TOWN OF PUTNAM

TOWN HALL
200 SCHOOL STREET
PUTNAM, CONNECTICUT 06260

Inland Wetland Commission Meeting
Hybrid Meeting
June 14, 2023 7:00 P.M.
Municipal Complex Room 201 Second Floor

Agenda:

1. Call to Order & Roll Call:
2. Seating of alternate:
3. Review minutes of the May 10, 2023 meeting. VOTE REQUIRED
4. Correspondence:
5. Public Participation:
6. Unfinished Business: - (Review/Discussion/Action)

   Application: 2023-04 JSC Management Group
   51 Providence Turnpike, Tree cutting along the southern bank of Little Dam Tavern Brook.

   New Business: - (Review/Discussion/Action)

   Application: 2023-05 Jesse Betts
   546 Five Mile River Rd, Single Family Residential Construction

   Application: 2023-06 Chris Gazzola
   68 Five Mile River Rd, Single Family Residential Construction

   Application: 2023-07 McGee Automotive Family, Toyota of Hanover
   76-88 Providence Turnpike, New Construction

   Application: 2023-08 The Craft Group
   3 Park Rd, Cannabis Retail, New Construction
7. Comments By Commissioners:
8. Agent Report
9. Adjournment.

Zoom Meeting

Topic: Wetlands Zoom Meeting
Time: Jun 14, 2023 7:00 PM Eastern Time

Join Zoom Meeting
https://us06web.zoom.us/j/81358968398?pwd=QU1ZcjFnT2xXa0tOcC84eWxkMk03Zz09

Meeting ID: 813 5896 8398
Passcode: GE8SDz

By Phone
• +1 929 205 6099 US (New York)
Meeting ID: 813 5896 8398
Passcode: 689730

TOWN OF PUTNAM

TOWN HALL
200 SCHOOL STREET
PUTNAM, CONNECTICUT 06260

Inland Wetland Commission Meeting Minutes
Hybrid Meeting
May 10, 2023 7:00 P.M.
Municipal Complex Room 201 Second Floor

Agenda:

Present: Adam Paquin-Chairman, Cynthia Dunne, Theodore Altmeier
Absent: Walter Scott Irwin and Mike Bogdanski, (Due to a conflict in their schedules)
Shannon O'Shea - Alternate

Seating of alternate: N/A

Review minutes of the April 12, 2023 meeting.

Motion by Theodore Altmeier to accept the minutes, second by Cynthia Dunne. ALL WERE IN FAVOR

Correspondence: None

Public Participation: None

Unfinished Business: -

Application: 2022-12 Khaphanh & Sukpase Phongsa
601, 603, & 604 School St. - Proposed Parking Improvements on three properties, Wetlands Remediation

Bob Russo Soil Scientist and Robert Deluca of CLA Engineering reviewed the remediation plan and the lay out of the proposed parking area with the Commission. Robert Russo reviewed pictures of the areas where the violations had occurred along with the plans for the removal of the debris in those areas.

Motion by Theodore Altmeier to approve, second by Cynthia Dunne. ALL WERE IN FAVOR.

Application: 2023-03 Allan & Kathleen Rawson
19 Brookside Landing - Single Family Residential Development

David Held of Provost & Rovero supplied the Commission with an updated plan showing what was cleared on the site as requested by Bruce Fitzback from his on-site inspection conducted earlier that day. Bruce Fitzback stated he visited the site and discovered that the work was already started at the site with no permit. Trees were removed along the bank of the brook with work conducted beyond the silt fence. He reviewed pictures he took. David Held reviewed the area of concern where the dead trees had been removed in the buffer area and the stumps remained. Maples and oak trees would be planted along the bank. Allan Rawson is willing to adhere to whatever remedy is needed. Bruce Fitzback suggested to the Commission the applicant acquire an Environmental Engineer to review the site.

Motion by Theodore Altmeier to approve contingent upon it being reviewed by a certified soil scientist and follow their recommendations on plantings along the bank. To replicate both the conditions that were there to have a continuous stabled condition, and shade of the bank and brook, second by Cynthia Dunne. ALL WERE IN FAVOR

New Business:

Application: # 2023-04 JSC Management Group
51 Providence Pike - Tree cutting along the southern bank of Little Dam Tavern Brook

Thomas Johnston, Wetland Biologist employed by Terracon attended on behalf of his client Burger King. He reviewed the history of the property and the removal of the trees that had taken place resulting in the violation. He explained the planting process in length that will be consisting of 500 live stakes with the expectancy of 250 of growth taking place. The restoration area will consist of approximately 280'. Ideally it is the intent to start the installation plantings in early summer.

Motion by Theodore Altmeier to approve, second by Cynthia Dunne. ALL WERE IN FAVOR

Comments By Commissioners:

Agent Report:

No updates items had been addressed at the meeting.

Motion by Adam Paquin to adjourn, second by Theodore Altmeier. ALL WERE IN FAVOR.

Join Zoom Meeting

https://us06web.zoom.us/j/89666140558?pwd=RGhQcWhiTkZnVm9CaE5xTldoQUM2dz09

Meeting ID: 896 6614 0558
Passcode: s8biPX

By Phone +1 929 205 6099 US (New York)
Meeting ID: 896 6614 0558
Phone Passcode: 922633
Find your local number: https://us06web.zoom.us/u/kdEeh74MCk

INLAND WETLAND COMMISSION

APPENDIX A

APPLICATION FOR PERMIT

This application is for the use of inland wetlands and water courses.

The meetings are held on the second Wednesday of every month at 7:00pm in the Town Hall. If an on-site inspection is canceled due to inclement weather, the applicant is asked to call the office at 963-6803 30 minutes before the scheduled inspection to see if or when the inspection will be held.

Name of Applicant: JSC Management Group

Applicant's Address: 51 Providence Pike Putnam, CT 06260

Phone #: (585) 735-7198

Owner of Land: JSC Management Group

Owner's Address: 51 Providence Pike Putnam, CT 06260

Location and description of proposed activity: Tree cutting along the southern bank of Little Dam Tavern Brook. This is an after-the-fact permit for a Notice of Wetlands Violation issued on October 20, 2021.

Activity & Purpose Code

Please **CHECK** one in each column that best describes the activity proposed.

Code	Activity Type	Code	Activity Purpose
☐	**1** Filling	☐	**A** Residential Improvement by homeowner
☐	**2** Excavation	☐	**B** New residential development - single family
☐	**3** Land Clearing	☐	**C** New residential development - multi- family/condo
☐	**4** Stream Channel	☑	**D** Commercial/Industrial Uses
☐	**5** Stream Stabilization	☐	**E** Municipal Improvements
☐	**6** Stream Clearance	☐	**F** Utility Company Improvements
☐	**7** Culverting	☐	**G** Agriculture, Forestry or Conservation
☐	**8** Und. Grd. Util.	☐	**H** Wetland Creation/Restoration
☐	**9** Roadway Construction	☐	**I** Storm Water/Flood Control
☐	**10** Drainage Improvements	☐	**J** Erosion/Sediment Control
☐	**11** Pond Dredge/Dam Construction	☐	**K** Recreation/Boating/Navigation
☑	**12** Activity Buffer/Set Back Area	☐	**L** Routine Maintenance
☐	**13** Other: Please describe:		

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Project Name (if applicable) 51 Providence Pike Burger King After-the-Fact Permit

Estimate of Linear Footage affecting Wetlands N/A

Affected number of acres in which Wetlands are part of the impacted area for Multi-Family, Condos and Commercial Development N/A

TO BE COMPLETED BY THE COMMISSION

Application Number 2023-04 Date of Receipt _____

Application Approved (date) _____

Conditions of approval if applicable _____

Application Denied (date) _____

Reason(s) for Denial _____

_____ _____

Signature of Chairman or Secretary of Commission Date

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Application Procedure

1. Applicant will have a map showing the property boundaries, any wetlands on the property, proposed buildings, septic area, drainage if applicable and the dimension between these areas in scale 1" - 200' or less

2. Applicant must provide an approximate estimate of the linear footage of the wetlands that are affected by said proposal. This is for multi-family, condominiums or commercial development. Contact with the Zoning Official may clarify the nature of your project

3. Applicant must provide an approximate estimate of the number of acres that are affected by said proposal dealing with multi-family, condominiums and commercial development in which wetlands are part of that impacted area within the watershed.

4. Applicant will supply a copy of the soil scientist report with the application to the Wetlands Commission to be reviewed at the meeting by the Commission.

5. Applicant will have the soil scientist number the wetland flags and record the numbers of the flags on the site plan according to their location in the field. The location on the site map must match the field location.

6. If the applicant's estimates are not accurate, payment of the correct amount must be made before the Wetlands final approval of the application.

7. And any other information deemed necessary by the Commission.

Fee Schedule

1.	Permitted and non-regulated	$40.00
2.	One lot regulated	$40.00
3.	Regulated Area	
	Two (2) - Ten (10) lots	$100.00
	Ten (10) - Twenty (20) lots	$200.00
	Over Twenty (20+) lots	$300.00
4.	Multi-Family/Condominium Regulated area	
	Zero (0) to Five (5) Acres	$50.00
	Per linear foot of wetlands additional	$0.35
	Over Five (5) acres	$100.00
	Per linear foot of wetlands additional	$0.35
5.	Commercial	
	Zero (0) to Five (5) Acres	$100.00
	Per linear foot of wetlands additional	$0.50
	Over Five (5) acres	$300.00
	Per linear foot of wetlands additional	$0.50

All applications must be submitted one week prior to the regularly scheduled monthly meeting.

AFTER-THE-FACT
INLAND WETLANDS PERMIT

TOWN OF PUTNAM, WINDHAM COUNTY, CONNECTICUT



PREPARED FOR

JSC MANAGEMENT INC.

PREPARED BY

Terracon

APRIL 2023

J2217063

SKELLY AND LOY
A Terracon Company

449 Eisenhower Boulevard, Suite 300
Harrisburg, PA 17111-2302
P (717) 232-0593 | F (717) 232-1799
Terracon.com

April 18, 2023

Town of Putnam Inland Wetlands Agency
126 Church Street
Putnam, CT 06260

Attn: Bruce Fitzback, Land Use Agent Town of Putnam
E: Bruce.Fitzback@putnamct.us

Re: 51 Providence Pike, Putnam, CT After-the-Fact Inland Wetlands Permit
Project Number J2217063

Dear Mr. Fitzback:

On behalf of JSC Management Group (JSC), Skelly and Loy, Inc., *A Terracon Company* is pleased to submit an After-the-Fact Inland Wetlands Permit to resolve a Notice of Violation issued to JSC on October 20, 2021 for the Burger King Property located at 51 Providence Pike Putnam, CT.

If you have any questions or require additional information, please contact me by phone at (717) 576-3877 or by e-mail at tjohnston@skellyloy.com.

Sincerely,
Skelly and Loy, Inc., *A Terracon Company*

Thomas Johnston

Thomas R. Johnston
Senior Scientist

Don Pomeroy

Donald L. Pomeroy, C.P.G.
Authorized Project Reviewer

Attachments:

cc: Steven Vann, President – JSC Management
File: 51 Providence Pike After-the-Fact Inland Wetlands Permit

Explore with us

JSC MANAGEMENT GROUP
AFTER THE FACT INLAND WETLANDS PERMIT
PERMIT NARRATIVE
APRIL 12, 2023

JSC Management Group (JSC) is seeking an Inland Wetlands Permit from the Town of Putnam (the Town) to resolve a Notice of Violation (NOV) issued to JSC. During the development of the Burger King located at 51 Providence Pike, Putnam, Connecticut owned and operated by JSC, 20 trees were cut within the 200-foot upland review area of Little Dam Tavern Brook without prior authorization from the Town (see Sheet 1). A NOV was issued to JSC on October 20, 2021. The upland area in question is located at approximately 41.92474, -71.87763. As part of the resolution to the NOV, JSC is applying for an Inland Wetlands Permit, identifying the trees that were cut, surveying the locations of the stumps, and planting 500 live stakes along the banks of Little Dam Tavern Brook.

Little Dam Tavern Brook is a perennial watercourse in the northern section of the property that flows east to west parallel to US Route 44 and is a tributary to the Quinebaug River. The section of the watercourse that flows through the project was previously lined with rock riprap to provide additional bank stabilization. Little Dam Tavern Brook has been designated by the Town as a "Green Belt Protection" area in the Future Land Use Plan (2005), extending the upland review area to 200-feet from the ordinary high-water mark. The Connecticut Department of Energy & Environmental Protection (CT DEEP) designated Little Dam Tavern Brook as a Water Quality Class A Stream, which is a potential drinking water supply, aquatic life and wildlife habitat, recreational use, agricultural/industrial supply, and other legitimate uses including navigation water supply for industry and agriculture. Little Dam Tavern Brook is not designated as a Class 1 Wild Trout Management Area by the CT DEEP, nor is it a trout-stocked stream. No other aquatic resources were identified within the project location.

During the construction of the Burger King restaurant, 20 trees were removed to provide additional visibility of the restaurant from US Route 44. These trees were located within the 200-foot upland review area of Little Dam Tavern Brook, and their removal is considered a regulated activity as defined by the Town of Putnam Inland Wetlands and Watercourses Regulations Section 4.3, dated June 14, 2007. As part

of the resolution of the NOV, the stumps of the removed trees were identified on December 16, 2021, and surveyed on December 30, 2022. As shown on Sheet 2, some trees were located within the right-of way of Connecticut Route 44 and some were located on the property of Robert F. Guillot. JSC and Mr. Guillot have reached a preliminary settlement concerning the trees within his property.

Through coordination with the Town (December 17, 2021 Field meeting and March 31, 2023 Teams meeting), it was determined that while the trees did contribute to the stability of the banks of Little Dam Tavern Brook through root mass, their removal did not de-stabilize the banks as they are lined with rock riprap, and a detailed engineering analysis is not required. The only impact from the removal of the trees to the watercourse was the loss of shading and energy input. [Leaf material that falls into a stream is the primary energy source for the food chain for headwater streams like Little Dam Tavern Brook. Benthic invertebrates (or macroinvertebrates) digest the leaf material; predatory invertebrates and fish feed on the herbaceous invertebrates.]

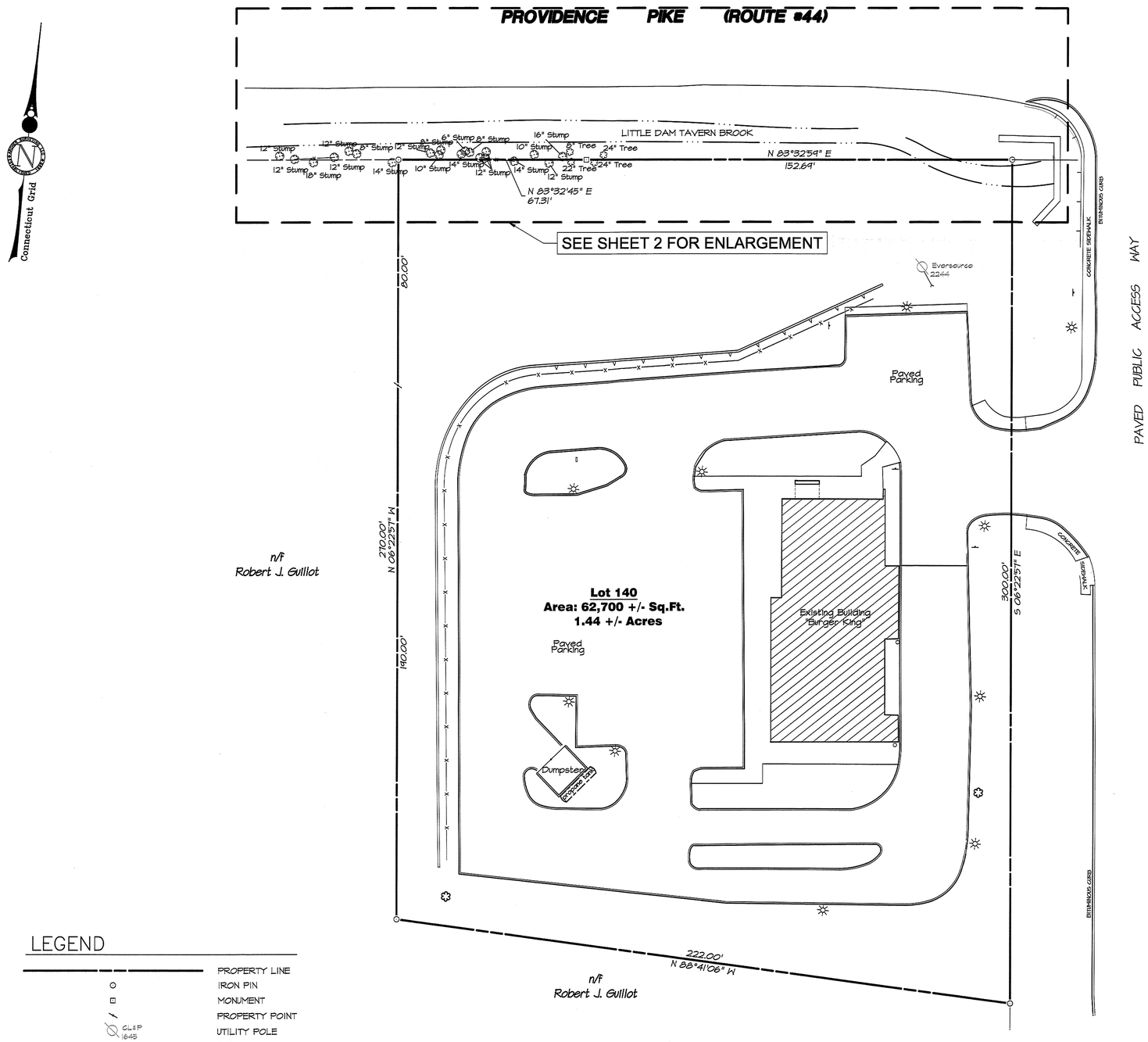
To restore shading and energy input and provide additional bank stability, JSC is proposing to plant native Live Stakes along the banks of Little Dam Tavern Brook. Live Stakes are freshly cut stem sections of native species that are treated with a rooting powder and driven into place with a mallet. Live Stakes are preferred as they can be planted without digging, which could potentially compromise the bank stability. Live Stakes have a high survival rate and grow quickly. The restoration area (see Sheet 2) will be planted with 500 2-to-3-foot height Live Stakes installed within the restoration area at suitable locations along the Little Dam Tavern Brook. Suitable locations will include specific locations with adequate soil, sunlight, and vertical proximity to shallow groundwater adjacent to the Brook. Live State species will include an even mix of Willows (*Salix* species), Alders (*Alnus* species) and Dogwoods (*Cornus* species).

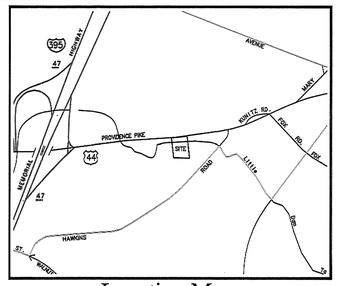
JSC will inspect the restoration zone 1 year after the live stakes are planted to ensure that the plantings are successful. If the survival rate of the live stakes is below 50%, JSC will coordinate with the Town to determine the best course of action to bring the restoration zone into an acceptable condition. A 50% survival rate will ensure that at least 250 native shrubs have survived within the restoration area.

Other than the planting of large containerized trees, no other alternatives were evaluated to resolve the NOV. Planting larger trees along the banks of Little Dam Tavern Brook would require digging with

machinery and potentially destabilizing banks and further polluting the watercourse. The installation of Live States requires no digging to plant and grow quickly.

There are no other impacts to regulated waters such as wetlands or the ordinary high-water mark of Little Dam. JSC Management is familiar with all the information in this permit application and is aware of the penalties for obtaining a permit through deception or through inaccurate/misleading information. JSC authorizes members and agents of the Town to inspect the subject land at reasonable times during the pendency of the application and for the life of the permit.





CL&P 1497
368.94

Connecticut Grid

LEGEND

	PROPERTY LINE
○	IRON PIN
□	MONUMENT
	PROPERTY POINT
CL&P 1645	UTILITY POLE
	SIGN
✲	LIGHT STANDARD

Notes

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Section 20-300b-20 and the "Standards for Surveys and Maps in State of Connecticut" as adopted by the Connecticut Associations of Land Surveyors, Inc. on September 26, 1996

- This Survey conforms to a Class "A-2" Horizontal Accuracy
- Survey Type: Existing Conditions Survey
- Boundary Determination: Resurvey
- Intent: Location of stumps along road

2. Parcel shown as Lot 140, on Assessors Tax Map 26 of the Putnam Assessors Office

MAP REFERENCES:

1. ALTA/NSPS Land Title Survey, Plaza Street Fund 122, LLC, Lot #1-1, #51 Providence Pike (Route #44), Windham County, Town of Putnam, Connecticut, Date: Nov. 24, 2021, Scale: 1"=20', Prepared by: KWP Associates Surveying-Engineering-Site Planning

To My Knowledge and Belief this Map is substantially Correct as noted hereon.

Paul M. Archer LLS #10013 Date

REVISIONS	
DATE	DESCRIPTION
01-19-23	Title Block

SHEET #1
GENERAL SITE PLAN

Perimeter Survey

Prepared For:
JSC Putnam Land LLC
#51 Providence Pike (Route #44)
Putnam, Connecticut

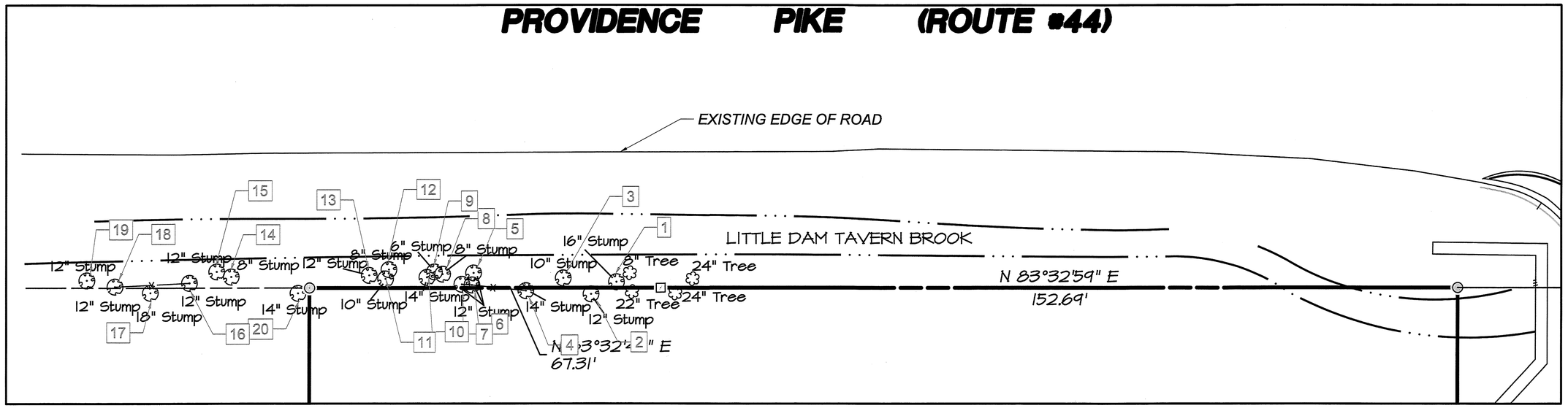
DRAWING SCALE: 1"=20' 0 10 20 40

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240 / (860) 928-1921
KWP Associates
SURVEYING - ENGINEERING - SITE PLANNING
LOUIS J. SOJA, JR.
LAND SURVEYOR-LAND PLANNER

Sheet No.	Project No.	Date:
1 OF 1	1980	December 30, 2022

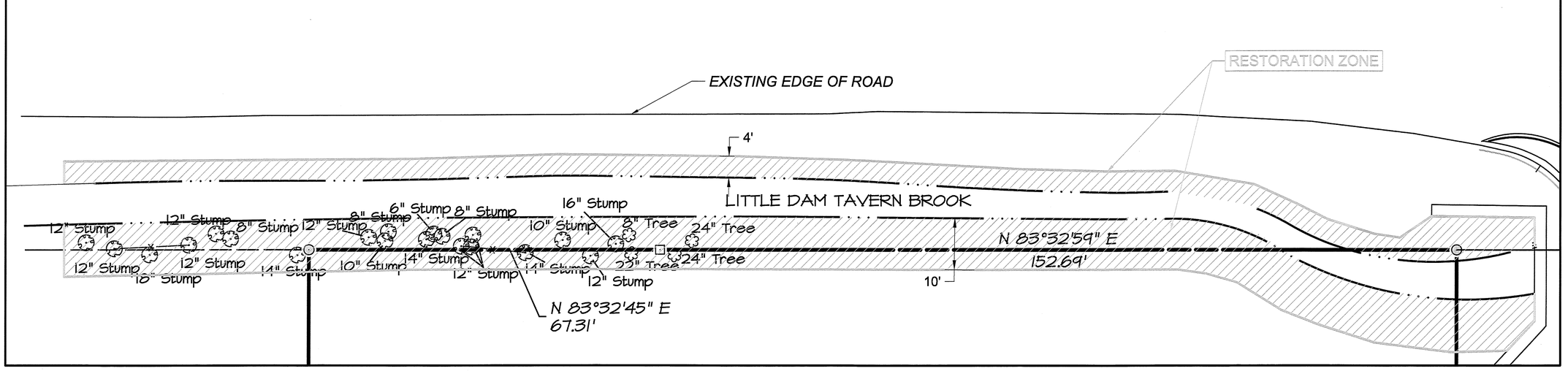
STUMP SCHEDULE

ID Number	Est. Stump Diameter	Species
1	16”	Maple
2	12”	Maple
3	10”	Maple
4	14”	Maple
5	12”	Maple
6	12”	Maple
7	12”	Maple
8	8”	Maple
9	6”	Maple
10	14”	Maple
11	10”	Elm
12	8”	Maple
13	12’	Elm
14	8”	Maple
15	12”	Maple
16	12”	Maple
17	18”	Maple
18	12”	Maple
19	12”	Maple
20	14”	Elm



TREE REMOVAL PLAN

N



RESTORATION PLAN

RESTORATION NOTE:
The restoration area will be planted with 500 2 to 3 foot height Live Stakes installed within the restoration area at suitable locations along the Little Dam Tavern Brook. Suitable locations will include specific locations with adequate soil, sunlight, and vertical proximity to shallow groundwater adjacent to the Brook. Live State species will include an even mix of Willows (Salix species), Alders (Alnus species) and Dogwoods (Cornus species).

0' 10' 20' 30'

SHEET #2
TREE REMOVAL AND RESTORATION PLAN

Putnam, Connecticut

SKELLY AND LOY
A Terracon Company
449 Eisenhower Boulevard, Suite 300, Harrisburg, Pennsylvania
Phone: (717) 232-0593, Fax: (717) 232-1799, e-mail: skellyloy@skellyloy.com

DATE: 3/30/2023	DRW BY: DJJ	SCALE:1" = 10'
NO. J2217063	CHCK BY: TRJ	DWG. NO. 2

Plotted on: 2023-04-11 Plotted By: Johnston, Dan J File Name: O:\BK Conn\Figures.dwg

INLAND WETLAND COMMISSION

APPENDIX A

APPLICATION FOR PERMIT

This application is for the use of inland wetlands and water courses.

The meetings are held on the second Wednesday of every month at 7:00pm in the Town Hall. If an on-site inspection is canceled due to inclement weather, the applicant is asked to call the office at 963-6803 30 minutes before the scheduled inspection to see if or when the inspection will be held.

Name of Applicant: Jesse Betts

Applicant's Address: 194 school street apt 1, Putnam, CT

Phone #: (401) 808-0392

Owner of Land: Jesse Betts

Owner's Address: 546 Five Mile River Road

Location and description of proposed activity: 546 Five Mile River Rd, Diagonal from Countryside Self Storage. Building a single family residential home to live in.

Activity & Purpose Code

Please **CHECK** one in each column that best describes the activity proposed.

Code	Activity Type
☑	1 Filling
☑	2 Excavation
☑	3 Land Clearing
☐	4 Stream Channel
☐	5 Stream Stabilization
☐	6 Stream Clearance
☐	7 Culverting
☐	8 Und. Grd. Util.
☐	9 Roadway Construction
☐	10 Drainage Improvements
☐	11 Pond Dredge/Dam Construction
☑	12 Activity Buffer/Set Back Area
☐	13 Other: Please describe:

Code	Activity Purpose
☐	A Residential Improvement by homeowner
☑	B New residential development - single family
☐	C New residential development - multi- family/condo
☐	D Commercial/Industrial Uses
☐	E Municipal Improvements
☐	F Utility Company Improvements
☐	G Agriculture, Forestry or Conservation
☐	H Wetland Creation/Restoration
☐	I Storm Water/Flood Control
☐	J Erosion/Sediment Control
☐	K Recreation/Boating/Navigation
☐	L Routine Maintenance

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Project Name (if applicable) 546 Five Mile River Rd

Estimate of Linear Footage affecting Wetlands 137

Affected number of acres in which Wetlands are part of the impacted area for Multi-Family, Condos and Commercial Development 1000 sq ft

TO BE COMPLETED BY THE COMMISSION

Application Number 2023-05 Date of Receipt 5.31.2023 ck# 185

Application Approved (date) _____

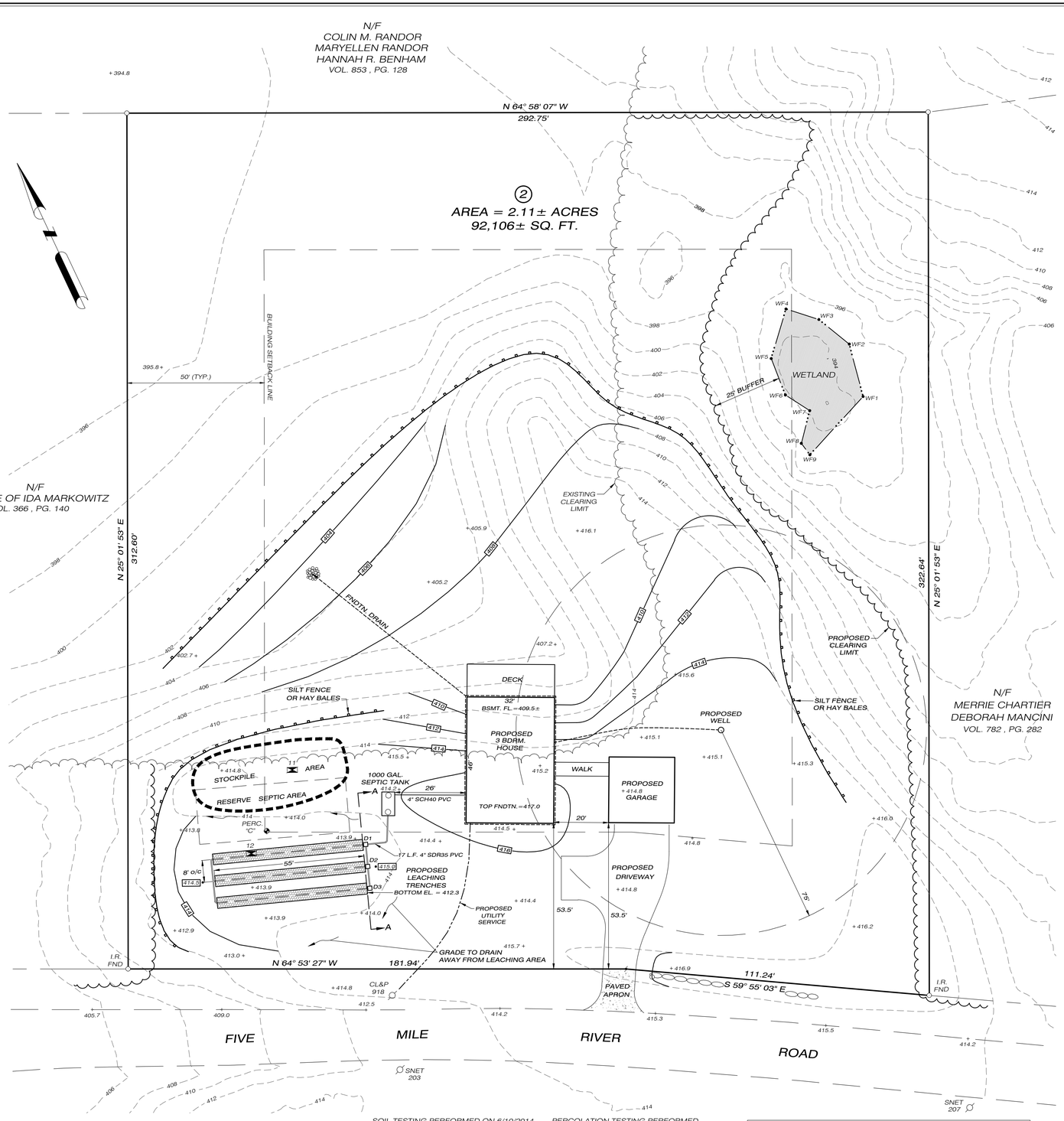
Conditions of approval if applicable _____

Application Denied (date) _____

Reason(s) for Denial _____

_____ _____

Signature of Chairman or Secretary of Commission Date



HOUSE
F/L OUT = 414.1
SEPTIC TANK
1000 GALLON TWO COMPARTMENT F/L IN = 413.5 F/L OUT = 413.25
DISTRIBUTION BOXES
D-1 INV. IN = 413.97 INVS. OUT = 412.8
D-2 INVS. = 412.8
D-3 INVS. = 412.8

SEPTIC SYSTEM DESIGN CRITERIA

PERC RATE: 1.3 MINS/INCH
NUMBER OF BEDROOMS: 3
SEPTIC TANK: 1000 GALLON
LEACHING AREA REQUIRED: 495 SQUARE FEET
LEACHING AREA PROVIDED: 165' OF STANDARD LEACHING TRENCHES @ 3.0 S.F. / L.F. = 495 SQUARE FEET , (3 ROWS, 55' LONG, SPACED 8' O.C., LEVEL SYSTEM w/ ENDS CONNECTED)
MOTTLING: N/A, LEDGE: N/A, WATER: N/A

MLSS CALCULATION: N/A

MAX. DEPTH INTO EXISTING GRADE: 20" (PERC. TEST DEPTH)

SPECIFICATIONS
SEPTIC SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH THE "CONNECTICUT PUBLIC HEALTH CODE REGULATIONS AND TECHNICAL STANDARDS FOR SUBSURFACE SEWAGE DISPOSAL SYSTEMS".

SEPTIC TANK: 1000 GALLON JOLLEY PRECAST, INC. OR EQUAL TWO-COMPARTMENT TANK WITH OUTLET FILTER. INSTALL RISERS OVER TANK CLEANOUTS IF COVER OVER TANK EXCEEDS 1'.

DISTRIBUTION BOX: JOLLEY OR EQUAL 4 HOLE D-BOX

HOUSE AND EFFLUENT SEWER PIPE: 4" PVC ASTM D 1785, ASTM D 2665, OR ASTM F 1760 SCHEDULE 40 WITH RUBBER COMPRESSION GASKETS OR PVC AWWA C-900 WITH RUBBER COMPRESSION GASKETS.

DISTRIBUTION: 3 ROWS OF STANDARD 4' WIDE x 12" DEEP PIPE AND STONE LEACHING TRENCHES WITH CONNECTED ENDS, LEVEL SYSTEM.

POLYLOK PIPE SEAL AS MANUFACTURED BY SUPERIOR SEPTIC TANKS (OR EQUAL) SHALL BE USED TO SEAL SEPTIC TANK AND D-BOX INLETS AND OUTLETS.

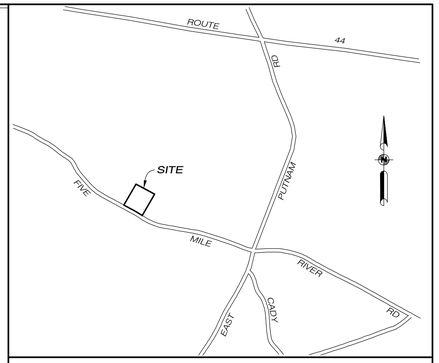
BOTTOM OF TRENCHES TO BE LEVEL.

ALL FILL SHALL BE CLEAN BANK RUN GRAVEL, MEETING THE FOLLOWING REQUIREMENTS OF THE CT DEPT. OF PUBLIC HEALTH.: MAX. PERCENT GRAVEL (PLUS NO. 4 SIEVE MATERIAL) - 45% GRADATION ON FILL LESS GRAVEL:

SIEVE	DRY PERCENT PASSING	WET PERCENT PASSING
NO. 4	100	100
NO.10	70-100	70-100
NO. 40	10-75	10-50*
NO. 100	0-5	0-20
NO. 200	0-2.5	0-5

** 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% FILL MUST PERC AT A RATE EQUAL TO OR FASTER THAN THE UNDERLYING SOIL.*

THE HOUSE, WELL, AND SEPTIC SYSTEM LOCATIONS SHALL BE STAKED IN THE FIELD BY A LAND SURVEYOR PRIOR TO THE START OF ANY CONSTRUCTION. THE SURVEYOR SHALL INSTALL A STABLE BENCHMARK DURING STAKEOUT IN AREA OF THE SYSTEM.



LOCATION MAP *1" = 1000'*

NOTES:

1. THIS MAP AND SURVEY HAVE BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THRU 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. IT IS A GENERAL LOCATION SURVEY BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS "C". TOPOGRAPHIC FEATURES DEPICTED WITHIN AREA OF DEVELOPMENT ARE BASED ON FIELD SURVEY CONFORMING TO TOPOGRAPHIC ACCURACY CLASS T-2. TOPOGRAPHIC FEATURES DEPICTED ON THE REST OF THE LOT HAVE BEEN TAKEN FROM DIGITAL LIDAR DATA AVAILABLE FROM THE NOAA COASTAL SERVICES WEBSITE AND CONFORM TO TOPOGRAPHIC ACCURACY CLASS T-D. THIS MAP WAS PREPARED FROM OTHER MAPS, DEED DIMENSIONS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY/BOUNDARY OR LIMITED PROPERTY/ BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS AS SAID SURVEYS MAY DISCLOSE. THE PURPOSE OF THIS MAP AND SURVEY IS TO DEPICT THE LOCATION OF PROPOSED IMPROVEMENTS ON THE SUBJECT PROPERTY FOR PERMITTING PURPOSES.

2. REFERENCE MAP: PROPOSED SUBDIVISION MAP PREPARED FOR IDA MARKOWITZ - FIVE MILE RIVER ROAD, PUTNAM, CONNECTICUT - DATE: JUNE 2014 - REVISED 5/25/2017 - SCALE: 1"=60' - SHEET 1 OF 3 - BY: PC SURVEY ASSOCIATES, LLC

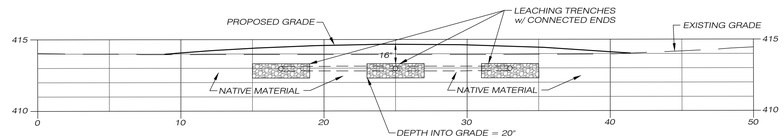
3. REFERENCE DEED: VOLUME 852, PAGE 980 PUTNAM LAND RECORDS.

4. SUBJECT PARCEL IS SHOWN AS MAP 34 LOT 83 OF THE PUTNAM ASSESSOR'S RECORDS.

5. WETLANDS DEPICTED AS FIELD DELINEATED BY JOSEPH R. THEROUX, SOIL SCIENTIST ON 5/16/2014.

6. LOT IS NOT LOCATED WITHIN FEMA 100-YEAR FLOOD ZONE.

ZONE: AG-2	REQ'D	PROV'D
AREA	87,120 S.F. (2 ACRES)	92,106± S.F. (2.11 ACRES)
FRONTAGE:	250'	293.18'
FRONT YARD	50'	53.5'
SIDE YARD	50'	124'± (HOUSE) , 93'± (GARAGE)
REAR YARD	50'	>200'



LEACHFIELD CROSS-SECTION A-A
SCALE: 1"=5'

LEGEND

- IRON PIN FOUND
- ANGLE POINT
- STONE WALL
- 412 — EXISTING CONTOUR
- + 418.5 EXISTING SPOT GRADE
- 412 PROPOSED CONTOUR
- • 415.0 PROPOSED SPOT GRADE
- TEST PIT
- EROSION CONTROL BARRIER
- WF3 EDGE OF DELINEATED WETLAND

SOIL TESTING PERFORMED ON 6/10/2014 BY NDDH (FILE NO. 14000256)

TEST HOLE 11

0-8" TOPSOIL w/ ORGANICS, ROOTS
8"-21" GRAVELLY SANDY LOAM
21-96" STONY COARSE SAND & GRAVEL
NO WATER
NO MOTTLING
NO LEDGE

TEST HOLE 12

0-8" TOPSOIL w/ ORGANICS, ROOTS
8"-21" GRAVELLY SANDY LOAM, ROOTS
21-100" STONY COARSE SAND & GRAVEL
NO WATER
NO MOTTLING
NO LEDGE

PERCOLATION TESTING PERFORMED ON 6/10/2014 BY NDDH (FILE NO. 14000256)

TIME	READING
11:47	9.5"
11:51	16.5"
11:52	17.75"
11:53	18.5"
11:54	DRY

PERCOLATION RATE: 1.3 MIN./INCH

UNDERGROUND UTILITY LOCATIONS ARE TO BE MARKED IN THE FIELD PRIOR TO ANY EXCAVATION
"CALL BEFORE YOU DIG" 1 800 922 4455 OR 811

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

PAUL A. TERWILLIGER, L.S. NO. 70155 — 9/22/2022 DATE

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS MAP BEARS THE EMBOSSED SEAL OF THE LAND SURVEYOR WHOSE SIGNATURE APPEARS HEREON.

Killingly Engineering Associates
114 Westcott Road
P.O. Box 421
Dayville, Connecticut 06241

NORMAND THIBEAULT, JR., P.E. No. 22834 DATE

GENERAL LOCATION SURVEY
PROPOSED LOT DEVELOPMENT & SEPTIC SYSTEM DESIGN PLAN
PREPARED FOR
JESSE BETTS

SURVEYING • MAPPING • PLOT PLANS • TOPOGRAPHY • SUBDIVISION
LAND RECORD RESEARCH
Survey Associates LLC
email: pcsurvey@snet.net
63 SNAKE MEADOW RD
KILLINGLY, CT 06239
860 774 6230

FIVE MILE RIVER ROAD	
PUTNAM, CONNECTICUT	
DATE: SEPTEMBER 2022	SHEET NO: 1 OF 1
SCALE: 1" = 20'	REVISED:
0 10' 20' 40' 60'	
JOB NO: 22034 / F.B. NO:	DRAWN BY: P.A.T. / MAP NO:

REFERENCE IS MADE TO:

CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, MAY 2002.

DEVELOPMENT

PROPOSED DEVELOPMENT CONSISTS OF THE CONSTRUCTION OF A SINGLE FAMILY DWELLING WITH APPURTENANT SEPTIC SYSTEM, WELL, DRIVEWAY, UTILITIES AND SITE GRADING.

CONSTRUCTION SEQUENCE:

1. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES WHERE INDICATED ON PLAN.
2. REMOVE AND STOCKPILE TOPSOIL AND INSTALL SEDIMENT BARRIER.
3. EXCAVATE FOUNDATION AND BEGIN HOUSE CONSTRUCTION.
4. INSTALL SEPTIC SYSTEM AND WELL.
5. INSTALL DRIVEWAY AND UTILITIES TO THE RESIDENCE.
6. LOAM, SEED & MULCH DISTURBED AREAS.
8. REMOVE EROSION AND SEDIMENT CONTROL UPON SITE STABILIZATION.

GENERAL DEVELOPMENT PLAN

PRIOR TO THE COMMENCEMENT OF OPERATIONS IN ACCORDANCE WITH ANY PERMIT ISSUED BY THE TOWN, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL DEVICES.

THE CONTRACTOR SHALL OBTAIN A SITE INSPECTION FROM THE TOWN ZONING ENFORCEMENT OFFICER / WETLANDS AGENT TO ENSURE THAT ALL EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED IN ACCORDANCE WITH THIS NARRATIVE. UPON APPROVAL WITH RESPECT TO THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES, THE CONTRACTOR MAY COMMENCE OPERATIONS PURSUANT TO THE PERMIT. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE "SILT FENCE INSTALLATION & MAINTENANCE" AND "HAY BALE INSTALLATION & MAINTENANCE" SECTIONS OF THIS NARRATIVE.

ALL STRIPPING IS TO BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA. TOPSOIL SHALL BE STOCKPILED SO THAT SLOPES DO NOT EXCEED 2 TO 1. THERE SHALL BE NO BURIAL OF STUMPS. A SILT FENCE OR HAY BALE SEDIMENT BARRIER IS TO SURROUND EACH STOCKPILE AND A TEMPORARY VEGETATIVE COVER PROVIDED IF NECESSARY.

ANY NECESSARY DUST CONTROL WILL BE ACCOMPLISHED BY SPRAYING WITH WATER.

FINAL STABILIZATION OF THE SITE IS TO FOLLOW THE PROCEDURES OUTLINED IN PERMANENT VEGETATIVE COVER. IF NECESSARY A TEMPORARY VEGETATIVE COVER IS TO BE PROVIDED UNTIL A PERMANENT COVER CAN BE APPLIED.

DURING THE STABILIZATION PERIOD, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN PROPER WORKING ORDER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING ALL EROSION AND SEDIMENT CONTROL ON A TWICE-WEEKLY BASIS DURING THE STABILIZATION PERIOD AND AFTER EACH STORM EVENT. DURING THE STABILIZATION PERIOD WITH RESPECT TO THE SITE, ANY EROSION WHICH OCCURS WITHIN DISTURBED AREAS SHALL BE IMMEDIATELY REPAIRED, RESEEDED AND RE-ESTABLISHED.

ALL DISTURBED SLOPES SHALL BE STABILIZED WITHIN ONE SEASON (SPRING OR FALL) OF THE COMPLETION OF THE PROJECT BEFORE A CERTIFICATE OF COMPLIANCE WILL BE ISSUED.

ONCE STABILIZATION HAS BEEN COMPLETED AND APPROVED BY THE TOWN ZONING ENFORCEMENT OFFICER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED BY THE CONTRACTOR.

SILT FENCE INSTALLATION AND MAINTENANCE:

1. DIG A 6" DEEP TRENCH ON THE UPHILL SIDE OF THE BARRIER LOCATION.

2. POSITION THE POSTS ON THE DOWNHILL SIDE OF THE BARRIER AND DRIVE THE POSTS 1 F00T INTO THE GROUND.

3. LAY THE BOTTOM 6" OF THE FABRIC IN THE TRENCH TO PREVENT UNDERMINING AND BACKFILL.

4. INSPECT AND REPAIR BARRIER AFTER HEAVY RAINFALL.

5. INSPECTIONS WILL BE MADE AT LEAST ONCE PER WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.5 INCH OR GREATER TO DETERMINE MAINTENANCE NEEDS.

6. SEDIMENT DEPOSITS ARE TO BE REMOVED WHEN THEY REACH A HEIGHT OF 1 FOOT BEHIND THE BARRIER OR HALF THE HEIGHT OF THE BARRIER AND ARE TO BE DEPOSITED IN AN AREA WHICH IS NOT REGULATED BY THE INLAND WETLANDS COMMISSION.

7. REPLACE OR REPAIR THE FENCE WITHIN 24 HOURS OF OBSERVED FAILURE. FAILURE OF THE FENCE HAS OCCURRED WHEN SEDIMENT FAILS TO BE RETAINED BY THE FENCE BECAUSE:
- THE FENCE HAS BEEN OVERTOPPED, UNDERCUT OR BYPASSED BY RUNOFF WATER,
- THE FENCE HAS BEEN MOVED OUT OF POSITION, OR
- THE GEOTEXTILE HAS DECOMPOSED OR BEEN DAMAGED.

HAY BALE INSTALLATION AND MAINTENANCE:

1. BALES SHALL BE PLACED AS SHOWN ON THE PLANS WITH THE ENDS OF THE BALES TIGHTLY ABUTTING EACH OTHER.

2. EACH BALE SHALL BE SECURELY ANCHORED WITH AT LEAST 2 STAKES AND GAPS BETWEEN BALES SHALL BE WEDGED WITH STRAW TO PREVENT WATER FROM PASSING BETWEEN THE BALES.

3. INSPECT BALES AT LEAST ONCE PER WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.5 INCHES OR GREATER TO DETERMINE MAINTENANCE NEEDS.

4. REMOVE SEDIMENT BEHIND THE BALES WHEN IT REACHES HALF THE HEIGHT OF THE BALE AND DEPOSIT IN AN AREA WHICH IS NOT REGULATED BY THE INLAND WETLANDS COMMISSION.

5. REPLACE OR REPAIR THE BARRIER WITHIN 24 HOURS OF OBSERVED FAILURE. FAILURE OF THE BARRIER HAS OCCURRED WHEN SEDIMENT FAILS TO BE RETAINED BY THE BARRIER BECAUSE:
- THE BARRIER HAS BEEN OVERTOPPED, UNDERCUT OR BYPASSED BY RUNOFF WATER,
- THE BARRIER HAS BEEN MOVED OUT OF POSITION, OR
- THE HAY BALES HAVE DETERIORATED OR BEEN DAMAGED.

TEMPORARY VEGETATIVE COVER

A TEMPORARY SEEDING OF RYE GRASS WILL BE COMPLETED WITHIN 15 DAYS OF THE FORMATION OF STOCKPILES. IF THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS IT SHALL BE LOOSENED TO A DEPTH OF 2 INCHES BEFORE THE FERTILIZER, LIME AND SEED IS APPLIED. 10-10-10 FERTILIZER AT A RATE OF 7.5 POUNDS PER 1000 S.F. LIMESTONE AT A RATE OF 90 LBS. PER 1000 S.F. SHALL BE USED. RYE GRASS APPLIED AT A RATE OF 1 LB. PER 1000 S.F. SHALL PROVIDE THE TEMPORARY VEGETATIVE COVER. STRAW FREE FROM WEEDS AND COARSE MATTER SHALL BE USED AT A RATE OF 70-90 LBS. PER 1000 S.F. AS A TEMPORARY MULCH. APPLY A JUTE NETTING COVER TO SLOPES OF 3:1 OR GREATER SLOPE.

PERMANENT VEGETATIVE COVER

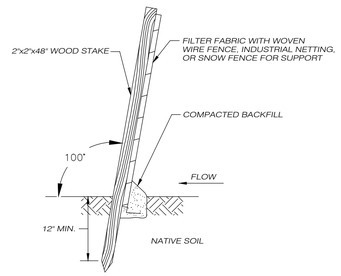
TOPSOIL WILL BE REPLACED ONCE THE EXCAVATION AND FILL PLACEMENT HAS BEEN COMPLETED AND THE SLOPES ARE GRADED TO A SLOPE NO GREATER THAN 2 TO 1. PROVIDE SLOPE PROTECTION ON ALL CUT SLOPES. TOPSOIL WILL BE SPREAD AT A MINIMUM COMPACTED DEPTH OF 4 INCHES. ONCE THE TOPSOIL HAS BEEN SPREAD, ALL STONES TWO INCHES OR LARGER IN ANY DIMENSION WILL BE REMOVED AS WELL AS DEBRIS, APPLY AGRICULTURAL GROUND LIMESTONE AT THE RATE OF TWO TONS PER ACRE OR 100 LBS. PER 1000 S.F. APPLY 10-10-10 FERTILIZER OR EQUIVALENT AT A RATE OF 300 LBS. PER ACRE OR 7.5 LBS. PER S.F. WORK LIMESTONE INTO THE SOIL TO A DEPTH OF 4 INCHES. INSPECT SEEDBED BEFORE SEEDING. IF TRAFFIC HAS COMPACTED THE SOIL, RETILL COMPACTED AREAS. APPLY THE FOLLOWING GRASS SEED MIX:

SEED MIXTURE	LBS./ACRE	LBS./1000 S.F.
KENTUCKY BLUEGRASS	20	0.45
CREEPING RED FESCUE	20	0.45
PERENNIAL RYEGRASS	5	0.10
	45	1.00

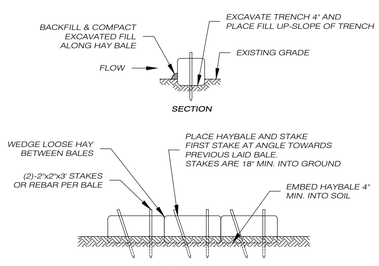
THE RECOMMENDED SEEDING DATES ARE: APRIL 1 - JUNE 15 AND AUGUST 30 - OCTOBER 1

IN AREAS WHERE LAWN IS NOT DESIRED, SEED WITH PERENNIAL GROUND COVER PLANTINGS SUCH AS MICROCLOVER, ECOGRASS, CAREX PENSYLVANICA DWARF, WHITE CLOVER, CARPETS (THYME, SEDUMS, LOW-GROWING GROUND COVERS), SHALLOW, SHORT/SOFT ROOTED PERENNIALS, BULB/CORM/RHIZOME/TUBERS,FERN AND MOSS.

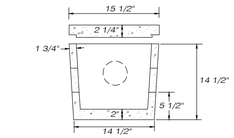
FOLLOWING SEEDING MULCH WITH WEED FREE STRAW AND APPLY A JUTE NETTING COVER TO AREAS OF 3:1 OR GREATER SLOPE



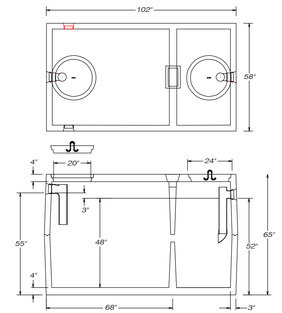
SILT FENCE SECTION
NOT TO SCALE



HAY BALE BARRIER DETAIL
NOT TO SCALE

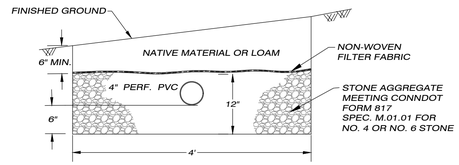


STANDARD DISTRIBUTION BOX
N.T.S.

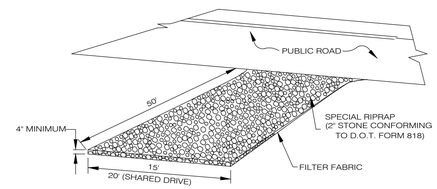


DESIGN NOTES
1) JOINTS TO BE SEALED WITH BUTYL RUBBER SEALANT.
2) INLETS AND OUTLETS TO HAVE STATE-APPROVED SEALS.
3) USE 8' HEAVY DUTY TOP IF SPECIFIED.
4) MUST MEET ASTM C 1227-97A
5) CONCRETE STRENGTH SHALL BE 5000 PSI. MIN. 28 DAYS

1000 GALLON
TWO-COMPARTMENT SEPTIC TANK
N.T.S.



LEACHING TRENCH DETAIL
N.T.S.



ANTI-TRACKING PAD
NOT TO SCALE

Killingly Engineering Associates
114 Westcott Road
P.O. Box 421
Dayville, Connecticut 06241
860 779 7299

NORMAND THIBEAULT, JR., P.E. No. 22834 DATE

LOT DEVELOPMENT & SEPTIC DESIGN

EROSION CONTROL PLAN & CONSTRUCTION DETAILS
PREPARED FOR

JESSE BETTS

FIVE MILE RIVER ROAD
PUTNAM, CONNECTICUT

DATE: SEPTEMBER 2022
SCALE: 1" = AS NOTED

0 1/2" 1" 2" 3"

JOB NO: 22034 | F.B. NO: 230 | DRAWN BY: P.A.T. | MAP NO:

SURVEYING • MAPPING • PLOT PLANS
LAND RECORD RESEARCH • SUBDIVISION • TOPOGRAPHY •
survey associates llc
email: pcsurvey@snet.net
63 SNAKE MEADOW RD
KILLINGLY, CT 06239
860 774 6230

SHEET NO: 2 OF 2
REVISED:

INLAND WETLAND COMMISSION

APPENDIX A

APPLICATION FOR PERMIT

This application is for the use of inland wetlands and water courses.

The meetings are held on the second Wednesday of every month at 7:00pm in the Town Hall. If an on-site inspection is canceled due to inclement weather, the applicant is asked to call the office at 963-6803 30 minutes before the scheduled inspection to see if or when the inspection will be held.

Name of Applicant: Chris Gazzola

Applicant's Address: 76 Five Mile River Road

Phone #: 860-933-3780

Owner of Land: Chris & Kelly Gazzola

Owner's Address: 76 Five Mile River Road

Location and description of proposed activity:

68 Five Mile River Road

Construction of Single family house

Activity & Purpose Code

Please **CHECK** one in each column that best describes the activity proposed.

Code	Activity Type	Code	Activity Purpose
☐	1 Filling	☐	A Residential Improvement by homeowner
☐	2 Excavation	☑	B New residential development - single family
☑	3 Land Clearing	☐	C New residential development - multi- family/condo
☐	4 Stream Channel	☐	D Commercial/Industrial Uses
☐	5 Stream Stabilization	☐	E Municipal Improvements
☐	6 Stream Clearance	☐	F Utility Company Improvements
☐	7 Culverting	☐	G Agriculture, Forestry or Conservation
☐	8 Und. Grd. Util.	☐	H Wetland Creation/Restoration
☐	9 Roadway Construction	☐	I Storm Water/Flood Control
☐	10 Drainage Improvements	☐	J Erosion/Sediment Control
☐	11 Pond Dredge/Dam Construction	☐	K Recreation/Boating/Navigation
☐	12 Activity Buffer/Set Back Area	☐	L Routine Maintenance
☐	13 Other: Please describe:		

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Project Name (if applicable) N/A

Estimate of Linear Footage affecting Wetlands _____

Affected number of acres in which Wetlands are part of the impacted area for Multi-Family, Condos and Commercial Development Lot is 3.3 acres

TO BE COMPLETED BY THE COMMISSION

Application Number 2023-05 Date of Receipt _____

Application Approved (date) _____

Conditions of approval if applicable _____

Application Denied (date) _____

Reason(s) for Denial _____

_____ _____

Signature of Chairman or Secretary of Commission Date

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Application Procedure

1. Applicant will have a map showing the property boundaries, any wetlands on the property, proposed buildings, septic area, drainage if applicable and the dimension between these areas in scale 1" - 200' or less

2. Applicant must provide an approximate estimate of the linear footage of the wetlands that are affected by said proposal. This is for multi-family, condominiums or commercial development. Contact with the Zoning Official may clarify the nature of your project

3. Applicant must provide an approximate estimate of the number of acres that are affected by said proposal dealing with multi-family, condominiums and commercial development in which wetlands are part of that impacted area within the watershed.

4. Applicant will supply a copy of the soil scientist report with the application to the Wetlands Commission to be reviewed at the meeting by the Commission.

5. Applicant will have the soil scientist number the wetland flags and record the numbers of the flags on the site plan according to their location in the field. The location on the site map must match the field location.

6. If the applicant's estimates are not accurate, payment of the correct amount must be made before the Wetlands final approval of the application.

7. And any other information deemed necessary by the Commission.

Fee Schedule

1.	Permitted and non-regulated	$40.00
2.	One lot regulated	$40.00
3.	Regulated Area	
	Two (2) - Ten (10) lots	$100.00
	Ten (10) - Twenty (20) lots	$200.00
	Over Twenty (20+) lots	$300.00
4.	Multi-Family/Condominium Regulated area	
	Zero (0) to Five (5) Acres	$50.00
	Per linear foot of wetlands additional	$0.35
	Over Five (5) acres	$100.00
	Per linear foot of wetlands additional	$0.35
5.	Commercial	
	Zero (0) to Five (5) Acres	$100.00
	Per linear foot of wetlands additional	$0.50
	Over Five (5) acres	$300.00
	Per linear foot of wetlands additional	$0.50

All applications must be submitted one week prior to the regularly scheduled monthly meeting.

Joseph R. Theroux
Certified Forester/ Soil Scientist
Phone 860-428-7992 Fax 860-376-6842
P.O. Box 32, Voluntown, CT. 06384
Forestry Services Environmental Impact Assessments
Wetland Delineations and Permitting E&S/Site Monitoring
Wetland function and value assessments

2/6/2020

P.C. Survey Assoc. LLC.
63 Snake Meadow Hill Rd.
Killingly, CT. 06239

Attn: Mr. Paul Terwilliger

Re: 68 Five Mile River Rd. Wetland delineation

Dear Mr. Terwilliger,

At your request I have delineated the inland wetlands on the above referenced 3.3 acre property.

These wetlands have been delineated in accordance with the standards of the National Cooperative Soil Survey and the definitions of wetlands as found in the Connecticut Statutes, Chapter 440, Section 22A-38.

Fluorescent pink flags with a corresponding location number delineate the boundary between the upland soils and the inland wetlands.

Flag numbers WF-1 thru WF-29 delineate the boundary of a palustrine scrub-shrub/forested wetland located along the northwest portion of the parcel. Portions of this wetland were inundated on the date of the delineation, (2/5/20).

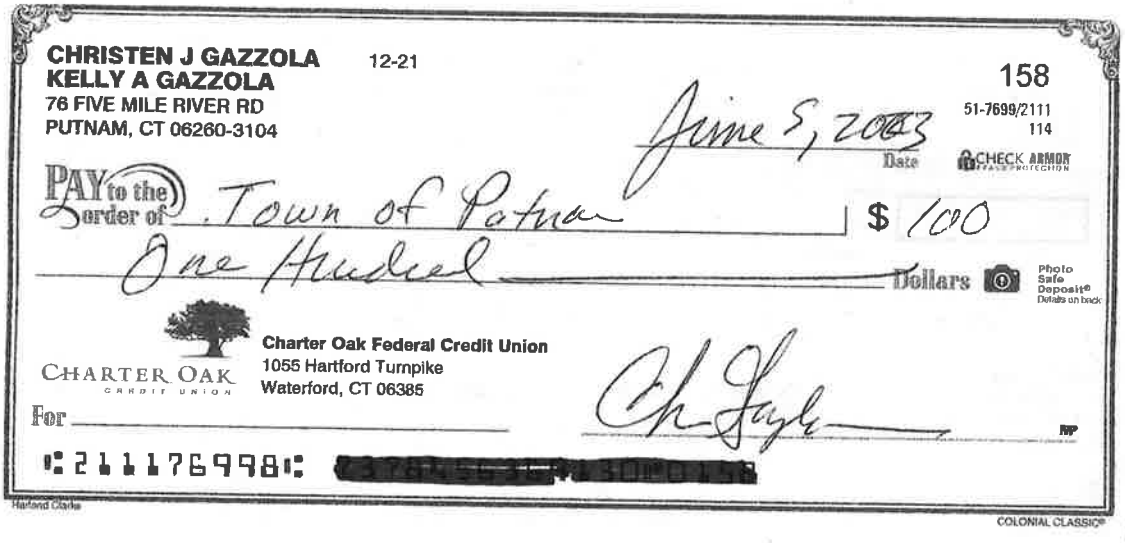
These wetland soils have formed as a result of the groundwater/surface water flows and a shallow seasonal water table. They are characterized by thick organic "A" horizons, shallow redoximorphic features, and low chroma colors within 20 inches of the soil surface.

In conclusion, if you have any questions concerning the delineation or this report, please feel free to contact me.

Thank you,

Joseph R. Theroux

Joseph R. Theroux
Certified Soil Scientist
Member SSSSNE, NSCSS, SSSA.



CHRISTEN J GAZZOLA
KELLY A GAZZOLA
76 FIVE MILE RIVER RD
PUTNAM, CT 06260-3104

12-21

158

51-7699/2111
114

June 5, 2023
Date

CHECK ARMOR FRAUD PROTECTION

PAY to the order of Town of Putnam $ 100

One Hundred Dollars

Photo Safe Deposit® Details on back

CHARTER OAK CREDIT UNION

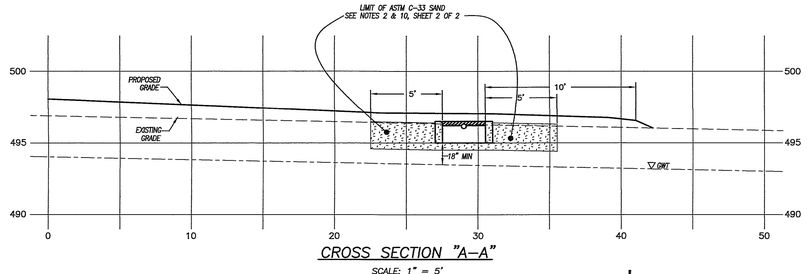
Charter Oak Federal Credit Union
1055 Hartford Turnpike
Waterford, CT 06385

For

⑆211176998⑆ [redacted]

Harland Clarke

COLONIAL CLASSIC®



CROSS SECTION "A–A"

SCALE: 1" = 5'

PERCOLATION TEST RESULT – May 20, 2020
NORTHEAST DISTRICT DEPARTMENT OF HEALTH.

HOLE A
Depth = 19" Rate = 6.67 min./in.

Time	Reading
12:30	4.5"
12:35	8"
12:40	9.75"
12:45	11"
12:50	12.25"
12:55	13.25"
1:00	14.25"
1:05	15"
1:10	15.75"

TEST HOLE DATA – May 20, 2020
Northeast District Department of Health

TEST PIT	DEPTH	PROFILE
1	0"–15"	Topsoil
	15"–29"	RB, OB, Fine Sandy Loam
	29"–40"	TN, Med. Sand W/ Gravel
	40"–60"	TN, GR Loamy Fine Sand
	60"–68"	Groundwater
	Ledge	N/A
	GWT	60"
	Mottling	40"
	Roots	29"
2	0"–10"	Topsoil
	10"–23"	RB Fine Sandy Loam W/Gravel
	23"–35"	TN, Med. Sand W/Gravel
	35"–61"	TN, GR Loamy Fine Sand
	61"–70"	Groundwater
	Ledge	N/A
	GWT	61"
	Mottling	35"
	Roots	23"

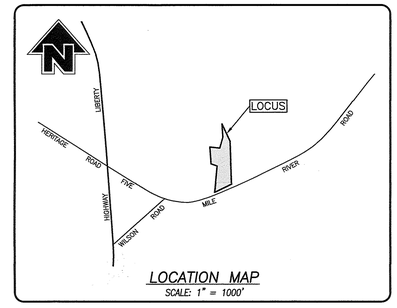
SEPTIC SYSTEM DESIGN DATA

Percolation Rate	=	6.67 min. / in.
2 bedroom house requires	=	375 s.f. effective leaching area
Effective Leaching area	=	11 s.f. / l.f. of eljen Mantis 536–8
Length Required	=	375/11 = 34.1 l.f.
Length Provided	=	35 l.f.
Min. Leaching System Spread (MLSS)	=	30 x 1.0 x 1.0 = 30'
MLSS Provided	=	35'

LEACHING FIELD

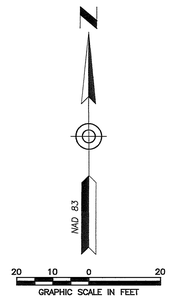
One 35' row (7 sections) Eljen Mantis 536–8 Septic Leaching units

Maximum depth into existing grade = 17"



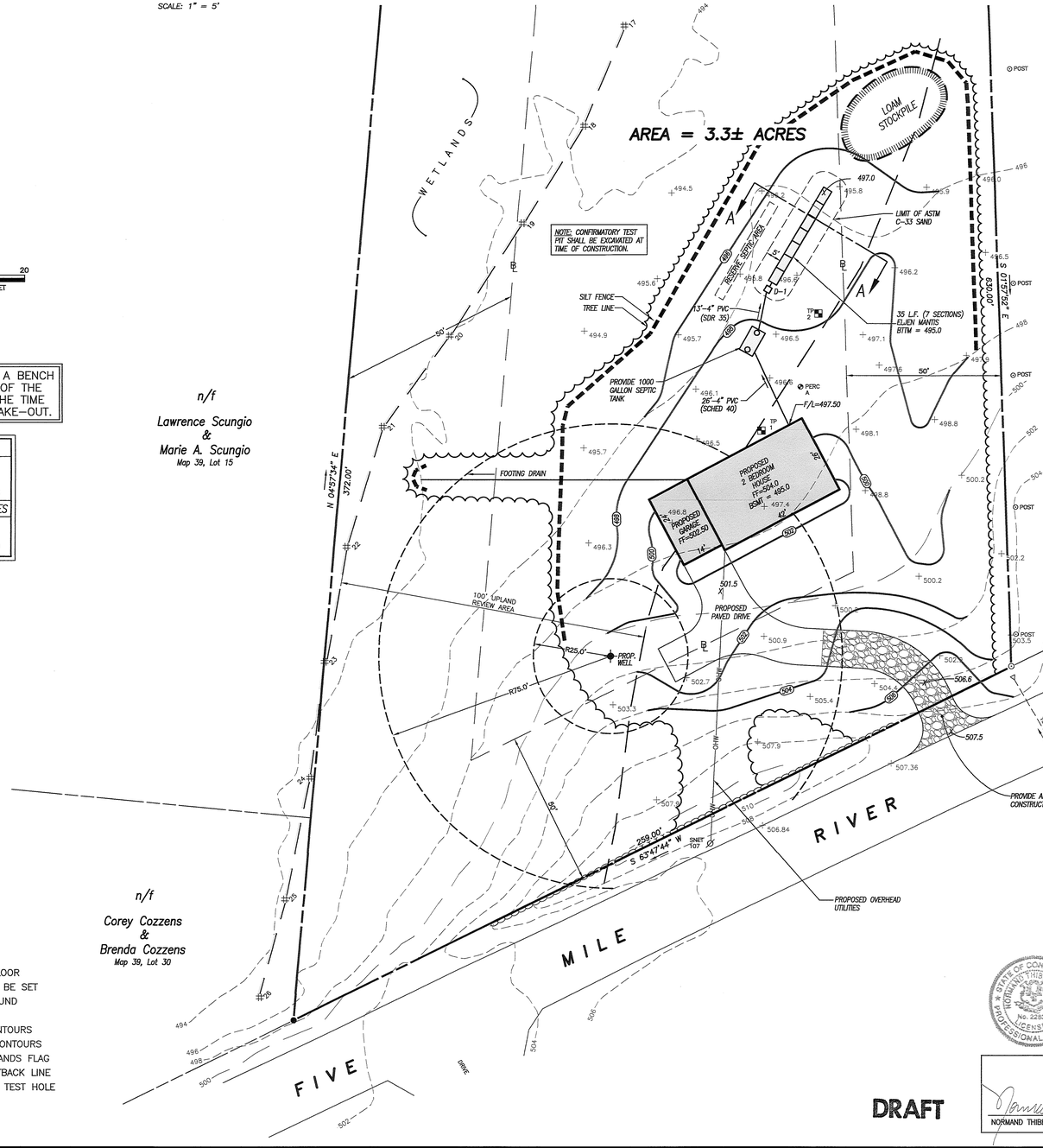
LOCATION MAP

SCALE: 1" = 1000'



SURVEYOR SHALL SET A BENCH MARK IN THE AREA OF THE SEPTIC SYSTEM AT THE TIME OF CONSTRUCTION STAKE–OUT.

SEPTIC TANK
1000 GALLON TWO COMPARTMENT F/L IN = 496.75 F/L OUT = 496.50
DISTRIBUTION BOXES
D–1 (STANDARD) F/L IN = 496.17 F/L OUT = 496.00



n/f
Lawrence Scungio
&
Marie A. Scungio
Map 39, Lot 15

n/f
Christen J. Gazzola
&
Kelly A. Gazzola
Map 39, Lot 18

n/f
Corey Cozzens
&
Brenda Cozzens
Map 39, Lot 30

LEGEND

F.F.	FINISHED FLOOR
●	IRON PIN TO BE SET
○	IRON PIN FOUND
Ø	UTILITY POLE
100	EXISTING CONTOURS
100	PROPOSED CONTOURS
#	INLAND WETLANDS FLAG
BB	BUILDING SETBACK LINE
	PERCOLATION TEST HOLE
	TEST HOLE
	STONE WALL
	SILT FENCE

DRAFT

NOTES:

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Sections 20–300b–1 through 20–300b–20 and the "Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996, Amended October 26, 2018;
   - This survey conforms to a Class "A–2" horizontal accuracy.
   - Field surveyed topographic features conform to a Class "T–2", "V–2" vertical accuracy.
   - LIDAR topographic features conform to a Class "T–D" vertical accuracy.
   - Survey Type: Improvement Location Survey.
   - Boundary Determination Category: Resurvey
2. Zone = AG–2.
3. Owner of record: Christen J. Gazzola & Kelly A. Gazzola.
   76 Five Mile River Road, Putnam, CT 06260
   See Volume 835, Page 254
4. Parcel is shown as Lot #16 on Assessors Map #39.
5. Parcel lies within Flood Hazard Zone 'X' (areas of minimal flooding) as shown on FIRM Map # 090194 Panel 0010B Effective Date: 10/18/1988.
6. Elevations shown are based on North American Vertical Datum of 1988 (NAVD 88). Contours shown are taken from Connecticut statewide LIDAR and supplemented with actual field survey. Contour interval = 2'.
7. North orientation and bearings shown are based on North American Datum of 1983 (NAD 83) and are taken from GPS obeservations using the "Superior" statewide GPS network and RTK correction system.
8. Soil test data taken from NNDH File #20000284.
9. Wetlands shown were delineated in the field by Joseph Theroux, Certified Soil Scientist.
10. Before any construction is to commence contact "CALL BEFORE YOU DIG" at 1–800–922–4455 or 811.

MAP REFERENCE:

1. "Boundary Survey – Prepared for – Herman F. & Eunice R. Bishop – 76 Five Mile River Road – Putnam CT – Scale: 1" = 40' – Date: 07/06 – Prepared by: Messier & Associates, Inc". Not on File.

DATE	DESCRIPTION
REVISIONS	

IMPROVEMENT LOCATION SURVEY
SEPTIC SYSTEM DESIGN PLAN
PREPARED FOR

CHRISTEN J. GAZZOLA & KELLY A. GAZZOLA

68 FIVE MILE RIVER ROAD
PUTNAM, CONNECTICUT

Killingly Engineering Associates
Civil Engineering & Surveying
114 Westcott Road
P.O. Box 421
Killingly, Connecticut 06241
(860) 779-7299
www.killinglyengineering.com

DATE: 4/20/2023	DRAWN: RGS
SCALE: 1" = 20'	DESIGN: NET
SHEET: 1 OF 2	CHK BY: GG
DWG. No: CLIENT FILE	JOB No: 23034

STATE OF CONNECTICUT NORMAND R. THIBEAULT JR. No. 22834 LICENSED PROFESSIONAL ENGINEER

NORMAND THIBEAULT, JR., P.E. No. 22834 5/9/2023 DATE

STATE OF CONNECTICUT GREG A. GLAUDE No. 70121 LICENSED LAND SURVEYOR

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

GREG A. GLAUDE, L.S. LIC. NO. 70191 5/9/2023 DATE

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS MAP BEARS THE ORIGINAL SEAL AND SIGNATURE OF THE LAND SURVEYOR.

K:\23034\Drawings\23034 SSD.dwg May 09, 2023 – 11:40 AM

EROSION AND SEDIMENT CONTROL NARRATIVE:

PRINCIPLES OF EROSION AND SEDIMENT CONTROL

The primary function of erosion and sediment controls is to absorb erosional energies and reduce runoff velocities that force the detachment and transport of soil and/or encourage the deposition of eroded soil particles before they reach any sensitive area.

KEEP LAND DISTURBANCE TO A MINIMUM

The more land that is in vegetative cover, the more surface water will infiltrate into the soil, thus minimizing stormwater runoff and potential erosion. Keeping land disturbance to a minimum not only involves minimizing the extent of exposure at any one time, but also the duration of exposure. Phasing, sequencing and construction scheduling are interrelated. Phasing divides a large project into distinct sections where construction work over a specific area occurs over distinct periods of time and each phase is not dependent upon a subsequent phase in order to be functional. A sequence is the order in which construction activities are to occur during any particular phase. A sequence should be developed on the premise of "first things first" and "last things last" with proper attention given to the inclusion of adequate erosion and sediment control measures. A construction schedule is a sequence with time lines applied to it and should address the potential overlap of actions in a sequence which may be in conflict with each other.

- Limit areas of clearing and grading. Protect natural vegetation from construction equipment with fencing, tree armoring, and retaining walls or tree wells.
- Route traffic patterns within the site to avoid existing or newly planted vegetation.
- Phase construction so that areas which are actively being developed at any one time are minimized and only that area under construction is exposed. Clear only those areas essential for construction.
- Sequence the construction of storm drainage systems so that they are operational as soon as possible during construction. Ensure all outlets are stable before outletting storm drainage flow into them.
- Schedule construction so that final grading and stabilization is completed as soon as possible.

SLOW THE FLOW

Detachment and transport of eroded soil must be kept to a minimum by absorbing and reducing the erosive energy of water. The erosive energy of water increases as the volume and velocity of runoff increases. The volume and velocity of runoff increases during development as a result of reduced infiltration rates caused by the removal of existing vegetation, removal of topsoil, compaction of soil and the construction of impervious surfaces.

- Use diversions, stone dikes, silt fences and similar measures to break flow lines and dissipate storm water energy.
- Avoid diverting one drainage system into another without calculating the potential for downstream flooding or erosion.

KEEP CLEAN RUNOFF SEPARATED

Clean runoff should be kept separated from sediment laden water and should not be directed over disturbed areas without additional controls. Additionally, prevent the mixing of clean off-site generated runoff with sediment laden runoff generated on-site until after adequate filtration of on-site waters has occurred.

- Segregate construction waters from clean water.
- Divert site runoff to keep it isolated from wetlands, watercourses and drainage ways that flow through or near the development until the sediment in that runoff is trapped or detained.

REDUCE ON SITE POTENTIAL INTERNALLY AND INSTALL PERIMETER CONTROLS

While it may seem less complicated to collect all waters to one point of discharge for treatment and just install a perimeter control, it can be more effective to apply internal controls to many small sub-drainage basins within the site. By reducing sediment loading from within the site, the chance of perimeter control failure and the potential off-site damage that it can cause is reduced. It is generally more expensive to correct off-site damage than it is to install proper internal controls.

- Control erosion and sedimentation in the smallest drainage area possible. It is easier to control erosion than to contend with sediment after it has been carried downstream and deposited in unwanted areas.
- Direct runoff from small disturbed areas to adjoining undisturbed vegetated areas to reduce the potential for concentrated flows and increase settlement and filtering of sediments.
- Concentrated runoff from development should be safely conveyed to stable outlets using rip rapped channels, waterways, diversions, storm drains or similar measures.
- Determine the need for sediment basins. Sediment basins are required on larger developments where major grading is planned and where it is impossible or impractical to control erosion at the source. Sediment basins are needed on large and small sites when sensitive areas such as wetlands, watercourses, and streets would be impacted by off-site sediment deposition. Do not locate sediment basins in wetlands or permanent or intermittent watercourses. Sediment basins should be located to intercept runoff prior to its entry into the wetland or watercourse.

SEPTIC SYSTEM CONSTRUCTION NOTES

1. The building, septic system and well shall be accurately staked in the field by a licensed Land Surveyor in the State of Connecticut, prior to construction.
2. Topsoil shall be removed and in the area of the primary leaching field scarified, prior to placement of septic fill. Septic fill specifications are as follows:

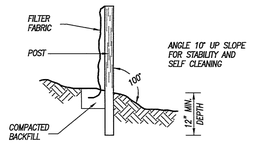
   – Max. percent of gravel (material between No. 4 & 3 inch sieves) = 45%

   GRADATION OF FILL (MINUS GRAVEL)

SIEVE SIZE	PERCENT PASSING (WET SIEVE)	PERCENT PASSING (DRY SIEVE)
No. 4	100%	100%
No. 10	70% – 100%	70% – 100%
No. 40	10% – 50%	10% – 75%
No. 100	0% – 20%	0% – 5%
No. 200	0% – 5%	0% – 2.5%

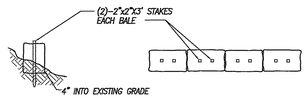
   Fill material shall be approved by the sanitarian prior to placement. It shall be compacted in 6" lifts and shall extend a minimum of five feet (5') around the perimeter of the system. Common fill shall extend an additional five feet (5') down gradient of the system (10' total) before tapering off at a maximum slope of 2H:1V.
3. Septic tank shall be two compartment precast 1000 gallon tank with gas deflector and outlet filter as manufactured by Jolley Precast, Inc. or equal.
4. Distribution boxes shall be 4 hole precast concrete as manufactured by Jolley Precast, Inc. or equal.
5. All precast structures such as septic tanks, distribution boxes, etc. shall be set level on six inches (6") of compacted gravel base at the elevations specified on the plans.
6. Solid distribution pipe shall be 4" diameter PVC meeting ASTM D-3034 SDR 35 with compression gasket joints. It shall be laid true to the lines and grades shown on the plans and in no case have a slope less than 0.125 inches per foot.
7. Perforated distribution pipe shall be 4" diameter PVC meeting ASTM D-3034 or ASTM F1760 for SDR 35, or ASTM F810 for SDR 38.
8. Sewer pipe from the foundation wall to the septic tank shall be schedule 40 PVC meeting ASTM D 1785. It shall be laid true to the grades shown on the plans and in no case shall have a slope less than 0.25 inches per foot.
9. Solid footing drain outlet pipe shall be 4" Diameter PVC meeting ASTM D 3034, SDR 35 with compression gasketed joints. Footing drain outlet pipe shall not be backfilled with free draining material, such as gravel, broken stone, rock fragments, etc.
10. Septic sand shall meet the requirements of ASTM C-33 with less than 10% passing a 100 sieve and less than 5% passing a 200 sieve

SIEVE SIZE	% PASSING
0.375	100
#4	95–100
#8	80–100
#16	60–85
#30	25–60
#50	10–30
#100	<10
#200	<5



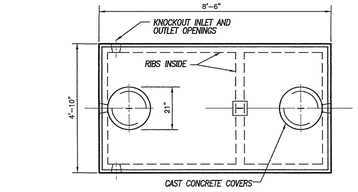
SILT FENCE

NOT TO SCALE

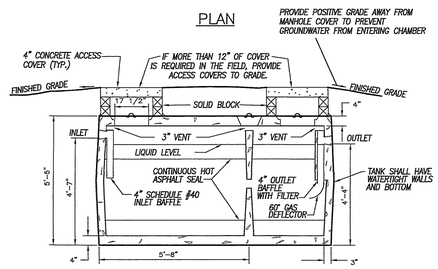


HAYBALE BARRIER

NOT TO SCALE



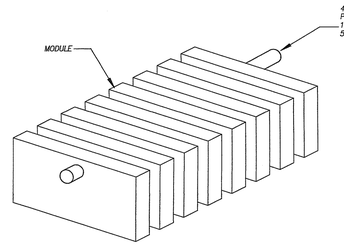
PLAN

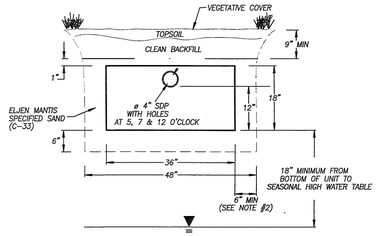


CROSS SECTION

1000 GALLON
2 COMPARTMENT
SEPTIC TANK

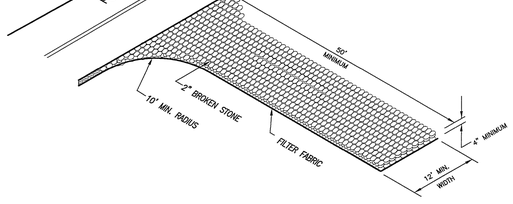
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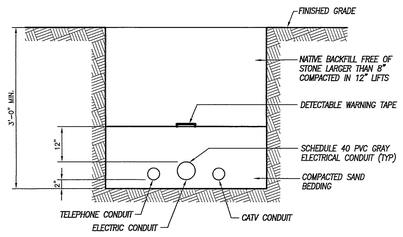
NOTES:
1. VENTING REQUIRED WHEN MORE THAN 18" OF COVER AS MEASURED FROM THE TOP OF THE UNIT TO FINISHED GRADE
2. FOR SYSTEMS INSTALLED IN FILL, CONTRACTOR SHALL PROVIDE 5' OF SELECT FILL OR ASTM C-33 SAND 5' AROUND PERIMETER OF SYSTEM.

ELJEN 536-8 WASTEWATER
LEACHING SYSTEM



ANTI-TRACKING PAD

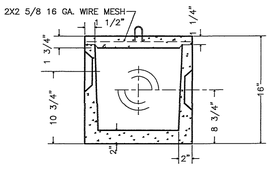
NOT TO SCALE



NOTE: CONTRACTOR SHALL PROVIDE SILT/CLAY DAMS AT 100' INTERVALS ALONG PROPOSED UTILITY TRENCH TO AVOID TRANSPORTING INTERCEPTED WATER.

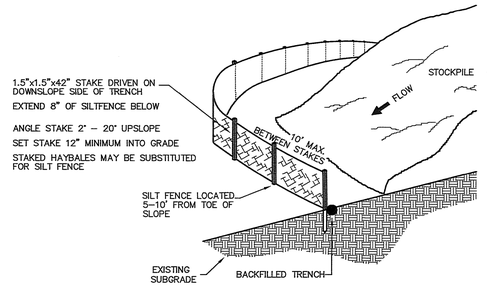
UNDERGROUND UTILITY TRENCH

NOT TO SCALE



STANDARD D-BOX

NOT TO SCALE



SILT FENCE @ TOE OF SLOPE APPLICATION

NOT TO SCALE

DATE	DESCRIPTION

REVISIONS

DETAIL SHEET

PREPARED FOR

CHRISTEN J. GAZZOLA &
KELLY A. GAZZOLA

68 FIVE MILE RIVER ROAD
PUTNAM, CONNECTICUT

Killingly Engineering Associates
Civil Engineering & Surveying
114 Westcott Road
P.O. Box 421
Killingly, Connecticut 06241
(860) 779-7299
www.killinglyengineering.com

DATE: 4/20/2023	DRAWN: RGS
SCALE: NOT TO SCALE	DESIGN: NET
SHEET: 2 OF 2	CHK BY: GG
DWG. No: CLIENT FILE	JOB No: 23034

STATE OF CONNECTICUT NORMAND THIBEAULT JR. No. 22834 LICENSED PROFESSIONAL ENGINEER

NORMAND THIBEAULT, JR., P.E. No. 22834 5/9/2023 DATE

K:\23034\Drawings\23034 SSD_Det.dwg May 09, 2023 - 11:47 AM

OFFICE

INLAND WETLAND COMMISSION

APPENDIX A

APPLICATION FOR PERMIT

This application is for the use of inland wetlands and water courses.

The meetings are held on the second Wednesday of every month at 7:00pm in the Town Hall. If an on-site inspection is canceled due to inclement weather, the applicant is asked to call the office at 963-6803 30 minutes before the scheduled inspection to see if or when the inspection will be held.

Name of Applicant: McGee Automotive Family, Toyota of Hanover

Applicant's Address: 880 Washington Boulevard, Hanover, MA 02339

Phone #: 781-826-8333

Owner of Land: Sean & Michael Putnam LLC

Owner's Address: (AP 26 Lot 8: Tara Drive, Norwell, MA 02061) (AP 26 Lot 28: Polk Street, Duxbury, MA 02332)

Location and description of proposed activity: Proposed Toyota Dealership. Site improvements include a parking lot for customers and for vehicle display. The parking lot will have a stormwater management system to treat and mitigate stormwater prior to outflow toward the wetland areas. There will be two plunge pool type outlet areas adjacent to the wetlands.

LOCATION 76-88 PROVIDENCE TURNPIKE

Activity & Purpose Code

Please **CHECK** one in each column that best describes the activity proposed.

Code	Activity Type	Code	Activity Purpose
☐	1 Filling	☐	A Residential Improvement by homeowner
☐	2 Excavation	☐	B New residential development - single family
☐	3 Land Clearing	☐	C New residential development - multi- family/condo
☐	4 Stream Channel	☒	D Commercial/Industrial Uses
☐	5 Stream Stabilization	☐	E Municipal Improvements
☐	6 Stream Clearance	☐	F Utility Company Improvements
☐	7 Culverting	☐	G Agriculture, Forestry or Conservation
☐	8 Und. Grd. Util.	☐	H Wetland Creation/Restoration
☐	9 Roadway Construction	☐	I Storm Water/Flood Control
☒	10 Drainage Improvements	☐	J Erosion/Sediment Control
☐	11 Pond Dredge/Dam Construction	☐	K Recreation/Boating/Navigation
☐	12 Activity Buffer/Set Back Area	☐	L Routine Maintenance
☐	13 Other: Please describe:		

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Project Name (if applicable) McGee Toyota

Estimate of Linear Footage affecting Wetlands no disturbance to wetlands, but work is along 400' of wetland edge

Affected number of acres in which Wetlands are part of the impacted area for Multi-Family, Condos and Commercial Development

site improvement area (upland to wetlands) = 4.19 acres
site improvement area within 100' of wetlands = 0.96 acres
direct impact to wetland = 0 acres

TO BE COMPLETED BY THE COMMISSION

Application Number 2023-07 Date of Receipt 5/23/2023 Ck#'s 23476 & 23493

Application Approved (date) _____

Conditions of approval if applicable _____

Application Denied (date) _____

Reason(s) for Denial _____

_____
Signature of Chairman or Secretary of Commission

_____
Date

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Application Procedure

1. Applicant will have a map showing the property boundaries, any wetlands on the property, proposed buildings, septic area, drainage if applicable and the dimension between these areas in scale 1" - 200' or less

2. Applicant must provide an approximate estimate of the linear footage of the wetlands that are affected by said proposal. This is for multi-family, condominiums or commercial development. Contact with the Zoning Official may clarify the nature of your project

3. Applicant must provide an approximate estimate of the number of acres that are affected by said proposal dealing with multi-family, condominiums and commercial development in which wetlands are part of that impacted area within the watershed.

4. Applicant will supply a copy of the soil scientist report with the application to the Wetlands Commission to be reviewed at the meeting by the Commission.

5. Applicant will have the soil scientist number the wetland flags and record the numbers of the flags on the site plan according to their location in the field. The location on the site map must match the field location.

6. If the applicant's estimates are not accurate, payment of the correct amount must be made before the Wetlands final approval of the application.

7. And any other information deemed necessary by the Commission.

Fee Schedule

1.	Permitted and non-regulated	$40.00
2.	One lot regulated	$40.00
3.	Regulated Area	
	Two (2) - Ten (10) lots	$100.00
	Ten (10) - Twenty (20) lots	$200.00
	Over Twenty (20+) lots	$300.00
4.	Multi-Family/Condominium Regulated area	
	Zero (0) to Five (5) Acres	$50.00
	Per linear foot of wetlands additional	$0.35
	Over Five (5) acres	$100.00
	Per linear foot of wetlands additional	$0.35
5.	Commercial	
	Zero (0) to Five (5) Acres	$100.00
	Per linear foot of wetlands additional	$0.50
	Over Five (5) acres	$300.00
	Per linear foot of wetlands additional	$0.50

All applications must be submitted one week prior to the regularly scheduled monthly meeting.

JOSEPH R. THEROUX
~ CERTIFIED FORESTER/ SOIL SCIENTIST ~
PHONE 860-428-7992~ FAX 860-376-6842
P.O. BOX 32, VOLUNTOWN, CT. 06384
FORESTRY SERVICES ~ WETLAND IMPACT ASSESSMENTS
WETLAND DELINEATIONS AND PERMITTING ~ E&S/SITE MONITORING
WETLAND FUNCTION/VALUE ASSESSMENTS

1/28/2022

ARCHER SURVEYING
P.O. BOX 22
BROOKLYN, CT. 06234

RE: WETLAND DELINEATION, 88 PROVIDENCE PIKE, PUTNAM, CT.

DEAR MR. ARCHER,

AT YOUR REQUEST I HAVE DELINEATED THE INLAND WETLANDS AND WATERCOURSES ON THE SUBJECT PROPERTY.

THESE WETLANDS HAVE BEEN DELINEATED IN ACCORDANCE WITH THE STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY AND THE DEFINITIONS OF WETLANDS AND WATERCOURSES AS FOUND IN THE CONNECTICUT STATUTES, CHAPTER 440, SECTION 22A-38.

FLUORESCENT PINK FLAGS WITH A CORRESPONDING LOCATION NUMBER DELINEATE THE BOUNDARIES OF THESE INLAND WETLANDS, WATERCOURSES AND THE ADJACENT UPLAND SOILS.

WETLAND FLAGS WB- 1 THROUGH WB- 52 AND WB-1A THROUGH WB-19A DELINEATE A PALUSTRINE FORESTED WETLAND AND WATERCOURSE LOCATED IN THE NORTH CENTRAL PORTION OF THE PARCEL.

THESE WETLAND SOILS HAVE FORMED DUE TO THE PERSISTENT WETNESS FROM THE HIGH SEASONAL WATER TABLES AND GROUNDWATER BREAKOUT. THEY ARE CHARACTERIZED BY THICK ORGANIC TOPSOIL HORIZONS, SHALLOW REDOXIMORPHIC FEATURES AND LOW CHROMA COLORS WITHIN 20 INCHES OF THE SOIL SURFACE.

IN CONCLUSION, IF YOU HAVE ANY QUESTIONS CONCERNING THE DELINEATION OR THIS REPORT, PLEASE FEEL FREE TO CONTACT ME.

THANK YOU,

Joseph R. Theroux

JOSEPH R. THEROUX
CERTIFIED SOIL SCIENTIST
MEMBER SSSSNE, NSCSS, SSSA.

CROSSMAN ENGINEERING

Consulting Engineers & Surveyors
Civil • Transportation • Environmental • Site Planning • Surveying • Permitting

May 31, 2023

Mr. Bruce Fitzback
Land Use Agent, Town of Putnam
200 School Street, Putnam CT 06260

Re: Proposed Toyota Dealership
AP 26 Lots 8 & 28
76 & 88 Providence Pike (Route 44), Putnam CT

Dear Mr. Fitzback,

On behalf of the applicant, McGee Automotive Family, we are submitting the following documents for the Inland Wetlands Commission review and also for the Planning Department review. Listed below are the items enclosed for this submittal;

Inland Wetlands Commission

- Three (3) Application to the Inland Wetlands Commission
- One (1) Application Fee ($100.00)
- Three (3) Wetland Delineation Report
- Three (3) Site Plan Set – 24"x36" size (dated May 2023)
- Three (3) Drainage Narrative and Assessment
- Three (3) Long Term Operation and Maintenance Plan

Planning Department review

- Two (2) Site Plan Set – 24"x36" size (dated May 2023)

Please note that an electronic submission for the above items will also be emailed to you.

With this submittal we are respectfully requesting to be placed on the June 14, 2023 Inland Wetlands Commission meeting agenda. If there are any comments or questions, or additional plans, documents needed, please contact me at brian.king@crossmaneng.com or at 401-738-5660, extension 26. Thank you.

CROSSMAN ENGINEERING

Brian R. King
Brian R. King PE
Senior Project Manager

enclosures

CROSSMAN ENGINEERING
| a division of Crossman Corporation |
Consulting Engineers & Surveyors
Civil • Transportation • Environmental • Site Planning • Surveying • Permitting

Transmittal

DATE: 5-31-23	JOB NO. 2739
ATTENTION:	
RE: Proposed Toyota Dealership	

TO:
Bruce Fitzback LS – Land Use Agent
Town of Putnam
200 School Street
Putnam CT 06260

WE ARE SENDING YOU: ☐ Attached ☐ Under separate cover via _____ the following items:
☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
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REMARKS: Please contact me with any questions. Thank you.

COPY TO: _____

SIGNED: Brian King

CROSSMAN ENGINEERING • 151 Centerville Road • Warwick, RI 02886-4335
Tel: 401-738-5660 Fax: 401-738-8157

HOLD TO LIGHT TO VIEW TRUE WATERMARK IN PAPER - HEAT SENSITIVE RED LOCK DISAPPEARS WHEN HEATED

23493

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TO THE ORDER OF
TOWN OF PUTNAM

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23476

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TO THE ORDER OF TOWN OF PUTNAM

AUTHORIZED SIGNATURE

[redacted]

JOSEPH R. THEROUX
~ CERTIFIED FORESTER/ SOIL SCIENTIST ~
PHONE 860-428-7992~ FAX 860-376-6842
P.O. BOX 32, VOLUNTOWN, CT. 06384
FORESTRY SERVICES ~ WETLAND IMPACT ASSESSMENTS
WETLAND DELINEATIONS AND PERMITTING ~ E&S/SITE MONITORING
WETLAND FUNCTION/VALUE ASSESSMENTS

1/28/2022

ARCHER SURVEYING
P.O. BOX 22
BROOKLYN, CT. 06234

RE: WETLAND DELINEATION, 88 PROVIDENCE PIKE, PUTNAM, CT.

DEAR MR. ARCHER,

AT YOUR REQUEST I HAVE DELINEATED THE INLAND WETLANDS AND WATERCOURSES ON THE SUBJECT PROPERTY.

THESE WETLANDS HAVE BEEN DELINEATED IN ACCORDANCE WITH THE STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY AND THE DEFINITIONS OF WETLANDS AND WATERCOURSES AS FOUND IN THE CONNECTICUT STATUTES, CHAPTER 440, SECTION 22A-38.

FLUORESCENT PINK FLAGS WITH A CORRESPONDING LOCATION NUMBER DELINEATE THE BOUNDARIES OF THESE INLAND WETLANDS, WATERCOURSES AND THE ADJACENT UPLAND SOILS.

WETLAND FLAGS WB- 1 THROUGH WB- 52 AND WB-1A THROUGH WB-19A DELINEATE A PALUSTRINE FORESTED WETLAND AND WATERCOURSE LOCATED IN THE NORTH CENTRAL PORTION OF THE PARCEL.

THESE WETLAND SOILS HAVE FORMED DUE TO THE PERSISTENT WETNESS FROM THE HIGH SEASONAL WATER TABLES AND GROUNDWATER BREAKOUT. THEY ARE CHARACTERIZED BY THICK ORGANIC TOPSOIL HORIZONS, SHALLOW REDOXIMORPHIC FEATURES AND LOW CHROMA COLORS WITHIN 20 INCHES OF THE SOIL SURFACE.

IN CONCLUSION, IF YOU HAVE ANY QUESTIONS CONCERNING THE DELINEATION OR THIS REPORT, PLEASE FEEL FREE TO CONTACT ME.

THANK YOU,

Joseph R. Theroux

JOSEPH R. THEROUX
CERTIFIED SOIL SCIENTIST
MEMBER SSSSNE, NSCSS, SSSA.

JOSEPH R. THEROUX
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Joseph R. Theroux

JOSEPH R. THEROUX
CERTIFIED SOIL SCIENTIST
MEMBER SSSSNE, NSCSS, SSSA.

SITE PLAN SET
FOR
PROPOSED MCGEE TOYOTA DEALERSHIP

PLAT MAP 26, LOTS 8 & 28
ZONING DISTRICT: HC
HIGHWAY COMMERCIAL DISTRICT
76 & 88 PROVIDENCE PIKE (ROUTE 44)
PUTNAM, CONNECTICUT



LOCATION MAP
NOT TO SCALE

INDEX OF DRAWINGS

DRAWING No.	PLAN
C1	GENERAL NOTES and LEGEND
C2	RADIUS MAP
C3	EXISTING AERIAL MAP
C4	POST DEVELOPMENT AERIAL MAP
C5.1	SITE LAYOUT PLAN
C5.2	ROADWAY IMPROVEMENT PLAN
C6	GRADING & DRAINAGE PLAN
C7	UTILITY PLAN
C8.1	SOIL EROSION and SEDIMENT CONTROL PLAN
C8.2	SOIL EROSION and SEDIMENT CONTROL DETAILS
C9	LANDSCAPE PLAN
C10.1	MISCELLANEOUS DETAILS PLAN No. 1
C10.2	MISCELLANEOUS DETAILS PLAN No. 2
C10.3	MISCELLANEOUS DETAILS PLAN No. 3
C10.4	MISCELLANEOUS DETAILS PLAN No. 4
C10.5	MISCELLANEOUS DETAILS PLAN No. 5

REFERENCE PLANS

BOUNDARY SURVEY, PREPARED BY
ARCHER SURVEYING LLC

FLOOR PLAN and BUILDING ELEVATIONS, PREPARED BY
THE CURTIS ARCHITECTURAL GROUP

SIGN REFERENCE PLAN

LIGHTING ANALYSIS PLAN

REVISIONS:

No.:	DATE:	DESCRIPTION:

OWNER
AP 26 LOT 8 (88 PROVIDENCE PIKE)
SEAN & MICHAEL PUTNAM LLC
45 TARA DRIVE
NORWELL, MA 02061

AP 26 LOT 28 (76 PROVIDENCE PIKE)
SEAN & MICHAEL PUTNAM LLC
41 POLK STREET
DUXBURY, MA 02332

APPLICANT
MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD
HANOVER, MA 02339

ENGINEERS and LAND SURVEYORS

- **Civil**
- **Transportation**
- **Environmental**
- **Site Planning**
- **Surveying**
- **Permitting**
- **Landscape Architecture**

CROSSMAN ENGINEERING

Rhode Island
151 Centerville Road
Warwick, RI 02886
Phone: (401) 738-5660

Massachusetts
103 Commonwealth Avenue
North Attleboro, MA 02763
Phone: (508) 695-1700

Email: cei@crossmaneng.com

ARCHITECT
CURTIS ARCHITECTURAL GROUP
36 BURRAGE ROAD
NEWTON, MA 02459

SURVEYOR
ARCHER SURVEYING LLC
18 PROVIDENCE ROAD
BROOKLYN CT 06234

MAY 2023
SHEET 1 of 17

STATE OF CONNECTICUT
BRIAN R. REMS
30252
REGISTERED PROFESSIONAL ENGINEER
5-30-23

2739-01-COVER.dwg

GENERAL NOTES

1. ALL EXISTING UTILITIES HAVE BEEN PLOTTED BASED UPON BEST AVAILABLE INFORMATION AND REPRESENT APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE AND UTILITIES, BOTH UNDERGROUND AND OVERHEAD, BEFORE EXCAVATION BEGINS IN ACCORDANCE WITH CONNECTICUT "CALL BEFORE YOU DIG" ENACTED BY THE CONNECTICUT LEGISLATURE AND BY CONTACTING THE INDIVIDUAL UTILITY COMPANIES. EXCAVATION SHALL BE IN ACCORDANCE WITH ALL STATUTES, ORDINANCES, RULES AND REGULATIONS OF ANY MUNICIPALITY, STATE OR FEDERAL AGENCY THAT MAY APPLY. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY. A MINIMUM ADVANCE NOTICE OF 2 FULL WORK DAYS IS REQUIRED PRIOR TO START OF CONSTRUCTION.

2. SPECIFICATIONS TO GOVERN THIS PROJECT ARE CONNDOT SPECIFICATIONS FOR ROAD, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION AND STANDARD DRAWINGS, LATEST EDITION, WITH LATEST REVISIONS UNLESS OTHERWISE SHOWN ON PLANS. THE "METHOD OF MEASUREMENT" AND "BASIS OF PAYMENT" ARE NOT APPLICABLE.

3. THE CONTRACTOR MUST VERIFY PRIOR TO CONSTRUCTION THAT ALL REQUIRED AUTHORIZATION TO PERFORM WORK HAS BEEN OBTAINED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION OPERATIONS INCLUDING ALL ACTIONS OR OMISSIONS OF ANY SUBCONTRACTORS, AGENTS OR EMPLOYEES. THE CONTRACTOR MUST ENSURE THAT THE CONDITIONS OF ALL PERMITS, SPECIFICATIONS AND FEDERAL, STATE AND LOCAL REGULATIONS ARE STRICTLY ENFORCED. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ASPECTS OF ON-SITE SAFETY INCLUDING ANY DAMAGE TO EXISTING STRUCTURES.

4. WORK SHOWN ON THE PLANS FOR WHICH THERE ARE NO PARTICULAR DETAILS, SPECIFICATIONS OR PAYMENT ITEM DOES NOT RELIEVE THE CONTRACTOR FROM FURNISHING AND INSTALLING THE WORK. THE CONTRACTOR SHALL THOROUGHLY EXAMINE THE CONTRACT DOCUMENTS AND PLANS AND INSPECT THE SITE. THE BID PRICE SHALL INCLUDE ALL SERVICES AND MATERIALS NECESSARY TO COMPLETE THE PROJECT. ANY CHANGES TO THE PROJECT OR THE INSTALLATION OF AN ITEM FOR WHICH NO PARTICULAR DETAIL OR SPECIFICATION WAS PROVIDED MUST BE REVIEWED BY AND MUST BE ACCEPTABLE TO THE ENGINEER.

5. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ANY WORK.

6. ALL DISTURBED AREAS SHALL BE REPLACED IN KIND UNLESS OTHERWISE SHOWN OR OTHERWISE INSTRUCTED IN WRITING BY THE OWNER.

7. CONTRACTOR SHALL EXCAVATE TEST PITS TO CONFIRM UTILITY LOCATIONS/ELEVATIONS AT TIE-IN LOCATIONS AND POTENTIAL CONFLICT POINTS (UTILITY/DRAIN CROSSINGS).

8. THE CONTRACTOR SHALL USE CARE WHEN WORKING NEAR UTILITY POLES AND WIRING SO AS TO NOT DISTURB ELECTRICAL/TELEPHONE/CABLE SERVICE TO THE CUSTOMERS. IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN THESE SERVICES AT ALL TIMES.

9. THE CONTRACTOR SHALL, COORDINATE WITH THE UTILITY COMPANY (ELECTRIC/COMMUNICATIONS) FOR THE REMOVAL OF THE EXISTING UTILITY POLE ON SITE AND FOR THE INSTALLATION OF A NEW POLE ON THE NORTH SIDE OF RTE 44.

10. CHANGE ORDERS MAY ONLY BE APPROVED FOR PAYMENT BY THE OWNER.

11. ALL OPEN EXCAVATIONS SHALL BE ADEQUATELY SAFEGUARDED BY PROVIDING TEMPORARY BARRICADES, CAUTION SIGNS, LIGHTS AND OTHER MEANS TO PREVENT ACCIDENTS TO PERSONS AND DAMAGE TO PROPERTY. THE CONTRACTOR SHALL AT NO ADDITIONAL EXPENSE TO THE OWNER, PROVIDE SUITABLE AND SAFE CONDITIONS AT ALL AREAS OF THE WORK SITE AND SHALL PROVIDE SAFE VEHICULAR AND PEDESTRIAN ACCESS AROUND ALL WORK AREAS.

12. CONTRACTOR SHALL PROVIDE, AT NO ADDITIONAL EXPENSE, ADEQUATE EROSION CONTROL, FRAC TANKS OR SEDIMENTATION CONTROLS SUBJECT TO THE APPROVAL OF THE OWNER AND TOWN DEPARTMENT OF PUBLIC WORKS FOR THE DISCHARGE OF ANY TRENCH DEWATERING.

13. THE LAYOUT SHOWN REPRESENTS A GRAPHICAL DESIGN. ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY ITEM FOUND WHICH DOES NOT MATCH THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO CONSTRUCTION FOR REVIEW. NO WORK SHALL PROCEED UNTIL AUTHORIZED BY THE ENGINEER.

14. THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REMOVAL AND/OR INSTALLATION OF UTILITIES ON SITE. THE COORDINATION IS NECESSARY FOR THE ENGINEER TO SCHEDULE SITE INSPECTIONS. INSTALLATIONS PERFORMED WITHOUT INSPECTIONS BY THE ENGINEER MAY WARRANT COMPLETE REMOVAL AND REINSTALLATION AT THE CONTRACTOR'S SOLE EXPENSE.

15. THE CONTRACTOR IS REQUIRED TO MAINTAIN DETAILED AS-BUILT INFORMATION FOR ALL UTILITY INSTALLATIONS. AS-BUILT INFORMATION MUST INCLUDE MATERIAL LIST, PIPE DEPTH AND SWING TIE LOCATIONS (2 MINIMUM) FROM NEW PIPE TO BUILDING CORNERS. ALL PIPE BEND/ELBOW LOCATIONS SHALL BE DIMENSIONED. FINAL PAYMENT WILL NOT BE MADE UNTIL SUITABLE AS-BUILT DATA IS PROVIDED.

16. AS-BUILT AUTOCAD FILES AND HARD COPY PLANS SHALL BE PROVIDED UPON COMPLETION OF WORK. CONTRACTOR IS RESPONSIBLE FOR THIS INFORMATION. FINAL PAYMENT TO CONTRACTOR SHALL NOT BE PROVIDED UNTIL ACCEPTABLE AUTOCAD FILES OF THE AS-BUILTS ARE SUBMITTED AND APPROVED BY THE OWNER.

17. THE INSTALLATION OF THE STORMWATER MANAGEMENT SYSTEM WILL REQUIRE ENGINEER INSPECTIONS AT VARIOUS STAGES OF INSTALLATION. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER ON THE STORMWATER SYSTEM INSTALLATIONS AND SCHEDULES, PRIOR TO EXCAVATION ON SITE.

LAYOUT NOTE

THE LAYOUT SHOWN REPRESENTS A GRAPHICAL DESIGN, AND PRIOR TO THE CONSTRUCTION, THE CONTRACTOR SHALL ENGAGE A PROFESSIONAL LAND SURVEYOR (PLS) REGISTERED IN THE STATE OF CONNECTICUT TO SET AND VERIFY ALL LINES AND GRADES. ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY ITEM FOUND WHICH DOES NOT MATCH THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO CONSTRUCTION FOR REVIEW. NO WORK SHALL PROCEED UNTIL AUTHORIZED BY THE ENGINEER.

PROPOSED PAVEMENT STRUCTURE

ON-SITE
2" HMA SURFACE COURSE (S0.375)
ASPHALT EMULSION TACK COAT
2 1/2" HMA BASE COURSE (S1)
12" BANK OR CRUSHED GRAVEL SUBBASE

PROVIDENCE PIKE
2" HMA SURFACE COURSE (S0.5)
ASPHALT EMULSION TACK COAT
3" HMA BASE COURSE (S1)
ASPHALT EMULSION TACK COAT 8" CONCRETE (WITH DOWELS)
12" BANK OR CRUSHED GRAVEL SUBBASE

FLOOD ZONE NOTE

THE PROPOSED IMPROVEMENTS ON SITE ARE WITHIN FLOOD ZONE X, AREAS TO BE OUTSIDE THE 500 YEAR FLOODPLAIN, ACCORDING TO FLOOD INSURANCE RATE MAP, TOWN OF PUTNAM, CONNECTICUT, WINDHAM COUNTY, PANEL 10 OF 10, MAP NUMBER 0901940010B, EFFECTIVE DATE OCTOBER 18, 1988.

LIGHTING NOTE

TOYOTA HAS TWO LIGHTING VENDORS, IN WHICH ONE OF THE TWO VENDORS IS CHOSEN TO SUPPLY INTERIOR AND EXTERIOR LIGHTING FOR NEW TOYOTA DEALERSHIPS. THE LIGHTING PLANS INCLUDED IN THIS PLAN SET IS FOR REFERENCE ONLY, AND PROVIDES A REPRESENTATION OF LIGHTING FROM ONE OF THE VENDORS. THE FINAL SITE LIGHTING PROVIDED BY THE VENDOR SELECTED WILL BE SIMILAR TO WHAT IS REPRESENTED IN THIS PLAN SET.

STANDARD NOTES

1. ANY DAMAGE TO EXISTING PAVEMENT, CURB, WALLS, CATCH BASINS, UTILITIES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

2. THE CONTRACTOR SHALL PLACE ALL EQUIPMENT AND MATERIAL AS FAR AWAY AS POSSIBLE FROM THE EDGE OF THE TRAVEL LANE SO AS NOT TO CAUSE A SAFETY HAZARD.

3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE EXISTING CONDITIONS ARE NOT OBLITERATED BEFORE CONTROL POINTS ARE LOCATED AND CONSTRUCTION LAYOUT IS ESTABLISHED. THE CONSTRUCTION LAYOUT SHALL BE PROVIDED BY THE CONTRACTOR.

4. ASPHALT EMULSION TACK COAT SHALL BE PLACED PRIOR TO PAVEMENT PLACEMENT ON ANY NEW COURSE WHICH HAS BEEN OPEN TO TRAFFIC, OR ANY NEW COURSE WHICH HAS BEEN EXPOSED FOR MORE THAN 3 DAYS, AND/OR AS DIRECTED BY THE ENGINEER. IT SHALL ALSO BE APPLIED TO VERTICAL PAVEMENT FACES BETWEEN ADJOINING PAVEMENT SECTIONS.

5. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND PLACING, AT HIS OWN EXPENSE, 4" LOAM & SEED IN AREAS WHICH ARE OUTSIDE OF THE PROJECT'S AREAS OF DISTURBANCE AND WHICH ARE IMPACTED BY CONSTRUCTION OPERATIONS INCLUDING THOSE AREAS WHERE VEHICLES, EQUIPMENT AND MATERIALS ARE STORED.

6. CLEANING AND SWEEPING OF PAVEMENT WILL INCLUDE REMOVAL OF ALL PAVEMENT DEBRIS PRIOR TO THE PLACEMENT OF EACH BITUMINOUS PAVEMENT LIFT. ALL CLEANING AND SWEEPING SHALL BE DONE TO THE SATISFACTION OF THE ENGINEER.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM THEIR CONSTRUCTION OPERATIONS. ALL DEBRIS SHALL BE REMOVED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

8. NO FUEL STORAGE, VEHICLE REFUELING, OR EQUIPMENT STORAGE SHALL TAKE PLACE IN DESIGNATED WETLANDS, NOR WITHIN 100' OF ANY WATER BODY. THIS REQUIREMENT SHALL NOT SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAW, ORDINANCE, RULE OR REGULATION THAT APPLIES TO THE SAME, UNLESS THIS REQUIREMENT IS MORE STRINGENT THAN SAID LAW, ORDINANCE, RULE OR REGULATION.

9. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT AT THE END OF FINAL PAVING OPERATIONS, FLOW TO EXISTING DRAINAGE STRUCTURES HAS BEEN REESTABLISHED AND THAT NO ISOLATED DEPRESSIONS REMAIN. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS PROVISION; IT SHALL BE CONSIDERED INCIDENTAL TO PAVING OPERATIONS.

10. ALL EMBANKMENT FILL AND TRENCH BACKFILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 12" (AFTER COMPACTION) AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED.

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES

1. ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS, CHANNELIZING DEVICES, ETC., SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION.

2. ALL SIGN MOUNTINGS SHALL BE IN ACCORDANCE WITH THE STATE D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.

3. ADVANCE FLAGPERSON SIGNS SHALL BE USED IN ADVANCE OF ANY POINT AT WHICH A POLICE OFFICER HAS BEEN STATIONED TO CONTROL TRAFFIC. WHEN NEEDED, AN APPROPRIATE DISTANCE MESSAGE MAY BE DISPLAYED ON A SUPPLEMENTAL PLATE (24"x18") BELOW THE FLAGPERSON SYMBOL SIGN. THE SIGN SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE FLAGPERSON IS NOT AT THE STATION.

4. POLYETHYLENE DRUMS SHALL BE UTILIZED AS A CHANNELIZING DEVICE WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN BEYOND WORKING HOURS WHEN NO WORKERS ARE PRESENT. CONES SHALL BE UTILIZED WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN ONLY DURING WORKING HOURS AND IS SUBSEQUENTLY BROKEN DOWN AT THE END OF THE WORKDAY.

5. TEMPORARY CONSTRUCTION SIGNS AND OTHER WORKZONE TRAFFIC CONTROL DEVICES THAT ARE DAMAGED OR REQUIRE RELOCATION SHALL BE REPLACED AND / OR RELOCATED UNDER THE PAY ITEM FOR "MAINTENANCE AND MOVEMENT TRAFFIC PROTECTION."

6. THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED ON THE TRAVEL LANES OR SHOULDERS.

7. TEMPORARY CONSTRUCTION SIGNS AND OTHER TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC, AND SHALL BE REMOVED AS SOON AS PRACTICAL WHEN THEY ARE NO LONGER APPROPRIATE.

CONSTRUCTION NOTES

1. THE CONTRACTOR IS REQUIRED TO OBTAIN AND REVIEW ALL ENGINEERING AND PERMIT DOCUMENTS COMPLETED FOR FINAL DESIGN.

2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO INSTALLATION OF UTILITIES ON SITE. THE COORDINATION IS NECESSARY FOR THE ENGINEER TO SCHEDULE SITE INSPECTIONS AS REQUIRED.

3. THE CONTRACTOR IS REQUIRED TO MAINTAIN DETAILED AS-BUILT INFORMATION FOR ALL UTILITY INSTALLATION. AS-BUILT INFORMATION INCLUDES MATERIAL LIST, PIPE DEPTH NOTATIONS AND SWING TIE LOCATIONS (2 MINIMUM) FROM NEW PIPE TO PERMANENT STRUCTURES. ALL PIPE BEND/ELBOW LOCATIONS SHALL BE DIMENSIONED.

4. THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR INSPECTIONS TO REVIEW THEE INSTALLATION OF THE STORMWATER MANAGEMENT SYSTEM, INCLUDING THE BOTTOM AREA AFTER EXCAVATION AND BEFORE INSTALLATION.

5. THE CONTRACTOR SHALL OBTAIN APPROPRIATE PERMITS/APPROVALS FROM BOTH CT DOT AND THE CITY OF PUTNAM FOR WORK WITHIN THE PROVIDENCE PIKE RIGHT-OF-WAY.

PERMITTING NOTES

1. A CERTIFICATE OF APPROVAL FOR AUTOMOTIVE SALES HAS BEEN OBTAINED FROM THE ZONING BOARD OF APPEALS.

2. APPROVALS ARE REQUIRED FROM THE PUTNAM INLAND WETLANDS AND WATERCOURSES COMMISSION.

3. AN APPROVAL SHALL BE OBTAINED FROM THE CONNECTICUT DEPARTMENT OF TRANSPORTATION.

4. THE SITE AREA OF IMPROVEMENTS PROPOSED FOR THIS PROJECT IS WITHIN THE 200' GREENBELT PROTECTION AREA FOR THE LITTLE DAM TAVERN BROOK.

5. MUNICIPAL WATER AND SEWER IS AVAILABLE ON ROUTE 44.

6. THE SITE IS NOT WITHIN AN AQUIFER PROTECTION AREA.

7. A STORMWATER MANAGEMENT SYSTEM WILL BE PROPOSED AND DESIGNED IN ACCORDANCE WITH THE CONNECTICUT STORMWATER QUALITY MANUAL.

8. VARIANCES HAVE BEEN OBTAINED FROM THE PUTNAM ZONING BOARD OF APPEALS TO SECTION 210,E,8 (DRIVEWAY LOCATIONS AND RESIDENTIAL SETBACKS), AND TO SECTION 602.J.3.b (SIGN AREA).

WETLAND NOTE

THE EXISTING WETLANDS ON SITE AND SHOWN ON THESE PLANS HAVE BEEN DELINEATED BY JOSEPH R. THEROUX, CERTIFIED FORESTER AND SOIL SCIENTIST, (1/28/22). THESE WETLAND FLAGS HAVE BEEN FIELD SURVEY LOCATED BY ARCHER SURVEYING LLC.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	CURB	
NO.	UTILITY POLE	NO.
LP	LIGHT POLE	
(Size) SEWER	DRAIN LINE	(SIZE) D
	SANITARY SEWER	(SIZE) S
G	GAS LINE	(SIZE) G
(Size) WATER	DOMESTIC WATER LINE	(SIZE) W
	ELECTRIC/CABLE/TELEPHONE	UC/UE
DMH	DRAINAGE MANHOLE	DMH
CB	CATCH BASIN	CB
SMH	SEWER MANHOLE	SMH
EMH	ELECTRIC HANDHOLE	EHH
TMH	TELEPHONE MANHOLE	
Hyd.	HYDRANT	
WG	WATER GATE	WG
GG	GAS GATE	GG
CO	CLEAN-OUT TO GRADE	CO
	SAWCUT PAVEMENT	
XXX	CONTOURS	ELEV.
X ELEV.	SPOT GRADES	00x0
	CHAIN LINK FENCE	
	STOCKADE FENCE	
	GRADE TO DRAIN	
	TREE	
(Size) Bollard	BOLLARDS	BOLLARD
	LIMIT OF DISTURBANCE	
	EROSION CONTROLS	
	BUILDING	

DEMOLITION NOTES

1. CONTRACTOR TO INSTALL TEMPORARY FENCING AROUND THE SITE FOR PROTECTION OF PEDESTRIANS AND VEHICLES DURING CONSTRUCTION.

2. THE CONTRACTOR WILL BE RESPONSIBLE FOR DEMOLITION, REMOVAL, AND DISPOSAL OF ALL ITEMS ON SITE, INCLUDING BUT NOT LIMITED TO DEMOLITION OF EXISTING BUILDINGS, UTILITY PIPES, OVERHEAD UTILITIES, CONDUIT, STRUCTURES/TANKS SIGNS, LIGHTS AND FOUNDATIONS, PAVEMENT, FENCE, CONCRETE AND ANY OTHER ITEM ON SITE THAT REQUIRES REMOVAL AND DISPOSAL FOR THE CONSTRUCTION OF THE NEW SITE IMPROVEMENTS. DISPOSAL AND HAULING IS INCLUDED IN THE CONTRACTORS SCOPE. SEPTIC TANKS SHALL BE PUMPED AND CLEANED PRIOR TO REMOVAL.

3. DEBRIS OF ANY NATURE SHALL NOT BE ALLOWED TO ACCUMULATE IN THE STREETS, WETLANDS OR ADJACENT PROPERTIES.

4. ALL REQUIRED AUTHORIZATION TO PERFORM WORK MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND/OR DEMOLITION.

5. UTILITY PIPES, CONDUITS AND STRUCTURES SHALL BE REMOVED AND DISPOSED OFF SITE. CAVITIES SHALL BE FILLED TO THE LEVEL OF THE SURROUNDING GROUND. FILL SHALL CONSIST OF BANK RUN GRAVEL UNLESS SPECIFIED OTHERWISE IN THE CONTRACT SPECIFICATIONS. FOR ALL EXCAVATION AND PLACEMENT OF FILL, THE CONTRACTOR SHALL PERFORM COMPACTION AND WORK IN FULL COMPLIANCE WITH STATE AND LOCAL SPECIFICATIONS.

6. THE CONTRACTOR SHALL SHORE UP, BRACE, UNDERPIN AND PROTECT ITEMS OR STRUCTURES ADJACENT TO THE DEMOLITION AREA WHICH MAY BE AFFECTED IN ANY WAY BY THE DEMOLITION OPERATIONS.

7. AT THE END OF EACH WORK DAY; NO HOLES, PITS OR OTHER HAZARDOUS DEPRESSIONS SHALL REMAIN OPEN WHEN ADJACENT TO OR WITHIN EIGHT (8) FEET OF THE PROPERTY LINE.

8. EXISTING UTILITIES TO THE SITE THAT ARE NOT TO BE RE-USED SHALL BE PROPERLY CUT AND CAPPED AT THE PROPERTY LINE, UNLESS REQUIRED DIFFERENTLY ON THE DEMOLITION PERMIT. CONTRACTOR SHALL VERIFY.

9. DURING THE DEMOLITION PROCESS THE CONTRACTOR SHALL USE SUFFICIENT WATER TO PREVENT EXCESSIVE SPREADING OF DUST DURING DEMOLITION OPERATIONS.

10. THE REMOVAL OF ALL ITEMS ASSOCIATED WITH THIS SITE SHALL BE DONE IN ACCORDANCE WITH THE APPROPRIATE STATE STANDARDS, FEDERAL REGULATIONS.

11. THE CONTRACTOR SHALL INSTALL ALL SOIL EROSION AND SEDIMENT CONTROLS AROUND AND ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION. THE CONTRACTOR SHALL TAKE PRECAUTIONS AGAINST THE DAMAGING OF PAVEMENT, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES AND SHALL PROMPTLY REPAIR AT HIS OWN EXPENSE ANY DAMAGE TO PUBLIC OR PRIVATE PROPERTIES TO THE SATISFACTION OF THE OWNER. ALL REPAIRS SHALL BE CONDUCTED USING STATE/LOCAL SPECIFICATIONS AS APPROPRIATE FOR DAMAGED AREAS.

12. FOR UTILITY SERVICE REMOVAL, THE CONTRACTOR IS RESPONSIBLE TO CONTACT ALL APPLICABLE UTILITY COMPANIES PRIOR TO WORK.

13. PRIOR TO THE CONTRACTOR SUBMITTING FOR BUILDING DEMOLITION PERMIT, INSPECTIONS BY THE CONTRACTOR SHALL BE REQUIRED BY THE OWNER AND/OR DEVELOPER TO CONFIRM ANY PRESENCE OF ASBESTOS OR LEAD PAINT. THE CONTRACTOR SHALL PROVIDE CERTIFICATIONS FROM A QUALIFIED/LICENSED INDIVIDUAL SHALL BE PROVIDED TO THE TOWN. IF ABATEMENT IS REQUIRED, IT SHALL BE COMPLETED PRIOR TO DEMOLITION.

14. REMOVAL OF THE EXISTING SEPTIC SYSTEM SHALL BE DISPOSED OF IN ACCORDANCE TO LOCAL AND STATE REQUIRMENTS. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL.

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PROJECT TITLE:

PROPOSED MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTNAM, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:
GENERAL NOTES and LEGEND

DATE: MAY 2023
SCALE: NO SCALE

DWG. NAME: 2739-02-NOTE.dwg

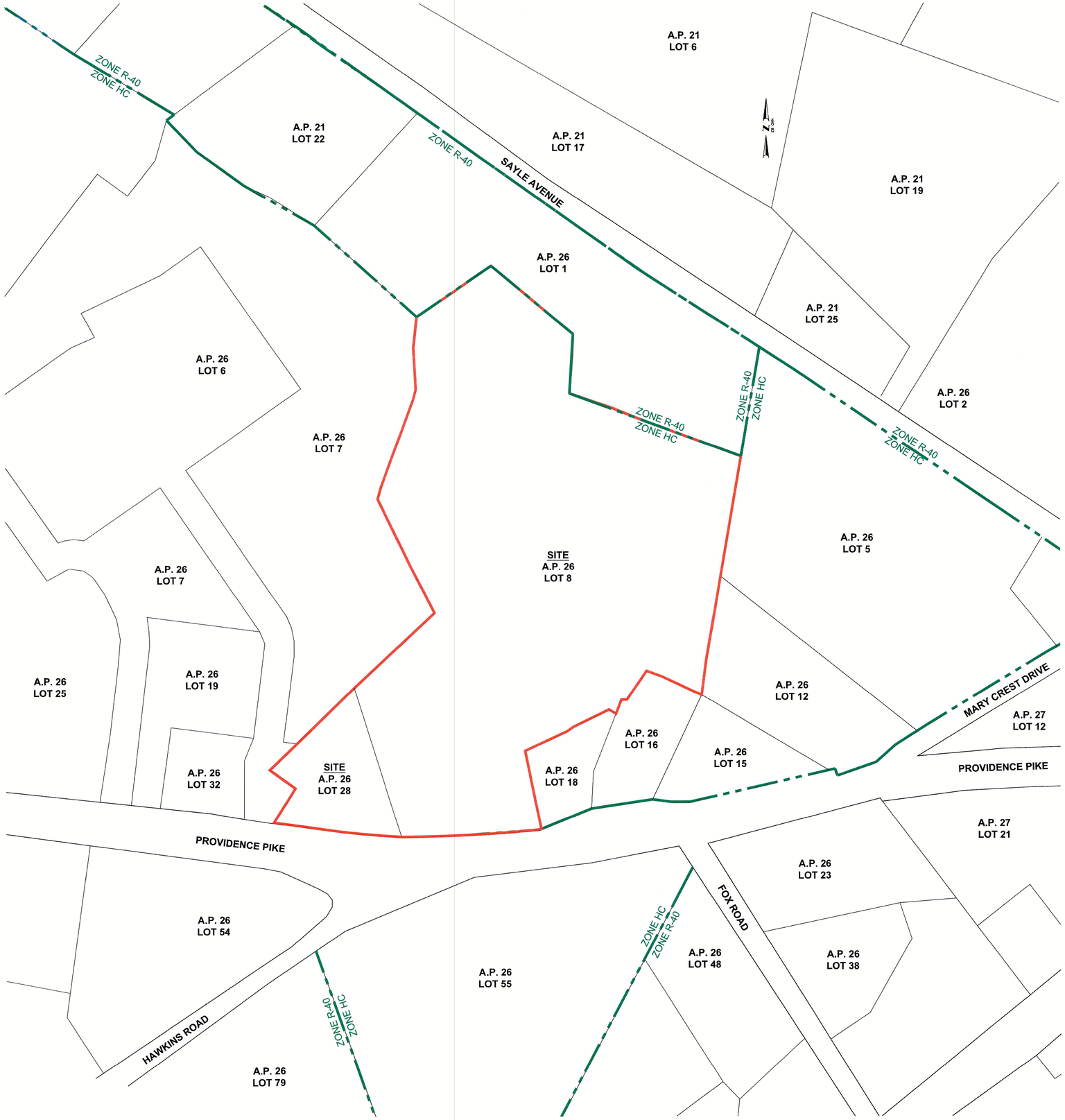
REVISIONS

NUMBER	REMARKS	DATE
--	--	--

DRAWING NUMBER

C1

SHEET: 2 *OF:* 17



IMMEDIATE ABUTTERS OF A.P. 26 LOTS 8 & 28

MARCH 2023

PLAT 26 LOT 1
JEFFERY MAILLOUX
45 SAYLE AVENUE
PUTNAM CT, 06260

PLAT 26 LOT 5
DCC PROPANE LLC
204 N STATE ROUTE 54
ROBERTS, IL 60962

PLAT 26 LOT 6
PUTNAM LLC
C/O AFS LEASING ACCOUNTING
PO BOX 6500
CARLISLE, PA 17013-6500

PLAT 26 LOT 7
PROVIDENCE PIKE PARKADE LLC
PO BOX 577
GALES FERRY, CT 06335-0577

PLAT 26 LOT 12
THE EVEREST COMPANY INCORPORATED
PO BOX 1900
AUBURN, ME 04211

PLAT 26 LOT 15
MICHAEL H BATES & DENISE E BATES
108 PROVIDENCE PIKE
PUTNAM, CT 06260

PLAT 26 LOT 16
RUSSELL REALTY LLC
PO BOX 208
PUTNAM, CT 06260

PLAT 26 LOT 18
RUSSELL REALTY LLC
PO BOX 208
PUTNAM, CT 06260

PLAT 26 LOT 54
SCP 2009-C33-002 LLC
C/O CVS CAREMARK CORPORATION
1 CVS DRIVE
WOONSOCKET, RI 02895

PLAT 26 LOT 55
PUTNAM PLAZA LLC
150 HARTFORD AVE
WETHERSFIELD, CT 06109

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PROJECT TITLE:

PROPOSED
MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

RADIUS MAP

DATE: MAY 2023

SCALE: 1"=100'

DWG. NAME: 2739-03-RADIUS.dwg

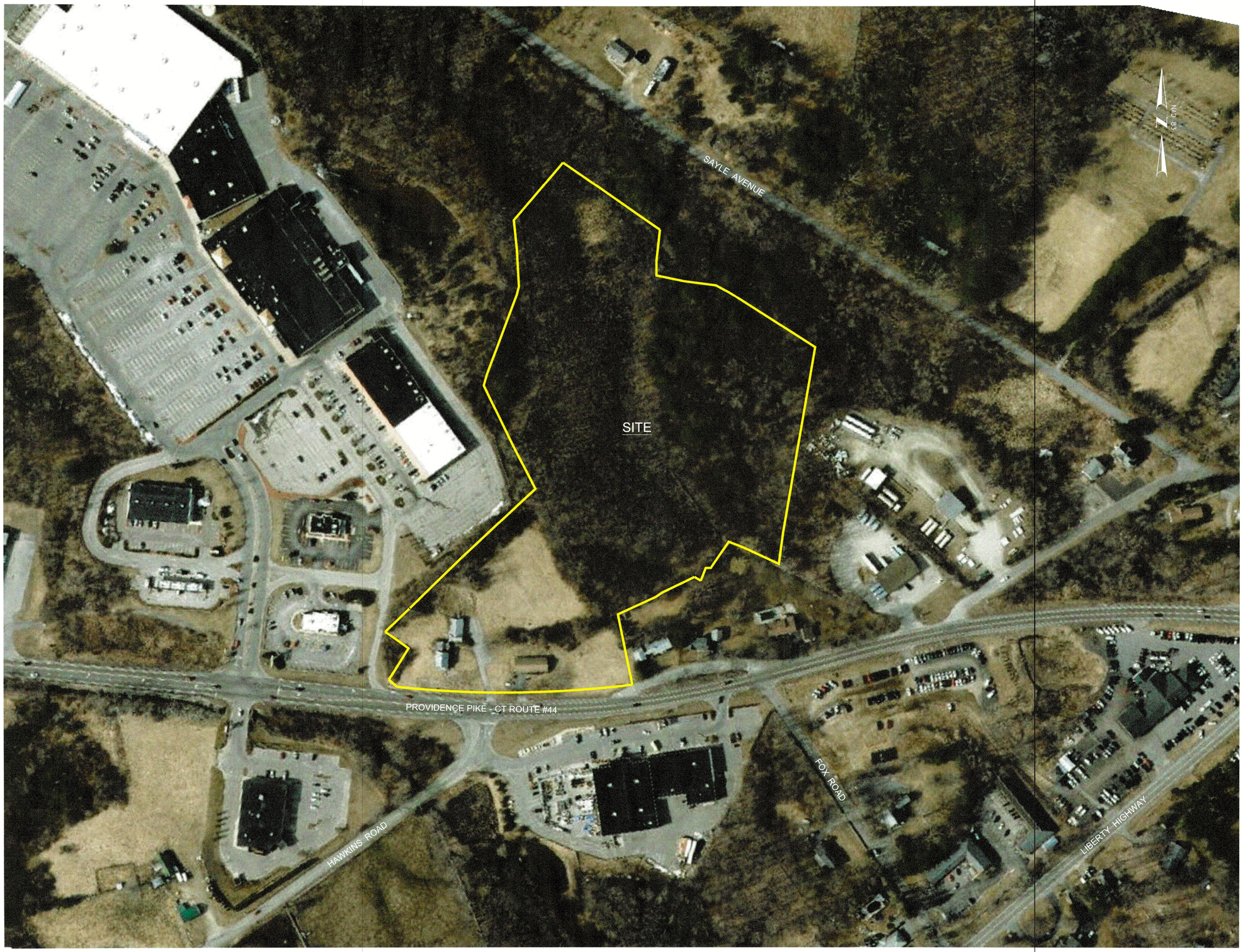
REVISIONS

NUMBER	REMARKS	DATE
--	--	--

DRAWING NUMBER

C2

SHEET: 3 *OF:* 17



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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PLAT MAP 26, LOTS 8 and 28
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HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:
EXISTING
AERIAL MAP

DATE:	*SCALE:*
MAY 2023	1"=100'

DWG. NAME: 2739-04-EX-AERIAL.dwg

REVISIONS

NUMBER	*REMARKS*	*DATE*
--	--	--

DRAWING NUMBER

C3

SHEET: 4 *OF:* 17



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

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88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

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TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

POST-DEVELOPMENT
AERIAL MAP

DATE:	*SCALE:*
MAY 2023	1"=100'

DWG. NAME: 2739-05-PR-AERIAL.dwg

REVISIONS

NUMBER	*REMARKS*	*DATE*
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DRAWING NUMBER

C4

SHEET: 5 *OF:* 17

DIMENSIONAL REGULATIONS

ZONING DISTRICT: HC – HIGHWAY COMMERCIAL DISTRICT

USE

AUTOMOTIVE SALES, NEW AND USED (PERMITTED)

	REQUIRED (TABLE IV-1)	REQUIRED (SECTION 201)	PROPOSED
MINIMUM LOT AREA:	10,000 S.F.	1 ACRE	13.1± ACRES
MINIMUM FRONTAGE WIDTH:	60'	200'	521'±
MAXIMIM COVERAGE:	40%	--	5.43%
MAXIMUM STRUCTURE HEIGHT:	35'	--	<35'
MINIMUM FRONT YARD SETBACK:	20'	--	71.5'
MINIMUM STREET LINE SETBACK:	--	75'	79.8'
MINIMUM CORNER SIDE YARD SETBACK:	20'	75'	N/A
MINIMUM SIDE YARD SETBACK:	10'	50'	>50'
MINIMUM REAR YARD SETBACK:	20'	40'	40'

PARKING REQUIREMENTS

AUTOMOBILE SALES AND/OR RENTAL

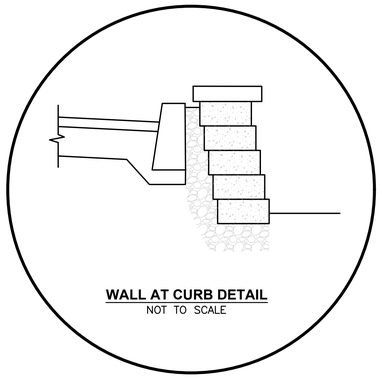
	PROVIDED
TOTAL PARKING SPACES:	308 SPACES
MINIMUM PARKING SPACE WIDTH:	9'
MINIMUM PARKING SPACE LENGHT:	18'
MINIMUM AISLE WIDTH (2-WAY TRAFFIC):	24'
MINIMUM SETBACK FROM PROPERTY LINE:	10' MIN. (PARKING)
MINIMUM ADA PARKING SPACES:	3 SPACES
BICYCLE PARKING SPACES:	2 SPACES

PARKING SUMMARY

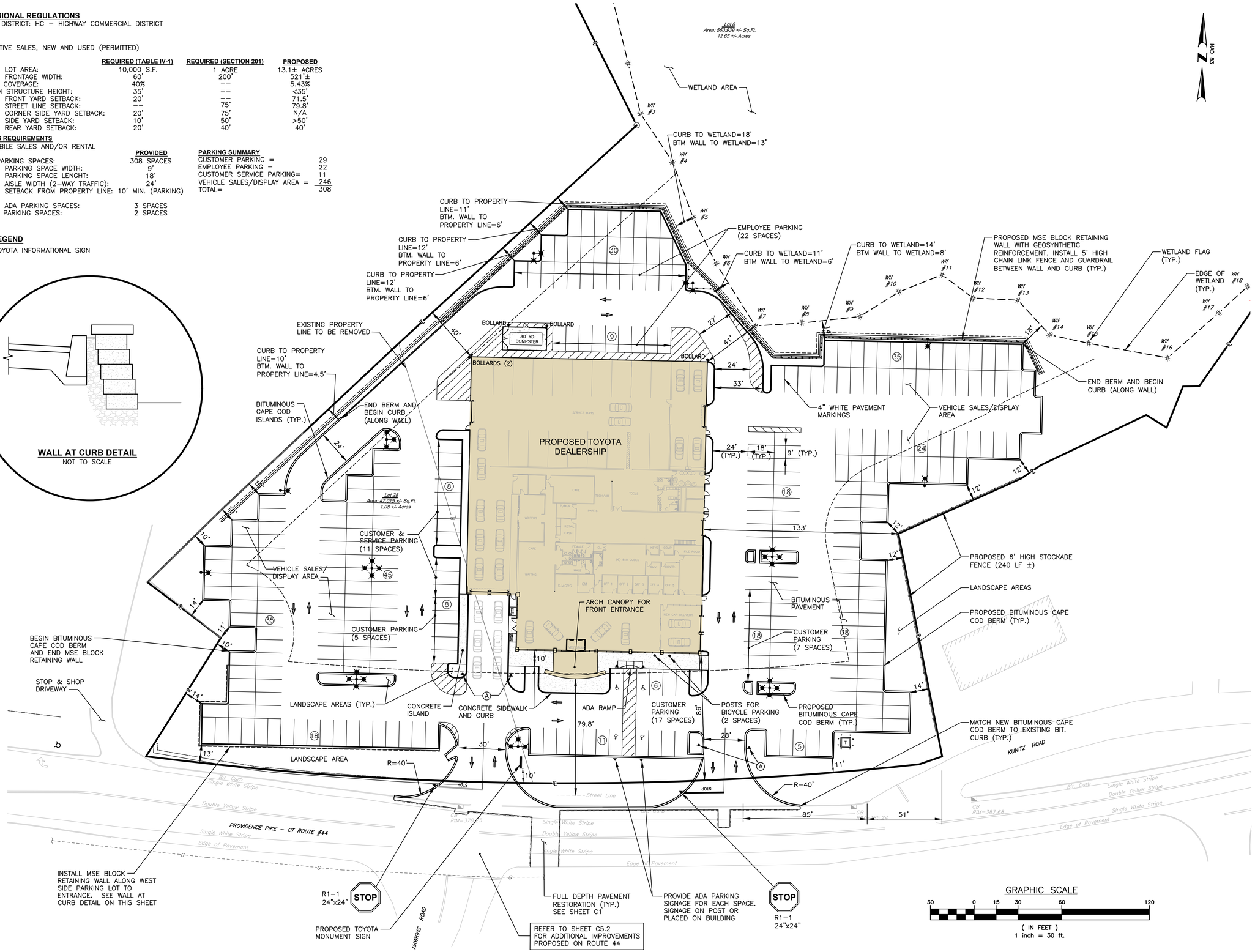
CUSTOMER PARKING =	29
EMPLOYEE PARKING =	22
CUSTOMER SERVICE PARKING=	11
VEHICLE SALES/DISPLAY AREA =	246
TOTAL=	308

SIGN LEGEND

Ⓐ = TOYOTA INFORMATIONAL SIGN



WALL AT CURB DETAIL
NOT TO SCALE



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PROPOSED MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

SITE LAYOUT PLAN

DATE:	*SCALE:*
MAY 2023	1"=30'

DWG. NAME: 2739-06-SITE.dwg

REVISIONS

NUMBER	*REMARKS*	*DATE*
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DRAWING NUMBER

C5.1

SHEET: 6 *OF:* 17



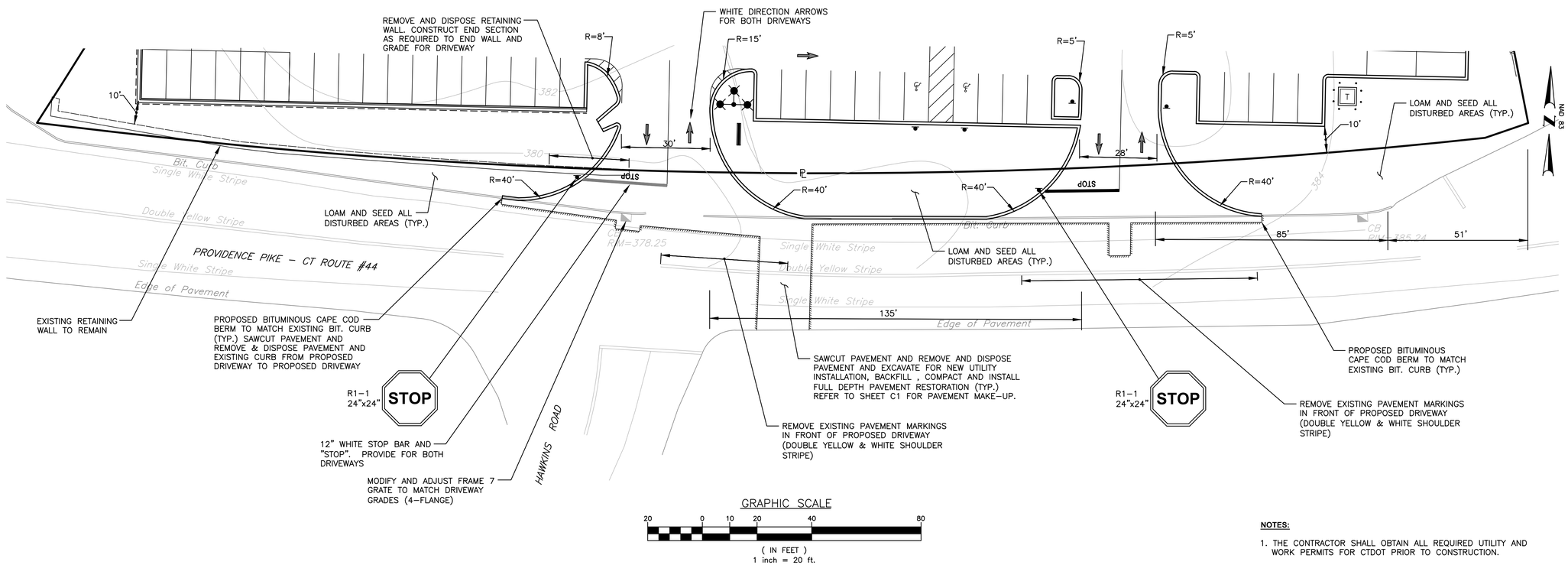
LOOKING WEST FROM SITE



LOOKING SOUTH FROM SITE



LOOKING EAST FROM SITE



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NOTES:

1. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED UTILITY AND WORK PERMITS FOR CTDOT PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR SHALL SUBMIT MAINTENANCE AND PROTECTION OF TRAFFIC PLANS FOR WORK WITHIN THE RTE 44 R.O.W.

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PUTMAN, CONNECTICUT

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MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

ROADWAY IMPROVEMENT PLAN

DATE:	*SCALE:*
MAY 2023	1"=20'

DWG. NAME: 2739-07-ROADWAY.dwg

REVISIONS

NUMBER	*REMARKS*	*DATE*
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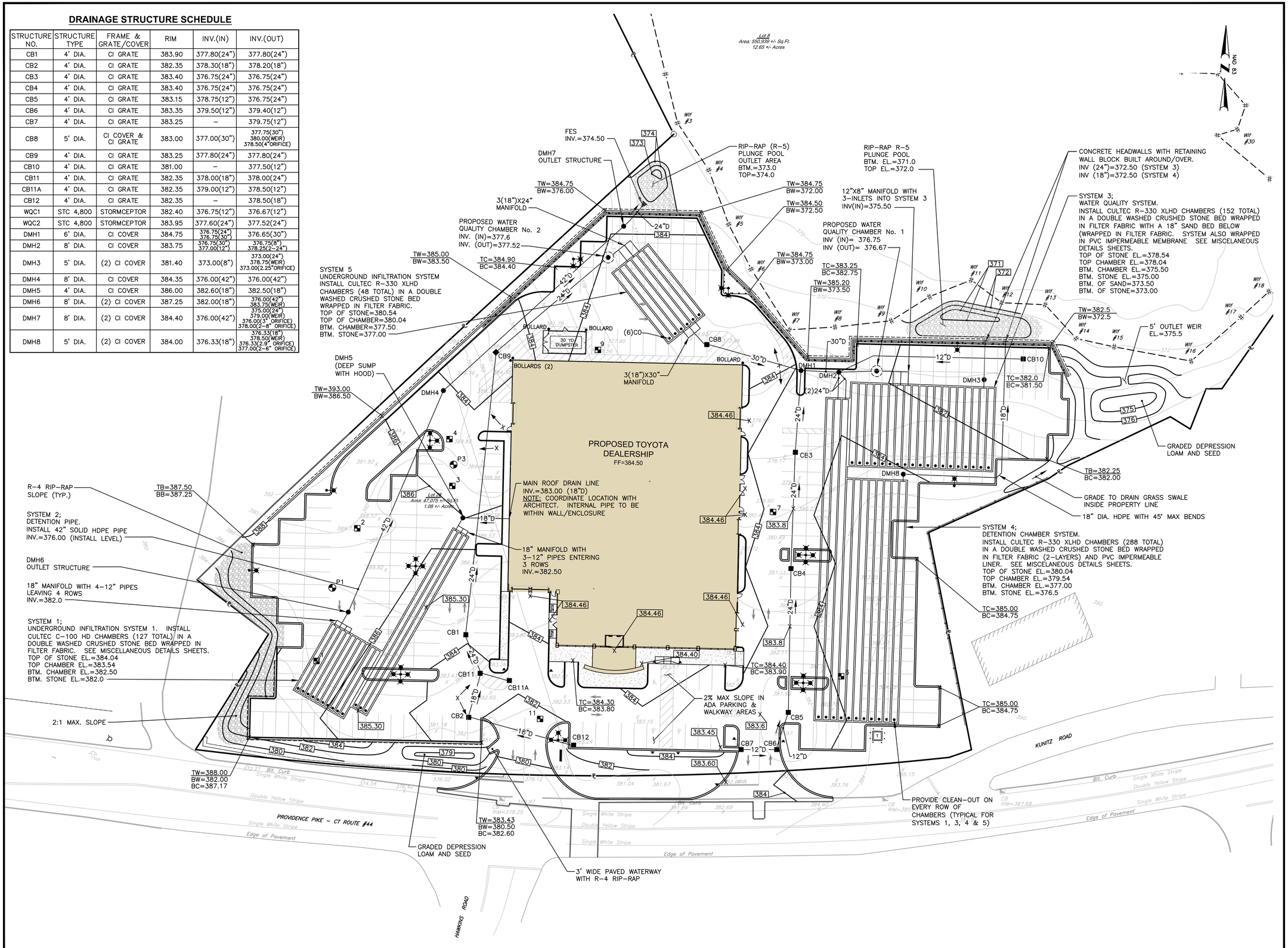
DRAWING NUMBER

C5.2

SHEET: 7 *OF:* 17

DRAINAGE STRUCTURE SCHEDULE

STRUCTURE NO.	STRUCTURE TYPE	FRAME & GRATE/COVER	RIM	INV.(IN)	INV.(OUT)
CB1	4' DIA.	CI GRATE	383.90	377.80(24")	377.80(24")
CB2	4' DIA.	CI GRATE	382.35	378.30(18")	378.20(18")
CB3	4' DIA.	CI GRATE	383.40	376.75(24")	376.75(24")
CB4	4' DIA.	CI GRATE	383.40	376.75(24")	376.75(24")
CB5	4' DIA.	CI GRATE	383.15	378.75(12")	376.75(24")
CB6	4' DIA.	CI GRATE	383.35	379.50(12")	379.40(12")
CB7	4' DIA.	CI GRATE	383.25	–	379.75(12")
CB8	5' DIA.	CI COVER & CI GRATE	383.00	377.00(30")	377.75(30") 380.00(WEIR) 378.50(4"ORIFICE)
CB9	4' DIA.	CI GRATE	383.25	377.80(24")	377.80(24")
CB10	4' DIA.	CI GRATE	381.00	–	377.50(12")
CB11	4' DIA.	CI GRATE	382.35	378.00(18")	378.00(24")
CB11A	4' DIA.	CI GRATE	382.35	379.00(12")	378.50(12")
CB12	4' DIA.	CI GRATE	382.35	–	378.50(18")
WQC1	STC 4,800	STORMCEPTOR	382.40	376.75(12")	376.67(12")
WQC2	STC 4,800	STORMCEPTOR	383.95	377.60(24")	377.52(24")
DMH1	6' DIA.	CI COVER	384.75	376.75(24") 376.75(30")	376.65(30")
DMH2	8' DIA.	CI COVER	383.75	376.75(30") 377.00(12")	376.75(8") 378.25(2–24")
DMH3	5' DIA.	(2) CI COVER	381.40	373.00(8")	373.00(24") 378.75(WEIR) 373.00(2.25"ORIFICE)
DMH4	8' DIA.	CI COVER	384.35	376.00(42")	376.00(42")
DMH5	4' DIA.	CI COVER	386.00	382.60(18")	382.50(18")
DMH6	8' DIA.	(2) CI COVER	387.25	382.00(18")	376.00(42") 383.75(WEIR)
DMH7	8' DIA.	(2) CI COVER	384.40	376.00(42")	375.00(24") 379.00(WEIR) 376.00(3" ORIFICE) 378.00(2–8" ORIFICE)
DMH8	5' DIA.	(2) CI COVER	384.00	376.33(18")	376.33(18") 378.50(WEIR) 376.33(2.9" ORIFICE) 377.00(2–6" ORIFICE)



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PROJECT TITLE:

PROPOSED MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTNAM, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

GRADING & DRAINAGE PLAN

DATE:	*SCALE:*
MAY 2023	1"=30'

DWG. NAME: 2739–08–GRADE.dwg

REVISIONS

NUMBER	*REMARKS*	*DATE*
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DRAWING NUMBER

C6

SHEET: 8 *OF:* 17

UTILITY NOTES

1. CONTRACTOR SHALL COORDINATE NEW ELECTRIC AND COMMUNICATION SERVICE WITH UTILITY COMPANIES. THE CONTRACTOR SHALL COORDINATE THE NEW UTILITY POLE REQUIRED ON THE NORTH SIDE OF PROVIDENCE PIKE. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF NEW CONDUITS, WIRES AND TRANSFORMERS AS REQUIRED TO SERVICE THIS SITE.

2. CONTRACTOR IS REQUIRED TO DIG TEST PITS AT ALL PROPOSED–EXISTING UTILITY TIE–IN AREAS. THIS WORK SHALL BE CONDUCTED PRIOR TO INSTALLATION. COORDINATION WITH OWNER/ARCHITECT AND ENGINEER IS REQUIRED.

3. THE CONTRACTOR SHALL INSTALL NEW LIGHT POLES, HANDHOLE, AND ELECTRICAL CONDUITS FOR THIS SITE. REFER TO LIGHTING PLAN FOR LOCATIONS AND DETAILS. THIS CONTRACTOR IS RESPONSIBLE FOR THIS INSTALLATION.

4. ALL UTILITIES PENETRATING THE FOUNDATION WALL SHALL BE SLEEVED WITH WATER TIGHT FITTINGS.

5. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF UNDERGROUND CONDUIT, GAS, ELECTRIC AND COMMUNICATION SERVICE. BID PRICE SHALL INCLUDE PAVEMENT SAWCUT, REMOVAL AND DISPOSAL, EXCAVATION, PIPE/CONDUIT INSTALLATION AND BACKFILL WITHIN ROADWAY AND ON SITE.

6. THE CONTRACTOR IS REQUIRED TO COORDINATE WITH THE OWNER AND PLUMBING ENGINEER TO CONFIRM THE PROPOSED WATER SERVICE SIZE. ANY MODIFICATIONS TO THE WATER SYSTEM REQUIRES ACCEPTANCE BY PUTNAM W.P.C.A. COORDINATION BY THE CONTRACTOR IS REQUIRED PRIOR TO CONSTRUCTION.

7. PROPOSED GAS LINE SIZE SHALL BE VERIFIED BY THE OWNER/ARCHITECT PRIOR TO CONSTRUCTION.

8. UTILITY SERVICE LOCATIONS AT THE BUILDING AS SHOWN ON THIS PLAN MAY VARY DEPENDING ON FINAL ARCHITECTURAL DESIGN.

9. CONTRACTOR SHALL VERIFY WATER, SEWER AND GAS LINE LOCATIONS AND ELEVATIONS WITHIN STREET PRIOR TO CONSTRUCTION.

10. THE EXISTING SEWER, WATER, GAS, AND TELECOMM INFORMATION WITHIN THE STREET RIGHT OF WAY HAS BEEN TAKEN FROM PLANS PROVIDED BY OTHERS. THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.

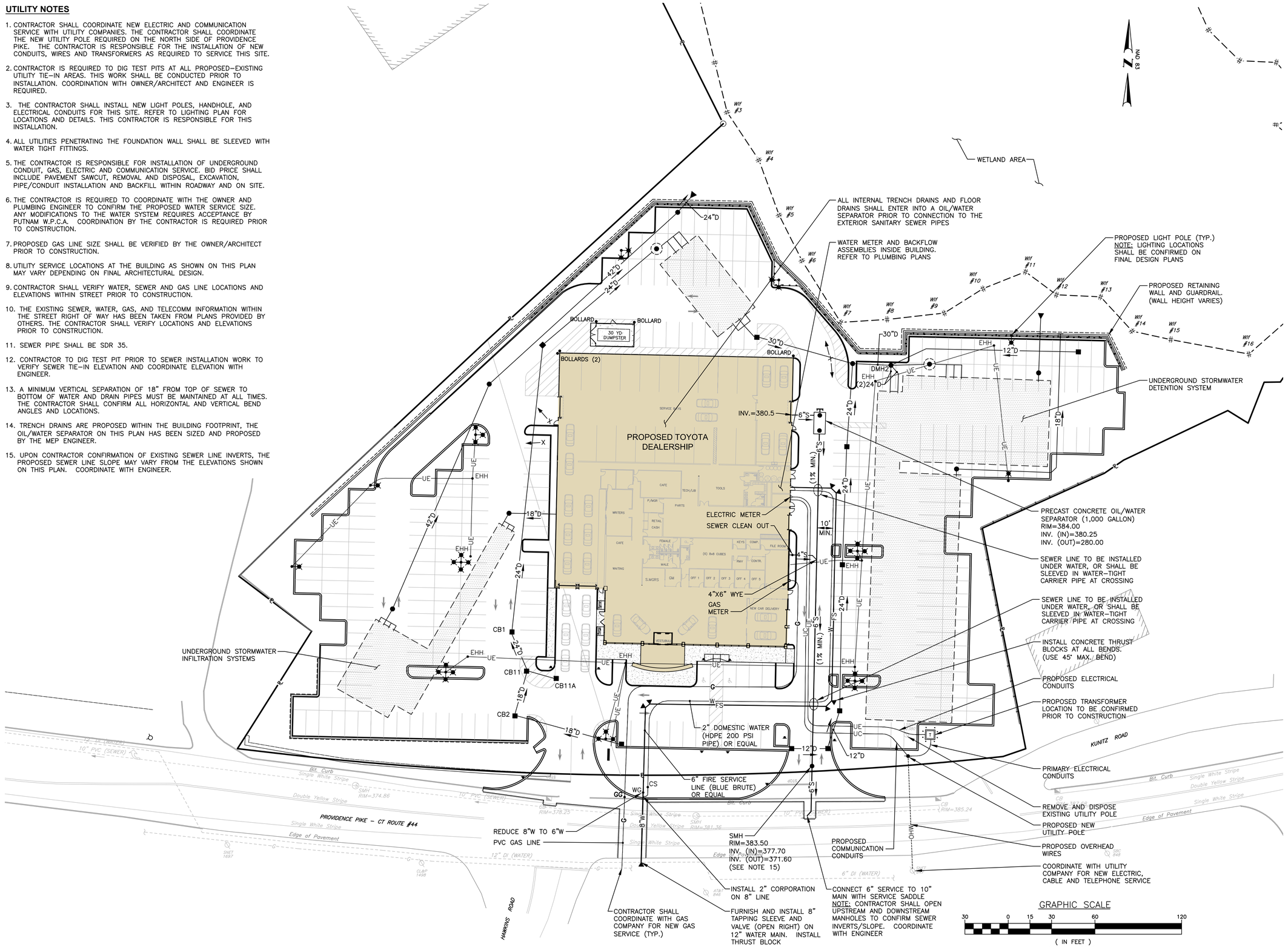
11. SEWER PIPE SHALL BE SDR 35.

12. CONTRACTOR TO DIG TEST PIT PRIOR TO SEWER INSTALLATION WORK TO VERIFY SEWER TIE–IN ELEVATION AND COORDINATE ELEVATION WITH ENGINEER.

13. A MINIMUM VERTICAL SEPARATION OF 18" FROM TOP OF SEWER TO BOTTOM OF WATER AND DRAIN PIPES MUST BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL CONFIRM ALL HORIZONTAL AND VERTICAL BEND ANGLES AND LOCATIONS.

14. TRENCH DRAINS ARE PROPOSED WITHIN THE BUILDING FOOTPRINT, THE OIL/WATER SEPARATOR ON THIS PLAN HAS BEEN SIZED AND PROPOSED BY THE MEP ENGINEER.

15. UPON CONTRACTOR CONFIRMATION OF EXISTING SEWER LINE INVERTS, THE PROPOSED SEWER LINE SLOPE MAY VARY FROM THE ELEVATIONS SHOWN ON THIS PLAN. COORDINATE WITH ENGINEER.



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88 PROVIDENCE PIKE (ROUTE 44)
PUTNAM, CONNECTICUT

PREPARED FOR:

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TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

UTILITY PLAN

DATE:	*SCALE:*
MAY 2023	1"=30'

DWG. NAME: 2739–09–UTIL.dwg

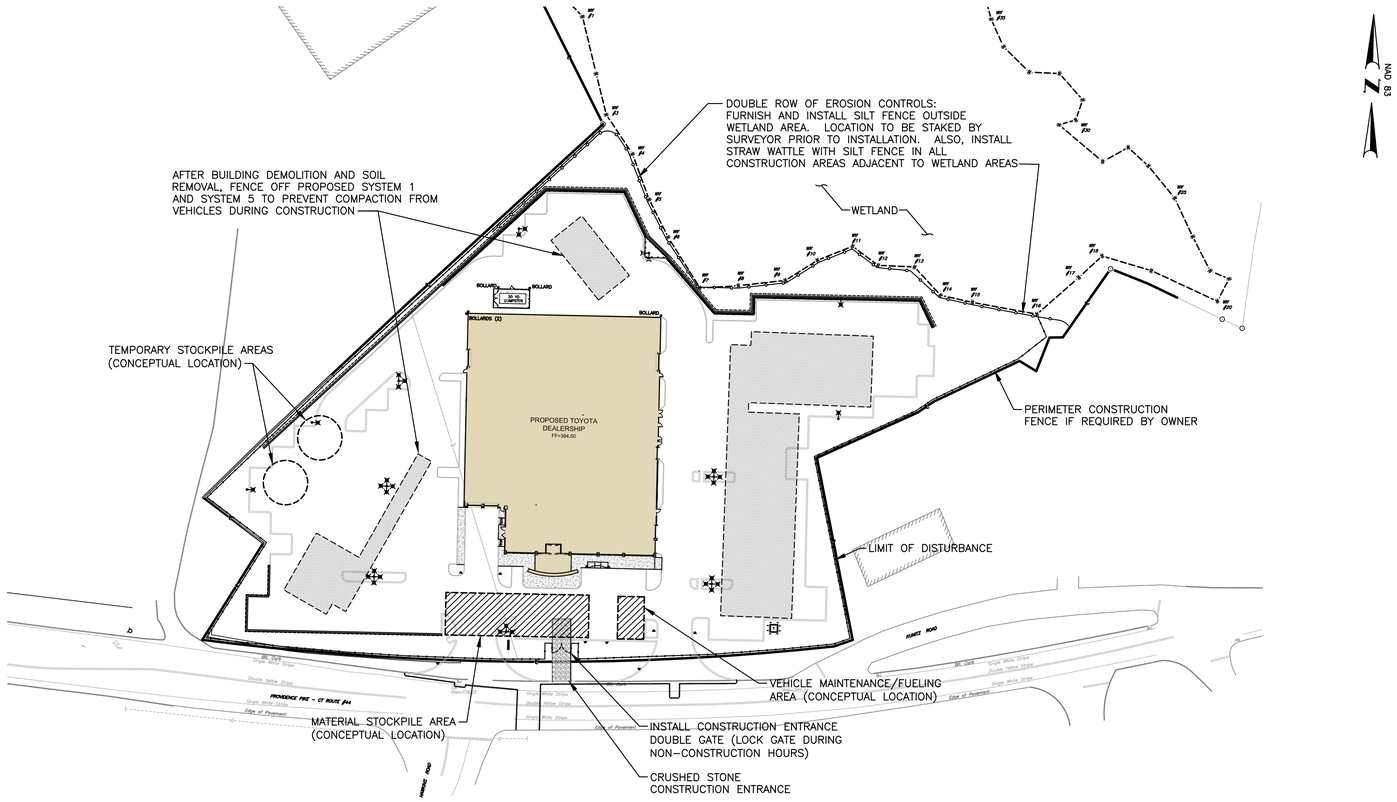
REVISIONS

NUMBER	*REMARKS*	*DATE*
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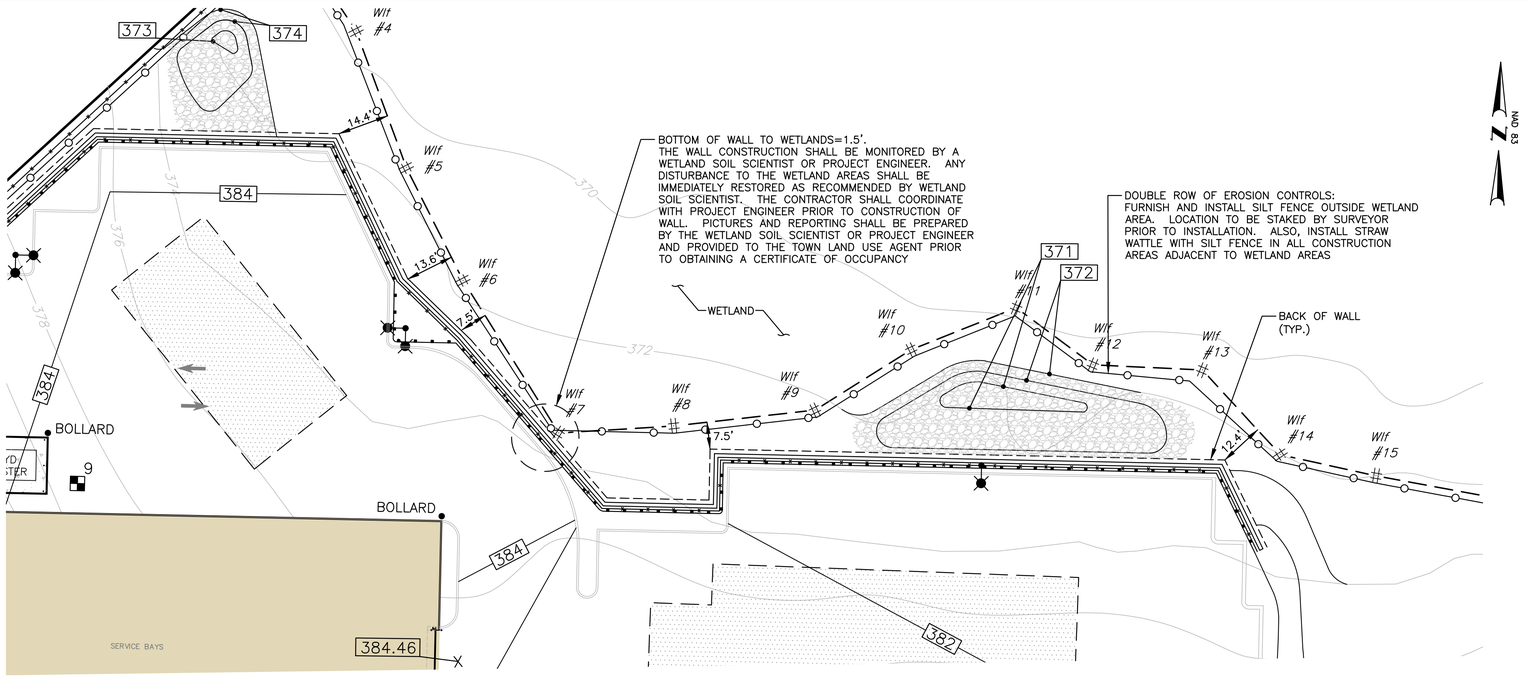
DRAWING NUMBER

C7

SHEET: 9 *OF:* 17



PLAN
SCALE: 1"=60'



WALL AT WETLANDS DETAIL
SCALE: 1"=20'

DUST CONTROL NOTES

ON AN AS-NEEDED BASIS OR AS DIRECTED BY THE MUNICIPAL REPRESENTATIVES, ENGINEER, CT DOT OR OWNER, THE CONTRACTOR SHALL UTILIZE ONE OF THE FOLLOWING METHODS TO CONTROL DUST:

A. THE EXPOSED SOIL SURFACE SHOULD BE MOISTENED PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST.

B. CALCIUM CHLORIDE SHOULD BE EITHER LOOSE DRY GRANULES OR FLAKE FINE ENOUGH TO FEED THROUGH A SPREADER AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE.

THE METHODS SHOULD BE REPEATED AS NEEDED, AND SPECIAL ATTENTION MUST BE GIVEN TO THE ACCESS DRIVES.

INSPECTION/MAINTENANCE NOTES

1. PRIOR TO COMMENCING GRUBBING OPERATIONS AND EARTHWORK, FILTERSOXX SHALL BE PLACED INSIDE SAWCUT EDGE AND ALONG THE DOWNGRADIENT LIMIT OF DISTURBANCE TO PREVENT SEDIMENT FROM ENTERING EXISTING ROADWAY DRAINAGE SYSTEM, WETLANDS AND ABUTTING PROPERTIES AND THE CONTRACTOR SHALL INSTALL DRIPLINE TREE PROTECTION DEVICES ALONG THE PROPOSED TREELINE/EXISTING TREES TO REMAIN.
2. EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL FROM ENTERING THE DRAINAGE SYSTEM OR WETLAND AREAS.
3. ALL DISTURBED AREAS WHICH BECOME SUBJECT TO EROSIVE TENDENCIES WHETHER THEY BE NEWLY FILLED OR EXCAVATED SHALL RECEIVE SLOPE PROTECTION – SUCH AS RIP-RAP.
4. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING PERIODS OF RAINFALL.
5. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EROSION CONTROL MAINTENANCE AND SHALL INSPECT / REPLACE DAILY DURING CONSTRUCTION, FOLLOWING RAINFALL AND WEEKLY DURING NON CONSTRUCTION PERIODS.
6. ADDITIONAL FILTERSOXX OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT OR AS DIRECTED BY THE ENGINEER.
7. THE 2002 VERSION AND '2022 DRAFT' VERSION OF THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" PREPARED BY THE COUNCIL ON SOIL AND WATER CONSERVATION INCORPORATION WITH THE DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION (DEEP) MUST BE UTILIZED BY THE CONTRACTOR AS A GUIDE.
8. THE CONTRACTOR IS RESPONSIBLE FOR ALL DUST CONTROL AND FOR THE ENTIRE PROJECT DURATION, INCLUDING TEMPORARY SHUT-DOWN PERIODS, MUST MONITOR AND REPAIR, AS NEEDED, ALL SLOPES TO ENSURE A STABLE PRODUCT.

GENERAL PROJECT WIDE NOTES

1. CONTRACTOR SHALL OBTAIN A SOIL EROSION AND SEDIMENT CONTROL PERMIT FROM THE TOWN PRIOR TO THE COMMENCEMENT OF ANY WORK ONSITE; SOIL EROSION AND SEDIMENT CONTROL MEASURES MUST BE PROPERLY MAINTAINED THROUGHOUT CONSTRUCTION.
2. CONTRACTOR SHALL INSTALL TEMPORARY MEASURES SUCH AS; FIBER MATTING, CRUSHED STONE, HAY OR STRAW IN AREAS WHERE SLOPES OR STABILIZATION HAS FAILED.
3. IF SEDIMENT IS TRACKED OR ERODED INTO THE ROADWAY, THE CONTRACTOR WILL BE REQUIRED TO SWEEP DAILY AND TO INSTALL SILT SACK OR APPROVED EQUAL UNDER ADJACENT EXISTING CATCH BASIN GRATES. REMOVE AFTER CONSTRUCTION.
4. FILTER SOXX (OR SILT FENCE OR STAKED HAYBALES) SHALL BE INSTALLED AROUND THE PERIMETER OF THE AREA TO BE DISTURBED BY CONSTRUCTION. ADDITIONAL APPLICATIONS OF THESE CONTROLS MEASURES MAY BE REQUIRED DURING THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL INSPECT THE SITE AT A MINIMUM OF ONCE PER WEEK OR WITHIN 24 HOURS AFTER A STORM EVENT.
5. IF EROSION OR EROSIVE TENDENCIES ARE APPARENT ON THE SITE, THE CONTRACTOR IS RESPONSIBLE TO INSTALL ADDITIONAL CONSTRUCTION BMP'S SUCH AS SAND BAGS AS DIRECTED BY THE TOWN OR ENGINEER DURING CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE TO KEEP THE SITE CLEAN OF TRASH. RECOMMENDED DAILY PATROL OF THE CONSTRUCTION SHOULD BE CONDUCTED TO PICK-UP TRASH. THE OPERATOR SHALL REQUIRE THE CONTRACTOR TO HAVE PORTABLE SANITARY FACILITIES ON SITE. ROUTINE CLEANING AND WASTE DISPOSAL OF THESE PORTABLE SANITARY FACILITIES IS REQUIRED.

FILTREXX SOXX NOTE

CONTRACTOR IS RESPONSIBLE TO BECOME FAMILIAR WITH THE FILTREXX PRODUCTS AND COORDINATE INSTALLATION SCHEDULES AND METHODS WITH THE ENGINEER PRIOR TO PLACEMENT.

EROSION CONTROL AND SOIL STABILIZATION PROGRAM

1. EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL FROM ENTERING THE DRAINAGE SYSTEM, ADJACENT PROPERTY, WETLANDS AND ROADWAYS.
2. TEMPORARY TREATMENTS SHALL CONSIST OF A HAY, STRAW, OR FIBER MULCH PROTECTIVE COVERS, SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS). THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE OWNER.
3. HAY OR STRAW APPLICATIONS SHALL BE IN THE AMOUNT OF 3,000-4,000 LBS/ACRE.
4. STOCKPILES SHALL HAVE NO SLOPE STEEPER THAN 2:1 AND SHALL BE SURROUNDED BY FILTER SOXX, STAKED HAY BALES OR SILT FENCING.
5. STOCKPILES EXPOSED FOR EXCESSIVE PERIODS SHALL RECEIVE TEMPORARY TREATMENT CONSISTING OF HAY, STRAW OR FIBER MATTING.
6. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EROSION CONTROL MAINTENANCE AND SHALL INSPECT/REPLACE AS NEEDED.
7. ADDITIONAL HAY BALES OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT OR AS DIRECTED BY THE ENGINEER, OWNER, MUNICIPAL REPRESENTATIVES OR CT. D.O.T.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DUST CONTROL AT NO ADDITIONAL COST TO THE OWNER.
9. ALL CATCH BASINS ADJACENT TO THE CONSTRUCTION AREA SHALL BE PROTECTED BY SILT SACKS.
10. ALL PROPOSED CATCH BASINS SHALL BE PROTECTED BY STAKED HAY BALES, SILT FENCING OR SILT SACKS.
11. THE FILTREXX FILTER SOXX MAY BE INSTALLED ON THE EXISTING PAVEMENT /IMPERVIOUS AREAS WITH OUT STAKES. CONTRACTOR SHALL INSPECT DAILY, IF SOIL EROSION OR SEDIMENT IS OBSERVED IN THESE AREAS, THE CONTRACTOR SHALL RELOCATE OR INSTALL ADDITIONAL FILTREXX FILTER SOXX IN LOCATIONS THAT CAN BE STAKED. THIS WORK IS INCLUDED IN THE PROJECT SCOPE.
12. SILT FENCE OR STAKED HAYBALES MAY BE USED IN LIEU OF FILTREXX FILTER SOXX.
13. AN ALTERNATE COMPOST SOCK OR STRAW WATTLE PRODUCT MAY BE USED IN LIEU OF FILTREXX FILTER SOCK UPON APPROVAL OF THE ENGINEER.

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PROJECT TITLE:

PROPOSED MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

SOIL EROSION & SEDIMENT CONTROL PLAN

DATE:	*SCALE:*
MAY 2023	AS NOTED

DWG. NAME: 2739-10-SOIL.dwg

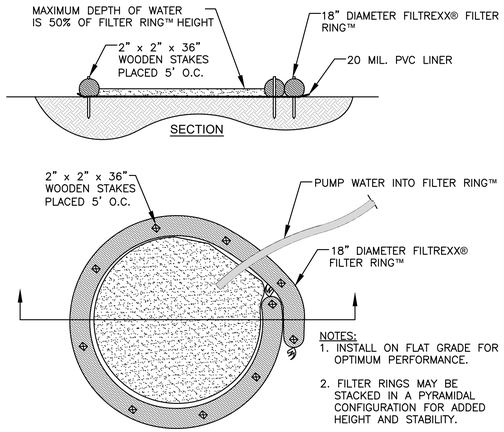
REVISIONS

NUMBER	*REMARKS*	*DATE*
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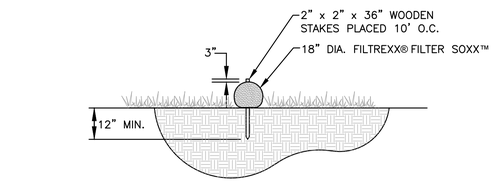
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SHEET: 10 *OF:* 17

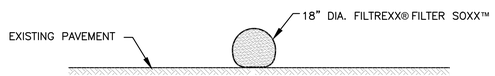


NOTES:
1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE.
2. FILTER RINGS MAY BE STACKED IN A PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT AND STABILITY.
3. FILTER RINGS MAY BE DIRECT SEEDED AT THE TIME OF INSTALLATION.
4. THIS TYPICAL INSTALLATION SHALL BE USED FOR DEWATERING OPERATIONS.

FILTREXX® FILTER RING
NOT TO SCALE



FILTREXX ® FILTER SOXX ™ SECTION

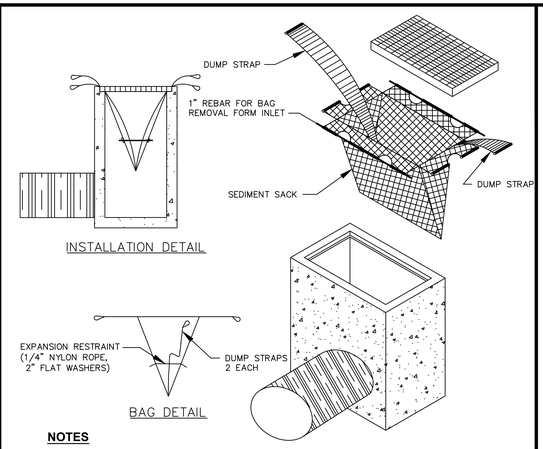


FILTREXX ® FILTER SOXX ™ PAVEMENT OPTION

NOTE

1. FILTREXX FILTER SOXX MAY BE USED IN LIEU OF SILT FENCE.
2. CONTRACTOR IS RESPONSIBLE TO BECOME FAMILIAR WITH THE FILTREXX PRODUCTS AND COORDINATE INSTALLATION SCHEDULES AND METHODS WITH THE ENGINEER PRIOR TO PLACEMENT.
3. ALL MATERIAL SHALL MEET FILTREXX SPECIFICATIONS.
4. COMPOST MATERIAL TO BE DISPERSED ON SITE AS DETERMINED BY ENGINEER.

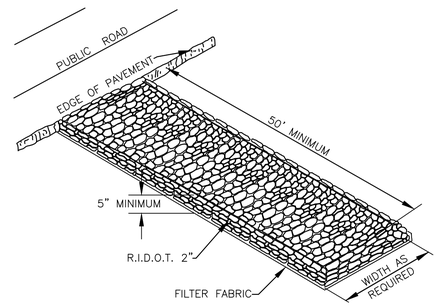
FILTREXX ® FILTER SOXX ™ DETAIL
NOT TO SCALE



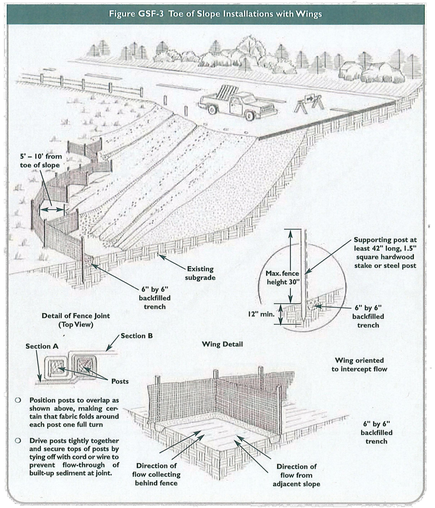
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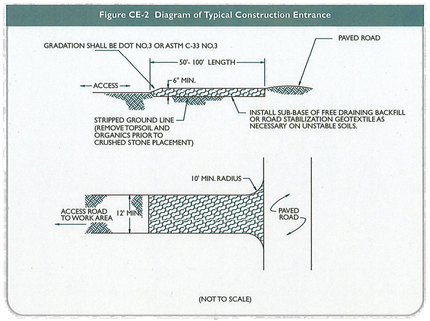
1. INSTALL SILT SACK AT CATCH BASINS IN VICINITY OF CONSTRUCTION.
2. CONTRACTOR SHALL SUBMIT SILT SACK PRODUCT TO ENGINEER FOR APPROVAL.

TYPICAL SILT SACK DETAIL
NOT TO SCALE

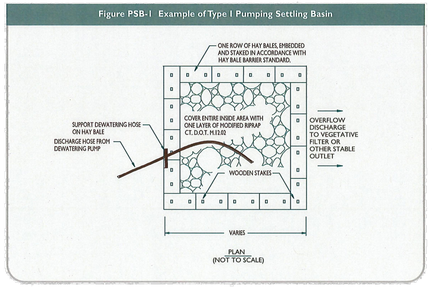


CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

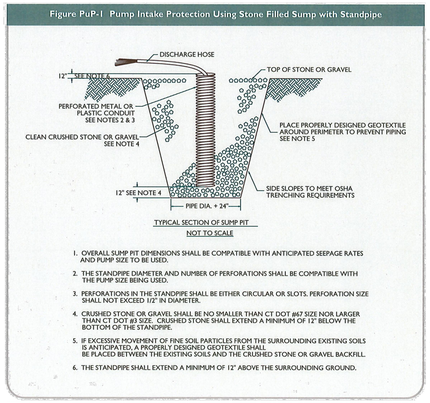




Source: USDA-NRCS



Source: USDA-NRCS



1. OVERALL SUMP PIT DIMENSIONS SHALL BE COMPATIBLE WITH ANTICIPATED SEEPAGE RATES AND PUMP SIZE TO BE USED.
2. THE STANDPIPE DIAMETER AND NUMBER OF PERFORATIONS SHALL BE COMPATIBLE WITH THE PUMP SIZE BEING USED.
3. PERFORATIONS IN THE STANDPIPE SHALL BE EITHER CIRCULAR OR SLOTS. PERFORATION SIZE SHALL NOT EXCEED 1/2" IN DIAMETER.
4. CRUSHED STONE OR GRAVEL SHALL BE NO SMALLER THAN CT DOT #67 SIZE NOR LARGER THAN CT DOT #3 SIZE. CRUSHED STONE SHALL EXTEND A MINIMUM OF 12" BELOW THE BOTTOM OF THE STANDPIPE.
5. IF EXCESSIVE MOVEMENT OF FINE SOIL PARTICLES FROM THE SURROUNDING EXISTING SOILS IS ANTICIPATED, A PROPERLY DESIGNED GEOTEXTILE SHALL BE PLACED BETWEEN THE EXISTING SOILS AND THE CRUSHED STONE OR GRAVEL BACKFILL.
6. THE STANDPIPE SHALL EXTEND A MINIMUM OF 12" ABOVE THE SURROUNDING GROUND.

Source: USDA-NRCS

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PROPOSED
MCGEE TOYOTA
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HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

SOIL EROSION & SEDIMENT CONTROL DETAILS

DATE:	*SCALE:*
MAY 2023	AS NOTED

DWG. NAME: 2739-11-SOIL-DET.dwg

REVISIONS

NUMBER	*REMARKS*	*DATE*
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DRAWING NUMBER

C8.2

SHEET: 11 *OF:* _____

PLANT SCHEDULE

PROVIDED BELOW IS A LIST OF POTENTIAL PLANTS FOR USE ONSITE. A FINAL PLAN WITH SPECIFIC PLANT DETAILS WILL BE CONFIRMED ON THE FINAL LANDSCAPE PLAN.

SYMBOL	PLANTING
DECIDUOUS TREES	COMMON NAME
	October Glory Maple, Sugar Maple, Kousa Dogwood, Sargent's Cherry
EVERGREEN TREES	
	Eastern Red Cedar, Colorado Blue Spruce, Dark Green Arborvitae, White Pine, Columnar Hornbeam
SHRUBS	
	Green Mountain Boxwood, Gold Threadleaf Falsecypress, Arctic Fire Redtwig Dogwood, Nikko Blue Hydrangea, Little Lime Green Hydrangea, Shamrock, Inkberry, Siberian Cypress, Compact Rhododendron, Double Knockout Rose, Gold Flame Spirea, Miss Kim Dwarf Lilac
PERENNIALS	
	Large Blue Hosta, Autumn Fire Sedum, Dwarf Reblooming Daylilly, Montauk Daisy, Little Bluestem
GROUNDCOVER	
	Green Sargent's Juniper, Sea of Gold Juniper

LANDSCAPE REQUIREMENTS

CUSTOMER PARKING= 29 SPACES*
EMPLOYEE PARKING = 23 SPACES*
SERVICE PARKING = 11 SPACES*
TOTAL = 63 SPACES*

PARKING AND AISLE AREA = 47,850 SF*

	REQUIRED	PROVIDED
INTERIOR LANDSCAPING:	10%	10%
MINIMUM NUMBER OF TREES: (1 TREE PER 10 PARKING SPACES)	7	8
LANDSCAPE BUFFER (FRONT YARD):	10'	10' MIN.

*DOES NOT INCLUDE VEHICLE DISPLAY/STORAGE AREAS

SEEDING NOTES

1. LOAM SHALL BE SPREAD TO A MINIMUM DEPTH OF 6" OVER ALL AREAS DESIGNATED ON PLANS.
2. SHAPE AND SMOOTH THE SURFACE TO THE LINES AND GRADES AS SHOWN ON PLANS.
3. FERTILIZE WITH 10–10–10 OR EQUIVALENT ANALYSIS. AT LEAST 40% OF THE FERTILIZER NITROGEN SHALL BE IN A SLOW RELEASE FORM. INCORPORATE THE FERTILIZER INTO THE TOP 3 TO 4 INCHES OF THE PLANTING SOIL. APPLY AT THE RATE OF 8 POUNDS PER 1,000 SQUARE FEET AT SEEDING.
4. LIME: SPREAD EVENLY AND WORK INTO THE SOIL DURING PREPARATION OF SEED BED AT THE RATE OF ONE TON PER ACRE. INCORPORATE INTO THE SOIL BY DICING OR OTHER APPROVED METHOD. DISTRIBUTE LIME UNIFORMLY AND WORK INTO TOP 4 INCHES OF TOP SOIL (MINIMUM) AND UNIFORMLY BLEND BY DICING OR ROTOTILLING.
5. APPLICATION OF SEED:
   A. RATE OF APPLICATION OF SEED SHALL BE 8 POUNDS PER 1,000 SQUARE FEET OR AS INDICATED ON PLANS.
   B. SEEDING SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS, AND ONLY DURING THE FOLLOWING DATES:
      SPRING SEEDING: MARCH 15 TO MAY 31
      FALL SEEDING: AUGUST 15 TO OCTOBER 15
   C. THE CONTRACTOR SHALL KEEP ALL SEEDED AREAS WATERED AND IN GOOD CONDITION, RESEEDING IF AND WHEN NECESSARY FOR AN 8 WEEK PERIOD OR UNTIL A GOOD, HEALTHY, UNIFORM GROWTH IS ESTABLISHED OVER THE ENTIRE AREA. THE CONTRACTOR SHALL ALSO MAINTAIN THESE AREAS IN AN APPROVED CONDITION UNTIL PROVISIONAL ACCEPTANCE.
   D. DURING THIS PERIOD, WATER TURF AS NECESSARY TO MAINTAIN AN ADEQUATE SUPPLY OF MOISTURE WITHIN THE ROOT ZONE. AN ADEQUATE SUPPLY OF MOISTURE IS EQUIVALENT OF ONE INCH OF ABSORBED WATER PER WEEK THAT IS DELIVERED AT WEEKLY INTERVALS IN THE FORM OF NATURAL RAIN OR IS AUGMENTED AS REQUIRED BY PERIODIC WATERING.

SEEDING NOTES (CONT.)

E. OVERSEED WHEN NECESSARY TO PROMOTE GRASS GROWTH.

F. REPLANT AREAS VOID OF TURF ONE SQUARE FOOT OR LARGER.

G. SEED:
   a. SEED ALL AREAS DESIGNATED ON PLAN AS WELL AS ALL DISTURBED EXISTING AREAS WITH THE FOLLOWING SEED MIX (OR APPROVED EQUAL):

SEED MIX No. 1
(MOWED/LAWN AREAS)

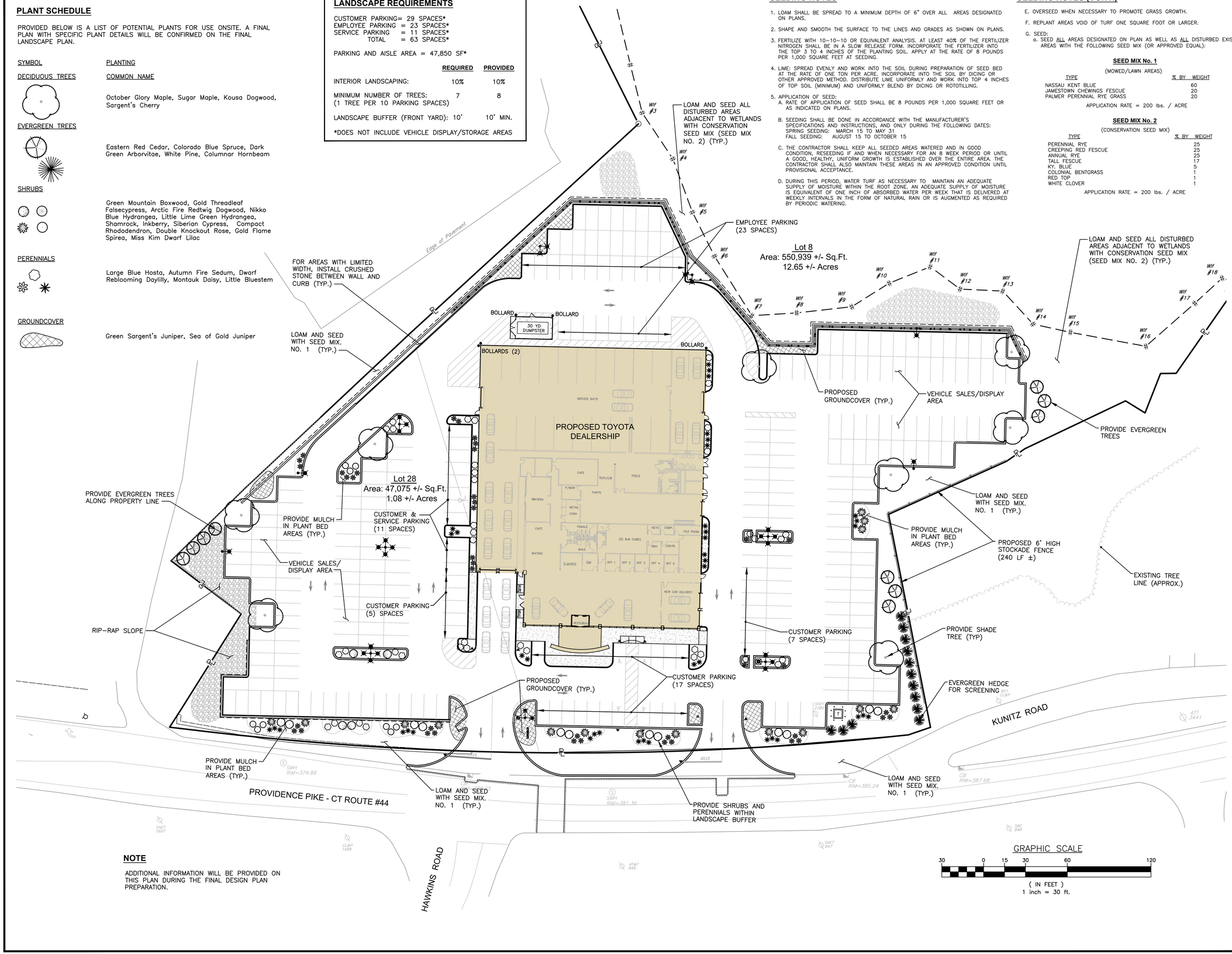
TYPE	% BY WEIGHT
NASSAU KENT BLUE	60
JAMESTOWN CHEWINGS FESCUE	20
PALMER PERENNIAL RYE GRASS	20

APPLICATION RATE = 200 lbs. / ACRE

SEED MIX No. 2
(CONSERVATION SEED MIX)

TYPE	% BY WEIGHT
PERENNIAL RYE	25
CREEPING RED FESCUE	25
ANNUAL RYE	25
TALL FESCUE	17
KY. BLUE	5
COLONIAL BENTGRASS	1
RED TOP	1
WHITE CLOVER	1

APPLICATION RATE = 200 lbs. / ACRE



GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

NOTE

ADDITIONAL INFORMATION WILL BE PROVIDED ON THIS PLAN DURING THE FINAL DESIGN PLAN PREPARATION.

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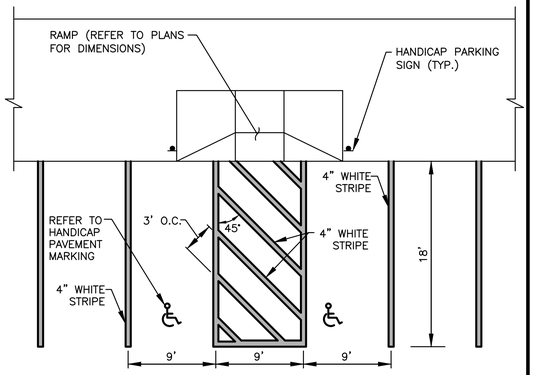
DRAWING TITLE:
CONCEPTUAL LANDSCAPE PLAN

DATE: MAY 2023
SCALE: 1"=30'
DWG. NAME: 2739–12–LAND.dwg

REVISIONS

NUMBER	REMARKS	DATE
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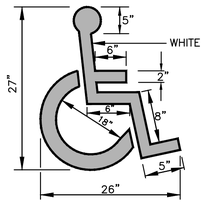
DRAWING NUMBER
C9
SHEET: 10 *OF:* 17



NOTE

ALL HANDICAP PARKING SPACES SHALL BE IN ACCORDANCE WITH THE LOCAL AND STATE BUILDING CODE AND ADA REQUIREMENTS.

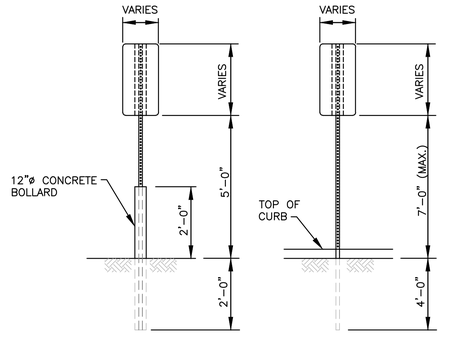
ADA PARKING STALLS
NOT TO SCALE



NOTE

ALL ADA PARKING SPACES SHALL BE IN ACCORDANCE WITH THE LOCAL AND STATE BUILDING CODE AND ADA REQUIREMENTS.

ADA PAVEMENT MARKING
NOT TO SCALE



(MOUNTING DETAIL FOR SIGNS WITH NO SIDEWALK)

(MOUNTING DETAIL FOR SIGNS BEHIND SIDEWALK)

SIGN MOUNTING DETAIL
NOT TO SCALE



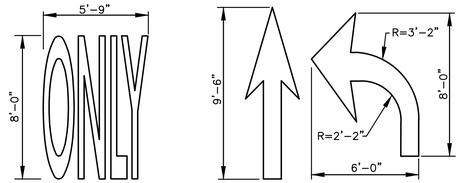
NOTE:

1. ALL LETTERS ARE 1" SERIES "C" PER THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.),
2. SIGN SHALL BE REFLECTORIZED (ENGINEERING GRADE) BLUE BACKGROUND WITH WHITE REFLECTORIZED LEGEND AND BORDER.
3. CONTRACTOR SHALL VERIFY THE POSTED "FINE" AMOUNT WITH THE BUILDING OFFICIAL PRIOR TO INSTALLATION.
4. ONE (1) SIGN REQUIRED FOR EACH PARKING SPACE.
5. INSTALLED HEIGHT OF SIGN SHALL BE IN ACCORDANCE WITH SECTION 24-23 OF THE M.U.T.C.D.
6. SIGN MAY BE MOUNTED ON BUILDING/WALL, AT PROPER HEIGHT, ALIGNED WITHIN 12" OF CENTER OF THE PARKING SPACE.
7. ALL HANDICAP PARKING AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LOCAL AND STATE BUILDING CODE.

SIGN NOTES:

1. SIGN POSTS SHALL BE GALVINIZED STEEL U-CHANNEL (3 1/2" WIDE-MIN.) AND INSTALLED IN CONFORMANCE WITH MUTCD AND LOCAL STANDARDS AND SPECIFICATIONS.
2. POSTS SHALL BE DRIVEN TO A DEPTH OF 4 FEET (MIN.)
3. THE EDGE OF THE SIGN SHALL BE 18" FROM THE FACE OF THE CURB.
4. WITHIN SIDEWALK LOCATIONS THE SIGN POST WILL BE INSTALLED WITHIN A 8"x8"x6" SQUARE BOX FORM.

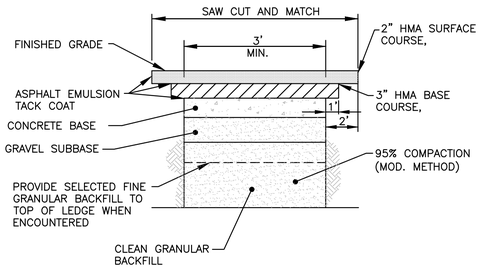
PROPOSED HANDICAPPED PARKING SIGNS
NOT TO SCALE



NOTES

1. THE LONGITUDINAL SPACE BETWEEN LINES OR SYMBOL MESSAGES, INCLUDING ARROWS, SHOULD BE AT LEAST FOUR TIMES THE HEIGHT OF THE CHARACTER FOR LOW SPEED ROADS BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTER UNDER ANY CONDITIONS.
2. THE SPACING OF THE PAVEMENT MARKINGS WILL BE AS SHOWN ON THE PLAN AND AS PER THE MUTCD.
3. SYMBOLS AND WORDS SHALL MEET THE REQUIREMENTS OF THE FHWA "STANDARD ALPHABET AND SYMBOLS FOR HIGHWAY PAVEMENT MARKINGS.

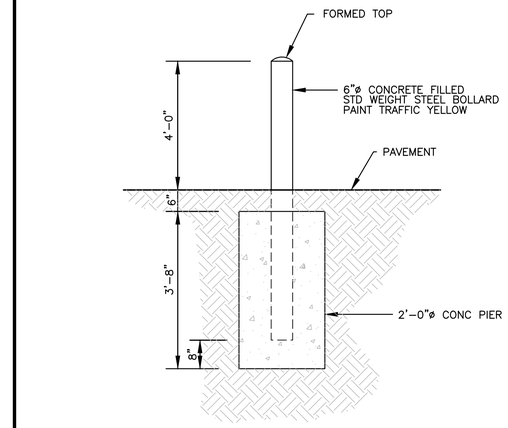
PAVEMENT MARKING DETAIL
NOT TO SCALE



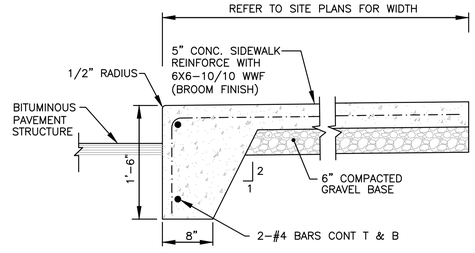
NOTE

THE PAVEMENT DEPTH IN TRENCH AREAS FOR PROPOSED UTILITY PIPE AND CONNECTIONS WITHIN ROADWAY SHALL BE REPLACED IN-KIND. BASE COURSE SHALL BE PLACED IN 2" LIFTS. THE CONTRACTOR SHALL COORDINATE ALL PAVING OPERATIONS WITHIN THE ROADWAY WITH THE ENGINEER PRIOR TO PLACEMENT.

TYPICAL TRENCH PATCH DETAIL
NOT TO SCALE

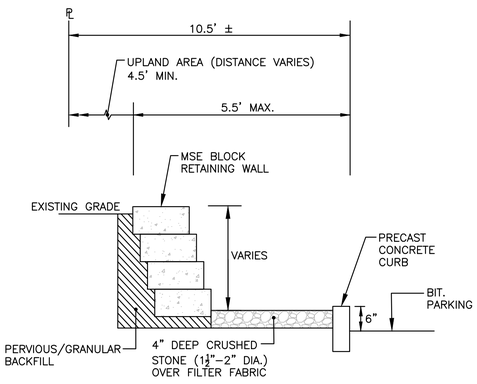


TYPICAL BOLLARD DETAIL
NOT TO SCALE



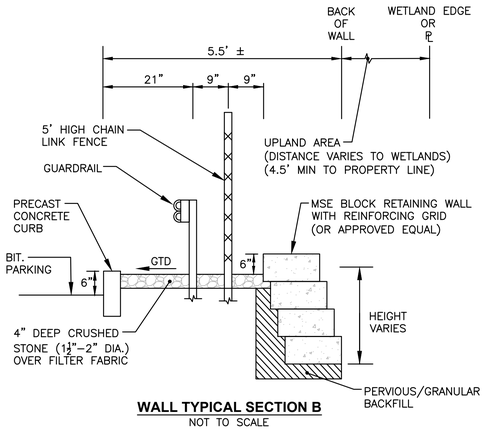
NOTE
CURB OPTION IN AREAS ADJACENT TO BUILDING

TYPICAL CONCRETE SIDEWALK WITH CAST-IN-PLACE CURB
NOT TO SCALE



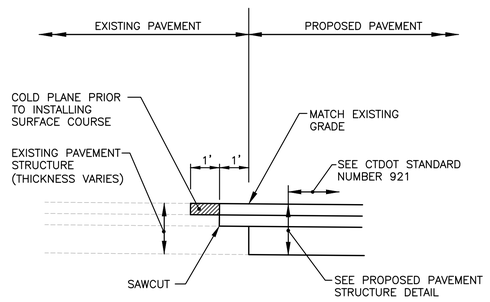
WALL TYPICAL SECTION A
NOT TO SCALE

NOTE:
CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE WALL MANUFACTURER TO OBTAIN A WALL DESIGNED BY A CT PROFESSIONAL ENGINEER (STRUCTURAL) WALL SUBMITTALS SHALL BE PROVIDED BY CONTRACTOR TO OWNER FOR APPROVAL.

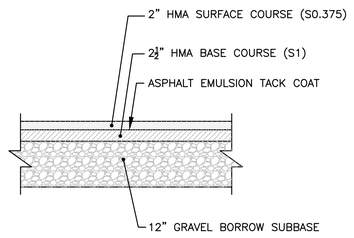


WALL TYPICAL SECTION B
NOT TO SCALE

NOTE:
CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE WALL MANUFACTURER TO OBTAIN A WALL DESIGNED BY A CT PROFESSIONAL ENGINEER (STRUCTURAL) WALL SUBMITTALS SHALL BE PROVIDED BY CONTRACTOR TO OWNER FOR APPROVAL.



PROPOSED PAVEMENT MATCH AT EXISTING PAVEMENT
NOT TO SCALE



PROPOSED PAVEMENT STRUCTURE DETAIL (SITE)
NOT TO SCALE

- Civil
- Transportation
- Environmental
- Site Planning
- Surveying
- Permitting
- Landscape Architecture

Crossman Engineering

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151 Centerville Road
Warwick, RI 02886
Phone: (401) 738-5660

Massachusetts
103 Commonwealth Avenue
North Attleboro, MA 02763
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Email: cei@crossmaneng.com

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PROJECT TITLE:

PROPOSED MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

MISCELLANEOUS DETAILS PLAN No.1

DATE: MAY 2023
SCALE: NO SCALE
DWG. NAME: 2739-13-DET01.dwg

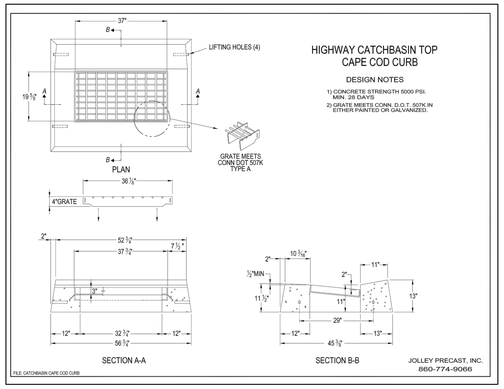
REVISIONS

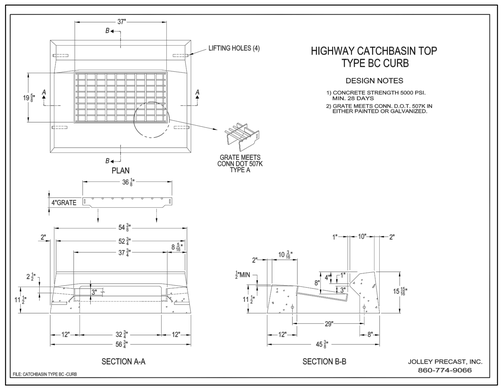
NUMBER	REMARKS	DATE
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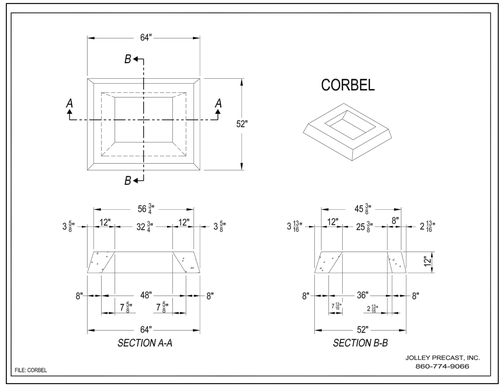
DRAWING NUMBER

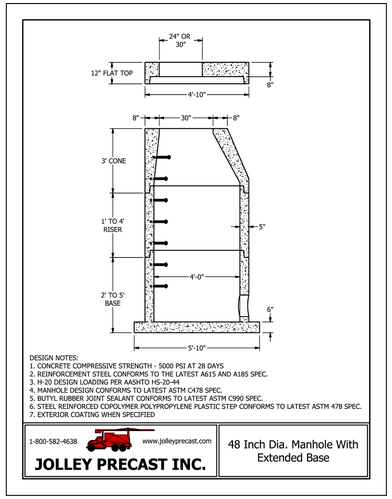
C10.1

SHEET: 13 *OF:* 17









SOIL EVALUATION DATA

SOIL EVALUATIONS WERE CONDUCTED BY CROSSMAN ENGINEERING ON FEBRUARY 21, 2013.

TEST PIT 1

0"	Dark Brown Sandy Loam	Ap (Friable)
8"	FILL: Light Olive Brown Sandy Loam	HTM (Friable)
26"	Dark Brown Sandy Loam	Ab (Friable)
29"	Dark Yellowish Brown Sandy Loam	Bw1 (Friable)
34"	Yellowish Brown Sandy Loam	Bw2 (Friable)
51"	Light Olive Brown Loamy Fine Loam W/ Pockets of Sandy Loam	C1 (Firm in Place)
68"	Light Olive Brown Loamy Fine Loam W/ Pockets of Sandy Loam	C2 (Fi/Fr)
137"		

NO REFUSAL
NO GROUNDWATER SEEPAGE (DRY AT 137")
REDOX FEATURES= 64"
ESHWT=101"
SURFACE GRADE= 384.2-385.5
ESHWT ELEV= 377.1

TEST PIT 2

0"	Dark Brown Sandy Loam	A (Friable)
8"	Dark Yellowish Brown Sandy Loam	Bw1 (Friable)
15"	Dark Yellowish Brown Loamy Fine Sand W/ Pockets of Sandy Loam	Bw2 (Friable)
19"	Light Yellowish Brown Loamy Fine Sand W/ Pockets of Sandy Loam	C1 (Firm in Place)
139"		

NO REFUSAL
NO GROUNDWATER SEEPAGE (DRY AT 139")
REDOX FEATURES=48"
ESHWT=103"
SURFACE GRADE= 388.1-389.7
ESHWT ELEV= 381.0

TEST PIT 3

0"	Dark Brown Sandy Loam	A (Friable)
4"	Dark Yellowish Brown Sandy Loam	Bw1 (Friable)
18"	Light Olive Brown Gravelly Cobbly Sand	C1 (Loose)
41"	Light Yellowish Brown Loamy Fine Sand W/ Pockets of Sandy Loam	2C (Firm in Place)
130"		

NO REFUSAL
NO GROUNDWATER SEEPAGE (DRY AT 130")
REDOX FEATURES=18"
ESHWT= 96"
SURFACE GRADE=387.4
ESHWT ELEV= 379.4

TEST PIT 4

0"	Dark Brown Sandy Loam	A (Friable)
14"	Dark Yellowish Brown Sandy Loam	Bw1 (Friable)
22"	Yellowish Brown Sandy Loam	Bw2 (Friable)
26"	Light Olive Brown Gravelly Loamy Fine Sand some Sandy Loam	C1 (Firm in Place)
66"	Light Olive Brown Gravelly Loamy Fine Sand some Sandy Loam	C2 (Firm in Place)
126"		

NO REFUSAL
NO GROUNDWATER SEEPAGE (DRY AT 126")
REDOX FEATURES= 48"
ESHWT=90"
SURFACE GRADE= 390.4
ESHWT ELEV= 382.9

TEST PIT 5

0"	Dark Brown Sandy Loam	Ap (Friable)
14"	FILL: Lt. Olive Brown Sandy Loam /Loamy Sand	HTM (Very Friable)
31"	Dark Brown Sandy Loam	Ab (Friable)
41"	Dark Yellowish Brown Sandy Loam	Bw1 (Friable)
58"	Loose Fine Sand/Sandy Loam	UNCOVERED EX SEPTIC
62"		

NO REFUSAL
NO GROUNDWATER SEEPAGE
NO REDOX
ESHWT= NOT RECORDED
EXCAV ENDED AT 62"

TEST PIT 6

0"	Dark Brown Sandy Loam	A (Friable)
9"	Dark Yellowish Brown Sandy Loam	Bw1 (Friable)
16"	Yellowish Brown Sandy Loam	Bw2 (Friable)
28"	Light Olive Brown Loose Fine Sand/Sandy Loam	C1 (Firm in Place)
44"	Light Olive Brown Stony Loamy Fine Sand/Sandy Loam	C2 (Firm/Friable)
120"		

NO REFUSAL
GROUNDWATER SEEPAGE= 92"
REDOX FEATURES= 28"
ESHWT=28"
SURFACE GRADE= 383.0
ESHWT ELEV= 380.7

TEST PIT 7

0"	Dark Brown Sandy Loam	A (Friable)
9"	Dark Yellowish Brown Sandy Loam	Bw1 (Friable)
23"	Yellowish Brown Gravelly Sandy Loam	Bw2 (Friable)
28"	Light Olive Brown Gravelly Sand & Areas of Very Fine Sand	C1 (Firm/Friable)
118"		

NO REFUSAL
GROUNDWATER SEEPAGE= 66"
REDOX FEATURES= 28"
ESHWT=28"
SURFACE GRADE= 379.9
ESHWT ELEV= 377.6

TEST PIT 9

0"	Very Dark Grayish Brown Sandy Loam	A (Friable)
9"	Dark Yellowish Brown Sandy Loam	Bw1 (Friable)
20"	Light Olive Brown Sandy Loam	Bw2 (Friable)
27"	Stony Loamy Fine Sand/Sandy Loam	C1 (Firm in Place)
114"		

NO REFUSAL
GROUNDWATER SEEPAGE= 46"
REDOX FEATURES= 27
ESHWT=27"
SURFACE GRADE=378.6
ESHWT ELEV=376.4

TEST PIT 10

0"	Dark Brown Sandy Loam	A (Friable)
6"	FILL: Sandy Loam Mix	B/HTM (Friable)
30"	Dark Yellowish Brown Sandy Loam	Ab (Friable)
36"	Yellowish Brown Sandy Loam	Bw1 (Firm in Place)
43"	DISTURBED	UNCOVERED EX SEPTIC
50"		

NO REFUSAL
NO GROUNDWATER SEEPAGE
NO REDOX
ESHWT=NOT RECORDED
EXCAV ENDED AT 50"

TEST PIT 11

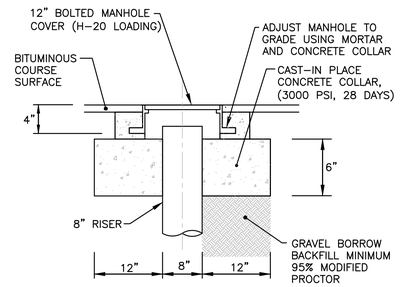
0"	Dark Brown Sandy Loam	A (Friable)
25"	Brown Sandy Loam	Bw1 (Friable)
35"	Strong Brown Sandy Loam	Bw2 (Friable)
40"	Light Olive Brown Gravelly Loamy Sand	C1 (Firm in Place)
120"		

NO REFUSAL
GROUNDWATER SEEPAGE= 100"
REDOX FEATURES= 42"
ESHWT=42"
GROUND GRADE= 381.6
ESHWT ELEV= 378.1

TEST PIT 8

0"	Very Dark Grayish Brown Sandy Loam	A (Friable)
14"	Dark Yellowish Brown Sandy Loam	Bw1 (Friable)
20"	Dark Yellowish Brown Sandy Loam	Bw2 (Friable)
30"	Light Olive Brown Loamy Fine Sand W/ Sandy Loam	C1 (Firm in Place)
114"		

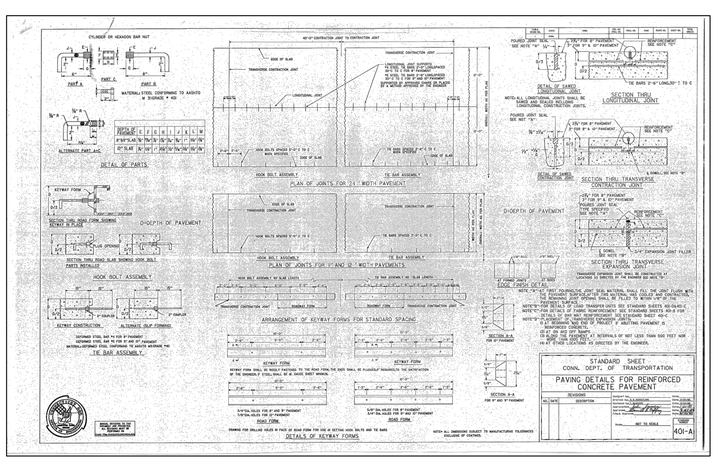
NO REFUSAL
GROUNDWATER SEEPAGE= 38" & 102"
REDOX FEATURES=24"
ESHWT=24"
SURFACE GRADE= 376.7
ESHWT ELEV=374.7

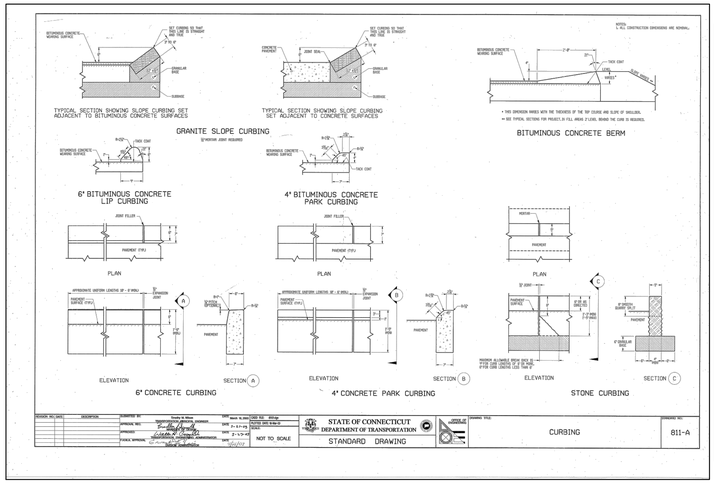


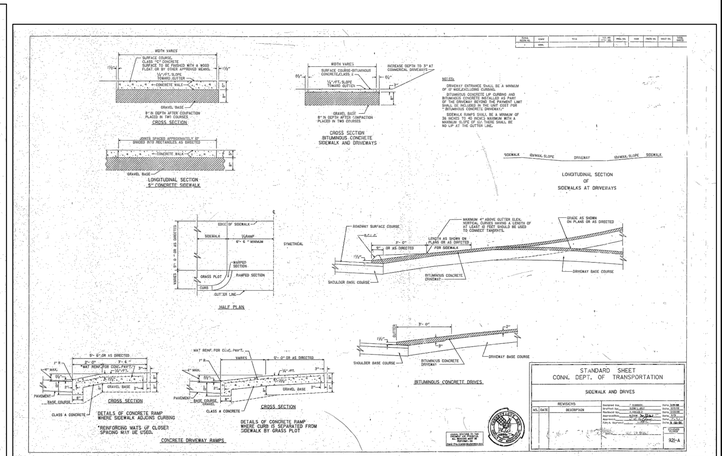
NOTE

CONCRETE COLLAR IS NOT REQUIRED IN LANDSCAPE AREAS.

UNDERGROUND STORMWATER SYSTEM
CLEAN-OUT DETAIL IN PAVEMENT
NOT TO SCALE







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Crossman Engineering

Rhode Island
151 Centerville Road
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Phone: (401) 738-5660

Massachusetts
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North Attleboro, MA 02763
Phone: (508) 695-1700

Email: cei@crossmaneng.com

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PROJECT TITLE:

PROPOSED
MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

MISCELLANEOUS DETAILS PLAN No. 2

DATE: MAY 2023
SCALE: NO SCALE

DWG. NAME: 2739-14-DET02.dwg

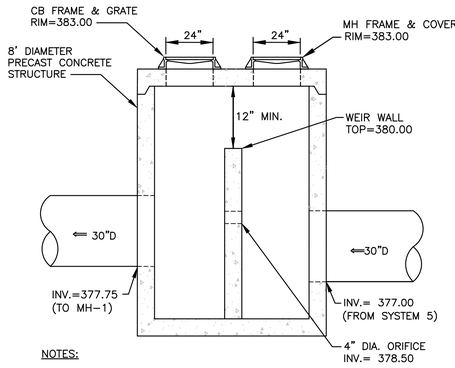
REVISIONS

△ NUMBER	REMARKS	DATE
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DRAWING NUMBER

C10.2

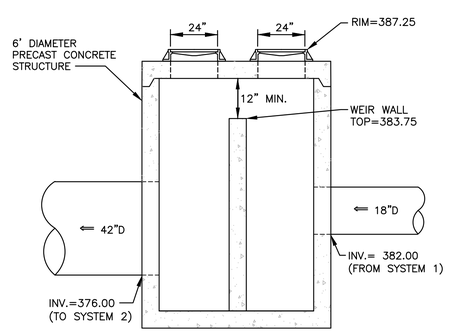
SHEET: 14 *OF:* 17



NOTES:

1. CENTER WEIR WALL IN STRUCTURE
2. INSTALL CB GRATE OVER OUTLET SIDE OF STRUCTURE

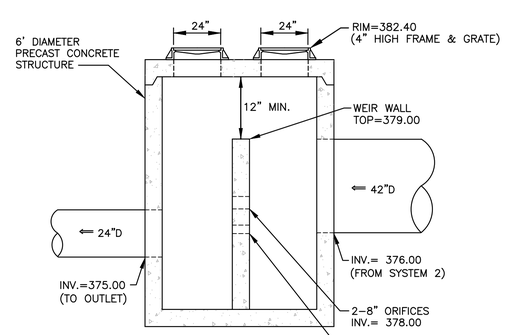
CB 8 DETAIL
NOT TO SCALE



NOTES:

CENTER WEIR WALL IN STRUCTURE

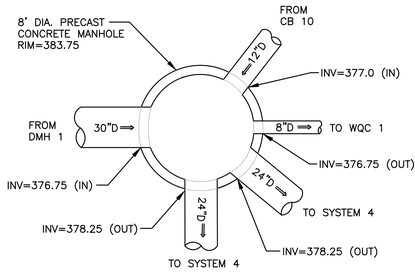
DMH 6 DETAIL
NOT TO SCALE



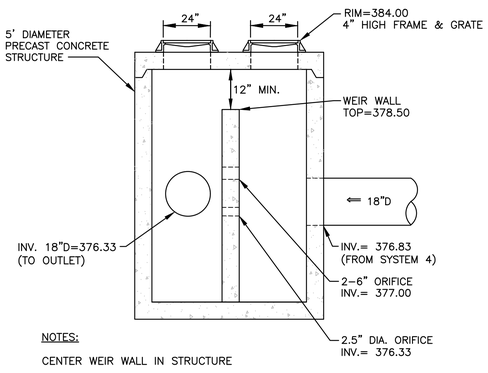
NOTES:

CENTER WEIR WALL IN STRUCTURE

DMH 7 DETAIL
NOT TO SCALE



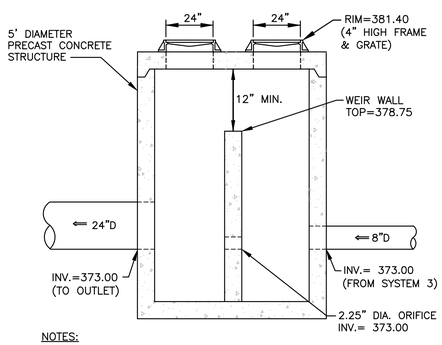
DMH 2 DETAIL
NOT TO SCALE



NOTES:

CENTER WEIR WALL IN STRUCTURE

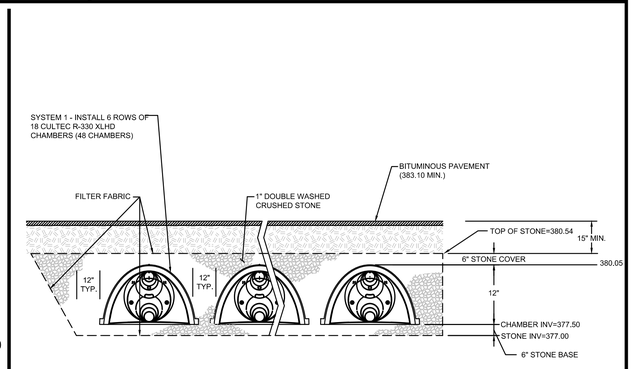
DMH 8 DETAIL
NOT TO SCALE



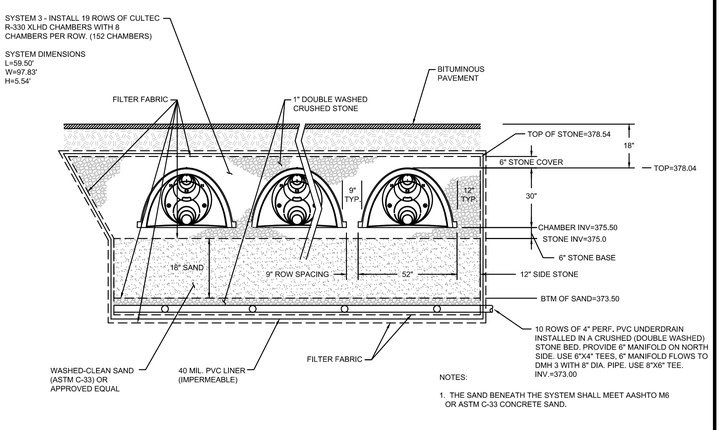
NOTES:

1. CENTER WEIR WALL IN STRUCTURE
2. INCREASE 6" UNDERDRAIN MANIFOLD TO A 8" AT TEE, TO ENTER DMH 3

DMH 3 DETAIL
NOT TO SCALE



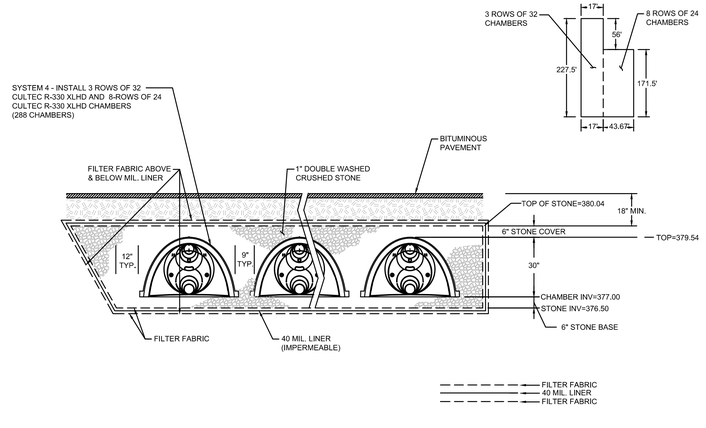
SYSTEM 5 - UNDERGROUND INFILTRATION SYSTEM 2 DETAIL
NOT TO SCALE



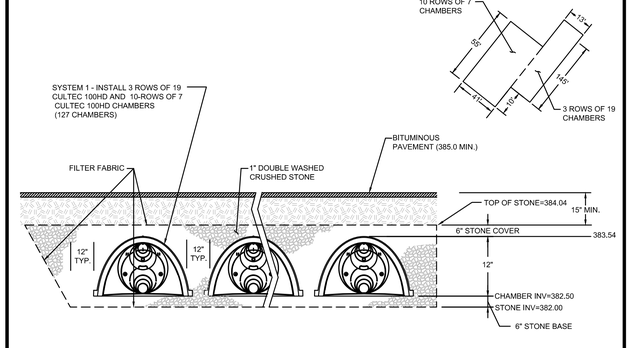
NOTES:

1. THE SAND BENEATH THE SYSTEM SHALL MEET AASHTO M6 OR ASTM C-33 CONCRETE SAND.

SYSTEM 3 - UNDERGROUND WATER QUALITY SYSTEM DETAIL
NOT TO SCALE



SYSTEM 4 - UNDERGROUND DETENTION SYSTEM DETAIL
NOT TO SCALE



SYSTEM 1 - UNDERGROUND INFILTRATION SYSTEM 1 DETAIL
NOT TO SCALE

- Civil
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PROJECT TITLE:

PROPOSED
MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTNAM, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

MISCELLANEOUS DETAILS PLAN No. 3

DATE:	*SCALE:*
MAY 2023	NO SCALE

DWG. NAME: 2739-15-DET03.dwg

REVISIONS

NUMBER	*REMARKS*	*DATE*
--	--	--

DRAWING NUMBER

C10.3

SHEET: 15 *OF:* 17

CULTEC Contactor® 100HD Stormwater Chamber

The Contactor® 100HD is a 12.5" (318 mm) tall, low profile chamber and is typically used for installations with depth restrictions or when a larger infiltrative area is required. The Contactor 100HD has the side portal internal manifold feature. The HVLV® SFCx2 Feed Connector is inserted into the side portal of the Contactor 100HD to create the internal manifold.



Size (L x W x H)	8' x 36" x 12.5" 2.44 m x 914 mm x 318 mm
Installed Length	7.5' 2.29 m
Length Adjustment per Run	0.5' 0.15 m
Chamber Storage	1.87 ft³/ft 0.17 m³/m 14.00 ft³/unit 0.40 m³/unit
Min. Installed Storage	3.84 ft³/ft 0.36 m³/m 28.81 ft³/unit 0.82 m³/unit
Min. Area Required	25 ft² 2.32 m²
Chamber Weight	38.0 lbs 17.24 kg
Shipping	55 chambers/skid 2,195 lbs/skid 16 skids/48' flatbed
Min. Center to Center Spacing	3.33' 1.02 m
Max. Allowable Cover	12' 3.66 m
Max. Inlet Opening in End Wall	10" HDPE, PVC 250 mm HDPE, PVC
Max. Allowable O.D. in Side Portal	6" HDPE, PVC 150 mm HDPE, PVC
Compatible Feed Connector	HVLV SFCx2 Feed Connector

Calculations are based on installed chamber length.
All above values are nominal.
Min. installed storage includes 9" (152 mm) stone base, 6" (152 mm) stone above crown of chamber and typical stone surround at 40%(16% min) center-to-center spacing.

Stone Foundation Depth	6"	12"	18"
	152 mm	305 mm	457 mm
Chamber and Stone Storage Per Chamber	28.81 ft³ 0.82 m³	33.81 ft³ 0.96 m³	38.81 ft³ 1.10 m³
Min. Effective Depth	2.04' 0.62 m.	2.54' 0.77 m.	3.04' 0.93 m
Stone Required Per Chamber	1.37 yd³ 1.05 m³	1.84 yd³ 1.40 m³	2.30 yd³ 1.76 m³

Calculations are based on installed chamber length.
Stone void calculated at 40% above crown of chamber and typical stone surround at 16"(14"5 mm) center-to-center spacing and stone foundation as listed in table.
Stone void calculated at 40%.

For more information, contact CULTEC at (203) 775-4416 or visit www.cultec.com.

© CULTEC, Inc., June 2020 SUB330XLHD 06-20

Contactor® 100HD Bare Chamber Storage Volumes

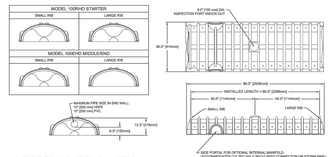
Elevation	Incremental Storage Volume			Cumulative Storage		
in.	mm	ft³/ft	m³/m	ft³	m³	ft³	m³
12	305	0.009	0.001	0.068	0.002	13.995	0.396
11	279	0.067	0.006	0.501	0.014	13.928	0.394
10	254	0.115	0.010	0.825	0.023	13.425	0.380
9	229	0.139	0.013	1.043	0.030	12.600	0.357
8	203	0.139	0.015	1.193	0.034	11.558	0.327
7	178	0.174	0.016	1.305	0.037	10.365	0.294
6	152	0.194	0.017	1.380	0.039	9.060	0.257
5	127	0.192	0.018	1.440	0.041	7.680	0.217
4	102	0.203	0.019	1.523	0.043	6.240	0.177
3	76	0.203	0.019	1.523	0.043	4.718	0.134
2	51	0.203	0.019	1.523	0.043	3.195	0.090
1	25	0.223	0.021	1.673	0.047	1.673	0.047
Total		1.866	0.173	13.995	0.396	13.995	0.396

Calculations are based on installed chamber length.

Visit www.cultec.com/downloads.html
for Product Downloads and CAD details.

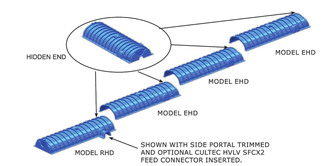
CULTEC Contactor® 100HD Stormwater Chamber

Three View Drawing



CULTEC CONTACTOR 100HD CHAMBER STORAGE = 1.866 CF/FT [0.173 cm/m]
INSTALLED LENGTH ADJUSTMENT = 0.5' [0.15 m]

Typical Interlock Installation

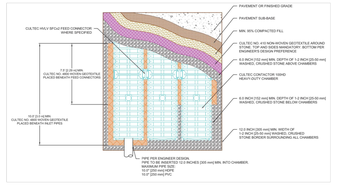


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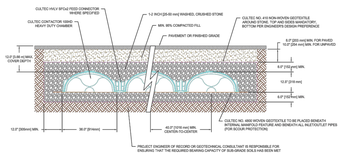
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CULTEC Contactor® 100HD Stormwater Chamber

Plan View Drawing



Typical Cross Section for Traffic Application



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DRAINAGE NOTES

1. CONTRACTOR TO VERIFY THAT ALL STRUCTURES ARE COMPATIBLE WITH FRAME AND GRATE.
2. CONTRACTOR IS RESPONSIBLE TO PROVIDE SHOP DRAWINGS AND SPECIFICATIONS FOR ALL DRAINAGE RELATED ITEMS FOR REVIEW AND APPROVAL BY THE ENGINEER, PRIOR TO ORDERING. CONCRETE MANUFACTURER SHALL REVIEW RIM TO TOP OF PIPE ELEVATIONS AND PROVIDE SPECIFIC DETAILS.
3. ALL STRUCTURES SHALL BE DESIGNED FOR H–20 LOADING.
4. ALL CATCH BASINS SHALL BE PRECAST CONCRETE WATER TIGHT STRUCTURES. (NO WEEP HOLES).
5. UNLESS OTHERWISE NOTED, ALL SOLID DRAINAGE PIPE SHALL BE ADS N–12 HDPE OR APPROVED EQUAL TO WITHSTAND H–20 LOADING. PIPE BEDDING SHALL BE IN CRUSHED STONE OR GRAVEL BORROW COMPACTED TO 95% DRY DENSITY (MODIFIED PROCTOR METHOD). PIPE SHALL BE INSTALLED ACCORDING TO MANUFACTURERS' REQUIREMENTS. PIPES SHALL BE INSTALLED WITH CLAY TRENCH DAMS EVERY 50' (MINIMUM 1 PER PIPE).
6. GRADES WITHIN HANDICAP ACCESSIBLE PARKING SPACES AND AISLES SHALL NOT BE LESS THAN 1% OR GREATER THAN 2%.
7. ALL ROOF DRAINS SHALL BE INSTALLED AT A 1.0% MINIMUM SLOPE.
8. CONTRACTOR MAY NEED TO RELOCATE PIPE TO AVOID CONFLICTS WITH EXISTING UTILITIES. COORDINATE RELOCATION WITH ENGINEER. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR DAMAGE TO EXISTING UTILITIES. CONTRACTOR IS RESPONSIBLE TO INCLUDE ALL WORK NECESSARY TO INSTALL THIS PIPE, INCLUDING TRANSPLANTING OR PLANTING NEW TREES IF NECESSARY.
9. CONTRACTOR SHALL CONFIRM ALL CB AND MANHOLE SIZE (DIAMETER) PRIOR TO ORDERING STRUCTURES.

INFILTRATION SYSTEM CONSTRUCTION NOTE

1. WITHIN THE INFILTRATION SYSTEM, THE CONTRACTOR SHALL REMOVE ALL TOPSOIL AND SUBSOIL AREAS (A AND B HORIZONS) AND ANY EXISTING SOILS (FILL AND DEBRIS) THAT ARE DEEMED UNSUITABLE BY THE ENGINEER. CONTRACTOR SHALL COORDINATE A BOTTOM BED INSPECTION WITH OWNER AND ENGINEER. IF NECESSARY THE AREA SHALL BE PREPARED WITH SAND FILL SOIL MEETING THE MEDIA REQUIREMENTS OF SELECT FILL SUITABLE TO SEPTIC SYSTEMS IN ACCORDANCE WITH THE ON–SITE DISPOSAL REGULATIONS AND TECHNICAL STANDARDS FOR SUBSURFACE SEWAGE DISPOSAL SYSTEMS. THE DEPTH OF EXISTING SOIL REMOVAL SHALL BE VERIFIED BY THE ENGINEER. PLACEMENT OF THE SELECT FILL, SHALL BE USED TO BRING THE BOTTOM OF BASIN TO THE DESIGN ELEVATIONS.
2. INFILTRATION SYSTEM CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE NO. 4 STONE AGGREGATE AND SELECT FILL AS OUTLINED IN THE ON–SITE DISPOSAL REGULATIONS AND TECHNICAL STANDARDS FOR SUBSURFACE SEWAGE DISPOSAL SYSTEMS, LATEST EDITION. AFTER CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE FINAL INSPECTIONS WITH THE OWNER.
3. THE CONTRACTOR IS REQUIRED TO SUBMIT A LIST OF MATERIALS, GRADATIONS AND THE NAME AND ADDRESS OF THE SUPPLIERS TO THE ENGINEER FOR APPROVAL PRIOR TO BRINGING MATERIAL ON SITE. MATERIAL CERTIFICATIONS SHALL ALSO BE REQUIRED FOR REVIEW AND APPROVAL.
4. THE CONTRACTOR IS RESPONSIBLE TO BECOME FAMILIAR WITH THE 2004 STORMWATER QUALITY MANUAL FOUND AT: http://www.portal.ct.gov/DEEP/water–regulating–and–discharges/stormwater–manual
5. GREAT CARE MUST BE TAKEN TO PREVENT THE INFILTRATION AREA FROM COMPACTION; BY MARKING OFF THE UNDERGROUND INFILTRATION SYSTEM LOCATIONS BEFORE THE START OF CONSTRUCTION, AND BY CONNECTING UPSTREAM DRAINAGE AREAS ONLY AFTER CONSTRUCTION IS COMPLETE AND THE CONTRIBUTING AREA IS STABILIZED.
6. IF LARGE ROCKS OR BOULDERS ARE FOUND WITHIN 36" BELOW THE INFILTRATION SYSTEMS, OR WITHIN A 10' PERIMETER AROUND SYSTEM, THE CONTRACTOR SHALL REMOVE THE ROCKS/BOULDERS AND REPLACE WILL SELECT FILL. CONTRACTOR SHALL COORDINATE WITH ENGINEER.
6. THE CONTRACTOR MUST SUBMIT SHOP DRAWINGS FOR THE PIPES TO BE USED IN THE UNDERGROUND INFILTRATION SYSTEMS TO THE ENGINEER PRIOR TO CONSTRUCTION. THE SHOP DRAWINGS MUST VERIFY THAT THE PIPES CAN SUPPORT H–20 LOADING WITH THE SYSTEM SPECIFIC COVER.
7. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE MANUFACTURER'S REQUIREMENTS AND SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE WITH A MANUFACTURER'S REPRESENTATIVE FOR INSTALLATION SPECIFICATIONS AND PROCEDURES.

• Civil
• Transportation
• Environmental
• Site Planning
• Surveying
• Permitting
• Landscape Architecture

Crossman Engineering

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Phone: (401) 738-5660

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PROJECT TITLE:

PROPOSED
MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

MISCELLANEOUS DETAILS PLAN No. 4

DATE:	*SCALE:*
MAY 2023	NO SCALE

DWG. NAME: 2739–16–DET04.dwg

REVISIONS

NUMBER	*REMARKS*	*DATE*
--	--	--

DRAWING NUMBER

C10.4

SHEET: 16 *OF:* 17

CULTEC Recharger® 330XLHD Stormwater Chamber

The Recharger® 330XLHD is a 30.5" (775 mm) tall, high capacity chamber. Typically when using this model, fewer chambers are required resulting in less labor and a smaller installation area. The Recharger® 330XLHD has the side portal internal manifold feature. HVLV® FC-24 Feed Connectors are inserted into the side portals to create the internal manifold.



Size (L x W x H)	8.5' x 52" x 30.5" 2.59 m x 1321 mm x 775 mm
Installed Length	7' 2.13 m
Length Adjustment per Run	1.50' 0.46 m
Chamber Storage	7.46 ft³/ft 0.69 m³/m 52.21 ft³/unit 1.48 m³/unit
Min. Installed Storage	11.32 ft³/ft 1.05 m³/m 79.26 ft³/unit 2.24 m³/unit
Min. Area Required	33.83 ft² 3.14 m²
Chamber Weight	73.0 lbs 33.11 kg
Shipping	30 chambers/skid 2,335 lbs/skid 10 skids/48' flatbed
Min. Center-to-Center Spacing	4.83' 1.47 m
Max. Allowable Cover	12' 3.66 m
Max. Inlet Opening in End Wall	24" HDPE, PVC 600 mm HDPE, PVC
Max. Allowable O.D. in Side Portal	10" HDPE, 12" PVC 250 mm HDPE, 300 mm PVC
Compatible Feed Connector	HVLV FC-24 Feed Connector

Calculations are based on installed chamber length.
All above values are nominal.
Min. installed storage includes 9" (152 mm) stone base, 6" (152 mm) stone above crown of chamber and typical stone surround at 50"(1473 mm) center-to-center spacing.

Stone Foundation Depth	6"	12"	18"
	152 mm	305 mm	457 mm
Chamber and Stone Storage Per Chamber	79.26 ft³ 2.24 m³	86.03 ft³ 2.44 m³	92.79 ft³ 2.63 m³
Min. Effective Depth	3.54' 1.08 m	4.04' 1.23 m.	4.54' 1.38 m
Stone Required Per Chamber	2.50 yd³ 1.91 m³	3.13 yd³ 2.39 m³	3.76 yd³ 2.87 m³

Calculations are based on installed chamber length.
Stone void calculated at 40%.

Recharger® 330XLHD Bare Chamber Storage Volumes

Elevation	Incremental Storage Volume			Cumulative Storage		
in.	mm	ft³/ft	m³/m	ft³	m³	ft³	m³
30.5	775	0.000	0.000	0.000	0.000	52.213	1.479
30	762	0.619	0.092	0.133	0.004	52.213	1.479
29	737	0.551	0.005	0.357	0.010	52.080	1.475
28	711	0.994	0.098	0.588	0.017	51.723	1.465
27	686	0.124	0.012	0.868	0.025	51.135	1.448
26	660	0.150	0.014	1.05	0.030	50.267	1.424
25	635	0.173	0.016	1.211	0.034	49.217	1.394
24	609	0.191	0.018	1.337	0.038	48.006	1.360
23	584	0.207	0.019	1.449	0.041	46.669	1.322
22	559	0.221	0.021	1.547	0.044	45.220	1.281
21	533	0.233	0.022	1.631	0.046	43.673	1.237
20	508	0.244	0.023	1.708	0.048	42.042	1.191
19	483	0.254	0.024	1.778	0.050	40.334	1.142
18	457	0.264	0.025	1.848	0.052	38.556	1.092
17	432	0.273	0.025	1.897	0.054	36.708	1.040
16	406	0.283	0.026	1.981	0.056	34.811	0.986
15	381	0.294	0.027	2.058	0.058	32.830	0.930
14	356	0.296	0.027	2.072	0.059	30.772	0.871
13	330	0.299	0.028	2.093	0.059	28.700	0.813
12	305	0.301	0.028	2.107	0.060	26.607	0.754
11	279	0.303	0.028	2.121	0.060	24.500	0.694
10	254	0.304	0.028	2.128	0.060	22.379	0.634
9	229	0.306	0.028	2.142	0.061	20.251	0.574
8	203	0.313	0.029	2.191	0.062	18.109	0.513
7	178	0.321	0.030	2.247	0.064	15.918	0.451
6	152	0.322	0.030	2.254	0.064	13.671	0.387
5	127	0.323	0.030	2.261	0.064	11.417	0.323
4	102	0.324	0.030	2.268	0.064	9.156	0.259
3	76	0.325	0.030	2.275	0.064	6.888	0.195
2	51	0.327	0.030	2.289	0.065	4.613	0.131
1	25	0.332	0.031	2.324	0.066	2.324	0.066
Total		7.459	0.693	52.213	1.479	52.213	1.479

Calculations are based on installed chamber length.

Visit http://cultec.com/downloads/
for Product Downloads and CAD details.

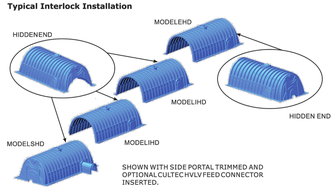
CULTEC Recharger® 330XLHD Stormwater Chamber

Three View Drawing



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

Typical Interlock Installation

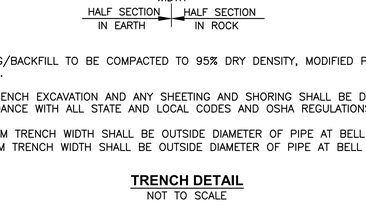


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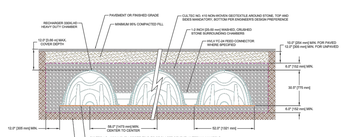
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CULTEC Recharger® 330XLHD Stormwater Chamber

Plan View Drawing

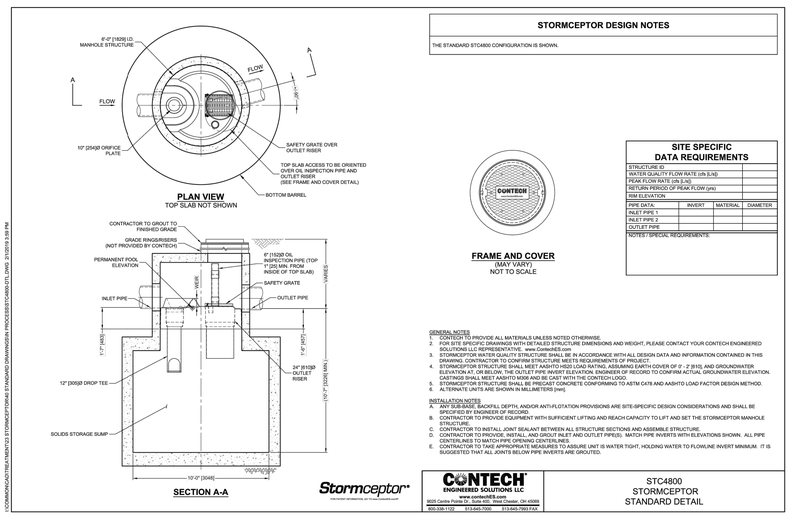


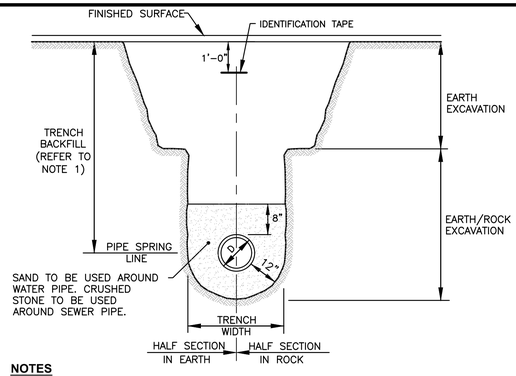
Typical Cross Section for Traffic Application



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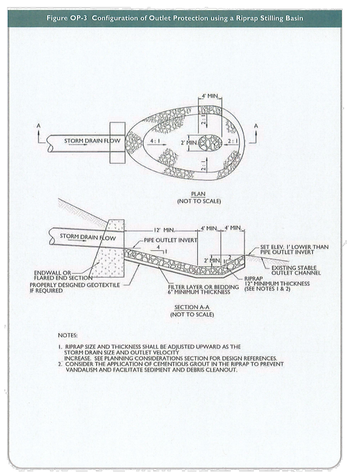


NOTES

1. BEDDING/BACKFILL TO BE COMPACTED TO 95% DRY DENSITY, MODIFIED PROCTOR METHOD.
2. ALL TRENCH EXCAVATION AND ANY SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND OSHA REGULATIONS.
3. MINIMUM TRENCH WIDTH SHALL BE OUTSIDE DIAMETER OF PIPE AT BELL PLUS 12". MAXIMUM TRENCH WIDTH SHALL BE OUTSIDE DIAMETER OF PIPE AT BELL PLUS 24".

TRENCH DETAIL
NOT TO SCALE

Figure OP-3 Configuration of Outlet Protection using a Riprap Stilling Basin



NOTES:
1. RIPRAP SIZE AND THICKNESS SHALL BE ADJUSTED UPWARD AS THE STORM DRAIN SIZE AND OUTLET VELOCITY INCREASE. SEE PLANNING CONSIDERATIONS SECTION FOR DESIGN REFERENCES.
2. CONSIDER THE APPLICATION OF CEMENTITIOUS GROUT IN THE RIPRAP TO PREVENT VANDALISM AND FACILITATE SEDIMENT AND DEBRIS CLEANOUT.

Source: USDA-NRCS

SEWER NOTES

1. WITHIN THE INFILTRATION SYSTEM, THE CONTRACTOR SHALL REMOVE ALL TOPSOIL AND SUBSOIL AREAS (A AND B HORIZONS) AND ANY EXISTING SOILS THAT ARE DEEMED UNSUITABLE BY THE ENGINEER. CONTRACTOR SHALL COORDINATE A BOTTOM BED INSPECTION WITH OWNER AND ENGINEER. IF NECESSARY THE AREA SHALL BE PREPARED WITH SAND FILL SOIL MEETING THE MEDIA REQUIREMENTS OF SELECT FILL SUITABLE TO SEPTIC SYSTEMS IN ACCORDANCE WITH THE ON-SITE DISPOSAL REGULATIONS AND TECHNICAL STANDARDS FOR SUBSURFACE SEWAGE DISPOSAL SYSTEMS. THE DEPTH OF EXISTING SOIL REMOVAL SHALL BE VERIFIED BY THE ENGINEER. PLACEMENT OF THE SELECT FILL, SHALL BE USED TO BRING THE BOTTOM OF BASIN TO THE DESIGN ELEVATIONS.

2. CONTRACTOR SHALL CONDUCT A TEST PIT AT THE CONNECTION POINT PRIOR TO CONSTRUCTION TO VERIFY PIPE DEPTH, SIZE, AND MATERIAL– COORDINATE WITH ENGINEER AND TOWN OF PUTNAM WATER AND SEWER DEPARTMENT. BEFORE ANY CONNECTION CAN TAKE PLACE, A CAMERA INSPECTION OF THE EXISTING LATERAL MUST BE PERFORMED IN THE PRESENCE OF A TOWN OF PUTNAM WATER AND SEWER DEPARTMENT INSPECTOR. CONTRACTOR TO COORDINATE WITH NBC AND ENGINEER.

3. THE CONNECTION SHALL BE INSPECTED BY THE TOWN OF PUTNAM WATER AND SEWER DEPARTMENT INSPECTOR. CONTRACTOR SHALL COORDINATE INSPECTION. FAILURE TO ARRANGE FOR AN ON-SITE TOWN OF PUTNAM WATER AND SEWER DEPARTMENT SEWER CONNECTION INSPECTION WILL RESULT IN THE CONNECTION TO BE UNCOVERED AT THE PERMITTEE'S EXPENSE TO ALLOW FOR A TOWN OF PUTNAM WATER AND SEWER DEPARTMENT CONNECTION INSPECTION.

4. ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF PUTNAM WATER AND SEWER DEPARTMENT STANDARD SPECIFICATIONS AND DETAILS FOR THE INSTALLATION OF SEWER LINE AND CONNECTION.

5. PRIOR TO RECEIVING AUTHORIZATION TO CONSTRUCT, ALL MATERIALS SHALL MEET THE STANDARDS AND RECEIVE THE WRITTEN APPROVAL, BASED ON MANUFACTURER'S DRAWINGS AND REQUIREMENTS FROM THE ENGINEER.

6. ALL SEWERAGE FACILITIES SHALL MEET TESTING AND CLEANING REQUIREMENTS PRIOR TO ACCEPTANCE.

7. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE AS-BUILT LOCATIONS PRIOR TO PIPE BACKFILL. AS-BUILT DRAWINGS SHALL BE FURNISHED AS A CONDITION FOR ACCEPTANCE OF THE NEW SEWERAGE FACILITIES. PLANS SHALL INCLUDE LOCATION OF WYES.

8. NO FLOW WILL BE ACCEPTED UNTIL ALL ABOVE STEPS ARE COMPLETED AND COMPLETION CERTIFICATE IS ISSUED.

9. AFTER THE CONTRACTOR HAS "STAKED OUT" THE FACILITIES TO BE CONSTRUCTED AND HAS THE APPROVED MATERIALS ON THE JOB, THE ENGINEER, TOWN OF PUTNAM WATER AND SEWER DEPARTMENT SHALL BE NOTIFIED IN ADVANCE OF CONSTRUCTION IN ORDER FOR THEM TO ARRANGE FOR THEIR INSPECTOR. THE NOTIFICATION MUST MEET THE TOWN OF PUTNAM WATER AND SEWER DEPARTMENT REQUIREMENTS.

10. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APPROVED PLANS AND MATERIALS, STANDARDS AND SPECIAL DETAILS, AND STANDARD SPECIFICATIONS, ANY WORK NOT MEETING THE APPROVED STANDARDS SHALL BE IMMEDIATELY REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

11. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS AND ACTIVITIES FOR CONSTRUCTION WITHIN THE LIMITS OF WORK AS SHOWN ON THE DRAWINGS.

12. ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO EXTRA COST TO THE OWNER.

13. LOCATION AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING UTILITIES AND NOTIFY THE APPROPRIATE UTILITY AUTHORITIES INCLUDING "CALL BEFORE YOU DIG" PRIOR TO STARTING WORK. ANY DAMAGE TO UTILITIES CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND THE COST OF REPAIRS SHALL BE BORNE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

14. RELATION TO WATER LINES:

A. HORIZONTAL SEPARATION: WHENEVER POSSIBLE, SEWERS SHOULD BE LAID AT A MINIMUM OF 10 FEET (3.0 m), HORIZONTALLY, FROM ANY EXISTING OR PROPOSED WATER LINE. SHOULD LOCAL CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET, A SEWER MAY BE LAID CLOSER THAN 10 FEET TO A WATER LINE IF:

   1. IT IS LAID IN A SEPARATE TRENCH, OR IF
   2. IT IS LAID IN THE SAME TRENCH WITH THE WATER LINE LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND IF
   3. IN EITHER CASE THE ELEVATION OF THE TOP (CROWN) OF THE SEWER IS AT LEAST 18 INCHES (46 cm) BELOW THE BOTTOM (INVERT) OF THE WATER LINE.

B. VERTICAL SEPARATION: WHENEVER A SEWER MUST CROSS UNDER WATER LINES, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE TOP OF THE SEWER IS AT LEAST 18 INCHES (46 cm) BELOW THE BOTTOM OF THE WATER LINE. WHEN THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THE ABOVE REQUIREMENTS, THE WATER LINE SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR RECONSTRUCTED WITH MECHANICAL-JOINT PIPE FOR A DISTANCE OF 10 FEET (3.0 m) ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATER LINE SHOULD BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.

C. WHEN IT IS IMPOSSIBLE TO OBTAIN HORIZONTAL AND/OR VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER LINE AND SEWER SHALL BE SLEEVED WITH DUCTILE IRON OR ENCASED WITH CONCRETE.

15. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEWATERING REQUIRED IN THE SEWER INSTALLATION.

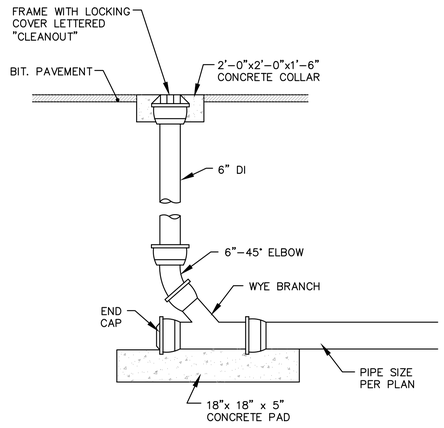
16. THE PROPOSED GRAVITY SANITARY SEWER PIPE SHALL BE PVC ASTM 3034 SDR 35, UNLESS OTHERWISE SHOWN ON PLANS. PIPE SIZE TO MATCH UTILITY PLAN.

17. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE ELEVATION OF EXISTING SEWER LINE PRIOR TO INSTALLATION.

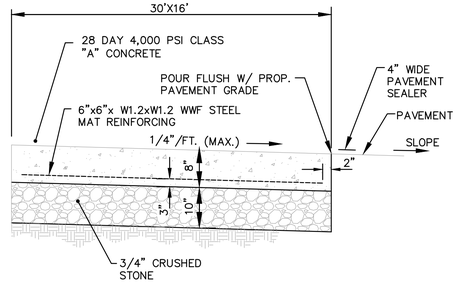
18. NO FLOW WILL BE ACCEPTED UNTIL A COMPLETION CERTIFICATE IS ISSUED.

19. ALL CONSTRUCTION MATERIAL, AS WELL AS MATERIAL SHOP DRAWINGS AND MANUFACTURERS DATA SHEETS SHALL BE REVIEWED AND APPROVED BY THE DESIGN ENGINEER, THE TOWN OF PUTNAM WATER AND SEWER DEPARTMENT, OR ITS REPRESENTATIVE PRIOR TO FABRICATION AND INSTALLATION.

20. ALL BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED IN 12 INCH LIFTS.

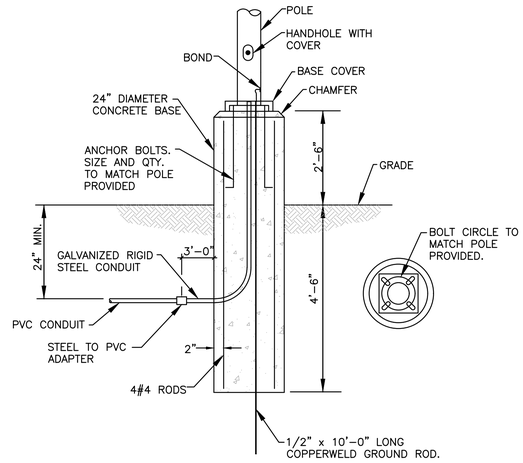


SEWER/DRAIN CLEANOUT DETAIL IN SIDEWALK/PAVEMENT
NOT TO SCALE

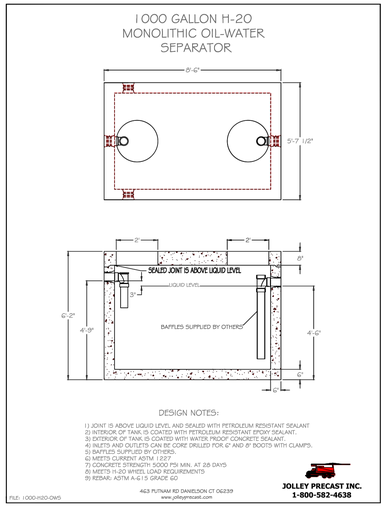


SECTION VIEW

DUMPSTER PAD DETAIL
NOT TO SCALE



TYPICAL POLE BASE DETAIL
NOT TO SCALE



Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GALN Galleon II

Area / Site Luminaire

Product Features

Light Attachment™

Interactive Menu

- Ordering Information page 2
- Mounting Details page 3
- Optical Distributions page 5
- Product Specifications page 7
- Energy and Performance Data page 8
- Control Options page 10

Product Certifications

IP66

Quick Facts

- Lumen packages range from 3,300 - 73,500 (33W - 552W)
- 16 optical distributions
- Efficacy up to 159 lumens per watt

Connected Systems

- WaveLinx Lite
- WaveLinx

Dimensional Details

Standard Arm

Pole Drilling Patterns
Type "A"

Number of Light Squares	Width "A"	Housing Length "B"	Weight with Standard or Old Arm	EPA with Standard or Old Arm
1-4	16"	22"	29 lb	0.95
5-6	22"	22"	39 lb	0.95
7-9	22"	28-1/8"	48 lb	1.1

NOTES
Tilt adds selection requirements and additional line art, see Mounting Details section.

NOTES:
1. Visit https://www.designlights.org/search/ to confirm qualification. Not all product variations are DLC qualified.
2. DA Certified (3000K CCT and warmer only, fixed mounting options)

McGraw-Edison GALN Galleon II

Mounting Details

Pole Configuration Options

Quick Mount Arm (QM) *

Upsweep Arm (UP) *

Mast Arm, Fixed (MA)

Wall Mount, Fixed (WM)

Pole Drilling Patterns
Type "A"
Type "N"
Type "B"
Type "M"

McGraw-Edison GALN Galleon II

Mounting Details

Wall Mount, Adjustable (WA)

Adjustable Arm Range of Motion
- Wall Mount (WA), Slipfitter (SF) and Pole Mount (PA)
- Adjustable in increments of 5°
- Must maintain downward facing orientation

Slipfitter, Adjustable (SF)

Pole Mount, Adjustable Arm (PA)

Fixture Weights and EPAs

Tilt Angle (Degrees)	Number of Light Squares	Weight	1 @ 90°	2 @ 180°	2 @ 90°	2 @ 120°	3 @ 90°	3 @ 120°	4 @ 90°
0°	1-4	33.5 lb (15.2 kg)	0.85	1.70	1.46	1.66	2.31	2.25	2.35
	5-6	43.5 lb (19.7 kg)	0.86	1.71	1.62	1.80	2.49	2.35	2.50
	7-9	52.5 lb (23.8 kg)	0.98	1.95	1.75	1.98	2.73	2.55	2.76
15°	1-4	33.5 lb (15.2 kg)	1.10	1.71	1.95	2.26	2.81	3.30	2.87
	5-6	43.5 lb (19.7 kg)	1.42	1.71	2.27	2.72	3.13	3.63	3.15
	7-9	52.5 lb (23.8 kg)	1.69	1.96	2.67	3.22	3.65	4.38	3.72
30°	1-4	33.5 lb (15.2 kg)	1.72	1.81	2.58	3.21	3.44	4.99	3.53
	5-6	43.5 lb (19.7 kg)	2.26	2.29	3.11	4.00	3.97	5.27	4.00
	7-9	52.5 lb (23.8 kg)	2.75	2.85	3.73	4.83	4.71	6.45	4.81
45°	1-4	33.5 lb (15.2 kg)	2.25	2.36	3.10	4.00	3.96	5.63	4.08
	5-6	43.5 lb (19.7 kg)	2.96	2.99	3.81	5.06	4.67	6.49	4.71
	7-9	52.5 lb (23.8 kg)	3.63	3.76	3.73	6.17	5.59	8.03	5.73
60°	1-4	33.5 lb (15.2 kg)	2.63	2.77	3.49	4.58	4.34	6.21	4.48
	5-6	43.5 lb (19.7 kg)	3.46	3.51	4.32	5.84	5.19	7.01	5.22
	7-9	52.5 lb (23.8 kg)	4.27	4.44	5.25	7.15	6.23	8.80	6.40

WATER NOTES

1. ALL INSTALLATION, JOINTS, CONSTRUCTION METHODS AND MATERIALS SHALL BE ACCORDING TO TOWN OF PUTNAM WATER AND SEWER DEPARTMENT REQUIREMENTS, AWWA STANDARDS AND GOVERNMENTAL REQUIREMENTS.

2. PROPOSED PIPE SHALL BE HDPE PIPE APPROVED BY TOWN OF PUTNAM WATER AND SEWER DEPARTMENT (BY AMERICAN MANUFACTURER ONLY). FITTINGS SHALL MEET THE KCWA REQUIREMENTS.

3. CONSTRUCTION SHALL INCLUDE ALL PIPE, JOINTS, BENDS, TEES, FITTINGS, JOINTS, SERVICE CONNECTIONS AND ALL MISCELLANEOUS ITEMS REQUIRED TO CONSTRUCT THE PROPOSED SYSTEM.

4. PRESSURE AND LEAKAGE TESTS AND DISINFECTING PIPES SHALL BE PERFORMED BY THE CONTRACTOR IN CONFORMANCE TO AMERICAN WATER WORKS ASSOCIATION (AWWA) RECOMMENDATIONS, TOWN OF PUTNAM WATER AND SEWER DEPARTMENT REQUIREMENTS, AND GOVERNMENTAL AGENCIES HAVING JURISDICTION.

5. ALL FITTINGS, PIPE, JOINTS, ETC. SHALL BE DESIGNED FOR 1.5 TIMES WORKING PRESSURE BUT NOT LESS THAN 150 PSI.

6. WATER PIPE SHALL TYPICALLY BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM SEWER PIPE, AND AT A MINIMUM DEPTH OF COVER EQUAL TO 5'. WHERE A NEW WATER MAIN IS LESS THAN 18 INCHES CLEAR DISTANCE ABOVE A SEWER OR WHERE A WATER MAIN PASSES BENEATH A SEWER, ENCASE THE SEWER IN 6" OF CONCRETE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING WATER MAIN. THE USE OF DUCTILE IRON TIGHT JOINT SEWER PIPE IN LIEU OF CONCRETE ENCASEMENT WILL BE CONSIDERED UPON CONTRACTORS SUBMITTAL OF SPECIFICATIONS TO ENGINEERS FOR APPROVAL.

7. ALL SYSTEM COMPONENTS AND CONSTRUCTION METHODS, SUCH AS PIPE, JOINTS, FITTINGS, ETC. SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION. THIS SUBMISSION SHALL INCLUDE MANUFACTURER'S LITERATURE, SHOP DRAWINGS, PROPOSED CONSTRUCTION METHODS, ETC.

8. WATER LINE TRENCH TO BE AWWA TYPE 5. A METALIZED DETECTABLE IDENTIFICATION TAPE 2" IN WIDTH, BLUE IN COLOR AND PRINTED WITH "CAUTION WATERLINE BURIED BELOW" SHALL BE UTILIZED OVER ALL MAINS. TAPE SHALL BE SET AT APPROXIMATELY 1'-0" BELOW FINISHED GRADE.

7. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL COMPLETE AND SUBMIT THE "CONTRACTOR'S MATERIAL AND TEST CERTIFICATE" FOR UNDERGROUND PIPING TO THE TOWN OF PUTNAM WATER AND SEWER DEPARTMENT AND ENGINEER. IN ADDITION, THE CONTRACTOR IS REQUIRED TO SUBMIT THE FOLLOWING ITEMS TO THE ENGINEER FOR THEIR REVIEW AND APPROVAL:

- TYPE AND MANUFACTURER OF CORPORATIONS AND CURB STOPS
- TYPE AND MANUFACTURER OF VALVE BOXES
- TYPE AND MANUFACTURER OF PIPING
- TYPE AND MANUFACTURER OF VALVES (OPEN LEFT)
- TYPE AND MANUFACTURER OF HDPE SERVICE LINE

10. WHEN THIS PROJECT IS COMPLETE, THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE WATER DEPARTMENT AND ENGINEER TWO SETS OF AS BUILT PLANS CERTIFIED BY A CONNECTICUT LICENSED PROFESSIONAL ENGINEER (ONE REPRODUCIBLE COPY) WHICH INDICATES:

   a. ALL CURB STOPS WITH APPROPRIATE LOCATING MEASUREMENTS – MAIN-TO-CURB AND MEASUREMENTS FROM PERMANENT STRUCTURES.

   b. A SCHEDULE OF MATERIALS WHICH INDICATES: AND MEASUREMENTS FROM PERMANENT STRUCTURES.
      1. ITEM QUANTITY
      2. MANUFACTURER
      3. DESCRIPTION
         a. INCLUDE SERIAL #'S AS APPLICABLE
         b. MATERIAL
         c. OPERATION CHARACTERISTICS

   c. PIPE DEPTHS AT 50' INTERVALS

   d. PIPE CROSSING LOCATIONS AND SEPARATION DISTANCES

11. THE CONTRACTOR SHALL VERIFY THE SERVICE PIPE SIZE REQUIREMENT WITH THE BUILDING ARCHITECT AND PLUMBING CONTRACTOR PRIOR TO ORDERING PIPE, METERS AND BACKFLOW PREVENTORS. COORDINATION WITH THE TOWN OF PUTNAM WATER AND SEWER DEPARTMENT IS REQUIRED TO DETERMINE THE EXISTING WATER PRESSURE AVAILABLE.

12. ALL VALVES TO OPEN LEFT.

13. A SOLID STAINLESS STEEL INSERT SHALL BE INSTALLED AT EACH HDPE PIPE CONNECTION AND A 12-FOOT TYPE "K" COPPER WHIP SHALL BE INSTALLED AT THE POINT OF ENTRY INTO THE BUILDING.

14. HDPE PIPE SHALL CONFORM TO ASTM D1248 TYPE III, GRADE P34, CLASS A, CATEGORY 5, COLOR BLUE WITH VIRGIN CLEAR NATURAL CENTER. AWWA C901, 200 PSI (CTS)

Crossman Engineering

- Civil
- Transportation
- Environmental
- Site Planning
- Surveying
- Permitting
- Landscape Architecture

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Phone: (401) 738-5660

Massachusetts
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Email: cei@crossmaneng.com

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PROJECT TITLE:

PROPOSED MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTNAM, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

MISCELLANEOUS DETAILS PLAN No. 5

DATE: MAY 2023

SCALE: NO SCALE

DWG. NAME: 2739-17-DET05.dwg

REVISIONS

△ NUMBER	REMARKS	DATE
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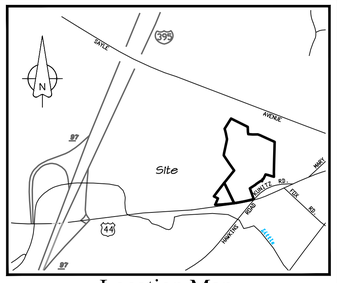
DRAWING NUMBER

C10.5

SHEET: 17 *OF:* 17

Subject Parcel Information

Owner: Sean & Michael Putnam LLC
Parcel Address: 88 Providence Pike, Putnam, CT
Mailing Address: Sean & Michael Putnam LLC
45 Tara Drive, Norwell, MA 02061
Parcel ID: Map 26 / Lot 8
Deed: Vol. 848 / Pg. 873
Zone: Hgwy Comm



Location Map

SCALE
1000 0 1000
1" = 1000 FT

Connecticut Grid

N/F Putnam LLC

N/F Providence Pike Parkade LLC

N/F Jeffrey Mailloux

N/F J. Mailloux

N/F Russell Realty LLC

N/F DCC Propane LLC

N/F Everest Company Inc

Lot 28
Area: 47,075 +/- Sq.Ft.
1.08 +/- Acres

Lot 8
Area: 550,939 +/- Sq.Ft.
12.65 +/- Acres

Existing House
Existing Garage
Existing House
EXISTING PAVED DRIVEWAY
PROVIDENCE PIKE - CT ROUTE #44

S 83°23'59" W 25.90'
N 19°19'00" E 15.67'
N 18°50'44" E 80.38'
N 66°10'32" W 66.10'
N 32°14'11" E 74.12'
N 33°28'26" E 163.34'
S 34°09'11" W 221.26'
S 30°19'40" E 315.09'
L:240.01
R:2252.01
Δ 6°06'23"
Brg:S 80°18'42" W
Chrd:239.90
L:265.04
R:2252.01
Δ6°44'36"
Brng:N 73°53'12" E
Chrd:264.84
N 57°46'46" E 16.65'
159.60'
N 24°27'38" W
N 42°24'14" E 16.16'
S 32°55' E
N 32°28'01" E
78.84'
N 51°14'11" E
S 71°38'27" E 16.48'
N 08°07'30" E 30.37'
N 75°54'25" E 11.20'
N 21°30'09" E 70.10'
S 81°39'16" E 33.88'
S 77°41'58" E 69.63'
S 78°59'06" E 18.40'
N 05°22'56" W 69.48'
S 39°51'45" E 111.87'
S 38°34'11" E 144.48'
S 02°59'01" W 25.52'
S 07°30'43" W 188.81'
S 01°12'40" W 19.70'
S 16°00'04" E 83.56'
S 18°56'56" E 63.44'
S 27°23'57" W 167.60'
280.78'
N 68°04'35" W
69.22'
N 06°40'22" W
N 12°52'30" W 33.11'
S 89°05'48" W 61.29'
S 84°48'48" W 71.76'
N 74°26'14" W 34.35'
224.01'
N 10°06'16" W
732.15'
N 03°00'53" W
186.15'
N 03°09'21" W

Iron Pin (f)
Iron Pipe (f)
Drill Hole (f)
Face of Stone Wall
CHD Mon
Conc. Mon. (f)
SNET 1697
CL&P 1498
SMH
AT&T 846
SNET 2580
SNET 847
CL&P 851
EBC 848
AT&T 844
EBC 849.50
SNET 850
Wlf #1
Wlf #1a
Wlf #5
Wlf #5a
Wlf #10
Wlf #10a
Wlf #15
Wlf #15a
Wlf #20
Wlf #25
Wlf #30
Wlf #35
Wlf #40
Wlf #45
Wlf #50
Wlf #51

LEGEND

- PROPERTY LINE
- EASEMENT
- STONEWALL
- STONEWALL REMAINS
- RETAINING WALL
- EXISTING INDEX CONTOUR
- EXISTING CONTOUR
- PROPOSED CONTOUR (100)
- WETLANDS FLAG
- IRON PIN
- DRILL HOLE
- MONUMENT
- WOOD POST
- PROPERTY POINT
- UTILITY POLE (CL&P 1645)
- TEST PIT

Notes

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Section 20-300b-20 and the "Standards for Surveys and Maps in State of Connecticut" as adopted by the Connecticut Associations of Land Surveyors, Inc. on September 26, 1996

- This Survey conforms to a Class "A-2" Horizontal Accuracy "T-2" Vertical Accuracy
- Survey Type: Boundary Survey
- Boundary Determination: Resurvey
- Intent: Depict Existing Conditions with Respect to Property Lines

2. Wetlands were delineated by Joseph Theroux, and field located by Archer Surveying LLC

MAP REFERENCE:

1. Right of Way Survey, Town of Putnam, Map Showing Land Acquired from Putnam Parkade, Inc, by State of Connecticut, Department of Transportation, Connecticut Route 44, Date: July 2002

2. Property Survey, Prepared for: Putnam Parkade, Inc., Lot 1 & Lot 4, Providence Pike, Route 44 & CT Route 1-395, Putnam, Connecticut, Date July 1998, Prepared by: Messler & Associates

3. Connecticut State Highway Department, Right of Way Map, Town of Putnam, Putnam-Providence Road From Mechanic St. Easterly to Putnam Heights Road, Route No. 101, Project No. 115-03, Date: 1934

To my knowledge and belief, this map is substantially correct as noted hereon.

03/22/2023
Paul M. Archer, Conn. L.S. #70013

No certification is expressed or implied unless this map bears the embossed seal of the land surveyor whose signature appears hereon.

This survey is based exclusively on accepted standards of surveying practice and does not express any opinion regarding the existence of validity of and unrecorded and or disputed rights that may result from adverse possession, adverse use, prescription, abandonment, implication, necessity, estoppel or any other principles of law or judicial interpretation that are not readily apparent from a review of the clear language of the deeds and other instruments that form the basis of this survey. Similarly, the inclusion of omission in this survey of reference, description, landmark, structure, object, or other physical feature should not be construed as an opinion of the legal significance or insignificance of any such reference, description, landmark, structure, object or other physical feature.

Boundary Survey

Prepared For:
Sean & Michael Putnam LLC
76 & 88 Providence Pike
Putnam, Connecticut

DRAWING SCALE: 1"=50'
0 50 100

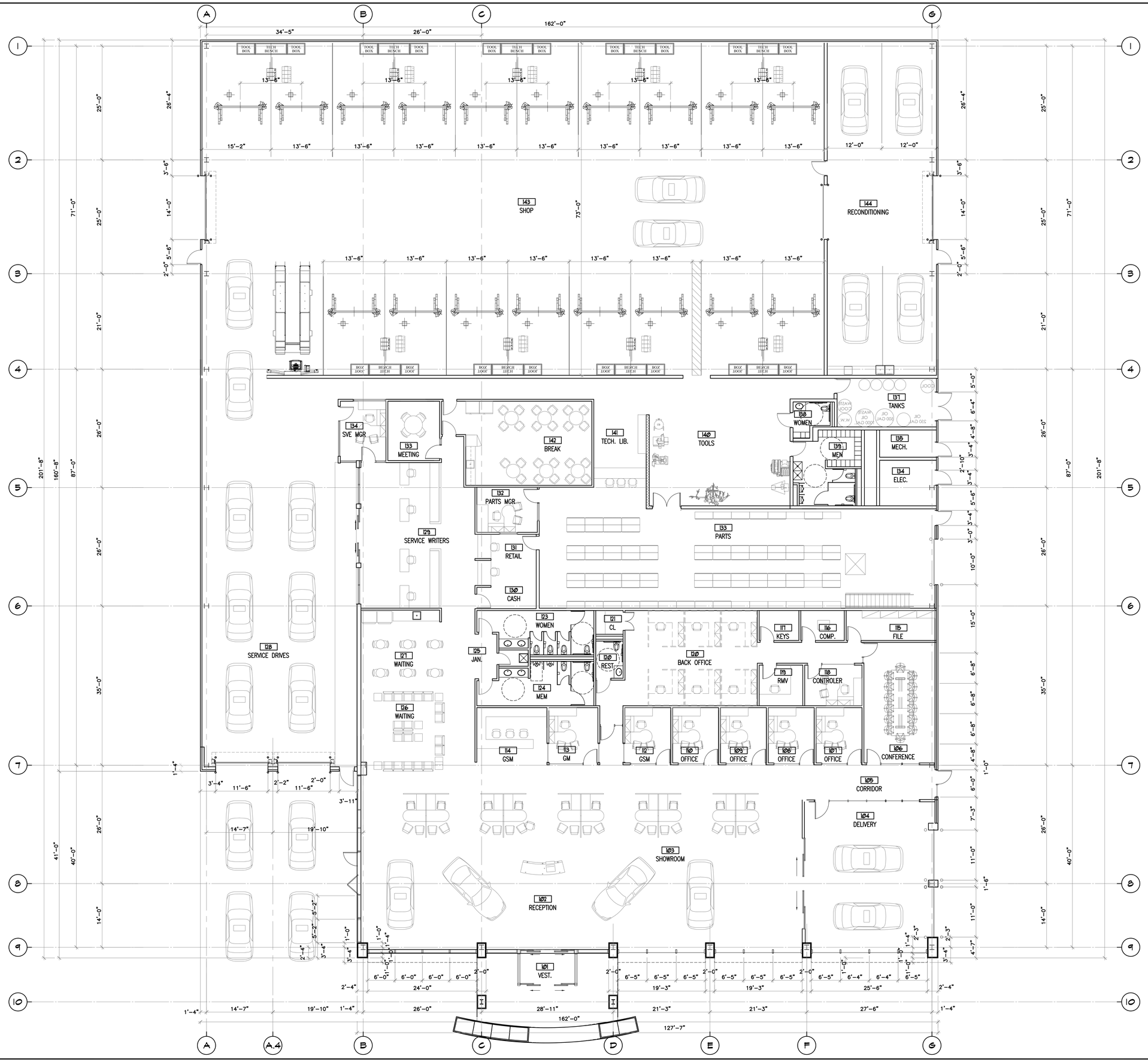
KWP associates
SURVEYING ~ ENGINEERING ~ SITE PLANNING
18 Providence Road
Brooklyn, CT 06234

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240

REVISIONS	
DATE	DESCRIPTION

Sheet No.	Project No.	Date:
1 OF 1	AS 2024	June 1, 2022

ARCHER Surveying LLC



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MCGEE TOYOTA - PUTNAM CT

START DATE : 12 SEPT 2022
DRAWN : JJH
SCALE :

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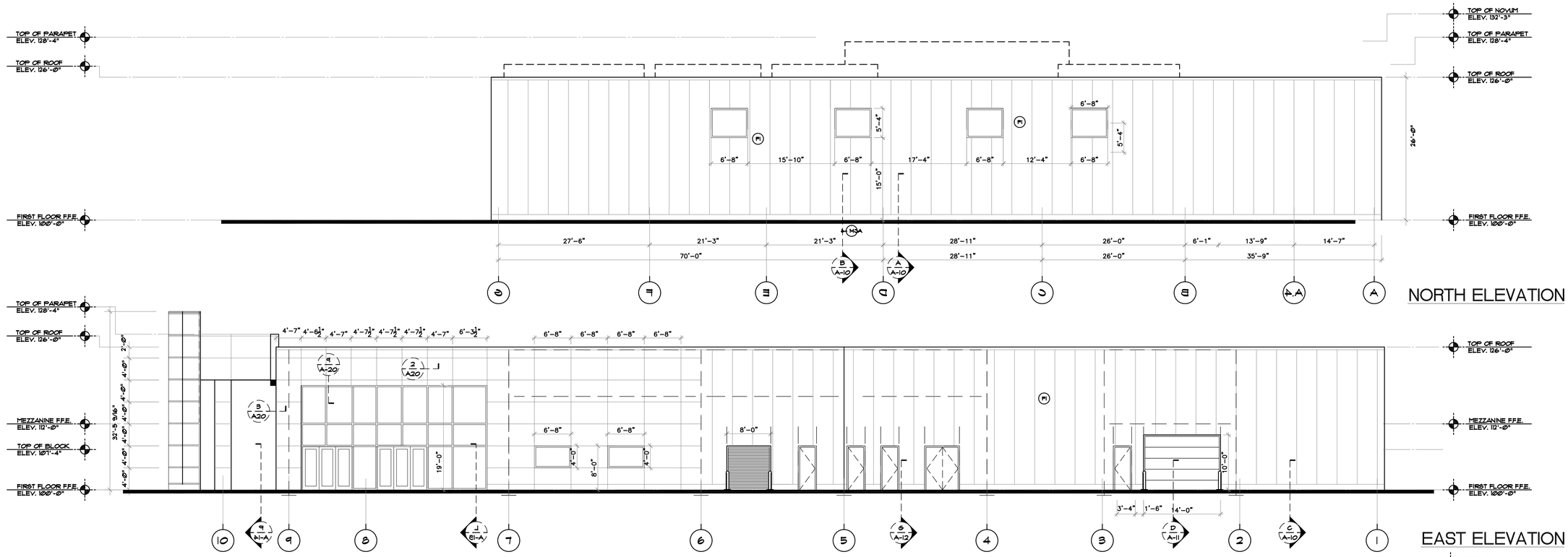
NO	DATE	REVISIONS
01	10/31/22	SUBMIT TOYOTA
02	–	SUBMIT ZBA

SEAL

FIRST FLOOR FURNITURE PLAN

FN-1

22025



(66) "KAWNEER" CURTAINWALL SYSTEM, FINAL SIZE AND INTERNAL REINFORCING TO BE DETERMINED BY SYSTEM MANUFACTURER. PROVIDE SHOP DRAWINGS TO ARCHITECT FOR APPROVAL. FRAMES TO BE CLEAR ANODIZED ALUMINUM THERMAL BREAK. GLASS TO BE SET BACK 1" FROM FACE OF FRAME. 1" INSULATED CLEAR DOUBLE GLAZED AND TEMPERED GLASS WITH LOW E.

(ACM) ACM ROUT AND RETURN DRY SEAL PANEL SYSTEM WITH NON RADIUS 90 DEGREE BENDS AND KYNAR ALUMINUM CLEAR COAT FINISH. UPC36524-1, MEGAPLON MC1455, TOYOTA SILVER II 9030 U2FXC9M9D9N0, FLAMINGS TO MATCH ADJACENT WALL FINISH PER PANEL MANUFACTURERS STANDARD.

(ACM) ACM ROUT AND RETURN DRY SEAL PANEL SYSTEM WITH NON RADIUS 90 DEGREE BENDS AND KYNAR ALUMINUM CLEAR COAT FINISH. UPC36524-4, MEGAPLON MC1455, TOYOTA RED USA

(ACM) ACM ROUT AND RETURN DRY SEAL PANEL SYSTEM WITH NON RADIUS 90 DEGREE BENDS AND KYNAR ALUMINUM CLEAR COAT FINISH. UPC36219-0, MEGAPLON MC3855, TOYOTA WHITE USA

(P1) 4" URETHANE FILLED LITE MEGA METAL PANEL WITH KYNAR FINISH TO MATCH SHERWIN WILLIAMS "MOONLIGHT WHITE"

(B) 12"x8" SMOOTH FACED BLOCK. BLOCK TO BE SEALED WITH WATERPROOFER AND PAINTED COLOR TO MATCH DRYVIT MOONLIGHT WHITE #52.

(EC) PARGED SMOOTH EXPOSED CONCRETE WALL TO BE SEALED WITH WATERPROOFER AND PAINTED COLOR TO MATCH DRYVIT MOONLIGHT WHITE #52.

(P2) SHERWIN WILLIAMS EXTERIOR SATIN MOONLIGHT WHITE

(P1) SHERWIN WILLIAMS EXTERIOR GLOSS MOONLIGHT WHITE

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EMAIL: STEVQUIETO@GMAIL.COM

MCGEE TOYOTA - PUTNAM CT

START DATE : 12 SEPT 2022
DRAWN : JM
SCALE :

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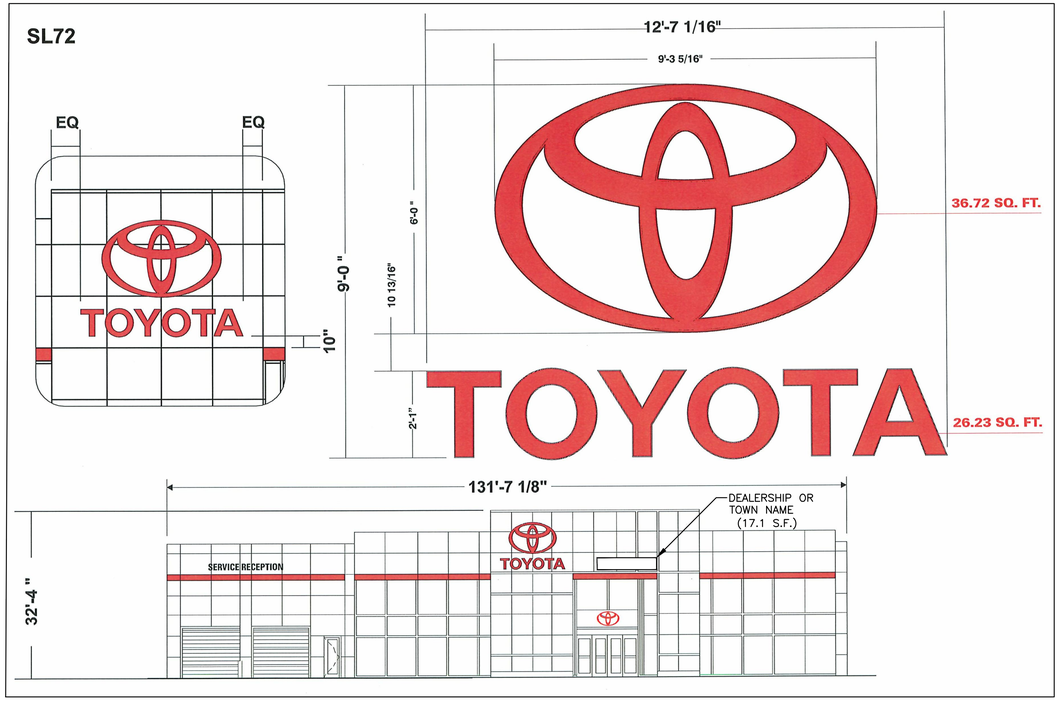
NO	DATE	REVISIONS
01	10/31/22	SUBMIT TOYOTA
02	–	SUBMIT ZBA

SEAL

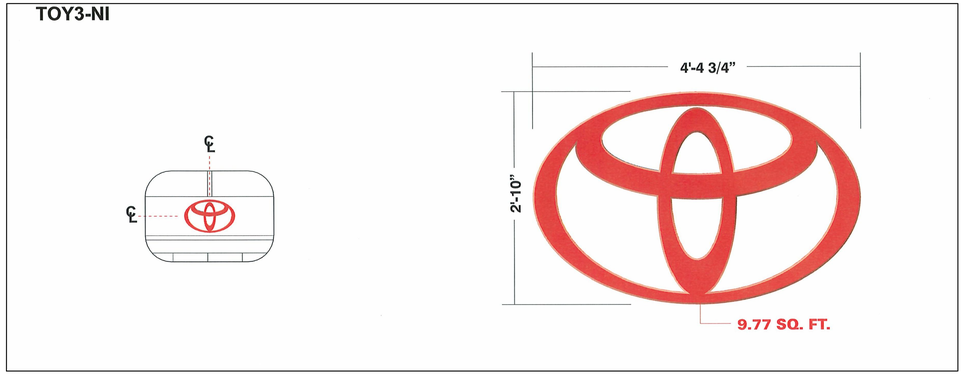
ELEVATIONS

A-3

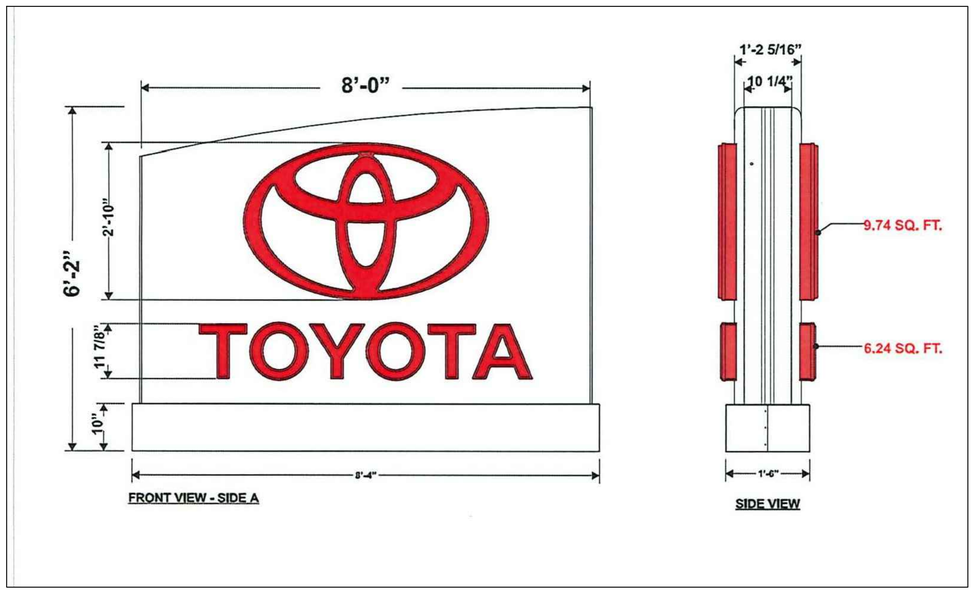
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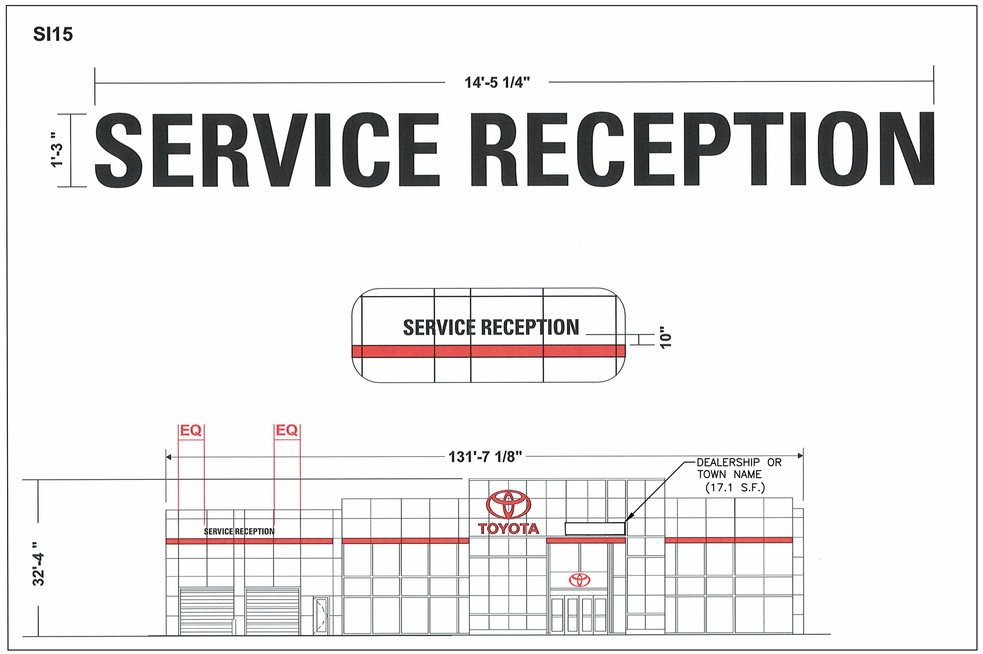
BUILDING SIGN - TOYOTA (63 S.F.)



BUILDING SIGN - SYMBOL ABOVE DOOR (9.8 S.F.)



MONUMENT SIGN (43 S.F.)



BUILDING SIGN - SERVICE RECEPTION & DEALERSHIP NAME (35.2 S.F.)

PROJECT TITLE:

PROPOSED
MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

SIGN REFERENCE PLAN

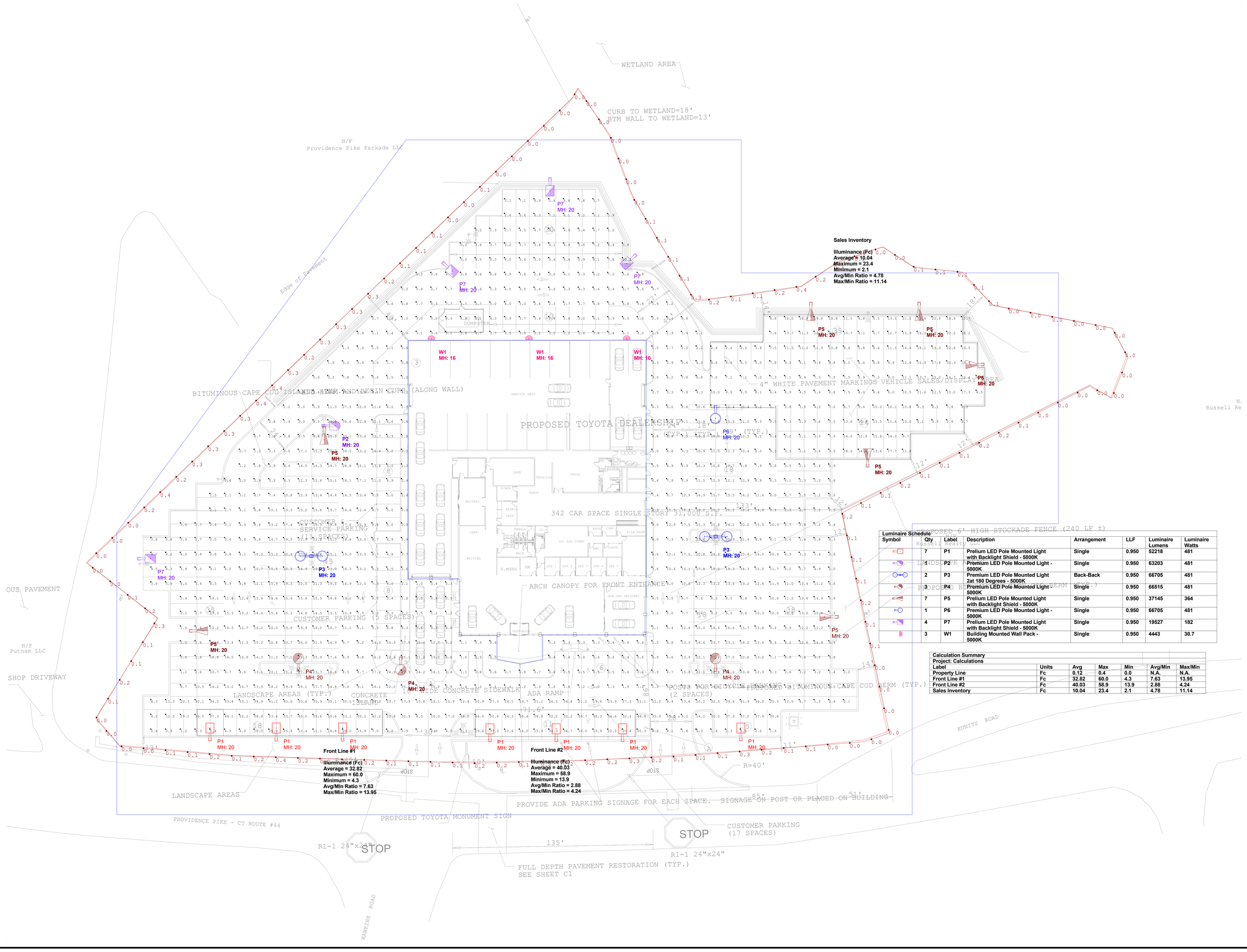
DATE: MARCH 2023
SCALE: NO SCALE
DWG. NAME: 2739-SIGN REF.dwg

REVISIONS

NUMBER	*REMARKS*	*DATE*
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DRAWING NUMBER

SHEET: 1 *OF:* 1



Luminaire Schedule Symbol	Qty	Label	Description	Arrangement	LLF	Luminaire Lumens	Luminaire Watts
	7	P1	Prelium LED Pole Mounted Light with Backlight Shield - 5000K	Single	0.950	52218	481
	1	P2	Premium LED Pole Mounted Light - 5000K	Single	0.950	63203	481
	2	P3	Premium LED Pole Mounted Light 2at 180 Degrees - 5000K	Back-Back	0.950	66705	481
	3	P4	Premium LED Pole Mounted Light - 5000K	Single	0.950	66515	481
	7	P5	Prelium LED Pole Mounted Light with Backlight Shield - 5000K	Single	0.950	37145	364
	1	P6	Premium LED Pole Mounted Light - 5000K	Single	0.950	66705	481
	4	P7	Prelium LED Pole Mounted Light with Backlight Shield - 5000K	Single	0.950	19527	182
	3	W1	Building Mounted Wall Pack - 5000K	Single	0.950	4443	30.7

Calculation Summary Project: Calculations						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Property Line	Fc	0.12	0.4	0.0	N.A.	N.A.
Front Line #1	Fc	32.82	60.0	4.3	7.63	13.95
Front Line #2	Fc	40.03	58.9	13.9	2.88	4.24
Sales Inventory	Fc	10.04	23.4	2.1	4.78	11.14

CED AUTOMOTIVE
www.cedautomotive.com

DAN RODRIGUEZ
NATIONAL ACCOUNT SALES
c. 562.964.5995
dan.rodriguez@cedslc.com

www.lightingprecision.com

DUSTIN SMITH, IES
Lighting Specification
c. 713-410-7273
dustin@lightingprecision.com

NATIONAL ACCOUNT LIGHTING PROGRAM

TOYOTA

PROJECT	LOCATION	CONTACT
MCGEE TOYOTA - SITE	PUTNAM, CT	N/A

Illumination results shown on this lighting design are based on project parameters provided to designer used in conjunction with luminaire test procedures conducted under laboratory conditions. Actual project conditions differing from these design parameters may affect field results. The customer is responsible for verifying dimensional accuracy along with compliance with any applicable electrical, lighting, or energy code.

JOB FILE INFORMATION

Date:5/24/2023
Filename: McGEE_TOYOTA_SITE_24MAY2023.AGI
Staff: DRS
Print Size - 34" x 44" (E-SIZE)

LIGHTING ANALYSIS PREPARED FOR

DRAINAGE NARRATIVE AND ASSESSMENT
FOR
PROPOSED TOYOTA MCGEE TOYOTA
AP 26 LOTS 8 AND 28
76 & 88 PROVIDENCE PIKE
PUTNAM CONNECTICUT

May 2023

Prepared by: Crossman Engineering
Engineers & Surveyors
151 Centerville Road
Warwick, RI 02886



5-26-23

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- Rainfall Intensity Duration Curves
- Soil Survey Map
- FEMA Flood Map
- Soil Evaluations
- Percolation Test Results
- Stormceptor Sizing Chart
- Outlet Pipe Calculations
- National Crushed Stone Association – reference
- Existing and Post-Development Watershed Maps

Section 1: Project Overview

Overview

The site is located at 76 and 88 Providence Pike (Route 44) in Putnam CT. Two parcels will be combined to make up the site, and are identified on Map 26 as Lot 8 and 28. The combined lot area is 13.73 acres which is comprised of upland area and wetlands. The proposed improvements are within only a portion of the lot, being 4.19 acres and in the upland area adjacent to Rte 44. This proposed improvement area is referenced as the 'site' within this report.

The proposed improvements include a 31,000 sf Toyota building for sales and service. Exterior to the building is a large parking area for customers, employees and vehicle display. The parking lot includes landscape islands, site lighting, underground utilities and a stormwater management system. The stormwater management system includes catch basins, manholes and pipe to collect and convey the stormwater, and underground drainage systems to treat and retain the stormwater. There are 5 main underground drainage systems which are described below:

- System 1 (Recharge and Water Quality): Underground Infiltration System 1 is a Cultec C100 HD chambers in a crushed stone bed.
- System 2 (Detention): Oversized solid drainage pipe, 42" in diameter.
- System 3 (Water Quality and Detention Storage): Water Quality System is a lined water-tight system consisting of Cultec R330 XLHD chambers in a crushed stone bed with an 18" deep sand filter system below the chambers. Stormwater leaves the system by an underdrain system that is pipes to an outlet control structure.
- System 4 (Detention): Detention System 4 is a lined water-tight system consisting of Cultec R330 XLHD chambers in a crushed stone bed.
- System 5: (Recharge and Water Quality): Underground Infiltration System 5 is a Cultec R330 XLHD chambers in a crushed stone bed.

Water quality structures are proposed to provide water quality pretreatment to parking lot stormwater before infiltrated into the ground. These water quality chambers are proposed before stormwater enters into Systems 3 and 5.

The stormwater management system is designed to meet the guidelines outlined in the 2004 Connecticut Stormwater Quality Manual, and provide recharge to the groundwater, water quality treatment and peak flow attenuation for the 1, 2, 10, 25, 50 and 100-year, 24-hr storm events.

Site Watershed Summary

Runoff from the site flows in two directions, toward the wetlands and toward Rte 44. Both areas (watersheds) are analyzed for the existing and post-development conditions, and the same design points are used for the watersheds. Summarized below are the existing and post development watershed areas, watershed A is the runoff area toward the wetlands, with the design point being

the wetland edge, and watershed B is the runoff area toward Rte 44, with the design point being the edge of road.

- **Existing Watershed A (WSD A)** includes lawn, a driveway and residential dwelling, with overgrown grass field and wooded areas. WSD A is land that drains toward the wetland.

- **Existing Watershed B (WSD B)** includes lawn, a driveway and residential dwelling structures with overgrown grass and wooded areas. WSD B is land that drains toward the Rte 44.
-
- **Post Development Sub-Watersheds PA1 to PA 14** includes areas consisting of parking lot pavement, and landscaped areas. Runoff is collected in the stormwater management system prior to discharge toward the wetland.

- **Post Development Watershed PB 1** includes grass areas outside the parking areas that flow directly toward Rte 44.

Table 1 Watershed Area Summary (square feet)				
Watershed	Existing		Post-Development	
	Impervious	Pervious	Impervious	Pervious
Watershed A (on site)	3,976	116,287	85,391	31,118
Watershed A (off site)	2,560	24,038	3,640	22,958
Watershed B (on site)	5,868	56,065	50,637	15,050
Watershed B (off-site)	300	2,340	1,020	1,620
Total	12,704	198,730	140,688	70,746
Subtotal (on site only)	9,844	172,352	136,028	46,168
			(3.13 ac)	(1.06 ac)

Section 2: Groundwater Recharge Calculations

Required Recharge Volume (GRV_R):

$GRV_R = [(D) (A) (I)] / 12$

Where: GRV_R = Required Recharge Volume

D = Recharge Factor per the 2004 Connecticut Stormwater Quality Manual, Section 7.5 Groundwater Recharge and Runoff Volume Reduction is 0.25 for NCRS Hydrologic Soil Group B. For this site, the soils are identified as Sutton Soil and Canton and Charlton Soil which is Hydrologic Soil Group B.

A = Site Improvement Area = 4.19 acres

I = Post Development Site Impervious (decimal) = 3.13/4.19 = 0.747

Required Recharge Volume for Total Site ($GRV_{R\ TOTAL}$)

Required Recharge Volume for the site

GRV_R = [(D) (A) (I)] / 12 = [(.25) (4.19) (0.747)] / 12 = 0.066 acre-feet = **2,875 cubic feet**

Provided Recharge Volume (GRV_P):

The building rooftop impervious area, identified as WSD PA14 is collected and fully infiltrated during the Water Quality Storm (1.2") by the underground infiltration system 1 (System 1). System 1 also fully infiltrates runoff from this 31,000-sf building for the 2- year storm event. Recharge is also provided by underground infiltration system 2 (System 5), for a portion of the parking lot runoff. In Section 6 of this report are the HydroCAD calculations for this site. The Recharge Volume Provided is referenced in the HydroCAD calculations and is also noted below.

System 1 GRV_P = 3,587 cubic feet (volume below the outlet weir at elevation = 383.75)
System 5 GRV_P = 1,777 cubic feet (volume below the outlet orifice at elevation = 378.50)

Total GRV_P = 5,364 cubic feet

System 1 Drawdown (hours):

Drawdown calculations are provided below: (T_D = Rv / k x bottom area)

Where:	T_D	=	Drawdown Time
	Rv_P	=	Provided Recharge Volume
	k	=	1.04 in/hr (Design Infiltration Rates for Different Soil Textures: Rawls et al., 1982)
	Bottom Area	=	Bottom Area of System 1 = 4,140 SF Bottom Area of System 5 = 1,805 SF

System 1 T_D = (3,587 CF) / [(1.04 in/hr) (1'/12") (4,140 SF)] = 10 hours

System 5 T_D = (1,777 CF) / [(1.04 in/hr) (1'/12") (1,805 SF)] = 11.4 hours

Section 3: Water Quality Calculations

Water Quality Volume Required (WQV_R)

Water quality volume is the amount of water from impervious surfaces (pavements) to be treated to remove a majority of pollutants on an average annual basis. Capturing and treating the first inch of rainfall is the required WQV and is calculated using the following equation:

WQV_R = Water Quality Volume Required
WQV_R = (1") (R)(A) / 12

The proposed impervious surfaces for the proposed improvements included the building rooftop and the parking lot. Runoff from the impervious parking area on site is collected by new catch basins and piped into two separate systems, System 3 and 5 that provide water quality.

Runoff from the rooftop is also infiltrated and is piped directly to System 1.

Although System 5 provides water quality benefits through infiltration, not all of the water quality volume is infiltrated, and outflow continues via piping to System 3. Therefore, the required water quality volume provided is only calculated for Systems 1 and 3. These calculations are provided below;

Impervious Runoff to System 1

WQV_R = Water Quality Volume Required
WQV_R = (1") (R)(A) / 12

impervious = 0.71 ac
watershed area = 0.71 ac
I = percent impervious cover = (impervious/watershed area) = 0.71 ac/0.71 ac = 1 (100)
R = volumetric runoff coefficient = 0.05+0.009(*I*) = 0.05+0.009 (100) = 0.95

WQV_R = (1") (0.95) (0.71) / 12 = 0.056 ac-ft = 2,449 cf
WQV_R = 2,449 cf

Provided Water Quality Volume by System 1 (WQV_P):

The Water Quality Storm (1.2") volume generated is calculated by using Hydrocad version 10.0 software. System The stormwater collected by the building rooftop is fully infiltrated for the water quality storm. The volume below the outlet weir is the available water quality volume for the system. Refer to the Hydrocad calculations in this report.

WQVp = 3,587 cf

Impervious Runoff to System 3

WQV_R = Water Quality Volume Required
WQV_R = (1") (R)(A) / 12

impervious = 2.42 ac
watershed area = 3.48 ac
I = percent impervious cover = (impervious/watershed area) = 2.42 ac/3.48 ac = 0.695 (70)
R = volumetric runoff coefficient = 0.05+0.009(*I*) = 0.05+0.009 (70) = 0.68

WQV_R = (1") (0.68) (3.48) / 12 = 0.1972 ac-ft = 8,590 cf
WQV_R = 8,590 cf

System 3 is a underground sand filter system which the required size is calculated using the following equation;

Required Sand Filter Surface Area = (WQV) (d) / [(k) (t) (h + d)]

Where:
WQV = required water quality volume
d = sand filter bed depth
k = hydraulic conductivity (ft/day) = 20 (ft/day)
h = average height of water above filter bed = NA water in sand layer per Hydrocad
t = time for water quality volume to drain (24 hours)

Required Sand Filter Surface Area = (8,590) (1.5)/ [(20 x (0.58 + 0) (1)] = 1,111 SF
Required Sand Filter Surface Area = 1,111 SF

Provided Surface Area (System 3) - Surface Area = 93.8' x 59.5' = 5,581 SF
Provided Surface Area = 5,581 SF

Pretreatment

Before the stormwater runoff from the parking lot is infiltrated into the ground, a proprietary device, Stormceptor STC 4800 is proposed to provide pretreatment. This Stormceptor unit is proposed for Systems 3 and 5. Provided in the Reference Section is a Stormceptor sizing chart.

Section 4: Stream Channel Protection (CP_v)

Stream Channel Protection

Stream Channel protection is control of the 2-yr 24-hour duration storm at 50 percent of the existing condition level (pre-development) for that storm, or to the 1-yr 24-hour existing condition level. The project is designed to meet and reduce the peak flow generated from the 1-yr 24-hour existing condition. Provided below is the existing conditions and post development condition comparison for the 1-yr 24-hour storm event.

Watershed A Existing Conditions (Node EA) = 0.33 cfs)
Watershed A Post Development Conditions (Node PA) = 0.33 cfs

Watershed B Existing Conditions (Node EB) = 0.28 cfs)
Watershed B Post Development Conditions (Node PB) = 0.28 cfs

Calculations

The HydroCAD calculations are provided in Section 6.

Section 5: Conveyance Protection, Peak Runoff Attenuation and Emergency Outlet Sizing

Conveyance Protection

Conveyance Protection is control of the 10-yr 24-hour duration by reducing the post development peak flows to match or reduce the peak flows generated from existing conditions.

Peak Runoff Attenuation

Peak Runoff Attenuation is control of the 10, 25 and 100-yr 24-hour duration by reducing the post development peak flows to match or reduce the peak flows generated from existing conditions.

Emergency Outlet Sizing

The outlets designed for the underground stormwater systems can safely pass the 100-yr storm flows as calculated in the HydroCAD calculations provided in Section 6. Pipe discharge for the underground systems outlet into a rip rap plunge pool, shaped in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, and rip rap sizing in accordance with the National Crushed Stone Association; Graded Riprap Stone. Refer to Reference Section for flow calculations.

Outflow Summary:

Plunge Pool (westerly): pipe flow velocity = 2.51 ft/s
(Outlet from System 2 = 24” diameter pipe with a velocity of 2.51 ft/s for a 100-yr storm)

Plunge Pool (easterly): total pipe outflow = 4.90 ft/s
(Outlet from System 3 = 24” diameter pipe with a velocity of 1.68 ft/s for a 100-yr storm)
And
(Outlet from System 4 = 18” diameter pipe with a velocity of 3.22 ft/s for a 100-yr storm)

Calculation Summary

For the above criterion, runoff from the existing and post development hydrographs has been computed utilizing "HydroCAD" Version10.0 software, provided below is the existing conditions and post development peak flow comparisons for the 1, 2, 10, 25, 50 and 100-yr 24-hour duration.

Watershed A	**1-yr**	**2-yr.**	**10-yr.**	**25-yr.**	**50-yr.**	**100-yr.**
Existing Conditions (Node EA) (CFS)	0.33	0.79	3.53	6.16	8.58	11.69
Post-Development (Node PA) (CFS)	0.33	0.59	2.60	4.37	6.37	10.16
(+/-) (CFS)	0.00	-0.17	-0.93	-1.79	-2.21	-1.43

Watershed B	**1-yr**	**2-yr.**	**10-yr.**	**25-yr.**	**50-yr.**	**100-yr.**
Existing Conditions (Node EB) (CFS)	0.28	0.64	2.19	3.62	4.91	6.55
Post-Development (Node PB) (CFS)	0.28	0.45	1.09	1.63	2.10	2.68
(+/-) (CFS)	0.00	-0.19	-1.10	-1.99	-2.82	-3.87

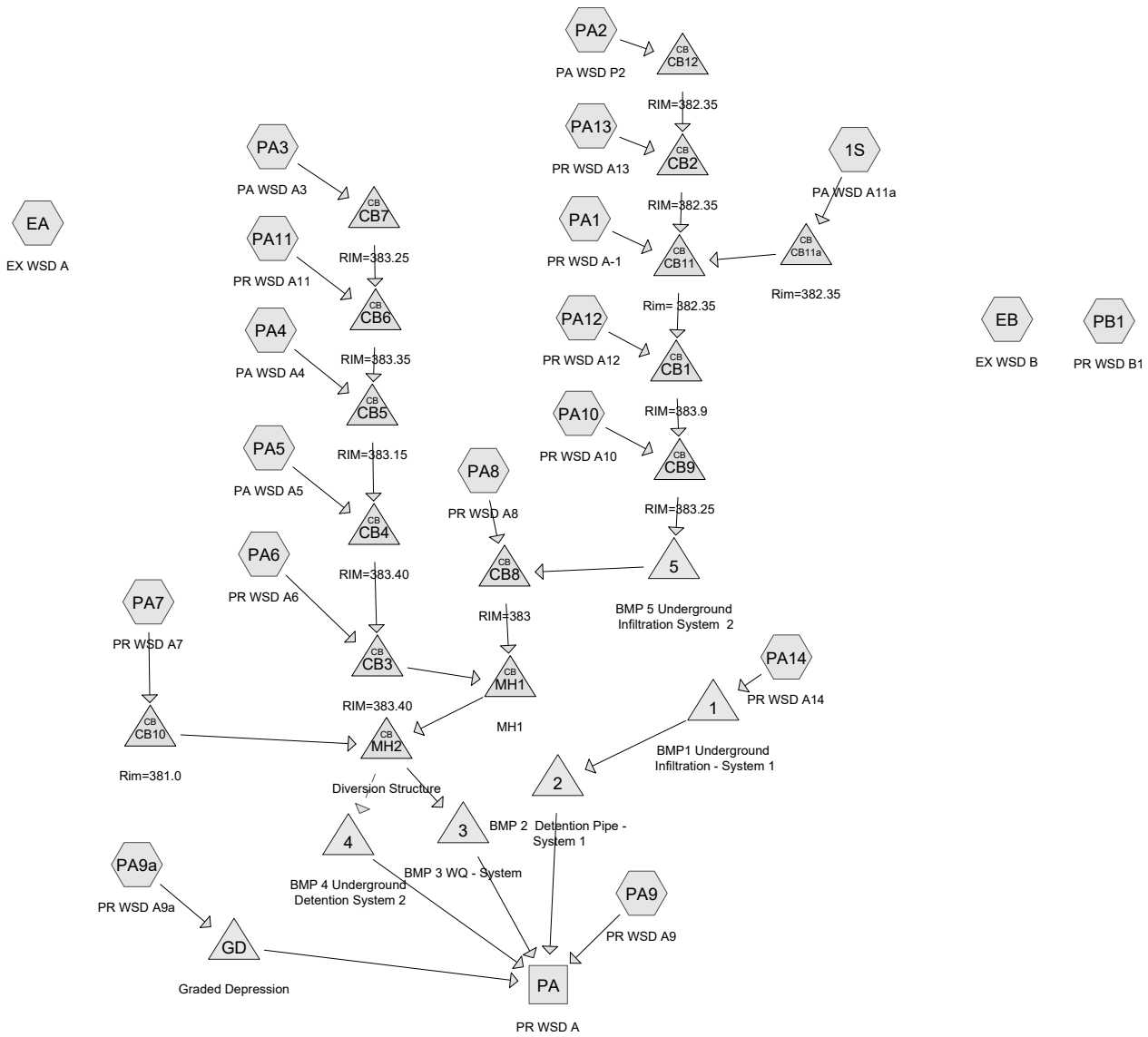
Post development peak flow is reduced for all storm events.

Section 6: HydroCAD Calculations

Hydrograph Methodology:

Existing and post-development hydrographs have been analyzed to compare runoff for existing and post development conditions. Runoff from the existing and post development hydrographs has been computed utilizing "HydroCAD" Version 10.0 software. Generally, the methodology encompasses the Soil Conservation Service's unit hydrograph method used in TR-20, which provided a basis for TR-55. The hydrologic data is the same information required for TR-55 and includes watershed areas, SCS runoff curve numbers, and the travel length from the most remote watershed point. With this data, complete SCS hydrographs can be developed for a 24-hour Type III storm. The watershed time of concentration is computed internally using the velocity method shown in SCS/NCRS Methodologies. The velocity method assumes that time of concentration is the sum of travel times for segments along the hydraulically most distant flow path.

The hydraulically most distant point is the point with the longest time to the watershed outlet and not necessarily the point with the longest flow distance to the outlet. The site is analyzed by modeling stage/storage/discharge relationships within the "HydroCAD" program. The "HydroCAD" program automatically routes hydrographs through BMP to determine the resulting outflow and also can combine hydrographs to determine cumulative sub-watershed flows.



Routing Diagram for Drainage Calcs 5-24
Prepared by Microsoft, Printed 5/25/2023
HydroCAD® 10.00-26 s/n 08202 © 2020 HydroCAD Software Solutions LLC

Drainage Calcs 5-24 *Type III 24-hr WQ Rainfall=1.20"*
Prepared by Microsoft Printed 5/25/2023
HydroCAD® 10.00-26 s/n 08202 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: PA WSD A11a Runoff Area=1,452 sf 100.00% Impervious Runoff Depth>0.98"
Tc=5.0 min CN=0/98 Runoff=0.04 cfs 0.003 af

Subcatchment PA1: PR WSD A-1 Runoff Area=5,854 sf 100.00% Impervious Runoff Depth>0.98"
Tc=5.0 min CN=0/98 Runoff=0.15 cfs 0.011 af

Subcatchment PA10: PR WSD A10 Runoff Area=13,309 sf 92.64% Impervious Runoff Depth>0.91"
Tc=5.0 min CN=61/98 Runoff=0.32 cfs 0.023 af

Subcatchment PA11: PR WSD A11 Runoff Area=1,264 sf 54.11% Impervious Runoff Depth>0.53"
Tc=5.0 min CN=61/98 Runoff=0.02 cfs 0.001 af

Subcatchment PA12: PR WSD A12 Runoff Area=7,487 sf 95.78% Impervious Runoff Depth>0.94"
Tc=5.0 min CN=61/98 Runoff=0.19 cfs 0.014 af

Subcatchment PA13: PR WSD A13 Runoff Area=11,400 sf 94.04% Impervious Runoff Depth>0.93"
Tc=5.0 min CN=61/98 Runoff=0.28 cfs 0.020 af

Subcatchment PA14: PR WSD A14 Runoff Area=31,000 sf 100.00% Impervious Runoff Depth>0.98"
Tc=5.0 min CN=0/98 Runoff=0.81 cfs 0.058 af

Subcatchment PA2: PA WSD P2 Runoff Area=4,032 sf 97.52% Impervious Runoff Depth>0.96"
Tc=5.0 min CN=61/98 Runoff=0.10 cfs 0.007 af

Subcatchment PA3: PA WSD A3 Runoff Area=4,412 sf 96.60% Impervious Runoff Depth>0.95"
Tc=5.0 min CN=61/98 Runoff=0.11 cfs 0.008 af

Subcatchment PA4: PA WSD A4 Runoff Area=18,321 sf 62.89% Impervious Runoff Depth>0.62"
Tc=5.0 min CN=61/98 Runoff=0.30 cfs 0.022 af

Subcatchment PA5: PA WSD A5 Runoff Area=10,410 sf 84.33% Impervious Runoff Depth>0.83"
Tc=5.0 min CN=61/98 Runoff=0.23 cfs 0.017 af

Subcatchment PA6: PR WSD A6 Runoff Area=8,087 sf 87.35% Impervious Runoff Depth>0.86"
Tc=5.0 min CN=61/98 Runoff=0.18 cfs 0.013 af

Subcatchment PA7: PR WSD A7 Runoff Area=24,051 sf 61.11% Impervious Runoff Depth>0.60"
Tc=5.0 min CN=61/98 Runoff=0.38 cfs 0.028 af

Subcatchment PA8: PR WSD A8 Runoff Area=14,368 sf 100.00% Impervious Runoff Depth>0.98"
Tc=5.0 min CN=0/98 Runoff=0.37 cfs 0.027 af

Subcatchment PA9: PR WSD A9 Runoff Area=19,128 sf 1.18% Impervious Runoff Depth>0.01"
Tc=5.0 min CN=58/98 Runoff=0.01 cfs 0.000 af

Subcatchment PA9a: PR WSD A9a Runoff Area=16,688 sf 7.79% Impervious Runoff Depth>0.08"
Flow Length=215' Slope=0.0880 '/' Tc=6.4 min CN=59/98 Runoff=0.03 cfs 0.002 af

Drainage Calcs 5-24 *Type III 24-hr WQ Rainfall=1.20"*
Prepared by Microsoft Printed 5/25/2023
HydroCAD® 10.00-26 s/n 08202 © 2020 HydroCAD Software Solutions LLC

Reach PA: PR WSD A Inflow=0.14 cfs 0.108 af
Outflow=0.14 cfs 0.108 af

Pond 1: BMP1 Underground Infiltration - Peak Elev=382.53' Storage=779 cf Inflow=0.81 cfs 0.058 af
Discarded=0.12 cfs 0.058 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.058 af

Pond 2: BMP 2 Detention Pipe - System 1 Peak Elev=376.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 3: BMP 3 WQ - System Peak Elev=374.32' Storage=2,534 cf Inflow=1.59 cfs 0.116 af
Outflow=0.14 cfs 0.108 af

Pond 4: BMP 4 Underground Detention System 2 Peak Elev=376.50' Storage=0 cf Inflow=0.01 cfs 0.000 af
Outflow=0.01 cfs 0.000 af

Pond 5: BMP 5 Underground Infiltration Peak Elev=378.35' Storage=1,562 cf Inflow=1.08 cfs 0.078 af
Discarded=0.06 cfs 0.072 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.072 af

Pond CB1: RIM=383.9 Peak Elev=378.52' Inflow=0.76 cfs 0.055 af
24.0" Round Culvert n=0.013 L=194.0' S=0.0000 '/' Outflow=0.76 cfs 0.055 af

Pond CB10: Rim=381.0 Peak Elev=378.54' Inflow=0.38 cfs 0.028 af
12.0" Round Culvert n=0.013 L=58.0' S=0.0086 '/' Outflow=0.38 cfs 0.028 af

Pond CB11: Rim= 382.35 Peak Elev=378.57' Inflow=0.57 cfs 0.041 af
24.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=0.57 cfs 0.041 af

Pond CB11a: Rim=382.35 Peak Elev=379.09' Inflow=0.04 cfs 0.003 af
12.0" Round Culvert n=0.013 L=18.0' S=0.0222 '/' Outflow=0.04 cfs 0.003 af

Pond CB12: RIM=382.35 Peak Elev=378.74' Inflow=0.10 cfs 0.007 af
18.0" Round Culvert n=0.013 L=72.0' S=0.0028 '/' Outflow=0.10 cfs 0.007 af

Pond CB2: RIM=382.35 Peak Elev=378.65' Inflow=0.38 cfs 0.028 af
18.0" Round Culvert n=0.013 L=34.0' S=0.0059 '/' Outflow=0.38 cfs 0.028 af

Pond CB3: RIM=383.40 Peak Elev=378.53' Inflow=0.84 cfs 0.061 af
24.0" Round Culvert n=0.013 L=58.0' S=0.0000 '/' Outflow=0.84 cfs 0.061 af

Pond CB4: RIM=383.40 Peak Elev=378.54' Inflow=0.66 cfs 0.048 af
24.0" Round Culvert n=0.013 L=80.0' S=0.0000 '/' Outflow=0.66 cfs 0.048 af

Pond CB5: RIM=383.15 Peak Elev=378.54' Inflow=0.43 cfs 0.031 af
24.0" Round Culvert n=0.013 L=98.0' S=0.0000 '/' Outflow=0.43 cfs 0.031 af

Pond CB6: RIM=383.35 Peak Elev=378.54' Inflow=0.13 cfs 0.009 af
18.0" Round Culvert n=0.013 L=22.0' S=0.0000 '/' Outflow=0.13 cfs 0.009 af

Pond CB7: RIM=383.25 Peak Elev=379.92' Inflow=0.11 cfs 0.008 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.11 cfs 0.008 af

Pond CB8: RIM=383 Peak Elev=378.54' Inflow=0.37 cfs 0.027 af
30.0" Round Culvert n=0.013 L=132.0' S=0.0076 '/' Outflow=0.37 cfs 0.027 af

Drainage Calcs 5-24 *Type III 24-hr WQ Rainfall=1.20"*
Prepared by Microsoft Printed 5/25/2023
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Pond CB9: RIM=383.25 Peak Elev=378.39' Inflow=1.08 cfs 0.078 af
24.0" Round Culvert n=0.013 L=112.0' S=0.0018 '/' Outflow=1.08 cfs 0.078 af

Pond GD: Graded Depression Peak Elev=375.10' Storage=67 cf Inflow=0.03 cfs 0.002 af
Discarded=0.00 cfs 0.002 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.002 af

Pond MH1: MH1 Peak Elev=378.53' Inflow=1.22 cfs 0.088 af
30.0" Round Culvert n=0.013 L=28.0' S=0.0000 '/' Outflow=1.22 cfs 0.088 af

Pond MH2: Diversion Structure Peak Elev=378.52' Inflow=1.60 cfs 0.116 af
Primary=1.59 cfs 0.116 af Secondary=0.01 cfs 0.000 af Outflow=1.60 cfs 0.116 af

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: PA WSD A11a Runoff Area=1,452 sf 100.00% Impervious Runoff Depth>2.47"
Tc=5.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment EA: EX WSD A Runoff Area=146,861 sf 4.45% Impervious Runoff Depth>0.23"
Flow Length=445' Tc=10.4 min CN=60 Runoff=0.33 cfs 0.065 af

Subcatchment EB: EX WSD B Runoff Area=64,573 sf 9.55% Impervious Runoff Depth>0.31"
Flow Length=325' Tc=6.3 min CN=63 Runoff=0.28 cfs 0.039 af

Subcatchment PA1: PR WSD A-1 Runoff Area=5,854 sf 100.00% Impervious Runoff Depth>2.47"
Tc=5.0 min CN=98 Runoff=0.36 cfs 0.028 af

Subcatchment PA10: PR WSD A10 Runoff Area=13,309 sf 92.64% Impervious Runoff Depth>2.16"
Tc=5.0 min CN=95 Runoff=0.77 cfs 0.055 af

Subcatchment PA11: PR WSD A11 Runoff Area=1,264 sf 54.11% Impervious Runoff Depth>1.09"
Tc=5.0 min CN=81 Runoff=0.04 cfs 0.003 af

Subcatchment PA12: PR WSD A12 Runoff Area=7,487 sf 95.78% Impervious Runoff Depth>2.26"
Tc=5.0 min CN=96 Runoff=0.44 cfs 0.032 af

Subcatchment PA13: PR WSD A13 Runoff Area=11,400 sf 94.04% Impervious Runoff Depth>2.26"
Tc=5.0 min CN=96 Runoff=0.68 cfs 0.049 af

Subcatchment PA14: PR WSD A14 Runoff Area=31,000 sf 100.00% Impervious Runoff Depth>2.47"
Tc=5.0 min CN=98 Runoff=1.92 cfs 0.146 af

Subcatchment PA2: PA WSD P2 Runoff Area=4,032 sf 97.52% Impervious Runoff Depth>2.36"
Tc=5.0 min CN=97 Runoff=0.25 cfs 0.018 af

Subcatchment PA3: PA WSD A3 Runoff Area=4,412 sf 96.60% Impervious Runoff Depth>2.36"
Tc=5.0 min CN=97 Runoff=0.27 cfs 0.020 af

Subcatchment PA4: PA WSD A4 Runoff Area=18,321 sf 62.89% Impervious Runoff Depth>1.27"
Tc=5.0 min CN=84 Runoff=0.65 cfs 0.045 af

Subcatchment PA5: PA WSD A5 Runoff Area=10,410 sf 84.33% Impervious Runoff Depth>1.88"
Tc=5.0 min CN=92 Runoff=0.54 cfs 0.037 af

Subcatchment PA6: PR WSD A6 Runoff Area=8,087 sf 87.35% Impervious Runoff Depth>1.97"
Tc=5.0 min CN=93 Runoff=0.43 cfs 0.030 af

Subcatchment PA7: PR WSD A7 Runoff Area=24,051 sf 61.11% Impervious Runoff Depth>1.27"
Tc=5.0 min CN=84 Runoff=0.85 cfs 0.059 af

Subcatchment PA8: PR WSD A8 Runoff Area=14,368 sf 100.00% Impervious Runoff Depth>2.47"
Tc=5.0 min CN=98 Runoff=0.89 cfs 0.068 af

Subcatchment PA9: PR WSD A9 Runoff Area=19,128 sf 1.18% Impervious Runoff Depth>0.21"
Tc=5.0 min CN=59 Runoff=0.04 cfs 0.008 af

Subcatchment PA9a: PR WSD A9a Runoff Area=16,688 sf 7.79% Impervious Runoff Depth>0.29"
Flow Length=215' Slope=0.0880 '/' Tc=6.4 min CN=62 Runoff=0.06 cfs 0.009 af

Subcatchment PB1: PR WSD B1 Runoff Area=20,171 sf 26.41% Impervious Runoff Depth>0.59"
Tc=5.0 min CN=71 Runoff=0.28 cfs 0.023 af

Reach PA: PR WSD A Inflow=0.33 cfs 0.257 af
Outflow=0.33 cfs 0.257 af

Pond 1: BMP1 Underground Infiltration - Peak Elev=383.18' Storage=2,609 cf Inflow=1.92 cfs 0.146 af
Discarded=0.14 cfs 0.146 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.146 af

Pond 2: BMP 2 Detention Pipe - System 1 Peak Elev=376.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 3: BMP 3 WQ - System Peak Elev=376.13' Storage=7,810 cf Inflow=1.79 cfs 0.307 af
Outflow=0.22 cfs 0.222 af

Pond 4: BMP 4 Underground Detention Peak Elev=376.79' Storage=1,077 cf Inflow=1.98 cfs 0.027 af
Outflow=0.10 cfs 0.027 af

Pond 5: BMP 5 Underground Infiltration Peak Elev=379.99' Storage=3,511 cf Inflow=2.58 cfs 0.189 af
Discarded=0.09 cfs 0.090 af Primary=0.48 cfs 0.073 af Outflow=0.57 cfs 0.163 af

Pond CB1: RIM=383.9 Peak Elev=379.99' Inflow=1.82 cfs 0.134 af
24.0" Round Culvert n=0.013 L=194.0' S=0.0000 '/' Outflow=1.82 cfs 0.134 af

Pond CB10: Rim=381.0 Peak Elev=378.99' Inflow=0.85 cfs 0.059 af
12.0" Round Culvert n=0.013 L=58.0' S=0.0086 '/' Outflow=0.85 cfs 0.059 af

Pond CB11: Rim= 382.35 Peak Elev=379.99' Inflow=1.37 cfs 0.102 af
24.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=1.37 cfs 0.102 af

Pond CB11a: Rim=382.35 Peak Elev=379.99' Inflow=0.09 cfs 0.007 af
12.0" Round Culvert n=0.013 L=18.0' S=0.0222 '/' Outflow=0.09 cfs 0.007 af

Pond CB12: RIM=382.35 Peak Elev=379.99' Inflow=0.25 cfs 0.018 af
18.0" Round Culvert n=0.013 L=72.0' S=0.0028 '/' Outflow=0.25 cfs 0.018 af

Pond CB2: RIM=382.35 Peak Elev=379.99' Inflow=0.92 cfs 0.067 af
18.0" Round Culvert n=0.013 L=34.0' S=0.0059 '/' Outflow=0.92 cfs 0.067 af

Pond CB3: RIM=383.40 Peak Elev=378.94' Inflow=1.93 cfs 0.135 af
24.0" Round Culvert n=0.013 L=58.0' S=0.0000 '/' Outflow=1.93 cfs 0.135 af

Pond CB4: RIM=383.40 Peak Elev=378.95' Inflow=1.49 cfs 0.105 af
24.0" Round Culvert n=0.013 L=80.0' S=0.0000 '/' Outflow=1.49 cfs 0.105 af

Pond CB5: RIM=383.15 Peak Elev=378.95' Inflow=0.95 cfs 0.067 af
24.0" Round Culvert n=0.013 L=98.0' S=0.0000 '/' Outflow=0.95 cfs 0.067 af

Pond CB6: RIM=383.35 Peak Elev=378.96' Inflow=0.31 cfs 0.023 af
18.0" Round Culvert n=0.013 L=22.0' S=0.0000 '/' Outflow=0.31 cfs 0.023 af

Pond CB7: RIM=383.25 Peak Elev=380.01' Inflow=0.27 cfs 0.020 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.27 cfs 0.020 af

Pond CB8: RIM=383 Peak Elev=378.95' Inflow=1.03 cfs 0.141 af
30.0" Round Culvert n=0.013 L=132.0' S=0.0076 '/' Outflow=1.03 cfs 0.141 af

Pond CB9: RIM=383.25 Peak Elev=379.99' Inflow=2.58 cfs 0.189 af
24.0" Round Culvert n=0.013 L=112.0' S=0.0018 '/' Outflow=2.58 cfs 0.189 af

Pond GD: Graded Depression Peak Elev=375.27' Storage=201 cf Inflow=0.06 cfs 0.009 af
Discarded=0.01 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.005 af

Pond MH1: MH1 Peak Elev=378.93' Inflow=2.93 cfs 0.276 af
30.0" Round Culvert n=0.013 L=28.0' S=0.0000 '/' Outflow=2.93 cfs 0.276 af

Pond MH2: Diversion Structure Peak Elev=378.91' Inflow=3.77 cfs 0.335 af
Primary=1.79 cfs 0.307 af Secondary=1.98 cfs 0.027 af Outflow=3.77 cfs 0.335 af

Summary for Subcatchment 1S: PA WSD A11a

Runoff = 0.09 cfs @ 12.07 hrs, Volume= 0.007 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
1,452	98	Paved parking, HSG B
1,452	98	100.00% Impervious Area

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

Summary for Subcatchment EA: EX WSD A

Runoff = 0.33 cfs @ 12.38 hrs, Volume= 0.065 af, Depth> 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
1,560	98	Paved parking, HSG B
4,976	98	Roofs, HSG B
129,661	58	Woods/grass comb., Good, HSG B
10,664	61	>75% Grass cover, Good, HSG B
146,861	60	Weighted Average
140,325	58	95.55% Pervious Area
6,536	98	4.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0640	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.4	170	0.0190	2.07		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.2	225	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.4	445	Total			

Summary for Subcatchment EB: EX WSD B

Runoff = 0.28 cfs @ 12.14 hrs, Volume= 0.039 af, Depth> 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
3,600	98	Paved parking, HSG B
2,568	98	Roofs, HSG B
40,405	58	Woods/grass comb., Good, HSG B
18,000	61	>75% Grass cover, Good, HSG B
64,573	63	Weighted Average
58,405	59	90.45% Pervious Area
6,168	98	9.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	60	0.1160	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.6	265	0.0340	2.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
6.3	325	Total			

Summary for Subcatchment PA1: PR WSD A-1

Runoff = 0.36 cfs @ 12.07 hrs, Volume= 0.028 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
5,854	98	Paved parking, HSG B
5,854	98	100.00% Impervious Area

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

Summary for Subcatchment PA10: PR WSD A10

Runoff = 0.77 cfs @ 12.07 hrs, Volume= 0.055 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
12,329	98	Paved parking, HSG B
980	61	>75% Grass cover, Good, HSG B
13,309	95	Weighted Average
980	61	7.36% Pervious Area
12,329	98	92.64% Impervious Area

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

Summary for Subcatchment PA11: PR WSD A11

Runoff = 0.04 cfs @ 12.08 hrs, Volume= 0.003 af, Depth> 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
684	98	Paved parking, HSG B
580	61	>75% Grass cover, Good, HSG B
1,264	81	Weighted Average
580	61	45.89% Pervious Area
684	98	54.11% Impervious Area

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

Summary for Subcatchment PA12: PR WSD A12

Runoff = 0.44 cfs @ 12.07 hrs, Volume= 0.032 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
7,171	98	Paved parking, HSG B
316	61	>75% Grass cover, Good, HSG B
7,487	96	Weighted Average
316	61	4.22% Pervious Area
7,171	98	95.78% Impervious Area

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

Summary for Subcatchment PA13: PR WSD A13

Runoff = 0.68 cfs @ 12.07 hrs, Volume= 0.049 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
10,721	98	Paved parking, HSG B
679	61	>75% Grass cover, Good, HSG B
11,400	96	Weighted Average
679	61	5.96% Pervious Area
10,721	98	94.04% Impervious Area

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

Summary for Subcatchment PA14: PR WSD A14

Runoff = 1.92 cfs @ 12.07 hrs, Volume= 0.146 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
31,000	98	Roofs, HSG B
31,000	98	100.00% Impervious Area

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

Summary for Subcatchment PA2: PA WSD P2

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
3,932	98	Unconnected pavement, HSG B
100	61	>75% Grass cover, Good, HSG B
4,032	97	Weighted Average
100	61	2.48% Pervious Area
3,932	98	97.52% Impervious Area
3,932		100.00% Unconnected

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

Summary for Subcatchment PA3: PA WSD A3

Runoff = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
4,262	98	Paved parking, HSG B
150	61	>75% Grass cover, Good, HSG B
4,412	97	Weighted Average
150	61	3.40% Pervious Area
4,262	98	96.60% Impervious Area

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

Summary for Subcatchment PA4: PA WSD A4

Runoff = 0.65 cfs @ 12.08 hrs, Volume= 0.045 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
11,522	98	Paved parking, HSG B
6,799	61	>75% Grass cover, Good, HSG B
18,321	84	Weighted Average
6,799	61	37.11% Pervious Area
11,522	98	62.89% Impervious Area

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

Summary for Subcatchment PA5: PA WSD A5

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 0.037 af, Depth> 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
8,779	98	Paved parking, HSG B
1,631	61	>75% Grass cover, Good, HSG B
10,410	92	Weighted Average
1,631	61	15.67% Pervious Area
8,779	98	84.33% Impervious Area

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

Summary for Subcatchment PA6: PR WSD A6

Runoff = 0.43 cfs @ 12.07 hrs, Volume= 0.030 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
7,064	98	Paved parking, HSG B
1,023	61	>75% Grass cover, Good, HSG B
8,087	93	Weighted Average
1,023	61	12.65% Pervious Area
7,064	98	87.35% Impervious Area

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

Summary for Subcatchment PA7: PR WSD A7

Runoff = 0.85 cfs @ 12.08 hrs, Volume= 0.059 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
14,698	98	Paved parking, HSG B
9,353	61	>75% Grass cover, Good, HSG B
24,051	84	Weighted Average
9,353	61	38.89% Pervious Area
14,698	98	61.11% Impervious Area

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

Summary for Subcatchment PA8: PR WSD A8

Runoff = 0.89 cfs @ 12.07 hrs, Volume= 0.068 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
14,368	98	Paved parking, HSG B
14,368	98	100.00% Impervious Area

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

Summary for Subcatchment PA9: PR WSD A9

Runoff = 0.04 cfs @ 12.32 hrs, Volume= 0.008 af, Depth> 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
225	98	Paved parking, HSG B
3,000	61	>75% Grass cover, Good, HSG B
15,903	58	Woods/grass comb., Good, HSG B
19,128	59	Weighted Average
18,903	58	98.82% Pervious Area
225	98	1.18% Impervious Area

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

Summary for Subcatchment PA9a: PR WSD A9a

Runoff = 0.06 cfs @ 12.15 hrs, Volume= 0.009 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
10,388	58	Woods/grass comb., Good, HSG B
5,000	61	>75% Grass cover, Good, HSG B
1,300	98	Roofs, HSG B
16,688	62	Weighted Average
15,388	59	92.21% Pervious Area
1,300	98	7.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	50	0.0880	0.18		**Sheet Flow, woods** Grass: Dense n= 0.240 P2= 3.20"
1.9	165	0.0880	1.48		**Shallow Concentrated Flow, overland** Woodland Kv= 5.0 fps
6.4	215	Total			

Summary for Subcatchment PB1: PR WSD B1

Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.023 af, Depth> 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
5,327	98	Paved parking, HSG B
14,844	61	>75% Grass cover, Good, HSG B
20,171	71	Weighted Average
14,844	61	73.59% Pervious Area
5,327	98	26.41% Impervious Area

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

Summary for Reach PA: PR WSD A

Inflow Area = 4.391 ac, 70.77% Impervious, Inflow Depth > 0.70" for 1-Year event
Inflow = 0.33 cfs @ 12.45 hrs, Volume= 0.257 af
Outflow = 0.33 cfs @ 12.45 hrs, Volume= 0.257 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

Summary for Pond 1: BMP1 Underground Infiltration - System 1

Inflow Area = 0.712 ac,100.00% Impervious, Inflow Depth > 2.47" for 1-Year event
Inflow = 1.92 cfs @ 12.07 hrs, Volume= 0.146 af
Outflow = 0.14 cfs @ 13.17 hrs, Volume= 0.146 af, Atten= 93%, Lag= 65.9 min
Discarded = 0.14 cfs @ 13.17 hrs, Volume= 0.146 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 383.18' @ 13.17 hrs Surf.Area= 4,140 sf Storage= 2,609 cf

Plug-Flow detention time= 160.7 min calculated for 0.146 af (100% of inflow)
Center-of-Mass det. time= 160.4 min (919.1 - 758.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	382.00'	1,006 cf	**13.00'W x 145.00'L x 2.04'H Field A** 3,849 cf Overall - 799 cf Embedded = 3,050 cf x 33.0% Voids
#2A	382.50'	799 cf	**Cultec C-100HD** x 57 Inside #1 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 3 rows
#3B	382.00'	1,194 cf	**41.00'W x 55.00'L x 2.04'H Field B** 4,604 cf Overall - 987 cf Embedded = 3,617 cf x 33.0% Voids
#4B	382.50'	987 cf	**Cultec C-100HD** x 70 Inside #3 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf

Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
Row Length Adjustment= +0.50' x 1.86 sf x 10 rows

3,985 cf Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	382.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 379.00' Phase-In= 0.01'
#2	Primary	376.00'	**42.0" Round Culvert X 2.00** L= 340.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 376.00' / 376.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 9.62 sf
#3	Device 2	383.75'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.14 cfs @ 13.17 hrs HW=383.18' (Free Discharge)
↑**1=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=382.00' TW=376.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 0.00 cfs of 130.33 cfs potential flow)
↑**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2: BMP 2 Detention Pipe - System 1

Inflow Area = 0.712 ac,100.00% Impervious, Inflow Depth = 0.00" for 1-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 376.00' @ 0.00 hrs Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	376.00'	3,271 cf	**42.0" Round Pipe Storage** L= 340.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	375.00'	**24.0" Round Culvert** L= 20.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 375.00' / 374.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	379.00'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	376.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	378.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=376.00' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.00 cfs of 5.35 cfs potential flow)
  ├─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 3: BMP 3 WQ - System

Inflow Area = 2.857 ac, 82.63% Impervious, Inflow Depth > 1.29" for 1-Year event
Inflow = 1.79 cfs @ 12.08 hrs, Volume= 0.307 af
Outflow = 0.22 cfs @ 15.16 hrs, Volume= 0.222 af, Atten= 88%, Lag= 184.6 min
Primary = 0.22 cfs @ 15.16 hrs, Volume= 0.222 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 376.13' @ 15.16 hrs Surf.Area= 11,641 sf Storage= 7,810 cf

Plug-Flow detention time= 310.7 min calculated for 0.222 af (72% of inflow)
Center-of-Mass det. time= 228.3 min (1,037.0 - 808.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	375.00'	4,117 cf	**97.83'W x 59.50'L x 3.54'H Field A** 20,616 cf Overall - 8,140 cf Embedded = 12,476 cf x 33.0% Voids
#2A	375.50'	8,140 cf	**Cultec R-330XLHD** x 152 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 19 rows
#3	376.75'	785 cf	**24.0" Round Pipe Storage** L= 250.0'
#4	376.75'	318 cf	**18.0" Round Pipe Storage** L= 180.0'
#5	373.00'	3,841 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 11,640 cf Overall x 33.0% Voids
		17,202 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
373.00	5,820	0	0
375.00	5,820	11,640	11,640

Device	Routing	Invert	Outlet Devices
#1	Primary	373.00'	**24.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 373.00' / 372.50' S= 0.0192 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	373.00'	**2.2" Vert. Orifice/Grate** C= 0.600
#3	Device 1	378.75'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Device 1	377.10'	**4.0" Vert. Orifice/Grate** C= 0.600

#5 Device 1 378.50' **4.0" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=0.22 cfs @ 15.16 hrs HW=376.13' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.22 cfs of 17.43 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.22 cfs @ 8.39 fps)
  ├─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├─**4=Orifice/Grate** (Controls 0.00 cfs)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 4: BMP 4 Underground Detention System 2

Inflow	=	1.98 cfs @	12.08 hrs, Volume=	0.027 af
Outflow	=	0.10 cfs @	12.35 hrs, Volume=	0.027 af, Atten= 95%, Lag= 16.4 min
Primary	=	0.10 cfs @	12.35 hrs, Volume=	0.027 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 376.79' @ 12.35 hrs Surf.Area= 11,356 sf Storage= 1,077 cf

Plug-Flow detention time= 114.8 min calculated for 0.027 af (100% of inflow)
Center-of-Mass det. time= 114.9 min (841.7 - 726.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	376.50'	2,857 cf	**17.00'W x 227.50'L x 3.54'H Field A** 13,697 cf Overall - 5,041 cf Embedded = 8,657 cf x 33.0% Voids
#2A	377.00'	5,041 cf	**Cultec R-330XLHD** x 96 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
#3B	376.50'	5,418 cf	**43.67'W x 171.50'L x 3.54'H Field B** 26,523 cf Overall - 10,104 cf Embedded = 16,419 cf x 33.0% Voids
#4B	377.00'	10,104 cf	**Cultec R-330XLHD** x 192 Inside #3 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 8 rows
		23,419 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	376.33'	**18.0" Round Culvert** L= 156.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 376.33' / 372.50' S= 0.0246 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	376.33'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	378.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Device 1	377.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
#5	Device 1	376.80'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.10 cfs @ 12.35 hrs HW=376.79' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.10 cfs of 0.83 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 2.86 fps)
  ├─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├─**4=Orifice/Grate** (Controls 0.00 cfs)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 5: BMP 5 Underground Infiltration System 2

Inflow Area = 0.999 ac, 95.23% Impervious, Inflow Depth > 2.27" for 1-Year event
Inflow = 2.58 cfs @ 12.07 hrs, Volume= 0.189 af
Outflow = 0.57 cfs @ 12.47 hrs, Volume= 0.163 af, Atten= 78%, Lag= 23.7 min
Discarded = 0.09 cfs @ 12.47 hrs, Volume= 0.090 af
Primary = 0.48 cfs @ 12.47 hrs, Volume= 0.073 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 379.99' @ 12.47 hrs Surf.Area= 1,815 sf Storage= 3,511 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 96.1 min (871.5 - 775.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	377.00'	1,273 cf	**30.50'W x 59.50'L x 3.54'H Field A** 6,427 cf Overall - 2,571 cf Embedded = 3,857 cf x 33.0% Voids
#2A	377.50'	2,571 cf	**Cultec R-330XLHD** x 48 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 6 rows
		3,843 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	377.00'	**30.0" Round Culvert** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 377.00' / 374.00' S= 0.0750 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Discarded	377.00'	**1.040 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 374.00'
#3	Device 1	380.00'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Device 1	378.50'	**4.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.09 cfs @ 12.47 hrs HW=379.99' (Free Discharge)
└─**2=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=0.48 cfs @ 12.47 hrs HW=379.99' TW=378.33' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.48 cfs of 30.46 cfs potential flow)
  ├─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**4=Orifice/Grate** (Orifice Controls 0.48 cfs @ 5.53 fps)

Summary for Pond CB1: RIM=383.9

Inflow Area = 0.694 ac, 96.38% Impervious, Inflow Depth > 2.32" for 1-Year event
Inflow = 1.82 cfs @ 12.07 hrs, Volume= 0.134 af
Outflow = 1.82 cfs @ 12.07 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Primary = 1.82 cfs @ 12.07 hrs, Volume= 0.134 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 379.99' @ 12.47 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	377.80'	**24.0" Round CB1** L= 194.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 377.80' / 377.80' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.19 cfs @ 12.07 hrs HW=379.15' TW=379.12' (Dynamic Tailwater)
1=CB1 (Outlet Controls 1.19 cfs @ 0.75 fps)

Summary for Pond CB10: Rim=381.0

Inflow Area = 0.552 ac, 61.11% Impervious, Inflow Depth > 1.27" for 1-Year event
Inflow = 0.85 cfs @ 12.08 hrs, Volume= 0.059 af
Outflow = 0.85 cfs @ 12.08 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Primary = 0.85 cfs @ 12.08 hrs, Volume= 0.059 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 378.99' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	377.50'	**12.0" Round CB9** L= 58.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 377.50' / 377.00' S= 0.0086 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.86 cfs @ 12.08 hrs HW=378.99' TW=378.90' (Dynamic Tailwater)
1=CB9 (Inlet Controls 0.86 cfs @ 1.09 fps)

Summary for Pond CB11: Rim= 382.35

Inflow Area = 0.522 ac, 96.57% Impervious, Inflow Depth > 2.34" for 1-Year event
Inflow = 1.37 cfs @ 12.07 hrs, Volume= 0.102 af
Outflow = 1.37 cfs @ 12.07 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary = 1.37 cfs @ 12.07 hrs, Volume= 0.102 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 379.99' @ 12.47 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	378.00'	**24.0" Round CB 11** L= 36.0' CMP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 378.00' / 377.80' S= 0.0056 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.33 cfs @ 12.07 hrs HW=379.18' TW=379.15' (Dynamic Tailwater)
1=CB 11 (Outlet Controls 1.33 cfs @ 0.99 fps)

Summary for Pond CB11a: Rim=382.35

Inflow Area = 0.033 ac,100.00% Impervious, Inflow Depth > 2.47" for 1-Year event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 0.007 af
Outflow = 0.09 cfs @ 12.07 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.07 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 379.99' @ 12.48 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	379.00'	**12.0" Round Culvert**
			L= 18.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 379.00' / 378.60' S= 0.0222 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=379.21' TW=379.18' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.06 cfs @ 0.76 fps)

Summary for Pond CB12: RIM=382.35

Inflow Area = 0.093 ac, 97.52% Impervious, Inflow Depth > 2.36" for 1-Year event
Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af
Outflow = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 379.99' @ 12.48 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	378.50'	**18.0" Round CB 12**
			L= 72.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 378.50' / 378.30' S= 0.0028 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.17 cfs @ 12.07 hrs HW=379.19' TW=379.19' (Dynamic Tailwater)
1=CB 12 (Outlet Controls 0.17 cfs @ 0.32 fps)

Summary for Pond CB2: RIM=382.35

Inflow Area = 0.354 ac, 94.95% Impervious, Inflow Depth > 2.28" for 1-Year event
Inflow = 0.92 cfs @ 12.07 hrs, Volume= 0.067 af
Outflow = 0.92 cfs @ 12.07 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
Primary = 0.92 cfs @ 12.07 hrs, Volume= 0.067 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 379.99' @ 12.48 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	378.20'	**18.0" Round CB2** L= 34.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 378.20' / 378.00' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.37 cfs @ 12.07 hrs HW=379.19' TW=379.18' (Dynamic Tailwater)
↳**1=CB2** (Outlet Controls 0.37 cfs @ 0.43 fps)

Summary for Pond CB3: RIM=383.40

Inflow Area = 0.976 ac, 76.04% Impervious, Inflow Depth > 1.66" for 1-Year event
Inflow = 1.93 cfs @ 12.07 hrs, Volume= 0.135 af
Outflow = 1.93 cfs @ 12.07 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min
Primary = 1.93 cfs @ 12.07 hrs, Volume= 0.135 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 378.94' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	376.75'	**24.0" Round CB 3** L= 58.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 376.75' / 376.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.31 cfs @ 12.07 hrs HW=378.93' TW=378.92' (Dynamic Tailwater)
↳**1=CB 3** (Inlet Controls 1.31 cfs @ 0.42 fps)

Summary for Pond CB4: RIM=383.40

Inflow Area = 0.790 ac, 73.38% Impervious, Inflow Depth > 1.59" for 1-Year event
Inflow = 1.49 cfs @ 12.07 hrs, Volume= 0.105 af
Outflow = 1.49 cfs @ 12.07 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 12.07 hrs, Volume= 0.105 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 378.95' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	376.75'	**24.0" Round CB 4** L= 80.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 376.75' / 376.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.47 cfs @ 12.07 hrs HW=378.94' TW=378.93' (Dynamic Tailwater)
↳**1=CB 4** (Outlet Controls 1.47 cfs @ 0.53 fps)

Summary for Pond CB5: RIM=383.15

Inflow Area = 0.551 ac, 68.63% Impervious, Inflow Depth > 1.46" for 1-Year event
Inflow = 0.95 cfs @ 12.08 hrs, Volume= 0.067 af
Outflow = 0.95 cfs @ 12.08 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
Primary = 0.95 cfs @ 12.08 hrs, Volume= 0.067 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 378.95' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	376.75'	**24.0" Round CB 5** L= 98.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 376.75' / 376.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=378.93' TW=378.94' (Dynamic Tailwater)
1=CB 5 (Controls 0.00 cfs)

Summary for Pond CB6: RIM=383.35

Inflow Area = 0.130 ac, 87.14% Impervious, Inflow Depth > 2.08" for 1-Year event
Inflow = 0.31 cfs @ 12.07 hrs, Volume= 0.023 af
Outflow = 0.31 cfs @ 12.07 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.07 hrs, Volume= 0.023 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 378.96' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	376.75'	**18.0" Round CB 6** L= 22.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 376.75' / 376.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=378.93' TW=378.93' (Dynamic Tailwater)
1=CB 6 (Controls 0.00 cfs)

Summary for Pond CB7: RIM=383.25

Inflow Area = 0.101 ac, 96.60% Impervious, Inflow Depth > 2.36" for 1-Year event
Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af
Outflow = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 380.01' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	379.75'	**12.0" Round CB 7** L= 22.0' CMP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 379.75' / 379.50' S= 0.0114 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.27 cfs @ 12.07 hrs HW=380.01' TW=378.93' (Dynamic Tailwater)
└**1=CB 7** (Barrel Controls 0.27 cfs @ 2.46 fps)

Summary for Pond CB8: RIM=383

Inflow Area = 1.329 ac, 96.42% Impervious, Inflow Depth > 1.28" for 1-Year event
Inflow = 1.03 cfs @ 12.09 hrs, Volume= 0.141 af
Outflow = 1.03 cfs @ 12.09 hrs, Volume= 0.141 af, Atten= 0%, Lag= 0.0 min
Primary = 1.03 cfs @ 12.09 hrs, Volume= 0.141 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 378.95' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	377.75'	**30.0" Round CB 8 to MH 1** L= 132.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 377.75' / 376.75' S= 0.0076 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=1.14 cfs @ 12.09 hrs HW=378.95' TW=378.92' (Dynamic Tailwater)
└**1=CB 8 to MH 1** (Outlet Controls 1.14 cfs @ 0.72 fps)

Summary for Pond CB9: RIM=383.25

Inflow Area = 0.999 ac, 95.23% Impervious, Inflow Depth > 2.27" for 1-Year event
Inflow = 2.58 cfs @ 12.07 hrs, Volume= 0.189 af
Outflow = 2.58 cfs @ 12.07 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.0 min
Primary = 2.58 cfs @ 12.07 hrs, Volume= 0.189 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 379.99' @ 12.46 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	377.80'	**24.0" Round CB9** L= 112.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 377.80' / 377.60' S= 0.0018 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.58 cfs @ 12.07 hrs HW=379.12' TW=378.97' (Dynamic Tailwater)
└**1=CB9** (Outlet Controls 2.58 cfs @ 1.67 fps)

Summary for Pond GD: Graded Depression

Inflow Area = 0.383 ac, 7.79% Impervious, Inflow Depth > 0.29" for 1-Year event
Inflow = 0.06 cfs @ 12.15 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 17.43 hrs, Volume= 0.005 af, Atten= 89%, Lag= 316.6 min
Discarded = 0.01 cfs @ 17.43 hrs, Volume= 0.005 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 375.27' @ 17.43 hrs Surf.Area= 867 sf Storage= 201 cf

Plug-Flow detention time= 315.4 min calculated for 0.005 af (58% of inflow)
Center-of-Mass det. time= 172.8 min (1,105.1 - 932.3)

Volume	Invert	Avail.Storage	Storage Description
#1	375.00'	1,072 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
375.00	630	0	0
376.00	1,514	1,072	1,072

Device	Routing	Invert	Outlet Devices
#1	Discarded	375.00'	**1.040 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 373.00' Phase-In= 1.00'
#2	Primary	375.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.01 cfs @ 17.43 hrs HW=375.27' (Free Discharge)
1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=375.00' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond MH1: MH1

Inflow Area = 2.305 ac, 87.79% Impervious, Inflow Depth > 1.44" for 1-Year event
Inflow = 2.93 cfs @ 12.08 hrs, Volume= 0.276 af
Outflow = 2.93 cfs @ 12.08 hrs, Volume= 0.276 af, Atten= 0%, Lag= 0.0 min
Primary = 2.93 cfs @ 12.08 hrs, Volume= 0.276 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 378.93' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	376.75'	**30.0" Round DMH1** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 376.75' / 376.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=2.98 cfs @ 12.08 hrs HW=378.93' TW=378.91' (Dynamic Tailwater)
1=DMH1 (Outlet Controls 2.98 cfs @ 0.88 fps)

Summary for Pond MH2: Diversion Structure

Inflow Area = 2.857 ac, 82.63% Impervious, Inflow Depth > 1.41" for 1-Year event
Inflow = 3.77 cfs @ 12.08 hrs, Volume= 0.335 af
Outflow = 3.77 cfs @ 12.08 hrs, Volume= 0.335 af, Atten= 0%, Lag= 0.0 min
Primary = 1.79 cfs @ 12.08 hrs, Volume= 0.307 af
Secondary = 1.98 cfs @ 12.08 hrs, Volume= 0.027 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 378.91' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	376.75'	**8.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 376.75' / 376.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Secondary	378.50'	**24.0" Round Culvert X 2.00** L= 20.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 378.50' / 376.50' S= 0.1000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.79 cfs @ 12.08 hrs HW=378.91' TW=374.46' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.79 cfs @ 5.13 fps)

Secondary OutFlow Max=1.98 cfs @ 12.08 hrs HW=378.91' TW=376.62' (Dynamic Tailwater)
↑—**2=Culvert** (Inlet Controls 1.98 cfs @ 2.17 fps)

Stage-Area-Storage for Pond 1: BMP1 Underground Infiltration - System 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
382.00	**4,140**	0
382.02	4,140	27
382.04	4,140	55
382.06	4,140	82
382.08	4,140	109
382.10	4,140	137
382.12	4,140	164
382.14	4,140	191
382.16	4,140	219
382.18	4,140	246
382.20	4,140	273
382.22	4,140	301
382.24	4,140	328
382.26	4,140	355
382.28	4,140	383
382.30	4,140	410
382.32	4,140	437
382.34	4,140	465
382.36	4,140	492
382.38	4,140	519
382.40	4,140	546
382.42	4,140	574
382.44	4,140	601
382.46	4,140	628
382.48	4,140	656
382.50	4,140	683
382.52	4,140	745
382.54	4,140	806
382.56	4,140	867
382.58	4,140	927
382.60	4,140	987
382.62	4,140	1,047
382.64	4,140	1,106
382.66	4,140	1,165
382.68	4,140	1,224
382.70	4,140	1,282
382.72	4,140	1,341
382.74	4,140	1,399
382.76	4,140	1,458
382.78	4,140	1,517
382.80	4,140	1,575
382.82	4,140	1,633
382.84	4,140	1,691
382.86	4,140	1,748
382.88	4,140	1,805
382.90	4,140	1,862
382.92	4,140	1,918
382.94	4,140	1,974
382.96	4,140	2,030
382.98	4,140	2,086
383.00	4,140	2,141
383.02	4,140	2,195
383.04	4,140	2,250
383.06	4,140	2,303
383.08	4,140	2,357
383.10	4,140	2,410
383.12	4,140	2,462
383.14	4,140	2,513
383.16	4,140	2,564
383.18	4,140	2,614
383.20	4,140	2,663
383.22	4,140	2,712
383.24	4,140	2,759
383.26	4,140	2,806
383.28	4,140	2,851
383.30	4,140	2,895
383.32	4,140	2,937
383.34	4,140	2,978
383.36	4,140	3,018
383.38	4,140	3,055
383.40	4,140	3,091
383.42	4,140	3,125
383.44	4,140	3,157
383.46	4,140	3,188
383.48	4,140	3,217
383.50	4,140	3,245
383.52	4,140	3,273
383.54	4,140	3,300
383.56	4,140	3,327
383.58	4,140	3,355
383.60	4,140	3,382
383.62	4,140	3,409
383.64	4,140	3,437
383.66	4,140	3,464
383.68	4,140	3,491
383.70	4,140	3,519
383.72	4,140	3,546
383.74	4,140	3,573
383.76	4,140	3,601
383.78	4,140	3,628
383.80	4,140	3,655
383.82	4,140	3,683
383.84	4,140	3,710
383.86	4,140	3,737
383.88	4,140	3,765
383.90	4,140	3,792
383.92	4,140	3,819
383.94	4,140	3,846
383.96	4,140	3,874
383.98	4,140	3,901
384.00	4,140	3,928
384.02	4,140	3,956
384.04	4,140	**3,983**

3,587 cf wq volume below weir

Stage-Area-Storage for Pond 2: BMP 2 Detention Pipe - System 1

Elevation (feet)	Storage (cubic-feet)
376.00	0
376.05	9
376.10	27
376.15	49
376.20	75
376.25	104
376.30	136
376.35	170
376.40	207
376.45	246
376.50	287
376.55	329
376.60	373
376.65	419
376.70	466
376.75	514
376.80	563
376.85	614
376.90	665
376.95	718
377.00	771
377.05	825
377.10	880
377.15	936
377.20	992
377.25	1,049
377.30	1,106
377.35	1,164
377.40	1,222
377.45	1,280
377.50	1,339
377.55	1,398
377.60	1,457
377.65	1,517
377.70	1,576
377.75	1,636
377.80	1,695
377.85	1,755
377.90	1,814
377.95	1,873
378.00	1,932
378.05	1,991
378.10	2,049
378.15	2,107
378.20	2,165
378.25	2,222
378.30	2,279
378.35	2,335
378.40	2,391
378.45	2,446
378.50	2,500
378.55	2,553
378.60	2,606
378.65	2,657
378.70	2,708
378.75	2,757
378.80	2,805
378.85	2,852
378.90	2,898
378.95	2,942
379.00	2,985
379.05	3,025
379.10	3,064
379.15	3,101
379.20	3,135
379.25	3,167
379.30	3,197
379.35	3,223
379.40	3,245
379.45	3,262
379.50	**3,271**

Stage-Area-Storage for Pond 3: BMP 3 WQ - System

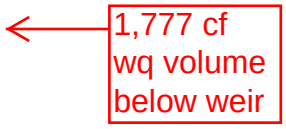
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
373.00	0	375.12	4,072	377.24	12,928
373.04	77	375.16	4,149	377.28	13,112
373.08	154	375.20	4,225	377.32	13,294
373.12	230	375.24	4,302	377.36	13,474
373.16	307	375.28	4,379	377.40	13,653
373.20	384	375.32	4,456	377.44	13,829
373.24	461	375.36	4,533	377.48	14,002
373.28	538	375.40	4,610	377.52	14,173
373.32	615	375.44	4,686	377.56	14,341
373.36	691	375.48	4,763	377.60	14,505
373.40	768	375.52	4,898	377.64	14,666
373.44	845	375.56	5,091	377.68	14,822
373.48	922	375.60	5,284	377.72	14,972
373.52	999	375.64	5,476	377.76	15,117
373.56	1,076	375.68	5,668	377.80	15,256
373.60	1,152	375.72	5,859	377.84	15,388
373.64	1,229	375.76	6,050	377.88	15,515
373.68	1,306	375.80	6,240	377.92	15,635
373.72	1,383	375.84	6,431	377.96	15,749
373.76	1,460	375.88	6,621	378.00	15,858
373.80	1,536	375.92	6,812	378.04	15,962
373.84	1,613	375.96	7,002	378.08	16,065
373.88	1,690	376.00	7,192	378.12	16,167
373.92	1,767	376.04	7,381	378.16	16,267
373.96	1,844	376.08	7,570	378.20	16,367
374.00	1,921	376.12	7,757	378.24	16,464
374.04	1,997	376.16	7,944	378.28	16,559
374.08	2,074	376.20	8,129	378.32	16,652
374.12	2,151	376.24	8,314	378.36	16,745
374.16	2,228	376.28	8,498	378.40	16,838
374.20	2,305	376.32	8,681	378.44	16,929
374.24	2,382	376.36	8,865	378.48	17,020
374.28	2,458	376.40	9,048	378.52	17,110
374.32	2,535	376.44	9,231	378.56	17,164
374.36	2,612	376.48	9,413	378.60	17,175
374.40	2,689	376.52	9,596	378.64	17,185
374.44	2,766	376.56	9,777	378.68	17,193
374.48	2,842	376.60	9,959	378.72	17,200
374.52	2,919	376.64	10,140	378.76	**17,202**
374.56	2,996	376.68	10,320	378.80	17,202
374.60	3,073	376.72	10,500		
374.64	3,150	376.76	10,679		
374.68	3,227	376.80	10,864		
374.72	3,303	376.84	11,050		
374.76	3,380	376.88	11,238		
374.80	3,457	376.92	11,427		
374.84	3,534	376.96	11,615		
374.88	3,611	377.00	11,805		
374.92	3,688	377.04	11,993		
374.96	3,764	377.08	12,182		
375.00	3,841	377.12	12,370		
375.04	3,918	377.16	12,557		
375.08	3,995	377.20	12,743		

Stage-Area-Storage for Pond 4: BMP 4 Underground Detention System 2

Elevation (feet)	Storage (cubic-feet)
376.50	0
376.55	187
376.60	375
376.65	562
376.70	750
376.75	937
376.80	1,124
376.85	1,312
376.90	1,499
376.95	1,686
377.00	1,874
377.05	2,332
377.10	2,789
377.15	3,244
377.20	3,697
377.25	4,150
377.30	4,603
377.35	5,054
377.40	5,506
377.45	5,956
377.50	6,407
377.55	6,856
377.60	7,302
377.65	7,746
377.70	8,186
377.75	8,623
377.80	9,060
377.85	9,495
377.90	9,930
377.95	10,364
378.00	10,797
378.05	11,229
378.10	11,659
378.15	12,089
378.20	12,517
378.25	12,941
378.30	13,362
378.35	13,776
378.40	14,186
378.45	14,591
378.50	14,992
378.55	15,389
378.60	15,781
378.65	16,167
378.70	16,548
378.75	16,924
378.80	17,294
378.85	17,657
378.90	18,013
378.95	18,362
379.00	18,702
379.05	19,033
379.10	19,354
379.15	19,663
379.20	19,960
379.25	20,240
379.30	20,503
379.35	20,749
379.40	20,978
379.45	21,192
379.50	21,389
379.55	21,577
379.60	21,764
379.65	21,951
379.70	22,139
379.75	22,326
379.80	22,514
379.85	22,701
379.90	22,888
379.95	23,076
380.00	**23,263**

Stage-Area-Storage for Pond 5: BMP 5 Underground Infiltration System 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
377.00	**1,815**	0
377.05	1,815	30
377.10	1,815	60
377.15	1,815	90
377.20	1,815	120
377.25	1,815	150
377.30	1,815	180
377.35	1,815	210
377.40	1,815	240
377.45	1,815	269
377.50	1,815	299
377.55	1,815	375
377.60	1,815	451
377.65	1,815	526
377.70	1,815	602
377.75	1,815	677
377.80	1,815	751
377.85	1,815	826
377.90	1,815	901
377.95	1,815	976
378.00	1,815	1,050
378.05	1,815	1,125
378.10	1,815	1,199
378.15	1,815	1,272
378.20	1,815	1,345
378.25	1,815	1,417
378.30	1,815	1,489
378.35	1,815	1,561
378.40	1,815	1,633
378.45	1,815	1,705
378.50	1,815	1,777
378.55	1,815	1,848
378.60	1,815	1,919
378.65	1,815	1,991
378.70	1,815	2,061
378.75	1,815	2,131
378.80	1,815	2,201
378.85	1,815	2,269
378.90	1,815	2,337
378.95	1,815	2,404
379.00	1,815	2,470
379.05	1,815	2,536
379.10	1,815	2,600
379.15	1,815	2,664
379.20	1,815	2,727
379.25	1,815	2,789
379.30	1,815	2,850
379.35	1,815	2,910
379.40	1,815	2,968
379.45	1,815	3,025
379.50	1,815	3,081
379.55	1,815	3,136
379.60	1,815	3,188
379.65	1,815	3,239
379.70	1,815	3,287
379.75	1,815	3,333
379.80	1,815	3,376
379.85	1,815	3,416
379.90	1,815	3,453
379.95	1,815	3,487
380.00	1,815	3,519
380.05	1,815	3,549
380.10	1,815	3,579
380.15	1,815	3,609
380.20	1,815	3,639
380.25	1,815	3,669
380.30	1,815	3,699
380.35	1,815	3,729
380.40	1,815	3,758
380.45	1,815	3,788
380.50	1,815	**3,818**



Stage-Area-Storage for Pond GD: Graded Depression

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
375.00	630	0
375.01	639	6
375.02	648	13
375.03	657	19
375.04	665	26
375.05	674	33
375.06	683	39
375.07	692	46
375.08	701	53
375.09	710	60
375.10	718	67
375.11	727	75
375.12	736	82
375.13	745	89
375.14	754	97
375.15	763	104
375.16	771	112
375.17	780	120
375.18	789	128
375.19	798	136
375.20	807	144
375.21	816	152
375.22	824	160
375.23	833	168
375.24	842	177
375.25	851	185
375.26	860	194
375.27	869	202
375.28	878	211
375.29	886	220
375.30	895	229
375.31	904	238
375.32	913	247
375.33	922	256
375.34	931	265
375.35	939	275
375.36	948	284
375.37	957	294
375.38	966	303
375.39	975	313
375.40	984	323
375.41	992	333
375.42	1,001	343
375.43	1,010	353
375.44	1,019	363
375.45	1,028	373
375.46	1,037	383
375.47	1,045	394
375.48	1,054	404
375.49	1,063	415
375.50	1,072	426
375.51	1,081	436
375.52	1,090	447
375.53	1,099	458
375.54	1,107	469
375.55	1,116	480
375.56	1,125	491
375.57	1,134	503
375.58	1,143	514
375.59	1,152	526
375.60	1,160	537
375.61	1,169	549
375.62	1,178	561
375.63	1,187	572
375.64	1,196	584
375.65	1,205	596
375.66	1,213	608
375.67	1,222	621
375.68	1,231	633
375.69	1,240	645
375.70	1,249	658
375.71	1,258	670
375.72	1,266	683
375.73	1,275	695
375.74	1,284	708
375.75	1,293	721
375.76	1,302	734
375.77	1,311	747
375.78	1,320	760
375.79	1,328	774
375.80	1,337	787
375.81	1,346	800
375.82	1,355	814
375.83	1,364	827
375.84	1,373	841
375.85	1,381	855
375.86	1,390	869
375.87	1,399	883
375.88	1,408	897
375.89	1,417	911
375.90	1,426	925
375.91	1,434	939
375.92	1,443	954
375.93	1,452	968
375.94	1,461	983
375.95	1,470	997
375.96	1,479	1,012
375.97	1,487	1,027
375.98	1,496	1,042
375.99	1,505	1,057
376.00	**1,514**	**1,072**

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: PA WSD A11a Runoff Area=1,452 sf 100.00% Impervious Runoff Depth>2.97"
Tc=5.0 min CN=98 Runoff=0.11 cfs 0.008 af

Subcatchment EA: EX WSD A Runoff Area=146,861 sf 4.45% Impervious Runoff Depth>0.41"
Flow Length=445' Tc=10.4 min CN=60 Runoff=0.79 cfs 0.114 af

Subcatchment EB: EX WSD B Runoff Area=64,573 sf 9.55% Impervious Runoff Depth>0.52"
Flow Length=325' Tc=6.3 min CN=63 Runoff=0.64 cfs 0.064 af

Subcatchment PA1: PR WSD A-1 Runoff Area=5,854 sf 100.00% Impervious Runoff Depth>2.97"
Tc=5.0 min CN=98 Runoff=0.43 cfs 0.033 af

Subcatchment PA10: PR WSD A10 Runoff Area=13,309 sf 92.64% Impervious Runoff Depth>2.64"
Tc=5.0 min CN=95 Runoff=0.93 cfs 0.067 af

Subcatchment PA11: PR WSD A11 Runoff Area=1,264 sf 54.11% Impervious Runoff Depth>1.47"
Tc=5.0 min CN=81 Runoff=0.05 cfs 0.004 af

Subcatchment PA12: PR WSD A12 Runoff Area=7,487 sf 95.78% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=96 Runoff=0.53 cfs 0.039 af

Subcatchment PA13: PR WSD A13 Runoff Area=11,400 sf 94.04% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=96 Runoff=0.81 cfs 0.060 af

Subcatchment PA14: PR WSD A14 Runoff Area=31,000 sf 100.00% Impervious Runoff Depth>2.97"
Tc=5.0 min CN=98 Runoff=2.29 cfs 0.176 af

Subcatchment PA2: PA WSD P2 Runoff Area=4,032 sf 97.52% Impervious Runoff Depth>2.85"
Tc=5.0 min CN=97 Runoff=0.29 cfs 0.022 af

Subcatchment PA3: PA WSD A3 Runoff Area=4,412 sf 96.60% Impervious Runoff Depth>2.85"
Tc=5.0 min CN=97 Runoff=0.32 cfs 0.024 af

Subcatchment PA4: PA WSD A4 Runoff Area=18,321 sf 62.89% Impervious Runoff Depth>1.68"
Tc=5.0 min CN=84 Runoff=0.86 cfs 0.059 af

Subcatchment PA5: PA WSD A5 Runoff Area=10,410 sf 84.33% Impervious Runoff Depth>2.35"
Tc=5.0 min CN=92 Runoff=0.67 cfs 0.047 af

Subcatchment PA6: PR WSD A6 Runoff Area=8,087 sf 87.35% Impervious Runoff Depth>2.44"
Tc=5.0 min CN=93 Runoff=0.53 cfs 0.038 af

Subcatchment PA7: PR WSD A7 Runoff Area=24,051 sf 61.11% Impervious Runoff Depth>1.68"
Tc=5.0 min CN=84 Runoff=1.13 cfs 0.077 af

Subcatchment PA8: PR WSD A8 Runoff Area=14,368 sf 100.00% Impervious Runoff Depth>2.97"
Tc=5.0 min CN=98 Runoff=1.06 cfs 0.082 af

Subcatchment PA9: PR WSD A9 Runoff Area=19,128 sf 1.18% Impervious Runoff Depth>0.37"
Tc=5.0 min CN=59 Runoff=0.10 cfs 0.014 af

Subcatchment PA9a: PR WSD A9a Runoff Area=16,688 sf 7.79% Impervious Runoff Depth>0.48"
Flow Length=215' Slope=0.0880 '/' Tc=6.4 min CN=62 Runoff=0.14 cfs 0.015 af

Subcatchment PB1: PR WSD B1 Runoff Area=20,171 sf 26.41% Impervious Runoff Depth>0.88"
Tc=5.0 min CN=71 Runoff=0.45 cfs 0.034 af

Reach PA: PR WSD A Inflow=0.59 cfs 0.325 af
Outflow=0.59 cfs 0.325 af

Pond 1: BMP1 Underground Infiltration - Peak Elev=383.55' Storage=3,307 cf Inflow=2.29 cfs 0.176 af
Discarded=0.15 cfs 0.170 af Primary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.170 af

Pond 2: BMP 2 Detention Pipe - System 1 Peak Elev=376.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 3: BMP 3 WQ - System Peak Elev=376.49' Storage=9,471 cf Inflow=1.84 cfs 0.367 af
Outflow=0.23 cfs 0.242 af

Pond 4: BMP 4 Underground Detention Peak Elev=377.08' Storage=2,640 cf Inflow=3.06 cfs 0.069 af
Outflow=0.32 cfs 0.069 af

Pond 5: BMP 5 Underground Infiltration Peak Elev=380.20' Storage=3,642 cf Inflow=3.11 cfs 0.230 af
Discarded=0.09 cfs 0.094 af Primary=1.74 cfs 0.106 af Outflow=1.83 cfs 0.200 af

Pond CB1: RIM=383.9 Peak Elev=380.24' Inflow=2.18 cfs 0.163 af
24.0" Round Culvert n=0.013 L=194.0' S=0.0000 '/' Outflow=2.18 cfs 0.163 af

Pond CB10: Rim=381.0 Peak Elev=379.15' Inflow=1.13 cfs 0.077 af
12.0" Round Culvert n=0.013 L=58.0' S=0.0086 '/' Outflow=1.13 cfs 0.077 af

Pond CB11: Rim= 382.35 Peak Elev=380.24' Inflow=1.65 cfs 0.123 af
24.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=1.65 cfs 0.123 af

Pond CB11a: Rim=382.35 Peak Elev=380.24' Inflow=0.11 cfs 0.008 af
12.0" Round Culvert n=0.013 L=18.0' S=0.0222 '/' Outflow=0.11 cfs 0.008 af

Pond CB12: RIM=382.35 Peak Elev=380.25' Inflow=0.29 cfs 0.022 af
18.0" Round Culvert n=0.013 L=72.0' S=0.0028 '/' Outflow=0.29 cfs 0.022 af

Pond CB2: RIM=382.35 Peak Elev=380.25' Inflow=1.11 cfs 0.082 af
18.0" Round Culvert n=0.013 L=34.0' S=0.0059 '/' Outflow=1.11 cfs 0.082 af

Pond CB3: RIM=383.40 Peak Elev=379.06' Inflow=2.43 cfs 0.171 af
24.0" Round Culvert n=0.013 L=58.0' S=0.0000 '/' Outflow=2.43 cfs 0.171 af

Pond CB4: RIM=383.40 Peak Elev=379.08' Inflow=1.90 cfs 0.133 af
24.0" Round Culvert n=0.013 L=80.0' S=0.0000 '/' Outflow=1.90 cfs 0.133 af

Pond CB5: RIM=383.15 Peak Elev=379.08' Inflow=1.23 cfs 0.087 af
24.0" Round Culvert n=0.013 L=98.0' S=0.0000 '/' Outflow=1.23 cfs 0.087 af

Pond CB6: RIM=383.35 Peak Elev=379.09' Inflow=0.37 cfs 0.028 af
18.0" Round Culvert n=0.013 L=22.0' S=0.0000 '/' Outflow=0.37 cfs 0.028 af

Pond CB7: RIM=383.25 Peak Elev=380.04' Inflow=0.32 cfs 0.024 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.32 cfs 0.024 af

Pond CB8: RIM=383 Peak Elev=379.11' Inflow=2.37 cfs 0.188 af
30.0" Round Culvert n=0.013 L=132.0' S=0.0076 '/' Outflow=2.37 cfs 0.188 af

Pond CB9: RIM=383.25 Peak Elev=380.23' Inflow=3.11 cfs 0.230 af
24.0" Round Culvert n=0.013 L=112.0' S=0.0018 '/' Outflow=3.11 cfs 0.230 af

Pond GD: Graded Depression Peak Elev=375.41' Storage=335 cf Inflow=0.14 cfs 0.015 af
Discarded=0.01 cfs 0.010 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.010 af

Pond MH1: MH1 Peak Elev=379.04' Inflow=3.95 cfs 0.359 af
30.0" Round Culvert n=0.013 L=28.0' S=0.0000 '/' Outflow=3.95 cfs 0.359 af

Pond MH2: Diversion Structure Peak Elev=379.01' Inflow=4.90 cfs 0.436 af
Primary=1.84 cfs 0.367 af Secondary=3.06 cfs 0.069 af Outflow=4.90 cfs 0.436 af

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: PA WSD A11a Runoff Area=1,452 sf 100.00% Impervious Runoff Depth>4.56"
Tc=5.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment EA: EX WSD A Runoff Area=146,861 sf 4.45% Impervious Runoff Depth>1.18"
Flow Length=445' Tc=10.4 min CN=60 Runoff=3.53 cfs 0.332 af

Subcatchment EB: EX WSD B Runoff Area=64,573 sf 9.55% Impervious Runoff Depth>1.38"
Flow Length=325' Tc=6.3 min CN=63 Runoff=2.19 cfs 0.171 af

Subcatchment PA1: PR WSD A-1 Runoff Area=5,854 sf 100.00% Impervious Runoff Depth>4.56"
Tc=5.0 min CN=98 Runoff=0.65 cfs 0.051 af

Subcatchment PA10: PR WSD A10 Runoff Area=13,309 sf 92.64% Impervious Runoff Depth>4.22"
Tc=5.0 min CN=95 Runoff=1.44 cfs 0.107 af

Subcatchment PA11: PR WSD A11 Runoff Area=1,264 sf 54.11% Impervious Runoff Depth>2.81"
Tc=5.0 min CN=81 Runoff=0.10 cfs 0.007 af

Subcatchment PA12: PR WSD A12 Runoff Area=7,487 sf 95.78% Impervious Runoff Depth>4.33"
Tc=5.0 min CN=96 Runoff=0.82 cfs 0.062 af

Subcatchment PA13: PR WSD A13 Runoff Area=11,400 sf 94.04% Impervious Runoff Depth>4.33"
Tc=5.0 min CN=96 Runoff=1.25 cfs 0.094 af

Subcatchment PA14: PR WSD A14 Runoff Area=31,000 sf 100.00% Impervious Runoff Depth>4.56"
Tc=5.0 min CN=98 Runoff=3.46 cfs 0.270 af

Subcatchment PA2: PA WSD P2 Runoff Area=4,032 sf 97.52% Impervious Runoff Depth>4.44"
Tc=5.0 min CN=97 Runoff=0.45 cfs 0.034 af

Subcatchment PA3: PA WSD A3 Runoff Area=4,412 sf 96.60% Impervious Runoff Depth>4.44"
Tc=5.0 min CN=97 Runoff=0.49 cfs 0.038 af

Subcatchment PA4: PA WSD A4 Runoff Area=18,321 sf 62.89% Impervious Runoff Depth>3.09"
Tc=5.0 min CN=84 Runoff=1.57 cfs 0.108 af

Subcatchment PA5: PA WSD A5 Runoff Area=10,410 sf 84.33% Impervious Runoff Depth>3.89"
Tc=5.0 min CN=92 Runoff=1.08 cfs 0.077 af

Subcatchment PA6: PR WSD A6 Runoff Area=8,087 sf 87.35% Impervious Runoff Depth>4.00"
Tc=5.0 min CN=93 Runoff=0.85 cfs 0.062 af

Subcatchment PA7: PR WSD A7 Runoff Area=24,051 sf 61.11% Impervious Runoff Depth>3.09"
Tc=5.0 min CN=84 Runoff=2.06 cfs 0.142 af

Subcatchment PA8: PR WSD A8 Runoff Area=14,368 sf 100.00% Impervious Runoff Depth>4.56"
Tc=5.0 min CN=98 Runoff=1.60 cfs 0.125 af

Subcatchment PA9: PR WSD A9 Runoff Area=19,128 sf 1.18% Impervious Runoff Depth>1.12"
Tc=5.0 min CN=59 Runoff=0.52 cfs 0.041 af

Subcatchment PA9a: PR WSD A9a Runoff Area=16,688 sf 7.79% Impervious Runoff Depth>1.31"
Flow Length=215' Slope=0.0880 '/' Tc=6.4 min CN=62 Runoff=0.53 cfs 0.042 af

Subcatchment PB1: PR WSD B1 Runoff Area=20,171 sf 26.41% Impervious Runoff Depth>1.96"
Tc=5.0 min CN=71 Runoff=1.09 cfs 0.076 af

Reach PA: PR WSD A Inflow=2.60 cfs 0.666 af
Outflow=2.60 cfs 0.666 af

Pond 1: BMP1 Underground Infiltration - Peak Elev=383.96' Storage=3,877 cf Inflow=3.46 cfs 0.270 af
Discarded=0.16 cfs 0.194 af Primary=1.65 cfs 0.053 af Outflow=1.81 cfs 0.247 af

Pond 2: BMP 2 Detention Pipe - System 1 Peak Elev=377.50' Storage=1,341 cf Inflow=1.65 cfs 0.053 af
Outflow=0.28 cfs 0.053 af

Pond 3: BMP 3 WQ - System Peak Elev=377.42' Storage=13,743 cf Inflow=2.05 cfs 0.551 af
Outflow=0.43 cfs 0.327 af

Pond 4: BMP 4 Underground Detention Peak Elev=377.62' Storage=7,523 cf Inflow=10.29 cfs 0.227 af
Outflow=1.68 cfs 0.227 af

Pond 5: BMP 5 Underground Infiltration Peak Elev=380.44' Storage=3,782 cf Inflow=4.78 cfs 0.362 af
Discarded=0.09 cfs 0.106 af Primary=4.63 cfs 0.219 af Outflow=4.72 cfs 0.324 af

Pond CB1: RIM=383.9 Peak Elev=380.67' Inflow=3.33 cfs 0.255 af
24.0" Round Culvert n=0.013 L=194.0' S=0.0000 '/' Outflow=3.33 cfs 0.255 af

Pond CB10: Rim=381.0 Peak Elev=379.96' Inflow=2.06 cfs 0.142 af
12.0" Round Culvert n=0.013 L=58.0' S=0.0086 '/' Outflow=2.06 cfs 0.142 af

Pond CB11: Rim= 382.35 Peak Elev=380.70' Inflow=2.51 cfs 0.192 af
24.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=2.51 cfs 0.192 af

Pond CB11a: Rim=382.35 Peak Elev=380.70' Inflow=0.16 cfs 0.013 af
12.0" Round Culvert n=0.013 L=18.0' S=0.0222 '/' Outflow=0.16 cfs 0.013 af

Pond CB12: RIM=382.35 Peak Elev=380.76' Inflow=0.45 cfs 0.034 af
18.0" Round Culvert n=0.013 L=72.0' S=0.0028 '/' Outflow=0.45 cfs 0.034 af

Pond CB2: RIM=382.35 Peak Elev=380.76' Inflow=1.70 cfs 0.129 af
18.0" Round Culvert n=0.013 L=34.0' S=0.0059 '/' Outflow=1.70 cfs 0.129 af

Pond CB3: RIM=383.40 Peak Elev=379.74' Inflow=4.08 cfs 0.292 af
24.0" Round Culvert n=0.013 L=58.0' S=0.0000 '/' Outflow=4.08 cfs 0.292 af

Pond CB4: RIM=383.40 Peak Elev=379.78' Inflow=3.23 cfs 0.230 af
24.0" Round Culvert n=0.013 L=80.0' S=0.0000 '/' Outflow=3.23 cfs 0.230 af

Pond CB5: RIM=383.15 Peak Elev=379.80' Inflow=2.16 cfs 0.152 af
24.0" Round Culvert n=0.013 L=98.0' S=0.0000 '/' Outflow=2.16 cfs 0.152 af

Pond CB6: RIM=383.35 Peak Elev=379.81' Inflow=0.59 cfs 0.044 af
18.0" Round Culvert n=0.013 L=22.0' S=0.0000 '/' Outflow=0.59 cfs 0.044 af

Pond CB7: RIM=383.25 Peak Elev=380.11' Inflow=0.49 cfs 0.038 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.49 cfs 0.038 af

Pond CB8: RIM=383 Peak Elev=379.84' Inflow=6.22 cfs 0.344 af
30.0" Round Culvert n=0.013 L=132.0' S=0.0076 '/' Outflow=6.22 cfs 0.344 af

Pond CB9: RIM=383.25 Peak Elev=380.60' Inflow=4.78 cfs 0.362 af
24.0" Round Culvert n=0.013 L=112.0' S=0.0018 '/' Outflow=4.78 cfs 0.362 af

Pond GD: Graded Depression Peak Elev=375.57' Storage=506 cf Inflow=0.53 cfs 0.042 af
Discarded=0.02 cfs 0.015 af Primary=0.23 cfs 0.018 af Outflow=0.25 cfs 0.033 af

Pond MH1: MH1 Peak Elev=379.67' Inflow=10.29 cfs 0.636 af
30.0" Round Culvert n=0.013 L=28.0' S=0.0000 '/' Outflow=10.29 cfs 0.636 af

Pond MH2: Diversion Structure Peak Elev=379.48' Inflow=12.35 cfs 0.778 af
Primary=2.05 cfs 0.551 af Secondary=10.29 cfs 0.227 af Outflow=12.35 cfs 0.778 af

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: PA WSD A11a Runoff Area=1,452 sf 100.00% Impervious Runoff Depth>5.76"
Tc=5.0 min CN=98 Runoff=0.20 cfs 0.016 af

Subcatchment EA: EX WSD A Runoff Area=146,861 sf 4.45% Impervious Runoff Depth>1.92"
Flow Length=445' Tc=10.4 min CN=60 Runoff=6.16 cfs 0.538 af

Subcatchment EB: EX WSD B Runoff Area=64,573 sf 9.55% Impervious Runoff Depth>2.17"
Flow Length=325' Tc=6.3 min CN=63 Runoff=3.62 cfs 0.268 af

Subcatchment PA1: PR WSD A-1 Runoff Area=5,854 sf 100.00% Impervious Runoff Depth>5.76"
Tc=5.0 min CN=98 Runoff=0.82 cfs 0.064 af

Subcatchment PA10: PR WSD A10 Runoff Area=13,309 sf 92.64% Impervious Runoff Depth>5.41"
Tc=5.0 min CN=95 Runoff=1.82 cfs 0.138 af

Subcatchment PA11: PR WSD A11 Runoff Area=1,264 sf 54.11% Impervious Runoff Depth>3.88"
Tc=5.0 min CN=81 Runoff=0.14 cfs 0.009 af

Subcatchment PA12: PR WSD A12 Runoff Area=7,487 sf 95.78% Impervious Runoff Depth>5.52"
Tc=5.0 min CN=96 Runoff=1.03 cfs 0.079 af

Subcatchment PA13: PR WSD A13 Runoff Area=11,400 sf 94.04% Impervious Runoff Depth>5.52"
Tc=5.0 min CN=96 Runoff=1.58 cfs 0.120 af

Subcatchment PA14: PR WSD A14 Runoff Area=31,000 sf 100.00% Impervious Runoff Depth>5.76"
Tc=5.0 min CN=98 Runoff=4.33 cfs 0.341 af

Subcatchment PA2: PA WSD P2 Runoff Area=4,032 sf 97.52% Impervious Runoff Depth>5.64"
Tc=5.0 min CN=97 Runoff=0.56 cfs 0.044 af

Subcatchment PA3: PA WSD A3 Runoff Area=4,412 sf 96.60% Impervious Runoff Depth>5.64"
Tc=5.0 min CN=97 Runoff=0.61 cfs 0.048 af

Subcatchment PA4: PA WSD A4 Runoff Area=18,321 sf 62.89% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=84 Runoff=2.11 cfs 0.147 af

Subcatchment PA5: PA WSD A5 Runoff Area=10,410 sf 84.33% Impervious Runoff Depth>5.07"
Tc=5.0 min CN=92 Runoff=1.38 cfs 0.101 af

Subcatchment PA6: PR WSD A6 Runoff Area=8,087 sf 87.35% Impervious Runoff Depth>5.18"
Tc=5.0 min CN=93 Runoff=1.09 cfs 0.080 af

Subcatchment PA7: PR WSD A7 Runoff Area=24,051 sf 61.11% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=84 Runoff=2.77 cfs 0.193 af

Subcatchment PA8: PR WSD A8 Runoff Area=14,368 sf 100.00% Impervious Runoff Depth>5.76"
Tc=5.0 min CN=98 Runoff=2.01 cfs 0.158 af

Subcatchment PA9: PR WSD A9 Runoff Area=19,128 sf 1.18% Impervious Runoff Depth>1.84"
Tc=5.0 min CN=59 Runoff=0.92 cfs 0.067 af

Subcatchment PA9a: PR WSD A9a Runoff Area=16,688 sf 7.79% Impervious Runoff Depth>2.09"
Flow Length=215' Slope=0.0880 '/' Tc=6.4 min CN=62 Runoff=0.89 cfs 0.067 af

Subcatchment PB1: PR WSD B1 Runoff Area=20,171 sf 26.41% Impervious Runoff Depth>2.90"
Tc=5.0 min CN=71 Runoff=1.63 cfs 0.112 af

Reach PA: PR WSD A Inflow=4.37 cfs 1.006 af
Outflow=4.37 cfs 1.006 af

Pond 1: BMP1 Underground Infiltration - Peak Elev=384.15' Storage=3,985 cf Inflow=4.33 cfs 0.341 af
Discarded=0.17 cfs 0.206 af Primary=4.51 cfs 0.103 af Outflow=4.68 cfs 0.310 af

Pond 2: BMP 2 Detention Pipe - System 1 Peak Elev=378.34' Storage=2,324 cf Inflow=4.51 cfs 0.103 af
Outflow=1.06 cfs 0.103 af

Pond 3: BMP 3 WQ - System Peak Elev=377.95' Storage=15,719 cf Inflow=2.13 cfs 0.693 af
Outflow=0.63 cfs 0.443 af

Pond 4: BMP 4 Underground Detention Peak Elev=378.06' Storage=11,347 cf Inflow=13.72 cfs 0.351 af
Outflow=2.36 cfs 0.351 af

Pond 5: BMP 5 Underground Infiltration Peak Elev=380.53' Storage=3,838 cf Inflow=6.02 cfs 0.461 af
Discarded=0.10 cfs 0.112 af Primary=5.80 cfs 0.308 af Outflow=5.90 cfs 0.420 af

Pond CB1: RIM=383.9 Peak Elev=380.89' Inflow=4.19 cfs 0.324 af
24.0" Round Culvert n=0.013 L=194.0' S=0.0000 '/' Outflow=4.19 cfs 0.324 af

Pond CB10: Rim=381.0 Peak Elev=380.52' Inflow=2.77 cfs 0.193 af
12.0" Round Culvert n=0.013 L=58.0' S=0.0086 '/' Outflow=2.77 cfs 0.193 af

Pond CB11: Rim= 382.35 Peak Elev=380.94' Inflow=3.16 cfs 0.244 af
24.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=3.16 cfs 0.244 af

Pond CB11a: Rim=382.35 Peak Elev=380.94' Inflow=0.20 cfs 0.016 af
12.0" Round Culvert n=0.013 L=18.0' S=0.0222 '/' Outflow=0.20 cfs 0.016 af

Pond CB12: RIM=382.35 Peak Elev=381.04' Inflow=0.56 cfs 0.044 af
18.0" Round Culvert n=0.013 L=72.0' S=0.0028 '/' Outflow=0.56 cfs 0.044 af

Pond CB2: RIM=382.35 Peak Elev=381.03' Inflow=2.14 cfs 0.164 af
18.0" Round Culvert n=0.013 L=34.0' S=0.0059 '/' Outflow=2.14 cfs 0.164 af

Pond CB3: RIM=383.40 Peak Elev=380.08' Inflow=5.33 cfs 0.385 af
24.0" Round Culvert n=0.013 L=58.0' S=0.0000 '/' Outflow=5.33 cfs 0.385 af

Pond CB4: RIM=383.40 Peak Elev=380.16' Inflow=4.24 cfs 0.305 af
24.0" Round Culvert n=0.013 L=80.0' S=0.0000 '/' Outflow=4.24 cfs 0.305 af

Pond CB5: RIM=383.15 Peak Elev=380.19' Inflow=2.86 cfs 0.204 af
24.0" Round Culvert n=0.013 L=98.0' S=0.0000 '/' Outflow=2.86 cfs 0.204 af

Pond CB6: RIM=383.35 Peak Elev=380.20' Inflow=0.75 cfs 0.057 af
18.0" Round Culvert n=0.013 L=22.0' S=0.0000 '/' Outflow=0.75 cfs 0.057 af

Pond CB7: RIM=383.25 Peak Elev=380.32' Inflow=0.61 cfs 0.048 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.61 cfs 0.048 af

Pond CB8: RIM=383 Peak Elev=380.15' Inflow=7.78 cfs 0.467 af
30.0" Round Culvert n=0.013 L=132.0' S=0.0076 '/' Outflow=7.78 cfs 0.467 af

Pond CB9: RIM=383.25 Peak Elev=380.78' Inflow=6.02 cfs 0.461 af
24.0" Round Culvert n=0.013 L=112.0' S=0.0018 '/' Outflow=6.02 cfs 0.461 af

Pond GD: Graded Depression Peak Elev=375.65' Storage=592 cf Inflow=0.89 cfs 0.067 af
Discarded=0.02 cfs 0.016 af Primary=0.66 cfs 0.041 af Outflow=0.68 cfs 0.057 af

Pond MH1: MH1 Peak Elev=379.96' Inflow=13.08 cfs 0.852 af
30.0" Round Culvert n=0.013 L=28.0' S=0.0000 '/' Outflow=13.08 cfs 0.852 af

Pond MH2: Diversion Structure Peak Elev=379.65' Inflow=15.85 cfs 1.045 af
Primary=2.13 cfs 0.693 af Secondary=13.72 cfs 0.351 af Outflow=15.85 cfs 1.045 af

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: PA WSD A11a Runoff Area=1,452 sf 100.00% Impervious Runoff Depth>6.76"
Tc=5.0 min CN=98 Runoff=0.24 cfs 0.019 af

Subcatchment EA: EX WSD A Runoff Area=146,861 sf 4.45% Impervious Runoff Depth>2.60"
Flow Length=445' Tc=10.4 min CN=60 Runoff=8.58 cfs 0.730 af

Subcatchment EB: EX WSD B Runoff Area=64,573 sf 9.55% Impervious Runoff Depth>2.90"
Flow Length=325' Tc=6.3 min CN=63 Runoff=4.91 cfs 0.358 af

Subcatchment PA1: PR WSD A-1 Runoff Area=5,854 sf 100.00% Impervious Runoff Depth>6.76"
Tc=5.0 min CN=98 Runoff=0.96 cfs 0.076 af

Subcatchment PA10: PR WSD A10 Runoff Area=13,309 sf 92.64% Impervious Runoff Depth>6.40"
Tc=5.0 min CN=95 Runoff=2.14 cfs 0.163 af

Subcatchment PA11: PR WSD A11 Runoff Area=1,264 sf 54.11% Impervious Runoff Depth>4.80"
Tc=5.0 min CN=81 Runoff=0.17 cfs 0.012 af

Subcatchment PA12: PR WSD A12 Runoff Area=7,487 sf 95.78% Impervious Runoff Depth>6.52"
Tc=5.0 min CN=96 Runoff=1.21 cfs 0.093 af

Subcatchment PA13: PR WSD A13 Runoff Area=11,400 sf 94.04% Impervious Runoff Depth>6.52"
Tc=5.0 min CN=96 Runoff=1.85 cfs 0.142 af

Subcatchment PA14: PR WSD A14 Runoff Area=31,000 sf 100.00% Impervious Runoff Depth>6.76"
Tc=5.0 min CN=98 Runoff=5.06 cfs 0.401 af

Subcatchment PA2: PA WSD P2 Runoff Area=4,032 sf 97.52% Impervious Runoff Depth>6.64"
Tc=5.0 min CN=97 Runoff=0.66 cfs 0.051 af

Subcatchment PA3: PA WSD A3 Runoff Area=4,412 sf 96.60% Impervious Runoff Depth>6.64"
Tc=5.0 min CN=97 Runoff=0.72 cfs 0.056 af

Subcatchment PA4: PA WSD A4 Runoff Area=18,321 sf 62.89% Impervious Runoff Depth>5.14"
Tc=5.0 min CN=84 Runoff=2.57 cfs 0.180 af

Subcatchment PA5: PA WSD A5 Runoff Area=10,410 sf 84.33% Impervious Runoff Depth>6.05"
Tc=5.0 min CN=92 Runoff=1.63 cfs 0.120 af

Subcatchment PA6: PR WSD A6 Runoff Area=8,087 sf 87.35% Impervious Runoff Depth>6.17"
Tc=5.0 min CN=93 Runoff=1.28 cfs 0.095 af

Subcatchment PA7: PR WSD A7 Runoff Area=24,051 sf 61.11% Impervious Runoff Depth>5.14"
Tc=5.0 min CN=84 Runoff=3.37 cfs 0.236 af

Subcatchment PA8: PR WSD A8 Runoff Area=14,368 sf 100.00% Impervious Runoff Depth>6.76"
Tc=5.0 min CN=98 Runoff=2.35 cfs 0.186 af

Subcatchment PA9: PR WSD A9 Runoff Area=19,128 sf 1.18% Impervious Runoff Depth>2.50"
Tc=5.0 min CN=59 Runoff=1.29 cfs 0.092 af

Subcatchment PA9a: PR WSD A9a Runoff Area=16,688 sf 7.79% Impervious Runoff Depth>2.80"
Flow Length=215' Slope=0.0880 '/' Tc=6.4 min CN=62 Runoff=1.22 cfs 0.089 af

Subcatchment PB1: PR WSD B1 Runoff Area=20,171 sf 26.41% Impervious Runoff Depth>3.72"
Tc=5.0 min CN=71 Runoff=2.10 cfs 0.144 af

Reach PA: PR WSD A Inflow=6.37 cfs 1.308 af
Outflow=6.37 cfs 1.308 af

Pond 1: BMP1 Underground Infiltration - Peak Elev=384.18' Storage=3,985 cf Inflow=5.06 cfs 0.401 af
Discarded=0.17 cfs 0.215 af Primary=4.90 cfs 0.148 af Outflow=5.07 cfs 0.363 af

Pond 2: BMP 2 Detention Pipe - System 1 Peak Elev=378.58' Storage=2,585 cf Inflow=4.90 cfs 0.148 af
Outflow=2.04 cfs 0.148 af

Pond 3: BMP 3 WQ - System Peak Elev=378.28' Storage=16,554 cf Inflow=2.19 cfs 0.786 af
Outflow=0.71 cfs 0.521 af

Pond 4: BMP 4 Underground Detention Peak Elev=378.46' Storage=14,658 cf Inflow=17.12 cfs 0.485 af
Outflow=2.83 cfs 0.485 af

Pond 5: BMP 5 Underground Infiltration Peak Elev=380.70' Storage=3,843 cf Inflow=7.05 cfs 0.544 af
Discarded=0.10 cfs 0.117 af Primary=7.24 cfs 0.386 af Outflow=7.34 cfs 0.502 af

Pond CB1: RIM=383.9 Peak Elev=381.21' Inflow=4.91 cfs 0.381 af
24.0" Round Culvert n=0.013 L=194.0' S=0.0000 '/' Outflow=4.91 cfs 0.381 af

Pond CB10: Rim=381.0 Peak Elev=381.09' Inflow=3.37 cfs 0.236 af
12.0" Round Culvert n=0.013 L=58.0' S=0.0086 '/' Outflow=3.37 cfs 0.236 af

Pond CB11: Rim= 382.35 Peak Elev=381.26' Inflow=3.69 cfs 0.288 af
24.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=3.69 cfs 0.288 af

Pond CB11a: Rim=382.35 Peak Elev=381.27' Inflow=0.24 cfs 0.019 af
12.0" Round Culvert n=0.013 L=18.0' S=0.0222 '/' Outflow=0.24 cfs 0.019 af

Pond CB12: RIM=382.35 Peak Elev=381.40' Inflow=0.66 cfs 0.051 af
18.0" Round Culvert n=0.013 L=72.0' S=0.0028 '/' Outflow=0.66 cfs 0.051 af

Pond CB2: RIM=382.35 Peak Elev=381.40' Inflow=2.50 cfs 0.193 af
18.0" Round Culvert n=0.013 L=34.0' S=0.0059 '/' Outflow=2.50 cfs 0.193 af

Pond CB3: RIM=383.40 Peak Elev=380.42' Inflow=6.36 cfs 0.464 af
24.0" Round Culvert n=0.013 L=58.0' S=0.0000 '/' Outflow=6.36 cfs 0.464 af

Pond CB4: RIM=383.40 Peak Elev=380.56' Inflow=5.08 cfs 0.368 af
24.0" Round Culvert n=0.013 L=80.0' S=0.0000 '/' Outflow=5.08 cfs 0.368 af

Pond CB5: RIM=383.15 Peak Elev=380.58' Inflow=3.45 cfs 0.248 af
24.0" Round Culvert n=0.013 L=98.0' S=0.0000 '/' Outflow=3.45 cfs 0.248 af

Pond CB6: RIM=383.35 Peak Elev=380.62' Inflow=0.89 cfs 0.068 af
18.0" Round Culvert n=0.013 L=22.0' S=0.0000 '/' Outflow=0.89 cfs 0.068 af

Pond CB7: RIM=383.25 Peak Elev=380.64' Inflow=0.72 cfs 0.056 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.72 cfs 0.056 af

Pond CB8: RIM=383 Peak Elev=380.50' Inflow=9.59 cfs 0.571 af
30.0" Round Culvert n=0.013 L=132.0' S=0.0076 '/' Outflow=9.59 cfs 0.571 af

Pond CB9: RIM=383.25 Peak Elev=381.04' Inflow=7.05 cfs 0.544 af
24.0" Round Culvert n=0.013 L=112.0' S=0.0018 '/' Outflow=7.05 cfs 0.544 af

Pond GD: Graded Depression Peak Elev=375.70' Storage=658 cf Inflow=1.22 cfs 0.089 af
Discarded=0.03 cfs 0.017 af Primary=1.05 cfs 0.063 af Outflow=1.08 cfs 0.079 af

Pond MH1: MH1 Peak Elev=380.27' Inflow=15.95 cfs 1.035 af
30.0" Round Culvert n=0.013 L=28.0' S=0.0000 '/' Outflow=15.95 cfs 1.035 af

Pond MH2: Diversion Structure Peak Elev=379.82' Inflow=19.31 cfs 1.271 af
Primary=2.19 cfs 0.786 af Secondary=17.12 cfs 0.485 af Outflow=19.31 cfs 1.271 af

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: PA WSD A11a Runoff Area=1,452 sf 100.00% Impervious Runoff Depth>7.96"
Tc=5.0 min CN=98 Runoff=0.28 cfs 0.022 af

Subcatchment EA: EX WSD A Runoff Area=146,861 sf 4.45% Impervious Runoff Depth>3.48"
Flow Length=445' Tc=10.4 min CN=60 Runoff=11.69 cfs 0.977 af

Subcatchment EB: EX WSD B Runoff Area=64,573 sf 9.55% Impervious Runoff Depth>3.82"
Flow Length=325' Tc=6.3 min CN=63 Runoff=6.55 cfs 0.472 af

Subcatchment PA1: PR WSD A-1 Runoff Area=5,854 sf 100.00% Impervious Runoff Depth>7.96"
Tc=5.0 min CN=98 Runoff=1.12 cfs 0.089 af

Subcatchment PA10: PR WSD A10 Runoff Area=13,309 sf 92.64% Impervious Runoff Depth>7.60"
Tc=5.0 min CN=95 Runoff=2.52 cfs 0.193 af

Subcatchment PA11: PR WSD A11 Runoff Area=1,264 sf 54.11% Impervious Runoff Depth>5.93"
Tc=5.0 min CN=81 Runoff=0.20 cfs 0.014 af

Subcatchment PA12: PR WSD A12 Runoff Area=7,487 sf 95.78% Impervious Runoff Depth>7.72"
Tc=5.0 min CN=96 Runoff=1.42 cfs 0.111 af

Subcatchment PA13: PR WSD A13 Runoff Area=11,400 sf 94.04% Impervious Runoff Depth>7.72"
Tc=5.0 min CN=96 Runoff=2.17 cfs 0.168 af

Subcatchment PA14: PR WSD A14 Runoff Area=31,000 sf 100.00% Impervious Runoff Depth>7.96"
Tc=5.0 min CN=98 Runoff=5.94 cfs 0.472 af

Subcatchment PA2: PA WSD P2 Runoff Area=4,032 sf 97.52% Impervious Runoff Depth>7.84"
Tc=5.0 min CN=97 Runoff=0.77 cfs 0.060 af

Subcatchment PA3: PA WSD A3 Runoff Area=4,412 sf 96.60% Impervious Runoff Depth>7.84"
Tc=5.0 min CN=97 Runoff=0.84 cfs 0.066 af

Subcatchment PA4: PA WSD A4 Runoff Area=18,321 sf 62.89% Impervious Runoff Depth>6.28"
Tc=5.0 min CN=84 Runoff=3.11 cfs 0.220 af

Subcatchment PA5: PA WSD A5 Runoff Area=10,410 sf 84.33% Impervious Runoff Depth>7.24"
Tc=5.0 min CN=92 Runoff=1.93 cfs 0.144 af

Subcatchment PA6: PR WSD A6 Runoff Area=8,087 sf 87.35% Impervious Runoff Depth>7.36"
Tc=5.0 min CN=93 Runoff=1.51 cfs 0.114 af

Subcatchment PA7: PR WSD A7 Runoff Area=24,051 sf 61.11% Impervious Runoff Depth>6.28"
Tc=5.0 min CN=84 Runoff=4.08 cfs 0.289 af

Subcatchment PA8: PR WSD A8 Runoff Area=14,368 sf 100.00% Impervious Runoff Depth>7.96"
Tc=5.0 min CN=98 Runoff=2.75 cfs 0.219 af

Subcatchment PA9: PR WSD A9 Runoff Area=19,128 sf 1.18% Impervious Runoff Depth>3.37"
Tc=5.0 min CN=59 Runoff=1.77 cfs 0.123 af

Subcatchment PA9a: PR WSD A9a Runoff Area=16,688 sf 7.79% Impervious Runoff Depth>3.71"
Flow Length=215' Slope=0.0880 '/' Tc=6.4 min CN=62 Runoff=1.63 cfs 0.118 af

Subcatchment PB1: PR WSD B1 Runoff Area=20,171 sf 26.41% Impervious Runoff Depth>4.75"
Tc=5.0 min CN=71 Runoff=2.68 cfs 0.183 af

Reach PA: PR WSD A Inflow=10.16 cfs 1.685 af
Outflow=10.16 cfs 1.685 af

Pond 1: BMP1 Underground Infiltration - Peak Elev=384.24' Storage=3,985 cf Inflow=5.94 cfs 0.472 af
Discarded=0.17 cfs 0.224 af Primary=6.21 cfs 0.203 af Outflow=6.38 cfs 0.427 af

Pond 2: BMP 2 Detention Pipe - System 1 Peak Elev=379.03' Storage=3,008 cf Inflow=6.21 cfs 0.203 af
Outflow=3.28 cfs 0.203 af

Pond 3: BMP 3 WQ - System Peak Elev=378.35' Storage=16,716 cf Inflow=2.26 cfs 0.860 af
Outflow=0.73 cfs 0.582 af

Pond 4: BMP 4 Underground Detention Peak Elev=378.81' Storage=17,338 cf Inflow=20.90 cfs 0.686 af
Outflow=5.61 cfs 0.686 af

Pond 5: BMP 5 Underground Infiltration Peak Elev=381.05' Storage=3,843 cf Inflow=8.28 cfs 0.644 af
Discarded=0.10 cfs 0.121 af Primary=8.74 cfs 0.479 af Outflow=8.84 cfs 0.601 af

Pond CB1: RIM=383.9 Peak Elev=381.73' Inflow=5.76 cfs 0.450 af
24.0" Round Culvert n=0.013 L=194.0' S=0.0000 '/' Outflow=5.76 cfs 0.450 af

Pond CB10: Rim=381.0 Peak Elev=381.86' Inflow=4.08 cfs 0.289 af
12.0" Round Culvert n=0.013 L=58.0' S=0.0086 '/' Outflow=4.08 cfs 0.289 af

Pond CB11: Rim= 382.35 Peak Elev=381.83' Inflow=4.34 cfs 0.340 af
24.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=4.34 cfs 0.340 af

Pond CB11a: Rim=382.35 Peak Elev=381.80' Inflow=0.28 cfs 0.022 af
12.0" Round Culvert n=0.013 L=18.0' S=0.0222 '/' Outflow=0.28 cfs 0.022 af

Pond CB12: RIM=382.35 Peak Elev=382.00' Inflow=0.77 cfs 0.060 af
18.0" Round Culvert n=0.013 L=72.0' S=0.0028 '/' Outflow=0.77 cfs 0.060 af

Pond CB2: RIM=382.35 Peak Elev=381.97' Inflow=2.94 cfs 0.229 af
18.0" Round Culvert n=0.013 L=34.0' S=0.0059 '/' Outflow=2.94 cfs 0.229 af

Pond CB3: RIM=383.40 Peak Elev=380.84' Inflow=7.60 cfs 0.559 af
24.0" Round Culvert n=0.013 L=58.0' S=0.0000 '/' Outflow=7.60 cfs 0.559 af

Pond CB4: RIM=383.40 Peak Elev=381.05' Inflow=6.09 cfs 0.445 af
24.0" Round Culvert n=0.013 L=80.0' S=0.0000 '/' Outflow=6.09 cfs 0.445 af

Pond CB5: RIM=383.15 Peak Elev=381.07' Inflow=4.16 cfs 0.301 af
24.0" Round Culvert n=0.013 L=98.0' S=0.0000 '/' Outflow=4.16 cfs 0.301 af

Pond CB6: RIM=383.35 Peak Elev=381.14' Inflow=1.05 cfs 0.080 af
18.0" Round Culvert n=0.013 L=22.0' S=0.0000 '/' Outflow=1.05 cfs 0.080 af

Pond CB7: RIM=383.25 Peak Elev=381.13' Inflow=0.84 cfs 0.066 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.84 cfs 0.066 af

Pond CB8: RIM=383 Peak Elev=380.96' Inflow=11.49 cfs 0.698 af
30.0" Round Culvert n=0.013 L=132.0' S=0.0076 '/' Outflow=11.49 cfs 0.698 af

Pond CB9: RIM=383.25 Peak Elev=381.54' Inflow=8.28 cfs 0.644 af
24.0" Round Culvert n=0.013 L=112.0' S=0.0018 '/' Outflow=8.28 cfs 0.644 af

Pond GD: Graded Depression Peak Elev=375.75' Storage=719 cf Inflow=1.63 cfs 0.118 af
Discarded=0.03 cfs 0.018 af Primary=1.47 cfs 0.091 af Outflow=1.50 cfs 0.108 af

Pond MH1: MH1 Peak Elev=380.64' Inflow=19.09 cfs 1.257 af
30.0" Round Culvert n=0.013 L=28.0' S=0.0000 '/' Outflow=19.09 cfs 1.257 af

Pond MH2: Diversion Structure Peak Elev=379.99' Inflow=23.17 cfs 1.546 af
Primary=2.26 cfs 0.860 af Secondary=20.90 cfs 0.686 af Outflow=23.17 cfs 1.546 af

SECTION 8: REFERENCE

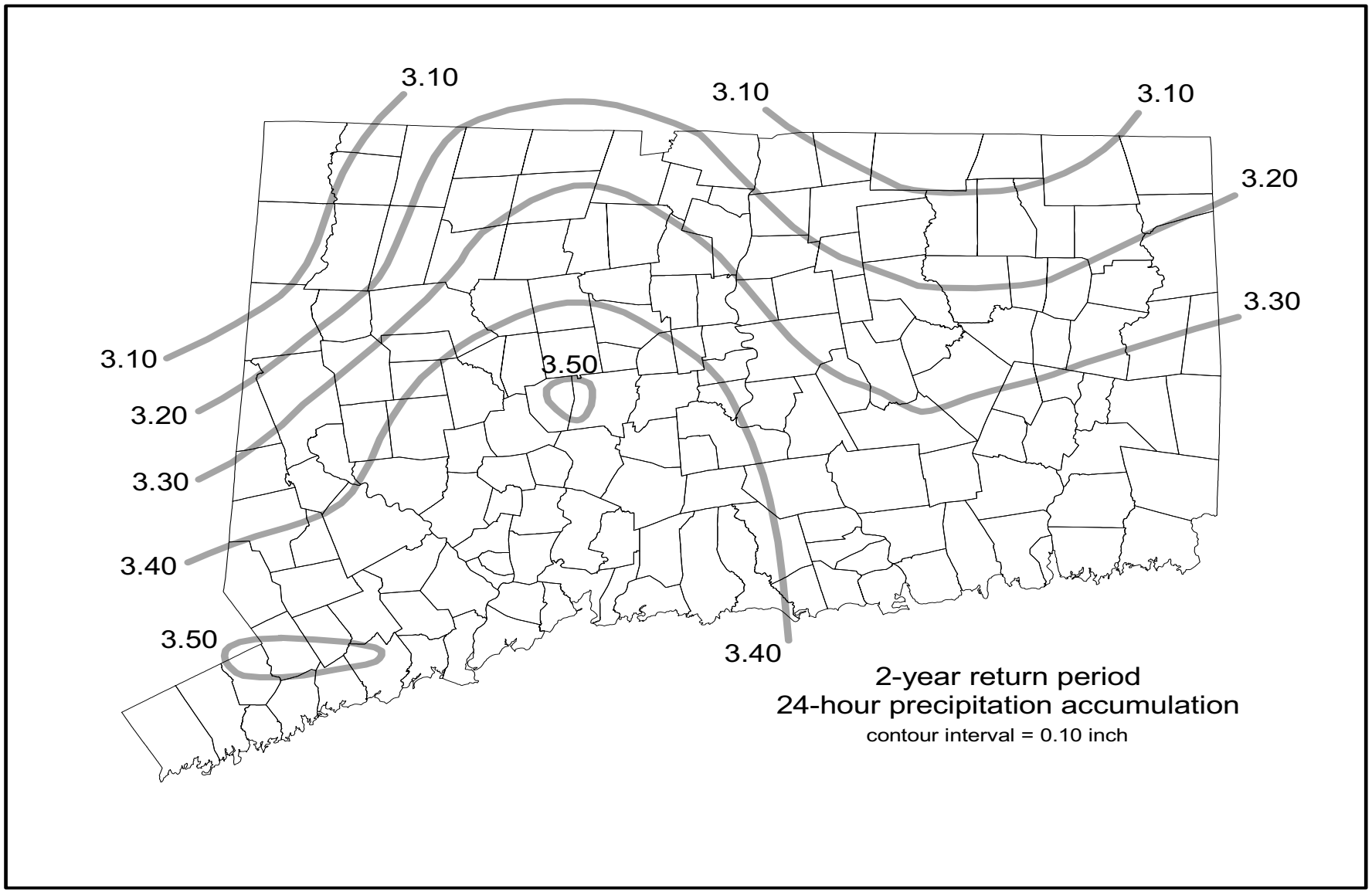


Figure 4s. Contour Map of 2-Year, 24-Hour Precipitation Accumulation in Connecticut.

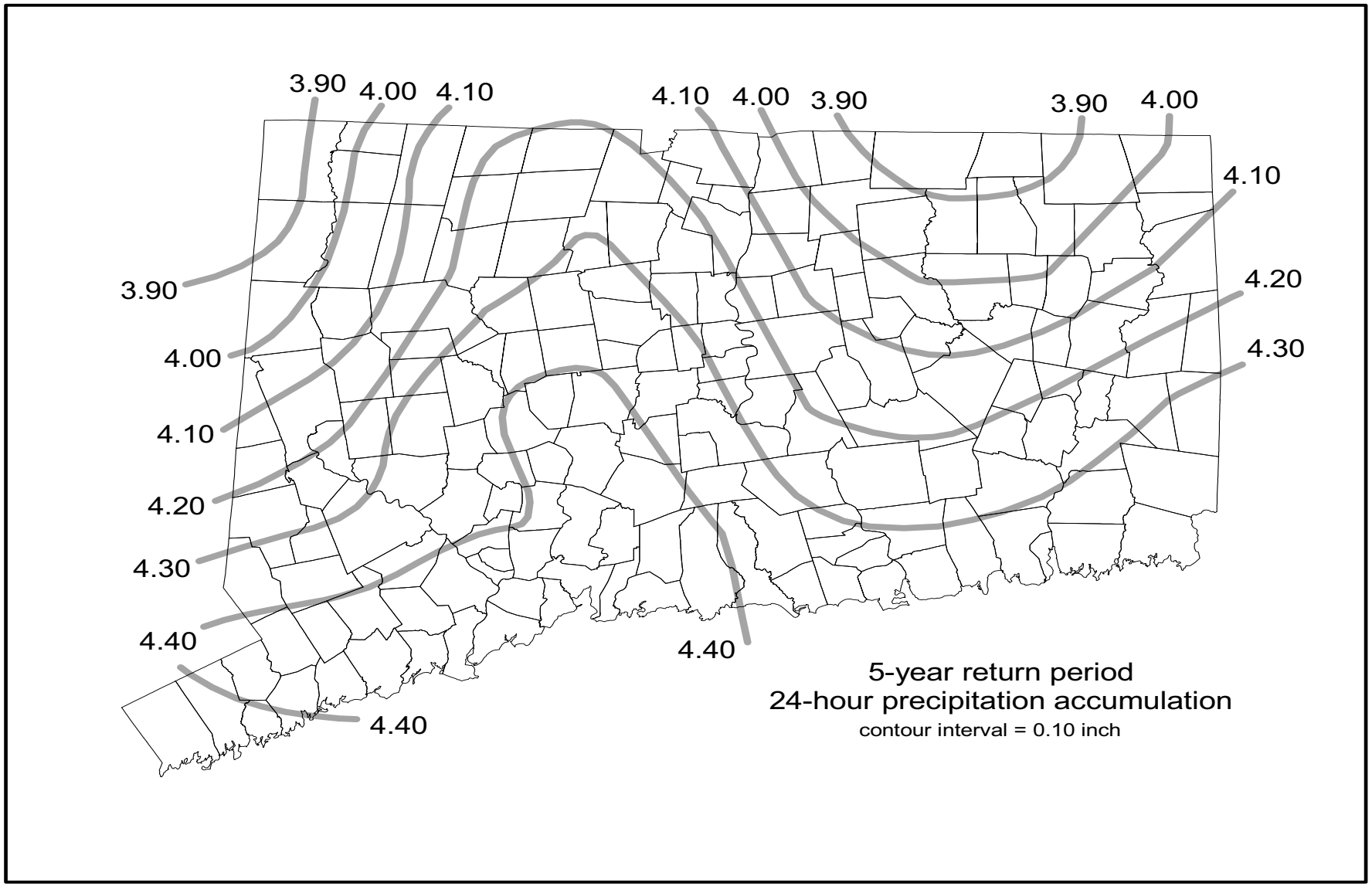


Figure 4t. Contour Map of 5-Year, 24-Hour Precipitation Accumulation in Connecticut.

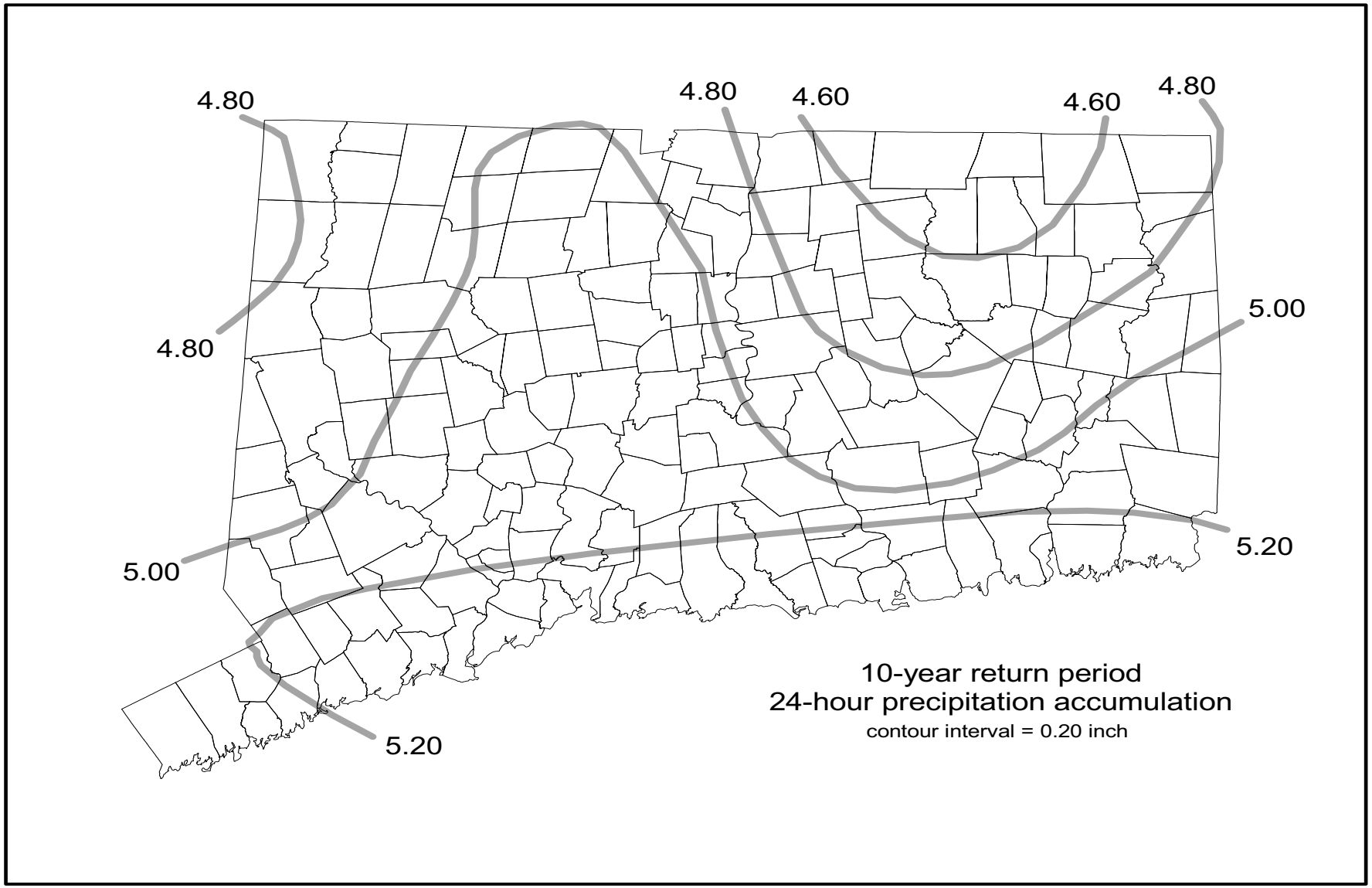


Figure 4u. Contour Map of 10-Year, 24-Hour Precipitation Accumulation in Connecticut.

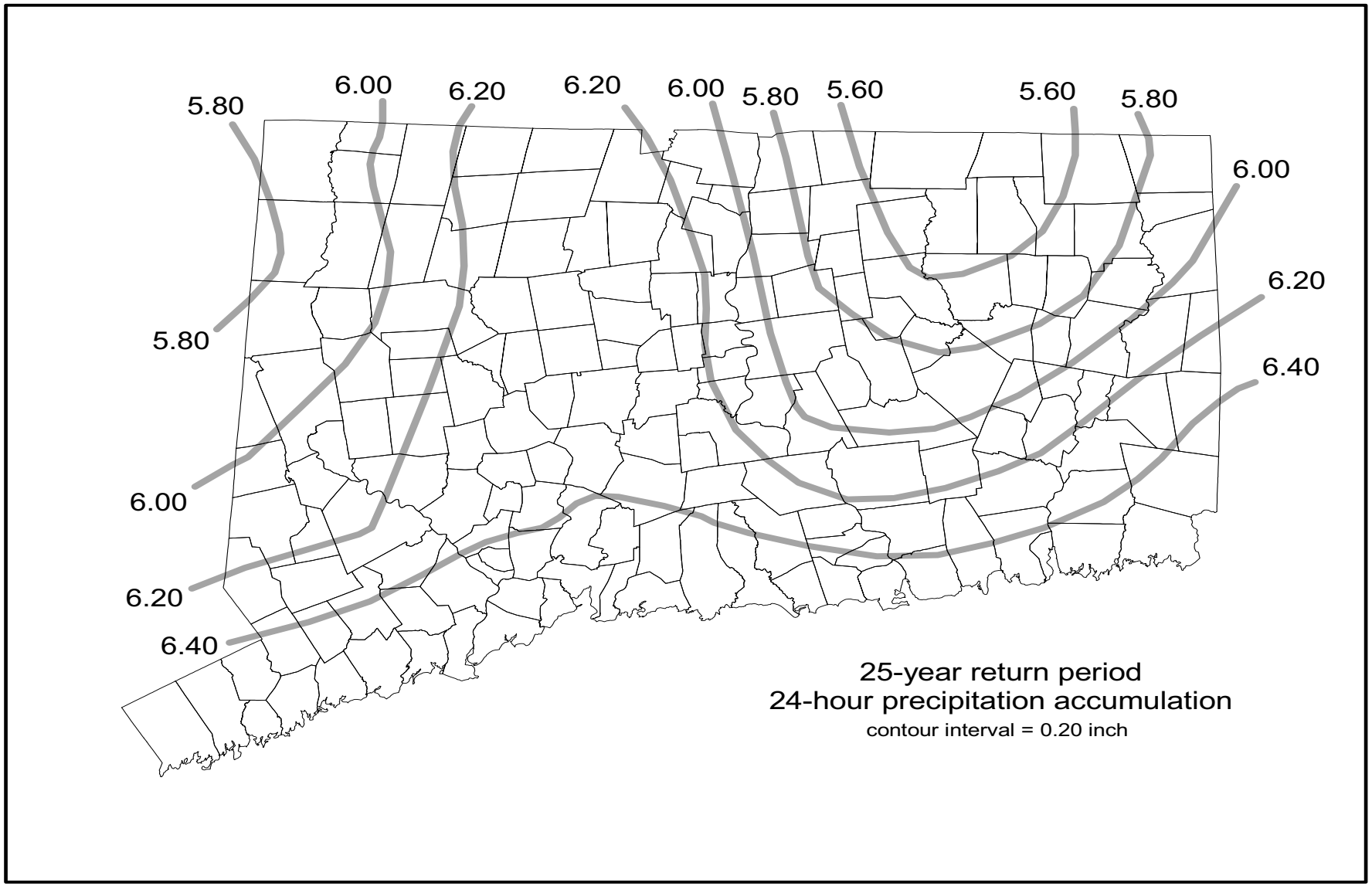


Figure 4v. Contour Map of 25-Year, 24-Hour Precipitation Accumulation in Connecticut.

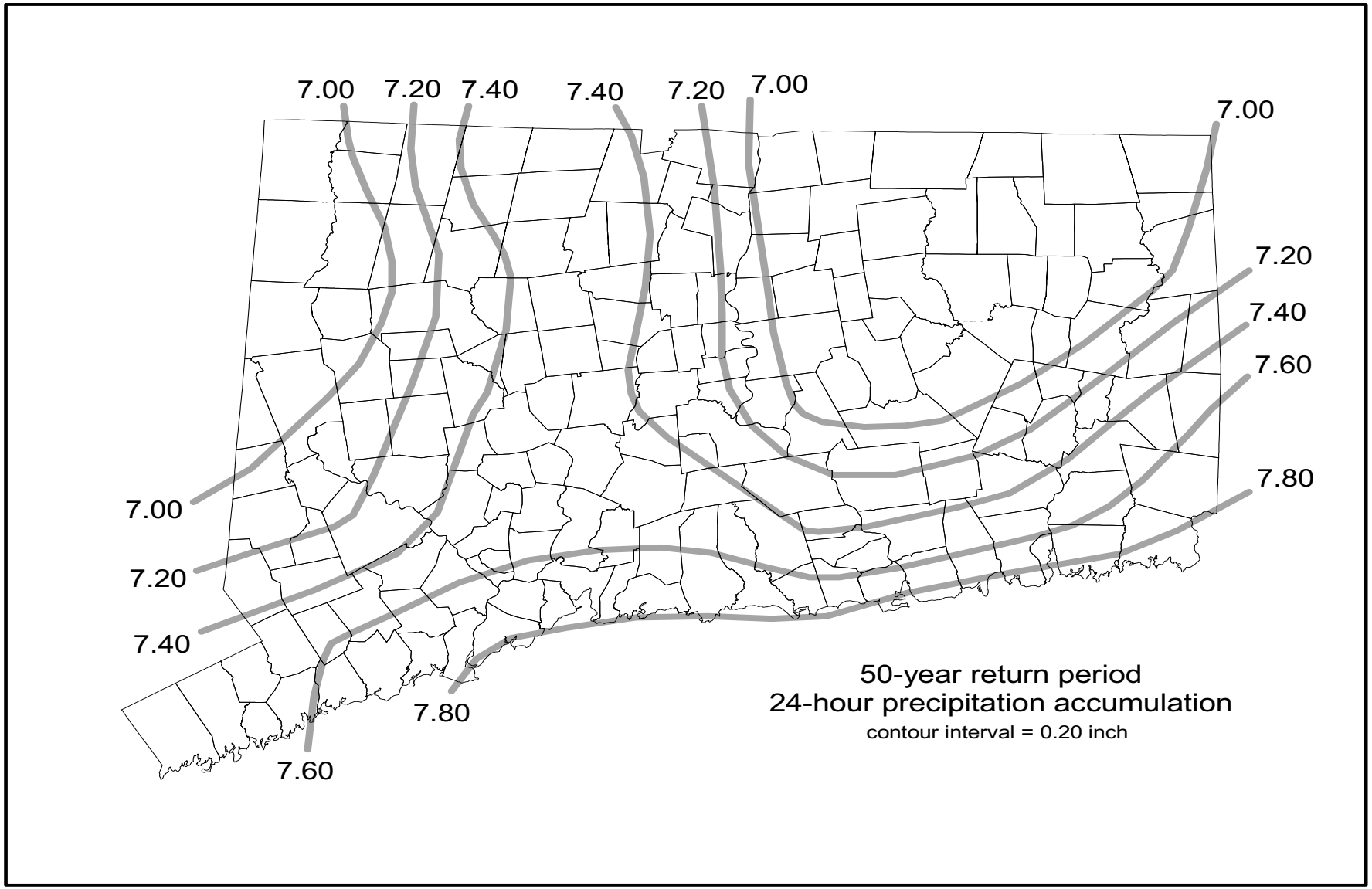


Figure 4w. Contour Map of 50-Year, 24-Hour Precipitation Accumulation in Connecticut.

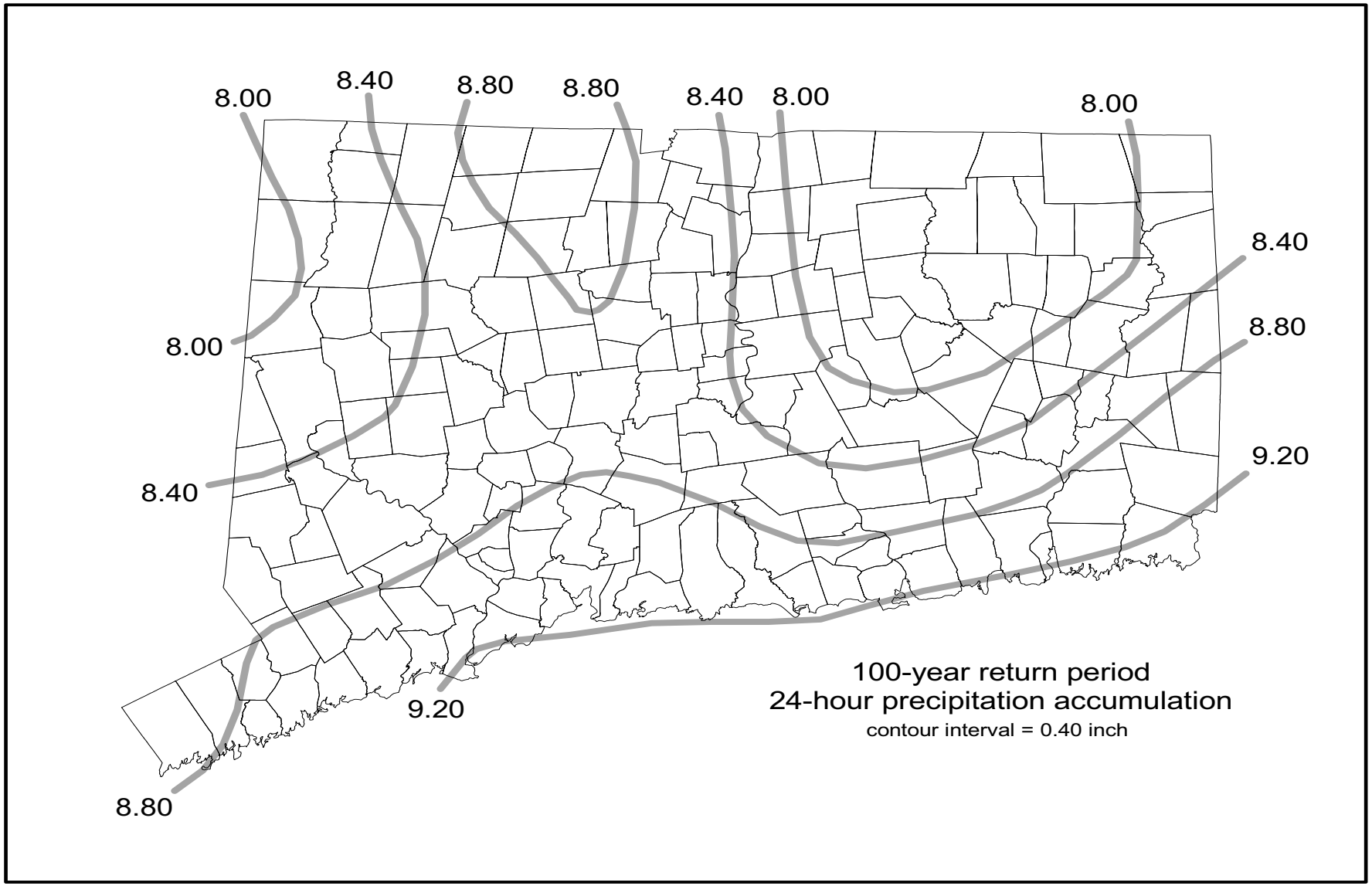
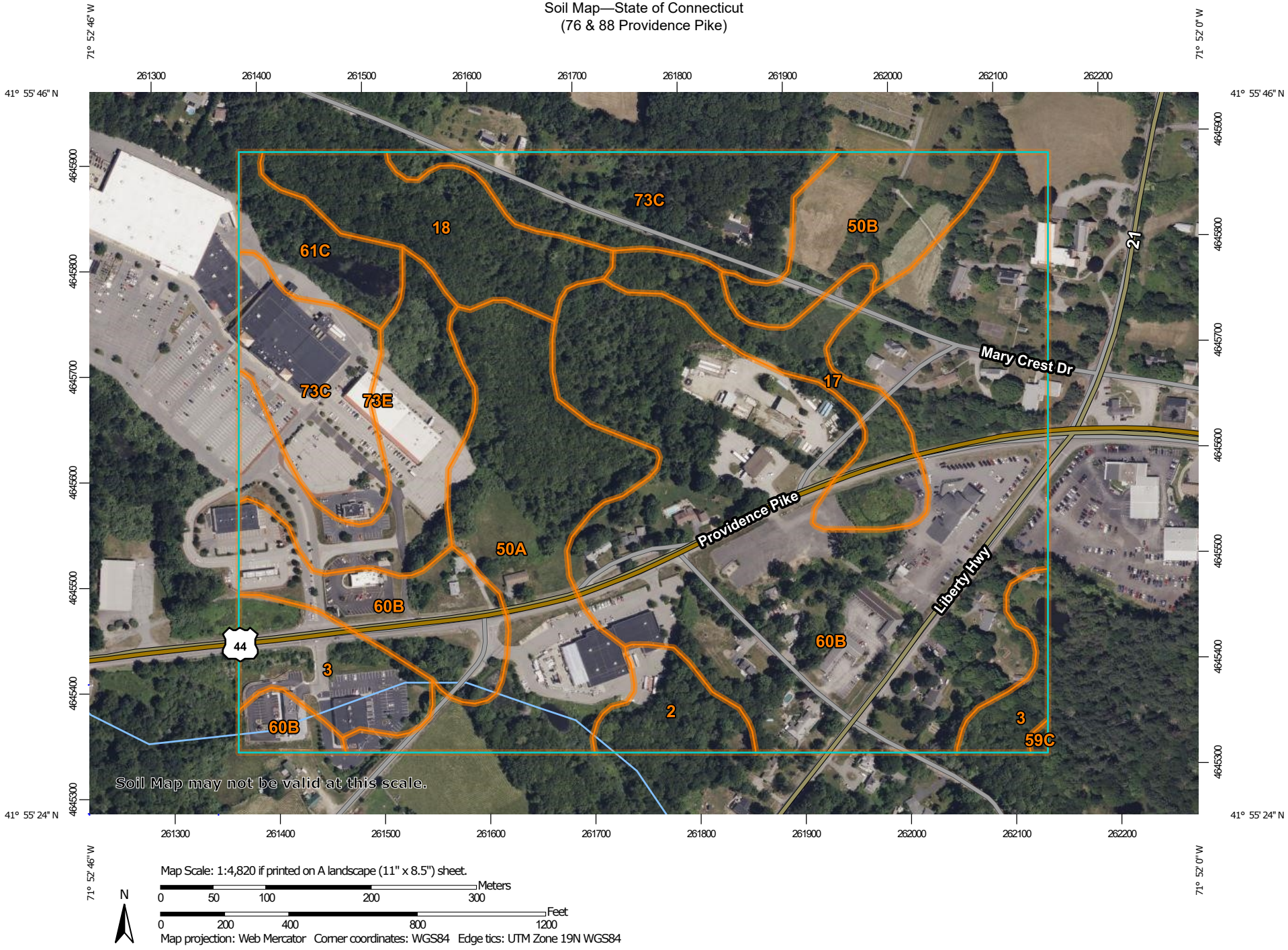


Figure 4x. Contour Map of 100-Year, 24-Hour Precipitation Accumulation in Connecticut.

Soil Map—State of Connecticut
(76 & 88 Providence Pike)



Map Scale: 1:4,820 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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 22, Sep 12, 2022

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

Date(s) aerial images were photographed: Jun 14, 2022—Jul 1, 2022

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
2	Ridgebury fine sandy loam, 0 to 3 percent slopes	2.5	2.3%
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	5.6	5.1%
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	5.3	4.8%
18	Catden and Freetown soils, 0 to 2 percent slopes	6.0	5.6%
50A	Sutton fine sandy loam, 0 to 3 percent slopes	13.0	12.0%
50B	Sutton fine sandy loam, 3 to 8 percent slopes	5.3	4.8%
59C	Gloucester gravelly sandy loam, 3 to 15 percent slopes, extremely stony	0.1	0.1%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	47.4	43.7%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	3.2	2.9%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	13.0	12.0%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	7.2	6.6%
Totals for Area of Interest		**108.6**	**100.0%**

State of Connecticut

60B—Canton and Charlton fine sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w81s
Elevation: 0 to 1,460 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Canton and similar soils: 50 percent
Charlton and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Hills, moraines, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton

Setting

Landform: Ridges, ground moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Sutton

Percent of map unit: 5 percent
Landform: Ridges, hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Ground moraines, drainageways, depressions, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Chatfield

Percent of map unit: 5 percent
Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 22, Sep 12, 2022

State of Connecticut

50A—Sutton fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2xffg
Elevation: 0 to 1,240 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Sutton

Setting

Landform: Ground moraines, ridges, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 5 inches: fine sandy loam
Bw1 - 5 to 17 inches: fine sandy loam
Bw2 - 17 to 25 inches: sandy loam
C1 - 25 to 39 inches: gravelly sandy loam
C2 - 39 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 12 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F144AY008CT - Moist Till Uplands
Hydric soil rating: No

Minor Components

Leicester

Percent of map unit: 5 percent
Landform: Ground moraines, hills, drainageways, depressions
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Charlton

Percent of map unit: 5 percent
Landform: Ground moraines, ridges, hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Canton

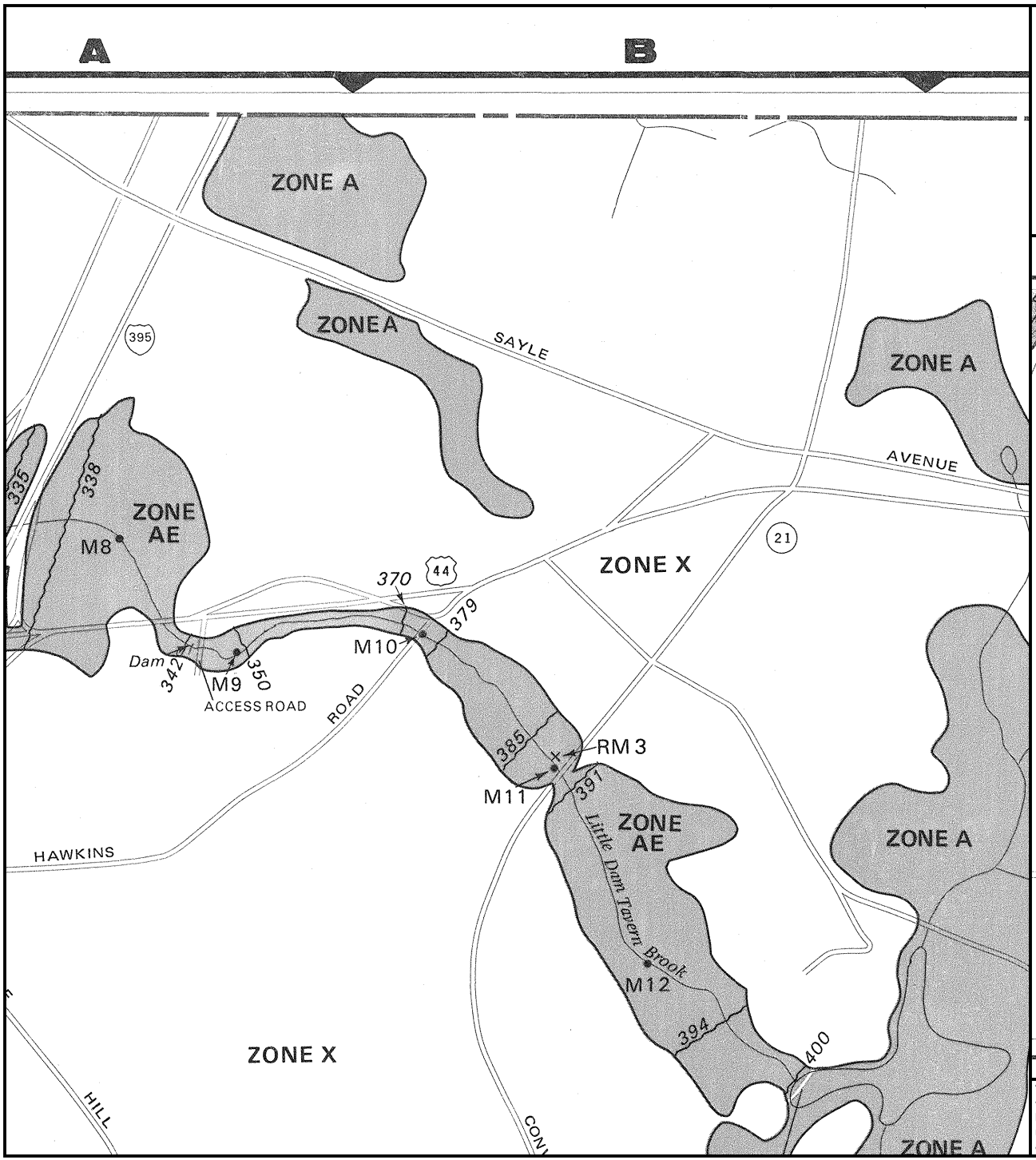
Percent of map unit: 4 percent
Landform: Hills, moraines, ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Whitman

Percent of map unit: 1 percent
Landform: Ground moraines, drumlins, hills, drainageways, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 22, Sep 12, 2022



agent or call the National Flood Insuranc
638-6620.

APPROXIMATE SCALE

800 0

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF
PUTNAM,
CONNECTICUT
WINDHAM COUNTY

PANEL 10 OF 10
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PANEL LOCATION

COMMUNITY-PANEL NUMBER
090194 0010 B

EFFECTIVE DATE:
OCTOBER 18, 1988

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 1 (Hole #) 02/21/23 (Date) 7:45 (Time) wet/damp & cloudy (Weather)

3. Land Use: Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) | Overgrown lawn & field (Vegetation) | NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) | _____ (Slope (%))

4. Soil Parent Material: Ablation Till

5. Unsuitable Materials Present: ☒ Yes ☐ No If Yes: ☐ Disturbed Soil ☒ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

6. Groundwater Observed: ☐ Yes ☒ No If yes: NA Depth Weeping from Pit NA Depth Standing Water in Hole

7. Estimated Surface ELEV = Varies: 384.2 - 385.5 +/- (Design Seasonal High Groundwater Table EL= 377.1)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-8	Ap	sl	10YR 3/3				5	<5	gr	fr	
8-26	HTM	sl	2.5Y 5/3				10	<5	gr	fr	
26-29	Ab	sl	10YR 3/3				5	<5	gr	fr	
29-34	Bw1	sl	10YR 4/6				5	<5	sbk	fr	
34-51	Bw2	sl	10YR 5/6				5	<5	sbk	fr	
51-68	C1	lfs w/pockets of sl	2.5Y 5/3	64-68	7.5YR 4/6 lenses of firm ls	30	5	<5	gr	fi in place	
68-137	C2	lfs w/pockets of sl	2.5Y 5/3	68-137	7.5YR 4/6 7.5YR 4/6	≤ 5	5	<5	gr	fi/fr	Design GWT = 101"

Additional Notes:

1. TP remained dry after 4 hours
2. It is estimated that the redox features in TP1 are present in the sl pockets due to the slow downward movement of surface water through the soil
3. A 36" adjustment factor is used from the bottom of the test pit to the design GWT. Reference for this adjustment factor is based upon the RI Adjustment Factor for Glacial Till (West bay) is 29" (2/24/23)
4. Mapped as Canton and Charlton (NRCS)

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 2 (Hole #) 02/21/23 (Date) 8:15 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) Overgrown lawn & field (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Ablation Till

5. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

6. Groundwater Observed: ☐ Yes ☒ No If yes: NA Depth Weeping from Pit NA Depth Standing Water in Hole

7. Estimated Surface ELEV = Varies: 388.5-389.7 +/- (Design Seasonal High Groundwater Table Elev.= 381.0)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-8	A	sl	10YR 3/3				5	5	gr	fr	
8-15	Bw1	sl	10YR 4/6				5	5	sbk	fr	
15-19	Bw2	sl	10YR 4/6				5	5	sbk	fr	
19-139	C1	lfs w/pockets of sl	2.5Y 6/3	48-134	7.5YR 5/8	<5	5-10	5-10	gr	fi in place	84" large rock (north side)
											Design GWT = 103"

Additional Notes:

1. TP remained dry after 4 hours
2. It is estimated that the redox features in TP2 are present in the sl pockets due to the slow downward movement of surface water through the soil.
3. A 36" adjustment factor is used from the bottom of the test pit to the design GWT. Reference for this adjustment factor is based upon the RI Adjustment Factor for Glacial Till (West bay) is 29" (2/24/23)
4. Mapped as Canton and Charlton (NRCS)

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 3 (Hole #) 02/21/23 (Date) 8:40 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) Overgrown lawn & field (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Ablation Till

5. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

6. Groundwater Observed: ☐ Yes ☒ No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

7. Estimated Surface ELEV = 387.4 +/- (Design Seasonal High Groundwater Table Elev = 379.4)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-4	A	sl	10YR 3/3		___	___			gr	fr	
4-18	Bw1	sl	10YR 4/6		___	___			sbk	fr	
18-41	C1	gcs	2.5Y 5/3	Pockets of vfs heavy redox	7.5YR 5/8	25	35	5	Osg	l	
41-130	2C	lfs w/sl pockets	2.5Y 6/3	58	10YR 4/6	10	5	5	gr	fi in place	Design GWT = 96"

Additional Notes:

1. TP remained dry after 4 hours
2. It is estimated that the redox features in TP3 are present in the sl due to slow downward movement of surface.
3. A 36" adjustment factor is used from the bottom of the test pit to the design GWT. Reference for this adjustment factor is based upon the RI Adjustment Factor for Glacial Till (West bay) is 29" (2-24-23).
4. Mapped on line between Canton and Charlton Soil and Sutton Soil (NRCS)

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 4 (Hole #) 02/21/23 (Date) 9:00 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) Overgrown lawn & field (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Outwash

5. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

6. Groundwater Observed: ☐ Yes ☒ No If yes: NA Depth Weeping from Pit NA Depth Standing Water in Hole

7. Estimated Surface ELEV = 390.4 +/- (Design Seasonal High Groundwater Table Elev = 382.9)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-14	A	sl	10YR 3/3						gr	fr	
14-22	Bw1	sl	10YR 4/6						sbk	fr	
22-26	Bw2	sl	10YR 5/6						sbk	fr	
26-66	C1	glfs some sl	2.5Y 5/3	48	7.5YR 5/8	5	15	___	gr	fi in place	
66-126	C2	glfs some sl	2.5Y 5/3	66-126	7.5YR 5/8	10-15	15	5	gr	fi in place	Design GWT=90"

Additional Notes:

1. TP remained dry after 4 hours.
2. It is estimated that the redox features in the TP4 are present in the sl due to slow downward movement of surface water through soils.
3. A 36" adjustment factor is used from the bottom of the test pit to the design GWT. Reference for this adjustment factor is based upon the RI Adjustment Factor for Glacial Till (West bay) is 29" (2/24/23)
4. Mapped on line between Canton and Charlton Soil and Sutton Soil (NRCS)

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 5 (Hole #) 02/21/23 (Date) 9:10 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) Grass (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Ablation Till

5. Unsuitable Materials Present: ☒ Yes ☐ No If Yes: ☐ Disturbed Soil ☒ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock (Exist Septic) leach field

6. Groundwater Observed: ☐ Yes ☒ No If yes: NA Depth Weeping from Pit NA Depth Standing Water in Hole

7. Estimated Surface ELEV = 385.5 +/- (Seasonal High Groundwater Table not recorded)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-14	Ap	sl	10YR 3/3						gr	fr	
14-31	HTM	sl/ls	2.5Y 5/3						gr	vfr	
31-41	Ab	sl	10YR 3/3						gr	fr	
41-58	Bw1	sl	10YR 4/6						sbk	fr	
58-62	C disturbed w/crushed stone (possible septic leach field)	lfs/sl	NA						___	___	TP excav. stopped due to existing septic leachfield being uncovered

Additional Notes:

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 6 (Hole #) 02/21/23 (Date) 9:30 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) Overgrown lawn & field (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Ablation Till

5. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

6. Groundwater Observed: ☒ Yes ☐ No If yes: ____ Depth Weeping from Pit 92" Depth Standing Water in Hole

7. Estimated Surface ELEV = 383.0 +/- (Design Seasonal High Groundwater Table Elev.=380.7)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-9	A	sl	10YR 3/3						gr	fr	
9-16	Bw1	sl	10YR 4/6						Sbk	fr	
16-28	Bw2	sl	10YR 5/6						Sbk	fr	
28-44	C1	lfs/sl	2.5Y 5/3	28-44	7.5YR 5/6	20	15	10	gr	fi in place	Design GWT=28"
44-120	C2	st lfs/sl	2.5Y 5/3	44-120	7.5YR 4/4	15	25	10	gr	fi/fr	

Additional Notes:
1. Mapped as Sutton Soil (NRCS)

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 7 (Hole #) 02/21/23 (Date) 10:15 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) Overgrown lawn & field (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Ablation Till

5. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

6. Groundwater Observed: ☒ Yes ☐ No If yes: 66" Depth Weeping from Pit 81" Depth Standing Water in Hole (after 3 hours)

7. Estimated Surface ELEV = 379.9 +/- (Design Seasonal High Groundwater Table Elev.=377.6)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-9	A	sl	10YR 3/3						gr	fr	
9-19/23	Bw1	sl	10YR 4/6						sbk	fr	
9/23-28	Bw2	gsl	10YR 5/16						sbk	fr	
28-118	C1	gs and areas of vfs	2.5Y 5/4 areas of 2.5Y 6/2	28	7.5YR 5/8	25	25	5	gr	fi/fr	Design GWT=28"

Additional Notes:
1. Mapped as Sutton Soil (NRCS)

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 8 (Hole #) 02/21/23 (Date) 10:40 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) Overgrown lawn & field (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Ablation Till

5. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

6. Groundwater Observed: ☒ Yes ☐ No If yes: 38"& 102" Depth Weeping from Pit 114" Depth Standing Water in Hole

7. Estimated Surface ELEV = 376.7 +/- (Design Seasonal High Ground Water Table Elev.=374.7)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-14	A	sl	10YR 3/2						gr	fr	
14-20	Bw1	sl	10YR 4/6						sbk	fr	
20/24/30	Bw2	sl	10YR 4/4						sbk	fr	
24/30-114	C1	lfs w/sl	2.5Y 5/4	24	2.5Y 5/8	30	5-10		gr	fi in place	Design GWT=24"

Additional Notes:
1. Mapped as Sutton Soil (NRCS)

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 9 (Hole #) 02/21/23 (Date) 11:00 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) Overgrown lawn & field (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Ablation Till

5. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

6. Groundwater Observed: ☒ Yes ☐ No If yes: 46" Depth Weeping from Pit 46" Depth Standing Water in Hole

7. Estimated Surface ELEV = 378.6 +/- (Design Seasonal High Groundwater Table Elev.=376.4

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-9	A	sl	10YR 3/2						gr	fr	
9-20	Bw1	sl	10YR 4/6						sbk	fr	
20-27	Bw2	sl	10YR 5/6						sbk	fr	
27-114	C1	st lfs/sl	7.5Y 5/4	27	7.5YR 4/6	20	25	10	gr	fi in place	Design GWT=27"

Additional Notes:
1. Mapped as Sutton Soil (NRCS)

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 10 (Hole #) 02/21/23 (Date) 11:30 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant house lots & field (e.g., woodland, agricultural field, vacant lot, etc.) Overgrown lawn & field (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Ablation Till

5. Unsuitable Materials Present: ☒ Yes ☐ No If Yes: ☐ Disturbed Soil ☒ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock (Existing Septic Leach Field)

6. Groundwater Observed: ☐ Yes ☒ No If yes: NA Depth Weeping from Pit NA Depth Standing Water in Hole

7. Estimated Surface ELEV = 383 +/- (Seasonal High Groundwater Table not recorded)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-6	A	10YR 3/3	sl						gr	fr	
6-30	B/HTM Mix	Varies	sl mix						gr	fr	
30-36	Ab	10YR 4/6	sl						gr	fr	
36-43	Bw1	10YR 5/6	sl						sbk	fr	
43-50	East side of TP is leachfield	NA	NA						___		TP excav. stopped due to existing septic leach field being uncovered

Additional Notes:

Soil Evaluation Assessment

1. Location 76 & 88 Providence Pike (Rte. 44), Putnam CT

2. Deep Observation Hole Number: 11 (Hole #) 02/21/23 (Date) 2:00 (Time) wet/damp & cloudy (Weather)

3. Land Use Vacant lot & field (e.g., woodland, agricultural field, vacant lot, etc.) Grass (Vegetation) NA (Surface Stones (e.g., cobbles, stones, boulders, etc.) ____ (Slope (%)

4. Soil Parent Material: Outwash

5. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

6. Groundwater Observed: ☒ Yes ☐ No If yes: 100" Depth Weeping from Pit 100" Depth Standing Water in Hole

7. Estimated Surface ELEV = 381.6 +/- (Design Seasonal High Groundwater Table Elev.=378.1)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-25	A	sl	7.5YR 3/2						gr	fr	
25-35	Bw1	sl	7.5YR 4/4						Sbk	fr	
35-40	Bw2	sl	7.5YR 4/6						Sbk	fr	
42-120	C1	gls	2.5Y 5/4	42	7.5YR 5/8	10-15	10	___	gr	fi in place	Design GWT=42"

Additional Notes:

1. Mapped on line between Canton and Charlton Soil and Sutton Soil (NRCS)

PERCOLATION TEST SHEET

LOCATION: 76 & 88 Providence Pike (Rte. 44), Putnam CT

DATE: 02/21/23

TEST RESULTS

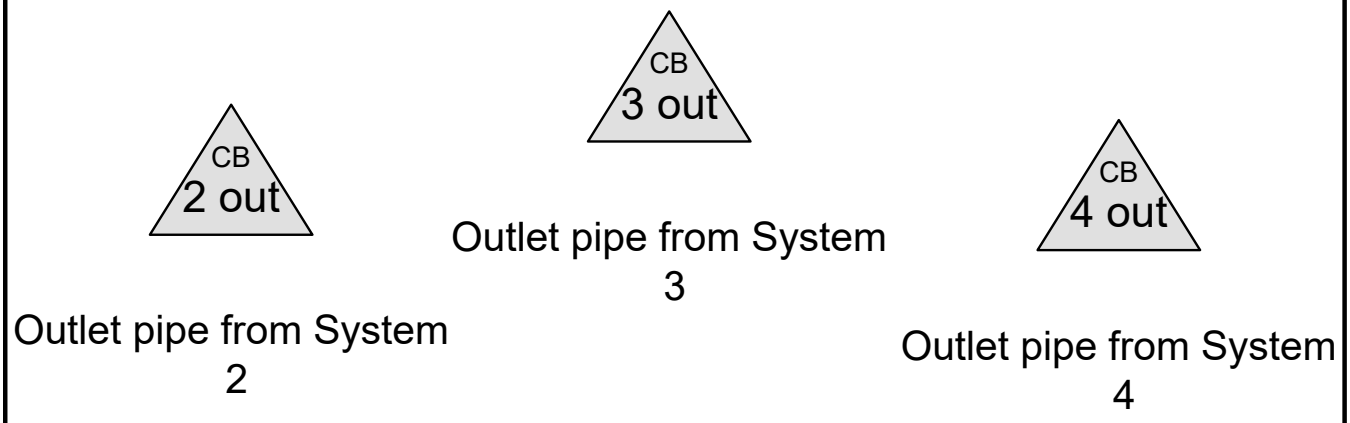
	Perc 1		Perc 2		Perc 3	
Ground to Top of Perc=	36”		26”		17”	
Depth of Perc Hole	19 ¾”		16”		17 ½”	
Dia. of Perc Hole	<12”		<12”		<12”	
Presoak Time	Time	Measurement (Inches)	Time	Measurement (Inches)	Time	Measurement (Inches)
	11:32 1:05	6 ¾ 17 ½	11:35 1:07	3 ½ 14 ¾	11:37 1:10	4 ¾ 16
Test Time	1:05 1:15 1:30 1:50 2:05 2:15 2:20 2:25 2:30 2:35	5 ⅜ 8 ⅛ 10 ⅜ 12 ¼ 13 13 ⅝ 14 ⅛ 14 ⅜ 14 ⅞ 15	1:07 1:17 1:37 1:52 2:12 2:17 2:22 2:27 2:32 2:37 2:42 2:47 2:52	4 ⅛ 5 ¼ 7 ½ 9 ½ 10 ⅝ 11 11 ½ 12 12 ¼ 12 ¾ 13 13 ¼ 13 ½	1:10 1:20 1:40 2:00 2:15	4 7 10 ⅝ 14 Dry @ 16
Perc Rate	16-40 MPI min/inch (3.75 – 1.5 in/hr)		20 MPI min/inch (3 in/hr)		7.5 MPI min/inch (8 in/hr)	
Design Infiltration Rate	(Rawls et. al 1982) USDA Texture = sl (Sandy Loam) Design rate = 1.02 in/hr		(Rawls et. al 1982) USDA Texture = sl (Sandy Loam) Design rate = 1.02 in/hr		(Rawls et. al 1982) USDA Texture = sl (Sandy Loam) Design rate = 1.02 in/hr	

Table 1: Stormceptor Sizing Table for 25% TSS Removal

Model #	Maximum Treatment Flow Rate (cfs)	Maximum Impervious Treatment Area (acres)	Max Sediment Storage Volume (ft^3)
STC 450i	0.28	0.38	46
STC 900	0.64	0.85	89
STC 1200	0.64	0.85	127
STC 1800	0.64	0.85	207
EOS 12-590	0.64	0.85	166
STC 2400	1.06	1.06	205
STC 3600	1.06	1.06	373
STC 4800	1.77	2.38	543
STC 6000	1.77	2.38	687
STC 7200	2.47	3.33	839
STC 11000	3.53	4.75	1,086
STC 13000	3.53	4.75	1,374
STC 16000	4.94	6.66	1,677

*Impervious areas are only approximate. Actual areas will vary based on site-specific conditions.

Source: Rhode Island Department of Environmental Management - Alternative Stormwater Technology Program Certification



Subcat Reach Pond Link

Routing Diagram for Drainage Calcs 1 (1-yr)
Prepared by Microsoft, Printed 5/25/2023
HydroCAD® 10.00-26 s/n 08202 © 2020 HydroCAD Software Solutions LLC

Summary for Pond 2 out: Outlet pipe from System 2

Inflow	=	3.28 cfs @	0.00 hrs, Volume=	6.508 af, Incl. 3.28 cfs Base Flow
Outflow	=	3.28 cfs @	0.00 hrs, Volume=	6.508 af, Atten= 0%, Lag= 0.0 min
Primary	=	3.28 cfs @	0.00 hrs, Volume=	6.508 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 375.87' @ 0.00 hrs
Flood Elev= 379.03'

Device	Routing	Invert	Outlet Devices
#1	Primary	375.00'	**24.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 375.00' / 374.40' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.28 cfs @ 0.00 hrs HW=375.87' (Free Discharge)
1=Culvert (Inlet Controls 3.28 cfs @ 2.51 fps)

Summary for Pond 3 out: Outlet pipe from System 3

Inflow	=	0.73 cfs @	0.00 hrs, Volume=	1.449 af, Incl. 0.73 cfs Base Flow
Outflow	=	0.73 cfs @	0.00 hrs, Volume=	1.449 af, Atten= 0%, Lag= 0.0 min
Primary	=	0.73 cfs @	0.00 hrs, Volume=	1.449 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 373.39' @ 0.00 hrs
Flood Elev= 378.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	373.00'	**24.0" Round Culvert** L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 373.00' / 372.50' S= 0.0192 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.73 cfs @ 0.00 hrs HW=373.39' (Free Discharge)
1=Culvert (Inlet Controls 0.73 cfs @ 1.68 fps)

Summary for Pond 4 out: Outlet pipe from System 4

Inflow	=	5.61 cfs @	0.00 hrs, Volume=	11.132 af, Incl. 5.61 cfs Base Flow
Outflow	=	5.61 cfs @	0.00 hrs, Volume=	11.132 af, Atten= 0%, Lag= 0.0 min
Primary	=	5.61 cfs @	0.00 hrs, Volume=	11.132 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 377.77' @ 0.00 hrs
Flood Elev= 378.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	376.33'	**18.0" Round Culvert** L= 156.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 376.33' / 372.50' S= 0.0246 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.61 cfs @ 0.00 hrs HW=377.77' (Free Discharge)
1=Culvert (Inlet Controls 5.61 cfs @ 3.22 fps)

SPEC-DATA®

This Spec-Data Sheet conforms to editorial style prescribed by The Construction Specifications Institute. The manufacturer is responsible for technical accuracy.

1. PRODUCT NAME

Quarried stone for riprap, armor stone and filter stone for erosion and sediment control. (See glossary on page 4.)

2. MANUFACTURER

For a list of leading producers write or call:

NATIONAL CRUSHED STONE ASSOCIATION, 1415 Elliot Place, N.W., Washington, D.C. 20007; Phone: (202) 342-1100.

3. PRODUCT DESCRIPTION

Basic Use: Quarried Stone, in a wide range of sizes for various needs and applications, provides, when properly installed, an effective and economical barrier and/or structure to control unwanted soil erosion. (Note: Armor stone will not be covered in this unit because of its specialized usage)

Areas of application for quarried stone include, *but are not limited to*:

1. Banks of Creeks, Streams and Rivers
2. Bodies of Water Subject to Wave Action from Boat Traffic
3. Drainage Facilities
4. Earth Dams
5. Sediment Basins
6. Shorelines-Ponds, Lakes and Coastal Waters
7. Slope Protection
8. Wave Energy Absorbers in Docking Areas

The 32-page NCSA publication—"Quarried Stone Erosion and Sediment Control" listed in Item 10 of this document provides more detailed information on the five areas of application discussed here under Item 4, plus similar details for Canals, Earth Dams and Wave Energy Absorbers.

Limitations: Inspection should be at a level in keeping with standard practices in the geographic area for uses of stone; for many small commercial projects, quality control procedures usually involve determination of particle size analysis by mechanical screening methods. Erosion control sometimes involves use of stone sizes too large for such analysis and is more often accepted on visual examination. It is advantageous to producers and end users to accept erosion control stone at the quarry.

Composition and Materials: "Crushed Stone" is a generic term defined as the product resulting from the quarrying process, essentially all faces of which possess well defined edges.

Quarried stone discussed herein will include listings of and recommendations for suggested sizes for specific purposes. These sizes are discussed in two categories—I—Open-Graded Riprap and II—Filter Stone.

I. OPEN-GRADED RIPRAP or "dumped riprap" as it is sometimes called. NCSA graded riprap is designated R-1 to R-8 and is described in the following Table A. The exact sizes of Riprap may not be the most economically available in certain local areas. Other and larger sizes may usually be substituted provided the "average size" criteria, as defined in Footnote (1) and under Special Design Considerations below, are met.

SPECIAL DESIGN CONSIDERATIONS

Note that each designation in the table above shows an "average" as well as a maximum and minimum size. This average, defined as that size exceeded by at least 50 per cent of the total tonnage shipped, is the most important governing factor in selecting the proper size designation for the given wave heights or stream velocities. Even though all pieces might be larger than the minimum size of a particular designation, if the average size is too small, the installation might not function as intended.

II. FILTER STONE. Densely graded filter stone is the sublayer under the larger protection stone, such as either graded riprap or armor stone. NCSA filter stone is designated FS-1 to FS-3 and is described in the following Table B:

Table B
FILTER STONE

NCSA No.	Size Inches (sq. openings) Max.	Avg. (1)	Min. (2)
FS-1	3/8	No. 30	No. 100
FS-2	2	No. 4	No. 100
FS-3	6 1/2	2.5	No. 16

(1) "Average size" is that size exceeded by at least 50% of the total weight of the tonnage shipped; i.e., 50 per cent of the tonnage shall consist of pieces larger than the "average" size (normally 1/2 the specified nominal top size).

(2) Pieces smaller than the minimum size shown shall not exceed 15% of the tonnage shipped.

Table A
GRADED RIPRAP STONE

NCSA No.	Size inches (sq. openings) Max.	Avg. (1)	Min (2)	Wave Height(3) (ft.)	Velocity (4) (ft./sec.)	Corresponding Filter Stone NCSA Size No.
R-1	1 1/2	3/4	(No. 8)	—	2.5	FS-1
R-2	3	1 1/2	1	0.3	4.5	FS-1
R-3	6	3	2	0.5	6.5	FS-2
R-4	12	6	3	1.0	9.0	FS-2
R-5	18	9	5	1.5	11.5	FS-2
R-6	24	12	7	2.0	13.0	FS-3
R-7	30	15	12	2.5	14.5	FS-3
R-8	48	24	15	4.0	—	FS-3

(1) "Average size" is that size exceeded by at least 50% of the total weight of the tonnage shipped; i.e. 50 percent of the tonnage shall consist of pieces larger than the "average" size (normally 1/2 the specified nominal top size).

(2) Pieces smaller than the minimum size shown shall not exceed 15% of the tonnage shipped.

(3) Wave Height is the vertical distance from wave crest to wave trough. The wave height given in the table is the average height of the one-third highest waves in the incident wave train.

(4) The stream velocity is the velocity at mid-stream or at a point 10 feet from the bank, whichever is closest to the bank.

(5) The Table assumes a stone dry density of 165 pounds per cu. ft.

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LONG TERM OPERATIONS & MAINTENANCE PLAN

PROPOSED TOYOTA MCGEE TOYOTA
AP 26 LOTS 8 AND 28
76 & 88 PROVIDENCE PIKE
PUTNAM CONNECTICUT

May 2023

Prepared by: Crossman Engineering
Engineers & Surveyors
151 Centerville Road
Warwick, RI 02886

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A. Stormceptor® STC Inspection and Maintenance Information

B. BMP Location Plan

Long Term Operation and Maintenance Plan
McGee Toyota
AP 26, Lots 8 and 28
Providence Pike (Route 44)
Putnam CT
May 3

This Operation and Maintenance Plan is the maintenance plan to be followed by the owner for their stormwater systems, as noted. In order to minimize the stormwater management system deterioration, the owner shall adhere to the following Operation and Maintenance Plan as well as any special requirements required by the Town as conditions of site plan approval.

Underground Infiltration System (Systems 1 and 5)

The underground infiltration system and their outlet structures should be inspected annually and after storm events greater than or equal to the 2-year, 24-hour Type III precipitation event (3.2" rainfall within 24 hours). Open the clean-out access covers of the system and make a visual inspection to determine the extents of maintenance necessary to rehabilitate the system to its original design standards.

If standing water is observed within the system 24 hours after the rainstorm, the system shall be rechecked within 24 hours of the first inspection. If standing water is observed, the system shall be flushed and pumped. The structures upgrade shall be pumped and cleaned. All stormwater within an underground system should be pumped out of the facility by means of a vactor truck. After cleaning, the cover and grate are to be reset and all resulting waste including oil, sludge, sediment, and water should be disposed of in accordance with all applicable federal and local regulations. Any oil or grease found at the time of the inspection shall be cleaned with oil absorption pads and disposed of in an approved location. The underground infiltration system shall also be inspected annually for structural integrity. All structural components, which include the outlet structure, clean-out ports, pipes, frame and grate, and cover should be inspected and any deficiencies should be reported. If unclogging debris and litter from the systems does not restore design infiltration rates, the system must be repaired and/or replaced.

Underground Detention System (System 2 and 4)

The underground detention pipe and chambers, and their outlet structures shall be inspected annually or as needed to identify build-ups of sediment, litter, or organic debris. The outlet structures shall also be inspected for clogging. When the accumulated sediment volume exceeds 10% of the total storage volume, accumulated material shall be disposed of at an approved and permitted upland location. The underground detention systems shall also be inspected annually for structural integrity.

Proprietary Water Quality Pretreatment Devices – Stormceptor

Two Stormceptors are proposed for the site. The following guidelines shall be adhered to for the operation and maintenance of the Stormceptor system:

Regular inspections and maintenance of the Stormceptor device is required to minimize stormwater pollution and flooding. Following post-construction, inspections for the first year of operation shall occur after every storm event with greater than one inch of rainfall, immediately after oil, fuel or other chemical spills, and quarterly (four times per year). Inspections shall occur a minimum of two times per year for the following years. The Stormceptor is required to be cleaned annually and whenever sediment depths reach 15% of the unit's total storage capacity (see table below)

Sediment Maintenance Depth* and Oil Capacity		
STC Model	Sediment Depth*(inches)	Oil Capacity (gallons)
4800	15	909
*based on 15% of the lower chamber volume		

If the system is not maintained regularly, sediment removal efficiency may be reduced, oil spills may not be properly captured, and clogging (resulting in flooding) may occur. The Stormceptor devices shall be inspected and maintained by professional vacuum cleaning service providers with experience in the maintenance of underground tanks, sewers, and catch basins. Typically, maintenance cleaning of accumulated sediment is performed with a vacuum truck. If oil is present, oil is typically pumped into a separate containment using a small pump and tubing. The disposal of sediment or recovered pollutants shall be at an approved and permitted upland location. If any parts or pieces of the Stormceptor devices break or become damaged, the local supplier of authentic Stormceptor components must be contacted to replace broken parts. The "Stormceptor® STC Inspection and Maintenance Information" is required to be followed to insure proper function and performance.

Parking Lot Sweeping

Annual parking lot sweeping should be conducted during the spring of every year. Debris collected from pavement may be regulated as a hazardous waste. For these cases, debris must be disposed of in accordance with appropriate practice and applicable regulatory standards.

Deicing and Salt Storage

Deicing and sanding operations are often necessary for safety during winter storms; however, the materials used create water quality problems. Use deicing chemicals and sand judiciously.

Snow Disposal

Improper snow disposal can be a threat to public health and the environment. Disposal shall not enter the wetland areas. Snow stockpiling shall be in the vehicle display areas.

Stormwater Management Systems
Inspection and Maintenance Log

Site: McGee Toyota
Site Address: Providence Pike, Putnam CT
Date:
Inspector:

Item			Inspection OK	Service Required	Service Performed	Supervisor Notified
1.0	Catch Basins					
	1.1	Sediment and debris accumulation within 6" of Outlet Service Required	☐	☐	☐	☐
	1.2	Frame and Grate in Good Condition	☐	☐	☐	☐
	1.3	Inlet and Outlet Pipes Free of Debris	☐	☐	☐	☐
	1.4	Integrity of Catch basin	☐	☐	☐	☐
	1.5	Describe Service Provided:				
2.0	Manholes Structures					
	2.1	Invert free of sediment and debris	☐	☐	☐	☐
	2.2	Sediment and debris accumulation within 6” of Outlet Service Required	☐	☐	☐	☐
	2.3	Frame and Cover in Good Condition	☐	☐	☐	☐
	2.4	Inlet and Outlet Pipes free of debris	☐	☐	☐	☐
	2.5	Integrity of Manhole Structure	☐	☐	☐	☐
	2.6	Describe Service Provided:				
3.0	Water Quality Structure					
	3.1	Invert free of sediment and debris	☐	☐	☐	☐
	3.2	Sediment and debris accumulation to 15% capacity- Service Required	☐	☐	☐	☐

	3.3	Frame and Cover in Good Condition	☐	☐	☐	☐
	3.4	Inlet and Outlet Pipes free of debris	☐	☐	☐	☐
	3.5	Integrity of Structure	☐	☐	☐	☐
	3.6	Describe Service Provided:				
4.0	Underground Infiltration System					
	4.1	Invert free of sediment and debris	☐	☐	☐	☐
	4.2	System is dry after 24 hours of rain event	☐	☐	☐	☐
	4.3	Inspection ports structural integrity	☐	☐	☐	☐
	4.4	Describe Service Provided:				
5.0	Underground Detention System					
	5.1	Invert free of sediment and debris	☐	☐	☐	☐
	5.2	System is dry after 24 hours of rain event	☐	☐	☐	☐
	5.3	Inspection ports structural integrity	☐	☐	☐	☐
	5.4	Describe Service Provided:				
6.0	Miscellaneous					
	6.1	Evidence of erosion within landscape areas.	☐	☐	☐	☐
	6.2	Describe Service Provided:				

Appendix

A. Stormceptor® STC Inspection and Maintenance Information

B. BMP Location Plan

Stormceptor® STC
Inspection and Maintenance Information

Stormceptor® Inspection and Maintenance

Regular inspection and maintenance is a proven, cost-effective way to maximize water resource protection for all stormwater pollution control practices, and are required to insure proper functioning of the Stormceptor System. Both inspection and maintenance of the Stormceptor system is easily performed from the surface. Stormceptor's patented technology has no moving parts, simplifying the inspection and maintenance process.

Please refer to the following information and guidelines before conducting inspection and maintenance activities.

When is inspection needed?

- Post-construction inspection is required prior to putting the Stormceptor System into service.
- Routine inspections are recommended during the first year of operation to accurately assess the sediment accumulation.
- Specifically for New Jersey installations, regulations require all BMPs to be inspected a minimum four times per year and after every storm with greater than one inch of rainfall.
- Inspection frequency in subsequent years is based on the maintenance plan developed in the first year.
- Inspections should also be performed immediately after an oil, fuel or other chemical spill.

When is maintenance cleaning needed?

- For optimum performance, the unit should be cleaned out once the sediment depth reaches 15% of the unit's total storage capacity (see Table 1). Generally, the minimum cleaning frequency is once annually, although the frequency can be based on historical inspection results.
- The unit should be cleaned out immediately after an oil, fuel or chemical spill.

Table 1

Sediment Maintenance Depth* and Oil Capacity		
STC Model	**Sediment Depth*** (inches)	**Oil Capacity** (gallons)
450i	8	86
900	8	251
1200	10	251
1800	15	251
2400	12	840

3600	17	840
4800	15	909
6000	18	909
7200	15	1059
11000	17	2797
13000	20	2797
16000	17	3055
* based on 15% of the lower chamber volume		

What conditions can compromise the Stormceptor System performance?

- If the system is not maintained regularly and fills with sediment and debris beyond the capacity indicated in Table 1, sediment removal efficiency may be reduced.
- If an oil spill(s) exceeds the oil capacity of the system, subsequent spills may not be captured.
- If debris clogs the inlet of the system, removal efficiency of sediment and hydrocarbons may be reduced.
- If a downstream blockage occurs, a backwater condition may occur in the system and removal efficiency of sediment and hydrocarbons may be reduced.

What training is required?

The Stormceptor System is inspected and maintained by professional vacuum cleaning service providers with experience in the maintenance of underground tanks, sewers and catch basins. For typical inspection and maintenance activities, no specific supplemental training is required for the Stormceptor System. Information provided in this document or the Stormceptor Operation and Maintenance Manual (provided to the system owner) contains sufficient guidance to maintain the system properly.

In unusual circumstances, such as if a damaged component needs replacement or some other condition requires manned entry into the vessel, confined space entry procedures must be followed. Only professional maintenance service providers trained in these procedures should enter the vessel. Service provider companies typically have personnel who are trained and certified in confined space entry procedures according to local, state, and federal standards.

What equipment is typically required for inspection?

- Manhole access cover lifting tool
- Oil dipstick
- Sediment probe
- Flashlight
- Camera
- Data log
- Safety cones and caution tape
- Hard hat, safety shoes, safety glasses, and chemical-resistant gloves

How is the Stormceptor System inspected?

- The Stormceptor System can be inspected through a standard surface manhole

access cover.

- Sediment and oil depth inspections are performed with a sediment probe and oil dipstick. Oil depth is measured through the oil inspection port. Sediment depth can be measured through the oil inspection port or exit riser pipe.
- Inspections also involve a visual inspection of the internal components of the system.

What equipment is typically required for maintenance?

- Vacuum truck equipped with water hose and jet nozzle
- Small pump and tubing for oil removal
- Manhole access cover lifting tool
- Oil dipstick
- Sediment probe
- Flashlight
- Camera
- Data log
- Safety cones and caution tape
- Hard hats, safety shoes, safety glasses, chemical-resistant gloves, and hearing protection for service providers
- Gas analyzer, respiratory gear, and safety harness for specially trained personnel if confined space entry is required

How is the Stormceptor System maintained?

- The Stormceptor System can be maintained through a standard surface manhole access cover.
- Insert the oil dipstick into the oil inspection port. If oil is present, pump off the oil layer into separate containment using a small pump and tubing.
- Maintenance cleaning of accumulated sediment is performed with a vacuum truck.
- For 6-ft diameter models and larger, the vacuum hose is inserted into the lower chamber via the 24-inch outlet riser pipe.
- For 4-ft diameter model, the removable drop tee is lifted out, and the vacuum hose is inserted into the lower chamber via the 12-inch drop tee hole.
- Using the vacuum hose, decant the water from the lower chamber to the sanitary sewer, if permitted by the local regulating authority, or into a separate containment tank.
- Remove the sludge from the bottom of the unit using the vacuum hose.
- Re-fill the lower chamber with water where required by the local jurisdiction.
- Units that have not been maintained regularly, have surpassed the maximum recommended sediment capacity, or contain damaged components may require manned entry by trained personnel using proper confined space entry procedures.

What is required for proper disposal?

- Disposal requirements for recovered pollutants may vary depending on local guidelines. In most areas the sediment, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste.

What about oil spills?

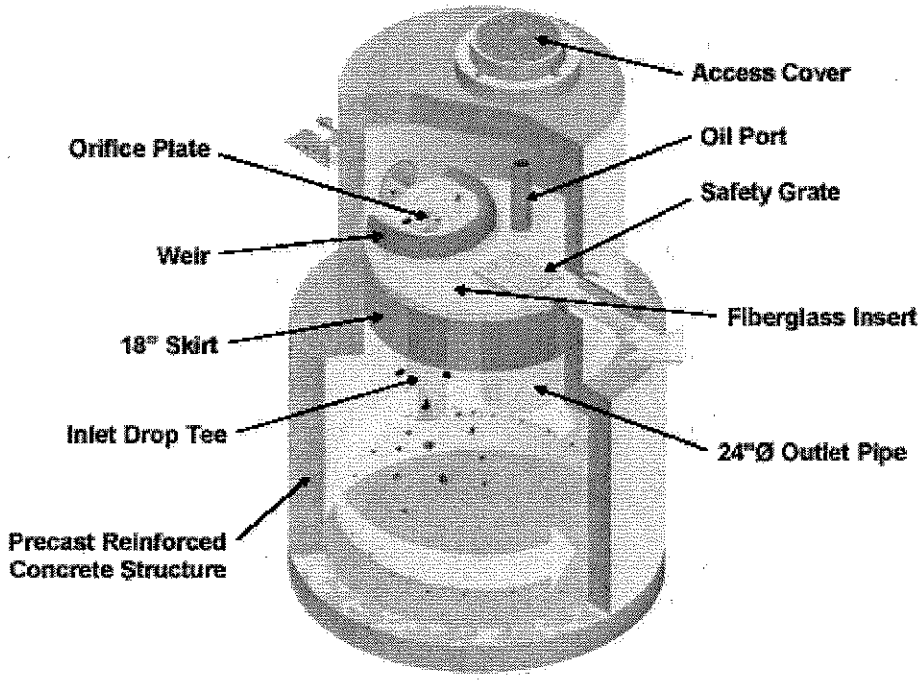
- Petroleum-based pollutants captured by the Stormceptor system (oil/chemical/fuel spills) should be removed and disposed of by a licensed waste management company.
- Although Stormceptor captures virtually all free oil, a sheen at the outlet **does not** mean the unit isn't working. A rainbow or sheen can be visible at oil concentrations of less than 10 mg/L (ppm).

What factors affect the costs involved with inspection/maintenance?

- Inspection and maintenance costs are based on unit size, sediment/oil/hazardous material loads, transportation distances, tipping fees, disposal requirements and other local regulations.

System schematic and component functions

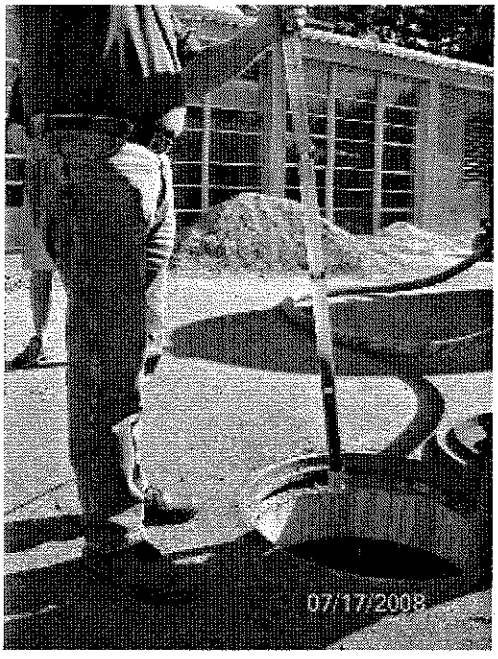
Below is a schematic of the Stormceptor System with key components identified and their functions briefly described.

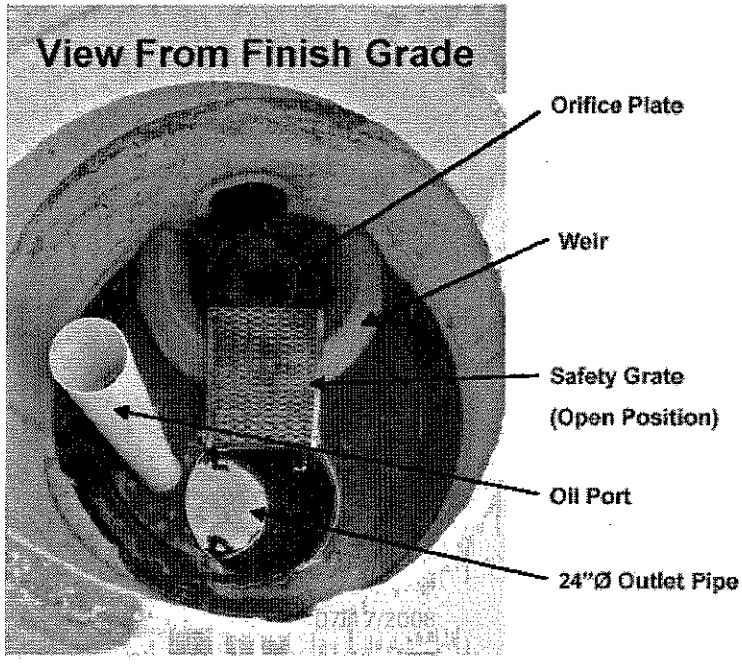


- **Manhole access cover** – provides access to the subsurface components
- **Precast reinforced concrete structure** – provides the vessel's watertight structural support
- **Fiberglass insert** – separates vessel into upper and lower chambers
- **Weir** – directs incoming stormwater and oil spills into the lower treatment chamber
- **Orifice plate** – controls water flow rate into the lower treatment chamber and prevents scour of accumulated pollutants
- **Inlet drop tee** – conveys stormwater into the lower treatment chamber and splits flow into two opposite tangential streams
- **Fiberglass skirt** – provides double-wall containment of hydrocarbons
- **Outlet riser pipe** – conveys treated water to the upper chamber; primary vactor access port for sediment removal

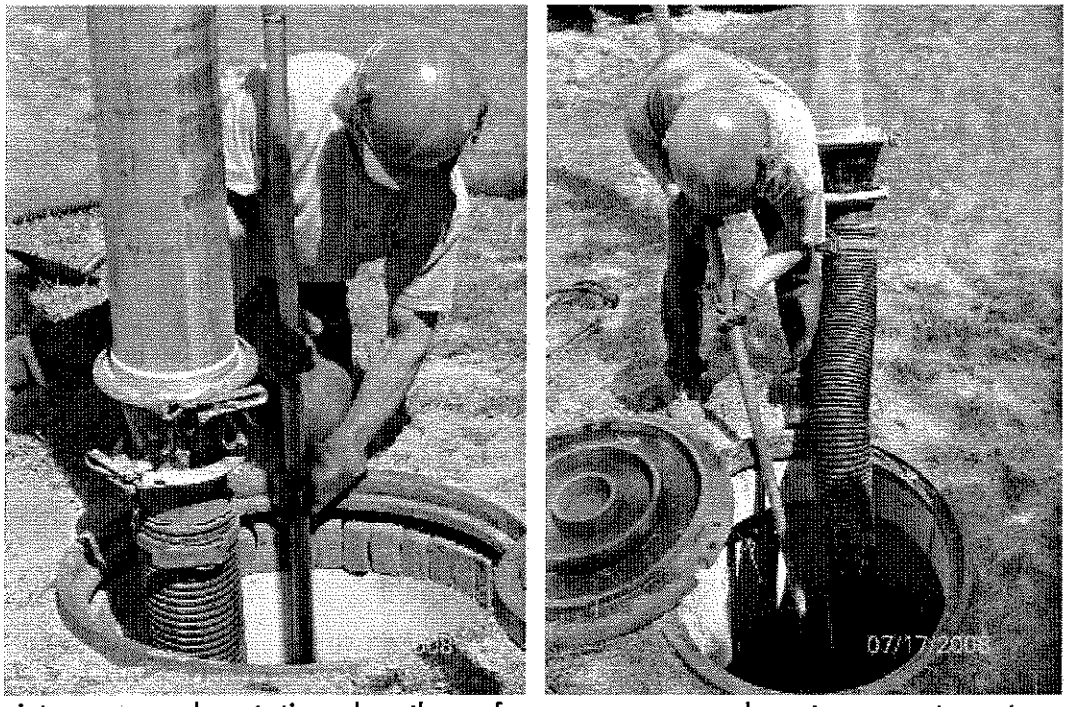
- **Oil inspection port** – primary access for measuring oil depth and oil removal
- **Safety grate** – safety measure to cover riser pipe in the event of manned entry into vessel

The Stormceptor System has no moving parts to wear out and therefore maintenance activities are generally focused on pollutant removal.





The depth of sediment can be measured from the surface by using a sediment probe or dipstick tube equipped with a ball check valve and inserted through the 24-inch outlet riser pipe. Oil level can similarly be checked through the oil inspection port.



A maintenance worker stationed on the surface uses a vacuum hose to evacuate water, sediment, and debris from the system.

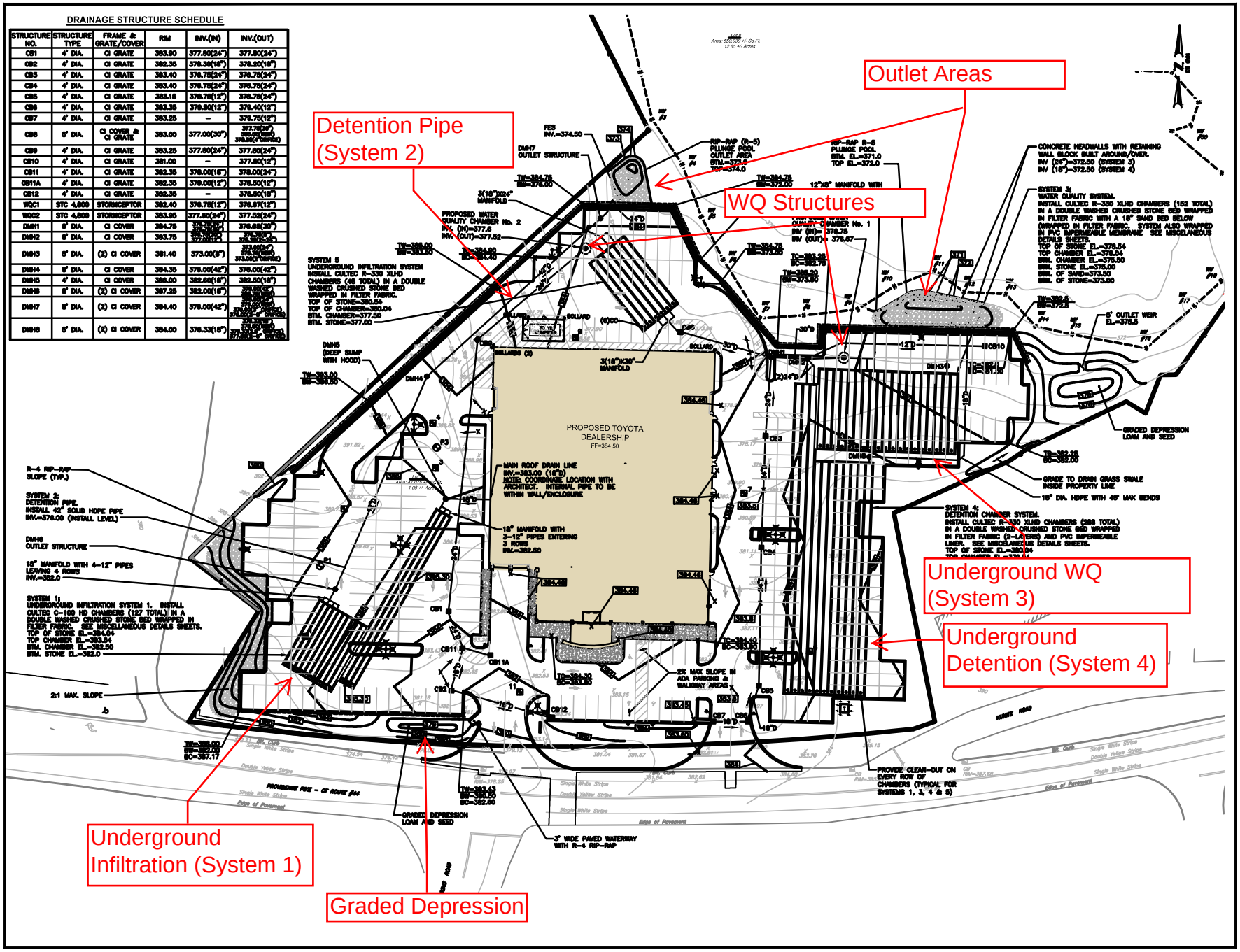
Purchasing replacement parts

Since there are no moving parts in the Stormceptor System, broken, damaged, or worn parts are not typically encountered. However, if replacements parts are necessary, they may be obtained by contacting the following supplier of authentic Stormceptor components.

In New Jersey, contact:

Camtek Construction Products Corp.
3481 Treeline Drive
Murrysville, PA 15668
Phone: (724) 327-3400

The benefits of regular inspection and maintenance are many – from ensuring maximum operation efficiency, to keeping maintenance costs low, to the continued protection of natural waterways – and provide the key to Stormceptor's long and effective service life.



DRAINAGE STRUCTURE SCHEDULE

STRUCTURE NO.	STRUCTURE TYPE	FRAME & GRATE/COVER	RIM	INV.(IN)	INV.(OUT)
CB1	4' DIA.	CI GRATE	383.90	377.80(24")	377.80(24")
CB2	4' DIA.	CI GRATE	382.35	378.30(18")	378.20(18")
CB3	4' DIA.	CI GRATE	383.40	378.75(24")	378.75(24")
CB4	4' DIA.	CI GRATE	383.40	378.75(24")	378.75(24")
CB5	4' DIA.	CI GRATE	383.15	378.75(12")	378.75(24")
CB6	4' DIA.	CI GRATE	383.35	379.50(12")	378.40(12")
CB7	4' DIA.	CI GRATE	383.25	–	378.75(12")
CB8	5' DIA.	CI COVER & CI GRATE	383.00	377.00(30")	377.75(24") 376.50(18") 376.50(4"ORIFICE)
CB9	4' DIA.	CI GRATE	383.25	377.80(24")	377.80(24")
CB10	4' DIA.	CI GRATE	381.00	–	377.50(12")
CB11	4' DIA.	CI GRATE	382.35	378.00(18")	378.00(24")
CB11A	4' DIA.	CI GRATE	382.35	379.00(12")	378.50(12")
CB12	4' DIA.	CI GRATE	382.35	–	378.50(18")
WQC1	STC 4,800	STORMCEPTOR	382.40	376.75(12")	376.67(12")
WQC2	STC 4,800	STORMCEPTOR	383.95	377.80(24")	377.52(24")
DMH1	6' DIA.	CI COVER	384.75	378.75(30")	378.65(30")
DMH2	6' DIA.	CI COVER	383.75	378.75(30") 377.25(18")	378.75(24") 377.25(18")
DMH3	5' DIA.	(2) CI COVER	381.40	373.00(8")	374.50(24") 376.75(12") 373.00(4"ORIFICE)
DMH4	6' DIA.	CI COVER	384.35	378.00(42")	378.00(42")
DMH5	4' DIA.	CI COVER	386.00	382.60(18")	382.50(18")
DMH6	5' DIA.	(2) CI COVER	387.25	382.00(18")	377.50(24") 376.50(18") 376.50(4"ORIFICE)
DMH7	6' DIA.	(2) CI COVER	384.40	378.00(42")	377.50(24") 376.75(12") 376.75(4"ORIFICE)
DMH8	5' DIA.	(2) CI COVER	384.00	378.33(18")	377.50(24") 376.75(12") 377.00(4"ORIFICE)

Civil
Transportation
Environmental
Site Planning
Surveying
Permitting
Landscape Architecture

Crossman Engineering

Rhode Island
151 Centerville Road
Warwick, RI 02886
Phone: (401) 738-5660

Massachusetts
103 Commonwealth Avenue
North Attleboro, MA 02763
Phone: (508) 695-1700

Email: cel@crossmaneng.com

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PROJECT TITLE:

PROPOSED MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

GRADING & DRAINAGE PLAN

DATE: MAY 2023
SCALE: 1"=30'

DWG. NAME: 2739-08-GRADE.dwg

REVISIONS

△ NUMBER	REMARKS	DATE
---	---	---

DRAWING NUMBER

C6

SHEET: 8 OF 17

NRCS SOILS

50A: SUTTON FINE SANDY LOAM, 0–3% SLOPES
SOIL HYDROLOGIC GROUP= B/D

60B: CANTON AND CHARLTON FINE SANDY LOAMS, 3–8% SLOPES
SOIL HYDROLOGIC GROUP= B

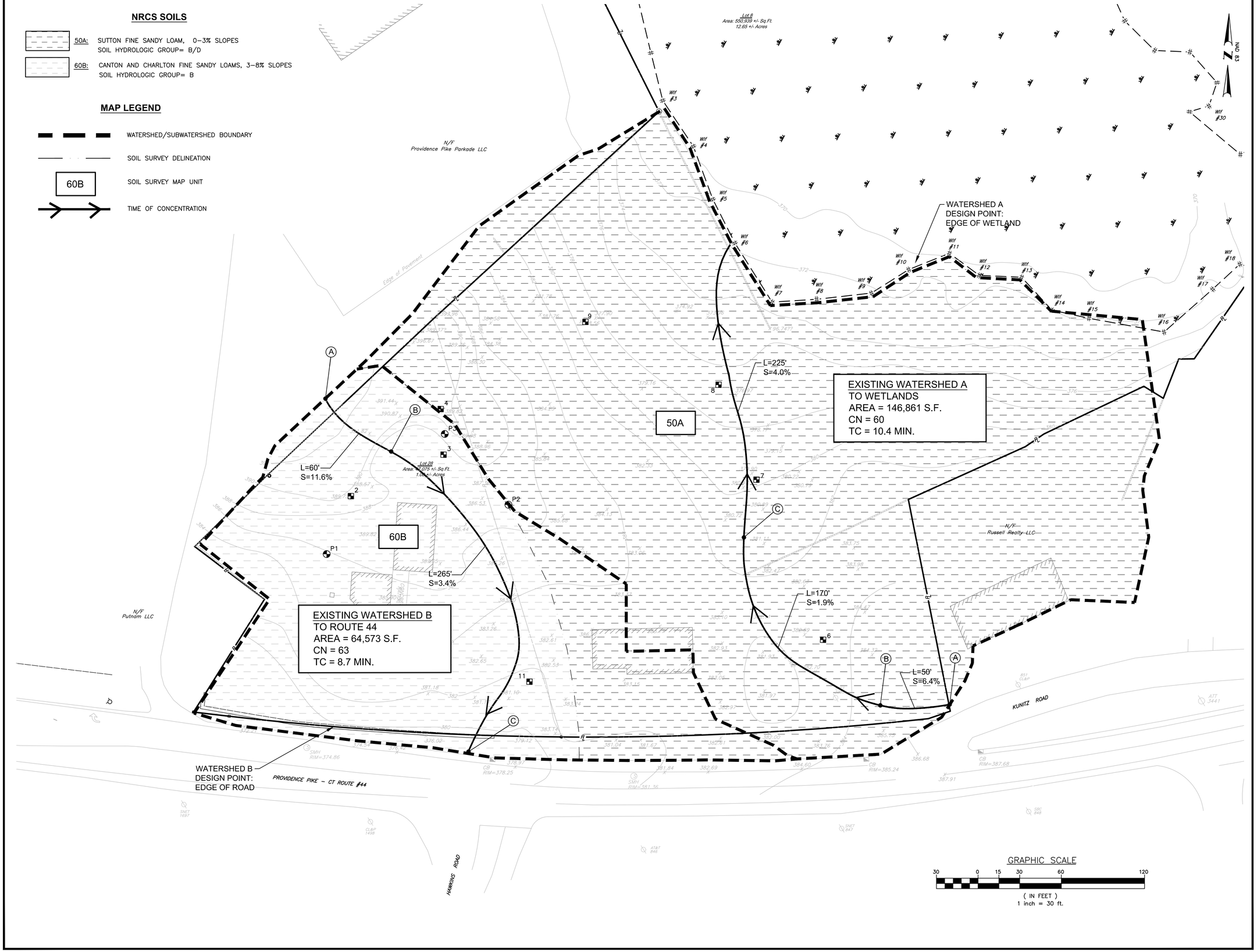
MAP LEGEND

WATERSHED/SUBWATERSHED BOUNDARY

SOIL SURVEY DELINEATION

60B — SOIL SURVEY MAP UNIT

TIME OF CONCENTRATION



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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Crossman Engineering

Rhode Island
151 Centerville Road
Warwick, RI 02886
Phone: (401) 738-5660

Massachusetts
103 Commonwealth Avenue
North Attleboro, MA 02763
Phone: (508) 695-1700

Email: cei@crossmaneng.com

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MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

EXISTING WATERSHED MAP

DATE:	*SCALE:*
MAY 2023	1"=30'

DWG. NAME: 2739–EX–WSD.dwg

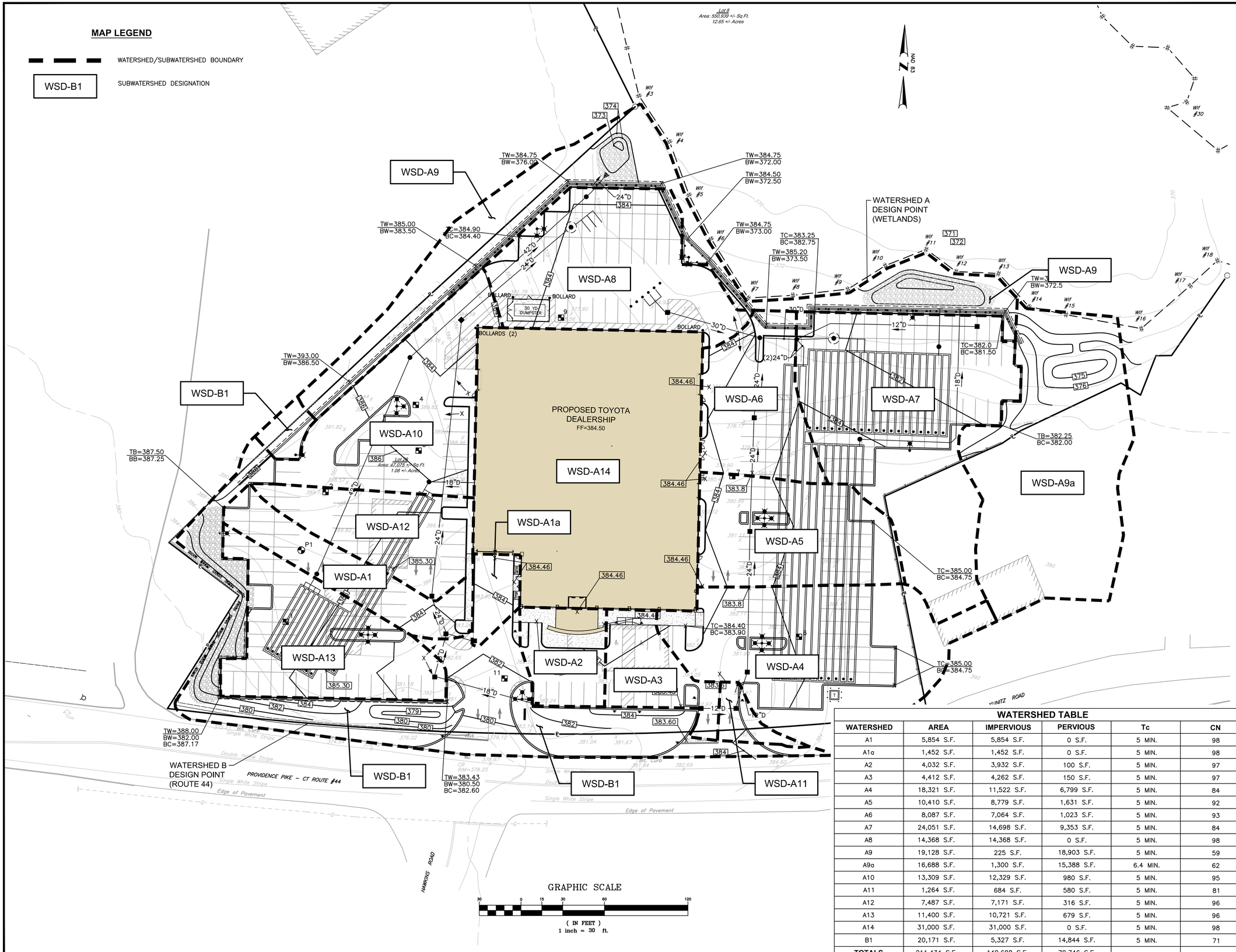
REVISIONS

NUMBER	*REMARKS*	*DATE*
--	--	--

DRAWING NUMBER

EX-WSD

SHEET: 1 *OF:* 2



WATERSHED TABLE

WATERSHED	AREA	IMPERVIOUS	PERVIOUS	Tc	CN
A1	5,854 S.F.	5,854 S.F.	0 S.F.	5 MIN.	98
A1a	1,452 S.F.	1,452 S.F.	0 S.F.	5 MIN.	98
A2	4,032 S.F.	3,932 S.F.	100 S.F.	5 MIN.	97
A3	4,412 S.F.	4,262 S.F.	150 S.F.	5 MIN.	97
A4	18,321 S.F.	11,522 S.F.	6,799 S.F.	5 MIN.	84
A5	10,410 S.F.	8,779 S.F.	1,631 S.F.	5 MIN.	92
A6	8,087 S.F.	7,064 S.F.	1,023 S.F.	5 MIN.	93
A7	24,051 S.F.	14,698 S.F.	9,353 S.F.	5 MIN.	84
A8	14,368 S.F.	14,368 S.F.	0 S.F.	5 MIN.	98
A9	19,128 S.F.	225 S.F.	18,903 S.F.	5 MIN.	59
A9a	16,688 S.F.	1,300 S.F.	15,388 S.F.	6.4 MIN.	62
A10	13,309 S.F.	12,329 S.F.	980 S.F.	5 MIN.	95
A11	1,264 S.F.	684 S.F.	580 S.F.	5 MIN.	81
A12	7,487 S.F.	7,171 S.F.	316 S.F.	5 MIN.	96
A13	11,400 S.F.	10,721 S.F.	679 S.F.	5 MIN.	96
A14	31,000 S.F.	31,000 S.F.	0 S.F.	5 MIN.	98
B1	20,171 S.F.	5,327 S.F.	14,844 S.F.	5 MIN.	71
TOTALS	211,434 S.F.	140,688 S.F.	70,746 S.F.	–	–

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PROJECT TITLE:

PROPOSED MCGEE TOYOTA
PLAT MAP 26, LOTS 8 and 28
ZONING DISTRICT HC
HIGHWAY COMMERCIAL DISTRICT
88 PROVIDENCE PIKE (ROUTE 44)
PUTMAN, CONNECTICUT

PREPARED FOR:

MCGEE AUTOMOTIVE FAMILY
TOYOTA OF HANOVER
880 WASHINGTON BLVD.
HANOVER MA 02339

DRAWING TITLE:

POST DEVELOPMENT WATERSHED

DATE: MAY 2023
SCALE: 1"=30'
DWG. NAME: 2739-PR-WSD.dwg

REVISIONS

NUMBER	REMARKS	DATE
--	--	--

DRAWING NUMBER

PR-WSD

SHEET: 2 *OF:* 2

OFFICE

INLAND WETLAND COMMISSION

APPENDIX A

APPLICATION FOR PERMIT

This application is for the use of inland wetlands and water courses.

The meetings are held on the second Wednesday of every month at 7:00pm in the Town Hall. If an on-site inspection is canceled due to inclement weather, the applicant is asked to call the office at 963-6803 30 minutes before the scheduled inspection to see if or when the inspection will be held.

Name of Applicant THE CRAFT GROUP

Applicant's Address 120 SCHOFIELD AVE, DUDLEY, MA 0157

Phone # 508-400-3317

Owner of Land VISTA HOLDINGS, LLC

Owner's Address 38 RIVER JUNCTION ESTATES, PUTNAM, CT 06260

Location and description of proposed activity: ACTIVITY IN UPLAND REVIEW AREA ASSOCIATED WITH CONSTRUCTION OF RETAIL BUILDING, ACTIVITIES INCLUDE PARKING LOT, SEPTIC SYSTEM, BLDG, STORMWATER BASIN 3 PARK ROAD

Activity & Purpose Code

Please **CHECK** one in each column that best describes the activity proposed.

Code	Activity Type
☐	1 Filling
☐	2 Excavation
☐	3 Land Clearing
☐	4 Stream Channel
☐	5 Stream Stabilization
☐	6 Stream Clearance
☐	7 Culverting
☐	8 Und. Grd. Util.
☐	9 Roadway Construction
☐	10 Drainage Improvements
☐	11 Pond Dredge/Dam Construction
☒	12 Activity Buffer/Set Back Area
☐	13 Other: Please describe:

Code	Activity Purpose
☐	A Residential Improvement by homeowner
☐	B New residential development - single family
☐	C New residential development - multi- family/condo
☒	D Commercial/Industrial Uses
☐	E Municipal Improvements
☐	F Utility Company Improvements
☐	G Agriculture, Forestry or Conservation
☐	H Wetland Creation/Restoration
☐	I Storm Water/Flood Control
☐	J Erosion/Sediment Control
☐	K Recreation/Boating/Navigation
☐	L Routine Maintenance

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Project Name (if applicable) THE CRAFT GROUP

Estimate of Linear Footage affecting Wetlands 0' - NO WORK PROPOSED IN WETLAND

Affected number of acres in which Wetlands are part of the impacted area for Multi-Family, Condos and Commercial Development 0 ACRES

TO BE COMPLETED BY THE COMMISSION

Application Number 2023-08 Date of Receipt 6-9-2023

Application Approved (date) _____

Conditions of approval if applicable _____

Application Denied (date) _____

Reason(s) for Denial _____

_____ _____

Signature of Chairman or Secretary of Commission Date

J & D CIVIL ENGINEERS
860-923-2920
401 RAVENELLE RD
N GROSVENORDALE, CT 06255-2015

1871

51-7699/2111
114

DATE 6/8/23

CHECK ARMOR FRAUD PROTECTION

PAY TO THE ORDER OF TOWN OF PUTNAM $ 100.00

One hundred & 00/100 DOLLARS

Security Features Details on Back.

CHARTER OAK CREDIT UNION

Charter Oak Federal Credit Union
1055 Hartford Turnpike
Waterford, CT 06385

FOR CRAFT GROUP WETLANDS

Janet J. Blanchett

⑈001871⑈ ⑆[redacted]⑆ [redacted]⑈

THE CRAFT GROUP
CANNABIS RETAIL DISPENSARY

3 PARK ROAD, PUTNAM, CT 06260

MAP 37 LOT 55

DATED: JUNE 7, 2023

OWNER:
VISTA HOLDINGS
38 RIVER JUNCTION ESTATES
PUTNAM, CT 06260

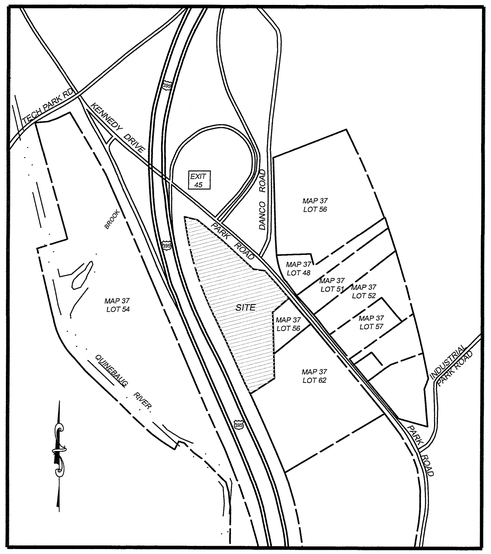
APPLICANT:
THE GRAFT GROUP
120 SCHOFIELD AVE
DUDLEY, MA 01571

INDEX OF DRAWINGS

1 COVER
2 VICINITY PLAN
3 EXISTING CONDITIONS PLAN
4 SITE DEVELOPMENT PLAN
5 DETAILS AND SEPTIC SYSTEM DATA

SPECIAL PERMIT REQUIREMENTS

- CANNABIS FACILITIES SHALL BE OBLIGATED TO ADHERE TO THE SIGNAGE REQUIREMENTS FOR THE UNDERLYING ZONING DISTRICT IN WHICH THEY ARE LOCATED.
- NOTWITHSTANIDNG ANY OTHER REQUIREMENTS, ANY WINDOW ALLOWING VISIBILITY INTO A CANNABIS FACILITY SHALL RETAIN AT LEAST 50% OPEN VISIBILITY TO THE STORE INTERIOR.
- ANY ADVERTISEMENT OR SIGNAGE LOCATED OUTSIDE THE CANNABIS RETAILER WHICH IS NOT PERMANENT AFFIXED TO EITHER THE GROUND OR THE BUILDING SHALL BE REMOVED AND PLACED OUT OF SIGHT DURING ALL HOURS THE BUSINESS IS NOT IN OPERATION.
- ANY DELIVERIES OF CANNABIS PRODUCTS LEAVING A CANNABIS FACILITY AND SOLD DIRECTLY TO THE CONSUMER SHALL OCCUR BETWEEN THE HOURS OF 8:00 A.M. AND 10:00 P.M. DAILY.
- CONSUMPTION EITHER ORALLY, TOPICALLY, OR BY INHALATION OF ANY CANNABIS PRODUCTS OUTDOORS ON THE PREMISES OF ANY CANNABIS FACILITY IS PROHIBITED.



LOCATION MAP
1" = 500'

ZONE: HIGHWAY COMMERCIAL DISTRICT (HC) WITH SEWER
USE: COMMERCIAL

ITEM	REQUIRED MIN.	PROVIDED
FRONTAGE	150'	74.80' (EXISTING WITH ZBA 9/19/88 VARIANCE)
LOT COVERAGE	<40%	7 %±
FRONT SETBACK	50'	76 '± (EXISTING BUILDING)
SIDE SETBACK	10'	92 '± (PROPOSED BUILDING)
REAR SETBACK	20'	49 '± (EXISTING BUILDING)
LOT SIZE	40,000 SF	365,904 ± SF
HEIGHT	35'	<35'
PARKING	7	29

TOWN OF PUTNAM RECEIVED FOR RECORDING	SPECIAL PERMIT APPROVED PUTNAM ZONING COMMISSION
TOWN CLERK DATE TIME MAP #	CHAIRMAN DATE

J & D CIVIL ENGINEERS, LLC
401 RAVENELLE ROAD
THOMPSON, CT 06255
JDCIVILENGINEERS.COM
860-923-2920

22257



VICINITY PLAN
SCALE 1" = 200'

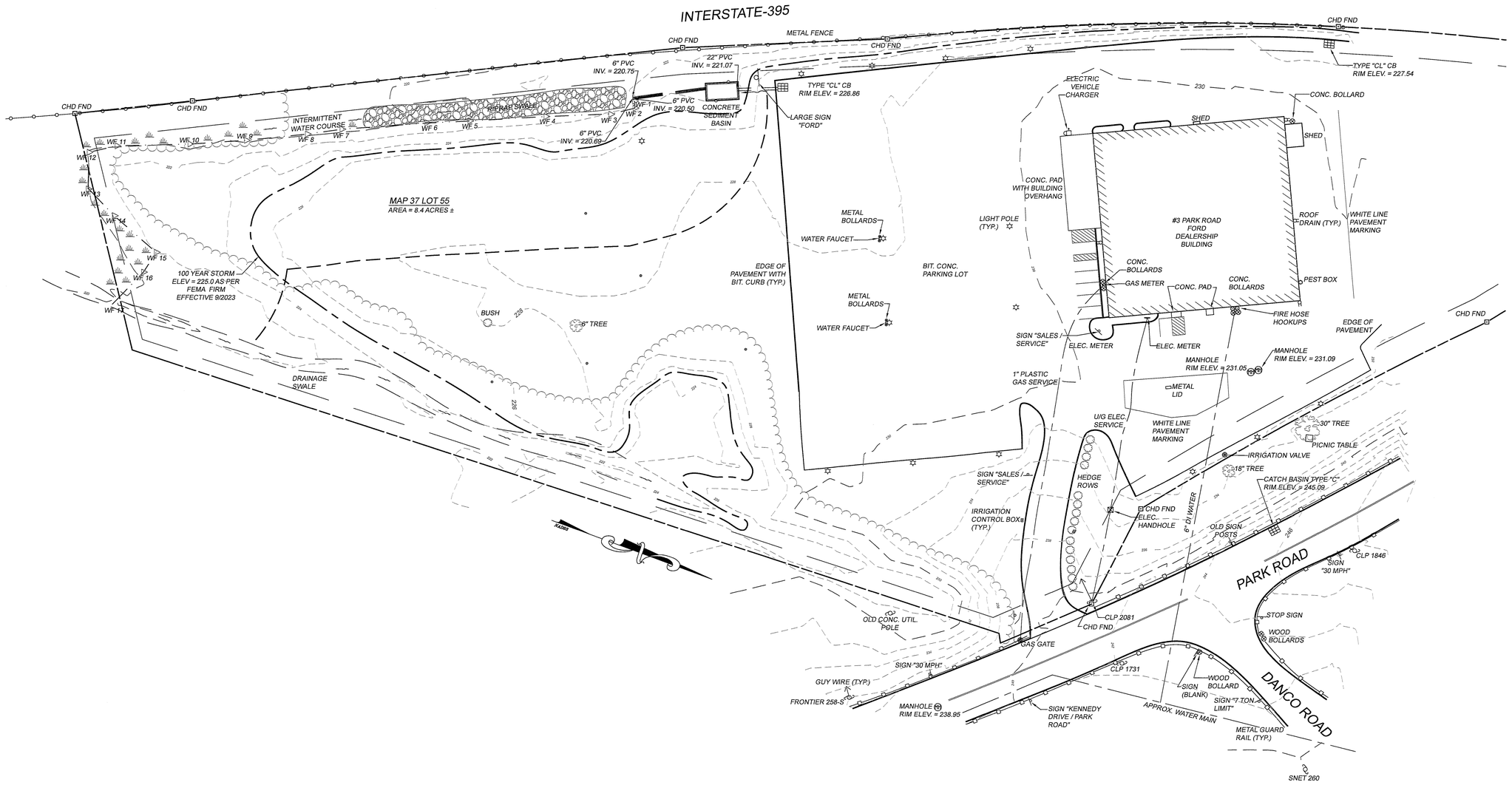
SOIL TYPE LEGEND

W	WATER
36B	WINDSOR LOAMY SAND, 3 TO 8 % SLOPES
38A	HINCKLEY LOAMY SAND, 0 TO 3% SLOPES
38C	HINCKLEY LOAMY SAND, 3 TO 15% SLOPES
38E	HINCKLEY LOAMY SAND, 15 TO 45% SLOPES
58C	GLOUCESTER GRAVELLY SANDY LOAM, 8 TO 15% T SLOPES, VERY STONY
59D	GLOUCESTER GRAVELLY SANDY LOAM, 15 TO 35 % SLOPES, EXTREMELY STONY
62C	CANTON AND CHARLTON FINE SANDY LOAMS, 3 TO 15% SLOPES, EXTREMELY STONY
62D	CANTON AND CHARLTON FINE SANDY LOAMS, 15 TO 35% SLOPES, EXTREMELY STONY
100	SUNCOOK LOAMY FINE SAND
101	OCCUM FINE SANDY LOAM
103	RIPPOWAM FINE SANDY LOAM
305	UDORTHENTS-PITS COMPLEX, GRAVELLY
306	UDORTHENTS-URBAN LAND COMPLEX

VICINITY PLAN
PREPARED FOR
THE CRAFT GROUP
3 PARK ROAD - PUTNAM, CT
MAP 35 LOT 55

J&D CIVIL ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB CHECKED: DRB	REVISIONS:
JOB NO: 22257	DATE: JUNE 7, 2023
SCALE: 1" = 200'	SHEET: 2



NOTES

1. THIS MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARD FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT " AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

SURVEY TYPE: GENERAL LOCATION

PURPOSE: EXISTING CONDITIONS PLAN

BOUNDARY DETERMINATION CATEGORY: N/A

HORIZONTAL ACCURACY: B

TOPOGRAPHIC ACCURACY T-2

DATUMS: NAD 83 AND NAVD 88

PROPERTY LINES DO NOT EXPRESS A BOUNDARY OPINION.

THIS MAP WAS PREPARED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY/BOUNDARY OR LIMITED PROPERTY/BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS AS SAID SURVEYS MAY DISCLOSE.

2. REFERENCE PLANS:

(A) BOUNDARY INFORMATION TAKEN FROM AN A-2 SURVEY PLAN PREPARED FOR AMERICAN OPTICAL COMPANY BY GILBERT F. PERRY, LS. PLAN DATED 6-13-79

(B) A PLAN ENTITLED "SITE DEVELOPMENT PLAN, PROPOSED AUTO DEALERSHIP PREPARED FOR PUTNAM FORD AND MERCURY", PARK STREET - PUTNAM, CT, PLAN PREPARED BY PROVOST ROVERO AND FITZBACK, DATED 4/1/97

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

DENNIS R. BLANCHETTE — DATE — 12107 LICENSE NUMBER

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE

© 2023 J&D CIVIL ENGINEERS, LLC

LEGEND

- BUILDING SETBACK LINE
- PROPERTY LINE
- EXISTING CONTOUR LINE
- STONEWALL
- UTILITIES
- TREE/BRUSH LINE
- 100 YEAR FLOOD EL EFFECTIVE 9/23

EXISTING CONDITIONS PLAN
PREPARED FOR
THE CRAFT GROUP
3 PARK ROAD, PUTNAM, CT
MAP 37 LOT 55

J&D CIVIL ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB
CHECKED: DRB

REVISIONS:

JOB NO: 22257
DATE: JUNE 7, 2023
SCALE: 1" = 40'
SHEET: 3

INTERSTATE-395

20' REAR SETBACK

WETLANDS

WETLANDS

TP 8

TP 1

D BOX
INV. IN = 225.0
INV. OUT = 224.8

1000 GALLON
SEPTIC TANK
INV. IN = 225.75
INV. OUT = 225.5

12" CONC. GALLERIES
TOP EL = 226.2
BOTTOM EL = 224.2

40'

TP 2

RESERVE

TP 3

26'

100' UPLAND
REVIEW AREA

100 YEAR STORM ELEV = 225.0 AS PER
FEMA FIRM EFFECTIVE 9/2023

EROSION CONTROL DEVICES
AND LIMITS OF DISTURBANCE

SCREENED
DUMPSTER
ON CONC. PAD

TRANSFORMER

DELIVERY
DRIVE

EMPLOYEE SPACES

TP 4

TP 5

TP 7

SHADE
TREE
(TYP.)

UIG UTILITIES

MIN INV = 226.3

50' X 70' RETAIL
CANNABIS FACILITY
FFL EL = 229.0

(BUILDING MOUNTED SIGNS TO
COMPLY WITH ZONING
REGULATIONS)

TC = 228.36
BC = 227.86

29 SPACE
PARKING LOT

5' WIDE, 6" DEEP
CRUSHED STONE
DRAINAGE SWALE

100' UPLAND
REVIEW AREA

FORD DEALERSHIP
PARKING LOT

MATCH LINE

MATCH LINE

14' PARKING SIGNS

5' CONC. WALK CURB

8"

8"

90'-6" PVC
ROOF DRAIN

FOUNDATION
SHRUBS

18'

24'

5'
TYP.

CONC. WHEEL STOPS

96'-6" PVC
ROOF DRAIN

TP 6

4H:1V SLOPE

STORMWATER
BASIN

4H:1V SLOPE

PROP. FULL CUTOFF
LIGHT (TYP.)

UIG UTILITIES

PE WATER SERVICE

10' SIDE SETBACK

3H:1V SLOPE

3H:1V SLOPE

LEVEL SPREADER
ELEV = 225.5

25' - 6' CPP OUTLET PIPE
INV. IN = 224.0
INV. OUT = 223.5

MODIFIED RIPRAP
SEDIMENT FOREBAY

MODIFIED RIPRAP
AT OUTLET (TYP.)

SAW CUT
PAVEMENT

EXISTING
LIGHT (TYP.)

FORD DEALERSHIP
PARKING LOT

UIG UTILITIES

BIT CONC.
DRIVEWAY

24'

R = 25'

PE WATER SERVICE

EXISTING PAVED
DRIVEWAY

MATCH LINE

PROPOSED
SIGN

PARK ROAD

APPROX. EXISTING
WATER MAIN

NOTES

1. THIS MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARD FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT " AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

SURVEY TYPE: GENERAL LOCATION

PURPOSE: SITE DEVELOPMENT PLAN

BOUNDARY DETERMINATION CATEGORY: N/A

HORIZONTAL ACCURACY: B

TOPOGRAPHIC ACCURACY T-2

DATUMS: NAD 83 & NAVD 88

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2. REFERENCE PLANS:

(A) BOUNDARY INFORMATION TAKEN FROM AN A-2 SURVEY PLAN PREPARED FOR AMERICAN OPTICAL COMPANY BY GILBERT F. PERRY, LS. PLAN DATED 6-13-79

(B) A PLAN ENTITLED "SITE DEVELOPMENT PLAN, PROPOSED AUTO DEALERSHIP PREPARED FOR PUTNAM FORD AND MERCURY", PARK STREET - PUTNAM, CT, PLAN PREPARED BY PROVOST ROVERO AND FITZBACK, DATED 4/1/97

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

DENNIS R. BLANCHETTE — DATE 4/7/23 — LICENSE NUMBER 12107

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE

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LEGEND

- BUILDING SETBACK LINE
- PROPERTY LINE
- EXISTING CONTOUR LINE
- 246 PROPOSED CONTOUR LINE
- STONEWALL
- UTILITIES
- TREELINE
- EROSION CONTROL DEVICES
- TEST PIT
- LEACHING TRENCH
- PROPOSED WATER SERVICCE
- 226.5 PROPOSED SPOT GRADE
- 100 YEAR FLOOD EL EFFECTIVE 9/23

SITE DEVELOPMENT PLAN
PREPARED FOR
THE CRAFT GROUP
3 PARK ROAD, PUTNAM, CT
MAP 37 LOT 55

J&D CIVIL ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

STATE OF CONNECTICUT — DENNIS R. BLANCHETTE — 12107 — LICENSED PROFESSIONAL ENGINEER

DESIGNED: JJB CHECKED: DRB	REVISIONS:
JOB NO: 22257	DATE: JUNE 7, 2023
SCALE: 1" = 20'	SHEET: 4

TEST PIT RESULTS

OBSERVED BY: MAUREEN MARCOUX
DATE: MAY 11, 2023
FILE 23000214

PIT NO. 1

0" - 8" (TOPSOIL)
8" - 55" (MIX OF MEDIUM & COARSE SANDS, SOME GRAVEL)
55" - 98" (MOIST COARSE SANDS)

MOTTLING: N/A
GROUND WATER: N/A
LEDGE: N/A
ROOTS: N/A
RESTRICTIVE: 55"

PIT NO. 2

0" - 11" (TOPSOIL)
11" - 42" (MEDIUM COARSE SANDS -ALL)
42" - 75" (TIGHT MEDIUM COARSE SANDS)
75" - 89" (TIGHT COARSE SANDS WITH GRAVEL)
89" - 114" (TIGHT SANDY LOAM)

MOTTLING: N/A
GROUND WATER: N/A
LEDGE: N/A
ROOTS: N/A
RESTRICTIVE: N/A

PIT NO. 3

0" - 9" (TOPSOIL)
9" - 41" (MIX OF MEDIUM & COARSE SANDS, SOME GRAVEL, FINES)
41" - 59" (MEDIUM TO COARSE SANDS)
59" - 96" (MOIST COARSE SANDS)

MOTTLING: N/A
GROUND WATER: N/A
LEDGE: N/A
ROOTS: N/A
RESTRICTIVE: N/A

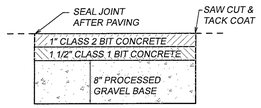
PERC. TEST RESULTS

OBSERVED BY: MAUREEN MARCOUX
DATE: MAY 11, 2023

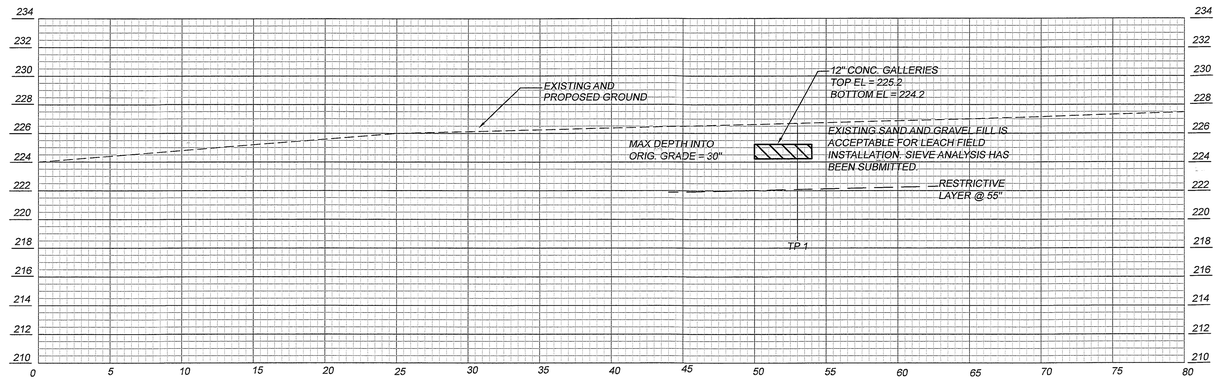
HOLE A - NEAR TP 1, 2, 3

TIME	READING
10:45	8.00"
10:46	11.75"
10:47	14.00"
10:48	15.25"
10:50	16.25"
10:52	17.25"

DEPTH: 18"
RATE: 2.0 MIN/IN



BITUMINOUS PAVEMENT SECTION
NOT TO SCALE



LEACHING FIELD CROSS SECTION A-A
1" = 5'

SEPTIC SYSTEM DESIGN CRITERIA

DESIGN FLOW: 3,500 SF RETAIL @ 0.1 GPD/SF = 350 GPD

SEPTIC TANK: 1000 GALLON

PERC RATE: 2.0 MINS/INCH

MOTTLING: N/A"; LEDGE: N/A; WATER: N/A; RL: 55"; SLOPE: 2.1% - 3.0%

LEACHING AREA REQUIRED: 233 SQUARE FEET

LEACHING AREA PROVIDED: 40' OF 12" CONC. GALLERIES @ 5.9 SF PER LF = 236 SF

MLSS (PRIMARY) = 28' (HF=24, PF=1.0, FF=1.17)

LSS PROVIDED = 40'

SPECIFICATIONS
SEPTIC SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH THE "CONNECTICUT PUBLIC HEALTH CODE REGULATIONS AND TECHNICAL STANDARDS FOR SUBSURFACE SEWAGE DISPOSAL SYSTEMS".

THE BUILDING, SEPTIC SYSTEM, AND WELL SHALL BE ACCURATELY STAKED IN THE FIELD BY A LICENSED SURVEYOR OR ENGINEER PRIOR TO CONSTRUCTION.

ALL PRECAST STRUCTURES SUCH AS SEPTIC TANKS AND DISTRIBUTION BOXES SHALL BE SET LEVEL ON SIX INCHES OF COMPACTED GRAVEL BASE.

SEPTIC TANK: TWO-COMPARTMENT TANK WITH OUTLET FILTER. INSTALL RISERS OVER TANK CLEANOUTS IF COVER OVER TANK EXCEEDS 1'.

DISTRIBUTION BOX: 4 HOLE D-BOXES

HOUSE, EFFLUENT AND "TIGHT PIPE" FOR DRAIN OUTLETS: 4" PVC SCHEDULE 40, ASTM D 1785 OR ASTM D 2665 WITH RUBBER COMPRESSION GASKET ASTM D 3139 OR SOLVENT WELD COUPLINGS.

LEACHING CHAMBERS: INSTALL 12" HIGH PRECAST CONC. GALLERIES DESIGNED FOR H-20 LOADS.

POLYLOK PIPE SEAL AS MANUFACTURED BY SUPERIOR SEPTIC TANKS (OR EQUAL) SHALL BE USED TO SEAL SEPTIC TANK AND D-BOX INLETS AND OUTLETS.
BOTTOM OF TRENCHES TO BE LEVEL.

TOPSOIL SHALL BE STRIPPED IN AREA OF LEACH FIELD AND THE SUBSOIL SCARIFIED PRIOR TO PLACEMENT OF SELECT SEPTIC FILL.

THIS DESIGN IS BASED ON TEST PIT INFORMATION RECORDED BY NDDH. J & D HAS MADE NO INDEPENDENT INVESTIGATION OF SOIL CONDITIONS. THE CONTRACTOR IS ADVISED TO PERFORM SUFFICIENT SITE INVESTIGATION TO DETERMINE CONSTRUCTABILITY OF THE DESIGN PRIOR TO BIDDING OR COMMENCING WORK.

EROSION AND SEDIMENT CONTROL NOTES:
1. THE PROPOSED ACTIVITY ON THE SITE WILL CONSIST OF THE CONSTRUCTION OF A RETAIL BUILDING, PARKING LOT, STORMWATER BASIN, SEPTIC SYSTEM AND DRIVEWAY.

2. EROSION CONTROL DEVICES MUST BE INSTALLED WHERE INDICATED ON THIS SHEET PRIOR TO THE START OF CONSTRUCTION.

3. DISTURBED AREAS SHALL BE KEPT TO A MINIMUM AND SEEDED OR STABILIZED WITH TEMPORARY MULCH AS SOON AS FINAL GRADES HAVE BEEN ATTAINED.

4. THE OWNER OF RECORD SHALL DESIGNATE THE ON SITE ENVIRONMENTAL AGENT RESPONSIBLE FOR REGULARLY CHECKING THE CONDITION OF THE EROSION CONTROL DEVICES AND REMOVING ACCUMULATED SEDIMENT.

LANDSCAPING NOTES
1. PREFERENCE SHALL BE GIVEN TO NATIVE SPECIES .

2. PLANT AREA BETWEEN BUILDING AND SIDEWALK WITH NON -INVASIVE SHRUBS, MAXIMUM MATURE HEIGHT 36".

3. PLANT DECIDUOUS SHADE TREES, WHERE INDICATED. MINIMUM SIZE SHALL BE 1.5" CALIPER.

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT A RETAIL STORE AND PARKING LOT. SITE WORK WILL INCLUDE CONSTRUCTION OF BUILDING, SEPTIC SYSTEM, UTILITIES, DRAINAGE, PAVING, LIGHTS, ETC.

ATTENTION SHALL BE GIVEN TO THE INSTALLATION AND MAINTENANCE OF EROSION CONTROL MEASURES. NO ERODED SEDIMENTS SHALL BE PERMITTED TO FLOW INTO THE DRAINAGE SWALE ON EITHER SIDE OF THE WORK AREA. IF FIELD CONDITIONS WARRANT IT OR THE TOWN REQUESTS IT, ADDITIONAL E & S CONTROL MEASURES, BEYOND WHAT IS SHOWN ON THE PLAN, SHALL BE INSTALLED.

SEDIMENT AND EROSION CONTROL DEVICES WILL BE INSTALLED AS DETAILED ON THIS SHEET AND CHECKED REGULARLY FOR REPLACEMENT AND AFTER EVERY RAIN FOR REMOVAL OF DEPOSITED MATERIALS. RESPONSIBILITY FOR COMPLIANCE WITH THIS PLAN SHALL BELONG TO THE CONTRACTOR. THE CONTRACTOR SHALL BE THE DESIGNATED ON-SITE AGENT RESPONSIBLE FOR ENSURING TO THE TOWN THAT E & S CONTROL MEASURES ARE STRICTLY ENFORCED.

SEEDING DATES FOR PERMANENT VEGETATION ARE APRIL 1 - JUNE 15 AND AUGUST 15 - SEPTEMBER 15. SEEDING DATES FOR TEMPORARY VEGETATION ARE MARCH 1 - OCTOBER 15. OUTSIDE OF THESE DATES TEMPORARY MULCH CONSISTING OF STRAW OR HAY APPLIED AT THE RATE OF 95 LB/1000 SQUARE FEET SHALL BE USED. HYDROSEEDING WILL BE PERMITTED WHERE SLOPES ARE NO STEEPER THAN 2 TO 1 AND SEEDING RATES WILL BE INCREASED BY 10%.

OPERATIONS AND MAINTENANCE

1. ALL PROPOSED WORK SHALL CONFORM TO "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE CONNECTICUT COUNCIL OF SOIL AND WATER CONSERVATION AND TOWN REGULATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE GOALS OF THIS EROSION CONTROL PLAN ARE MET BY WHATEVER MEANS ARE NECESSARY. THE CONTRACTOR SHALL PLAN ALL LAND DISTURBING ACTIVITIES IN A MANNER AS TO MINIMIZE THE EXTENT OF DISTURBED AREAS.
3. PRIOR TO CONSTRUCTION OR EXCAVATION, SEDIMENT BARRIERS SHALL BE INSTALLED IN LOCATIONS AS SHOWN ON THE PLAN OR AS REQUIRED BY THE TOWN AND MAINTAINED THROUGHOUT CONSTRUCTION.
4. UPON FINAL GRADING, DISTURBED AREAS SHALL COVERED WITH A MINIMUM OF 6" LOAM AND SEEDED WITH PERENNIAL GRASSES AS SPECIFIED FOR THE PROJECT. IMMEDIATELY AFTER SEEDING, MULCH THE SEEDED AREA, NOT COVERED WITH EROSION CONTROL BLANKET, WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE. SEEDING DATES ARE TO BE BETWEEN APRIL 1 THRU JUNE 15 AND AUGUST 15 THRU OCTOBER 15.
5. DAILY INSPECTIONS SHALL BE MADE OF EROSION AND SEDIMENT CONTROL MEASURES TO INSURE EFFECTIVENESS AND IMMEDIATE CORRECTIVE ACTION SHALL BE TAKEN IF FAILURE OCCURS. ADDITIONAL EROSION CONTROL MEASURES BEYOND WHAT IS SHOWN ON THE PLAN MAY BE NECESSARY.
6. EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN STABILIZED AND VEGETATIVE COVER HAS BEEN ESTABLISHED, AT WHICH TIME THEY SHALL BE REMOVED.
7. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF THIS EROSION AND SEDIMENT CONTROL PLAN.

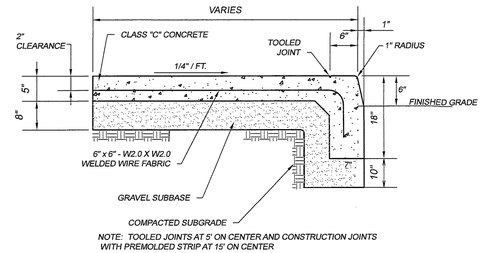
GENERAL SEEDING NOTES

1. TEMPORARY SEEDING NOTES - SITE PREPARATION: APPLY 1-2 TON /ACRE AGRICULTURAL GRADE LIMESTONE AND 10-10-10 FERTILIZER AT A RATE OF 300 LBS./ACRE AND WORK IN WHERE POSSIBLE. REFER TO FIGURE TS-2 IN THE 2002 CT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL FOR APPROPRIATE SEEDING MIXES AND RATES. MULCH SEEDED AREAS IMMEDIATELY AFTER SEEDING.
2. PERMANENT SEEDING NOTES - SITE PREPARATION: GRADE AS NECESSARY TO BRING THE SUBGRADE TO A TRUE, SMOOTH SLOPE PARALLEL TO AND SIX INCHES BELOW FINISHED GRADE. PLACE TOPSOIL OVER SPECIFIED AREAS TO A DEPTH SUFFICIENTLY GREATER THAN SIX INCHES SO THAT AFTER SETTLEMENT AND LIGHT ROLLING THE COMPLETE WORK WILL CONFORM TO LINES, GRADES AND ELEVATIONS SHOWN.
3. APPLY 4 TONS/ACRE AGRICULTURAL GRADE LIMESTONE AND 10-10-10 FETILIZER AT A RATE OF 300 LBS/AC OR AS PER SOIL TEST. LIMESTONE AND FERTILIZER MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS.
4. FERTILIZER AND AGRICULTURAL LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE SOIL BY ROTOTILLING OR OTHER METHOD TO A MINIMUM DEPTH OF FOUR INCHES. THE ENTIRE SURFACE SHALL BE DONE IN TWO SEPARATE OPERATIONS. THE SECOND SEEDING SHALL BE DONE IMMEDIATELY AFTER THE FIRST AND AT RIGHT ANGLES TO THE FIRST SEEDING AND LIGHLY RAKED INTO THE SOIL. MULCH SEEDED AREAS IMMEDIATELY AFTER SEEDING.

AREA TO BE SEEDED	MIXTURE NUMBER	SPECIES	SEEDING RATES (LB/AC) PURE LIVE SEED
SLOPES, BANKS CHANNELS AND DIVERSIONS	2	CREEPING RED FESCUE REDTOP TALL FESCUE OR SMOOTH BROMEGRASS	20 2 20
LAWN AND HIGH MAINTENANCE AREAS	1	KENTUCKY BLUEGRASS CREEPING RED FESCUE PERENNIAL RYEGRASS	20 20 5

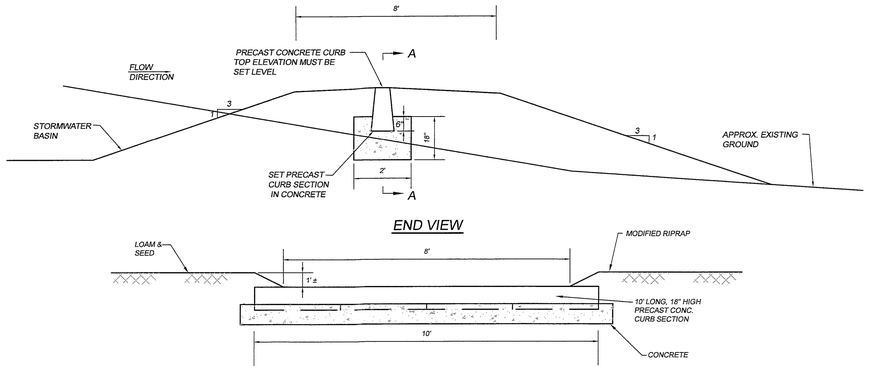
SEED MIXTURE NUMBERS REFER TO TO FIGURE PS-3, 2002 CT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO MANUAL FOR POTENTIAL ALTERNATIVE MIXTURES.

PURE LIVE SEED (PLS) IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERECENTAGE GERMINATION DIVIDED BY 100.



NOTE: TOOLED JOINTS AT 5' ON CENTER AND CONSTRUCTION JOINTS WITH PREMOLDED STRIP AT 15' ON CENTER

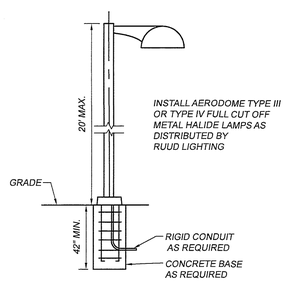
CONCRETE SIDEWALK AND CURB SECTION
NOT TO SCALE



END VIEW

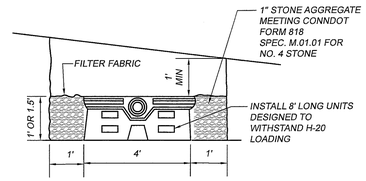
SIDE VIEW SECTION A-A

PRECAST CONCRETE LEVEL SPREADER
NOT TO SCALE

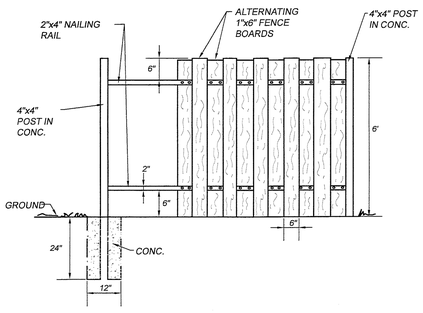


NOTE: ADDITIONAL LUMINAIRE AND ARM AT 180° WHERE SHOWN ON PLAN

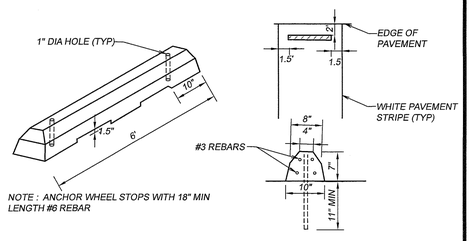
FULL CUTOFF LIGHT
NOT TO SCALE



12" OR 18" PRECAST LEACHING GALLERY SECTION
NOT TO SCALE

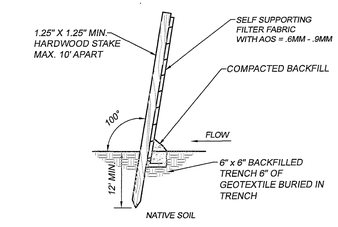


DUMPSTER SCREENING FENCE
NOT TO SCALE



NOTE : ANCHOR WHEEL STOPS WITH 18" MIN LENGTH #6 REBAR

CONCRETE WHEEL STOP
N.T.S.



SILT FENCE INSTALLATION
NOT TO SCALE

DETAILS AND SEPTIC SYSTEM DATA
PREPARED FOR
THE CRAFT GROUP
3 PARK ROAD - PUTNAM, CT
MAP 37 LOT 55

J&D CIVIL ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB
CHECKED: DRB
REVISIONS:

JOB NO: 22257 | DATE: JUNE 7, 2023
SCALE: AS NOTED | SHEET: 5

Stormwater Management Report

Prepared For

The Craft Group

June 7, 2023

Prepared by:

J & D **Civil Engineers, LLC**

401 Ravenelle Road
N. Grosvenordale, CT 06255

Table of Contents

A. Project Narrative

B. Existing Site Description

C. Proposed Drainage System

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E. Results and Comparison of Existing and Proposed Flows

Appendices

I. Hydrologic Model

II. Water Quality Volume Computations

III. Drainage Area Map

A. Project Narrative

The Craft Group is proposing to construct a cannabis retail store in the open field on the south side of Heritage Valley Ford (formerly Putnam Ford). The building will be approximately 3500 SF in size and will have a 29-space parking lot.

B. Existing Site Description

The existing site is just southeast of exit 45 of I-395 and consists of a relatively flat open field. Over the years the site was filled with good quality sand and gravel so it is slightly mounded in the center rolling off toward both the east and the west. Drainage swales were constructed both on the east and west side of the site. The swale on the east does not contain wetland soils. However, the western swale parallel to I-395 (which treats runoff from the car dealership) does contain wetland soils. The report by Margaret Washburn dated May 12, 2023 describes the fill and wetland soils encountered.

The 100-year flood level, to be adopted by FEMA in September 2023 at this location, is at elevation 225. This elevation exists on the lower portions of the site surrounding the swales. The proposed building floor is at 229.0 and the lowest point of the parking lot is at 226.5.

The Natural Resource Conservation Service (NRCS) groups soils into four categories according to their runoff producing characteristics. Hydrologic soil Group A consists of soils that have a high infiltrative capacity and a low runoff potential even when saturated. Hydrologic soil Group D soils have a very low infiltration rate and high runoff potential.

The soil on the site is classified as Udorthents – Urban land complex with a hydrologic soil group of B and well drained underlying soils. Multiple test pits were dug on site to confirm the well-drained nature of the fill placed.

C. Proposed Drainage System

Low Impact Drainage (LID) design techniques for drainage were incorporated into the design. With the exception of roof leaders, all other site runoff is via sheet flow. The northernmost 250' of the proposed driveway sheets flows into the adjacent field. The parking lot sheet flows to a crushed stone swale and filter strip adjacent to the parking lot. This swale is then directed to a sediment forebay for further treatment of runoff. The combination of the crushed stone filter and sediment forebay meet the requirements of the Connecticut Stormwater Quality Manual by treating the necessary water quality volume (first inch of runoff).

The sediment forebay will overflow into a stormwater basin that will function as both a detention basin and groundwater recharge basin. The basin will attenuate peak flows from the increased impervious area so that peak discharge from the site will not increase. Also on this site, with well drained underlying soils, an added benefit to the infiltration features will be groundwater recharge. During rainfall events, runoff from the

site will be immediately infiltrated into the soil, as well as stored in the stormwater basin.

D. Methodology

The HydroCAD computer program was utilized for the drainage design of this project. This program models the hydrology and hydraulics of stormwater runoff based largely upon the methods developed by the Soil Conservation Service (now known as the Natural Resources Conservation Service). Required input data includes the size of the contributing drainage area, curve numbers which are based upon land use and soil types, and times of concentration.

Hydrographs with peak flows determined are calculated for each drainage area based upon the SCS synthetic unit hydrograph method. The rainfall distribution used in the program was the SCS Type III storm recommended for Connecticut. Precipitation amounts were obtained from the most recent (November 2018) NOAA Atlas 14, volume 10, version 2, "point precipitation frequency estimates."

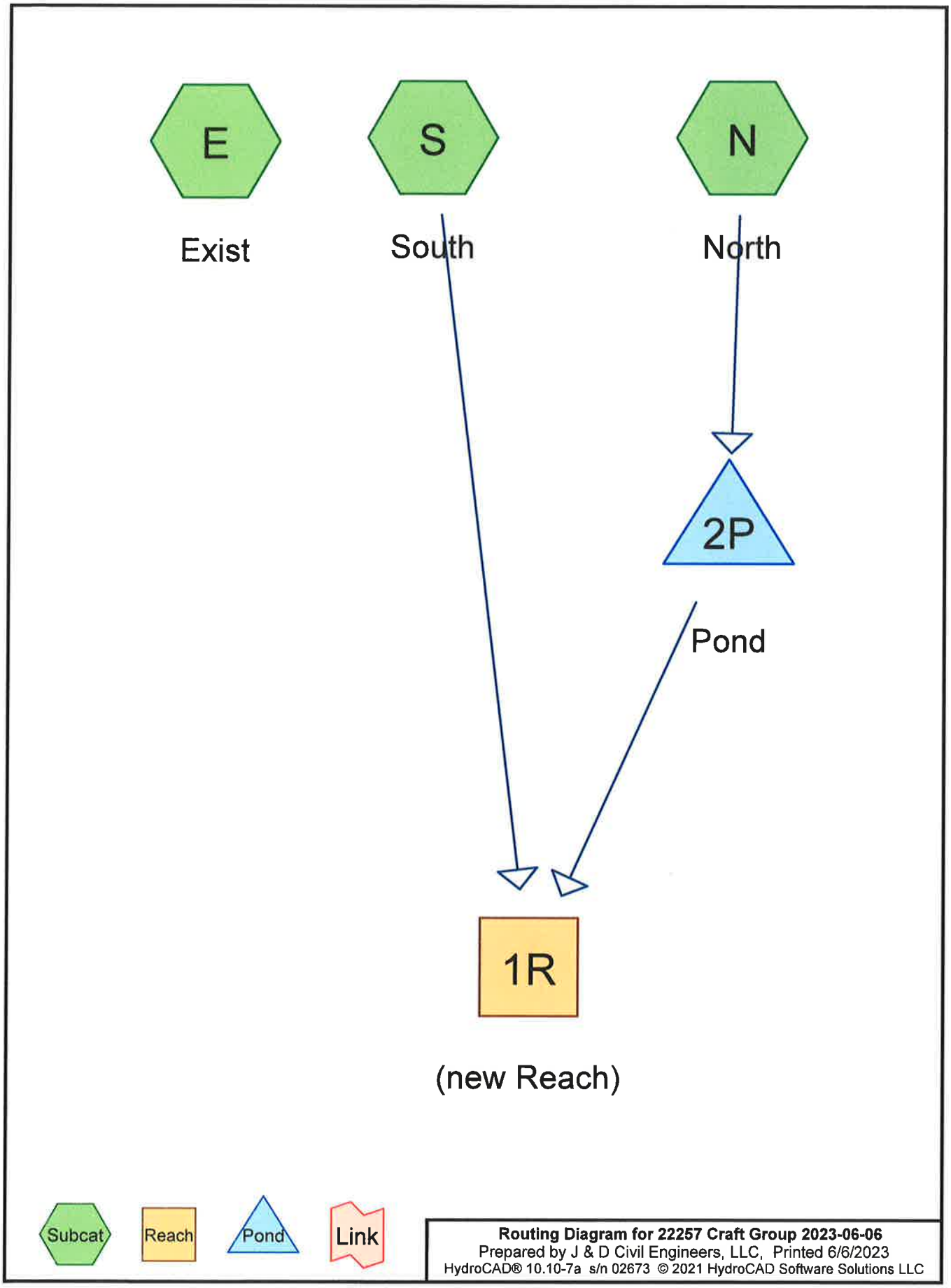
The infiltration rate for the infiltration basin was based upon observation of the soil encountered in the test pits. This soil was extremely well drained and a figure 6.0 in/hr was used for the hydraulic conductivity at this site. This is comparable to a percolation rate of 10 minutes per inch which should be conservative based upon the soil.

E. Results and Comparison of Existing and Proposed Flows

Peak Flow Comparison

	Existing	Proposed
10 YR Storm	3.2 CFS	3.2 CFS
25 YR Storm	4.7 CFS	4.7 CFS
50 YR Storm	5.8 CFS	5.8 CFS

As per the results above, peak flows remain the same following construction. This was accomplished by sizing the stormwater basin appropriately. On this site it would not make sense to model the 100 year storm event because the stormwater basin will be hydraulically connected to the 100 year flood waters from the Quinebaug River.


E
S
N
Exist
South
North
2P
Pond
1R
(new Reach)
Subcat
Reach
Pond
Link
Routing Diagram for 22257 Craft Group 2023-06-06
Prepared by J & D Civil Engineers, LLC, Printed 6/6/2023
HydroCAD® 10.10-7a s/n 02673 © 2021 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	CT 10-year	Type III 24-hr		Default	24.00	1	5.17	2
2	CT 25-year	Type III 24-hr		Default	24.00	1	6.27	2
3	CT 50-year	Type III 24-hr		Default	24.00	1	7.08	2

Summary for Subcatchment E: Exist

Runoff = 3.19 cfs @ 12.39 hrs, Volume= 0.398 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr CT 10-year Rainfall=5.17"

Area (ac)	CN	Description
1.760	69	50-75% Grass cover, Fair, HSG B
0.090	98	Paved parking, HSG B
0.740	56	Brush, Fair, HSG B
2.590	66	Weighted Average
2.500		96.53% Pervious Area
0.090		3.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	200	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
5.2	310	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
27.0	510	Total			

Summary for Subcatchment N: North

Runoff = 2.83 cfs @ 12.13 hrs, Volume= 0.225 af, Depth= 3.33"
Routed to Pond 2P : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr CT 10-year Rainfall=5.17"

Area (ac)	CN	Description
0.420	69	50-75% Grass cover, Fair, HSG B
0.390	98	Paved parking, HSG B
0.810	83	Weighted Average
0.420		51.85% Pervious Area
0.390		48.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	62	0.0100	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.5	26	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
9.1	88	Total			

Summary for Subcatchment S: South

Runoff = 2.93 cfs @ 12.25 hrs, Volume= 0.304 af, Depth= 2.08"
Routed to Reach 1R : (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr CT 10-year Rainfall=5.17"

Area (ac)	CN	Description
1.330	69	50-75% Grass cover, Fair, HSG B
0.290	56	Brush, Fair, HSG B
0.130	98	Paved parking, HSG B
1.750	69	Weighted Average
1.620		92.57% Pervious Area
0.130		7.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	200	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.6	110	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.1	310	Total			

Summary for Reach 1R: (new Reach)

Inflow Area = 2.560 ac, 20.31% Impervious, Inflow Depth = 1.48" for CT 10-year event
Inflow = 3.15 cfs @ 12.28 hrs, Volume= 0.316 af
Outflow = 3.15 cfs @ 12.28 hrs, Volume= 0.316 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond 2P: Pond

Inflow Area = 0.810 ac, 48.15% Impervious, Inflow Depth = 3.33" for CT 10-year event
Inflow = 2.83 cfs @ 12.13 hrs, Volume= 0.225 af
Outflow = 1.10 cfs @ 12.42 hrs, Volume= 0.225 af, Atten= 61%, Lag= 17.9 min
Discarded = 0.79 cfs @ 12.42 hrs, Volume= 0.213 af
Primary = 0.32 cfs @ 12.42 hrs, Volume= 0.012 af
Routed to Reach 1R : (new Reach)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 224.40' @ 12.42 hrs Surf.Area= 2,264 sf Storage= 2,713 cf

Plug-Flow detention time= 34.5 min calculated for 0.225 af (100% of inflow)
Center-of-Mass det. time= 34.5 min (849.5 - 815.0)

Volume	Invert	Avail.Storage	Storage Description
#1	222.00'	7,771 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
222.00	255	60.0	0	0	255
224.00	1,885	215.0	1,889	1,889	3,658
226.00	4,143	252.0	5,882	7,771	5,110

Device	Routing	Invert	Outlet Devices
#1	Discarded	222.00'	**6.000 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 220.00'
#2	Primary	225.50'	**8.0' long + 2.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	224.00'	**6.0" Round Culvert** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 224.00' / 223.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.79 cfs @ 12.42 hrs HW=224.40' (Free Discharge)
└**1=Exfiltration** (Controls 0.79 cfs)

Primary OutFlow Max=0.32 cfs @ 12.42 hrs HW=224.40' (Free Discharge)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Culvert** (Inlet Controls 0.32 cfs @ 1.89 fps)

Summary for Subcatchment E: Exist

Runoff = 4.68 cfs @ 12.39 hrs, Volume= 0.570 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr CT 25-year Rainfall=6.27"

Area (ac)	CN	Description
1.760	69	50-75% Grass cover, Fair, HSG B
0.090	98	Paved parking, HSG B
0.740	56	Brush, Fair, HSG B
2.590	66	Weighted Average
2.500		96.53% Pervious Area
0.090		3.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	200	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
5.2	310	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
27.0	510	Total			

Summary for Subcatchment N: North

Runoff = 3.66 cfs @ 12.13 hrs, Volume= 0.293 af, Depth= 4.34"
Routed to Pond 2P : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr CT 25-year Rainfall=6.27"

Area (ac)	CN	Description
0.420	69	50-75% Grass cover, Fair, HSG B
0.390	98	Paved parking, HSG B
0.810	83	Weighted Average
0.420		51.85% Pervious Area
0.390		48.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	62	0.0100	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.5	26	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
9.1	88	Total			

Summary for Subcatchment S: South

Runoff = 4.18 cfs @ 12.25 hrs, Volume= 0.427 af, Depth= 2.92"
Routed to Reach 1R : (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr CT 25-year Rainfall=6.27"

Area (ac)	CN	Description
1.330	69	50-75% Grass cover, Fair, HSG B
0.290	56	Brush, Fair, HSG B
0.130	98	Paved parking, HSG B
1.750	69	Weighted Average
1.620		92.57% Pervious Area
0.130		7.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	200	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.6	110	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.1	310	Total			

Summary for Reach 1R: (new Reach)

Inflow Area = 2.560 ac, 20.31% Impervious, Inflow Depth = 2.15" for CT 25-year event
Inflow = 4.69 cfs @ 12.26 hrs, Volume= 0.459 af
Outflow = 4.69 cfs @ 12.26 hrs, Volume= 0.459 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond 2P: Pond

Inflow Area = 0.810 ac, 48.15% Impervious, Inflow Depth = 4.34" for CT 25-year event
Inflow = 3.66 cfs @ 12.13 hrs, Volume= 0.293 af
Outflow = 1.45 cfs @ 12.41 hrs, Volume= 0.293 af, Atten= 60%, Lag= 17.3 min
Discarded = 0.88 cfs @ 12.41 hrs, Volume= 0.261 af
Primary = 0.57 cfs @ 12.41 hrs, Volume= 0.032 af
Routed to Reach 1R : (new Reach)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 224.72' @ 12.41 hrs Surf.Area= 2,597 sf Storage= 3,496 cf

Plug-Flow detention time= 35.5 min calculated for 0.293 af (100% of inflow)
Center-of-Mass det. time= 35.5 min (842.9 - 807.4)

Volume	Invert	Avail.Storage	Storage Description
#1	222.00'	7,771 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
222.00	255	60.0	0	0	255
224.00	1,885	215.0	1,889	1,889	3,658
226.00	4,143	252.0	5,882	7,771	5,110

Device	Routing	Invert	Outlet Devices
#1	Discarded	222.00'	**6.000 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 220.00'
#2	Primary	225.50'	**8.0' long + 2.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	224.00'	**6.0" Round Culvert** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 224.00' / 223.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.88 cfs @ 12.41 hrs HW=224.72' (Free Discharge)
└─**1=Exfiltration** (Controls 0.88 cfs)

Primary OutFlow Max=0.57 cfs @ 12.41 hrs HW=224.72' (Free Discharge)
├─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**3=Culvert** (Inlet Controls 0.57 cfs @ 2.91 fps)

Summary for Subcatchment E: Exist

Runoff = 5.84 cfs @ 12.39 hrs, Volume= 0.705 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr CT 50-year Rainfall=7.08"

Area (ac)	CN	Description
1.760	69	50-75% Grass cover, Fair, HSG B
0.090	98	Paved parking, HSG B
0.740	56	Brush, Fair, HSG B
2.590	66	Weighted Average
2.500		96.53% Pervious Area
0.090		3.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	200	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
5.2	310	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
27.0	510	Total			

Summary for Subcatchment N: North

Runoff = 4.28 cfs @ 12.12 hrs, Volume= 0.344 af, Depth= 5.10"
Routed to Pond 2P : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr CT 50-year Rainfall=7.08"

Area (ac)	CN	Description
0.420	69	50-75% Grass cover, Fair, HSG B
0.390	98	Paved parking, HSG B
0.810	83	Weighted Average
0.420		51.85% Pervious Area
0.390		48.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	62	0.0100	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.5	26	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
9.1	88	Total			

Summary for Subcatchment S: South

Runoff = 5.15 cfs @ 12.25 hrs, Volume= 0.522 af, Depth= 3.58"
Routed to Reach 1R : (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr CT 50-year Rainfall=7.08"

Area (ac)	CN	Description
1.330	69	50-75% Grass cover, Fair, HSG B
0.290	56	Brush, Fair, HSG B
0.130	98	Paved parking, HSG B
1.750	69	Weighted Average
1.620		92.57% Pervious Area
0.130		7.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	200	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.6	110	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.1	310	Total			

Summary for Reach 1R: (new Reach)

Inflow Area = 2.560 ac, 20.31% Impervious, Inflow Depth = 2.67" for CT 50-year event
Inflow = 5.79 cfs @ 12.25 hrs, Volume= 0.570 af
Outflow = 5.79 cfs @ 12.25 hrs, Volume= 0.570 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond 2P: Pond

Inflow Area = 0.810 ac, 48.15% Impervious, Inflow Depth = 5.10" for CT 50-year event
Inflow = 4.28 cfs @ 12.12 hrs, Volume= 0.344 af
Outflow = 1.65 cfs @ 12.42 hrs, Volume= 0.344 af, Atten= 62%, Lag= 17.7 min
Discarded = 0.94 cfs @ 12.42 hrs, Volume= 0.296 af
Primary = 0.70 cfs @ 12.42 hrs, Volume= 0.048 af
Routed to Reach 1R : (new Reach)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 224.96' @ 12.42 hrs Surf.Area= 2,855 sf Storage= 4,139 cf

Plug-Flow detention time= 36.4 min calculated for 0.344 af (100% of inflow)
Center-of-Mass det. time= 36.4 min (839.3 - 802.9)

Volume	Invert	Avail.Storage	Storage Description
#1	222.00'	7,771 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
222.00	255	60.0	0	0	255
224.00	1,885	215.0	1,889	1,889	3,658
226.00	4,143	252.0	5,882	7,771	5,110

Device	Routing	Invert	Outlet Devices
#1	Discarded	222.00'	**6.000 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 220.00'
#2	Primary	225.50'	**8.0' long + 2.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	224.00'	**6.0" Round Culvert** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 224.00' / 223.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.94 cfs @ 12.42 hrs HW=224.96' (Free Discharge)
└**1=Exfiltration** (Controls 0.94 cfs)

Primary OutFlow Max=0.70 cfs @ 12.42 hrs HW=224.96' (Free Discharge)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Culvert** (Inlet Controls 0.70 cfs @ 3.57 fps)

JOB NO. 22257
DATE JUNE 7, 2023
BY JJB
CH'D BY

J & D CIVIL ENGINEERS LLC
401 Ravenelle Road
North Grosvenordale, CT 06255
(860) 923-2920 | www.jdcivilengineers.com

SHEET NO.
JOB DISPENSARY
SUBJECT DRAINAGE
CLIENT CRAFT GROUP

STORMWATER QUALITY CALCULATIONS

AS PER THE CT STORMWATER QUALITY MANUAL

DETERMINE REQ'D STORMWATER QUALITY VOLUME (WQV)

$$WQV = \frac{1'' R A}{12} \text{ (AC-FT)}$$

$R = 0.05 + 0.009 I$
I = % IMPERVIOUS COVER
A = DRAINAGE AREA - AC

$$R = 0.05 + 0.009I = 0.05 + 0.009(15) = 0.185$$

$$WQV = \frac{1 (0.185)(2.59)}{12} = 0.04 \text{ AC-FT} = 1739 \text{ FT}^3$$

WATER QUALITY TREATMENT WILL INCLUDE CRUSHED STONE SWALE PLUS SEDIMENT FOREBAY.

SWALE VOLUME: $5'(0.25')(96) = 120 \text{ FT}^3$

FOREBAY VOLUME: $650 \text{ FT}^2 (2.7') = 1755 \text{ FT}^3$

TOTAL = 1875 FT^3

1875 FT^3 PROVIDED > 1739 FT^3 REQ'D - GOOD

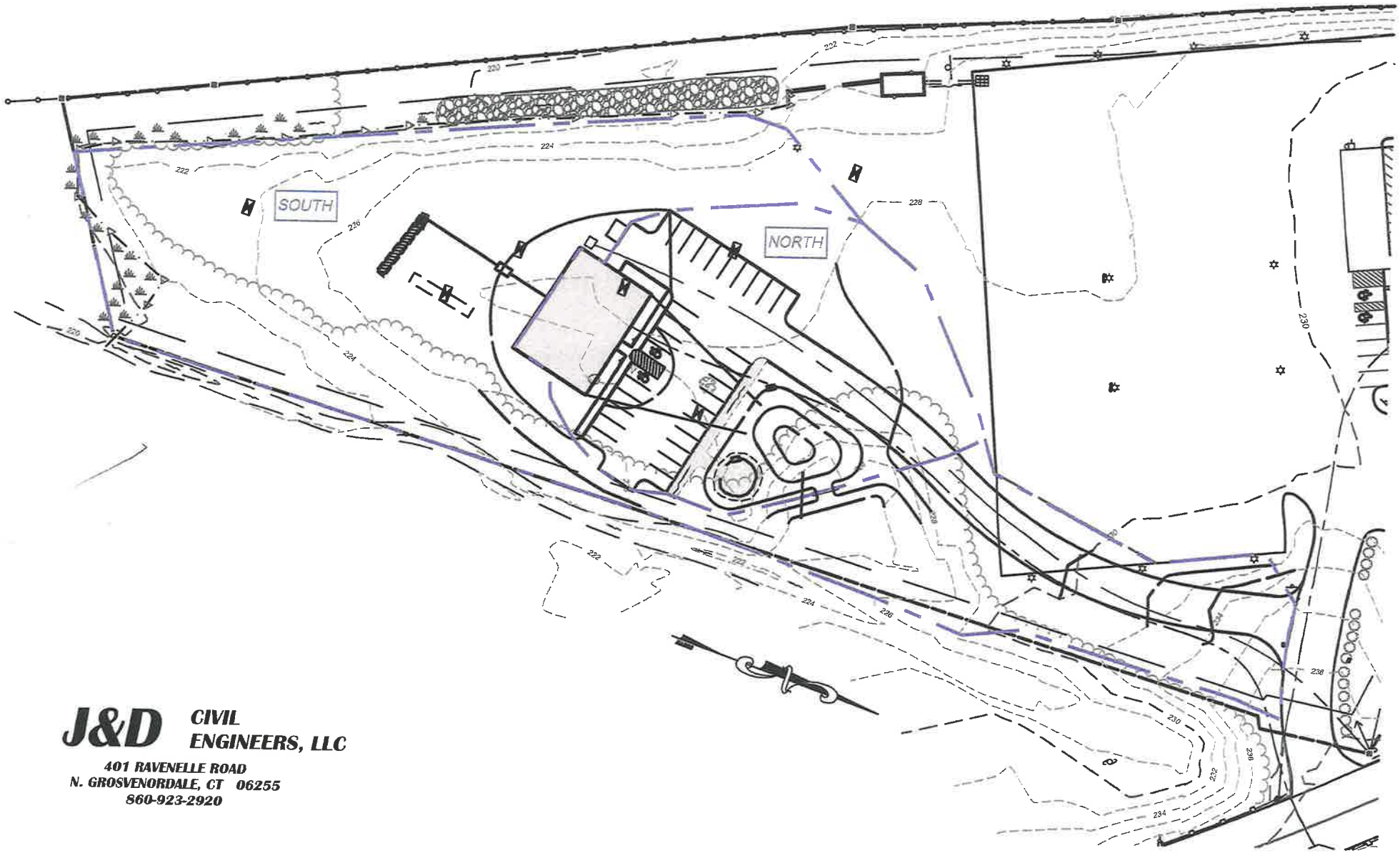
DRAINAGE AREA MAP

PREPARED FOR

THE CRAFT GROUP

JUNE 2023

SCALE: 1" = 80'



J&D CIVIL ENGINEERS, LLC

401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

WASHBURN WETLAND CONSULTING LLC

19 Wolf Den Road • Pomfret Center, Connecticut 06259-2022
Telephone (860) 428-8424 • washburnwetland@gmail.com

Janet Blanchette
J & D Civil Engineers
401 Ravenelle Road
North Grosvenordale, CT 06255

May 12, 2023

Dear Janet,

Today, at your request, I conducted a site investigation at 3 Park Road in Putnam, CT. The purpose of the site investigation was to delineate a portion of the wetlands on the subject property, in the area you indicated.

The subject property is located on an area of nearly level to sloping soils formed in alluvium. References used in the soil identification process included *Soil Survey of Windham County Connecticut* (USDA Soil Conservation Service, December 1981), the U.S.G.S. topographic map for the subject property, a site development plan you provided, and GIS maps. The wetlands were delineated using consecutively numbered lengths of red surveyors' ribbon. There is one series of wetland flags (WF), numbered WF1– WF17. Please refer to the attached site sketch for further details.

Virtually all of the soils on the subject property consist of floodplain soils, according to the *Soil Survey*. Udorthents are mapped to the east of the subject property.

On May 11, 2023, Maureen Marcoux of the Northeast District Department of Health, you and I logged the information from several deep test pits. All the deep test pits were in the area of soils mapped as Occum fine sandy loam in the *Soil Survey*. All the deep test pits revealed that extensive filling of the floodplain had taken place many years ago. The test pits are shown on a plan that you prepared. A summary of the amounts of fill observed in each deep test pit is shown below:

Deep test pit number	Depth of fill observed
TP1	114 inches
TP2	96 inches
TP3	41 inches
TP4	60 inches
TP5	78 inches
TP6	54 inches
TP7	65 inches
TP8	58 inches

In addition to the deep fill over the Occum soils, the Quinebaug River was relocated many years ago. Although the soils on the subject property were once in a floodplain, neither of the Federal Emergency Management Agency (FEMA) maps of the subject property, effective

dates October 18, 1988 and September 2023, show the portion of the subject property where the test pits were logged as being in a floodplain. Please see the attached FEMA maps. Because of the decades-old deep fill over the Occum soils, and the relocation of the flood zones, the area where the 8 deep test pits were logged clearly does not function as wetlands.

In accordance with Map Sheet 20 of the *Soil Survey,* in the area of the wetlands delineation, the wetlands soils consist of moderately well drained Pootatuck fine sandy loam, found in floodplains along major streams, and poorly drained Rippowam fine sandy loam, found on low floodplains of major streams and their tributaries. The upland soils in the area of the wetlands delineation consist of Human Transported Material (HTM), formerly known as "fill".

I investigated the entire length of the drainage swale on the east side of the property. The swale originates near the driveway entrance to Putnam Ford on Park Road. No pipes were observed directing any road runoff into this swale. No wetlands soils were observed in the swale. In accordance with Map Sheet 20 of the *Soil Survey,* the soils in the area of the drainage swale consist of Udorthents.

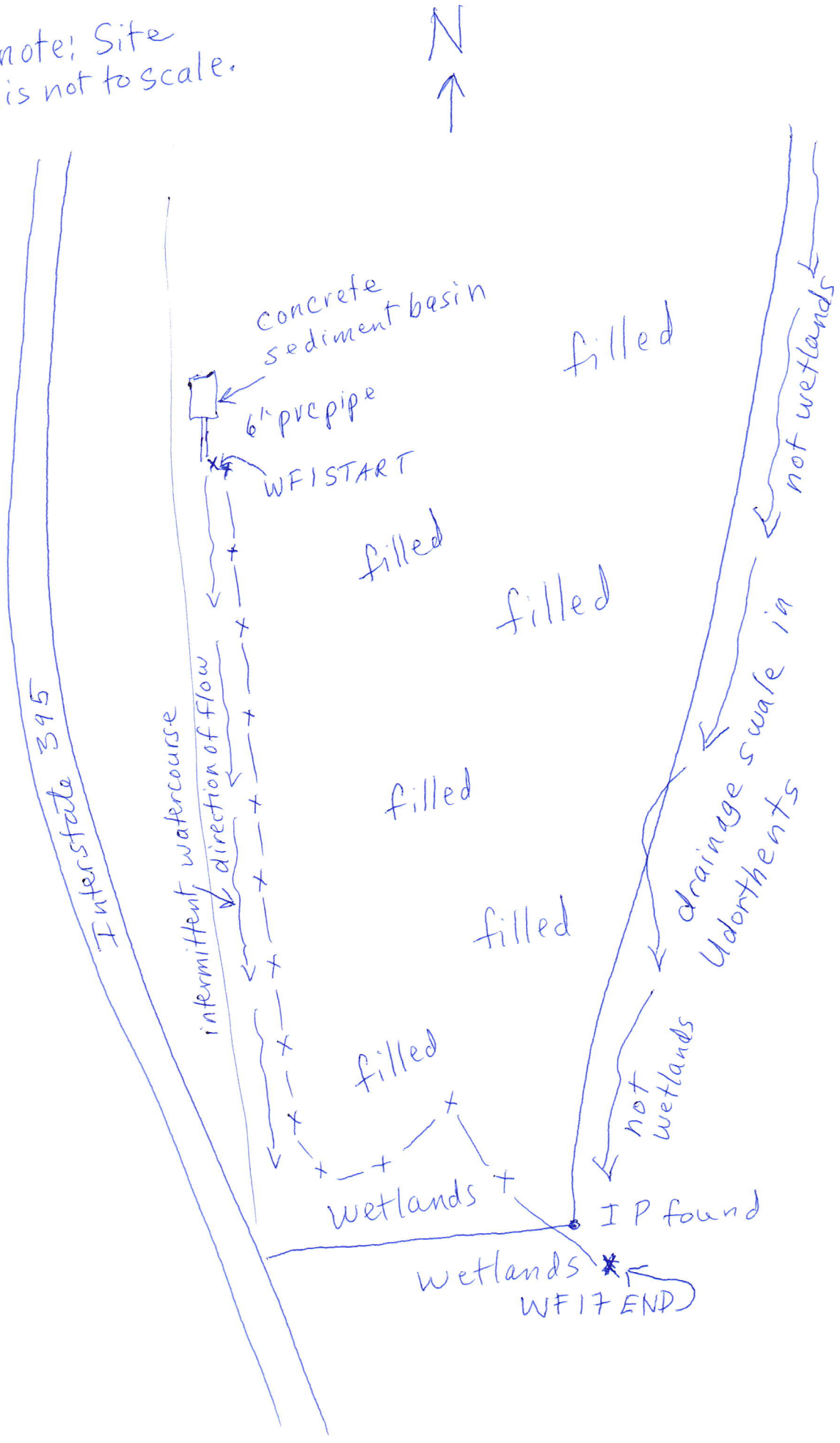
It has been a pleasure working for you on this site. Please feel free to call me if I may be of further assistance.

Sincerely,

Margaret Washburn

Margaret Washburn, M.S.
Registered Professional Soil Scientist

Please note: Site sketch is not to scale.



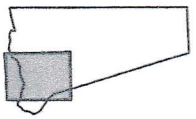
NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF PUTNAM, CONNECTICUT
WINDHAM COUNTY

PANEL 4 OF 10

(SEE MAP INDEX FOR PANELS NOT PRINTED)

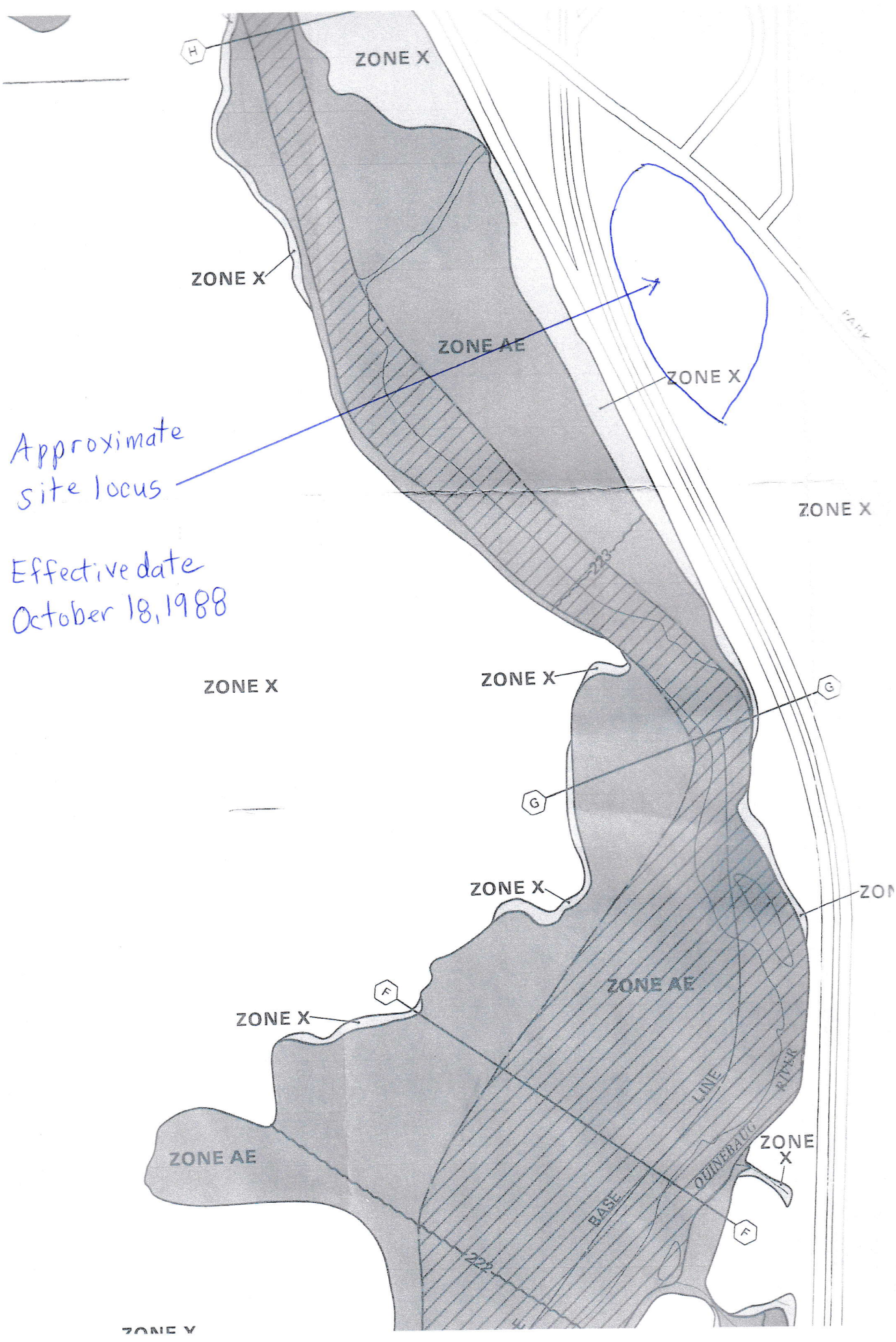


PANEL LOCATION

COMMUNITY-PANEL NUMBER
090194 0004 B

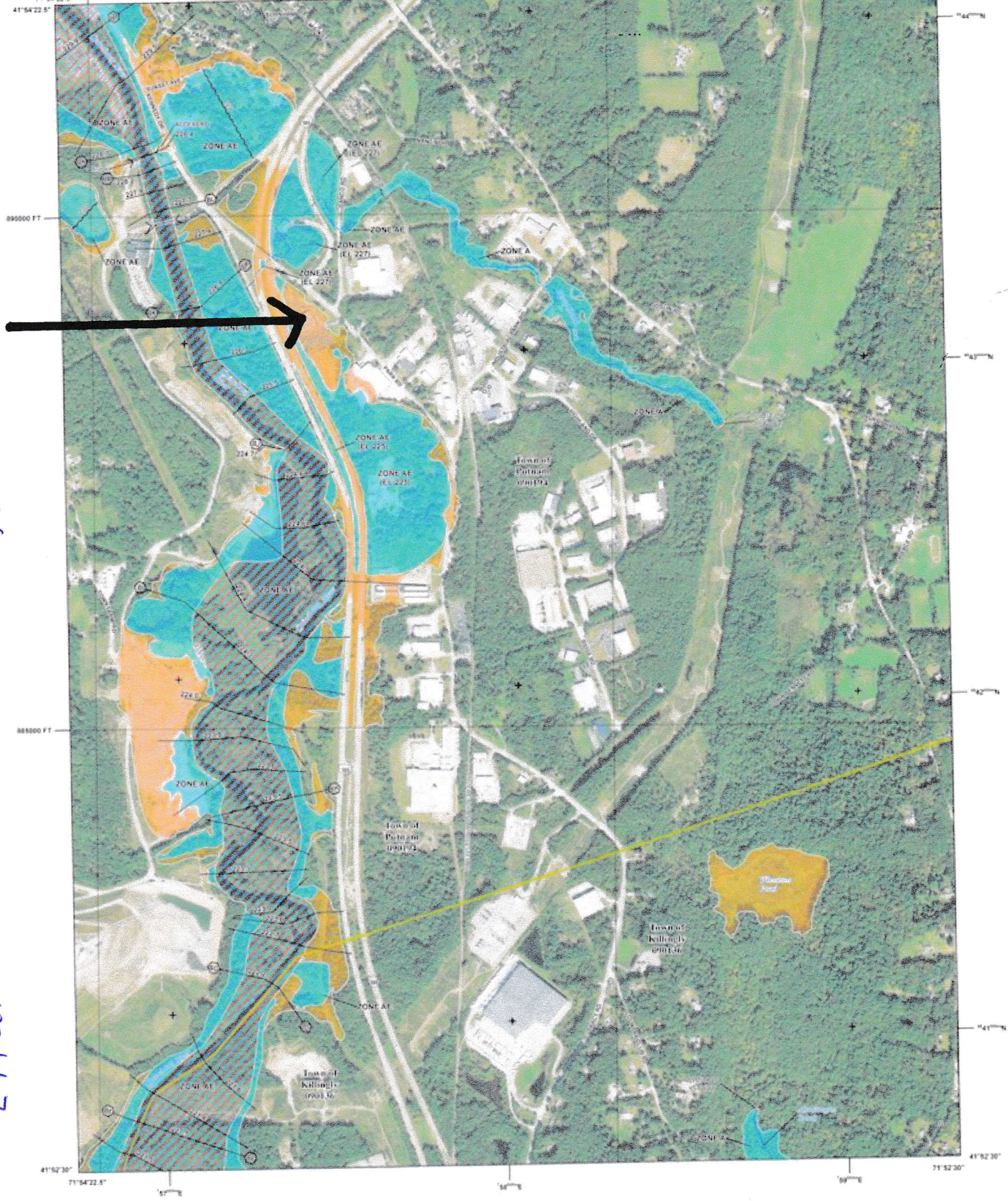
EFFECTIVE DATE:
OCTOBER 18, 1988

Federal Emergency Management Agency


ZONE X
H
ZONE X
ZONE AE
ZONE X
Approximate site locus
Effective date October 18, 1988
ZONE X
223
ZONE X
ZONE X
G
G
ZONE X
ZONE AE
F
ZONE X
ZONE AE
LINE
QUINEBAUG
RIVER
ZONE X
BASE
F
222

Approximate site locus

Effective date 9/2023



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Flood Risk due to Levee See Notes
- Area with Flood Risk due to Levee

OTHER AREAS OF FLOOD HAZARD

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM including historic versions of this map, see the FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide Flood Data Files refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was derived from digital orthophotography provided by the NAIP. The imagery was flown in 2018 and was produced at 0.6 meter resolution.

SCALE

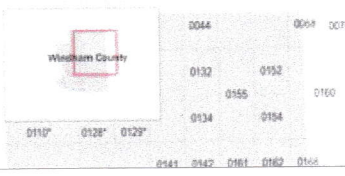
Map Projection: NAD 1983 StatePlane Connecticut FIPS 0600 Feet (North American Datum 1983)
Elevation: North American Vertical Datum 1988 (NAVD 88)

1 inch = 500 feet 1:6,000

0 500 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

WINDHAM COUNTY, CONNECTICUT

All jurisdictions

PANEL 144 OF 395

COMMUNITY	NUMBER	PANEL
KILLINGLY, TOWN OF	090116	0144
PUTNAM, TOWN OF	090174	0144