55	205.50



SMALL PARKING LOT
SCALE : 1"=20'-0"

GENERAL DISCLAIMER:

Calculations have been performed according to IES standards and good practice Some differences between measured values and calculated results may occur due to tolerances in calculation methods, testing procedures, component performance, measurement techniques and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as room dimensions, reflectances, furniture and architectural elements significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured values and calculated values.

* LLF Determined Using Current Published Lamp Data

NOTE TO REVIEWER:

Total Light Loss Factor (LLF) applied at time of design is determined by applying the Lamp Lumen Depreciation (LLD) from current lamp manufacturer's catalog, a Luminaire Dirt Depreciation Factor (LDD) based on IES recommended values and a Ballast Factor (BF) from current ballast specification sheets. Application of an incorrect Light Loss Factor (LLF) will result in forecasts of performance that will not accurately depict actual results.

For proper comparison of photometric layouts, it is essential that you insist all designers use correct Light Loss Factors.

APEX LIGHTING SOLUTIONS
THE POINT WHERE ALL ASCENDING LINES CONVERGE
telephone 860.632.8766
www.apexlightingsolutions.com

PROJECT TITLE:
1936 - GRACE/BOLTON VETERINARY HOSPITAL

DRAWING TITLE:
SITE LIGHTING
PHOTOMETRIC CALCULATION

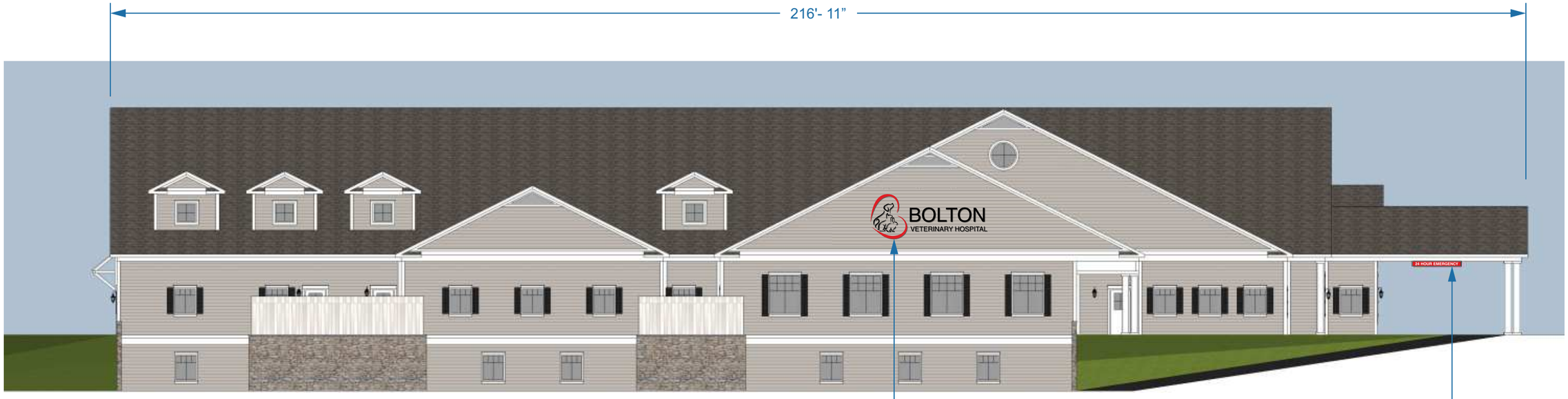
FILE NAME: SL-1B 1936 - GRACE-BOLTON VETERINARY HOSPITAL 03-18-2022 LC.dwg

SCALE : 1"=30'-0"
DATE: 3/18/22
DRAWN BY: LC
SHEET:
SL-1B

artfx

Bolton Veterinary Hospital | Exterior Signage

March 11, 2022



West Elevation

Scale: 1/16" = 1'- 0"

Main building identification sign
illuminated options pg.3
- see layout, pg. 2 -

Emergency canopy sign (2)req.
illuminated sign cabinet
- see layout, pg. 2 -

East Elevation

Scale: 1/16" = 1'- 0"

Entrance
identification signs
- see layouts, pg. 2 -

Secondary building identification sign
illuminated options pg.3
- see layout, pg. 2 -

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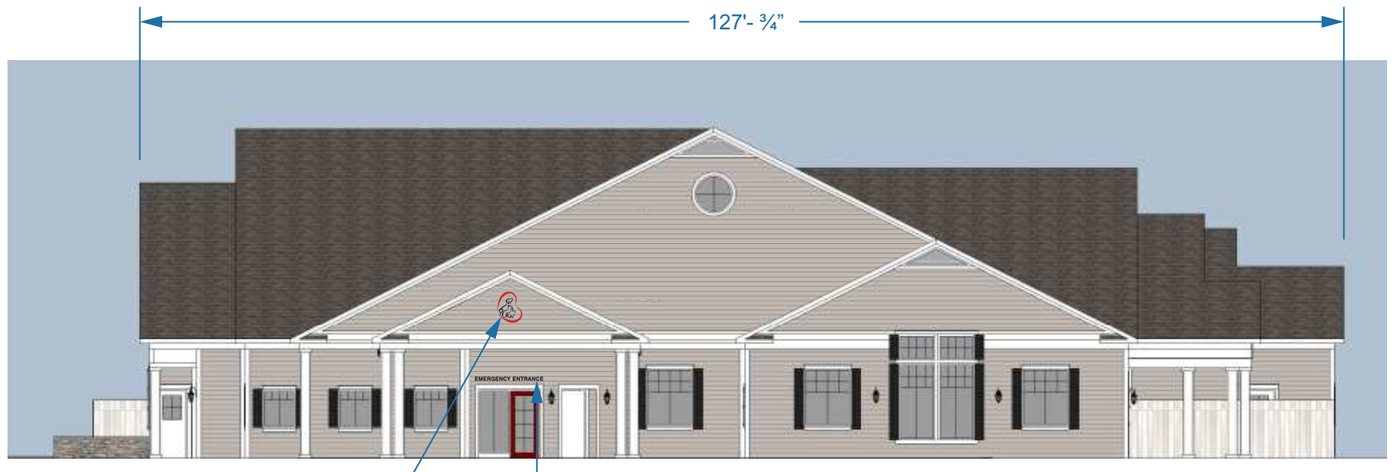
Project Name:	Job#:	Scale:	Date:	Artist:	Sales Person:	Page:
Bolton Veterinary Hospital 233 Boston Turnpike, Bolton, CT	59077	As Noted	3\11\22	PNH	TD	1

North Elevation

Scale: 1/16” = 1’- 0”

Secondary building identification sign
illuminated options pg.3
- see layouts -



South Elevation

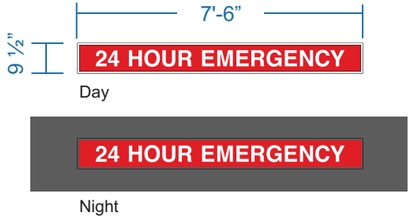
Scale: 1/16” = 1’- 0”

Secondary building identification sign
illuminated options pg.3
- see layouts -

Entrance identification sign, non-illuminated
- see layouts -

Main Building Identification Sign **79.48 Sq.Ft.**

Scale: 1/4” = 1’- 0”



Emergency Canopy Sign (2)req.

Scale: 1/4” = 1’- 0” **5.93 Sq.Ft.**ea.

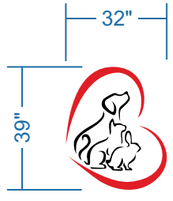
3.2 Sq.Ft.

3.1 Sq.Ft.

2.98 Sq.Ft.

Entrance Identification Sign

Scale: 1/4” = 1’- 0”



Secondary Building Identification Signs (2)req.

Scale: 1/4” = 1’- 0” **8.66 Sq.Ft.**ea.

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Project Name:	Job#:	Scale:	Date:	Artist:	Sales Person:	Page:
Bolton Veterinary Hospital 233 Boston Turnpike, Bolton, CT	59077	As Noted	3\11\22	PNH	TD	2

Red Heart: Channel letter with translucent red faces
Animals: Halo-lit
BOLTON: Halo-lit
VETERINARY HOSPITAL: Halo-lit

Lighting Option 1 - Internally Illuminated

Red Heart: Channel letter with translucent red faces
Animals: Channel letter with day/night faces
BOLTON: Channel letter with day/night faces
VETERINARY HOSPITAL: Channel letter with day/night faces

Lighting Option 2 - Internally Illuminated

Red Heart: 1/2” Acrylic with 1/2” stand-offs
Animals: 1/2” Acrylic with 1/2” stand-offs
BOLTON: 1/2” Acrylic with 1/2” stand-offs
VETERINARY HOSPITAL: 1/2” Acrylic with 1/2” stand-offs
LIGHTING: Slim-line external LED wash light

Lighting Option 3 - Externally Illuminated

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Project Name:	Job#:	Scale:	Date:	Artist:	Sales Person:	Page:
Bolton Veterinary Hospital 233 Boston Turnpike, Bolton, CT	59077	As Noted	3\11\22	PNH	TD	3

Night View

Double-Face Monument - Option 1: Externally Illuminated **26.83 Sq.Ft.**

Scale: 3/4" = 1'- 0"

Project Name:	Job#:	Scale:	Date:	Artist:	Sales Person:	Page:
Bolton Veterinary Hospital 233 Boston Turnpike, Bolton, CT	59077	As Noted	3\11\22	PNH	TD	4

Night View

Double-Face Monument - Option 2: Internally Illuminated **26.66 Sq.Ft.**

Scale: 3/4" = 1'- 0"

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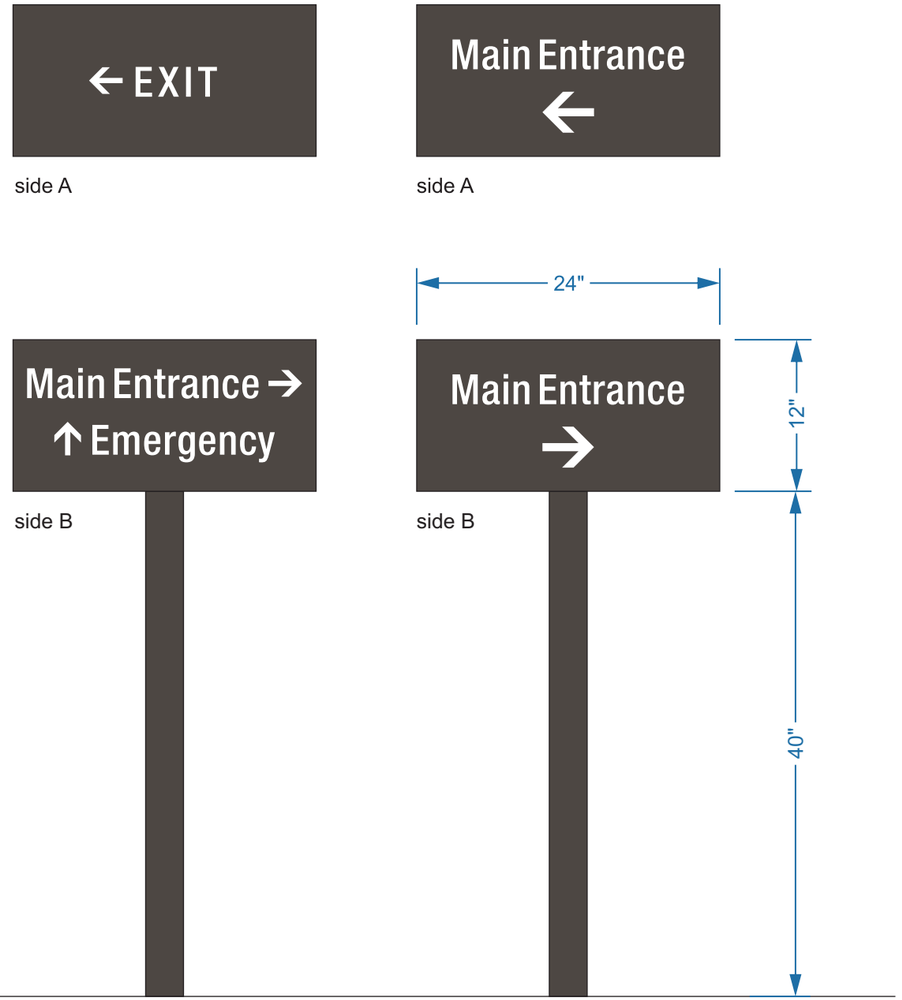
Project Name:	Job#:	Scale:	Date:	Artist:	Sales Person:	Page:
Bolton Veterinary Hospital 233 Boston Turnpike, Bolton, CT	59077	As Noted	3\11\22	PNH	TD	5

Night View

Double-Face Monument - Option 3: Internally Illuminated **26.66 Sq.Ft.**

Scale: 3/4" = 1'- 0"

Project Name:	Job#:	Scale:	Date:	Artist:	Sales Person:	Page:
Bolton Veterinary Hospital 233 Boston Turnpike, Bolton, CT	59077	As Noted	3\11\22	PNH	TD	6



Directional 1

Scale: 1” = 1’- 0”

Directional 2

Scale: 1” = 1’- 0”

SITE PLAN - NTS

KEY

- Double-Face Monument Sign
- Main Building Identification
- 1 Secondary Building Identification
- 2 Secondary Building Identification
- 3 Secondary Building Identification
- Entrance Identification Signs
- Emergency Canopy Signs
- Directionals

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Project Name:	Job#:	Scale:	Date:	Artist:	Sales Person:	Page:
Bolton Veterinary Hospital 233 Boston Turnpike, Bolton, CT	59077	As Noted	3\11\22	PNH	TD	7

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DECORATIVE GLASS ▪ DECORATIVE IRONWORK ▪ DISPLAY PRODUCTS ▪ DONOR WALLS ▪ EDGE LIGHTING ▪ ELECTRONIC MESSAGE CENTERS

ETCHED PLAQUES ▪ EXHIBITION GRAPHICS ▪ FAUX FINISHES ▪ FEATURE WALLS ▪ FLAGS ▪ FOUNDATIONS ▪ GLASS SIGNS ▪ GOOSE NECK

LIGHTS ▪ HIGH RISE WORK ▪ LARGE FORMAT PRINTING ▪ LED ARCHITECTURAL LIGHTING ▪ LED RETROFITS ▪ LIGHTING SYSTEMS ▪ LOGOS

MARQUEES ▪ MASONRY WORK ▪ MENUS ▪ MONUMENT SIGNS ▪ MURALS ▪ MUSEUM DISPLAYS ▪ NATIONAL SIGN PROGRAMS ▪ NEON ▪ PAINTING

PARKING LOT LIGHTS ▪ PENNANTS ▪ PERMITS ▪ PRIVACY BANDS ▪ PUSH THROUGH LETTERS ▪ PYLON SIGNS ▪ RENDERINGS ▪RESTORATION

ROPE LIGHTING ▪ SAND BLASTING ▪ SCULPTURE ▪ SCREEN PRINTING ▪ SHIPPING ▪ SIGN CABINETS ▪ SIGN SERVICES ▪ SIGNAGE SYSTEMS

SPRAY PAINTING ▪ STORE FRONT RENOVATION ▪ STOREFRONT DESIGN ▪ STRUCTURAL ENGINEERING ▪ SURVEYS ▪ TAVERN SIGNS ▪ TIMELINES

VEHICLE GRAPHICS ▪ VIDEO MENUS ▪ VINYL LETTERS ▪ WASH LIGHTING ▪ WAY-FINDING SYSTEMS ▪ WINDOW GRAPHICS ▪ WOODWORK

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VLIET & O'NEILL, LLC
CRASH RECONSTRUCTION
TRAFFIC ENGINEERING

41 PROSPECT STREET
MANCHESTER, CT 06040-5801
TELEPHONE 860-533-1210
FACSIMILE 860-533-1374

January 18, 2022

Matthew Mecca
Manager
Bolton Veterinary Hospital
222 Boston Turnpike
Bolton, CT 06043

Re: Hospital Relocation
Traffic Impact

Dear Mr. Mecca,

I have assessed the impact that the relocation of the Bolton Veterinary Hospital will have on the roadway system. The current location is north of Route 44, with access to Route 44 via a shared driveway. The proposed location is directly across Route 44, on a corner lot formed by Route 44 and Williams Road. The site's driveway will be on Williams Road. It is my understanding that the new facility will be essentially the same size as the existing facility and will have approximately the same number of employees and clients and will operate in the same manner.

Normal business hours are from 8 a.m. to 6 p.m., Monday through Friday, 8 a.m. to 1 p.m. on Saturday, and the facility is closed on Sundays. Emergency services are provided 24 hours a day.

Roadway Capacity

Roadway capacity is studied during the morning and afternoon rush hours when most of the commuter traffic is on the roads, and it is when any added traffic will have its greatest impact. The busiest hours typically occur between 6:00 and 8:00 a.m. and between 4:00 and 6:00 p.m.

Records of client visits, over a typical week, show that approximately 2200 vehicle trips (a combination of entering and leaving) access the hospital. Using this number, and the regular business hours, I estimate that there are approximately 37 trips per hour on a weekday. This number is somewhat high because it includes emergency visits as if they occurred during regular hours and does not account for Saturdays likely being busier than weekdays.

Records of employees and their shifts show that during the A.M. Peak Hour, approximately 14 employees will arrive and approximately 3 employees will leave, for a total of 17 trips. In the P.M. Peak Hour, no employees will arrive and approximately 6 will leave.

Considering that the regular business hours start after the A.M. Peak Hour, and therefore there will be minimal client trips at this time, the table below shows the current, and expected, trip generation.

Trip Generation

	A.M. Peak		**P.M. Peak**	
	Enter	Exit	Enter	Exit
Employees	14	3	0	7
Clients	0	0	19	18
Sub-Total	14	3	19	25
Total	**17**		**44**	

The Connecticut Department of Transportation's Major Traffic Generator Permit process provides an example of the level of traffic that might be of concern. For developments that will generate up to 50 new trips in a peak hour, only the methodology to determine this is required to be submitted to ConnDOT. No formal capacity analysis is required. If between 50 and 100 trips will be added, then the number of left-turning and right-turning vehicles must be submitted, but a capacity analysis is still not required. It is generally accepted that the addition of less than 100 trips per hour will not have a significant detrimental effect on an intersection.

The intersection of the proposed driveway and Williams Road will easily accommodate the proposed traffic. The roadway intersections in the area will not be detrimentally affected, especially considering that the traffic from the existing facility already uses these intersections, and it is likely that no change will occur.

Driveway Sight Distance

ConnDOT's Highway Design Manual was used to calculate the intersection sight distance for the driveway. As speed study was conducted on Williams Road and it was determined that the 85th percentile speed of northbound traffic is 42 mph, and of southbound traffic is 43 mph.

These speeds were used to calculate a sight distance of 463 feet looking to the left and 474 feet looking to the right.

The sight distance looking left from the proposed driveway is well in excess of 500 feet. Looking to the right, a driver can see vehicles entering Williams Road from Route 44, which is approximately 380 feet away.

It should noted that the sight distance calculation is based on a constant approach speed. Vehicles coming from the right are starting at a low speed as they turn from Route 44 and take a longer time to reach the 85th percentile speed of 43 mph. A driver exiting the driveway has more time available than if the vehicles were approaching at a constant 43 mph, therefore a lesser sight distance is needed.

The calculated sight distance of 474 feet to the right, with a constant approach speed of 43 mph, provides 7.5 seconds for the driver to exit the driveway. A vehicle approaching from the right, with a turning speed of 15 mph, and accelerating to 43 mph, will reach the driveway in 8.8 seconds. The driver has more than enough time to exit the driveway.

The sight distances at the proposed driveway provide for the safe ingress and egress of vehicles.

Trip Distribution

Using the client list, along with the clients' towns of origin, I determined the percentage of trips that use the three roads that lead to the current location. Approximately: 26 percent of the trips come, and return to, the east on Route 44; 36 percent come from, and return to, the west on Route 44; and 38 percent come, and return to, the south on Route I-384/Route 85.

Traffic that currently uses Route 44 to access the Hospital will continue to do so. Instead of going into the current driveway, they will turn onto Williams Road, then into the new site. They will then return by going back out to Route 44 and will not have any impact Williams Road.

Several years ago, traffic that used I-384/Route 85 probably used Route 85 and Route 44, except for people familiar with the area who knew to use Williams Road as a cut-through. However, wayfinding apps such as Google Maps and Waze identify Williams Road as the shortest route. It is likely that most I-384/Route 85 traffic uses Williams Road now, and this will not change with the new location.

Accident Experience

A study of the accident experience at a location typically looks at the accidents that have occurred over the past three years. A red flag would be the occurrence at least 3 accidents of the

same type, in each of the three years. This would indicate that there is a pattern that might be associated with the roadway and would bear further investigation into possible causes.

I obtained the latest three years of data for accidents that occurred at the Route 85/Williams Road intersection (4 accidents) and the Route 44/Williams Road intersection (2 accidents). See attached. There are neither the number, nor type, of accidents that would indicate that these are problematic intersections.

Conclusion

The traffic volumes and traffic flow will be changed insignificantly by the relocation of the Bolton Veterinary Hospital. The proposed development can be safely and efficiently accommodated by the existing roadway system.

I hope this information is helpful to you, please contact me if you would like to discuss these issues in further detail.

Sincerely,

Daniel W. O'Neill

Daniel W. O'Neill, P.E.

WELTI GEOTECHNICAL, P.C.
GEOTECHNICAL ENGINEERING
227 Williams Street · P.O. Box 397
Glastonbury, CT 06033-0397
(860) 633-4623 / FAX (860) 657-2514

May 10, 2021

Mr. Ed Grace, Partner
Bolton Veterinary Hospital
222 Boston Turnpike
Bolton, CT 06043

Re: Geotechnical Study for Proposed Veterinary Hospital, 223 Boston Turnpike, Bolton, CT

Dear Mr. Grace:

1.0 Herewith are the data from the test borings taken at the above referenced site. Six borings were drilled at the proposed building to maximum depth of 42 feet. Two borings were drilled in areas of potential storm water infiltration to a depth of 11 feet. The borings locations are shown on the attached plan. *The borings were drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.*

1.1 Four grain size gradation and water content tests and four falling head permeability tests were performed on soil samples taken from the borings. The results of those tests are included in the Appendix.

2.0 The **Subject Project** will include the construction of a two story building with a footprint of 19,000 sf. Approximately 6,000 sf of that area will have a basement level. The proposed site grading and floor elevations were not available at the time of this report. The site development will include pavements for parking on three side of the building and two access drives off Williams Road. The existing grades range from Elev.628 to Elev.632 across in the proposed building and from Elev.622 to Elev.632 across the site.

3.0 The **Geologic Origin** of the natural inorganic soils on the site is from glacial lake or outwash deposits to 40+ feet below grade. These deposits consist generally of dense sand, little to some gravel and cobbles, trace silt to about 20 feet underlain by dense sand with trace silt and gravel to 40+ feet.

3.1 The **Soils Cross Section** from the borings is generally as follows:

Topsoil to 2" to 7"

Locally Subsoils; fine to medium SAND, little Silt, trace Roots and Gravel to 1 to 4 feet, loose

Locally (see borings B-5 & B-6); fine to medium SAND, some Silt, trace Gravel to 7 to 9 feet, dense

Fine to coarse SAND, little to some Gravel and Cobbles, trace Silt to 14 to 19 feet, dense to very dense

Fine to medium to fine to coarse SAND, trace Silt and Gravel to 40+ feet, dense to very dense

3.2 The **Water Table** was not evident within the boreholes at the completion of the borings.

4.0 The **Criteria for Foundation Type and Loading** are as follows:

1. The maximum total settlement should not exceed 1" and the maximum differential settlement should not exceed ½ the maximum settlement over a length of 50 feet.

2. The Foundations and Structures must address the seismic section of the building code.

3. The Slab at Grade floors must not settle differentially more than ½" in excess of the structure subsidence.

4.1 Regarding item 2 (above), the seismic site soil profile classification is **"C"**. The mapped MCE spectral response acceleration values for Bolton, CT are $\mathbf{S_1 = 0.063}$ for one second period and $\mathbf{S_s = 0.177}$ for short period. For transfer of ground shear into the soil the ultimate friction factor can be **0.60.**

5.0 Regarding **Foundation Type,** the building can be supported on spread footings. The footings should be on the natural inorganic soils at frost protection depth, or on a controlled fill placed after the removal of any existing fill, topsoil and subsoils. Controlled fills should conform to section 6.0 below and should extend horizontally beyond the footings for a distance equal to at least the depth of fill beneath the footings.

5.1 The **Allowable Bearing Pressure** on the natural soils or on controlled fill can be 6,000 psf. The allowable loading can be increased by 1/3 for seismic or wind loading. At retaining walls the maximum pressure on the toe can be 50% higher than the average pressure, cited above.

5.2 The **Lateral Soil Loading** (static) on basement walls and retaining walls that are part of the building should be based on at-rest pressure using the at-rest coefficient cited in the table below. Lateral soil loading on retaining walls apart from the building can be designed with active pressure using the coefficient cited below for level backfill. The ultimate sliding coefficient for concrete on the natural soils or on controlled fill is **0.60.**

5.2.1 Seismic lateral loading for retaining walls that are part of the building should be with a total lateral force (seismic plus static at-rest pressure) equal to $24H^2$ lb/ft located at ½H above the bottom. The above value is based on the Mononobe-Okabe solution for the case with level backfill, no wall friction and no hydrostatic pressure. This value excludes the inertia of the soil and wall mass. The

requirements for the seismic analyses of earth retention structures as part of the building shall be determined from the Connecticut Building Code (IBC) or the ASCE-7.

5.3 The **Frost Protection Depth** is 3.5 feet below the finish grades in areas, which are exposed to weather.

5.4 Summary of Foundation Design Parameters:

Parameter	Value
Allowable Bearing Pressure	6,000 psf
Soil Unit Weight (Backfill) *	125 pcf
Internal Friction Angle (Backfill) *	34°
At-Rest Pressure Coefficient, K_O	0.45
Active Pressure Coefficient, K_A (level backfill)	0.28
Ultimate Sliding Coefficient, concrete on crushed stone over soil or rock	0.60
Seismic Site Soil Profile Classification	C
Mapped MCE Spectral Response Acceleration for one second period, S_1	0.063
Mapped MCE Spectral Response Acceleration for short period, S_S	0.177
Frost Protection Depth	3.5 feet

* Backfill material conforming to section 6.0 below

6.0 Regarding **Controlled Fill, Backfill for Retaining Walls and Excavations at Columns and Walls, plus Slab at Grade Underlayment** (to 8" below the slab bottom) the material should conform to the following or be 3/8" crushed stone:

Percent Passing	Sieve Size
100	3.5"
50 - 100	3/4"
25 - 100	No.4

The fraction, passing the No.4 sieve should have less than 15%, passing the No. 200 sieve.

All backfill and fill must be compacted to at least 95% of modified optimum density.

The on site soils below an topsoil and subsoils, which are less 3.5" minus (i.e.,less any cobbles and boulders), will generally conform to the above gradation.

6.1 The 4" of underlay directly beneath the slabs on grade should be with processed aggregate base or 3/8" crushed stone. A vapor retarder is required beneath the slab on grade floors. All existing fills, topsoil and subsoils should be removed from beneath floor slabs. A vapor retarder is required beneath the slab on grade floors.

6.1.1 There should be a 6" layer of crushed stone beneath the basement floor slab. A vapor retarder is required beneath the basement floor slab.

7.0 Regarding **Earthwork,** excavations in the natural soils will fall in OSHA Class C. Excavations which are unshored and exceed 5 feet in height, should be cut back to slopes less than 34° from the horizontal (1.5H:1V).

8.0 The recommended pavement section above the compacted sub-grades are as follows:

1. Passenger Car Parking: 3" of bituminous concrete on 6" of processed stone base in two lifts

2. Truck Access: 4" of bituminous concrete on 8" of processed stone base in two lifts

9.0 This report has been prepared for specific application to the subject project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

Welti Geotechnical, P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions, please call our office.

Very truly yours,

Max Welti

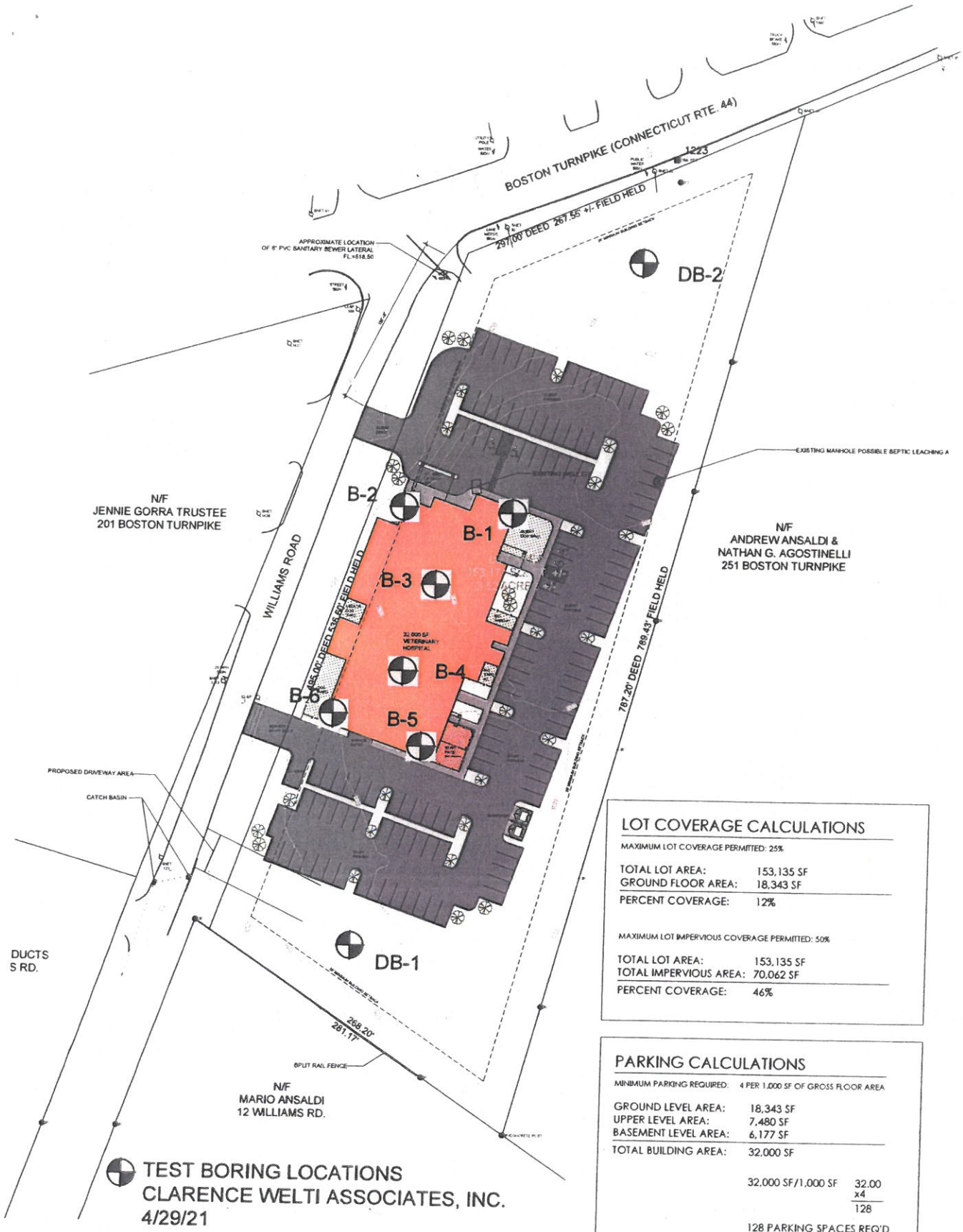
Max Welti, P.E.
President, Welti Geotechnical, P.C.

Clarence Welti

Clarence Welti Ph.D., P. E.
Vice President

APPENDIX

BORING LOCATION PLAN
+
TEST BORING LOGS
+
GRAIN SIZE GRADATION TEST REPORTS &
PERMEABILITY TEST REPORT



LOT COVERAGE CALCULATIONS

MAXIMUM LOT COVERAGE PERMITTED: 25%

TOTAL LOT AREA:	153,135 SF
GROUND FLOOR AREA:	18,343 SF
PERCENT COVERAGE:	12%

MAXIMUM LOT IMPERVIOUS COVERAGE PERMITTED: 50%

TOTAL LOT AREA:	153,135 SF
TOTAL IMPERVIOUS AREA:	70,062 SF
PERCENT COVERAGE:	46%

PARKING CALCULATIONS

MINIMUM PARKING REQUIRED: 4 PER 1,000 SF OF GROSS FLOOR AREA

GROUND LEVEL AREA:	18,343 SF
UPPER LEVEL AREA:	7,480 SF
BASEMENT LEVEL AREA:	6,177 SF
TOTAL BUILDING AREA:	32,000 SF

32,000 SF/1,000 SF 32.00 x4 = 128

128 PARKING SPACES REQ'D
128 PARKING SPACES PROVIDED

NORTH
SCALE = 1:30

BDA

CONCEPT SITE PLAN 1

ED GRACE, DVM - BOLTON VETERINARY HOSPITAL - BOLTON, CT
03.17.21

BDA ARCHITECTURE, P.C. 901 LAMBERTON PLACE NE ALBUQUERQUE NM 87107

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT BOLTON VETERINARY HOSPITAL	PROJECT NAME PROPOSED VETERINARY HOSPITAL LOCATION 223 BOSTON TURNPIKE, BOLTON, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-1**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/28/21
FINISH DATE 4/28/21

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-7-12-13	0.0'-2.0'		TOPSOIL 0.33	
					BR.FINE-CRS.SAND, SOME GRAVEL & COBBLES, TRACE SILT	
	2	19-60	2.0'-3.0'			
5	3	60	5.0'-5.5'			
10	4	60	10.0'-10.2'			
15	5	60	15.0'-15.4'			
20	6	7-12-17-17	20.0'-22.0'		BR.FINE-CRS.SAND, TRACE SILT & GRAVEL 19.0	
					BOTTOM OF BORING @ 22.0' 22.0	
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-1**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
BOLTON VETERINARY HOSPITAL

PROJECT NAME
PROPOSED VETERINARY HOSPITAL
LOCATION
223 BOSTON TURNPIKE, BOLTON, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-2**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/28/21
FINISH DATE 4/28/21

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-7-20-13	0.0'-2.0'		TOPSOIL 0.50	
					BR.FINE-CRS.SAND, SOME GRAVEL & COBBLES, TRACE SILT	
	2	12-10-8-10	2.0'-4.0'			
5	3	12-15-13-24	4.0'-6.0'			
10	4	29-24-19	10.0'-11.5'			
15	5	12-14-22	15.0'-16.5'		BR.FINE-CRS.SAND, LITTLE GRAVEL, FEW COBBLES, TRACE SILT 15.0	
20	6	14-26-28	20.0'-21.5'		BOTTOM OF BORING @ 21.5' 21.5	
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **B-2**

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT BOLTON VETERINARY HOSPITAL	PROJECT NAME PROPOSED VETERINARY HOSPITAL LOCATION 223 BOSTON TURNPIKE, BOLTON, CT

	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.	HOLE NO. B-3
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS	START DATE 4/28/21
SIZE I.D.	3.75"		1.375"		N. COORDINATE	AT none FT. AFTER 0 HOURS	
HAMMER WT.			140lbs		E. COORDINATE	AT FT. AFTER HOURS	FINISH DATE 4/28/21
HAMMER FALL			30"				

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-2-2-1	0.0'-2.0'		TOPSOIL 0.17 BR.FINE-MED.SAND, SOME SILT, TRACE GRAVEL	
	2	1-3-1-8	2.0'-4.0'			
					BR.FINE-MED.SAND AND SILT 3.5	
	3	17-19-18-22	4.0'-6.0'		BR.FINE-CRS.SAND, LITTLE GRAVEL, FEW COBBLES, TRACE SILT 4.0	
5						
10	4	9-11-9	10.0'-11.5'			
15	5	20-16-17	15.0'-16.5'			
					BR.FINE-CRS.SAND, TRACE SILT & GRAVEL 18.0	
20	6	6-10-12	20.0'-21.5'			
25	7	14-14-18	25.0'-26.5'			
30	8	26-20-20	30.0'-31.5'			
35						

LEGEND: COL. A:

SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON

PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 1 OF 2 | HOLE NO. B-3

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT BOLTON VETERINARY HOSPITAL	PROJECT NAME PROPOSED VETERINARY HOSPITAL LOCATION 223 BOSTON TURNPIKE, BOLTON, CT

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
	9	17-15-19	35.0'-36.5'		BR.FINE-MED.SAND, TRACE SILT — 35.0	
40	10	16-19-28-33	40.0'-42.0'		BR.FINE-CRS.SAND, LITTLE GRAVEL, TRACE SILT — 40.0	
					BOTTOM OF BORING @ 42.0' — 42.0	
45						
50						
55						
60						
65						
70						
75						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 2 OF 2 | HOLE NO. **B-3**

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT BOLTON VETERINARY HOSPITAL	PROJECT NAME PROPOSED VETERINARY HOSPITAL LOCATION 223 BOSTON TURNPIKE, BOLTON, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. B-4

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/29/21
FINISH DATE 4/29/21

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-1-2-6	0.0'-2.0'		TOPSOIL 0.56 BR.FINE-MED.SAND, SOME SILT, TRACE ROOTS & GRAVEL	
	2	6-3-5-8	2.0'-4.0'			
5	3	13-38-39-29	4.0'-6.0'		4.0 BR.FINE-CRS.SAND, SOME GRAVEL, FEW COBBLES, TRACE SILT	
10	4	27-27-45	10.0'-11.5'			
15	5	18-19-25	15.0'-16.5'			
					17.0 BR.FINE-CRS.SAND, TRACE SILT & GRAVEL	
20	6	14-14-19	20.0'-21.5'			
					21.5 BOTTOM OF BORING @ 21.5'	
25						
30						
35						

LEGEND: COL. A:

SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON

PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-4**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
BOLTON VETERINARY HOSPITAL

PROJECT NAME
PROPOSED VETERINARY HOSPITAL
LOCATION
223 BOSTON TURNPIKE, BOLTON, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-5**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/29/21
FINISH DATE 4/29/21

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-3-3-3	0.0'-2.0'		TOPSOIL 0.40	
					BR.FINE-MED.SAND AND SILT	
	2	4-9-8-18	2.0'-4.0'		BR.FINE-MED.SAND, SOME SILT, TRACE GRAVEL 2.5	
5	3	28-32-45-54	4.0'-6.0'			
10	4	60	10.0'-10.5'		BR.FINE-CRS.SAND, SOME GRAVEL, FEW COBBLES, TRACE SILT 9.0	
15	5	17-18-21	15.0'-16.5'		BR.FINE-CRS.SAND, TRACE SILT & GRAVEL 14.0	
20	6	14-17-16	20.0'-21.5'		BOTTOM OF BORING @ 21.5' 21.5	
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **B-5**

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT BOLTON VETERINARY HOSPITAL	PROJECT NAME PROPOSED VETERINARY HOSPITAL LOCATION 223 BOSTON TURNPIKE, BOLTON, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. B-6

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/29/21
FINISH DATE 4/29/21

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-3-3-3	0.0'-2.0'		TOPSOIL 0.17 BR.FINE-MED.SAND, SOME SILT, LITTLE GRAVEL	
	2	4-9-8-18	2.0'-4.0'		BR.FINE-MED.SAND, SOME SILT 2.0	
5	3	28-32-45-54	4.0'-6.0'		BR.FINE-CRS.SAND, LITTLE GRAVEL, FEW COBBLES, TRACE SILT 7.0	
10	4	60	10.0'-10.5'		BR.FINE-CRS.SAND, LITTLE SILT & GRAVEL, FEW COBBLES 13.0	
15	5	17-18-21	15.0'-16.5'		BR.FINE-MED.SAND, TRACE SILT 19.0	
20	6	14-17-16	20.0'-21.5'		BOTTOM OF BORING @ 21.5' 21.5	
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-6**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
BOLTON VETERINARY HOSPITAL

PROJECT NAME
PROPOSED VETERINARY HOSPITAL
LOCATION
223 BOSTON TURNPIKE, BOLTON, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **DB-1**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/29/21
FINISH DATE 4/29/21

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-1-5-6	0.0'-2.0'		TOPSOIL 0.17	
					GREY FINE SAND AND SILT 0.66	
	2	24-60	2.0'-2.8'		BR.FINE-CRS.SAND, SOME GRAVEL, FEW COBBLES, TRACE SILT	
5	3	11-30-60	5.0'-6.3'			
10	4	12-33-60	10.0'-11.3'		BOTTOM OF BORING @ 11.3' 11.3	
15						
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **DB-1**

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT BOLTON VETERINARY HOSPITAL	PROJECT NAME PROPOSED VETERINARY HOSPITAL LOCATION 223 BOSTON TURNPIKE, BOLTON, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. DB-2

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/29/21
FINISH DATE 4/29/21

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-6-8-6	0.0'-2.0'		TOPSOIL 0.17 GREY FINE-MED.SAND AND SILT, TRACE GRAVEL	
	2	22-22-36-30	2.0'-4.0'		BR.FINE-CRS.SAND, TRACE SILT & GRAVEL 2.0	
	3	24-30-33-60	4.0'-5.8'		BR.FINE-CRS.SAND, LITTLE GRAVEL, FEW COBBLES, TRACE SILT 4.0	
5						
10	4	11-17-10	10.0'-11.5'		BOTTOM OF BORING @ 11.5' 11.5	
15						
20						
25						
30						
35						

LEGEND: COL. A:

SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON

PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **DB-2**

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○		20.5	10.9	18.2	17.3	8.3	
□			12.9	35.6	14.5	4.4	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				6.8882	3.3464	0.5861	0.1778	0.0968	0.51	71.13
□				2.8356	1.5548	0.6614	0.3435	0.2211	0.70	12.83

	Material Description	USCS	AASHTO
○			
□			

Project No. **Client:** BOLTON VETERINARY HOSPITAL

Project: PROPOSED VETERINARY HOSPITAL

○ **Source of Sample:** B-2 **Depth:** 4.0 **Sample Number:** 3

□ **Source of Sample:** B-3 **Depth:** 4.0 **Sample Number:** 3

Remarks:

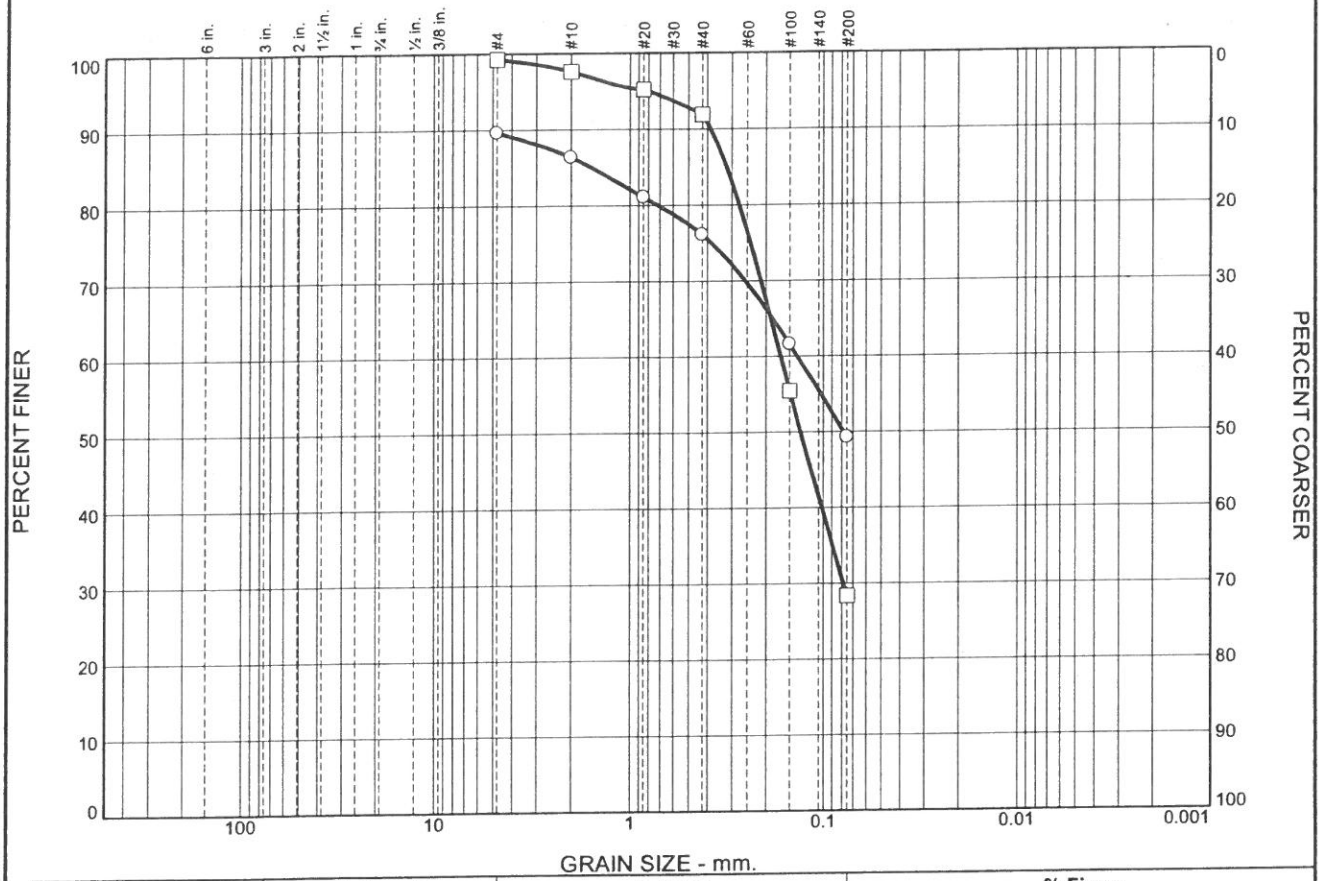
○ Water content = 4.3%

□ Water content = 3.8%

Figure

CLARENCE WELTI ASSOCIATES, INC.

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				3.2	10.3	26.8	49.3	
□				1.7	5.7	63.6	28.3	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			1.5645	0.1365	0.0780					
□			0.3190	0.1671	0.1312	0.0783				

	Material Description	USCS	AASHTO
○			
□			

Project No. **Client:** BOLTON VETERINARY HOSPITAL

Project: PROPOSED VETERINARY HOSPITAL

○ **Source of Sample:** B-5 **Depth:** 2.0 **Sample Number:** 2

□ **Source of Sample:** B-6 **Depth:** 4.0 **Sample Number:** 3

Remarks:

○water content = 14.0%

□water content = 7.8%

CLARENCE WELTI ASSOCIATES, INC.

Figure

Proposed Bolton Veterinary Hospital
223 Boston Turnpike, Bolton, CT

5/7/21
Permeability Tests

Sample #	Permeability (feet/day)
B-3, 10'-11.5'	5.6
B-4, 10'-11.5'	8.2
DB-1, 5'-10'	6.1
DB-2, 5'-10'	8.8

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

January 20, 2022

Andrew Bushnell
Bushnell Associates, LLC
563 Woodbridge St
Manchester, CT 06042
ABUSHNELL@SBCGLOBAL.NET

NDDB DETERMINATION NUMBER: 202200341

Project: Construction of new veterinary hospital with parking and related facilities; BOLTON VETERINARY HOSPITAL, 233 BOSTON TURNPIKE, BOLTON, CT

Expiration: January 20, 2024

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) documented nearby and may be impacted by your project.

Eastern box turtle (*Terrapene carolina carolina*)- State Special Concern

In Connecticut, these turtles are found in well-drained forest bottomlands and a matrix of open deciduous forests, early successional habitat, fields, gravel pits, and or powerlines. Turtles are dormant between November 1 and April 1 and hibernate in only a few inches from the surface in forested habitat.

Land disturbance activities that will crush adult turtles or unearth hibernating turtles or turtle nests need to consider local habitat features and apply fencing and/or time of year restrictions as appropriate.

Your land disturbance will occur in forested habitat and you will need to take precautions to avoid crushing hibernating adults.

- Restrict your initial land disturbance activities in forested habitat to the turtle active season (Conduct land disturbance activities between April 1- November 1).
- Once land is cleared, work may continue within exclusionary fencing through this sensitive time period.

Additionally, to prevent adult mortality during construction between April 1- November 1:

- Exclusionary practices will be used to prevent any turtle access into disturbance areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- Exclusionary fencing be at least 20 in tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through.
- All staging and storage areas, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed to remove individuals and exclude them from re-entry.

- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species.
- The Contractor search the work area each morning prior to any work being done.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point. This animal is protected by law and should not be relocated off-site.

Site Design Recommendations:
Female turtles looking for nesting habitat are frequently killed by vehicles when crossing roads. These turtles of reproductive age are the most valuable individuals in the population to maintain population persistence. Highways with high traffic are impenetrable barriers that isolate populations

- High traffic road surfaces and high traffic facilities (>100 vehicle/lane/day, 5-10 cars per hour) should use curbs and fencing to deflect animals off into wildlife underpasses or around high traffic areas.
- Do not use road surfaces and side slopes that will mimic sandy nesting areas for females.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Bureau of Natural Resources and cooperating units of DEEP, independent conservation groups, and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated in the NDDB as it becomes available.

Please contact me if you have any questions (shannon.kearney@ct.gov). Thank you for consulting with the Natural Diversity Data Base and continuing to work with us to protect State-listed species.

Sincerely,

/s/ Shannon B. Kearney
Wildlife Biologist

Datum Engineering & Surveying LLC.
Richard Zulick
Certified Forester / Soil Scientist
400 Nott Highway
Ashford, CT
_06278_
_(860) 429-1918_

Town of Bolton
Inland Wetlands Commission
Bolton, CT.

Wetland report for property of :

Bolton Veterinary Hospital
233 Boston Turnpike (Route 44) Bolton, CT

RE: 233 Boston Turnpike , Bolton, CT Parcel ID 20790 - Project 4798 dated 3/21/22 Plan by Design Professionals

I have field checked the above referenced property for wetland soils. This parcel is located south of Boston Turnpike and east of Williams Road in the Town of Bolton, CT. The bulk of the property consists of disturbed soils as a result of past activity. **No wetland soils or watercourses have been identified on or within 100 feet of this parcel.**

This field delineation has been done in accordance with the standards of the National Cooperative Soil Survey and the definition of wetlands as found in the Connecticut General Statutes, Chapter 440, Section 22A-38.

While no deep soil observation pits have been observed by me, the soils on this property appear to primarily consist of the Canton and Charlton Soil Series at the southernmost extent and Udorthents (disturbed – moved by man) soils to the north.

Udorthents-Urban land complex

This complex consists of moderately well drained to excessively drained soils that have been disturbed by cuffing or filling and/or leveling. These soils have been altered by man.

Canton Series

The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till.

TAXONOMIC CLASS: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Dystrudepts

Charlton Series

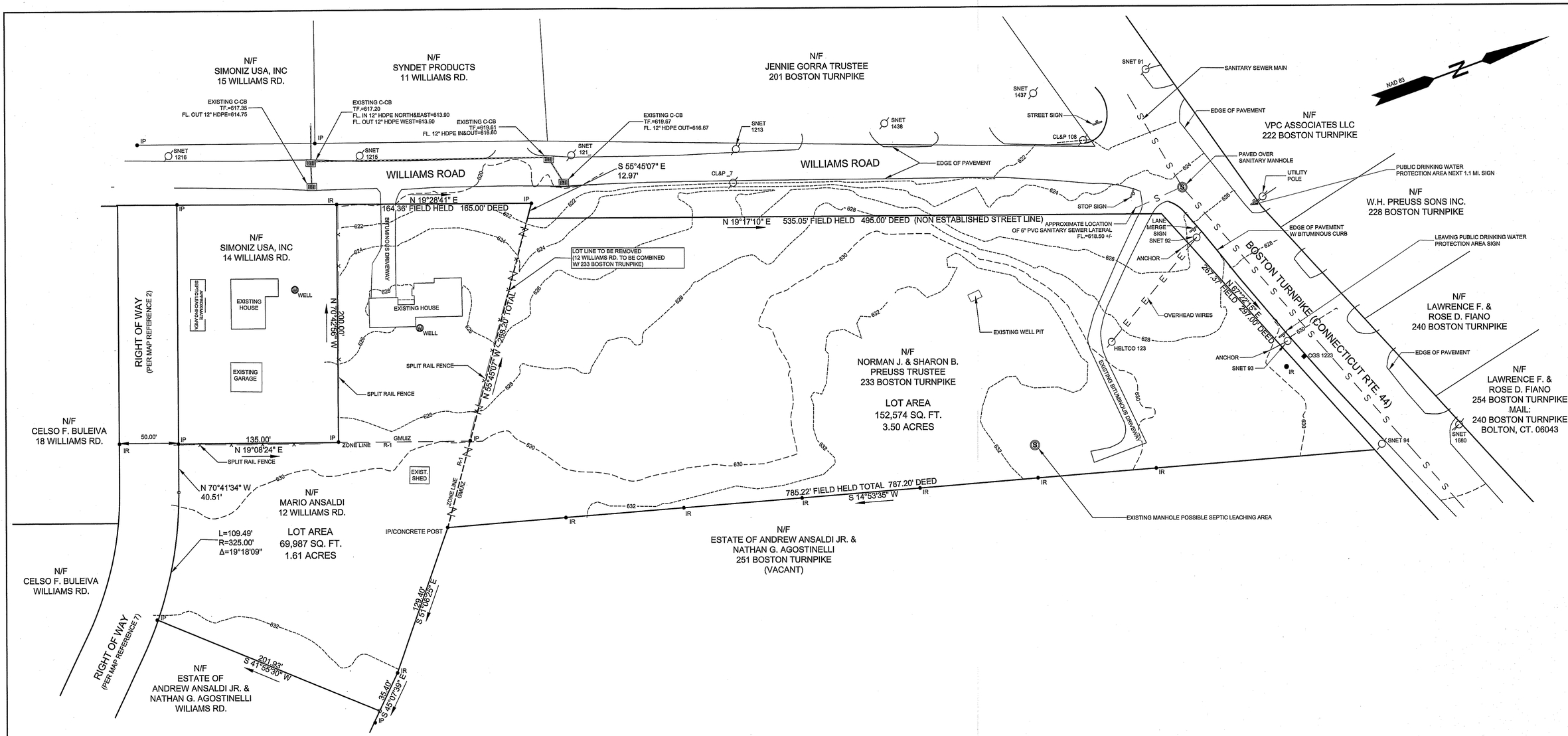
The Charlton series consists of very deep, well drained soils formed in loamy melt-out till.

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, mesic Typic Dystrudepts

Please feel free to call me at the above phone number if you have any questions.

Sincerely,

Richard Zulick
Certified Forester and Soil Scientist
Member SSSSNE



SURVEY NOTES:

1.) THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THRU 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES "MINIMUM STANDARDS OF ACCURACY, CONTENT AND CERTIFICATION FOR SURVEYS AND MAPS". AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS INC. ON OCTOBER 26, 2018. IT IS A LIMITED PROPERTY IMPROVEMENT LOCATION SURVEY MAP BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL SURVEY ACCURACY CLASS A-2 AND TOPOGRAPHIC ACCURACY CLASS T-2.

2.) THE PROPERTIES ARE LOCATED IN A GMUIZ, R-1 AND AN APZ (AQUIFER PROTECTION) ZONE.

3.) THE PROPERTIES ARE NOT LOCATED IN A FLOOD HAZARD ZONE A PER FIRM FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 090109 0002B EFFECTIVE JUNE 1 1981.

4.) THE APPROXIMATE LOCATION OF THE EXISTING SEPTIC LEACHING AREA AT 14 WILLIAMS RD. WAS DETERMINED FROM RECORDS ON FILE IN THE TOWN OF BOLTON LAND USE OFFICE.

5.) SANITARY SEWER LATERAL LOCATION SHOWN WAS TAKING FROM MAP REFERENCE 6.

MAP REFERENCES:

1.) PLAN PREPARED FOR SIMONIZ USA, INC. 201 BOSTON TURNPIKE AND 11 WILLIAMS ROAD BOLTON, CONN. EXISTING CONDITION SURVEY SCALE: 1"=40' DATE: 06/04/2014 DESIGN: RED DRAFT: ERJ PROJECTS: 13-201 Q/SC13/WORK/2013 ACAD: 13201-ECS.DWG SHEET NO. 1 OF 1 MEEHAN & GOODIN ENGINEERS - SURVEYORS, R.C. 387 NORTH MAIN STREET, MANCHESTER, CT 06042 REVISED TO 8-3-2015

2.) MAP OF BIRCHWOOD FARMS SECTION 1 PROPERTY OF CALVIN RUGGLES BOLTON, CONN. SCALE 1"=100' JUNE 1951 HAYDEN L. GRISWOLD C.E.C

3.)PLAN SHOWING PROPERTY OF ANDREW ANSALDI ROUTE 6&44A BOLTON, CONNECTICUT FUSS & O'NEILL CONSULTING ENGINEERS MANCHESTER, CONNECTICUT DESIGNED BY W.F.K. CHECKED BY W.D.C. PROJECT NO. 79-14-A SCALE 1"=40' DATE 2-7-79 SHEET 1 OF 1

4.) CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY TOWN OF BOLTON MANCHESTER-WILLIMANTIC ROAD FROM THE MANCHESTER TOWN LINE EASTERLY TO BOLTON NOTCH ROUTE U.S. 6 SCALE 1"=40' NUMBER 345 SHEET 2 OF 3 DATE AUG. 1931

5.) CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY TOWN OF BOLTON MANCHESTER-WILLIMANTIC ROAD FROM THE MANCHESTER TOWN LINE EASTERLY TO BOLTON NOTCH ROUTE U.S. 6 SCALE 1"=40' NUMBER 345 SHEET 3 OF 3 DATE AUG. 1931

6.) BOLTON LAKES REGIONAL WPCA RECORD DRAWING BOLTON LAKES SEWER PROJECT-CONTRACT 1 PRJ. NO. 1994 117.B10 SCALE HORZ: 1"=40' DATUM : HORZ: NAD 83 VERT: NGVD 29 FUSS & O'NEILL 146 HARTFORD ROAD MANCHESTER, CONNECTICUT 06040 860.646.2469

7.) MAP OF ANSALDI ACRES PROPERTY OF ANDREW ANSALDI BOLTON, CONN. SCALE 1"=100' JUNE 9, 1961 HAYDEN L. GRISWOLD C.E.

8.) PROPERTY SURVEY SHOWING LOT REVISION AT 18&24 WILLIAMS ROAD BOLTON, CONNECTICUT PREPARED FOR CELSO F. BULEIVA DATE: NOVEMBER 19, 2021 SCALE: 1"=20' SHEET: 1 OF 1 DRAWN BY: K.R. OSWALD BLINT SURVEYING 48 SILAS DEANE HWY. WETHERSFIELD, CT. 860-778-4377

GRAPHIC SCALE

0' 40' 80' 120'

SCALE 1"=40'

LEGEND

- EXISTING MERESTONE
- IRON ROD TO BE SET
- IR EXISTING IRON ROD
- IP EXISTING IRON PIPE
- 624 EXISTING CONTOUR
- EXISTING UTILITY POLE

UTILITIES SHOWN ON THIS MAP WERE DERIVED FROM FIELD LOCATIONS AND EXISTING MAPPING CONTRACTOR TO VERIFY LOCATIONS AND DEPTH IN THE FIELD PRIOR THE START OF ANY CONSTRUCTION. "CALL BEFORE YOU DIG (1-800-922-4455)."

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

ANDREW F. BUSHNELL P.E. L.S. 24591

THIS MAP IS NOT VALID UNLESS IT BEARS THE EMBOSSED SEAL OF THE LICENSED LAND SURVEYOR WHOSE REGISTRATION NUMBER AND SIGNATURE APPEAR ABOVE.

PLAN PREPARED FOR

VETERINARIANS OF
EASTERN CONNECTICUT LLC

12 WILLIAMS ROAD &
233 BOSTON TURNPIKE BOLTON, CT.

BOUNDARY/ TOPOGRAPHIC SURVEY

SCALE: 1"=40'	DATE: 3/31/2022	FILE NO. 2019-72	SHEET: 1 OF 1

STATE OF CONNECTICUT
ANDREW F. BUSHNELL
24591
LICENSED
LAND SURVEYOR

BUSHNELL ASSOCIATES LLC.
CIVIL ENGINEERING AND LAND SURVEYING
563 WOODBRIDGE STREET MANCHESTER, CT. 06042
860-643-7875

REVISIONS:

Bushnell Associates, LLC
Civil Engineering • Land Surveying

March 31, 2022

Patrick Kearney
Town of Manchester CT. Water Department Administrator
125 Spring Street
P.O. Box 191
Manchester, CT. 06045-0191

Patrick,

This letter is to notify you of a Special Permit Application to the Town of Bolton, CT. Planning and Zoning Commission by Veterinarians of Eastern Connecticut to construct a new Veterinarian Hospital on the properties located at 233 Boston Turnpike and 12 Williams Rd Bolton, CT. This notification is required because the 233 Boston Turnpike and 12 Williams Rd properties are located within the Town of Manchester Water Department New Bolton Rd. Aquifer Protection Area. If you wish to obtain additional information regarding this application, please contact one of the following individuals.

Andrew Bushnell PELS
Bushnell Associates LLC
563 Woodbridge Street
Manchester, CT. 06042
860-643-7875
abushnell@bushnellassociatesllc.com

Patrice Carson AICP
Director of Community Development
222 Bolton Center Road
Bolton, CT. 06043
860-649-8066 x6114
pcarson@boltonct.org

Sincerely,

Andrew Bushnell PELS.
Bushnell Associates LLC

STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER SECTION

APPLICATION FOR A PUBLIC WATER SYSTEM WELL SITE SUITABILITY CERTIFICATION

PLEASE REFER TO INSTRUCTIONS FOR COMPLETING THE APPLICATION FOR A PUBLIC WATER SYSTEM WELL SITE SUITABILITY CERTIFICATION PRIOR TO FILLING OUT.
Application will be returned if it is incomplete

Section A. Public Water System and Applicant Information

PWS Name: _____

Project Name: Veterinarians of Eastern Connecticut

Project Address: 233 Boston Turnpike

PWSID Number: CT _____ PWS Type (select one): ☐ Community ☒ NTNC ☐ TNC

Town: Bolton DPH Project Number (if known): 2021-0113

Print Name of PWS Administrative Official: Edward K. Grace

Title: Member
Address: 222 Boston Turnpike
Bolton, CT 06043

Phone Number: (860) 646-6134
Fax Number: (860) 643-0418
E-mail Address: matthew.mecca@boltonvet.com

Name of Consultant James E. Ericson, P.E.

Company Name: Lenard Engineering, Inc.

Address: 2210 Main Street, PO Box 1088
Glastonbury, CT 06033

Phone Number: (860) 659-3100 ext. 121

Name of Licensed Well Driller (must be licensed in CT): To be determined

CT License Number: _____

Address: _____

Phone Number: _____

Rev 3/31/09

APPLICATION FOR A PUBLIC WATER SYSTEM WELL SITE SUITABILITY CERTIFICATION

Section B. Well Information

1. Purpose of proposed well (Check One):
☒ New Public Water System Source ☐ Replacement Well ☐ Supplemental Well

2. Name of Proposed Well: ~~Well #2A~~

Type: ☒Bedrock ☐Gravel Packed ☐ Other ____

3. Desired Withdrawal Rate (check one):
☒ <10 gallons per minute (gpm) ☐ 10-50 gpm ☐ >50 gpm

4. Indicate address where well will be located or closest town road or intersection:
33 Boston Turnpike, Bolton, CT

5. Latitude and Longitude of proposed well site:
Lat: 41°46' 56.2" N Long: 72° 27' 38.8" W

6. Is proposed well site staked or marked in the field? ☒ Yes ☐ No

Section C. Well Site Characteristics

1. Is the proposed well site located above the FEMA100-year flood elevation? ☒ Yes ☐ No (See RCSA Section 19-13-B102(d)(1)(A) and instructions for completing.)

2. Does the public water system have full control (ownership) of the entire sanitary radius of the proposed well? If the public water system does not have control of the sanitary radius, indicate below how control will be obtained. ~~Yes~~

3. Indicate the locations of all nearby existing public and private wells, their corresponding distances to the proposed well and provide a brief description of potential effects the proposed new source of supply may have on these nearby systems.
~~The nearest well is located about 255' from the proposed well and should have no impact on the proposed well.~~

Section D. Map Information

Attach a scaled site or street/zoning map certified by a Professional Engineer or Land Surveyor licensed in the State of Connecticut containing the following items:

1. ☒ Location of proposed well(s) with GPS points noted
2. ☐ Adjacent public and private active/inactive well(s) that will be tested for interference during the yield test, if applicable (CGS 25-33(b))
3. ☒ Show the appropriate sanitary radius as listed in Section E Table 2.
4. ☐ Sanitary Land conservation easement boundary, if applicable
5. ☒ Existing and potential sources of pollution within 200 feet (see Section E Table 2)
6. ☒ Topographic contours appropriate for the scale of the map.
7. ☐ 100-year flood elevation contour, if applicable
8. ☒ North arrow
9. ☐ Annual high water mark, wetland delineation, surface water bodies and watercourses (perennial and intermittent)

APPLICATION FOR A PUBLIC WATER SYSTEM WELL SITE SUITABILITY CERTIFICATION

Section E. Sources of Pollution

1. Are there any known existing contaminated areas, as classified by the CT Department of Environmental Protection within a 1,500-foot radius of the proposed well site? ☐ Yes ☒ No; If yes, then describe below the current condition of the area and indicate separating distances from proposed well site._____

2. Complete the following table:

Pollution Source	Required separation distances (feet) based on well pumping rate			Actual Separation Distance (feet)
	< 10 gpm	10-50 gpm	> 50 gpm	
Subsurface Sewage System (septic tank/leaching fields)	75	150	200	240
Sanitary Sewer-Minimum separating distances may be reduced under specific conditions. Refer to the instructions for details.	75	150	200	680
Storm Drain	25	50	50	335
Foundation, Floor Drain	25	50	50	NA
Dry Well	75	150	200	NA
High Water Mark for Surface Water Body	25	50	50	NA
Liquid Fuel Storage Tank/Piping	75	150	200	NA

Section F. Dioxin, Endothall, Beta Particle and Photon Emitter Assessment

The purpose of this section is to obtain an assessment to determine if the proposed site of a source of supply/well will be required to be tested for Dioxin, Endothall and /or Beta Particle and Photon Emitters.

. Complete and attach "Certification Form for Dioxin and Endothall". Required only for Community and Non-Transient Non-Community Water Systems; refer to the instructions for guidance.

2. Complete and Attach "Certification Form for Beta Particle and Photon Emitters". Analyses required only for Community Water Systems, refer to the instructions for guidance

Section G. Certification Statement

I certify to the best of my knowledge that the information provided in this application is complete and correct. I understand that the information I provide will be used by the Department of Public Health, Drinking Water Section to determine if a Well Site Suitability Certification can be granted. I further understand that if an approval is issued, the well must be drilled in the location approved by the Department.

E.W.R. Grace — Signature of Applicant

3/17/22 — Date

Edward R. Grace — Name of Applicant (print or type)

President — Title (if applicable)

This application along with additional information on the public water system well approval process is located on the DPH Drinking Water Section's web page: **www.ct.gov/dph** click on "Programs and Services" then "Drinking Water"

Drinking Water Section Use Only

Date Stamped: _____

Assigned Staff Person: _____ Project No: _____

PROJECT: BOLTON VETERINARY HOSPITAL

STREET: 233 BOSTON TRUNPIKE

OPINION OF PROBABLE COST

2022 CALENDAR YEAR

DATE: 4/4/2022

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST - PHASE 1	EXPANDED PARKING LOT UNIT	QUANTITY	UNIT PRICE	COST - PHASE 2
	DEMOLITION								
1	TREE CLEARING AND GRUBBING	1 LS	30000.00		$30,000				
3	ABANDON EXISITNG SEPTIC SYSTEM	2 LS	500.00		$1,000				
4	ABANDON EXISITNG WELL	2 LS	500.00		$1,000				
	LANDSCAPING								
7	SPREADING TOPSOIL	CY	1140	7.00	$7,980				
8	FERTILIZING, SEEDING AND MULCHING - LAWN	SF	94000	0.25	$23,500				
9	SEEDING - TYPE II SEED	SY	360	7.00	$2,520				
10	SEEDING - TYPE IV SEED	SY	700	7.00	$4,900				
11	TREES	EA	27	950.00	$25,650	EA	4	$950	$3,800
12	EVERGREEN TREES	EA	5	700.00	$3,500				
13	SHRUBS	EA	76	75.00	$5,700				
14	SHURBS - ARBORVITAE	EA	29	150.00	$4,350				
15	PERENNIALS	EA	17	20.00	$340				
	E&S ITEMS								
16	SILT FENCE	LF	1640	3.50	$5,740				
17	HAYBALES AT OUTLET	EA	2	140.00	$280				
18	CONSTRUCTION ENTRANCE	EA	1	2000.00	$2,000				
19	INLET PROTECTION AT DRAINS	EA	16	150.00	$2,400				
	PAVEMENT AND CURB								
20	CLASS 1 BINDER	TON	495	140.00	$69,300	TON	190	$140	$26,600
21	CLASS 2 SURFACE	TON	495	140.00	$69,300	TON	190	$140	$26,600
22	PROCESSED AGGREGATE 6" DEPTH	CY	975	35.00	$34,125	CY	380	$35	$13,300
23	CONCRETE CURB	LF	1950	29.00	$56,550	LF	710	$29	$20,590
24	CONCRETE WALK WITH INTEGRAL CURB	SF	4170	15.00	$62,550				
25	CONCRETE WALK	SF	2300	7.50	$17,250				
	PARKING STRIPING AND SIGNS								
26	PARKING SPACES	EA	110	15.00	$1,650	EA	64	$15	$960
27	ACCESSIBLE PARKING SYMBOLS	EA	5	50.00	$250	EA	1	$50	$50
28	ACCESSIBLE PARKING SIGNS	EA	5	250.00	$1,250	EA	5	$250	$1,250
29	PAINTED CROSSWALK	EA	1	300.00	$300				

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST - PHASE 1		EXPANDED PARKING LOT UNIT	QUANTITY	UNIT PRICE	COST - PHASE 2
30	12" YELLOW PAINTED "FIRE LANE NO PARKING" TEXT ALONG FIRE LANES	EA	8	200.00	$1,600					
31	STOP SIGN	EA	1	200.00	$200					
32	NO PARKING FIRE LANE SIGN	EA	8	200.00	$1,600					
33	NO PARKING LOADING ZONE SIGN	EA	1	200.00	$200					
	DUMPSTER ENCLOSURE									
34	DUMPSTER ENCLOSURE WITH CONCRETE PAD	EA	1	8000.00	$8,000					
	LIGHTING									
35	LIGHT POLES	EA	11	2000.00	$22,000		EA	4	$2,000	$8,000
	STORM DRAINAGE									
37	STORM MANHOLE	EA	1	3850.00	$3,850					
38	CATCH BASIN TYPE 'C'	EA	6	3850.00	$23,100					
39	DOUBLE CATCH BASIN TYPE 'C'	EA	1	5000.00	$5,000					
40	FLARED END SECTION	EA	2	1500.00	$3,000					
41	YARD DRAIN	EA	7	200.00	$1,400					
42	MODIFIED RIPRAP APRON	SY	30	30.00	$900		SY	6	$30	$180
43	6" HDPE	LF	253	25.00	$6,325					
44	8" HDPE	LF	107	30.00	$3,210					
45	12" HDPE	LF	719	35.00	$25,165					
46	15" HDPE	LF	163	40.00	$6,520					
47	18" HDPE	LF	249	45.00	$11,205					
48	24" HDPE	LF	4	50.00	$200					
49	24" RCP	LF	38	60.00	$2,280					
50	INFILTRATOR - 2 CULTEC 330XLD CHAMBERS	EA	1	250.00	$250					
51	INFILTRATOR - 18 CULTEC 330XLD CHAMBERS - 3 ROWS OF 8 CHAMBERS	EA	1	2260.00	$2,260					
52	WATER QUALITY UNIT	EA	1	5500.00	$5,500					
53	OUTLET STRUCTURE	EA	1	5000.00	$5,000					
	SITE IMPROVEMENTS									
55	BIKE RACK	EA	1	325.00	$325					
TOTAL				PHASE 1	$572,475				PHASE 2	$101,330

Bushnell Associates, LLC
Civil Engineering • Land Surveying

December 3, 2021

Mr. James Rupert
Bolton Lakes Regional Water Pollution Control Authority Administrator
222 Bolton Center Rd.
Bolton, CT. 06043
Re: Sanitary Sewer Connection for 233 Boston Turnpike

Mr. Rupert,

Veterinarians of Eastern Connecticut LLC is proposing to construct a new veterinarian hospital facility on the vacant parcel located at 233 Boston Turnpike in Bolton presently owned by Norman and Sharon Preuss to replace the existing veterinarian hospital facility located at 222 Boston Turnpike. Veterinarians of Eastern Connecticut LLC is requesting to connect the proposed veterinarian hospital facility at 233 Boston Turnpike to the Bolton Lakes Regional Water Pollution Control Authority (BLRWPCA) sewer system. The parcel at 233 Boston Turnpike is within the BLRWPCA service area and As-Built drawings from the construction of the BLRWPCA sewer system indicate the site has a sanitary sewer lateral from the main in Boston Turnpike. The average daily water usage of the existing facility at 222 Boston Turnpike is 950 gallons per day based on the most recent yearly water meter reading. It is anticipated that the use of modern water use fixtures in the new facility will compensate for any increase in client service levels therefore, the connection request is for 1,000 gallons per day which will require the allocation of 5 EDU's to the 233 Boston Turnpike site. As we discussed, it appears that no EDUs were assigned to the 233 Boston Turnpike site during the original construction of the BLRWPCA sewer system. A water meter will be installed in the new faculty to allow monitoring of the sewage flow by BLRWPCA representatives to confirm compliance with the initial 1,000 gallons per day design flow. Representatives of Veterinarians of Eastern Connecticut LLC -will be available to attend a BLRWPCA meeting to discuss this request for sewer service. Should you have any questions or require any additional information please feel free to contact me.

Andrew Bushnell PELS.
Bushnell Associates LLC
Agent For Veterinarians of Eastern Connecticut LLC

563 Woodbridge St. • Manchester, CT 06042 • 860-643-7875
www.bushnellassociatesllc.com

Stormwater Management Report
Bolton Veterinary Hospital
233 Boston Turnpike
Bolton, Connecticut

Prepared by:

Design Professionals, Inc.
21 Jeffrey Drive
South Windsor, CT 06074

DPI Project #4798
March 11, 2022

Table of Contents

Introduction

Bolton Veterinary Hospital, VCP Associates, LLC is proposing a commercial development of a property located at (1) 233 Boston Turnpike (CT Route 44) and (2) 12 Williams Road in Bolton, Connecticut. The properties are referenced on the Town of Bolton GIS as ID#: 07-55. The proposed development will include the construction of a 24,836 SF± commercial building. Associated site improvements will include but not be limited to a new access driveway, parking areas for vehicles, sidewalks, landscaping, lighting, utilities, and stormwater management BMP's.

The property areas are 3.5 acres± and 1.3 acres± for a combined 5.1 acres±. The total proposed construction disturbance is approximately 4± acres. For more information, please refer to the plans entitled "Bolton Veterinary Hospital ~Site Plan/Special Permit~ 233 Boston Turnpike (Route 44), Bolton, CT" prepared by Design Professionals, Inc., and dated March 11, 2022, as amended.

Pre-Development Site Conditions

The existing surficial characteristics of the area to be developed can be primarily classified as (1) undeveloped area with a location of a previous house and (2) an existing house property. The properties drain from east to west toward Route 44 and Williams Road. Review of the site topography indicated all stormwater runoff generated across the tract would flow to one of two design points. These two design points were identified as follows:

1. **Design Points 1 (DP #1):** Existing catch basin in Williams Road and Town drainage system

2. **Design Point 2 (DP#2):** Overland to CT Route 44

Design Points DP# 1 and 2 are part of local basin ID 4500-11, Subregional: Hockanum River.

The properties are currently (1) wooded and grass with a driveway and (2) an existing home. Existing conditions watershed delineations are identified in the Existing Conditions Drainage Map located in **Appendix H**.

Based on Natural Resources Conservation Service (NRCS) Hydrologic Soil Group (HSG) mapping, soil types B & C are located on site. See **Appendix C** for The NRCS Soil Map & Data.

Welti Geotechnical. P.C.'s Geotechnical Study indicated sandy gravely soils. Permeability Tests were conducted and utilized in this drainage analysis. The rates utilized are 5.6 and 6.1 ft/day. Groundwater was not found in any of the borings.

An evaluation was performed to quantify the peak rate of stormwater discharge offsite to the design points identified. The Natural Resources Conservation Service's TR-55 Manual was followed in predicting the peak rates of runoff and volumes with National Oceanic and Atmospheric Administration (NOAA) Precipitation Frequency (**Appendix D**). HydroCAD computer modeling software was utilized.

Peak rates of stormwater runoff were evaluated for the 2-, 10-, 25-, 50- and 100-year storm events. For more information, please refer to the enclosed Pre-Development Drainage HydroCAD Report located in **Appendix A**.

Post-Development Site Conditions

The proposed development will include the construction of a 24,836 SF± commercial building. Associated site improvements will include but not be limited to new access driveways, parking areas for vehicles, sidewalks, landscaping, lighting, utilities, and stormwater management BMP's. Site generated runoff from all proposed roofs, roadways, parking, and landscaped areas will be collected in an underground storm water conveyance system. This conveyance system will be comprised of a series of catchbasins connected with culverts and two underground stormwater chamber systems. First flush stormwater will be treated in a water quality chamber and an isolation row within the underground chamber system (south infiltration chambers). The exception the roof leaders on the northwest side of the building will drain "clean" water to the north infiltration chambers. See **Appendix F** for the Storm Sewer Analysis.

The future parking area is considered proposed for the purposes of sizing the detention and water quality basins. Stormwater will flow through leak offs from the pavement to the water quality basin which will overflow to the detention basin. Water quality volume calculation can be found in **Appendix G.**

In our calculations, we utilized infiltration in the infiltration basin and the underground chambers. The exfiltration rates were derived from the permeability tests conducted by Welti Geotechnical. See **Appendix B** for the Post Development HydroCAD reports.

The Proposed Conditions Drainage Map for the site can be found in **Appendix H**.

Analysis of Results

The pre-development and post-development conditions were analyzed using HydroCAD consistent with Natural Resources Conservation Service (NRCS) hydrology methods. Four discharge locations **(Design Points #1 and 2)** were identified as points of interest for assessing downstream effects. The following table contains the data generated from the HydroCAD software:

Reach		2-year	10-year	25-year	50-year	100-year
DP#1 Existing CB in Williams Road	**Pre**	0.49	2.36	3.91	5.17	6.63
	Post	0.50	2.26	3.64	5.07	6.36
Infiltration Basin	**Peak Elev.**	620.26	621.21	621.84	622.19	622.57
South Infiltrators	**Peak Elev.**	619.32	620.18	620.27	620.30	620.32
DP#2 – Boston Turnpike	**Pre**	0.24	1.17	1.94	2.57	3.30
	Post	0.11	0.52	0.84	1.09	1.39
North Infiltrators	**Peak Elev.**	619.02	619.71	620.22	620.68	621.42

As seen in the table above, most of the storm events evaluated for the subject project will result in peak runoff rates in the proposed condition that are less than the existing peak runoff rates. The 2-year design storm will have a negligible increase in peak runoff.

The south infiltration system will overflow to the pipe system that connects to the Town drainage. The overflow will occur between the 2 and 10- year storm frequency. The infiltration basin will overflow toward Williams Road overland. The freeboard in the basin above the 100-year storm is 1.0 feet. The north infiltration system has an overflow through a grate cover on the manhole. The top of frame is 623.73 which provide freeboard above the 100-year storm of over 2 feet.

Storm Sewer Analysis

The proposed subsurface stormwater collection and conveyance system was designed to adequately convey proposed runoff under 10- year storm event conditions. The design of the storm sewers followed the guidelines set forth in the Connecticut Department of Transportation's Drainage Manual. It is estimated that during a 10-year storm event, all proposed subsurface culverts will convey storm runoff without resulting in any unacceptable flooding conditions. Autodesk Storm and Sanitary Analysis software was used for this analysis. The computations are included as **Appendix E**.

Water Quality

In accordance with the 2004 Connecticut Stormwater Quality Manual, a BaySaver Barracuda S6 will be utilized to address water quality for pavement surfaces draining to the infiltration basin (excluding the future parking). The unit provided will be more than adequate to treat the required water quality flow rate based on the determined water quality flow and manufacturer specifications for treated flow rate. The required treatment flow is 1.13 cfs and the unit provides treatment for 2.43 cfs. See **Appendix F** for the water quality flow calculation, and Barracuda manufacturer's specifications.

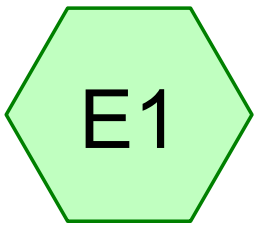
In accordance with the 2004 Connecticut Stormwater Quality Manual, a Cultec Isolator row will be utilized to address water quality for pavement surfaces draining to them. The isolator row provided will be more than adequate to treat the required water quality flow rate based on the determined water quality flow and manufacturer specifications for treated flow rate per chamber. The required treatment flow is 0.030 cfs and we are providing treatment for 0.348 cfs in an Isolator row. See **Appendix F** for the water quality flow calculation, and Cultec Isolator rows manufacture's specifications.

In accordance with the 2004 Connecticut Stormwater Quality Manual, the future parking will utilize a water quality basin. The water quality basin is sized to provide 100% of the water quality volume (1735 cft provided; 1693 required) provided based on one inch of rainfall. Water quality volume calculation can be found in **Appendix G.**

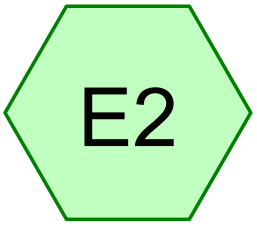
Conclusion

The proposed stormwater management system as discussed herein and shown on the referenced plans is appropriate for the proposed development on the subject site. We do not anticipate any detrimental impacts to the environment as a result.

APPENDIX A
Watershed Computations
(Pre-Development Drainage HydroCAD Report)



DP1 - Existing Site Conditions



DP2 - Existing Site Conditions

Subcat Reach Pond Link

Routing Diagram for 4798 - Drainage Revised
Prepared by Design Professionals, Inc., Printed 3/10/2022
HydroCAD® 10.00-20 s/n 09320 © 2017 HydroCAD Software Solutions LLC

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=0.36"
Flow Length=431' Tc=34.2 min CN=59 Runoff=0.49 cfs 0.108 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=0.36"
Flow Length=339' Tc=23.3 min CN=59 Runoff=0.24 cfs 0.045 af

Total Runoff Area = 5.122 ac Runoff Volume = 0.153 af Average Runoff Depth = 0.36"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=1.19"
Flow Length=431' Tc=34.2 min CN=59 Runoff=2.36 cfs 0.359 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=1.19"
Flow Length=339' Tc=23.3 min CN=59 Runoff=1.17 cfs 0.151 af

Total Runoff Area = 5.122 ac Runoff Volume = 0.510 af Average Runoff Depth = 1.19"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=1.86"
Flow Length=431' Tc=34.2 min CN=59 Runoff=3.91 cfs 0.559 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=1.86"
Flow Length=339' Tc=23.3 min CN=59 Runoff=1.94 cfs 0.234 af

Total Runoff Area = 5.122 ac Runoff Volume = 0.793 af Average Runoff Depth = 1.86"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=2.40"
Flow Length=431' Tc=34.2 min CN=59 Runoff=5.17 cfs 0.720 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=2.40"
Flow Length=339' Tc=23.3 min CN=59 Runoff=2.57 cfs 0.302 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.023 af Average Runoff Depth = 2.40"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=3.02"
Flow Length=431' Tc=34.2 min CN=59 Runoff=6.63 cfs 0.909 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=3.02"
Flow Length=339' Tc=23.3 min CN=59 Runoff=3.30 cfs 0.382 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.291 af Average Runoff Depth = 3.02"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Summary for Subcatchment E1: DP1 - Exisitng Site Conditions

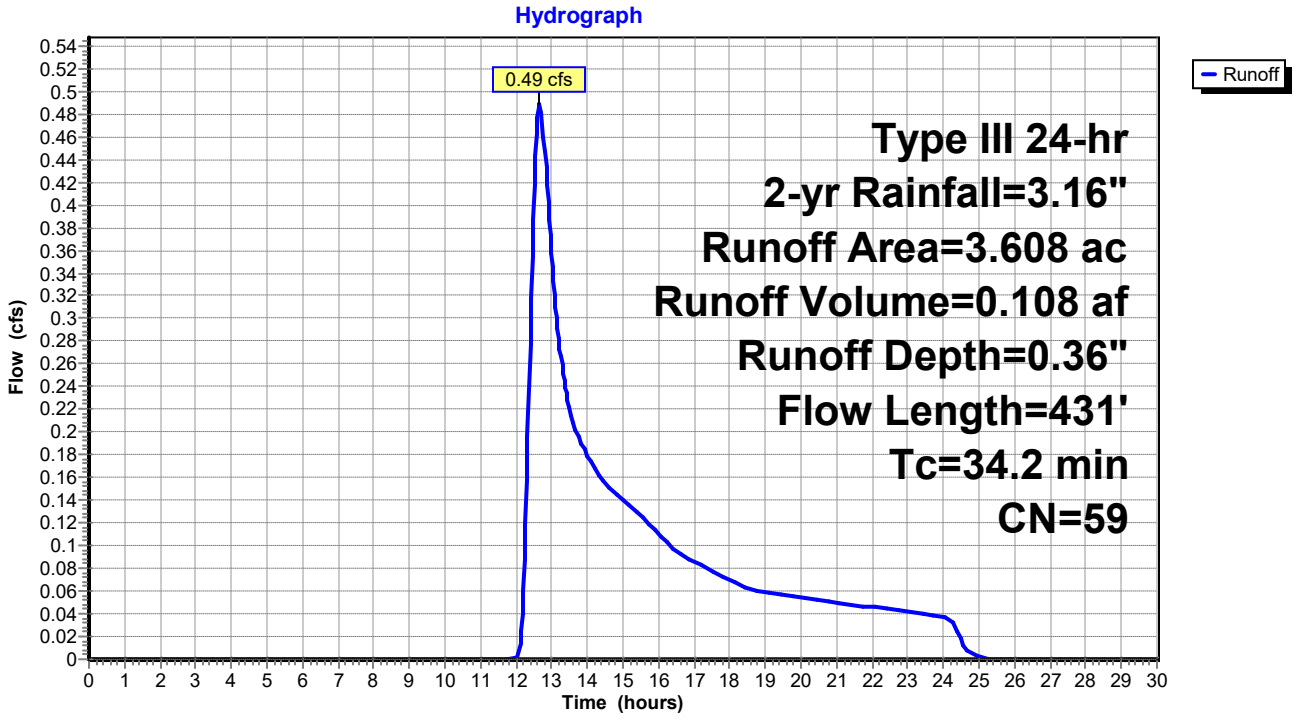
Runoff = 0.49 cfs @ 12.66 hrs, Volume= 0.108 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

	Area (ac)	CN	Description
	1.082	61	>75% Grass cover, Good, HSG B
	2.253	55	Woods, Good, HSG B
	0.186	70	Woods, Good, HSG C
*	0.087	98	IMPERVIOUS
	3.608	59	Weighted Average
	3.521		97.59% Pervious Area
	0.087		2.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.5	100	0.0100	0.06		**Sheet Flow, Woods Sheetflow** Woods: Light underbrush n= 0.400 P2= 3.16"
2.0	60	0.0100	0.50		**Shallow Concentrated Flow, Woodland S.C.F.** Woodland Kv= 5.0 fps
3.7	271	0.0310	1.23		**Shallow Concentrated Flow, grass** Short Grass Pasture Kv= 7.0 fps
34.2	431	Total			

Subcatchment E1: DP1 - Exisitng Site Conditions



Summary for Subcatchment E2: DP2 - Exisitng Site Conditions

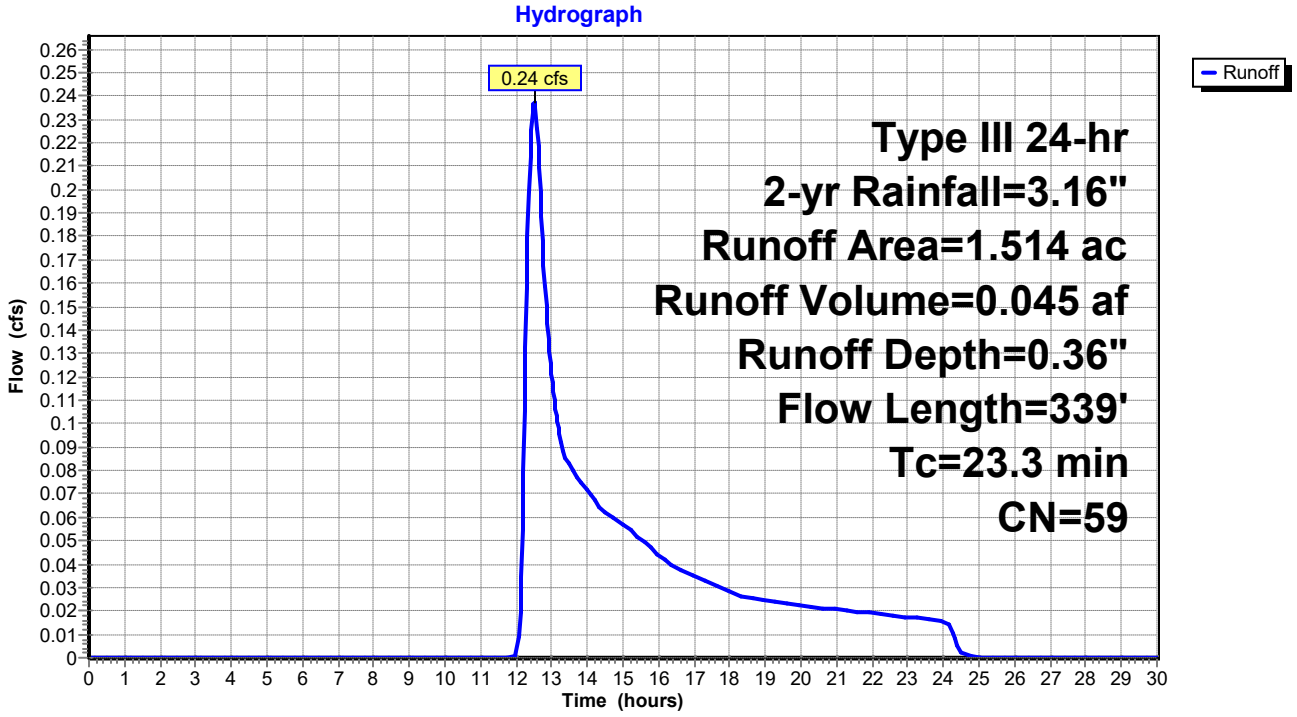
Runoff = 0.24 cfs @ 12.51 hrs, Volume= 0.045 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

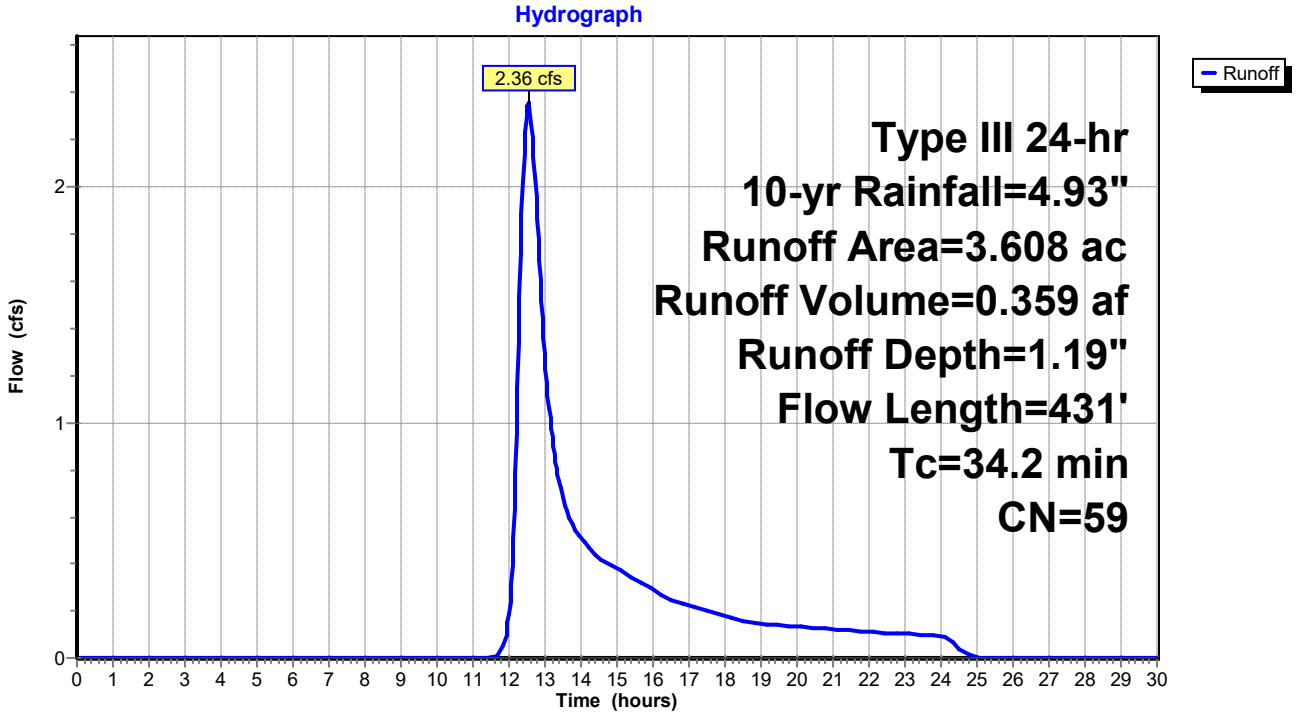
	Area (ac)	CN	Description
	0.626	61	>75% Grass cover, Good, HSG B
	0.010	74	>75% Grass cover, Good, HSG C
	0.833	55	Woods, Good, HSG B
	0.019	70	Woods, Good, HSG C
*	0.026	98	IMPERVIOUS
	1.514	59	Weighted Average
	1.488		98.28% Pervious Area
	0.026		1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.6	100	0.0200	0.08		**Sheet Flow, Woods Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.16"
1.7	239	0.0250	2.37		**Shallow Concentrated Flow, Grass Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
23.3	339	Total			

Subcatchment E2: DP2 - Exisitng Site Conditions



Subcatchment E1: DP1 - Exisitng Site Conditions



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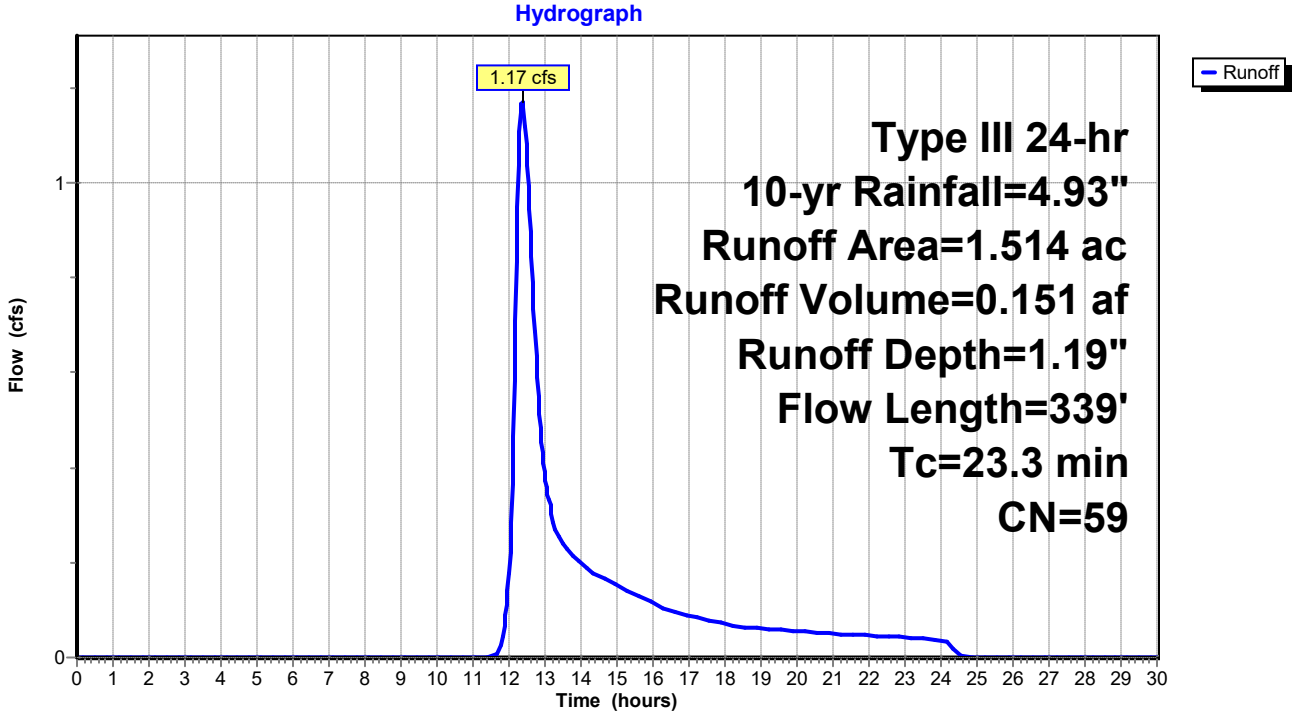
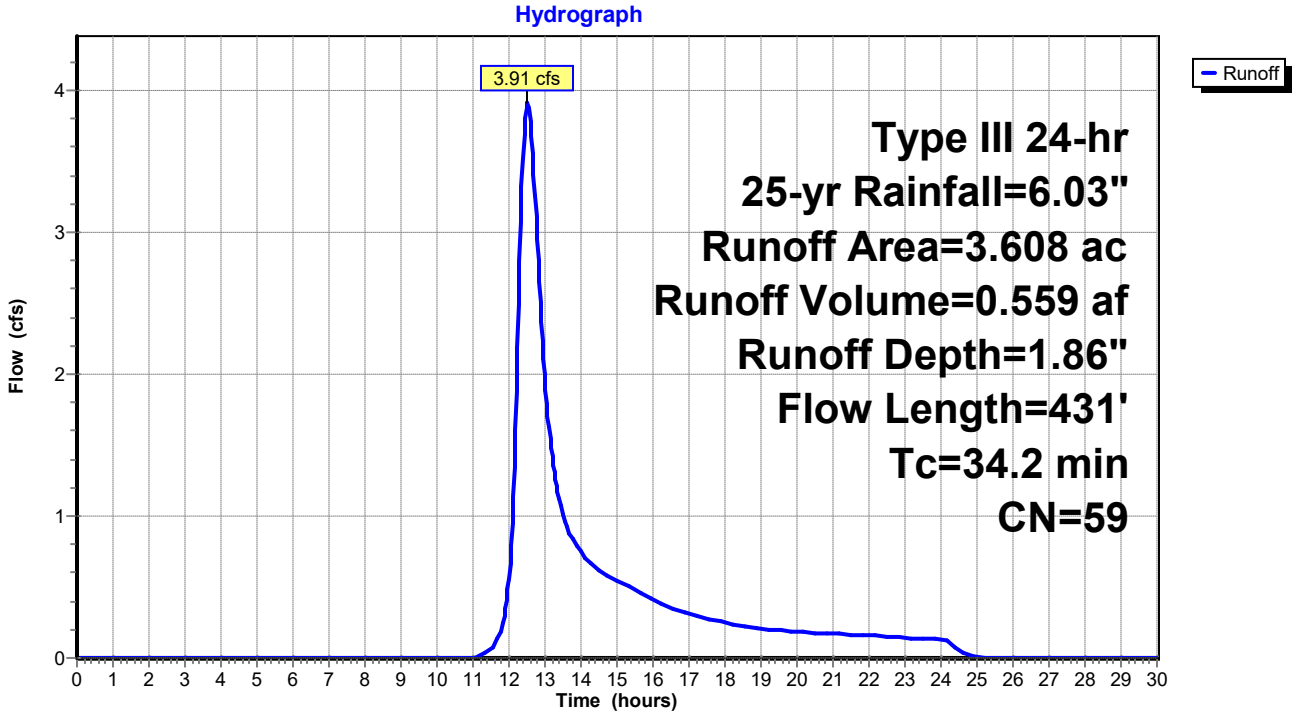
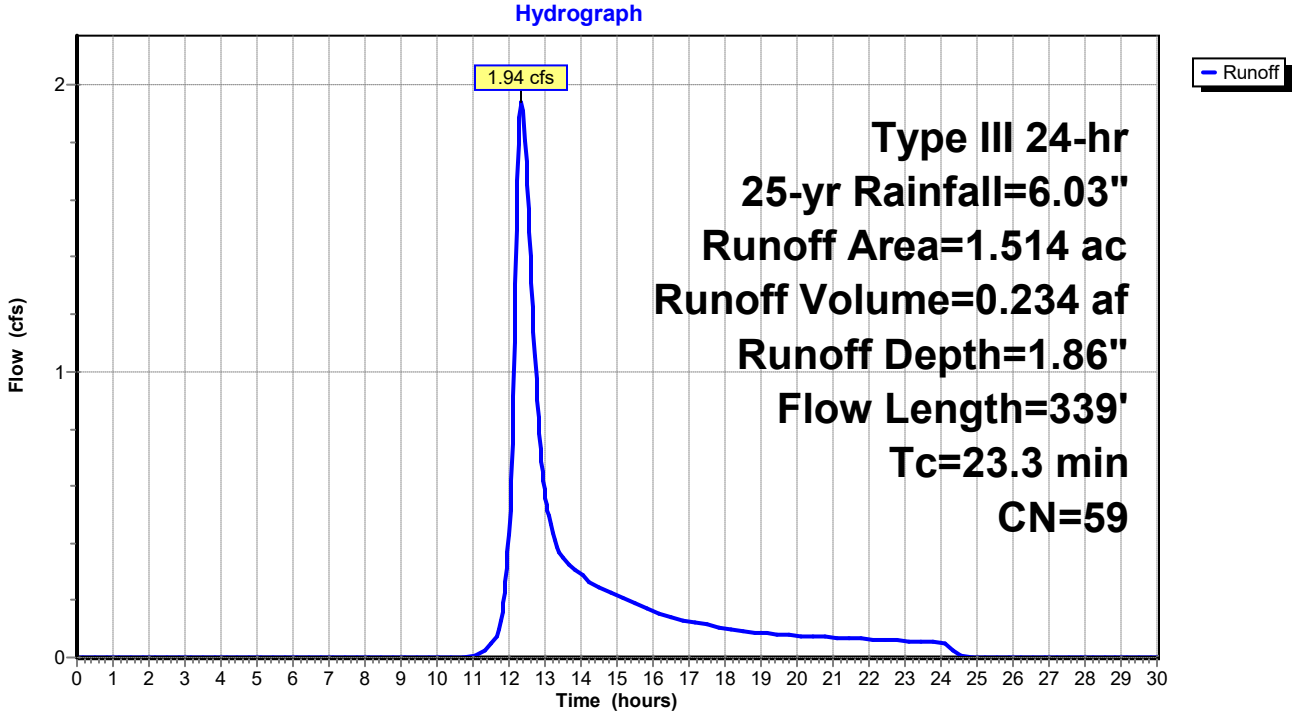


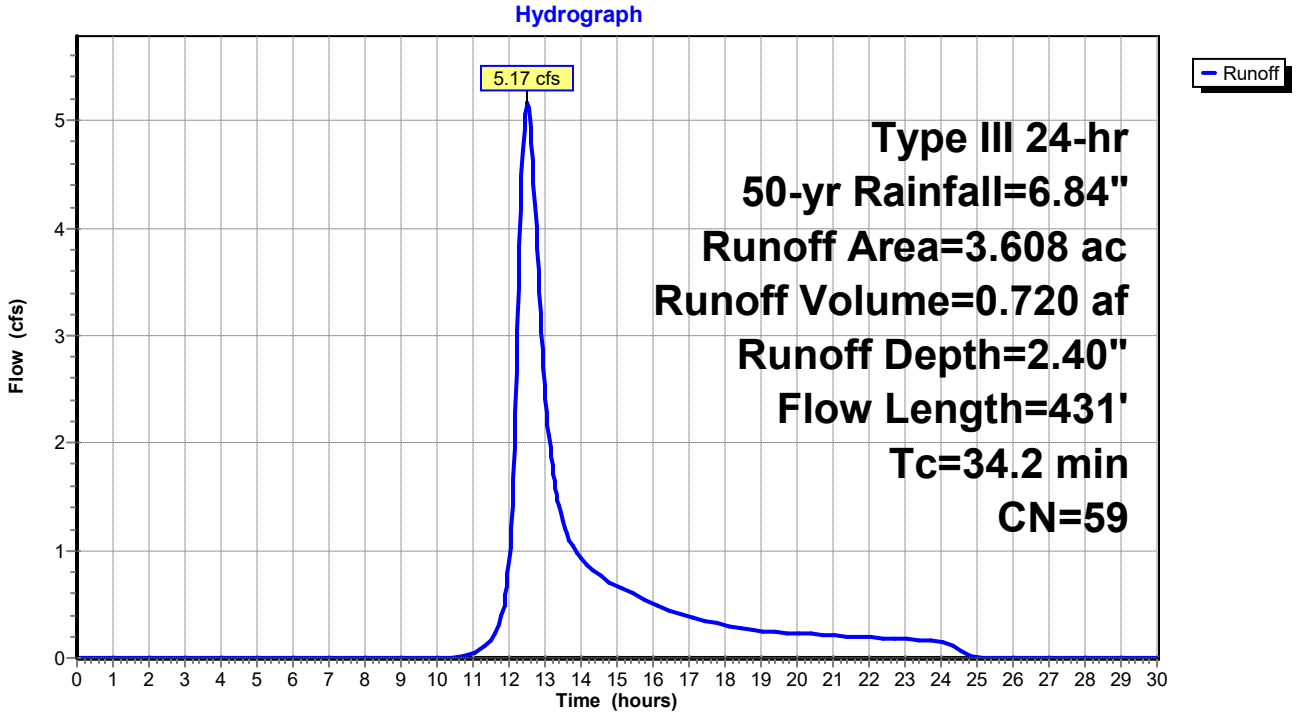
Subcatchment E1: DP1 - Exisitng Site Conditions



Subcatchment E2: DP2 - Exisitng Site Conditions



Subcatchment E1: DP1 - Exisitng Site Conditions



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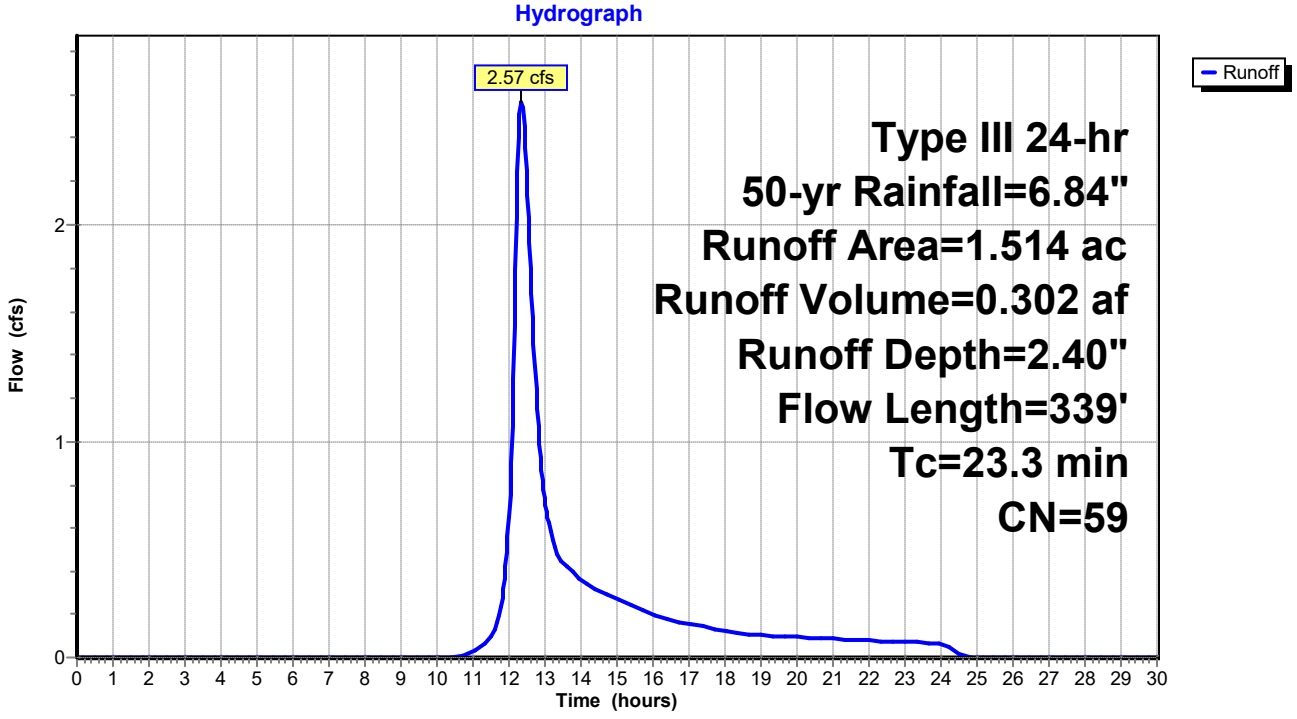
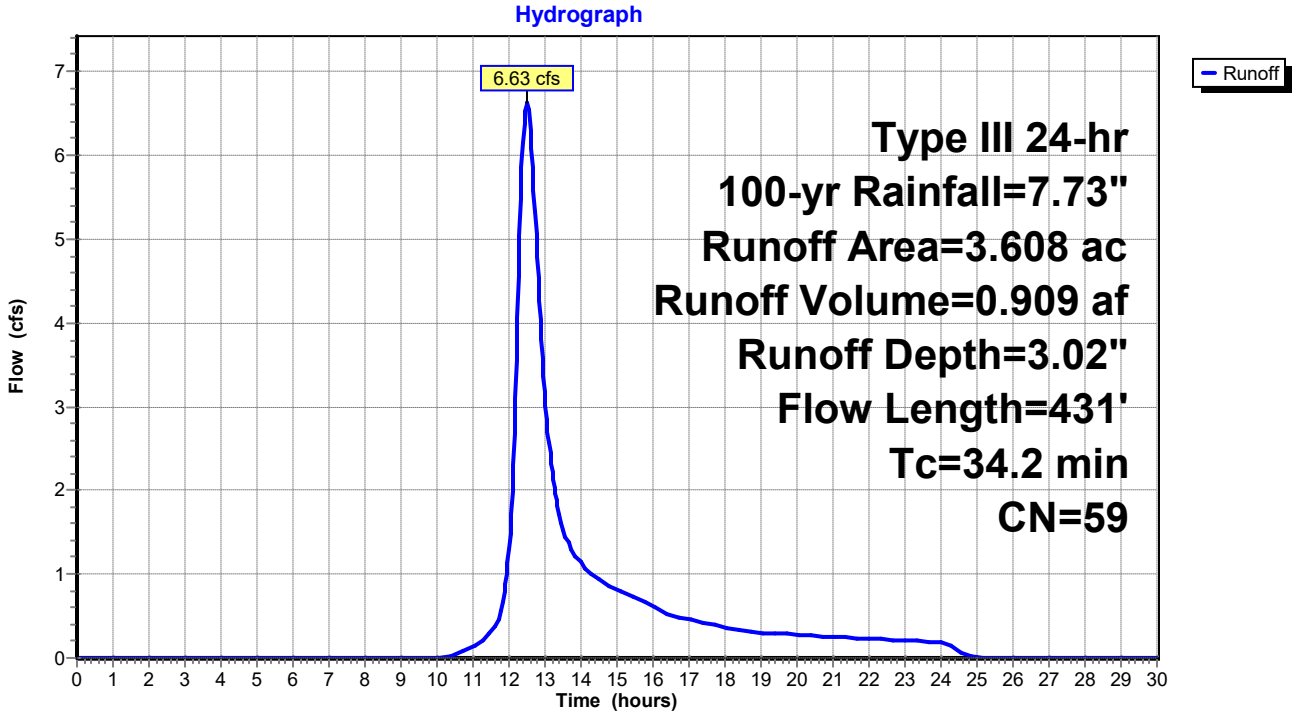
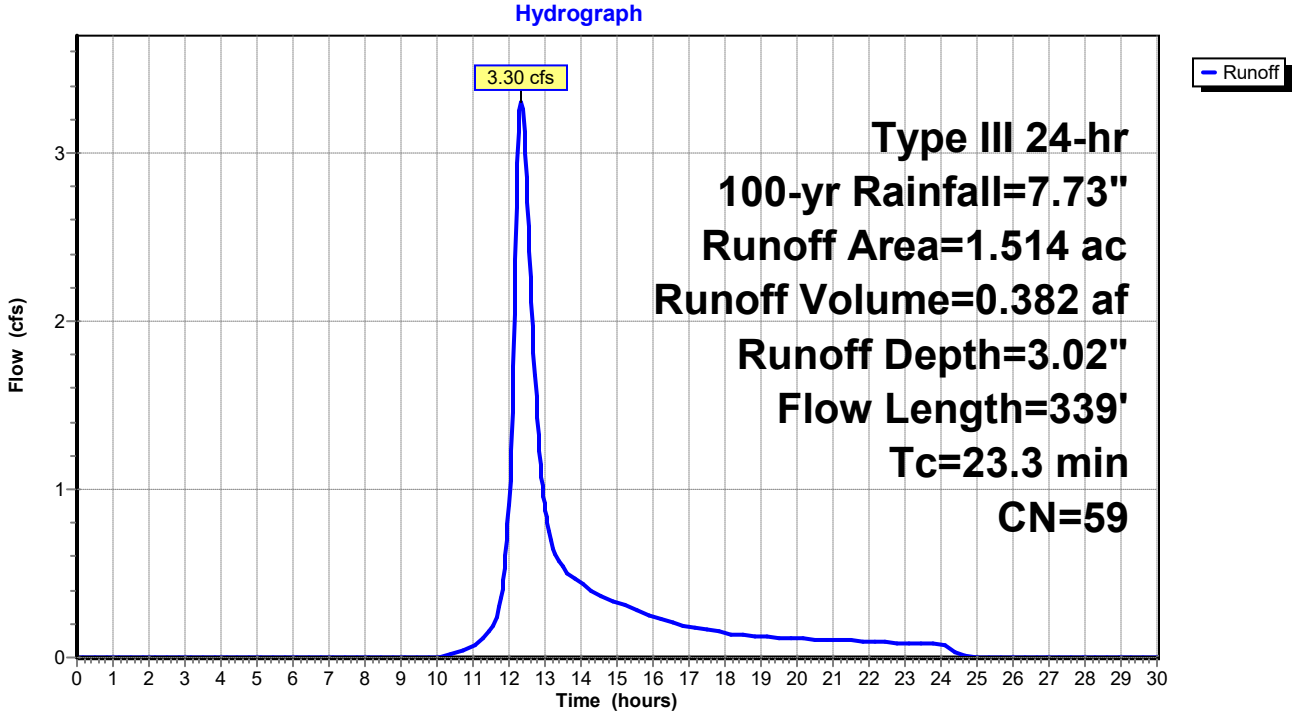


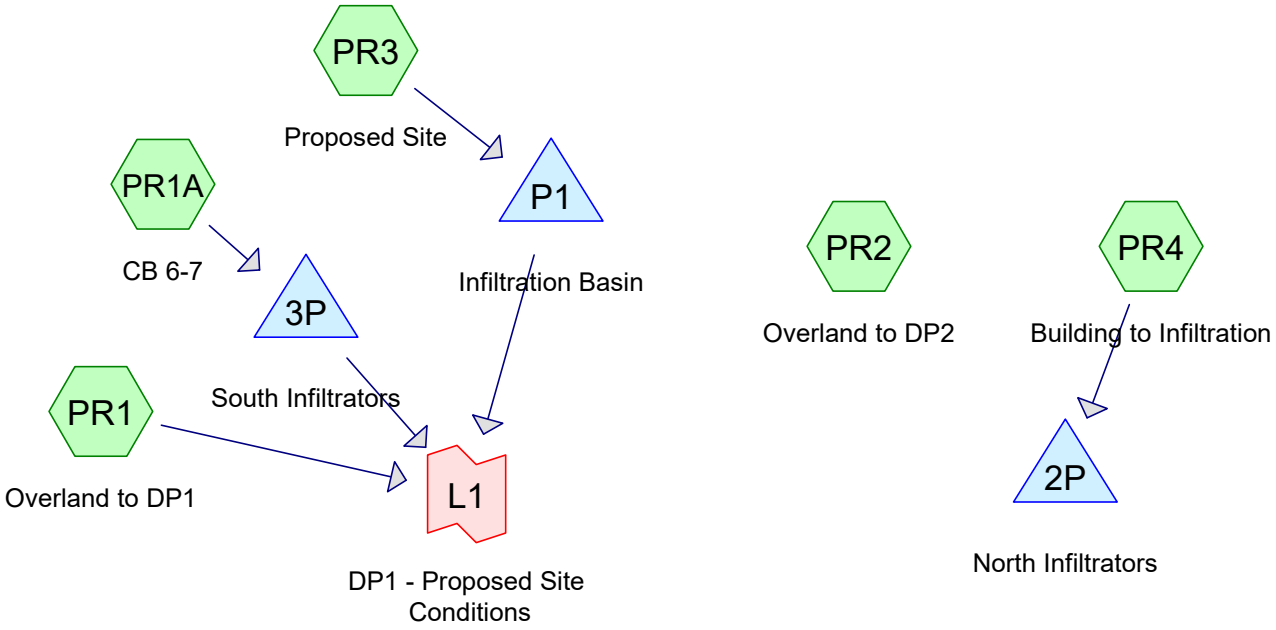
Subcatchment E1: DP1 - Exisitng Site Conditions



Subcatchment E2: DP2 - Exisitng Site Conditions



APPENDIX B
Watershed Computations
(Post-Development Drainage HydroCAD Report)



Subcat Reach Pond Link

Routing Diagram for 4798 - Drainage Revised
Prepared by Design Professionals, Inc., Printed 3/10/2022
HydroCAD® 10.00-20 s/n 09320 © 2017 HydroCAD Software Solutions LLC

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=0.39"
Flow Length=497' Tc=32.6 min CN=60 Runoff=0.25 cfs 0.051 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=1.51"
Tc=7.0 min CN=82 Runoff=0.11 cfs 0.008 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=0.43"
Flow Length=426' Tc=13.2 min CN=61 Runoff=0.11 cfs 0.017 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=1.96"
Tc=8.0 min CN=88 Runoff=6.10 cfs 0.468 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=2.93"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.044 af

Pond 2P: North Infiltrators Peak Elev=619.02' Storage=0.014 af Inflow=0.55 cfs 0.044 af
Outflow=0.07 cfs 0.044 af

Pond 3P: South Infiltrators Peak Elev=619.32' Storage=0.003 af Inflow=0.11 cfs 0.008 af
Discarded=0.01 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.008 af

Pond P1: Infiltration Basin Peak Elev=620.26' Storage=8,004 cf Inflow=6.10 cfs 0.468 af
Discarded=0.49 cfs 0.362 af Primary=0.25 cfs 0.106 af Outflow=0.74 cfs 0.468 af

Link L1: DP1 - Proposed Site Conditions Inflow=0.50 cfs 0.157 af
Primary=0.50 cfs 0.157 af

Total Runoff Area = 5.122 ac Runoff Volume = 0.588 af Average Runoff Depth = 1.38"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=1.26"
Flow Length=497' Tc=32.6 min CN=60 Runoff=1.11 cfs 0.162 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=3.02"
Tc=7.0 min CN=82 Runoff=0.22 cfs 0.016 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=1.33"
Flow Length=426' Tc=13.2 min CN=61 Runoff=0.52 cfs 0.052 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=3.60"
Tc=8.0 min CN=88 Runoff=10.99 cfs 0.859 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=4.69"
Tc=6.0 min CN=98 Runoff=0.87 cfs 0.071 af

Pond 2P: North Infiltrators Peak Elev=619.71' Storage=0.026 af Inflow=0.87 cfs 0.071 af
Outflow=0.08 cfs 0.071 af

Pond 3P: South Infiltrators Peak Elev=620.18' Storage=0.004 af Inflow=0.22 cfs 0.016 af
Discarded=0.02 cfs 0.013 af Primary=0.15 cfs 0.003 af Outflow=0.17 cfs 0.016 af

Pond P1: Infiltration Basin Peak Elev=621.21' Storage=15,230 cf Inflow=10.99 cfs 0.859 af
Discarded=0.56 cfs 0.526 af Primary=1.13 cfs 0.333 af Outflow=1.70 cfs 0.859 af

Link L1: DP1 - Proposed Site Conditions Inflow=2.26 cfs 0.499 af
Primary=2.26 cfs 0.499 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.161 af Average Runoff Depth = 2.72"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=1.94"
Flow Length=497' Tc=32.6 min CN=60 Runoff=1.80 cfs 0.250 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=4.01"
Tc=7.0 min CN=82 Runoff=0.29 cfs 0.021 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=2.03"
Flow Length=426' Tc=13.2 min CN=61 Runoff=0.84 cfs 0.079 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=4.65"
Tc=8.0 min CN=88 Runoff=14.03 cfs 1.111 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=5.79"
Tc=6.0 min CN=98 Runoff=1.07 cfs 0.088 af

Pond 2P: North Infiltrators Peak Elev=620.22' Storage=0.034 af Inflow=1.07 cfs 0.088 af
Outflow=0.08 cfs 0.088 af

Pond 3P: South Infiltrators Peak Elev=620.27' Storage=0.004 af Inflow=0.29 cfs 0.021 af
Discarded=0.02 cfs 0.015 af Primary=0.27 cfs 0.007 af Outflow=0.29 cfs 0.021 af

Pond P1: Infiltration Basin Peak Elev=621.84' Storage=20,020 cf Inflow=14.03 cfs 1.111 af
Discarded=0.61 cfs 0.603 af Primary=1.83 cfs 0.508 af Outflow=2.44 cfs 1.111 af

Link L1: DP1 - Proposed Site Conditions Inflow=3.64 cfs 0.764 af
Primary=3.64 cfs 0.764 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.549 af Average Runoff Depth = 3.63"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=2.49"
Flow Length=497' Tc=32.6 min CN=60 Runoff=2.36 cfs 0.321 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=4.77"
Tc=7.0 min CN=82 Runoff=0.34 cfs 0.025 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=2.59"
Flow Length=426' Tc=13.2 min CN=61 Runoff=1.09 cfs 0.101 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=5.44"
Tc=8.0 min CN=88 Runoff=16.25 cfs 1.297 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=6.60"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Pond 2P: North Infiltrators Peak Elev=620.68' Storage=0.040 af Inflow=1.21 cfs 0.100 af
Outflow=0.09 cfs 0.100 af

Pond 3P: South Infiltrators Peak Elev=620.30' Storage=0.004 af Inflow=0.34 cfs 0.025 af
Discarded=0.02 cfs 0.016 af Primary=0.32 cfs 0.010 af Outflow=0.34 cfs 0.025 af

Pond P1: Infiltration Basin Peak Elev=622.19' Storage=23,131 cf Inflow=16.25 cfs 1.297 af
Discarded=0.64 cfs 0.647 af Primary=2.66 cfs 0.650 af Outflow=3.30 cfs 1.297 af

Link L1: DP1 - Proposed Site Conditions Inflow=5.07 cfs 0.980 af
Primary=5.07 cfs 0.980 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.845 af Average Runoff Depth = 4.32"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=3.13"
Flow Length=497' Tc=32.6 min CN=60 Runoff=3.02 cfs 0.403 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=5.60"
Tc=7.0 min CN=82 Runoff=0.40 cfs 0.030 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=3.24"
Flow Length=426' Tc=13.2 min CN=61 Runoff=1.39 cfs 0.127 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=6.30"
Tc=8.0 min CN=88 Runoff=18.69 cfs 1.504 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=7.49"
Tc=6.0 min CN=98 Runoff=1.37 cfs 0.114 af

Pond 2P: North Infiltrators Peak Elev=621.42' Storage=0.048 af Inflow=1.37 cfs 0.114 af
Outflow=0.10 cfs 0.114 af

Pond 3P: South Infiltrators Peak Elev=620.32' Storage=0.004 af Inflow=0.40 cfs 0.030 af
Discarded=0.02 cfs 0.017 af Primary=0.38 cfs 0.013 af Outflow=0.39 cfs 0.030 af

Pond P1: Infiltration Basin Peak Elev=622.57' Storage=26,767 cf Inflow=18.69 cfs 1.504 af
Discarded=0.67 cfs 0.692 af Primary=3.28 cfs 0.812 af Outflow=3.95 cfs 1.504 af

Link L1: DP1 - Proposed Site Conditions Inflow=6.36 cfs 1.228 af
Primary=6.36 cfs 1.228 af

Total Runoff Area = 5.122 ac Runoff Volume = 2.177 af Average Runoff Depth = 5.10"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=0.39"
Flow Length=497' Tc=32.6 min CN=60 Runoff=0.25 cfs 0.051 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=1.51"
Tc=7.0 min CN=82 Runoff=0.11 cfs 0.008 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=0.43"
Flow Length=426' Tc=13.2 min CN=61 Runoff=0.11 cfs 0.017 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=1.96"
Tc=8.0 min CN=88 Runoff=6.10 cfs 0.468 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=2.93"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.044 af

Pond 2P: North Infiltrators Peak Elev=619.02' Storage=0.014 af Inflow=0.55 cfs 0.044 af
Outflow=0.07 cfs 0.044 af

Pond 3P: South Infiltrators Peak Elev=619.32' Storage=0.003 af Inflow=0.11 cfs 0.008 af
Discarded=0.01 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.008 af

Pond P1: Infiltration Basin Peak Elev=620.26' Storage=8,004 cf Inflow=6.10 cfs 0.468 af
Discarded=0.49 cfs 0.362 af Primary=0.25 cfs 0.106 af Outflow=0.74 cfs 0.468 af

Link L1: DP1 - Proposed Site Conditions Inflow=0.50 cfs 0.157 af
Primary=0.50 cfs 0.157 af

Total Runoff Area = 5.122 ac Runoff Volume = 0.588 af Average Runoff Depth = 1.38"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Summary for Subcatchment PR1: Overland to DP1

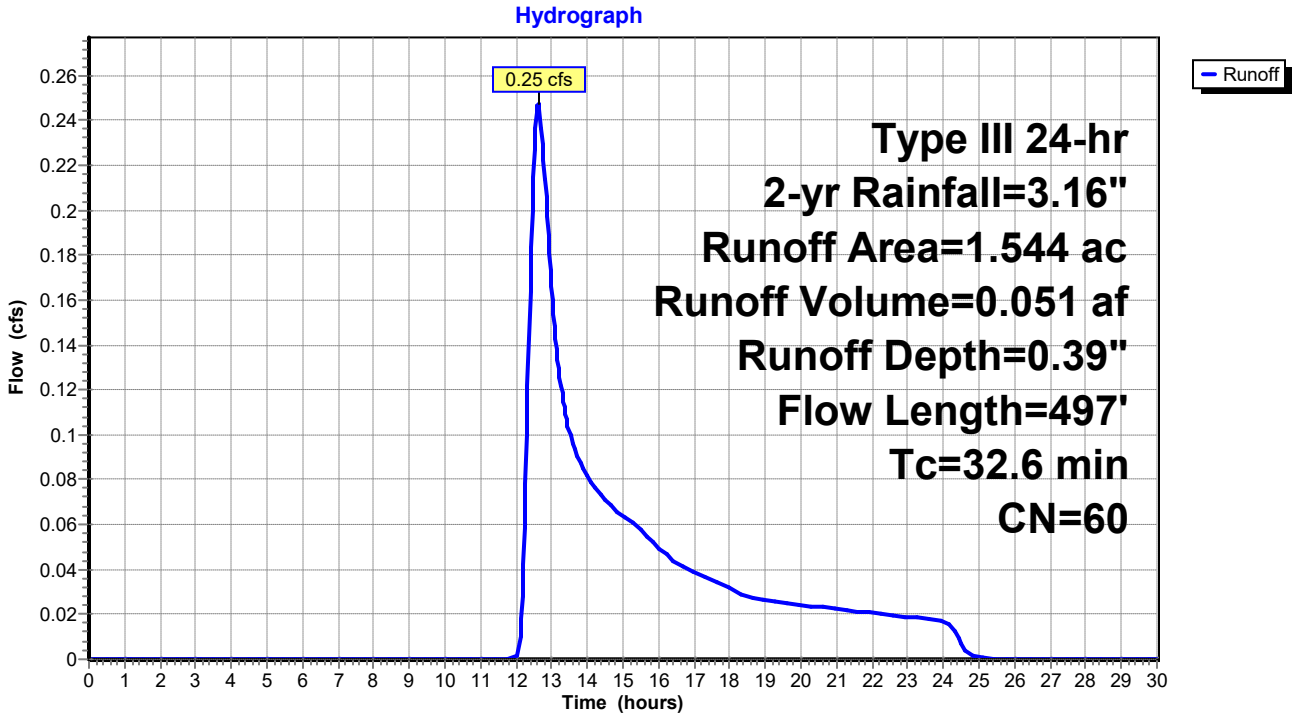
Runoff = 0.25 cfs @ 12.62 hrs, Volume= 0.051 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

Area (ac)	CN	Description
0.997	61	>75% Grass cover, Good, HSG B
0.436	55	Woods, Good, HSG B
0.105	70	Woods, Good, HSG C
0.006	98	Paved parking, HSG B
1.544	60	Weighted Average
1.538		99.61% Pervious Area
0.006		0.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.5	100	0.0100	0.06		**Sheet Flow, Woodland S.F.** Woods: Light underbrush n= 0.400 P2= 3.16"
2.0	60	0.0100	0.50		**Shallow Concentrated Flow, Woodland S.C.F.** Woodland Kv= 5.0 fps
2.1	337	0.0330	2.72		**Shallow Concentrated Flow, Grass SCF** Grassed Waterway Kv= 15.0 fps
32.6	497	Total			

Subcatchment PR1: Overland to DP1



Summary for Subcatchment PR1A: CB 6-7

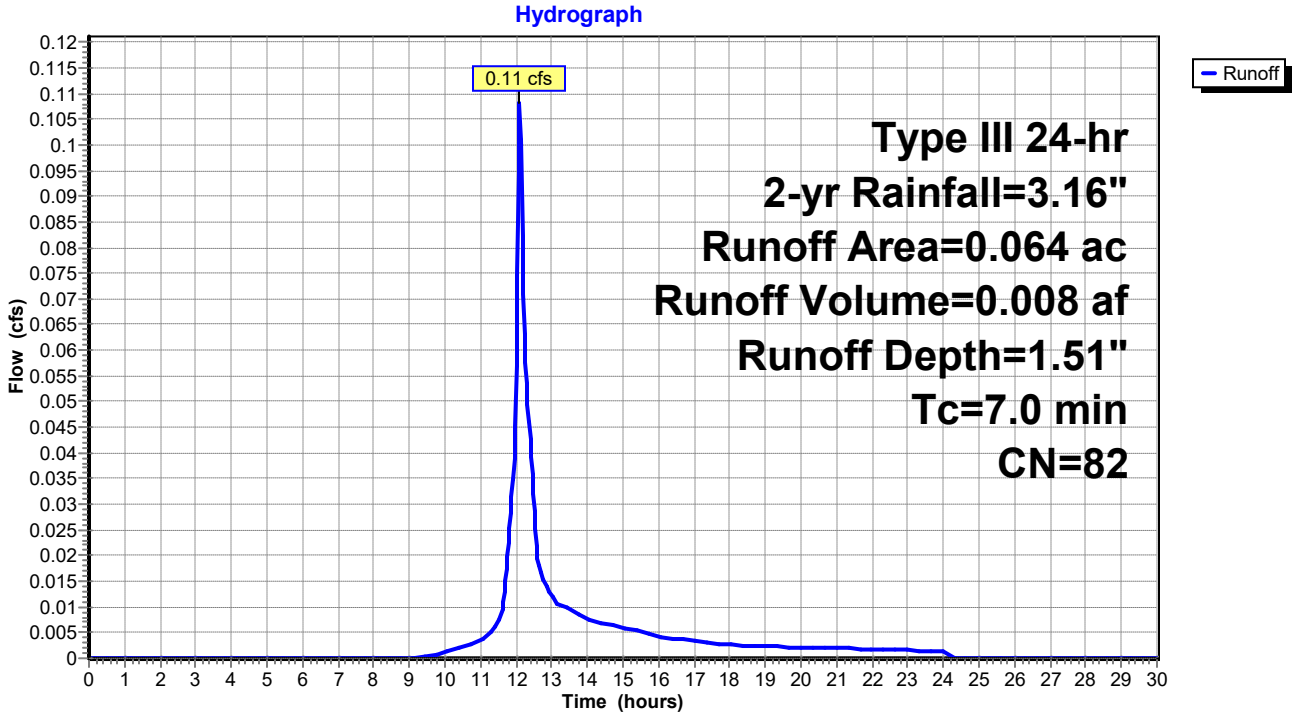
Runoff = 0.11 cfs @ 12.10 hrs, Volume= 0.008 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

Area (ac)	CN	Description
0.037	98	Paved parking, HSG B
0.027	61	>75% Grass cover, Good, HSG B
0.064	82	Weighted Average
0.027		42.19% Pervious Area
0.037		57.81% Impervious Area

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

Subcatchment PR1A: CB 6-7



Summary for Subcatchment PR2: Overland to DP2

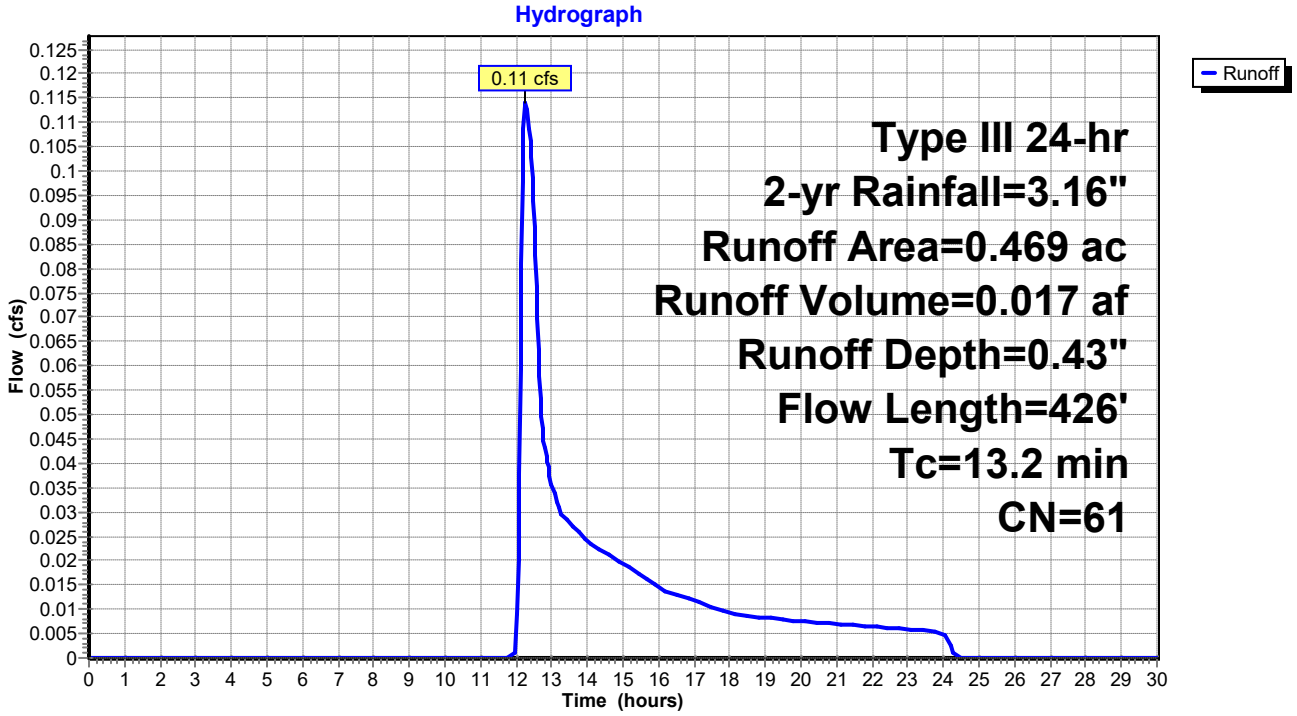
Runoff = 0.11 cfs @ 12.27 hrs, Volume= 0.017 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

	Area (ac)	CN	Description
	0.358	61	>75% Grass cover, Good, HSG B
	0.011	74	>75% Grass cover, Good, HSG C
	0.077	55	Woods, Good, HSG B
	0.019	70	Woods, Good, HSG C
*	0.004	98	IMPERVIOUS
	0.469	61	Weighted Average
	0.465		99.15% Pervious Area
	0.004		0.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, Grass S.F.** Grass: Short n= 0.150 P2= 3.16"
2.2	200	0.0100	1.50		**Shallow Concentrated Flow, Grass S.C.F.** Grassed Waterway Kv= 15.0 fps
1.1	126	0.0170	1.96		**Shallow Concentrated Flow, Grass SCF** Grassed Waterway Kv= 15.0 fps
13.2	426	Total			

Subcatchment PR2: Overland to DP2



Summary for Subcatchment PR3: Proposed Site

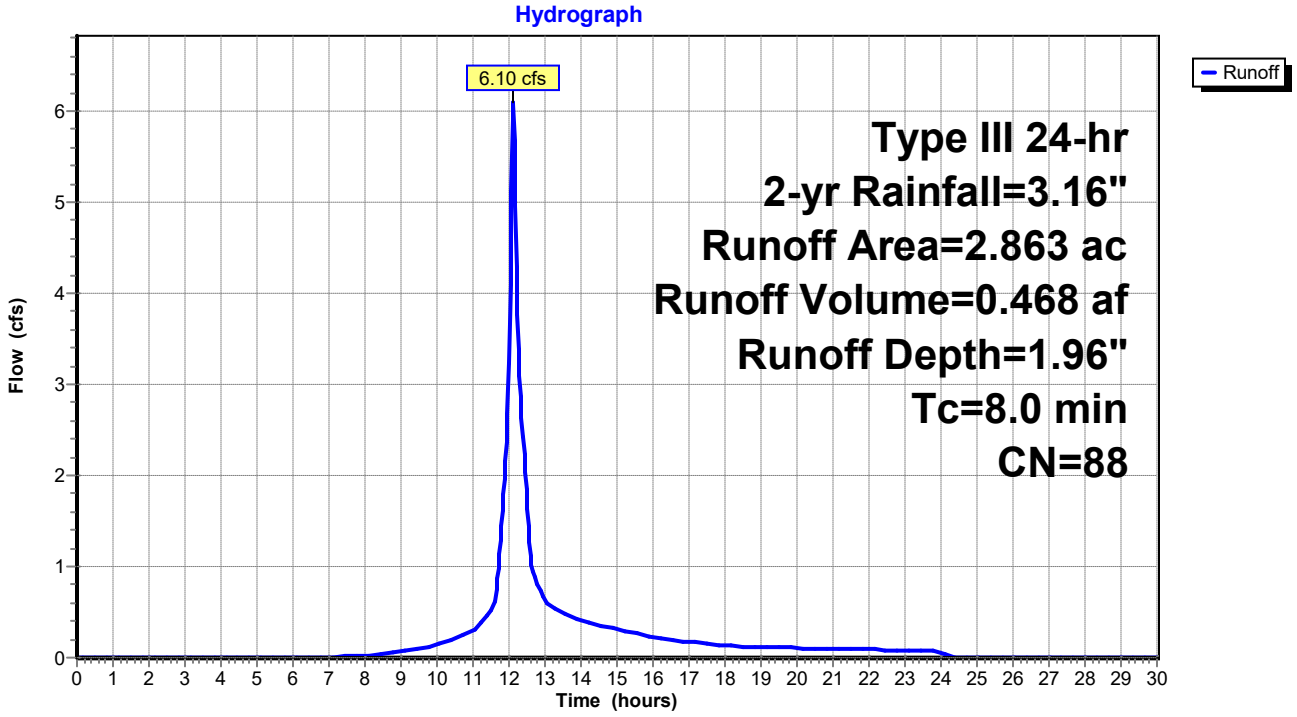
Runoff = 6.10 cfs @ 12.11 hrs, Volume= 0.468 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

	Area (ac)	CN	Description
	0.720	61	>75% Grass cover, Good, HSG B
	0.005	55	Woods, Good, HSG B
	0.045	70	Woods, Good, HSG C
*	2.069	98	IMPERVIOUS
	0.024	74	>75% Grass cover, Good, HSG C
	2.863	88	Weighted Average
	0.794		27.73% Pervious Area
	2.069		72.27% Impervious Area

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

Subcatchment PR3: Proposed Site



Summary for Subcatchment PR4: Building to Infiltration

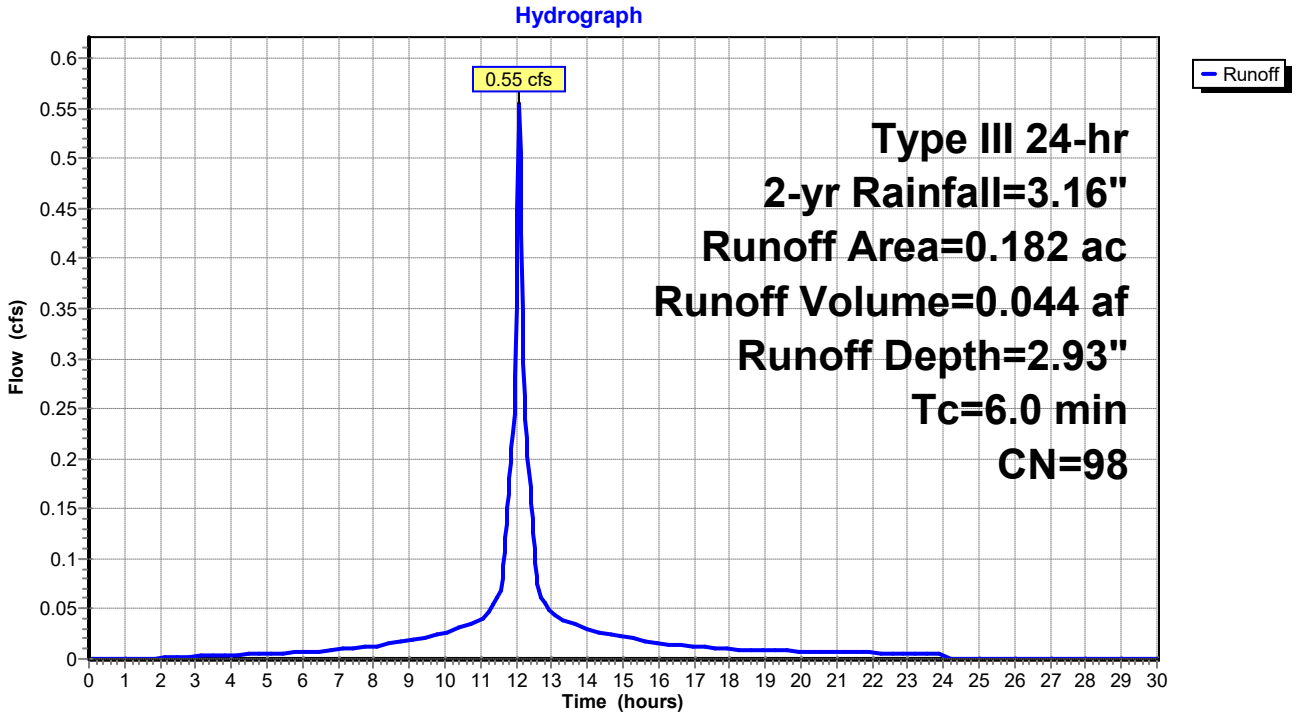
Runoff = 0.55 cfs @ 12.08 hrs, Volume= 0.044 af, Depth= 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

Area (ac)	CN	Description
0.182	98	Roofs, HSG B
0.182		100.00% Impervious Area

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

Subcatchment PR4: Building to Infiltration



Summary for Pond 2P: North Infiltrators

Inflow Area = 0.182 ac,100.00% Impervious, Inflow Depth = 2.93" for 2-yr event
Inflow = 0.55 cfs @ 12.08 hrs, Volume= 0.044 af
Outflow = 0.07 cfs @ 12.62 hrs, Volume= 0.044 af, Atten= 87%, Lag= 32.0 min
Discarded = 0.07 cfs @ 12.62 hrs, Volume= 0.044 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Peak Elev= 619.02' @ 12.62 hrs Surf.Area= 0.022 ac Storage= 0.014 af

Plug-Flow detention time= 54.7 min calculated for 0.044 af (100% of inflow)
Center-of-Mass det. time= 54.6 min (811.3 - 756.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	618.00'	0.019 af	**16.00'W x 59.50'L x 3.54'H Field A** 0.077 af Overall - 0.030 af Embedded = 0.048 af x 40.0% Voids
#2A	618.50'	0.030 af	**Cultec R-330XLHD** x 24 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		0.049 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	618.00'	**2.800 in/hr Exfiltration 5.6 ft/day over Wetted area**

Discarded OutFlow Max=0.07 cfs @ 12.62 hrs HW=619.02' (Free Discharge)
1=Exfiltration 5.6 ft/day (Exfiltration Controls 0.07 cfs)

Pond 2P: North Infiltrators - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 3 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

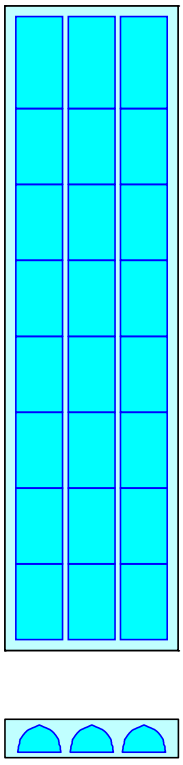
8 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 57.50' Row Length +12.0" End Stone x 2 = 59.50' Base Length
3 Rows x 52.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 16.00' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

24 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 3 Rows = 1,285.3 cf Chamber Storage

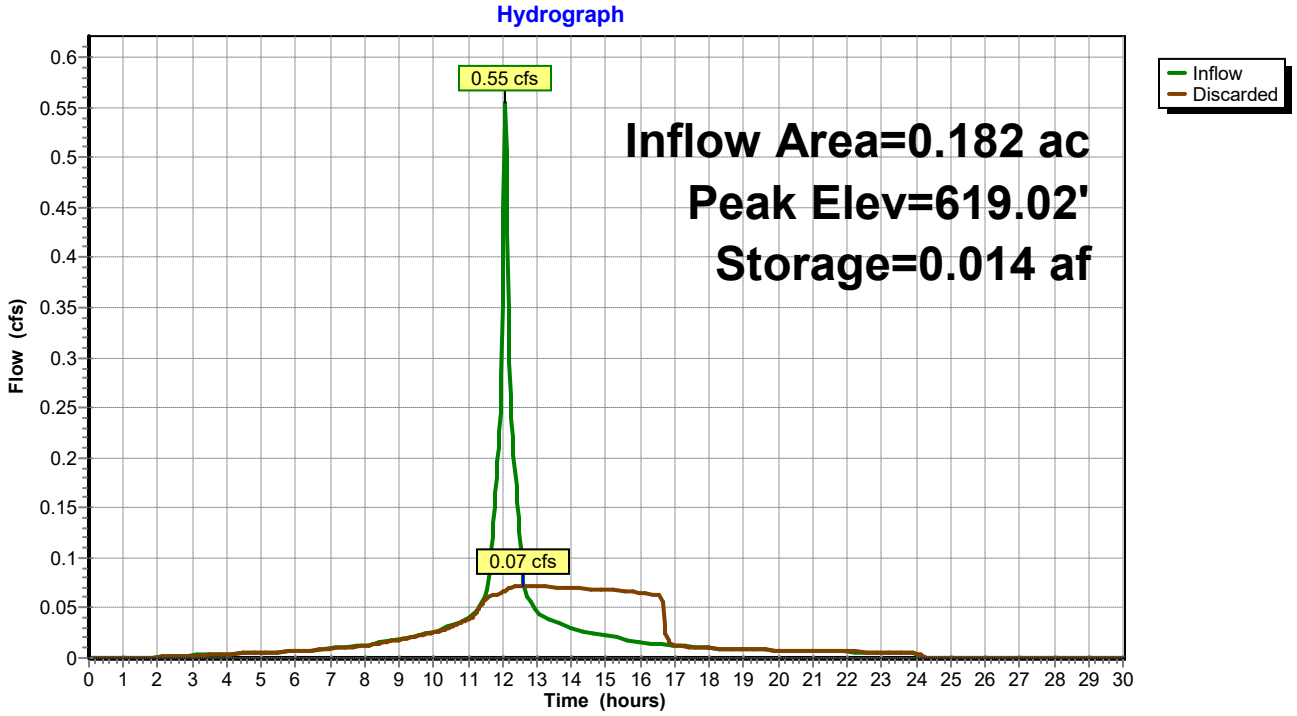
3,371.7 cf Field - 1,285.3 cf Chambers = 2,086.4 cf Stone x 40.0% Voids = 834.5 cf Stone Storage

Chamber Storage + Stone Storage = 2,119.8 cf = 0.049 af
Overall Storage Efficiency = 62.9%
Overall System Size = 59.50' x 16.00' x 3.54'

24 Chambers
124.9 cy Field
77.3 cy Stone



Pond 2P: North Infiltrators



Summary for Pond 3P: South Infiltrators

Inflow Area = 0.064 ac, 57.81% Impervious, Inflow Depth = 1.51" for 2-yr event
Inflow = 0.11 cfs @ 12.10 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 12.85 hrs, Volume= 0.008 af, Atten= 87%, Lag= 44.7 min
Discarded = 0.01 cfs @ 12.85 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Peak Elev= 619.32' @ 12.85 hrs Surf.Area= 0.003 ac Storage= 0.003 af

Plug-Flow detention time= 85.2 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 85.2 min (923.0 - 837.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	617.50'	0.003 af	**6.33'W x 17.50'L x 3.54'H Field A** 0.009 af Overall - 0.003 af Embedded = 0.006 af x 40.0% Voids
#2A	618.00'	0.003 af	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		0.005 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	617.50'	**3.050 in/hr Exfiltration 6.1 ft/day over Wetted area**
#2	Primary	620.00'	**12.0" Round Culvert** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 620.00' / 619.90' S= 0.0125 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.01 cfs @ 12.85 hrs HW=619.32' (Free Discharge)
↑**1=Exfiltration 6.1 ft/day** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=617.50' (Free Discharge)
↑**2=Culvert** (Controls 0.00 cfs)

Pond 3P: South Infiltrators - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

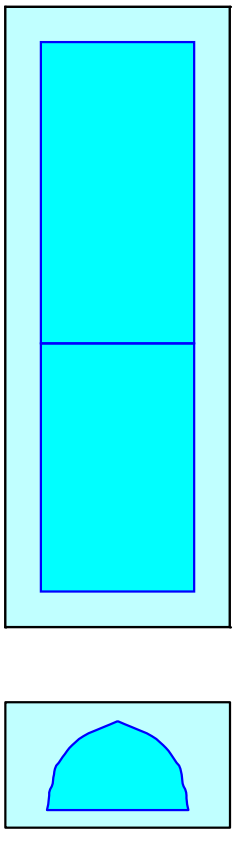
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

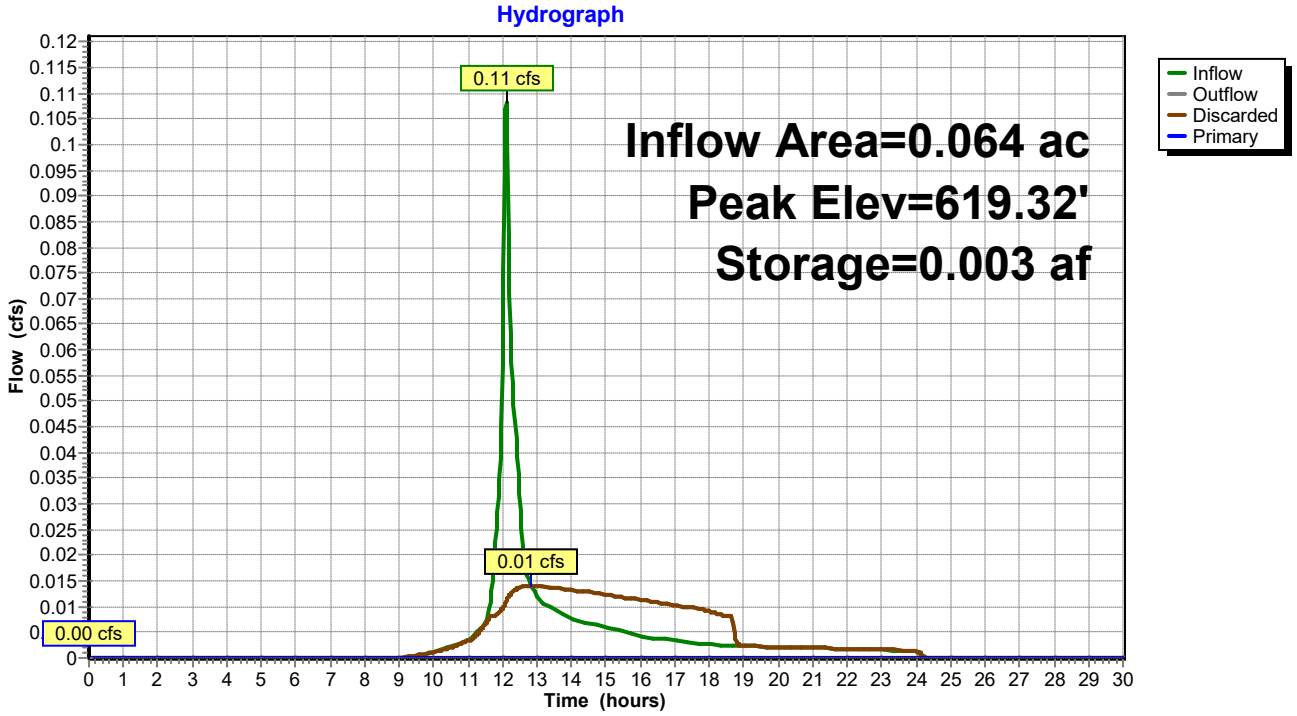
392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone



Pond 3P: South Infiltrators



Summary for Pond P1: Infiltration Basin

Inflow Area = 2.863 ac, 72.27% Impervious, Inflow Depth = 1.96" for 2-yr event
Inflow = 6.10 cfs @ 12.11 hrs, Volume= 0.468 af
Outflow = 0.74 cfs @ 12.87 hrs, Volume= 0.468 af, Atten= 88%, Lag= 45.3 min
Discarded = 0.49 cfs @ 12.87 hrs, Volume= 0.362 af
Primary = 0.25 cfs @ 12.87 hrs, Volume= 0.106 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Peak Elev= 620.26' @ 12.87 hrs Surf.Area= 6,833 sf Storage= 8,004 cf
Flood Elev= 626.00' Surf.Area= 10,463 sf Storage= 35,628 cf

Plug-Flow detention time= 102.5 min calculated for 0.468 af (100% of inflow)
Center-of-Mass det. time= 102.3 min (919.8 - 817.4)

Volume	Invert	Avail.Storage	Storage Description
#1	619.00'	35,628 cf	**Custom Stage Data (Conic)** Listed below

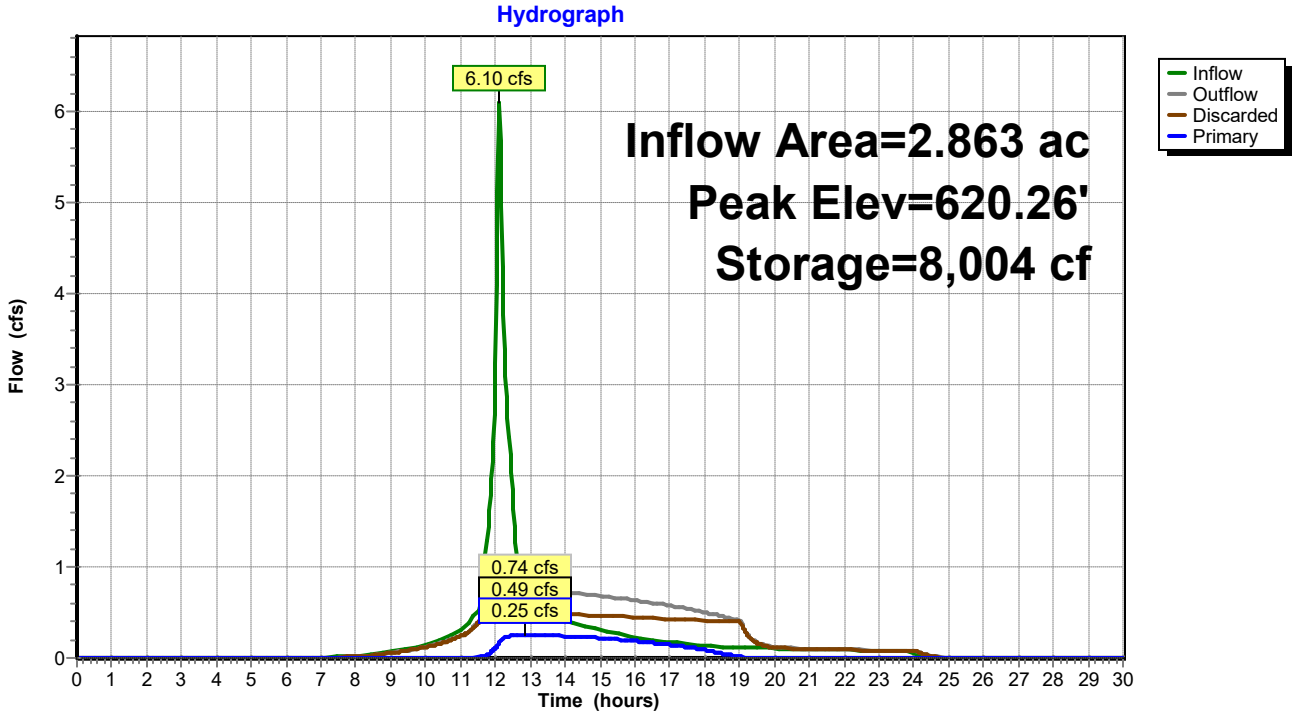
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.00	5,571	0	0	5,571
620.00	6,559	6,058	6,058	6,597
622.00	8,705	15,213	21,272	8,830
623.50	10,463	14,356	35,628	10,663

Device	Routing	Invert	Outlet Devices
#1	Primary	618.00'	**12.0" Round Culvert** L= 47.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 618.00' / 617.00' S= 0.0213 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Discarded	619.00'	**3.050 in/hr Exfiltration 6.1 ft/day over Wetted area**
#3	Device 1	619.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	620.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#5	Device 1	621.50'	**8.0" Vert. Orifice/Grate** C= 0.600
#6	Device 1	622.50'	**0.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.49 cfs @ 12.87 hrs HW=620.26' (Free Discharge)
└**2=Exfiltration 6.1 ft/day** (Exfiltration Controls 0.49 cfs)

Primary OutFlow Max=0.25 cfs @ 12.87 hrs HW=620.26' (Free Discharge)
└**1=Culvert** (Passes 0.25 cfs of 5.01 cfs potential flow)
- **3=Orifice/Grate** (Orifice Controls 0.25 cfs @ 5.12 fps)
- **4=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.26 fps)
- **5=Orifice/Grate** (Controls 0.00 cfs)
- **6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P1: Infiltration Basin

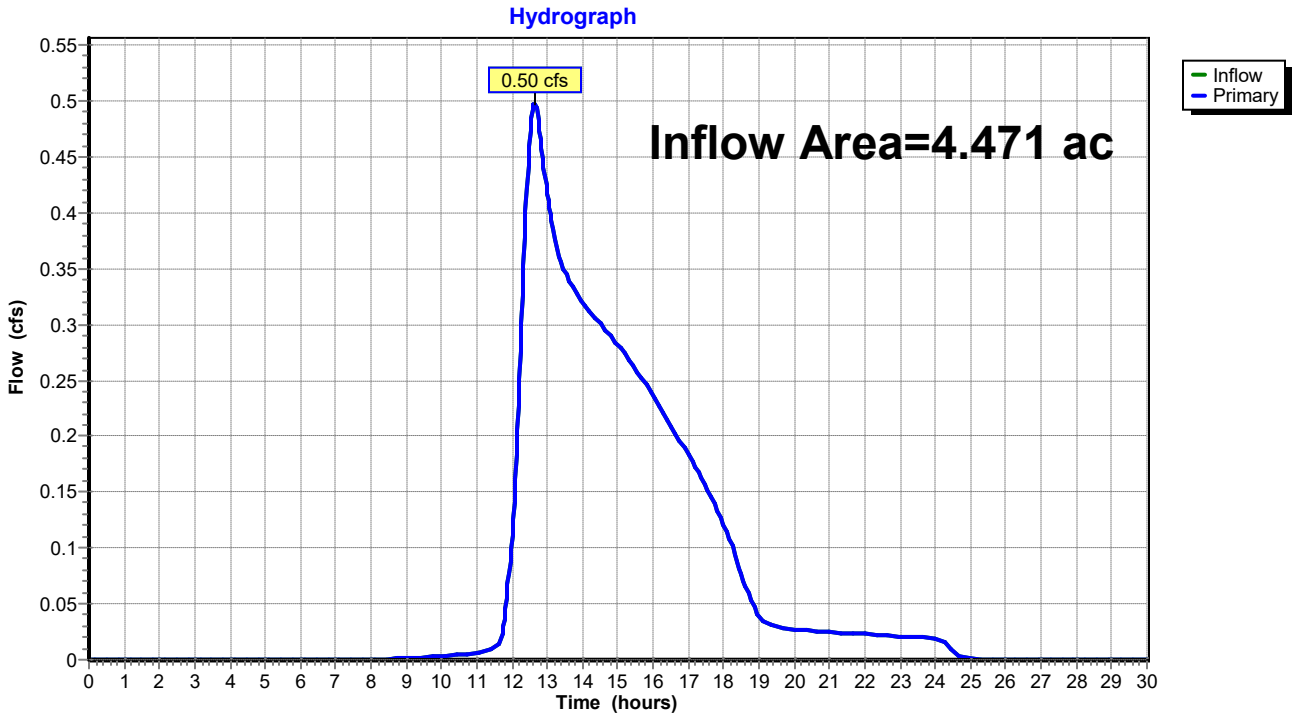


Summary for Link L1: DP1 - Proposed Site Conditions

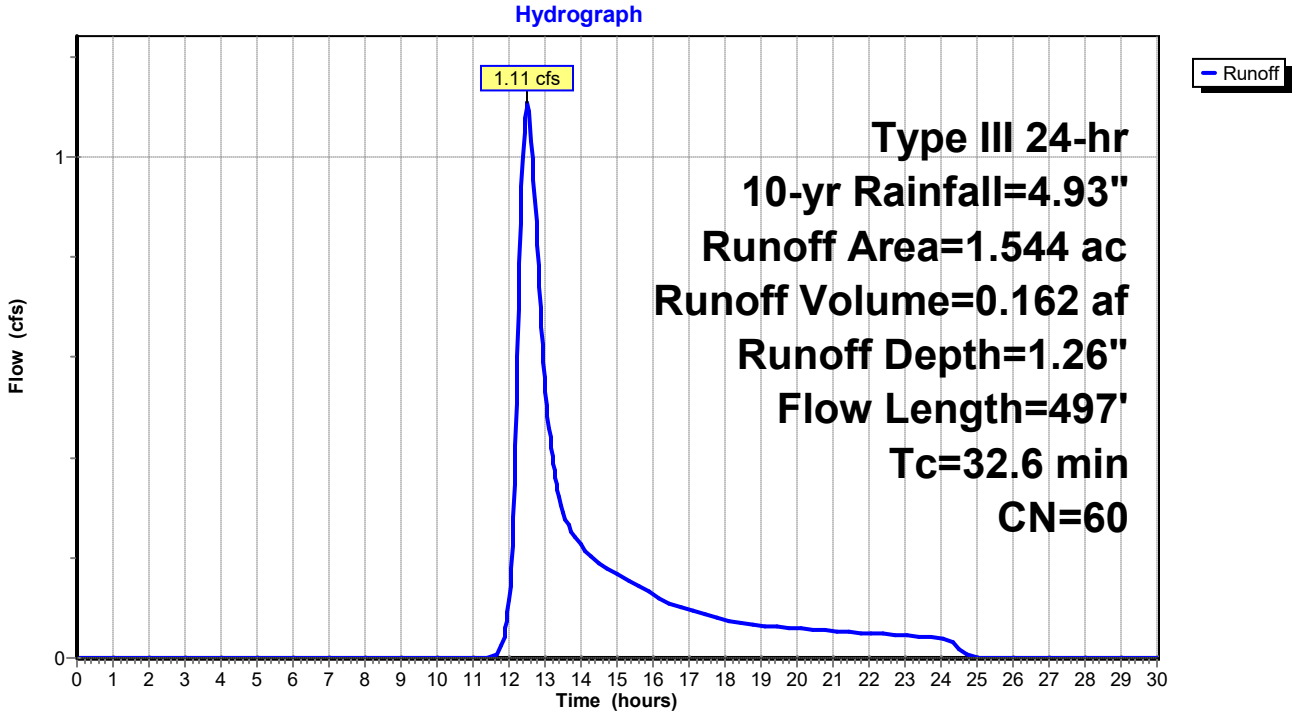
Inflow Area = 4.471 ac, 47.24% Impervious, Inflow Depth = 0.42" for 2-yr event
Inflow = 0.50 cfs @ 12.63 hrs, Volume= 0.157 af
Primary = 0.50 cfs @ 12.63 hrs, Volume= 0.157 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

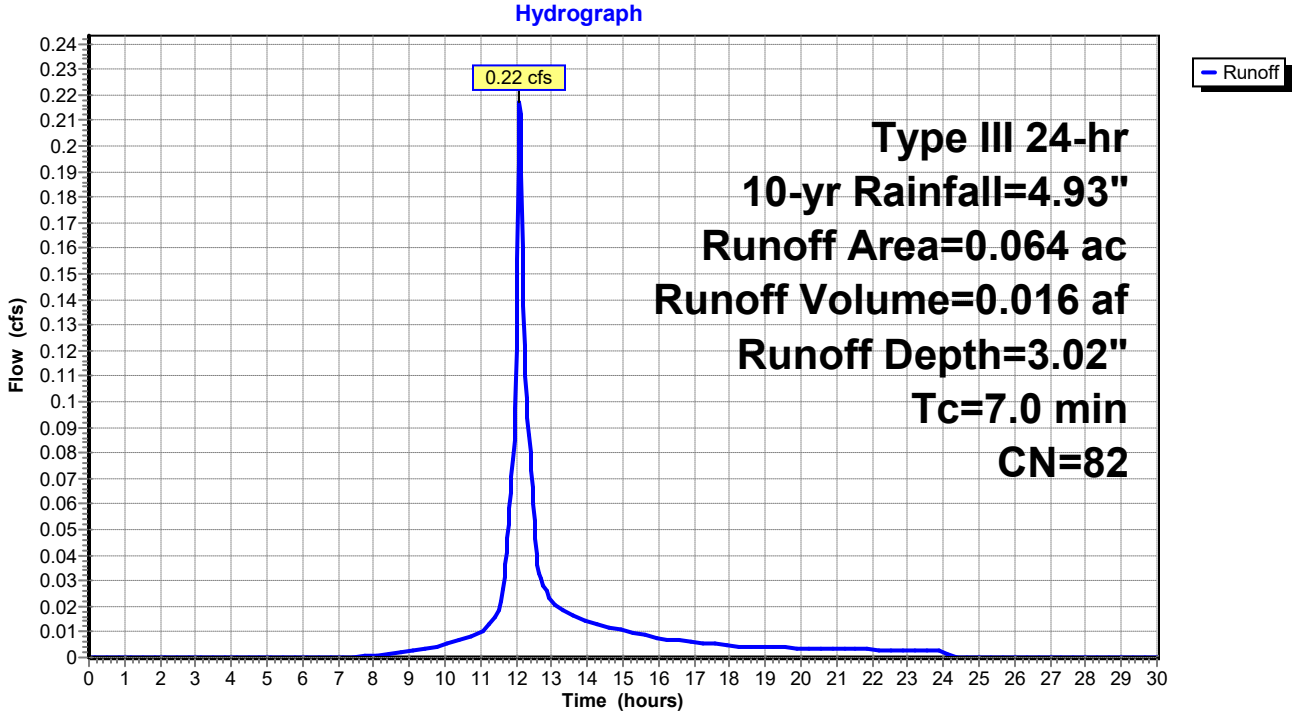
Link L1: DP1 - Proposed Site Conditions



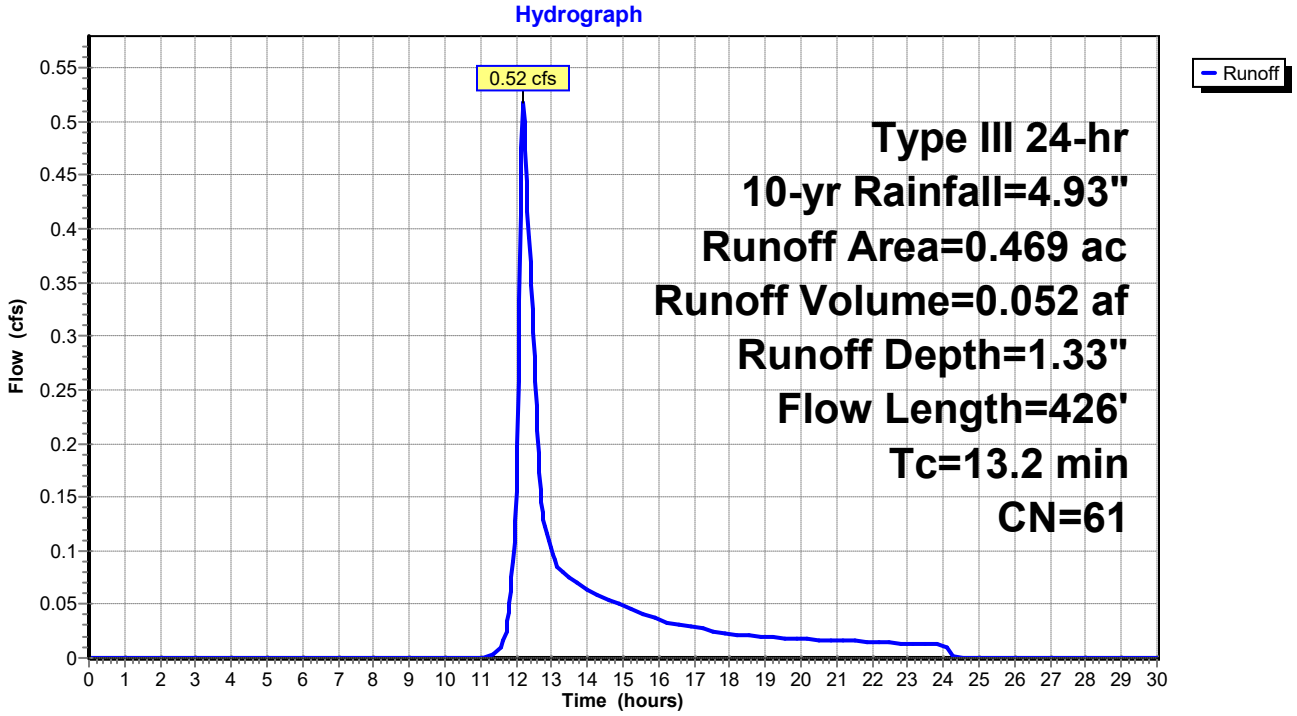
Subcatchment PR1: Overland to DP1



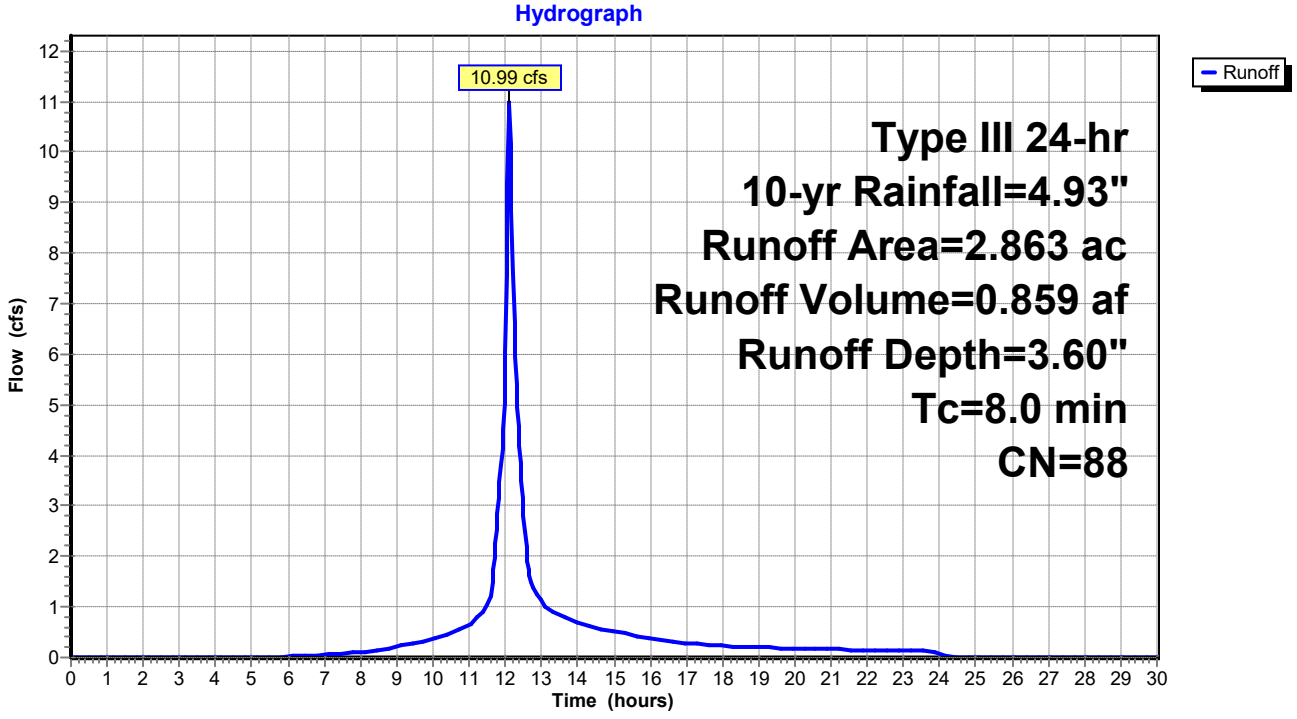
Subcatchment PR1A: CB 6-7



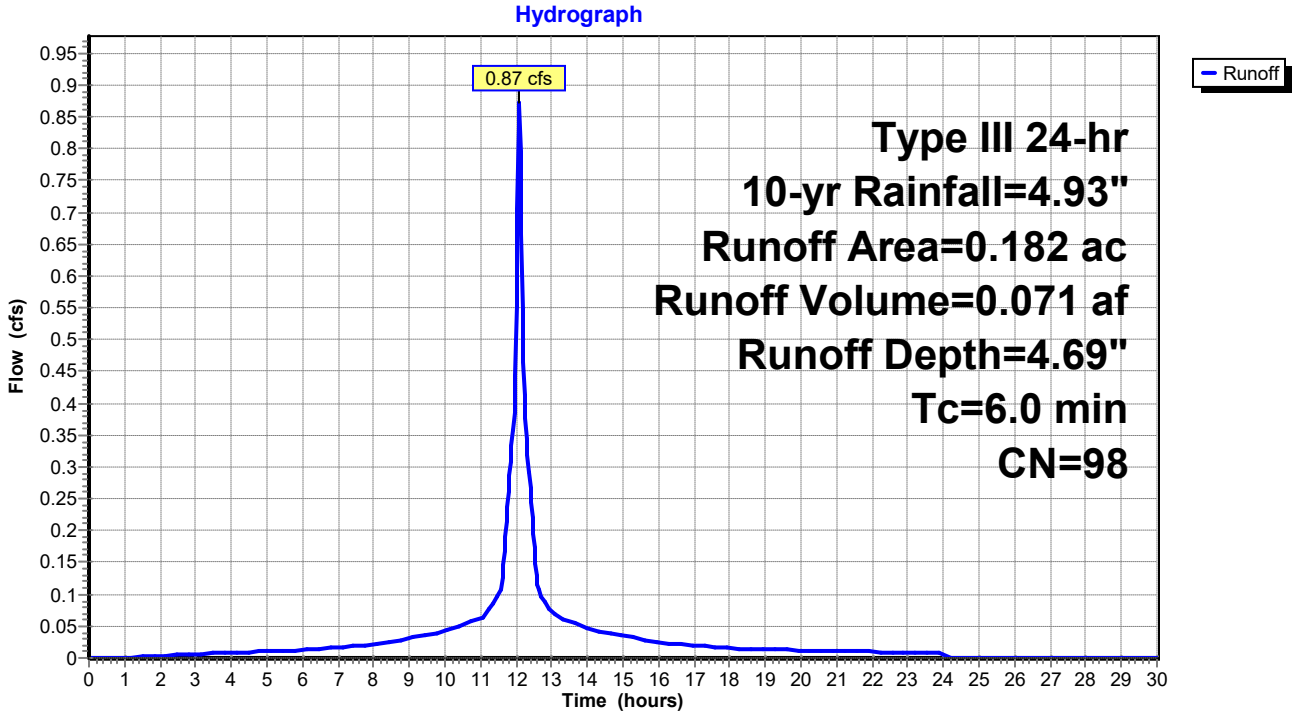
Subcatchment PR2: Overland to DP2



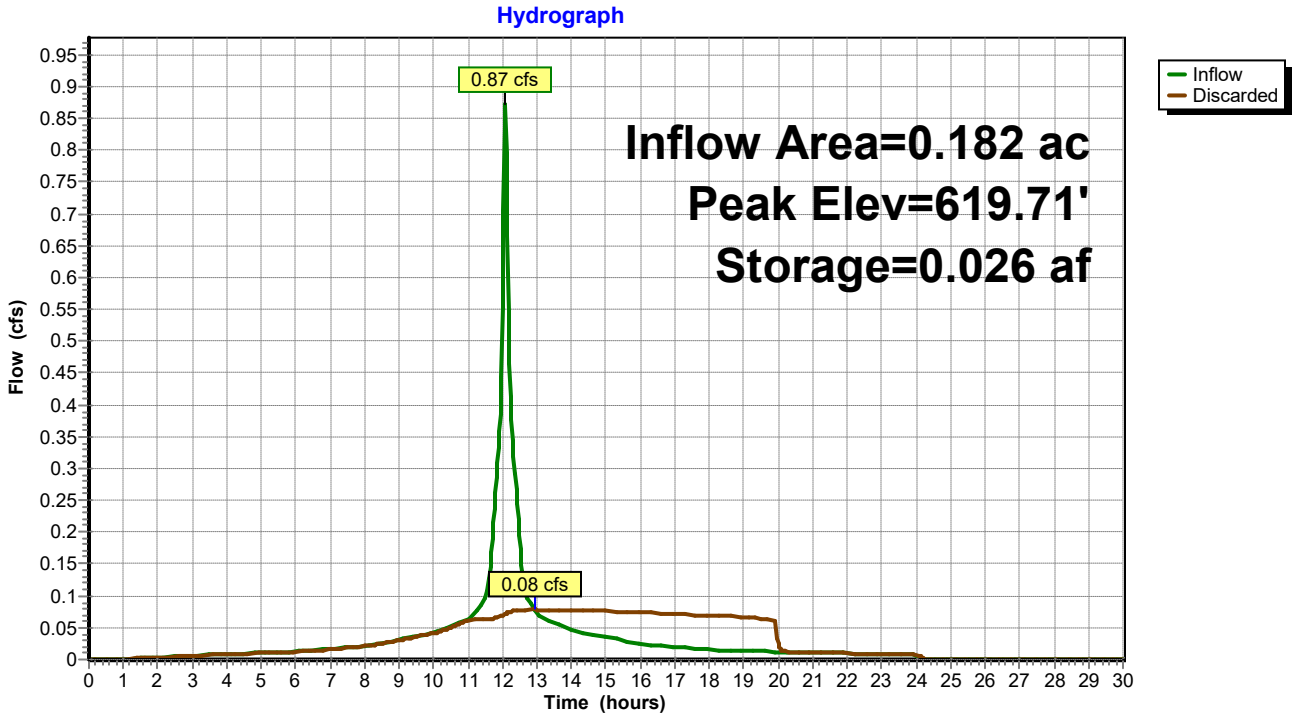
Subcatchment PR3: Proposed Site



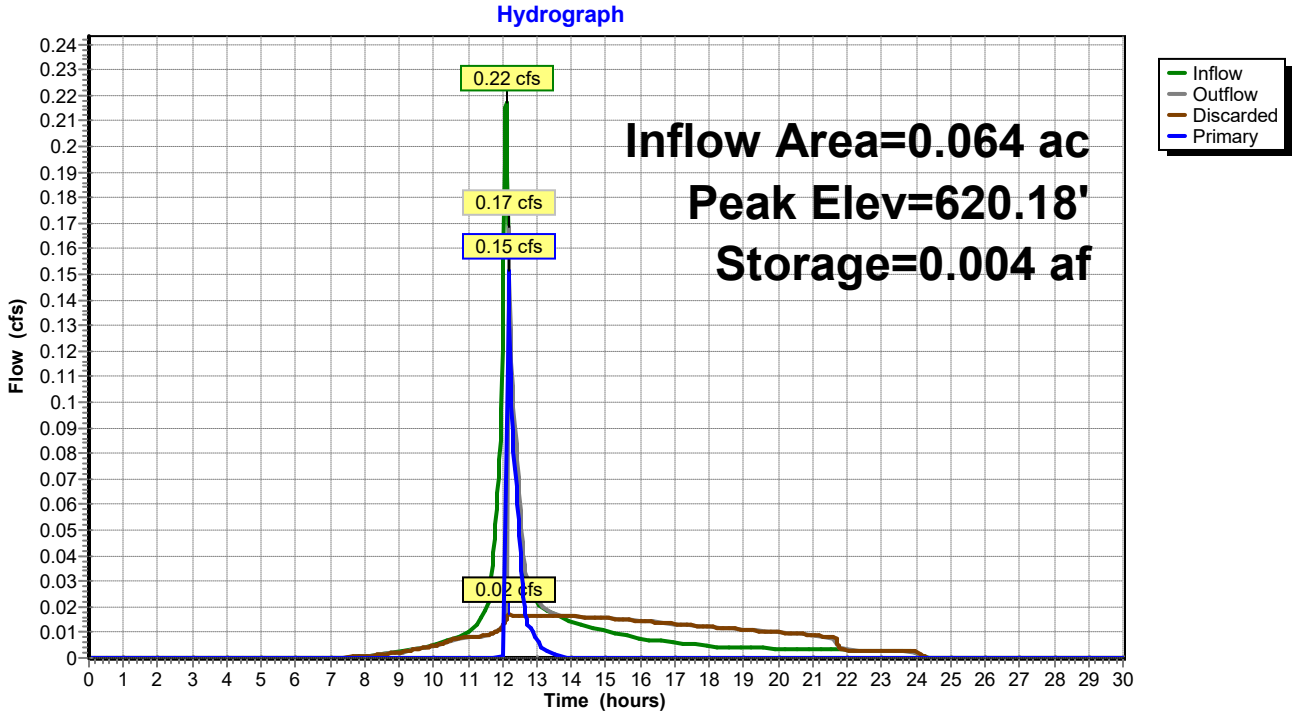
Subcatchment PR4: Building to Infiltration



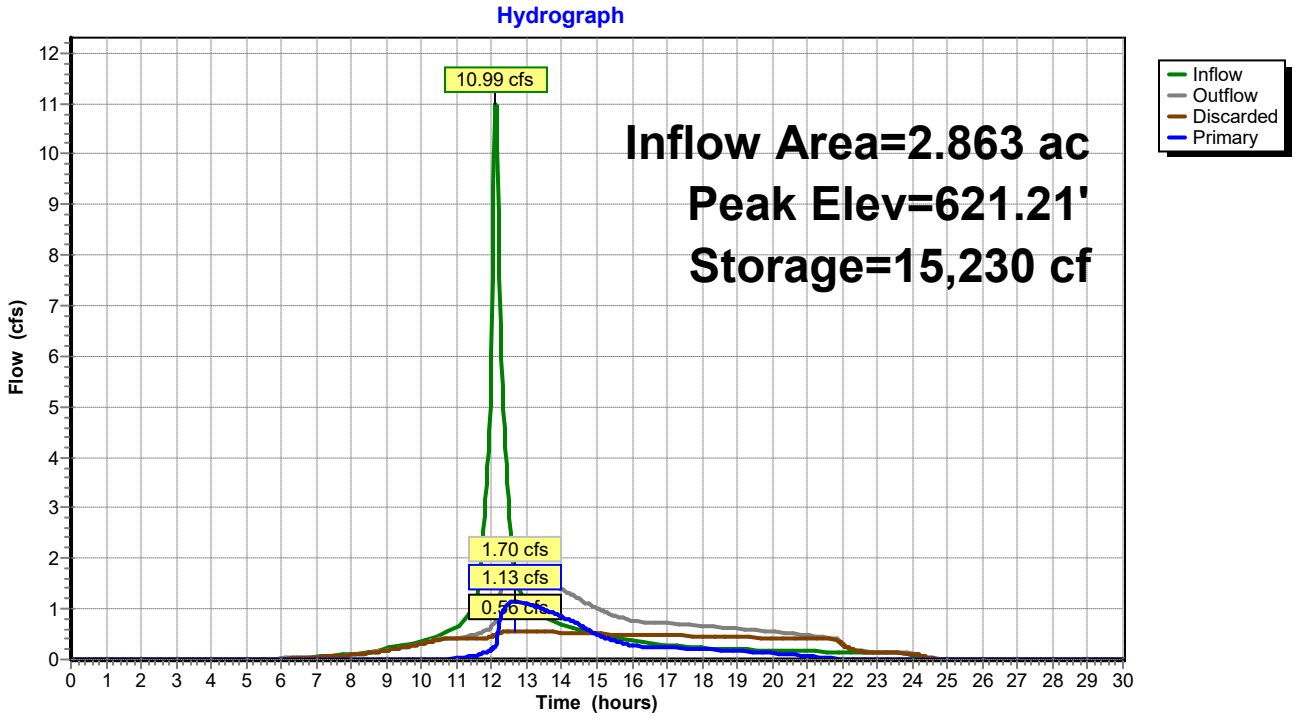
Pond 2P: North Infiltrators



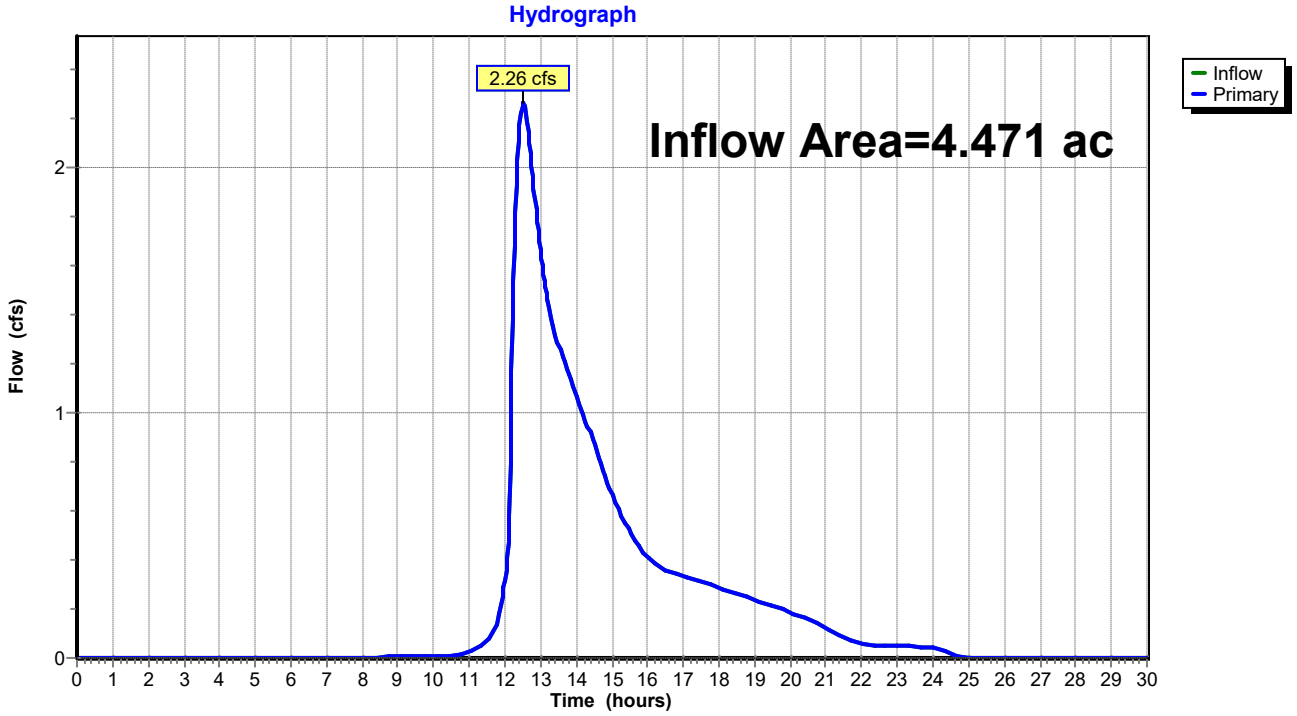
Pond 3P: South Infiltrators



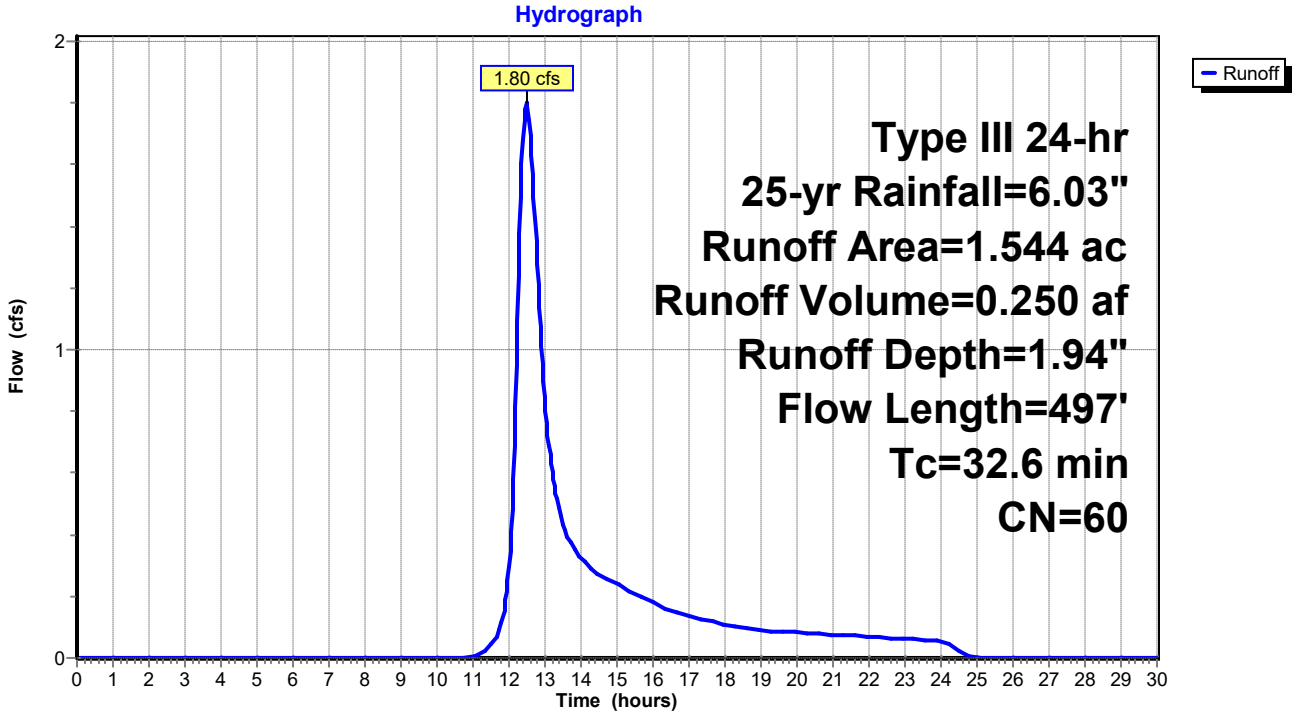
Pond P1: Infiltration Basin



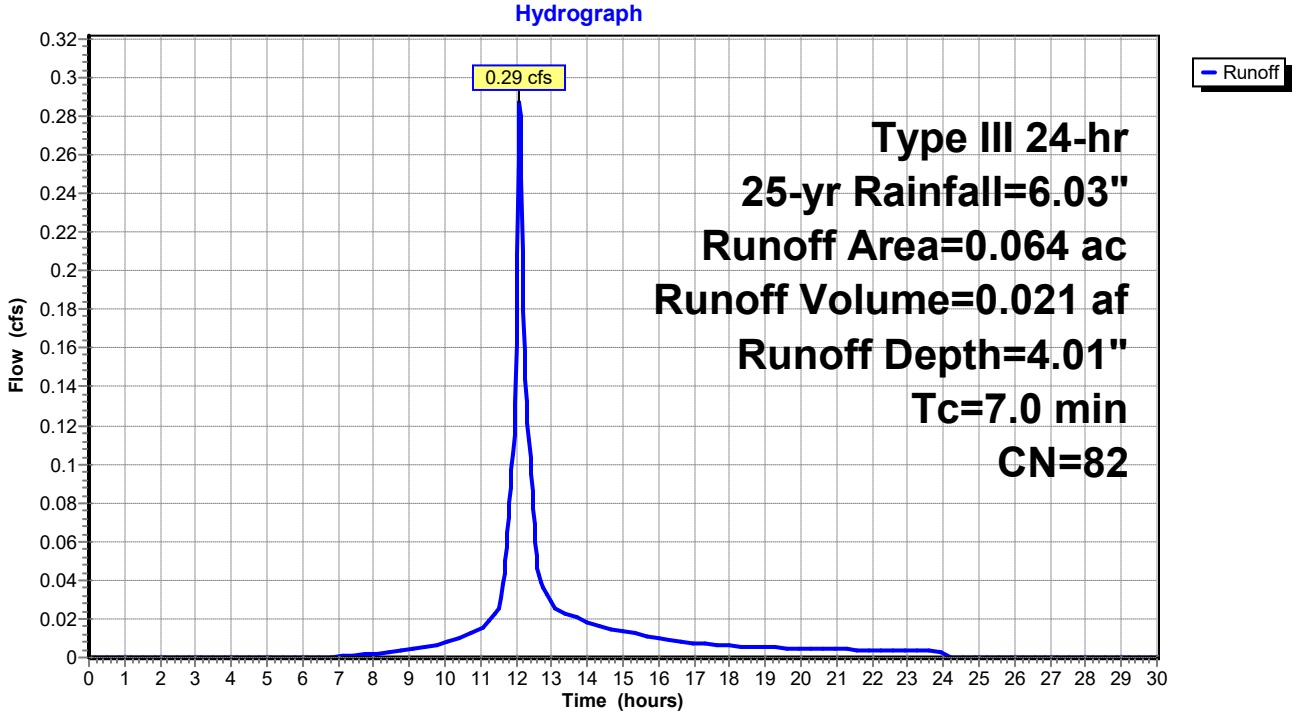
Link L1: DP1 - Proposed Site Conditions



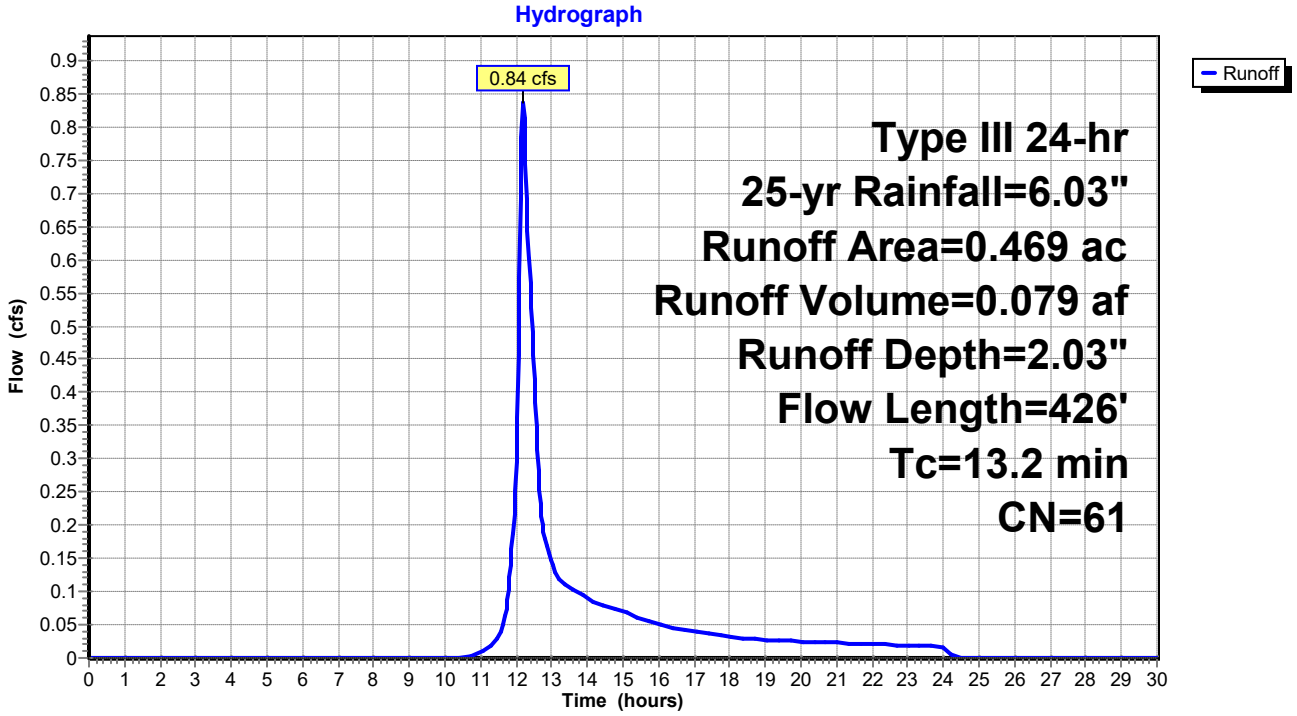
Subcatchment PR1: Overland to DP1



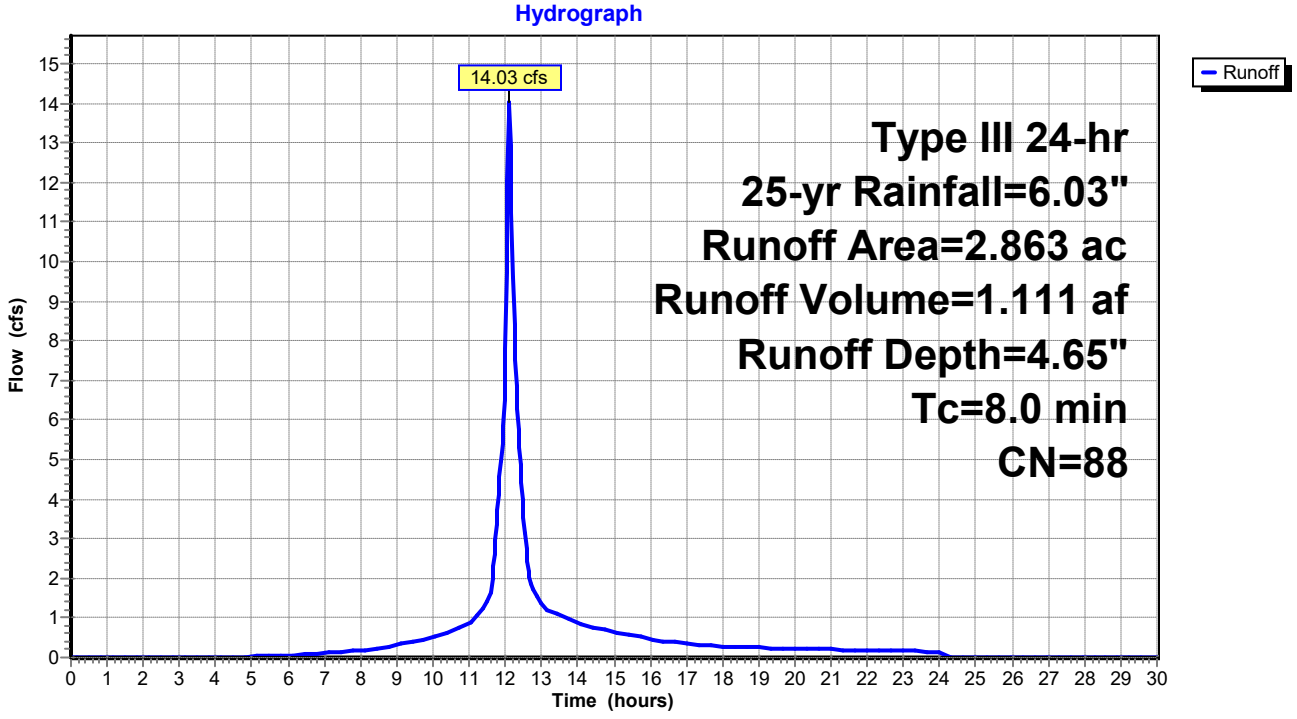
Subcatchment PR1A: CB 6-7



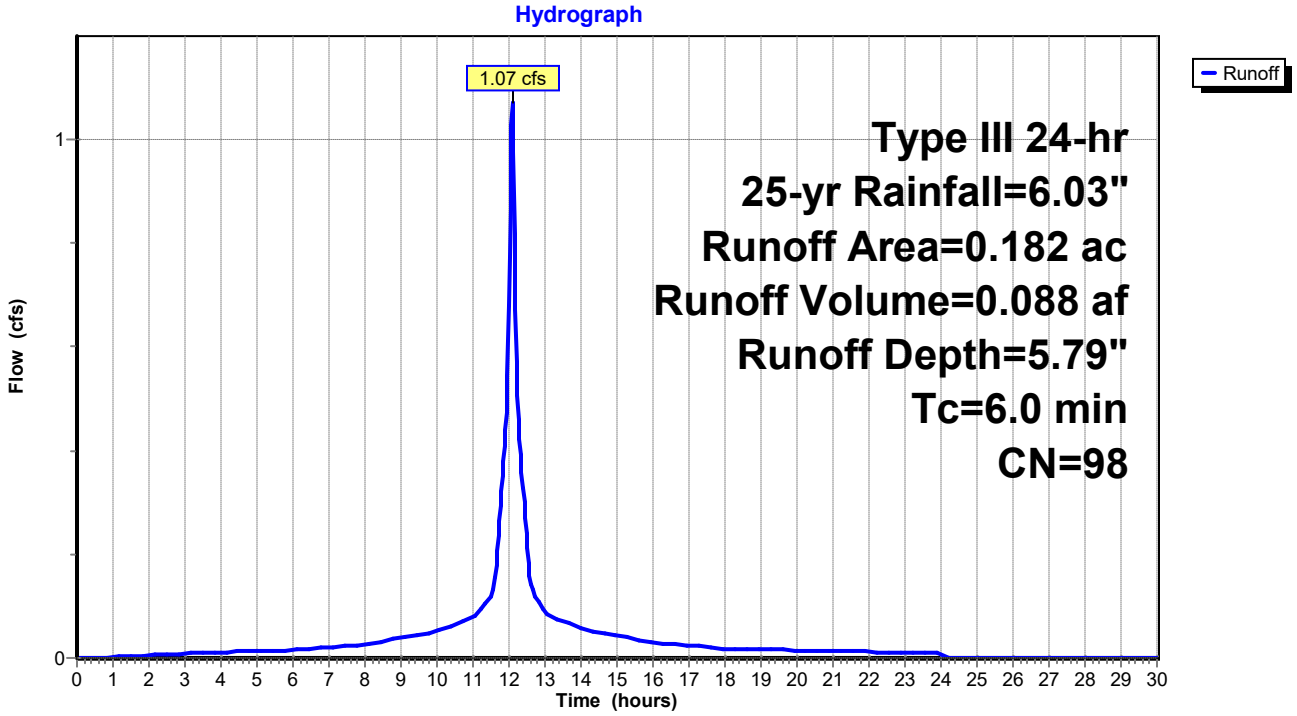
Subcatchment PR2: Overland to DP2



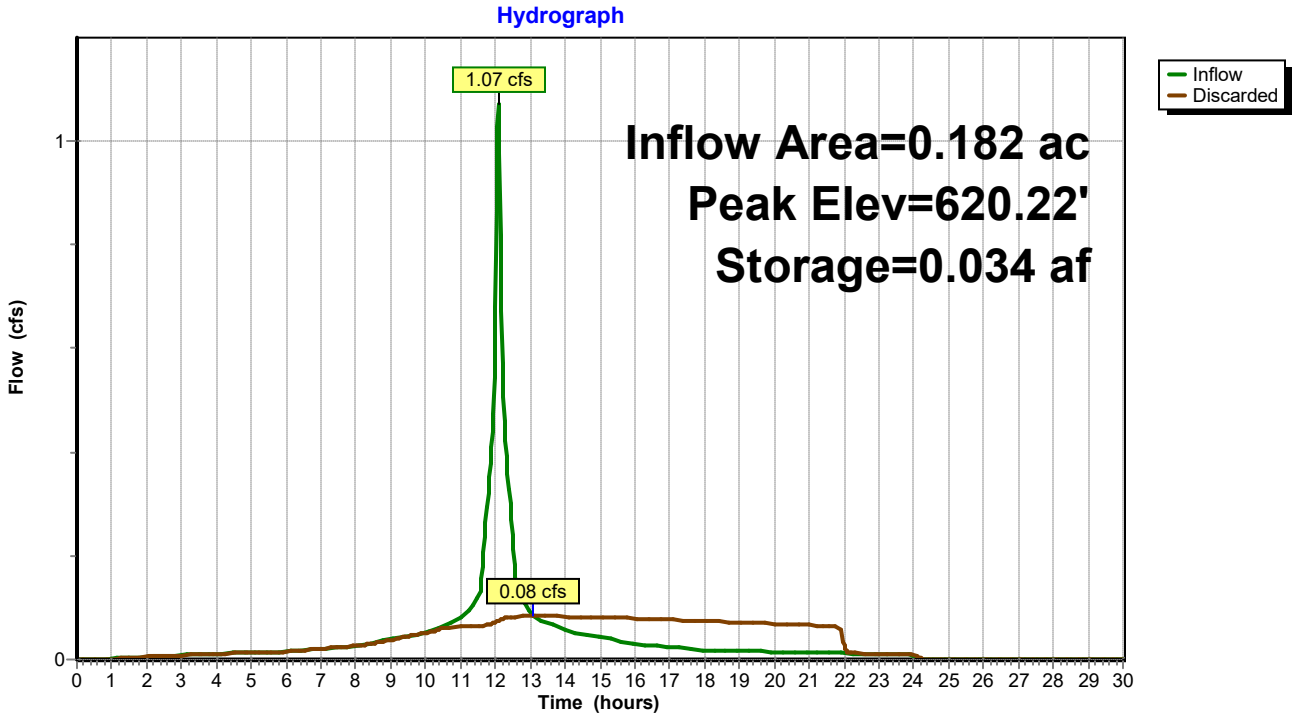
Subcatchment PR3: Proposed Site



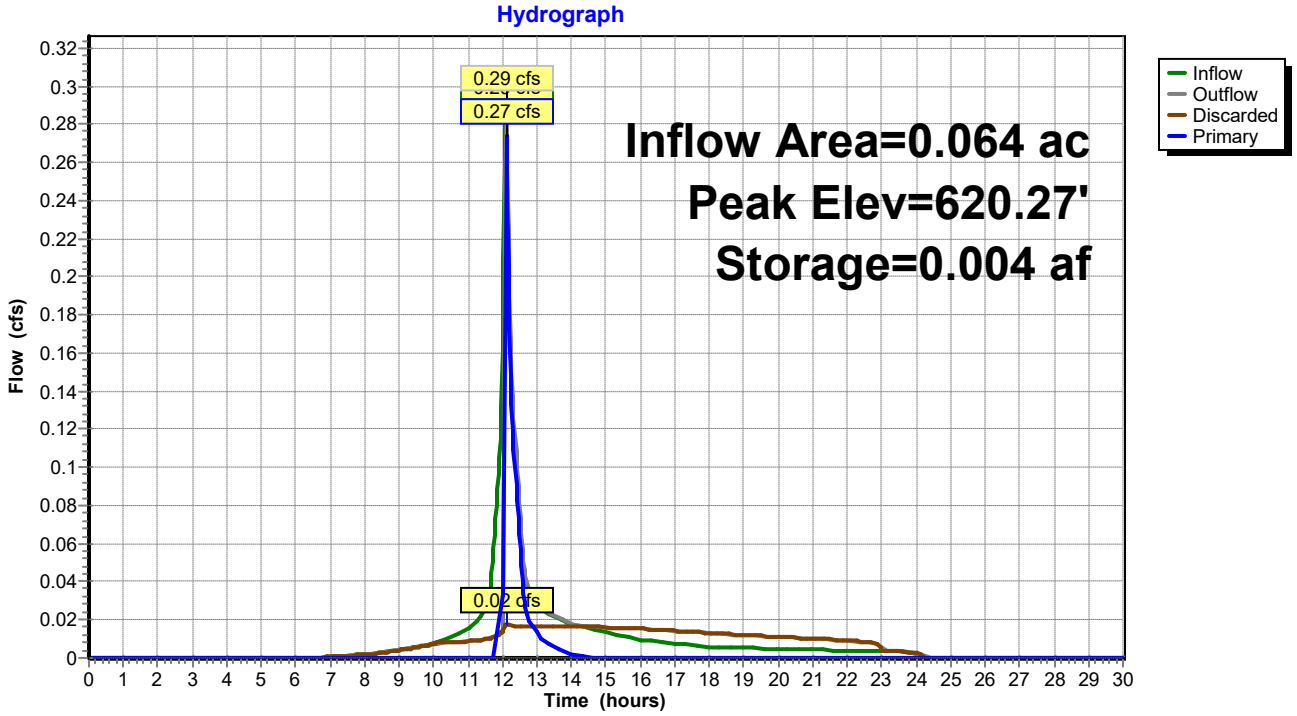
Subcatchment PR4: Building to Infiltration



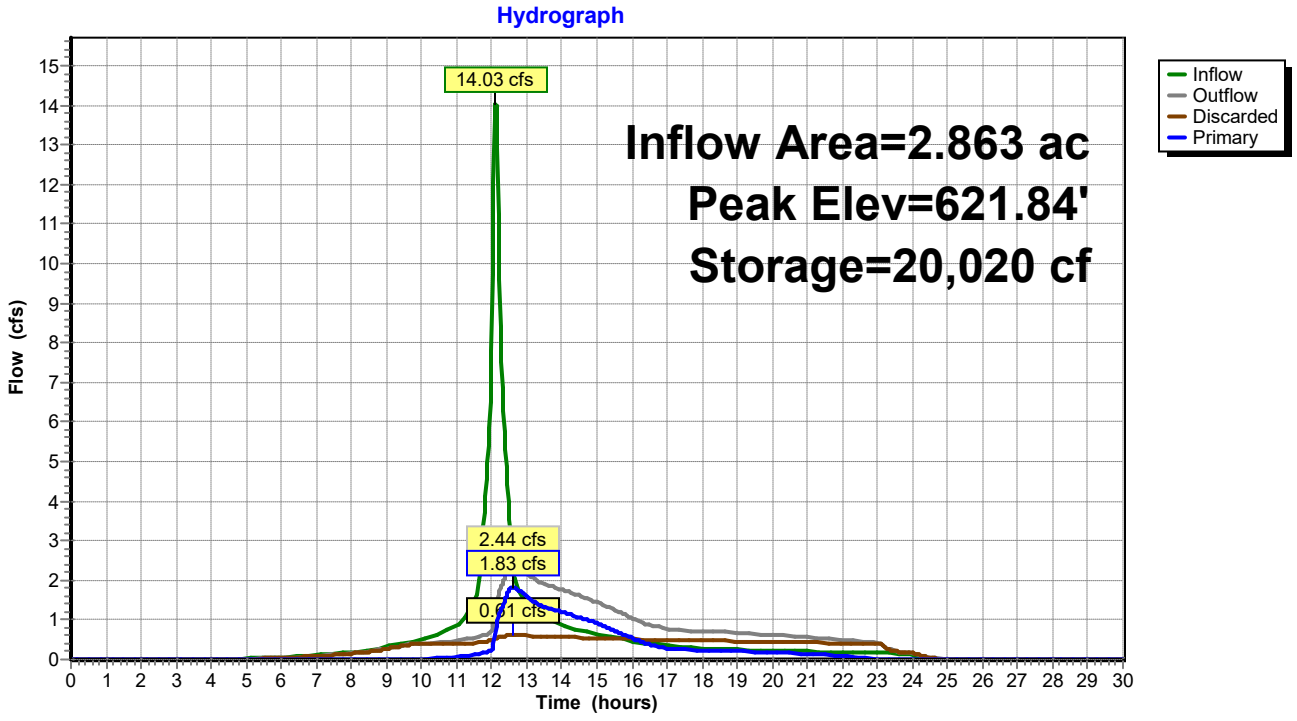
Pond 2P: North Infiltrators



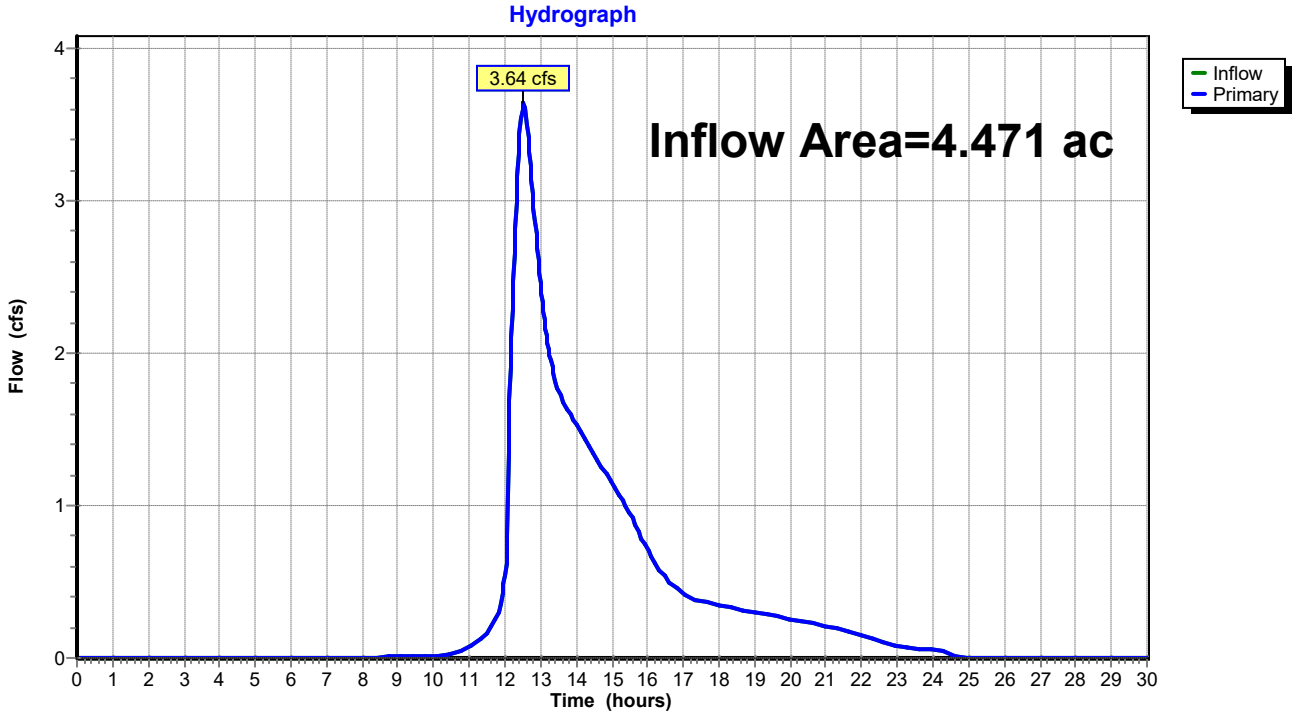
Pond 3P: South Infiltrators



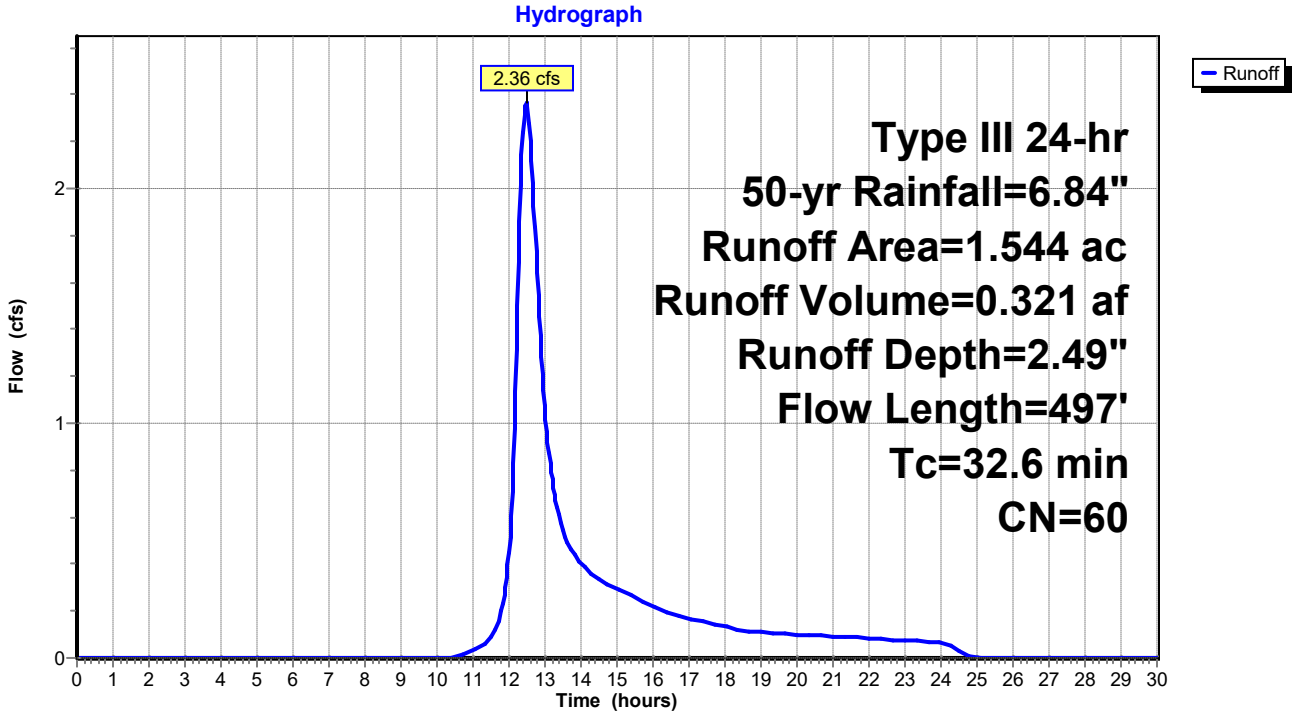
Pond P1: Infiltration Basin



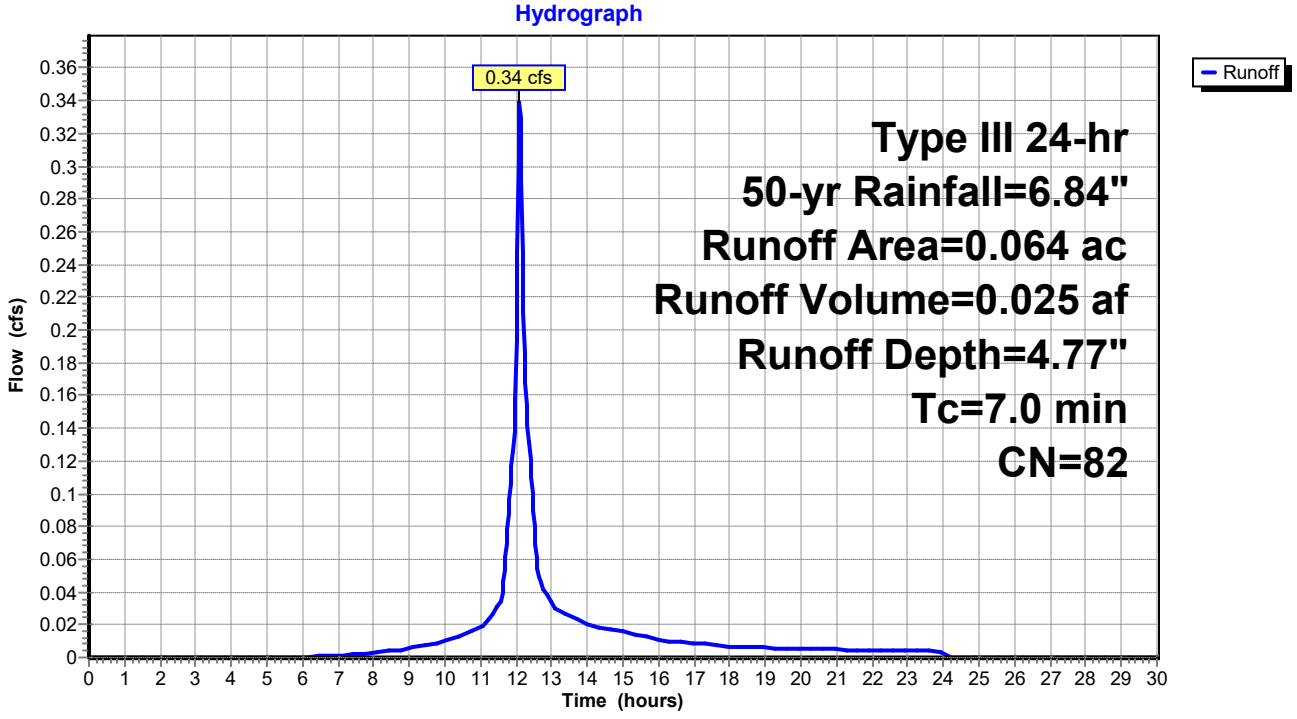
Link L1: DP1 - Proposed Site Conditions



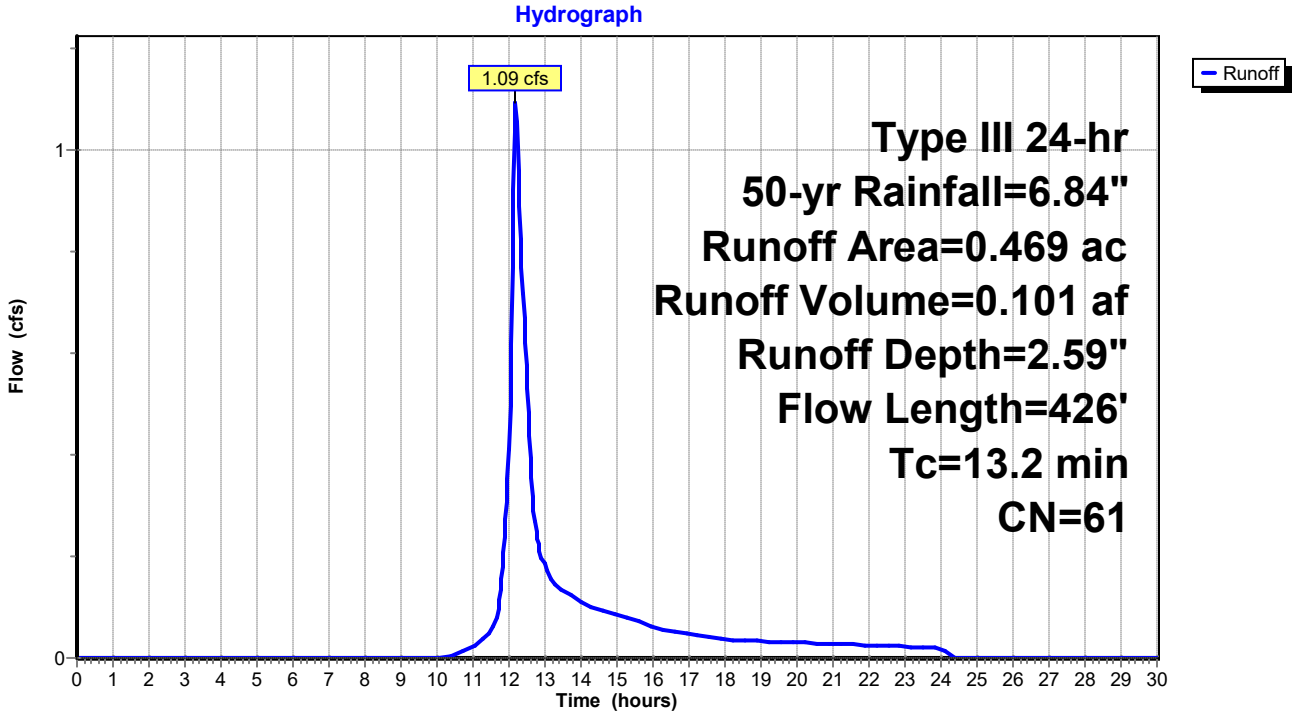
Subcatchment PR1: Overland to DP1



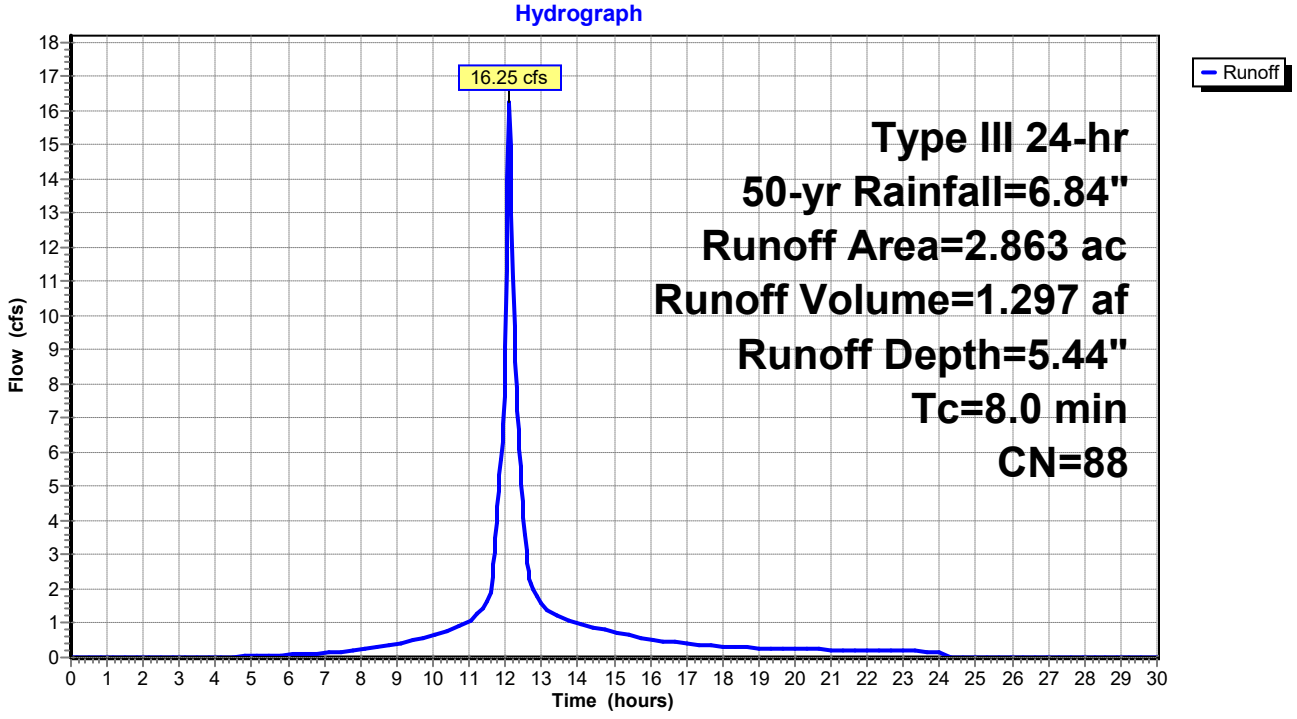
Subcatchment PR1A: CB 6-7



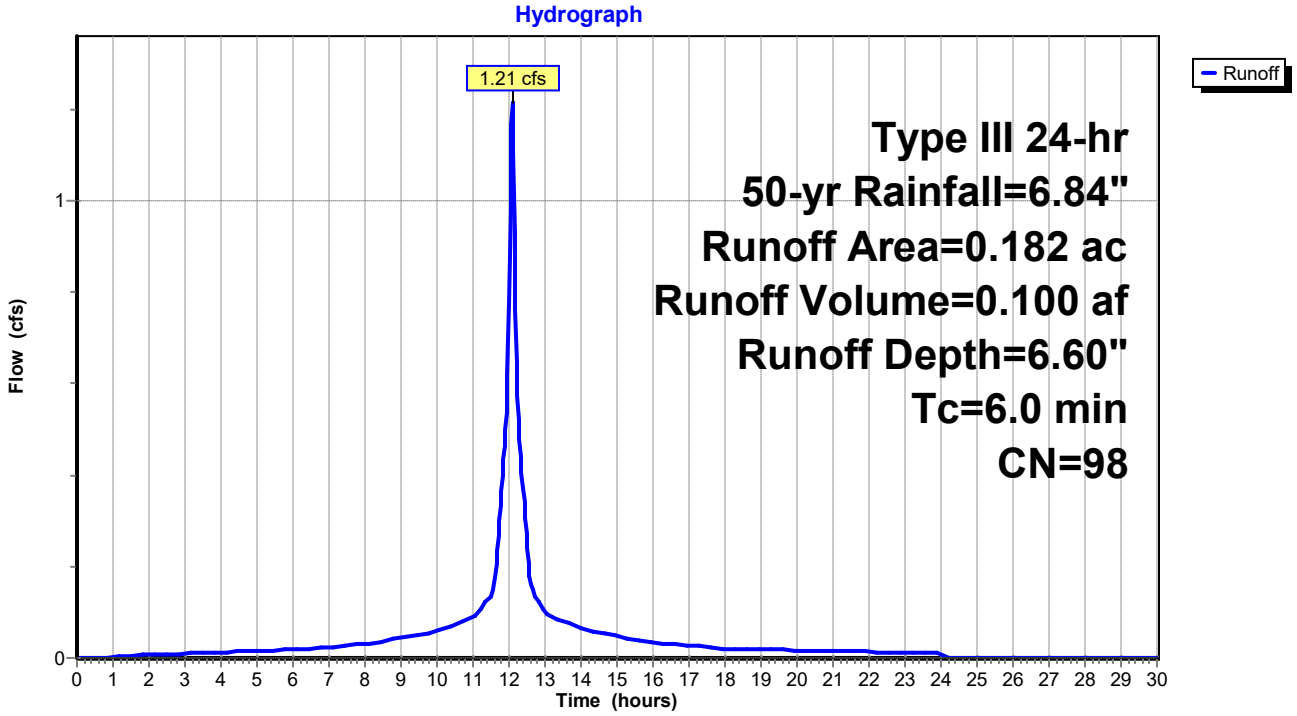
Subcatchment PR2: Overland to DP2



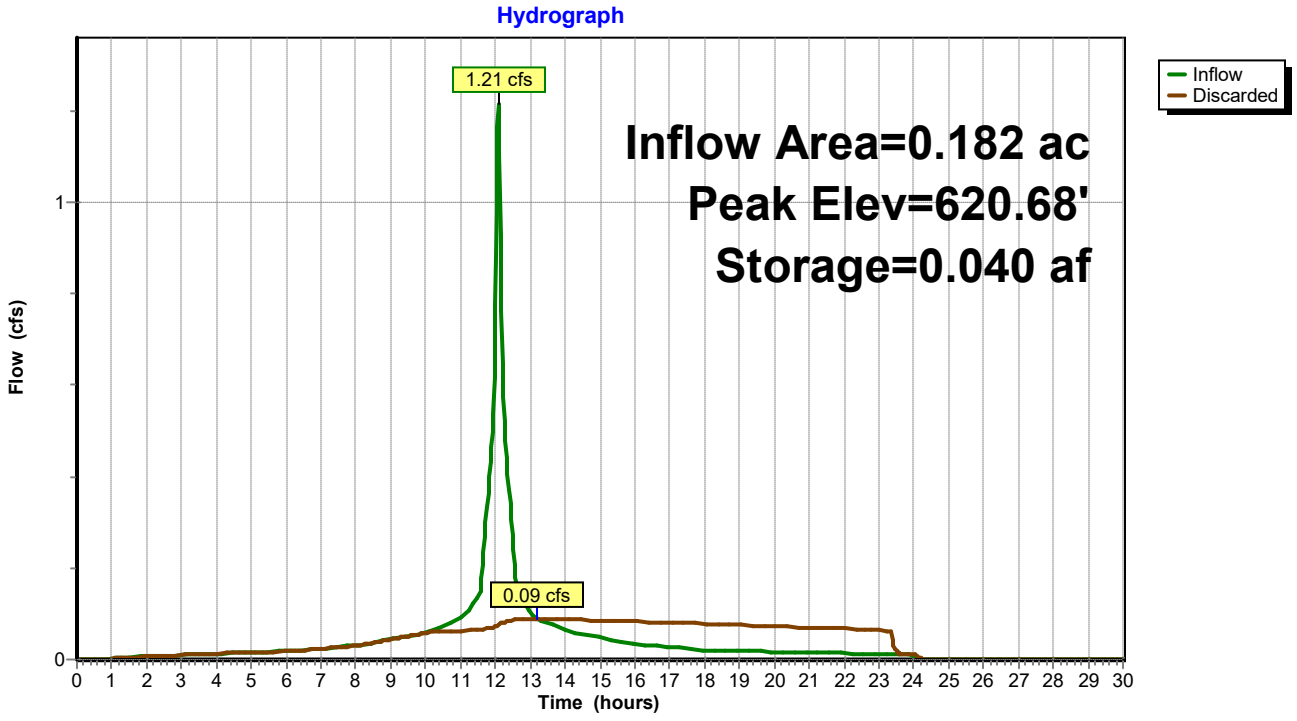
Subcatchment PR3: Proposed Site



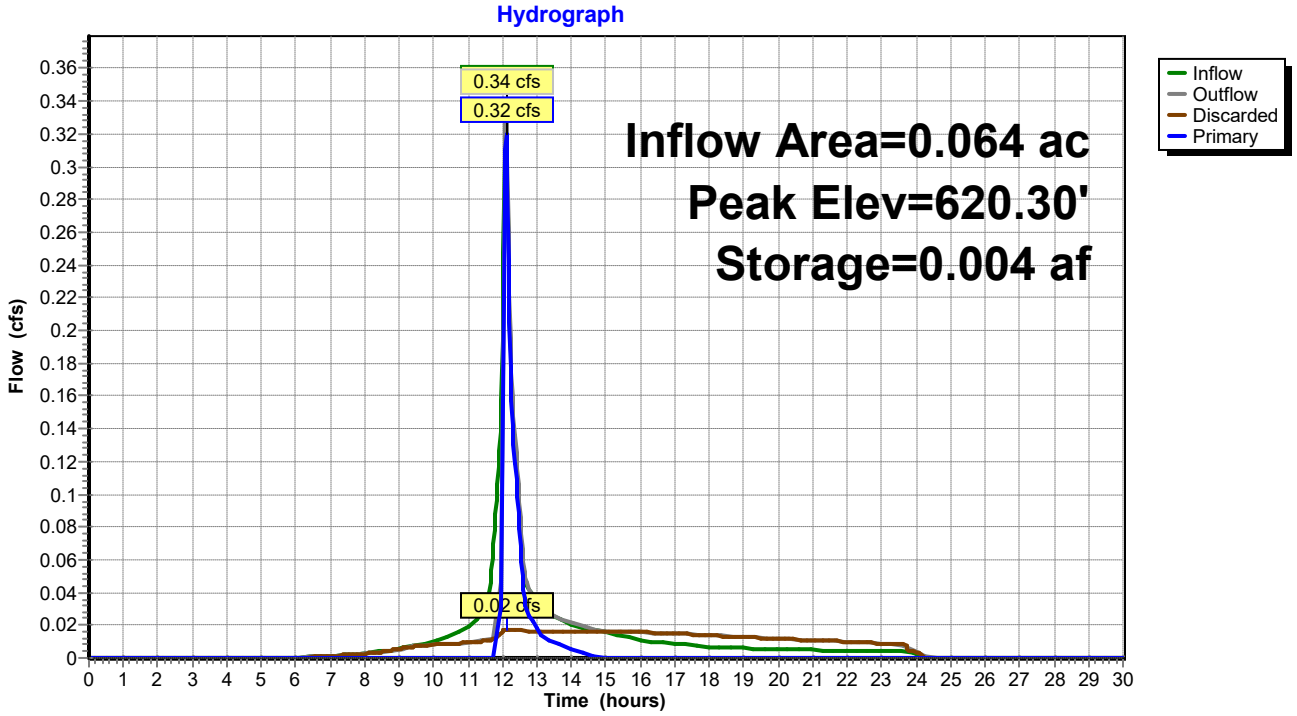
Subcatchment PR4: Building to Infiltration



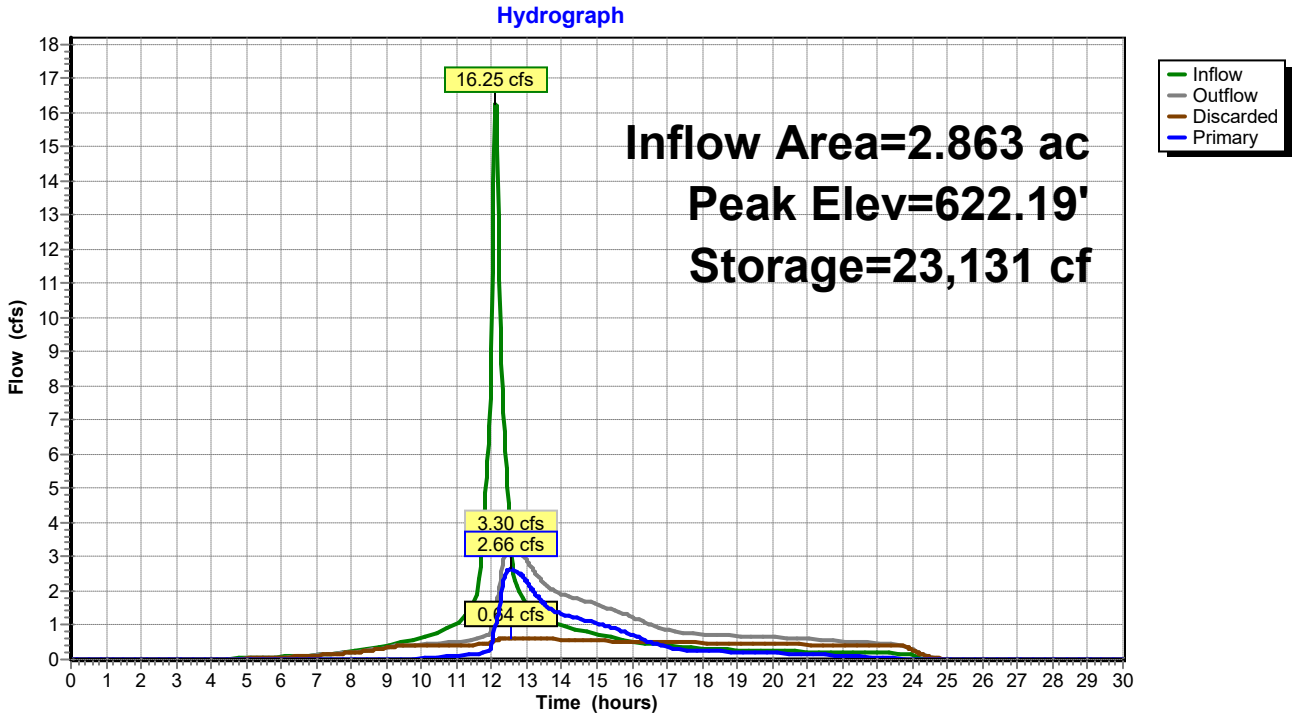
Pond 2P: North Infiltrators



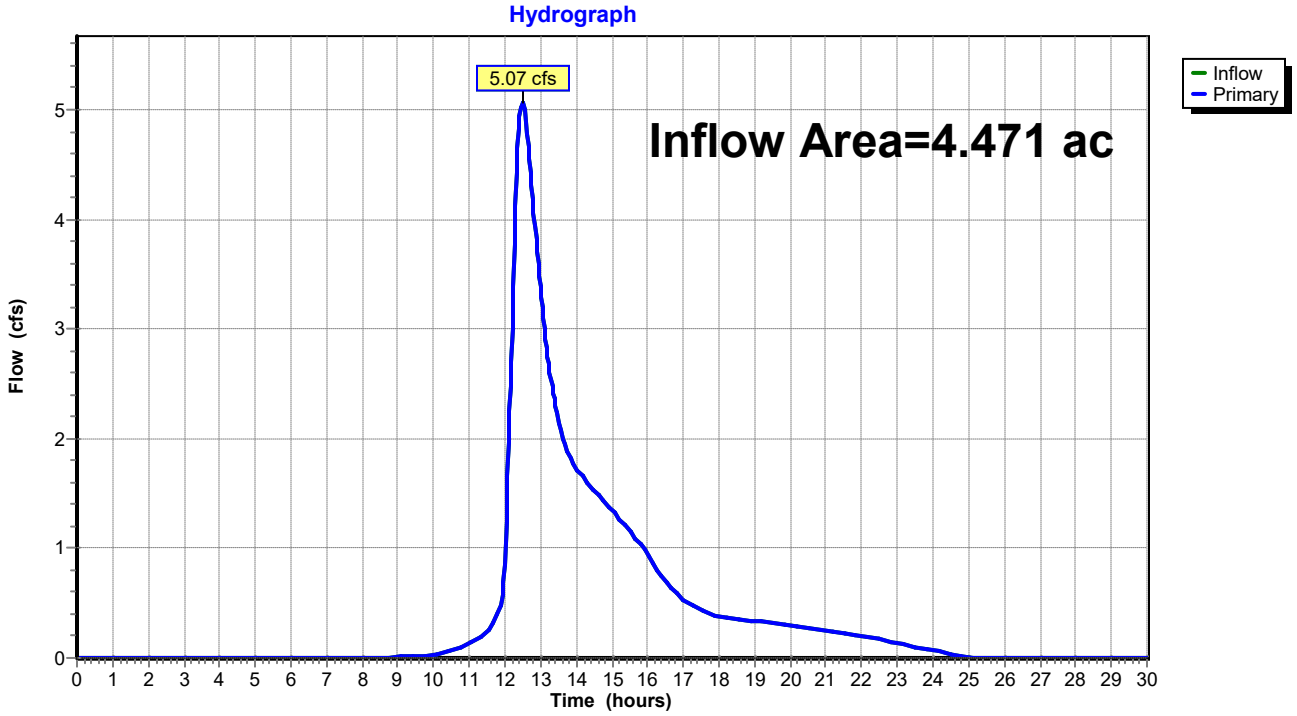
Pond 3P: South Infiltrators



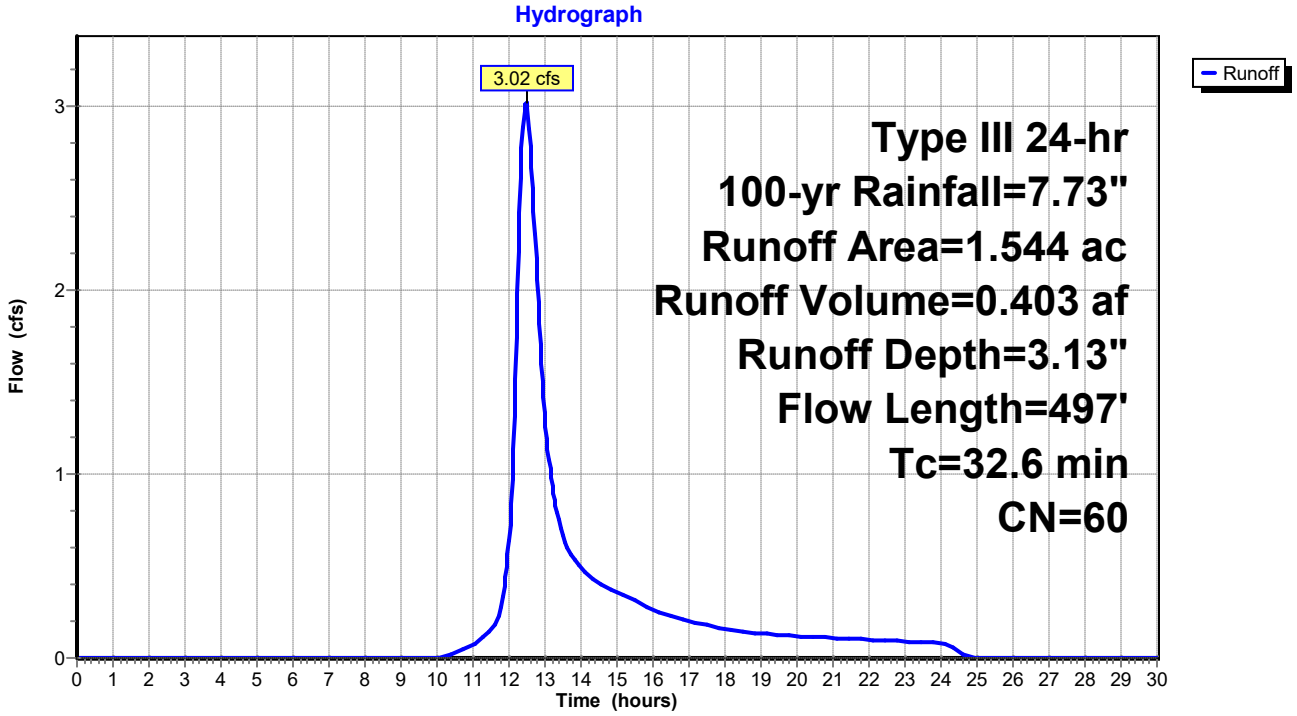
Pond P1: Infiltration Basin



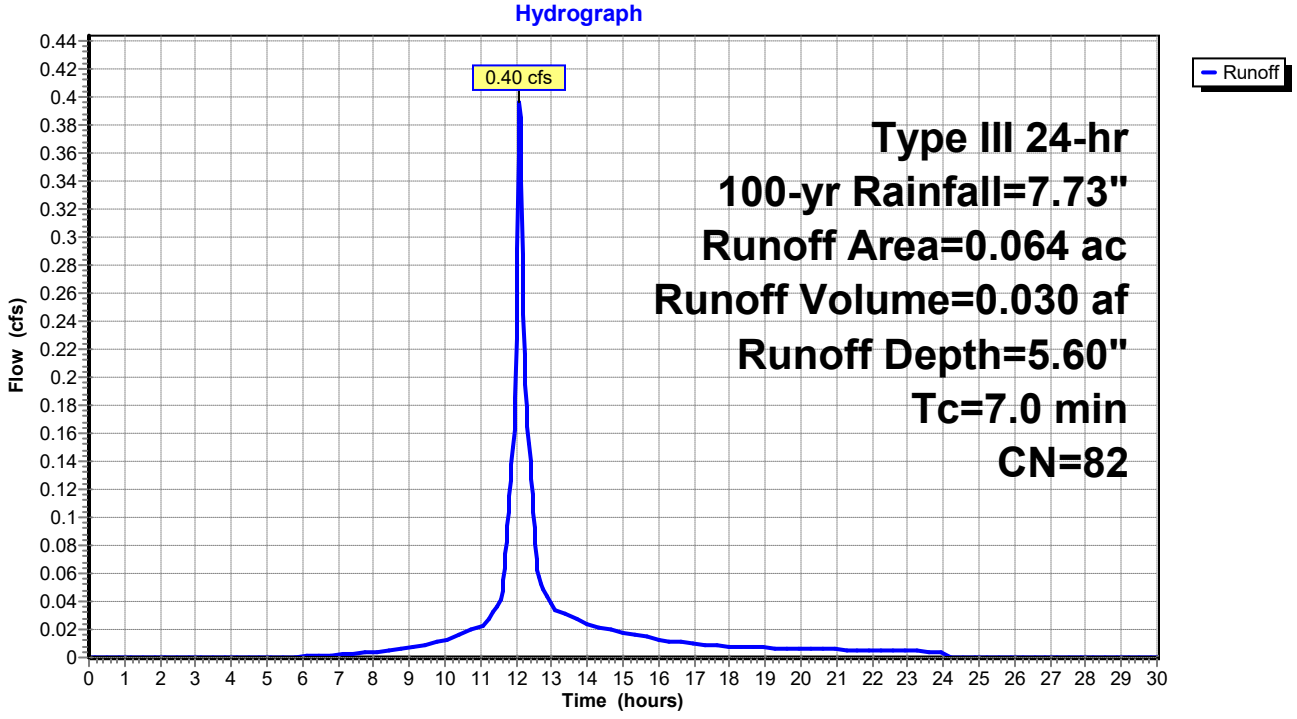
Link L1: DP1 - Proposed Site Conditions



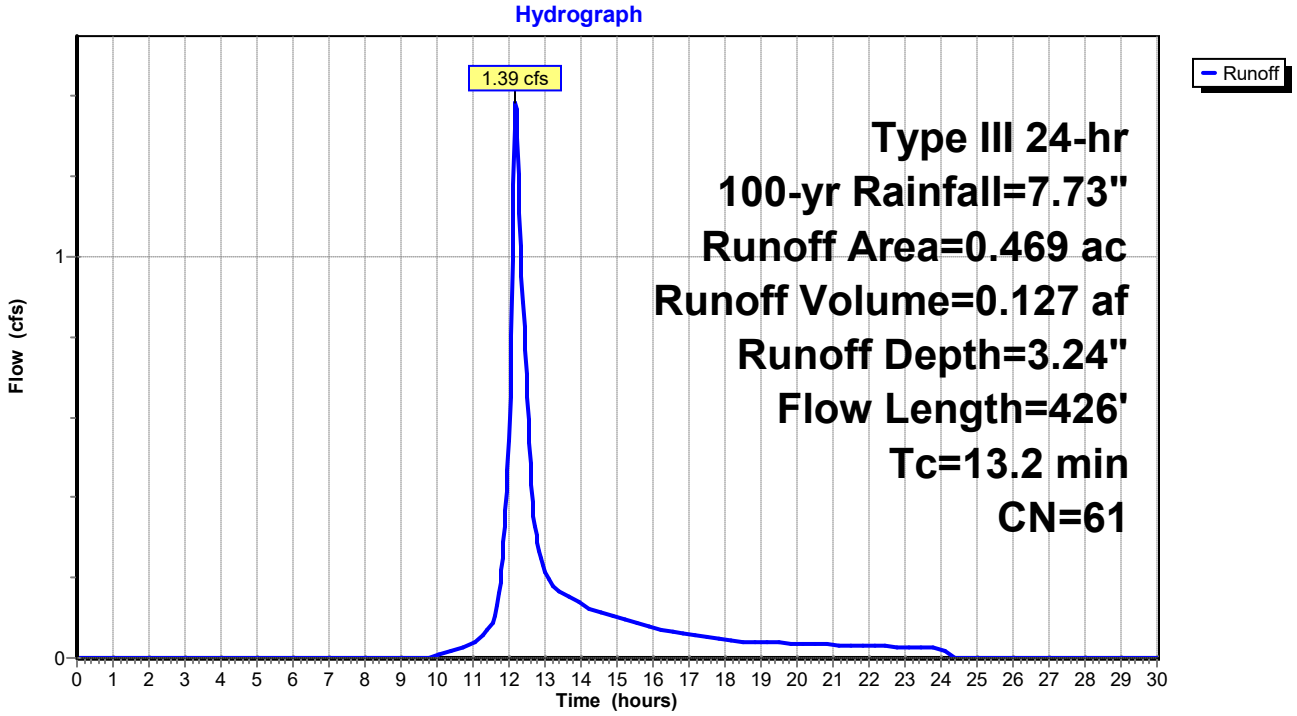
Subcatchment PR1: Overland to DP1



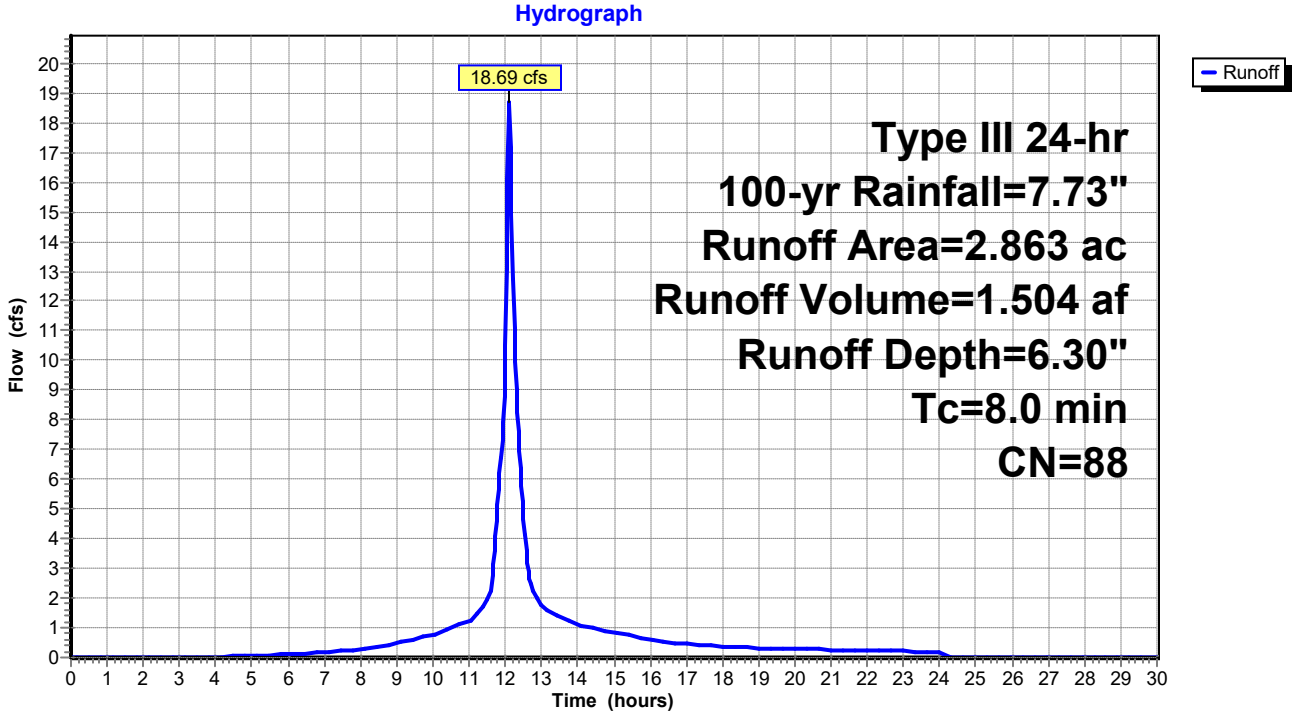
Subcatchment PR1A: CB 6-7



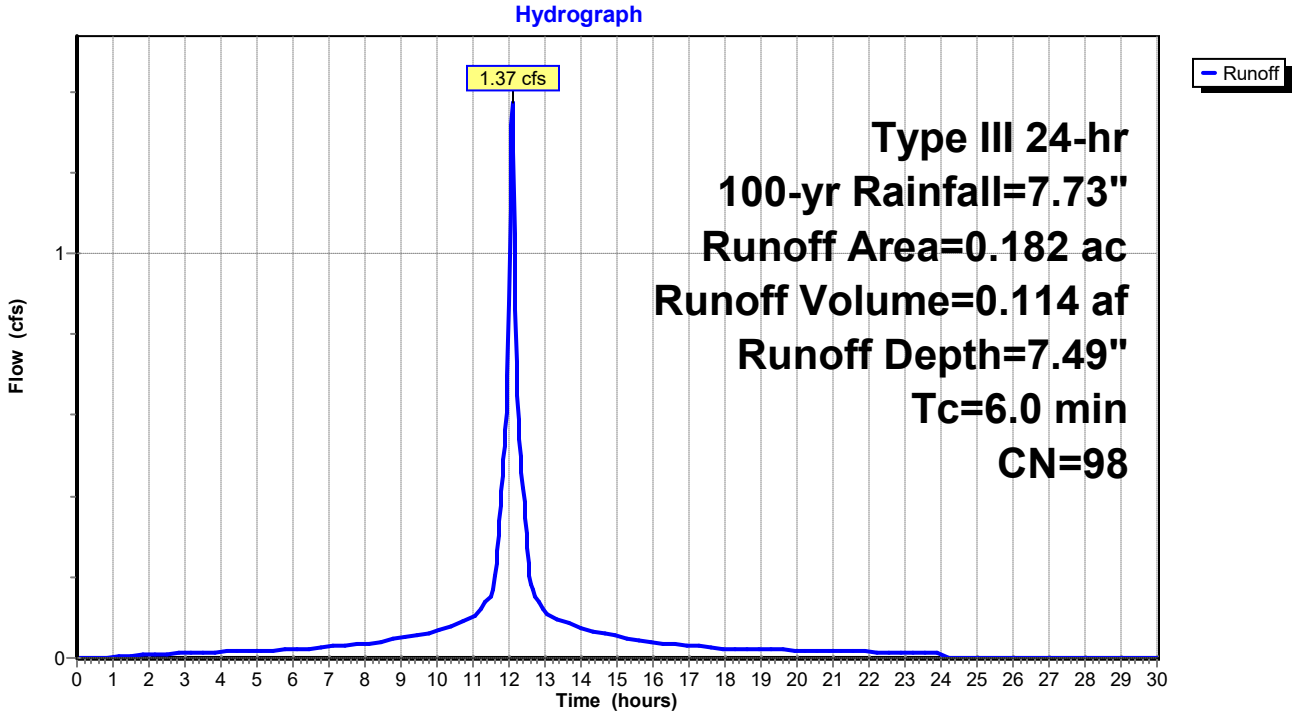
Subcatchment PR2: Overland to DP2



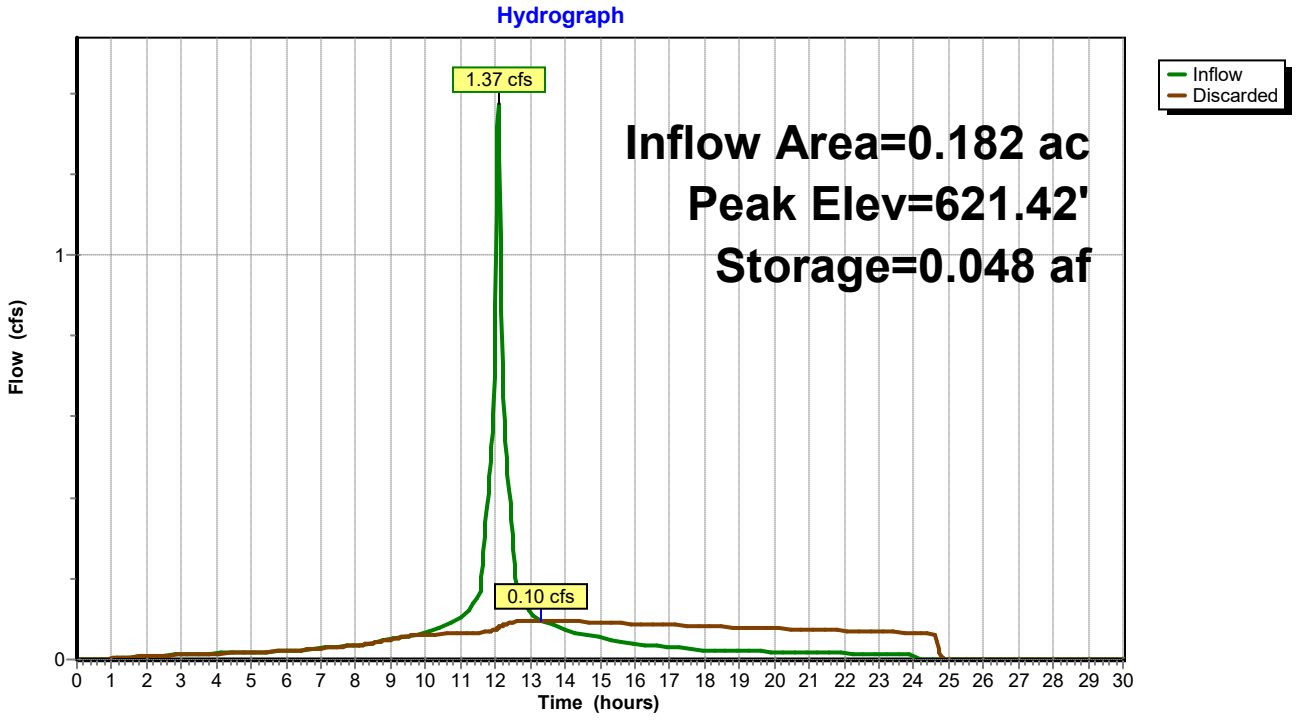
Subcatchment PR3: Proposed Site



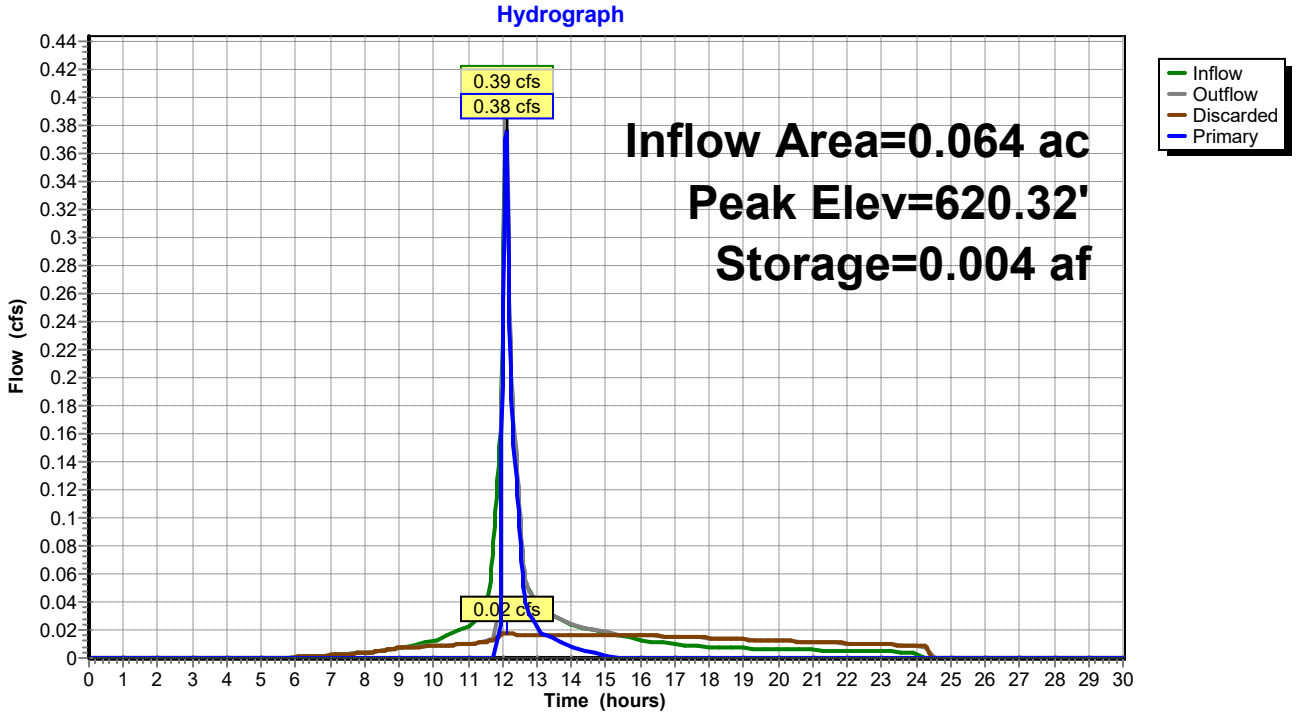
Subcatchment PR4: Building to Infiltration



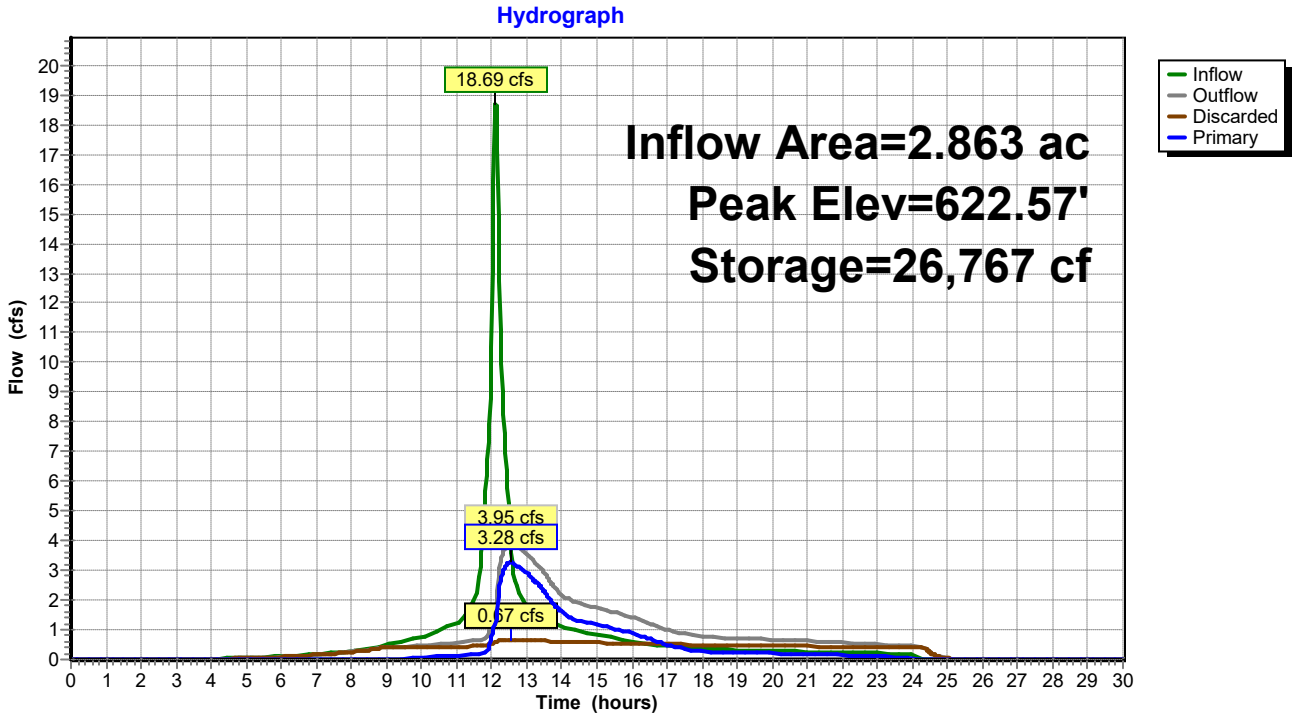
Pond 2P: North Infiltrators



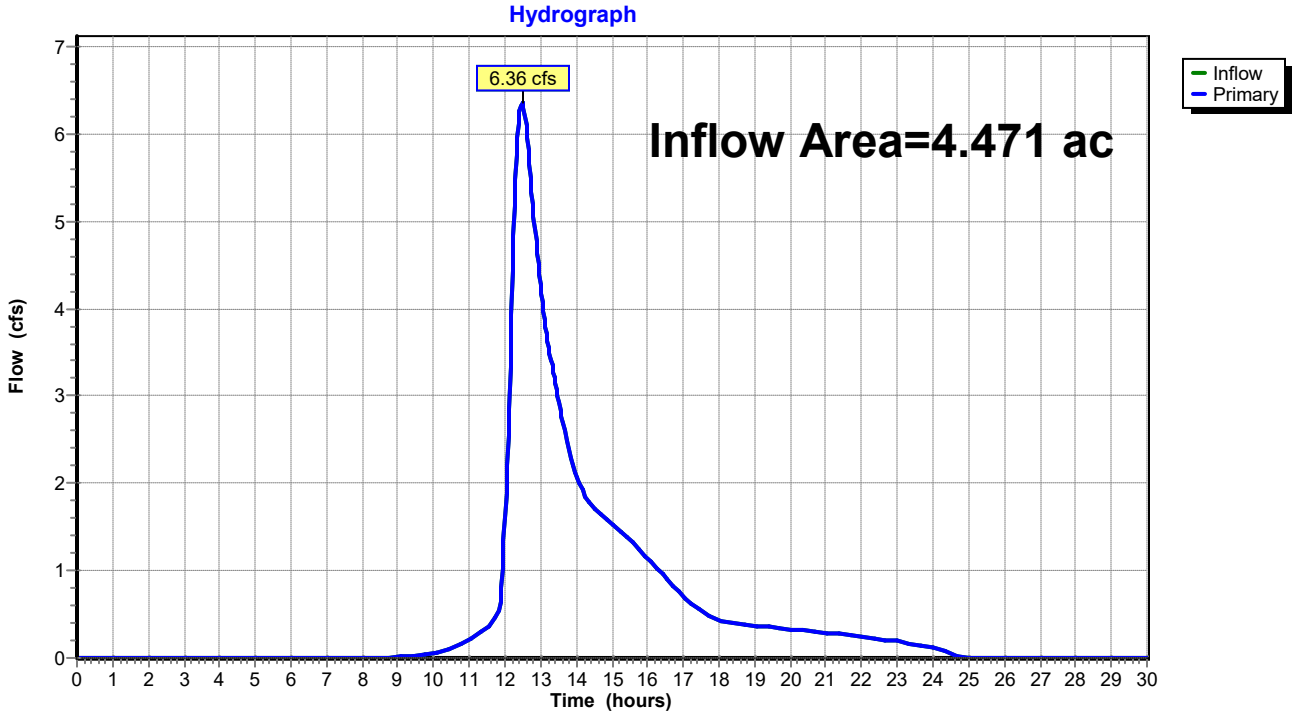
Pond 3P: South Infiltrators



Pond P1: Infiltration Basin



Link L1: DP1 - Proposed Site Conditions



APPENDIX C
NRCS Soil Map & Data

Soil Map—State of Connecticut
(Bolton Vet)

Map Scale: 1:2,010 if printed on A portrait (8.5" x 11") 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 18N 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 1:12,000.

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: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

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

Date(s) aerial images were photographed: Sep 3, 2019—Oct 22, 2019

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
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	2.0	10.6%
305	Udorthents-Pits complex, gravelly	7.0	37.7%
306	Udorthents-Urban land complex	9.6	51.7%
Totals for Area of Interest		**18.6**	**100.0%**

State of Connecticut

305—Udorthents-Pits complex, gravelly

Map Unit Setting

National map unit symbol: 9lmf
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 65 percent
Pits: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Gravelly outwash

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 24 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Pits

Typical profile

C - 0 to 65 inches: very gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Minor Components

Windsor

Percent of map unit: 2 percent
Landform: Terraces, outwash plains, kames
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Merrimac

Percent of map unit: 2 percent
Landform: Terraces, outwash plains, kames
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hinckley

Percent of map unit: 2 percent
Landform: Terraces, outwash plains, kames, eskers
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Gloucester

Percent of map unit: 2 percent
Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sudbury

Percent of map unit: 1 percent
Landform: Terraces, outwash plains
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ninigret

Percent of map unit: 1 percent
Landform: Terraces, outwash plains
Down-slope shape: Linear
Across-slope shape: Concave

Hydric soil rating: No

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

State of Connecticut

306—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lmg
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 50 percent
Urban land: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Drift

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 8 percent
Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

APPENDIX D
Precipitation Frequency

NOAA Atlas 14, Volume 10, Version 3
Location name: Bolton, Connecticut, USA*
Latitude: 41.7843°, Longitude: -72.4607°
Elevation: 630.43 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**3.96** (3.05-5.15)	**4.82** (3.71-6.26)	**6.23** (4.76-8.11)	**7.39** (5.63-9.68)	**8.99** (6.65-12.3)	**10.2** (7.40-14.2)	**11.5** (8.10-16.6)	**12.9** (8.65-19.1)	**15.0** (9.70-22.9)	**16.7** (10.6-26.0)
10-min	**2.81** (2.16-3.64)	**3.41** (2.62-4.44)	**4.41** (3.38-5.75)	**5.24** (3.98-6.86)	**6.37** (4.71-8.72)	**7.22** (5.24-10.1)	**8.12** (5.74-11.8)	**9.13** (6.13-13.5)	**10.6** (6.86-16.2)	**11.8** (7.48-18.4)
15-min	**2.20** (1.69-2.86)	**2.68** (2.06-3.48)	**3.46** (2.65-4.51)	**4.10** (3.13-5.38)	**5.00** (3.70-6.84)	**5.66** (4.11-7.92)	**6.37** (4.50-9.23)	**7.16** (4.81-10.6)	**8.32** (5.38-12.7)	**9.27** (5.86-14.4)
30-min	**1.49** (1.15-1.93)	**1.81** (1.39-2.36)	**2.34** (1.79-3.05)	**2.78** (2.12-3.64)	**3.38** (2.50-4.63)	**3.84** (2.78-5.36)	**4.31** (3.05-6.25)	**4.85** (3.25-7.17)	**5.63** (3.65-8.61)	**6.28** (3.97-9.78)
60-min	**0.940** (0.722-1.22)	**1.14** (0.878-1.49)	**1.48** (1.13-1.92)	**1.75** (1.33-2.30)	**2.13** (1.58-2.92)	**2.42** (1.76-3.38)	**2.72** (1.92-3.94)	**3.06** (2.05-4.53)	**3.55** (2.30-5.43)	**3.96** (2.51-6.17)
2-hr	**0.606** (0.468-0.782)	**0.733** (0.566-0.948)	**0.941** (0.724-1.22)	**1.11** (0.852-1.45)	**1.35** (1.01-1.85)	**1.53** (1.12-2.13)	**1.72** (1.23-2.50)	**1.95** (1.31-2.86)	**2.29** (1.49-3.48)	**2.58** (1.64-4.00)
3-hr	**0.466** (0.361-0.599)	**0.562** (0.435-0.725)	**0.720** (0.556-0.932)	**0.851** (0.653-1.11)	**1.03** (0.772-1.41)	**1.17** (0.856-1.63)	**1.31** (0.942-1.91)	**1.49** (1.00-2.18)	**1.76** (1.15-2.67)	**2.00** (1.27-3.08)
6-hr	**0.295** (0.230-0.378)	**0.356** (0.277-0.457)	**0.457** (0.354-0.588)	**0.541** (0.417-0.699)	**0.655** (0.492-0.890)	**0.740** (0.546-1.03)	**0.833** (0.602-1.21)	**0.948** (0.641-1.38)	**1.13** (0.734-1.69)	**1.28** (0.817-1.96)
12-hr	**0.181** (0.142-0.231)	**0.220** (0.172-0.281)	**0.284** (0.221-0.364)	**0.337** (0.261-0.434)	**0.410** (0.309-0.553)	**0.464** (0.344-0.640)	**0.522** (0.379-0.751)	**0.595** (0.403-0.860)	**0.706** (0.462-1.06)	**0.802** (0.513-1.22)
24-hr	**0.107** (0.084-0.136)	**0.132** (0.104-0.167)	**0.172** (0.135-0.219)	**0.205** (0.160-0.263)	**0.251** (0.191-0.338)	**0.285** (0.212-0.392)	**0.322** (0.235-0.462)	**0.368** (0.251-0.530)	**0.440** (0.289-0.654)	**0.503** (0.323-0.760)
2-day	**0.060** (0.048-0.076)	**0.075** (0.059-0.095)	**0.100** (0.078-0.127)	**0.120** (0.094-0.153)	**0.148** (0.113-0.198)	**0.168** (0.126-0.231)	**0.191** (0.141-0.274)	**0.220** (0.150-0.315)	**0.267** (0.176-0.394)	**0.309** (0.199-0.463)
3-day	**0.044** (0.035-0.055)	**0.055** (0.043-0.069)	**0.073** (0.057-0.092)	**0.087** (0.069-0.111)	**0.108** (0.083-0.144)	**0.123** (0.092-0.168)	**0.139** (0.103-0.200)	**0.161** (0.110-0.229)	**0.196** (0.129-0.288)	**0.227** (0.146-0.339)
4-day	**0.035** (0.028-0.044)	**0.044** (0.035-0.055)	**0.058** (0.046-0.073)	**0.070** (0.055-0.089)	**0.086** (0.066-0.115)	**0.098** (0.074-0.134)	**0.111** (0.083-0.159)	**0.129** (0.088-0.183)	**0.157** (0.103-0.230)	**0.181** (0.117-0.270)
7-day	**0.024** (0.019-0.030)	**0.029** (0.023-0.037)	**0.039** (0.031-0.048)	**0.046** (0.036-0.058)	**0.057** (0.044-0.075)	**0.064** (0.049-0.087)	**0.073** (0.054-0.103)	**0.084** (0.057-0.118)	**0.101** (0.067-0.147)	**0.116** (0.075-0.172)
10-day	**0.019** (0.015-0.024)	**0.023** (0.019-0.029)	**0.030** (0.024-0.038)	**0.036** (0.028-0.045)	**0.044** (0.034-0.058)	**0.049** (0.037-0.067)	**0.056** (0.041-0.078)	**0.063** (0.044-0.089)	**0.076** (0.050-0.110)	**0.087** (0.056-0.128)
20-day	**0.014** (0.011-0.017)	**0.016** (0.013-0.020)	**0.020** (0.016-0.025)	**0.023** (0.018-0.028)	**0.027** (0.021-0.035)	**0.030** (0.023-0.040)	**0.033** (0.024-0.046)	**0.037** (0.026-0.052)	**0.043** (0.028-0.061)	**0.047** (0.031-0.069)
30-day	**0.012** (0.009-0.014)	**0.013** (0.011-0.016)	**0.016** (0.012-0.019)	**0.018** (0.014-0.022)	**0.020** (0.016-0.026)	**0.023** (0.017-0.030)	**0.025** (0.018-0.034)	**0.027** (0.019-0.038)	**0.031** (0.020-0.044)	**0.033** (0.022-0.048)
45-day	**0.010** (0.008-0.012)	**0.011** (0.009-0.013)	**0.012** (0.010-0.015)	**0.014** (0.011-0.017)	**0.016** (0.012-0.020)	**0.017** (0.013-0.023)	**0.019** (0.014-0.025)	**0.020** (0.014-0.028)	**0.022** (0.015-0.032)	**0.024** (0.015-0.034)
60-day	**0.009** (0.007-0.011)	**0.009** (0.008-0.012)	**0.011** (0.009-0.013)	**0.012** (0.009-0.015)	**0.013** (0.010-0.017)	**0.014** (0.011-0.019)	**0.016** (0.011-0.021)	**0.017** (0.012-0.023)	**0.018** (0.012-0.025)	**0.019** (0.012-0.027)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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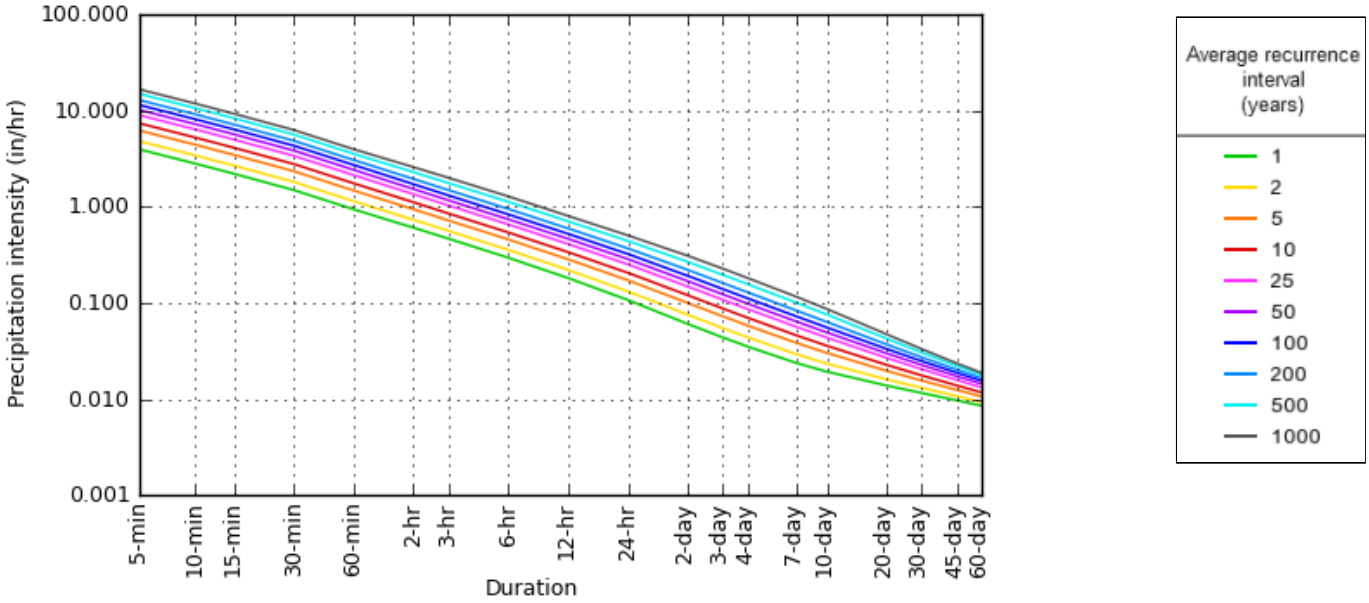
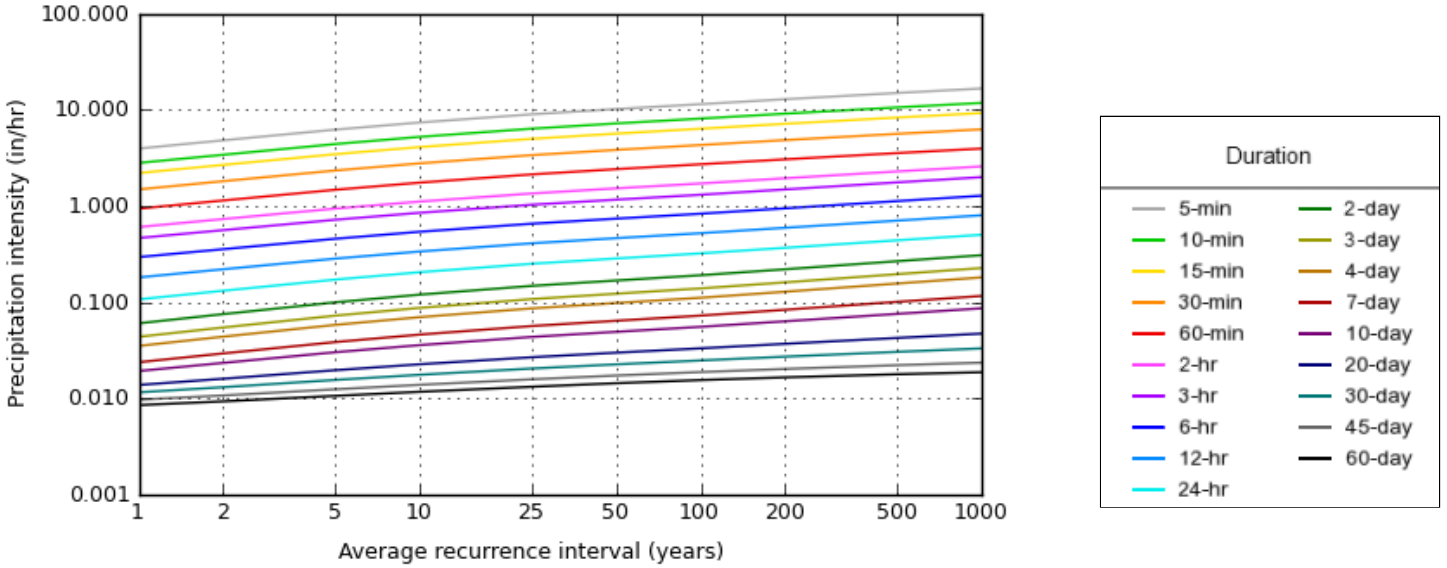
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 41.7843°, Longitude: -72.4607°





NOAA Atlas 14, Volume 10, Version 3 Created (GMT): Tue Nov 30 19:19:36 2021

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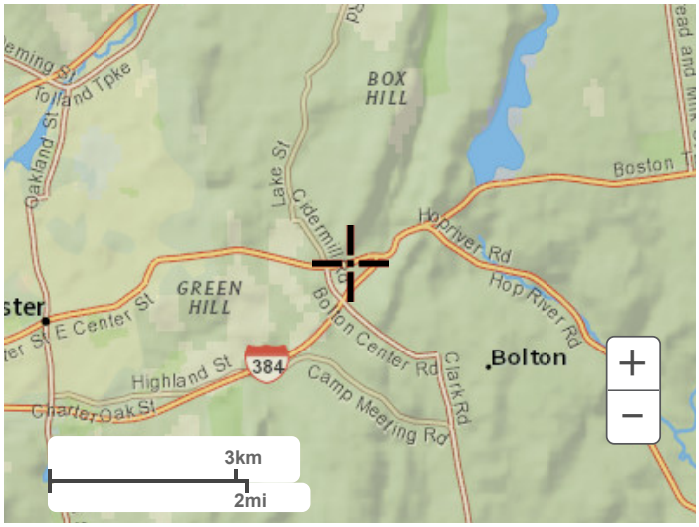
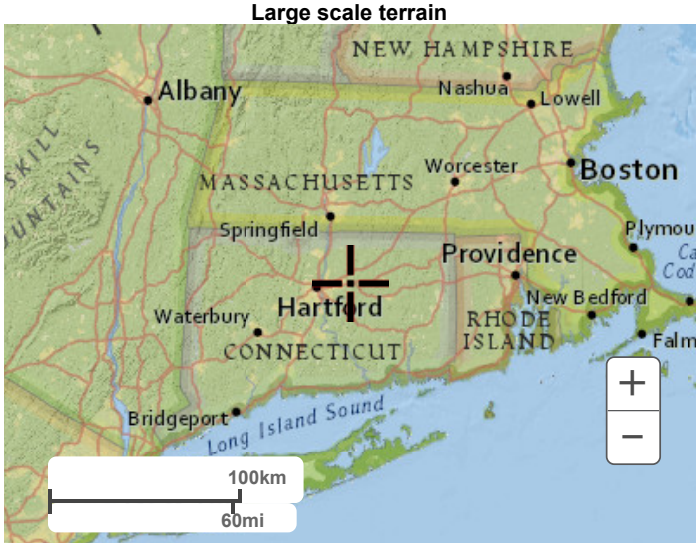
Maps & aerials

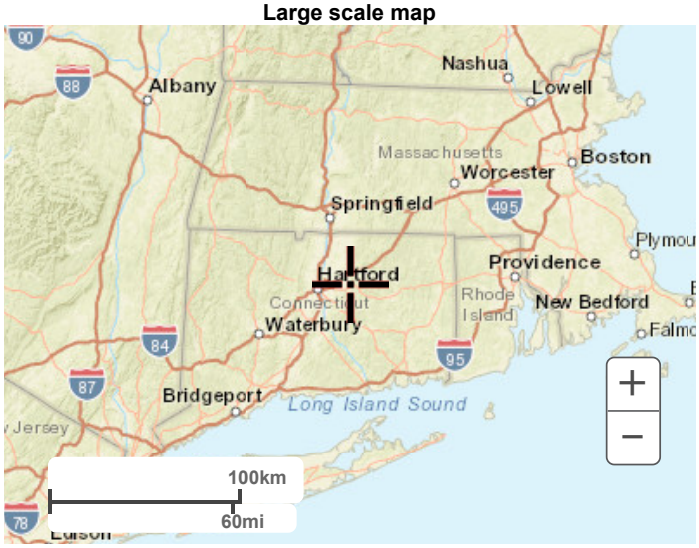
Small scale terrain



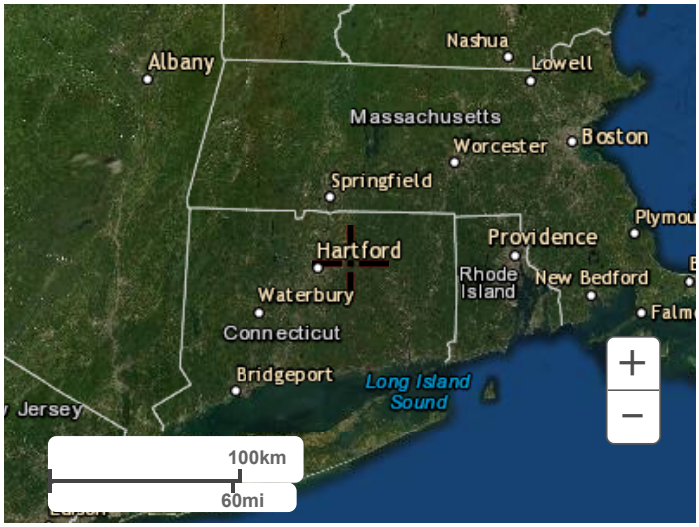
Large scale terrain



Large scale map



Large scale aerial



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National Weather Service
National Water Center
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Questions?: HDSC.Questions@noaa.gov

Disclaimer

NOAA Atlas 14, Volume 10, Version 3
Location name: Bolton, Connecticut, USA*
Latitude: 41.7843°, Longitude: -72.4607°
Elevation: 630.43 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.330** (0.254-0.429)	**0.402** (0.309-0.522)	**0.519** (0.397-0.676)	**0.616** (0.469-0.807)	**0.749** (0.554-1.03)	**0.849** (0.617-1.19)	**0.955** (0.675-1.39)	**1.08** (0.721-1.59)	**1.25** (0.808-1.91)	**1.39** (0.880-2.17)
10-min	**0.468** (0.360-0.607)	**0.569** (0.437-0.740)	**0.735** (0.563-0.958)	**0.873** (0.664-1.14)	**1.06** (0.785-1.45)	**1.20** (0.873-1.68)	**1.35** (0.957-1.96)	**1.52** (1.02-2.25)	**1.77** (1.14-2.70)	**1.97** (1.25-3.07)
15-min	**0.551** (0.423-0.715)	**0.670** (0.514-0.870)	**0.865** (0.662-1.13)	**1.03** (0.782-1.34)	**1.25** (0.924-1.71)	**1.42** (1.03-1.98)	**1.59** (1.13-2.31)	**1.79** (1.20-2.65)	**2.08** (1.35-3.18)	**2.32** (1.47-3.61)
30-min	**0.745** (0.573-0.967)	**0.907** (0.696-1.18)	**1.17** (0.896-1.53)	**1.39** (1.06-1.82)	**1.69** (1.25-2.32)	**1.92** (1.39-2.68)	**2.16** (1.52-3.13)	**2.43** (1.63-3.59)	**2.82** (1.82-4.31)	**3.14** (1.99-4.89)
60-min	**0.940** (0.722-1.22)	**1.14** (0.878-1.49)	**1.48** (1.13-1.92)	**1.75** (1.33-2.30)	**2.13** (1.58-2.92)	**2.42** (1.76-3.38)	**2.72** (1.92-3.94)	**3.06** (2.05-4.53)	**3.55** (2.30-5.43)	**3.96** (2.51-6.17)
2-hr	**1.21** (0.936-1.57)	**1.47** (1.13-1.90)	**1.88** (1.45-2.44)	**2.23** (1.70-2.91)	**2.70** (2.01-3.69)	**3.06** (2.24-4.27)	**3.44** (2.46-4.99)	**3.89** (2.62-5.72)	**4.58** (2.97-6.96)	**5.17** (3.28-8.00)
3-hr	**1.40** (1.08-1.80)	**1.69** (1.31-2.18)	**2.16** (1.67-2.80)	**2.56** (1.96-3.33)	**3.10** (2.32-4.23)	**3.50** (2.57-4.88)	**3.94** (2.83-5.72)	**4.47** (3.01-6.55)	**5.29** (3.44-8.02)	**6.00** (3.82-9.26)
6-hr	**1.77** (1.38-2.26)	**2.13** (1.66-2.74)	**2.74** (2.12-3.52)	**3.24** (2.50-4.19)	**3.93** (2.95-5.33)	**4.43** (3.27-6.15)	**4.99** (3.60-7.22)	**5.67** (3.84-8.26)	**6.74** (4.39-10.1)	**7.67** (4.89-11.7)
12-hr	**2.19** (1.71-2.79)	**2.66** (2.08-3.39)	**3.42** (2.67-4.39)	**4.06** (3.15-5.23)	**4.94** (3.73-6.67)	**5.59** (4.14-7.71)	**6.29** (4.56-9.05)	**7.16** (4.86-10.4)	**8.50** (5.56-12.7)	**9.66** (6.18-14.7)
24-hr	**2.57** (2.02-3.27)	**3.16** (2.48-4.02)	**4.13** (3.23-5.26)	**4.93** (3.84-6.31)	**6.03** (4.57-8.11)	**6.84** (5.10-9.41)	**7.73** (5.64-11.1)	**8.84** (6.02-12.7)	**10.6** (6.93-15.7)	**12.1** (7.75-18.2)
2-day	**2.90** (2.29-3.66)	**3.62** (2.86-4.57)	**4.79** (3.77-6.08)	**5.76** (4.51-7.35)	**7.11** (5.42-9.53)	**8.08** (6.07-11.1)	**9.17** (6.76-13.2)	**10.6** (7.22-15.1)	**12.8** (8.44-18.9)	**14.8** (9.54-22.2)
3-day	**3.15** (2.50-3.97)	**3.94** (3.12-4.97)	**5.23** (4.12-6.61)	**6.30** (4.94-8.00)	**7.77** (5.94-10.4)	**8.84** (6.66-12.1)	**10.0** (7.42-14.4)	**11.6** (7.93-16.5)	**14.1** (9.29-20.7)	**16.3** (10.5-24.4)
4-day	**3.38** (2.68-4.25)	**4.22** (3.34-5.30)	**5.59** (4.42-7.05)	**6.72** (5.28-8.53)	**8.29** (6.35-11.1)	**9.43** (7.11-12.9)	**10.7** (7.92-15.3)	**12.4** (8.46-17.6)	**15.0** (9.92-22.0)	**17.4** (11.2-25.9)
7-day	**4.00** (3.19-5.01)	**4.94** (3.93-6.19)	**6.48** (5.14-8.14)	**7.75** (6.12-9.79)	**9.51** (7.31-12.6)	**10.8** (8.16-14.7)	**12.2** (9.05-17.3)	**14.0** (9.65-19.9)	**17.0** (11.2-24.7)	**19.5** (12.7-29.0)
10-day	**4.63** (3.70-5.78)	**5.63** (4.49-7.03)	**7.26** (5.77-9.10)	**8.61** (6.81-10.8)	**10.5** (8.06-13.8)	**11.8** (8.95-16.0)	**13.3** (9.86-18.7)	**15.2** (10.5-21.4)	**18.2** (12.1-26.4)	**20.8** (13.5-30.7)
20-day	**6.63** (5.33-8.24)	**7.70** (6.18-9.57)	**9.44** (7.55-11.8)	**10.9** (8.65-13.6)	**12.9** (9.92-16.8)	**14.4** (10.8-19.1)	**15.9** (11.7-21.9)	**17.8** (12.3-24.8)	**20.4** (13.6-29.4)	**22.7** (14.8-33.3)
30-day	**8.35** (6.72-10.3)	**9.44** (7.60-11.7)	**11.2** (9.00-14.0)	**12.7** (10.1-15.9)	**14.8** (11.4-19.1)	**16.3** (12.3-21.5)	**17.9** (13.1-24.3)	**19.6** (13.6-27.3)	**22.0** (14.7-31.5)	**23.9** (15.6-34.9)
45-day	**10.5** (8.48-13.0)	**11.6** (9.37-14.4)	**13.5** (10.8-16.7)	**15.0** (12.0-18.7)	**17.1** (13.2-21.9)	**18.7** (14.1-24.4)	**20.3** (14.8-27.2)	**21.9** (15.3-30.3)	**24.0** (16.1-34.2)	**25.5** (16.6-37.0)
60-day	**12.3** (9.95-15.1)	**13.4** (10.9-16.6)	**15.3** (12.4-19.0)	**16.9** (13.5-21.0)	**19.1** (14.7-24.3)	**20.8** (15.6-26.9)	**22.4** (16.2-29.7)	**23.9** (16.7-32.9)	**25.7** (17.3-36.6)	**27.0** (17.6-39.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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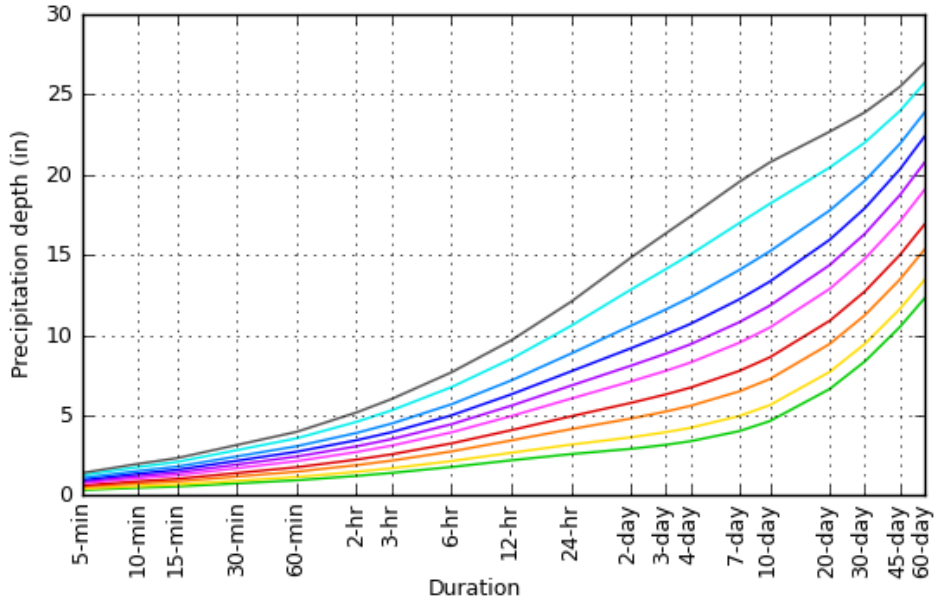
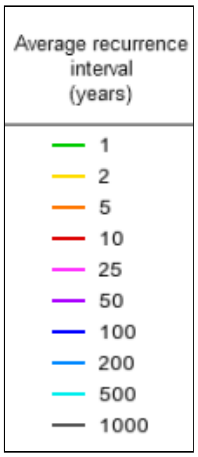
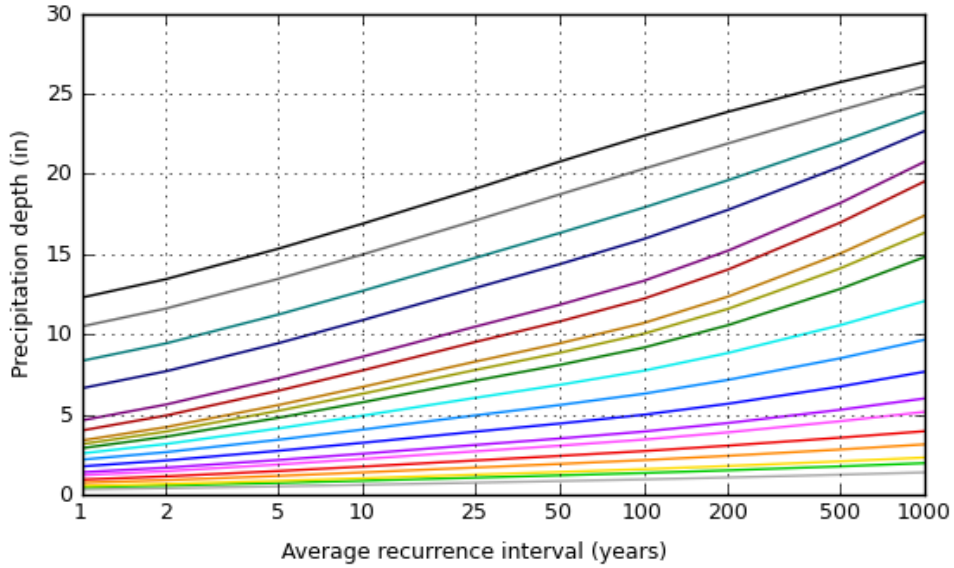
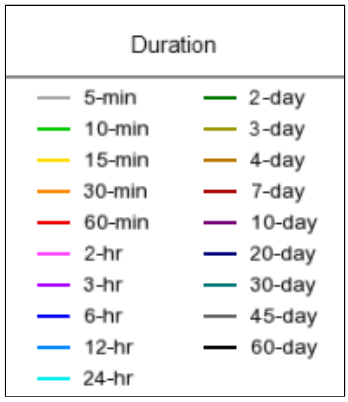
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.7843°, Longitude: -72.4607°









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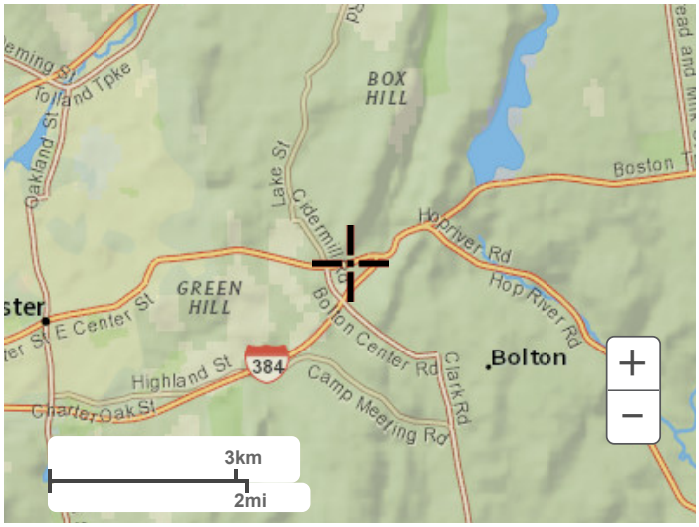
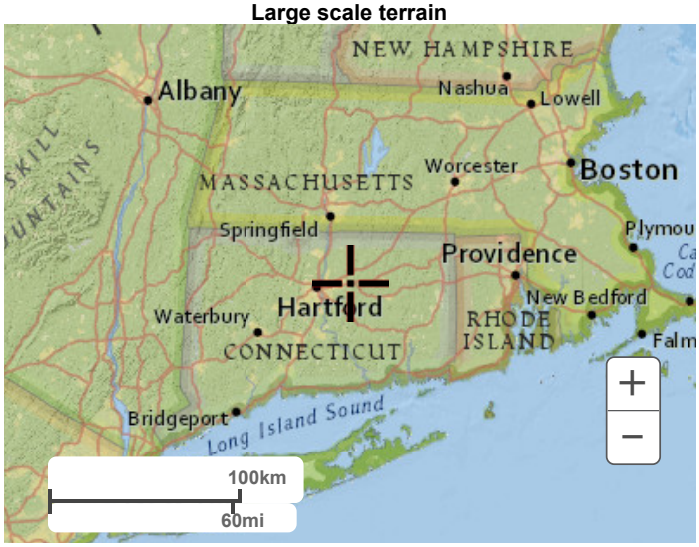
Maps & aerials

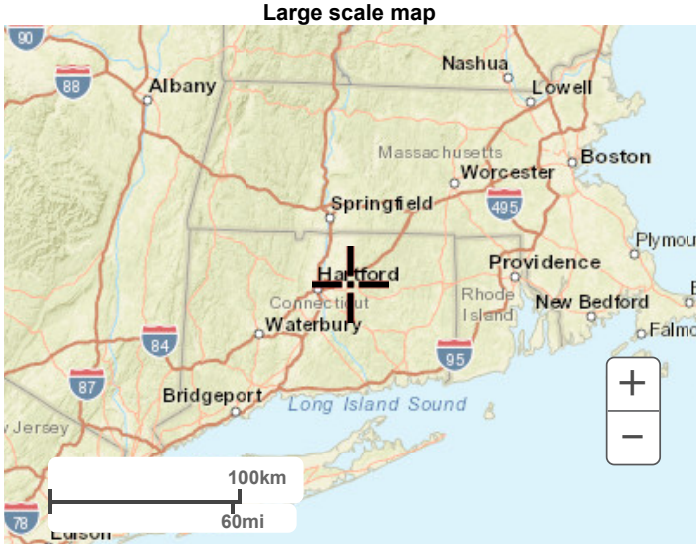
Small scale terrain



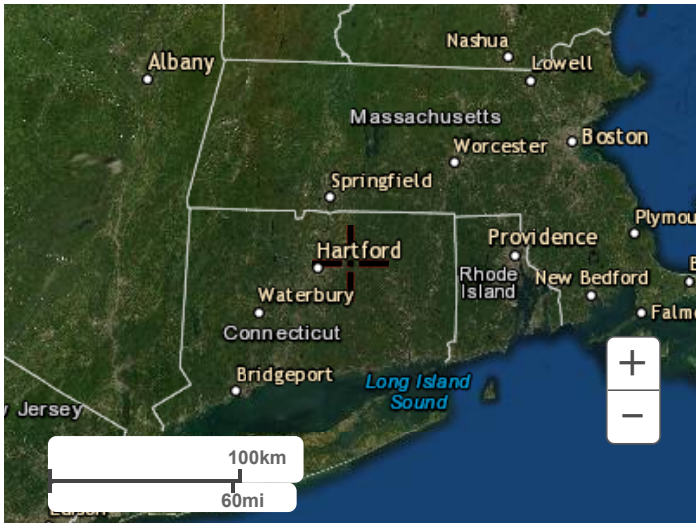
Large scale terrain



Large scale map



Large scale aerial



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APPENDIX E
Storm Sewer Analysis Results

Pipe Run from CB #1 to FE #1

Pipe	From	To	3D Length - Center to Center	Drainage Area Inc	Drainage Area Total	Runoff Coeff "C"	Area X "C" Inc	Area X "C" Total	Time of Concentration Inlet	Time of Concentration System	Rain "I"	Runoff "Q"	Known Q	Total Q	Pipe Dia.	Full Q	Velocity Full	Velocity Design	Sec Time	Invert Elevation U/S	Invert Elevation D/S	Slope	Percent Full (TotalQ/FullQ)
			(ft)	(sq. ft)	(sq. ft)		(sq. ft)	(sq. ft)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(cu. ft/sec)	(ft)	(cu. ft/sec)	(ft/s)	(ft/s)	(min)	(ft)	(ft)		
Pipe - (8)	MH #3 WQ	FE #1	25.72	0	83504.57	0	0	66247.97	0	9.101	6.087	9.334	0	9.334	2	16.012	5.097	5.287	0.081	621.13	621	0.50%	58%
Pipe - (7)	CB #5	MH #3 WQ	7.98	23881.03	83504.57	0.729	17409.27	66247.97	6.5	9.078	6.094	9.346	0	9.346	2	17.346	5.521	5.62	0.024	621.17	621.13	0.50%	54%
Pipe - (6)	CB #4	CB #5	126.12	4911.13	57064.01	0.88	4321.79	46811.55	6	8.807	6.184	6.701	0	6.701	1.5	13.834	7.828	7.761	0.271	623.53	621.67	1.48%	48%
Pipe - (5)	CB #3	CB #4	130.3	13206.48	45481.94	0.746	9852.04	36890.44	6.5	8.465	6.297	5.377	0	5.377	1.5	11.391	6.446	6.349	0.342	624.83	623.53	1.00%	47%
Pipe - (4)	CB #2	CB #3	166.86	10354.18	22464.88	0.802	8304.06	18707.14	6	6.728	6.87	2.975	0	2.975	1.25	7.005	5.708	5.471	0.508	626.5	624.83	1.00%	42%
Pipe - (3)	CB #1	CB #2	160.35	12110.7	12110.7	0.859	10403.09	10403.09	6	6	7.11	1.712	0	1.712	1	2.732	3.478	3.67	0.728	627.3	626.5	0.50%	63%
Pipe - (11)	MH #1	CB #3	90.83	0	5459.77	0	0	4673.96	0	8.146	6.402	0.693	0	0.693	1	5.439	6.926	4.748	0.319	629.49	627.69	1.98%	13%
Pipe - (10)	YD #1	MH #1	28.19	368.98	3375.51	0.25	92.25	2798.12	8	8	6.45	0.418	0	0.418	1	3.876	4.935	3.223	0.146	629.77	629.49	1.01%	11%
Pipe - (9)	R1	YD #1	33.47	1582.84	1582.84	0.9	1424.56	1424.56	6	6	7.11	0.234	0	0.234	0.5	0.608	3.095	2.894	0.193	630.1	629.77	1.00%	38%
Pipe - (12)	R2	YD #1	12.62	1423.69	1423.69	0.9	1281.32	1281.32	6	6	7.11	0.211	0	0.211	0.5	0.582	2.964	2.726	0.077	630.1	629.98	0.92%	36%
Pipe - (13)	R3	MH #1	31.06	1898.51	1898.51	0.9	1708.66	1708.66	6	6	7.11	0.281	0	0.281	0.5	0.601	3.062	3.008	0.172	630.1	629.8	0.98%	47%
Pipe - (14)	R4	MH #1	26.1	185.76	185.76	0.9	167.18	167.18	6	6	7.11	0.028	0	0.028	0.5	0.597	3.042	1.547	0.217	630.1	629.85	0.96%	5%
Pipe - (17)	YD #3	CB #3	79.65	397.57	4350.8	0.25	99.39	3657.3	8	8	6.45	0.546	0	0.546	1	7.727	9.838	5.676	0.234	629.34	626.16	4.00%	7%
Pipe - (16)	YD #2	YD #3	18.01	197.8	3862.39	0.9	178.02	3476.15	6	6.047	7.094	0.571	0	0.571	0.67	2.547	7.297	5.879	0.051	630.02	629.34	3.78%	22%
Pipe - (15)	R5	YD #2	8.28	1674.82	1674.82	0.9	1507.34	1507.34	6	6	7.11	0.248	0	0.248	0.5	0.608	3.099	2.939	0.047	630.1	630.02	1.00%	41%
Pipe - (34)	R6	YD #2	7.59	1989.77	1989.77	0.9	1790.8	1790.8	6	6	7.11	0.295	0	0.295	0.5	0.608	3.099	3.072	0.041	630.1	630.02	1.00%	49%
Pipe - (18)	R7	YD #3	14.6	90.84	90.84	0.9	81.75	81.75	6	6	7.11	0.013	0	0.013	0.5	0.74	3.77	1.449	0.122	630.1	629.88	1.48%	2%
Pipe - (20)	YD #4	CB #4	94.7	333.8	2023.36	0.39	130.18	1650.79	8	8	6.45	0.246	0	0.246	1	7.29	9.282	4.3	0.367	629.93	626.56	3.56%	3%
Pipe - (19)	R8	YD #4	14.92	276.34	276.34	0.9	248.7	248.7	6	6	7.11	0.041	0	0.041	0.5	0.583	2.969	1.712	0.124	630.1	629.96	0.92%	7%
Pipe - (21)	R9	YD #4	18.07	1413.23	1413.23	0.9	1271.91	1271.91	6	6	7.11	0.209	0	0.209	0.5	0.592	3.015	2.753	0.109	630.1	629.93	0.95%	35%
Pipe - (24)	MH #2	CB #4	120.96	0	4647.58	0	0	3948.53	0	8.269	6.361	0.581	0	0.581	1	6.692	8.52	5.224	0.386	628.69	625.06	3.00%	9%
Pipe - (23)	YD #5	MH #2	54.5	571.43	3942.32	0.49	280	3313.8	8	8	6.45	0.495	0	0.495	1	3.863	4.919	3.378	0.269	629.24	628.69	1.00%	13%
Pipe - (22)	R14	YD #5	36.04	352.66	352.66	0.9	317.39	317.39	6	6	7.11	0.052	0	0.052	0.5	0.608	3.099	1.895	0.3	630.1	629.74	1.00%	9%
Pipe - (25)	R13	YD #5	14.78	2489.5	2489.5	0.9	2240.55	2240.55	6	6	7.11	0.369	0	0.369	0.5	0.608	3.099	3.245	0.076	630.1	629.95	1.00%	61%
Pipe - (26)	R12	YD #5	15.47	528.72	528.72	0.9	475.85	475.85	6	6	7.11	0.078	0	0.078	0.5	0.608	3.099	2.133	0.121	630.1	629.95	1.00%	13%
Pipe - (28)	WYE1	MH #2	14.35	0	705.26	0	0	634.73	0	6.087	7.081	0.104	0	0.104	0.5	0.608	3.099	2.313	0.103	629.99	629.85	1.00%	17%
Pipe - (28)	R10	WYE1	8.75	175.47	175.47	0.9	157.92	157.92	6	6	7.11	0.026	0	0.026	0.5	0.608	3.099	1.537	0.073	630.1	630.01	1.00%	4%
Pipe - (27)	R11	WYE1	11.13	529.79	529.79	0.9	476.81	476.81	6	6	7.11	0.078	0	0.078	0.5	0.608	3.099	2.134	0.087	630.1	629.99	1.00%	13%
Pipe - (35)	CB #6	CB #5	62.49	2559.53	2559.53	0.792	2027.15	2027.15	6	6	7.11	0.334	0	0.334	1	3.714	4.729	2.928	0.356	622.75	622.17	0.92%	9%
Pipe Run from Roofs to North Infiltrators																							
Pipe - (43)	MH #5 WIT	North Infilt	11.13	0	7929.08	0	0	7136.17	0	6.273	7.02	1.16	0	1.16	1	3.863	4.919	4.297	0.043	619.81	619.7	1.00%	30%
Pipe - (30)	YD #6	MH #5 WIT	27.39	191.92	4287.59	0.9	172.73	3858.83	6	6.091	7.08	0.632	0	0.632	0.67	1.406	4.029	3.919	0.116	620.16	619.84	1.15%	45%
Pipe - (29)	R15	YD #6	15.98	2731.37	2731.37	0.9	2458.23	2458.23	6	6	7.11	0.405	0	0.405	0.67	1.332	3.815	3.344	0.08	620.5	620.33	1.03%	30%
Pipe - (31)	R16	YD #6	15.22	1364.3	1364.3	0.9	1227.87	1227.87	6	6	7.11	0.202	0	0.202	0.5	0.608	3.099	2.782	0.091	620.5	620.35	1.00%	33%
Pipe - (33)	YD #7	MH #5 WIT	39.91	474.94	3641.49	0.9	427.45	3277.34	6	6.08	7.084	0.537	0	0.537	0.67	1.25	3.582	3.444	0.193	620.16	619.8	0.91%	43%
Pipe - (32)	R17	YD #7	16.47	3166.55	3166.55	0.9	2849.89	2849.89	6	6	7.11	0.469	0	0.469	0.67	1.31	3.754	3.44	0.08	620.5	620.34	1.00%	36%
Pipe Run from CB #7 to South Infiltrators																							
Pipe - (44)	CB #7	South Infilt	7.76	2802.34	2802.34	0.623	1745.86	1745.86	8	8	6.45	0.261	0	0.261	1	3.863	4.919	2.8	0.046	619.58	619.5	1.00%	7%

Pipe Run from CB #1 to FE #1

Struct. ID	D	Q	L	V	d	dc	v^2/2g	EGLo	HGLo	Sf	Total Pipe Loss	EGLi	HGLi	Ea	EGLa	U/S TOC	Surface Elev.	Cover	Freeboard
	(ft)	(cu. ft/sec)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		
FE #1								622.55	622.55							623	623.38	0.38	
MH #3 WQ	2	9.334	25.72	5.287	1.1	1.09	0.43	623.18	622.98	0.005	0.13	623.31	622.87	2.28	623.41	623.13	626.15	3.02	2.74
CB #5	2	9.346	7.98	2.975	2	n/a	0.14	623.47	623.33	0.001	0.01	623.48	623.34	2.38	623.55	623.17	624.93	1.76	1.38
CB #4	1.5	6.701	126.12	7.761	0.74	1	0.94	623.64	623.41	0.003	0	625.2	624.27	1.67	625.2	625.03	630.4	5.37	5.20
CB #3	1.5	5.377	130.3	6.349	0.73	0.89	0.63	625.26	625.12	0.002	0	626.19	625.56	1.43	626.27	626.08	630.4	4.32	4.13
CB #2	1.25	2.975	166.86	5.471	0.57	0.69	0.47	626.3	626.21	0.002	0	627.53	627.07	1.08	627.58	627.5	630.65	3.15	3.07
CB #1	1	1.712	160.35	3.67	0.57	0.56	0.21	627.61	627.54	0.002	0	628.09	627.88	0.95	628.25	---	629.9	---	1.65
MH #1	1	0.693	90.83	4.748	0.24	0.35	0.35	628.28	627.93	0	0	630.08	629.73	0.59	630.08	630.49	632.5	2.01	2.42
YD #1	1	0.418	28.19	3.223	0.22	0.27	0.16	630.09	630.07	0	0	630.15	629.99	0.38	630.15	630.27	633	2.73	2.85
R1	0.5	0.234	33.47	2.894	0.22	0.24	0.13	630.17	630.13	0	0	630.45	630.32	0.36	630.46	---	633	---	2.54
R2	0.5	0.211	12.62	2.726	0.21	0.23	0.12	630.31	630.19	0	0	630.42	630.31	0.33	630.43	---	633	---	2.57
R3	0.5	0.281	31.06	3.008	0.24	0.27	0.14	630.12	630.03	0	0	630.48	630.34	0.4	630.5	---	633	---	2.50
R4	0.5	0.028	26.1	1.547	0.07	0.08	0.04	630.08	630.08	0	0	630.21	630.17	0.11	630.21	---	633	---	2.79
YD #3	1	0.546	79.65	5.676	0.18	0.31	0.5	626.84	626.34	0	0	630.02	629.52	0.68	630.02	630.01	633	2.99	2.98
YD #2	0.67	0.571	18.01	5.879	0.21	0.35	0.54	630.04	630	0.002	0	630.77	630.23	0.75	630.77	630.52	633.4	2.88	2.63
R5	0.5	0.248	8.28	1.263	0.5	n/a	0.02	630.78	630.76	0.002	0.01	630.8	630.77	0.7	630.8	---	633	---	2.20
R6	0.5	0.295	7.59	1.501	0.5	n/a	0.04	630.79	630.75	0.002	0.02	630.8	630.77	0.71	630.81	---	633	---	2.19
R7	0.5	0.013	14.6	1.449	0.05	0.06	0.03	630.02	630.02	0	0	630.18	630.15	0.08	630.18	---	633	---	2.82
YD #4	1	0.246	94.7	4.3	0.13	0.2	0.29	626.97	626.69	0	0	630.34	630.06	0.41	630.34	630.46	633	2.54	2.66
R8	0.5	0.041	14.92	1.712	0.09	0.1	0.05	630.34	630.34	0	0	630.34	630.3	0.24	630.34	---	633	---	2.66
R9	0.5	0.209	18.07	2.753	0.21	0.23	0.12	630.35	630.33	0	0	630.42	630.31	0.33	630.43	---	633	---	2.57
MH #2	1	0.581	120.96	5.224	0.2	0.32	0.42	625.69	625.26	0	0	629.31	628.89	0.62	629.31	629.69	632.48	2.79	3.17
YD #5	1	0.495	54.5	3.378	0.24	0.29	0.18	629.32	629.3	0	0	629.66	629.48	0.42	629.66	630.24	633	2.76	3.34
R14	0.5	0.052	36.04	1.895	0.1	0.11	0.06	629.89	629.84	0	0	630.25	630.2	0.15	630.25	---	633	---	2.75
R13	0.5	0.369	14.78	3.245	0.28	0.31	0.16	630.4	630.23	0	0	630.54	630.38	0.48	630.58	---	633	---	2.42
R12	0.5	0.078	15.47	2.133	0.12	0.14	0.07	630.14	630.07	0	0	630.29	630.22	0.19	630.29	---	633	---	2.71
WYE1	0.5	0.104	14.35	2.313	0.14	0.16	0.08	630.07	629.99	0	0	630.21	630.13	0.22	630.21	630.49	633	2.51	2.79
R10	0.5	0.026	8.75	1.537	0.07	0.08	0.04	630.21	630.21	0	0	630.21	630.18	0.11	630.21	---	633	---	2.79
R11	0.5	0.078	11.13	2.134	0.12	0.14	0.07	630.22	630.21	0	0	630.29	630.22	0.19	630.29	---	633	---	2.71
CB #6	1	0.334	62.49	0.425	0.2	0.24	0	623.55	623.55	0	0	623.55	623.55	0.81	623.55	623.75	624.85	1.10	1.30
Pipe Run from Roofs to North Infiltrators																			
North Infilt								620.43	620.43							620.7	624	3.30	
MH #5 WIT	1	1.16	11.13	4.297	0.38	0.45	0.29	620.77	620.71	0	0	620.77	620.48	0.96	620.77	620.51	623.73	3.22	2.96
YD #6	0.67	0.632	27.39	1.812	0.31	0.37	0.05	620.79	620.74	0.002	0.06	620.85	620.8	0.72	620.88	621	633.4	12.40	12.52
R15	0.67	0.405	15.98	3.344	0.25	0.3	0.17	620.89	620.86	0	0	620.93	620.75	0.43	620.93	---	633	---	12.07
R16	0.5	0.202	15.22	1.029	0.2	0.23	0.02	620.89	620.87	0.001	0.02	620.9	620.89	0.41	620.91	---	633	---	12.09
YD #7	0.67	0.537	39.91	1.54	0.31	0.34	0.04	620.78	620.75	0.002	0.07	620.85	620.82	0.72	620.88	621	633.4	12.40	12.52
R17	0.67	0.469	16.47	3.44	0.28	0.32	0.18	620.9	620.86	0	0	620.96	620.78	0.47	620.97	---	633	---	12.03
Pipe Run from CB #7 to South Infiltrators																			
South Infilt								620.1	620.1							620.5	622.5	2.00	
CB #7	1	0.261	7.76	2.8	0.18	0.21	0.12	620.23	620.23	0	0	620.23	620.11	0.65	620.23	619.58	621.7	2.12	1.47

APPENDIX F
Water Quality Calculations

Bolton Vet - DPI Job No.4798
March 8, 2021

Water Quality Flow Calculations For Developed area to FE #1
Per 2004 Connecticut Stormwater Quality Manual
Per Appendix B page B-3:
Water Quality Flow (WQF) = (qu)(A)(Q), where:
qu = unit peak discharge (cfs/mi^2/inch) per Exhibit 4-III
A = drainage area (mi^2)
Q = runoff depth (in watershed inches)
= [Water Quality Volume (WQV) (in acre-feet)] x [12 inches/foot] / drainage area (acres)

Water Quality
To find Unit Peak Discharge qu with Exhibit 4-III, the following is needed:
Time of Concentration (Tc):
8 mins = 0.10 hours
Initial Abstraction (Ia) in inches / Design Precipitation (P) in inches:
Initial abstraction (Ia) from Table 4-III in Chapter 4 of TR-55 needs Curve Number (CN)
CN = 88
Ia = 0.273 inches
Design Precipitation (P) = 1" for water quality storms per Appendix B
Ia/P = 0.273
Unit Peak Discharge qu = 600 cfs/mi^2/inch

Drainage Area A = 67,024 sf = 1.54 acres = 0.0024 mi^2

Runoff Depth Q = WQV (acre-feet) x 12 / drainage area (acres)

Water Quality Volume (WQV) = (1")(R)(A)/12, where:
R = volumetric runoff coefficient
= 0.05 + 0.009(I), where I = percent impervious cover = 81.6%
R = 0.05 + 0.009(I)
R = 0.05 + 0.009(81.6)
R = 0.784

A = drainage area in acres = 1.54 acres

WQV = (1")(R)(A)/12
WQV = (1")(0.784)(1.54 acres) / 12 in/ft
WQV = 0.101 acre-feet

Q = (WQV X 12 in/ft)/Drainage Area
Q = (0.101 acre-feet x 12 in/ft) / 1.54 acres
Q = 0.784 in

WQF = qu x A x Q
WQF = 600 cfs/mi^2/inch x 0.0024 mi^2 x 0.784 in
WQF = **1.13 cfs required**

Proposed

As shown on the enclosed water quality unit sizing report, the proposed **BaySaver Barracuda S6** is rated for 80% TSS removal for **2.43 cfs** which exceeds the required **1.13 cfs** water quality flow. The bypass expected, 10.99 cfs, during the 10-yr storm will be accommodated as the rim to outlet invert is above 45 inches where 20 cfs can bypass. See Barracuda sizing chart included in Appendix F.

Bolton Vet - DPI Job No.4798
March 8, 2021

Water Quality Flow Calculations For Developed Area (CB#7) to Infiltrators
Per 2004 Connecticut Stormwater Quality Manual
Per Appendix B page B-3:
Water Quality Flow (WQF) = (qu)(A)(Q), where:
qu = unit peak discharge (cfs/mi^2/inch) per Exhibit 4-III
A = drainage area (mi^2)
Q = runoff depth (in watershed inches)
= [Water Quality Volume (WQV) (in acre-feet)] x [12 inches/foot] / drainage area (acres)

Water Quality
To find Unit Peak Discharge qu with Exhibit 4-III, the following is needed:
Time of Concentration (Tc):
7 mins = 0.12 hours
Initial Abstraction (Ia) in inches / Design Precipitation (P) in inches:
Initial abstraction (Ia) from Table 4-III in Chapter 4 of TR-55 needs Curve Number (CN)
CN = 82
Ia = 0.439 inches
Design Precipitation (P) = 1" for water quality storms per Appendix B
Ia/P = 0.439
Unit Peak Discharge qu = 380 cfs/mi^2/inch

Drainage Area A = 2,560 sf = 0.059 acres = 0.0001 mi^2

Runoff Depth Q = WQV (acre-feet) x 12 / drainage area (acres)

Water Quality Volume (WQV) = (1")(R)(A)/12, where:
R = volumetric runoff coefficient
= 0.05 + 0.009(I), where I = percent impervious cover = 83.3%
R = 0.05 + 0.009(I)
R = 0.05 + 0.009(83.3)
R = 0.798

A = drainage area in acres = 0.059 acres

WQV = (1")(R)(A)/12
WQV = (1")(0.798)(0.059 acres) / 12 in/ft
WQV = 0.004 acre-feet

Q = (WQV X 12 in/ft)/Drainage Area
Q = (0.004 acre-feet x 12 in/ft) / 0.059 acres
Q = 0.798 in

WQF = qu x A x Q
WQF = 380 cfs/mi^2/inch x 0.0001 mi^2 x 0.798 in
WQF = **0.030 cfs required**

Proposed

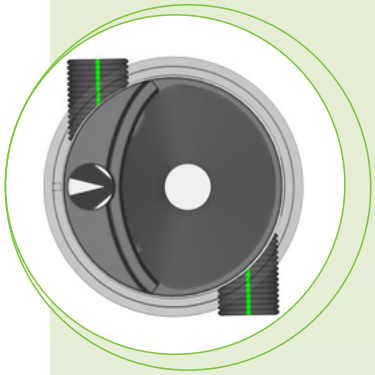
The proposed 2 **(1 row of 2)** chamber **R-330XLHD** Cultec Isolator rows (@ **0.174 cfs** treated flow rate per chamber) are rated for 80% TSS removal for the required **0.030 cfs** water quality flow. The current design plan will provide **0.348 cfs** of WQF. See isolator row sizing chart included in the appendix.

BAYSAVER TECHNOLOGIES®

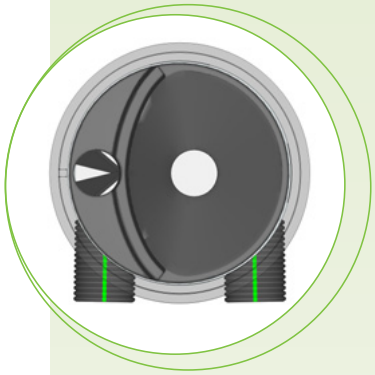
ADS®

Barracuda S4

The Barracuda S4 is a market-changing stormwater quality technology. This high performance vortex hydrodynamic separator is designed to remove total suspended solids in order to protect our precious receiving waters. The Barracuda is also an outstanding value that offers multiple pipe configurations, and quick installation.



Inline Configuration



Offline Configuration

FEATURES:

- Single manhole design
- No elevation loss between the inlet and outlet
- Flexible inlet/outlet positions (not just 180 degree orientation)
- Internal bypass for inline installation (where applicable)
- Revolutionary, patent pending “teeth” mitigate turbulence in the sump area to prevent resuspension of captured contaminants.

BENEFITS:

- Internal components are in stock for quick delivery.
- The S4 can be provided within a 48” ADS HP Manhole, to be factory fabricated and delivered complete to the jobsite.
- The S4 can also be installed in a standard 48” precast manhole. The Barracuda “teeth” apparatus is fabricated and designed for quick and easy field assembly.
- Designed for easy maintenance using a vacuum truck or similar equipment.
- Inspection and maintenance are performed from the surface with no confined space entry.

ADS Service: ADS representatives are committed to providing you with the answers to all your questions, including specifications, installation and more.

BARRACUDA S4 SPECIFICATION

MATERIALS AND DESIGN

- Concrete Structures: Designed for H-20 traffic loading and applicable soil loads or as otherwise determined by a Licensed Professional Engineer. The materials and structural design of the devices shall be per ASTM C857 and ASTM C858.
- 48" HP Manhole Structures: Made from an impact modified copolymer polypropylene meeting the material requirements of ASTM F2764. The eccentric cone reducer shall be manufactured from polyethylene material meeting ASTM D3350 cell class 213320C. Gaskets shall be made of material meeting the requirements of ASTM F477.
- Separator internals shall be substantially constructed of stainless steel, polyethylene or other thermoplastic material approved by the manufacturer.

PERFORMANCE

- The stormwater treatment unit shall be an inline unit capable of conveying 100% of the design peak flow. If peak flow rates exceed maximum hydraulic rate, the unit shall be installed offline.

- The Barracuda unit shall be designed to remove at least 80% of the suspended solids on an annual aggregate removal basis. Said removal shall be based on full-scale third party testing using OK-110 media gradation or equivalent and 300 mg/L influent concentration. Said full scale testing shall have included sediment capture based on actual total mass collected by the stormwater treatment unit.

  - OR -

  The Barracuda unit shall be designed to remove at least 50% of TSS using a media mix with d_{50}=75 micron and 200 mg/L influent concentration.

  - OR -

  The Barracuda unit shall be designed to remove at least 50% of TSS per current NJDEP/NJCAT HDS protocol .

- The stormwater treatment unit internals shall consist of (1) separator cone assembly, and (1) sump assembly which includes (4) legs with "teeth".

	Manhole Diameter	80% Removal OK-110	50% TSS per NJCAT	Max Hydraulic Rate
Barracuda S4	48"	1.08 CFS	1.25 CFS	6.25 CFS

INSTALLATION

Installation of the stormwater treatment unit(s) shall be performed per manufacturer's installation instructions. Such instructions can be obtained by calling Advanced Drainage Systems at (800) 821-6710 or by logging on to www.ads-pipe.com or www.baysaver.com.

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

BOGGS ENVIRONMENTAL CONSULTANTS

Middletown, MD & Morgantown, WV

Administrative Office:
200 W Main Street
Middletown, Maryland 21769

Office (301) 694-5687
Fax (301) 694-9799

BaySaver Technologies, LLC
1030 Deer Hollow Drive
Mount Airy, MD 21771
(301) 679-0640; dfigola@ads-pipe.com

November 1, 2017

ATTENTION: Daniel Figola, General Manager
REFERENCE: Third Party Review of Testing Procedures for Barracuda™ Separator at the Mid Atlantic Storm Water Research Center, 1207 Park Ridge Drive, Mount Airy, MD 21771

SUMMARY

Boggs Environmental Consultants, Inc. (BEC) was hired by Advanced Drainage Systems (ADS) in August of 2017, to serve as independent third-party oversight of the BaySaver Barracuda S4 Separator test unit for removal of sediment with equivalent particle size distribution to the industry standard OK-110. The BaySaver Barracuda S4 is a storm water treatment device with a Maximum Treatment Flow Rate (MTFR) of approximately 1.08 cubic feet per second (cfs) that removes suspended solids from storm water runoff, with an average removal efficiency of 80% at the MTFR and a feed concentration of 300 mg/L. The device is an insert that can be installed in either Polypropylene plastic pipe or concrete vault, and consists of a cone (vortex separator) and baffles ("teeth").

SCALED RESULTS

Testing flow rates ranged from 0.31 to 1.61 cfs, with a feed OK-110 concentration of 300 mg/L. Based upon New Jersey scaling methodology, the table below represents treatment and device information for the S4, S6, and S8 units.

Table 1: MTFR's and Sizing for BaySaver Barracuda Models

Model[1]	Man-hole Diam-eter[1] (ft)	OK110 80% TSS Maximum Treatment Flow Rate (cfs)	Treat-ment Area (ft^2)	Hydraulic Loading rate (gpm/ft^2)	Chamber Depth (ft)	Wet Volume (ft^3)	50% Maximum Sediment Storage[2] (ft^3)
Barracuda S4	4	1.08	12.57	38.6	6.83	75.4	10.47
Barracuda S6	6	2.43	28.27	38.6	6.83	169.7	23.56
Barracuda S8	8	4.32	50.27	38.6	11.03	512.7	41.89

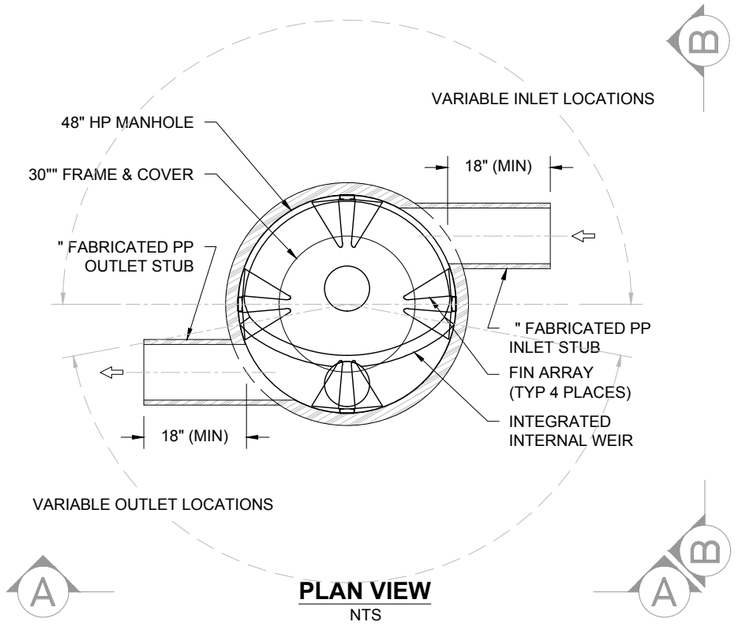
Notes:
1. In some areas, Barracuda units are available in additional diameters. Units not listed here are sized not to exceed 38.6 gpm/ft^2 of effective treatment during the peak water quality flow.
2. 50% Sediment Storage Capacity is equal to manhole diameter x 10 inches of sediment depth. Each Barracuda unit has a 20 inches deep sediment sump.

Should you have any questions, contact our office at your earliest convenience.

Sincerely,
BOGGS ENVIRONMENTAL CONSULTANTS, INC.

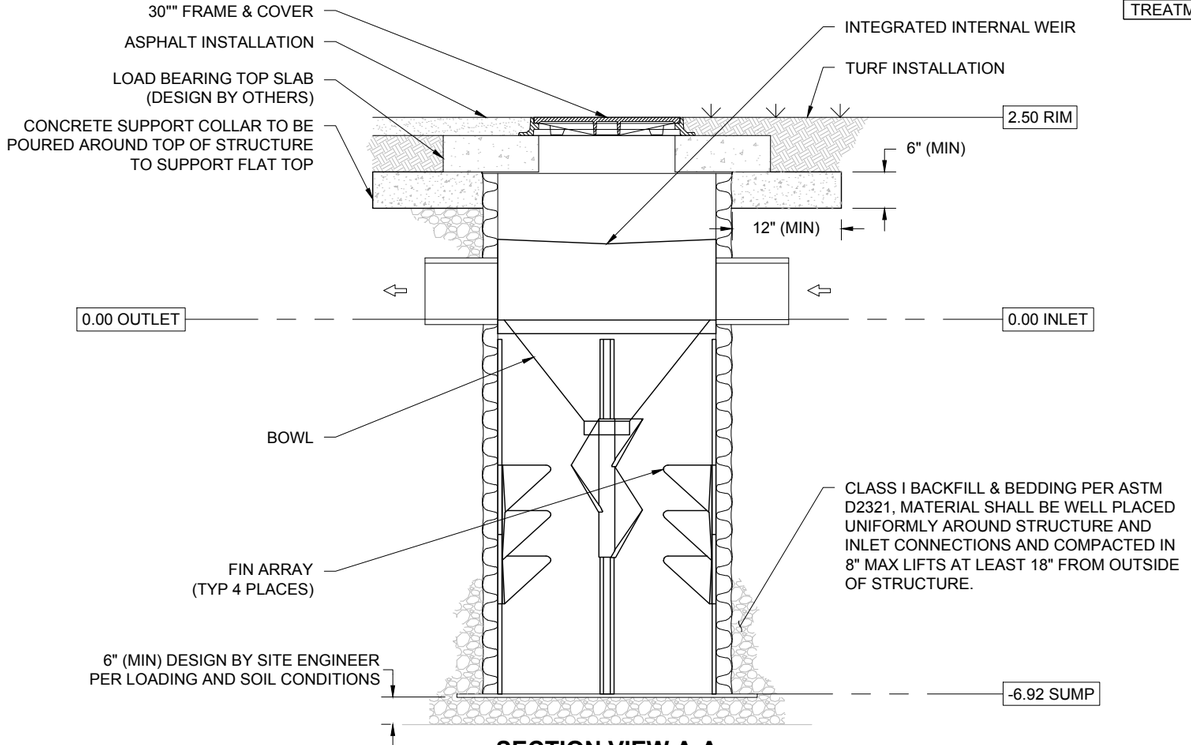
William R. Warfel
Principal Environmental Scientist

Robin J. Maliszewskyj
Chemical Engineer

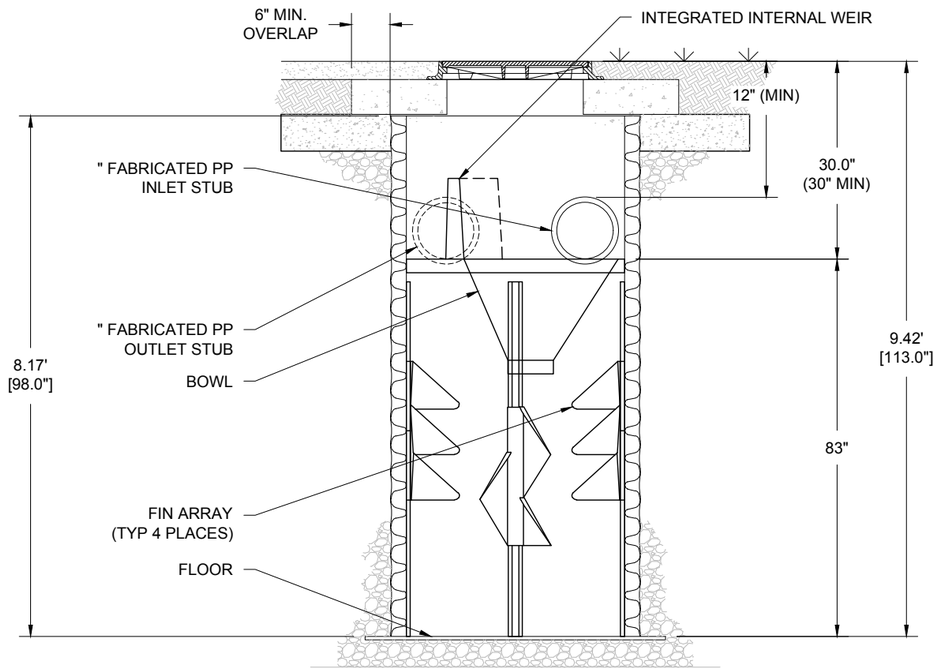


PLAN VIEW
NTS

BARRACUDA S4	
UNIT ID	BMP#1
PEAK FLOW RATE (CFS)	
TREATMENT FLOW RATE (CFS)	1.25 CFS



SECTION VIEW A-A
NTS



SECTION VIEW B-B
NTS

BARRACUDA S4 HP
STANDARD DETAIL

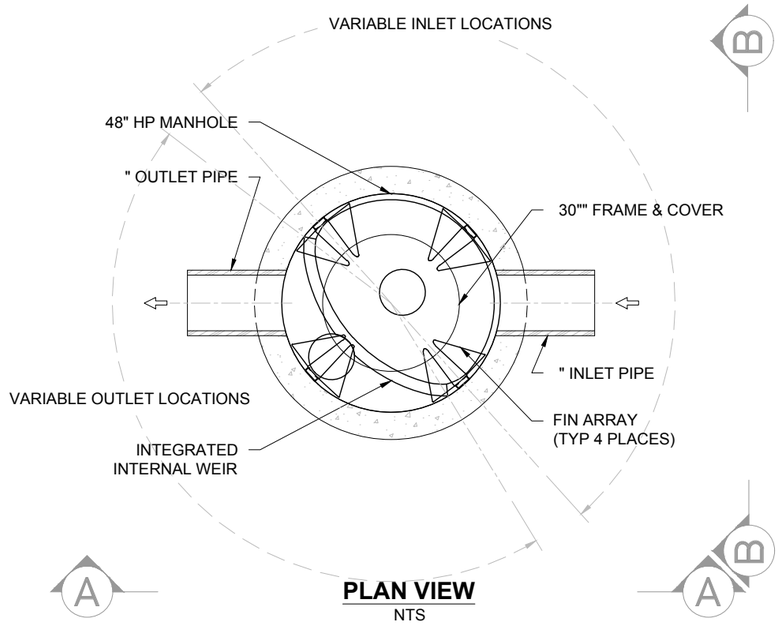
DATE: 10/20/17 DRAWN: EKH
PROJECT #: CHECKED: ----

REV	DWN	CKD	DESCRIPTION

1030 Deer Hollow Drive
Mount Airy, MD 21771
1-800-BAYSAVER
1-800-229-7283
barracuda

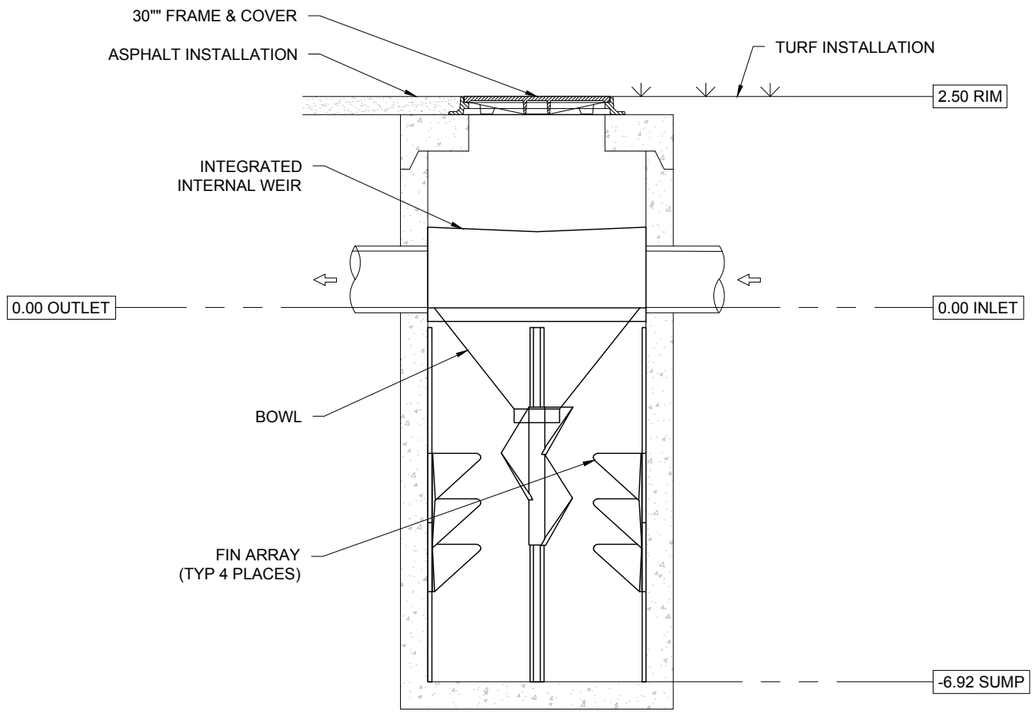
4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADS ADVANCED DRAINAGE SYSTEMS, INC.

NOT TO SCALE

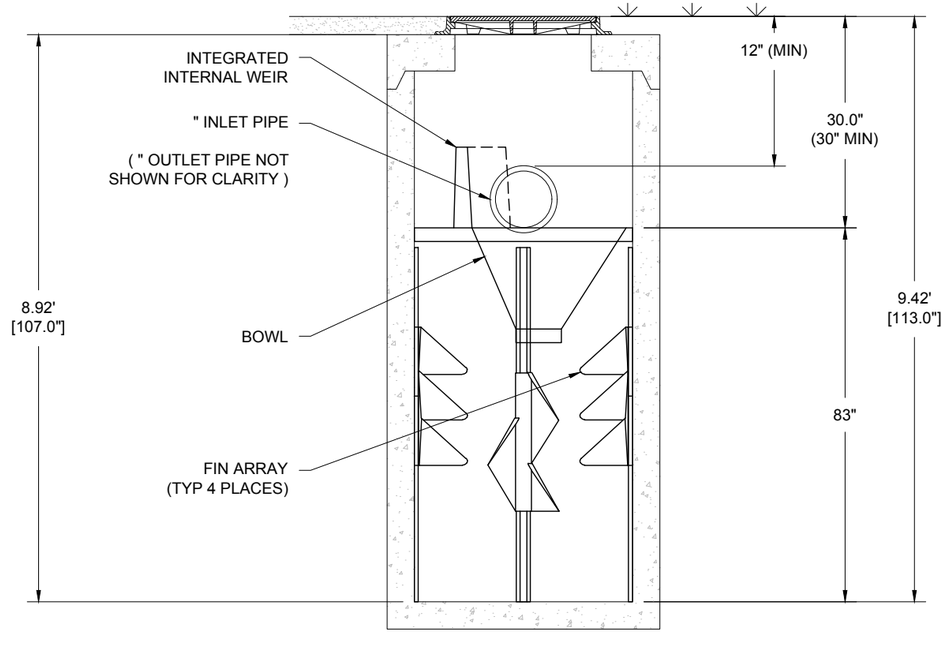


PLAN VIEW
NTS

BARRACUDA S4	
UNIT ID	BMP#1
PEAK FLOW RATE (CFS)	
TREATMENT FLOW RATE (CFS)	1.25 CFS



SECTION VIEW A-A
NTS



SECTION VIEW B-B
NTS

BARRACUDA S4
STANDARD DETAIL

DATE: 10/20/17
DRAWN: EKH
PROJECT #:
CHECKED: ----

REV	DWN	CKD	DESCRIPTION

1030 Deer Hollow Drive
Mount Airy, MD 21771
1-800-BAYSAVER
1-800-229-7283
barracuda

4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADS
ADVANCED DRAINAGE SYSTEMS, INC.

NOT TO SCALE

Maintenance Guide

BaySaver Barracuda™

July 2017

One of the advantages of the BaySaver Barracuda is the ease of maintenance. Like any system that collects pollutants, the BaySaver Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes from 2 to 4 hours, depending on the size of the system, the captured material, and the capacity of the vacuum truck.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and thereafter on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

BaySaver Barracuda Storage Capacities

Model	Manhole Diameter	Treatment Chamber Capacity	Standard Sediment Capacity (20" depth)	NJDEP Sediment Capacity (50% of standard depth)
S3	36"	212 gallons	0.44 cubic yards	0.22 cubic yards
S4	48"	564 gallons	0.78 cubic yards	0.39 cubic yards
S5	60"	881 gallons	1.21 cubic yards	0.61 cubic yards
S6	72"	1269 gallons	1.75 cubic yards	0.88 cubic yards
S8	96"	3835 gallons	3.10 cubic yards	1.55 cubic yards
S10	120"	7496 gallons	4.85 cubic yards	2.43 cubic yards

Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. You'll access this area through the 10" diameter access cylinder.

2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment and trash at an approved facility.
   - Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
   - Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
   - Additional local regulations may apply to the maintenance procedure.

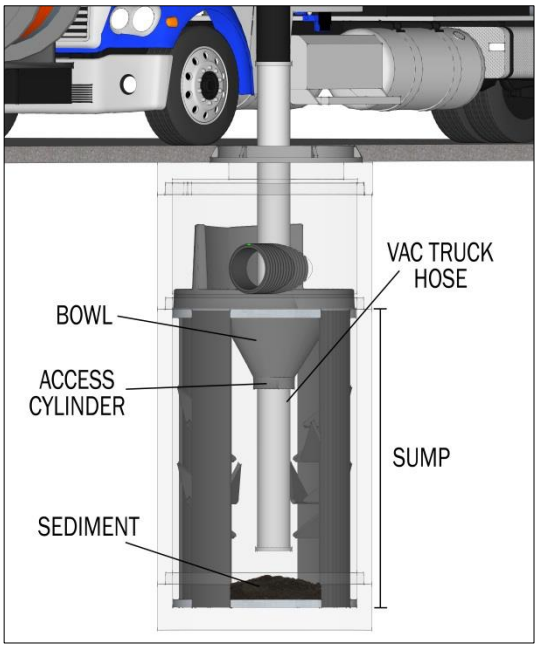


Figure 1

TECHNICAL NOTE

Barracuda® Maximum Hydraulic Rates and Required Rim to Outlet Invert Difference

TN 1.09
January 2020

Introduction

The Barracuda is a single manhole hydrodynamic separator designed to remove total suspended solids and other contaminants from stormwater. The device employs a cone structure with a vertical weir wall separating the inlet(s) and outlet pipes. This weir wall allows the unit to bypass excessive stormwater flows internally once the inletting rates exceed the designed treatment rate. This document describes the maximum hydraulic rate (MHR), or bypass capacity of the device based on unit size and rim to invert elevation difference. MHR should not be confused with Maximum Treatment Rate (MTR) which would be the flow rate at which the device meets prescribed treatment criteria.

Maximum Hydraulic Rate & Rim to Outlet Invert Difference

The maximum hydraulic rate (bypass) is governed in part by the space between the outlet invert elevation and the rim elevation of the structure, accounting for freeboard (air space). The inlet(s) and outlet invert for Barracudas are typically at the same elevation. The table below assumes a 4” tall frame mounted on an 8” thick top slab. Contact Application Engineering for applications that require rim to invert differences shallower than the minimums shown in Table 1, or for bypass rates higher than the maximums listed in Table 1.

The Barracuda can also be configured as an offline system utilizing a diversion structure for higher bypass flow rates, or at the design engineer’s discretion to meet design objectives or to minimize resuspension.

Figure 1
Barracuda Standard Detail

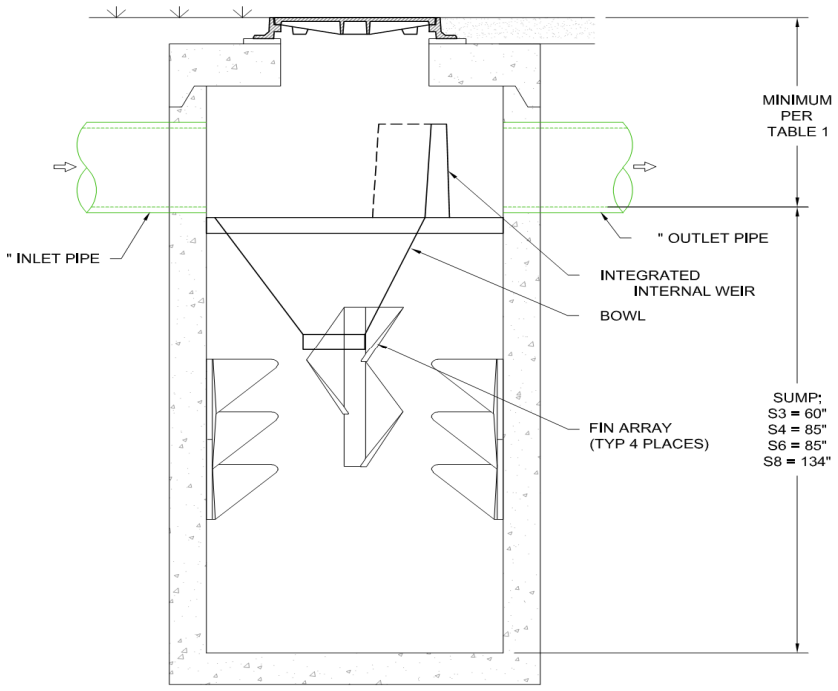


Table 1
Maximum Hydraulic Rate & Rim to Outlet Invert Difference

Barracuda S3 (36” Manhole)	
Maximum Hydraulic Rate (Bypass) cfs (L/s)	Required Rim to Outlet Invert Difference in (mm)
1.4 (39.6)	36 (914)
3.7 (104.8)	40 (1016)
5.5 (155.7)	42 (1066)
8.0 (226.5)	44 (1117)

Barracuda S4 (48” Manhole)	
Maximum Hydraulic Rate (Bypass) cfs (L/s)	Required Rim to Outlet Invert Difference in (mm)
3.5 (99.1)	36 (914)
5.0 (141.5)	40 (1016)
7.75 (219.4)	42 (1066)
10.5 (297.3)	44 (1117)

Barracuda S6 (72” Manhole)	
Maximum Hydraulic Rate (Bypass) cfs (L/s)	Required Rim to Outlet Invert Difference in (mm)
9.5 (269.0)	39 (990)
12.5 (353.9)	41 (1041)
16.0 (453.0)	43 (1092)
20.0 (566.3)	45 (1143)

Barracuda S8 (96” Manhole)	
Maximum Hydraulic Rate (Bypass) cfs (L/s)	Required Rim to Outlet Invert Difference in (mm)
13.0 (368.1)	41 (1041)
15.5 (438.9)	44 (1117)
21.0 (594.6)	46 (1168)
28.0 (792.8)	48 (1219)

CULTEC Separator Row Sizing Tables (Imperial)

Maine DEP / ADS Equivalent Sizing (OK 110 Particle Distribution)

	80% TSS Flow Rate (Maine DEP)	Chamber Width	Installed Chamber Length	Bottom Area	Treatment Rate / Chamber
CONTACTOR 100HD	2.5 gpm/sf	3.00'	7.5'	22.50 s.f.	0.125 cfs
RECHARGER 150XLHD	2.5 gpm/sf	2.75'	10.25'	28.18 s.f.	0.157 cfs
RECHARGER 180HD	2.5 gpm/sf	3.00'	6.33'	18.99 s.f.	0.106 cfs
RECHARGER 280HD	2.5 gpm/sf	3.91'	7.00'	27.37 s.f.	0.152 cfs
RECHARGER 330XLHD	2.5 gpm/sf	4.33'	7.00'	31.31 s.f.	0.174 cfs
RECHARGER 360HD	2.5 gpm/sf	5.00'	3.67'	18.35 s.f.	0.102 cfs
RECHARGER 902HD	2.5 gpm/sf	6.50'	3.67'	23.86 s.f.	0.133 cfs

ETV (ETV / NJDEP Particle Distribution)

	80% TSS Flow Rate (ETV)	Chamber Width	Installed Chamber Length	Bottom Area	Treatment Rate / Chamber
CONTACTOR 100HD	1.0 gpm/sf	3.00'	7.5'	22.50 s.f.	0.050 cfs
RECHARGER 150XLHD	1.0 gpm/sf	2.75'	10.25'	28.18 s.f.	0.063 cfs
RECHARGER 180HD	1.0 gpm/sf	3.00'	6.33'	18.99 s.f.	0.042 cfs
RECHARGER 280HD	1.0 gpm/sf	3.91'	7.00'	27.37 s.f.	0.061 cfs
RECHARGER 330XLHD	1.0 gpm/sf	4.33'	7.00'	31.31 s.f.	0.070 cfs
RECHARGER 360HD	1.0 gpm/sf	5.00'	3.67'	18.35 s.f.	0.041 cfs
RECHARGER 902HD	1.0 gpm/sf	6.50'	3.67'	23.86 s.f.	0.053 cfs

Bolton Vet - DPI Job No.4798
March 8, 2021

Water Quality Volume Calculations
Per 2004 Connecticut Stormwater Quality Manual, Section 7.4.1:

Areas for Calculation: Future Parking Area to Water Quality Basin (Basin)

Impervious	20,291 sf
Pervious	20,905 sf
Total Area	41,196 sf
% Impervious	49.25%

Water Quality Volume (WQV) = (1")[1](R)(A)/12, where:

R = unitless volumetric runoff coefficient = 0.05 + 0.009(I), where:
I = percent impervious cover of drainage area = 49.25%
R = 0.05 + 0.009(I)
R = 0.05 + 0.009(49.25)
R = 0.493

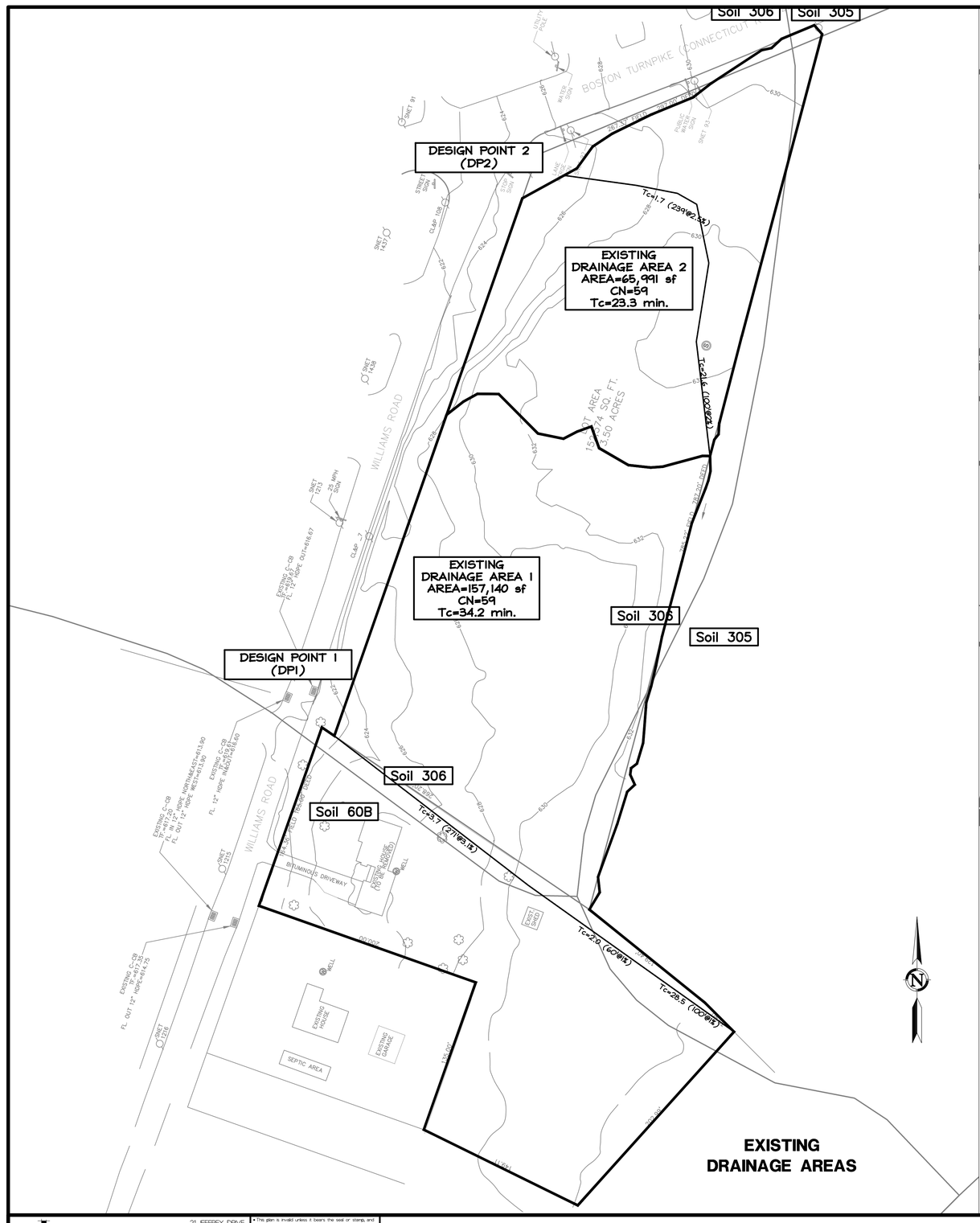
A = drainage area in acres = 0.946 acres

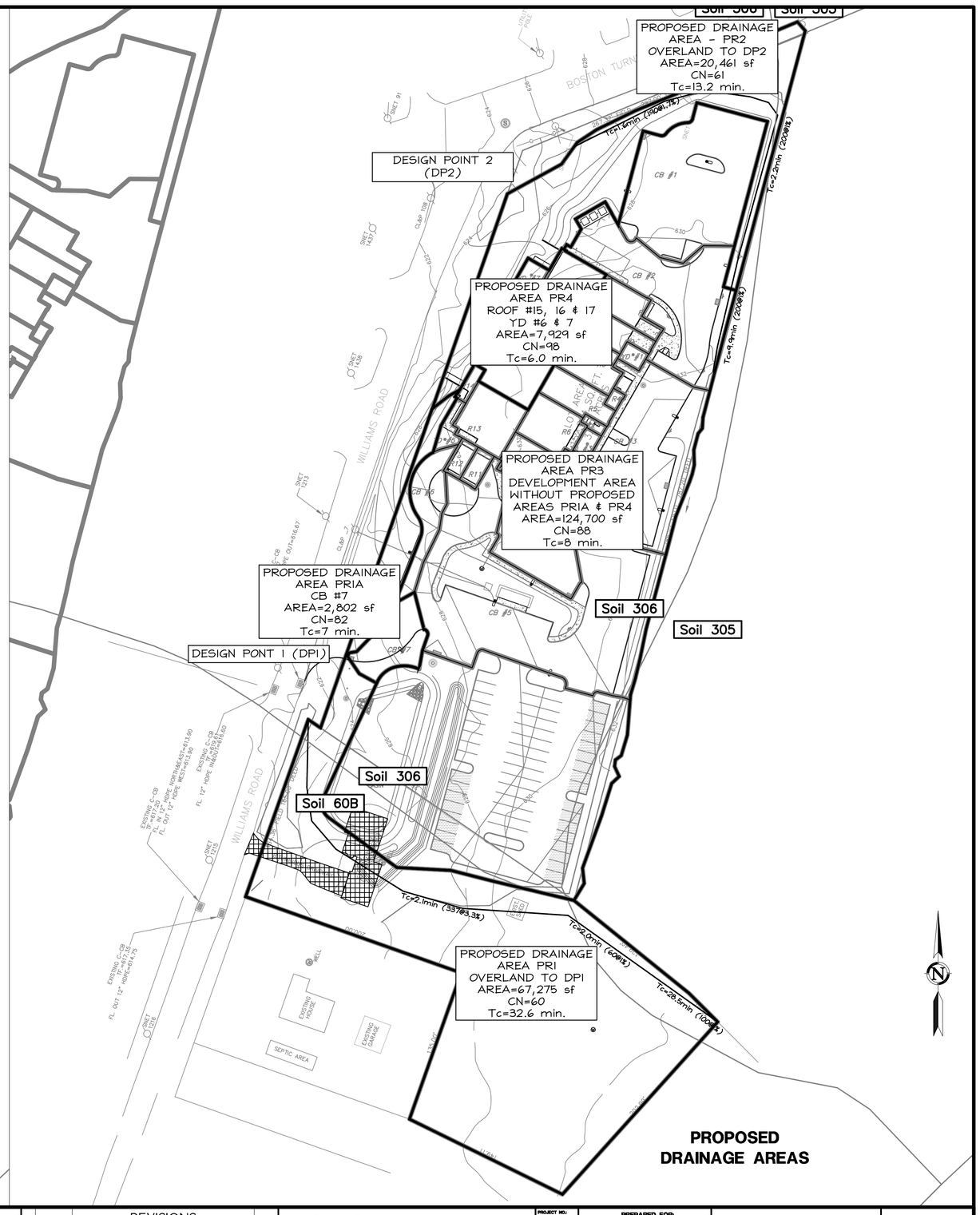
WQV = (1")(R)(A acres)/12 inches per foot
WQV = (1")(0.493)(0.946 acres)/12 inches per foot
WQV = 0.039 acre-feet required = 1,693 cft

Proposed BMP
The proposed water quality forebay is proposed to provide **1735 cft** of water quality storage. The water quality basin will provide storage for more than 100% of the water quality volume.

[1] WQV was calculated based on 1" of rainfall as recommended by the 2004 Water Quality Manual.

APPENDIX H
Drainage Area Maps





Design Professionals
CIVIL & TRAFFIC ENGINEERS / LAND SURVEYORS
PLANNERS / LANDSCAPE ARCHITECTS
21 JEFFREY DRIVE
P.O. BOX 1167
SOUTH WINDSOR, CT 06074
860-291-8755 - T
860-291-8757 - F
www.designprofessionalsinc.com

NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO: 4798
DATE: 3/8/22
DESIGN BY: SPC
DRAWN BY: REM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike (Route 44)
Bolton, CT 06043

DRAINAGE AREAS

SCALE: 1" = 50' (0, 25', 50', 100')

SHEET 1
SHEET 1 OF 1

File: C:\jobs\4798\Engineering\Stormwater\4798 - Drainage.dwg Layout: 01 Exist Drain Plotted: 3/11/2022 11:47 AM Last Saved: 3/11/2022 11:46 AM Last Saved By: suzanne.choate

LAND PURCHASE AND SALE AGREEMENT

THIS LAND PURCHASE AND SALE AGREEMENT ("Agreement") is hereby made by and between NORMAN J. PREUSS, Jr. and SHARON B. PREUSS, of 18 Tunxis Trail, Bolton, Connecticut 06043 ("Seller") and VETERINARIANS OF EASTERN CONNECTICUT LLC, with its principal place of business located at 222 Boston Turnpike, Bolton, Connecticut 06043, ("Buyer").

1. Property To Be Conveyed.

(a) Property Description. Seller agrees to sell to Buyer, and Buyer agrees to purchase from Seller, a piece or parcel of land situated in the Town of Bolton, County of Tolland and State of Connecticut, along, and to the rear of, the southerly side of Boston Turnpike, Bolton, CT consisting of approximately 3.5 acres and being the same property as described in a Deed recorded in volume 173 at page 05 of the Bolton Land Records. The property is further described in Schedule A and the assessors map of said property shown in Schedule B attached hereto and made part hereof.

2. Purchase Price; Payment of Purchase Price. The purchase price for the sale and transfer of the Property is [redacted] DOLLARS ("Purchase Price"), payable as follows:

(a) The sum of $[redacted] ("Deposit") which is made simultaneously with the execution of this Agreement, subject to collection.

(b) The sum of $[redacted] by wire, bank or attorney trustee account check payable to the order of Seller at closing, which sum shall be increased or decreased as a result of closing adjustments made pursuant to Section 3 hereof.

(c) The Deposit and any other similar payment made by Buyer to Seller shall be held in escrow by Seller's attorney, in a non-interest bearing account and such monies shall be released in accordance with the terms and conditions of this Agreement.

3. Adjustments. The following items shall be adjusted on the date of Closing in accordance with the custom of the Tolland County Bar:

(a) Current real estate and personal property taxes and any other water, sewer or other municipal improvement tax, charge or other assessment affecting the Property, provided should any tax, charge or assessment be undetermined on the date of closing, the last determined tax, charge or assessment shall be used for the purposes of this apportionment;

(b) Other customary adjustments in accordance with the Tolland County Bar.

4. Title and Possession.

(a) Real Property Title. Seller shall, at closing, convey to Buyer good and marketable title to an indefeasible estate in fee simple in the Property by warranty deed, in a form suitable for recording, free and clear of all liens, encumbrances, conditions, covenants, easements, restrictions and special assessments or caveats, except (i) any general utility easements of record; (ii) other restrictions and encumbrances of record; (iii) encroachments and conditions that a personal inspection of the Property or a survey would disclose (iv) any restrictions, conditions, and/or limitations to be placed on the Property by any governmental authority, including the zoning, planning, wetland, and other land use rules and regulations of the municipality arising out of any land use approval obtained by Buyer; (v) public regulations; and (vi) any taxes and other governmental impositions of the municipality which become due and payable after the date of closing, all of which taxes Buyer will assume and agree to pay as part of the consideration for this Agreement; provided, however, with respect to (ii) (iii) and (v) above, such matters do not unreasonably affect the title marketability or use of the Property as a Veterinary Hospital.

(b) Title Defined. The above described title to the Property to be conveyed to Buyer shall hereinafter be referred to as "Title" which shall be conclusively deemed acceptable to the extent such Title is in accordance with the Standards of Title of the State of Connecticut as published by the Connecticut Bar Association.

(c) Title Defect. Buyer shall notify Seller, within 60 days of the signing of this land purchase and sale agreement, of any defect in the title of the Property, in which event Seller shall have sixty (60) days in which to cure such defect. If Seller is unable to cure any defect, then Buyer may, at its sole option, to either accept such title as Seller is able to convey or to terminate this Agreement, in which event any Deposit shall be returned promptly to Buyer, provided Buyer is not in violation of this Agreement.

5. Property Condition.

(a) The Property is being sold and conveyed by Seller to Buyer on an "AS-IS" basis. Buyer acknowledges and agrees that Seller has not made, does not make and specifically negates and disclaims any representations, warranties, promises, covenants, agreements or guarantees of any kind or character whatsoever, whether express or implied, oral or written, past, present or future, with respect to: (i) the value, nature, quality, condition, state of repair or lack of repair of the Property; (ii) the compliance of the Property or its use with any laws, rules, ordinances, regulations, orders, or agency practices of any applicable governmental authority or body; (iii) the habitability, merchantability, marketability, profitability or fitness for a particular purpose of the Property; and (iv) any other matter, of whatever nature or kind, with respect to the Property. This paragraph shall survive the closing of the Property.

6. Property Purchase Contingencies.

(a) The Buyers purchase of this property is conditioned upon Buyer, in its sole discretion, approving and accepting all surveys, site plans, architectural drawings, construction cost estimates, soil and underground geology test results, inland wetland compliance, environmental studies and tests, utility access and costs, water availability and costs, traffic studies, parking requirements.

(b) The Buyers purchase of this property is conditioned upon Buyer obtaining all necessary municipal, state and Federal approvals, permits and licenses to construct and operate a Veterinary Hospital within 9 months of the signing of this Land Purchase Agreement.

7, Buyer to Proceed with All Deliberate Speed

(a) Buyer intents to construct a Veterinary Hospital on the property. Buyer shall, with all deliberate speed, engage the services of all the necessary professionals to perform all tests and produce all test results, surveys, plans, drawings, cost estimates and make all necessary applications to obtain all municipal, state and Federal approvals, licenses and permits need to construct and operate a Veterinary Hospital.

8. Grant of License

(a) Seller hereby grants License to Buyer, its employees, contractors, subcontractors, invitees and assigns the right to enter on to the property to conduct all surveys, studies, tests and the like necessary to plan the construction of a Veterinary Hospital. Buyer agrees to return any area of disturbance on the property, caused by any survey, study or test, to its natural state as reasonably possible.

9. Closing.

(a) Closing Date, Place. The closing under this Agreement shall be held at the office of the Buyer or at such other place as the parties shall mutually agree within nine months of the signing of this Land Purchase and Sale Agreement ("Closing Date"). If Buyer fails to close on or before the Closing Date or any permitted extension, then Buyer shall be deemed to be in default of this Agreement.

10. Representations and Warranties.

(a) Each party represents and warrants to the other that it has full authority to execute this Agreement and to execute and deliver such other documents, instruments, agreements and the like as may be necessary to effectuate the transaction contemplated by this Agreement, and to be bound thereunder.

11. Seller's Obligations.

(a) At the time of closing, Seller shall deliver to Buyer:

(i) Any affidavit required under FIRPTA, if necessary.

(ii) A standard Owner's Affidavit reasonably required by Buyer's title insurance company.

(iii) Closing adjustment sheet.

(iv) Other documents as maybe required.

12. Risk of Loss. The risk of loss to the Property prior to the Closing Date shall be borne by Seller.

13. Default: Liquidated Damages.

(a) Buyer's Breach. If the sale of the Property fails to close as a result of any act or omission of Buyer, all sums deposited hereunder shall be retained by Seller as its sole and exclusive remedy for Buyer's breach and as full liquidated damages for such breach in view of the uncertainty and impossibility of ascertaining such damages to Seller. Both Seller and Buyer hereby agree that the aforesaid amount constitutes a reasonable forecast of damage which would be sustained by Seller in the event of breach by Buyer.

(b) Seller's Breach. In the event of any breach of this Agreement by Seller, Buyer at its option may (i) elect to complete the transactions contemplated by this Agreement accepting the Property as is, notwithstanding the Seller's breach, (ii) commence any action in law or in equity, including but not limited to specific performance, or (iii) terminate this Agreement, in which event it is entitled to a refund of the Deposit, provided however, before electing either (ii) or (iii), Buyer shall notify Seller of the alleged breach and Seller shall have sixty (60) days in which to try to cure such breach.

14. Brokerage. Each party warrants to the other that neither has dealt with a real estate broker or finder in connection with this transaction. Should any claim for a commission be established by any other broker or agent, the parties hereby expressly agree to hold one another harmless with respect thereto to the extent that one or the other is shown to have been responsible for the creation of such claim.

15. Binding Effect; Assignment. This Agreement shall inure to the benefit of and bind the parties hereto and their respective legal representatives, heirs, administrators, executors, successors and assigns. Buyer may assign this Agreement to an affiliate or entity of which the members of Buyer have a majority interest, provided, however, the assignee executes and delivers to Seller prior to the Date of Closing an assignment agreement prepared by Seller's attorney and assignee pays to Seller its reasonable cost for the preparation of such an agreement.

16. Entire Agreement; Modifications. This Agreement embodies the entire contract between parties hereto with respect to the Property and the subject matter hereof and supersedes any and all prior negotiations, agreements and understandings, written or oral, formal or informal, all of which are deemed to be merged herein.

17. Invalidity. If any term or provision of this Agreement shall to any extent or for any reason beheld invalid, illegal or unenforceable, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement, but the remainder of this Agreement and each term and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law, subject to such modification hereof as may be necessitated by such invalidity.

18. Applicable Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Connecticut.

19. No Recording of this Agreement. Buyer shall not record this Agreement on the land records of the municipality. If this Agreement is recorded on the land records y Buyer, then it shall be deemed null and void, except for the retention of any deposit by Seller.

20. Waivers; Extensions. No waiver of any breach of any agreement or provision herein contained shall be deemed a waiver of any preceding or succeeding breach thereof or of any other agreement or provision herein contained. All extensions of time with regards to any matters relating to this Land Purchase and Sales agreement and in particular with regards to Paragraphs 4c, 6b, and 9a will be in writing and signed by all the parties herein. Any and all extensions requested will be agreed to and will not be unreasonably withheld so long as the parties are making reasonable efforts to satisfy said conditions herein.

21. Exhibits. All exhibits attached to this Agreement are hereby incorporated herein and made part hereof by this reference to this Agreement.

20. Counterparts; Captions. This Agreement may be executed in counterparts, each of which shall be deemed an original. The captions are for convenience of reference only and shall not affect the construction to be given any of the provisions hereof.

WHEREFORE, in duplicate, the parties hereto have set their hand and executed this Agreement on this

21st day of August, 2020, as to Buyer

and this 17th day of August, 2020, as to Seller.

BUYER:

VETERINARIANS OF
EASTERN CONNECTICUT LLC

By: Edward K. Grace
Authorized Member

SELLER:

Norman J. Preuss

Sharon B. Preuss

21. Exhibits. All exhibits attached to this Agreement are hereby incorporated herein and made part hereof by this reference to this Agreement.

20. Counterparts; Captions. This Agreement may be executed in counterparts, each of which shall be deemed an original. The captions are for convenience of reference only and shall not affect the construction to be given any of the provisions hereof.

WHEREFORE, in duplicate, the parties hereto have set their hand and executed this Agreement on this

21st day of August, 2020, as to Buyer

and this 19th day of August, 2020, as to Seller.

BUYER:

VETERINARIANS OF
EASTERN CONNECTICUT LLC.

By: Edward K. Grace
Authorized Member

SELLER:

Norman J. Preuss

Sharon B. Preuss

SCHEDULE A

All that certain piece or parcel of land, with all buildings and improvements thereon, known as 233 Boston Turnpike, in the Town of Bolton, County of Tolland and State of Connecticut, and being more particularly bounded and described as follows:

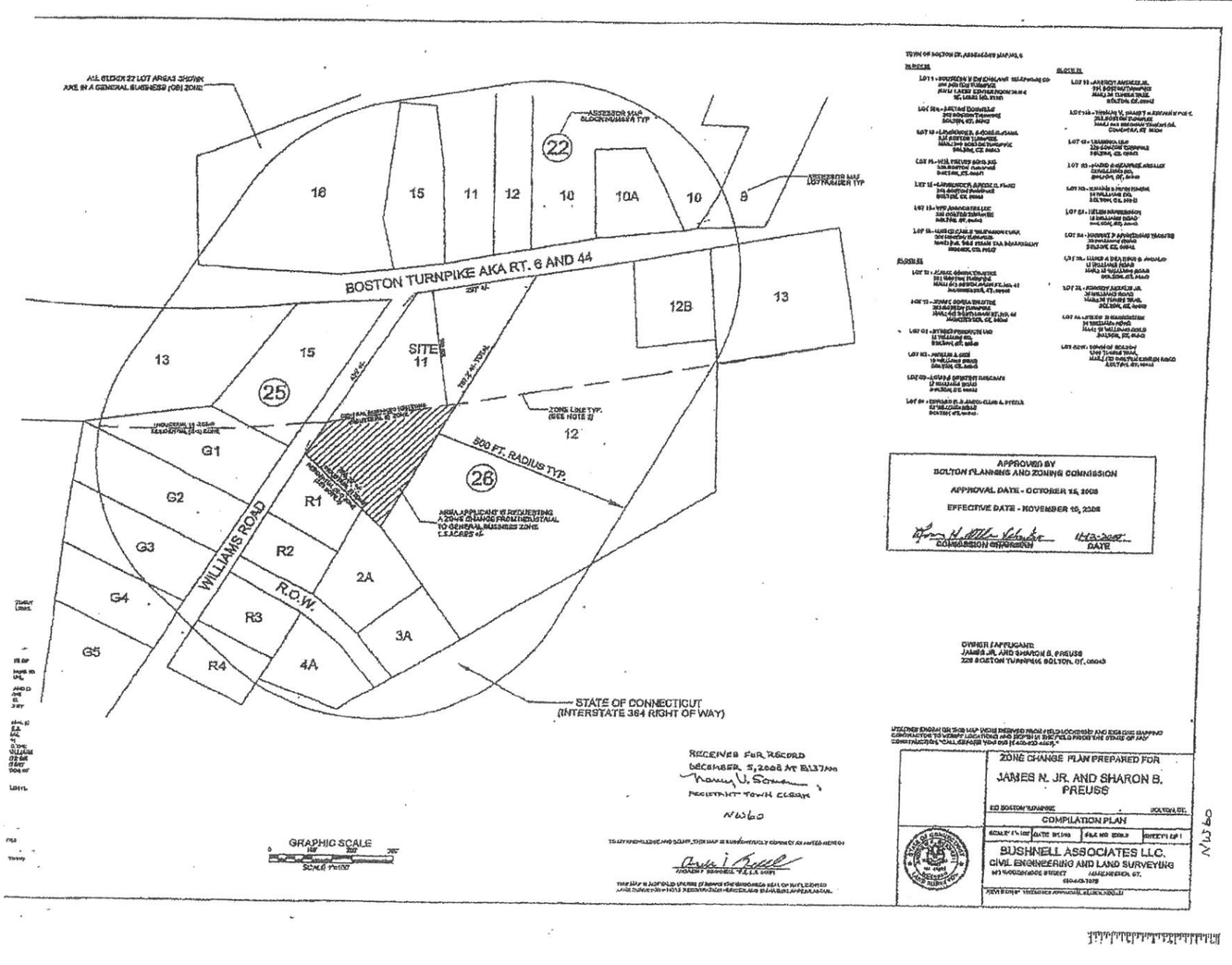
NORTHERLY: by the Boston Turnpike, 297 feet;

EASTERLY: by land now or formerly of Andrew Ansaldi, 787.2 feet;

SOUTHERLY: by land now or formerly of Mario Ansaldi, 268.2 feet; and

WESTERLY: by Williams Road, 495 feet.

NW 60


ALL BLOCK 22 LOT AREAS SHOWN ARE IN A GENERAL BUSINESS (GB) ZONE
ASSESSOR MAP BLOCK NUMBER TYP
ASSESSOR MAP LOT NUMBER TYP
22
16
15
11
12
10
10A
10
9
BOSTON TURNPIKE AKA RT. 6 AND 44
12B
13
13
15
SITE
11
25
26
12
ZONE LINE TYP. (SEE NOTE 2)
500 FT. RADIUS TYP.
AREA APPLICANT IS REQUESTING A ZONE CHANGE FROM INDUSTRIAL TO GENERAL BUSINESS ZONE 1.3 ACRES +/-
WILLIAMS ROAD
R.O.W.
G1
G2
G3
G4
G5
R1
R2
R3
R4
2A
3A
4A
STATE OF CONNECTICUT (INTERSTATE 384 RIGHT OF WAY)
APPROVED BY
BOLTON PLANNING AND ZONING COMMISSION
APPROVAL DATE - OCTOBER 16, 2008
EFFECTIVE DATE - NOVEMBER 15, 2008
COMMISSION CHAIRMAN
DATE
OWNER / APPLICANT:
JAMES JR. AND SHARON B. PREUSS
228 BOSTON TURNPIKE, BOLTON, CT. 06043
RECEIVED FOR RECORD
DECEMBER 5, 2008 AT 8:37AM
NANCY U. SOMMER
RECORDING TOWN CLERK
NW60
GRAPHIC SCALE
SCALE 1"=100'
ZONE CHANGE PLAN PREPARED FOR
JAMES N. JR. AND SHARON B. PREUSS
228 BOSTON TURNPIKE
BOLTON, CT.
COMPILATION PLAN
BUSHNELL ASSOCIATES LLC.
CIVIL ENGINEERING AND LAND SURVEYING
143 WOODSIDE STREET
MANCHESTER, CT.
NW 60

AMENDMENT TO LAND PURCHASE AND SALE AGREEMENT

This Amendment to LAND PURCHASE AND SALE AGREEMENT ("Amendment") is dated December 15, 2021, by and between NORMAN J. PREUSS, Jr. and SHARON B. PREUSS ("Seller") and VETERINARIANS OF EASTERN CONNECTICUT LLC ("Buyer").

PREAMBLE

WHEREAS, Buyer and Seller are parties to LAND PURCHASE AND SALE AGREEMENT dated August 21, 2020.

WHEREAS, the parties desire to amend certain provisions of the Agreement.

NOW THEREFORE, in consideration of the foregoing and other valuable consideration, the parties agree and covenant as follows:

1. Capitalized terms not defined herein shall have the definition set forth in the Agreement.

2. The Agreement is amended to reflect that the Closing Date is extended to on or before APRIL 15, 2022.

3. The parties agree that in regards to this closing date TIME IS OF THE ESSENCE.

4. This Amendment may be executed and delivered in any number of counterparts, each of which so executed and delivered shall be deemed to be an original and all of which shall constitute one and the same instrument. Signatures transmitted by facsimile or other means of electronic communication that are capable of retention, retrieval and reproduction shall be deemed original.

5. Upon execution of this Amendment the term "Agreement" as used in the Agreement shall mean the LAND PURCHASE AND SALE AGREEMENT by and between Buyer and Seller as modified by this Amendment.

6. In the event of any conflict between the provisions of this Amendment and of the Agreement, the provisions of this Amendment shall control.

Buyer and Seller have hereunto set their hands and seals as of the day and year first written above.

SELLER:

NORMAN J. PREUSS, Jr.

SHARON B. PREUSS

BUYER:

VETERINARIANS OF EASTERN CONNECTICUT LLC

By:_____
Edward K. Grace, Member
Duly Authorized

Buyer and Seller have hereunto set their hands and seals as of the day and year first written above.

SELLER:

_____
NORMAN J. PREUSS, Jr.

_____
SHARON B. PREUSS

BUYER:

VETERINARIANS OF EASTERN CONNECTICUT LLC

By: _____
Edward K. Grace, Member
Duly Authorized

PURCHASE AND SALE AGREEMENT

THIS PURCHASE AND SALE AGREEMENT ("Agreement") is hereby made by and between MARIO ANSALDI, of 12 Williams Road, Bolton, Connecticut 06043 ("Seller") and VETERINARIANS OF EASTERN CONNECTICUT LLC, with its principal place of business located at 222 Boston Turnpike, Bolton, Connecticut 06043, ("Buyer").

1. Property To Be Conveyed.

(a) Property Description. Seller agrees to sell to Buyer, and Buyer agrees to purchase from Seller, a 1.67 Acre piece or parcel of land with a residential dwelling thereon, situated in the Town of Bolton, County of Tolland and State of Connecticut, and known as 12 Williams Road, Bolton, Connecticut 06043.

2. Purchase Price: Payment of Purchase Price. The purchase price for the sale and transfer of the Property is [redacted] DOLLARS ("Purchase Price"), payable as follows:

The sum of $[redacted] ("Deposit") payable as follows:

(a) $[redacted];

(b) $[redacted] delivered to the Attorney for the Seller within 20 days from the date Buyer accepts all approvals, permits and licenses to construct a Veterinary Hospital;

(c) The sum of $[redacted] by wire, bank or attorney trustee account check payable to the order of Seller at closing, which sum shall be increased or decreased as a result of closing adjustments made pursuant to Section 3 hereof;

(d) The Deposit of $[redacted] and any other similar payment made by Buyer to Seller shall be held in escrow by Seller's attorney, in a non-interest-bearing account and such monies shall be released in accordance with the terms and conditions of this Agreement;

(e) If Buyer does not accept all approvals, licenses and permits to construct a Veterinary Hospital Seller shall retain $1,000 and cause the remainder of funds being held in escrow to be returned to Buyer.

3. Adjustments. The following items shall be adjusted on the date of Closing in accordance with the custom of the Tolland County Bar:

(a) Current real estate and personal property taxes and any other water, sewer or other municipal improvement tax, charge or other assessment affecting the Property. Any unpaid installment assessment shall be paid in full at closing by Seller.

(b) Other customary adjustments in accordance with the Tolland County Bar.

4. Title and Possession.

(a) Real Property Title. Seller shall, at closing, convey to Buyer good and marketable title to an indefeasible estate in fee simple in the Property by warranty deed, in a form suitable for recording, free and clear of all liens, encumbrances, conditions, covenants, easements, restrictions and special assessments or caveats, except (i) any general utility easements of record; (ii) other restrictions and encumbrances of record; (iii) encroachments and conditions that a personal inspection of the Property or a survey would disclose (iv) any restrictions, conditions, and/or limitations to be placed on the Property by any governmental authority, including the zoning, planning, wetland, and other land use rules and regulations of the municipality arising out of any land use approval obtained by Buyer; (v) public regulations; and (vi) any taxes which become due and payable after the date of closing, all of which taxes Buyer will assume and agree to pay as part of the consideration for this Agreement; provided, however, with respect to (ii) (iii) (iv) and (v) above, such matters do not unreasonably affect the title marketability or use of the Property as a Veterinary Hospital.

(b) Title Defined. The above title to the property to be conveyed to Buyer shall be conclusively deemed acceptable to the extent such Title is in accordance with the Standards of Title of the State of Connecticut as published by the Connecticut Bar Association.

(c) Title Defect. Buyer shall notify Seller, within thirty (30) days of the signing of this land purchase and sale agreement, of any defect in the title of the Property, in which event Seller shall have thirty (30) days in which to cure such defect. If Seller is unable to cure any defect, then Buyer may, at its sole option, to either accept such title as Seller is able to convey or to terminate this Agreement, in which event any Deposit shall be returned promptly to Buyer, provided Buyer is not in violation of this Agreement.

5. Property Condition.

(a) Buyer acknowledges and agrees that Seller has not made, does not make and specifically negates and disclaims any representations, warranties, promises, covenants, agreements or guarantees of any kind or character whatsoever, whether express or implied, oral or written, past, present or future, with respect to: (i) the value, nature, quality, condition, state of repair or lack of repair of the Property; (ii) the compliance of the Property or its use with any laws, rules, ordinances, regulations, orders, or agency practices of any applicable governmental authority or body; (iii) the habitability, merchantability, marketability, profitability or fitness for a particular purpose of the Property; and (iv) any other matter, of whatever nature or kind, with respect to the Property. This paragraph shall survive the closing of the property.

6. Property Purchase Contingencies.

(a) The Buyers purchase of this property is conditioned upon Buyer, approving and accepting all soil and water test results, environmental test results and house inspection results.

(b) The Buyers purchase of this property is conditioned upon Buyer obtaining and approving all necessary approvals, permits and licenses to construct and operate a Veterinary Hospital on a portion of the property within ninety (90) days of the signing of this Purchase and Sales Agreement. If Buyer is in compliance with all other terms of this contract and needs additional time to obtain said approvals, permits and licenses Seller shall grant a reasonable time extension of this contract to obtain said approvals, permits and licenses.

7, Buyer to Proceed with All Deliberate Speed

(a) Buyer shall, with all deliberate speed, engage the services of all the necessary professionals to perform all tests and produce all test results, surveys, plans, drawings, cost estimates and make all necessary applications to obtain approvals, licenses and permits needed to construct and operate a Veterinary Hospital.

8. Grant of License

(a) Seller hereby grants License to Buyer, its employees, contractors, subcontractors, invitees and assigns the right to enter on to the property to conduct all inspections, surveys, studies, tests and the like necessary for the construction of a Veterinary Hospital. Buyer agrees to return any area of disturbance on the property, caused by any inspection, survey, study or test, to its natural state as reasonably possible. Upon request of Seller, Buyer shall provide Seller with a Certificate of Insurance for any inspection, surveys, studies or tests performed by a subcontractor of Buyer or any person performing an on-site inspection of the property.

9. Closing.

(a) Closing Date, Place. The closing under this Agreement shall be held at the office of the Buyer or at such other place as the parties shall mutually agree within ninety (90) days of the signing of this Land Purchase and Sale Agreement ("Closing Date"). If Buyer fails to close on or before the Closing Date or any permitted extension, then Buyer shall be deemed to be in default of this Agreement.

10. Representations and Warranties.

(a) Each party represents and warrants to the other that it has full authority to execute this Agreement and to execute and deliver such other documents, instruments, agreements and the like as may be necessary to effectuate the transaction contemplated by this Agreement, and to be bound thereunder.

11. Seller's Obligations.

(a) At the time of closing, Seller shall deliver to Buyer:

(i) Any affidavit required under FIRPTA, if necessary.

(ii) A standard Owner's Affidavit reasonably required by Buyer's title insurance company.

(iii) Closing adjustment sheet.

(iv) Warranty Deed.

(v) Connecticut Real Estate Conveyance Tax Form.

(vi) Other documents as maybe required.

12. Risk of Loss. The risk of loss to the Property prior to the Closing Date shall be borne by Seller.

13. Default; Liquidated Damages.

(a) Buyer's Breach. If the sale of the Property fails to close as a result of any act or omission of Buyer, all sums deposited hereunder shall be retained by Seller as its sole and exclusive remedy for Buyer's breach and as full liquidated damages for such breach in view of the uncertainty and impossibility of ascertaining such damages to Seller. Both Seller and Buyer hereby agree that the aforesaid amount constitutes a reasonable forecast of damage which would be sustained by Seller in the event of breach by Buyer.

(b) Seller's Breach. In the event of any breach of this Agreement by Seller, Buyer at its option may (i) elect to complete the transactions contemplated by this Agreement accepting the Property as is, notwithstanding the Seller's breach, (ii) commence any action in law or in equity, including but not limited to specific performance, or (iii) terminate this Agreement, in which event it is entitled to a refund of the Deposit, provided however, before electing either (ii) or (iii), Buyer shall notify Seller of the alleged breach and Seller shall have thirty (30) days in which to try to cure such breach.

14. Brokerage. Each party warrants to the other that neither has dealt with a real estate broker or finder in connection with this transaction. Should any claim for a commission be established by any other broker or agent, the parties hereby expressly agree to hold one another harmless with respect thereto to the extent that one or the other is shown to have been responsible for the creation of such claim.

15. Binding Effect; Assignment. This Agreement shall inure to the benefit of and bind the parties hereto and their respective legal representatives, heirs, administrators, executors, successors and assigns. Buyer may assign this Agreement to an affiliate or entity of which the members of Buyer have a majority interest, provided, however, the assignee executes and delivers to Seller prior to the Date of Closing an assignment agreement.

16. Entire Agreement; Modifications. This Agreement embodies the entire contract between parties hereto with respect to the Property and the subject matter hereof and supersedes any and all prior negotiations, agreements and understandings, written or oral, formal or informal, all of which are deemed to be merged herein.

17. Invalidity. If any term or provision of this Agreement shall to any extent or for any reason beheld invalid, illegal or unenforceable, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement, but the remainder of this Agreement and each term and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law, subject to such modification hereof as may be necessitated by such invalidity.

18. Applicable Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Connecticut.

19. No Recording of this Agreement. Buyer shall not record this Agreement on the land records of the municipality.

20. Waivers; Extensions. No waiver of any breach of any agreement or provision herein contained shall be deemed a waiver of any preceding or succeeding breach thereof or of any other agreement or provision herein contained. All extensions of time with regards to any matters relating to this Purchase and Sales agreement and in particular with regards to Paragraphs 4c, 6b, and 9a will be in writing and signed by all the parties herein. Any and all extensions requested will be agreed to and will not be unreasonably withheld so long as the parties are making reasonable efforts to satisfy said conditions herein.

21. Counterparts; Captions. This Agreement may be executed in counterparts, each of which shall be deemed an original. The captions are for convenience of reference only and shall not affect the construction to be given any of the provisions hereof.

22. Copies of Executed Contract. The parties agree that copies of this agreement when executed shall be as valid and enforceable as an original.

WHEREFORE, the parties hereto have set their hand and executed this Purchase and Sale Agreement on the days set forth below.

BUYER:

VETERINARIANS OF
EASTERN CONNECTICUT LLC

By: Edward K. Grace,
Duly Authorized Member

Dated: March 2, 2022.

SELLER:

Mario Ansaldi

By: Cheryl Estock, Atty-In-Fact

Dated: March 2, 2022

233 BOSTO

N/F 500' ABUTTERS

KEY	OWNER	OWNER ADDRESS	TOWN
1	UNITED CABLE TELEVISION CORP	1701 JOHN F KENNEDY BLVD	PHILADELPHIA, PA 19103
2	SIMONIZ USA INC	201 BOSTON TPKE	BOLTON, CT 06043
3	BU LEIVA CELSO F	18 WILLIAMS RD	BOLTON, CT 06043
4	MICHALEK SETH	22 WILLIAMS RD	BOLTON, CT 06043
5	STEELE EDWARD P & JACQUELINE A	21 WILLIAMS RD	BOLTON, CT 06043
6	TOCE MARK A	17 WILLIAMS RD	BOLTON, CT 06043
7	SIMONIZ USA INC	201 BOSTON TPKE	BOLTON, CT 06043
8	SYNDET PRODUCTS INC	201 BOSTON TPKE	BOLTON, CT 06043
9	GORRA JENNIE TRUSTEE	201 BOSTON TURNPIKE	BOLTON, CT 06043
10	GORRA JENNIE TRUSTEE	201 BOSTON TURNPIKE	BOLTON, CT 06043
11	VPC ASSOCIATES LLC	222 BOSTON TPKE	BOLTON, CT 06043
12	PREUSS W H SONS INC	228 BOSTON TPKE	BOLTON, CT 06043
13	FIANO LAWRENCE F & ROSE D	240 BOSTON TPKE	BOLTON, CT 06043
14	FIANO LAWRENCE F & ROSE D	240 BOSTON TPKE	BOLTON, CT 06043
15	BOLTON EXXON LLC	262 BOSTON TPKE	BOLTON, CT 06043
16	BOLTON SENIOR COMMUNITY LLC	1622 MAIN STREET	EAST HARTFORD, CT 06108
17	TSAMBIKA LLC	275 BOSTON TPKE	BOLTON, CT 06043
18	263 BOSTON TURNPIKE LLC	263 BOSTON TPKE	BOLTON, CT 06043
19	ANSALDI ANDREW JR EST OF &	39 TUNXIS TRAIL	BOLTON, CT 06043
20	ANSALDI ANDREW JR EST OF &	39 TUNXIS TRAIL	BOLTON, CT 06043
21	BU LEIVA CELSO F	18 WILLIAMS ROAD	BOLTON, CT 06043

ZONING TABLE

ZONE: GMUIZ – GATEWAY MIXED USE INDUSTRIAL ZONE

ITEM	REQUIRED/ ALLOWED	PROPOSED
MINIMUM LOT AREA	120,000 SF	222,561 SF
MINIMUM LOT FRONTAGE	200'	297'
MINIMUM FRONT YARD	25'	19.32'
MINIMUM SIDE/REAR YARD	25'	313

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Patrick Kearney
Town of Manchester
125 Spring St.
P.O. Box 191
Manchester, CT. 06045-0191

9590 9402 7154 1251 9488 34

2. Article Number *(Transfer from service label)*

7020 0090 0000 7963 2160

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

3/5

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
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PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

UCONN
UNIVERSITY OF CONNECTICUT

April 11, 2022

Mr. Andrew Bushnell
Bushnell Associates LLC.
563 Woodbridge St.
Manchester, CT 06042

Re: Proposed New Construction: Bolton Veterinary Hospital

Dear Mr. Bushnell:

The Office of State Archaeology (OSA) reviewed proposed plans for the proposed new veterinary hospital at 233 Bolton Turnpike and 12 Williams Road in Bolton. The proposed construction includes demolition of the existing house at 12 Williams Road and construction of a new hospital facility and associated infrastructure, including parking areas, drainage, utilities, and landscaping.

OSA reviewed state archaeological site files and reports, USDA soil maps, historic maps, and aerial photographs to assess the archaeological sensitivity of the project area. The proposed project location is bordered by Bolton Turnpike to the north, Williams Road to the west, and on the east it is bordered by a sand/gravel pit. The overall area is heavily developed with commercial and residential properties. Soils across most of the project area are mapped as Udorthents-Urban land, although the soils in the southern third of the parcel are mapped as Canton-Charlton fine sandy loam. The topography is low-lying, relative to the surrounding landscape. Review of historic topographic maps and aerial photographs show two structures that appear to have been residential, in the northern portion of the project area in the mid-20th century; these structures disappear from the maps around 1990. The state archaeological site files include six recorded archaeological sites within a mile of the project area. Of these two contained pre-contact Native American materials and four remaining sites date to the historic period. None are in proximity to the project area.

Given the topography, distance from fresh water, past development, soil classifications, and record of documented archaeological sites, the proposed project area has low potential for intact archaeological resources related to past pre-contact Native American or historic-period settlement. As such, the proposed undertaking is unlikely to impact any archaeological resources. No archaeological survey is necessary, as it is unlikely to yield significant information about the past.

Should you have any questions, feel free to contact me at sarah.sportman@uconn.edu or (860) 617-6884.

Sincerely,

Sarah P. Sportman, Ph.D.
State Archaeologist

cc: Andrew Bushnell, P.E., L.S.

OFFICE OF STATE ARCHAEOLOGY
CONNECTICUT STATE MUSEUM OF NATURAL HISTORY & DEPARTMENT OF ANTHROPOLOGY
UCONN, 354 MANSFIELD ROAD
STORRS, CONNECTICUT 06269-1176
Sarah.Sportman@uconn.edu PHONE 860.617.6884
Osa.uconn.edu

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

Manisha Juthani, MD
Commissioner

Ned Lamont
Governor

Susan Bysiewicz
Lt. Governor

Drinking Water Section

April 19, 2022

Mr. Edward K. Grace
Member
Veterinarians of Eastern Connecticut, LLC
222 Boston Turnpike
Bolton, CT 06043

PUBLIC WATER SYSTEM: Veterinarians of Eastern Connecticut
TOWN: Bolton
CLASSIFICATION: NTNC
DPH PROJECT NUMBER: #2021-0113

RE: CPCN Phase I-A Well Site Suitability Certifications for Well #1 & Well #2A – Approved withdrawal rates of less than ten gallons per minute

Dear Mr. Grace:

In accordance with the attached Notices of Well Site Suitability Certification and pursuant to the authority of Connecticut General Statutes (CGS) Section 25-33(b) and Regulations of Connecticut State Agencies (RCSA)Section 19-13-B102(d)(2) proposed Wells #1 & #2 have been inspected and found to be suitable for drilling wells with a withdrawal rate of less than ten (10) gallons per minute (gpm) at the locations specified in the application and subject to the enclosed terms of the well site review. These well locations presently meet the requirements of RCSA Section 19-13-B51d(a) and CGS Section 25-33(b) and are subject to the enclosed terms of the well site review. These sites as proposed presently meet the requirements of RCSA Section 19-13-B51d(a) and CGS Section 25-33(b) according to the information provided in the well site application. It is the responsibility of the public water system to maintain the 75 foot radius of these wells to assure drinking water purity and prevent contamination and potential violations of the RCSA. At the time of the well site application, information provided by the applicant did not identify any known sources of pollution nor identified any concerns with the well locations.

It is the responsibility of the public water system owner to maintain the 75-foot radius of this well to assure drinking water purity, prevent contamination and potential violations of the RCSA, and limit chemical use within the sanitary radius.

Phone: (860) 509-7333 • Fax: (860) 509-7359
Telecommunications Relay Service 7-1-1
410 Capitol Avenue, P.O. Box 340308, MS DWS 12
Hartford, Connecticut 06134-0308
www.ct.gov/dph

Copies of the attached Well Site Suitability Certifications must be provided to the well drilling contractor prior to drilling and construction of the wells. The Public Water System will be fully responsible for maintaining the sanitary conditions within the Sanitary Radii of this proposed wells. Any changes affecting the sanitary condition within the sanitary radius for the proposed wells may lead to a revocation of this site suitability approval. This Well Site Suitability Certification does not relieve the public water system of its responsibility to comply with other applicable federal, state and local laws.

Please be reminded that this approval is not the final approval of the CPCN. You must seek and obtain Phase I-B and Phase II approvals from DPH before you can construct the new public water system.

Components of the required water quality monitoring conducted on this well as part of the approval process will indicate the potential corrosivity of the water. If the department determines that a significant potential exists for elevated lead and/or copper levels, corrosion control treatment will be required prior to final approval of this well.

When this source is approved for use, the water system will be required to conduct routine distribution tap monitoring for lead and copper every six months to demonstrate optimum corrosion control in the distribution system. Your water quality monitoring schedule will be updated at that time to reflect this change.

The Department of Public Health (DPH) has completed its review of your Phase I-A application for a "Certificate of Public Convenience and Necessity" (CPCN) and has hereby granted its approval of this phase by issuing the Well Site Suitability Certifications.

Should you have any questions or concerns regarding the Phase I-A approval, please contact Rich Iozzo of this office.

Sincerely,

Lori J. Mathieu '22

Lori J. Mathieu
Public Health Branch Chief
Environmental Health and Drinking Water Branch

c: Heather Aaron, MPH, LHNA, Deputy Commissioner, DPH
Doug Hoskins, DEEP
Mandy Smith, Supervising Sanitary Engineer, Capacity Development Unit, DPH
Robert L. Miller, Director of Health, Eastern Highlands Health District
James DeSellier, Consultant, Lenard Engineering, Inc.
Andrew Bushnell, Consultant, Bushnell Associates, LLC

NOTICE OF WELL SITE SUITABILITY CERTIFICATION

FROM: Rich Iozzo, Environmental Analyst 2
DATE: April 19, 2022
DATE OF SITE VISIT: November 16, 2021
VISITED WITH: James DeSellier, Lenard Eng.; Andrew Bushnell, Bushnell Assoc.; Lisette Stone, CTDPH
SUBJECT: Well Site Review: **Well #1**
TOWN: Bolton
DPH Project #: #2021-0113
NEED FOR SUPPLY: This new proposed water system will be constructed to serve a veterinary hospital with approximately 150 employees. The applicant has proposed to drill two wells, however depending on yield, may only need one public supply well. At the time of the site inspection, an existing well was identified on the property that is planned to be properly abandoned in accordance with RCSA 25-128-57.

Background Information		
Public Water System Or Owner	Veterinarians of Eastern Connecticut, LLC	
Consulting Engineer	James DeSellier, Lenard Engineering, Inc.	
Site Location	233 Boston Turnpike, Bolton, CT	
Licensed Well Driller	TBD	
Type Of Well Proposed	Bedrock	
Proposed Withdrawal Rate	Less than 10 gallons per minute	
Existing Topography	Flat	
Groundwater Quality Of Aquifer	GA	
Adjacent Well Locations	Wells within proximity to Proposed Well #1: Existing (To be Abandoned) well approximately 100 ft NW. Simoniz USA (CT0120302) well is approximately 375 ft West. Comcast Corp Well (CT0120434) is approximately 500 ft North.	
Nearby Wells required to be tested per CGS Section 25-33(b) and CGS Section 16-262(m)(e)(1)(G)	Refer to #12 under terms of the well site suitability certification for recommendations to assess/monitor private and public wells nearby the proposed Well #1 for interference. Coordinate with the local health department concerning identification, notification and testing of any wells within, minimally, 500 feet.	
Source Water Area	18 acres	
Ownership or Control of Sanitary Radius	The 75 foot sanitary radius is owned by Veterinarians of Eastern Connecticut, LLC	
Groundwater Under The Direct Influence of Surface Water Study	Not Required	
DEEP Contacted On	By way of this document	
Map Information	"Veterinarians of Eastern Connecticut, LLC Preliminary Site Plan", October 12, 2021 & "Bolton Vet Hospital", March 11, 2022	
GPS Points	Lat: N 41.783402	Lon: W -072.461059

Sources Of Pollution In Area per RCSA 19-13-B51	**Distance (feet)**	**Compass Heading**
Subsurface Sewage System (septic tank/leaching fields)	N/A	N/A
Sanitary Sewer	284	NE
Storm Drain	50	NE
Foundation, Floor Drain	N/A	N/A
Dry Well	N/A	N/A
Annual High Water Mark for Surface Water Body	N/A	N/A
Liquid Fuel Storage Tank/Piping	N/A	N/A
Gaseous Fuel Storage Tank/Piping	240	N

Water Supply Planning	
Water Utility Coordinating Committee (WUCC)	Central WUCC
Exclusive Service Area Provider	CTWC
Distance to closest public water system water main*	3 miles +/-
Compliance with CGS Section 25-33(i)	CTWC Supported (11/10/21)
* Pursuant to CGS Section 16-262m (e), this system will be required to interconnect to a viable public water system if and when it becomes available. The Department will determine if a supply is available based on supply capacity, distance to system, cost to interconnect and other factors.	

TERMS OF THE WELL SITE REVIEW

1. The well must be constructed and completed in accordance with the Regulations of Connecticut State Agencies (RCSA) Sections 19-13-B51 (a) through (l) and the Connecticut Well Drilling Code Sections 25-128-33 through 25-128-64.

2. Veterinarians of Eastern Connecticut, LLC is a non-transient non community public water system that owns the entire 75-foot radius of the new proposed Well #1. Veterinarians of Eastern Connecticut, LLC is responsible for maintaining the 75-foot radius of this well to assure drinking water purity and prevent contamination and potential violations of the RCSA.

3. The location of the proposed well, as noted on the site plan dated March 11, 2022, provided with the Application for a Well Site Suitability Certification, cannot be altered without written approval from this office.

4. This office must be notified immediately in writing of any pollution, spills, or any change to the sanitary conditions or the sources of pollution within the recharge area of the proposed well prior to drilling. This information may lead to a modification of this well site suitability review. Drilling must be carried out by a licensed well driller in a manner which prevents contamination of the groundwater aquifer. Any contamination identified or caused in the groundwater recharge area during the drilling operation must be reported to this office in writing.

5. This Well Site Suitability Certification is valid until October 11, 2022. If the well is not drilled by this date the approval expires, and a new well site application must be provided to this office for review. In that case, a new written review must be issued by this office prior to well development.

6. RCSA Section 19-13-B51d requires a minimum separating distance of 75 feet from the well to sanitary sewer lines. Greater separating distance shall be required for certain industrial wastes or certain rock formations. If the sanitary sewer is constructed of extra heavy cast iron pipe with leaded joints or equal approved type of joint, a minimum separating distance of 25 feet is required per RCSA Section 19-13-B51d(a)(2).

7. The well must be constructed and completed in accordance with the Drinking Water Section's "General Terms for Well Site Development." This document can be obtained via the Drinking Water Sections website by clicking on Forms and Applications and then Well Site Approval. It is the responsibility of the applicant to review and follow the conditions outlined within this document.

8. Components of the required water quality monitoring conducted on this well as part of the approval process will indicate the potential corrosivity of the water. Although there is no requirement to monitor for lead in drinking water for this classification of public water system, it is recommended that the water quality be analyzed for corrosive properties to determine the potential for leaching of lead into the water supply. If the water is deemed to be corrosive, it is recommended that periodic first-draw tests for lead be conducted. The department can assist in analyzing the water chemistry and the potential for risks to public health.

9. Use and overuse of snow/ice control products near the wellhead areas can negatively affect drinking water quality. Best management practices must be developed to protect drinking water quality.

10. The following public water systems are located within 500 feet of Well #1: CTWC – Birchwood Estate - CT0790051; Comcast Corporation - CT0120434; Bolton Shell – CT0120504; Simoniz USA CT0120302. These public water systems must be contacted to be monitored for interference during the yield test. Proposed Veterinarians of Eastern Connecticut, LLC must also identify and monitor private wells within 500 feet of proposed Well #1. Private well information may be obtained through the local health department.

11. **DIOXIN MONITORING WAIVER**: Veterinarians of Eastern Connecticut, LLC has submitted certification that the zone of influence of Well #1 has not been or is not being used for any of the following land uses: pesticides and herbicides manufacturer, pulp and paper manufacturer, plastics manufacturer, wood preservative manufacturer, landfill and domestic waste transfer station, or hazardous waste disposal facility; and that the public water system has no water quality history indicating the presence of dioxin. This information has been verified and Veterinarians of Eastern Connecticut, LLC is granted a waiver from monitoring for dioxin for Well #1 for the initial compliance period. This waiver is subject to renewal during each compliance period.

12. **ENDOTHALL MONITORING WAIVER:** Veterinarians of Eastern Connecticut, LLC has submitted certification that endothall has not been applied in the zone of influence of Well #1. This information has been verified and Veterinarians of Eastern Connecticut, LLC is granted a waiver from monitoring for endothall for Well #1 for the initial compliance period. This waiver is subject to renewal during each compliance period.

13. Veterinarians of Eastern Connecticut, LLC must collect a water sample from Well #1 for analysis for perfluoroheptanoic acid (PFHpA), perfluorohexane sulfonate (PFHxS), perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), and perfluorononanoic acid (PFNA). The samples

must be analyzed using EPA method 537 at an approved lab registered in CT to perform this method. The results of the sample must be provided to the DPH with the Phase IB Application. A list of laboratories is attached and may be found on the Department of Public Health's website.

14. Veterinarians of Eastern Connecticut, LLC has noted that the drainage system will be made of pipe material which complies with minimum separation distances; however it is advised that the distance to the storm drainage piping be increased to ensure a safe distance to the proposed well.

15. The existing well, which served the home formerly on the property, will be abandoned in accordance with the Connecticut Well Drilling Code (RCSA Section 25-128-56 and 57).

NOTICE OF WELL SITE SUITABILITY CERTIFICATION

FROM: Rich Iozzo, Environmental Analyst 2
DATE: April 11, 2022
DATE OF SITE VISIT: March 23, 2022
VISITED WITH: James DeSellier, Lenard Eng.; Andrew Bushnell, Bushnell Assoc.; Lisette Stone, CTDPH
SUBJECT: Well Site Review: **Well #2A**
TOWN: Bolton
DPH Project #: #2021-0113
NEED FOR SUPPLY: This new proposed water system will be constructed to serve a veterinary hospital with approximately 150 employees. The applicant has proposed to drill two wells, however depending on yield, may only need one public supply well. At the time of the site inspection, an existing well was identified on the property that is planned to be properly abandoned in accordance with RCSA 25-128-57.

Background Information		
Public Water System Or Owner	Veterinarians of Eastern Connecticut, LLC	
Consulting Engineer	James DeSellier, Lenard Engineering, Inc.	
Site Location	233 Boston Turnpike, Bolton, CT	
Licensed Well Driller	TBD	
Type Of Well Proposed	Bedrock	
Proposed Withdrawal Rate	Less than 10 gallons per minute	
Existing Topography	Flat	
Groundwater Quality Of Aquifer	GA	
Adjacent Well Locations	Wells within proximity to Proposed Well #2A: Existing (To be Abandoned) well approximately 480 ft N/W. Simoniz USA (CT0120302) well is approximately 453 N/W. Comcast Corp Well (CT0120434) is approximately 800 ft N/W. Bolton Shell (CT0120504) is approximately 1000 ft N/E. Private well located approximately 160 ft W (To be Abandoned).	
Nearby Wells required to be tested per CGS Section 25-33(b) and CGS Section 16-262(m)(e)(1)(G)	Refer to #12 under terms of the well site suitability certification for recommendations to assess/monitor private and public wells nearby the proposed Well #2A for interference. Coordinate with the local health department concerning identification, notification and testing of any wells within, minimally, 500 feet.	
Source Water Area	18 acres	
Ownership or Control of Sanitary Radius	The 75 foot sanitary radius is owned by Veterinarians of Eastern Connecticut, LLC	
Groundwater Under The Direct Influence of Surface Water Study	Not Required	
DEEP Contacted On	By way of this document	
Map Information	"Veterinarians of Eastern Connecticut, LLC Preliminary Site Plan", October 12, 2021 & "Bolton Vet Hospital", March 11, 2022	
GPS Points	Lat: N 41.782277778	Lon: W -072.46077778

Sources Of Pollution In Area per RCSA 19-13-B51	**Distance (feet)**	**Compass Heading**
Subsurface Sewage System (septic tank/leaching fields)	N/A	N/A
Sanitary Sewer	680	NE
Storm Drain	335	S
Foundation, Floor Drain	N/A	N/A
Dry Well	N/A	N/A
Annual High Water Mark for Surface Water Body	N/A	N/A
Liquid Fuel Storage Tank/Piping	240	E

Water Supply Planning	
Water Utility Coordinating Committee (WUCC)	Central WUCC
Exclusive Service Area Provider	CTWC
Distance to closest public water system water main*	3 miles +/-
Compliance with CGS Section 25-33(i)	CTWC Supported (11/10/21)
* Pursuant to CGS Section 16-262m (e), this system will be required to interconnect to a viable public water system if and when it becomes available. The Department will determine if a supply is available based on supply capacity, distance to system, cost to interconnect and other factors.	

TERMS OF THE WELL SITE REVIEW

1. The well must be constructed and completed in accordance with the Regulations of Connecticut State Agencies (RCSA) Sections 19-13-B51 (a) through (l) and the Connecticut Well Drilling Code Sections 25-128-33 through 25-128-64.

2. Veterinarians of Eastern Connecticut, LLC owns the entire 75-foot radius of the new proposed Well #2. Veterinarians of Eastern Connecticut, LLC is responsible for maintaining the 75-foot radius of this well to assure drinking water purity and prevent contamination and potential violations of the RCSA.

3. The location of the proposed well, as noted on the site plan dated March 11, 2022, provided with the Application for a Well Site Suitability Certification, cannot be altered without written approval from this office.

4. This office must be notified immediately in writing of any pollution, spills, or any change to the sanitary conditions or the sources of pollution within the recharge area of the proposed well prior to drilling. This information may lead to a modification of this well site suitability review. Drilling must be carried out by a licensed well driller in a manner which prevents contamination of the groundwater aquifer. Any contamination identified or caused in the groundwater recharge area during the drilling operation must be reported to this office in writing.

5. This Well Site Suitability Certification is valid until October 11, 2022. If the well is not drilled by this date the approval expires, and a new well site application must be provided to this office for review. In that case, a new written review must be issued by this office prior to well development.

6. RCSA Section 19-13-B51d requires a minimum separating distance of 75 feet from the well to sanitary sewer lines. Greater separating distance shall be required for certain industrial wastes or certain rock formations. If the sanitary sewer is constructed of extra heavy cast iron pipe with leaded joints or equal approved type of joint, a minimum separating distance of 25 feet is required per RCSA Section 19-13-B51d(a)(2).

7. The well must be constructed and completed in accordance with the Drinking Water Section's "General Terms for Well Site Development." This document can be obtained via the Drinking Water Sections website by clicking on Forms and Applications and then Well Site Approval. It is the responsibility of the applicant to review and follow the conditions outlined within this document.

8. Components of the required water quality monitoring conducted on this well as part of the approval process will indicate the potential corrosivity of the water. Although there is no requirement to monitor for lead in drinking water for this classification of public water system, it is recommended that the water quality be analyzed for corrosive properties to determine the potential for leaching of lead into the water supply. If the water is deemed to be corrosive, it is recommended that periodic first-draw tests for lead be conducted. The department can assist in analyzing the water chemistry and the potential for risks to public health.

9. Use and overuse of snow/ice control products near the wellhead areas can negatively affect drinking water quality. Best management practices must be developed to protect drinking water quality.

10. The following public water systems are located within 500 feet of Well #2A: CTWC – Birchwood Estate - CT0790051; Comcast Corporation - CT0120434; Bolton Shell – CT0120504; Simoniz USA CT0120302. These public water systems must be contacted to be monitored for interference during the yield test. Proposed Veterinarians of Eastern Connecticut, LLC must also identify and monitor private wells within 500 feet of proposed Well #2A. Private well information may be obtained through the local health department.

11. **DIOXIN MONITORING WAIVER**: Veterinarians of Eastern Connecticut, LLC has submitted certification that the zone of influence of Well #2A has not been or is not being used for any of the following land uses: pesticides and herbicides manufacturer, pulp and paper manufacturer, plastics manufacturer, wood preservative manufacturer, landfill and domestic waste transfer station, or hazardous waste disposal facility; and that the public water system has no water quality history indicating the presence of dioxin. This information has been verified and Veterinarians of Eastern Connecticut, LLC is granted a waiver from monitoring for dioxin for Well #2A for the initial compliance period. This waiver is subject to renewal during each compliance period.

12. **ENDOTHALL MONITORING WAIVER:** Veterinarians of Eastern Connecticut, LLC has submitted certification that endothall has not been applied in the zone of influence of Well #2A. This information has been verified and Veterinarians of Eastern Connecticut, LLC is granted a waiver from monitoring for endothall for Well #2A for the initial compliance period. This waiver is subject to renewal during each compliance period.

13. Veterinarians of Eastern Connecticut, LLC must collect a water sample from Well #2A for analysis for perfluoroheptanoic acid (PFHpA), perfluorohexane sulfonate (PFHxS), perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), and perfluorononanoic acid (PFNA). The samples must be analyzed using EPA method 537 at an approved lab registered in CT to perform this method. The results of the sample must be provided to the DPH with the Phase IB Application. A list of laboratories is attached and may be found on the Department of Public Health's website.

14. After recently acquiring the property, on which the location of Well #2A is proposed, the private well which served the home on the property will be abandoned in accordance with the Connecticut Well Drilling Code (RCSA Section 25-128-56 and 57).

From: Andrew Bushnell [mailto:abushnell@bushnellassociatesllc.com]
Sent: Thursday, April 21, 2022 6:28 PM
To: Carson, Patrice <pcarson@boltonct.org>
Subject: Re: Process for Your Special Use Permit Application #PL-22-3, 233 Boston Turnpike & 12 Williams Road, Bolton, CT

Received, thank you.

Andrew Bushnell, P.E., L.S.

Bushnell Associates LLC.
Civil Engineering and Land Surveying
563 Woodbridge St.
Manchester, CT 06042

Phone: 860-643-7875
Fax: 860-643-7875
Cell: 860-614-7935

On Thu, Apr 21, 2022 at 4:04 PM Carson, Patrice <pcarson@boltonct.org> wrote:

PLEASE ACKNOWLEDGE RECEIPT OF THIS EMAIL BY REPLYING "RECEIVED", thank you.

Dear Applicant:

Please find attached the legal notice for the public hearing at which your special permit application will be heard. This notice needs to be sent to all abutters within 500 feet of your property at least ten (10) days prior to the date of the public hearing. For purposes of notice, (1) proof of mailing shall be evidenced by a certificate of mailing, and (2) the person who owns land shall be the owner indicated on the property tax map or on the last-completed grand list as of the date such notice is mailed. Below are the requirements from Section 16B.3.g. & h. of the Bolton Zoning Regulations:

16B.3.g. Notice to Abutting Owners The applicant shall also notify all Abutting landowners of record within 500 feet of the subject property, as disclosed by the Assessor's records, of the date, time and place of the public hearing of the Commission at which said Special Permit is to be considered no less than ten (10) days preceding the date of said hearing, and shall submit proof to the Zoning Enforcement Officer of such notification. No notice shall be required for the continuation of a public hearing once it has been opened.

The Zoning Regulations also require you to post a sign(s) on the property at least seven (7) days prior to the date of the public hearing (see below). You can obtain the signs from Danielle Palazzini in the Land Use Department. There is a $26 fee per sign.

16B.3.h. Posting of Sign No less than seven (7) days prior to the opening of any public hearing, the applicant shall post a sign on the property which is the subject of any application for Special Permit. The face of such sign shall be as provided by the Commission, and shall set forth the date, time and place of the public hearing, and the telephone number to call for additional information. It shall be the obligation of the applicant to post such sign(s) on the property in a location which is plainly visible from each abutting public street, and to maintain the sign(s) until the opening of the public hearing. No sign need be posted for the continuation of a public hearing once it has opened. If the Commission provides a mount for the sign, such sign mount shall be returned to the Commission's offices within three (3) days after the close of the hearing. The Commission may require a cash deposit to assure such return.

If you have any questions, please don't hesitate to contact:

Patrice L. Carson, AICP

Consulting Director of Community Development

Town of Bolton

222 Bolton Center Road

Bolton, CT 06043

860.359.1454

Bolton Planning & Zoning Commission
Notice of Public Hearing

The Bolton Planning & Zoning Commission will hold a Public Hearing on Wednesday, May 11, 2022 at 7:45pm virtually through Zoom, to hear:

1 Continuation of Nathan Fleming's appl. for a Special Permit for a gas station & convenience store at 271 Hop River Rd (#PL-22-2)

2 Veterinarians of Eastern Connecticut LLC's (Andrew Bushnell) appl. for a Special Permit for veterinary hospital/veterinary emergency care at 233 Boston Tpke & 12 Williams Rd (Bolton Vet) (#PL-22-3)

Said proposal is on file on the Town's Website at:
https://town.boltonct.org/boards-commissions/planning-and-zoning

All interested parties may attend virtually and testify or may submit written testimony.

Dated at Bolton, CT, this 21st day of April, 2022.

Thomas Manning
P&Z Chairman

To be published in the ***Hartford Courant*** on April 29, 2022 and May 6, 2022

BOLTON VETERINARY HOSPITAL

SITE PLAN/SPECIAL PERMIT

233 BOSTON TURNPIKE (ROUTE 44) ~ BOLTON ~ CT

PARCEL ID 2079

N/F 500' ABUTTERS

KEY	OWNER	OWNER ADDRESS	TOWN
1	UNITED CABLE TELEVISION CORP	1701 JOHN F KENNEDY BLVD	PHILADELPHIA, PA 19103
2	SIMONIZ USA INC	201 BOSTON TPKE	BOLTON, CT 06043
3	BU LEIVA CELSO F	18 WILLIAMS RD	BOLTON, CT 06043
4	MICHALEK SETH	22 WILLIAMS RD	BOLTON, CT 06043
5	STEELE EDWARD P & JACQUELINE A	21 WILLIAMS RD	BOLTON, CT 06043
6	TOCE MARK A	17 WILLIAMS RD	BOLTON, CT 06043
7	SIMONIZ USA INC	201 BOSTON TPKE	BOLTON, CT 06043
8	SYNDET PRODUCTS INC	201 BOSTON TPKE	BOLTON, CT 06043
9	GORRA JENNIE TRUSTEE	201 BOSTON TURNPIKE	BOLTON, CT 06043
10	GORRA JENNIE TRUSTEE	201 BOSTON TURNPIKE	BOLTON, CT 06043
11	VPC ASSOCIATES LLC	222 BOSTON TPKE	BOLTON, CT 06043
12	PREUSS W H SONS INC	228 BOSTON TPKE	BOLTON, CT 06043
13	FIANO LAWRENCE F & ROSE D	240 BOSTON TPKE	BOLTON, CT 06043
14	FIANO LAWRENCE F & ROSE D	240 BOSTON TPKE	BOLTON, CT 06043
15	BOLTON EXXON LLC	262 BOSTON TPKE	BOLTON, CT 06043
16	BOLTON SENIOR COMMUNITY LLC	1622 MAIN STREET	EAST HARTFORD, CT 06108
17	TSAMBIKA LLC	275 BOSTON TPKE	BOLTON, CT 06043
18	263 BOSTON TURNPIKE LLC	263 BOSTON TPKE	BOLTON, CT 06043
19	ANSALDI ANDREW JR EST OF &	39 TUNXIS TRAIL	BOLTON, CT 06043
20	ANSALDI ANDREW JR EST OF &	39 TUNXIS TRAIL	BOLTON, CT 06043
21	BU LEIVA CELSO F	18 WILLIAMS ROAD	BOLTON, CT 06043
22	AMERICAN DREAM HOME BUYERS, LLC	41 HIGH STREET	COVENTRY, CT 06238
23	WRIGHT ELIZABETH A.	10 CONVERSE ROAD	BOLTON, CT 06043
24	JUABITOT JOSHUA D. & LAFORGE JENNIFER ANNE	23 WILLIAMS ROAD	BOLTON, CT 06043

ZONING TABLE

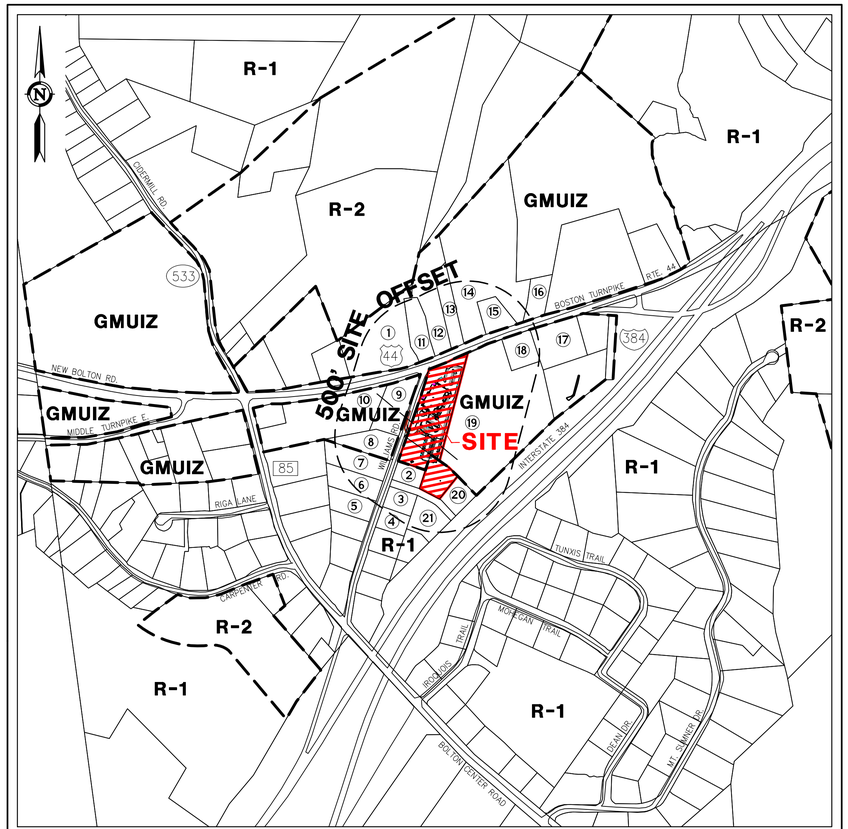
ZONE: GMUIZ – GATEWAY MIXED USE INDUSTRIAL ZONE

ITEM	REQUIRED/ ALLOWED	PROPOSED
MINIMUM LOT AREA	120,000 SF	222,561 SF
MINIMUM LOT FRONTAGE	200'	297'
MINIMUM FRONT YARD	25'	19.32'
MINIMUM SIDE/REAR YARD	25'	70.5'
MAXIMUM BUILDING HEIGHT	40' OR 3 STORIES	<40'
MINIMUM FLOOR AREA	600 SF	24,836 SF
MAXIMUM LOT COVERAGE	25%	11.2%
MAXIMUM IMPERVIOUS COVERAGE	50%	35.4%

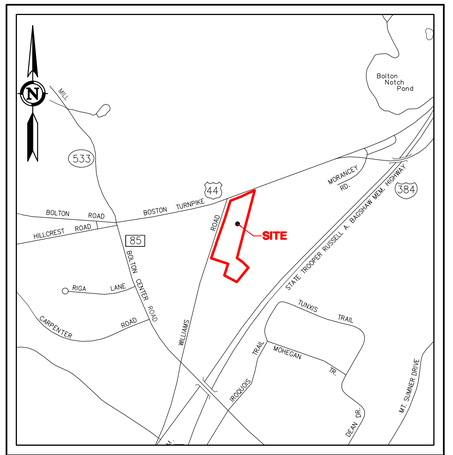
PARKING CALCULATION:
MINIMUM 4 SPACES REQUIRED PER 1,000 SF OF GROSS FLOOR AREA
24,836 BUILDING GFA/1,000 SF = 24.836
24.836 x 4 SPACES = 99.3 SPACES REQUIRED
100 SPACES PROVIDED (64 ADDITIONAL PARKING SPACES IN FUTURE PARKING AREA)

LOADING SPACE CALCULATION
ONE LOADING SPACE IS REQUIRED FOR EACH 20,000 SF OF BUILDING FLOOR AREA. BUILDING FLOOR AREA = 24,836 SF
24,836/20,000 = 1.24 LOADING SPACES REQUIRED.
2 LOADING SPACES PROVIDED.

BICYCLE SPACE CALCULATION
ONE BICYCLE IS REQUIRED PER 25 PARKING SPACES FOR OFFICE SPACE.
164 TOTAL PARKING SPACES/25 = 6.56 BICYCLE SPACES REQUIRED.
(164 PARKING SPACES INCLUDES FUTURE SPACES)
7 BICYCLE SPACES PROVIDED (ONE BICYCLE RACK)



KEY MAP
SCALE: 1"=500'



LOCATION MAP
SCALE: 1"=800'

SHEET INDEX

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

BOLTON PLANNING AND ZONING COMMISSION, BOLTON, CT
DATE APPROVED
_____
_____ CHAIRMAN
_____ SECRETARY

THE STATUTORY FIVE-YEAR PERIOD FOR COMPLETION OF ALL PHYSICAL IMPROVMENTS EXPIRES ON _____, 20__.

GENERAL NOTES:

- THESE PLANS ARE INVALID UNLESS THEY BEAR THE SEAL OR STAMP, AND ORIGINAL SIGNATURE OF THE PROFESSIONAL ENGINEER, LAND SURVEYOR, OR LANDSCAPE ARCHITECT.
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PRELIMINARY
NOT FOR CONSTRUCTION
THESE PLANS ARE FOR PLANNING PURPOSES ONLY INTENDED TO SECURE REGULATORY APPROVALS. ONLY FINAL PLANS STAMPED APPROVED BY THE TOWN SHALL BE USED FOR CONSTRUCTION PURPOSES.

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ARCHITECT:
BDA ARCHITECTURE, P.C.
BUILDING DESIGN FOR ANIMALS, LLC
901 LAMBERTON PI. NE
ALBUQUERQUE, NM 87107
505-858-0180

LAND SURVEYOR:
BUSHNELL ASSOCIATES LLC.
563 WOODBRIDGE STREET
MANCHESTER, CT. 06042
860-643-7875

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NO	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

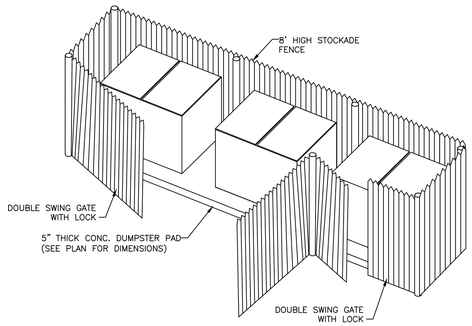
BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: GMM
DRAWN BY: GMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

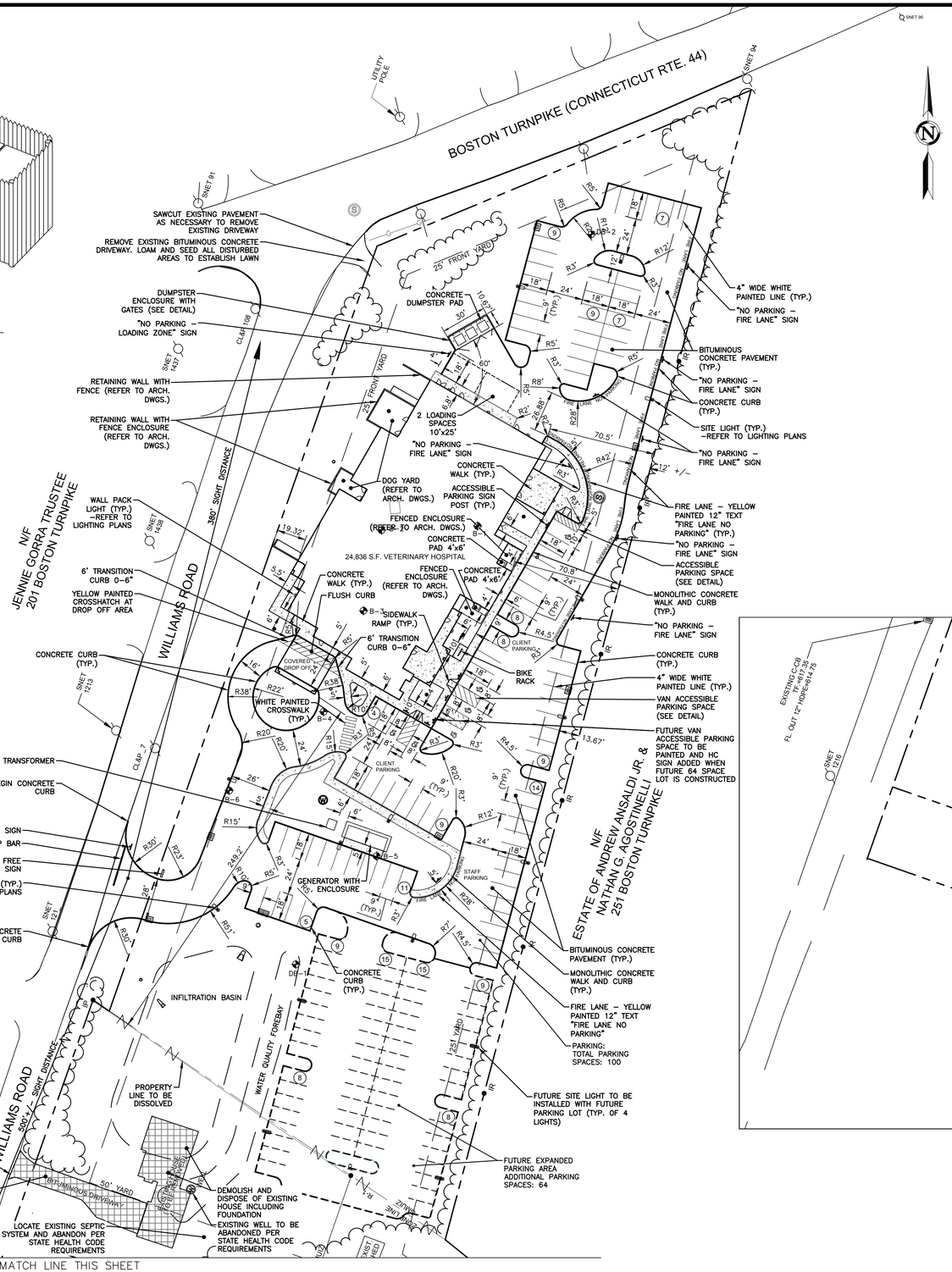
COVER SHEET

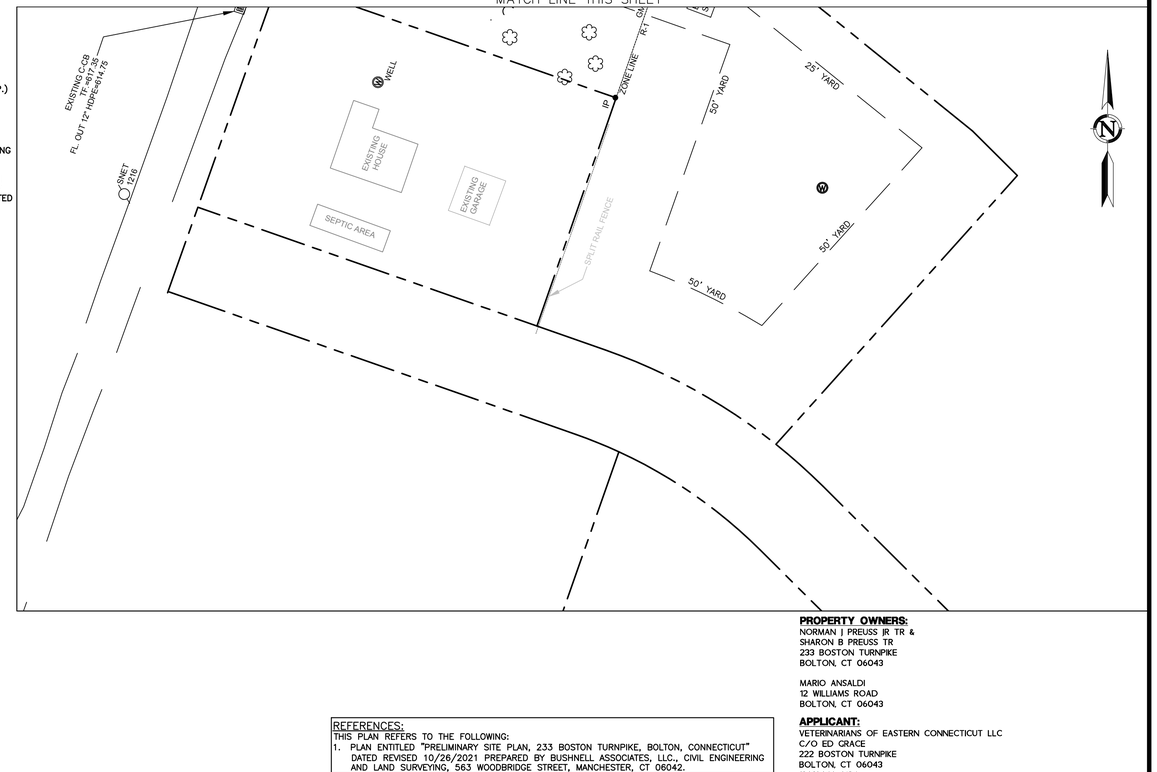
SHEET
C-T1
SHEET 1 OF 13



DUMPSTER ENCLOSURE DETAIL

N.T.S.





LEGEND

EXISTING	DESCRIPTION	PROPOSED
BORINGS		
	BORING / TEST PIT LOCATION	
COMMUNICATION		
C_X	UNDERGROUND COMMUNICATION LINES	C
DOMESTIC WATER		
W_X	WATER MAIN	W
WS_X	WATER SERVICE	WS
F_X	FIRE SERVICE LINE	F
NPW_X	NON–POTABLE WATER LINE	NPW
	WATER VALVE / FIXTURES	WV
	FIRE HYDRANT	
LIQUID FUEL		
LF_X	MAIN LIQUID FUEL LINE	LF
LFS_X	LIQUID FUEL SERVICE LINE	LFS
LF_X	LIQUID FUEL LINE, ABANDONED	
IRRIGATION		
I_X	IRRIGATION LINES	I
LIGHTING		
	POLE / GROUND MOUNTED LIGHT	
NATURAL GAS		
G	GAS MAIN	G
GS	GAS SERVICE LINE	GS
POWER		
EO_X	ELECTRICAL LINES, OVERHEAD	EO
EU_X	ELECTRICAL LINES, UNDERGROUND	EU
	UTILITY POLE	

PROPERTY		
	PROPERTY LINE	
	EASEMENT LINE	
	IRON PIPE	
	IRON ROD	
	MONUMENT	
ROADS		
	GUARD RAIL	
EROSION CONTROL		
	SILT FENCE	SF
SITE FEATURES		
	4" DOUBLE SOLID YELLOW LINE	DSYL
	4" SINGLE SOLID WHITE LINE	SSWL
	BIT. CONC. LIP CURB	BCLC
	PRECAST CONCRETE CURB	PCC
SANITARY SEWER		
S_X	SANITARY SEWER MAIN	S
SS_X	SANITARY SEWER SERVICE LINE	SS
S	SANITARY SEWER MANHOLE	
STORM SEWER		
	STORM DRAIN PIPE	
RL_X	ROOF LEADER	RL
UD	UNDERDRAIN	UD
D	STORM DRAIN MANHOLE	D
	CURB INLET	
	CATCH BASIN	
	YARD DRAIN	
TOPOGRAPHY		
95	CONTOUR	95
×61.95	SPOT ELEVATION	95
OTHER		
	RAMP	R
	LANDSCAPE AREA	LSA

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C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

REFERENCES:
THIS PLAN REFERS TO THE FOLLOWING:
1. PLAN ENTITLED "PRELIMINARY SITE PLAN, 233 BOSTON TURNPIKE, BOLTON, CONNECTICUT" DATED REVISED 10/26/2021 PREPARED BY BUSHNELL ASSOCIATES, LLC., CIVIL ENGINEERING AND LAND SURVEYING, 563 WOODBRIDGE STREET, MANCHESTER, CT 06042.

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SITE LAYOUT PLAN NOTES:
1. 'CALL BEFORE YOU DIG' – CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF PENDING EXCAVATION AT OR NEAR PUBLIC UTILITIES. CALL 811 AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION.
2. THIS PLAN SHALL BE USED FOR SITE LAYOUT ONLY
3. (9) INDICATES NUMBER OF PARKING SPACES IN ROW.

NO.	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: GMM
DRAWN BY: GMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

SITE PLAN

SCALE: 1" = 40' (0, 20', 40', 80')

SHEET
C-SP1
SHEET 2 OF 13

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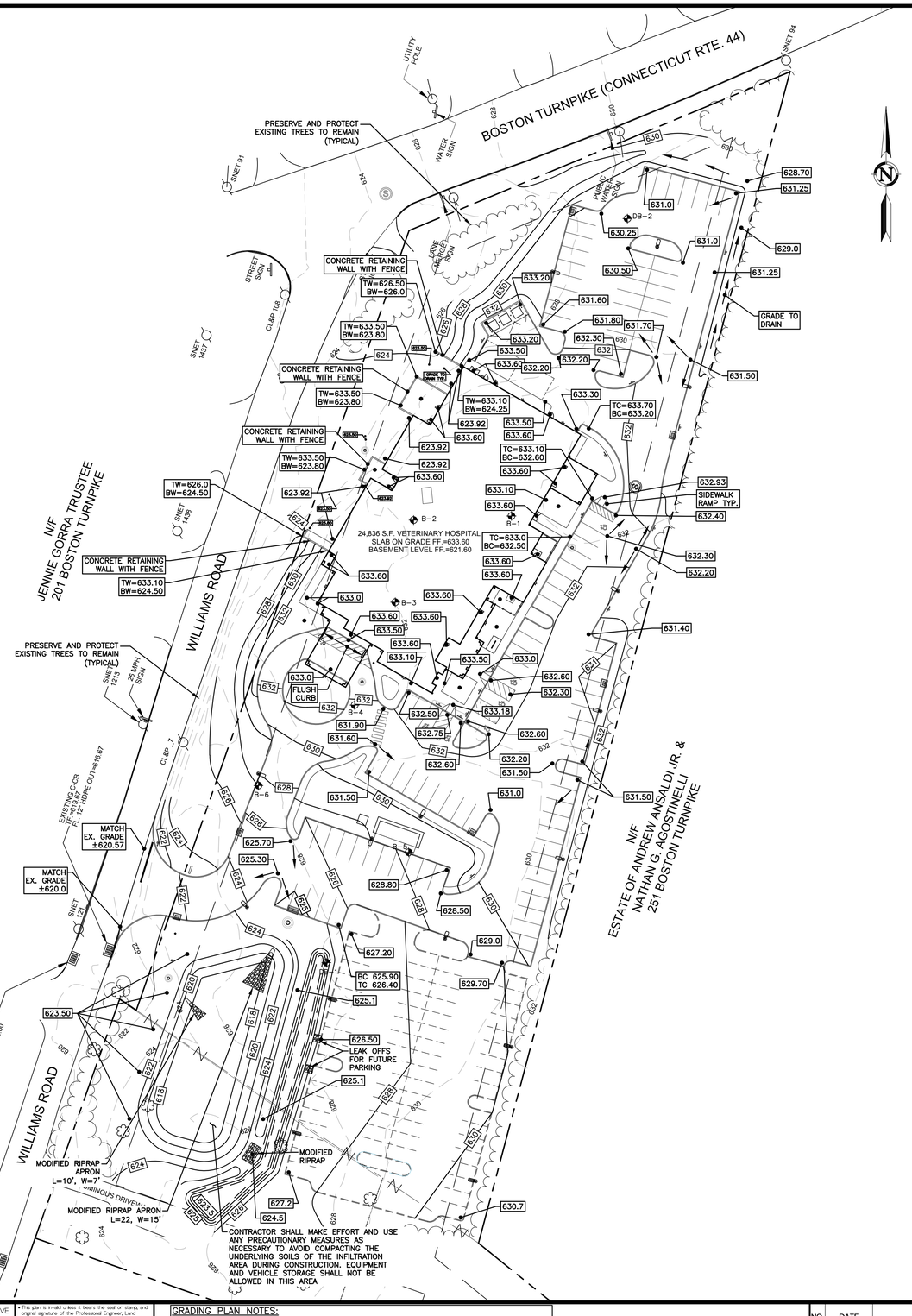

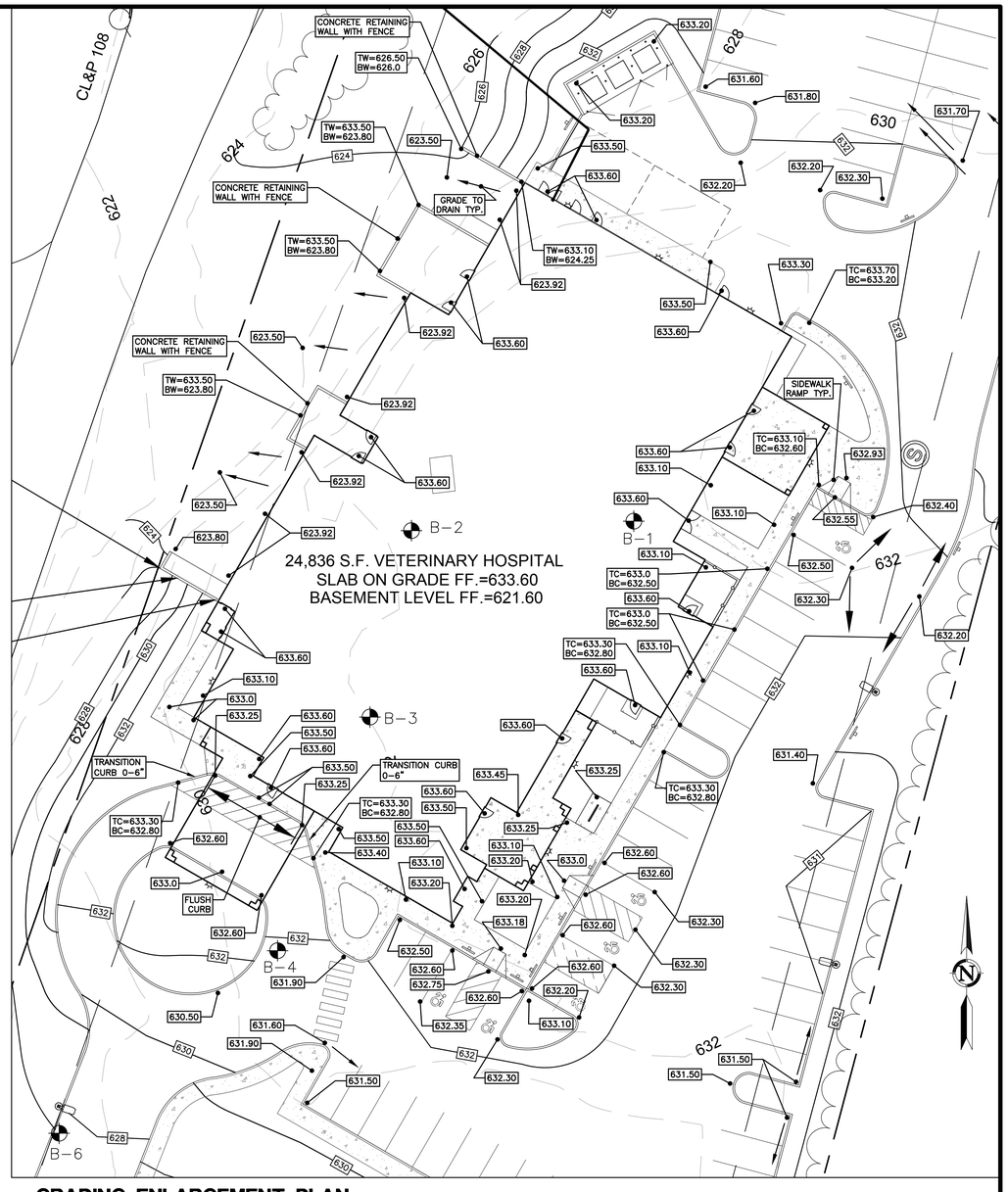

GRADING ENLARGEMENT PLAN

1"=20'-0"

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
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4. ALL PROPOSED PAVEMENT SPOT ELEVATIONS INDICATE TOP OF PAVEMENT. TOP OF CURB ELEVATIONS SHALL BE SIX INCHES ABOVE THE ADJACENT PAVEMENT ELEVATION UNLESS NOTED OTHERWISE.
5. THIS PLAN SHALL BE USED FOR GRADING & DRAINAGE PURPOSES ONLY
6. REFER TO NOTES SHEET FOR CONSTRUCTION NOTES

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NO.	DATE	REVISIONS	BY
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BOLTON, CT

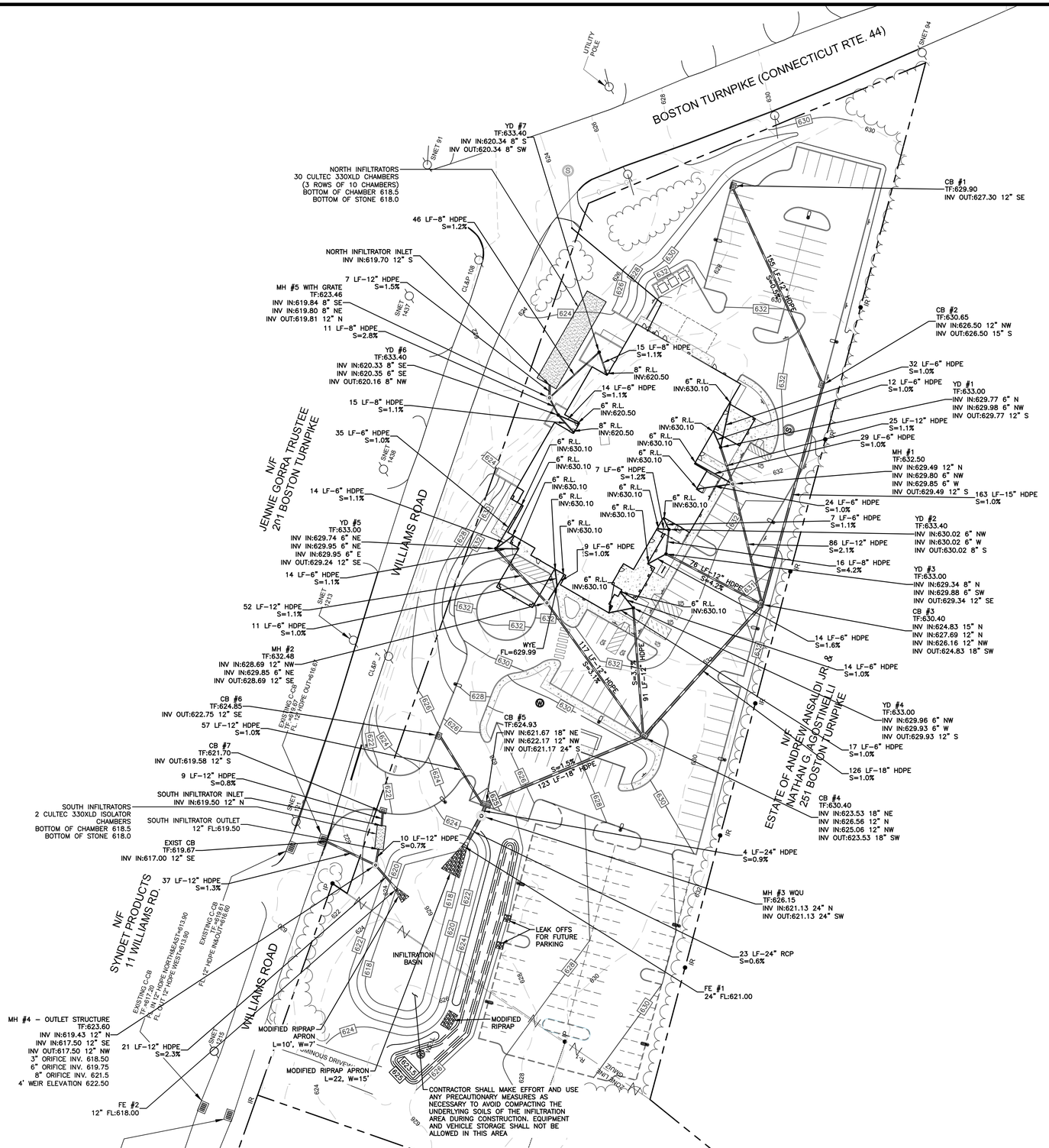
PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: CMM
DRAWN BY: CMM
CHECKED BY: SPC

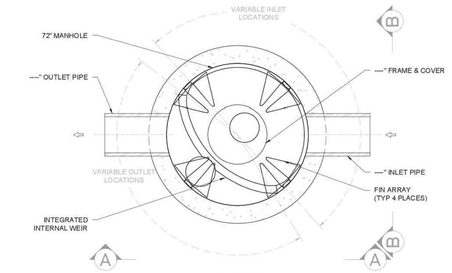
PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

GRADING PLAN

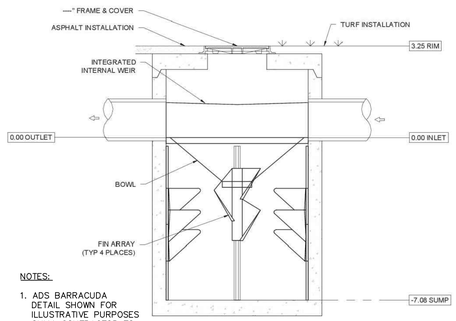
SCALE: 1" = 40' (0, 20', 40', 80')

SHEET
C-GD1
SHEET 3 OF 13





PLAN VIEW
NTS



SECTION VIEW A-A
NTS

NOTES:

1. ADS BARRACUDA DETAIL SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR TO USE THIS PRODUCT OR APPROVED EQUAL.

BARRACUDA S6 (CONC)

N.T.S

LEGEND

EXISTING	DESCRIPTION	PROPOSED
BORINGS		
	BORING / TEST PIT LOCATION	
COMMUNICATION		
— — — C_X — — — C_X —	UNDERGROUND COMMUNICATION LINES	— C —
DOMESTIC WATER		
— — — W_X — — — W_X —	WATER MAIN	W
— — — — WS_X	WATER SERVICE	WS
— — — F_X — — — F_X —	FIRE SERVICE LINE	F
— — — — NPW_X	NON-POTABLE WATER LINE	NPW
	WATER VALVE / FIXTURES	WV
	FIRE HYDRANT	
LIQUID FUEL		
— — — LF_X — — —	MAIN LIQUID FUEL LINE	LF
— — — LFS_X — — —	LIQUID FUEL SERVICE LINE	LFS
— — — LF_X — — —	LIQUID FUEL LINE, ABANDONED	
IRRIGATION		
— — — I_X — — — I_X —	IRRIGATION LINES	I
LIGHTING		
	POLE / GROUND MOUNTED LIGHT	
NATURAL GAS		
— — — G — — —	GAS MAIN	G
— — — GS — — —	GAS SERVICE LINE	GS
POWER		
— — — EO_X — — —	ELECTRICAL LINES, OVERHEAD	EO
— — — — EU_X — — — —	ELECTRICAL LINES, UNDERGROUND	EU
-O-	UTILITY POLE	
PROPERTY		
	PROPERTY LINE	
	EASEMENT LINE	
	IRON PIPE	
	IRON ROD	
	MONUMENT	
ROADS		
	GUARD RAIL	
EROSION CONTROL		
	SILT FENCE	SF
SITE FEATURES		
	4" DOUBLE SOLID YELLOW LINE	DSYL
	4" SINGLE SOLID WHITE LINE	SSWL
	BIT. CONC. LIP CURB	BCLC
	PRECAST CONCRETE CURB	PCC
SANITARY SEWER		
— — — S_X — — — S_X —	SANITARY SEWER MAIN	S
— — — SS_X — — — SS_X —	SANITARY SEWER SERVICE LINE	SS
(S)	SANITARY SEWER MANHOLE	
STORM SEWER		
	STORM DRAIN PIPE	
— — — RL_X — — — RL_X —	ROOF LEADER	RL
— — — UD — — — UD —	UNDERDRAIN	— — — UD — — — UD —
	STORM DRAIN MANHOLE	
	CURB INLET	
	CATCH BASIN	
	YARD DRAIN	
TOPOGRAPHY		
- - - - 95 - - - -	CONTOUR	95
×61.95	SPOT ELEVATION	95
OTHER		
	RAMP	R
	LANDSCAPE AREA	LSA

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NO.	DATE	REVISIONS	BY
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BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO.: 4798
DATE: 3/21/22
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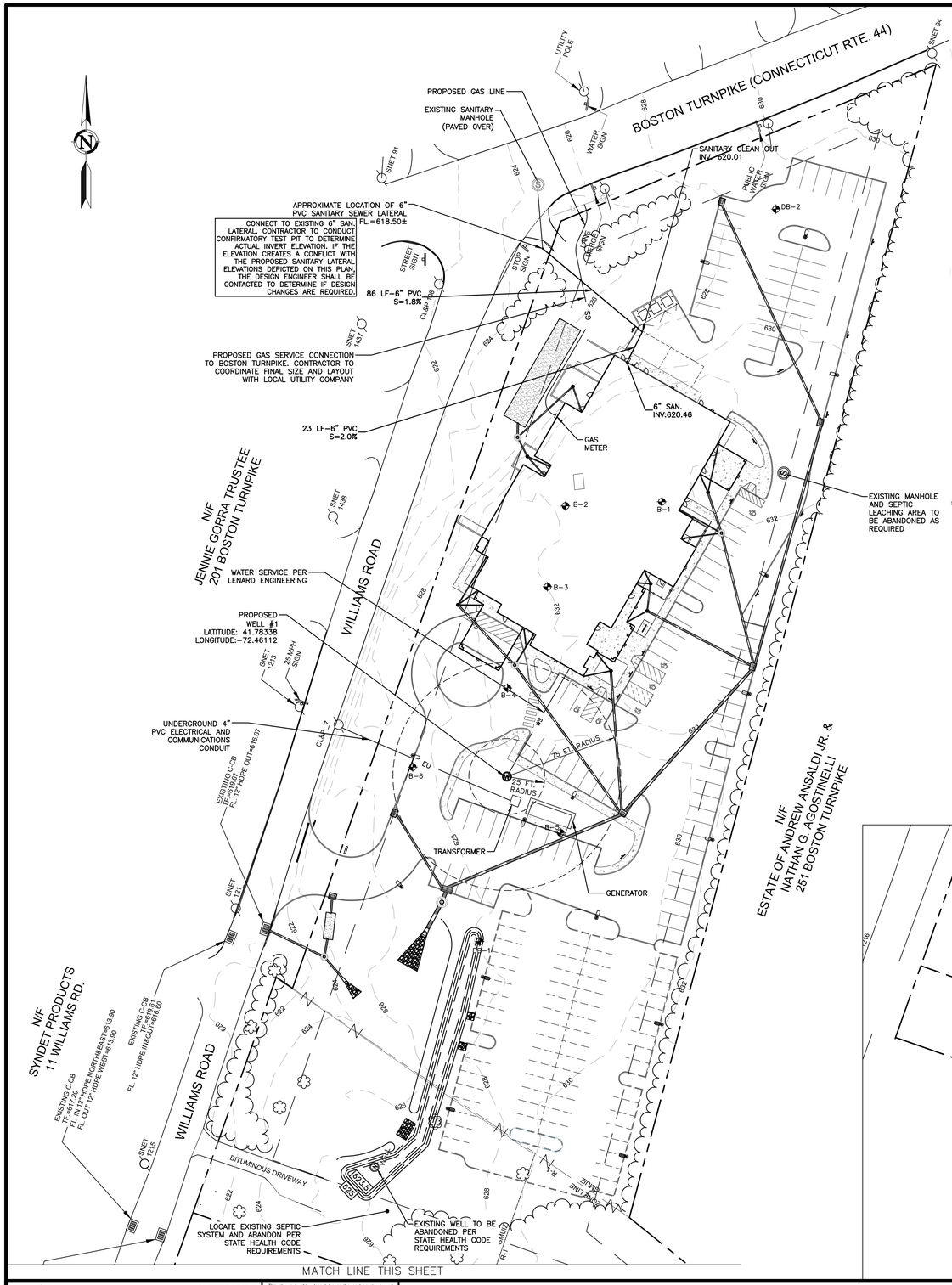
DRAWN BY: CMM
CHECKED BY: SPC

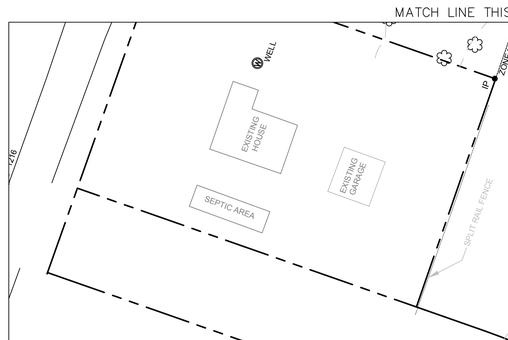
PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

DRAINAGE PLAN

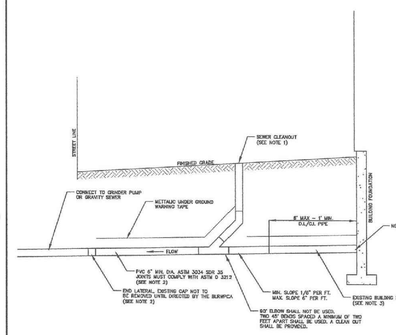
SCALE: 1" = 40' (0, 20', 40', 80')

SHEET
C-DR1
SHEET 4 OF 13





BOLTON LAKES REGIONAL WATER POLLUTION CONTROL AUTHORITY
(BLRWPCA)
SANITARY SEWER DETAILS



GRAVITY LATERAL CONNECTION TO BUILDING SEWER
SCALE: N.T.S.

FIGURE 05A
JULY 2012

DesignStandardsConstructionStandardsforSanitarySewers

BOLTON LAKES REGIONAL WATER POLLUTION CONTROL AUTHORITY
(BLRWPCA)
SANITARY SEWER DETAILS

GRAVITY LATERAL CONNECTION NOTES

1. CLEANOUTS ARE REQUIRED:
   - WITHIN 100 LINEAR FEET OF THE SEWER MAIN AND EVERY 100 LINEAR FEET THEREAFTER.
   - IMMEDIATELY UPSTREAM OF BENDS GREATER THAN 45° AND EVERY 3 BENDS REGARDLESS OF DEGREE.
   - WITHIN 10 FEET OF THE BUILDING FOUNDATION (INSIDE OR OUTSIDE) UNLESS A PRE–EXISTING INDOOR CLEANOUT IS NOT EASILY ACCESSIBLE IN WHICH CASE AN ADDITIONAL CLEANOUT WILL BE REQUIRED OUTSIDE OF THE FOUNDATION.
   - CLEANOUTS MAY BE LEFT ABOVE GRADE BUT MAY NOT BE LESS THAN 6 INCHES BELOW GRADE.
   - THE BLRWPCA ADMINISTRATOR (OR HIS AUTHORIZED AGENT) RESERVES THE RIGHT TO DETERMINE ACTUAL LOCATION OF CLEANOUTS.
2. TYPE OF PIPE:
   - MINIMUM SIX (6) INCH DIAMETER SDR–35 PIPE SHALL BE USED FOR ALL LATERAL SERVICE CONNECTIONS. COMMERCIAL CONNECTIONS MAY REQUIRE THE USE OF LARGER DIAMETER PIPE AS TO BE DETERMINED BY THE BLRWPCA. ANY DEVIATION FROM SDR–35 REQUIRES APPROVAL FROM THE BLRWPCA.
   - GASKETTED BELL & SPIGOT PIPE OR SOLVENT WELDED PIPE MAY BE USED.
   - PIPE SHALL BE LAID AT A MINIMUM PITCH OF 1% BUT 2% IS PREFERRED.
3. CONNECTIONS TO EXISTING BUILDING SEWERS (THE EXISTING SEPTIC LINE IS USED)
   - A STEEL BANDED FLEXIBLE COUPLING (FERNCO) MAY BE USED TO CONNECT EXISTING CAST IRON/DUCTILE IRON PIPE TO SDR–35. FOUR (4) BANDED FLEXIBLE COUPLINGS.
   - THE BLRWPCA RESERVES THE RIGHT TO DETERMINE IF THE CONDITION OF THE EXISTING BUILDING SEWER IS SUITABLE FOR MAKING THE SEWER CONNECTION. FIBER CONDUIT (ORANGEBURG) AND CLAY PIPES SHALL NOT BE USED.
   - ROLL–ON DONUT TYPE GASKETS NOT ACCEPTED IF USED WITHIN 25' OF FOUNDATION WALL OR 75' OF WELL.
5. TRENCHING/PIPE BEDDING:
   - ALL SEWER LINES MUST BE BEDDED IN 3/4 INCH STONE. FILTER FABRIC IS RECOMMENDED BUT NOT REQUIRED.
   - NATURAL CLAY OR SILT DAMS SHALL BE PLACED IN THE TRENCH IN AREAS OF HIGH GROUNDWATER TABLE.
   - AT LEAST 3 FEET OF COVER MUST BE PROVIDED. MORE IF PIPE IS LAID UNDER A DRIVEWAY OR OTHER AREA IN WHICH VEHICLES OR OTHER HEAVY OBJECTS ARE LIKELY TO PASS OR BE PLACED. IF BUILDING SEWER EXITS FOUNDATION HIGHER THAN 3 FEET BELOW GRADE, 3 FEET OF COVER MUST BE ATTAINED AS SOON AS IS REASONABLY POSSIBLE.
   - IN NO CASE WILL THE TRENCH BE DRAINED OF GROUNDWATER THROUGH THE SANITARY SEWER LATERAL.

FIGURE 05B
JULY 2012

DesignStandardsConstructionStandardsforSanitarySewers

LEGEND

EXISTING	DESCRIPTION	PROPOSED
BORINGS		
⊕	BORING / TEST PIT LOCATION	⊕
COMMUNICATION		
— — — C_X — — — C_X —	UNDERGROUND COMMUNICATION LINES	C
DOMESTIC WATER		
— — — W_X — — — W_X —	WATER MAIN	W
— — — WS_X — — —	WATER SERVICE	WS
— — — F_X — — — F_X —	FIRE SERVICE LINE	F
— — — NPW_X — — —	NON–POTABLE WATER LINE	NPW
Ⓦ Ⓦ	WATER VALVE / FIXTURES	WV
△	FIRE HYDRANT	▲
LIQUID FUEL		
— — — LF_X — — —	MAIN LIQUID FUEL LINE	LF
— — — LFS_X — — —	LIQUID FUEL SERVICE LINE	LFS
— — — LF_B — — —	LIQUID FUEL LINE, ABANDONED	
IRRIGATION		
— — — I_X — — — I_X —	IRRIGATION LINES	I
LIGHTING		
☼ / ◁	POLE / GROUND MOUNTED LIGHT	✱ / ◀
NATURAL GAS		
— — — G — — —	GAS MAIN	G
— — — GS — — —	GAS SERVICE LINE	GS
POWER		
— — — EO_X — — —	ELECTRICAL LINES, OVERHEAD	EO
— — — EU_X — — —	ELECTRICAL LINES, UNDERGROUND	EU
⊸	UTILITY POLE	●
PROPERTY		
— — — — — —	PROPERTY LINE	— — — — —
— — — — — —	EASEMENT LINE	— — — — —
○	IRON PIPE	●
○	IRON ROD	●
⊡	MONUMENT	■
ROADS		
o — o	GUARD RAIL	● — ●
EROSION CONTROL		
	SILT FENCE	SF
SITE FEATURES		
	4" DOUBLE SOLID YELLOW LINE	DSYL
	4" SINGLE SOLID WHITE LINE	SSWL
	BIT. CONC. LIP CURB	BCLC
	PRECAST CONCRETE CURB	PCC
SANITARY SEWER		
— — — S_X — — — S_X —	SANITARY SEWER MAIN	S
— — — SS_X — — — SS_X —	SANITARY SEWER SERVICE LINE	SS
Ⓢ	SANITARY SEWER MANHOLE	◎
STORM SEWER		
	STORM DRAIN PIPE	
— — — RL_X — — — RL_X —	ROOF LEADER	RL
— — — UD — — — UD —	UNDERDRAIN	UD — — — UD
Ⓓ	STORM DRAIN MANHOLE	Ⓓ
▣	CURB INLET	▣
▣	CATCH BASIN	▣
◎	YARD DRAIN	◎
TOPOGRAPHY		
– – – 95 – – –	CONTOUR	95
X61.95	SPOT ELEVATION	95
OTHER		
	RAMP	R
	LANDSCAPE AREA	LSA

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
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APPLICANT:
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UTILITY PLAN NOTES:
1. 'CALL BEFORE YOU DIG' – CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF PENDING EXCAVATION BY CALLING 811 AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING EXCAVATION.
2. THIS PLAN SHALL BE USED FOR UTILITY PURPOSES ONLY
3. REFER TO NOTES SHEET FOR CONSTRUCTION NOTES

NO.	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

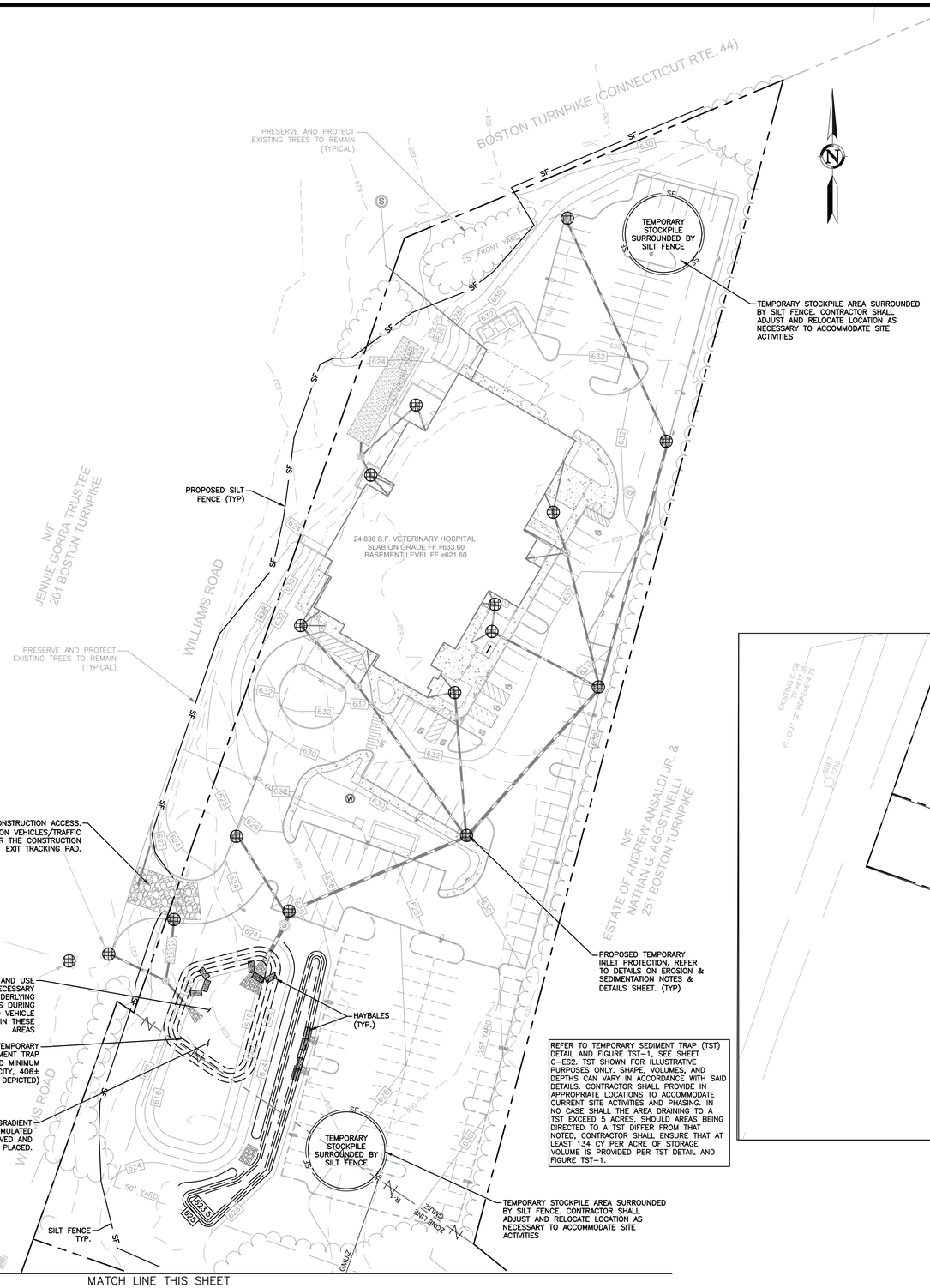
PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: GMM
DRAWN BY: GMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

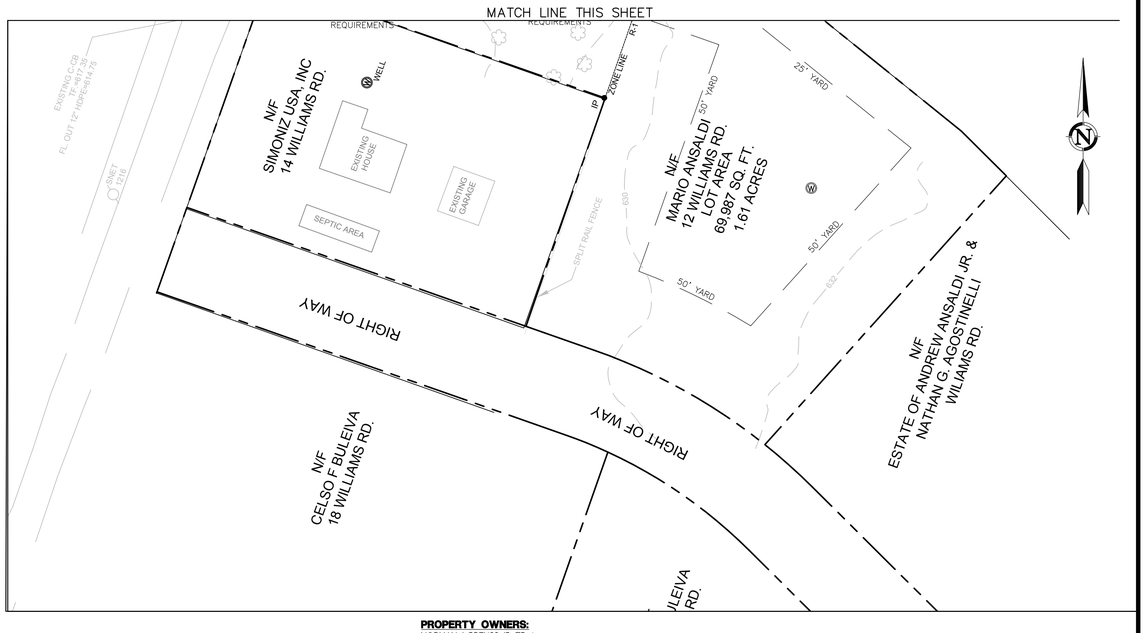
UTILITIES PLAN

SCALE: 0 20' 40' 80'
1" = 40'

SHEET
C-UT1
SHEET 5 OF 13



REFER TO TEMPORARY SEDIMENT TRAP (TST) DETAIL AND FIGURE TST–1, SEE SHEET C–ES2. TST SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SHAPE, VOLUMES, AND DEPTHS CAN VARY IN ACCORDANCE WITH SAID DETAILS. CONTRACTOR SHALL PROVIDE IN APPROPRIATE LOCATIONS TO ACCOMMODATE CURRENT SITE ACTIVITIES AND PHASING. IN NO CASE SHALL THE AREA DRAINING TO A TST EXCEED 5 ACRES. SHOULD AREAS BEING DIRECTED TO A TST DIFFER FROM THAT NOTED, CONTRACTOR SHALL ENSURE THAT AT LEAST 134 CY PER ACRE OF STORAGE VOLUME IS PROVIDED PER TST DETAIL AND FIGURE TST–1.



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EROSION & SEDIMENTATION CONTROL PLAN NOTES:
1. "CALL BEFORE YOU DIG" – CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF PENDING EXCAVATION BY CALLING 811 AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING EXCAVATION.
2. THIS PLAN SHALL BE USED FOR EROSION & SEDIMENTATION CONTROL PURPOSES ONLY.
3. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL PLANS.
4. REFER TO EROSION & SEDIMENTATION CONTROL NOTES & DETAILS SHEET FOR EROSION & SEDIMENTATION CONTROL NOTES.

NO.	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

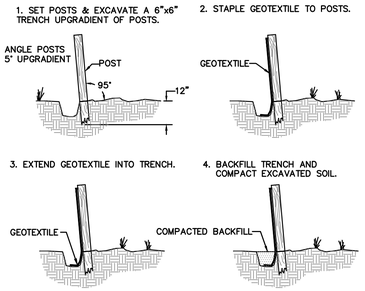
PROJECT NO:	4798
DATE:	3/21/22
DESIGN BY:	GMM
DRAWN BY:	GMM
CHECKED BY:	SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

EROSION & SEDIMENTATION CONTROL PLAN

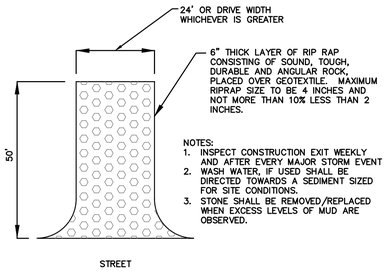
SCALE: 1" = 40' (0, 20', 40', 80')

SHEET
C-ES1
SHEET 6 OF 13



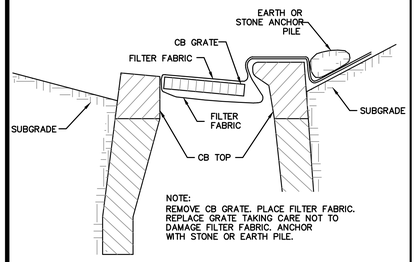
SILT FENCE

N.T.S.



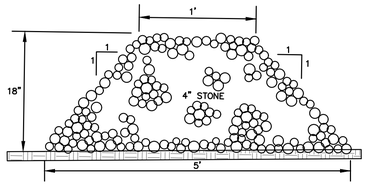
CONSTRUCTION ACCESS

N.T.S.



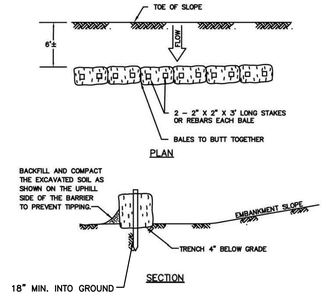
CATCH BASIN GRATE SEDIMENTATION CONTROL

N.T.S.



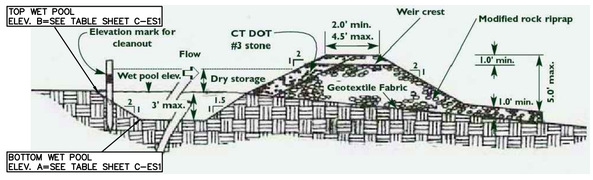
STONE CHECK DAM

N.T.S.



STRAW BALES FOR EROSION CONTROL

N.T.S.



REFER TO 2002 CT GUIDELINES FOR SOIL AND SEDIMENT CONTROL FOR ADDITIONAL DETAIL AND REQUIREMENTS.

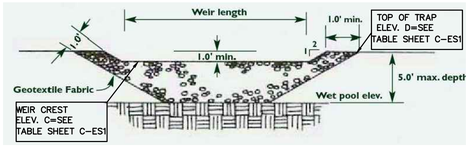


Figure TST-1 Formula for Figuring Temporary Sediment Trap Storage Requirements

Wet storage volume may be approximated as follows:

$$Vw = 0.85 \times A_W \times D_W$$

where,

V_W = the wet storage volume in cubic feet
A_W = the surface area of the flooded area at the base of the stone outlet in square feet
D_W = the maximum depth in feet, measured from the low point in the trap to the base of the stone outlet.

Dry storage volume may be approximated as follows:

$$V_d = \frac{(A_W + A_d)}{2} \times D_d$$

where,

V_d = the dry storage volume
A_W = the surface area of the flooded area at the base of the stone outlet in square feet.
A_d = the surface area of the flooded area at the top of the stone outlet (over flow mechanism), in square feet
D_d = the depth in feet, measured from the base of the stone outlet to the top of the stone outlet

Note: Conversion between cubic feet and cubic yards is: cubic feet x 0.037 = cubic yards.

NOTE:

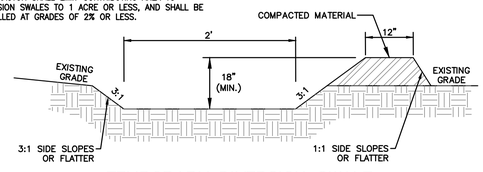
1. VOLUME OF TST SHALL BE A MINIMUM OF 134 CUBIC YARDS PER ACRE DRAINING TO IT. HALF OF THE REQUIRED VOLUME SHALL BE FOR WET STORAGE WHILE THE OTHER HALF SHALL BE FOR DRY STORAGE. REFER TO GENERAL SIZING CALCULATIONS FOR TST BELOW.

TEMPORARY SEDIMENT TRAP

N.T.S.

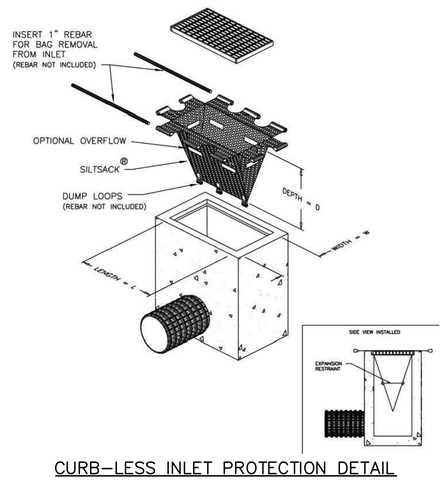
NOTES:

1) CONTRACTOR SHALL LIMIT CONTRIBUTING AREA TO DIVERSION SWALES TO 1 ACRE OR LESS, AND SHALL BE INSTALLED AT GRADES OF 2% OR LESS.



TEMPORARY DIVERSION SWALE

N.T.S.



CURB-LESS INLET PROTECTION DETAIL

N.T.S.

CONSTRUCTION SEQUENCE:

1. INSTALL CONSTRUCTION ACCESS AT DRIVEWAYS OR OTHER LOCATIONS AS SHOWN ON PLANS. MAINTAIN THE CONSTRUCTION ENTRANCE IN A CONDITION WHICH WILL PREVENT TRACKING AND WASHING OF SEDIMENT ONTO ABUTTING PAVED SURFACES. ADD STONE OR INCREASE THE LENGTH AS CONDITIONS DEMAND.
2. STAKE-OUT THE LIMITS OF CLEARING AND GRUBBING. INSTALL EROSION AND SEDIMENTATION CONTROL MEASURES AT LIMITS OF CLEARING AND GRUBBING. CONTRACTOR TO CONDUCT ALL CONSTRUCTION ACTIVITIES WITHIN LIMITS SHOWN ON PLAN.
3. CONSTRUCT TEMPORARY SEDIMENT TRAP AS SHOWN ON THE PLANS.
4. REMOVE TOPSOIL FROM AREAS OF DISTURBANCE AND STOCKPILE. POSSIBLE STOCKPILE LOCATIONS ARE SHOWN ON THE SITE PLANS. HOWEVER, LOCATIONS SHALL BE DETERMINED BY CONTRACTOR WITH APPROVAL BY THE ENGINEER & LOCAL AUTHORITY HAVING JURISDICTION. RING SOIL STOCKPILES WITH A ROW OF SILT FENCE.
5. ESTABLISH VEGETATION ON ALL DISTURBED SOIL THAT WILL REMAIN EXPOSED FOR LONGER THAN 30 DAYS. SEED WITHIN 7 DAYS AFTER THE SUSPENSION OF GRADING WORK WITH A TEMPORARY SEED MIXTURE PER SECTION 5-3 "VEGETATIVE SOIL COVER" OF THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL."
6. CREATE TEMPORARY DIVERSION SWALES AS REQUIRED.
7. ANY DEWATERING ACTIVITIES SHALL BE PUMPED TO TEMPORARY SEDIMENT BASIN AT THE TOP OF THE SLOPE. PUMPED DISCHARGE MUST UTILIZE SILT-SAC OR APPROVED EQUAL. MONITOR TO ENSURE DISCHARGE FROM BASIN IS NOT CAUSING EROSION DOWNSTREAM.
8. INSTALL STORM DRAINAGE SYSTEM. PROTECT CATCHBASINS AND CULVERT INLETS/OUTLETS WITH INLET PROTECTION AS SHOWN IN THE DETAILS.
9. INSTALL PAVEMENT, SIDEWALKS, CURBING, TOPSOIL, GRASS SEED, AND MULCH.
10. AFTER STABILIZATION OF UPGRADIENT CONTRIBUTING AREAS TO THE TEMPORARY SEDIMENT BASINS AND/OR TRAPS, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED AND PERMANENT STABILIZATION SHALL BE PLACED.
11. MINOR ADJUSTMENTS TO THE EXCAVATION LIMITS MAY BE WARRANTED WITH APPROVAL OF LOCAL AUTHORITY HAVING JURISDICTION TO ALLOW FOR PRESERVATION OF EXISTING VEGETATION.
12. ALL EROSION CONTROL DEVICES SHALL REMAIN FUNCTIONAL AND IN PLACE THROUGHOUT THE CONSTRUCTION EFFORT UNTIL THE SITE IS FULLY STABILIZED WITH VEGETATION.

STORM DRAINAGE SYSTEM MAINTENANCE AND OPERATION:

THE FOLLOWING MAINTENANCE SHALL BE REQUIRED TO ENSURE EFFICIENT OPERATION OF THE STORM DRAINAGE SYSTEM, DETENTION BASIN, AND UNDERGROUND BASINS. THE MAINTENANCE SCHEDULE IS INTENDED TO BE A GUIDE. AN INSPECTION OF ALL STORM DRAINAGE COMPONENTS IS REQUIRED FOLLOWING LARGE STORM EVENTS (0.5 INCHES OR GREATER) THAT COULD CAUSE THE DEPOSITION OF EXCESS DEBRIS.

PIPE OUTLET LOCATIONS: PIPE OUTLETS AND ASSOCIATED RIPRAP SHALL BE INSPECTED ANNUALLY AND CLEANED OF SILT AND/OR DEBRIS. RIPRAP SHALL BE RE-SHAPED AND REPLENISHED AS REQUIRED.

CATCHBASINS: SHALL BE INSPECTED ANNUALLY AND SUMPS CLEANED WHEN DEPTH OF MATERIAL REACHES TWELVE INCHES.

PAVEMENT SWEEPING: PAVEMENT AREAS SHALL BE SWEPT AT LEAST TWICE PER YEAR. ONCE IN THE SPRING SHORTLY AFTER THE END OF THE SNOW SEASON, AND IN THE FALL AFTER THE LEAVES HAVE FALLEN. DURING CONSTRUCTION KEEP PAVEMENT FREE OF SEDIMENTS TO REDUCE THE TRANSFER OF SEDIMENTS OFFSITE.

OUTLET STRUCTURE: SHALL BE INSPECTED ANNUALLY AND SUMP CLEANED WHEN DEPTH OF MATERIAL REACHES TWELVE INCHES. IN THE EVENT OF A MAJOR RAINSTORM, (0.5 INCHES OF RAIN OR MORE) THE OUTLET STRUCTURE SHALL BE INSPECTED TO ENSURE PROTECTIVE SCREENS ARE CLEAR OF ANY DEBRIS OR OBSTRUCTING ITEMS.

UNDERGROUND DETENTION/INFILTRATION SYSTEM: SHALL BE INSPECTED BI-ANNUALLY. REFER TO MANUFACTURING MAINTENANCE REQUIREMENTS.

INFILTRATION BASIN: SHALL BE INSPECTED BIANNUALLY. ALL LARGE WOODY NON LANDSCAPE GROWTH THAT MAY AFFECT THE FLOW OF WATER OR THE STABILITY OF THE BASIN SHALL BE REMOVED. RIPRAP SHALL BE RE-ARRANGED AND ADDED TO AS REQUIRED. ANY EROSION OR OTHER PROBLEMS THAT MAY AFFECT THE PROPER OPERATION OF THE BASIN SHALL BE REPAIRED PROMPTLY. ACCUMULATED SEDIMENT SHALL BE REMOVED.

WATER QUALITY UNIT: UNIT SHALL BE INSPECTED POST-CONSTRUCTION, PRIOR TO BEING PUT INTO SERVICE. INSPECT EVERY SIX MONTHS FOR THE FIRST YEAR OF OPERATION TO DETERMINE THE OIL AND SEDIMENT ACCUMULATION RATE. IN SUBSEQUENT YEARS, INSPECTIONS CAN BE BASED ON FIRST-YEAR OBSERVATIONS OR LOCAL REQUIREMENTS. CLEANING IS RECOMMENDED ONCE THE SEDIMENT DEPTH REACHES 15% OF STORAGE CAPACITY, (GENERALLY TAKING ONE YEAR OR LONGER). REFER TO MANUFACTURING MAINTENANCE REQUIREMENTS.

EROSION & SEDIMENTATION CONTROL MAINTENANCE AND INSPECTION PROGRAM (WEEKLY CONSTRUCTION REPORTS):

PER RECOMMENDATIONS MADE IN THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL PLAN, THE CONTRACTOR SHALL MAINTAIN WEEKLY REPORTS ON THE CONDITION OF ALL EROSION CONTROL MEASURES AND MAKE THEM AVAILABLE UPON REQUEST OF OWNER, LOCAL AUTHORITY HAVING JURISDICTION, OR ENGINEER. IN THE EVENT OF A MAJOR RAINSTORM, (0.5 INCHES OR GRATER) REPORTS SHALL BE PREPARED WITHIN 24 HOURS OF SAID EVENT.

EROSION & SEDIMENTATION CONTROL NARRATIVE

1. PRIOR TO THE START OF CONSTRUCTION, ALL EROSION CONTROL DEVICES SHALL BE INSTALLED IN CONFORMANCE WITH THESE PLANS.
2. CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION OF ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHOWN ON THESE PLANS. THIS RESPONSIBILITY INCLUDES IMPLEMENTATION AS WELL AS MAINTENANCE. ANY PROPOSED CHANGES TO THIS PLAN MUST BE APPROVED BY THE ENGINEER AND/OR THE LOCAL AUTHORITY HAVING JURISDICTION.
3. CONSTRUCTION ACCESS SHALL BE INSPECTED REGULARLY TO ENSURE PROPER OPERATION. STONE SHALL BE ADDED OR REPLACED AS REQUIRED.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADJACENT ROADWAYS, (BOTH PUBLIC & COMPLETED PORTIONS OF THE PROJECT) FREE FROM ACCUMULATED DUST AND DIRT. STREETS SHALL BE SWEPT CLEAN AT ALL TIMES.
5. AREAS WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED OR WHEN FINAL GRADES ARE REACHED IN ANY PORTION OF THE SITE, SHALL BE STABILIZATION WITH FINAL VEGETATION WITHIN 7 DAYS. AREAS TO BE LEFT BARE FOR MORE THAN 30 DAYS SHALL BE TREATED WITH AIR DRIED WOOD CHIP MULCH (6 CYDS / 1000 S.F.) OR SEEDED WITH PERENNIAL RYE-GRASS UNTIL FINAL GRADING AND STABILIZATION TAKES PLACE. WINTER STABILIZATION SHALL INCLUDE MULCH/STRAW OR HAY APPLIED AT THE SAME RATE WITH A TACKIFIER PER RECOMMENDATIONS MADE IN THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.
6. ALL DISTURBED SLOPES EXCEEDING A 3:1 SLOPE SHALL IMMEDIATELY RECEIVE MULCH AND TEMPORARY SEEDING IN ACCORDANCE WITH THE FOLLOWING APPLICATION RATES:

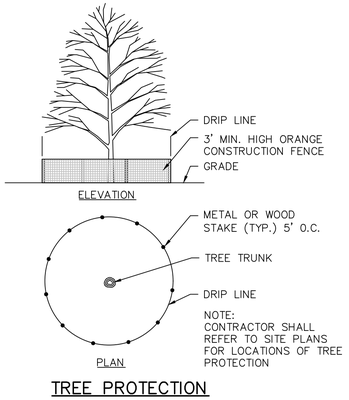
MULCH:	RATE:
STRAW	90# / 1000 S.F.
TEMPORARY SEEDING:	RATE:
PERENNIAL RYEGRASS	1.0# / 1000 S.F.

7. CONTRACTOR SHALL CLEAN CATCHBASIN SUMPS, DIVERSION SWALES, & TEMPORARY SETTLING SUMPS AS REQUIRED DURING CONSTRUCTION.
8. DURING EARTHWORK OPERATIONS, CONTRACTOR SHALL MANAGE STORMWATER RUNOFF SO THAT NO DIRECT DISCHARGE OF RUNOFF THAT CONTAINS SUSPENDED PARTICLES, FLOWS INTO RECEIVING WATERS. RUNOFF SHALL BE DIRECTED INTO TEMPORARY SEDIMENT SUMPS AND TREATED.
9. AT NO TIME DURING THE CONSTRUCTION EFFORT SHALL THERE BE ANY OPEN AND DISTURBED AREA GREATER THAN 5 ACRES WITHOUT SILT FENCE PERIMETER OF SET AREA.
10. AFTER ALL SITE WORK IS COMPLETED, INCLUDING THE SPREADING OF TOPSOIL AND SEEDING, THE CONTRACTOR SHALL CLEAN ANY SILT OR DEBRIS FROM ALL STORM DRAINAGE STRUCTURES AND CULVERTS.
11. AT ALL TIMES DURING THE CONSTRUCTION EFFORT, THE CONTRACTOR SHALL HAVE AVAILABLE THE APPROPRIATE EQUIPMENT FOR WATER APPLICATION FOR THE PURPOSES OF ALLAYING DUST. APPLY WATER, SUITABLE MATERIALS, OR COVERS TO MATERIAL STOCKPILES AND OTHER SURFACES THAT CAN GIVE RISE TO AIRBORNE PARTICULATE MATTER. COVER, WHILE IN MOTION, OPEN-BODIED TRUCKS OR OPEN-BODIED TRAILERS. MINIMIZE THE VOLUME OF WATER SPRAYED FOR CONTROLLING DUST AS TO PREVENT THE RUNOFF OF WATER. NO DISCHARGE OF DUST CONTROL WATER SHALL CONTAIN OR CAUSE A VISIBLE OIL SHEEN, FLOATING SOLIDS, VISIBLE DISCOLORATION, OR FOAMING IN THE RECEIVING STREAM.
12. THE DEVELOPER SHALL ENSURE THAT CONSTRUCTION ACTIVITIES COMPLY WITH THE NOISE ORDINANCES OF THE AUTHORITY HAVING JURISDICTION.
13. THE CONTRACTOR SHALL EXCAVATE A PIT TO BE DESIGNATED AS A WASHOUT AREA FOR CONCRETE, PAINT, AND OTHER MATERIALS. THIS AREA SHALL BE CLEARLY FLAGGED AND CONSTRUCTED TO BE ENTIRELY SELF-CONTAINED. THIS AREA SHALL BE OUTSIDE OF ANY BUFFERS AND AT LEAST 50 FEET FROM ANY STREAM, WETLAND, OR OTHER SENSITIVE SOURCE. DUMPING OF LIQUID WASTES IN STORM SEWERS IS PROHIBITED. THE WASHOUT AREA SHALL BE INSPECTED AT LEAST ONCE A WEEK TO ENSURE STRUCTURAL INTEGRITY, ADEQUATE HOLDING CAPACITY, AND TO CHECK FOR LEAKS AND OVERFLOWS. ACCUMULATED DEBRIS SHOULD BE REMOVED ONCE THE WASHOUT AREA REACHES HALF WAY FULL OR IS DEEMED NECESSARY TO AVOID OVERFLOWS. REMOVE AND DISPOSE OF HARDENED CONCRETE WASTE CONSISTENT WITH PRACTICES DEVELOPED FOR THE WASTE DISPOSAL.
14. THE CONTRACTOR SHALL DESIGNATE A WASTE DISPOSAL AREA FOR TEMPORARY STORAGE OF MATERIALS TO BE REMOVED FROM THE SITE. THE DESIGNATED WASTE AREA SHALL BE SELECTED AS TO MINIMIZE TRUCK TRAVEL THROUGH THE SITE. THE AREA WILL NOT DRAIN DIRECTLY TO ADJACENT WETLANDS. PICKUPS SHALL BE SCHEDULED REGULARLY TO PREVENT THE CONTAINERS FROM OVERFILLING. SPILLS SHALL BE CLEANED UP IMMEDIATELY. DEFECTIVE CONTAINERS THAT MAY CAUSE LEAKS OR SPILLS WILL BE IDENTIFIED THROUGH REGULAR INSPECTION. ANY FOUND TO BE DEFECTIVE WILL BE REPAIRED OR REPLACED IMMEDIATELY. ANY STOCKPILING OF MATERIALS SHOULD BE CONFINED TO THE DESIGNATED AREA AS DEFINED BY THE CONTRACTOR.
15. ALL CHEMICAL AND PETROLEUM PRODUCT CONTAINERS STORED ON THE SITE (EXCLUDING THOSE CONTAINED WITHIN VEHICLES AND EQUIPMENT) SHALL BE PROVIDED WITH IMPERMEABLE CONTAINMENT WHICH WILL HOLD AT LEAST 110% OF THE VOLUME OF THE LARGEST CONTAINER, OR 10% OF THE TOTAL VOLUME OF ALL CONTAINERS IN THE AREA, WHICHEVER IS LARGER, WITHOUT OVERFLOW FROM THE CONTAINMENT AREA. ALL CHEMICALS AND THEIR CONTAINERS SHALL BE STORED UNDER A ROOFED AREA EXCEPT FOR THOSE CHEMICALS STORED IN CONTAINERS OF 100 GALLON CAPACITY OR MORE, IN WHICH CASE A ROOF IS NOT REQUIRED. DOUBLE-WALLED TANKS SATISFY THIS REQUIREMENT.
16. CONTRACTOR SHALL COORDINATE WITH THE PROPER AGENCIES FOR RELOCATION OF ANY UTILITIES OR SIGNS.
17. IF REQUIRED, AN APPROVED EROSION CONTROL BOND SHALL BE PREPARED BEFORE THE START OF ANY CONSTRUCTION ACTIVITY.
18. FROZEN MATERIAL SHALL NOT BE USED FOR FILL NOR SHALL FILL BE PLACED OR COMPACTED ON FROZEN GROUND.

ESTIMATED CONSTRUCTION START DATE – SUMMER 2022
ESTIMATED COMPLETION DATE – SPRING 2023

CONSTRUCTION DUST CONTROL NOTES

- IDENTIFY AND ADDRESS SOURCES OF DUST GENERATED BY CONSTRUCTION ACTIVITIES. LIMIT CONSTRUCTION TRAFFIC TO PREDETERMINED ROUTES. PAVED SURFACES REQUIRE MECHANICAL SWEEPERS TO REMOVE SOIL THAT HAS BEEN DEPOSITED OR TRACKED ONTO THE PAVEMENT. ON UNPAVED TRAVELWAYS AND TEMPORARY HAUL ROADS, USE ROAD CONSTRUCTION STABILIZATION MEASURES AND/OR WATER AS NEEDED TO KEEP SURFACE DAMP. STATIONARY SOURCES OF DUST, SUCH AS ROCK CRUSHERS, USE FINE WATER SPRAYS TO CONTROL DUST. IF WATER IS EXPECTED TO BE NEEDED FOR DUST CONTROL, IDENTIFY THE SOURCE OF WATER IN ADVANCE. PUMPING FROM STREAMS, POND AND SIMILAR WATERBODIES MAY REQUIRE APPROVAL FROM THE MUNICIPAL INLAND WETLAND AGENCY.
- IDENTIFY AND ADDRESS SOURCES OF WIND GENERATED DUST. PROVIDE SPECIAL CONSIDERATION TO HILL TOPS AND LONG REACHES OF OPEN GROUND WHERE SLOPES MAY BE EXPOSED TO HIGH WINDS. CONSIDER BREAKING UP LONG REACHES WITH TEMPORARY WINDBREAKS CONSTRUCTED FROM BRUSH PILES, GEOTEXTILE SILT FENCES OR HAY BALES. PLAN ON STABILIZING SLOPES EARLY. MULCH FOR SEED WILL REQUIRE ANCHORING WHEN USED.
- CONSIDER WATER QUALITY WHEN SELECTING THE METHOD AND/OR MATERIALS USED FOR DUST CONTROL. WHEN CONSIDERING THE USE OF CALCIUM CHLORIDE, BE AWARE OF THE FOLLOWING: THE RECEIVING SOIL'S PERMEABILITY SO AS TO PREVENT GROUNDWATER CONTAMINATION; THE TIMING OF THE APPLICATION TO RAINFALL TO PREVENT WASHING OF SALTS INTO SENSITIVE AREAS SUCH AS WETLANDS AND WATERCOURSES; AND PROXIMITY TO SENSITIVE AREAS SUCH AS WATERCOURSES, PONDS, ESTABLISHED OR SOON TO BE ESTABLISHED AREA OF PLANTINGS, WHERE SALTS COULD IMPAIR OR DESTROY PLANT AND ANIMAL LIFE. ADDITIONALLY, SOME MATERIALS USED FOR DUST CONTROL MAY BE RENDERED INEFFECTIVE BY DEGRADED WATER QUALITY IF IT IS USED FOR MIXING.
- CONSIDER USING DUST CONTROL MEASURES ONLY AFTER IT IS DETERMINED THAT OTHER MEASURES FOR SOIL STABILIZATION CANNOT BE PRACTICALLY APPLIED.
- USE MECHANICAL SWEEPING ON PAVED AREAS WHERE DUST AND FINE MATERIALS ACCUMULATE AS A RESULT OF TRUCK TRAFFIC, PAVEMENT SAW CUTTING SPILLAGE, AND WIND OR WATER DEPOSITION FROM ADJACENT DISTURBED AREAS. SWEEP DAILY IN HEAVILY TRAFFICKED AREAS.
- PERIODICALLY MOISTEN EXPOSED SOIL SURFACES ON UNPAVED TRAVELWAYS TO KEEP THE TRAVELWAY DAMP.
- NON-ASPHALTIC SOIL TACKIFIER CONSISTS OF AN EMULSIFIED LIQUID SOIL STABILIZER OF ORGANIC, INORGANIC OR MINERAL ORIGIN, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING: MODIFIED RESINS, CALCIUM CHLORIDE, COMPLEX SURFACTANT, COPOLYMERS OR HIGH GRADE LATEX ACRYLICS. THE SOLUTIONS SHALL BE NONASPHALTIC, NONTOXIC TO HUMAN, ANIMAL AND PLANT LIFE, NONCORROSIVE AND NONFLAMMABLE. MATERIALS USED SHALL MEET LOCAL, STATE AND FEDERAL GUIDELINES FOR INTENDED USE. ALL MATERIALS ARE TO BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND ALL SAFETY GUIDELINES SHALL BE FOLLOWED IN STORING, HANDLING AND APPLYING MATERIALS.
- REPEAT APPLICATION OF DUST CONTROL MEASURES WHEN FUGITIVE DUST BECOMES EVIDENT.



TREE PROTECTION

N.T.S.

PROJECT CONTACT INFO:

ED GRACE
(860)646-6134

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
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APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
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CIVIL & TRAFFIC ENGINEERS / LAND SURVEYORS
PLANNERS / LANDSCAPE ARCHITECTS

NO.	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO: 4798
DATE: 3/21/22
DESIGN BY: CMM
DRAWN BY: CMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

EROSION & SEDIMENTATION DETAILS & NOTES

SHEET
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SHEET 7 OF 13

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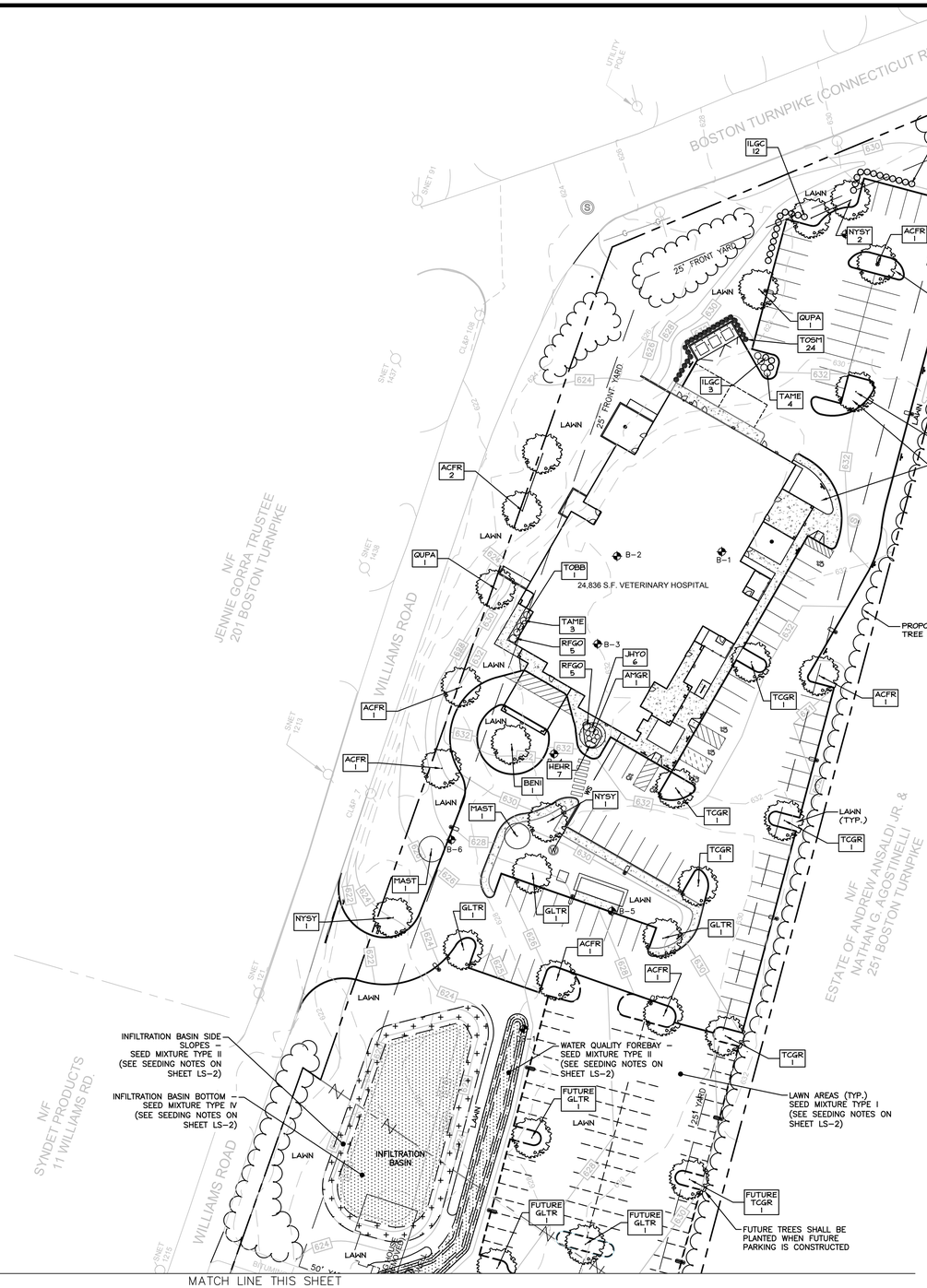

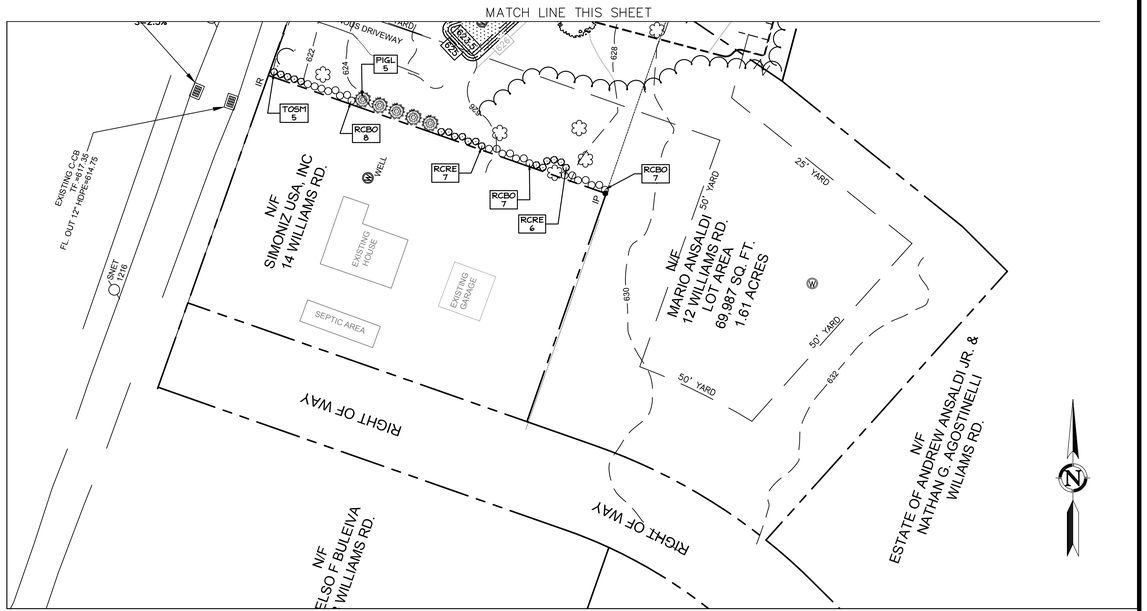

LANDSCAPE PLANTING SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	NOTES
DECIDUOUS TREES						
ACFR	9	Acer x. freemanii 'Jeffer's Red'	Autumn Blaze Maple	3" cal.	B&B	PLANT AS SHOWN
AMGR	1	Amelanchier x. grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	2" cal.	B&B	PLANT AS SHOWN – SINGLE STEM
BENI	1	Betula nigra 'Heritage'	Heritage River Birch	8'–10' HT.	B&B	MULTI–STEM
GLTR	6	Gleditsia triacanthos var. inermis 'Skyline'	Skyline Honeylocust	3" cal.	B&B	PLANT AS SHOWN
MAST	2	Malus 'Sugar Tyme'	Sugar Tyme Crabapple	3" cal.	B&B	PLANT AS SHOWN
NYSY	4	Nyssa sylvatica 'Wildfire'	Wildfire Black Tupelo	3" cal.	B&B	PLANT AS SHOWN
QUPA	2	Quercus palustris	Pin Oak	3" cal.	B&B	PLANT AS SHOWN
TCGR	6	Tilia cordata 'Greenspire'	Greenspire Littleleaf Linden	3" cal.	B&B	PLANT AS SHOWN
EVERGREENS						
PIGL	5	Picea glauca	White Spruce	6'–8' Ht.	B&B	PLANT AS SHOWN
SHRUBS						
ILGC	27	Ilex glabra 'Compacta'	Compact Inkberry	No. 3	CONT.	4' O.C.
JHYO	6	Juniperus horizontalis 'Youngstown'	Youngstown Andorra Juniper	No. 3	CONT.	3' O.C.
RCBO	22	Rhododendron catawbiense 'Borsault'	Borsault Rhododendron	24"–30"	CONT.	4' O.C.
RCRE	13	Rhododendron catawbiense 'Roseum Elegans'	Roseum Elgans Rhododendron	24"–30"	CONT.	4' O.C.
TAME	7	Taxus x. media 'Densiformis'	Dense Spreading Yew	No. 3	CONT.	3' O.C.
TOSM	29	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	4'–5' ht.	B&B	3' O.C.
TOBB	1	Thuja occidentalis 'Mr. Bowling Ball'	Mr. Bowling Ball Arborvitae	No. 3	CONT.	3' O.C.
PERENNIALS						
HEHR	7	Hemerocallis 'Happy Returns'	Happy Returns Daylily	No. 1	CONT.	2' O.C.
RFGO	10	Rudbeckia fulgida 'Goldstrum'	Goldstrum Black–eyed Susan	No. 1	CONT.	2' O.C.

LANDSCAPING NOTES:

1. ONE TREE IS REQUIRED PER 20 PARKING SPACES. 164 TOTAL PARKING SPACES/20 = 8.2 TREES REQUIRED. 21 SHADE TREES PROVIDED IN PARKING ISLANDS AND ADJACENT TO PARKING AREAS.
2. 20 SQUARE FEET OF LANDSCAPED AREA WITHIN THE PERIMETER OF THE PARKING AREA PER PARKING SPACE IS REQUIRED. 164 PARKING SPACES (INCLUDES FUTURE SPACES) x 20 SF = 3280 SF LANDSCAPED AREA REQUIRED. 3677 SF LANDSCAPED AREA PROVIDED.

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LANDSCAPE PLAN NOTES:
1. 'CALL BEFORE YOU DIG' – CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF PENDING EXCAVATION AT OR NEAR PUBLIC UTILITIES. CALL 811 AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION.
2. THIS PLAN SHALL BE USED FOR LANDSCAPING ONLY
3. REFER TO LANDSCAPE DETAILS & NOTES SHEET FOR LANDSCAPE AND SEEDING NOTES

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LANDSCAPE PLAN

SCALE: 1" = 40' (0, 20', 40', 80')

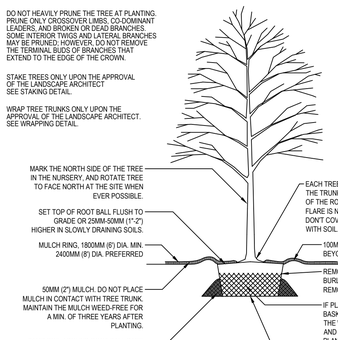
SHEET
C-LS1
SHEET 8 OF 13

LANDSCAPE NOTES:

1. ALL EXISTING TREES TO REMAIN SHALL BE SHAPED OR PRUNED WITHIN THE DEVELOPMENT AND ALONG THE PERIMETER OF CONSTRUCTION LIMIT UNDER THE DIRECTION OF A LICENSED ARBORIST.
2. DEBRIS AND DEAD, UNHEALTHY EXISTING TREES AND INVASIVE SPECIES SHALL BE REMOVED FROM WETLANDS AND RESIDENTIAL LANDSCAPE BUFFER AREAS.
3. ALL AREAS DESIGNATED TO BE SEEDED SHALL RECEIVE FOUR (4) INCHES OF TOPSOIL, SOIL AMENDMENTS AND MULCH. WATER AND MAINTAIN LAWN AREAS UNTIL ALL AREAS ARE STABILIZED AND ACCEPTED BY OWNER'S REPRESENTATIVE.
4. PLANTS: ALL PLANTS SHALL COMPLY WITH THE RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD OF NURSERY STOCK." PROVIDE PLANTS TYPICAL OF THEIR SPECIES OR VARIETY WITH NORMAL, DENSELY-DEVELOPED BRANCHES AND VIGOROUS, FIBROUS ROOT SYSTEMS. PROVIDE ONLY SOUND, HEALTHY, VIGOROUS PLANTS FREE FROM INSECT PESTS, DISEASES, AND PHYSICAL INJURY. ALL PLANTS SHALL HAVE A FULLY DEVELOPED FORM WITHOUT VOIDS AND OPEN SPACES.
5. BALLED AND BURLAPPED PLANTS: DIG BALLED AND BURLAPPED PLANTS WITH FIRM, NATURAL BALLS OF EARTH OF SUFFICIENT DIAMETER AND DEPTH TO ENCOMPASS THE FIBROUS AND FEEDING ROOT SYSTEM NECESSARY FOR FULL RECOVERY OF PLANT. PROVIDE BALL SIZES COMPLYING WITH THE LATEST EDITION OF THE "AMERICAN STANDARD FOR NURSERY STOCK". CRACKED OR MUSHROOMED BALLS ARE NOT ACCEPTABLE.
5.A. BARE-ROOT PLANTS: DUG WITH ADEQUATE FIBROUS ROOTS, COVERED WITH A UNIFORMLY THICK COATING OF MUD BY BEING PUDDLED IMMEDIATELY AFTER THEY ARE DUG, OR PACKED IN MOIST STRAW OR PEAT MOSS.
5.B. CONTAINER-GROWTH STOCK: GROWN IN A CONTAINER FOR SUFFICIENT LENGTH OF TIME FOR THE ROOT SYSTEM TO HAVE DEVELOPED TO HOLD ITS SOIL TOGETHER, FIRM AND WHOLE.
5.B.A. CONTAINER STOCK SHALL NOT BE POT BOUND.
5.B.B. CONTAINER STOCK SHALL NOT BE LOOSE IN THE CONTAINER.
5.C. ALL PLANTS SHALL BE NURSERY GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT, FOR AT LEAST ONE YEAR.
6. CONTRACTOR RESPONSIBLE TO WARRANT PLANT MATERIAL TO REMAIN ALIVE AND BE HEALTHY, VIGOROUS CONDITION FOR A PERIOD OF 1 YEAR AFTER FINAL ACCEPTANCE OF ENTIRE PROJECT INCLUDING DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM NEGLECT BY OWNER, ABUSE OR DAMAGE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS WHICH ARE BEYOND CONTRACTOR'S CONTROL.
7. CONTRACTOR TO REMOVE AND REPLACE TREES, SHRUBS, OR OTHER PLANTS FOUND TO BE DEAD OR IN UNHEALTHY CONDITION DURING WARRANTY PERIOD AT CONTRACTOR'S EXPENSE. REPLACE TREES AND SHRUBS WHICH ARE IN DOUBTFUL CONDITION AT END OF WARRANTY PERIOD, AND EXTEND WARRANTY PERIOD FOR AN ADDITIONAL GROWING SEASON FOR THE REPLACEMENT PLANTS.
8. CONTRACTOR RESPONSIBLE FOR PLANTING UNDER FAVORABLE WEATHER CONDITIONS AND RECOMMENDED SEASON FOR PLANT SURVIVAL AND ESTABLISHMENT. AT OPTION OF, AND UNDER FULL RESPONSIBILITY OF CONTRACTOR, PLANTING OPERATIONS MAY BE CONDUCTED UNDER UNSEASONABLE CONDITIONS, BUT WITHOUT ADDITIONAL COMPENSATION. IF SPECIAL CONDITIONS EXIST TO REQUIRE PLANTING OUTSIDE THE ABOVE SPECIFIED DATES, THE CONTRACTOR SHALL SUBMIT IN WRITING FOR PERMISSION BY THE OWNER'S REPRESENTATIVE. ANY VARIANCE IN THE PLANTING SEASON WILL NOT AFFECT THE ONE YEAR PLANTING GUARANTEE PERIOD.
9. DO NOT MAKE SUBSTITUTIONS. IF SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON-AVAILABILITY TO OWNER TOGETHER WITH PROPOSAL FOR USE OF EQUIVALENT MATERIAL. SUBSTITUTION OF PLANTS WILL NOT BE PERMITTED UNLESS APPROVED IN WRITING BY THE OWNER.
9.A. ROOT TYPES MAY BE FREELY SUBSTITUTED IN THE CASE OF BALLED AND BURLAPPED, OR CONTAINER GROWN. ALL OTHER SPECIFICATIONS REMAINING UNCHANGED. BARE ROOT OR COLLECTED PLANTS ARE NOT ACCEPTABLE AS SUBSTITUTES WITHOUT RECEIPT OF A CHANGE ORDER.
10. PROVIDE A MINIMUM OF 12" OF PLANTING SOIL MIXTURE IN ALL PLANTING BEDS.
11. PLANTING SOIL MIXTURE (BY VOLUME) SHALL BE EQUAL TO:
    A. BARK MULCH/COMPOST 10%-12%
    B. COARSE SAND 40-45%
    C. TOPSOIL 45-50%
12. PRIOR TO PLANTING, THE CONTRACTOR SHALL OBTAIN SOIL TEST FROM A CERTIFIED SOIL LABORATORY FOR ALL AREAS OF THE SITE WITH RECOMMENDATIONS FOR APPROPRIATE SOIL AMENDMENTS FOR THE TYPES OF PLANTS SPECIFIED.
12.A. LIME SHALL BE PELLETIZED LIME MANUFACTURED TO MEET AGRICULTURAL STANDARDS AND CONTAIN A MAXIMUM OF 60% OXIDE. (I.E., CALCIUM OXIDE PLUS MAGNESIUM OXIDE).
12.B. FERTILIZER SHALL BE OF A FORMULA INDICATED BY THE SOIL TESTING TO ACHIEVE A MINIMUM OF ONE POUND OF NITROGEN PER 1000 S.F. OF LAWN AREA. FERTILIZER SHALL BE A MINIMUM OF 50% ORGANIC SLOW-RELEASE COMPOSITION.
12.C. NO SOIL AMENDMENTS OR FERTILIZER SHALL BE USED FOR AREA DISTURBED WITHIN WETLANDS OR CREATED WATER QUALITY BASINS.
12.D. CONTRACTOR TO HAVE FERTILIZER MATERIALS DELIVERED IN ORIGINAL, UNOPENED, AND UNDAMAGED CONTAINERS SHOWING WEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. STORE IN MANNER TO PREVENT WETTING AND DETERIORATION.
12.E. DELAY MIXING FERTILIZER IF PLANTING WILL NOT FOLLOW PLACING OF PLANTING SOIL WITHIN A FEW DAYS.
13. DAYLILIES AND PERENNIALS SHALL BE INSTALLED AT 24" O.C., UNLESS NOTED OTHERWISE. APPLY 2" OF BARK MULCH, IN AREAS OF GROUND COVER AND PERENNIALS OR OWNER SELECTED ANNUALS.
14. NO PLANT, EXCEPT GROUND COVERS, GRASSES, OR VINES, SHALL BE PLANTED LESS THAN TWO FEET FROM STRUCTURES, EDGE OF PAVEMENT, OR BACK OF CURB.
15. TREES IN EXCESS OF 3" CALIPER SHALL BE SUBJECT TO INSPECTION FOR CONFORMITY TO THE SPECIFICATIONS AND APPROVAL OF LANDSCAPE ARCHITECT AT THEIR PLACE OF GROWTH AND UPON DELIVERY. WRITTEN REQUEST SHALL BE SUBMITTED 10 DAYS PRIOR.
16. CONTRACTOR RESPONSIBLE TO SUBMIT CERTIFICATES OF INSPECTION AS REQUIRED BY GOVERNMENTAL AUTHORITIES. LANDSCAPE MATERIALS TO BE SHIPPED WITH CERTIFICATES OF INSPECTION REQUIRED BY GOVERNMENTAL AUTHORITIES. COMPLY WITH REGULATIONS APPLICABLE TO LANDSCAPE MATERIALS AND CONTRACTOR TO SUBMIT MANUFACTURER'S OR VENDOR'S CERTIFIED ANALYSIS FOR FERTILIZER MATERIALS.
17. MOVING AND STORAGE OF PLANT MATERIALS: CONTRACTOR TO TAKE ALL PRECAUTIONS CUSTOMARY IN GOOD TRADE PRACTICE IN PREPARING PLANTS FOR MOVING. WORKMANSHIP THAT FAILS TO MEET THE HIGHEST STANDARDS WILL BE REJECTED.
17.A. SPRAY DECIDUOUS PLANTS IN FOLIAGE WITH AN APPROVED ANTITRANSPIRANT IMMEDIATELY AFTER DIGGING TO PREVENT DEHYDRATION.
17.B. LEGIBLY TAG PLANTS WITH BOTANICAL NAME AND SIZE IN ACCORDANCE WITH THE STANDARDS OF PRACTICE OF THE AMERICAN ASSOCIATION OF NURSERYMEN.
17.C. DIG, PACK, TRANSPORT, AND HANDLE PLANTS WITH CARE TO ENSURE PROTECTION AGAINST INJURY. FULLY PROTECT PLANTS FROM DAMAGE BY SUN, WIND, DROUGHT, WATER AND OTHER INJURIOUS CONDITIONS DURING TRANSPORTATION TO SITE AND DURING TEMPORARY STORAGE BEFORE PLANTING.
17.D. INSPECTION CERTIFICATES REQUIRED BY LAW SHALL ACCOMPANY EACH SHIPMENT INVOICE OR ORDER TO STOCK AND ON ARRIVAL. THE CERTIFICATE SHALL BE FILED WITH THE OWNER.
17.E. NO PLANT SHALL BE BOUND WITH ROPE OR WIRE IN A MANNER THAT COULD DAMAGE OR BREAK THE BRANCHES.
18. A COMPLETE LIST OF PLANTS, INCLUDING A SCHEDULE OF SIZES, QUANTITIES, AND OTHER REQUIREMENTS IS SHOWN ON THE DRAWINGS. IN THE EVENT THAT QUANTITY DISCREPANCIES OR MATERIAL OMISSIONS OCCUR IN THE PLANT MATERIALS LIST, THE PLANTING PLANS SHALL GOVERN.
19. STOCK FURNISHED SHALL BE AT LEAST THE MINIMUM SIZE INDICATED ON THE DRAWINGS. LARGER STOCK IS ACCEPTABLE, AT NO ADDITIONAL COST AND PROVIDING THE LARGER PLANTS WILL NOT BE CUT BACK TO THE SIZE INDICATED ON THE DRAWINGS.
20. THE HEIGHT OF THE TREE, MEASURED FROM THE CROWN OF THE ROOTS TO THE AVERAGE HEIGHT OF THE TOP OF THE TREE, SHALL NOT BE LESS THAN THE MINIMUM SIZE DESIGNATED IN THE PLANT LIST.
21. SHRUBS AND SMALL PLANTS SHALL MEET THE REQUIREMENTS FOR SPREAD AND HEIGHT INDICATED IN THE PLANT LIST.
22. NO PRUNING WOUNDS SHALL BE PRESENT WITH A DIAMETER OF MORE THAN 1 INCH AND SUCH WOUNDS MUST SHOW VIGOROUS BARK ON ALL EDGES.
23. ANTITRANSPIRANT: PROVIDE PROTECTIVE FILM EMULSION PROVIDING A PROTECTIVE FILM OVER PLANT SURFACES; PERMEABLE TO PERMIT TRANSPIRATION. MIXED AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
24. WATER IS TO BE SUPPLIED FOR PLANTS THAT IS CLEAN, FREE FROM TOXIC AMOUNTS OF SALT, OIL, ACID ALKALI, ORGANIC MATTER OR OTHER SUBSTANCES HARMFUL TO PLANTS.
25. CONTRACTOR TO PRUNE AND REPAIR PLANTS AS FOLLOWS:
25.A. REMOVE OR CUT BACK, BROKEN, DAMAGED, AND UNSYMMETRICAL GROWTH OF NEW WOOD.
25.B. MULTIPLE LEADER PLANTS: PRESERVE THE CENTRAL LEADER WHICH WILL BEST PROMOTE THE SYMMETRY OF THE PLANT. CUT BRANCHES FLUSH AT THE BRANCH COLLAR WITH THE TRUNK OR MAIN BRANCH.
25.C. PRUNE NEEDLE-LEAF EVERGREEN TREES ONLY TO REMOVE BROKEN OR DAMAGED BRANCHES.
25.D. ALL TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7 FEET ABOVE FINISH GRADE.
26. MULCH TO BE APPLIED AS FOLLOWS:
26.A. AREAS TO RECEIVE MULCH: ALL PLANT BEDS AND OTHER AREAS AS DESIGNATED ON DRAWINGS SHALL BE MULCHED.
26.B. PLACEMENT: PLACE MULCH TO REQUIRED UNIFORM DEPTH SOON AFTER PLANTING TO PREVENT DRYING OF PLANTING SOIL AROUND ROOTS. DO NOT PLACE MULCH WITHIN 3" OF TREE TRUNKS.
26.C. APPLY BARK MULCH TO A UNIFORM DEPTH OF 2 INCHES.
26.D. MULCH SHALL BE 6 MONTHS OLD, WELL-ROTTED, SHREDDED, NATIVE HARDWOOD BARK, NOT LARGER THAN 4" IN LENGTH AND 1/2" IN WIDTH, FREE OF WOOD CHIPS AND SAWDUST.
27. CONTRACTOR RESPONSIBLE FOR MAINTENANCE OF PLANT MATERIALS:
27.A. MAINTAIN PLANTINGS UNTIL FINAL ACCEPTANCE OF WORK.
27.B. MAINTENANCE SHALL INCLUDE PRUNING, WEEDING, WATERING, AND APPLICATION OF APPROPRIATE INSECTICIDES AND FUNGICIDES NECESSARY TO MAINTAIN PLANTS FREE OF INSECTS AND DISEASE.
27.C. RESET SETTLED PLANTS TO PROPER GRADE AND POSITION. RESTORE PLANTING SAUCER AND ADJACENT MATERIAL AND REMOVE DEAD MATERIAL.
27.D. CORRECT DEFECTIVE WORK AS SOON AS POSSIBLE AFTER DEFICIENCIES BECOME APPARENT AND WEATHER AND SEASON PERMIT.
27.E. WATER PLANTINGS IN A SATISFACTORY MANNER DURING AND IMMEDIATELY FOLLOWING PLANTING, TWICE PER WEEK, OR LESS UNDER WET CONDITIONS, UNTIL ACCEPTANCE BY OWNER. PROVIDE ADDITIONAL WATERING DURING EXCESSIVE DRY PERIODS DURING THE MAINTENANCE PERIOD AS DIRECTED BY THE OWNER.
27.F. REPLACEMENT OF PLANTS: ANY PLANTS TO BE REPLACED PRIOR TO ACCEPTANCE OF WORK, OR UNDER TERMS OF GUARANTY SHALL BE INSTALLED FOLLOWING PROCEDURES SET FORTH ABOVE.
28. LANDSCAPE CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING CONSTRUCTION.
29. LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
30. LANDSCAPE CONTRACTOR SHALL CONTACT CALL BEFORE YOU DIG 1-800-922-4455 AT LEAST TWO FULL WORKING DAYS PRIOR TO INSTALLATION.
31. LANDSCAPE CONTRACTOR TO REMOVE AND DISPOSE OF ALL CONSTRUCTION DEBRIS FROM SITE PER GOVERNING REGULATIONS.
32. CONSTRUCTION SITE IS TO BE IN A CLEAN, ORDERLY CONDITION AT ALL TIMES.
33. ALL REQUIRED PERMITS ARE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
34. LANDSCAPE CONTRACTOR SHALL PROVIDE FINE GRADING WORK FOR THE ENTIRE PROJECT. THIS WILL INCLUDE ALL AREAS TO BE GRASSED OR LANDSCAPED. GRADING MUST PROVIDE PROPER POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS AND NOT LEAVE ANY POCKETS WHERE STANDING WATER MAY COLLECT.
34.A. TOPSOIL SHALL NOT BE SPREAD UNDER FROZEN OR MUDDY CONDITIONS.
35. THE LOCATION OF ALL TREES AND SHRUBS SHALL BE STAKED FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

SEEDING NOTES:

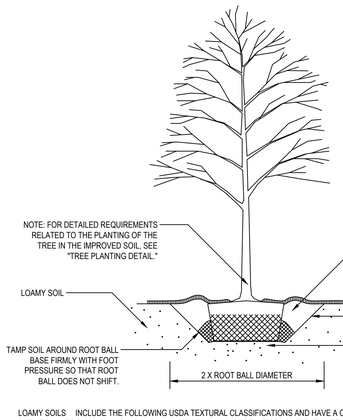
1. SEEDING MIXTURE TYPE I (LAWN AREAS):
   BLUEGRASS BLEND (3 VARIETIES) 50% OF MIXTURE
   CHEWINGS RED FESCUE 30% OF MIXTURE
   PERENNIAL RYEGRASS 20% OF MIXTURE
   APPLICATION RATE: 4.50LBS. PER 1000 S.F.
2. SEEDING MIXTURE TYPE II (BASIN SLOPES)
   RETENTION BASIN WILDLIFE MIX - ERNMX-127
   BY Ernst Conservation Seeds, 9006 Mercer Pike, Meadville, PA 16335 (800) 873-3321
   APPLICATION RATE: 0.50 LBS PER 1,000 S.F., 20 LBS PER ACRE
3. SEEDING MIXTURE TYPE IV (BASIN BOTTOM):
   PERENNIAL RYEGRASS 10% OF MIXTURE
   CREEPING RED FESCUE 10% OF MIXTURE
   ALSIKE CLOVER 5% OF MIXTURE
   RED TOP 5% OF MIXTURE
   TURF-TYPE TALL FESCUE 70% OF MIXTURE
   APPLICATION RATE: 5.00 LBS PER 1,000 S.F.
3. LAWN AREAS SHALL HAVE A MINIMUM 4" DEPTH OF TOPSOIL. FLOOR AND SIDES OF INFILTRATION BASIN SHALL NOT RECEIVE TOPSOIL TO PROMOTE INFILTRATION.
4. SEED MIXES IN AND AROUND DETENTION BASINS SHALL BE SUBSTANTIALLY ESTABLISHED PRIOR TO DISCHARGING RUNOFF FROM THE STORMWATER SYSTEM.
5. SEEDING OF BASIN SLOPES (SEEDING MIXTURE TYPE II) SHALL BE BY HYDROSEEDING AND HYDRO-MULCHING. ADD AN ADDITIONAL 15% TO SEEDING MIXTURE WHEN HYDRO-SEEDING IS USED. HYDROMULCH SHALL BE EQUAL TO CONWED 2000 AND APPLIED AT THE RATE OF 1,400LBS. PER ACRE.
6. CONTRACTOR RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SEEDED AREAS UNTIL SATISFACTORY GROWTH AS DETERMINED BY THE OWNER. REPLANT BARE AND REPAIR ERODED AREAS UNTIL END OF MAINTENANCE PERIOD. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURES, UNLESS OTHERWISE NOTED, SHALL BE SEEDED TO LAWN.



NOTE: FOR DIMENSIONS OF PLANTING AREAS, TYPES OF SOIL AMENDMENTS, OR SOIL REPLACEMENT, SEE "SOIL IMPROVEMENT DETAILS."

NOTES:
1. NO MULCH WITHIN 3" OF TREE TRUNK
2. THIS DETAIL ASSUMES THAT THE PLANTING SPACE IS LARGER THAN 2400 MM (8 FT.) SQUARE, OPEN TO THE SKY, AND NOT COVERED BY ANY PAVING OR GRATING.

1 TREE PLANTING DETAIL
Not to Scale



LOAMY SOILS INCLUDE THE FOLLOWING USDA TEXTURAL CLASSIFICATIONS AND HAVE A CLAY CONTENT OF BETWEEN 15 TO 27%: LOAM, SANDY LOAM AND SILT LOAM. NOTE THAT SOILS AT THE OUTER LIMITS OF THE LOAM CLASSIFICATIONS MAY PRESENT SPECIAL PLANTING PLANTING PROBLEMS NOT ANTICIPATED BY THIS DETAIL.

LOAMY SOILS ARE DEFINED AS GRANULAR OR BLOCKY FRIABLE SOILS. A MIXTURE OF SAND, SILT AND CLAY PARTICLES WITH A MINIMUM OF 1.5% BY DRY WEIGHT ORGANIC MATTER. THE SOIL MUST NOT BE SO COMPACTED AS TO IMPEDE ROOT GROWTH OR DRAINAGE. THE SOIL STRUCTURE SHALL NOT BE PLATY OR MASSIVE. THE SOIL MUST BE TESTED FOR TEXTURE, DRAINAGE CAPABILITY, PH, AND NUTRIENT VALUES PRIOR TO DETERMINING PLANT SELECTIONS AND ANY ADDITIONAL SOIL IMPROVEMENTS.

NOTES:
1. FOR TREES PLANTED IN NON-RESTRICTED SOIL CONDITIONS.
2. THIS DETAIL ASSUMES THAT THE AREA OF LOAMY SOIL AVAILABLE TO EACH TREE IS A MINIMUM OF 45 SQ. M (500 SQ. FT)

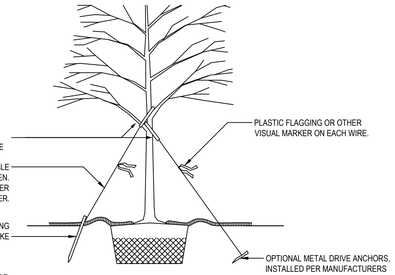
2 SOIL IMPROVEMENT DETAIL
Not to Scale

WIRE OR CABLE SIZES SHALL BE AS FOLLOWS:
TREES UP TO 65 MM (2.5 IN.) CALIPER - 14 GAUGE
TREES 65 MM (2.5 IN.) TO 75 MM (3 IN.) CALIPER - 12 GAUGE

TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 35MM (1.5 IN.) OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE.

TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED.

INSTALL THREE GUY WIRES PER TREE, SPACED EVENLY AROUND THE TRUNK.



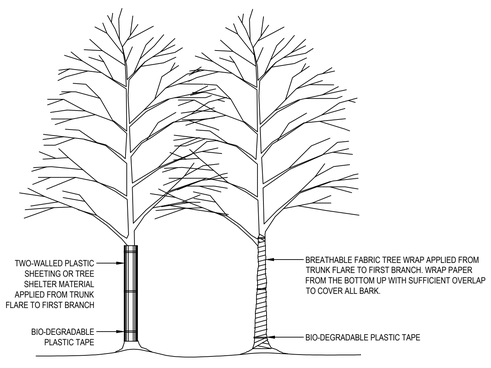
ALL STAKES SHALL BE DRIVEN OUTSIDE THE EDGE OF THE ROOT BALL.

ASSURE THAT THE BEARING SURFACE OF THE PROTECTIVE COVERING OF THE WIRE OR CABLE AGAINST THE TREE TRUNK IS A MINIMUM OF 12 MM (0.5 IN.).

REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING.

TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF. THE FOLLOWING ARE REASONS WHY TREES DO NOT REMAIN STRAIGHT.
- o TREES WITH POOR-QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE.
- o TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE.
- o PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND THE ROOT BALL. CORRECT THE PLANTING PROCEDURE.
- o ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
- o ROOT BALLS WITH VERY SANDY SOIL OR VERY WET CLAY SOIL. STAKING ADVISABLE.
- o TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.

3 TREE STAKING DETAIL (LARGER THAN 3" CAL.)
Not to Scale



APPLY THE PLASTIC SHEETING LOOSELY AROUND THE TRUNK TO LEAVE A 12MM (0.5") GAP BETWEEN THE TRUNK AND THE SHEETING.

OPTION 1 OPTION 2

TREE WRAP SHOULD BE INSTALLED AT TIME OF PLANTING AND BE REMOVED WHEN DIRECTED BY THE LANDSCAPE ARCHITECT, BUT NO LATER THAN 12 MONTHS AFTER PLANTING.

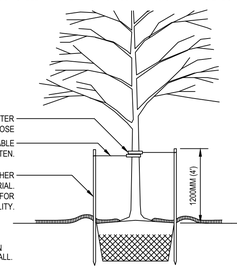
TREES WHOSE NORTH ORIENTATION IS NOT CHANGED FROM THE NURSERY DO NOT NEED TO BE WRAPPED EXCEPT TREES WITH VERY THIN BARK, SUCH AS RED MAPLE, SHOULD BE WRAPPED IF APPROVED BY THE LANDSCAPE ARCHITECT.

4 TREE WRAPPING DETAIL
Not to Scale

WIRE OR CABLE SIZES SHALL BE AS FOLLOWS:
TREES UP TO 65 MM (2.5 IN.) CALIPER - 14 GAUGE
TREES 65 MM (2.5 IN.) TO 75 MM (3 IN.) CALIPER - 12 GAUGE

TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 35MM (1.5 IN.) OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE.

TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED.



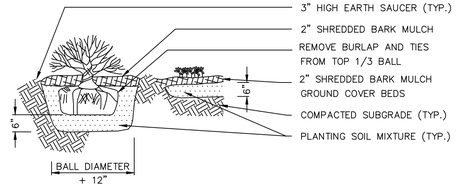
NOTE: ALL STAKES SHALL BE DRIVEN OUTSIDE THE EDGE OF THE ROOT BALL.

ASSURE THAT THE BEARING SURFACE OF THE PROTECTIVE COVERING OF THE WIRE OR CABLE AGAINST THE TREE TRUNK IS A MINIMUM OF 12 MM (0.5 IN.).

REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING.

TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF. THE FOLLOWING ARE REASONS WHY TREES DO NOT REMAIN STRAIGHT.
- o TREES WITH POOR QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE.
- o TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE.
- o PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND THE ROOT BALL. CORRECT THE PLANTING PROCEDURE.
- o ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
- o ROOT BALLS WITH VERY SANDY SOIL OR VERY WET CLAY SOIL. STAKING ADVISABLE.
- o TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.

5 TREE STAKING DETAIL (3" CAL. OR SMALLER)
Not to Scale



6 SHRUB & GROUNDCOVER PLANTING DETAIL
Not to Scale

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
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CIVIL & TRAFFIC ENGINEERS / LAND SURVEYORS
PLANNERS / LANDSCAPE ARCHITECTS

NO.	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO:	4798
DATE:	3/21/22
DESIGN BY:	CMM
DRAWN BY:	CMM
CHECKED BY:	SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

LANDSCAPE DETAILS & NOTES

SHEET
C-LS2
SHEET 9 OF 13

CONSTRUCTION NOTES:

1. At least two full business days prior to starting any site activity or demolition, the contractor shall contact the applicable state utility location service by dialing 811 or submitting an online ticket request. The utilities shall be marked in all areas of proposed disturbance.

2. It is the contractor's responsibility to review all construction contract documents associated with the project scope of work, including, but not limited to, all drawings and specifications, architectural plans, boundary and topographic survey, wetlands assessment and reports, geotechnical reports, environmental reports, and approval conditions, prior to the commencement of construction. Should the contractor find conflict and/or discrepancy between the documents relative to the plans, specifications, reports, or the relative or applicable codes, regulations, laws, rules, statutes and/or ordinances, it is the contractor's sole responsibility to notify the Engineer, in writing, of said conflict and/or discrepancy prior to the start of construction.

3. The contractor shall be responsible for adhering to any conditions of approval placed on the project by the authorities having jurisdiction.

4. The contractor must comply, to the fullest extent, with the latest Occupational Safety and Health (OSHA) standards and regulations, and/or any other agency with jurisdiction for construction activities. The contractor is solely responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with work on the Project. The Engineer will not be responsible for the contractor's safety, schedules, or failure to carry out its work in accordance with the contract documents. The Engineer will not have control over or charge of acts or omissions of the contractor, subcontractors, or their agents or employees, or of any persons performing portions of work on the Project.

5. Contractor must notify the Engineer in writing if there are any questions concerning the accuracy or intent of these plans or related specifications. If such notification is given, no demolition or site activity may begin until such time that the Engineer provides a written response to same.

6. Contractor shall adhere to and is responsible for compliance with all details, notes, plans and specifications contained herein. It is the responsibility of the contractor to ensure that all work performed by their subcontractors is in full compliance with these requirements.

7. The contractor shall confirm that they are in receipt of the current version of the referenced documents prior to the commencement of any work.

8. Prior to commencing work, the contractor shall review and correlate all consultants plans and specifications including the entire site plan and the latest architectural plans (including, but not limited to, structural, mechanical, electrical, plumbing, and fire suppression plans, where applicable), in particular for building utility connection locations, grease trap requirements/ details, door access, and exterior grading. Contractor must immediately notify the Architect and the Engineer, in writing, of any conflicts, discrepancies or ambiguities which exist, and receive a written resolution prior to commencing construction.

9. Prior to commencing work, contractor is required to secure all necessary and/or required permits and approvals for the construction of the project, including, but not limited to, demolition work, and all off site material sources and disposal facilities. Copies of all permits and approvals shall be maintained on site throughout the duration of the project. The contractor shall thoroughly review and understand all permits and permit conditions prior to fabrication of any materials or products to be used as part of the project.

10. The contractor is responsible for independently verifying all existing onsite utilities within and adjacent to the limits of the project activities. Underground utility, structure and facility locations depicted and noted on the plans have been compiled, in part, from record mapping supplied by the respective utility companies or governmental agencies, from parol testimony, and from other sources. These locations must be considered as approximate in nature. Additionally, other such features may exist on the site, the existence of which are unknown to the Engineer.

11. The contractor is responsible for ensuring the installation of all improvements comply with all requirements of utility companies with jurisdiction and/or control of the site.

12. Locations of all existing and proposed services are approximate. Final utility service sizes and locations, including, but not limited to, the relocation and/or installation of utility poles, or the relocation and/or installation of transformers, are at the sole discretion of the respective utility companies.

13. Prior to commencement of any work, the contractor shall independently coordinate and confirm with the appropriate utility companies to finalize all utility services and/or relocations to ensure no conflict with the design plans and that proper depths can be achieved. All discrepancies must immediately be reported to the Engineer in writing. Should a conflict arise due to the final designs of the utility company, the contractor shall notify the Engineer in writing and await a written resolution prior to proceeding with further utility installations.

14. Prior to commencing construction, the contractor shall field verify all existing conditions, topographic information, utility invert elevations, and proposed layout dimensions, and must immediately notify the Engineer in writing if actual site conditions differ or are in conflict with the proposed work. No extra compensation will be paid to the contractor for work which has to be redone or repaired due to dimensions or grades shown incorrectly on these plans unless the contractor receives written permission from Owner/developer giving authorization to proceed with such additional work.

15. Where utilities are proposed to cross/traverse existing underground utilities, the elevations of the existing utilities shall be verified in the field prior to construction by excavating a test pit at the proposed utility crossing point. Should the field verified existing utility be in conflict with the proposed site designs, the contractor shall notify the Engineer in writing and shall not proceed with said utility construction until further direction is given from the Engineer.

16. At least 72 hours prior to starting any site activity or demolition, the contractor shall notify, at a minimum, the building official, municipal engineer, department of public works, planning and zoning commission, the Engineer, and local inland wetland commission, as applicable. The contractor shall also attend a pre-construction meeting with the local municipality, if required, prior to commencing any site activity or demolition.

17. Prior to starting any site activity or demolition, the contractor shall implement the soil erosion and sediment control measures as noted on the plans. Refer to the Erosion and Sedimentation Control Notes.

18. No work, including but not limited to tree clearing, beyond the limits of disturbance shown shown on the approved plans shall be completed without approval. No trees and/or vegetation outside the limits shown on the drawings shall be removed. Any items desired to be removed outside the limits shown must be approved in writing by the engineer and the local authorities having jurisdiction. All equipment and construction activities must be confined to the property, right-of-way, and designated work space.

19. The demolition plan or existing features designated to be removed are intended to provide only general information regarding items to be demolished and/or removed. The contractor shall review all site plans (and architectural drawings as applicable) to assure that all demolition activities and incidental work necessary for the construction of the new site improvements are completed.

20. The contractor shall protect and maintain the operation and service of all active utilities and systems that are not being removed during all construction activities. Should a temporary interruption of utility services be required as part of the proposed construction activities, the contractor shall coordinate with appropriate utility companies and the affected end users to minimize impact and service interruption.

21. The contractor shall arrange for and coordinate with the appropriate utility companies for all services that require temporary or permanent termination for the project, whether shown on the site plans or not. Termination of utilities shall be performed in compliance with all local, state and/or federal regulations.

22. Contractor must prepare record drawings depicting the location of existing utilities that are capped, abandoned in place, or relocated and provide to the Owner and the Engineer of record.

23. Should hazardous material be discovered/encountered, which was not anticipated/addressed in the project plans and specifications, cease all work immediately and notify Owner and Engineer regarding the discovery of same. Do not continue work in the area until written instructions are received from an environmental professional.

24. The contractor is responsible for preventing movement, settlement, damage, or collapse of existing structures, and any other improvements that are to remain. If any existing structures that are to remain are damaged during construction, repairs shall be made using new product/materials resulting in a pre-damage condition, or better. Contractor is responsible for all repair costs. Contractor shall document all existing damage and to notify the Owner prior to the start of construction.

25. The use of explosives, if required, must comply with all local, state and federal regulations. The contractor shall obtain all permits that are required by the federal, state and local governments, and shall also responsible for all notification, inspection, monitoring or testing as may be required.

26. All debris from removal operations must be removed from the site at the time of excavation. Stockpiling of demolition debris will not be permitted. Debris shall not be burned or buried on site. All demolition materials to be disposed of, including, but not limited to, stumps, limbs, and brush, shall be done in accordance with all municipal, county, state, and federal laws and applicable codes. The contractor must maintain records of all disposal activities.

27. The contractor is responsible for repairing all damage to any existing utilities during construction, at its own expense.

28. All property monumentation shall be protected during construction. It is the contractor's sole responsibility to protect all property monumentation. If monumentation is disturbed, it is the contractor's reponsibility to have a licensed land surveyor in the State of Connecticut replace the monumentation to town or state standards.

29. All new utilities/services, including electric, telephone, cable tv, etc. are to be installed underground unless noted otherwise on the plans. The Contractor shall be responsible for installing all new utilities/services in accordance with the utility/service provider's written installation specifications and standards.

30. All earthwork activities must be performed in accordance with these plans and specifications and the recommendations set forth in the geotechnical report completed for this project. In the absence of a geotechnical report, all earthwork activities must comply with the standard state Department of Transportation (DOT) specifications (latest edition) and any amendments or revisions thereto. All earthwork activities must comply all applicable requirements, rules, statutes, laws, ordinances and codes for the jurisdictions where the work is being performed.

31. The contractor is responsible for removing and replacing unsuitable materials with suitable materials. All excavated or filled areas must be properly compacted. Moisture content at time of placement must be submitted in a compaction report prepared by a qualified geotechnical engineer, licensed in the state where the work is performed, verifying that all filled areas and subgrade areas within the building pad area and areas to be paved have been compacted in accordance with these plans, specifications and the recommendations. Subbase material for building pads, sidewalks, curb, or asphalt must be free of organics and other unsuitable materials. Should subbase be deemed unsuitable by Owner/developer or Owner/developer's representative, subbase is to be removed and filled with suitable material and properly compacted at the contractor's expense. All fill, compaction, and backfill materials required for utility installation must be coordinated with the applicable utility company specifications. The Engineer shall have no liability or responsibility for or as related to fill, compaction, backfill, or the balancing of earthwork.

32. Pavement must be saw cut into straight lines and must extend to the full depth of the existing pavement, except for edge of butt joints.

33. The tops of existing manholes, inlet structures, and sanitary cleanout tops must be adjusted as necessary, to match proposed grades.

34. Where retaining walls (whether or not they meet the jurisdictional definition) are identified on plans, elevations identified herein are for the exposed portion of the wall. Wall footing/foundation elevations are not identified herein and are to be set/determined by the contractor based on final structural design shop drawings prepared by an appropriate professional licensed in the state where the construction occurs.

35. Unless indicated otherwise or required by the authority having jurisdiction, all pipes shall be as follows:

    Reinforced Concrete pipe (RCP) shall meet the requirements of AASHTO M 170 Class IV with silt tight joints.

    High-Density Polyethylene pipe (HDPE) shall conform to AASHTO M 294, Type S (smooth interior with angular corrugations) with gaskets for silt tight joints.

    Polyvinyl chloride (PVC) pipe for roof drain connections shall be SDR 35 gasket pipe. Polyvinyl Chloride (PVC) pipe for sanitary sewer pipe shall be SDR 35 gasket pipe.

36. Storm sewer pipe lengths indicated are approximate and measured to the inside of inlet and/or manhole structure. Sanitary sewer pipe lengths indicated are approximate and measured to center of inlet and/or manhole structure to center of structure.

37. Stormwater roof drain locations are approximate and are based on preliminary architectural plans. Contractor is responsible for reviewing and coordinating the final architectural plans to verify final locations and sizes of all roof drains.

38. Sewers crossing streams and/or location within 10 feet of the stream embankment, or where site conditions so indicate, must be constructed of steel, reinforced concrete, ductile iron or other suitable material. Sewers conveying sanitary flow, combined sanitary and stormwater flow or industrial flow must be separated from water mains by a distance of at least 10 feet horizontally. If such lateral separations are not possible, the pipes must be in separate trenches with the sewer at least 18 inches below the bottom of the water main, or such other separation as approved by the agency with jurisdiction over same. Where appropriate separation from a water main is not possible, the sewer must be encased in concrete, or constructed of ductile iron pipe using mechanical or slip-on joints for a distance of at least 10 feet on either side of the crossing. In addition, one full length of sewer pipe should be located so both joints will be as far from the water line as possible. Where a water main crosses under a sewer, adequate structural support for the sewer must be provided.

39. Contractor's price for water service must include all fees, costs and appurtenances required by the utility to provide full and complete working service.

40. Contractor must contact the applicable water company to confirm the proper water meter and vault, prior to commencing construction. Water main and water service piping shall be installed in accordance with the requirements and specifications of the water authority having jurisdiction. In the absence of such specifications, water main piping must ductile iron (DIP) minimum Class 54. All work and materials must comply with the applicable American Water Works Association (AWWA) standards in effect at the time of the service application.

41. The contractor shall ensure that all work located in existing pavement be repaired in accordance with municipal, county and/or DOT details as applicable. Contractor is responsible to coordinate the permitting, inspection and approval of completed work with the agency having jurisdiction over the proposed work.

42. Where sump pumps are installed, all discharges must be connected to the storm sewer or discharged to an approved location.

43. For single and multi-family residential projects, spot elevation(s) adjacent to the buildings are schematic for non-specific building footprints. Grades must be adjusted based on final architectural plans and shall provide a minimum of six (6) inches below top of foundation/concrete and/or six (6) inches below the façade treatment, whichever is lower, and must provide positive drainage away from the structure (minimum of 2%). All areas shall be graded to preclude ponding adjacent to buildings, and on or adjacent to walks/driveways leading to the buildings. All construction, including grading, must comply with all applicable building codes, local, state and federal requirements, regulations and ordinances.

44. Contractor shall maintain and control traffic on and offsite in conformance with the current Federal Highway Administration (FHWA) 'Manual on Uniform Traffic Control Devices' (MUTCD), and the federal, state, and local regulations for all aspects of demolition and site work. If a Maintenance of Traffic Plan is required for work that affects public travel either on or offsite, the contractor shall be responsible for the cost and implementation of said plan.

45. All temporary and permanent onsite and offsite signage and pavement markings shall conform to MUTCD, ADA, state DOT, and/or local approval requirements.

46. Contractor shall prevent the emission of dust, sediment, and debris from the site, and shall be responsible for corrective measures such as street sweeping, and clean-up work as deemed necessary by the Engineer orthe authority having jurisdiction.

47. All concrete must be air entrained with a minimum compressive strength of 4,000 psi at 28 days unless otherwise specified on the plans, details and/or geotechnical report.

48. The Engineer will review contractor submittals which the contractor is required to submit, but only for the sole purpose of checking for general conformance with the intent of the design and contract documents. The Engineer is not responsible for any deviations from the construction documents unless contractor received explicit direction to do so, in writing, from the Engineer. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, and for techniques of assembly and/or fabrication processes.

49. All dimensions are to face of curb, edge of pavement, or edge of building, unless noted otherwise.

50. The contractor shall install and/or construct all aspects of the project in strict compliance with and accordance with manufacturer's written installation standards, recommendations and specifications.

51. All pumped discharge must utilize silt-sac or approved equal. Monitor to ensure dewatering activities do not cause erosion downstream. Stabilize area utilizing winter stabilization if appropriate for season of construction. Dewatering activities shall be completed in accordance with the 2002 CT Guidelines for Soil Erosion and Sediment Control.

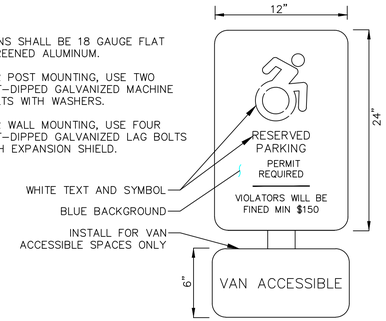
AMERICANS WITH DISABILITY ACT NOTES TO CONTRACTOR:

The contractor shall review the proposed construction with the local building official prior to the start of construction. Contractors shall be precise in the construction of Americans with Disabilities Act (ADA) accessible parking, components, and accessible routes for the project. These components shall comply with all applicable state and local accessibility laws and regulations and the current ADA regulations and construction standards. These components include, but are not limited to the following:

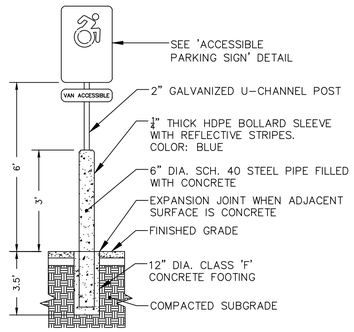
- Parking spaces and parking aisles shall not exceed a 1:50 (nominally 2.0%) slope in any direction.
- Accessible routes shall be a minimum of 36" wide (unobstructed). Handrails and car overhangs may not obstruct these areas. Longitudinal slopes (direction of travel) shall not exceed 1:20 (5.0%) and shall have a cross slope no greater than 1:50 (2.0%).
- Accessible routes exceeding 1:20 (5.0%) shall be considered a "ramp". Maximum slopes of a ramp shall be 1:12 (8.3%) in the direction of travel, and a cross slope of 1:50 (2.0%). Ramps shall have maximum rise of thirty (30) inches, shall be equipped with hand rails on both sides, and landings at the top and bottom of the ramp. Landings shall not exceed 1:50 (2.0%) in any direction and have positive drainage away from the landing.
- A landing shall be provided at the exterior of all doors and at each end of ramps. Landings shall not exceed 1:50 (2.0%) in any direction and have positive drainage away from the landing and/or building. The landing shall be no less than 60 inches long unless permitted otherwise per the ADA regulations.
- Curb ramps- shall not exceed a 1:12 (8.3%) slope for a maximum length of six (6) feet or a maximum rise of six (6) inches.
- The contractor shall verify all existing elevations shown on the plan in areas of existing doorways, accessible routes or other areas where re-construction is proposed. The contractor shall immediately notify the Owner and Engineer in writing if any of the proposed work intended to meet ADA requirements is incapable of doing so, or if there is any ambiguity regarding which design components are intended to meet ADA requirements. The contractor shall not commence the work in the affected area until receiving written resolution from Engineer.

NOTES:

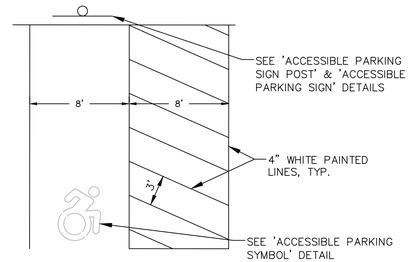
1. SIGNS SHALL BE 18 GAUGE FLAT SCREENED ALUMINUM.
2. FOR POST MOUNTING, USE TWO HOT-DIPPED GALVANIZED MACHINE BOLTS WITH WASHERS.
3. FOR WALL MOUNTING, USE FOUR HOT-DIPPED GALVANIZED LAG BOLTS WITH EXPANSION SHIELD.



ACCESSIBLE PARKING SIGN
N.T.S.



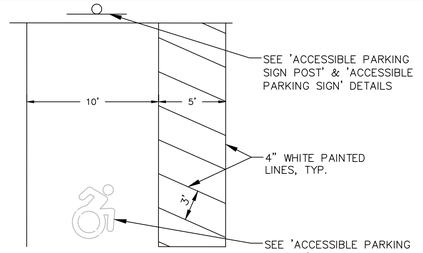
ACCESSIBLE PARKING SIGN POST
N.T.S.



NOTES:

1. ACCESSIBLE PARKING SPACES AND ADA PASSENGER LOADING AREAS SHALL BE GRADED WITH A MAXIMUM SLOPE OF 1:50 (2%) IN ALL DIRECTIONS.

VAN ACCESSIBLE PARKING SPACE
N.T.S.



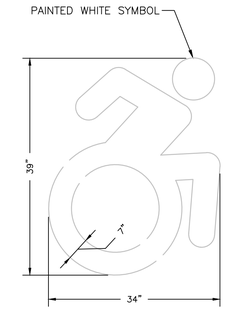
NOTES:

1. ACCESSIBLE PARKING SPACES AND ADA PASSENGER LOADING AREAS SHALL BE GRADED WITH A MAXIMUM SLOPE OF 1:50 (2%) IN ALL DIRECTIONS.

ACCESSIBLE PARKING SPACE
N.T.S.

LEGEND

EXISTING	DESCRIPTION	PROPOSED
BORINGS		
TP	BORING / TEST PIT LOCATION	TP
COMMUNICATION		
C_x	UNDERGROUND COMMUNICATION LINES	C
DOMESTIC WATER		
W_x	WATER MAIN	W
WS_x	WATER SERVICE	WS
F_x	FIRE SERVICE LINE	F
NPW_x	NON-POTABLE WATER LINE	NPW
W	WATER VALVE / FIXTURES	WV
	FIRE HYDRANT	
LIQUID FUEL		
LF_x	MAIN LIQUID FUEL LINE	LF
LFS_x	LIQUID FUEL SERVICE LINE	LFS
LF_a	LIQUID FUEL LINE, ABANDONED	
IRRIGATION		
I_x	IRRIGATION LINES	I
LIGHTING		
	POLE / GROUND MOUNTED LIGHT	
NATURAL GAS		
G_x	GAS MAIN	G
GS_x	GAS SERVICE LINE	GS
POWER		
EO_x	ELECTRICAL LINES, OVERHEAD	EO
EU_x	ELECTRICAL LINES, UNDERGROUND	EU
	UTILITY POLE	
PROPERTY		
	PROPERTY LINE	
	EASEMENT LINE	
	IRON PIPE	
	IRON ROD	
	MONUMENT	
ROADS		
	GUARD RAIL	
EROSION CONTROL		
	SILT FENCE	SF
SITE FEATURES		
	4" DOUBLE SOLID YELLOW LINE	DSYL
	4" SINGLE SOLID WHITE LINE	SSWL
	BIT. CONC. LIP CURB	BCLC
	PRECAST CONCRETE CURB	PCC
SANITARY SEWER		
S_x	SANITARY SEWER MAIN	S
SS_x	SANITARY SEWER SERVICE LINE	SS
S	SANITARY SEWER MANHOLE	
STORM SEWER		
	STORM DRAIN PIPE	
RL_x	ROOF LEADER	RL
UD	UNDERDRAIN	UD
D	STORM DRAIN MANHOLE	D
	CURB INLET	
	CATCH BASIN	
	YARD DRAIN	
TOPOGRAPHY		
95	CONTOUR	95
X61.95	SPOT ELEVATION	95
OTHER		
	RAMP	R
	LANDSCAPE AREA	LSA



ACCESSIBLE PARKING SYMBOL
N.T.S.

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

Design Professionals
21 JEFFREY DRIVE
P.O. BOX 1167
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860-291-8755 - T
860-291-8757 - F
www.designprofessionalsinc.com
CIVIL & TRAFFIC ENGINEERS / LAND SURVEYORS
PLANNERS / LANDSCAPE ARCHITECTS

NO.	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

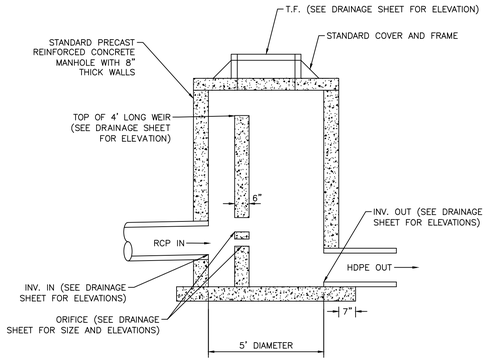
PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: GMM
DRAWN BY: GMM
CHECKED BY: SPC

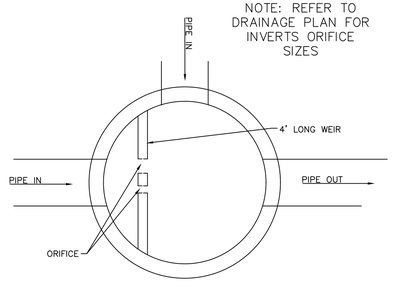
PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

NOTES, LEGEND, & DETAILS

SHEET
C-D1
SHEET 10 OF 13

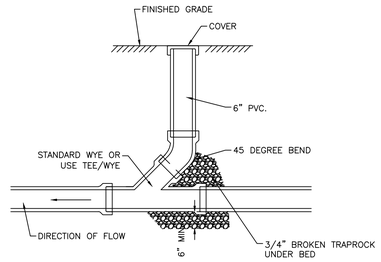
File: C:\jobs\4798\Engineering\AutoCAD\4798 Details.dwg Layout: 10 C-D1 Plotted: 5/2/2022 10:51 AM Last Saved: 4/8/2022 3:16 PM Last Saved By: suzanne.choate





NOTE: REFER TO DRAINAGE PLAN FOR INVERTS ORIFICE SIZES

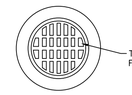
OUTLET CONTROL STRUCTURE
N.T.S.



NOTES:

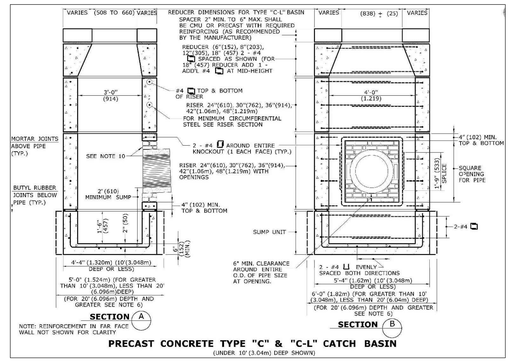
1. IF CLEANOUT IS LOCATED IN PAVEMENT OR SIDEWALK, PROVIDE STEEL FRAME AND GRATE. SPECIFICATIONS TO BE APPROVED BY TOWN ENGINEER.

ROOF LEADER CLEAN OUT
N.T.S



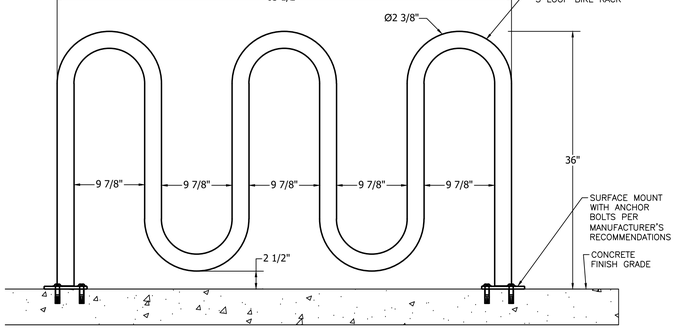
NOTE:
FRAME & GRATE TO BE: NEENAH FOUNDRY, NEENAH, WI
PH. NO. (920) 725-7000
CATALOG REFERENCE NO. R-2250
OR APPROVED EQUAL

DRAIN MANHOLE FRAME & GRATE
N.T.S



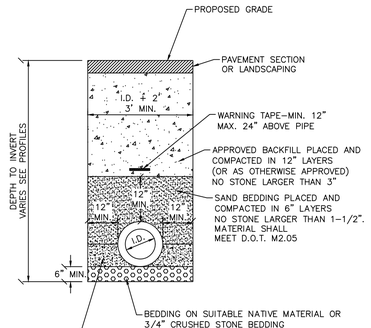
REFER TO CONNDOT STANDARD SHEET HW-0507-04 FOR ADDITIONAL NOTES, SECTIONS AND INSTALLATION REQUIREMENTS
REFER TO CONNDOT STANDARD SHEET HW-507-08 FOR FRAME AND GRATE REQUIREMENTS

CATCH BASINS
N.T.S.

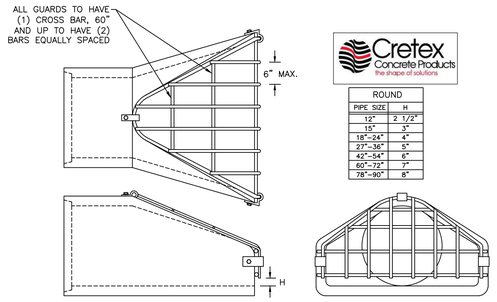


NOTES:
1. BIKE RACK SHALL BE STEEL 5 LOOP BIKE RACK MODEL BRCS-105, AS MANUFACTURED BY VICTOR STANLEY, DUNKIRK, MD PH. NO. (800) 368-2573 OR APPROVED EQUAL.
2. BIKE RACK SHALL HAVE POLYESTER POWDER COATING, COLOR BLACK.

BIKE RACK
N.T.S.



STORM SEWER TRENCH SECTION
N.T.S



Cretex Concrete Products
the shape of solutions

ROUND	
PIPE SIZE	H
12"	2 1/2"
15"	3"
18"-24"	4"
27"-36"	5"
42"-54"	6"
60"-72"	7"
78"-90"	8"

BAR SIZES							
STANDARD DESIGN				HEAVY DESIGN			
PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE	PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE
12"-24"	3/4"	5/8"	5/8"	12"-18"	3/4"	5/8"	3/4"
27"-48"	7/8"	3/4"	3/4"	21"-42"	7/8"	3/4"	1"
54"-90"	1 1/8"	1"	1"	48"-90"	1 1/8"	1"	1 1/4"
BOLT LENGTH = PIPE WALL THICKNESS + 2 1/2"							

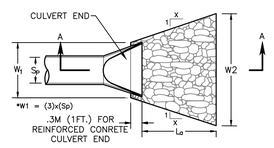
NOTES:

1. CRETEX CONCRETE PRODUCTS, FLARED END TRASH GUARD SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL USE THIS PRODUCT OR APPROVED EQUAL.

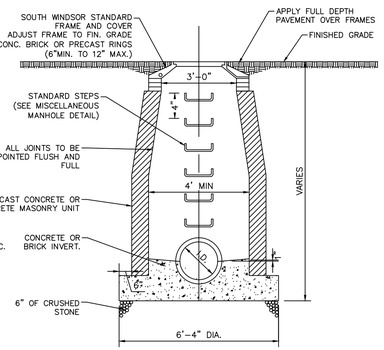
FLARED END TRASH GUARD
N.T.S.

RIPRAP SWALE
N.T.S.

DETAIL SHOWN PER 2002 CONNDOT DRAINAGE MANUAL CHAPTER 11 STORM DRAINAGE SYSTEMS SECTION 13 OUTLET PROTECTION FIGURE 11-13 "TYPE A AND B RIP RAP APRON"

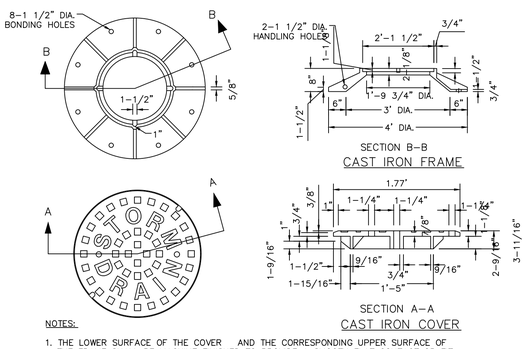


RIPRAP APRON PLAN VIEW
N.T.S



NOTES:
1. WALL THICKNESS SHALL BE SUFFICIENT TO MEET HS 20 LOADING.
2. WALL THICKNESS FOR STRUCTURES OVER 10' HIGH IS 12" FOR CONCRETE BLOCK UNITS. INSIDE DIMENSIONS REMAIN THE SAME.
3. ALL PIPES SHALL BE CUT FLUSH WITH INSIDE WALLS.

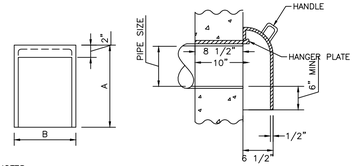
DRAIN MANHOLE
N.T.S



NOTES:

1. THE LOWER SURFACE OF THE COVER AND THE CORRESPONDING UPPER SURFACE OF THE FRAME SHALL BE MACHINE FINISHED TO PROVIDE A SMOOTH FLAT CONTACT OR FIT, WITHOUT ANY TENDENCY FOR THE COVER TO ROCK OR RATTLE.
2. SANITARY SEWER MANHOLES SHALL BE EQUIPPED WITH VENT HOLE IN CENTER.

MANHOLE FRAME AND COVER
N.T.S



A	B	PIPE SIZE	WT. LBS.	SETTING METHOD
16"	12"	TO 6"	70	2 HOOKS
18"	12"	8"	75	2 HOOKS
20"	12"	10"	85	2 HOOKS
22"	16"	12"	100	2 HOOKS
25"	17"	15"	135	2 HOOKS
28"	20"	18"	155	2 HOOKS

NOTES:
1. MANUFACTURER CATALOG NUMBER TO BE INDICATED ON SHOP DRAWINGS FOR CAST IRON TRAPS.
2. TRAP HOODS TO BE INSTALLED ON OUTGOING PIPES OF ALL CATCH BASINS AND CONCRETE YARD DRAINS UNLESS NOTED OTHERWISE.

CATCH BASIN TRAP HOOD
N.T.S

PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

Design Professionals
21 JEFFREY DRIVE
P.O. BOX 1167
SOUTH WINDSOR, CT 06074
860-291-8755 - T
860-291-8757 - F
www.designprofessionalsinc.com
CIVIL & TRAFFIC ENGINEERS / LAND SURVEYORS
PLANNERS / LANDSCAPE ARCHITECTS

NO.	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

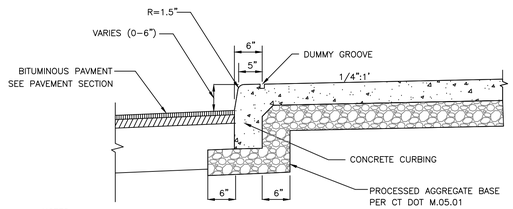
BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: CMM
DRAWN BY: CMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

DETAILS

SHEET C-D2
SHEET 11 OF 13

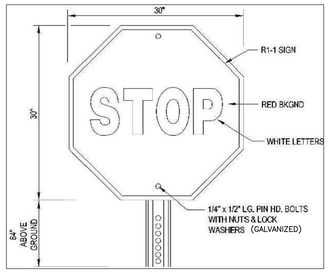


NOTES:

1. ALL CONCRETE FOR SIDEWALKS SHALL BE CLASS 'F'. MEET CONNECTICUT D.O.T. SPECIFICATIONS. REFER TO FORM 818.
2. CONCRETE SURFACE TO BE SCORED AT 5 FOOT INTERVALS.
3. EXPANSION JOINTS SHALL BE INSTALLED EVERY 15 FEET.
4. PROVIDE BROOMED FINISH PERPENDICULAR TO TRAVEL PATH

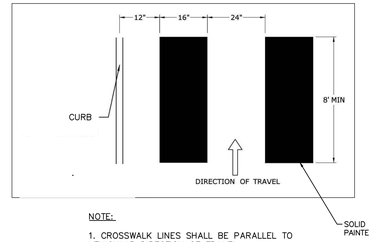
MONOLITHIC CONCRETE WALK AND CURB

N.T.S.



STOP SIGN

N.T.S.

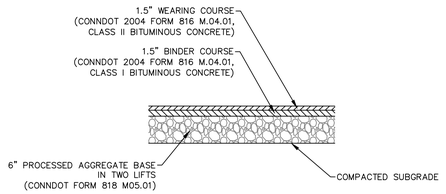


NOTE:

1. CROSSWALK LINES SHALL BE PARALLEL TO VEHICULAR DIRECTION OF TRAVEL.
2. CROSSWALK DETAIL TAKEN FROM CTDOT STANDARD SHEET "TR-1210_04: PAVEMENT MARKING LINES AND SYMBOLS".

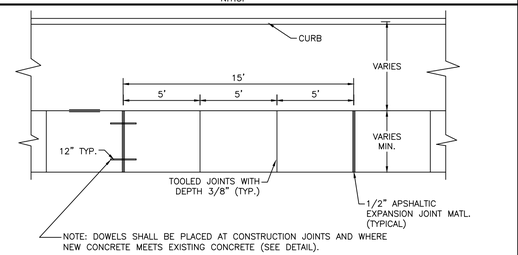
CROSSWALK

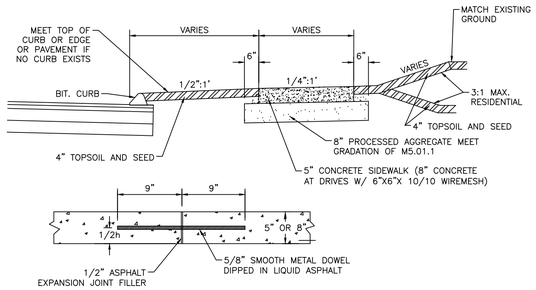
N.T.S.



BITUMINOUS CONCRETE PAVEMENT SECTION STANDARD DUTY

N.T.S.





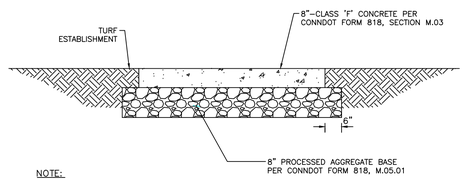
EXPANSION JOINT

NOTES:

1. ALL CONCRETE FOR SIDEWALKS SHALL BE CLASS 'F'. MEET CONNECTICUT D.O.T. SPECIFICATIONS. REFER TO FORM 817.
2. CONCRETE SURFACE TO BE SCORED AT 5 FOOT INTERVALS.
3. EXPANSION JOINTS SHALL BE INSTALLED EVERY 15 FEET.
4. PROVIDE BROOMED FINISH PERPENDICULAR TO TRAVEL PATH

CONCRETE SIDEWALK

N.T.S.

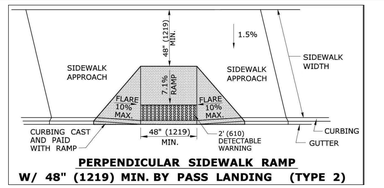


NOTE:

SEE SHEET SITE PLANS FOR LAYOUT AND DIMENSIONS.

CONCRETE DUMPSTER PAD

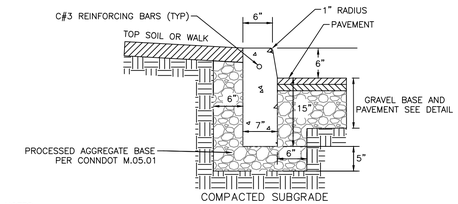
N.T.S.



SIDEWALK RAMP

N.T.S.

NOTE:
DETAILS TAKEN FROM CONNECTICUT DOT STANDARD GUIDE SHEETS ~ SIDEWALK RAMPS

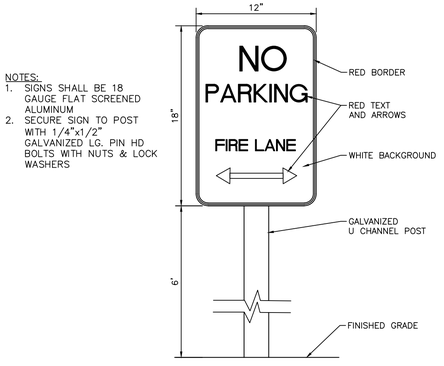


NOTES:

1. ALL CONCRETE FOR CURBS SHALL BE CLASS 'F'. MEET CONNECTICUT D.O.T. SPECIFICATIONS. REFER TO FORM 816.
2. THE END OF CURB SECTIONS SHALL BE CHAMFERED ½ INCH.
3. CURB, CURB CORNERS OR EDGING SHALL MATCH THE ADJACENT CURB IN SIZE, COLOR AND FINISH.
4. CURBS, CURB CORNERS OR EDGING SHALL BE FITTED TOGETHER AS CLOSELY AS POSSIBLE.
5. EXPANSION JOINTS SHALL BE INSTALLED AT A MAXIMUM OF 20 FEET ON CENTER USING PREFORMED EXPANSIONS JOINT FILLER HAVING A THICKNESS OF 1/2.
6. WHEN ABUTTING CONCRETE WALKS, INSTALL PREFORMED EXPANSIONS JOINT FILLER HAVING A THICKNESS OF ½ ALONG LENGTH OF WALK

PRECAST CONCRETE CURB

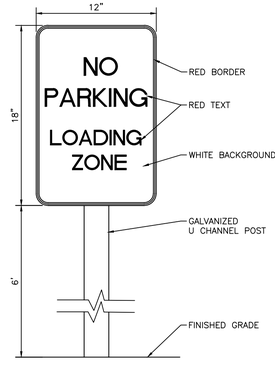
N.T.S.



NOTES:
1. SIGNS SHALL BE 18 GAUGE FLAT SCREENED ALUMINUM
2. SECURE SIGN TO POST WITH 1/4"x1/2" GALVANIZED LG. PIN HD BOLTS WITH NUTS & LOCK WASHERS

FIRE LANE NO PARKING SIGN

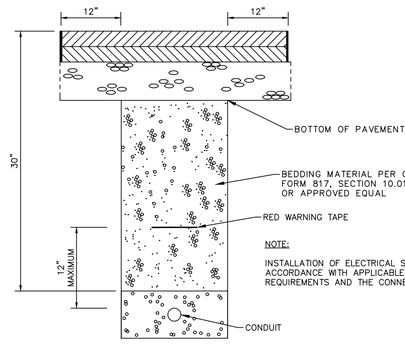
N.T.S.



NOTES:
1. SIGNS SHALL BE 18 GAUGE FLAT SCREENED ALUMINUM
2. SECURE SIGN TO POST WITH 1/4"x1/2" GALVANIZED LG. PIN HD BOLTS WITH NUTS & LOCK WASHERS

NO PARKING LOADING ZONE SIGN

N.T.S.

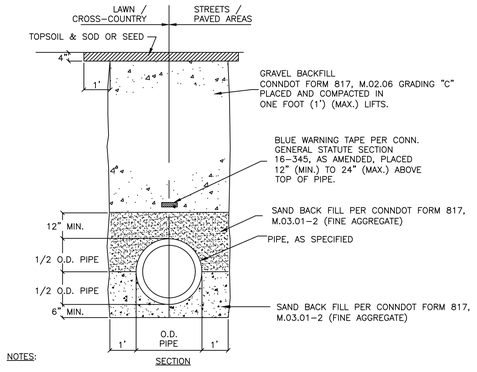


NOTE:

INSTALLATION OF ELECTRICAL SERVICES SHALL BE IN ACCORDANCE WITH APPLICABLE UTILITY COMPANY REQUIREMENTS AND THE CONNECTICUT BUILDING CODE.

ELECTRIC TRENCH

N.T.S.

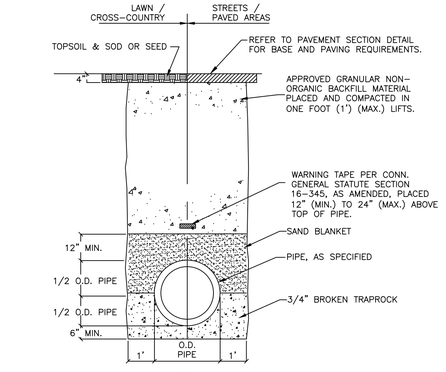


NOTES:

FINAL INSTALLATION REQUIREMENTS FOR DOMESTIC WATER SUPPLY AND FIRE SERVICE MAINS SHALL BE COORDINATED WITH THE WATER COMPANY.

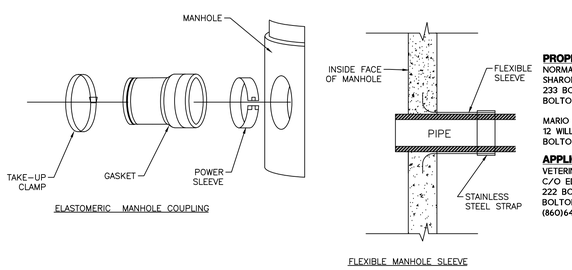
WATER TRENCH SECTION

N.T.S



SANITARY SEWER TRENCH SECTION

N.T.S



PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

SANITARY LATERAL CONNECTION TO MANHOLE

N.T.S.

Design Professionals
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NO	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO.: 4798
DATE: 3/21/22
DESIGN BY: GMM
DRAWN BY: GMM
CHECKED BY: SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

DETAILS

SHEET
C-D3
SHEET 12 OF 13

CULTEC RECHARGER® 330XLHD PRODUCT SPECIFICATIONS

GENERAL

CULTEC RECHARGER 330XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT, USA. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 330XLHD SHALL BE 30.5 INCHES (775 mm) TALL, 52 INCHES (1321 mm) WIDE AND 8.5 FEET (2.59 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 330XLHD SHALL BE 7 FEET (2.13 m).
6. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 24 INCHES (600 mm).
7. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL DIMENSIONS OF EACH SIDE PORTAL SHALL BE 10.5 INCHES (267 mm) HIGH BY 11.5 INCHES (292 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 11.75 INCHES (298 mm).
8. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
9. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 330XLHD CHAMBER SHALL BE 7.459 FT³ / FT (0.693 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 330XLHD SHALL BE 52.213 FT³ / UNIT (1.478 m³ / UNIT) - WITHOUT STONE.
10. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m² / m) - WITHOUT STONE.
11. THE RECHARGER 330XLHD CHAMBER SHALL HAVE FIFTY-SIX DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
12. THE RECHARGER 330XLHD CHAMBER SHALL HAVE 16 CORRUGATIONS.
13. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, SHALL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
14. THE RECHARGER 330XLRHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
15. THE RECHARGER 330XLSHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 14 INCHES (356 mm) HIGH X 34.5 INCHES (876 mm) WIDE.
16. THE RECHARGER 330XLIHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 14 INCHES (356 mm) HIGH X 34.5 INCHES (876 mm) WIDE.
17. THE RECHARGER 330XLEHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
18. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE RECHARGER 330XLHD AND ACT AS CROSS FEED CONNECTIONS.
19. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
20. THE CHAMBER SHALL HAVE A 6 INCH (152 mm) DIAMETER RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
21. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
22. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.
23. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED TO MEET THE MATERIAL AND STRUCTURAL REQUIREMENTS OF IAPMO PS 63-2019, INCLUDING RESISTANCE TO AASHTO H-10 AND H-20 HIGHWAY LIVE LOADS, WHEN INSTALLED IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS.
24. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS OF NSAI IRISH AGREEMENT BOARD CERTIFICATE FOR CULTEC ATTENUATION AND INFILTRATION.
25. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.66 m)
26. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
27. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.

CULTEC HVLV FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL

CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER MODEL 330XLHD STORMWATER CHAMBERS.

CHAMBER PARAMETERS

1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m² / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

GEOTEXTILE PARAMETERS

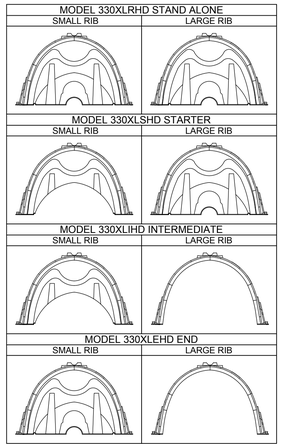
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

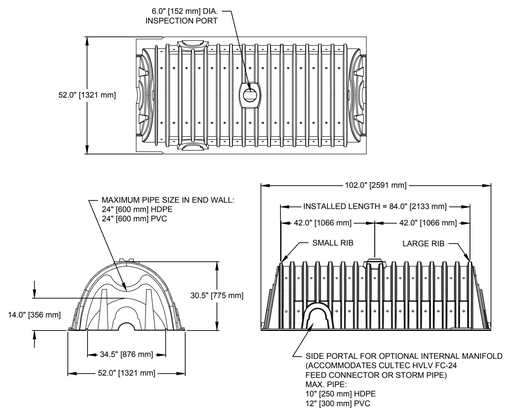
CULTEC NO. 4800™ WOVEN GEOTEXTILE

CULTEC NO. 4800 WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

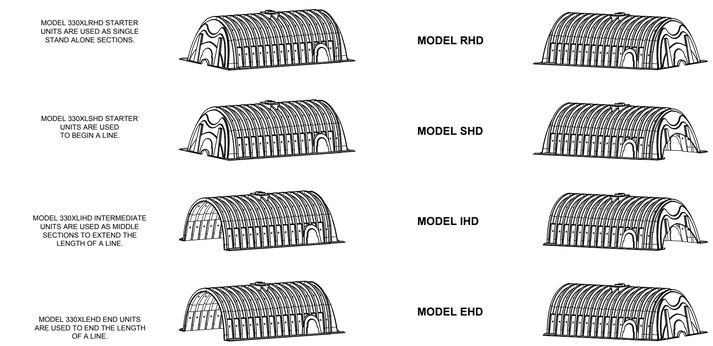
GEOTEXTILE PARAMETERS

1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 550 X 550 LBS (2,448 X 2,448 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 20 X 20% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 5,070 X 5,070 LBS/FT (74 X 74 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 2% STRAIN OF 960 X 1,096 LBS/FT (14 X 16 KN/M) PER ASTM D4595 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 5% STRAIN OF 2,740 X 2,740 LBS/FT (40 X 40 KN/M) PER ASTM D4595 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 10% STRAIN OF 4,800 X 4,800 LBS/FT (70 X 70 KN/M) PER ASTM D4595 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,700 LBS (7,560 N) PER ASTM D6241 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 180 X 180 LBS (801 X 801 N) PER ASTM D4533 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.15 SEC-1 PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 11.5 GPM/FT2 (470 LPM/M2) PER ASTM D4491 TESTING METHOD.
14. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 80% @ 500 HRS. PER ASTM D4355 TESTING METHOD.



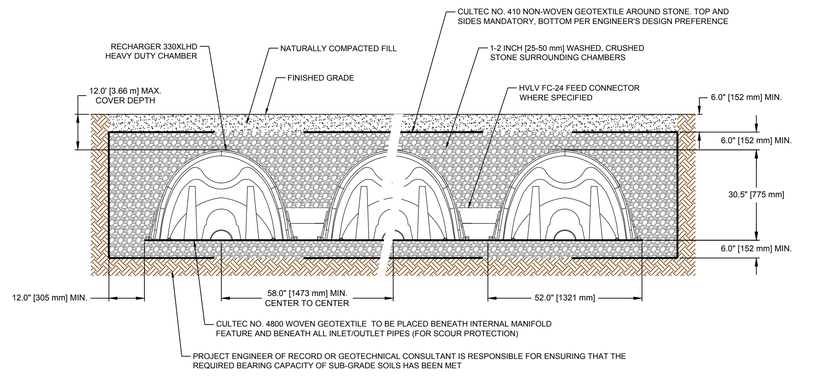


CULTEC RECHARGER 330XLHD CHAMBER STORAGE = 7.459 CF/FT [0.693 m³/m]
INSTALLED LENGTH ADJUSTMENT = 1.5' [0.46 m]
SIDE PORTAL ACCEPTS CULTEC HVLV FC-24 FEED CONNECTOR



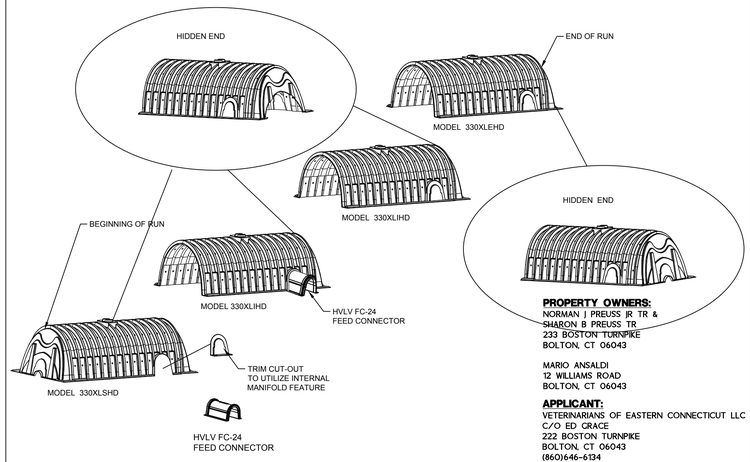
330XLHD 2.0

CULTEC RECHARGER 330XLHD HEAVY DUTY THREE VIEW



330XLHD 3.0

CULTEC RECHARGER 330XLHD HEAVY DUTY END DETAIL INFORMATION



PROPERTY OWNERS:
NORMAN J PREUSS JR TR &
SHARON B PREUSS TR
233 BOSTON TURNPIKE
BOLTON, CT 06043

MARIO ANSALDI
12 WILLIAMS ROAD
BOLTON, CT 06043

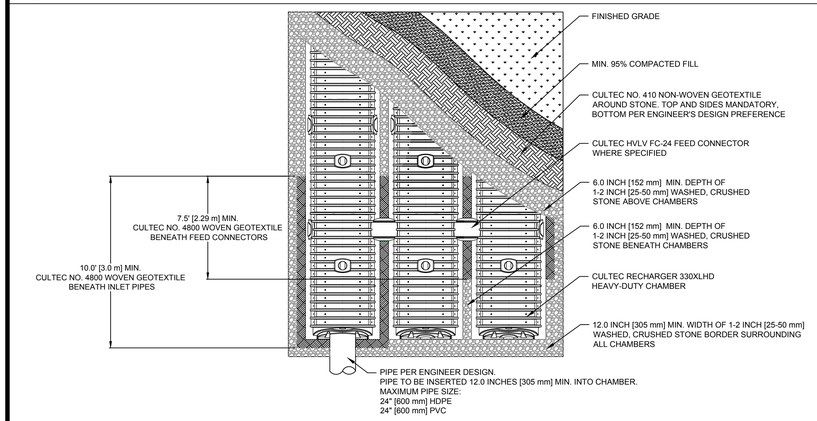
APPLICANT:
VETERINARIANS OF EASTERN CONNECTICUT LLC
C/O ED GRACE
222 BOSTON TURNPIKE
BOLTON, CT 06043
(860)646-6134

330XLHD 1.0

GENERAL NOTES

330XLHD 6.0

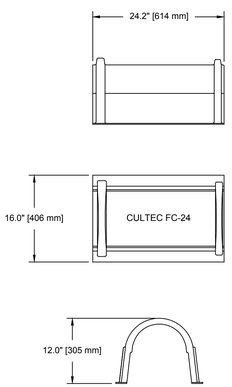
CULTEC RECHARGER 330XLHD HEAVY DUTY PLAN VIEW



330XLHD 4.0

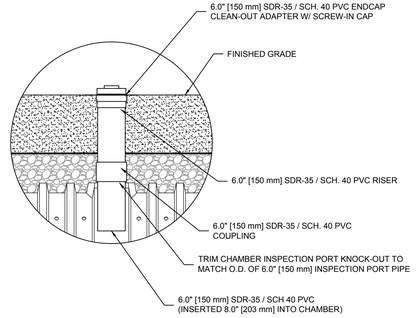
CULTEC RECHARGER 330XLHD HEAVY DUTY CROSS SECTION

330XLHD 7.0



CULTEC HVLV FC-24 FEED CONNECTOR THREE VIEW

330XLHD 8.0



OPTIONAL INSPECTION PORT- ZOOM DETAIL

330XLHD 5.0

CULTEC RECHARGER 330XLHD HEAVY DUTY TYPICAL INTERLOCK

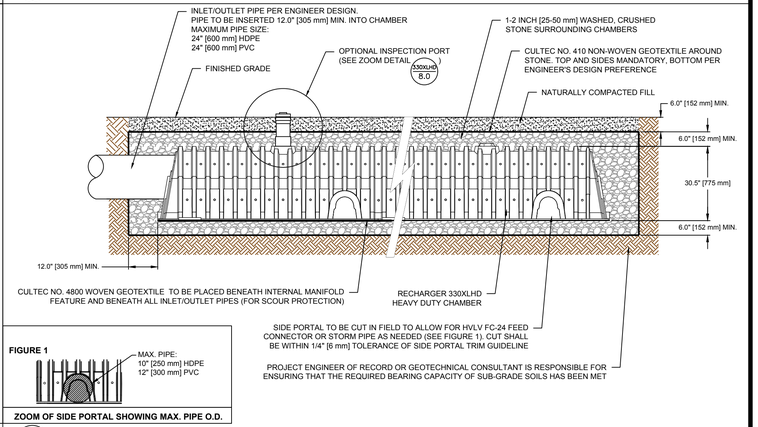


FIGURE 1

ZOOM OF SIDE PORTAL SHOWING MAX. PIPE O.D.

330XLHD 9.0

CULTEC INTERNAL MANIFOLD- OPTIONAL INSPECTION PORT DETAIL

Design Professionals
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NO.	DATE	REVISIONS	BY
1	4/29/2022	REVISIONS PER TOWN COMMENTS	SPC

BOLTON VETERINARY HOSPITAL
233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO:	4798
DATE:	3/21/22
DESIGN BY:	CMM
DRAWN BY:	CMM
CHECKED BY:	SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

DETAILS

SHEET
C-D4
SHEET 13 OF 13

File: C:\Jobs\4798\Engineering\AutoCAD\4798 Details.dwg Layout: 13 C-D4 Plotted: 5/2/2022 10:52 AM Last Saved: 4/8/2022 3:16 PM Last Saved By: suzanne.choate

Stormwater Management Report
Bolton Veterinary Hospital
233 Boston Turnpike
Bolton, Connecticut

Prepared by:

Design Professionals, Inc.
21 Jeffrey Drive
South Windsor, CT 06074

DPI Project #4798
March 11, 2022
Revised April 29, 2022

Table of Contents

Introduction

Bolton Veterinary Hospital, VCP Associates, LLC is proposing a commercial development of a property located at (1) 233 Boston Turnpike (CT Route 44) and (2) 12 Williams Road in Bolton, Connecticut. The properties are referenced on the Town of Bolton GIS as ID#: 07-55. The proposed development will include the construction of a 24,836 SF± commercial building. Associated site improvements will include but not be limited to a new access driveway, parking areas for vehicles, sidewalks, landscaping, lighting, utilities, and stormwater management BMP's.

The property areas are 3.5 acres± and 1.3 acres± for a combined 5.1 acres±. The total proposed construction disturbance is approximately 4± acres. For more information, please refer to the plans entitled "Bolton Veterinary Hospital ~Site Plan/Special Permit~ 233 Boston Turnpike (Route 44), Bolton, CT" prepared by Design Professionals, Inc., and dated March 11, 2022, as amended.

Pre-Development Site Conditions

The existing surficial characteristics of the area to be developed can be primarily classified as (1) undeveloped area with a location of a previous house and (2) an existing house property. The properties drain from east to west toward Route 44 and Williams Road. Review of the site topography indicated all stormwater runoff generated across the tract would flow to one of two design points. These two design points were identified as follows:

1. **Design Points 1 (DP #1):** Existing catch basin in Williams Road and Town drainage system

2. **Design Point 2 (DP#2):** Overland to CT Route 44

Design Points DP# 1 and 2 are part of local basin ID 4500-11, Subregional: Hockanum River.

The properties are currently (1) wooded and grass with a driveway and (2) an existing home. Existing conditions watershed delineations are identified in the Existing Conditions Drainage Map located in **Appendix H**.

Based on Natural Resources Conservation Service (NRCS) Hydrologic Soil Group (HSG) mapping, soil types B & C are located on site. See **Appendix C** for The NRCS Soil Map & Data.

Welti Geotechnical. P.C.'s Geotechnical Study indicated sandy gravely soils. Permeability Tests were conducted and utilized in this drainage analysis. The rates utilized are 5.6 and 6.1 ft/day. Groundwater was not found in any of the borings.

An evaluation was performed to quantify the peak rate of stormwater discharge offsite to the design points identified. The Natural Resources Conservation Service's TR-55 Manual was followed in predicting the peak rates of runoff and volumes with National Oceanic and Atmospheric Administration (NOAA) Precipitation Frequency (**Appendix D**). HydroCAD computer modeling software was utilized.

Peak rates of stormwater runoff were evaluated for the 2-, 10-, 25-, 50- and 100-year storm events. For more information, please refer to the enclosed Pre-Development Drainage HydroCAD Report located in **Appendix A**.

Post-Development Site Conditions

The proposed development will include the construction of a 24,836 SF± commercial building. Associated site improvements will include but not be limited to new access driveways, parking areas for vehicles, sidewalks, landscaping, lighting, utilities, and stormwater management BMP's. Site generated runoff from all proposed roofs, roadways, parking, and landscaped areas will be collected in an underground storm water conveyance system. This conveyance system will be comprised of a series of catchbasins connected with culverts and two underground stormwater chamber systems. First flush stormwater will be treated in a water quality chamber and an isolation row within the underground chamber system (south infiltration chambers). The exception the roof leaders on the northwest side of the building will drain "clean" water to the north infiltration chambers. See **Appendix F** for the Storm Sewer Analysis.

The future parking area is considered proposed for the purposes of sizing the detention and water quality basins. Stormwater will flow through leak offs from the pavement to the water quality basin which will overflow to the detention basin. Water quality volume calculation can be found in **Appendix G.**

In our calculations, we utilized infiltration in the infiltration basin and the underground chambers. The exfiltration rates were derived from the permeability tests (with a factor of safety of 2) conducted by Welti Geotechnical. See **Appendix B** for the Post Development HydroCAD reports.

The Proposed Conditions Drainage Map for the site can be found in **Appendix H**.

Analysis of Results

The pre-development and post-development conditions were analyzed using HydroCAD consistent with Natural Resources Conservation Service (NRCS) hydrology methods. Four discharge locations **(Design Points #1 and 2)** were identified as points of interest for assessing downstream effects. The following table contains the data generated from the HydroCAD software:

Reach		2-year	10-year	25-year	50-year	100-year
DP#1 Existing CB in Williams Road	**Pre**	0.49	2.36	3.91	5.17	6.63
	Post	0.50	2.37	3.47	4.97	6.35
Infiltration Basin	**Peak Elev.**	619.81	620.88	621.61	622.06	622.45
South Infiltrators	**Peak Elev.**	619.83	620.23	620.27	620.30	620.33
DP#2 – Boston Turnpike	**Pre**	0.24	1.17	1.94	2.57	3.30
	Post	0.11	0.52	0.84	1.09	1.39
North Infiltrators	**Peak Elev.**	619.02	619.72	620.24	620.71	621.46

As seen in the table above, most of the storm events evaluated for the subject project will result in peak runoff rates in the proposed condition that are less than the existing peak runoff rates. The 2-year design storm will have a negligible increase in peak runoff.

The south infiltration system will overflow to the pipe system that connects to the Town drainage. The overflow will occur between the 2 and 10- year storm frequency. The infiltration basin will overflow toward Williams Road overland. The freeboard in the basin above the 100-year storm is 1.0 feet. The north infiltration system has an overflow through a grate cover on the manhole. The top of frame is 623.73 which provide freeboard above the 100-year storm of over 2 feet.

Storm Sewer Analysis

The proposed subsurface stormwater collection and conveyance system was designed to adequately convey proposed runoff under 10- year storm event conditions. The design of the storm sewers followed the guidelines set forth in the Connecticut Department of Transportation's Drainage Manual. It is estimated that during a 10-year storm event, all proposed subsurface culverts will convey storm runoff without resulting in any unacceptable flooding conditions. Autodesk Storm and Sanitary Analysis software was used for this analysis. The computations are included as **Appendix E**.

Water Quality

In accordance with the 2004 Connecticut Stormwater Quality Manual, a BaySaver Barracuda S6 will be utilized to address water quality for pavement surfaces draining to the infiltration basin (excluding the future parking). The unit provided will be more than adequate to treat the required water quality flow rate based on the determined water quality flow and manufacturer specifications for treated flow rate. The required treatment flow is 1.13 cfs and the unit provides treatment for 2.43 cfs. See **Appendix F** for the water quality flow calculation, and Barracuda manufacturer's specifications.

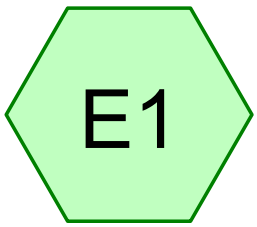
In accordance with the 2004 Connecticut Stormwater Quality Manual, a Cultec Isolator row will be utilized to address water quality for pavement surfaces draining to them. The isolator row provided will be more than adequate to treat the required water quality flow rate based on the determined water quality flow and manufacturer specifications for treated flow rate per chamber. The required treatment flow is 0.030 cfs and we are providing treatment for 0.348 cfs in an Isolator row. See **Appendix F** for the water quality flow calculation, and Cultec Isolator rows manufacture's specifications.

In accordance with the 2004 Connecticut Stormwater Quality Manual, the future parking will utilize a water quality basin. The water quality basin is sized to provide 100% of the water quality volume (1735 cft provided; 1693 required) provided based on one inch of rainfall. Water quality volume calculation can be found in **Appendix G.**

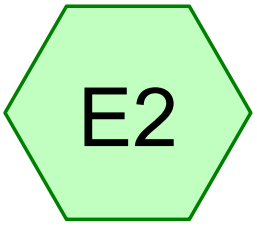
Conclusion

The proposed stormwater management system as discussed herein and shown on the referenced plans is appropriate for the proposed development on the subject site. We do not anticipate any detrimental impacts to the environment as a result.

APPENDIX A
Watershed Computations
(Pre-Development Drainage HydroCAD Report)



DP1 - Existing Site Conditions



DP2 - Existing Site Conditions

Subcat Reach Pond Link

Routing Diagram for 4798 - Drainage Revised
Prepared by Design Professionals, Inc., Printed 3/10/2022
HydroCAD® 10.00-20 s/n 09320 © 2017 HydroCAD Software Solutions LLC

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=0.36"
Flow Length=431' Tc=34.2 min CN=59 Runoff=0.49 cfs 0.108 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=0.36"
Flow Length=339' Tc=23.3 min CN=59 Runoff=0.24 cfs 0.045 af

Total Runoff Area = 5.122 ac Runoff Volume = 0.153 af Average Runoff Depth = 0.36"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=1.19"
Flow Length=431' Tc=34.2 min CN=59 Runoff=2.36 cfs 0.359 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=1.19"
Flow Length=339' Tc=23.3 min CN=59 Runoff=1.17 cfs 0.151 af

Total Runoff Area = 5.122 ac Runoff Volume = 0.510 af Average Runoff Depth = 1.19"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=1.86"
Flow Length=431' Tc=34.2 min CN=59 Runoff=3.91 cfs 0.559 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=1.86"
Flow Length=339' Tc=23.3 min CN=59 Runoff=1.94 cfs 0.234 af

Total Runoff Area = 5.122 ac Runoff Volume = 0.793 af Average Runoff Depth = 1.86"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=2.40"
Flow Length=431' Tc=34.2 min CN=59 Runoff=5.17 cfs 0.720 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=2.40"
Flow Length=339' Tc=23.3 min CN=59 Runoff=2.57 cfs 0.302 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.023 af Average Runoff Depth = 2.40"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1 - Exisitng Site Runoff Area=3.608 ac 2.41% Impervious Runoff Depth=3.02"
Flow Length=431' Tc=34.2 min CN=59 Runoff=6.63 cfs 0.909 af

Subcatchment E2: DP2 - Exisitng Site Runoff Area=1.514 ac 1.72% Impervious Runoff Depth=3.02"
Flow Length=339' Tc=23.3 min CN=59 Runoff=3.30 cfs 0.382 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.291 af Average Runoff Depth = 3.02"
97.79% Pervious = 5.009 ac 2.21% Impervious = 0.113 ac

Summary for Subcatchment E1: DP1 - Exisitng Site Conditions

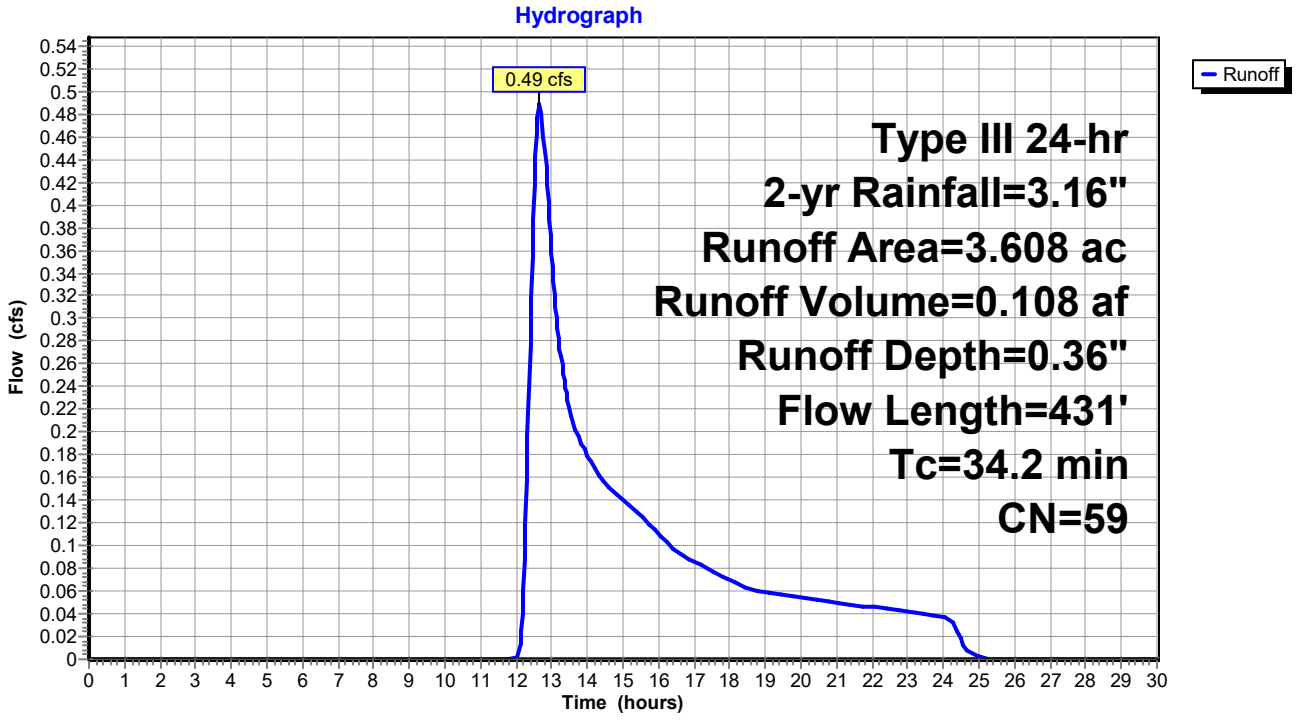
Runoff = 0.49 cfs @ 12.66 hrs, Volume= 0.108 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

	Area (ac)	CN	Description
	1.082	61	>75% Grass cover, Good, HSG B
	2.253	55	Woods, Good, HSG B
	0.186	70	Woods, Good, HSG C
*	0.087	98	IMPERVIOUS
	3.608	59	Weighted Average
	3.521		97.59% Pervious Area
	0.087		2.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.5	100	0.0100	0.06		**Sheet Flow, Woods Sheetflow** Woods: Light underbrush n= 0.400 P2= 3.16"
2.0	60	0.0100	0.50		**Shallow Concentrated Flow, Woodland S.C.F.** Woodland Kv= 5.0 fps
3.7	271	0.0310	1.23		**Shallow Concentrated Flow, grass** Short Grass Pasture Kv= 7.0 fps
34.2	431	Total			

Subcatchment E1: DP1 - Exisitng Site Conditions



Summary for Subcatchment E2: DP2 - Exisitng Site Conditions

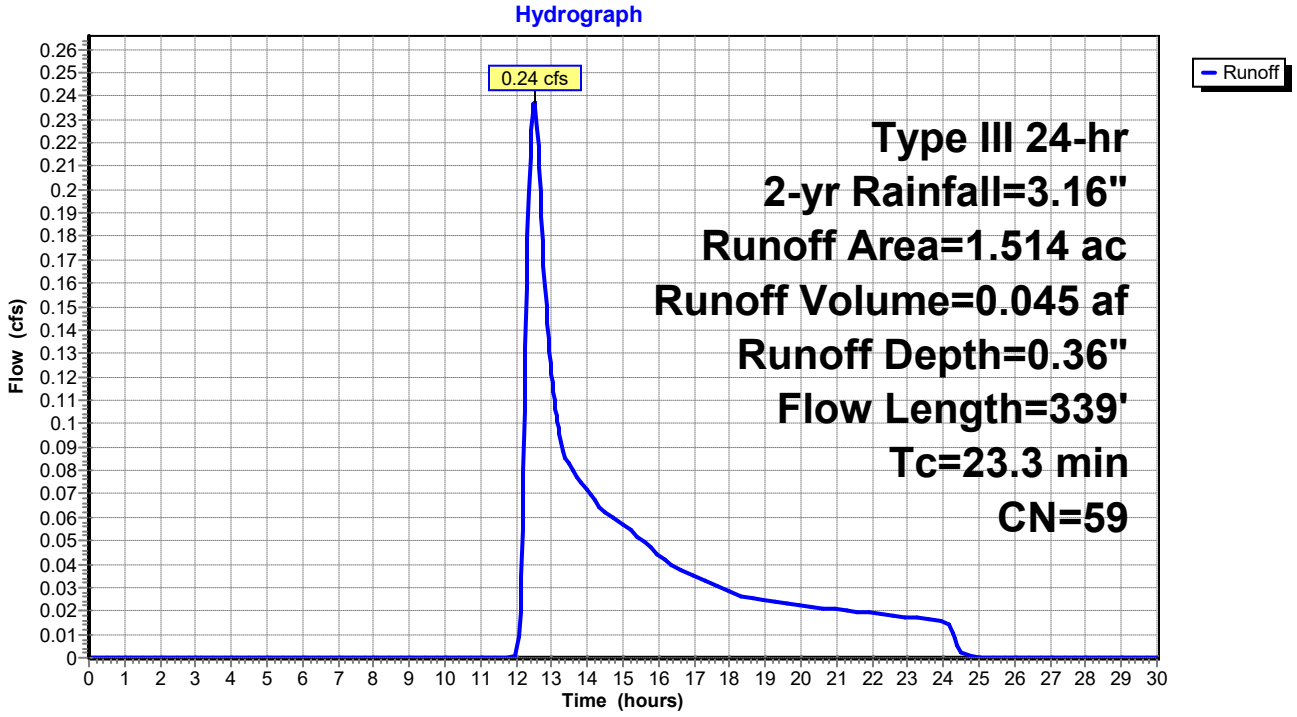
Runoff = 0.24 cfs @ 12.51 hrs, Volume= 0.045 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

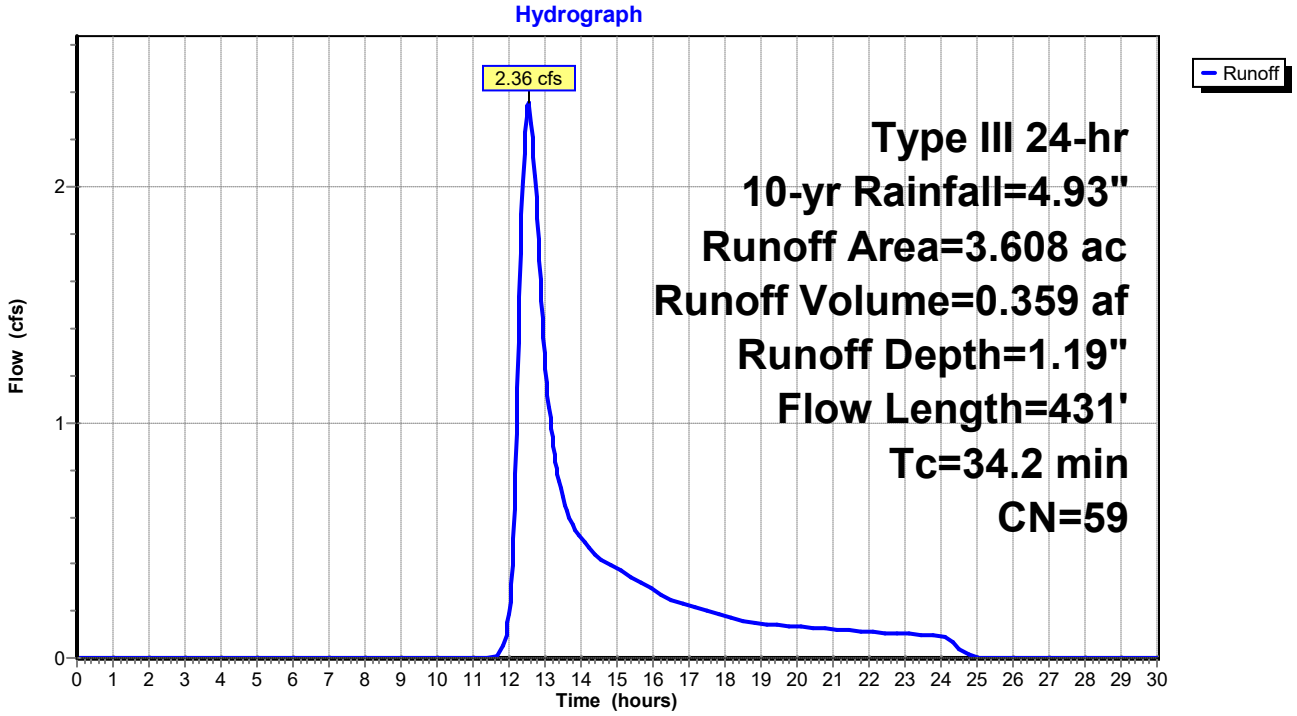
	Area (ac)	CN	Description
	0.626	61	>75% Grass cover, Good, HSG B
	0.010	74	>75% Grass cover, Good, HSG C
	0.833	55	Woods, Good, HSG B
	0.019	70	Woods, Good, HSG C
*	0.026	98	IMPERVIOUS
	1.514	59	Weighted Average
	1.488		98.28% Pervious Area
	0.026		1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.6	100	0.0200	0.08		**Sheet Flow, Woods Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.16"
1.7	239	0.0250	2.37		**Shallow Concentrated Flow, Grass Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
23.3	339	Total			

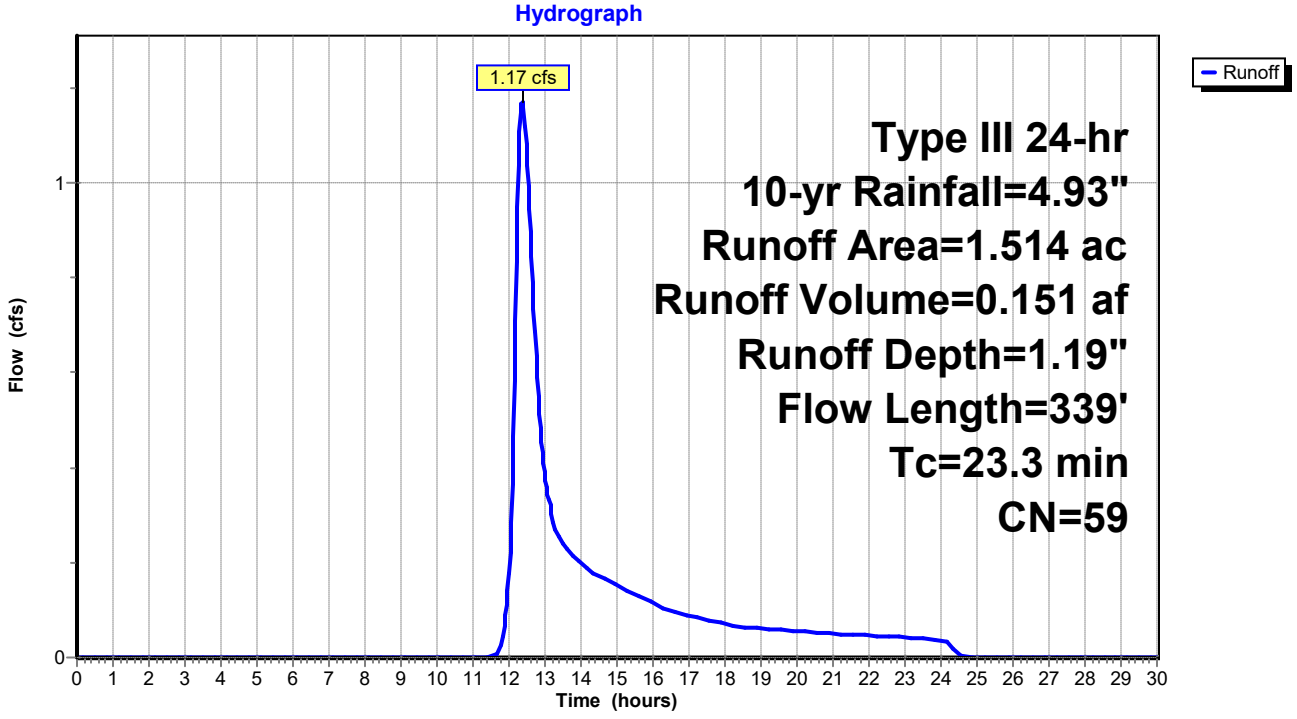
Subcatchment E2: DP2 - Exisitng Site Conditions



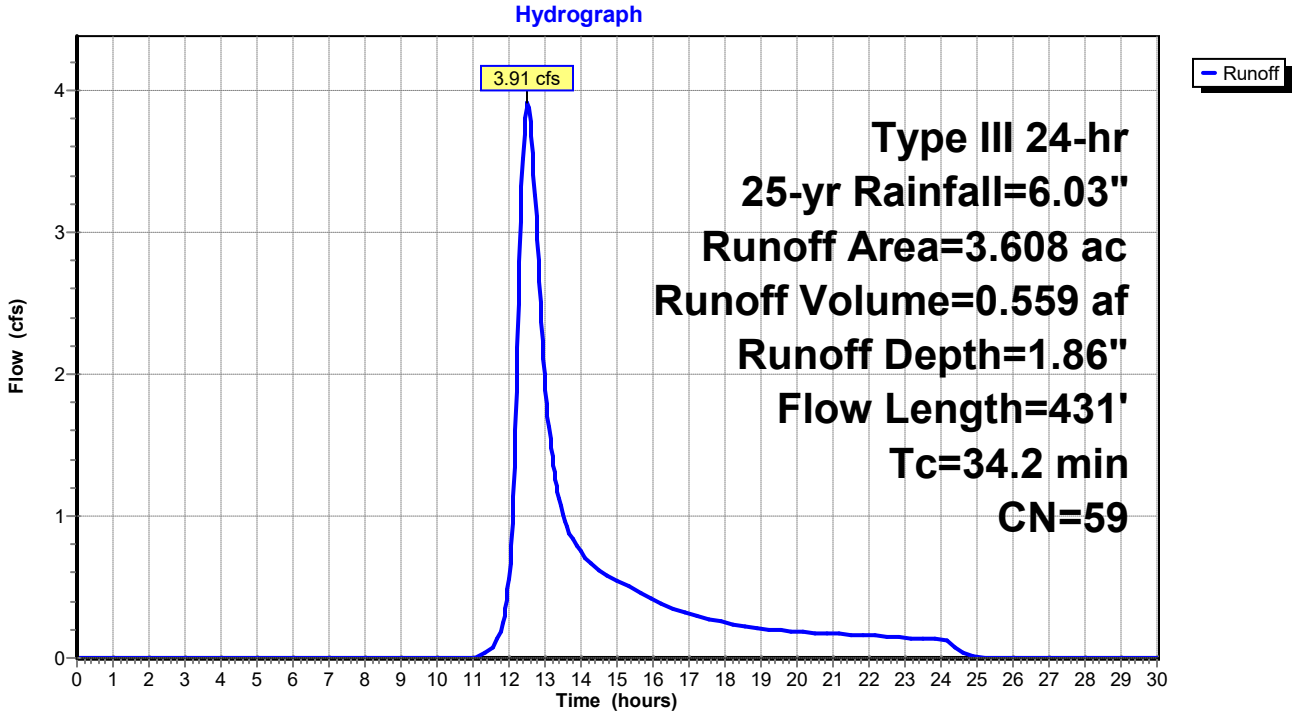
Subcatchment E1: DP1 - Exisitng Site Conditions



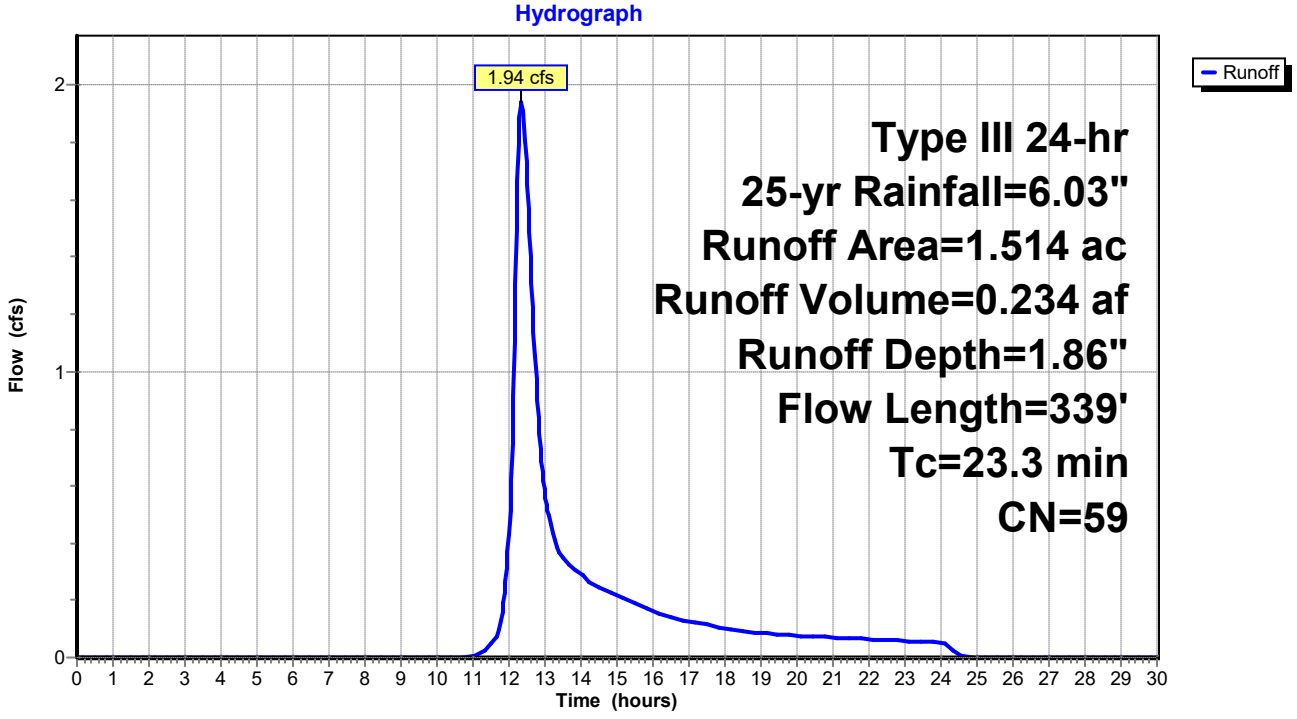
Subcatchment E2: DP2 - Exisitng Site Conditions



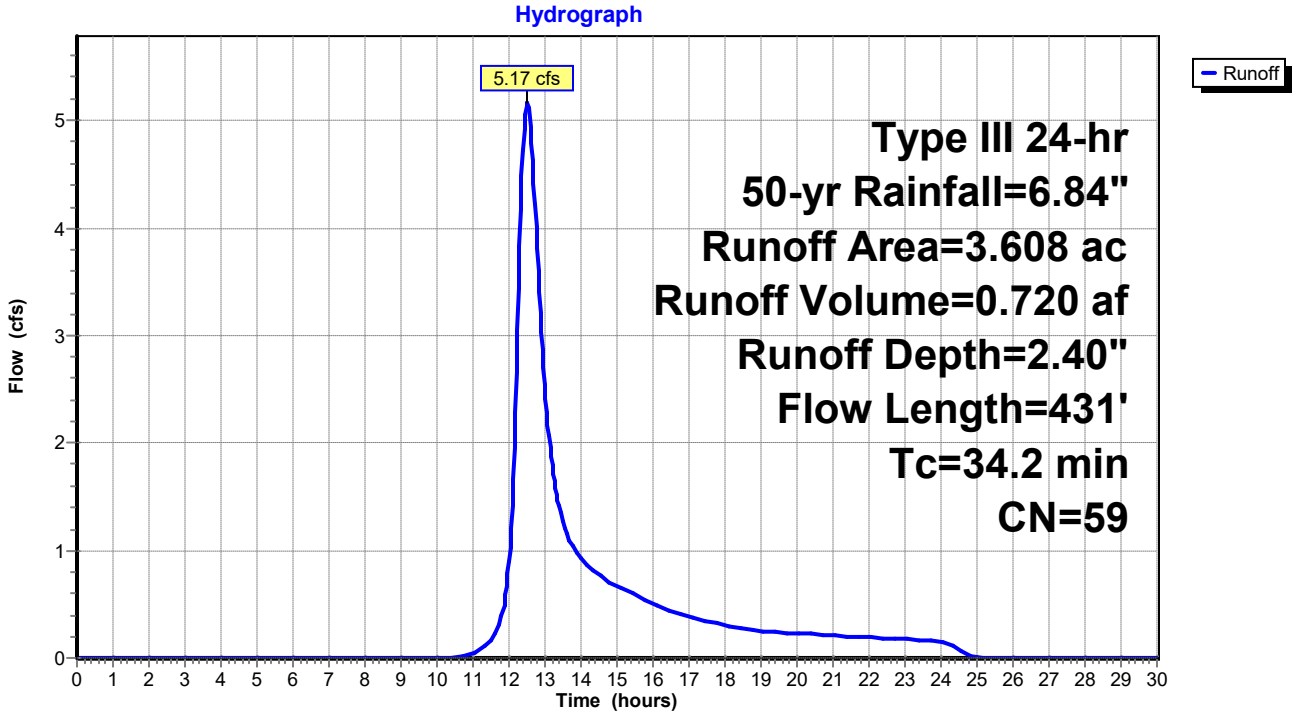
Subcatchment E1: DP1 - Exisitng Site Conditions



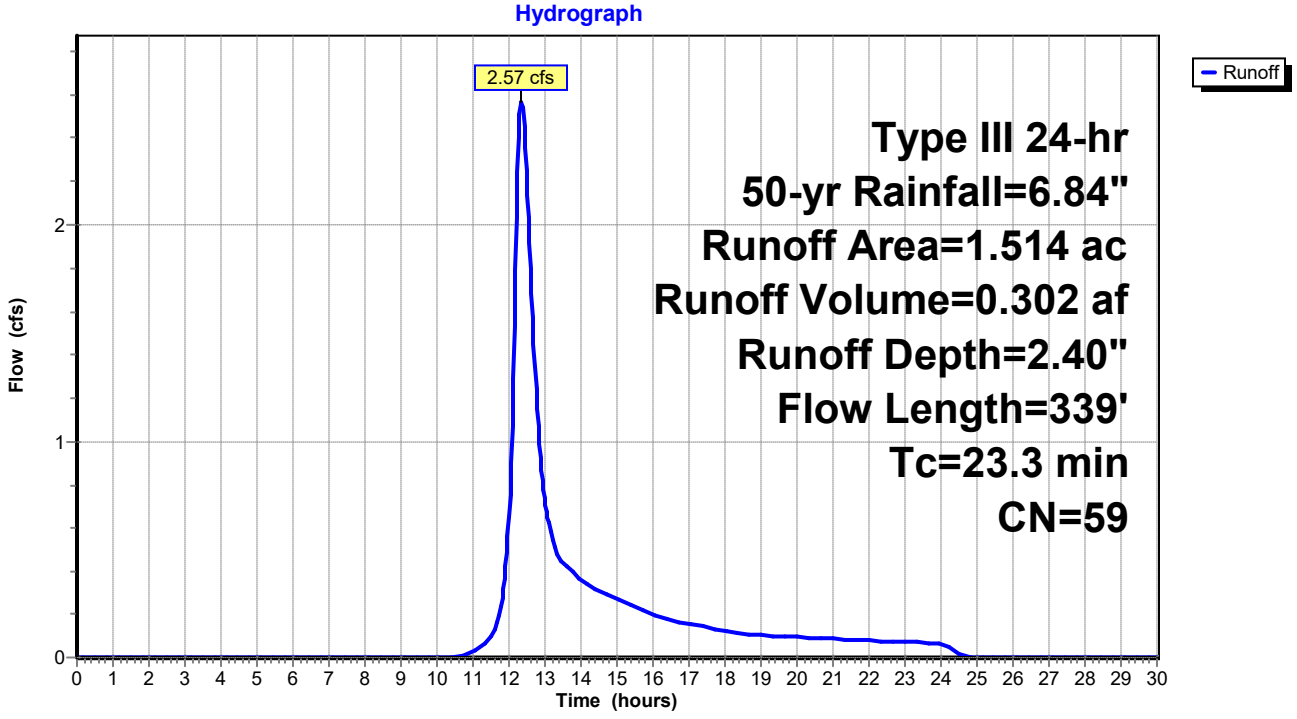
Subcatchment E2: DP2 - Exisitng Site Conditions



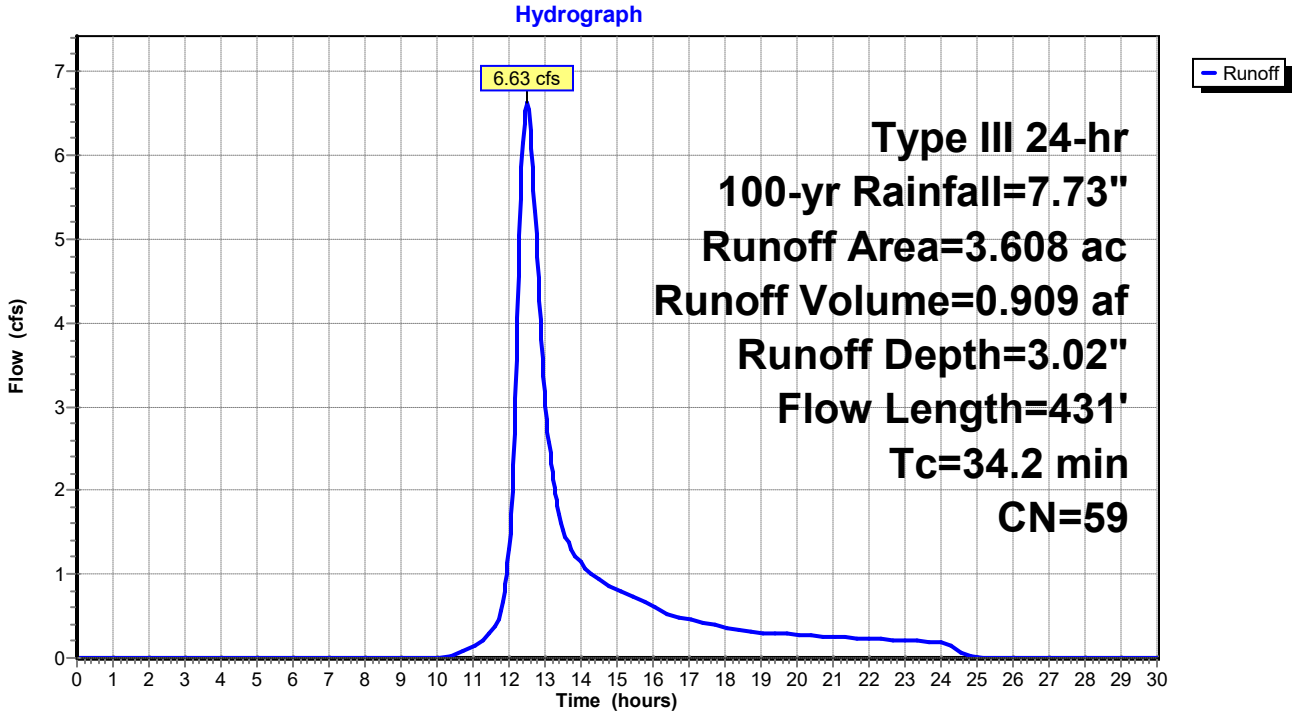
Subcatchment E1: DP1 - Exisitng Site Conditions



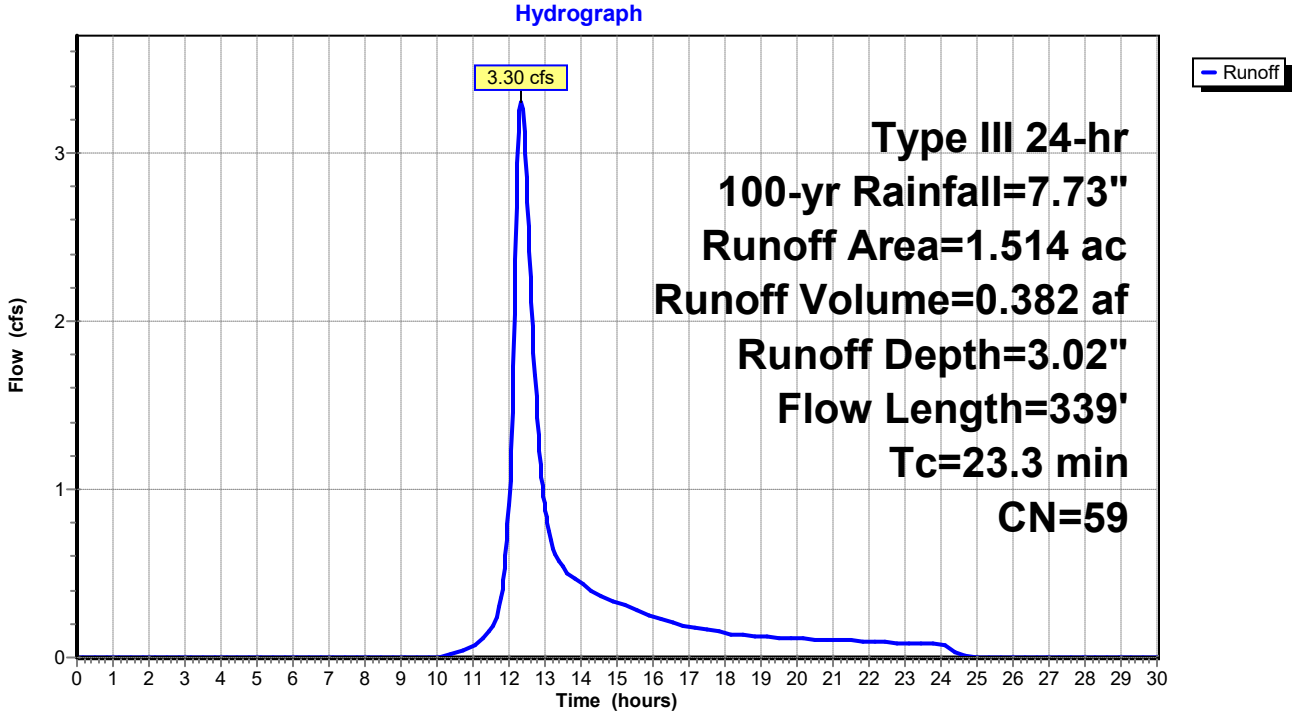
Subcatchment E2: DP2 - Exisitng Site Conditions



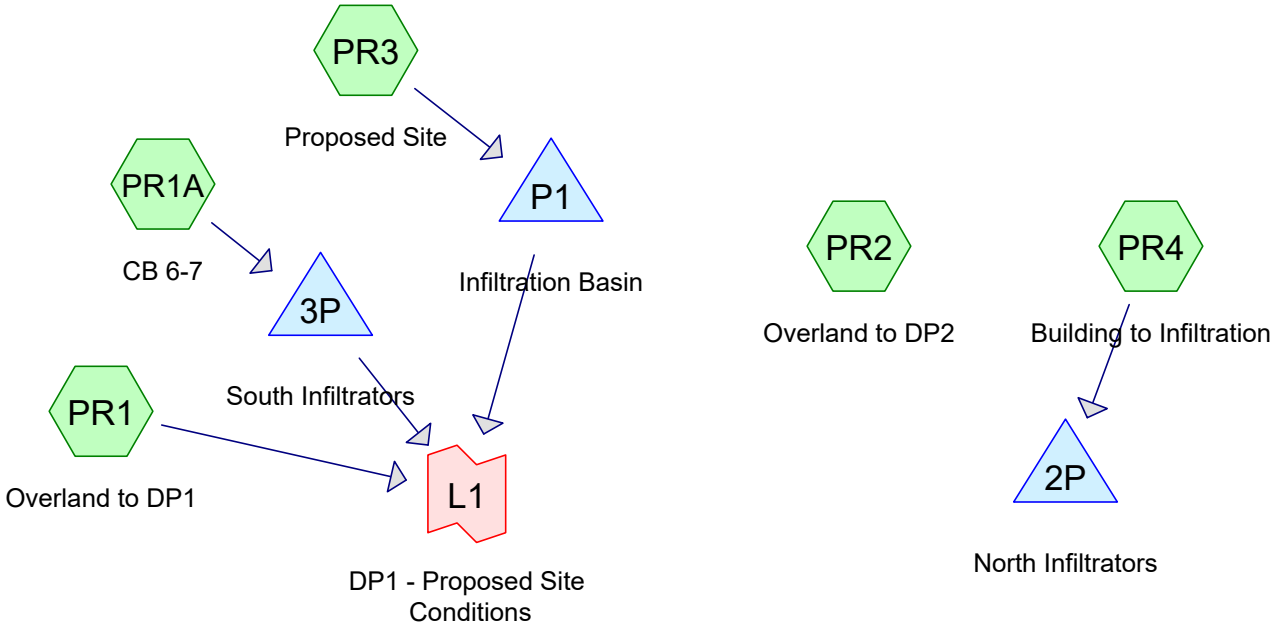
Subcatchment E1: DP1 - Exisitng Site Conditions

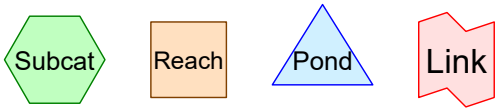


Subcatchment E2: DP2 - Exisitng Site Conditions



APPENDIX B
Watershed Computations
(Post-Development Drainage HydroCAD Report)





Routing Diagram for 4798 - Drainage Revised2
Prepared by Design Professionals, Inc., Printed 4/29/2022
HydroCAD® 10.00-20 s/n 09320 © 2017 HydroCAD Software Solutions LLC

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=0.39"
Flow Length=497' Tc=32.6 min CN=60 Runoff=0.25 cfs 0.051 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=1.51"
Tc=7.0 min CN=82 Runoff=0.11 cfs 0.008 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=0.43"
Flow Length=426' Tc=13.2 min CN=61 Runoff=0.11 cfs 0.017 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=1.96"
Tc=8.0 min CN=88 Runoff=6.10 cfs 0.468 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=2.93"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.044 af

Pond 2P: North Infiltrators Peak Elev=619.02' Storage=0.017 af Inflow=0.55 cfs 0.044 af
Outflow=0.04 cfs 0.044 af

Pond 3P: South Infiltrators Peak Elev=619.83' Storage=0.004 af Inflow=0.11 cfs 0.008 af
Discarded=0.01 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.008 af

Pond P1: Infiltration Basin Peak Elev=619.81' Storage=10,011 cf Inflow=6.10 cfs 0.468 af
Discarded=0.23 cfs 0.300 af Primary=0.27 cfs 0.168 af Outflow=0.50 cfs 0.468 af

Link L1: DP1 - Proposed Site Conditions Inflow=0.50 cfs 0.218 af
Primary=0.50 cfs 0.218 af

Total Runoff Area = 5.122 ac Runoff Volume = 0.588 af Average Runoff Depth = 1.38"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=1.26"
Flow Length=497' Tc=32.6 min CN=60 Runoff=1.11 cfs 0.162 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=3.02"
Tc=7.0 min CN=82 Runoff=0.22 cfs 0.016 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=1.33"
Flow Length=426' Tc=13.2 min CN=61 Runoff=0.52 cfs 0.052 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=3.60"
Tc=8.0 min CN=88 Runoff=10.99 cfs 0.859 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=4.69"
Tc=6.0 min CN=98 Runoff=0.87 cfs 0.071 af

Pond 2P: North Infiltrators Peak Elev=619.72' Storage=0.032 af Inflow=0.87 cfs 0.071 af
Outflow=0.05 cfs 0.071 af

Pond 3P: South Infiltrators Peak Elev=620.23' Storage=0.004 af Inflow=0.22 cfs 0.016 af
Discarded=0.01 cfs 0.011 af Primary=0.21 cfs 0.006 af Outflow=0.22 cfs 0.016 af

Pond P1: Infiltration Basin Peak Elev=620.88' Storage=17,835 cf Inflow=10.99 cfs 0.859 af
Discarded=0.27 cfs 0.372 af Primary=1.24 cfs 0.481 af Outflow=1.51 cfs 0.853 af

Link L1: DP1 - Proposed Site Conditions Inflow=2.37 cfs 0.649 af
Primary=2.37 cfs 0.649 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.161 af Average Runoff Depth = 2.72"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=1.94"
Flow Length=497' Tc=32.6 min CN=60 Runoff=1.80 cfs 0.250 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=4.01"
Tc=7.0 min CN=82 Runoff=0.29 cfs 0.021 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=2.03"
Flow Length=426' Tc=13.2 min CN=61 Runoff=0.84 cfs 0.079 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=4.65"
Tc=8.0 min CN=88 Runoff=14.03 cfs 1.111 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=5.79"
Tc=6.0 min CN=98 Runoff=1.07 cfs 0.088 af

Pond 2P: North Infiltrators Peak Elev=620.24' Storage=0.043 af Inflow=1.07 cfs 0.088 af
Outflow=0.05 cfs 0.088 af

Pond 3P: South Infiltrators Peak Elev=620.27' Storage=0.004 af Inflow=0.29 cfs 0.021 af
Discarded=0.01 cfs 0.012 af Primary=0.28 cfs 0.010 af Outflow=0.29 cfs 0.021 af

Pond P1: Infiltration Basin Peak Elev=621.61' Storage=23,387 cf Inflow=14.03 cfs 1.111 af
Discarded=0.30 cfs 0.401 af Primary=1.65 cfs 0.691 af Outflow=1.95 cfs 1.092 af

Link L1: DP1 - Proposed Site Conditions Inflow=3.47 cfs 0.950 af
Primary=3.47 cfs 0.950 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.549 af Average Runoff Depth = 3.63"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=2.49"
Flow Length=497' Tc=32.6 min CN=60 Runoff=2.36 cfs 0.321 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=4.77"
Tc=7.0 min CN=82 Runoff=0.34 cfs 0.025 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=2.59"
Flow Length=426' Tc=13.2 min CN=61 Runoff=1.09 cfs 0.101 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=5.44"
Tc=8.0 min CN=88 Runoff=16.25 cfs 1.297 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=6.60"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Pond 2P: North Infiltrators Peak Elev=620.71' Storage=0.051 af Inflow=1.21 cfs 0.100 af
Outflow=0.05 cfs 0.094 af

Pond 3P: South Infiltrators Peak Elev=620.30' Storage=0.004 af Inflow=0.34 cfs 0.025 af
Discarded=0.01 cfs 0.012 af Primary=0.33 cfs 0.013 af Outflow=0.34 cfs 0.025 af

Pond P1: Infiltration Basin Peak Elev=622.06' Storage=26,901 cf Inflow=16.25 cfs 1.297 af
Discarded=0.32 cfs 0.419 af Primary=2.58 cfs 0.853 af Outflow=2.90 cfs 1.272 af

Link L1: DP1 - Proposed Site Conditions Inflow=4.97 cfs 1.186 af
Primary=4.97 cfs 1.186 af

Total Runoff Area = 5.122 ac Runoff Volume = 1.845 af Average Runoff Depth = 4.32"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR1: Overland to DP1 Runoff Area=1.544 ac 0.39% Impervious Runoff Depth=3.13"
Flow Length=497' Tc=32.6 min CN=60 Runoff=3.02 cfs 0.403 af

Subcatchment PR1A: CB 6-7 Runoff Area=0.064 ac 57.81% Impervious Runoff Depth=5.60"
Tc=7.0 min CN=82 Runoff=0.40 cfs 0.030 af

Subcatchment PR2: Overland to DP2 Runoff Area=0.469 ac 0.85% Impervious Runoff Depth=3.24"
Flow Length=426' Tc=13.2 min CN=61 Runoff=1.39 cfs 0.127 af

Subcatchment PR3: Proposed Site Runoff Area=2.863 ac 72.27% Impervious Runoff Depth=6.30"
Tc=8.0 min CN=88 Runoff=18.69 cfs 1.504 af

Subcatchment PR4: Building to Infiltration Runoff Area=0.182 ac 100.00% Impervious Runoff Depth=7.49"
Tc=6.0 min CN=98 Runoff=1.37 cfs 0.114 af

Pond 2P: North Infiltrators Peak Elev=621.46' Storage=0.059 af Inflow=1.37 cfs 0.114 af
Outflow=0.06 cfs 0.100 af

Pond 3P: South Infiltrators Peak Elev=620.33' Storage=0.004 af Inflow=0.40 cfs 0.030 af
Discarded=0.01 cfs 0.013 af Primary=0.38 cfs 0.017 af Outflow=0.39 cfs 0.030 af

Pond P1: Infiltration Basin Peak Elev=622.45' Storage=30,711 cf Inflow=18.69 cfs 1.504 af
Discarded=0.33 cfs 0.436 af Primary=3.27 cfs 1.036 af Outflow=3.60 cfs 1.472 af

Link L1: DP1 - Proposed Site Conditions Inflow=6.35 cfs 1.456 af
Primary=6.35 cfs 1.456 af

Total Runoff Area = 5.122 ac Runoff Volume = 2.177 af Average Runoff Depth = 5.10"
55.13% Pervious = 2.824 ac 44.87% Impervious = 2.298 ac

Summary for Subcatchment PR1: Overland to DP1

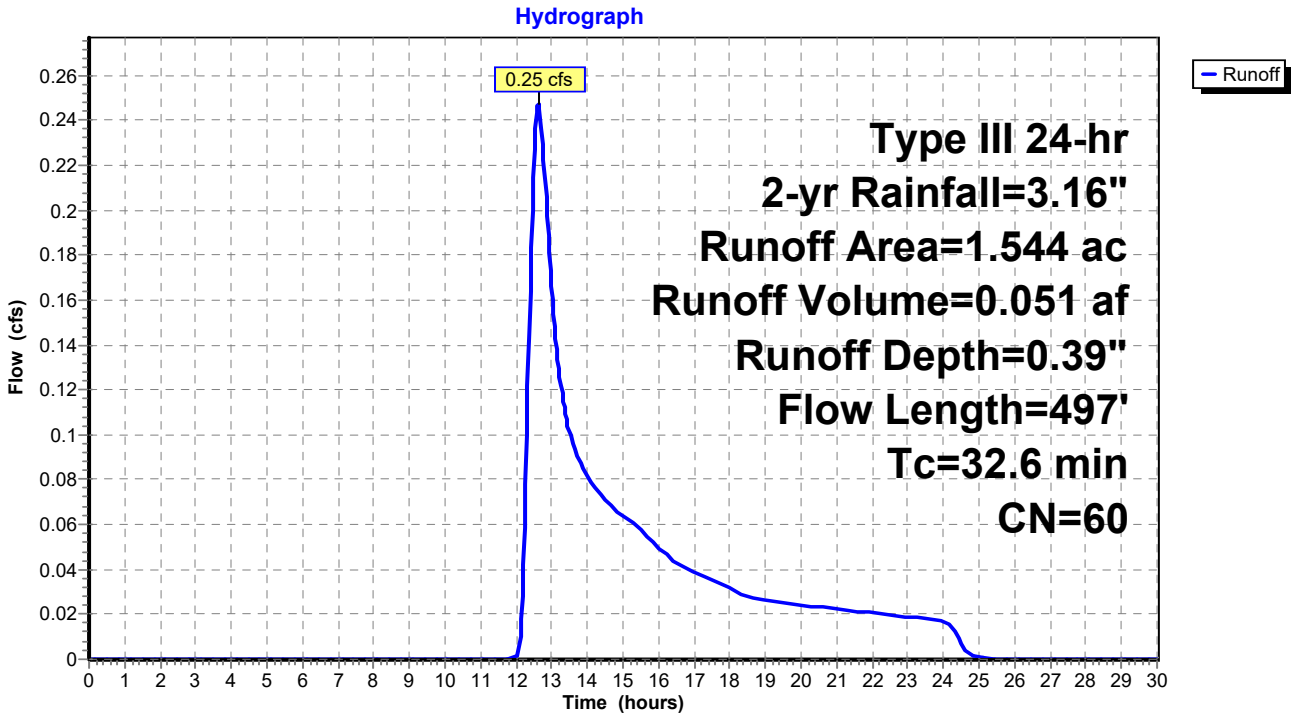
Runoff = 0.25 cfs @ 12.62 hrs, Volume= 0.051 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

Area (ac)	CN	Description
0.997	61	>75% Grass cover, Good, HSG B
0.436	55	Woods, Good, HSG B
0.105	70	Woods, Good, HSG C
0.006	98	Paved parking, HSG B
1.544	60	Weighted Average
1.538		99.61% Pervious Area
0.006		0.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.5	100	0.0100	0.06		**Sheet Flow, Woodland S.F.** Woods: Light underbrush n= 0.400 P2= 3.16"
2.0	60	0.0100	0.50		**Shallow Concentrated Flow, Woodland S.C.F.** Woodland Kv= 5.0 fps
2.1	337	0.0330	2.72		**Shallow Concentrated Flow, Grass SCF** Grassed Waterway Kv= 15.0 fps
32.6	497	Total			

Subcatchment PR1: Overland to DP1



Summary for Subcatchment PR1A: CB 6-7

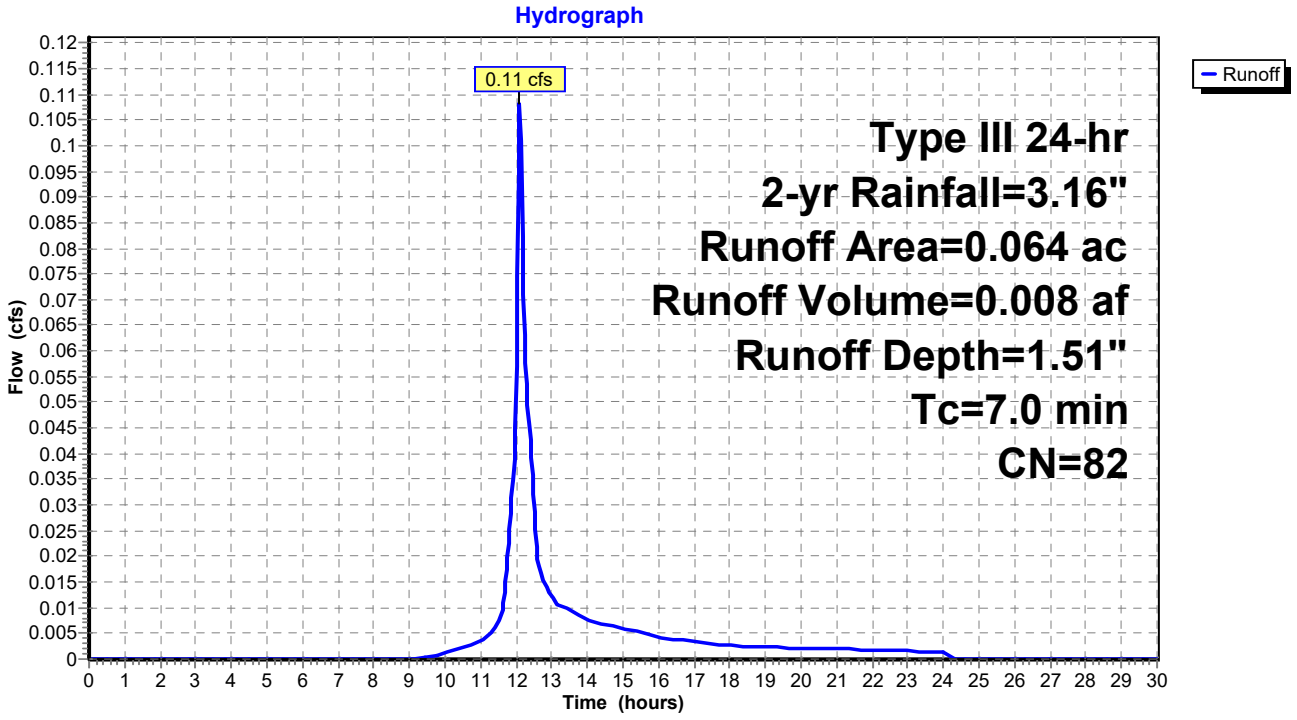
Runoff = 0.11 cfs @ 12.10 hrs, Volume= 0.008 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

Area (ac)	CN	Description
0.037	98	Paved parking, HSG B
0.027	61	>75% Grass cover, Good, HSG B
0.064	82	Weighted Average
0.027		42.19% Pervious Area
0.037		57.81% Impervious Area

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

Subcatchment PR1A: CB 6-7



Summary for Subcatchment PR2: Overland to DP2

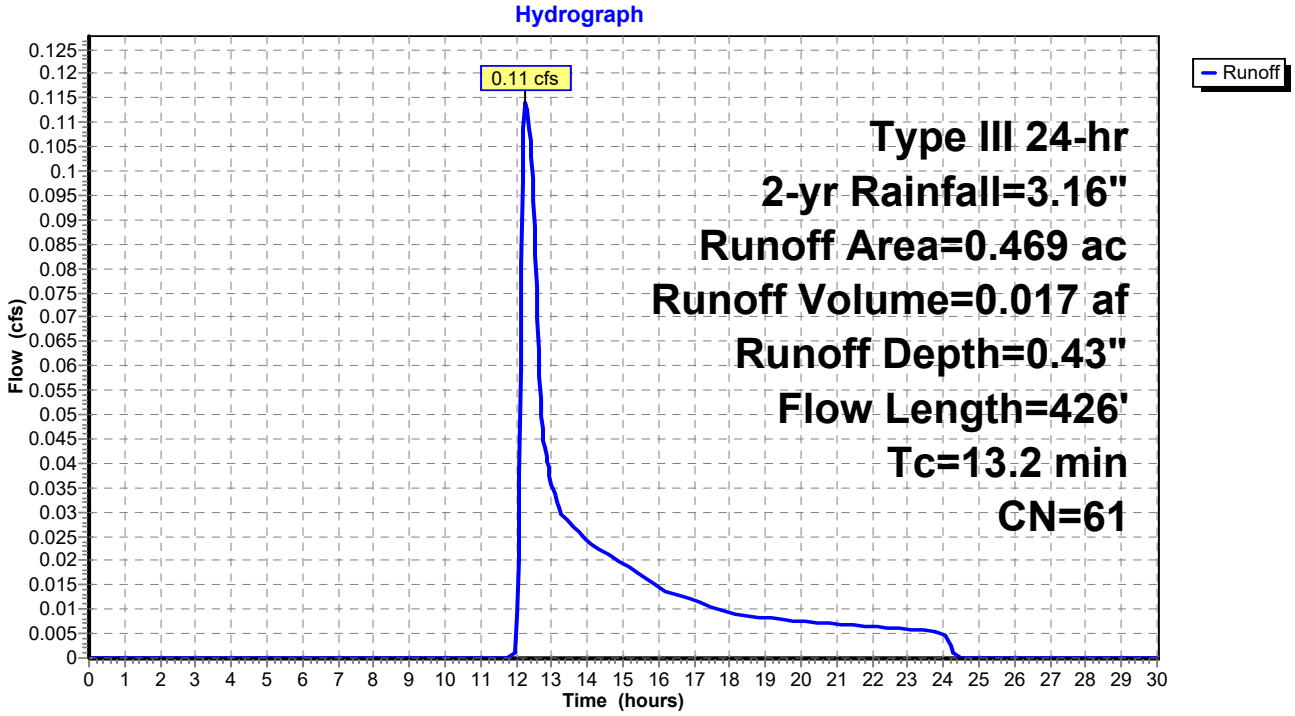
Runoff = 0.11 cfs @ 12.27 hrs, Volume= 0.017 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

	Area (ac)	CN	Description
	0.358	61	>75% Grass cover, Good, HSG B
	0.011	74	>75% Grass cover, Good, HSG C
	0.077	55	Woods, Good, HSG B
	0.019	70	Woods, Good, HSG C
*	0.004	98	IMPERVIOUS
	0.469	61	Weighted Average
	0.465		99.15% Pervious Area
	0.004		0.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, Grass S.F.** Grass: Short n= 0.150 P2= 3.16"
2.2	200	0.0100	1.50		**Shallow Concentrated Flow, Grass S.C.F.** Grassed Waterway Kv= 15.0 fps
1.1	126	0.0170	1.96		**Shallow Concentrated Flow, Grass SCF** Grassed Waterway Kv= 15.0 fps
13.2	426	Total			

Subcatchment PR2: Overland to DP2



Summary for Subcatchment PR3: Proposed Site

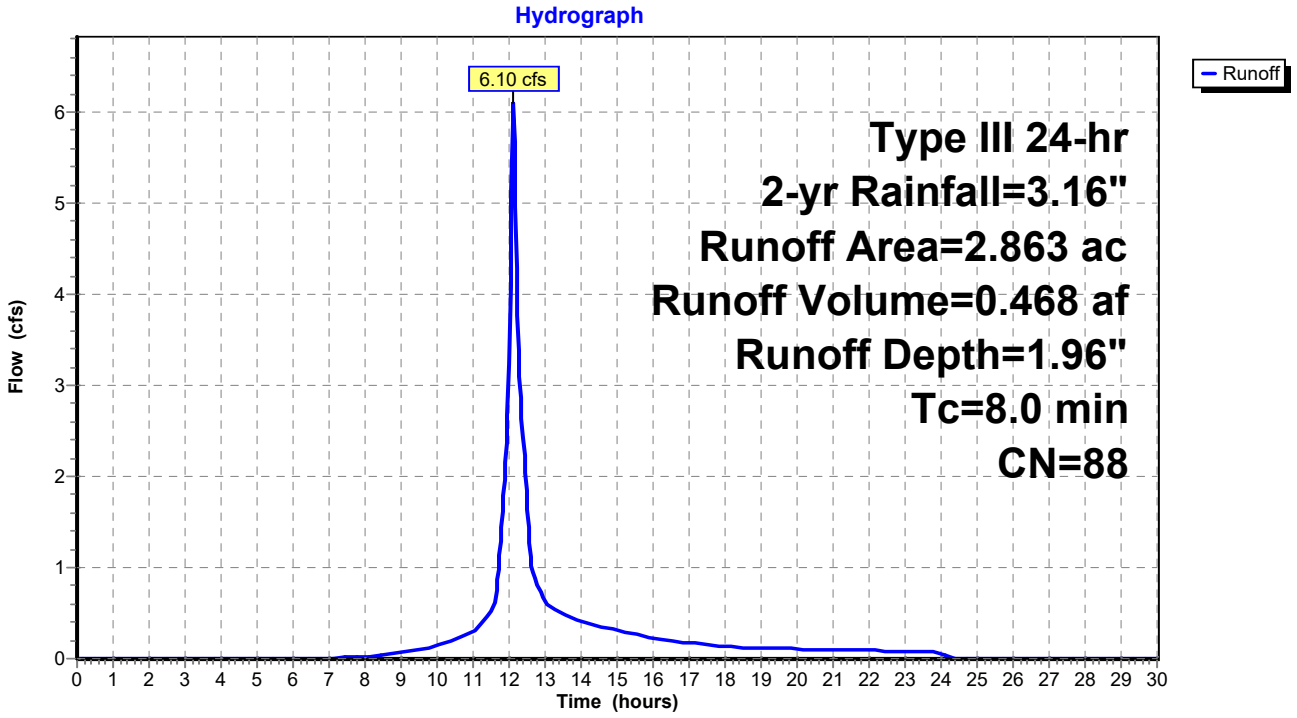
Runoff = 6.10 cfs @ 12.11 hrs, Volume= 0.468 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

	Area (ac)	CN	Description
	0.720	61	>75% Grass cover, Good, HSG B
	0.005	55	Woods, Good, HSG B
	0.045	70	Woods, Good, HSG C
*	2.069	98	IMPERVIOUS
	0.024	74	>75% Grass cover, Good, HSG C
	2.863	88	Weighted Average
	0.794		27.73% Pervious Area
	2.069		72.27% Impervious Area

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

Subcatchment PR3: Proposed Site



Summary for Subcatchment PR4: Building to Infiltration

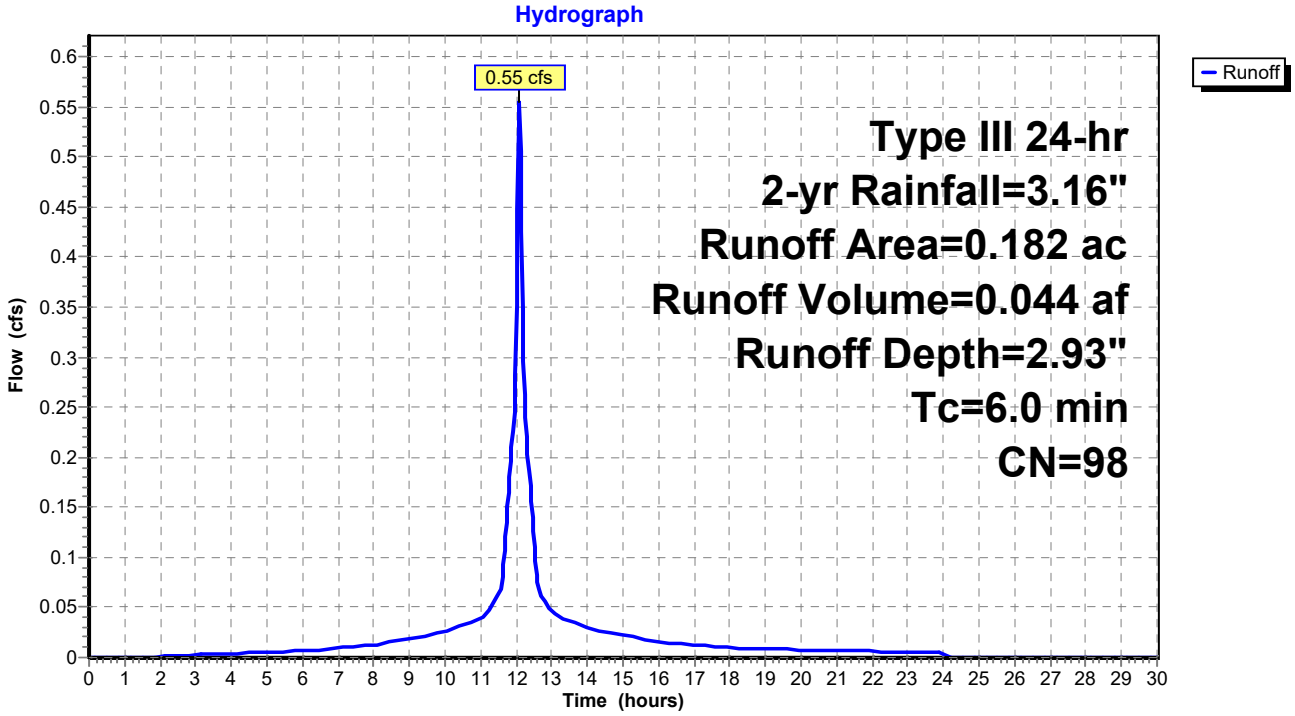
Runoff = 0.55 cfs @ 12.08 hrs, Volume= 0.044 af, Depth= 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-yr Rainfall=3.16"

Area (ac)	CN	Description
0.182	98	Roofs, HSG B
0.182		100.00% Impervious Area

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

Subcatchment PR4: Building to Infiltration



Summary for Pond 2P: North Infiltrators

Inflow Area = 0.182 ac,100.00% Impervious, Inflow Depth = 2.93" for 2-yr event
Inflow = 0.55 cfs @ 12.08 hrs, Volume= 0.044 af
Outflow = 0.04 cfs @ 13.06 hrs, Volume= 0.044 af, Atten= 92%, Lag= 58.5 min
Discarded = 0.04 cfs @ 13.06 hrs, Volume= 0.044 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Peak Elev= 619.02' @ 13.06 hrs Surf.Area= 0.027 ac Storage= 0.017 af

Plug-Flow detention time= 131.3 min calculated for 0.044 af (100% of inflow)
Center-of-Mass det. time= 131.2 min (887.9 - 756.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	618.00'	0.024 af	**16.00'W x 73.50'L x 3.54'H Field A** 0.096 af Overall - 0.037 af Embedded = 0.059 af x 40.0% Voids
#2A	618.50'	0.037 af	**Cultec R-330XLHD** x 30 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		0.060 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	618.00'	**1.400 in/hr Exfiltration 5.6 ft/day/2 over Wetted area**

Discarded OutFlow Max=0.04 cfs @ 13.06 hrs HW=619.02' (Free Discharge)
1=Exfiltration 5.6 ft/day/2 (Exfiltration Controls 0.04 cfs)

Pond 2P: North Infiltrators - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 3 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

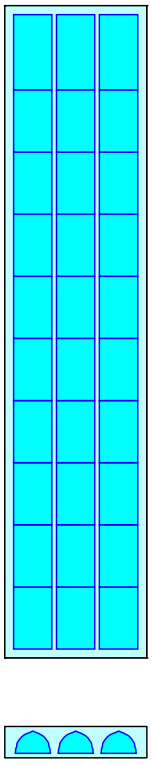
10 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 71.50' Row Length +12.0" End Stone x 2 = 73.50' Base Length
3 Rows x 52.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 16.00' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

30 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 3 Rows = 1,598.2 cf Chamber Storage

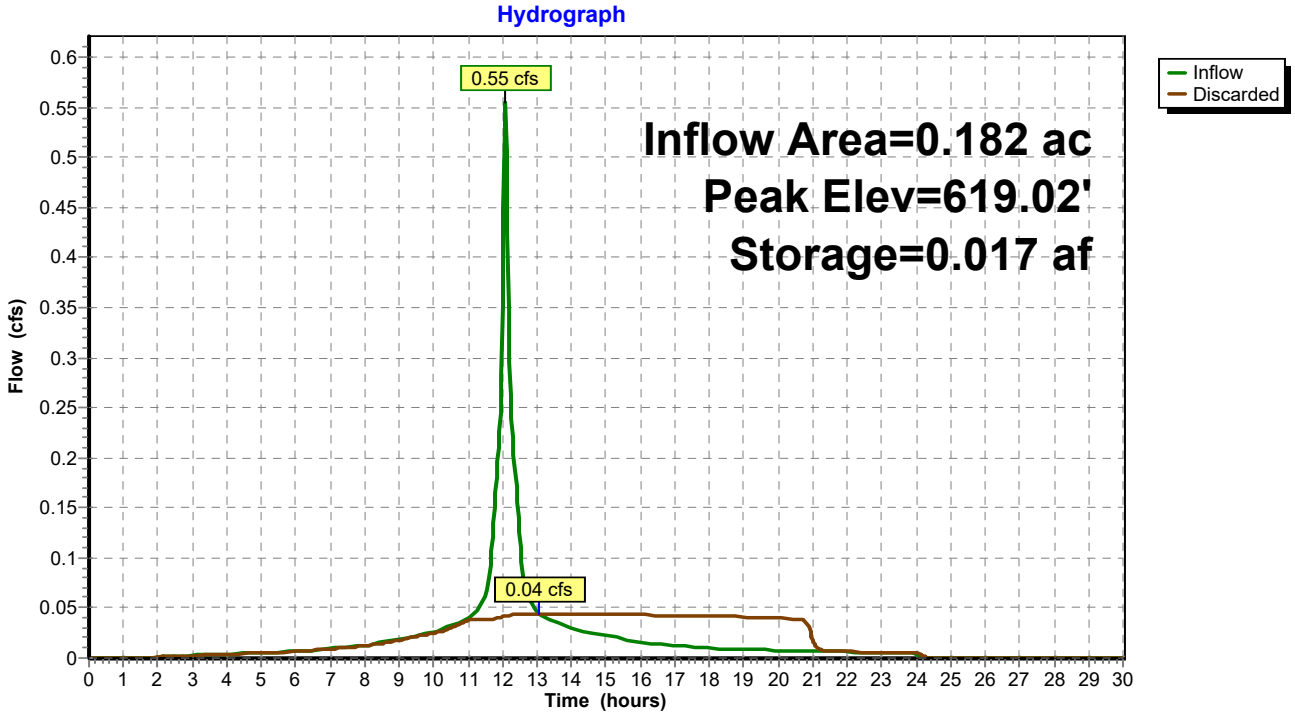
4,165.0 cf Field - 1,598.2 cf Chambers = 2,566.8 cf Stone x 40.0% Voids = 1,026.7 cf Stone Storage

Chamber Storage + Stone Storage = 2,624.9 cf = 0.060 af
Overall Storage Efficiency = 63.0%
Overall System Size = 73.50' x 16.00' x 3.54'

30 Chambers
154.3 cy Field
95.1 cy Stone



Pond 2P: North Infiltrators



Summary for Pond 3P: South Infiltrators

Inflow Area = 0.064 ac, 57.81% Impervious, Inflow Depth = 1.51" for 2-yr event
Inflow = 0.11 cfs @ 12.10 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 13.98 hrs, Volume= 0.008 af, Atten= 93%, Lag= 112.8 min
Discarded = 0.01 cfs @ 13.98 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Peak Elev= 619.83' @ 13.98 hrs Surf.Area= 0.003 ac Storage= 0.004 af

Plug-Flow detention time= 240.2 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 240.2 min (1,078.0 - 837.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	617.50'	0.003 af	**6.33'W x 17.50'L x 3.54'H Field A** 0.009 af Overall - 0.003 af Embedded = 0.006 af x 40.0% Voids
#2A	618.00'	0.003 af	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		0.005 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	617.50'	**1.525 in/hr Exfiltration 6.1 ft/day/2 over Wetted area**
#2	Primary	620.00'	**12.0" Round Culvert** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 620.00' / 619.90' S= 0.0125 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.01 cfs @ 13.98 hrs HW=619.83' (Free Discharge)
↑**1=Exfiltration 6.1 ft/day/2** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=617.50' (Free Discharge)
↑**2=Culvert** (Controls 0.00 cfs)

Pond 3P: South Infiltrators - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

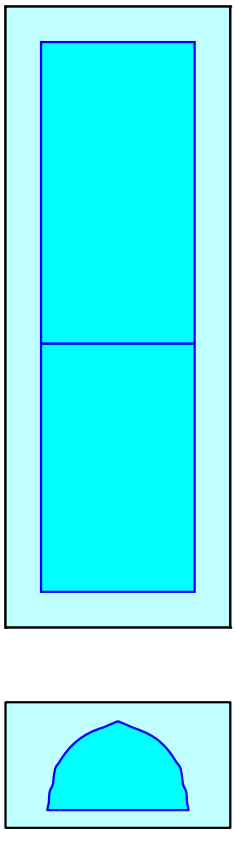
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

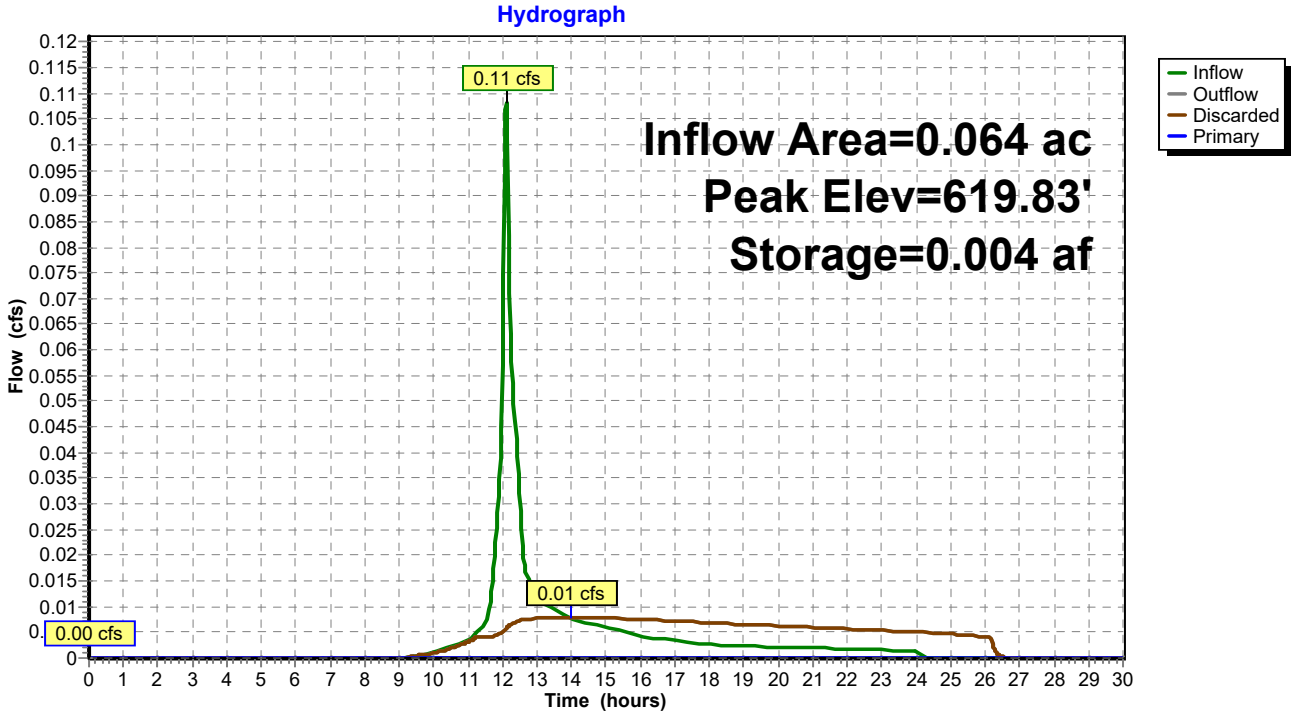
392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone



Pond 3P: South Infiltrators



Summary for Pond P1: Infiltration Basin

Inflow Area = 2.863 ac, 72.27% Impervious, Inflow Depth = 1.96" for 2-yr event
Inflow = 6.10 cfs @ 12.11 hrs, Volume= 0.468 af
Outflow = 0.50 cfs @ 13.48 hrs, Volume= 0.468 af, Atten= 92%, Lag= 82.0 min
Discarded = 0.23 cfs @ 13.48 hrs, Volume= 0.300 af
Primary = 0.27 cfs @ 13.48 hrs, Volume= 0.168 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Peak Elev= 619.81' @ 13.48 hrs Surf.Area= 6,372 sf Storage= 10,011 cf
Flood Elev= 626.00' Surf.Area= 10,463 sf Storage= 40,726 cf

Plug-Flow detention time= 256.4 min calculated for 0.468 af (100% of inflow)
Center-of-Mass det. time= 256.1 min (1,073.5 - 817.4)

Volume	Invert	Avail.Storage	Storage Description
#1	618.00'	40,726 cf	**Custom Stage Data (Conic)** Listed below

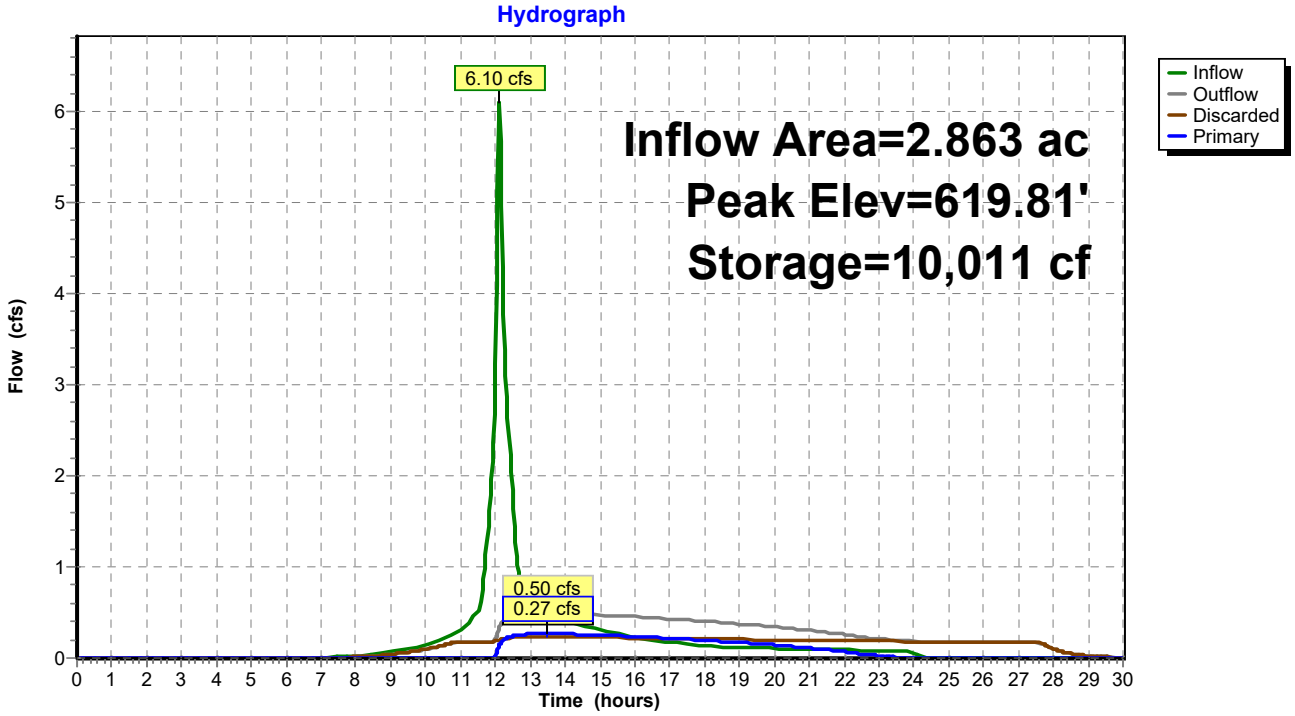
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
618.00	4,640	0	0	4,640
619.00	5,571	5,098	5,098	5,605
620.00	6,559	6,058	11,157	6,631
622.00	8,705	15,213	26,370	8,864
623.50	10,463	14,356	40,726	10,697

Device	Routing	Invert	Outlet Devices
#1	Primary	617.50'	**12.0" Round Culvert** L= 47.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 617.50' / 617.00' S= 0.0106 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Discarded	618.00'	**1.525 in/hr Exfiltration 6.1 ft/day/2 over Wetted area**
#3	Device 1	618.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	619.75'	**6.0" Vert. Orifice/Grate** C= 0.600
#5	Device 1	621.50'	**8.0" Vert. Orifice/Grate** C= 0.600
#6	Device 1	622.50'	**0.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.23 cfs @ 13.48 hrs HW=619.81' (Free Discharge)
└**2=Exfiltration 6.1 ft/day/2** (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=0.27 cfs @ 13.48 hrs HW=619.81' (Free Discharge)
└**1=Culvert** (Passes 0.27 cfs of 5.09 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.26 cfs @ 5.24 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.84 fps)
  ├**5=Orifice/Grate** (Controls 0.00 cfs)
  └**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P1: Infiltration Basin

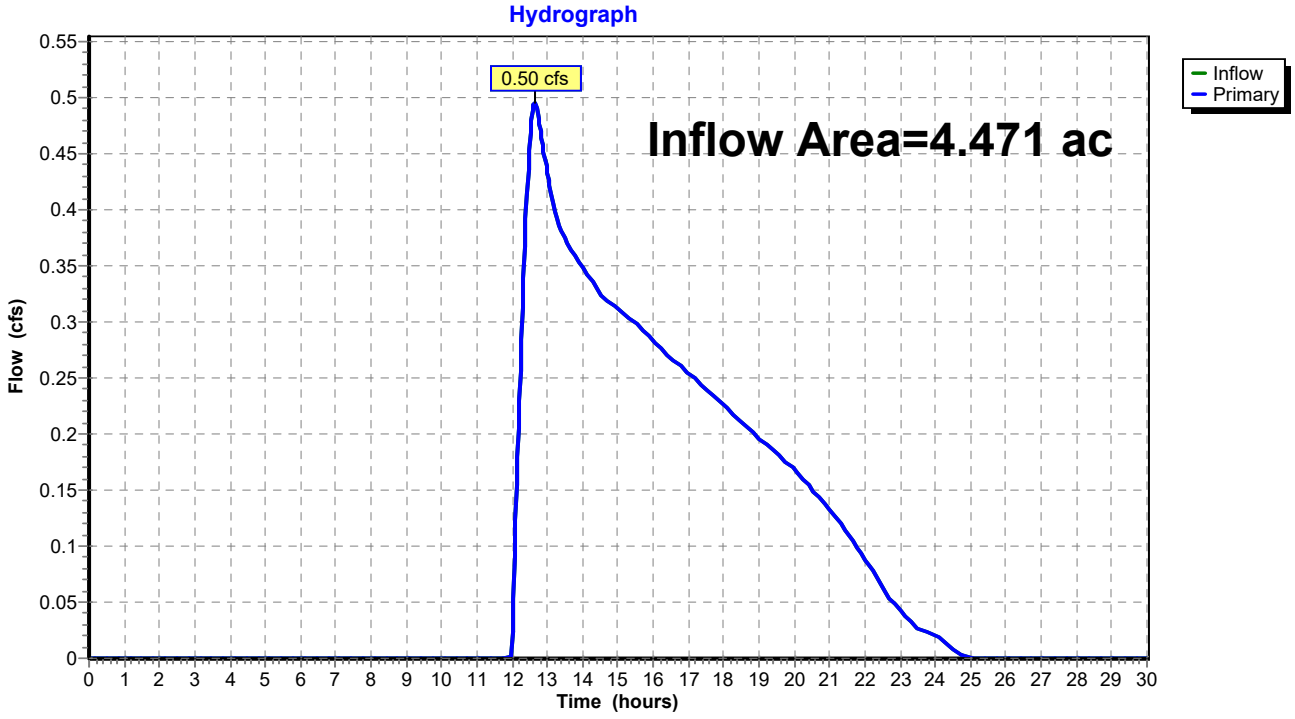


Summary for Link L1: DP1 - Proposed Site Conditions

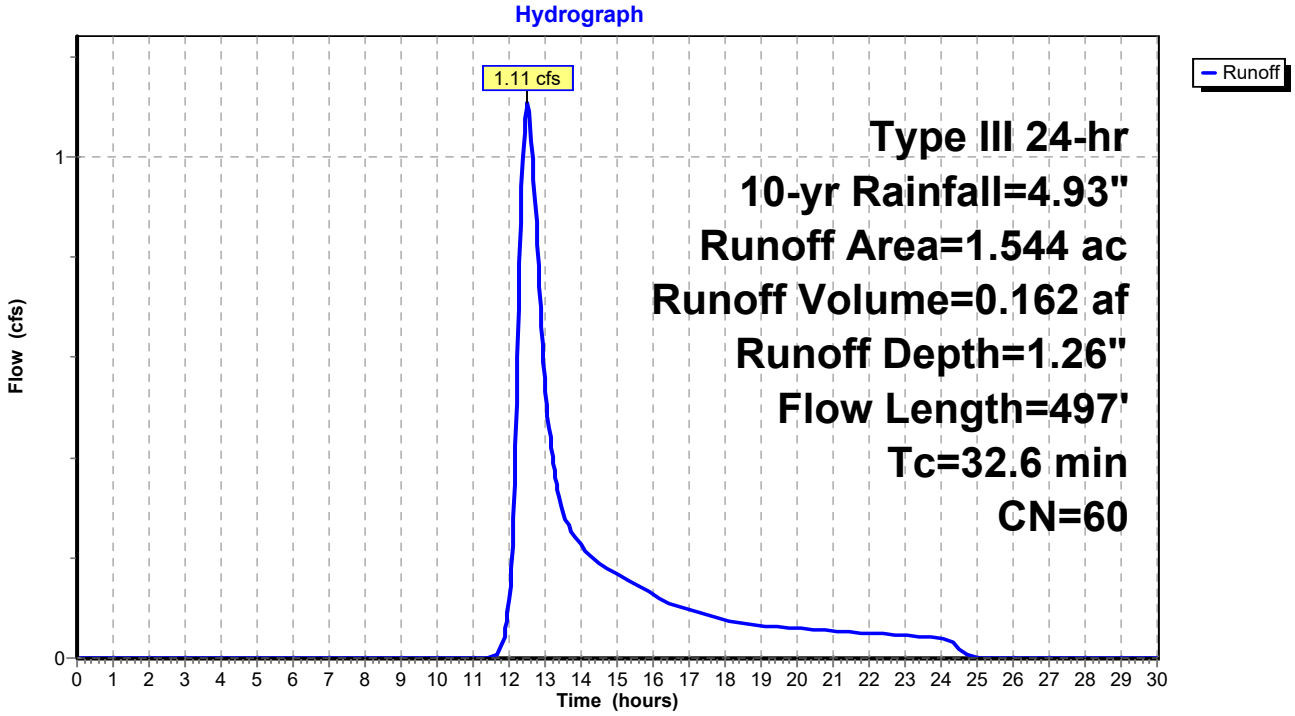
Inflow Area = 4.471 ac, 47.24% Impervious, Inflow Depth = 0.59" for 2-yr event
Inflow = 0.50 cfs @ 12.64 hrs, Volume= 0.218 af
Primary = 0.50 cfs @ 12.64 hrs, Volume= 0.218 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

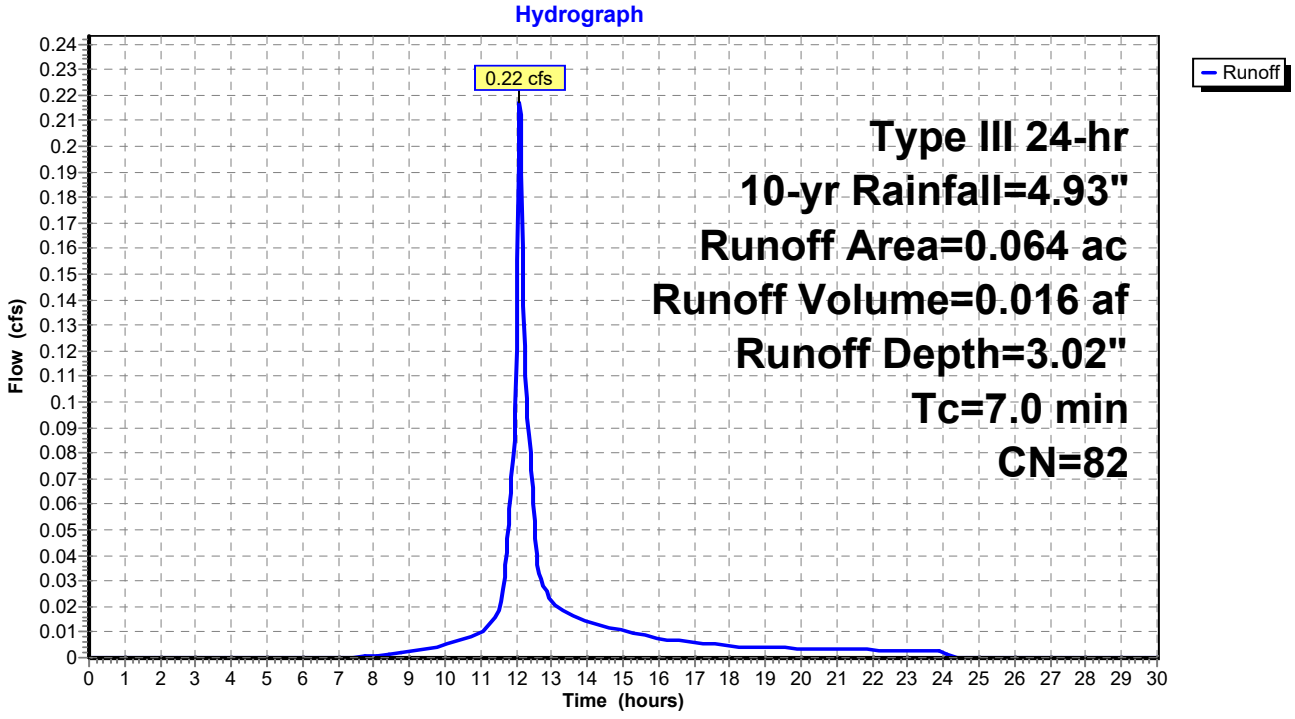
Link L1: DP1 - Proposed Site Conditions



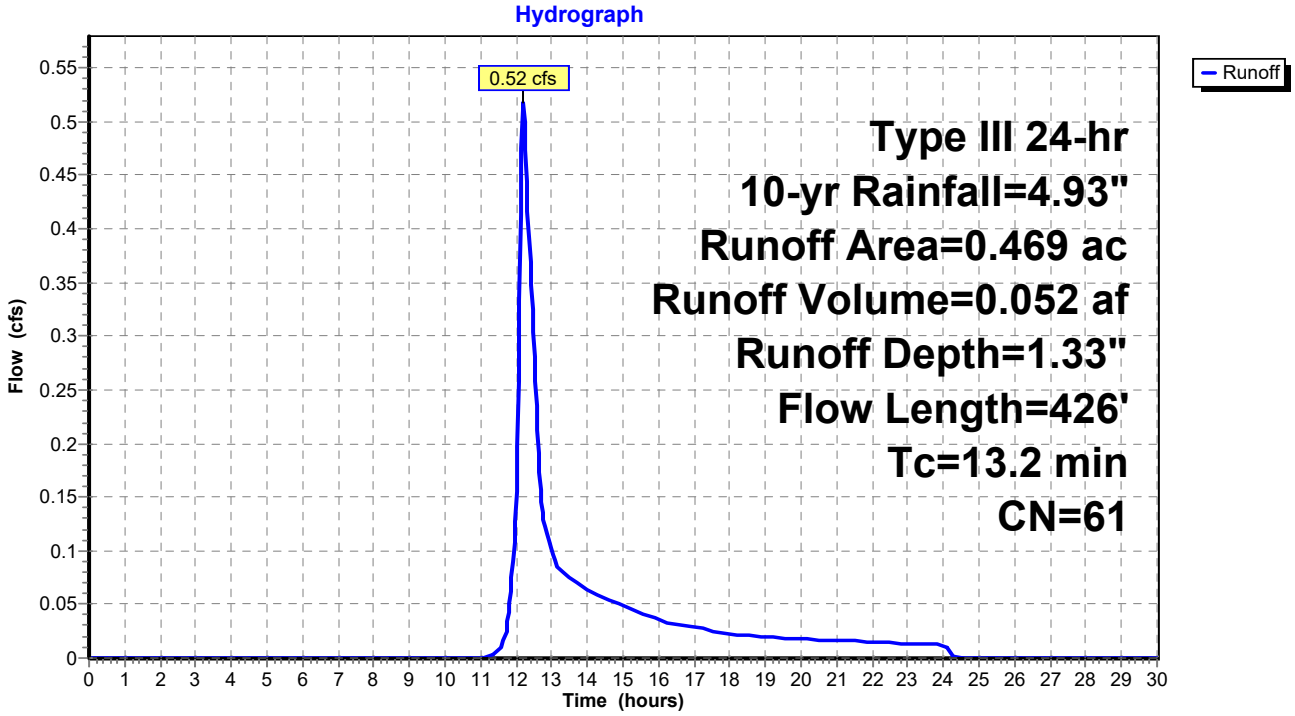
Subcatchment PR1: Overland to DP1



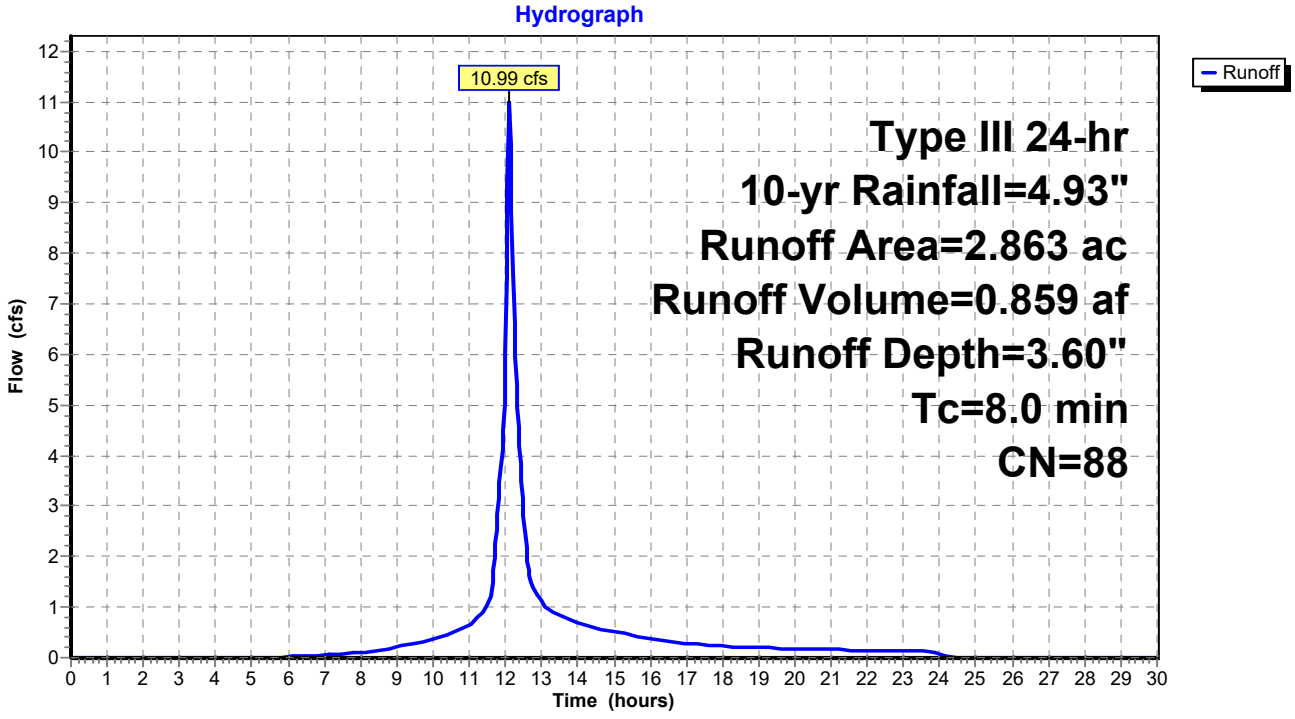
Subcatchment PR1A: CB 6-7



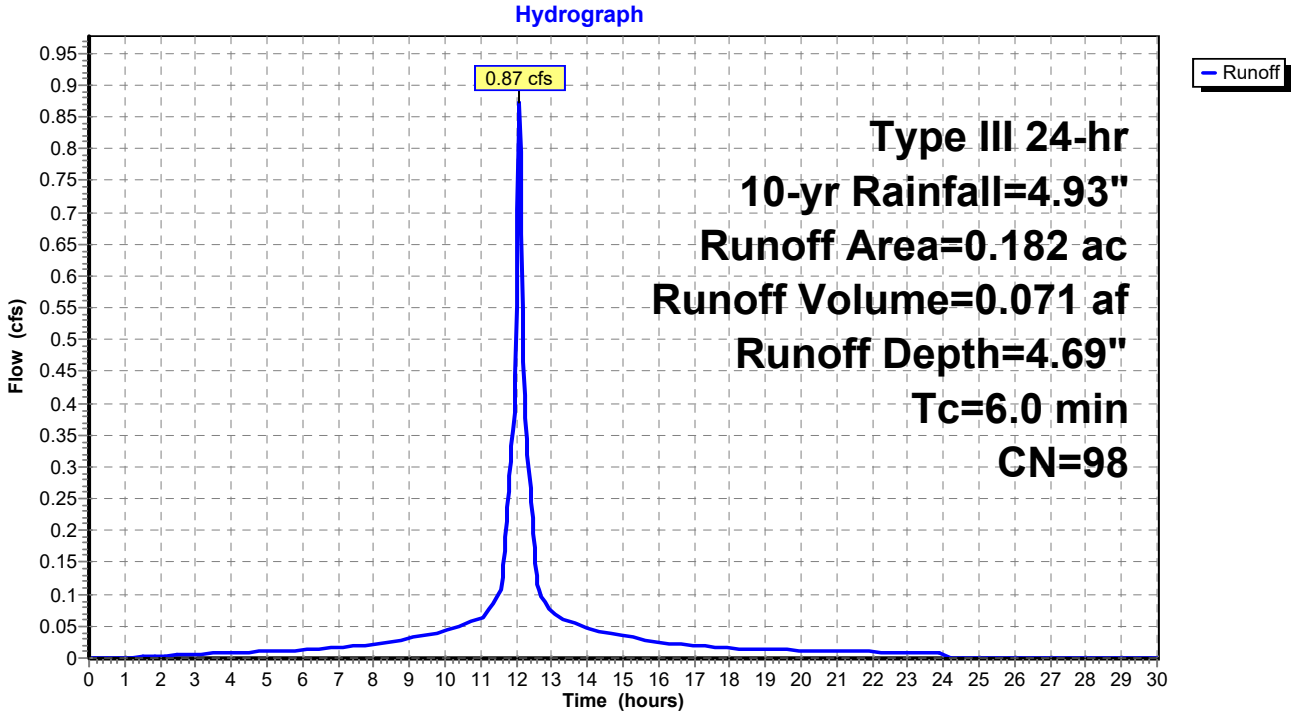
Subcatchment PR2: Overland to DP2



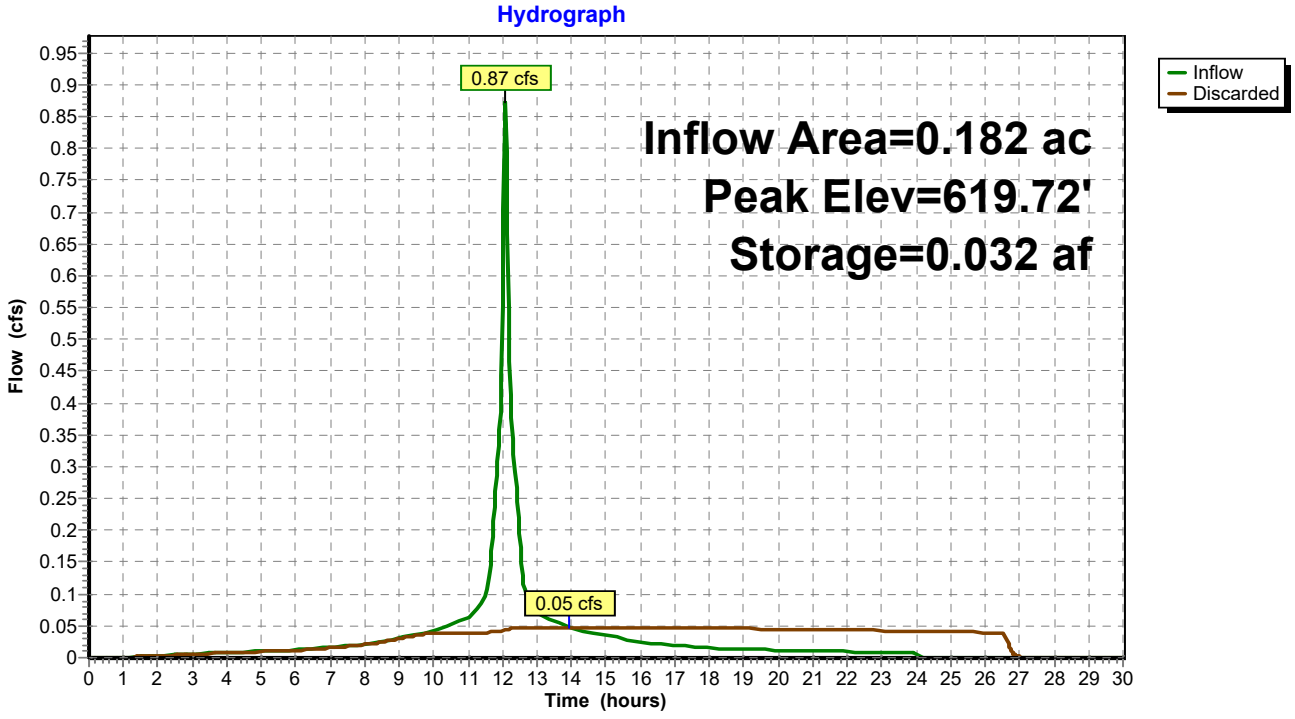
Subcatchment PR3: Proposed Site



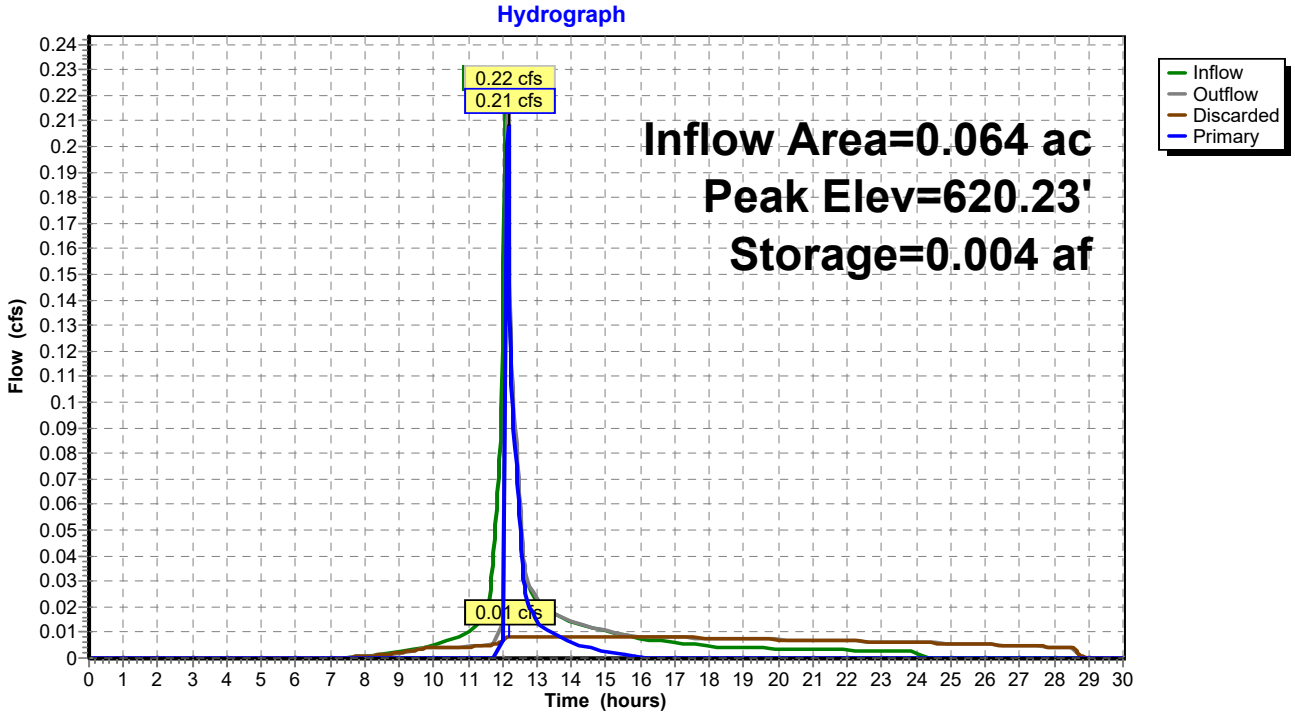
Subcatchment PR4: Building to Infiltration



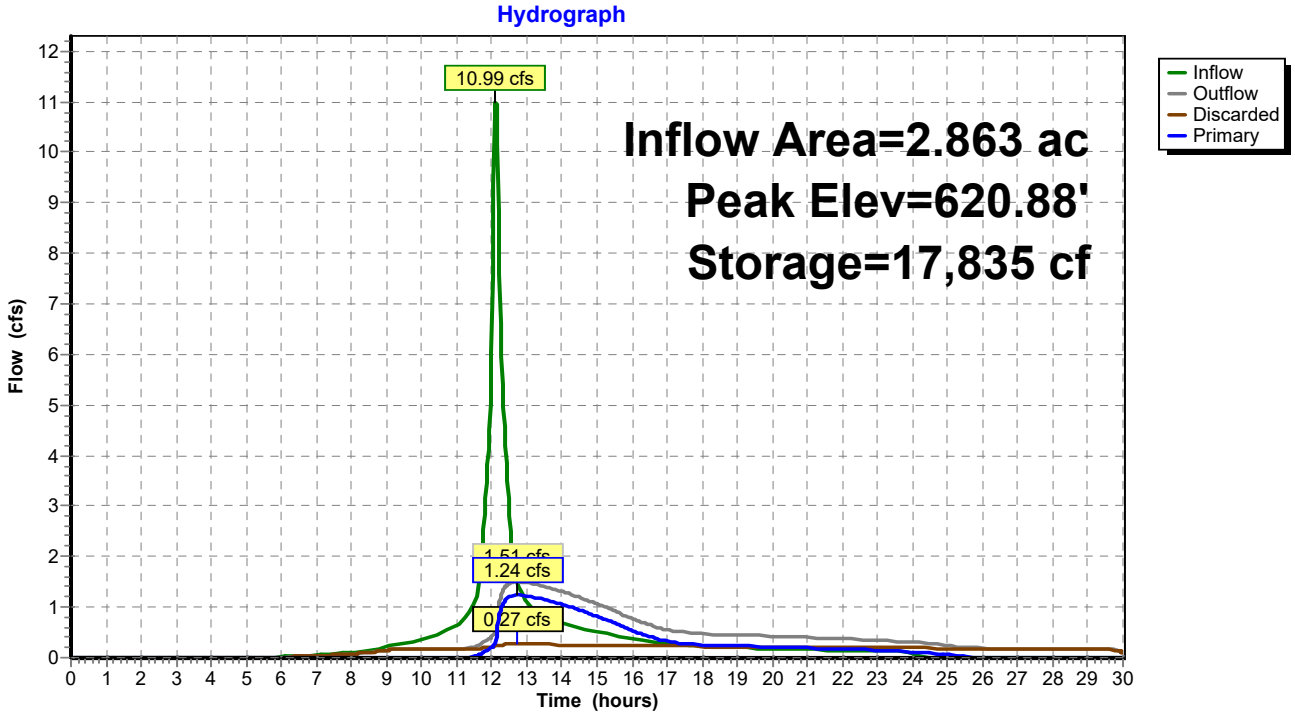
Pond 2P: North Infiltrators



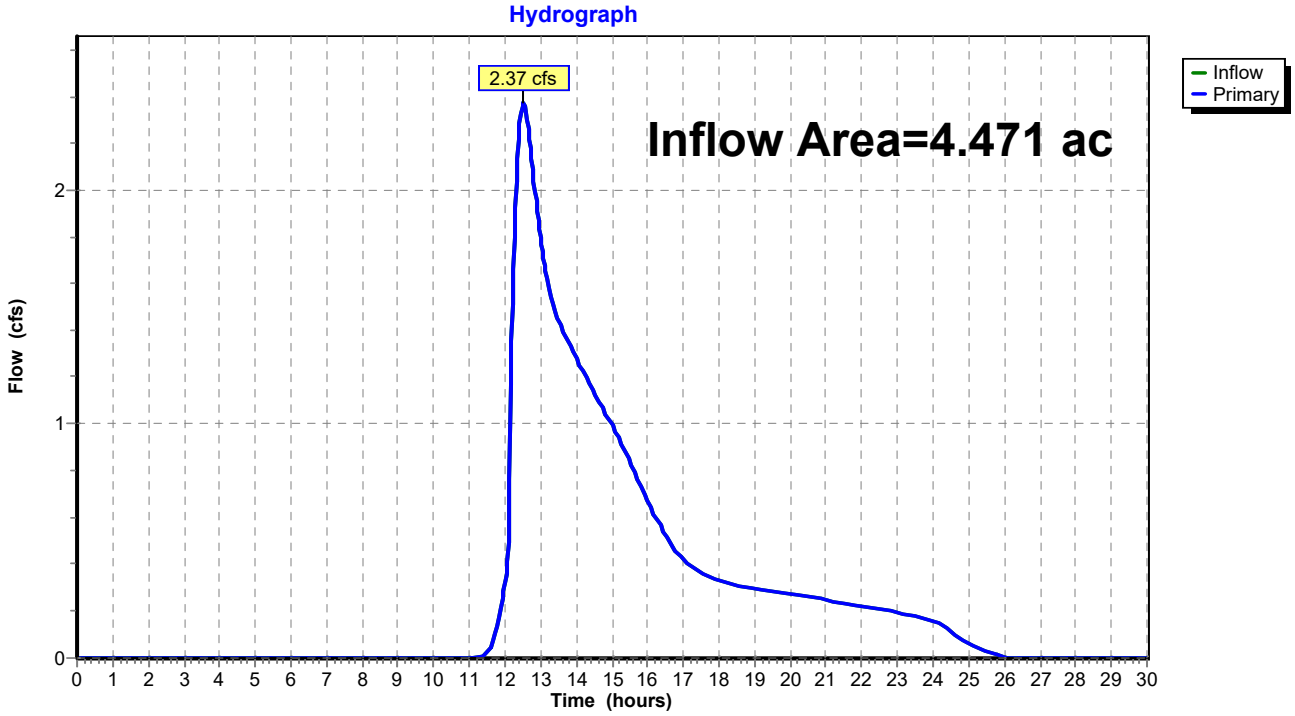
Pond 3P: South Infiltrators



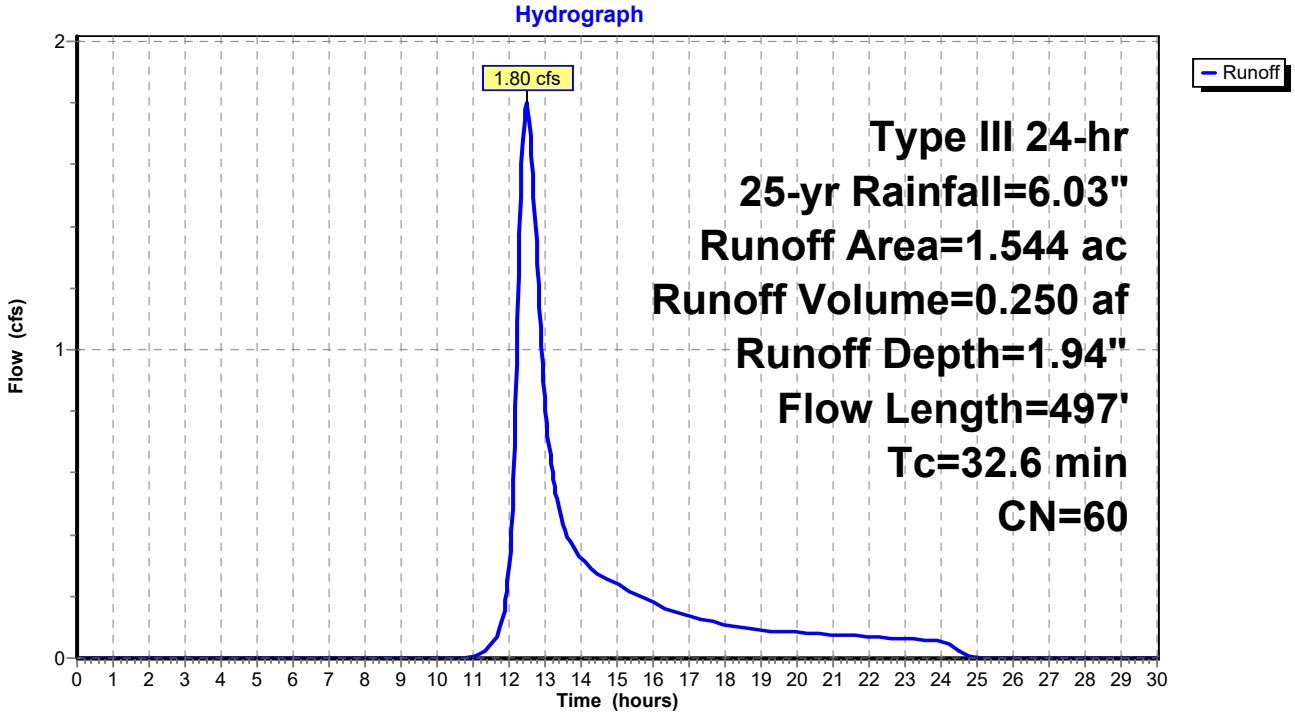
Pond P1: Infiltration Basin



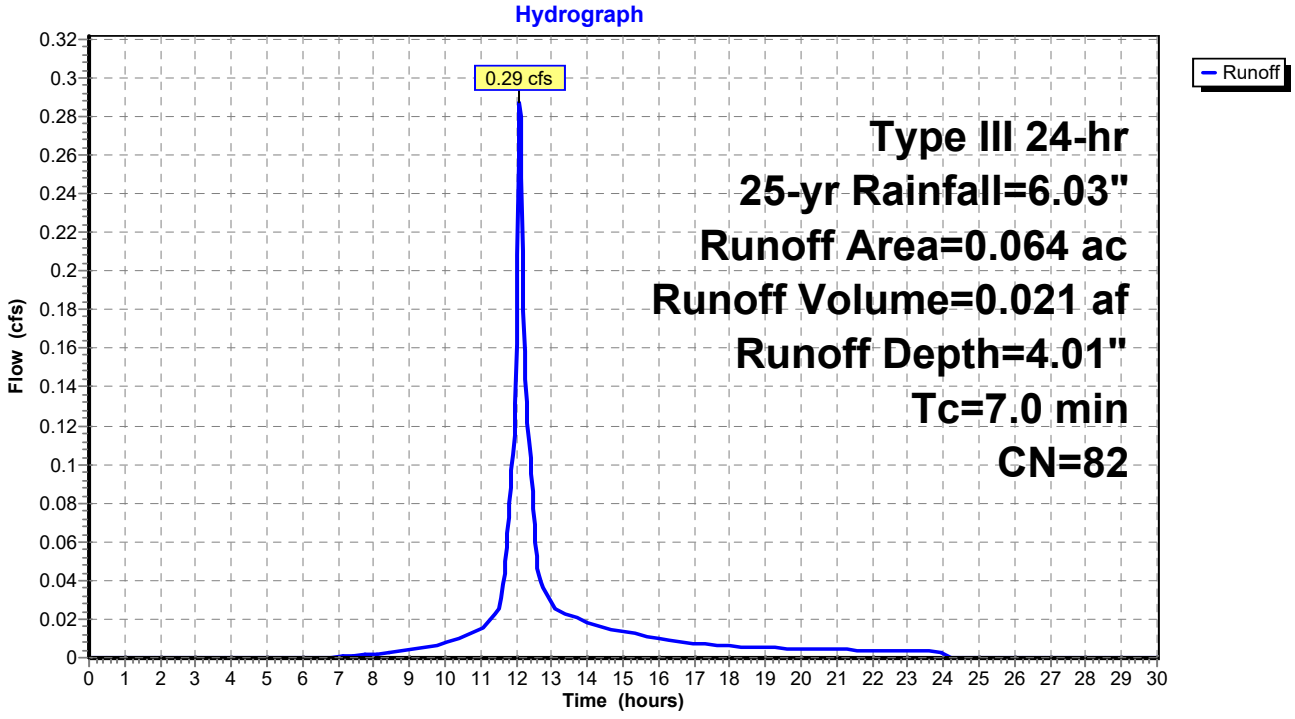
Link L1: DP1 - Proposed Site Conditions



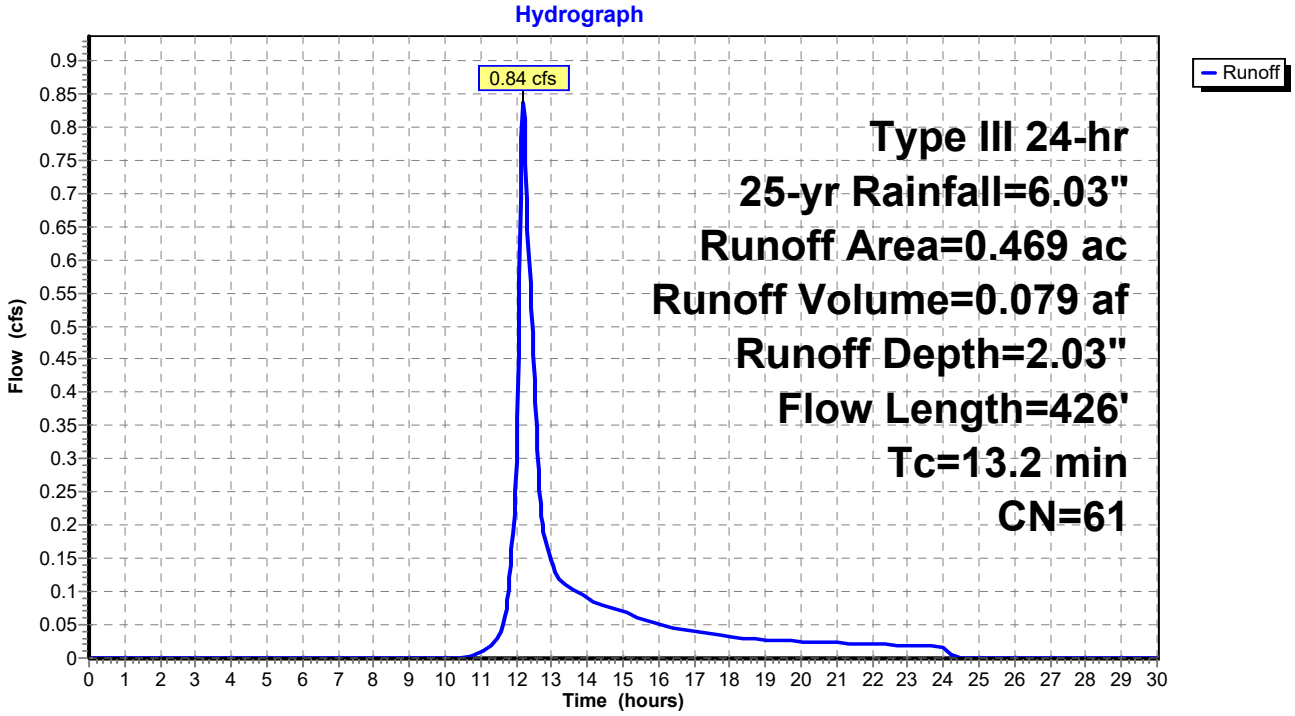
Subcatchment PR1: Overland to DP1



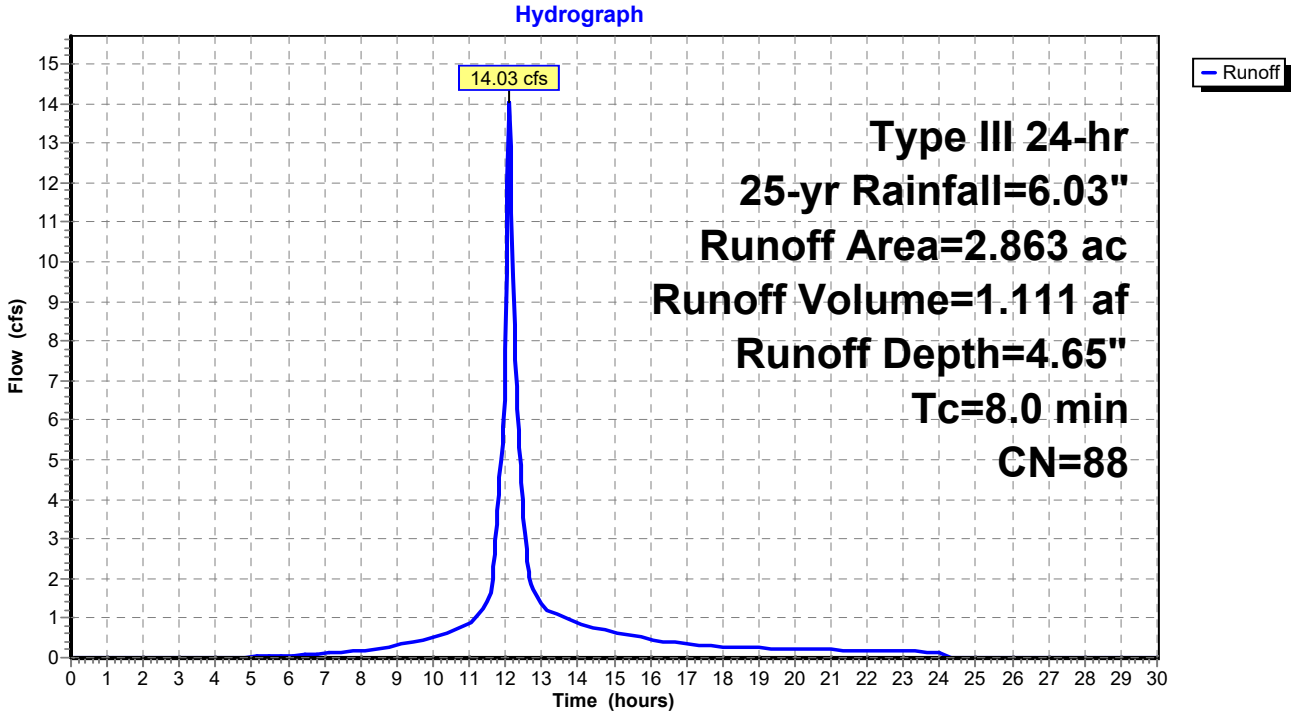
Subcatchment PR1A: CB 6-7



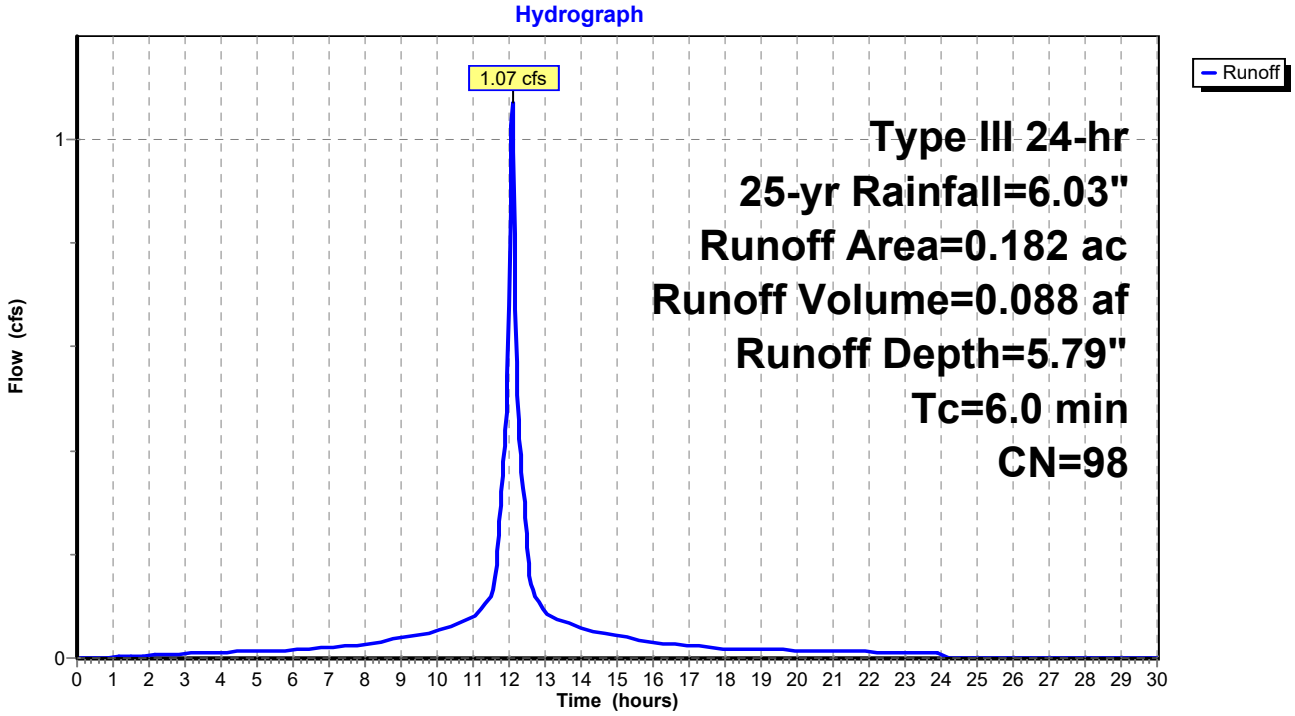
Subcatchment PR2: Overland to DP2



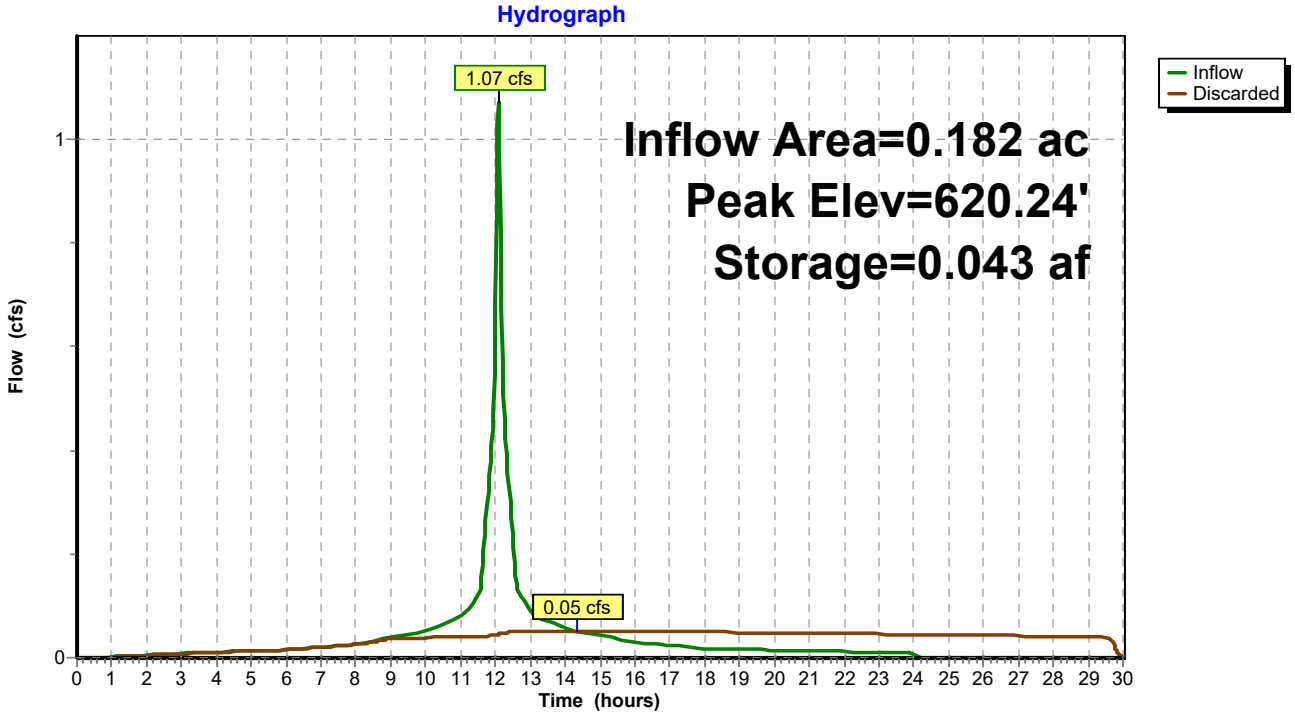
Subcatchment PR3: Proposed Site



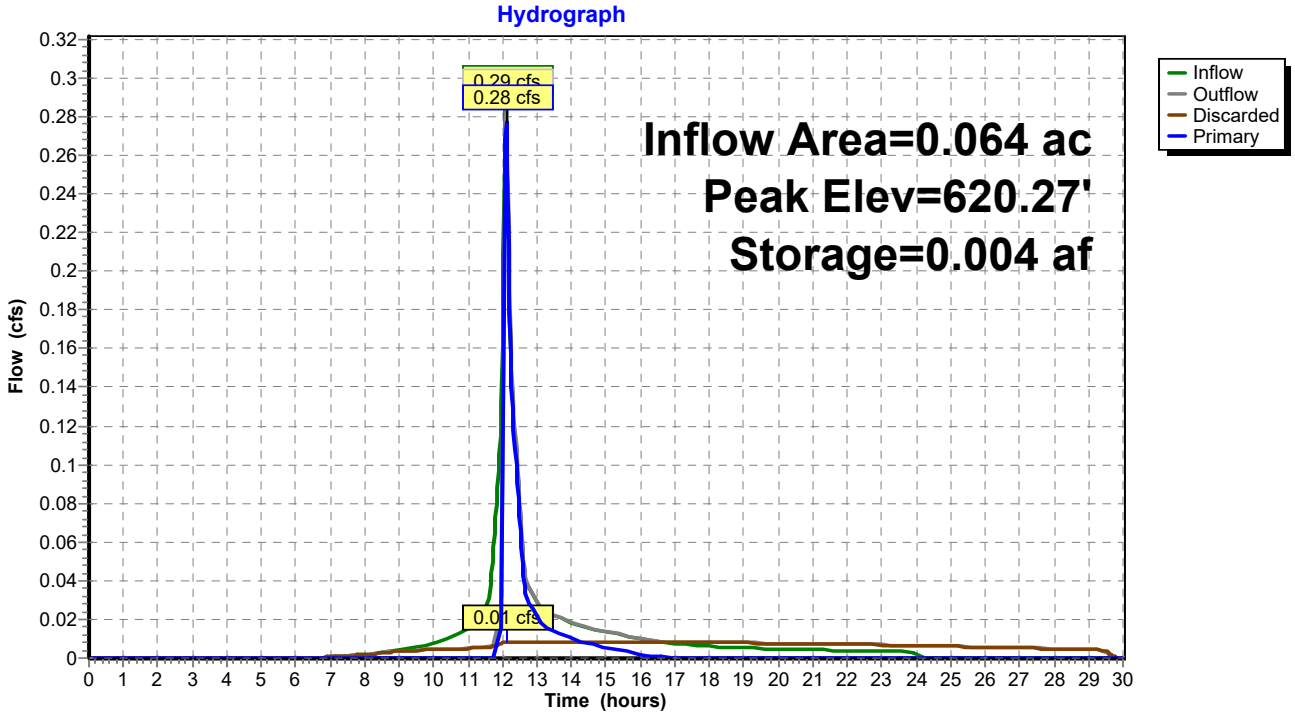
Subcatchment PR4: Building to Infiltration



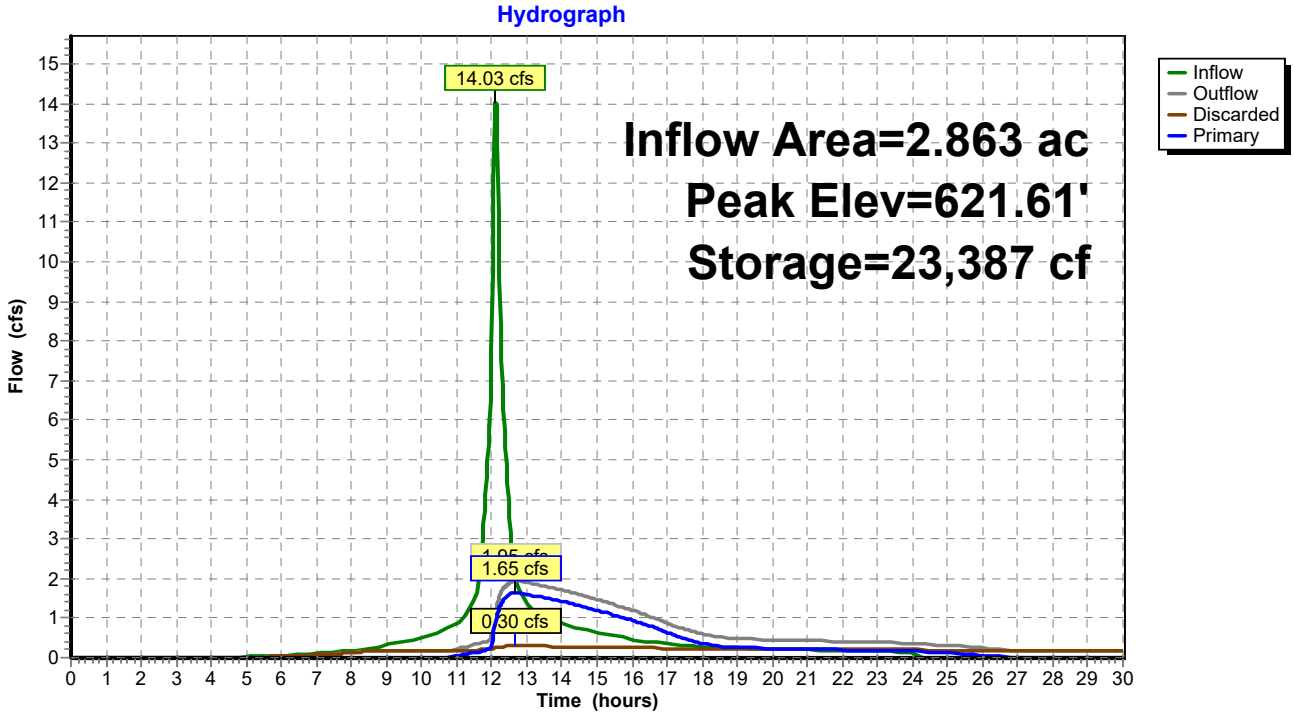
Pond 2P: North Infiltrators



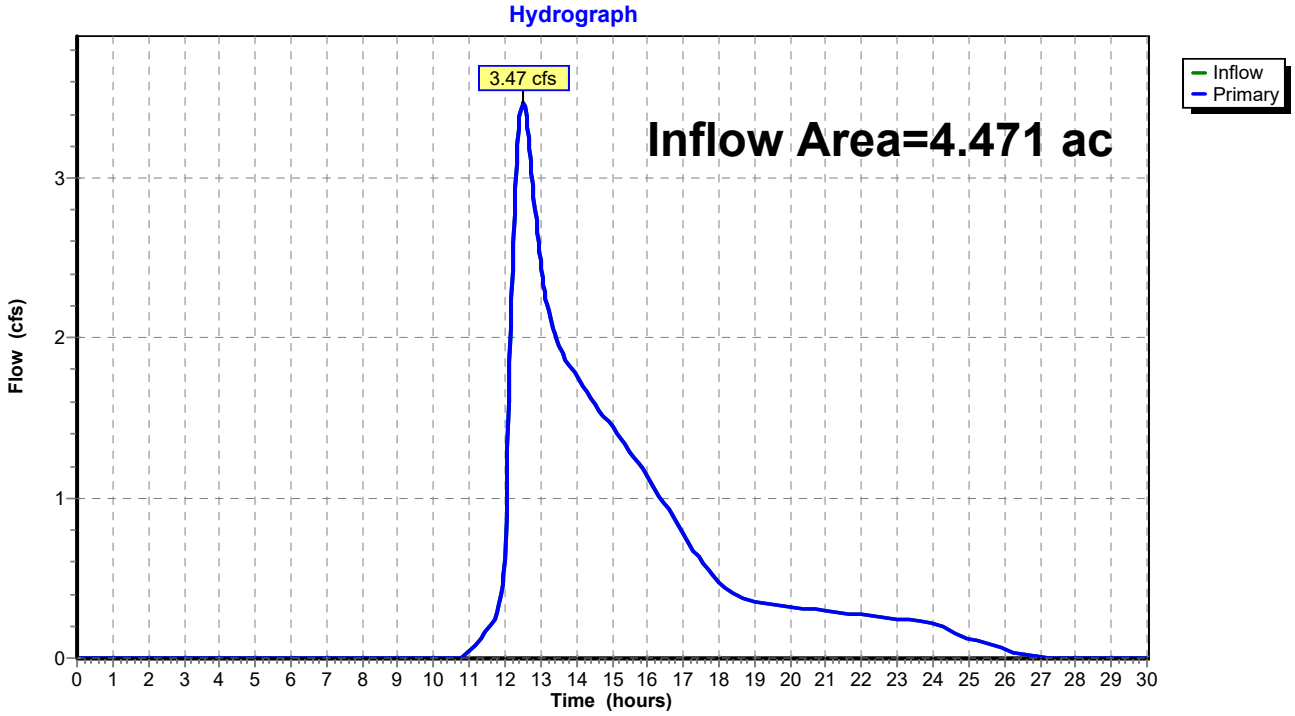
Pond 3P: South Infiltrators



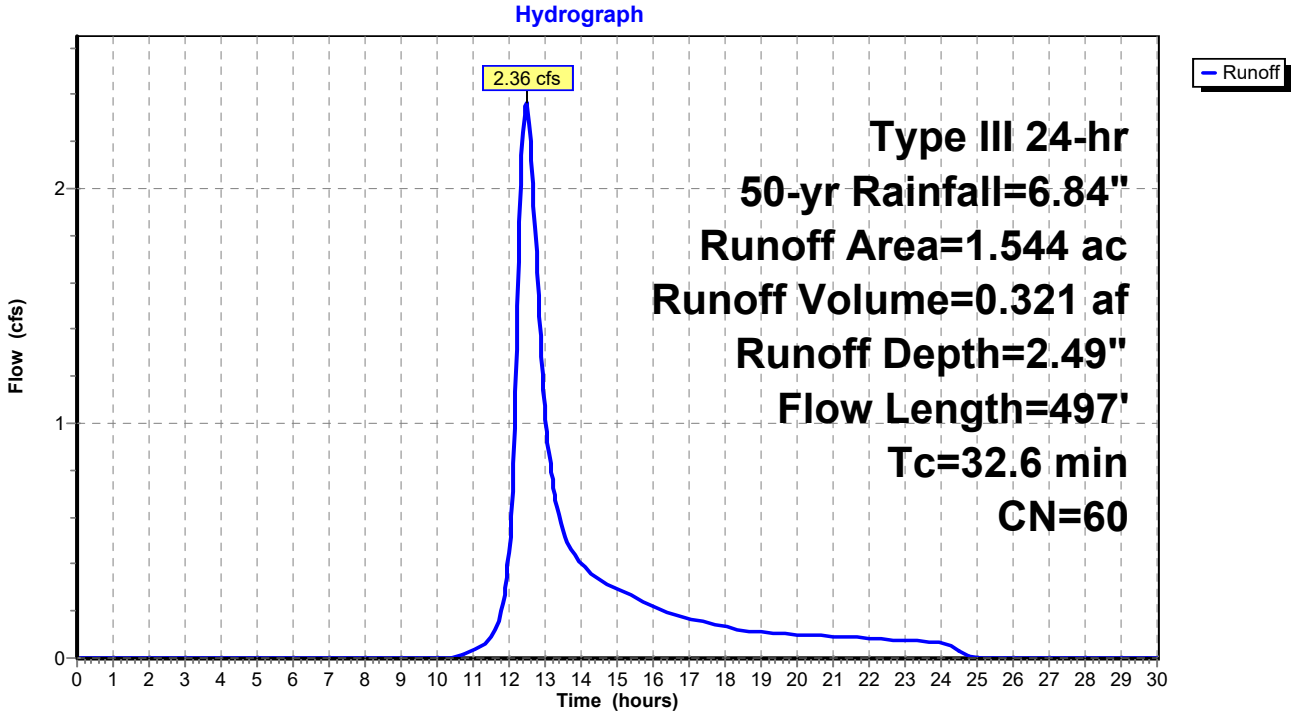
Pond P1: Infiltration Basin



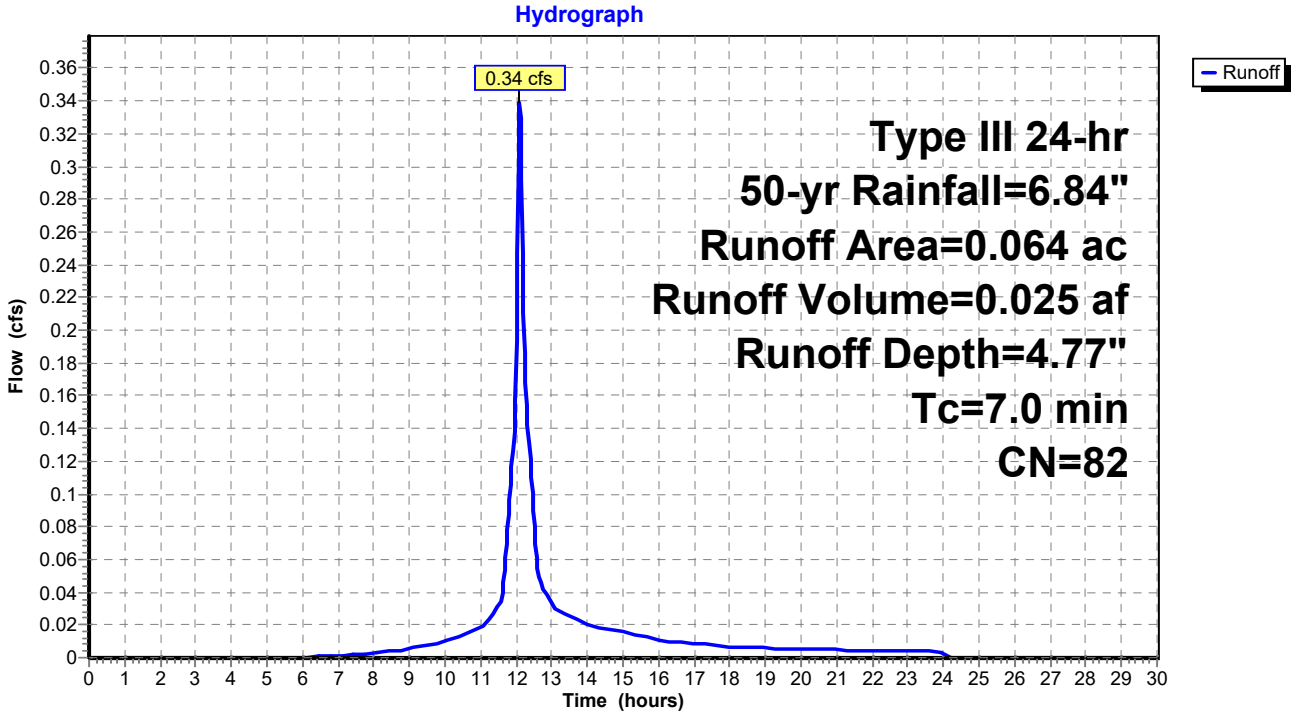
Link L1: DP1 - Proposed Site Conditions



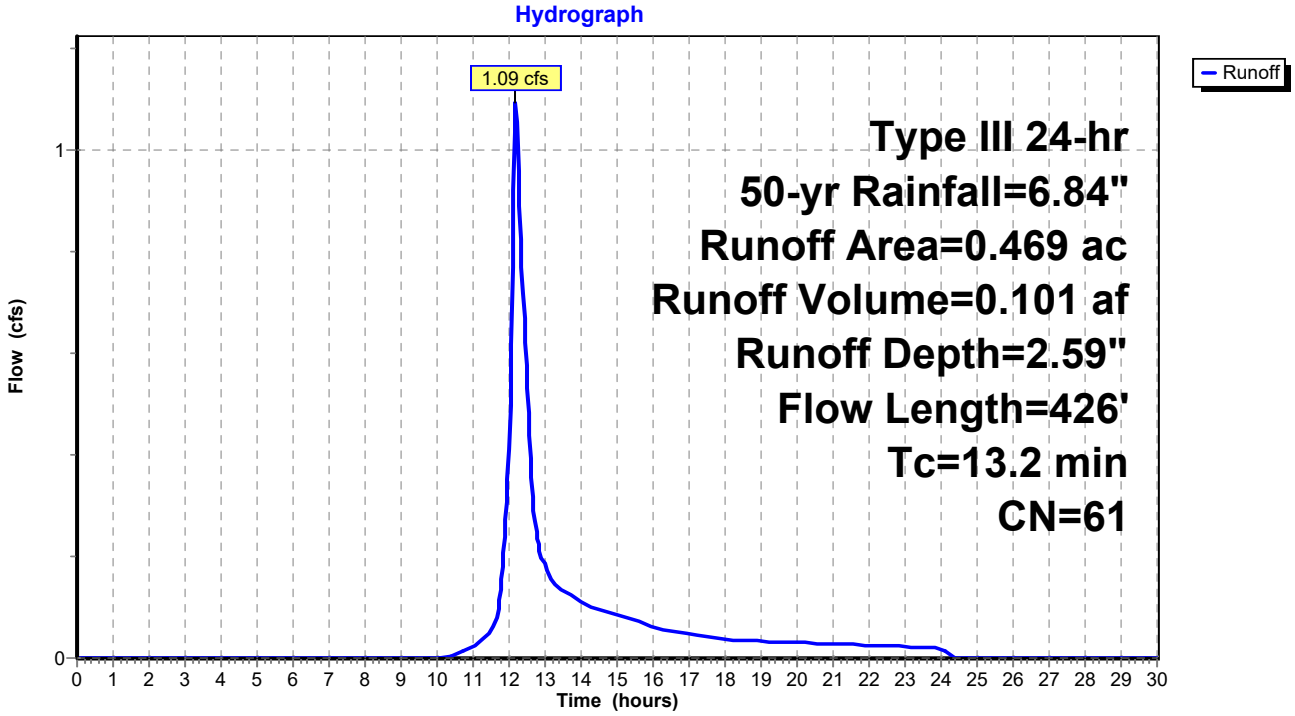
Subcatchment PR1: Overland to DP1



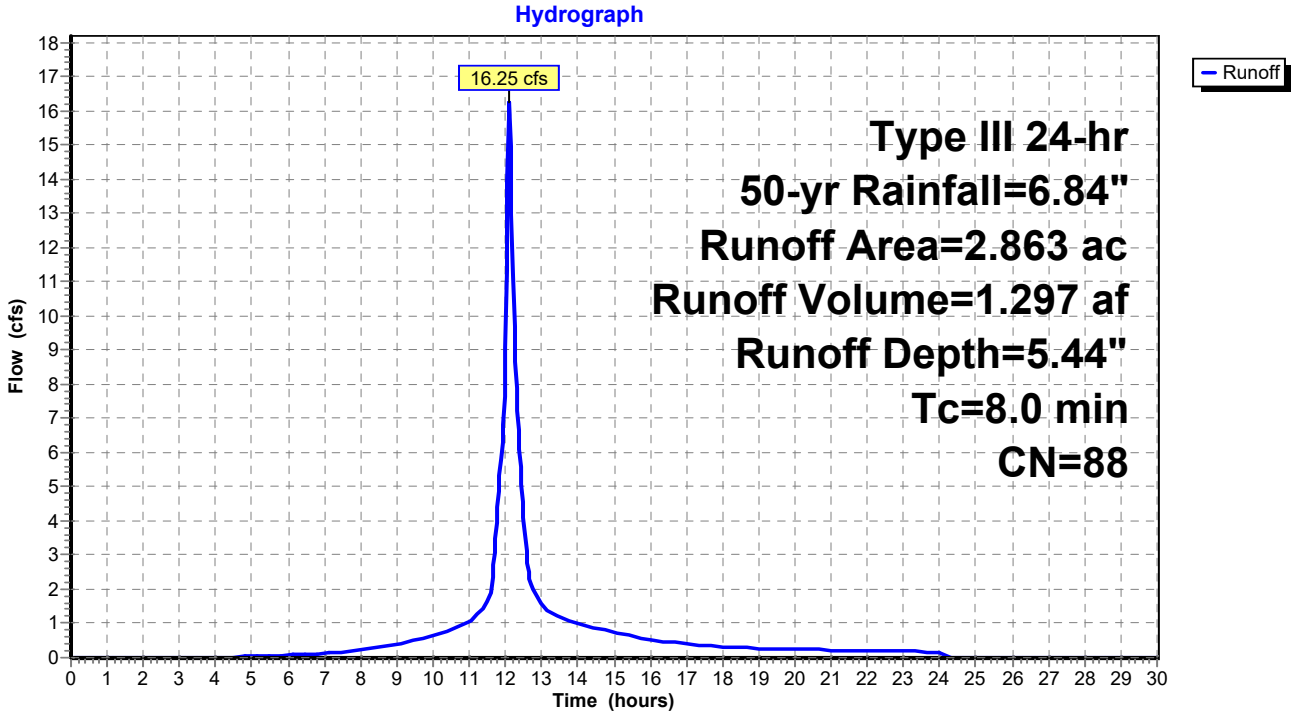
Subcatchment PR1A: CB 6-7



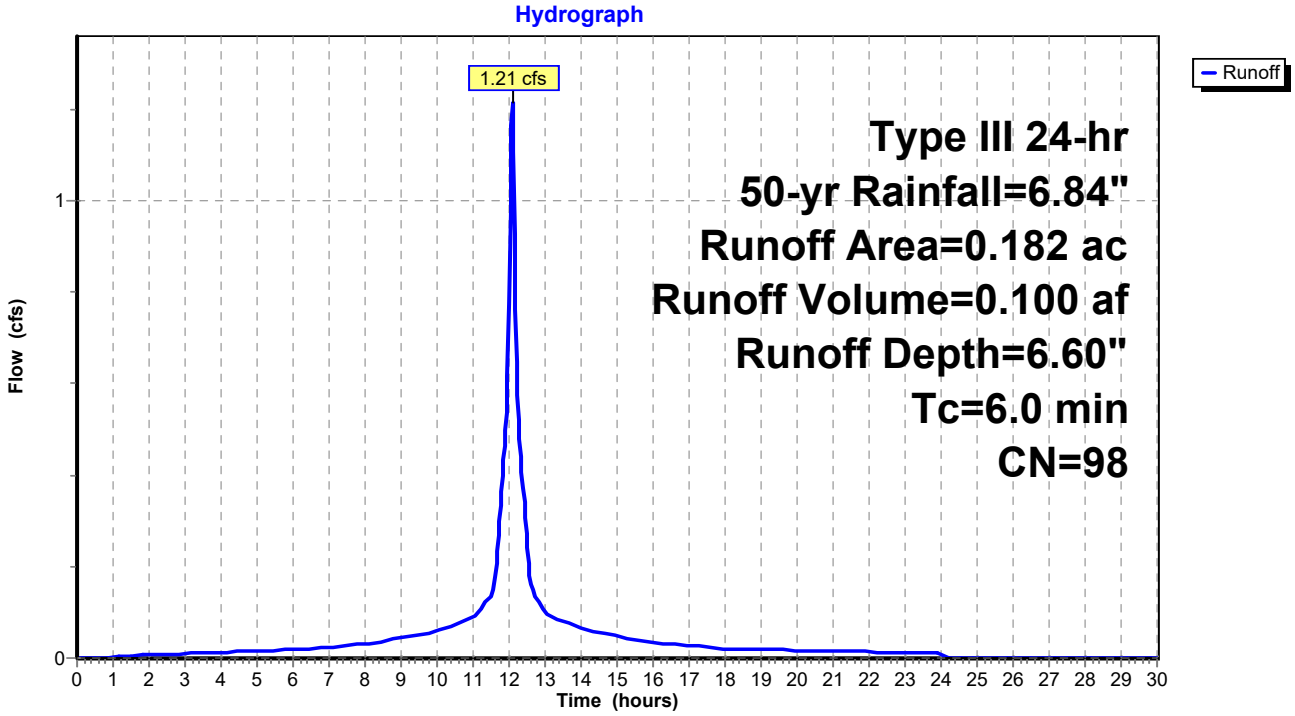
Subcatchment PR2: Overland to DP2



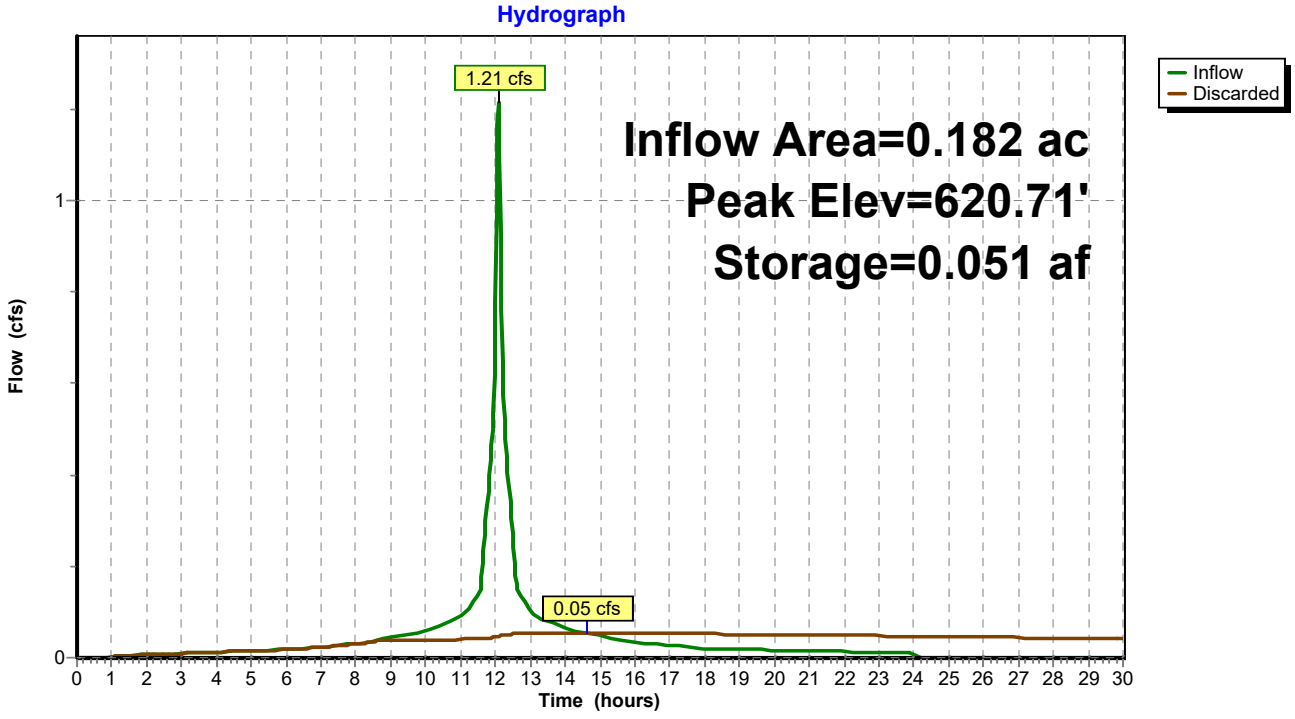
Subcatchment PR3: Proposed Site



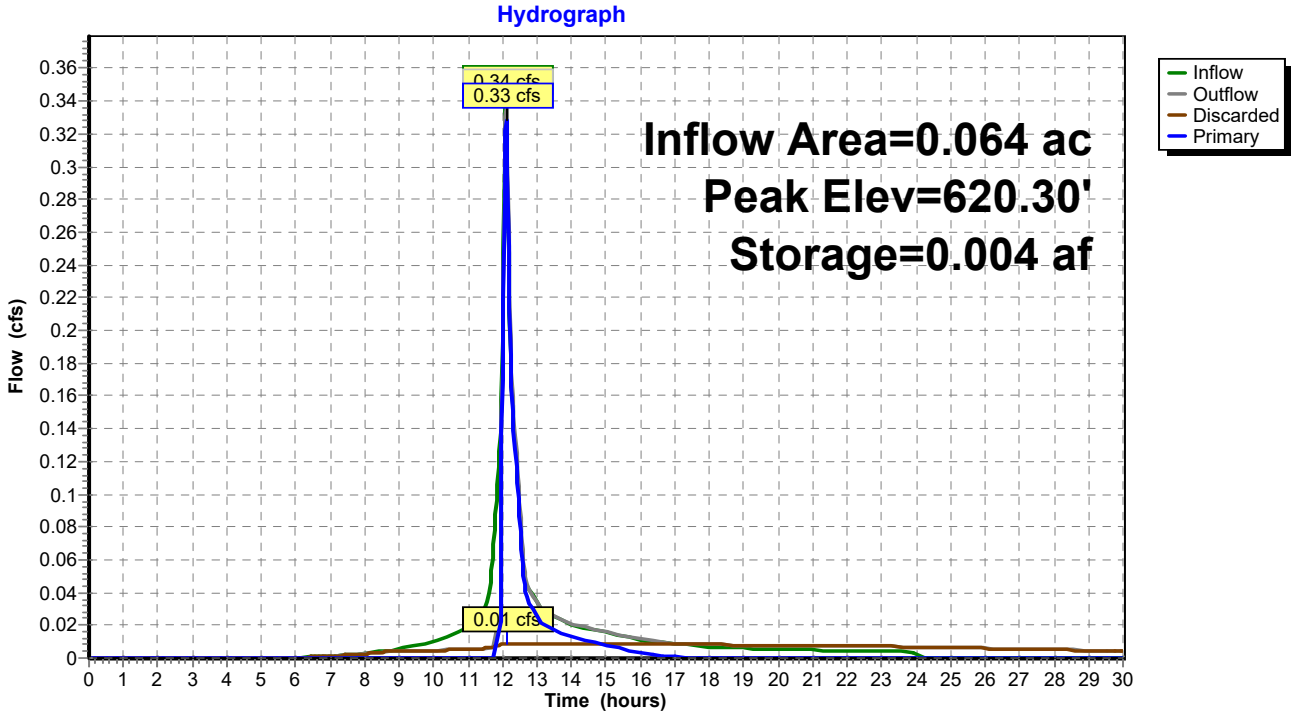
Subcatchment PR4: Building to Infiltration



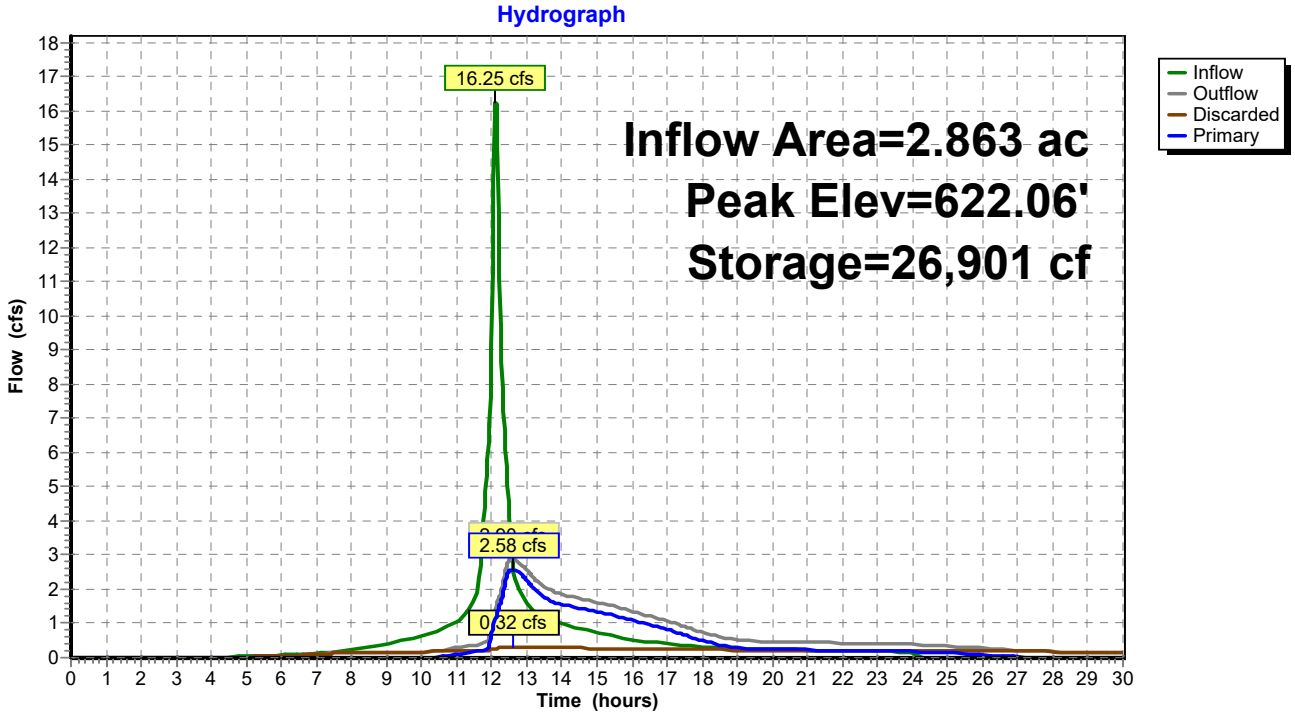
Pond 2P: North Infiltrators



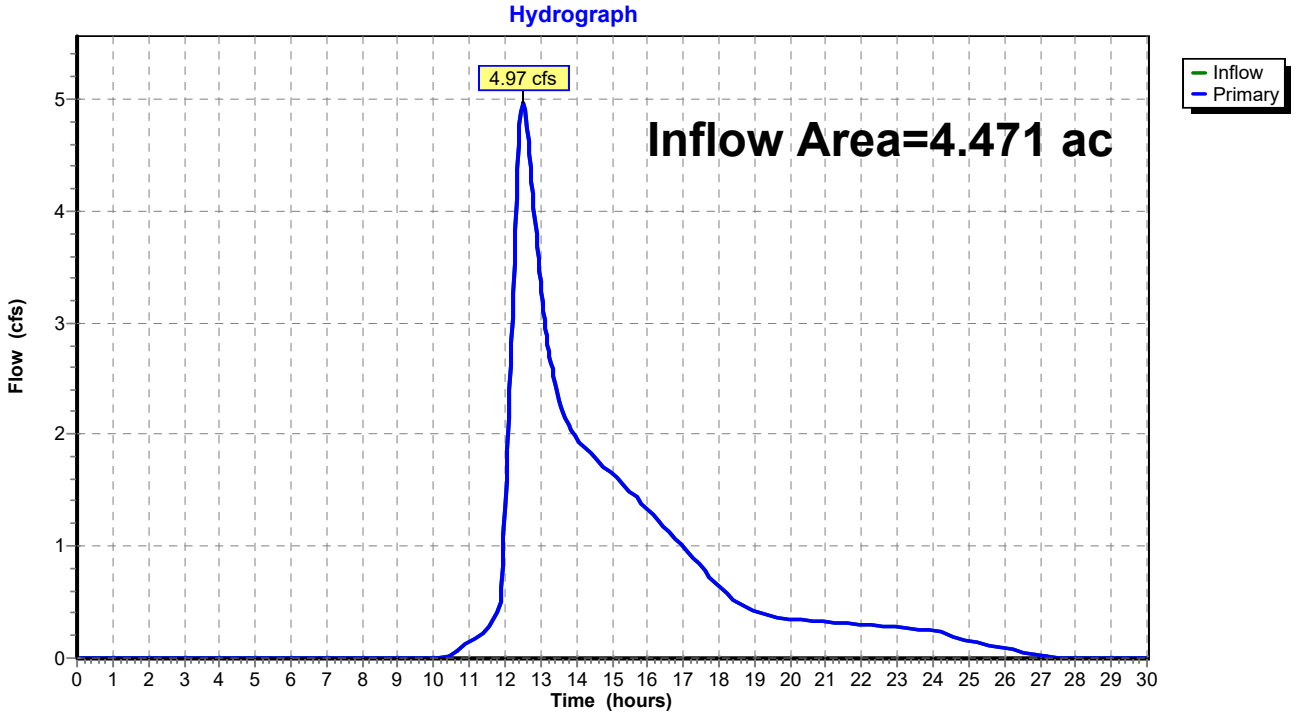
Pond 3P: South Infiltrators



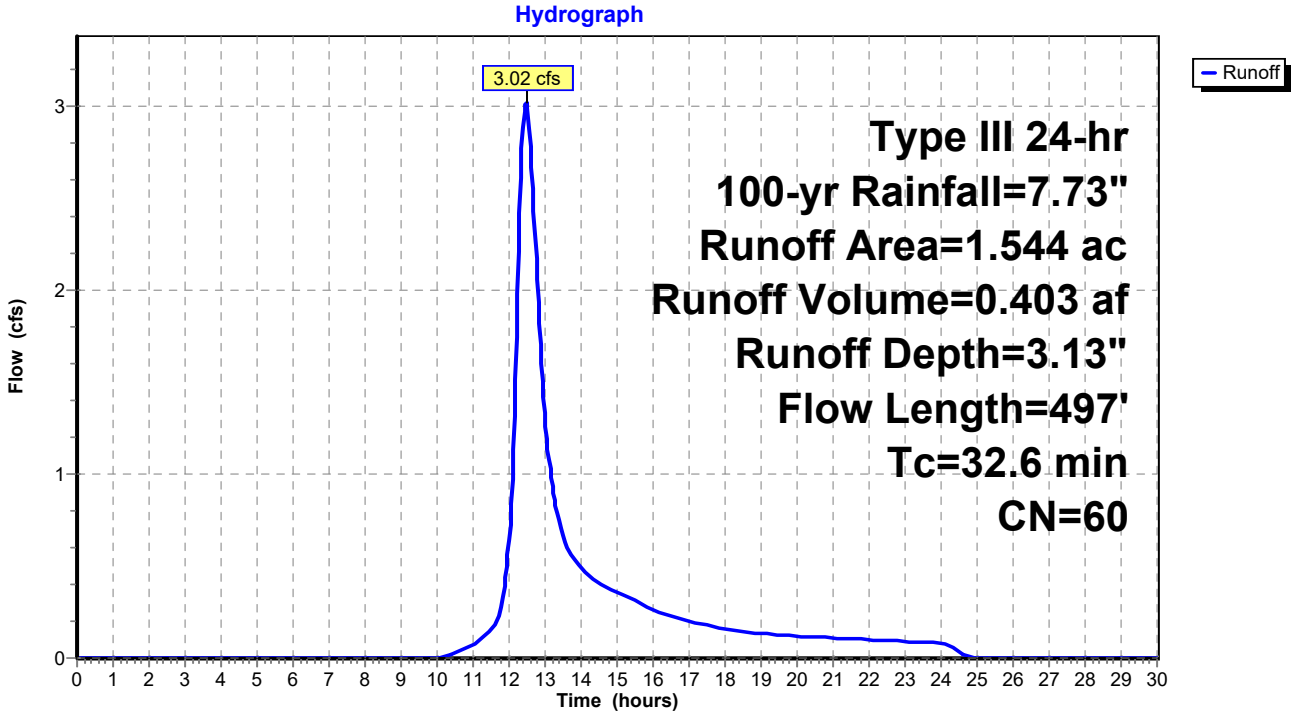
Pond P1: Infiltration Basin



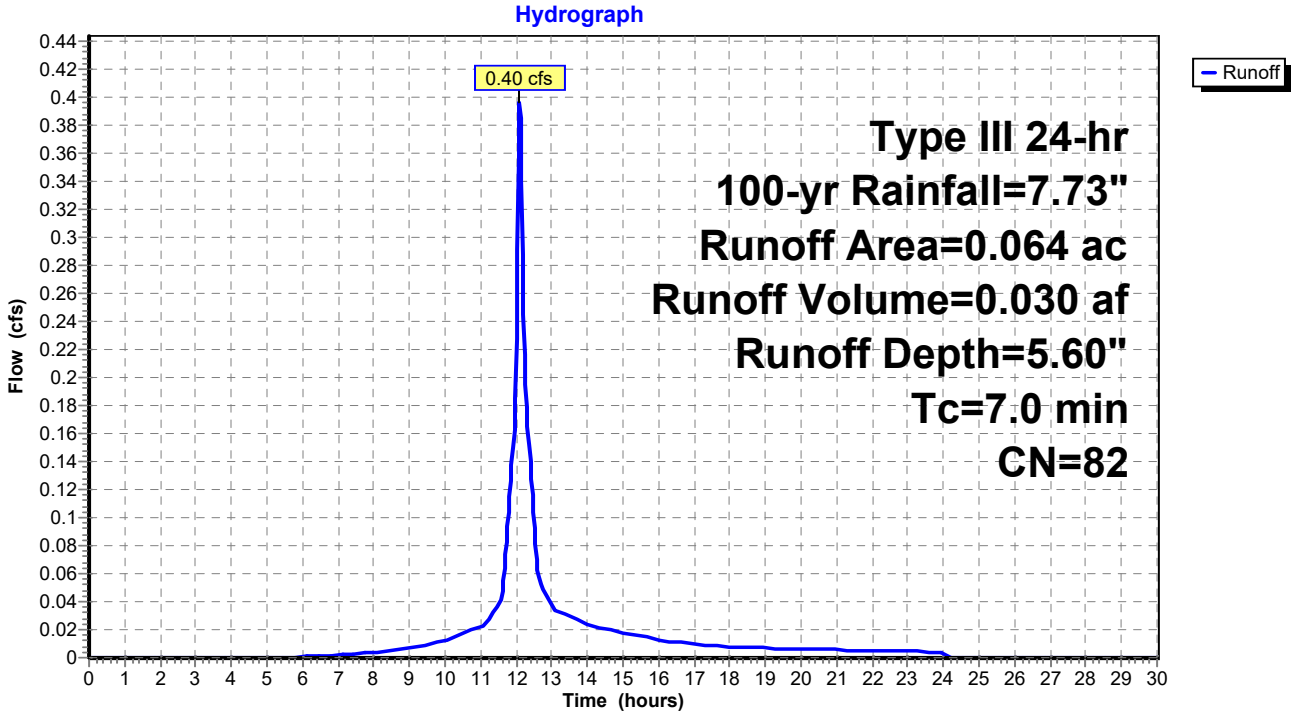
Link L1: DP1 - Proposed Site Conditions



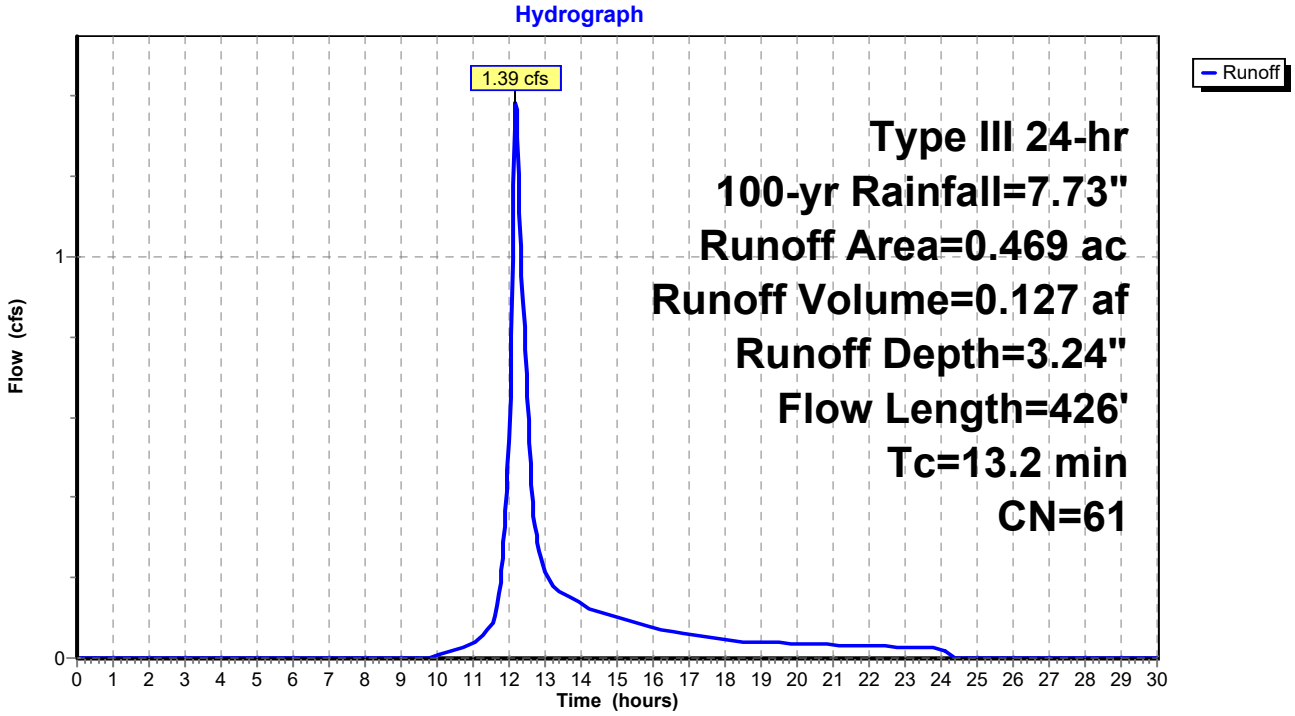
Subcatchment PR1: Overland to DP1



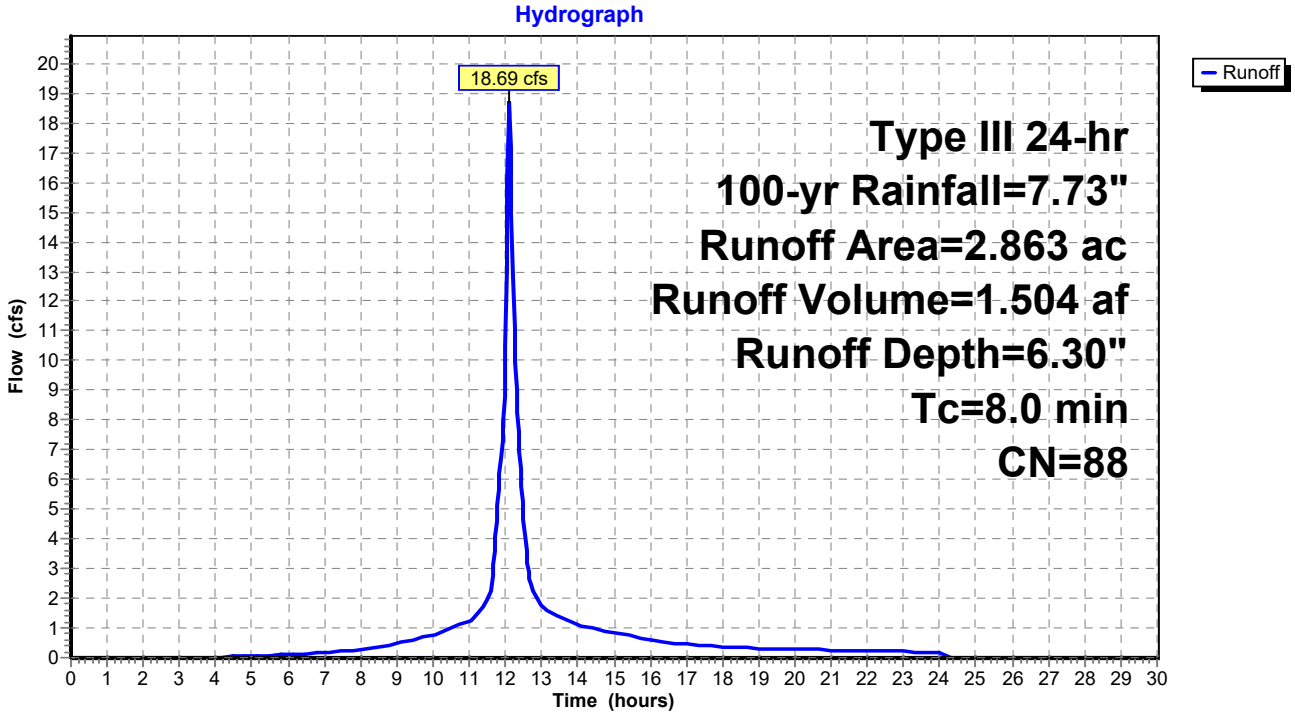
Subcatchment PR1A: CB 6-7



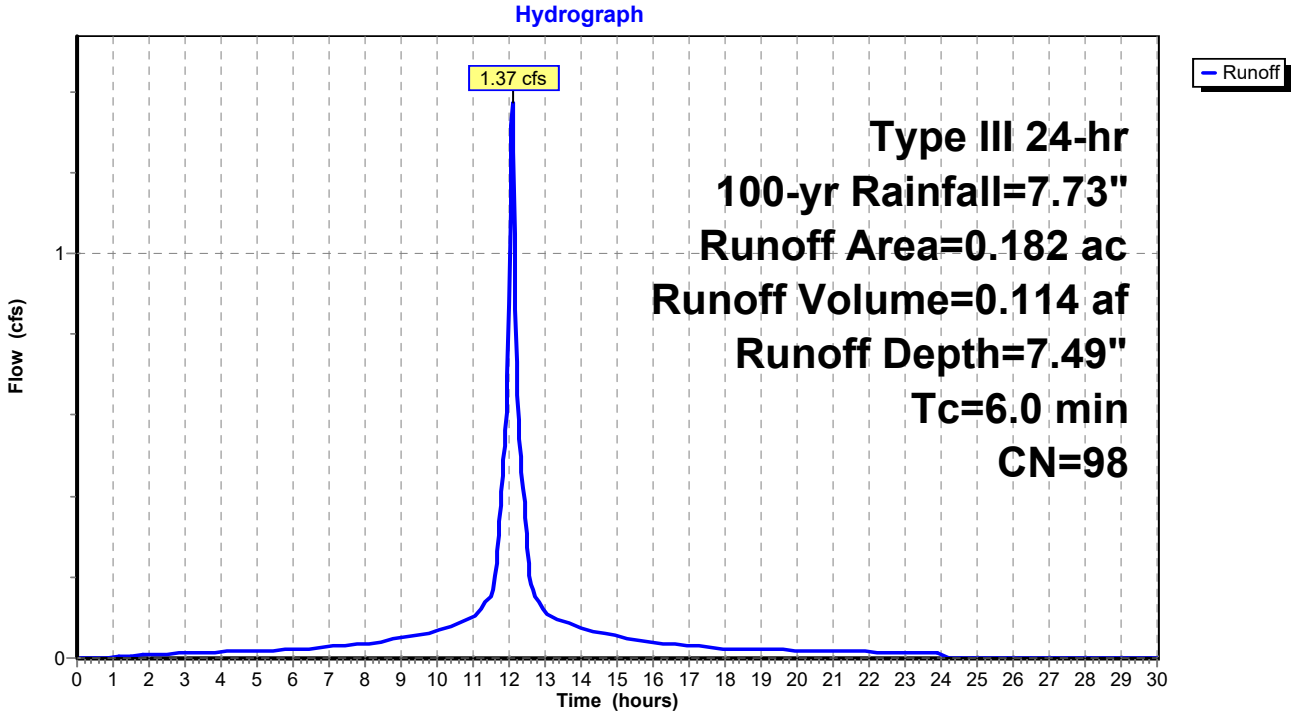
Subcatchment PR2: Overland to DP2



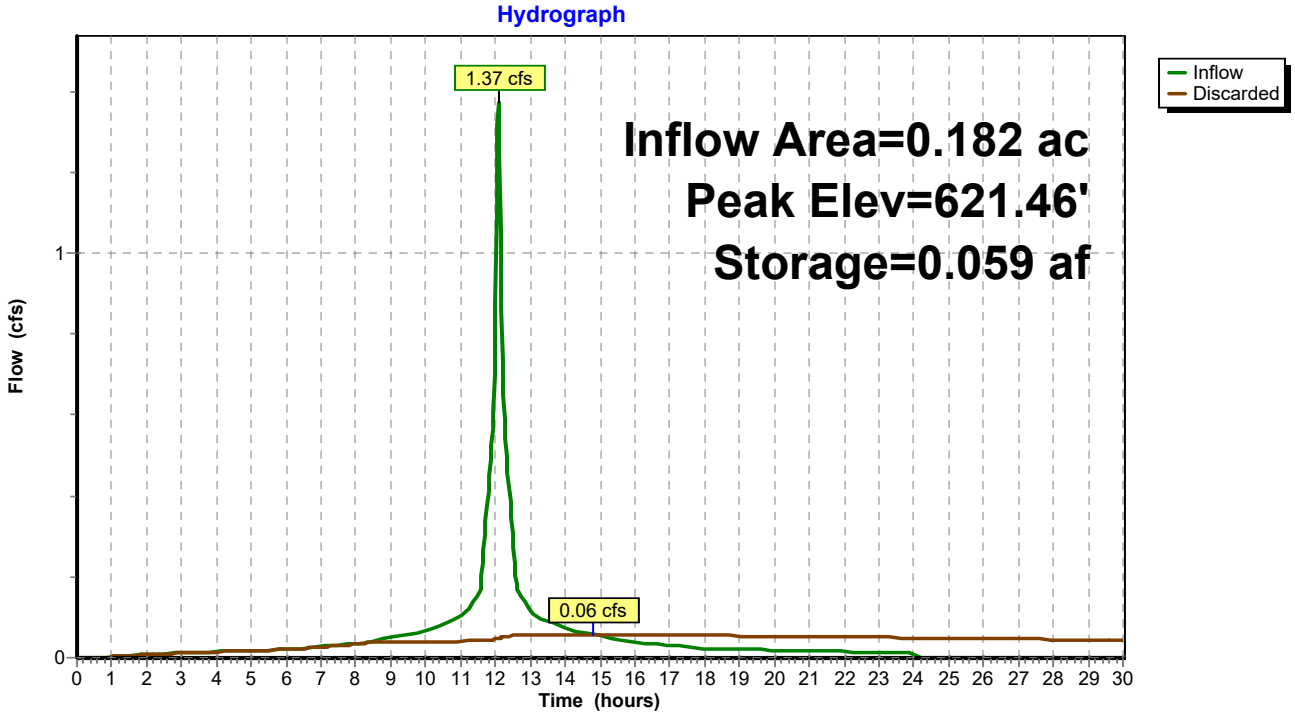
Subcatchment PR3: Proposed Site



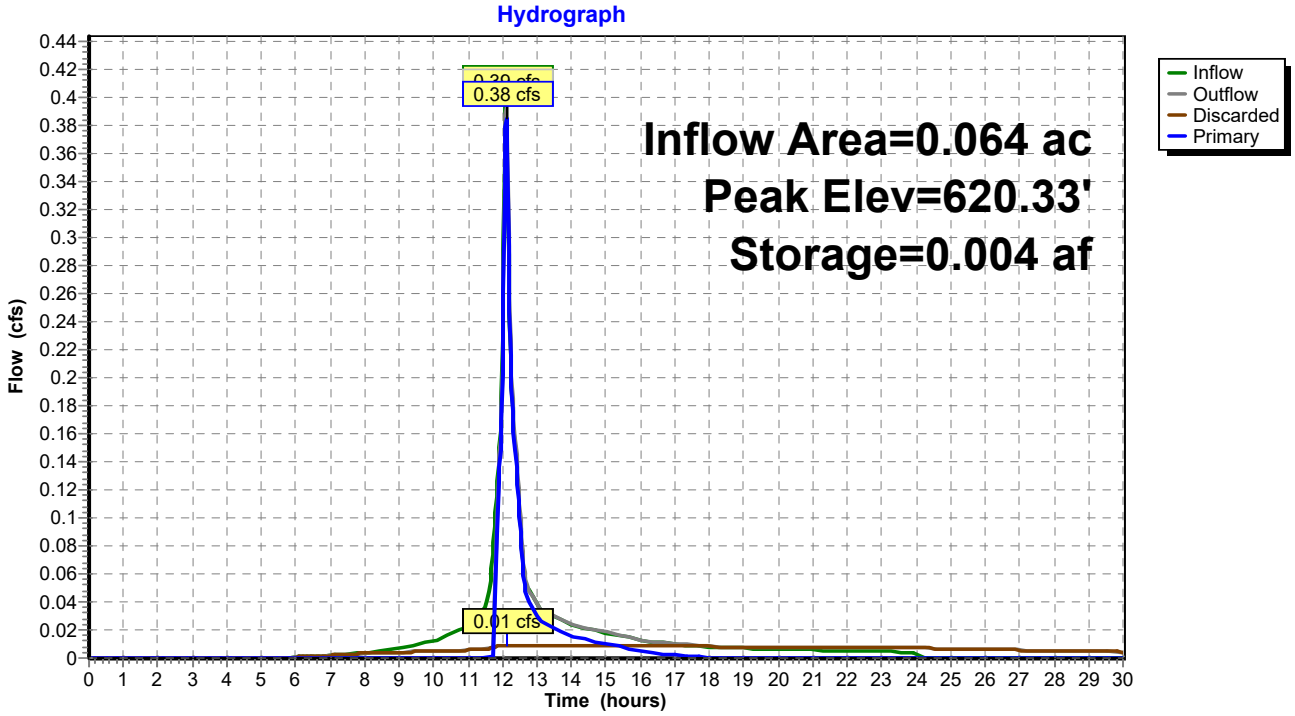
Subcatchment PR4: Building to Infiltration



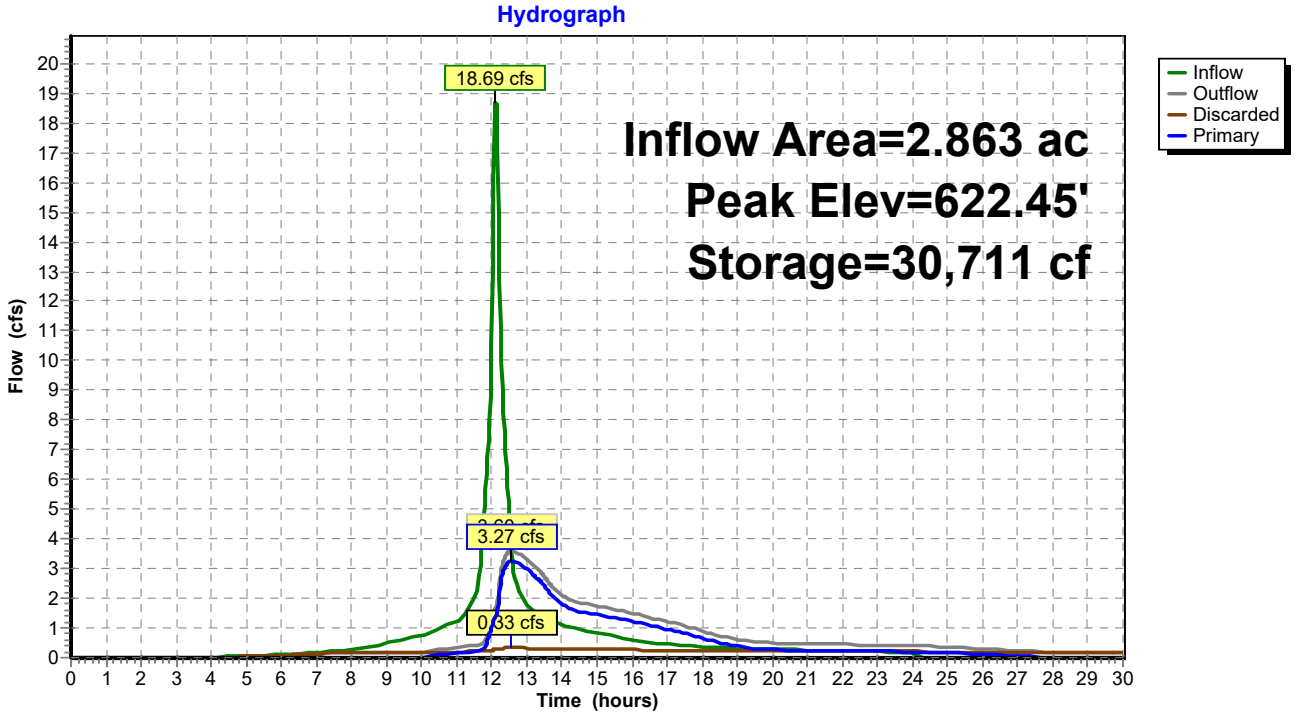
Pond 2P: North Infiltrators



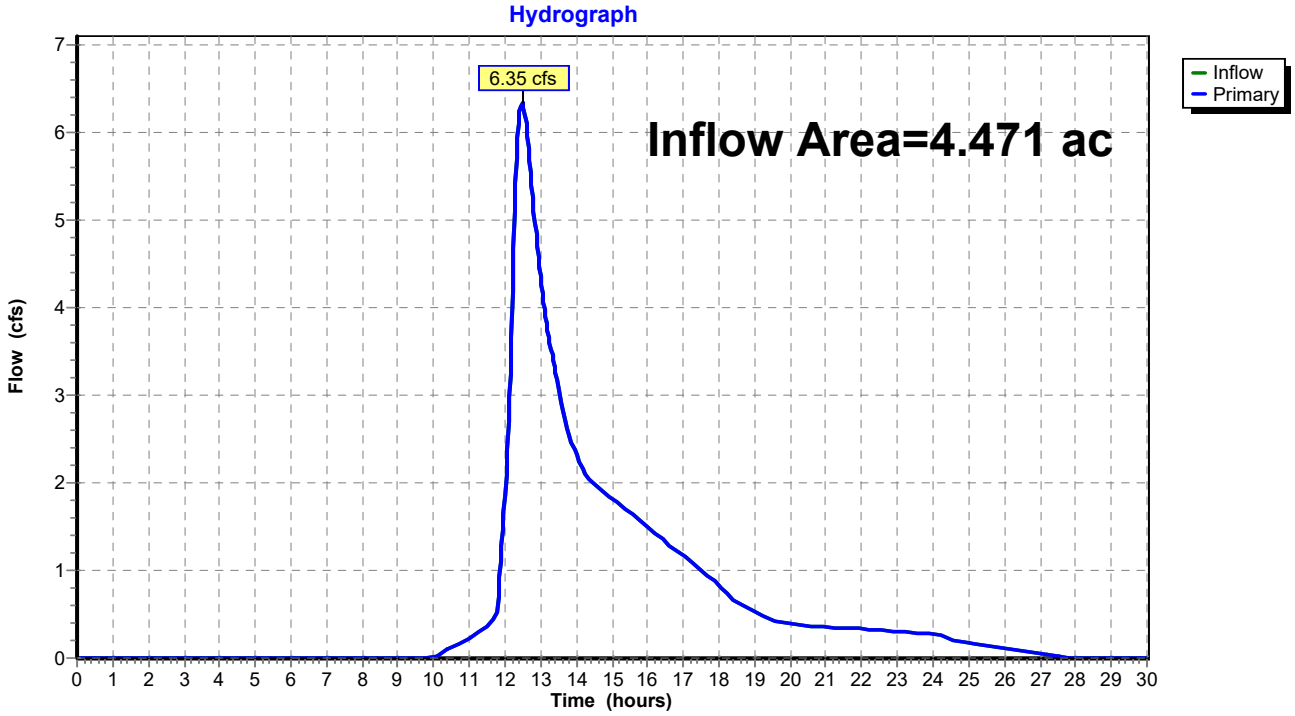
Pond 3P: South Infiltrators



Pond P1: Infiltration Basin



Link L1: DP1 - Proposed Site Conditions



APPENDIX C
NRCS Soil Map & Data

Soil Map—State of Connecticut
(Bolton Vet)

Map Scale: 1:2,010 if printed on A portrait (8.5" x 11") 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 18N 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 1:12,000.

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: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

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

Date(s) aerial images were photographed: Sep 3, 2019—Oct 22, 2019

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
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	2.0	10.6%
305	Udorthents-Pits complex, gravelly	7.0	37.7%
306	Udorthents-Urban land complex	9.6	51.7%
Totals for Area of Interest		**18.6**	**100.0%**

State of Connecticut

305—Udorthents-Pits complex, gravelly

Map Unit Setting

National map unit symbol: 9lmf
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 65 percent
Pits: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Gravelly outwash

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 24 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Pits

Typical profile

C - 0 to 65 inches: very gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Minor Components

Windsor

Percent of map unit: 2 percent
Landform: Terraces, outwash plains, kames
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Merrimac

Percent of map unit: 2 percent
Landform: Terraces, outwash plains, kames
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hinckley

Percent of map unit: 2 percent
Landform: Terraces, outwash plains, kames, eskers
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Gloucester

Percent of map unit: 2 percent
Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sudbury

Percent of map unit: 1 percent
Landform: Terraces, outwash plains
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ninigret

Percent of map unit: 1 percent
Landform: Terraces, outwash plains
Down-slope shape: Linear
Across-slope shape: Concave

Hydric soil rating: No

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

State of Connecticut

306—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lmg
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 50 percent
Urban land: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Drift

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 8 percent
Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

APPENDIX D
Precipitation Frequency

NOAA Atlas 14, Volume 10, Version 3
Location name: Bolton, Connecticut, USA*
Latitude: 41.7843°, Longitude: -72.4607°
Elevation: 630.43 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**3.96** (3.05-5.15)	**4.82** (3.71-6.26)	**6.23** (4.76-8.11)	**7.39** (5.63-9.68)	**8.99** (6.65-12.3)	**10.2** (7.40-14.2)	**11.5** (8.10-16.6)	**12.9** (8.65-19.1)	**15.0** (9.70-22.9)	**16.7** (10.6-26.0)
10-min	**2.81** (2.16-3.64)	**3.41** (2.62-4.44)	**4.41** (3.38-5.75)	**5.24** (3.98-6.86)	**6.37** (4.71-8.72)	**7.22** (5.24-10.1)	**8.12** (5.74-11.8)	**9.13** (6.13-13.5)	**10.6** (6.86-16.2)	**11.8** (7.48-18.4)
15-min	**2.20** (1.69-2.86)	**2.68** (2.06-3.48)	**3.46** (2.65-4.51)	**4.10** (3.13-5.38)	**5.00** (3.70-6.84)	**5.66** (4.11-7.92)	**6.37** (4.50-9.23)	**7.16** (4.81-10.6)	**8.32** (5.38-12.7)	**9.27** (5.86-14.4)
30-min	**1.49** (1.15-1.93)	**1.81** (1.39-2.36)	**2.34** (1.79-3.05)	**2.78** (2.12-3.64)	**3.38** (2.50-4.63)	**3.84** (2.78-5.36)	**4.31** (3.05-6.25)	**4.85** (3.25-7.17)	**5.63** (3.65-8.61)	**6.28** (3.97-9.78)
60-min	**0.940** (0.722-1.22)	**1.14** (0.878-1.49)	**1.48** (1.13-1.92)	**1.75** (1.33-2.30)	**2.13** (1.58-2.92)	**2.42** (1.76-3.38)	**2.72** (1.92-3.94)	**3.06** (2.05-4.53)	**3.55** (2.30-5.43)	**3.96** (2.51-6.17)
2-hr	**0.606** (0.468-0.782)	**0.733** (0.566-0.948)	**0.941** (0.724-1.22)	**1.11** (0.852-1.45)	**1.35** (1.01-1.85)	**1.53** (1.12-2.13)	**1.72** (1.23-2.50)	**1.95** (1.31-2.86)	**2.29** (1.49-3.48)	**2.58** (1.64-4.00)
3-hr	**0.466** (0.361-0.599)	**0.562** (0.435-0.725)	**0.720** (0.556-0.932)	**0.851** (0.653-1.11)	**1.03** (0.772-1.41)	**1.17** (0.856-1.63)	**1.31** (0.942-1.91)	**1.49** (1.00-2.18)	**1.76** (1.15-2.67)	**2.00** (1.27-3.08)
6-hr	**0.295** (0.230-0.378)	**0.356** (0.277-0.457)	**0.457** (0.354-0.588)	**0.541** (0.417-0.699)	**0.655** (0.492-0.890)	**0.740** (0.546-1.03)	**0.833** (0.602-1.21)	**0.948** (0.641-1.38)	**1.13** (0.734-1.69)	**1.28** (0.817-1.96)
12-hr	**0.181** (0.142-0.231)	**0.220** (0.172-0.281)	**0.284** (0.221-0.364)	**0.337** (0.261-0.434)	**0.410** (0.309-0.553)	**0.464** (0.344-0.640)	**0.522** (0.379-0.751)	**0.595** (0.403-0.860)	**0.706** (0.462-1.06)	**0.802** (0.513-1.22)
24-hr	**0.107** (0.084-0.136)	**0.132** (0.104-0.167)	**0.172** (0.135-0.219)	**0.205** (0.160-0.263)	**0.251** (0.191-0.338)	**0.285** (0.212-0.392)	**0.322** (0.235-0.462)	**0.368** (0.251-0.530)	**0.440** (0.289-0.654)	**0.503** (0.323-0.760)
2-day	**0.060** (0.048-0.076)	**0.075** (0.059-0.095)	**0.100** (0.078-0.127)	**0.120** (0.094-0.153)	**0.148** (0.113-0.198)	**0.168** (0.126-0.231)	**0.191** (0.141-0.274)	**0.220** (0.150-0.315)	**0.267** (0.176-0.394)	**0.309** (0.199-0.463)
3-day	**0.044** (0.035-0.055)	**0.055** (0.043-0.069)	**0.073** (0.057-0.092)	**0.087** (0.069-0.111)	**0.108** (0.083-0.144)	**0.123** (0.092-0.168)	**0.139** (0.103-0.200)	**0.161** (0.110-0.229)	**0.196** (0.129-0.288)	**0.227** (0.146-0.339)
4-day	**0.035** (0.028-0.044)	**0.044** (0.035-0.055)	**0.058** (0.046-0.073)	**0.070** (0.055-0.089)	**0.086** (0.066-0.115)	**0.098** (0.074-0.134)	**0.111** (0.083-0.159)	**0.129** (0.088-0.183)	**0.157** (0.103-0.230)	**0.181** (0.117-0.270)
7-day	**0.024** (0.019-0.030)	**0.029** (0.023-0.037)	**0.039** (0.031-0.048)	**0.046** (0.036-0.058)	**0.057** (0.044-0.075)	**0.064** (0.049-0.087)	**0.073** (0.054-0.103)	**0.084** (0.057-0.118)	**0.101** (0.067-0.147)	**0.116** (0.075-0.172)
10-day	**0.019** (0.015-0.024)	**0.023** (0.019-0.029)	**0.030** (0.024-0.038)	**0.036** (0.028-0.045)	**0.044** (0.034-0.058)	**0.049** (0.037-0.067)	**0.056** (0.041-0.078)	**0.063** (0.044-0.089)	**0.076** (0.050-0.110)	**0.087** (0.056-0.128)
20-day	**0.014** (0.011-0.017)	**0.016** (0.013-0.020)	**0.020** (0.016-0.025)	**0.023** (0.018-0.028)	**0.027** (0.021-0.035)	**0.030** (0.023-0.040)	**0.033** (0.024-0.046)	**0.037** (0.026-0.052)	**0.043** (0.028-0.061)	**0.047** (0.031-0.069)
30-day	**0.012** (0.009-0.014)	**0.013** (0.011-0.016)	**0.016** (0.012-0.019)	**0.018** (0.014-0.022)	**0.020** (0.016-0.026)	**0.023** (0.017-0.030)	**0.025** (0.018-0.034)	**0.027** (0.019-0.038)	**0.031** (0.020-0.044)	**0.033** (0.022-0.048)
45-day	**0.010** (0.008-0.012)	**0.011** (0.009-0.013)	**0.012** (0.010-0.015)	**0.014** (0.011-0.017)	**0.016** (0.012-0.020)	**0.017** (0.013-0.023)	**0.019** (0.014-0.025)	**0.020** (0.014-0.028)	**0.022** (0.015-0.032)	**0.024** (0.015-0.034)
60-day	**0.009** (0.007-0.011)	**0.009** (0.008-0.012)	**0.011** (0.009-0.013)	**0.012** (0.009-0.015)	**0.013** (0.010-0.017)	**0.014** (0.011-0.019)	**0.016** (0.011-0.021)	**0.017** (0.012-0.023)	**0.018** (0.012-0.025)	**0.019** (0.012-0.027)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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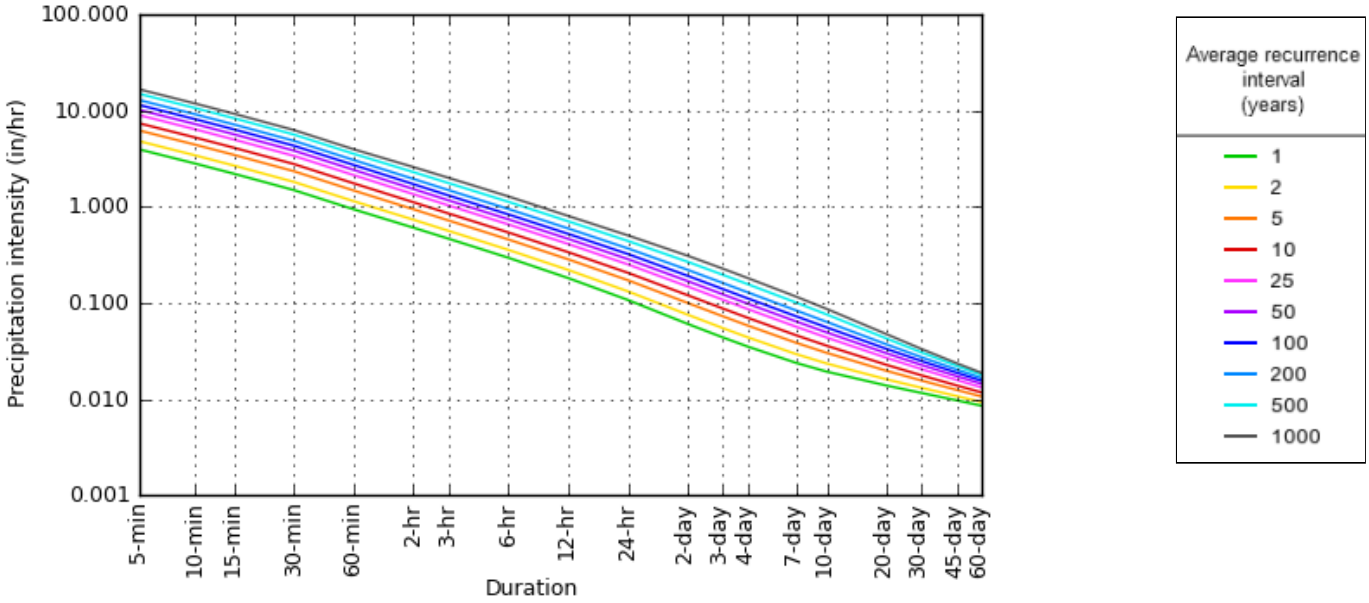
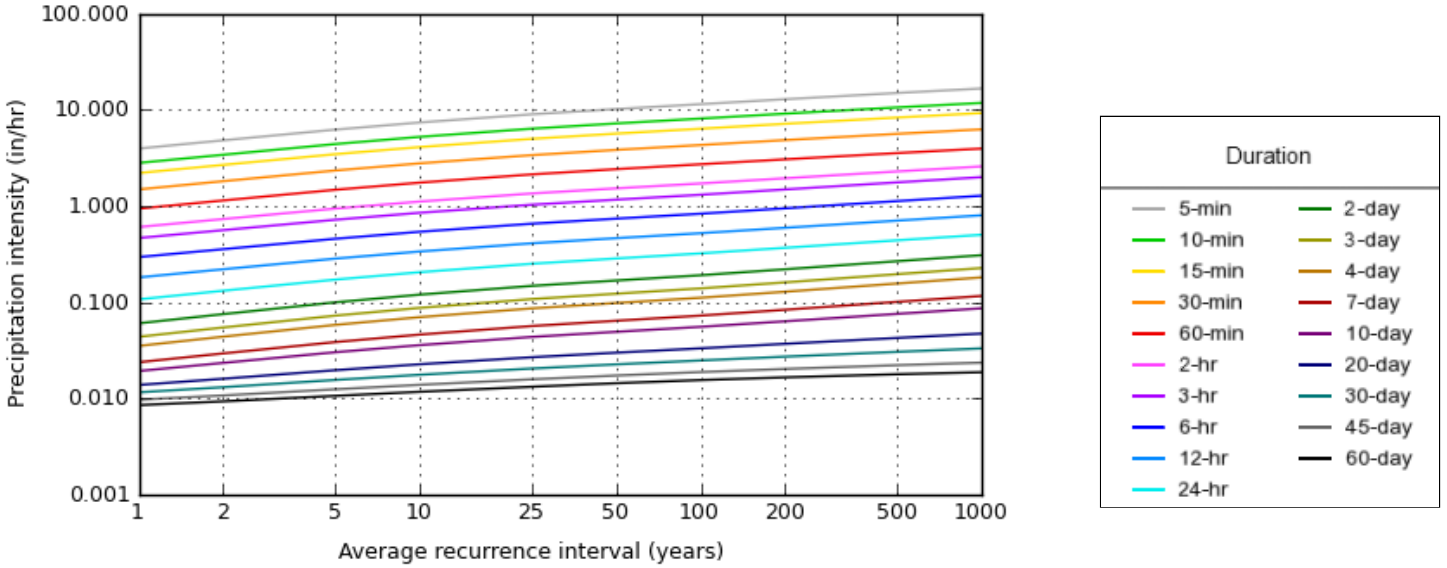
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 41.7843°, Longitude: -72.4607°





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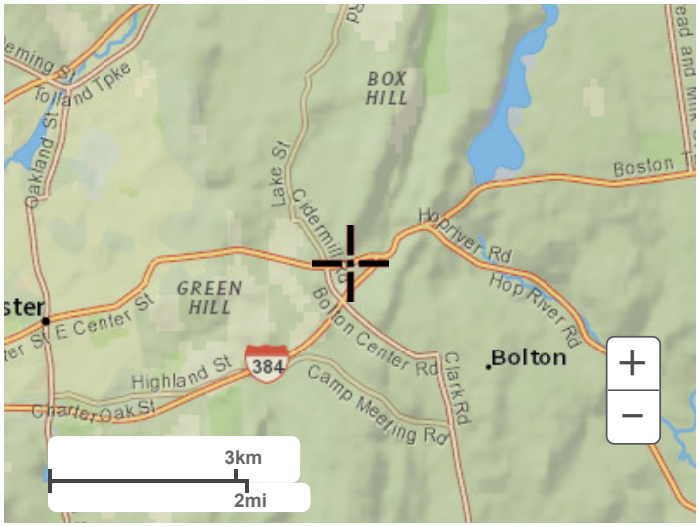
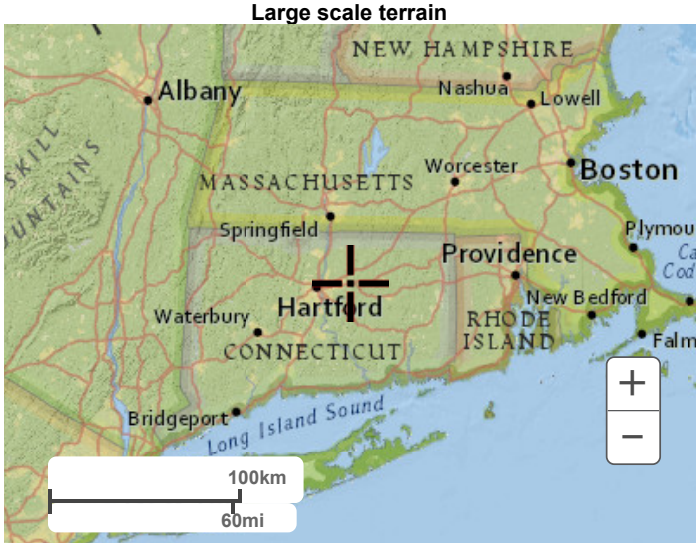
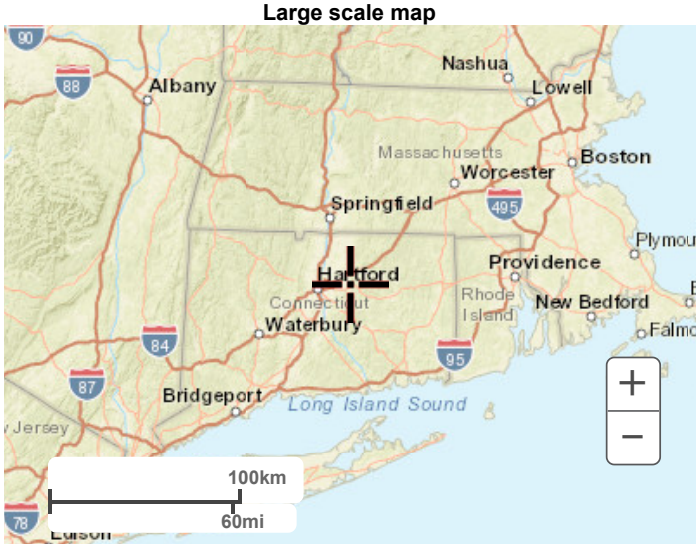
Small scale terrain



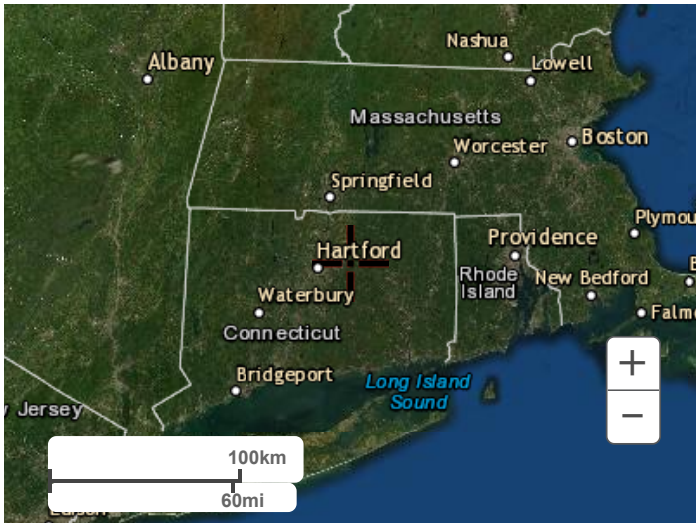
Large scale terrain



Large scale map



Large scale aerial



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NOAA Atlas 14, Volume 10, Version 3
Location name: Bolton, Connecticut, USA*
Latitude: 41.7843°, Longitude: -72.4607°
Elevation: 630.43 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.330** (0.254-0.429)	**0.402** (0.309-0.522)	**0.519** (0.397-0.676)	**0.616** (0.469-0.807)	**0.749** (0.554-1.03)	**0.849** (0.617-1.19)	**0.955** (0.675-1.39)	**1.08** (0.721-1.59)	**1.25** (0.808-1.91)	**1.39** (0.880-2.17)
10-min	**0.468** (0.360-0.607)	**0.569** (0.437-0.740)	**0.735** (0.563-0.958)	**0.873** (0.664-1.14)	**1.06** (0.785-1.45)	**1.20** (0.873-1.68)	**1.35** (0.957-1.96)	**1.52** (1.02-2.25)	**1.77** (1.14-2.70)	**1.97** (1.25-3.07)
15-min	**0.551** (0.423-0.715)	**0.670** (0.514-0.870)	**0.865** (0.662-1.13)	**1.03** (0.782-1.34)	**1.25** (0.924-1.71)	**1.42** (1.03-1.98)	**1.59** (1.13-2.31)	**1.79** (1.20-2.65)	**2.08** (1.35-3.18)	**2.32** (1.47-3.61)
30-min	**0.745** (0.573-0.967)	**0.907** (0.696-1.18)	**1.17** (0.896-1.53)	**1.39** (1.06-1.82)	**1.69** (1.25-2.32)	**1.92** (1.39-2.68)	**2.16** (1.52-3.13)	**2.43** (1.63-3.59)	**2.82** (1.82-4.31)	**3.14** (1.99-4.89)
60-min	**0.940** (0.722-1.22)	**1.14** (0.878-1.49)	**1.48** (1.13-1.92)	**1.75** (1.33-2.30)	**2.13** (1.58-2.92)	**2.42** (1.76-3.38)	**2.72** (1.92-3.94)	**3.06** (2.05-4.53)	**3.55** (2.30-5.43)	**3.96** (2.51-6.17)
2-hr	**1.21** (0.936-1.57)	**1.47** (1.13-1.90)	**1.88** (1.45-2.44)	**2.23** (1.70-2.91)	**2.70** (2.01-3.69)	**3.06** (2.24-4.27)	**3.44** (2.46-4.99)	**3.89** (2.62-5.72)	**4.58** (2.97-6.96)	**5.17** (3.28-8.00)
3-hr	**1.40** (1.08-1.80)	**1.69** (1.31-2.18)	**2.16** (1.67-2.80)	**2.56** (1.96-3.33)	**3.10** (2.32-4.23)	**3.50** (2.57-4.88)	**3.94** (2.83-5.72)	**4.47** (3.01-6.55)	**5.29** (3.44-8.02)	**6.00** (3.82-9.26)
6-hr	**1.77** (1.38-2.26)	**2.13** (1.66-2.74)	**2.74** (2.12-3.52)	**3.24** (2.50-4.19)	**3.93** (2.95-5.33)	**4.43** (3.27-6.15)	**4.99** (3.60-7.22)	**5.67** (3.84-8.26)	**6.74** (4.39-10.1)	**7.67** (4.89-11.7)
12-hr	**2.19** (1.71-2.79)	**2.66** (2.08-3.39)	**3.42** (2.67-4.39)	**4.06** (3.15-5.23)	**4.94** (3.73-6.67)	**5.59** (4.14-7.71)	**6.29** (4.56-9.05)	**7.16** (4.86-10.4)	**8.50** (5.56-12.7)	**9.66** (6.18-14.7)
24-hr	**2.57** (2.02-3.27)	**3.16** (2.48-4.02)	**4.13** (3.23-5.26)	**4.93** (3.84-6.31)	**6.03** (4.57-8.11)	**6.84** (5.10-9.41)	**7.73** (5.64-11.1)	**8.84** (6.02-12.7)	**10.6** (6.93-15.7)	**12.1** (7.75-18.2)
2-day	**2.90** (2.29-3.66)	**3.62** (2.86-4.57)	**4.79** (3.77-6.08)	**5.76** (4.51-7.35)	**7.11** (5.42-9.53)	**8.08** (6.07-11.1)	**9.17** (6.76-13.2)	**10.6** (7.22-15.1)	**12.8** (8.44-18.9)	**14.8** (9.54-22.2)
3-day	**3.15** (2.50-3.97)	**3.94** (3.12-4.97)	**5.23** (4.12-6.61)	**6.30** (4.94-8.00)	**7.77** (5.94-10.4)	**8.84** (6.66-12.1)	**10.0** (7.42-14.4)	**11.6** (7.93-16.5)	**14.1** (9.29-20.7)	**16.3** (10.5-24.4)
4-day	**3.38** (2.68-4.25)	**4.22** (3.34-5.30)	**5.59** (4.42-7.05)	**6.72** (5.28-8.53)	**8.29** (6.35-11.1)	**9.43** (7.11-12.9)	**10.7** (7.92-15.3)	**12.4** (8.46-17.6)	**15.0** (9.92-22.0)	**17.4** (11.2-25.9)
7-day	**4.00** (3.19-5.01)	**4.94** (3.93-6.19)	**6.48** (5.14-8.14)	**7.75** (6.12-9.79)	**9.51** (7.31-12.6)	**10.8** (8.16-14.7)	**12.2** (9.05-17.3)	**14.0** (9.65-19.9)	**17.0** (11.2-24.7)	**19.5** (12.7-29.0)
10-day	**4.63** (3.70-5.78)	**5.63** (4.49-7.03)	**7.26** (5.77-9.10)	**8.61** (6.81-10.8)	**10.5** (8.06-13.8)	**11.8** (8.95-16.0)	**13.3** (9.86-18.7)	**15.2** (10.5-21.4)	**18.2** (12.1-26.4)	**20.8** (13.5-30.7)
20-day	**6.63** (5.33-8.24)	**7.70** (6.18-9.57)	**9.44** (7.55-11.8)	**10.9** (8.65-13.6)	**12.9** (9.92-16.8)	**14.4** (10.8-19.1)	**15.9** (11.7-21.9)	**17.8** (12.3-24.8)	**20.4** (13.6-29.4)	**22.7** (14.8-33.3)
30-day	**8.35** (6.72-10.3)	**9.44** (7.60-11.7)	**11.2** (9.00-14.0)	**12.7** (10.1-15.9)	**14.8** (11.4-19.1)	**16.3** (12.3-21.5)	**17.9** (13.1-24.3)	**19.6** (13.6-27.3)	**22.0** (14.7-31.5)	**23.9** (15.6-34.9)
45-day	**10.5** (8.48-13.0)	**11.6** (9.37-14.4)	**13.5** (10.8-16.7)	**15.0** (12.0-18.7)	**17.1** (13.2-21.9)	**18.7** (14.1-24.4)	**20.3** (14.8-27.2)	**21.9** (15.3-30.3)	**24.0** (16.1-34.2)	**25.5** (16.6-37.0)
60-day	**12.3** (9.95-15.1)	**13.4** (10.9-16.6)	**15.3** (12.4-19.0)	**16.9** (13.5-21.0)	**19.1** (14.7-24.3)	**20.8** (15.6-26.9)	**22.4** (16.2-29.7)	**23.9** (16.7-32.9)	**25.7** (17.3-36.6)	**27.0** (17.6-39.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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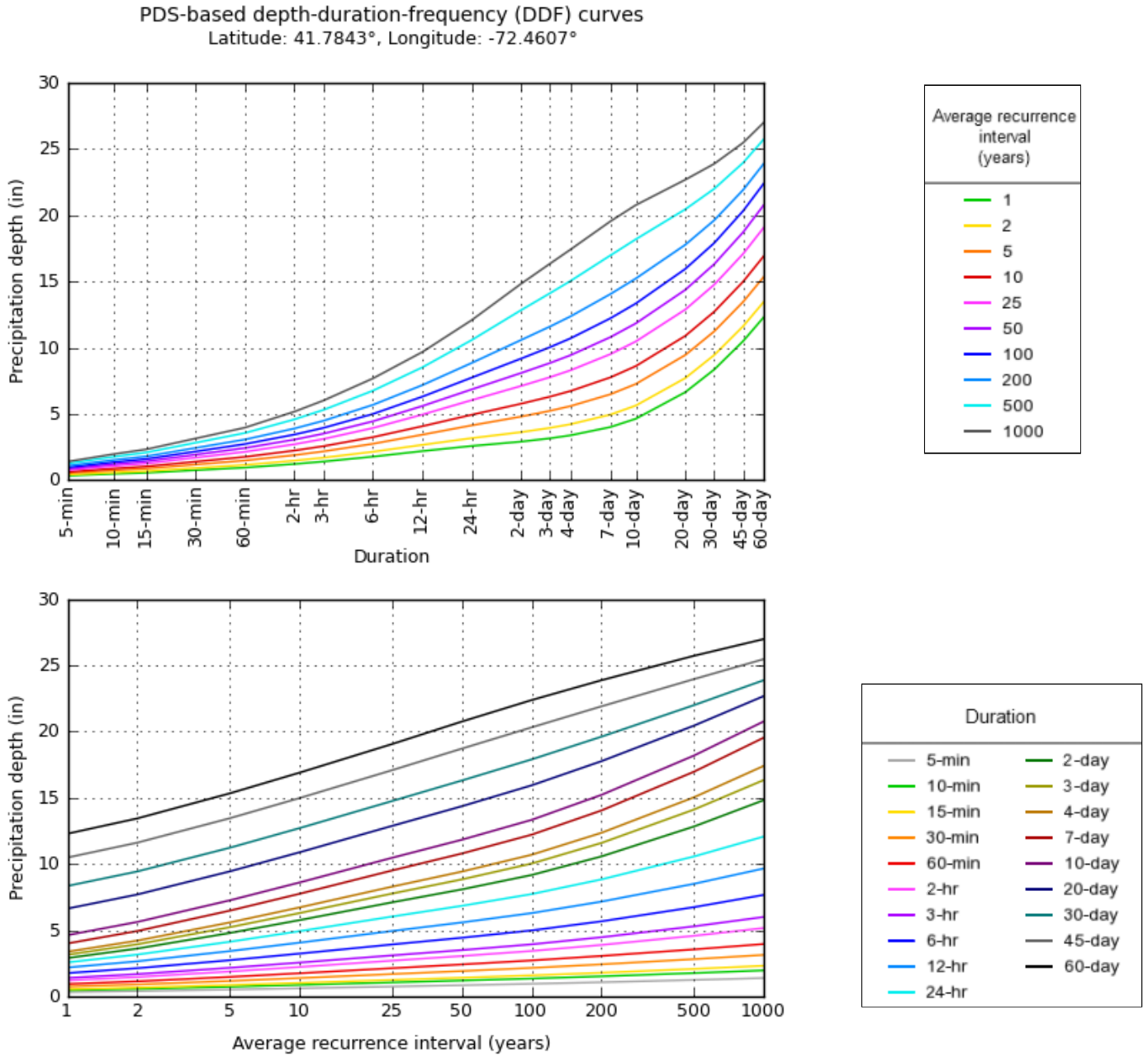
PF graphical



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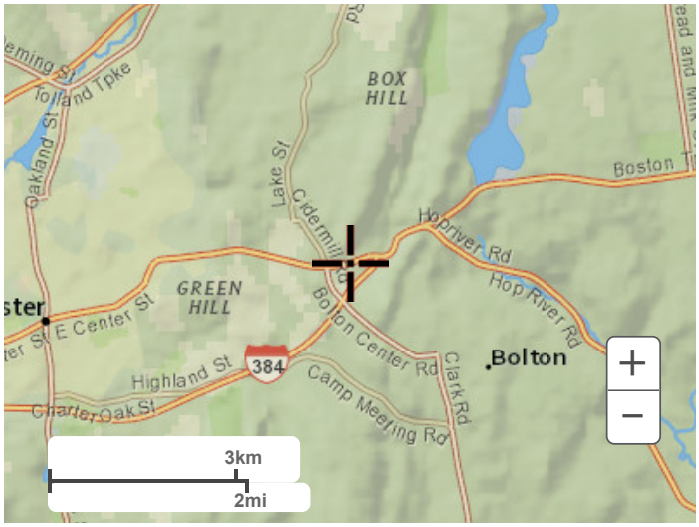
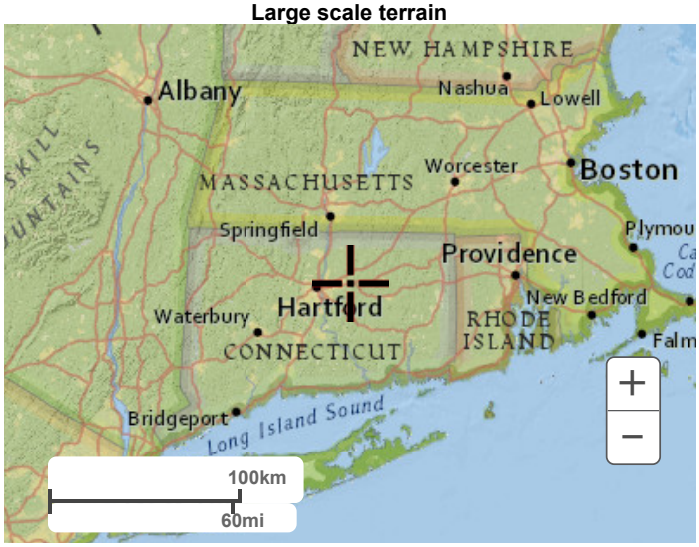
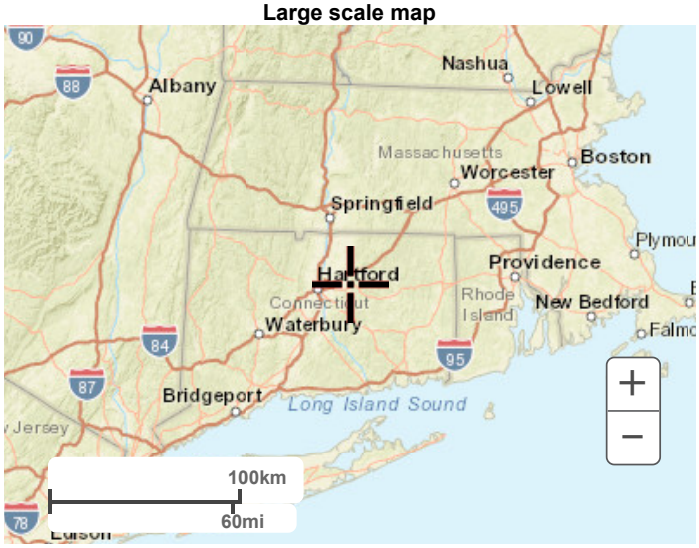


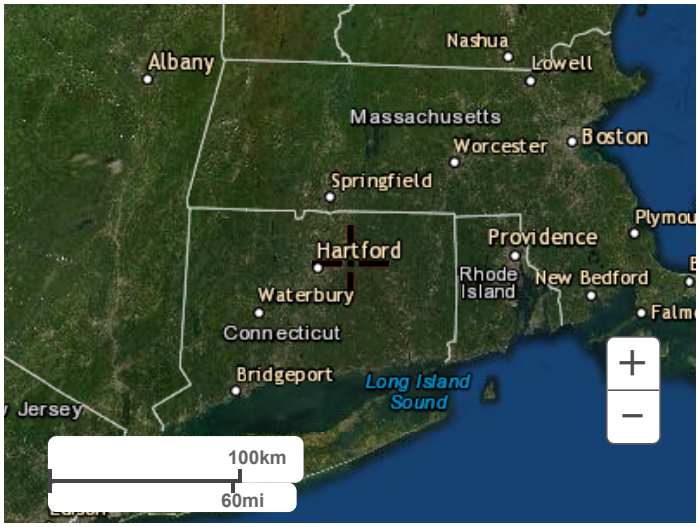
Large scale terrain



Large scale map



Large scale aerial



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APPENDIX E
Storm Sewer Analysis Results

Pipe Run from CB #1 to FE #1

Pipe	From	To	3D Length - Center to Center	Drainage Area Inc	Drainage Area Total	Runoff Coeff "C"	Area X "C" Inc	Area X "C" Total	Time of Concentration Inlet	Time of Concentration System	Rain "I"	Runoff "Q"	Known Q	Total Q	Pipe Dia.	Full Q	Velocity Full	Velocity Design	Sec Time	Invert Elevation U/S	Invert Elevation D/S	Slope	Percent Full (TotalQ/ FullQ)
			(ft)	(sq. ft)	(sq. ft)		(sq. ft)	(sq. ft)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(cu. ft/sec)	(ft)	(cu. ft/sec)	(ft/s)	(ft/s)	(min)	(ft)	(ft)		
Pipe - (8)	MH #3 WQ	FE #1	25.72	0	83504.57	0	0	66247.97	0	9.101	6.087	9.334	0	9.334	2	16.012	5.097	5.287	0.081	621.13	621	0.50%	58%
Pipe - (7)	CB #5	MH #3 WQ	7.98	23881.03	83504.57	0.729	17409.27	66247.97	6.5	9.078	6.094	9.346	0	9.346	2	17.346	5.521	5.62	0.024	621.17	621.13	0.50%	54%
Pipe - (6)	CB #4	CB #5	126.12	4911.13	57064.01	0.88	4321.79	46811.55	6	8.807	6.184	6.701	0	6.701	1.5	13.834	7.828	7.761	0.271	623.53	621.67	1.48%	48%
Pipe - (5)	CB #3	CB #4	130.3	13206.48	45481.94	0.746	9852.04	36890.44	6.5	8.465	6.297	5.377	0	5.377	1.5	11.391	6.446	6.349	0.342	624.83	623.53	1.00%	47%
Pipe - (4)	CB #2	CB #3	166.86	10354.18	22464.88	0.802	8304.06	18707.14	6	6.728	6.87	2.975	0	2.975	1.25	7.005	5.708	5.471	0.508	626.5	624.83	1.00%	42%
Pipe - (3)	CB #1	CB #2	160.35	12110.7	12110.7	0.859	10403.09	10403.09	6	6	7.11	1.712	0	1.712	1	2.732	3.478	3.67	0.728	627.3	626.5	0.50%	63%
Pipe - (11)	MH #1	CB #3	90.83	0	5459.77	0	0	4673.96	0	8.146	6.402	0.693	0	0.693	1	5.439	6.926	4.748	0.319	629.49	627.69	1.98%	13%
Pipe - (10)	YD #1	MH #1	28.19	368.98	3375.51	0.25	92.25	2798.12	8	8	6.45	0.418	0	0.418	1	3.876	4.935	3.223	0.146	629.77	629.49	1.01%	11%
Pipe - (9)	R1	YD #1	33.47	1582.84	1582.84	0.9	1424.56	1424.56	6	6	7.11	0.234	0	0.234	0.5	0.608	3.095	2.894	0.193	630.1	629.77	1.00%	38%
Pipe - (12)	R2	YD #1	12.62	1423.69	1423.69	0.9	1281.32	1281.32	6	6	7.11	0.211	0	0.211	0.5	0.582	2.964	2.726	0.077	630.1	629.98	0.92%	36%
Pipe - (13)	R3	MH #1	31.06	1898.51	1898.51	0.9	1708.66	1708.66	6	6	7.11	0.281	0	0.281	0.5	0.601	3.062	3.008	0.172	630.1	629.8	0.98%	47%
Pipe - (14)	R4	MH #1	26.1	185.76	185.76	0.9	167.18	167.18	6	6	7.11	0.028	0	0.028	0.5	0.597	3.042	1.547	0.217	630.1	629.85	0.96%	5%
Pipe - (17)	YD #3	CB #3	79.65	397.57	4350.8	0.25	99.39	3657.3	8	8	6.45	0.546	0	0.546	1	7.727	9.838	5.676	0.234	629.34	626.16	4.00%	7%
Pipe - (16)	YD #2	YD #3	18.01	197.8	3862.39	0.9	178.02	3476.15	6	6.047	7.094	0.571	0	0.571	0.67	2.547	7.297	5.879	0.051	630.02	629.34	3.78%	22%
Pipe - (15)	R5	YD #2	8.28	1674.82	1674.82	0.9	1507.34	1507.34	6	6	7.11	0.248	0	0.248	0.5	0.608	3.099	2.939	0.047	630.1	630.02	1.00%	41%
Pipe - (34)	R6	YD #2	7.59	1989.77	1989.77	0.9	1790.8	1790.8	6	6	7.11	0.295	0	0.295	0.5	0.608	3.099	3.072	0.041	630.1	630.02	1.00%	49%
Pipe - (18)	R7	YD #3	14.6	90.84	90.84	0.9	81.75	81.75	6	6	7.11	0.013	0	0.013	0.5	0.74	3.77	1.449	0.122	630.1	629.88	1.48%	2%
Pipe - (20)	YD #4	CB #4	94.7	333.8	2023.36	0.39	130.18	1650.79	8	8	6.45	0.246	0	0.246	1	7.29	9.282	4.3	0.367	629.93	626.56	3.56%	3%
Pipe - (19)	R8	YD #4	14.92	276.34	276.34	0.9	248.7	248.7	6	6	7.11	0.041	0	0.041	0.5	0.583	2.969	1.712	0.124	630.1	629.96	0.92%	7%
Pipe - (21)	R9	YD #4	18.07	1413.23	1413.23	0.9	1271.91	1271.91	6	6	7.11	0.209	0	0.209	0.5	0.592	3.015	2.753	0.109	630.1	629.93	0.95%	35%
Pipe - (24)	MH #2	CB #4	120.96	0	4647.58	0	0	3948.53	0	8.269	6.361	0.581	0	0.581	1	6.692	8.52	5.224	0.386	628.69	625.06	3.00%	9%
Pipe - (23)	YD #5	MH #2	54.5	571.43	3942.32	0.49	280	3313.8	8	8	6.45	0.495	0	0.495	1	3.863	4.919	3.378	0.269	629.24	628.69	1.00%	13%
Pipe - (22)	R14	YD #5	36.04	352.66	352.66	0.9	317.39	317.39	6	6	7.11	0.052	0	0.052	0.5	0.608	3.099	1.895	0.3	630.1	629.74	1.00%	9%
Pipe - (25)	R13	YD #5	14.78	2489.5	2489.5	0.9	2240.55	2240.55	6	6	7.11	0.369	0	0.369	0.5	0.608	3.099	3.245	0.076	630.1	629.95	1.00%	61%
Pipe - (26)	R12	YD #5	15.47	528.72	528.72	0.9	475.85	475.85	6	6	7.11	0.078	0	0.078	0.5	0.608	3.099	2.133	0.121	630.1	629.95	1.00%	13%
Pipe - (28)	WYE1	MH #2	14.35	0	705.26	0	0	634.73	0	6.087	7.081	0.104	0	0.104	0.5	0.608	3.099	2.313	0.103	629.99	629.85	1.00%	17%
Pipe - (28)	R10	WYE1	8.75	175.47	175.47	0.9	157.92	157.92	6	6	7.11	0.026	0	0.026	0.5	0.608	3.099	1.537	0.073	630.1	630.01	1.00%	4%
Pipe - (27)	R11	WYE1	11.13	529.79	529.79	0.9	476.81	476.81	6	6	7.11	0.078	0	0.078	0.5	0.608	3.099	2.134	0.087	630.1	629.99	1.00%	13%
Pipe - (35)	CB #6	CB #5	62.49	2559.53	2559.53	0.792	2027.15	2027.15	6	6	7.11	0.334	0	0.334	1	3.714	4.729	2.928	0.356	622.75	622.17	0.92%	9%
Pipe Run from Roofs to North Infiltrators																							
Pipe - (43)	MH #5 WIT	North Infilt	9.26	0	7929.08	0	0	7136.17	0	6.303	7.01	1.158	0	1.158	1	4.237	5.394	4.593	0.034	619.81	619.7	1.20%	27%
Pipe - (30)	YD #6	MH #5 WIT	14.15	191.92	4287.59	0.9	172.73	3858.83	6	6.091	7.08	0.632	0	0.632	0.67	1.957	5.606	4.997	0.047	620.16	619.84	2.23%	32%
Pipe - (29)	R15	YD #6	15.98	2731.37	2731.37	0.9	2458.23	2458.23	6	6	7.11	0.405	0	0.405	0.67	1.332	3.815	3.344	0.08	620.5	620.33	1.03%	30%
Pipe - (31)	R16	YD #6	15.22	1364.3	1364.3	0.9	1227.87	1227.87	6	6	7.11	0.202	0	0.202	0.5	0.608	3.099	2.782	0.091	620.5	620.35	1.00%	33%
Pipe - (33)	YD #7	MH #5 WIT	49.37	474.94	3641.49	0.9	427.45	3277.34	6	6.08	7.084	0.537	0	0.537	0.67	1.375	3.938	3.694	0.223	620.34	619.8	1.10%	39%
Pipe - (32)	R17	YD #7	16.47	3166.55	3166.55	0.9	2849.89	2849.89	6	6	7.11	0.469	0	0.469	0.67	1.31	3.754	3.44	0.08	620.5	620.34	1.00%	36%
Pipe Run from CB #7 to South Infiltrators																							
Pipe - (44)	CB #7	South Infilt	7.76	2802.34	2802.34	0.623	1745.86	1745.86	8	8	6.45	0.261	0	0.261	1	3.863	4.919	2.8	0.046	619.58	619.5	1.00%	7%

Revised 4/29/22

Pipe Run from CB #1 to FE #1

Struct. ID	D	Q	L	V	d	dc	v^2/2g	EGLo	HGLo	Sf	Total Pipe Loss	EGLi	HGLi	Ea	EGLa	U/S TOC	Surface Elev.	Cover	Freeboard
	(ft)	(cu. ft/sec)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		
FE #1								622.55	622.55							623	623.38	0.38	
MH #3 WQ	2	9.334	25.72	5.287	1.1	1.09	0.43	623.18	622.98	0.005	0.13	623.31	622.87	2.28	623.41	623.13	626.15	3.02	2.74
CB #5	2	9.346	7.98	2.975	2	n/a	0.14	623.47	623.33	0.001	0.01	623.48	623.34	2.38	623.55	623.17	624.93	1.76	1.38
CB #4	1.5	6.701	126.12	7.761	0.74	1	0.94	623.64	623.41	0.003	0	625.2	624.27	1.67	625.2	625.03	630.4	5.37	5.20
CB #3	1.5	5.377	130.3	6.349	0.73	0.89	0.63	625.26	625.12	0.002	0	626.19	625.56	1.43	626.27	626.08	630.4	4.32	4.13
CB #2	1.25	2.975	166.86	5.471	0.57	0.69	0.47	626.3	626.21	0.002	0	627.53	627.07	1.08	627.58	627.5	630.65	3.15	3.07
CB #1	1	1.712	160.35	3.67	0.57	0.56	0.21	627.61	627.54	0.002	0	628.09	627.88	0.95	628.25	---	629.9	---	1.65
MH #1	1	0.693	90.83	4.748	0.24	0.35	0.35	628.28	627.93	0	0	630.08	629.73	0.59	630.08	630.49	632.5	2.01	2.42
YD #1	1	0.418	28.19	3.223	0.22	0.27	0.16	630.09	630.07	0	0	630.15	629.99	0.38	630.15	630.27	633	2.73	2.85
R1	0.5	0.234	33.47	2.894	0.22	0.24	0.13	630.17	630.13	0	0	630.45	630.32	0.36	630.46	---	633	---	2.54
R2	0.5	0.211	12.62	2.726	0.21	0.23	0.12	630.31	630.19	0	0	630.42	630.31	0.33	630.43	---	633	---	2.57
R3	0.5	0.281	31.06	3.008	0.24	0.27	0.14	630.12	630.03	0	0	630.48	630.34	0.4	630.5	---	633	---	2.50
R4	0.5	0.028	26.1	1.547	0.07	0.08	0.04	630.08	630.08	0	0	630.21	630.17	0.11	630.21	---	633	---	2.79
YD #3	1	0.546	79.65	5.676	0.18	0.31	0.5	626.84	626.34	0	0	630.02	629.52	0.68	630.02	630.01	633	2.99	2.98
YD #2	0.67	0.571	18.01	5.879	0.21	0.35	0.54	630.04	630	0.002	0	630.77	630.23	0.75	630.77	630.52	633.4	2.88	2.63
R5	0.5	0.248	8.28	1.263	0.5	n/a	0.02	630.78	630.76	0.002	0.01	630.8	630.77	0.7	630.8	---	633	---	2.20
R6	0.5	0.295	7.59	1.501	0.5	n/a	0.04	630.79	630.75	0.002	0.02	630.8	630.77	0.71	630.81	---	633	---	2.19
R7	0.5	0.013	14.6	1.449	0.05	0.06	0.03	630.02	630.02	0	0	630.18	630.15	0.08	630.18	---	633	---	2.82
YD #4	1	0.246	94.7	4.3	0.13	0.2	0.29	626.97	626.69	0	0	630.34	630.06	0.41	630.34	630.46	633	2.54	2.66
R8	0.5	0.041	14.92	1.712	0.09	0.1	0.05	630.34	630.34	0	0	630.34	630.3	0.24	630.34	---	633	---	2.66
R9	0.5	0.209	18.07	2.753	0.21	0.23	0.12	630.35	630.33	0	0	630.42	630.31	0.33	630.43	---	633	---	2.57
MH #2	1	0.581	120.96	5.224	0.2	0.32	0.42	625.69	625.26	0	0	629.31	628.89	0.62	629.31	629.69	632.48	2.79	3.17
YD #5	1	0.495	54.5	3.378	0.24	0.29	0.18	629.32	629.3	0	0	629.66	629.48	0.42	629.66	630.24	633	2.76	3.34
R14	0.5	0.052	36.04	1.895	0.1	0.11	0.06	629.89	629.84	0	0	630.25	630.2	0.15	630.25	---	633	---	2.75
R13	0.5	0.369	14.78	3.245	0.28	0.31	0.16	630.4	630.23	0	0	630.54	630.38	0.48	630.58	---	633	---	2.42
R12	0.5	0.078	15.47	2.133	0.12	0.14	0.07	630.14	630.07	0	0	630.29	630.22	0.19	630.29	---	633	---	2.71
WYE1	0.5	0.104	14.35	2.313	0.14	0.16	0.08	630.07	629.99	0	0	630.21	630.13	0.22	630.21	630.49	633	2.51	2.79
R10	0.5	0.026	8.75	1.537	0.07	0.08	0.04	630.21	630.21	0	0	630.21	630.18	0.11	630.21	---	633	---	2.79
R11	0.5	0.078	11.13	2.134	0.12	0.14	0.07	630.22	630.21	0	0	630.29	630.22	0.19	630.29	---	633	---	2.71
CB #6	1	0.334	62.49	0.425	0.2	0.24	0	623.55	623.55	0	0	623.55	623.55	0.81	623.55	623.75	624.85	1.10	1.30
Pipe Run from Roofs to North Infiltrators																			
North Infilt								620.43	620.43							620.7	620.86	0.16	
MH #5 WIT	1	1.158	9.26	4.593	0.36	0.45	0.33	620.81	620.75	0	0	620.81	620.48	1	620.81	620.51	623.46	2.95	2.65
YD #6	0.67	0.632	14.15	1.812	0.26	0.37	0.05	620.83	620.78	0.002	0.03	620.86	620.81	0.72	620.88	621	633.4	12.40	12.52
R15	0.67	0.405	15.98	3.344	0.25	0.3	0.17	620.89	620.87	0	0	620.93	620.75	0.43	620.93	---	633	---	12.07
R16	0.5	0.202	15.22	1.029	0.2	0.23	0.02	620.89	620.87	0.001	0.02	620.91	620.89	0.41	620.91	---	633	---	12.09
YD #7	0.67	0.537	49.37	1.54	0.29	0.34	0.04	620.83	620.79	0.002	0.08	620.91	620.87	0.6	620.94	621	633.4	12.40	12.46
R17	0.67	0.469	16.47	3.44	0.28	0.32	0.18	620.95	620.92	0	0	620.96	620.78	0.47	620.97	---	633	---	12.03
Pipe Run from CB #7 to South Infiltrators																			
South Infilt								620.1	620.1							620.5	622.5	2.00	
CB #7	1	0.261	7.76	2.8	0.18	0.21	0.12	620.23	620.23	0	0	620.23	620.11	0.65	620.23	619.58	621.7	2.12	1.47

Revised 4/29/22

APPENDIX F
Water Quality Calculations

Bolton Vet - DPI Job No.4798
March 8, 2021

Water Quality Flow Calculations For Developed area to FE #1
Per 2004 Connecticut Stormwater Quality Manual
Per Appendix B page B-3:
Water Quality Flow (WQF) = (qu)(A)(Q), where:
qu = unit peak discharge (cfs/mi^2/inch) per Exhibit 4-III
A = drainage area (mi^2)
Q = runoff depth (in watershed inches)
= [Water Quality Volume (WQV) (in acre-feet)] x [12 inches/foot] / drainage area (acres)

Water Quality
To find Unit Peak Discharge qu with Exhibit 4-III, the following is needed:
Time of Concentration (Tc):
8 mins = 0.10 hours
Initial Abstraction (Ia) in inches / Design Precipitation (P) in inches:
Initial abstraction (Ia) from Table 4-III in Chapter 4 of TR-55 needs Curve Number (CN)
CN = 88
Ia = 0.273 inches
Design Precipitation (P) = 1" for water quality storms per Appendix B
Ia/P = 0.273
Unit Peak Discharge qu = 600 cfs/mi^2/inch

Drainage Area A = 67,024 sf = 1.54 acres = 0.0024 mi^2

Runoff Depth Q = WQV (acre-feet) x 12 / drainage area (acres)

Water Quality Volume (WQV) = (1")(R)(A)/12, where:
R = volumetric runoff coefficient
= 0.05 + 0.009(I), where I = percent impervious cover = 81.6%
R = 0.05 + 0.009(I)
R = 0.05 + 0.009(81.6)
R = 0.784

A = drainage area in acres = 1.54 acres

WQV = (1")(R)(A)/12
WQV = (1")(0.784)(1.54 acres) / 12 in/ft
WQV = 0.101 acre-feet

Q = (WQV X 12 in/ft)/Drainage Area
Q = (0.101 acre-feet x 12 in/ft) / 1.54 acres
Q = 0.784 in

WQF = qu x A x Q
WQF = 600 cfs/mi^2/inch x 0.0024 mi^2 x 0.784 in
WQF = **1.13 cfs required**

Proposed

As shown on the enclosed water quality unit sizing report, the proposed **BaySaver Barracuda S6** is rated for 80% TSS removal for **2.43 cfs** which exceeds the required **1.13 cfs** water quality flow. The bypass expected, 10.99 cfs, during the 10-yr storm will be accommodated as the rim to outlet invert is above 45 inches where 20 cfs can bypass. See Barracuda sizing chart included in Appendix F.

Bolton Vet - DPI Job No.4798
March 8, 2021

Water Quality Flow Calculations For Developed Area (CB#7) to Infiltrators
Per 2004 Connecticut Stormwater Quality Manual
Per Appendix B page B-3:
Water Quality Flow (WQF) = (qu)(A)(Q), where:
qu = unit peak discharge (cfs/mi^2/inch) per Exhibit 4-III
A = drainage area (mi^2)
Q = runoff depth (in watershed inches)
= [Water Quality Volume (WQV) (in acre-feet)] x [12 inches/foot] / drainage area (acres)

Water Quality
To find Unit Peak Discharge qu with Exhibit 4-III, the following is needed:
Time of Concentration (Tc):
7 mins = 0.12 hours
Initial Abstraction (Ia) in inches / Design Precipitation (P) in inches:
Initial abstraction (Ia) from Table 4-III in Chapter 4 of TR-55 needs Curve Number (CN)
CN = 82
Ia = 0.439 inches
Design Precipitation (P) = 1" for water quality storms per Appendix B
Ia/P = 0.439
Unit Peak Discharge qu = 380 cfs/mi^2/inch

Drainage Area A = 2,560 sf = 0.059 acres = 0.0001 mi^2

Runoff Depth Q = WQV (acre-feet) x 12 / drainage area (acres)

Water Quality Volume (WQV) = (1")(R)(A)/12, where:
R = volumetric runoff coefficient
= 0.05 + 0.009(I), where I = percent impervious cover = 83.3%
R = 0.05 + 0.009(I)
R = 0.05 + 0.009(83.3)
R = 0.798

A = drainage area in acres = 0.059 acres

WQV = (1")(R)(A)/12
WQV = (1")(0.798)(0.059 acres) / 12 in/ft
WQV = 0.004 acre-feet

Q = (WQV X 12 in/ft)/Drainage Area
Q = (0.004 acre-feet x 12 in/ft) / 0.059 acres
Q = 0.798 in

WQF = qu x A x Q
WQF = 380 cfs/mi^2/inch x 0.0001 mi^2 x 0.798 in
WQF = **0.030 cfs required**

Proposed

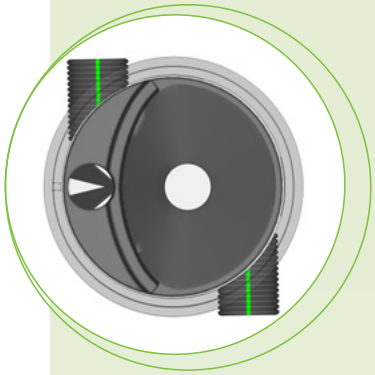
The proposed 2 **(1 row of 2)** chamber **R-330XLHD** Cultec Isolator rows (@ **0.174 cfs** treated flow rate per chamber) are rated for 80% TSS removal for the required **0.030 cfs** water quality flow. The current design plan will provide **0.348 cfs** of WQF. See isolator row sizing chart included in the appendix.

BAYSAVER TECHNOLOGIES®

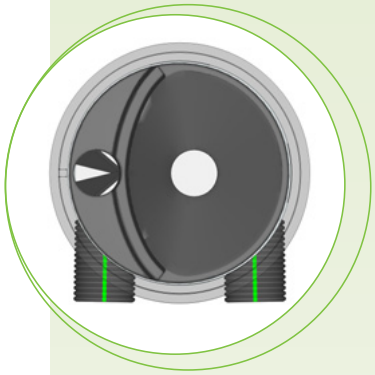
ADS®

Barracuda S4

The Barracuda S4 is a market-changing stormwater quality technology. This high performance vortex hydrodynamic separator is designed to remove total suspended solids in order to protect our precious receiving waters. The Barracuda is also an outstanding value that offers multiple pipe configurations, and quick installation.



Inline Configuration



Offline Configuration

FEATURES:

- Single manhole design
- No elevation loss between the inlet and outlet
- Flexible inlet/outlet positions (not just 180 degree orientation)
- Internal bypass for inline installation (where applicable)
- Revolutionary, patent pending “teeth” mitigate turbulence in the sump area to prevent resuspension of captured contaminants.

BENEFITS:

- Internal components are in stock for quick delivery.
- The S4 can be provided within a 48” ADS HP Manhole, to be factory fabricated and delivered complete to the jobsite.
- The S4 can also be installed in a standard 48” precast manhole. The Barracuda “teeth” apparatus is fabricated and designed for quick and easy field assembly.
- Designed for easy maintenance using a vacuum truck or similar equipment.
- Inspection and maintenance are performed from the surface with no confined space entry.

ADS Service: ADS representatives are committed to providing you with the answers to all your questions, including specifications, installation and more.

BARRACUDA S4 SPECIFICATION

MATERIALS AND DESIGN

- Concrete Structures: Designed for H-20 traffic loading and applicable soil loads or as otherwise determined by a Licensed Professional Engineer. The materials and structural design of the devices shall be per ASTM C857 and ASTM C858.
- 48" HP Manhole Structures: Made from an impact modified copolymer polypropylene meeting the material requirements of ASTM F2764. The eccentric cone reducer shall be manufactured from polyethylene material meeting ASTM D3350 cell class 213320C. Gaskets shall be made of material meeting the requirements of ASTM F477.
- Separator internals shall be substantially constructed of stainless steel, polyethylene or other thermoplastic material approved by the manufacturer.

PERFORMANCE

- The stormwater treatment unit shall be an inline unit capable of conveying 100% of the design peak flow. If peak flow rates exceed maximum hydraulic rate, the unit shall be installed offline.

- The Barracuda unit shall be designed to remove at least 80% of the suspended solids on an annual aggregate removal basis. Said removal shall be based on full-scale third party testing using OK-110 media gradation or equivalent and 300 mg/L influent concentration. Said full scale testing shall have included sediment capture based on actual total mass collected by the stormwater treatment unit.

  - OR -

  The Barracuda unit shall be designed to remove at least 50% of TSS using a media mix with d_{50}=75 micron and 200 mg/L influent concentration.

  - OR -

  The Barracuda unit shall be designed to remove at least 50% of TSS per current NJDEP/NJCAT HDS protocol .

- The stormwater treatment unit internals shall consist of (1) separator cone assembly, and (1) sump assembly which includes (4) legs with "teeth".

	Manhole Diameter	80% Removal OK-110	50% TSS per NJCAT	Max Hydraulic Rate
Barracuda S4	48"	1.08 CFS	1.25 CFS	6.25 CFS

INSTALLATION

Installation of the stormwater treatment unit(s) shall be performed per manufacturer's installation instructions. Such instructions can be obtained by calling Advanced Drainage Systems at (800) 821-6710 or by logging on to www.ads-pipe.com or www.baysaver.com.

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

BOGGS ENVIRONMENTAL CONSULTANTS

Middletown, MD & Morgantown, WV

Administrative Office:
200 W Main Street
Middletown, Maryland 21769

Office (301) 694-5687
Fax (301) 694-9799

BaySaver Technologies, LLC
1030 Deer Hollow Drive
Mount Airy, MD 21771
(301) 679-0640; dfigola@ads-pipe.com

November 1, 2017

ATTENTION: Daniel Figola, General Manager
REFERENCE: Third Party Review of Testing Procedures for Barracuda™ Separator at the Mid Atlantic Storm Water Research Center, 1207 Park Ridge Drive, Mount Airy, MD 21771

SUMMARY

Boggs Environmental Consultants, Inc. (BEC) was hired by Advanced Drainage Systems (ADS) in August of 2017, to serve as independent third-party oversight of the BaySaver Barracuda S4 Separator test unit for removal of sediment with equivalent particle size distribution to the industry standard OK-110. The BaySaver Barracuda S4 is a storm water treatment device with a Maximum Treatment Flow Rate (MTFR) of approximately 1.08 cubic feet per second (cfs) that removes suspended solids from storm water runoff, with an average removal efficiency of 80% at the MTFR and a feed concentration of 300 mg/L. The device is an insert that can be installed in either Polypropylene plastic pipe or concrete vault, and consists of a cone (vortex separator) and baffles ("teeth").

SCALED RESULTS

Testing flow rates ranged from 0.31 to 1.61 cfs, with a feed OK-110 concentration of 300 mg/L. Based upon New Jersey scaling methodology, the table below represents treatment and device information for the S4, S6, and S8 units.

Table 1: MTFR's and Sizing for BaySaver Barracuda Models

Model[1]	Man-hole Diam-eter[1] (ft)	OK110 80% TSS Maximum Treatment Flow Rate (cfs)	Treat-ment Area (ft^2)	Hydraulic Loading rate (gpm/ft^2)	Chamber Depth (ft)	Wet Volume (ft^3)	50% Maximum Sediment Storage[2] (ft^3)
Barracuda S4	4	1.08	12.57	38.6	6.83	75.4	10.47
Barracuda S6	6	2.43	28.27	38.6	6.83	169.7	23.56
Barracuda S8	8	4.32	50.27	38.6	11.03	512.7	41.89

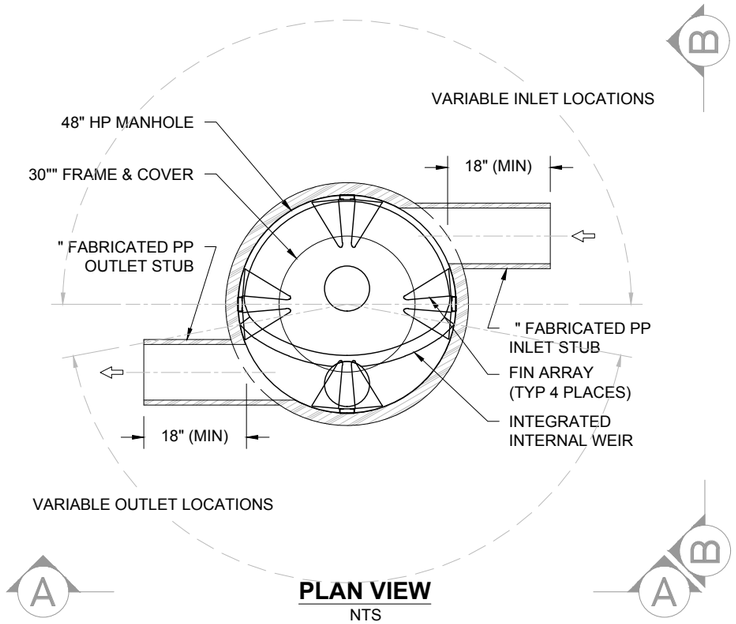
Notes:
1. In some areas, Barracuda units are available in additional diameters. Units not listed here are sized not to exceed 38.6 gpm/ft^2 of effective treatment during the peak water quality flow.
2. 50% Sediment Storage Capacity is equal to manhole diameter x 10 inches of sediment depth. Each Barracuda unit has a 20 inches deep sediment sump.

Should you have any questions, contact our office at your earliest convenience.

Sincerely,
BOGGS ENVIRONMENTAL CONSULTANTS, INC.

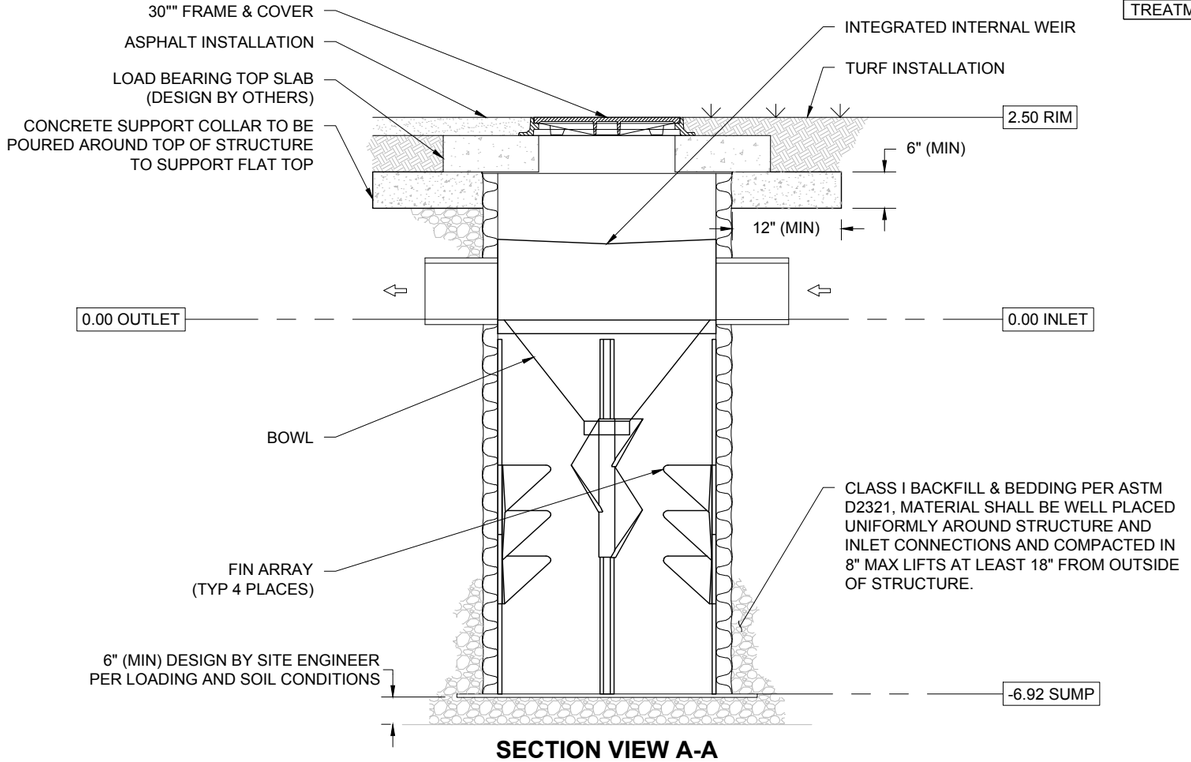
William R. Warfel
Principal Environmental Scientist

Robin J. Maliszewskyj
Chemical Engineer

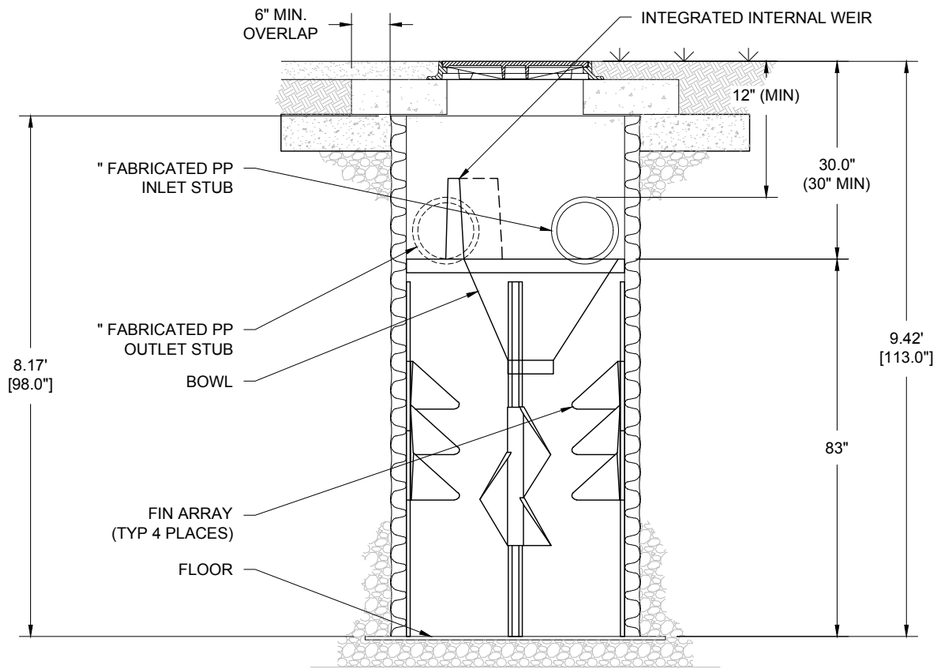


PLAN VIEW
NTS

BARRACUDA S4	
UNIT ID	BMP#1
PEAK FLOW RATE (CFS)	
TREATMENT FLOW RATE (CFS)	1.25 CFS



SECTION VIEW A-A
NTS



SECTION VIEW B-B
NTS

BARRACUDA S4 HP
STANDARD DETAIL

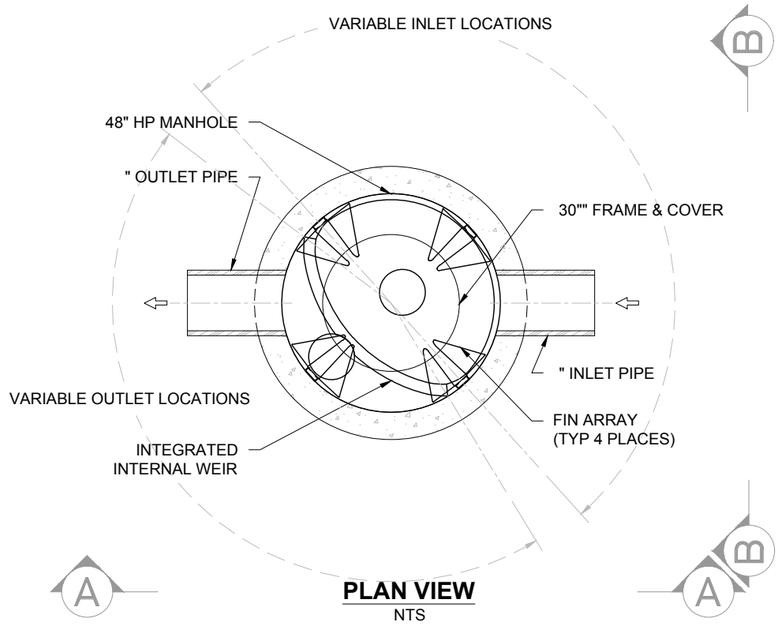
DATE: 10/20/17 DRAWN: EKH
PROJECT #: CHECKED: ----

REV	DWN	CKD	DESCRIPTION

1030 Deer Hollow Drive
Mount Airy, MD 21771
1-800-BAYSAVER
1-800-229-7283
barracuda

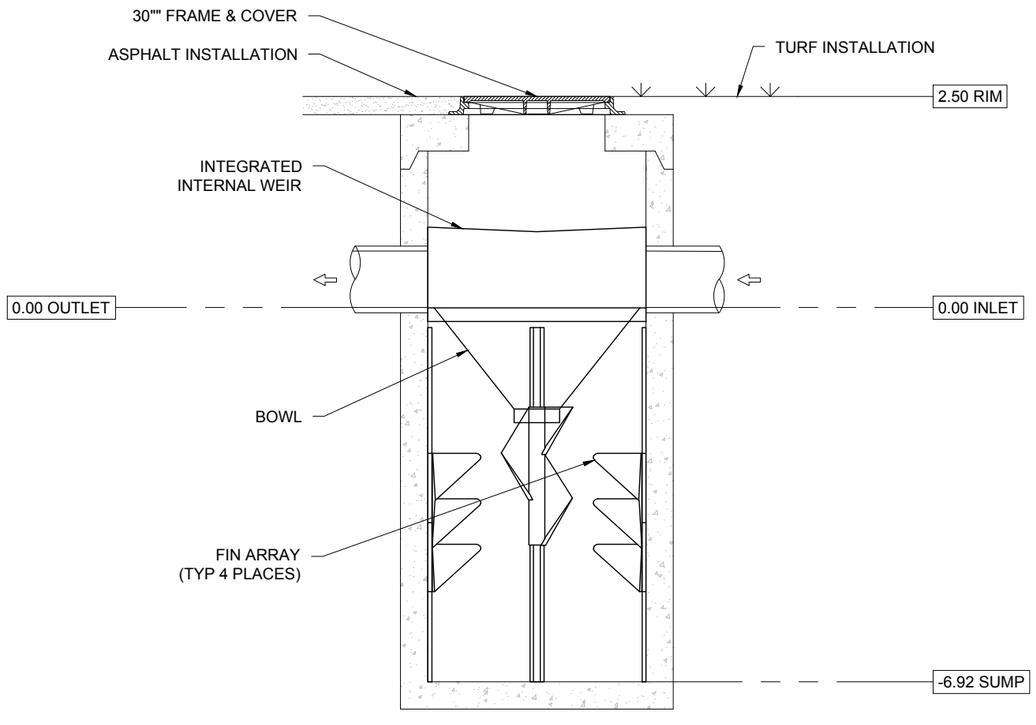
4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADS ADVANCED DRAINAGE SYSTEMS, INC.

NOT TO SCALE

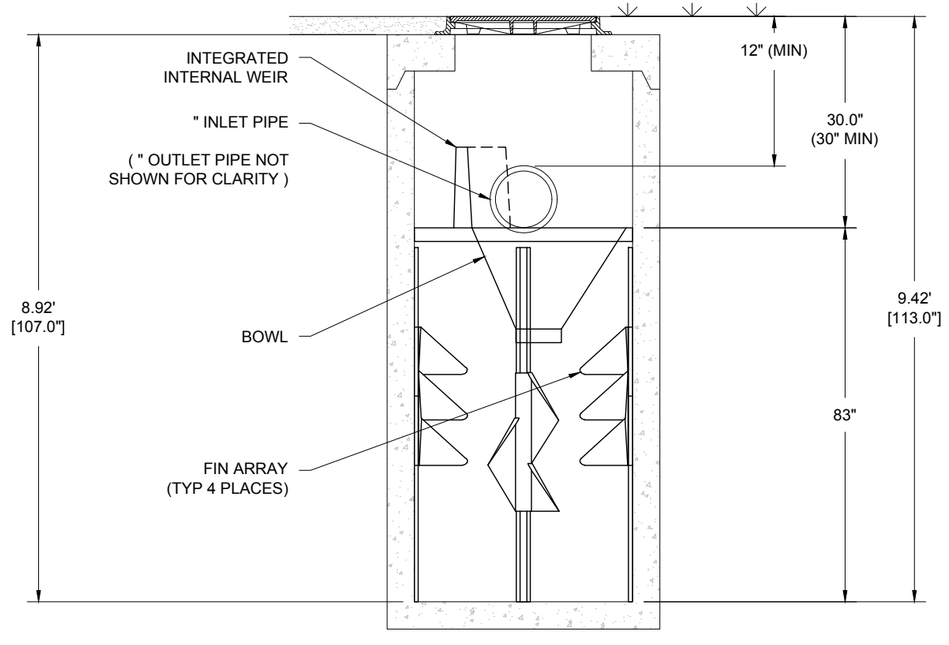


PLAN VIEW
NTS

BARRACUDA S4	
UNIT ID	BMP#1
PEAK FLOW RATE (CFS)	
TREATMENT FLOW RATE (CFS)	1.25 CFS



SECTION VIEW A-A
NTS



SECTION VIEW B-B
NTS

BARRACUDA S4
STANDARD DETAIL

DATE: 10/20/17
DRAWN: EKH
PROJECT #:
CHECKED: ----

REV	DWN	CKD	DESCRIPTION

1030 Deer Hollow Drive
Mount Airy, MD 21771
1-800-BAYSAVER
1-800-229-7283
barracuda

4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADS
ADVANCED DRAINAGE SYSTEMS, INC.

NOT TO SCALE

Maintenance Guide

BaySaver Barracuda™

July 2017

One of the advantages of the BaySaver Barracuda is the ease of maintenance. Like any system that collects pollutants, the BaySaver Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes from 2 to 4 hours, depending on the size of the system, the captured material, and the capacity of the vacuum truck.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and thereafter on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

BaySaver Barracuda Storage Capacities

Model	Manhole Diameter	Treatment Chamber Capacity	Standard Sediment Capacity (20" depth)	NJDEP Sediment Capacity (50% of standard depth)
S3	36"	212 gallons	0.44 cubic yards	0.22 cubic yards
S4	48"	564 gallons	0.78 cubic yards	0.39 cubic yards
S5	60"	881 gallons	1.21 cubic yards	0.61 cubic yards
S6	72"	1269 gallons	1.75 cubic yards	0.88 cubic yards
S8	96"	3835 gallons	3.10 cubic yards	1.55 cubic yards
S10	120"	7496 gallons	4.85 cubic yards	2.43 cubic yards

Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. You'll access this area through the 10" diameter access cylinder.

2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment and trash at an approved facility.
   - Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
   - Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
   - Additional local regulations may apply to the maintenance procedure.

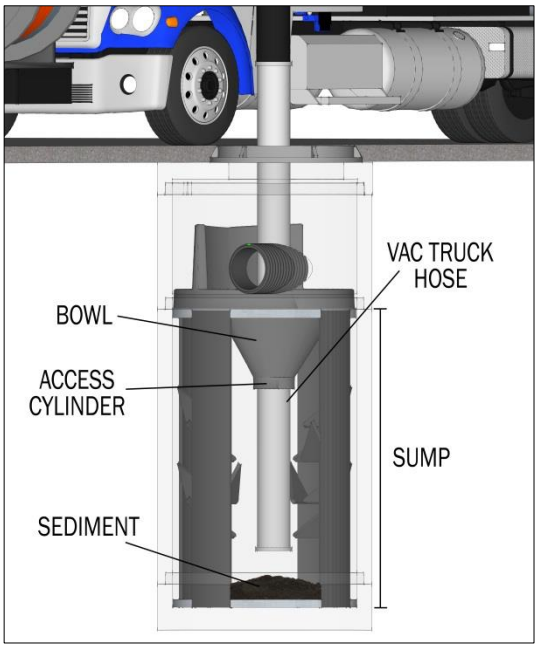


Figure 1

TECHNICAL NOTE

Barracuda® Maximum Hydraulic Rates and Required Rim to Outlet Invert Difference

TN 1.09
January 2020

Introduction

The Barracuda is a single manhole hydrodynamic separator designed to remove total suspended solids and other contaminants from stormwater. The device employs a cone structure with a vertical weir wall separating the inlet(s) and outlet pipes. This weir wall allows the unit to bypass excessive stormwater flows internally once the inletting rates exceed the designed treatment rate. This document describes the maximum hydraulic rate (MHR), or bypass capacity of the device based on unit size and rim to invert elevation difference. MHR should not be confused with Maximum Treatment Rate (MTR) which would be the flow rate at which the device meets prescribed treatment criteria.

Maximum Hydraulic Rate & Rim to Outlet Invert Difference

The maximum hydraulic rate (bypass) is governed in part by the space between the outlet invert elevation and the rim elevation of the structure, accounting for freeboard (air space). The inlet(s) and outlet invert for Barracudas are typically at the same elevation. The table below assumes a 4" tall frame mounted on an 8" thick top slab. Contact Application Engineering for applications that require rim to invert differences shallower than the minimums shown in Table 1, or for bypass rates higher than the maximums listed in Table 1.

The Barracuda can also be configured as an offline system utilizing a diversion structure for higher bypass flow rates, or at the design engineer's discretion to meet design objectives or to minimize resuspension.

Figure 1
Barracuda Standard Detail

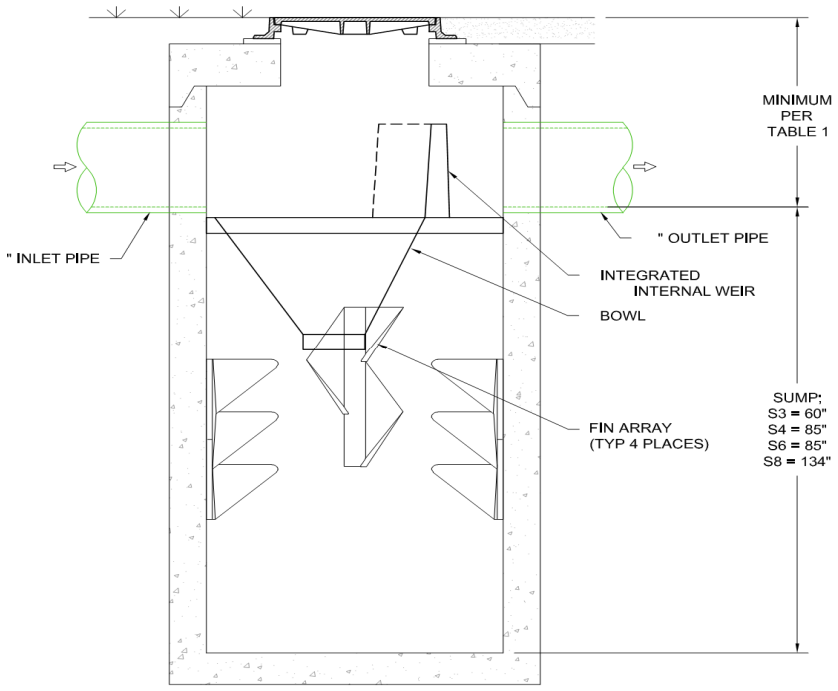


Table 1
Maximum Hydraulic Rate & Rim to Outlet Invert Difference

Barracuda S3 (36” Manhole)	
Maximum Hydraulic Rate (Bypass) cfs (L/s)	Required Rim to Outlet Invert Difference in (mm)
1.4 (39.6)	36 (914)
3.7 (104.8)	40 (1016)
5.5 (155.7)	42 (1066)
8.0 (226.5)	44 (1117)

Barracuda S4 (48” Manhole)	
Maximum Hydraulic Rate (Bypass) cfs (L/s)	Required Rim to Outlet Invert Difference in (mm)
3.5 (99.1)	36 (914)
5.0 (141.5)	40 (1016)
7.75 (219.4)	42 (1066)
10.5 (297.3)	44 (1117)

Barracuda S6 (72” Manhole)	
Maximum Hydraulic Rate (Bypass) cfs (L/s)	Required Rim to Outlet Invert Difference in (mm)
9.5 (269.0)	39 (990)
12.5 (353.9)	41 (1041)
16.0 (453.0)	43 (1092)
20.0 (566.3)	45 (1143)

Barracuda S8 (96” Manhole)	
Maximum Hydraulic Rate (Bypass) cfs (L/s)	Required Rim to Outlet Invert Difference in (mm)
13.0 (368.1)	41 (1041)
15.5 (438.9)	44 (1117)
21.0 (594.6)	46 (1168)
28.0 (792.8)	48 (1219)

CULTEC Separator Row Sizing Tables (Imperial)

Maine DEP / ADS Equivalent Sizing (OK 110 Particle Distribution)

	80% TSS Flow Rate (Maine DEP)	Chamber Width	Installed Chamber Length	Bottom Area	Treatment Rate / Chamber
CONTACTOR 100HD	2.5 gpm/sf	3.00'	7.5'	22.50 s.f.	0.125 cfs
RECHARGER 150XLHD	2.5 gpm/sf	2.75'	10.25'	28.18 s.f.	0.157 cfs
RECHARGER 180HD	2.5 gpm/sf	3.00'	6.33'	18.99 s.f.	0.106 cfs
RECHARGER 280HD	2.5 gpm/sf	3.91'	7.00'	27.37 s.f.	0.152 cfs
RECHARGER 330XLHD	2.5 gpm/sf	4.33'	7.00'	31.31 s.f.	0.174 cfs
RECHARGER 360HD	2.5 gpm/sf	5.00'	3.67'	18.35 s.f.	0.102 cfs
RECHARGER 902HD	2.5 gpm/sf	6.50'	3.67'	23.86 s.f.	0.133 cfs

ETV (ETV / NJDEP Particle Distribution)

	80% TSS Flow Rate (ETV)	Chamber Width	Installed Chamber Length	Bottom Area	Treatment Rate / Chamber
CONTACTOR 100HD	1.0 gpm/sf	3.00'	7.5'	22.50 s.f.	0.050 cfs
RECHARGER 150XLHD	1.0 gpm/sf	2.75'	10.25'	28.18 s.f.	0.063 cfs
RECHARGER 180HD	1.0 gpm/sf	3.00'	6.33'	18.99 s.f.	0.042 cfs
RECHARGER 280HD	1.0 gpm/sf	3.91'	7.00'	27.37 s.f.	0.061 cfs
RECHARGER 330XLHD	1.0 gpm/sf	4.33'	7.00'	31.31 s.f.	0.070 cfs
RECHARGER 360HD	1.0 gpm/sf	5.00'	3.67'	18.35 s.f.	0.041 cfs
RECHARGER 902HD	1.0 gpm/sf	6.50'	3.67'	23.86 s.f.	0.053 cfs

Bolton Vet - DPI Job No.4798
March 8, 2021

Water Quality Volume Calculations
Per 2004 Connecticut Stormwater Quality Manual, Section 7.4.1:

Areas for Calculation: Future Parking Area to Water Quality Basin (Basin)

Impervious	20,291 sf
Pervious	20,905 sf
Total Area	41,196 sf
% Impervious	49.25%

Water Quality Volume (WQV) = (1")[1](R)(A)/12, where:

R = unitless volumetric runoff coefficient = 0.05 + 0.009(I), where:
I = percent impervious cover of drainage area = 49.25%
R = 0.05 + 0.009(I)
R = 0.05 + 0.009(49.25)
R = 0.493

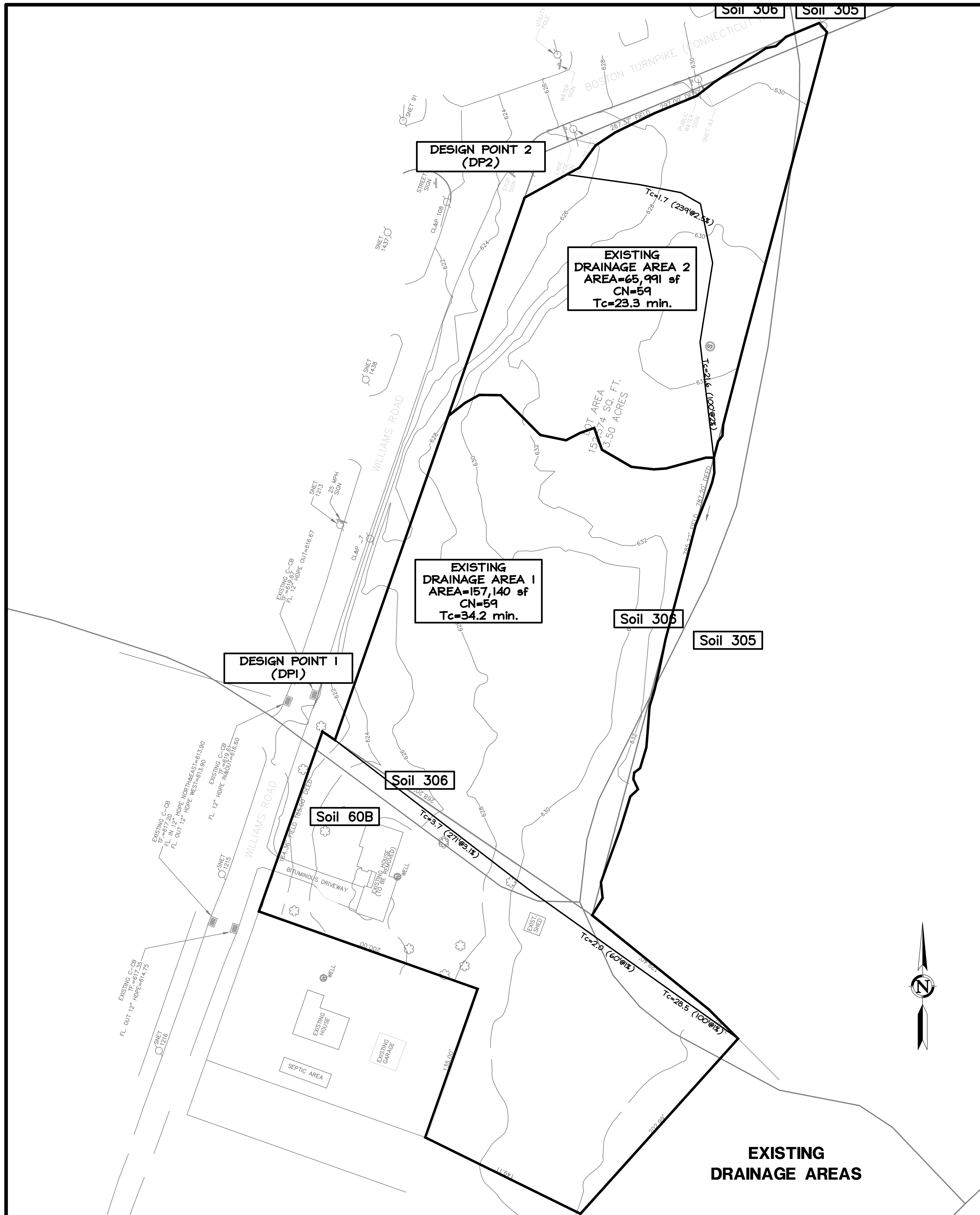
A = drainage area in acres = 0.946 acres

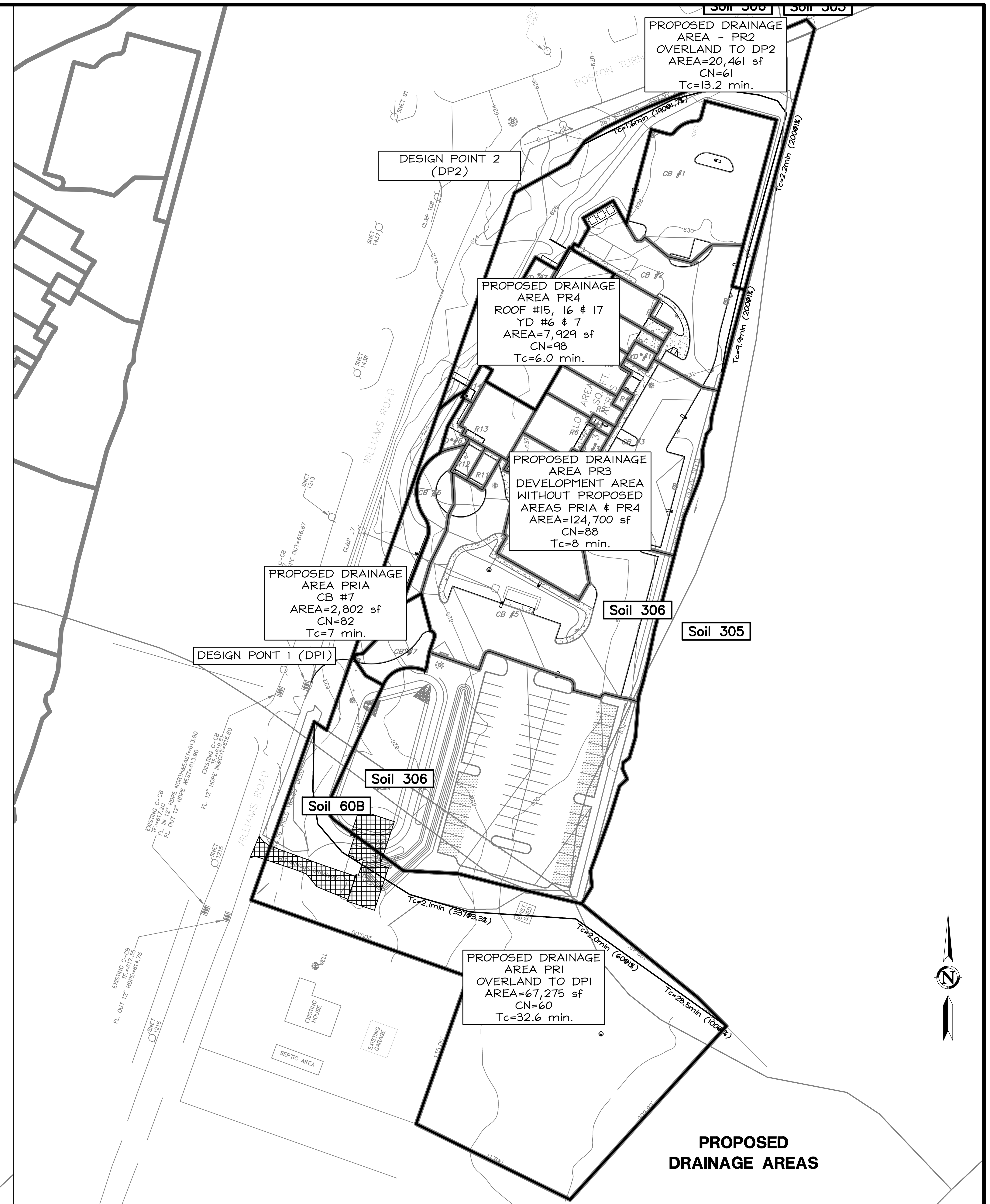
WQV = (1")(R)(A acres)/12 inches per foot
WQV = (1")(0.493)(0.946 acres)/12 inches per foot
WQV = 0.039 acre-feet required = 1,693 cft

Proposed BMP
The proposed water quality forebay is proposed to provide **1735 cft** of water quality storage. The water quality basin will provide storage for more than 100% of the water quality volume.

[1] WQV was calculated based on 1" of rainfall as recommended by the 2004 Water Quality Manual.

APPENDIX H
Drainage Area Maps





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NO.	DATE	REVISIONS	BY

BOLTON VETERINARY HOSPITAL

233 BOSTON TURNPIKE (ROUTE 44)
BOLTON, CT

PROJECT NO.:	4798
DATE:	3/8/22
DESIGN BY:	SPC
DRAWN BY:	REM
CHECKED BY:	SPC

PREPARED FOR:
Mr. Ed Grace
VCP Associates, LLC
233 Boston Turnpike
(Route 44)
Bolton, CT 06043

DRAINAGE AREAS

SCALE: 1" = 50' (0, 25', 50', 100')

SHEET
1
SHEET 1 OF 1

File: C:\Jobs\4798\Engineering\Stormwater\4798 - Drainage.dwg Layout: 01 Exist Drain Plotted: 3/11/2022 11:47 AM Last Saved: 3/11/2022 11:46 AM Last Saved By: suzanne.choate

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Bolton, CT 06043

OFFICIAL USE

Postage	$3.75
Certified Fee	$3.05
Return Receipt Fee (Endorsement Required)	$0.00
Restricted Delivery Fee (Endorsement Required)	$0.00
Total Postage & Fees	$0.58
	$7.38

0143 03
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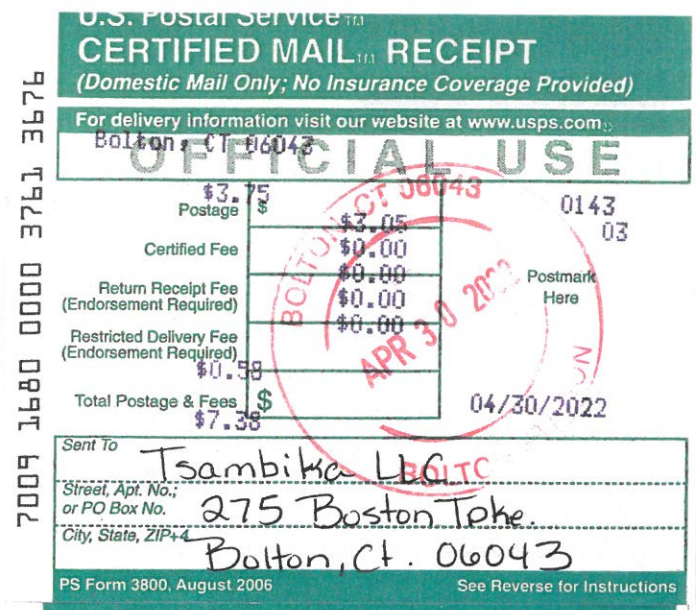
APR 3 U
04/30/2022

Sent To: Lawrence F. & Rose D. Franco
Street, Apt. No.; or PO Box No.: 240 Boston Tpke.
City, State, ZIP+4: Bolton, Ct. 06043

PS Form 3800, August 2006 See Reverse for Instructio



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Restricted Delivery Fee (Endorsement Required) $0.00
Total Postage & Fees $7.38
$0.58
0143 03
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BOLTON, CT 06043
04/30/2022
Sent To Tsambika LLC
Street, Apt. No.; or PO Box No. 275 Boston Tpke.
City, State, ZIP+4 Bolton, Ct. 06043
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Restricted Delivery Fee (Endorsement Required) $0.00
Total Postage & Fees $7.38
$0.58
0143 03
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APR 30 2022
BOLTON, CT 06043
04/30/2022
Sent To Bolton Senior Community LLC
Street, Apt. No.; or PO Box No. 1622 Main St.
City, State, ZIP+4 East Hartford, Ct. 06108
PS Form 3800, August 2006 See Reverse for Instruction
7009 1680 0000 3761 3683

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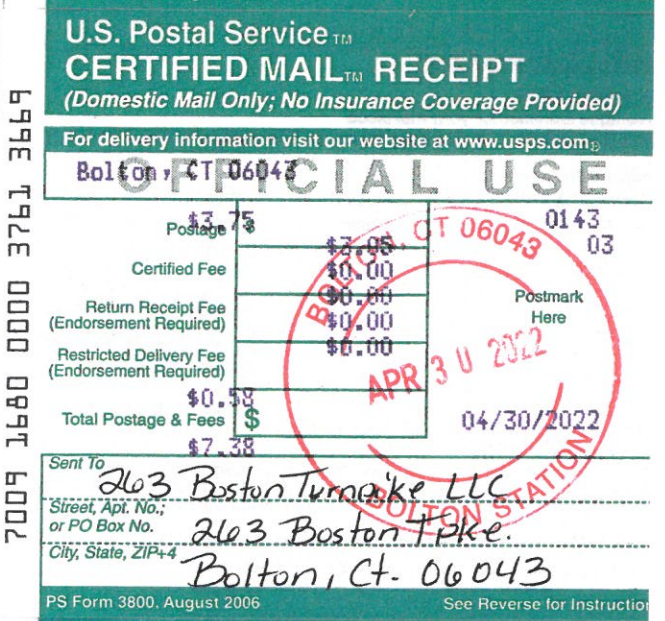
Postage $3.75
Certified Fee $3.05
Return Receipt Fee (Endorsement Required) $0.00
Restricted Delivery Fee (Endorsement Required) $0.00
Total Postage & Fees $7.38
$0.58
0143 03
Postmark Here
APR 30 2022
BOLTON, CT 06043
04/30/2022
Sent To Andrew Ansaldi Jr. Est. of &
Street, Apt. No.; or PO Box No. 39 Tunxis Trail
City, State, ZIP+4 Bolton, Ct. 06043
PS Form 3800, August 2006 See Reverse for Instructions
7009 1680 0000 3761 3577



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Bolton, CT 06043
OFFICIAL USE
Postage $3.75
Certified Fee $3.05
Return Receipt Fee (Endorsement Required) $0.00
Restricted Delivery Fee (Endorsement Required) $0.00
Total Postage & Fees $7.38
$0.58
0143 03
Postmark Here
APR 30 2022
BOLTON, CT 06043
04/30/2022
Sent To 263 Boston Turnpike LLC
Street, Apt. No.; or PO Box No. 263 Boston Tpke.
City, State, ZIP+4 Bolton, Ct. 06043
PS Form 3800, August 2006 See Reverse for Instruction
7009 1680 0000 3761 3669

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Postage $3.75
Certified Fee $3.05
Return Receipt Fee (Endorsement Required) $0.00
Restricted Delivery Fee (Endorsement Required) $0.00
Total Postage & Fees $7.38
$0.58
0143 03
Postmark Here
APR 30 2022
BOLTON, CT 06043
04/30/2022
Sent To Elizabeth A. Wright
Street, Apt. No.; or PO Box No. 10 Converse Rd.
City, State, ZIP+4 Bolton, Ct. 06043
PS Form 3800, August 2006 See Reverse for Instructions
7009 1680 0000 3761 3607

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Coventry, CT 06238
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Postage $3.75
Certified Fee $3.05
Return Receipt Fee (Endorsement Required) $0.00
Restricted Delivery Fee (Endorsement Required) $0.00
Total Postage & Fees $7.38
$0.58
0143 03
Postmark Here
APR 30 2022
BOLTON, CT 06043
04/30/2022
Sent To American Dream Home Buyers LLC
Street, Apt. No.; or PO Box No. 451 High Street
City, State, ZIP+4 Coventry, Ct. 06238
PS Form 3800, August 2006 See Reverse for Instruction
7009 1680 0000 3761 3584

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Manchester, CT 06045

OFFICIAL USE

Certified Mail Fee $3.75 — $3.75 — 0143 1

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ — $0.00
- ☐ Return Receipt (electronic) $ — $0.00
- ☐ Certified Mail Restricted Delivery $ — $0.00
- ☐ Adult Signature Required $ — $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $0.58

Total Postage and Fees $7.38

Postmark Here
BOLTON, CT 06043
APR - 2 2022
BOLTON STATION
04/02/2022

Sent To: Town Of Manchester Water Dept
Street and Apt. No., or PO Box No.: PO Box 191
City, State, ZIP+4®: Manchester, CT. 06045-0191

PS Form 3800, April 2015 PSN 7530-02-000-9047 — See Reverse for Instructions

7020 0090 0000 7963 2160

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Postage $3.75 — 0143 03

Certified Fee $3.05 — $0.00

Return Receipt Fee (Endorsement Required) $0.00 — $0.00

Restricted Delivery Fee (Endorsement Required) $0.00

Total Postage & Fees $7.38 — $

Postmark Here
BOLTON, CT 06043
APR 3 0 2022
BOLTON STATION
04/30/2022

Sent To: Joshua D. Murabito & Jennifer Ann Laforge
Street, Apt. No.; or PO Box No.: 23 Williams Rd.
City, State, ZIP+4: Bolton, Ct. 06043

PS Form 3800, August 2006 — See Reverse for Instruction

7009 1680 0000 3761 3591


BOLTON PLANNING & ZONING COMMISSION
APPLICATION
PENDING
#PZ-22-3
DATE & TIME OF PUBLIC HEARING: 05-11-22
HEARING PLACE:
GENERAL DESCRIPTION:


BOLTON PLANNING & ZONING COMMISSION
APPLICATION
PENDING
#PL-22-3
05-11-22
DATE & TIME OF PUBLIC HEARING: 7:45 PM
HEARING PLACE: REFER TO townofbolton.org
GENERAL DESCRIPTION: VETERINARY HOSPITAL
For more information, call 860-649-8066, ext. 6103


BOLTON PLANNING & ZONING COMMISSION
APPLICATION
PENDING
DATE & TIME OF PUBLIC HEARING: 05-11-22
HEARING PLACE:
GENERAL DESCRIPTION: