TOWN of WESTON, CONNECTICUT

Incorporated 1787

Conservation Commission

INLAND WETLANDS AND WATERCOURSES APPLICATION

This Application is for a five-year permit to conduct a regulated activity or activities pursuant to the Inland Wetlands and Watercourses Regulations of the Town of Weston ("The Regulations")

PROPERTY ADDRESS: 10 Hills End Lane

Assessor's Map # 14 **Block #** 1 **Lot #** 55

PROJECT DESCRIPTION *(general purpose)* Construct new single-family residence, driveway, pool and hardscape with associated septic system and stormwater management improvements.

Total Acres 2.532 Total Acres of Wetlands and Watercourses 0.900

Acreage of Wetlands and Watercourses Altered 0.00 Upland Area Altered 0.256 ac

Acres Linear Feet of Stream Alteration 0.00 Total Acres Proposed Open Space 0.00

OWNER(S) OF RECORD: *(Please list all owners, attach extra sheet if necessary)*

Name: Andrea and Edward Gillis Phone: (203) 232-9283

Address: 10 Hills End Lane, Weston, CT 06883

Email: aleighgillis@gmail.com, gillis.ecg@gmail.com

APPLICANT/AUTHORIZED AGENT:

Name: Harry Rocheville (McChord Engineering Assoc., Inc.) Phone: (203) 834-0569

Address: 1 Grumman Hill Road, Wilton, CT 06897

Email: hrocheville@mcchordengineering.com

CONSULTANTS: *(Please provide, if applicable)*

Engineer: McChord Engineering Assoc., Inc. Phone: (203) 834-0569

Address: 1 Grumman Hill Road, Wilton, CT 06897 Email: hrocheville@mcchordengineering.com

Soil Scientist: Aleksandra Moch Phone: (203) 550-9373

Address: 44 Lewelyn Road, Stamford, CT 06902 Email: aleksandra_moch@yahoo.com

Legal Counsel: _____ Phone: _____

Address: _____ Email: _____

Surveyor: Land Surveying Services, LLC Phone: (203) 522-4177

Address: 1275 Post Road, Ste. A-20, Fairfield, CT 06824 Email: info@A2survey.com

PROPERTY INFORMATION

Property Address: 10 Hills End Lane

Existing Conditions *(Describe existing property and structures)*: Undeveloped vacant lot.

Provide a detailed description and purpose of proposed activity *(attach sheet with additional information if needed)*: Construct new single-family residence, driveway, pool and hardscape with associated site grading, erosion controls, utilities, septic system and stormwater management improvements. See Septic System/Site Development Plan for additional information.

Square feet of proposed impervious surfaces *(roads, buildings, parking, etc.)*: 10,770

Subject property to be affected by proposed activity contains:

- ☒ wetlands soils
- ☐ swamp
- ☐ floodplain
- ☐ marsh
- ☐ bog
- ☐ lake or pond
- ☐ stream or river
- ☐ other _____

The proposed activity will involve the following within wetlands, watercourse, and/or review area:

- ☒ Alteration
- ☐ Discharge to
- ☒ Removal of Materials
- ☒ Construction
- ☐ Discharge from
- ☒ Deposition of Materials
- ☐ Pollution
- ☐ Bridge or Culvert
- ☐ Other _____

Amount, type, and location of materials to be removed, deposited, or stockpiled:

Material will be removed for the construction of the house, pool and drainage systems. It will be temporarily stockpiled in designated areas until it can be used on site. Excess material will be hauled away. If any additional material is needed it will consist of clean common fill. Clean gravel and sand will be brought on site for the septic and stormwater systems.

Description, work sequence, and duration of activities:

Construction entrances and erosions controls will be installed first. Then clearing and earthwork will occur prior to foundations being installed. As the house is being constructed the stormwater management improvements and septic system will be installed. Final grading and installation of the driveway, hardscape and landscaping will occur last. Erosions controls will be remain in place until the site is stablized. Duration of construction is anticipated to be approx. 12 months.

Describe alternatives considered and why the proposal described herein was chosen:

Multiple alternatives were considered but ultimately this layout was chosen to minimize earthwork, meet setbacks to the septic and stormwater management systems and maintains the existing stone wall to protect the inland wetlands.

Does the proposed activity involve the installation and/or repair of an existing septic system(s) *(circle)*: Yes or No Application has been submitted to the Aspetuck Health District.

The Westport/Weston Health District Approval: _____

ADJOINING MUNICIPALITIES AND NOTICE:

If any of the situations below apply, the applicant is required to give written notice of his/her application to the Inland Wetlands Agency of the adjoining municipality, on the same day that he/she submits this application. Notification must be sent by Certified Mail with Return Receipt Requested.

The property is located within 500 feet of any town boundary line;
A significant portion of the traffic to the completed project will use streets within the adjoining municipality to enter or exit the site;

A portion of the water drainage from the project site will flow through and significantly impact the sewage system or drainage systems within the adjoining municipality; or
Water runoff from the improved site will impact streets or other municipal or private property within the adjoining municipality

AQUARION WATER COMPANY

Pursuant to Section 8.4 of the Weston regulations, the Aquarion Water Company must be notified of any regulated activity proposed within its watersheds. Maps showing approximate watershed boundaries are available at the office of the Commission. If the project site lies within these boundaries, send notice, site plan, and grading and erosion control plan via certified mail, return receipt requested, within seven (7) days of submitting application to the Commission, to:

George S. Logan, Director – Environmental Management
Aquarion Water Company
714 Black Rock Turnpike
Easton, CT 06612

The Commissioner of the Connecticut Department of Public Health must also be notified in the same manner in a format prescribed by that commissioner.

The undersigned, as owner(s) of the property, hereby consents to necessary and proper inspections of the above mentioned property by Commissioners and agents of the Conservation Commission, Town of Weston, at reasonable times, both before and after a final decision has been issued by the Commission.

The undersigned hereby acknowledges to have read the "Application Requirements and Procedures" in completing this application.

The undersigned hereby certifies that the information provided in this application, including its supporting documentation is true and he/she is aware of the penalties provided in Section 22a-376 of the Connecticut General Statues for knowingly providing false or misleading information.

See attached Letter of Authorization

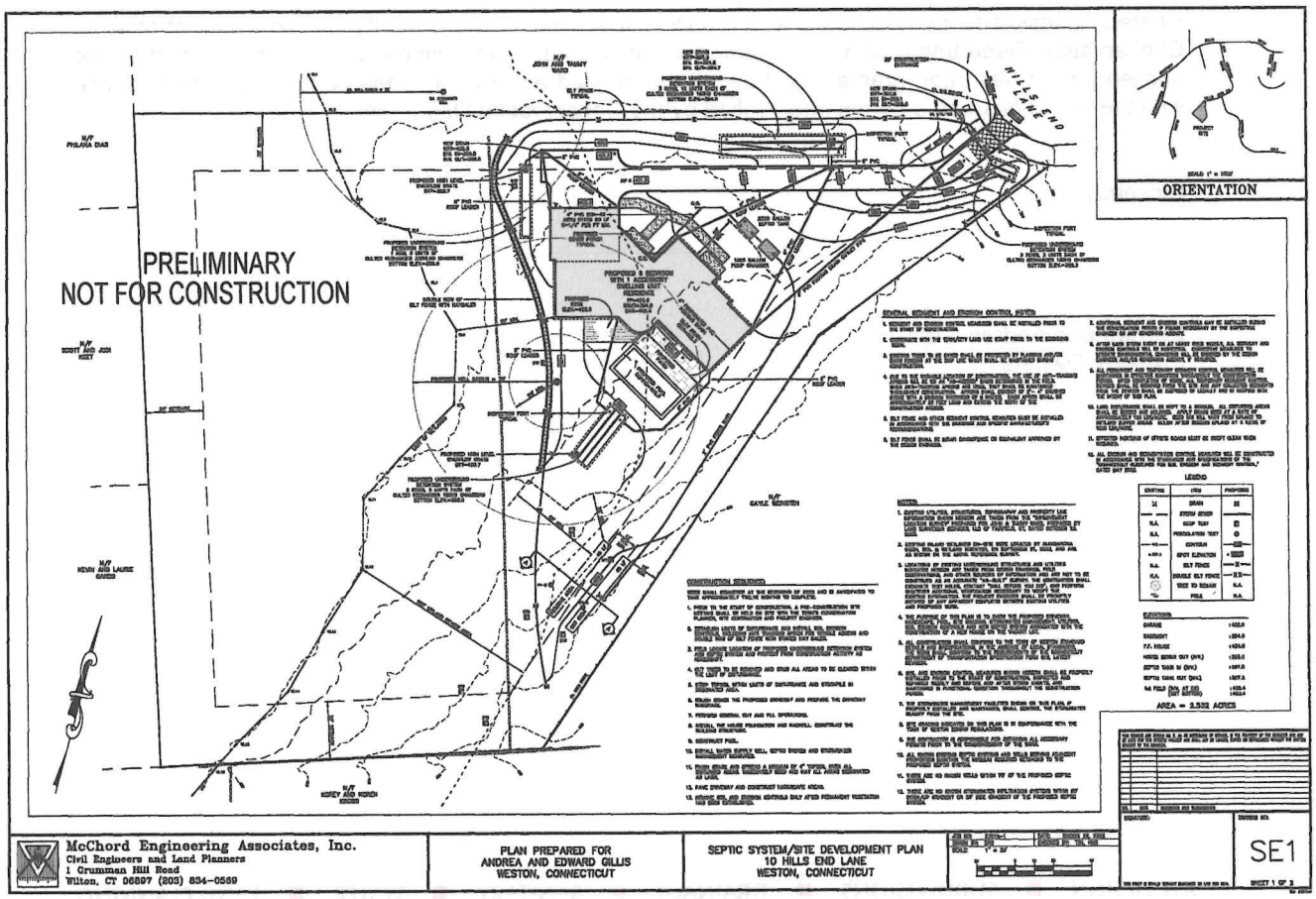
Signature of Owner(s) of Record — Date

Signature of Authorized Agent — Date 11/14/24

FOR OFFICE USE ONLY

Administrative Approval

Initials — Date



McChord Engineering Associates, Inc.
Civil Engineers and Land Planners

1 Grumman Hill Road
Wilton, CT 06897
(203) 834-0569

November 4, 2024

Town of Weston Conservation Commission
Town Hall Annex – 24 School Road
Weston, CT 06883

Re: Inland Wetlands and Watercourses Application
Proposed Site Development
10 Hills End Lane, Weston, CT
Map 14, Block 1, Lot 55

Dear Commissioners,

I hereby authorize McChord Engineering Associates, Inc. (MEA), to act as agent regarding the referenced Conservation Commission application and authorize all subject property activities

associated with the proposed site development at the subject property.

I hereby consent to all necessary and proper inspections of the property by the Town of Weston Conservation Department and Commissioners at all reasonable times, both before and after the applied permit has been granted, and until the permitted activity has been completed in accordance with the conditions of the permit and verified by the Conservation Department.

Sincerely,

Edward and Andrea Gillis
Property Owners

Adjacent Property Owners Within 100-ft of Property

10 Hills End Lane
Weston, CT 06883

Map/Block/Lot	Property Owner	Mailing Address
13/6/97	Town of Weston	PO Box 1007 Weston, CT 06883
14/1/53	Jessica Margolis & Scott Moses	6 Hills End Lane Weston, CT 06883
14/1/54	Gayle M Weinstein	8 Hills End Lane Weston, CT 06883
14/1/57	EIMEG LLC	73 Old Hyde Road Weston, CT 06883
14/1/56	Tammy H & John S Ward	8 Hills End Lane Weston, CT 06883
14/1/54	Gayle M Weinstein	9 Hills End Lane Weston, CT 06883
14/1/58	Christine & Scott Sacane	5 Hills End Lane Weston, CT 06883
13/6/18	Lori S & Curtis N Gunn	16 Glory Road Weston, CT 06883
13/6/96	Koren & Korey Kross	40 November Trail Weston, CT 06883
13/6/16	Jodi & Scott Keet	22 Glory Road Weston, CT 06883
13/6/15	Laurie H & Kevin P Gakos	26 Glory Road Weston, CT 06883
13/6/17	Philana Dias	20 Glory Road Weston, CT 06883

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

GIS CODE #: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
For DEEP Use Only

Statewide Inland Wetlands & Watercourses Activity Reporting Form

Please complete and mail this form in accordance with the instructions on pages 2 and 3 to:
DEEP Land & Water Resources Division, Inland Wetlands Management Program, 79 Elm Street, 3rd Floor, Hartford, CT 06106
Incomplete or incomprehensible forms will be mailed back to the inland wetlands agency.

PART I: Must Be Completed By The Inland Wetlands Agency

1. DATE ACTION WAS TAKEN: year: _____ month: _____
2. ACTION TAKEN (see instructions, only use one code): _____
3. WAS A PUBLIC HEARING HELD (check one)? yes ☐ no ☐
4. NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:
   (print name) _____ (signature) _____

PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant

5. TOWN IN WHICH THE ACTION IS OCCURRING (print name): **Weston**
   does this project cross municipal boundaries (check one)? yes ☐ no ☒
   if yes, list the other town(s) in which the action is occurring (print name(s)): _____, _____
6. LOCATION (see instructions for information): USGS quad name: **Norwalk North** or number: **107**
   subregional drainage basin number: **7203**
7. NAME OF APPLICANT, VIOLATOR OR PETITIONER (print name): **Andrea and Edward Gillis**
8. NAME & ADDRESS / LOCATION OF PROJECT SITE (print information): **10 Hills End Lane**
   briefly describe the action/project/activity (check and print information): temporary ☐ permanent ☒ description:
   Construction of new single-family residence with associated site improvements on vacant lot.
9. ACTIVITY *PURPOSE* CODE (see instructions, only use one code): **B**
10. ACTIVITY *TYPE* CODE(S) (see instructions for codes): **1**, **2**, **12**, **14**
11. WETLAND / WATERCOURSE AREA ALTERED (must provide acres or linear feet):
    wetlands: **0** acres open water body: **0** acres stream: **0** linear feet
12. UPLAND AREA ALTERED (must provide acres): **0.256** acres
13. AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (must provide acres): **0** acres

PART III: To Be Completed By The DEEP

DATE RECEIVED: DATE RETURNED TO DEEP:

FORM COMPLETED: YES NO FORM CORRECTED / COMPLETED: YES NO

WETLAND DELINEATION

FOR THE PROPERTY LOCATED AT

10 HILLS END LANE
WESTON, CONNECTICUT

REPORT PREPARED BY

ALEKSANDRA MOCH

SOIL & WETLAND SCIENTIST

LANDSCAPE DESIGNER, CPESC

GEOLOGIST/HYDROGEOLOGIST

September 21, 2023

SITE DESCRIPTION

The property is located at the cul-de-sac of Hills End Lane in Weston, CT. This vacant lot is wooded and slopes towards the northwest. There is an old stone wall running through the central portion of the site.

METHODS

Wetland identification was performed on September 21, 2023 and based on the presence of poorly drained, very poorly drained, alluvial, and/or floodplain soils and submerged land. The soil types were identified by observation of soil morphology including soil texture, structure, color, etc. Numerous soil samples were taken using an auger. Sampling began within the typical wetland/watercourse area and continued toward the upland. Soil morphology was observed at soil sampling points along the transect lines perpendicular to the wetland/watercourse boundary. At each transect, the boundary between the upland and wetlands/watercourses were marked with orange surveyor's tape labeled "*WET*". Each flag was numbered sequentially from 1 to 16 along the eastern edge of the wetland/watercourse corridor.

WETLANDS/WATERCOURSES REGULATORY DEFINITION

The Inland Wetlands and Watercourses Act (Connecticut General Statues section 22a-38) defines inland wetlands as *land, including submerged land…which consists of any soil types designated as poorly drained, very poorly drained, alluvial, and floodplain.*

Watercourses are defined in the statues as *rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof.*

Intermittent watercourse: is determined by a defined permanent channel and bank and the occurrence of two or more of the following characteristics:

- Evidence of scour or deposits of recent alluvium or detritus,
- Presence of standing or flowing water for a duration longer than a particular storm incident, and
- Presence of hydrophytic vegetation.

WETLAND/WATERCOURSE DESCRIPTION

The area flagged in the field consists of a red maple swamp bisected by a perennial stream. This wooded wetland/watercourse corridor expands throughout the neighborhood and occupies the western section of the site. The stream enters the site at the southwestern

Aleksandra Moch, 44 Lewelyn Road Stamford, CT 06902
cell: (203) 550 9373, aleksandra_moch@yahoo.com

corner and flows towards the north. The area of the swamp suffers from seasonal flooding.

WETLAND SOILS

The soils were classified using soil criteria and maps developed by USDA Natural Resource Conservation Service.

3 – Ridgebury, Leicester, and Whitman extremely stony fine sandy loams: This unit consists of poorly, drained and very poorly drained soils.

The Ridgebury soils have a surface layer of very dark grayish brown fine sandy loam. The subsoil is brown and light brownish gray, mottled fine sandy loam. The substratum is grayish brown and dark yellowish brown, mottled fine sandy loam.

The Leicester soils have a surface layer of black fine sandy loam. The subsoil is brown, mottled fine sandy loam and gravelly fine sandy loam. The substratum is olive brown, mottled gravelly fine sandy loam.

The Whitman soils have a surface layer of very dark gray fine sandy loam. The upper section of subsoil is dark and grayish brown gravelly fine sandy loam. The lower section of subsoil is grayish brown, mottled fine sandy loam. The substratum is very firm, grayish brown, mottled gravelly fine sandy loam.

Including with this unit in mapping are small areas of moderately well drained Woodbridge and Sutton soils and very poorly drained Adrian and Scarboro soils.

The major soils in this unit have a seasonal high water table at or near the surface from fall through spring.

UPLAND SOILS

46B—Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony

This moderately well drained soil occurs at the ground moraines, hills and drumlins. Its parent material consist of coarse-loamy lodgment till derived from gneiss, granite, and/or schist. The surface is typically covered with cobbles, stones or boulders. The depth to the restrictive layer varies from 20 to 43 inches. Ground water table occurs between 19 to 27 inches during the average condition.

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cell: (203) 550 9373, aleksandra_moch@yahoo.com

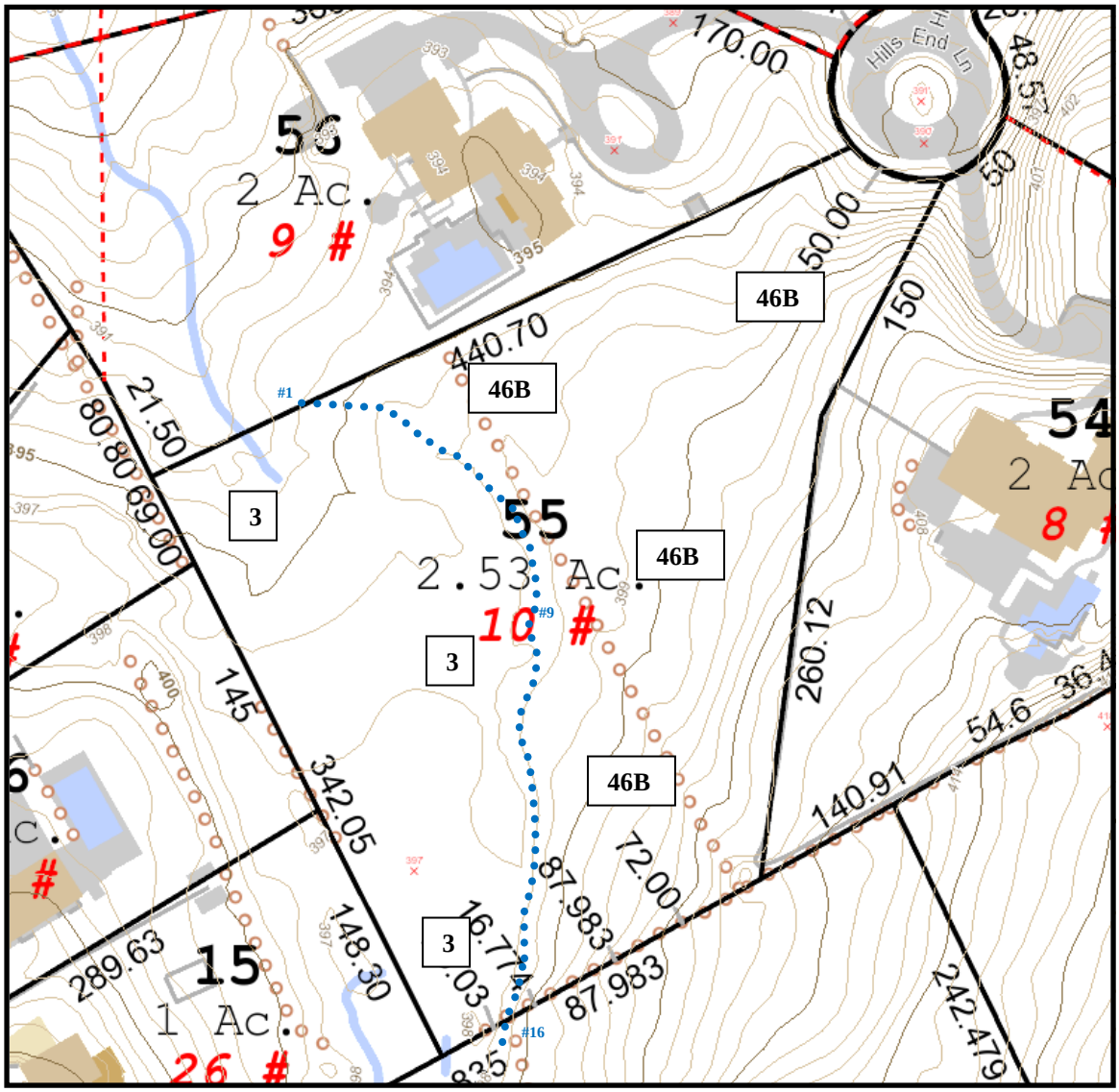
Typical profile

- *0 - 2 inches:* moderately decomposed plant material
- *2 - 9 inches:* fine sandy loam
- *9 - 20 inches:* fine sandy loam
- *20 - 32 inches:* fine sandy loam
- *32 - 67 inches:* gravelly fine sandy loam

Certified by:

Aleksandra Moch
Wetland & Soil Scientist

Aleksandra Moch, 44 Lewelyn Road Stamford, CT 06902
cell: (203) 550 9373, aleksandra_moch@yahoo.com



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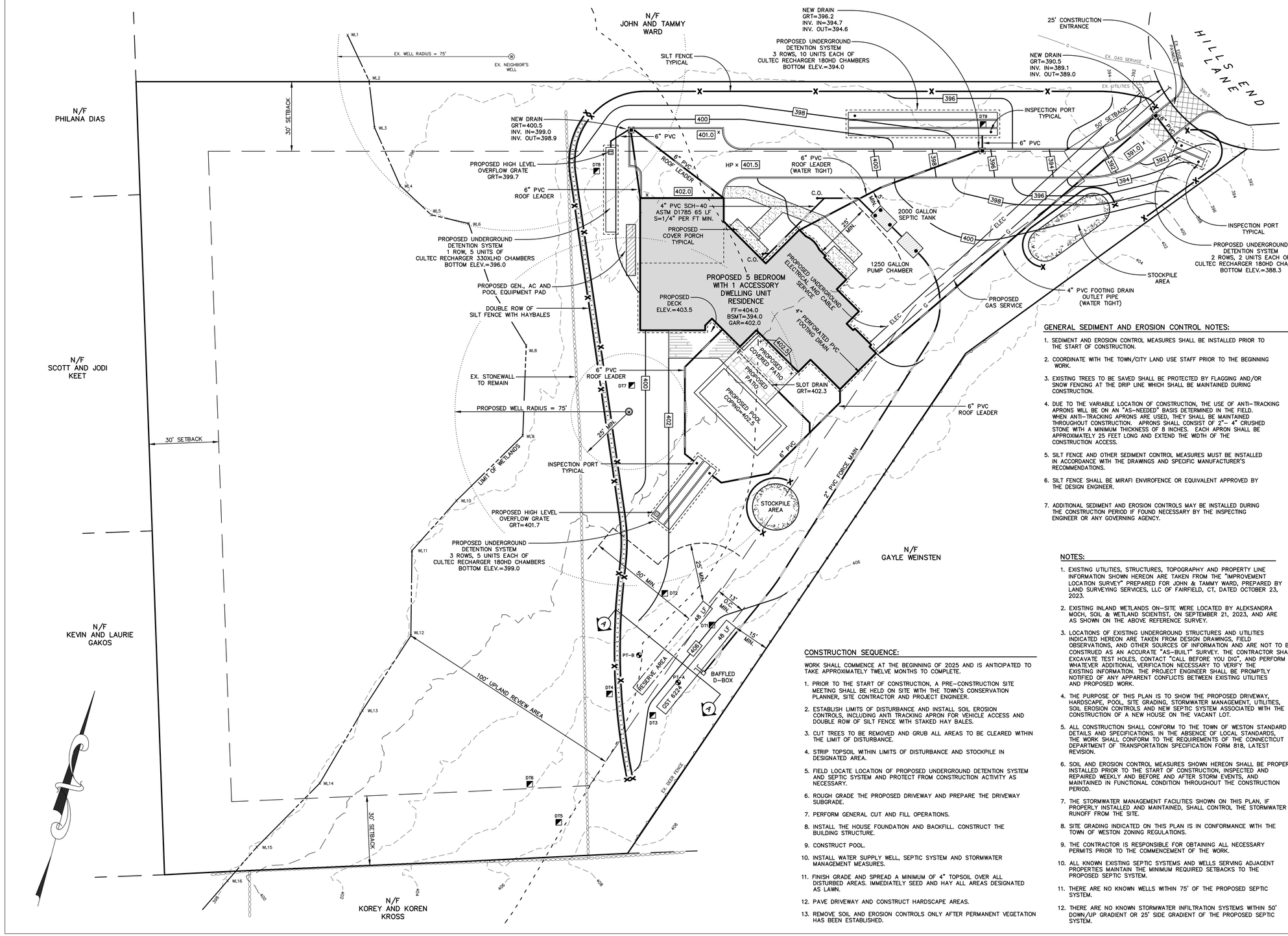
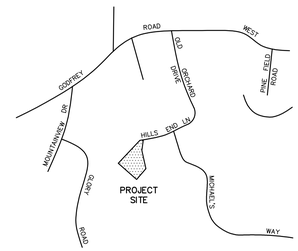




SCALE: 1" = 1000'

ORIENTATION

GENERAL SEDIMENT AND EROSION CONTROL NOTES:

1. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION.
2. COORDINATE WITH THE TOWN/CITY LAND USE STAFF PRIOR TO THE BEGINNING WORK.
3. EXISTING TREES TO BE SAVED SHALL BE PROTECTED BY FLAGGING AND/OR SNOW FENCING AT THE DRIP LINE WHICH SHALL BE MAINTAINED DURING CONSTRUCTION.
4. DUE TO THE VARIABLE LOCATION OF CONSTRUCTION, THE USE OF ANTI-TRACKING APRONS WILL BE ON AN "AS-NEEDED" BASIS DETERMINED IN THE FIELD. WHEN ANTI-TRACKING APRONS ARE USED, THEY SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. APRONS SHALL CONSIST OF 2"- 4" CRUSHED STONE WITH A MINIMUM THICKNESS OF 8 INCHES. EACH APRON SHALL BE APPROXIMATELY 25 FEET LONG AND EXTEND THE WIDTH OF THE CONSTRUCTION ACCESS.
5. SILT FENCE AND OTHER SEDIMENT CONTROL MEASURES MUST BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFIC MANUFACTURER'S RECOMMENDATIONS.
6. SILT FENCE SHALL BE MIRAFI ENVIROFENCE OR EQUIVALENT APPROVED BY THE DESIGN ENGINEER.
7. ADDITIONAL SEDIMENT AND EROSION CONTROLS MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE INSPECTING ENGINEER OR ANY GOVERNING AGENCY.
8. AFTER EACH STORM EVENT OR AT LEAST ONCE WEEKLY, ALL SEDIMENT AND EROSION CONTROLS WILL BE INSPECTED. CORRECTIVE MEASURES TO MITIGATE ENVIRONMENTAL CONCERNS WILL BE ORDERED BY THE DESIGN ENGINEER AND/OR GOVERNING AGENCY, IF REQUIRED.
9. ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK, ALL TEMPORARY SEDIMENT CONTROL DEVICES SHALL BE REMOVED FROM THE SITE AND ANY COLLECTED SEDIMENTS FROM THE DEVICES SHALL BE DISPOSED OF LEGALLY AND IN KEEPING WITH THE INTENT OF THIS PLAN.
10. LAND DISTURBANCE SHALL BE KEPT TO A MINIMUM. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED. APPLY GRASS SEED AT A RATE OF APPROXIMATELY 120 LBS/ACRE. SEED MIX WILL VARY FROM UPLAND TO WETLAND BUFFER AREAS. MULCH AFTER SEEDING UPLAND AT A RATIO OF 1000 LBS/ACRE.
11. EFFECTED PORTIONS OF OFFSITE ROADS MUST BE SWEPT CLEAN WHEN REQUIRED.
12. ALL EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL," DATED MAY 2002.

LEGEND

EXISTING	ITEM	PROPOSED
	DRAIN	
	STORM SEWER	
N.A.	DEEP TEST	
N.A.	PERCOLATION TEST	
440	CONTOUR	410
× 337.9	SPOT ELEVATION	× 439.5
N.A.	SILT FENCE	X
N.A.	DOUBLE SILT FENCE	XX
	TREE TO REMAIN	N.A.
	POLE	N.A.

NOTES:

1. EXISTING UTILITIES, STRUCTURES, TOPOGRAPHY AND PROPERTY LINE INFORMATION SHOWN HEREON ARE TAKEN FROM THE "IMPROVEMENT LOCATION SURVEY" PREPARED FOR JOHN & TAMMY WARD, PREPARED BY LAND SURVEYING SERVICES, LLC OF FAIRFIELD, CT, DATED OCTOBER 23, 2023.
2. EXISTING INLAND WETLANDS ON-SITE WERE LOCATED BY ALEKSANDRA MOCH, SOIL & WETLAND SCIENTIST, ON SEPTEMBER 21, 2023, AND ARE AS SHOWN ON THE ABOVE REFERENCE SURVEY.
3. LOCATIONS OF EXISTING UNDERGROUND STRUCTURES AND UTILITIES INDICATED HEREON ARE TAKEN FROM DESIGN DRAWINGS, FIELD OBSERVATIONS, AND OTHER SOURCES OF INFORMATION AND ARE NOT TO BE CONSTRUED AS AN ACCURATE "AS-BUILT" SURVEY. THE CONTRACTOR SHALL EXCAVATE TEST HOLES, CONTACT "CALL BEFORE YOU DIG", AND PERFORM WHATEVER ADDITIONAL VERIFICATION NECESSARY TO VERIFY THE EXISTING INFORMATION. THE PROJECT ENGINEER SHALL BE PROMPTLY NOTIFIED OF ANY APPARENT CONFLICTS BETWEEN EXISTING UTILITIES AND PROPOSED WORK.
4. THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED DRIVEWAY, HARDSCAPE, POOL, SITE GRADING, STORMWATER MANAGEMENT, UTILITIES, SOIL EROSION CONTROLS AND NEW SEPTIC SYSTEM ASSOCIATED WITH THE CONSTRUCTION OF A NEW HOUSE ON THE VACANT LOT.
5. ALL CONSTRUCTION SHALL CONFORM TO THE TOWN OF WESTON STANDARD DETAILS AND SPECIFICATIONS. IN THE ABSENCE OF LOCAL STANDARDS, THE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CONNECTICUT DEPARTMENT OF TRANSPORTATION SPECIFICATION FORM 818, LATEST REVISION.
6. SOIL AND EROSION CONTROL MEASURES SHOWN HEREON SHALL BE PROPERLY INSTALLED PRIOR TO THE START OF CONSTRUCTION, INSPECTED AND REPAIRED WEEKLY AND BEFORE AND AFTER STORM EVENTS, AND MAINTAINED IN FUNCTIONAL CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
7. THE STORMWATER MANAGEMENT FACILITIES SHOWN ON THIS PLAN, IF PROPERLY INSTALLED AND MAINTAINED, SHALL CONTROL THE STORMWATER RUNOFF FROM THE SITE.
8. SITE GRADING INDICATED ON THIS PLAN IS IN CONFORMANCE WITH THE TOWN OF WESTON ZONING REGULATIONS.
9. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO THE COMMENCEMENT OF THE WORK.
10. ALL KNOWN EXISTING SEPTIC SYSTEMS AND WELLS SERVING ADJACENT PROPERTIES MAINTAIN THE MINIMUM REQUIRED SETBACKS TO THE PROPOSED SEPTIC SYSTEM.
11. THERE ARE NO KNOWN WELLS WITHIN 75' OF THE PROPOSED SEPTIC SYSTEM.
12. THERE ARE NO KNOWN STORMWATER INFILTRATION SYSTEMS WITHIN 50' DOWN/UP GRADIENT OR 25' SIDE GRADIENT OF THE PROPOSED SEPTIC SYSTEM.

CONSTRUCTION SEQUENCE:

WORK SHALL COMMENCE AT THE BEGINNING OF 2025 AND IS ANTICIPATED TO TAKE APPROXIMATELY TWELVE MONTHS TO COMPLETE.

1. PRIOR TO THE START OF CONSTRUCTION, A PRE-CONSTRUCTION SITE MEETING SHALL BE HELD ON SITE WITH THE TOWN'S CONSERVATION PLANNER, SITE CONTRACTOR AND PROJECT ENGINEER.
2. ESTABLISH LIMITS OF DISTURBANCE AND INSTALL SOIL EROSION CONTROLS, INCLUDING ANTI TRACKING APRON FOR VEHICLE ACCESS AND DOUBLE ROW OF SILT FENCE WITH STAKED HAY BALES.
3. CUT TREES TO BE REMOVED AND GRUB ALL AREAS TO BE CLEARED WITHIN THE LIMIT OF DISTURBANCE.
4. STRIP TOPSOIL WITHIN LIMITS OF DISTURBANCE AND STOCKPILE IN DESIGNATED AREA.
5. FIELD LOCATE LOCATION OF PROPOSED UNDERGROUND DETENTION SYSTEM AND SEPTIC SYSTEM AND PROTECT FROM CONSTRUCTION ACTIVITY AS NECESSARY.
6. ROUGH GRADE THE PROPOSED DRIVEWAY AND PREPARE THE DRIVEWAY SUBGRADE.
7. PERFORM GENERAL CUT AND FILL OPERATIONS.
8. INSTALL THE HOUSE FOUNDATION AND BACKFILL. CONSTRUCT THE BUILDING STRUCTURE.
9. CONSTRUCT POOL.
10. INSTALL WATER SUPPLY WELL, SEPTIC SYSTEM AND STORMWATER MANAGEMENT MEASURES.
11. FINISH GRADE AND SPREAD A MINIMUM OF 4" TOPSOIL OVER ALL DISTURBED AREAS. IMMEDIATELY SEED AND HAY ALL AREAS DESIGNATED AS LAWN.
12. PAVE DRIVEWAY AND CONSTRUCT HARDSCAPE AREAS.
13. REMOVE SOIL AND EROSION CONTROLS ONLY AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED.

ELEVATIONS:

GARAGE	: 402.0
BASEMENT	: 394.0
F.F. HOUSE	: 404.0
HOUSE SEWER OUT (INV.)	: 399.0
SEPTIC TANK IN (INV.)	: 397.5
SEPTIC TANK OUT (INV.)	: 397.2
1st FIELD (INV. AT DB)	: 405.4
(GST BOTTOM)	: 403.4

NOTE: PUMP CHAMBER INVERTS TO BE DETERMINED IN THE FIELD.

AREA = 2.532 ACRES

NO.	DATE	REVISIONS AND SUBMISSIONS
1	11-14-24	ISSUED FOR MUNICIPAL APPROVAL

McChord Engineering Associates, Inc.
Civil Engineers and Land Planners
1 Grumman Hill Road
Wilton, CT 06897 (203) 834-0569

PLAN PREPARED FOR
ANDREA AND EDWARD GILLIS
WESTON, CONNECTICUT

SEPTIC SYSTEM/SITE DEVELOPMENT PLAN
10 HILLS END LANE
WESTON, CONNECTICUT

JOB NO:	2351A-1	DATE:	NOVEMBER 14, 2024
DRAWN BY:	DRS	CHECKED BY:	TSN, HMR
SCALE:	1" = 20'		

20 0 10 20 40

SIGNATURE:

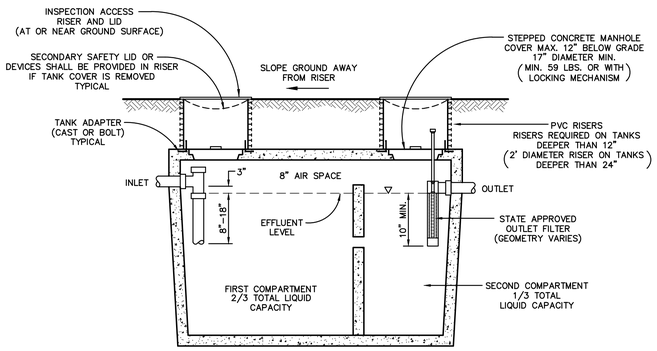
STATE OF CONNECTICUT · THOMAS S. NIELSEN · NO. 26565 · REGISTERED PROFESSIONAL ENGINEER

DRAWING NO:

SE1

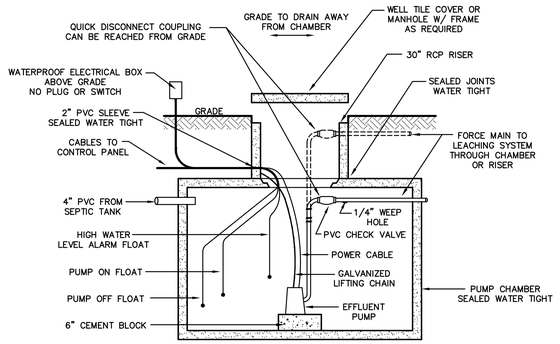
SHEET 1 OF 2

file: 2351se1



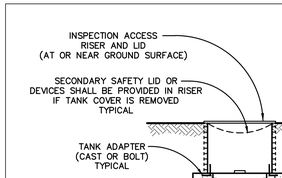
TYPICAL SEPTIC TANK DETAIL

N.T.S.



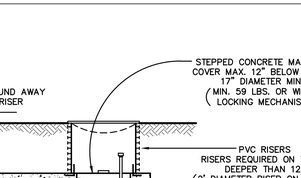
TYPICAL PUMP CHAMBER DETAIL

N.T.S.



SILT FENCE DETAIL

N.T.S.



DOUBLE ROW SILT FENCE WITH HAYBALE DETAIL

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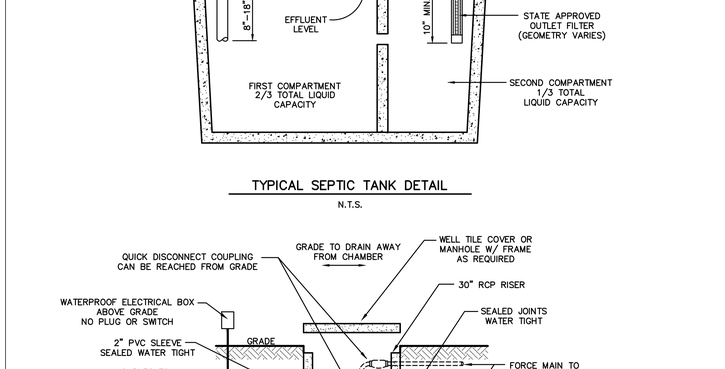
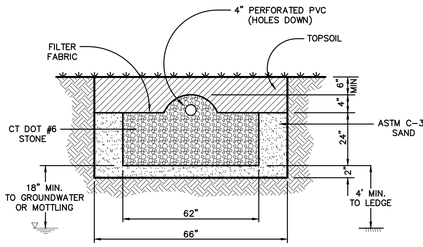


SECTION A–A

SCALE: HORZ. 1" = 10'
VERT. 1" = 5'

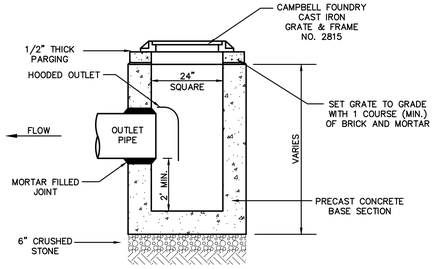
SEE CONSTRUCTION NOTE #7 FOR SPECIFIC GUIDELINES FOR PREPARATION OF THE LEACHING FIELDS.



NOTE: INSTALLATION REQUIRES THE USE OF PROPRIETARY FORMS AND MUST BE SUPERVISED BY A REPRESENTATIVE FROM GEOMATRIX.

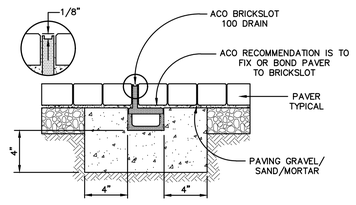
GEOMATRIX GST 6224 DETAIL

N.T.S.



DRIVEWAY DRAIN DETAIL

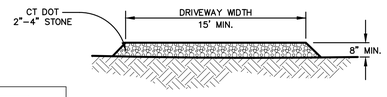
N.T.S.



SLOT DRAIN DETAIL

N.T.S.

NOTE: REFER TO MANUFACTURER SPECIFICATIONS FOR ADDITIONAL INFORMATION.



CONSTRUCTION ENTRANCE DETAIL

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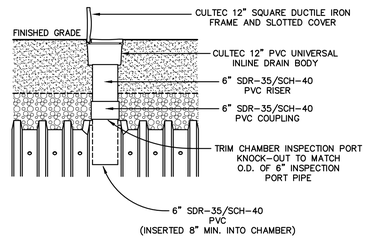

CULTEC OVERFLOW GRATE DETAIL

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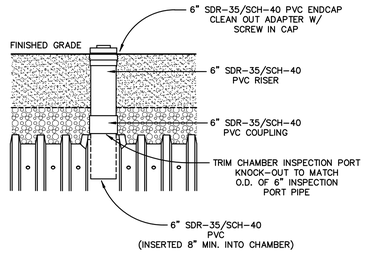
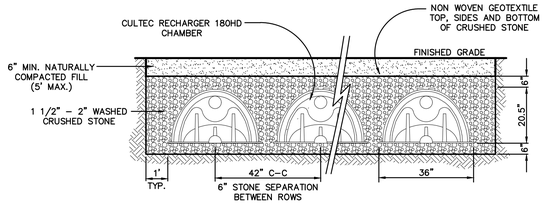


CULTEC INSPECTION PORT DETAIL

N.T.S.



RECHARGER 180HD CULTEC CHAMBER SYSTEM

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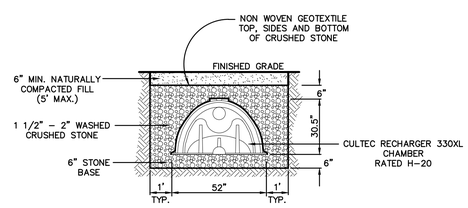


CULTEC RECHARGER 330XL HEAVY DUTY CHAMBER SYSTEM

N.T.S.

DESIGN CRITERIA:

1. PERCOLATION RATE: PT–A = 1:10, PT–B = 1:10
   - A. DESIGN RATE FOR PRIMARY SYSTEM: 1:10
   - B. DESIGN RATE FOR RESERVE SYSTEM: 1:10
2. MINIMUM LEACHING SYSTEM SPREAD (MLSS):
   - A. HYDRAULIC FACTOR (HF)
     1) HYDRAULIC GRADIENT = 11.1%
     2) DEPTH OF RESTRICTIVE LAYER = 48.5" (AVERAGE DT1 THRU DT4)
     3) HYDRAULIC FACTOR = 14'
   - B. FLOW FACTOR (FF): 5 BEDROOM + 1 ACCESSORY DWELLING UNIT = 2.42
   - C. PERCOLATION FACTOR (PF): 1:10 = 1.0
   - D. MINIMUM LEACHING SYSTEM SPREAD = 14' x 2.42 x 1.0 = 33.9'
   - E. LEACHING SYSTEM SPREAD PROVIDED = 48'
3. SYSTEM DESCRIPTION:
   - A. NUMBER OF BEDROOMS: 5 BEDROOM + 1 ACCESSORY DWELLING UNIT
   - B. REQUIRED LEACHING AREA: 797.5 SF @ 18.1 SF/LF = 44.06 LF (PLUS 100% RESERVE)
   - C. SYSTEM COMPONENTS: 2000 GALLON SEPTIC TANK, 1250 GALLON PUMP CHAMBER AND 48 LF OF GST 6224.
   - D. TOTAL FIELDS PROPOSED:
     1) PRIMARY SYSTEM: 1 x 48 LF = 48 LF @ 18.1 SF/LF = 868.8 SF
     2) RESERVE SYSTEM: 1 x 48 LF = 48 LF @ 18.1 SF/LF = 868.8 SF
4. DEPTH OF SYSTEM CONTROL: RESTRICTIVE LAYER @ 50" IN DEEP TEST 1 WILL CONTROL THE DEPTH OF THE SYSTEM.

DEEP TEST AND PERCOLATION TEST DATA:

DEEP TEST 1

0"– 8" TOPSOIL
8"–44" RED BROWN SANDY SILTY LOAM
44"–50" TAN SANDY LOAM
50"–76" COMPACT TAN SANDY LOAM

MOTTLING @ 62"
NO GROUNDWATER
NO LEDGE
ROOTS TO 40"
RESTRICTIVE @ 50"

DEEP TEST 2

0"– 8" TOPSOIL
8"–36" RED BROWN SANDY SILTY LOAM
36"–48" TAN FINE SAND AND GRAVEL
48"–74" COMPACT TAN SANDY LOAM

NO MOTTLING
NO GROUNDWATER
NO LEDGE
ROOTS TO 39"
RESTRICTIVE @ 48"

DEEP TEST 3

0"– 8" TOPSOIL
8"–56" ORANGE BROWN SANDY SILTY LOAM
56"–82" VERY FINE SAND

NO MOTTLING
NO GROUNDWATER
NO LEDGE
ROOTS TO 36"
RESTRICTIVE @ 60" (PER H.D.)

DEEP TEST 4

0"– 8" TOPSOIL
8"–36" ORANGE BROWN SANDY SILTY LOAM
36"–68" COMPACT TAN FINE SAND

NO MOTTLING
NO GROUNDWATER
NO LEDGE
ROOTS TO 36"
RESTRICTIVE @ 36"

DEEP TEST 5

0"–12" TOPSOIL
12"–44" ORANGE BROWN SANDY SILTY LOAM
44"–72" COMPACT TAN FINE SAND

NO MOTTLING
NO GROUNDWATER
NO LEDGE
ROOTS TO 44"
RESTRICTIVE @ 44"

DEEP TEST 6

0"– 8" TOPSOIL
8"–38" ORANGE BROWN SANDY SILTY LOAM
38"–68" COMPACT TAN FINE SAND

NO MOTTLING
NO GROUNDWATER
NO LEDGE
ROOT TO 38"
RESTRICTIVE @ 38"

DEEP TEST 7

0"– 8" TOPSOIL
8"–36" RED BROWN SILTY LOAM
36"–64" COMPACT TAN FINE SAND

NO MOTTLING
NO GROUNDWATER
NO LEDGE
RESTRICTIVE @ 36"

DEEP TEST 8

0"– 8" TOPSOIL
8"–36" RED BROWN SILTY LOAM
36"–64" COMPACT TAN FINE SAND

NO MOTTLING
NO GROUNDWATER
NO LEDGE
RESTRICTIVE @ 36"

DEEP TEST 9

0"– 8" TOPSOIL
8"–36" RED BROWN SILTY LOAM
36"–64" COMPACT TAN FINE SAND

NO MOTTLING
NO GROUNDWATER
NO LEDGE
RESTRICTIVE @ 36"

PERCOLATION TEST A

DEPTH: 18"
DIAMETER: 8"
PRESOAK: 10:30 AM

TIME	DEPTH	DROP
11:40	9 1/4"	–
11:50	11 7/8"	2 5/8"
12:00	13 1/2"	1 5/8"
12:10	15"	1 1/2"
12:20	16 1/2"	1 1/2"
12:30	DRY	1 1/2"
12:30	12 1/4"	REFILL
12:40	13 1/2"	1 1/4"

DESIGN RATE: 1:10

PERCOLATION TEST B

DEPTH: 22 1/2"
DIAMETER: 8"
PRESOAK: 10:30 AM

TIME	DEPTH	DROP
11:41	11 3/4"	–
11:51	15 7/8"	4 1/8"
12:01	18 1/2"	2 5/8"
12:11	20 1/2"	2"
12:21	DRY	2"
12:21	15"	REFILL
12:31	17 3/4"	2 3/4"
12:41	19 1/4"	1 1/2"

DESIGN RATE: 1:10

NOTE: DEEP TESTS 1 THRU 9 WERE PERFORMED BY McCHORD ENGINEERING ASSOCIATES, INC. ON SEPTEMBER 9, 2024 AND WITNESSED BY THE ASPETUCK HEALTH DISTRICT. PERCOLATION TESTS A AND B WERE PERFORMED BY McCHORD ENGINEERING ASSOCIATES, INC. ON SEPTEMBER 9, 2024.

CONSTRUCTION NOTES:

1. SUBSURFACE SEWAGE DISPOSAL SYSTEM MATERIALS AND CONSTRUCTION TECHNIQUES SHALL CONFORM TO THE STATE OF CONNECTICUT AND LOCAL HEALTH CODE STANDARDS AND SPECIFICATIONS, AS WELL AS ACCEPTED STANDARDS OF GOOD WORKMANSHIP.
2. FINAL INSPECTION AND AS–BUILT DRAWINGS SHALL BE MADE IN ACCORDANCE WITH STATE AND LOCAL CODES. THE DESIGN ENGINEER SHALL BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF SYSTEM COMPLETION. INSPECTION OF THE SYSTEM SHALL OCCUR AS SOON AS POSSIBLE TO PREVENT DAMAGE AND IT SHALL BE COVERED WITHIN TWO WORKING DAYS OF THE SANITARIAN'S INSPECTION.
3. THE WASTE LINE FROM THE HOUSE/BUILDING TO THE SEPTIC TANK SHALL BE NO LESS THAN 4" DIAMETER CAST IRON PIPE (ASTM A–74) OR A PVC SCHEDULE 40 (ASTM D1785), WITH RUBBER COMPRESSION GASKETS OR SOLVENT WELD JOINTS AND SHALL BE PITCHED WITH A MINIMUM SLOPE OF 1/4" PER FOOT.
4. ALL SOLID DISTRIBUTION PIPING SHALL BE TIGHT JOINT 4" DIAMETER PVC (ASTM D3034 SDR 35). THESE LINES SHALL LIE ON UNDISTURBED OR COMPACTED SOIL.
5. THE SEPTIC TANK SHALL HAVE A MINIMUM CAPACITY OF 2000 GALLONS AND CONTAIN TWO COMPARTMENTS. THE TANK SHALL BE INSTALLED LEVEL AND BE SET UPON AT LEAST 6" OF CRUSHED STONE OR GRAVEL, AND BE EQUIPPED WITH A 30" RISER SECTION TO GRADE, FOR ACCESS. SEPTIC TANKS INDICATED ARE MANUFACTURED BY RICHARD SEPTIC SYSTEMS, INC. OF TORRINGTON, CT. AN EQUIVALENT TANK IS ACCEPTABLE.
6. DISTRIBUTION BOXES ARE MODEL DB 4 AS MANUFACTURED BY RICHARD SEPTIC SYSTEMS, INC. OF TORRINGTON, CONNECTICUT. BOXES SHALL BE SET UPON AT LEAST 6" OF CRUSHED STONE OR GRAVEL. EQUIVALENT BOXES ARE ACCEPTABLE.
7. THE CONTRACTOR SHALL REMOVE FROM THE AREA OF THE SEPTIC SYSTEM ALL TOPSOIL AND ALL OTHER ORGANIC MATERIALS, TREE TRUNKS, AND DEBRIS; AND SHALL SCARIFY AND RAKE THE EXPOSED SURFACE TO ENSURE A GOOD BOND BETWEEN THE EXISTING SUBSOIL AND THE SELECT FILL.
8. SELECT FILL SHALL MEET CONNECTICUT DEPARTMENT OF TRANSPORTATION SPECIFICATION M.02.06–1B AS FOLLOWS:

SIEVE	% PASSING	
	WET SIEVE	DRY SIEVE
#4	100	100
#10	70–100	70–100
#40	10–50 *	10–75
#100	0–20	0–5
#200	0–5	0–2.5

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

THE FILL SHALL ALSO BE ACCEPTABLE TO THE LOCAL HEALTH DEPARTMENT.

9. THE FIRST 6" OF SELECT FILL SHALL BE HARROWED INTO THE EXISTING SOIL. THEREAFTER, IT SHALL BE PLACED IN 12" LIFTS AND MECHANICALLY COMPACTED. COMPACTION SHALL BE AT LEAST 90%–95% OF THAT DETERMINED BY A MODIFIED OPTIMUM COMPACTION TEST PERFORMED IN ACCORDANCE WITH ASTM D1557. SELECT FILL SHALL BE PLACED TO A POINT AT LEAST 5' FROM THE EDGE OF THE TRENCH, AND COMMON FILL TO A POINT 10' FROM THE EDGE OF THE TRENCH. IN CASES WHERE THE DEPTH OF FILL EXCEEDS 12" ABOVE THE EXISTING GRADE, THE TRENCH SHALL BE NOTCHED INTO THE EXISTING SOIL AT LEAST 12" AND FILLED WITH SELECT FILL.
10. FINAL GRADING, INCLUDING THE 6" TOPSOIL LAYER, SHALL BE COMPLETED AS SOON AS POSSIBLE AFTER FINAL INSPECTION. CARE SHALL BE TAKEN TO PREVENT THE PONDING OF SURFACE WATER ON OR NEAR ANY PART OF THE SYSTEM.
11. PROPOSED SEPTIC SYSTEM LOCATIONS MAY NOT BE SHIFTED WITHOUT OBTAINING WRITTEN PERMISSION FROM THE DESIGN ENGINEER AND LOCAL SANITARIAN.
12. NO PART OF THE SEPTIC TANK OR LEACHING TRENCHES SHALL BE WITHIN 75' OF ANY WELL. THERE IS NO APPARENT INTERFERENCE BETWEEN THE WELLS OR SEPTIC SYSTEMS ON ADJACENT PROPERTIES AND THOSE PROPOSED ON THIS PLAN.
13. SURFACE AND GROUNDWATER DRAINS SHALL BE PLACED UP GRADIENT AND AT LEAST 25' FROM THE SEPTIC SYSTEM. WHEN DRAINS ARE REQUIRED TO BE DOWN GRADIENT, THEY MUST BE AT LEAST 50' FROM THE SEPTIC SYSTEM. ALL DRAINS AND ROOF LEADERS SHALL DISCHARGE AWAY FROM THE SEPTIC SYSTEM.
14. SOIL AND EROSION CONTROL MEASURES SHALL BE INSTALLED AS INDICATED ON THE PLAN AND MAINTAINED DURING CONSTRUCTION, UNTIL THE SITE IS STABILIZED.
15. THIS DESIGN IS BASED UPON THE USE OF CONVENTIONAL BATHTUBS WITH A CAPACITY UNDER 100 GALLONS. IF A LARGER BATH/HOT TUB IS TO BE INSTALLED THE LEACHING AREA AND SEPTIC TANK SIZES MUST BE INCREASED TO COMPLY WITH SECTION VIII.F OF THE TECHNICAL STANDARDS. ADDITIONALLY, THE SYSTEM HAS NOT BEEN DESIGNED TO ACCEPT EFFLUENT FROM WHIRLPOOL BACKWASH, WATER SOFTENER BACKWASH OR GARBAGE DISPOSALS.
16. THIS DESIGN IS BASED UPON THE INSTALLATION OF THE SEPTIC SYSTEM IN UNCOMPACTED NATURAL SOIL. ALTHOUGH THE CONTRACTOR IS RESPONSIBLE FOR PREPARING THE SITE, THE USE OF HEAVY EQUIPMENT IN THE PROPOSED SEPTIC AREA IS PROHIBITED TO AVOID OVER COMPACTION OF THE NATIVE SOIL.
17. THIS DESIGN CONFORMS TO APPLICABLE CODES AND ACCEPTED PRACTICE. NO OTHER WARRANTY IS EXPRESSED OR IMPLIED.
18. McCHORD ENGINEERING ASSOCIATES, INC. ASSUMES NO RESPONSIBILITY FOR SEPTIC SYSTEM SITE PREPARATION, LOCATION, OR INVERT ELEVATIONS IN COMPLIANCE WITH THE APPROVED PLAN, UNLESS IT SUPERVISES EACH PHASE OF SYSTEM INSTALLATION.
19. PRIOR TO CONSTRUCTION A SURVEYOR LICENSED IN THE STATE OF CONNECTICUT SHALL STAKE OUT THE PROPOSED SEPTIC SYSTEM AND PROVIDE BENCHMARK ELEVATIONS.

PUMP NOTES:

1. USE LIBERTY PUMP MODEL FL50, 1/2 HP, 115 V, WITH A 2" NPT DISCHARGE (53 gpm @ 32' tdh), OR EQUIVALENT.
2. MECHANICAL FLOAT SWITCHES OR PRESSURE TRANSDUCER SHALL BE USED TO ACTIVATE THE PUMP AND THE HIGH WATER ALARM.
3. SET THE HIGH WATER ALARM FLOAT AT DEPTH 2/3 INTO THE PUMP CHAMBER TO CREATE 725 GALLONS MINIMUM OF AVAILABLE STORAGE, PROVIDING FOR PUMP FAILURE.
4. INSTALL THE HIGH WATER ALARM PANEL INSIDE THE HOUSE THAT IS SERVED BY THE PUMP CHAMBER. THE ALARM SHALL BE BOTH AUDIBLE AND VISUAL.
5. SET THE PUMP–ON FLOAT TO PROVIDE A MAXIMUM DOSE OF 175 GALLONS. DOSE SHALL NOT EXCEED 20% OF THE LEACHING SYSTEM STORAGE VOLUME.
6. THE PUMP CHAMBER SHALL HAVE A MINIMUM CAPACITY OF 1250 GALLONS. THE PUMP CHAMBER SHALL BE SEALED WATER–TIGHT AND BE EQUIPPED WITH 30" RISER SECTIONS TO GRADE, FOR ACCESS. THE PUMP CHAMBER INDICATED IS DISTRIBUTED BY CONNECTICUT PRECAST CORP., MONROE, CONNECTICUT AN EQUIVALENT CHAMBER IS ACCEPTABLE.
7. THE FORCE MAIN SPECIFIED IS A 2" ASTM D1785 PVC PIPE OR POLYETHYLENE PLASTIC FLEXIBLE PRESSURE PIPE, FITTED WITH A DOWN TURN AT ITS OUTLET. IT SHALL BE BURIED DEEP ENOUGH TO PREVENT FREEZING AND BE PITCHED BACKWARDS TOWARD THE PUMP.
8. THE PUMP ELECTRICAL SHUT OFF SHALL BE VISIBLE FROM THE PUMP CHAMBER AND SHALL BE ABOVE GRADE.

NO.	DATE	REVISIONS AND SUBMISSIONS
1	11–14–24	ISSUED FOR MUNICIPAL APPROVAL

SIGNATURE:

STATE OF CONNECTICUT · THOMAS S. NELSON · No. 20595 · LICENSED PROFESSIONAL ENGINEER

DRAWING NO:

SE2

SHEET 2 OF 2

McChord Engineering Associates, Inc.
Civil Engineers and Land Planners
1 Grumman Hill Road
Wilton, CT 06897 (203) 834–0569

PLAN PREPARED FOR
ANDREA AND EDWARD GILLIS
WESTON, CONNECTICUT

CONSTRUCTION NOTES AND DETAILS
10 HILLS END LANE
WESTON, CONNECTICUT

JOB NO: 2351A–1	DATE: NOVEMBER 14, 2024
DRAWN BY: DRS	CHECKED BY: TSN, HMR
SCALE: AS SHOWN	

file: 2351se2

McChord Engineering Associates, Inc.
Civil Engineers and Land Planners

1 Grumman Hill Road
Wilton, CT 06897
(203) 834-0569

STORMWATER MANAGEMENT REPORT

Prepared For

PROPOSED SITE DEVELOPMENT

10 HILLS END LANE, WESTON, CT

November 14, 2024

Table of Contents

1. Introduction

McChord Engineering Associates, Inc. has been commissioned by Andrea and Edward Gillis to perform stormwater management computations for the proposed site development at 10 Hills End Lane in Weston, Connecticut. The property consists of 2.532-acres and is located at the end of Hills End Lane. It is in the West Branch Saugatuck River watershed basin and outside of any public water supply watersheds. Figure 1 shows the location of the property on the United States Geological Survey (USGS) map.

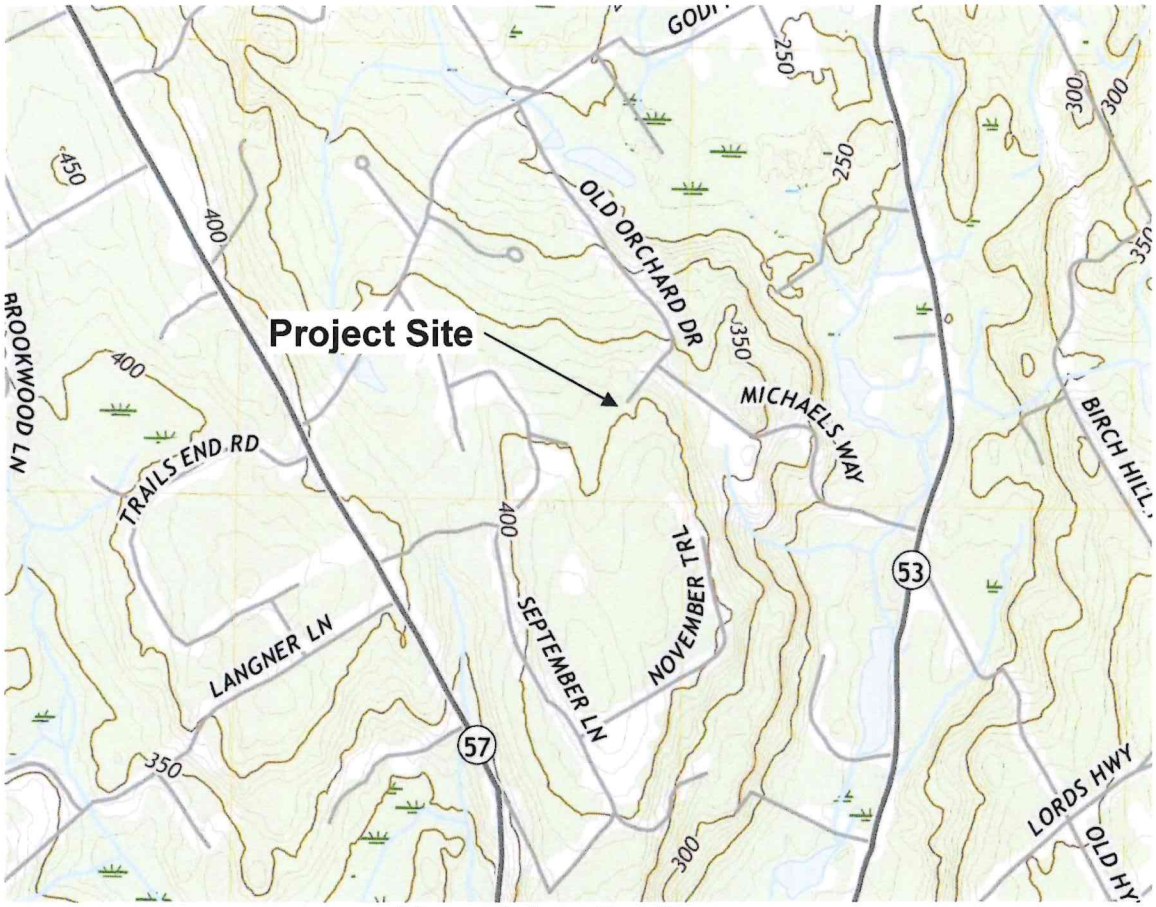


Figure 1: Location Map

The property is currently undeveloped, consisting mostly of woodlands. The edges of the property are Hills End Lane and adjacent residences. The western portion of the property is comprised of inland wetlands. Topography on-site consists of gradual slopes that generally drain northwest towards the inland wetlands and northern property line.

The proposed site development includes the construction of a new single-family residence with associated driveway, pool and hardscape. Stormwater management measures are proposed to control runoff from the proposed development. An existing stone wall will remain as a natural demarcation between the developed portion of the property and the inland wetlands. Soil and erosion controls in the form of silt fences and staked haybales will be employed to protect the inland wetlands and adjacent properties during construction. The proposed development will be served by an on-site septic system and private well.

2. Scope of Study

This stormwater management report contains studies comparing peak rate of runoff between the existing and proposed conditions to ensure that the proposed development will have no adverse impact on adjoining property owners, inland wetlands or downstream drainage systems. The site will be developed with its own on-site stormwater management system capable of controlling the increase in peak runoff.

3. Analysis Methodology

Runoff was modeled with HydroCAD 8.50 software produced by HydroCAD Software Solutions LLC. This software uses the NRCS TR-20 method for analyzing stormwater runoff. Soil characteristics, cover conditions, slope, time of concentration, and historical rainfall data are all parameters that are utilized by this method. The analysis considered the 2, 10, 25 and 50-year storm events. Precipitation depth for each storm event was taken from the National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 Point Precipitation Frequency Estimates specific to the subject property.

4. Stormwater Management Strategy

Currently, the property is undeveloped and there are no stormwater management measures. Runoff from the property sheet flows northwest to the inland wetlands and northern property line following the topography.

The proposed stormwater management plan maintains existing drainage patterns on the site. There are four (4) underground detention systems proposed to control runoff from the proposed development. During typical storm events, stormwater will infiltrate into the underlying soils and there will be no surface discharge from either detention system. High-level overflow grates will provide relief during extreme storm events and will discharge to grade. Runoff from the remainder of the property that is not detained will continue to the sheet flow northwest conforming to existing conditions.

The first underground detention system (DET1) will be located at the beginning of the driveway. Runoff from the first stretch of driveway and adjacent lawn (both on-site and off-site) will be captured by a driveway drain and conveyed to DET1. This underground detention system consists of four (4) units of Cultec Recharger 180HD stormwater chambers surrounded by crushed stone with a storage capacity of approximately 196 cubic feet. The second underground detention system (DET2) will be located in the back yard behind the house and pool. Rooftop runoff from the back of the house will be captured by roof leaders and conveyed to DET2. Runoff from the rear hardscape and pool area will be captured by slot drains and conveyed to DET2. This underground detention system consists of fifteen (15) units of Cultec Recharger 180HD stormwater chambers surrounded by crushed stone with a storage capacity of approximately 633 cubic feet. The third underground detention system (DET3) will be located in the side yard behind the garage. Rooftop runoff from the garage will be captured by roof leaders and conveyed to DET3. Driveway runoff from garage court will be captured by a driveway drain and conveyed to DET3. This underground detention system consists of five (5) units of Cultec Recharger 330XLHD stormwater chambers surrounded by crushed stone with a storage capacity of approximately 318 cubic feet. The fourth underground detention system (DET4) will be located north of the driveway. Rooftop runoff

from the front of the house will be captured by roof leaders and conveyed to DET4. Runoff from middle stretch of driveway, adjacent lawn and hardscape will be captured by a driveway drain and conveyed to DET4. This underground detention system consists of thirty (30) units of Cultec Recharger 180HD stormwater chambers surrounded by crushed stone with a storage capacity of approximately 1,364 cubic feet.

Detailed information on the size and configuration of the proposed stormwater management measures is available on the most recent revision of the "Septic System/Site Development Plan" prepared by this office. A Stormwater Facilities Maintenance Plan is also included in Appendix C.

5. Analysis & Results

Runoff from the property was analyzed under existing and proposed conditions. The existing and proposed conditions analyses modeled the entire property as a whole. The analyses divided the property into areas that are detained by the detention systems and undetained areas. The runoff that is not detained will sheet flow northwest conforming to existing conditions.

Using the NRCS TR-20 method, the peak rate of runoff for the 2, 10, 25 and 50-year storm events was computed for the site. Soils on the property were determined using the NRCS Web Soil Survey. Cover conditions were derived from site observations and the "Septic System/Site Development Plan" prepared by this office, dated November 14, 2024. Soil testing was performed on the property in the area of the underground detention systems and confirmed there would be suitable soil conditions. The resulting peak flow rates under both the existing and proposed conditions are summarized in Table 1. For detailed computations see Appendix A.

Table 1: Peak Flows

Storm Event	Existing		Proposed	
	Rate (cfs)	Volume (ft^3)	Rate (cfs)	Volume (ft^3)
2-year	1.14	6,474	1.13	5,247
10-year	2.79	14,754	2.67	12,204
25-year	3.92	20,539	3.71	17,126
50-year	4.81	25,103	4.52	21,427

The analysis shows that there is no increase in the peak rate or volume of runoff from the property during any of the analyzed storm events. The underground detention systems also accommodate the first 1.3" of runoff from the impervious surfaces that drain to it. The runoff from the initial 1.3" of runoff, also known as the "first flush", is generally considered to contain the majority of pollutants. Collecting the first flush and allowing it to infiltrate into the soils provides filtration of the runoff and is an effective means of stormwater renovation. For detailed computations see Appendix B.

6. Conclusions

Based on our analysis, McChord Engineering Associates, Inc. has demonstrated that the proposed stormwater management systems will adequately control and renovate the increase in runoff from the proposed development at 10 Hills End Lane in Weston, Connecticut. It is the opinion of this office and the conclusion of this report that the proposed site development will have no adverse impacts on the adjoining property owners, inland wetlands or any downstream drainage systems.

APPENDIX A:

PEAK FLOW COMPUTATIONS

Entire Study Area

Subcat Reach Pond Link

Drainage Diagram for Existing Conditions - 10 Hills End Lane
Prepared by McChord Engineering Associates, Inc., Printed 11/14/2024
HydroCAD® 8.50 s/n 004801 © 2007 HydroCAD Software Solutions LLC

Summary for Subcatchment E1: Entire Study Area

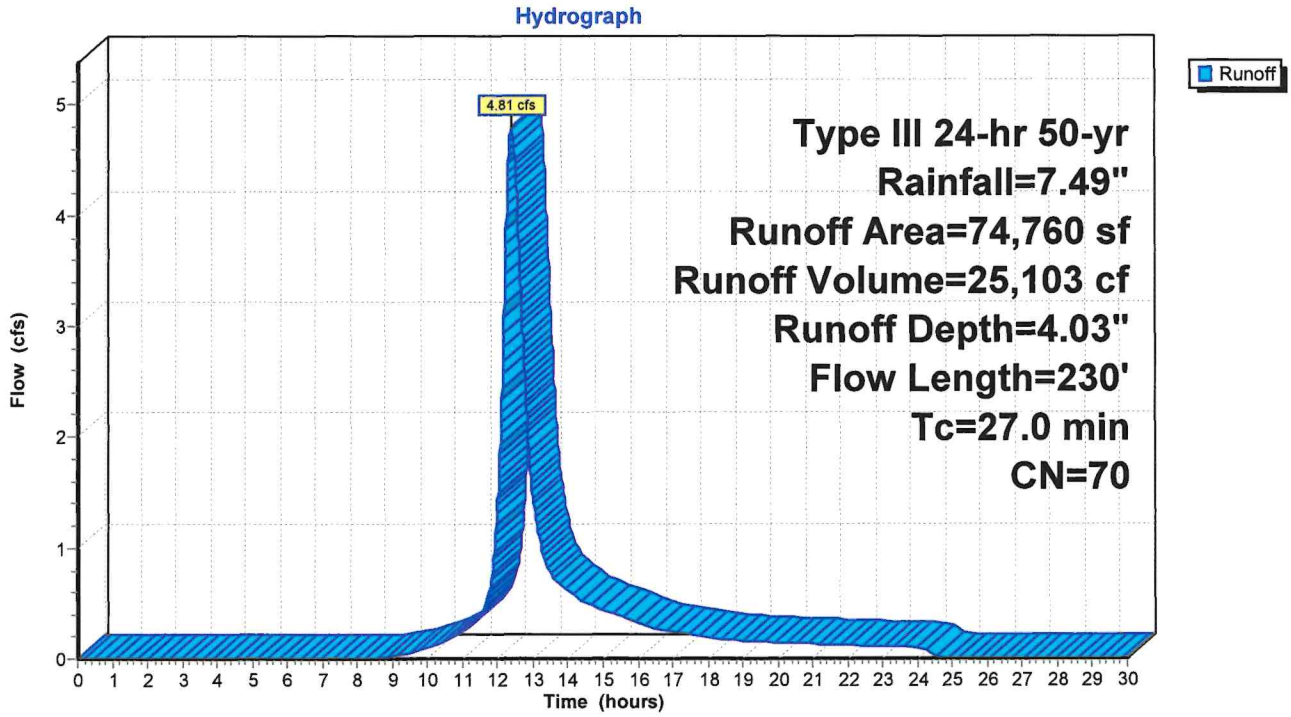
Runoff = 4.81 cfs @ 12.39 hrs, Volume= 25,103 cf, Depth= 4.03"

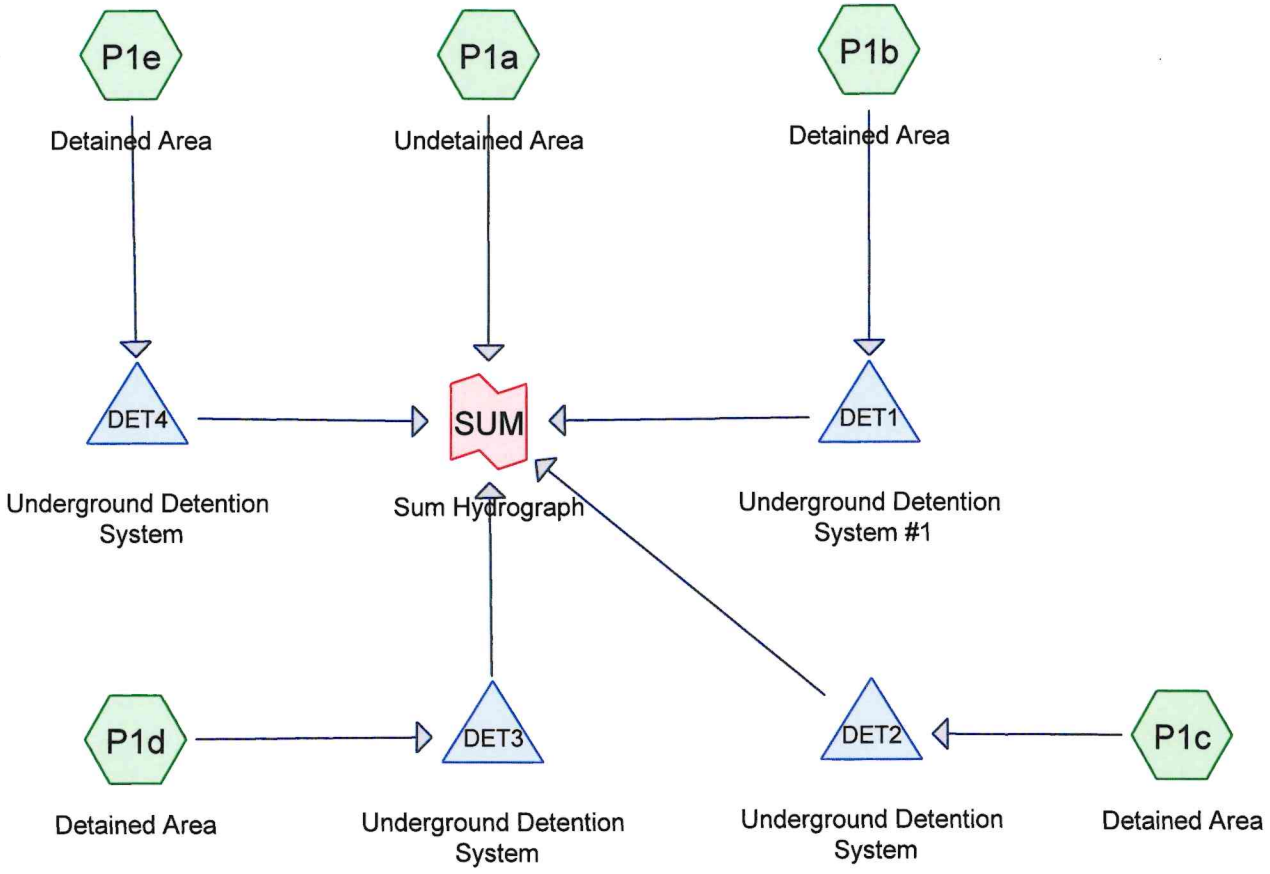
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
	3,300	74	>75% Grass cover, Good, HSG C
	67,760	70	Woods, Good, HSG C
*	3,700	74	Offsite Lawn
	74,760	70	Weighted Average
	74,760		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	75	0.0610	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.45"
14.8	75	0.0260	0.08		**Sheet Flow, BC** Woods: Light underbrush n= 0.400 P2= 3.45"
1.7	80	0.0250	0.79		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
27.0	230	Total			

Subcatchment E1: Entire Study Area





Subcat Reach Pond Link

Drainage Diagram for Proposed Conditions - 10 Hills End Lane
Prepared by McChord Engineering Associates, Inc., Printed 11/14/2024

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
39,060	70	Woods, Good, HSG C (P1a,P1b)
17,405	74	>75% Grass cover, Good, HSG C (P1a,P1b)
3,825	74	Lawn (P1e)
3,700	74	Offsite Lawn (P1b)
320	85	Deck (P1a)
3,680	98	Driveway (P1a,P1b,P1d,P1e)
400	98	Front Walk (P1e)
4,905	98	House (P1c,P1d,P1e)
670	98	Patio (P1c)
800	98	Pool (P1a,P1c)
74,765		**TOTAL AREA**

Summary for Subcatchment P1a: Undetained Area

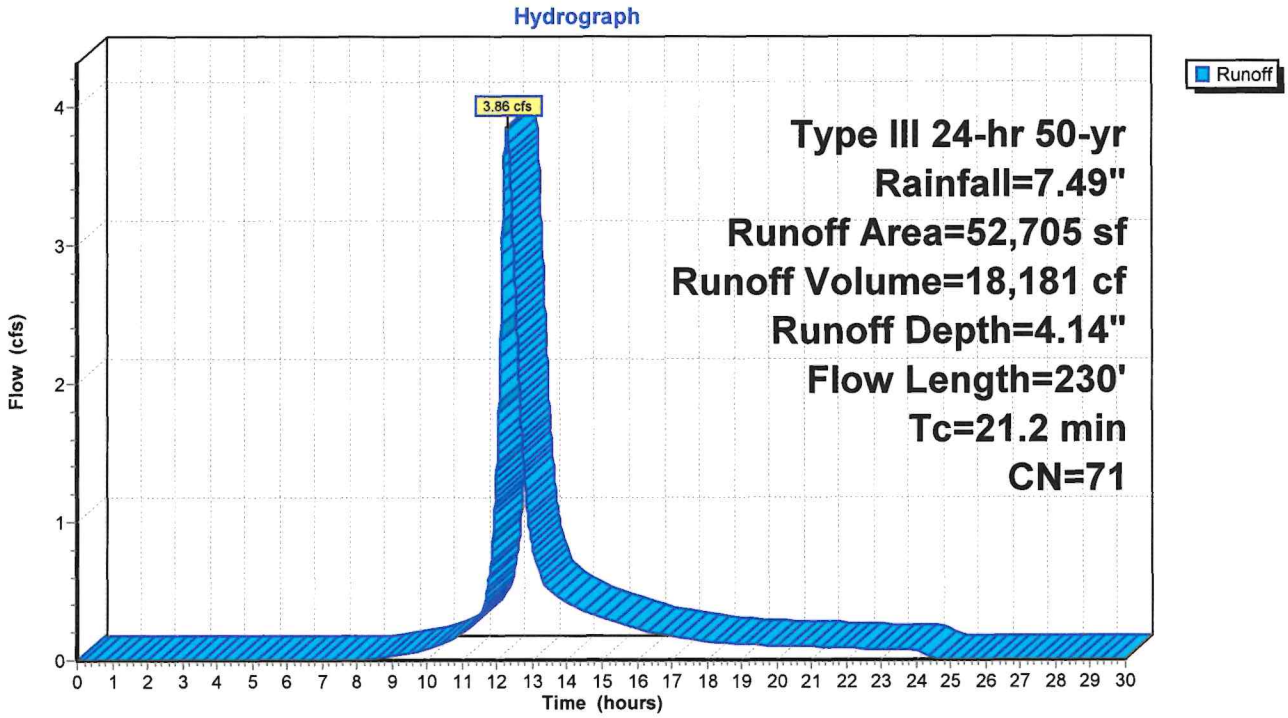
Runoff = 3.86 cfs @ 12.29 hrs, Volume= 18,181 cf, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	180	98	Driveway
*	400	98	Pool
*	320	85	Deck
	13,605	74	>75% Grass cover, Good, HSG C
	38,200	70	Woods, Good, HSG C
*	0	74	Lawn
*	0	70	Woods
*	0	74	Lawn
	52,705	71	Weighted Average
	52,125		Pervious Area
	580		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	25	0.0610	0.10		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.45"
5.1	50	0.0610	0.16		**Sheet Flow, BC** Grass: Dense n= 0.240 P2= 3.45"
10.0	75	0.0250	0.13		**Sheet Flow, CD** Grass: Dense n= 0.240 P2= 3.45"
1.7	80	0.0250	0.79		**Shallow Concentrated Flow, DE** Woodland Kv= 5.0 fps
21.2	230	Total			

Subcatchment P1a: Undetained Area



Summary for Subcatchment P1b: Detained Area

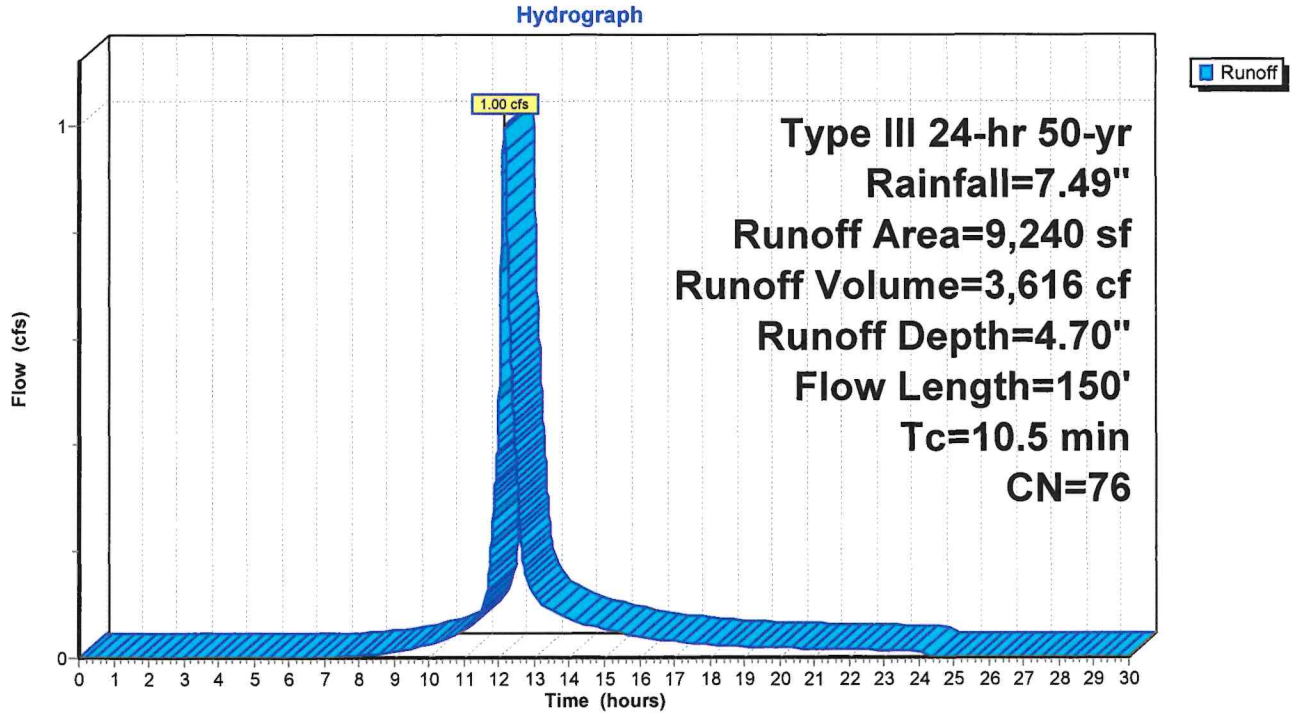
Runoff = 1.00 cfs @ 12.14 hrs, Volume= 3,616 cf, Depth= 4.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	880	98	Driveway
	3,800	74	>75% Grass cover, Good, HSG C
	860	70	Woods, Good, HSG C
*	3,700	74	Offsite Lawn
	9,240	76	Weighted Average
	8,360		Pervious Area
	880		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	60	0.0330	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.45"
2.5	30	0.1330	0.20		**Sheet Flow, BC** Grass: Dense n= 0.240 P2= 3.45"
0.5	60	0.0600	2.00		**Sheet Flow, CD** Smooth surfaces n= 0.011 P2= 3.45"
10.5	150	Total			

Subcatchment P1b: Detained Area



Summary for Subcatchment P1c: Detained Area

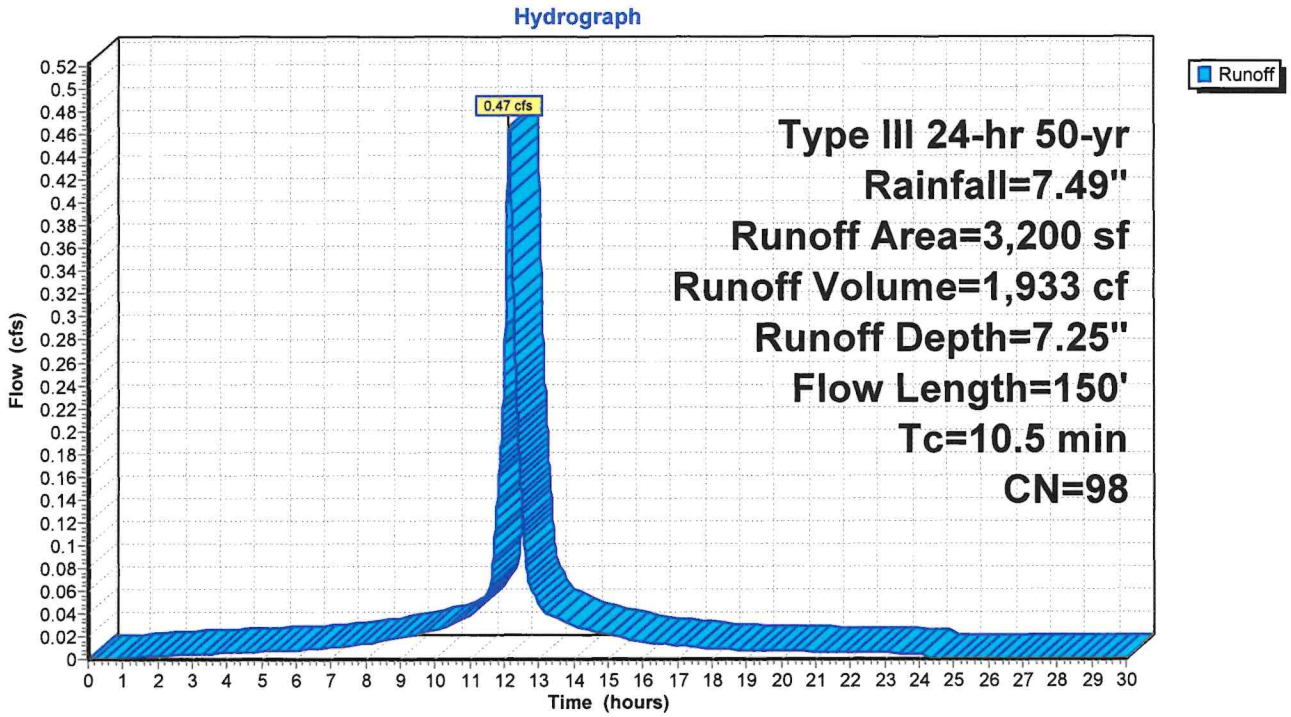
Runoff = 0.47 cfs @ 12.14 hrs, Volume= 1,933 cf, Depth= 7.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	2,130	98	House
*	670	98	Patio
*	400	98	Pool
	3,200	98	Weighted Average
	3,200		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	60	0.0330	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.45"
2.5	30	0.1330	0.20		**Sheet Flow, BC** Grass: Dense n= 0.240 P2= 3.45"
0.5	60	0.0600	2.00		**Sheet Flow, CD** Smooth surfaces n= 0.011 P2= 3.45"
10.5	150	Total			

Subcatchment P1c: Detained Area



Summary for Subcatchment P1d: Detained Area

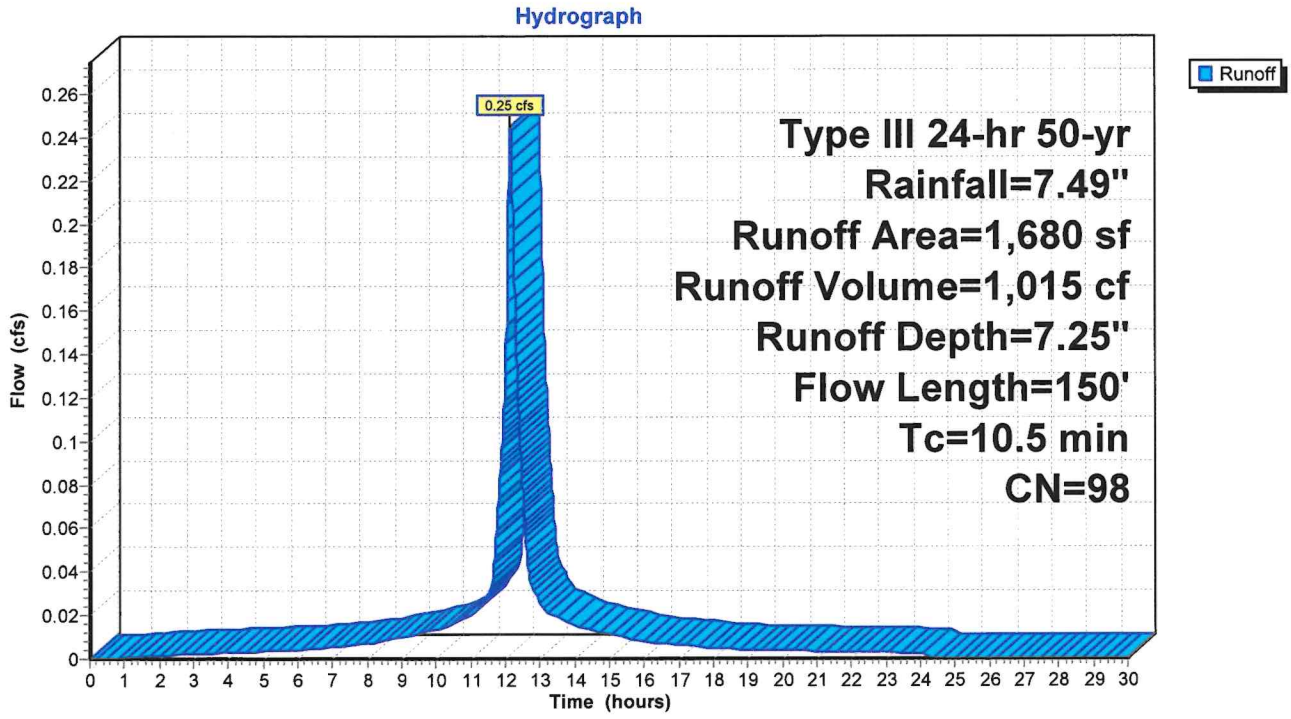
Runoff = 0.25 cfs @ 12.14 hrs, Volume= 1,015 cf, Depth= 7.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	490	98	House
*	1,190	98	Driveway
	1,680	98	Weighted Average
	1,680		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	60	0.0330	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.45"
2.5	30	0.1330	0.20		**Sheet Flow, BC** Grass: Dense n= 0.240 P2= 3.45"
0.5	60	0.0600	2.00		**Sheet Flow, CD** Smooth surfaces n= 0.011 P2= 3.45"
10.5	150	Total			

Subcatchment P1d: Detained Area



Summary for Subcatchment P1e: Detained Area

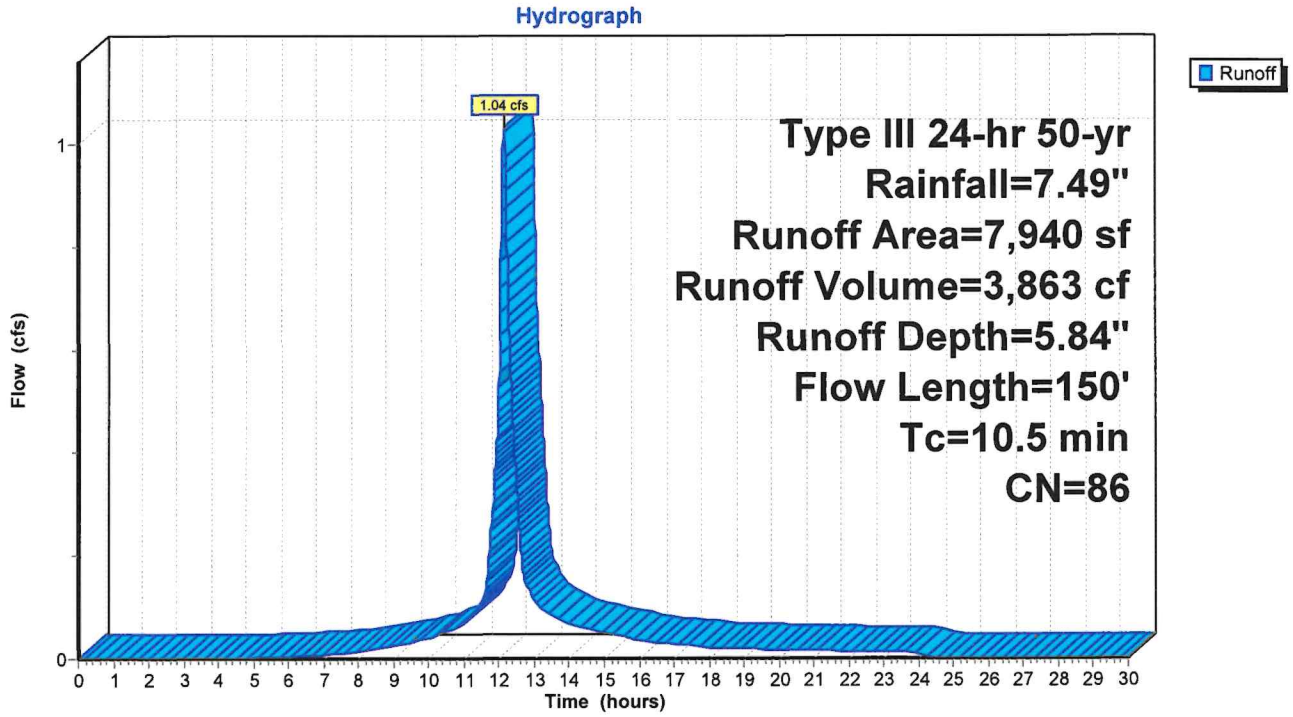
Runoff = 1.04 cfs @ 12.14 hrs, Volume= 3,863 cf, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	2,285	98	House
*	1,430	98	Driveway
*	400	98	Front Walk
*	3,825	74	Lawn
	7,940	86	Weighted Average
	3,825		Pervious Area
	4,115		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	60	0.0330	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.45"
2.5	30	0.1330	0.20		**Sheet Flow, BC** Grass: Dense n= 0.240 P2= 3.45"
0.5	60	0.0600	2.00		**Sheet Flow, CD** Smooth surfaces n= 0.011 P2= 3.45"
10.5	150	Total			

Subcatchment P1e: Detained Area



Summary for Pond DET1: Underground Detention System #1

Inflow Area =	9,240 sf,	9.52% Impervious,	Inflow Depth =	4.70"	for 50-yr event
Inflow =	1.00 cfs @	12.14 hrs, Volume=	3,616 cf		
Outflow =	1.00 cfs @	12.15 hrs, Volume=	3,616 cf,	Atten= 0%,	Lag= 0.1 min
Discarded =	0.01 cfs @	8.99 hrs, Volume=	885 cf		
Primary =	0.99 cfs @	12.15 hrs, Volume=	2,731 cf		

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 390.61' @ 12.15 hrs Surf.Area= 129 sf Storage= 202 cf

Plug-Flow detention time= 51.2 min calculated for 3,615 cf (100% of inflow)
Center-of-Mass det. time= 51.2 min (870.0 - 818.8)

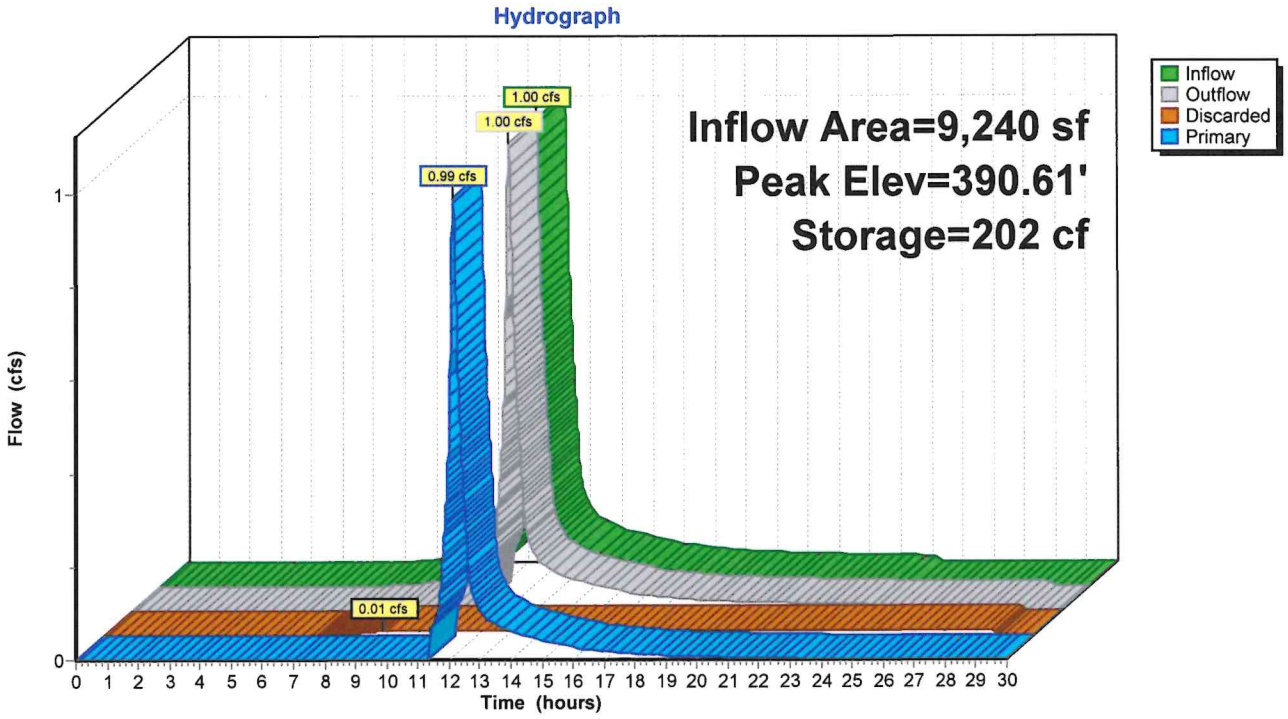
Volume	Invert	Avail.Storage	Storage Description
#1	387.80'	110 cf	**8.25'W x 15.66'L x 2.85'H Gravel Bed** 368 cf Overall - 94 cf Embedded = 274 cf x 40.0% Voids
#2	388.30'	94 cf	**33.6"W x 20.0"H x 13.66'L Cultec R-180** x 2 Inside #1
		204 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	387.80'	**4.000 in/hr Exfiltration over Surface area**
#2	Primary	390.50'	**2.00' x 2.00' Horiz. H.L.O Grate** Limited to weir flow C= 0.600

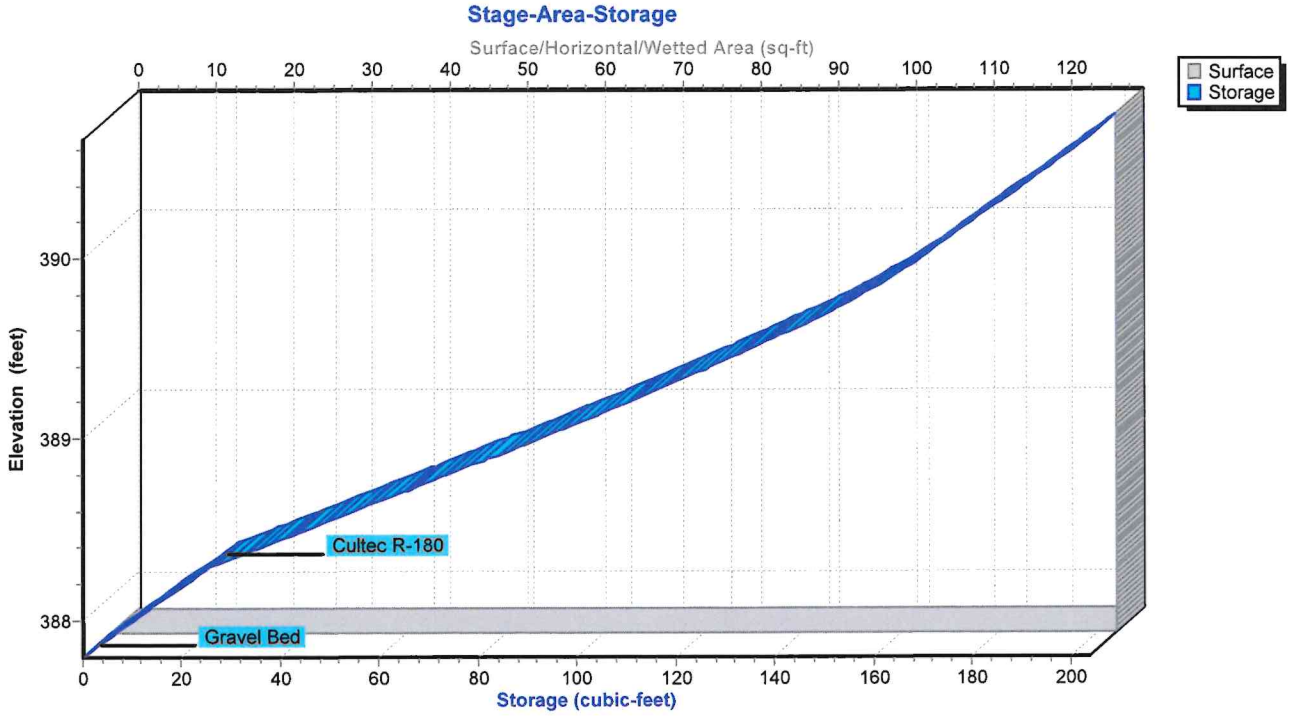
Discarded OutFlow Max=0.01 cfs @ 8.99 hrs HW=387.83' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.98 cfs @ 12.15 hrs HW=390.61' (Free Discharge)
↑**2=H.L.O Grate** (Weir Controls 0.98 cfs @ 1.10 fps)

Pond DET1: Underground Detention System #1



Pond DET1: Underground Detention System #1



Summary for Pond DET2: Underground Detention System

Inflow Area = 3,200 sf, 100.00% Impervious, Inflow Depth = 7.25" for 50-yr event
Inflow = 0.47 cfs @ 12.14 hrs, Volume= 1,933 cf
Outflow = 0.16 cfs @ 12.48 hrs, Volume= 1,933 cf, Atten= 67%, Lag= 20.7 min
Discarded = 0.04 cfs @ 10.97 hrs, Volume= 1,831 cf
Primary = 0.12 cfs @ 12.48 hrs, Volume= 103 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 400.24' @ 12.48 hrs Surf.Area= 399 sf Storage= 640 cf

Plug-Flow detention time= 118.1 min calculated for 1,933 cf (100% of inflow)
Center-of-Mass det. time= 118.1 min (864.3 - 746.2)

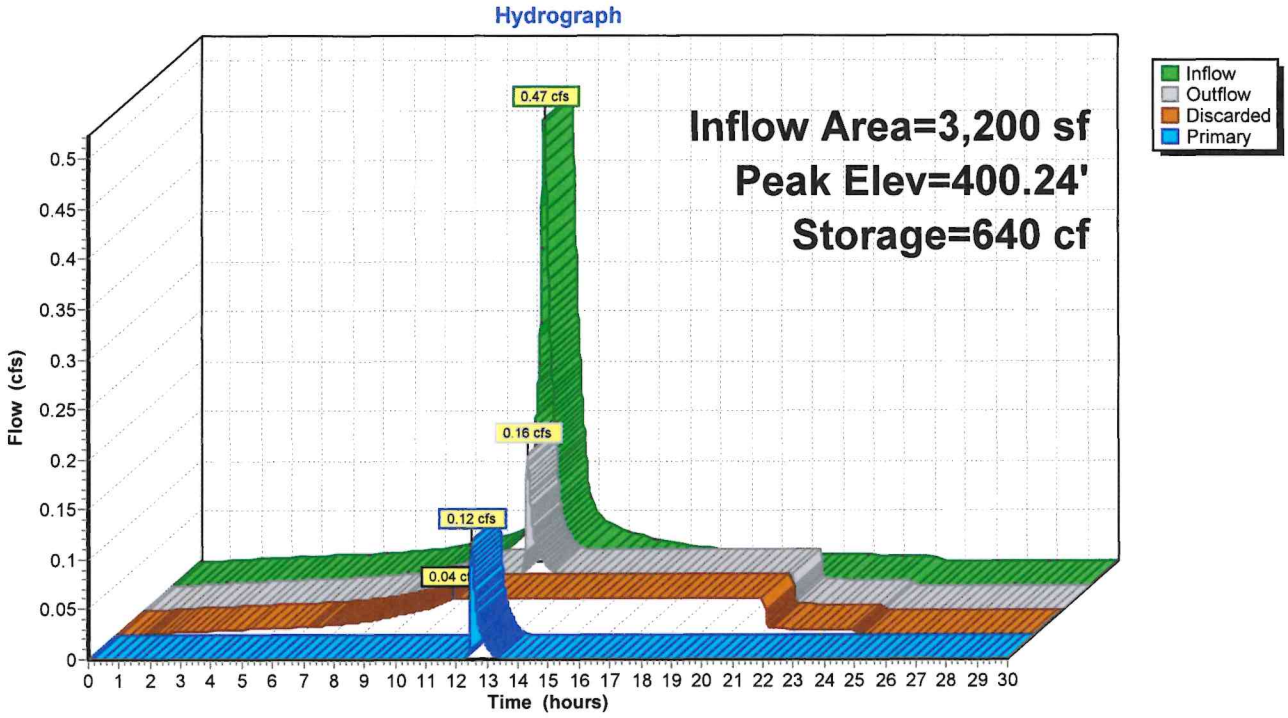
Volume	Invert	Avail.Storage	Storage Description
#1	397.50'	304 cf	**11.50'W x 34.70'L x 2.75'H Gravel Bed** 1,097 cf Overall - 337 cf Embedded = 760 cf x 40.0% Voids
#2	398.00'	337 cf	**33.6"W x 20.0"H x 32.70'L Cultec R-180** x 3 Inside #1
		641 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	397.50'	**4.000 in/hr Exfiltration over Surface area**
#2	Primary	400.20'	**1.00' x 1.00' Horiz. H.L.O Grate** Limited to weir flow C= 0.600

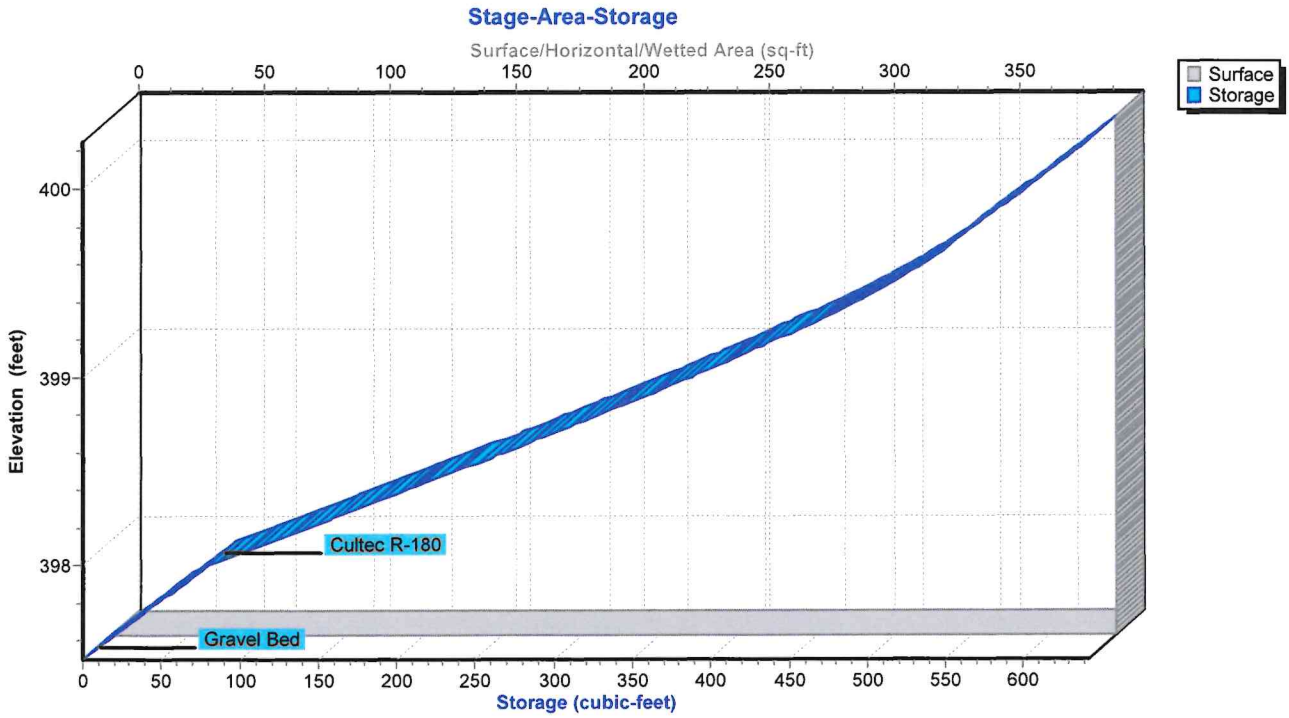
Discarded OutFlow Max=0.04 cfs @ 10.97 hrs HW=397.53' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.11 cfs @ 12.48 hrs HW=400.24' (Free Discharge)
↑—**2=H.L.O Grate** (Weir Controls 0.11 cfs @ 0.67 fps)

Pond DET2: Underground Detention System



Pond DET2: Underground Detention System



Summary for Pond DET3: Underground Detention System

Inflow Area = 1,680 sf,100.00% Impervious, Inflow Depth = 7.25" for 50-yr event
Inflow = 0.25 cfs @ 12.14 hrs, Volume= 1,015 cf
Outflow = 0.14 cfs @ 12.33 hrs, Volume= 1,015 cf, Atten= 42%, Lag= 11.4 min
Discarded = 0.01 cfs @ 10.25 hrs, Volume= 888 cf
Primary = 0.13 cfs @ 12.33 hrs, Volume= 127 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 399.04' @ 12.33 hrs Surf.Area= 155 sf Storage= 320 cf

Plug-Flow detention time= 152.1 min calculated for 1,015 cf (100% of inflow)
Center-of-Mass det. time= 152.2 min (898.4 - 746.2)

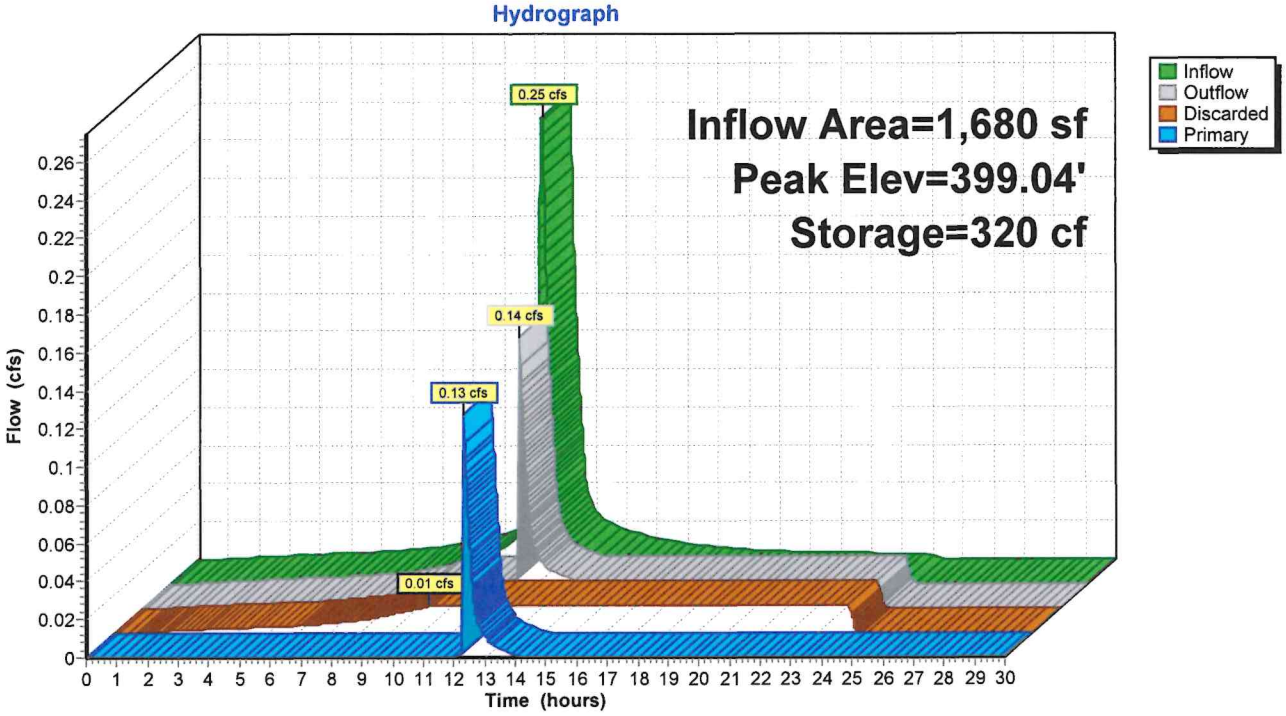
Volume	Invert	Avail.Storage	Storage Description
#1	395.50'	153 cf	**6.33'W x 24.50'L x 3.54'H Gravel Bed** 549 cf Overall - 168 cf Embedded = 381 cf x 40.0% Voids
#2	396.00'	168 cf	**47.8"W x 30.0"H x 22.50'L Cultec R-330** Inside #1
		320 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	395.50'	**4.000 in/hr Exfiltration over Surface area**
#2	Primary	399.00'	**1.00' x 1.00' Horiz. H.L.O Grate** Limited to weir flow C= 0.600

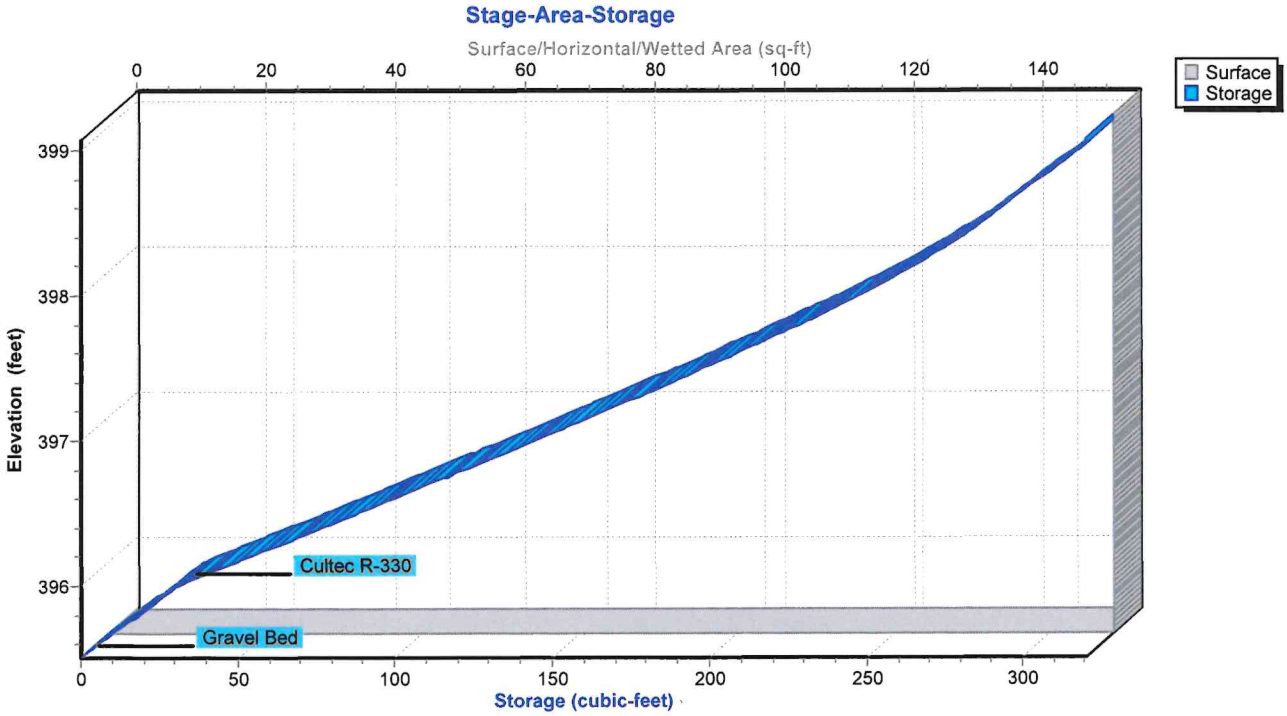
Discarded OutFlow Max=0.01 cfs @ 10.25 hrs HW=395.54' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.12 cfs @ 12.33 hrs HW=399.04' (Free Discharge)
↑**2=H.L.O Grate** (Weir Controls 0.12 cfs @ 0.69 fps)

Pond DET3: Underground Detention System



Pond DET3: Underground Detention System



Summary for Pond DET4: Underground Detention System

Inflow Area =	7,940 sf,	51.83% Impervious,	Inflow Depth =	5.84"	for 50-yr event
Inflow =	1.04 cfs @	12.14 hrs, Volume=	3,863 cf		
Outflow =	0.37 cfs @	12.48 hrs, Volume=	3,863 cf,	Atten= 64%,	Lag= 20.0 min
Discarded =	0.08 cfs @	11.21 hrs, Volume=	3,577 cf		
Primary =	0.29 cfs @	12.48 hrs, Volume=	286 cf		

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 396.25' @ 12.48 hrs Surf.Area= 835 sf Storage= 1,380 cf

Plug-Flow detention time= 137.4 min calculated for 3,862 cf (100% of inflow)
Center-of-Mass det. time= 137.4 min (931.5 - 794.1)

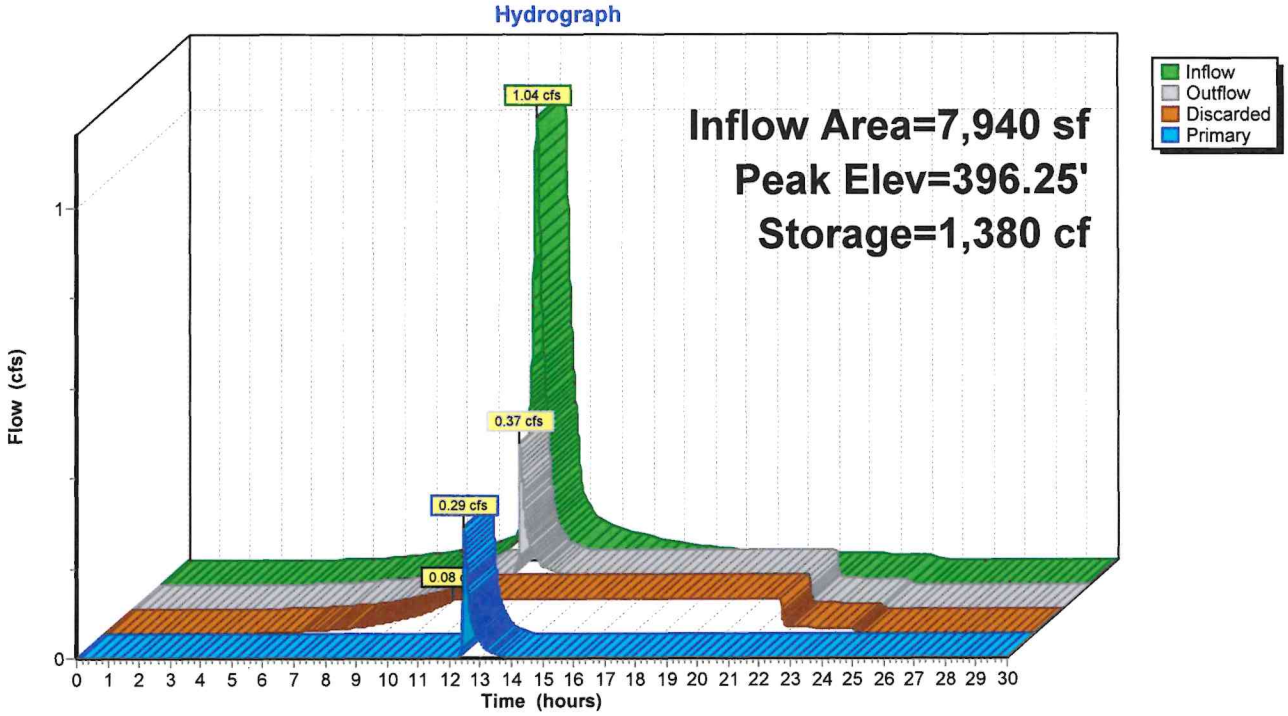
Volume	Invert	Avail.Storage	Storage Description
#1	393.50'	644 cf	**11.50'W x 72.60'L x 2.85'H Gravel Bed** 2,379 cf Overall - 770 cf Embedded = 1,610 cf x 40.0% Voids
#2	394.00'	770 cf	**33.6"W x 20.0"H x 74.60'L Cultec R-180** x 3 Inside #1
		1,414 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	393.50'	**4.000 in/hr Exfiltration over Surface area**
#2	Primary	396.20'	**2.00' x 2.00' Horiz. H.L.O Grate** Limited to weir flow C= 0.600

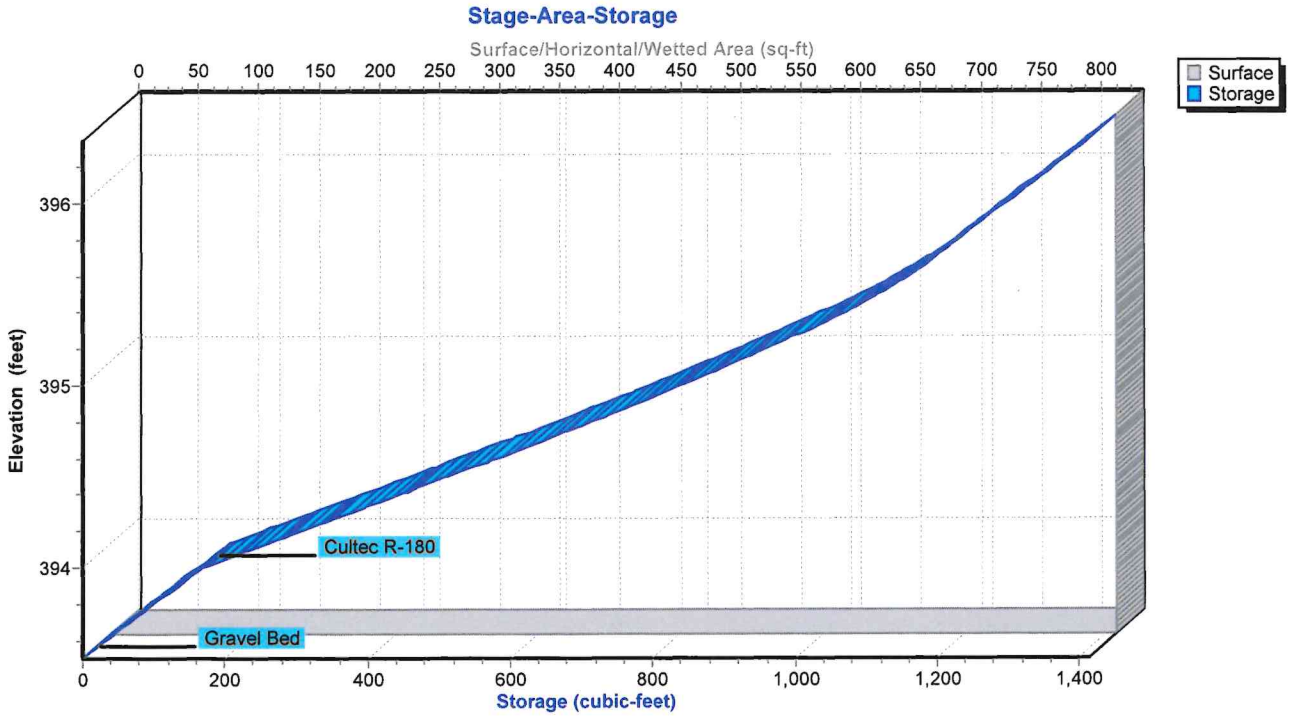
Discarded OutFlow Max=0.08 cfs @ 11.21 hrs HW=393.53' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.28 cfs @ 12.48 hrs HW=396.25' (Free Discharge)
↑**2=H.L.O Grate** (Weir Controls 0.28 cfs @ 0.72 fps)

Pond DET4: Underground Detention System



Pond DET4: Underground Detention System

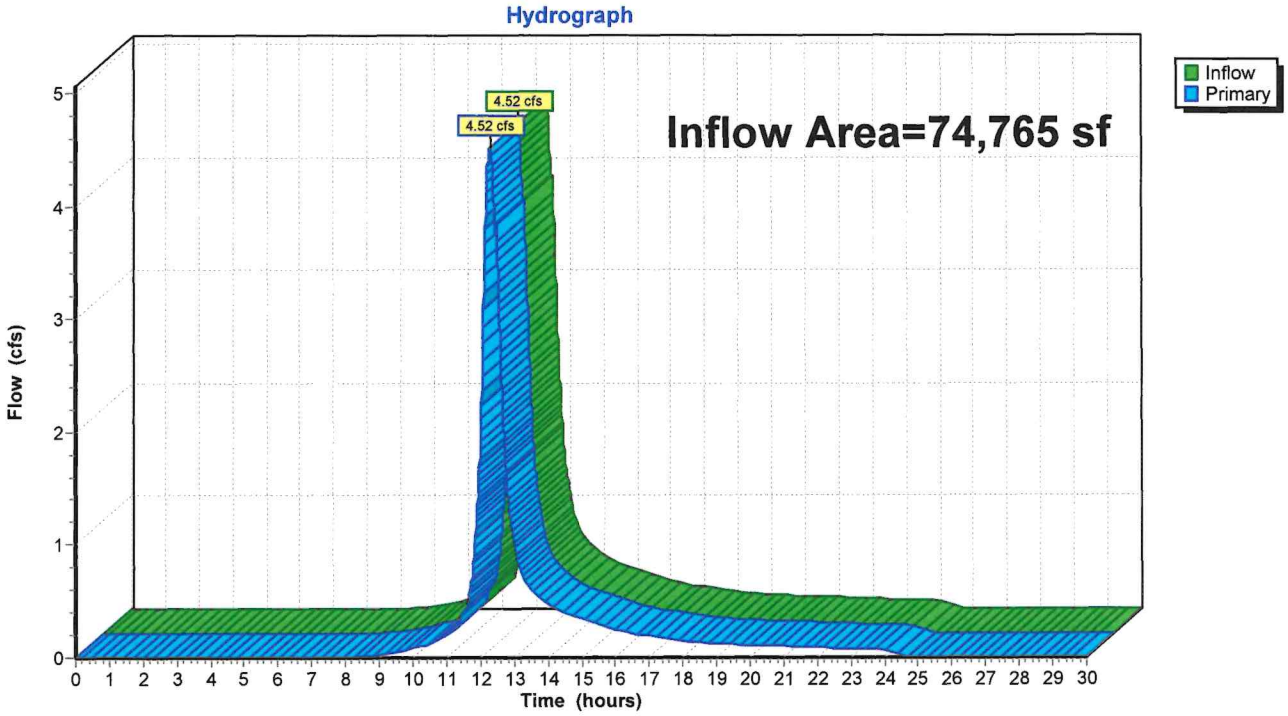


Summary for Link SUM: Sum Hydrograph

Inflow Area = 74,765 sf, 13.98% Impervious, Inflow Depth = 3.44" for 50-yr event
Inflow = 4.52 cfs @ 12.32 hrs, Volume= 21,427 cf
Primary = 4.52 cfs @ 12.32 hrs, Volume= 21,427 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link SUM: Sum Hydrograph



APPENDIX B:

WATER QUALITY VOLUME COMPUTATIONS

Water Quality Volume Computation

10 Hills End Lane, Weston, CT

AREA OF PROPOSED DEVELOPMENT TO BE CAPTURED BY DET1	
Location	**Area, (ft^2)**
Proposed Driveway	880
Lawn (On-Site)	3,800
Woods	860
Lawn (Off-Site)	3,700

Location	A Area (ft^2)	Imperv. Area (ft^2)	I % Imperv.	R Runoff Coeff.	WQV (ft^3)
Detention System #1	9,240	880	9.5	0.136	136

Location	System Description	Volume Provided, (ft^3)
Detention System #1	Four (4) Cultec R180HD Chambers	196

AREA OF PROPOSED DEVELOPMENT TO BE CAPTURED BY DET2	
Location	**Area, (ft^2)**
Proposed Residence	2,130
Proposed Patio	670
Proposed Pool	400

Location	A Area (ft^2)	Imperv. Area (ft^2)	I % Imperv.	R Runoff Coeff.	WQV (ft^3)
Detention System #2	3,200	3,200	100.0	0.950	329

Location	System Description	Volume Provided, (ft^3)
Detention System #2	Fifteen (15) Cultec R180HD Chambers	633

AREA OF PROPOSED DEVELOPMENT TO BE CAPTURED BY DET3	
Location	**Area, (ft^2)**
Proposed Residence	490
Proposed Driveway	1,190

Location	A Area (ft^2)	Imperv. Area (ft^2)	I % Imperv.	R Runoff Coeff.	WQV (ft^3)
Detention System #3	1,680	1,680	100.0	0.950	173

Location	System Description	Volume Provided, (ft^3)
Detention System #3	Five (5) Cultec R330XLHD Chambers	318

Water Quality Volume Computation

10 Hills End Lane, Weston, CT

AREA OF PROPOSED DEVELOPMENT TO BE CAPTURED BY DET4	
Location	**Area, (ft^2)**
Proposed Residence	2,285
Proposed Driveway	1,430
Proposed Front Walk	400
Lawn	3,825

Location	A Area (ft^2)	Imperv. Area (ft^2)	I % Imperv.	R Runoff Coeff.	WQV (ft^3)
Detention System #4	7,940	4,115	51.8	0.516	444

Location	System Description	Volume Provided, (ft^3)
Detention System #4	Thirty (30) Cultec R180HD Chambers	1,364

$$WQV = \frac{(P)(R)(A)}{12}$$

where:

WQV = water quality volume (cubic feet)
P = 1.3 inches (90^{th} percentile rainfall event)
R = volumetric runoff coefficient = 0.05+0.009(I)
I = post- development impervious area (percent) after application of non-structural LID site planning and design strategies and before application of structural stormwater BMPs
A = post-development total drainage area of site or design point (square feet)

Stage-Area-Storage for Pond DET1: Underground Detention System #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
387.80	**129**	0
387.85	129	3
387.90	129	5
387.95	129	8
388.00	129	10
388.05	129	13
388.10	129	16
388.15	129	18
388.20	129	21
388.25	129	23
388.30	129	26
388.35	129	31
388.40	129	36
388.45	129	40
388.50	129	45
388.55	129	50
388.60	129	55
388.65	129	59
388.70	129	64
388.75	129	69
388.80	129	74
388.85	129	78
388.90	129	83
388.95	129	87
389.00	129	92
389.05	129	97
389.10	129	101
389.15	129	106
389.20	129	110
389.25	129	114
389.30	129	119
389.35	129	123
389.40	129	127
389.45	129	132
389.50	129	136
389.55	129	140
389.60	129	144
389.65	129	147
389.70	129	151
389.75	129	155
389.80	129	158
389.85	129	161
389.90	129	164
389.95	129	167
390.00	129	170
390.05	129	173
390.10	129	175
390.15	129	178
390.20	129	180
390.25	129	183
390.30	129	186
390.35	129	188
390.40	129	191
390.45	129	193
390.50	129	196
390.55	129	198
390.60	129	201
390.65	129	**204**

Stage-Area-Storage for Pond DET2: Underground Detention System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
397.50	**399**	0
397.55	399	8
397.60	399	16
397.65	399	24
397.70	399	32
397.75	399	40
397.80	399	48
397.85	399	56
397.90	399	64
397.95	399	72
398.00	399	80
398.05	399	96
398.10	399	112
398.15	399	128
398.20	399	144
398.25	399	160
398.30	399	175
398.35	399	191
398.40	399	207
398.45	399	222
398.50	399	238
398.55	399	253
398.60	399	269
398.65	399	284
398.70	399	299
398.75	399	314
398.80	399	329
398.85	399	344
398.90	399	359
398.95	399	373
399.00	399	388
399.05	399	402
399.10	399	416
399.15	399	429
399.20	399	443
399.25	399	456
399.30	399	469
399.35	399	481
399.40	399	493
399.45	399	505
399.50	399	516
399.55	399	526
399.60	399	536
399.65	399	545
399.70	399	554
399.75	399	562
399.80	399	570
399.85	399	578
399.90	399	586
399.95	399	594
400.00	399	601
400.05	399	609
400.10	399	617
400.15	399	625
400.20	399	633
400.25	399	**641**

Stage-Area-Storage for Pond DET3: Underground Detention System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
395.50	**155**	0
395.55	155	3
395.60	155	6
395.65	155	9
395.70	155	12
395.75	155	16
395.80	155	19
395.85	155	22
395.90	155	25
395.95	155	28
396.00	155	31
396.05	155	37
396.10	155	43
396.15	155	48
396.20	155	54
396.25	155	60
396.30	155	66
396.35	155	71
396.40	155	77
396.45	155	83
396.50	155	88
396.55	155	94
396.60	155	100
396.65	155	105
396.70	155	111
396.75	155	117
396.80	155	122
396.85	155	128
396.90	155	133
396.95	155	139
397.00	155	144
397.05	155	150
397.10	155	155
397.15	155	161
397.20	155	166
397.25	155	172
397.30	155	177
397.35	155	183
397.40	155	188
397.45	155	193
397.50	155	198
397.55	155	204
397.60	155	209
397.65	155	214
397.70	155	219
397.75	155	224
397.80	155	229
397.85	155	234
397.90	155	238
397.95	155	243
398.00	155	248
398.05	155	252
398.10	155	257
398.15	155	261
398.20	155	265
398.25	155	269
398.30	155	273
398.35	155	277
398.40	155	280
398.45	155	283
398.50	155	287
398.55	155	290
398.60	155	293
398.65	155	296
398.70	155	299
398.75	155	302
398.80	155	305
398.85	155	308
398.90	155	312
398.95	155	315
399.00	155	**318**
399.05	155	**320**

Stage-Area-Storage for Pond DET4: Underground Detention System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
393.50	**835**	0
393.55	835	17
393.60	835	33
393.65	835	50
393.70	835	67
393.75	835	83
393.80	835	100
393.85	835	117
393.90	835	134
393.95	835	150
394.00	835	167
394.05	835	202
394.10	835	237
394.15	835	272
394.20	835	307
394.25	835	341
394.30	835	376
394.35	835	410
394.40	835	445
394.45	835	479
394.50	835	513
394.55	835	547
394.60	835	580
394.65	835	613
394.70	835	646
394.75	835	679
394.80	835	712
394.85	835	744
394.90	835	777
394.95	835	808
395.00	835	839
395.05	835	870
395.10	835	900
395.15	835	930
395.20	835	959
395.25	835	987
395.30	835	1,015
395.35	835	1,042
395.40	835	1,068
395.45	835	1,093
395.50	835	1,116
395.55	835	1,138
395.60	835	1,159
395.65	835	1,179
395.70	835	1,197
395.75	835	1,213
395.80	835	1,230
395.85	835	1,247
395.90	835	1,263
395.95	835	1,280
396.00	835	1,297
396.05	835	1,313
396.10	835	1,330
396.15	835	1,347
396.20	835	1,364
396.25	835	1,380
396.30	835	1,397
396.35	835	**1,414**

APPENDIX C:

STORMWATER FACILITIES MAINTENANCE PLAN

Stormwater Facilities Maintenance Plan

10 Hills End Lane, Weston, CT

Scope:

The purpose of the Stormwater Facilities Maintenance Plan is to ensure that the proposed stormwater components installed at 10 Hills End Lane are maintained in operational condition throughout the life of the home. The service procedures associated with this plan shall be performed as required by the parties legally responsible for their maintenance.

Description of Stormwater Facilities:

The proposed stormwater facilities are designed to collect, convey, detain and treat the runoff from the site in order to minimize adverse impacts to adjacent properties, inland wetlands and downstream drainage systems. A description of the stormwater facilities are as follows:

1. Roof Leaders/Gutters: Roof leaders (also known as downspouts) from the residence will convey roof runoff collected by the roof gutters to the underground detention systems.

2. Driveway Drains: Driveway drains will collect runoff from the driveway and surrounding lawn and convey it to the underground detention systems. All drains are equipped with a sump designed to capture sediment and debris from the runoff.

3. Slot Drains: Slot drains will collect runoff from the pool patio and convey it to the underground detention system.

4. Underground Detention Chambers: The underground detention systems consist of a series of plastic Cultec chambers which provide storage for stormwater runoff. Stormwater in the underground detention systems is designed to infiltrate into the underlying soils. The detention systems are designed to be relieved by an overflow grate during extreme storm events.

Recommended Frequency of Service:

All of the stormwater components installed for this property should be checked periodically and kept in full working order. Ultimately the frequency of inspection and service cleaning depends on the amount of runoff, pollutant loading and interference from debris (leaves, vegetation, trash, etc.); however it is recommended that each facility be inspected and cleaned a minimum of two times a year. The guidelines for the timing of service include early spring after the winter season and late fall after the leaves have fallen from the trees.

Service Procedures:

Service can be performed by the homeowner, landscape contractor or handyman since no specialzed equipment is required. Specific service procedures for the stormwater facilities are as follows:

1. Roof Leaders/Gutters: Roof gutters shall be inspected twice a year during the spring and fall service inspections to ensure that roof leaders are kept free of leaves and debris that could clog the detention chambers. At a minimum, leaves should be cleaned from the gutters during the fall service inspection.

2. Driveway Drains: Driveway drains shall be inspected and cleaned twice a year during the spring and fall service inspections. The cleaning shall include both removal of sediment from the sumps and removal of any trash and/or debris from the grate.

3. Slot Drains: Slot drains shall be inspected and cleaned twice a year during the spring and fall service inspections. The cleaning shall include the removal of any trash and/or debris from the grate.

4. Underground Detention Chambers: Functionality of the underground detention chambers ultimately depends on keeping sediment and debris out of the chambers. This is accomplished through proper maintenance of the roof leaders and gutters. These components should be maintained as described above, but more frequent maintenance may be required if excessive accumulation of debris is observed.