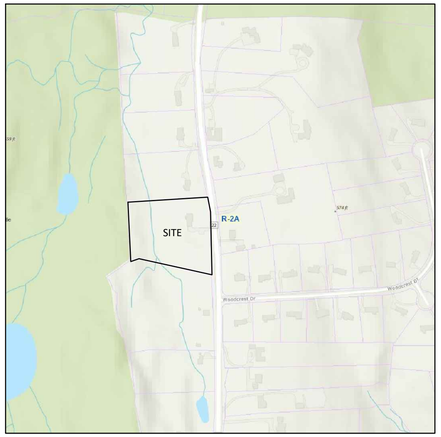


LOCATION MAP

N.T.S.

DRAINAGE STRUCTURES TABLE

STRUCTURE	RIM	INVERT	INVERT TO SWM	INVERT TO OVERFLOW OUTLET
DI-1	526.50	525.00		
DI-2	526.50	524.70		
DI-3	526.50	524.54		
DI-4	527.00	525.50		
DI-5	527.00	525.36		
DI-6	527.00	524.95		
PT-1	527.00	524.39	524.20	524.20
SWM	-	524.20		
OUTLET 1	-	522.00		

PVC DR 35 PIPE SCHEDULE

FROM	TO	DIA. (IN)	LENGTH (FT)	SLOPE (%)
DI-1	DI-2	6	30	1.0 %
DI-2	DI-3	6	16	1.0 %
DI-3	PT-1	6	22	1.0 %
DI-4	DI-5	6	14	1.0 %
DI-5	DI-6	6	41	1.0 %
DI-6	PT-1	6	22	2.55 %
PT-1	SWM	6	5	0.5 %
SWM	OUTLET 1	6	30	4.0 %

SYMBOL FOR DEEP TEST HOLE

DEEP TEST HOLE RESULTS 3/15/2022

TEST PIT 1

G.L.	LAWN
0"-6"	TOPSOIL
6"-24"	GRAY SANDY LOAM WITH SILTS
24"-75"	MISCELLANEOUS FILL

*96" TOTAL DEPTH, NO GW, NO LEDGE

SYMBOL FOR INFILTRATION TEST

INFILTRATION TEST RESULTS DEPTH = 29" 3/15/2022

HOLE #	DROP MIN.	DROP INCH	RATE
1	7 min.	3.0 inches	2.33
	16 min.	3.0 inches	5.33
	12 min.	3.0 inches	4.00
	12 min.	3.0 inches	4.00

* USE INFILTRATION RATE OF 15 INCHES PER HOUR

GENERAL NOTES

1. THE CONSTRUCTION OF THE POOL, SPA, TERRACE AND STORMWATER MITIGATION WILL RESULT IN A TOTAL AREA OF DISTURBANCE OF 8,500 SF.
2. THE PROJECT WILL RESULT IN THE CREATION OF APPROXIMATELY 1,668 SF OF NEW IMPERVIOUS SURFACE.
3. THE CONSTRUCTION OF THE POOL, SPA, TERRACE AND STORMWATER MITIGATION SYSTEM WILL RESULT IN THE REMOVAL OF TWELVE (12) TREES.
4. ANY ROCK REMOVAL REQUIRING CHIPPING WILL REQUIRE A CHIPPING PERMIT TO BE OBTAINED FROM THE BUILDING DEPARTMENT.
5. CHIPPING OPERATION SHALL BE LIMITED TO THE HOURS OF 8:30 AM TO 4:00 PM, MONDAY THROUGH FRIDAY. ROCK CHIPPING IS PROHIBITED ON SATURDAYS, SUNDAYS AND ALL LEGAL HOLIDAYS.
6. ANY ROCK CHIPPING WILL REQUIRE DUST MITIGATION AND SHALL INCORPORATE THE BEST DUST CONTROL PRACTICES INCLUDING, BUT NOT LIMITED TO A WATER SPRAY SYSTEM(AIR SUPPRESSION OR SURFACE WETTING). CONTRACTOR SHALL CONTROL WATER RUNOFF AS A RESULT OF ANY WATER SPRAY PROGRAM.

CONSTRUCTION SEQUENC

1. CONTRACTOR TO STAKE CLEARING AND GRADING LINE AS LIMIT OF DISTURBANCE, INSTALL SILT FENCES ALONG LIMIT OF DISTURBANCE AND CORDON OFF SEPTIC SYSTEM AS INDICATED ON SITE PLAN.
2. CONSTRUCT ANTI-TRACKING PAD AT CONSTRUCTION ENTRANCE TO POOL AREA.
3. EXISTING TREES SHALL BE REMOVED WHERE INDICATED ON PLAN. THOSE REMAINING SHALL BE PROTECTED DURING CONSTRUCTION OF POOL AND PATIO AREA.
4. CONFIRM LOCATION OF EXISTING SEPTIC TANK , TANK DISCHARGE LINE AND ABSORPTION TRENCHES AND PROTECT DURING CONSTRUCTION.
5. STRIP TOPSOIL FROM POOL AREA AND STOCKPILE WHERE INDICATED. ALL TOPSOIL STORAGE SITES ARE TO BE SURROUNDED WITH SILT FENCE DURING CONSTRUCTION.
6. CONSTRUCT PROPOSED POOL.
   A. FRAME AND EXCAVATE FOR POOL. ALL EXCAVATED MATERIAL TO BE REMOVED OFF SITE. NO MATERIAL TO BE STOCKPILED.
   B. INSTALL FORM WORK INSTALL GRAVEL BED, REINFORCING AND PLUMBING FOR POOL. SPRAY GUNITE FOR POOL.
   C. INSTALL POOL EQUIPMENT PAD.
   D. BACK FILL AREA SURROUNDING POOL.
   E. ROUGH GRADE AWAY FROM POOL AREA.
   F. INSTALL UTILITY CONNECTIONS; AND ELECTRIC FEED BETWEEN HOUSE AND POOL EQUIPMENT AREA.
   G. INSTALL COPING, PLASTER POOL SURFACE.
   H. FILL POOL WITH WATER
7. INSTALL POOL DRAWDOWN MITIGATION SYSTEM. SYSTEM TO REMAIN OFF LINE UNTIL WORK IS COMPLETE AND SITE IS STABLE
8. INSTALL LADNSCAPE SCREENING WHERE INDICATED ON PLAN.
9. INSTALL POOL FENCING AND GATES.
10. TOPSOIL, SEED, SOD OR HYDROSEED, MULCH AND RESTORE ALL DISTURBED AREAS. INSTALL ADDITIONAL LANDSCAPING.
11. REMOVE EROSION CONTROLS ONLY AFTER ALL AREAS HAVE BEEN THOROUGHLY STABILIZED.

PROJECT NOTES

1. PROJECT SITE ADDRESS:
   710 BEDFORD ROAD
   ARMONK, NEW YORK 10504
2. TOWN OF NORTH CASTLE TAX MAP INFORMATION:
   SECTION 95.03 BLOCK 1 LOT 2
   TOTAL AREA OF PARCEL = 4.67 ACRES
   R-2A ZONING DISTRICT
3. WATERSHED BASIN:
   LONG ISLAND SOUND - MIANUS RIVER BASIN

TOWN OF NORTH CASTLE SCHEDULE OF RESIDENCE DISTRICT REGULATIONS R-2A RESIDENTIAL DISTRICT

	MINIMUM LOT SIZE				MINIMUM YARDS			MAXIMUM BUILDING HEIGHT		MAXIMUM BUILDING COVERAGE	MAXIMUM GROSS LAND COVERAGE
R-2A	AREA (acres)	FRONTAGE (feet)	WIDTH (feet)	DEPTH (feet)	FRONT (feet)	SIDE (feet)	REAR (feet)	STORIES	HEIGHT (feet)	8% (16,274 square feet)	22,637 (square feet)
REQUIRED	2.00	150	150	150	50	30	50	-	30		
710 BEDFORD ROAD	4.67	486.58	409.50	500.75	114.1	92.7	327.3	-	-	1.60% (Exist) (3,260 square feet)	9,395
PROPOSED POOL					125.85	38.50	345.2	-	-	-	11,063

NO.	REVISION	DATE
1	WETLANDS, FENCE, SCREENING	3/16/2022
2	RPRC RESPONSE	4/18/2022

LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- LIMITS OF DISTURBANCE
- S — SILT FENCE/SEDIMENT BARRIER
- CONSTRUCTION FENCE
- TREE TO REMOVED
- TREE TO BE PROTECTED
- SS — TOPSOIL STOCKPILE
- PROPOSED DRAINAGE INLET (DI)
- PROPOSED STORM DRAIN
- 508 — PROPOSED CONTOUR LINE
- + 512.0 — PROPOSED SPOT ELEVATION
- TP–1 — TEST PIT LOCATION & DESIGNATION
- P–1 — PERCOLATION LOCATION & DESIGNATION
- PROPOSED DRAINAGE SWALE
- PROPOSED ELECTRIC LINE
- W — PROPOSED WATER SERVICE
- G — PROPOSED GAS SERVICE

30 20 10 0 30 60

SCALE IN FEET

Surveyor
JRL Land Surveying P.C.
21 Park Place, Suite 1-B
Mahopac, New York 10541
Tel: 914-941-1440

Owner
John & Janet Hellier
710 Bedford Road
Armonk, New York 10504

DTS • PROVIDENT
Intelligent Land Use

DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601

P: 914.428.0010
F: 914.428.0017

HELLIER RESIDENCE POOL
710 Bedford Road
Town of North Castle
Westchester County, New York

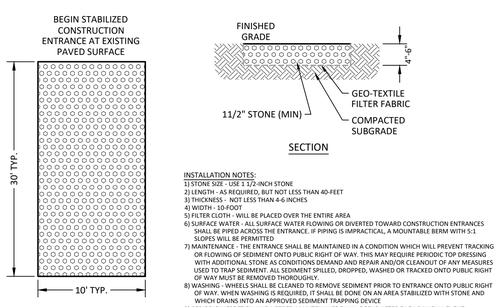
TITLE:
SITE PLAN

Seal

STATE OF NEW YORK PETER J. GREGORY Peter Gregory LICENSED PROFESSIONAL ENGINEER No. 071226

Scale:	1" = 30'
Date:	12/21/2021
Drawn By:	JM
Checked By:	PJG
Project No.:	
Sheet No.:	1 of 1
Dwg. No.:	C-101

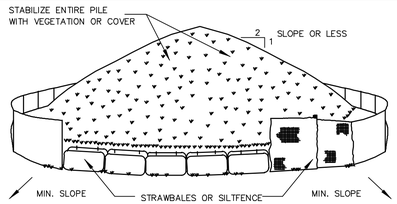
R:\PROJECTS-DTSP\0883 - Bedford Road, Armonk\AutoCAD\SPA\C-101 Site Plan.dwg



INSTALLATION NOTES:
1) STONE SIZE - USE 1 1/2-INCH STONE
2) LENGTH - AS REQUIRED, BUT NOT LESS THAN 40-FEET
3) THICKNESS - NOT LESS THAN 4-6 INCHES
4) WIDTH - 10-FOOT
5) FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA
6) SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED
7) MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT OF WAY MUST BE REMOVED THOROUGHLY.
8) WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE
9) PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL OCCUR AFTER EACH RAINFALL EVENT

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

1

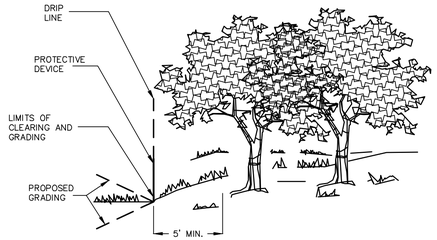


INSTALLATION NOTES

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1:2.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR STRAWBALES, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE SPECIFICATIONS (THIS MANUAL) FOR INSTALLATION OF SILTFENCE.

SOIL STOCKPILING
NOT TO SCALE

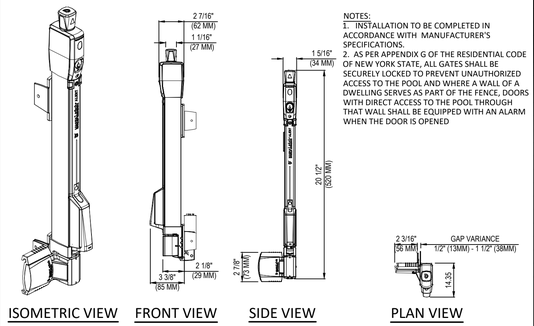
2



CONSTRUCTION OPERATIONS RELATIVE TO THE LOCATION OF PROTECTED TREES

TREE PROTECTION
NOT TO SCALE

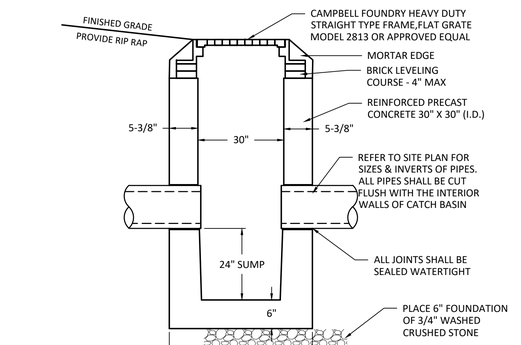
3



NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. AS PER APPENDIX G OF THE RESIDENTIAL CODE OF NEW YORK STATE, ALL GATES SHALL BE SECURELY LOCKED TO PREVENT UNAUTHORIZED ACCESS TO THE POOL AND WHERE A WALL OF A DWELLING SERVES AS PART OF THE FENCE, DOORS WITH DIRECT ACCESS TO THE POOL THROUGH THAT WALL SHALL BE EQUIPPED WITH AN ALARM WHEN THE DOOR IS OPENED

CHILD SAFETY GATE LATCH
NOT TO SCALE

4

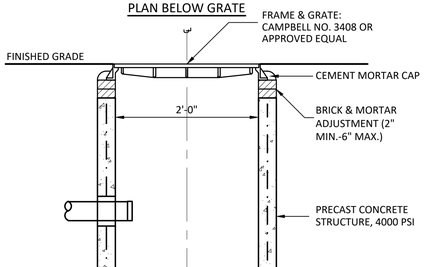


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE
NOT TO SCALE

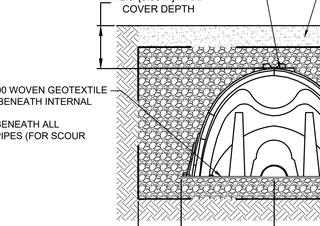
5



INSTALLATION NOTES:
1) MESH TO BE PLACED ON "OUTSIDE" FACE OF POST TO RENDER NON-CLIMABLE
2) MESH COLOR TO BE BLAZE ORANGE

TYPICAL ORANGE MESH CONSTRUCTION FENCE
NOT TO SCALE

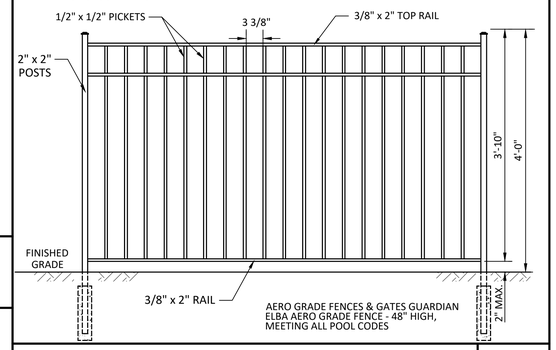
6



STONE ENERGY DISSIPATER DETAIL
NOT TO SCALE

7

INSTALLATION NOTES:
1) TOP OF FENCE SHALL BE 4 FEET ABOVE GRADE MEASURED ON THE SIDE OF THE FENCE WHICH FACES AWAY FROM THE SWIMMING POOL
2) MAXIMUM VERTICAL CLEARANCE BETWEEN GRADE AND THE BOTTOM OF THE FENCE SHALL BE 2-INCHES MEASURED ON THE SIDE OF THE FENCE WHICH FACES AWAY FROM THE SWIMMING POOL
3) ALL GATES SHALL BE SELF-CLOSING AND OPEN OUTWARD AWAY FROM THE POOL
4) ALL GATES SHALL BE SELF-LATCHING WITH THE LATCH HANDLE LOCATED WITHIN THE ENCLOSURE (ON THE POOL SIDE OF THE ENCLOSURE) AND AT LEAST 40-INCHES ABOVE GRADE
5) SHOULD THE LATCH HANDLE BE LOCATED LESS THEN 54-INCHES FROM THE BOTTOM OF THE GATE, THE LATCH HANDLE SHALL BE LOCATED AT LEAST 3-INCHES BELOW THE TOP OF THE GATE, AND NEITHER THE GATE NOT THE FENCE SHALL HAVE ANY OPENING GREATER THEN ½-INCH WITHIN 18-INCHES OF THE LATCH HANDLE



POOL ENCLOSURE FENCE
NOT TO SCALE

8

1. CONCRETE MINIMUM STRENGTH: 4,000 PSI AT 28 DAYS
2. REINFORCEMENT: #4 REBAR / ASTM A615
3. AIR ENTRAINMENT: 5%
4. CONSTRUCTION JOINT: BUTYL RUBBER SEALANT
5. LOAD RATING: H20 / ASTM C857

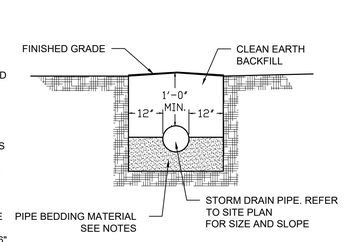
DRAIN INLET DETAIL (TYP.)
NOT TO SCALE

9

NOTES:
1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF EACH INLET FOR THE ENGINEERS APPROVAL PRIOR TO FABRICATION.
2. PRECAST INLETS SHALL BE CERTIFIED AS CONFORMING TO ASTM C913, LATEST REVISION.
3. MANHOLE STEPS ARE NOT REQUIRED FOR INLET DEPTHS LESS THAN 4 FEET.

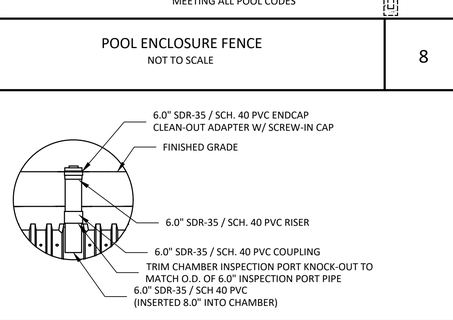
PRE TREATMENT BOX WITH SUMP
NOT TO SCALE

10



STORM DRAIN TRENCH DETAIL
NOT TO SCALE

11



INSPECTION PORT - ZOOM DETAIL
NOT TO SCALE

12

CULTEC RECHARGER 330XLHD CROSS SECTION
NOT TO SCALE

13

NO.	REVISION	DATE

Surveyor
JRL Land Surveying P.C.
21 Park Place, Suite 1-B
Mahopac, New York 10541
Tel: 914-941-1440

Owner
John & Janet Hellier
710 Bedford Road
Armonk, New York 10504

DTS • PROVIDENT
Intelligent Land Use

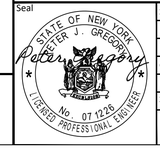
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601

P: 914.428.0010
F: 914.428.0017

HELLIER RESIDENCE POOL
710 Bedford Road
Town of North Castle
Westchester County, New York

TITLE:
DETAILS

Seal



Scale:	NTS
Date:	4/18/2022
Drawn By:	
Checked By:	PJG
Project No.:	
Sheet No.:	2 of 2
Dwg. No.:	D-101

DTS • PROVIDENT
Intelligent Land Use

DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017
www.dtsprovident.com

Andrew V. Tung, ASLA, Esq., LEED AP
Gerhard M. Schwalbe, P.E.
Charles 'Carlito' Holt, P.E., PTOE
Brian Dempsey, P.E., PTOE, RSP1

April 18, 2022

Mr. Adam Kaufman, AICP
Director of Planning
Chair Residential Project Review Committee
Town of North Castle
17 Bedford Road
Armonk, NY 10504

RE: Hellier Residence Swimming Pool RPRC Review
710 Bedford Road, Armonk
Town of North Castle
Section 95.03, Block 1, Lot 2

Dear Mr. Kaufman:

Attached please find updated plans and additional information requested in response to the comments expressed in RPRC Return Letter dated January 18, 2022. Written responses to each comment have been prepared and are provided below to assist you in your review:

1. *The plan may propose disturbances within the locally-regulated 100-foot wetland buffer. A local Wetland Permit may be required. The applicant shall illustrate the local wetland boundary and regulated 100-foot buffer on the plan for verification by the Town Wetland Consultant. Notify the Town Engineer once the wetland boundary has been established in the field. If disturbance is proposed within 100 feet of a wetland, the applicant will be required to comply with Chapter 340, Wetlands and Watercourse Protection, of the Town Code.*

   Response: **The owner retained the services of a wetland consultant to determine the local wetland boundary and 100-foot buffer on the subject property. Wetlands were delineated on March 2, 2022 with a subsequent report prepared on March 9, 2002. by Mary Coleman. The Town Engineer was notified once the wetland boundary was established and it was verified by the Town Wetland Consultant on March 17, 2022. Once verified, the Site plan was updated to reflect wetland boundary and associated 100-foot regulated wetland buffer. No disturbance is proposed within 100 feet of the noted wetlands. A copy of the report, sketch and survey are attached for your review.**

2. *The applicant shall perform deep and percolation soil testing in the vicinity of the proposed mitigation system to be witnessed by the Town Engineer. The test locations and results shall be shown on the plan. Contact the Town Engineer to schedule the testing.*

   Response: Soil testing for the proposed stormwater mitigation/pool drawdown system was performed and witnessed by the Town Engineer on March 15, 2022. Test results are attached for your review.

3. *Provide stormwater mitigation design calculations for the runoff generated by the net increase in impervious surface for the 25-year, 24-hour design storm event or a six (6) inch pool drawdown volume; whichever is greater. Provide details of the stormwater mitigation system.*

   Response: Stormwater mitigation design calculations for the runoff generated from the proposed impervious surface has been prepared and is attached for your review.

4. *The plan shall include the proposed stormwater collection and piping system. Provide rims, inverts, size and material for all drainage facilities. Provide details.*

   Response: Plans have been updated to include the proposed stormwater collection, piping and details of the drainage system.

5. *The plan shall include emergency overflow for the infiltration system to a stabilized outfall. Please direct the discharge to a location which will not discharge onto the neighboring property.*

   Response: An emergency overflow for the proposed infiltration system has been provided. A rip rap dissipator is proposed at the overflow outlet. Overflow will not discharge onto the neighboring property.

6. *The Applicant will need to demonstrate to the satisfaction of the Building Department that the existing property fencing meets pool barrier requirements.*

   Response: Plans have been updated to reflect a Code compliant barrier fence surrounding the proposed pool area only. The existing property line fence is no longer being considered as part of the barrier fencing.

7. *The site plan depicts the removal of 9 Town-regulated trees. It is recommended that the Applicant prepare a mitigation/screening plan. Particular attention should be paid to screening the pool activity area along the northern property line.*

   <u>Response:</u> The plan has been updated to reflect landscape screening along the northern property line. A row of Green Giant Arborvitae (7 in total), 6'-8' in height and planted 10' on center. is proposed to provide screening of the pool activity area to the northern property.

Attached please find updated plans, details, survey information and a wetland report in support of the application. The owner respectfully requests that the application be placed on the agenda for the May RPRC meeting and that the committee continue it's review of the application in consideration of the submitted material. Should you have any questions or require additional information, please do not hesitate to contact me.

Very truly yours,

DTS Provident Design Engineering, LLP

Peter J. Gregory, PE
Senior Associate

TOWN OF NORTH CASTLE

WESTCHESTER COUNTY
17 Bedford Road
Armonk, New York 10504-1898

RESIDENTIAL PROJECT
REVIEW COMMITTEE
Adam R. Kaufman AICP, Chair

Telephone: (914) 273-8625
Fax: (914) 273-3554
www.northcastleny.com

RPRC RETURN LETTER

Application Number: 2022-0008

Street Location: 710 BEDFORD RD

Zoning District: R-2A Property Acreage: 4.67 Tax ID: 95.03-1-2

RPRC DECISION: OPEN

Date: 01/18/2022

The above referenced application was reviewed by the Residential Project Review Committee (RPRC) on January 18, 2022.

The Committee determined that given the submitted plans, additional information is required to be reviewed prior to a decision of the RPRC.

The following issues should be addressed at this time:

- The plan may propose disturbances within the locally-regulated 100-foot wetland buffer. A local Wetland Permit may be required. The applicant shall illustrate the local wetland boundary and regulated 100-foot buffer on the plan for verification by the Town Wetland Consultant. Notify the Town Engineer once the wetland boundary has been established in the field. If disturbance is proposed within 100 feet of a wetland, the applicant will be required to comply with Chapter 340, Wetlands and Watercourse Protection, of the Town Code.

- The applicant shall perform deep and percolation soil testing in the vicinity of the proposed mitigation system to be witnessed by the Town Engineer. The test locations and results shall be shown on the plan. Contact the Town Engineer to schedule the testing.

- Provide stormwater mitigation design calculations for the runoff generated by the net increase in impervious surface for the 25-year, 24-hour design storm event or a six (6) inch pool drawdown volume; whichever is greater. Provide details of the stormwater mitigation system.

- The plan shall include the proposed stormwater collection and piping system. Provide rims, inverts, size and material for all drainage facilities. Provide details.

- The plan shall include emergency overflow for the infiltration system to a stabilized outfall. Please direct the discharge to a location which will not discharge onto the neighboring property.

- The Applicant will need to demonstrate to the satisfaction of the Building Department that the existing property fencing meets pool barrier requirements.
- The site plan depicts the removal of 9 Town-regulated trees. It is recommended that the Applicant prepare a mitigation/screening plan. Particular attention should be paid to screening the pool activity area along the northern property line.

Please submit revised plans addressing the above issues to the RPRC. If revised plans will not be submitted, please contact my office so that the RPRC can reconvene and conclude the review process.

If you would like to further discuss this matter, please do not hesitate to contact my office at 914-273-3542.

Adam R. Kaufman, AICP
Director of Planning

DTS • PROVIDENT
Intelligent Land Use

DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017
www.dtsprovident.com

Andrew V. Tung, ASLA, Esq., LEED AP
Gerhard M. Schwalbe, P.E.
Charles 'Carlito' Holt, P.E., PTOE
Brian Dempsey, P.E., PTOE, RSP1

STORMWATER CALCULATIONS

710 BEDFORD ROAD

TOWN OF NORTH CASTLE, NEW YORK
SECTION 95.03, BLOCK 1, LOT 2

OWNERS:
JOHN & JANET HELLIER

PREPARED BY:

DTS PROVIDENT DESIGN ENGINEERING, LLP (DTSPDE)
ONE NORTH BROADWAY
WHITE PLAINS, NEW YORK 10601
TEL: (914) 428-0100
PROJECT NO.: 20-070

APRIL, 2022

DTS • PROVIDENT
Intelligent Land Use

DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017
www.dtsprovident.com

Andrew V. Tung, ASLA, Esq., LEED AP
Gerhard M. Schwalbe, P.E.
Charles 'Carlito' Holt, P.E., PTOE
Brian Dempsey, P.E., PTOE, RSP1

Section I – Project Information

1. Project Description

The purpose of this report is to present the Stormwater Calculations for the sizing of mitigation practices associated with stormwater runoff associated with the construction of a proposed pool, and terrace (the "Project") located at 710 Bedford Road, Town of North Castle, Westchester County, New York. The Project Site, Tax Map Number 95.03-1-2, is comprised of one parcel totaling 4.67 acres located in the R-2A One - Family Residential District.

The proposed work includes the removal of an existing raised wooden deck and construction of a pool, and terrace in the designated side yard of the property. The stormwater runoff will be directed toward a stormwater mitigation system. The Project will result in a net increase of impervious surface totaling approximately 1,700 square feet (sf).

Section II - Storm Water Management

1. Methodology

Since the Project will generate stormwater runoff during and post-construction, the SWPPP includes design of water quantity and water quality controls as set forth in §189 to assure that post-development peak runoff rates will be equal to or less than pre-development peak runoff rates for up to the 25-year storm event. The controls have been designed in accordance with the following publications:

- "Urban Hydrology for Small Watersheds" (Technical Release No. 55), published by the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service, SCS), dated June 1986.
- *New York State Storm Water Management Design Manual* (DEC Design Manual), January 2015.

As required by the DEC Design Manual, the 24-hour rainfall data value to be used in the hydrologic analysis and computations is based on the updated isohyetal maps from the Northeast Regional Climate Center (NRCC). Current 24-hour NRCC rainfall precipitation and distribution data was used to compute runoff hydrographs for the 25-year design storms. The rainfall value associated with the 25-year design storm is 6.44 inches.

The pre-development and post-development runoff rate for the 25-year storm event was calculated using the computer software program entitled "HydroCAD", Version 10.0, Build 25. This program incorporates the methodology used in NRCS TR-20 and TR-55 to compute and route flood hydrographs.

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2. Subsurface Investigation

Test Pit Excavation

One (1) test pit in the side yard (designated TP-1) of the existing dwelling was excavated on March 15, 2022 and witnessed by DTS-PDE personnel and consultant engineers for the Town of North Castle. The test pit location is shown on Drawing C-101, "Site Plan" prepared by DTS-PDE. The depth of the test pit was 96 inches below existing grade. DTS-PDE personnel and the consultant engineers for the Town of North Castle measured the depths of the contrasting soil layers, performed visual inspections of the excavated material at each layer encountered to determine generalized soil classifications, and logged the measurements and observations.

As shown on the test pit log sheet provided in Appendix A, the test pit yielded positive results with no presence of groundwater or ledge rock. The test pit contained a 6 inch organic layer, a 6 inch layer of sandy loam, an 18" layer of loose fine-medium sands, a 30" layer of moderately compact sands and finally a 36" layer compacted fine medium sands to the bottom of the test pit.

Infiltration Testing

DTS-PDE personnel also set up a soil infiltration test in the side yard, adjacent to the test pit (designated P-1) on March 15, 2022. An infiltration test hole was dug to 56" below existing grade with the consultant engineers for Town of North Castle present to witness. The hole was filled with 15 inches of water and an initial reading was taken. A "final" reading was taken after twelve (12) minutes had passed. This procedure was repeated two (2) additional times for a total of three (3) observations to obtain the infiltration rate. The data sheet of test results provided in Appendix A shows that the existing subsoils possess a consistent infiltration rate of 15 inches per hour (in/hr.) (4.00 minutes per inch (min/in)), greater than the minimum rate of 0.5 in/hr. required by the standards in the DEC Design Manual for infiltration SMPs.

3. Stormwater Management

a. Drainage Conditions

Existing conditions consisting of a wooded condition convey stormwater runoff in a westerly direction, toward a wetland buffer area. Total contributing area is 6,450 square feet with 4,800 square feet lawn. The wooded area is slightly sloped and in good condition. Runoff associated with the contributing area consists of 0.47 cfs rate of runoff and 1,438 cf of runoff volume for the 25 year storm event.

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b. Post Development Drainage Condition

Under post-development conditions, drainage patterns to the Design Point will remain similar to existing conditions, and therefore the location of the design point, which is located at the westerly side of the property, will remain unchanged.

However, the land cover area draining to the Design Point will change under post-development conditions as compared to existing conditions. The wooded area will be converted to impervious surface associated with a proposed pool and terrace area and landscaped/lawn area. Approximately 1,900 square feet of impervious surface will be created. Stormwater runoff rate increases to 0.58 cfs and volume increases to 1,891 cf. The proposed drainage calculations for the stormwater mitigation system are provided in Appendix B.

Water Quantity Control

NYSDEC and Chapter 189 require that post-development rates of storm water runoff from a site must be equal to or less than pre-development runoff rates so that downstream and/or adjacent properties are not adversely impacted. Increases in runoff rates are typically caused by changes in land use that increase the amount of total impervious area.

SMP Application

Based on the results of the investigation summarized in Section 2 above, it is the professional opinion of PDE that a subsurface infiltration/recharge SMP can be provided to capture and recharge the WQv, plus attenuate post-construction runoff associated with the Project construction.

The design of the subsurface infiltration/recharge SMP meets the criteria in Section 6.3 of the DEC Design Manual. The system will consist of 2 Cultec Recharger infiltration chambers Model 330 and a pretreatment box. The stormwater mitigation system effectively provides a storage volume of 255 cf and reduces rates of runoff by 0.11 cfs to 0.36 cfs, lower than pre-development rate of 0.47 cfs.

Swales, drain inlets, and subsurface drainage pipes will direct and capture the post-construction runoff from the new pool and terrace to the proposed subsurface infiltration/recharge SMP as depicted on Drawing C-101 and D-101.

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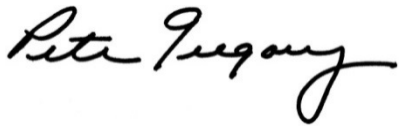
Summary and Conclusion

Based on the information presented in this report, the implementation of the proposed Storm Water Management Plan will meet the design objectives of Town of North Castle.

Respectfully submitted,

DTS Provident Design Engineering, LLP



Peter J. Gregory, P.E.
Senior Associate
New York PE# 071226

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APPENDIX A

SUBSURFACE INVESTIGATION

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APPENDIX A-1

TEST PIT LOGS

INFILTRATION TESTING

INFILTRATION TESTING
DATA SHEET

Project Name:	**Hellier Residence Pool**	Municipality:	**North Castle**
Owner:	**John & Janet Hellier**	Watershed:	**Long Island Sound-Mianus River Basin**
Address:	**710 Bedford Road - Route 22**	Sec/Bl/Lot:	**95.03 / 1 / 2**
Date:	**March 15, 2022**	Weather:	
Notes:			

TEST #	CLOCK TIME					INFILTRATION RATE			
	Run #	Start	Stop	Elapse Time		Depth to Water from Top of Casing		Drop	Infiltration Rate
		HH:MM	HH:MM	Mins	Hours	Start In.'s	Stop In's	Inches	Inches/Hour
P-1	1	9:10	9:17	7	0.12	41	44	3	25.71
	2	9:18	9:34	16	0.27	41	44	3	11.25
	3	10:50	11:02	12	0.20	38	41	3	15.00
	4	11:03	1:15	12	0.20	38	41	3	15.00
Depth of Infiltration Testing: 56"									
TEST #	CLOCK TIME					INFILTRATION RATE			
	Run #	Start	Stop	Elapse Time		Depth to Water from Top of Casing		Drop	Infiltration Rate
		HH:MM	HH:MM	Mins	Hours	Start In.'s	Stop In's	Inches	Inches/Hour

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTENERED IN TEST HOLE

DEPTH	HOLE NO: 1	HOLE NO:		
G.L	Forest Litter			
0'-6"	Orgainic			
1'-0"	Dk. Brown Sandy Loam			
1'-6"	|			
2'-0"	Loose Br. Fine - Med Sands			
2'-6"	|			
3'-0"	Mod. Compact Fine - Med Sands			
3'-6"	|			
4'-0"	|			
4'-6"	|			
5'-0"	Comp. Silt Loam			
5'-6"	|			
6'-0"	|			
6'-6"	I			
7'-0"	I			
7'-6"	I			
8'-0"	I			
8'-6"				
9'-0"	Total Depth = 96"			
9'-6"				
10'-0"				

WAS GROUND WATER ENCOUNTERED? **No**

INDICATE LEVEL AT WHICH GROUND WATER WAS ENCOUNTERED: **N/A**

INDICATE LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTERED: **N/A**

DEEP TEST MADE BY: **DTS Provident Design Engineering, LLP** DATE OF DEEP TESTS: **3/15/22**

Design Professional Name: **Peter J. Gregory, PE**
Address: **One North Broadway**
White Plains, New York 10601

Signature: Peter Gregory

Seal:

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APPENDIX B

STORM WATER MANAGEMENT CALCULATIONS

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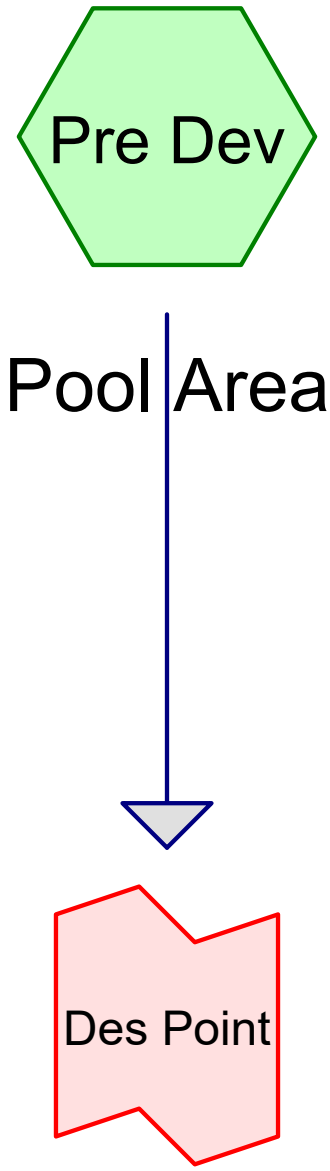
APPENDIX B-1

STORMWATER MITIGATION SYSTEM HYDROLOGIC CALCULATIONS



Design Point

Subcat Reach Pond Link

Routing Diagram for 710 Bedford - HydroCAD Report PRE
Prepared by Provident Design Engineering, LLC, Printed 4/17/2022

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,750	61	>75% Grass cover, Good, HSG B (Pre Dev)
200	80	Exist Gravel Walk with Ties (Pre Dev)
200	98	Exist Patio (Pre Dev)
684	80	Exist Raised Deck (Pre Dev)
165	98	Exist Shed (Pre Dev)
3,451	60	Woods, Fair, HSG B (Pre Dev)
6,450	**65**	**TOTAL AREA**

Summary for Subcatchment Pre Dev: Pool Area

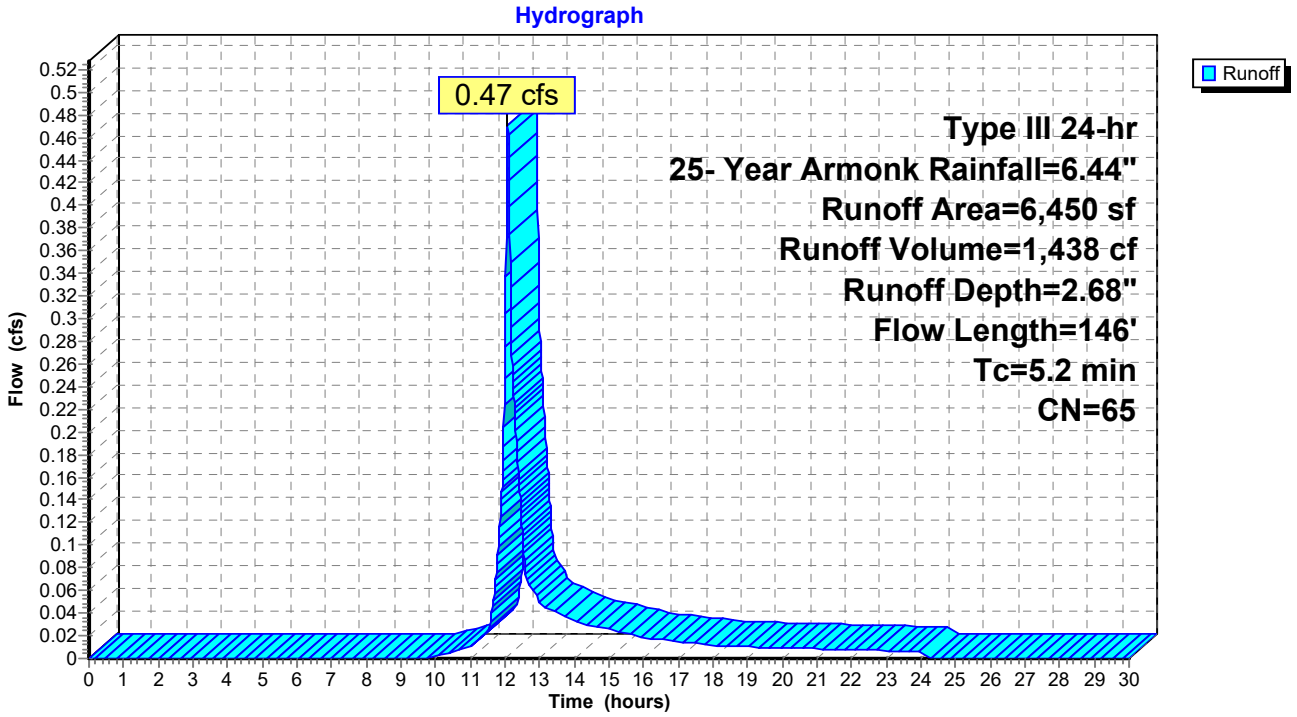
Runoff = 0.47 cfs @ 12.08 hrs, Volume= 1,438 cf, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25- Year Armonk Rainfall=6.44"

	Area (sf)	CN	Description
	3,451	60	Woods, Fair, HSG B
	1,750	61	>75% Grass cover, Good, HSG B
*	200	98	Exist Patio
*	684	80	Exist Raised Deck
*	200	80	Exist Gravel Walk with Ties
*	165	98	Exist Shed
	6,450	65	Weighted Average
	6,085		94.34% Pervious Area
	365		5.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1000	0.33		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.41"
0.1	23	0.0800	4.55		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.1	23	0.0500	3.60		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
5.2	146	Total			

Subcatchment Pre Dev: Pool Area

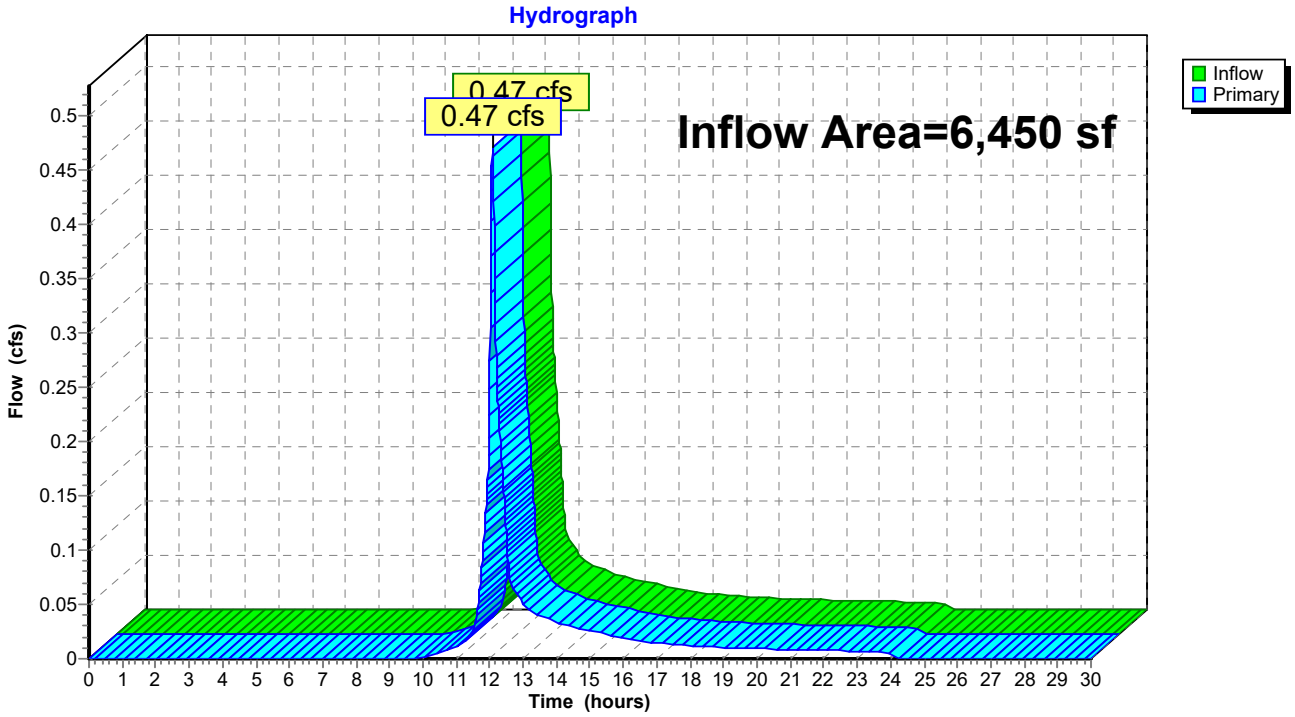


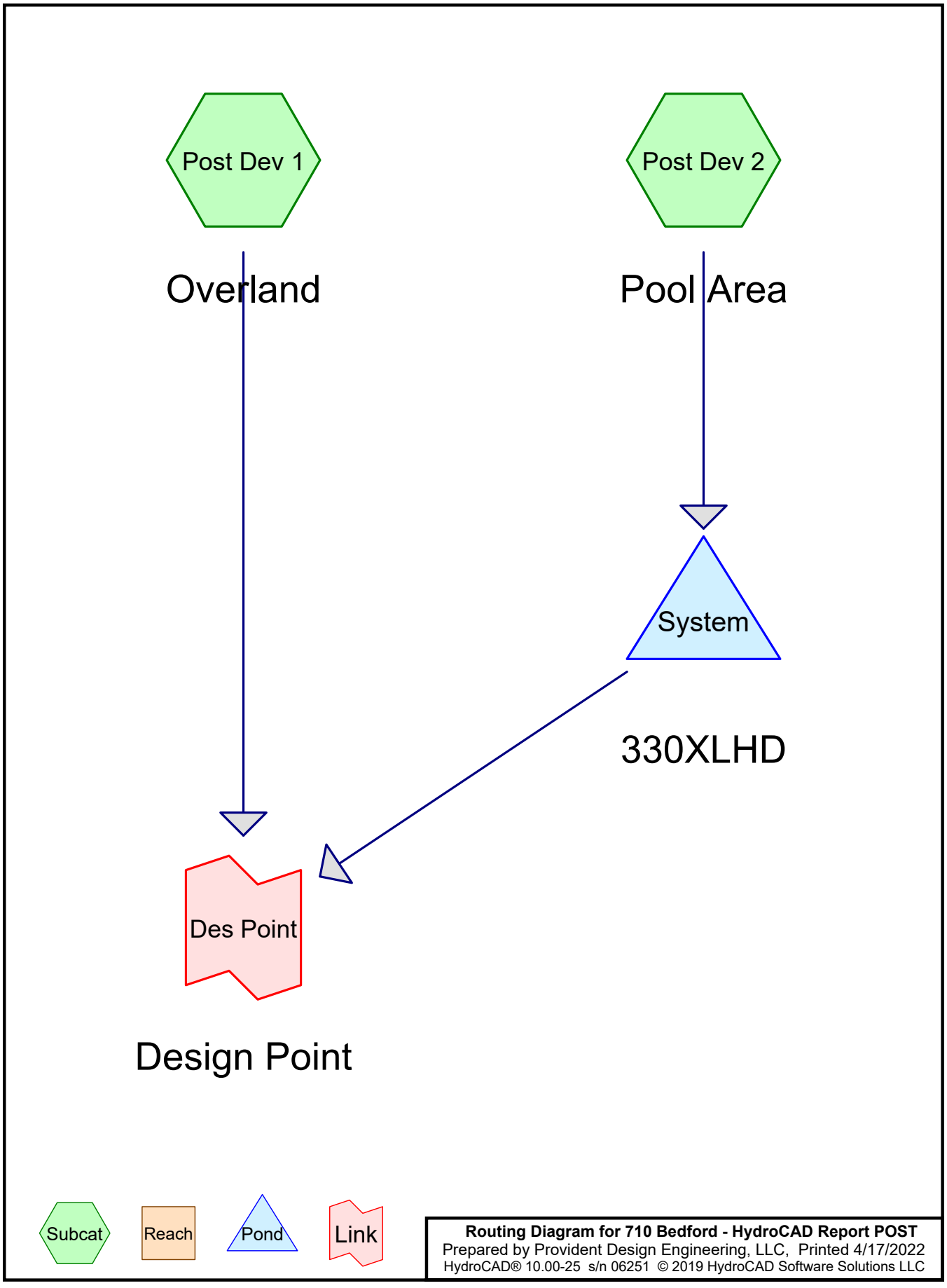
Summary for Link Des Point: Design Point

Inflow Area = 6,450 sf, 5.66% Impervious, Inflow Depth = 2.68" for 25- Year Armonk event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 1,438 cf
Primary = 0.47 cfs @ 12.08 hrs, Volume= 1,438 cf, Atten= 0%, Lag= 0.0 min

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

Link Des Point: Design Point




Post Dev 1
Post Dev 2
Overland
Pool Area
System
330XLHD
Des Point
Design Point
Subcat
Reach
Pond
Link

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
4,385	74	>75% Grass cover, Good, HSG C (Post Dev 1)
165	98	Exist Shed (Post Dev 1)
1,900	98	Pool, Coping & Terrace (Post Dev 2)
6,450	**82**	**TOTAL AREA**

Summary for Subcatchment Post Dev 1: Overland

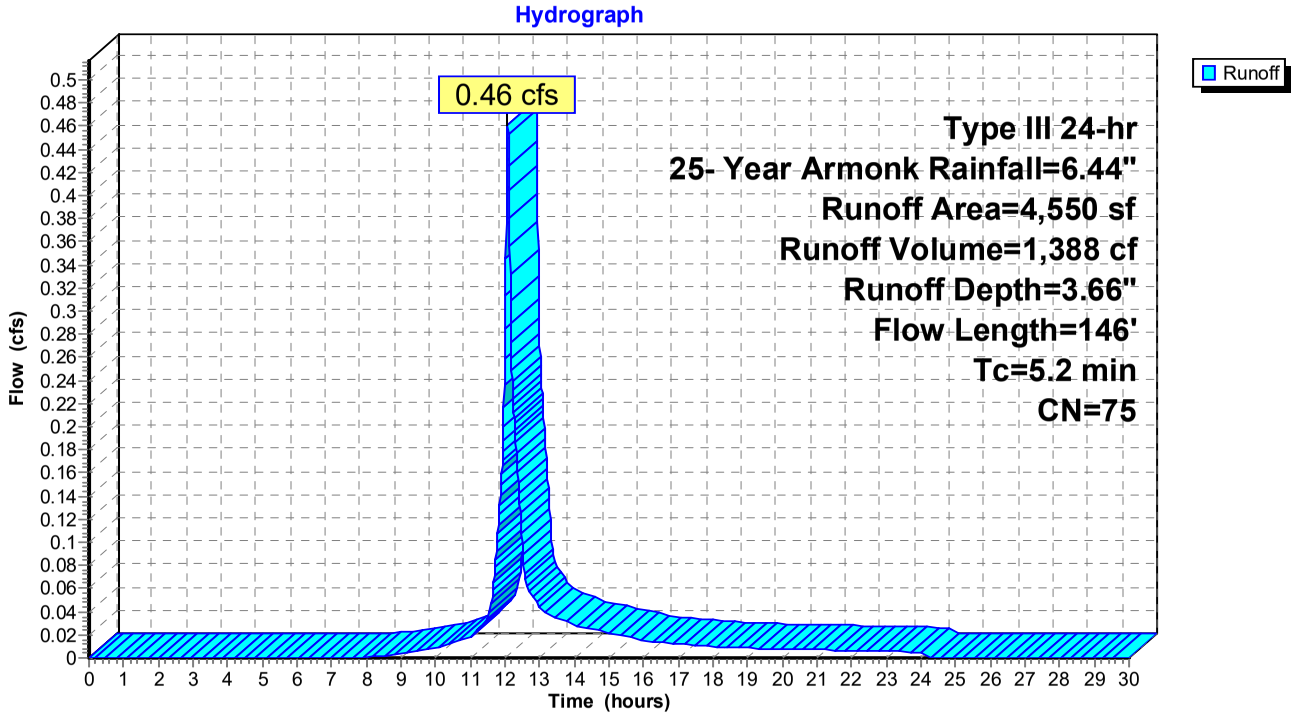
Runoff = 0.46 cfs @ 12.08 hrs, Volume= 1,388 cf, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25- Year Armonk Rainfall=6.44"

	Area (sf)	CN	Description
	4,385	74	>75% Grass cover, Good, HSG C
*	165	98	Exist Shed
	4,550	75	Weighted Average
	4,385		96.37% Pervious Area
	165		3.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1000	0.33		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.41"
0.1	23	0.0800	4.55		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.1	23	0.0500	3.60		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
5.2	146	Total			

Subcatchment Post Dev 1: Overland



Summary for Subcatchment Post Dev 2: Pool Area

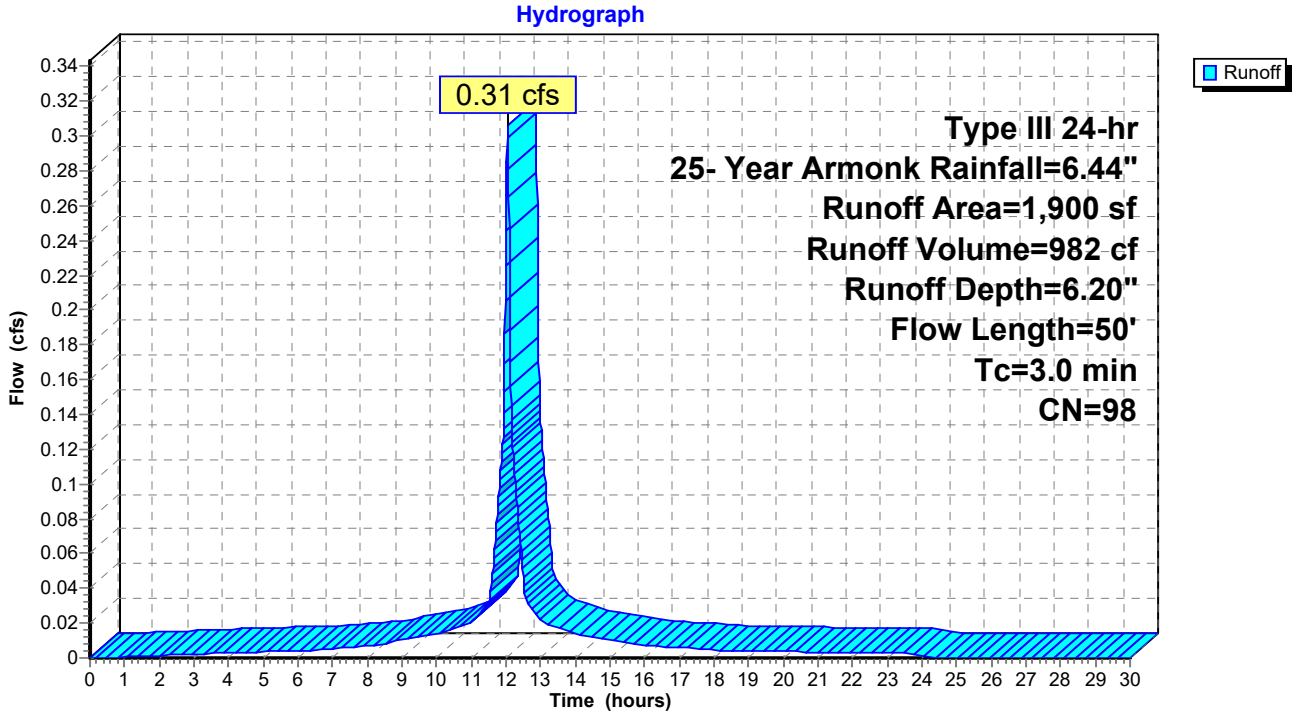
Runoff = 0.31 cfs @ 12.04 hrs, Volume= 982 cf, Depth= 6.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25- Year Armonk Rainfall=6.44"

	Area (sf)	CN	Description
*	1,900	98	Pool, Coping & Terrace
	1,900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50		0.28		**Direct Entry, Terrace - Drain - System**

Subcatchment Post Dev 2: Pool Area



Summary for Pond System: 330XLHD

Inflow Area = 1,900 sf,100.00% Impervious, Inflow Depth = 6.20" for 25- Year Armonk event
Inflow = 0.31 cfs @ 12.04 hrs, Volume= 982 cf
Outflow = 0.16 cfs @ 12.14 hrs, Volume= 982 cf, Atten= 49%, Lag= 6.0 min
Discarded = 0.04 cfs @ 11.61 hrs, Volume= 894 cf
Primary = 0.11 cfs @ 12.14 hrs, Volume= 88 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 524.43' @ 12.14 hrs Surf.Area= 128 sf Storage= 180 cf

Plug-Flow detention time= 16.9 min calculated for 982 cf (100% of inflow)
Center-of-Mass det. time= 16.8 min (758.2 - 741.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	522.16'	130 cf	**12.17'W x 10.50'L x 3.54'H Field A** 452 cf Overall - 127 cf Embedded = 326 cf x 40.0% Voids
#2A	522.66'	127 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		257 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	522.16'	**15.000 in/hr Exfiltration over Surface area from 521.66' - 522.16'** Excluded Surface area = 0 sf
#2	Primary	524.20'	**6.0" Round Culvert** L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 524.20' / 522.00' S= 0.0733 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.04 cfs @ 11.61 hrs HW=522.20' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.11 cfs @ 12.14 hrs HW=524.43' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 0.11 cfs @ 1.28 fps)

Pond System: 330XLHD - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

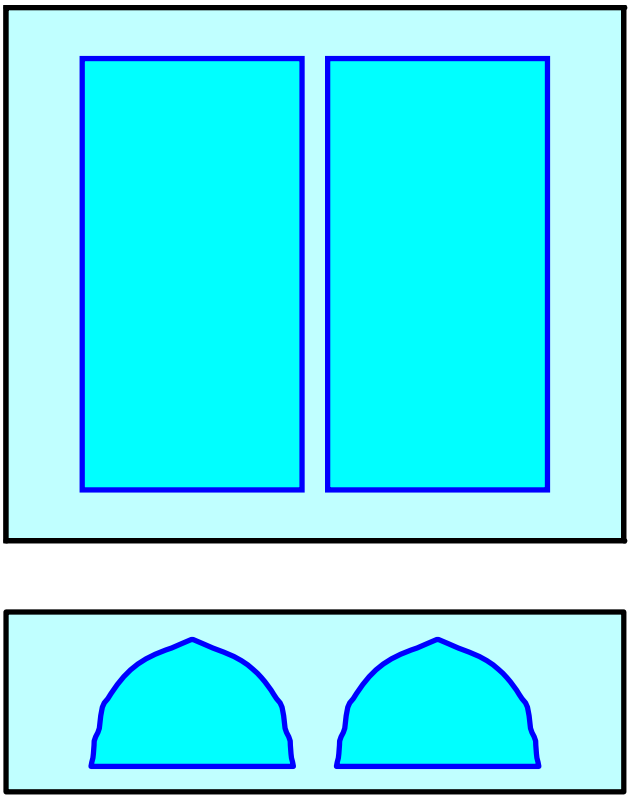
1 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 8.50' Row Length +12.0" End Stone x 2 = 10.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 18.0" Side Stone x 2 = 12.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 126.7 cf Chamber Storage

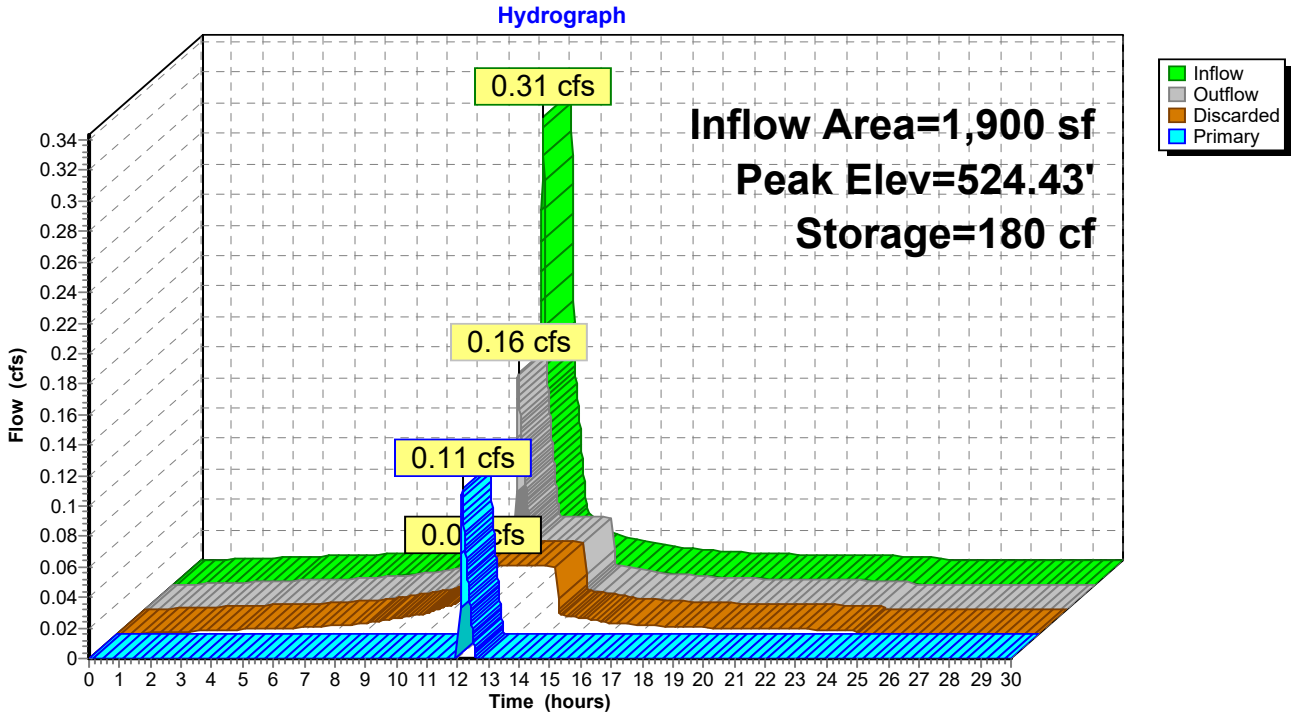
452.4 cf Field - 126.7 cf Chambers = 325.8 cf Stone x 40.0% Voids = 130.3 cf Stone Storage

Chamber Storage + Stone Storage = 257.0 cf = 0.006 af
Overall Storage Efficiency = 56.8%
Overall System Size = 10.50' x 12.17' x 3.54'

2 Chambers
16.8 cy Field
12.1 cy Stone



Pond System: 330XLHD



Stage-Area-Storage for Pond System: 330XLHD

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
522.16	**128**	0	522.69	128	28
522.17	128	1	522.70	128	29
522.18	128	1	522.71	128	30
522.19	128	2	522.72	128	31
522.20	128	2	522.73	128	32
522.21	128	3	522.74	128	33
522.22	128	3	522.75	128	34
522.23	128	4	522.76	128	35
522.24	128	4	522.77	128	36
522.25	128	5	522.78	128	37
522.26	128	5	522.79	128	37
522.27	128	6	522.80	128	38
522.28	128	6	522.81	128	39
522.29	128	7	522.82	128	40
522.30	128	7	522.83	128	41
522.31	128	8	522.84	128	42
522.32	128	8	522.85	128	43
522.33	128	9	522.86	128	44
522.34	128	9	522.87	128	45
522.35	128	10	522.88	128	46
522.36	128	10	522.89	128	47
522.37	128	11	522.90	128	47
522.38	128	11	522.91	128	48
522.39	128	12	522.92	128	49
522.40	128	12	522.93	128	50
522.41	128	13	522.94	128	51
522.42	128	13	522.95	128	52
522.43	128	14	522.96	128	53
522.44	128	14	522.97	128	54
522.45	128	15	522.98	128	55
522.46	128	15	522.99	128	56
522.47	128	16	523.00	128	57
522.48	128	16	523.01	128	57
522.49	128	17	523.02	128	58
522.50	128	17	523.03	128	59
522.51	128	18	523.04	128	60
522.52	128	18	523.05	128	61
522.53	128	19	523.06	128	62
522.54	128	19	523.07	128	63
522.55	128	20	523.08	128	64
522.56	128	20	523.09	128	65
522.57	128	21	523.10	128	66
522.58	128	21	523.11	128	66
522.59	128	22	523.12	128	67
522.60	128	22	523.13	128	68
522.61	128	23	523.14	128	69
522.62	128	24	523.15	128	70
522.63	128	24	523.16	128	71
522.64	128	25	523.17	128	72
522.65	128	25	523.18	128	73
522.66	128	26	523.19	128	74
522.67	128	26	523.20	128	75
522.68	128	27	523.21	128	76

Stage-Area-Storage for Pond System: 330XLHD (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
523.22	128	76	523.75	128	123
523.23	128	77	523.76	128	124
523.24	128	78	523.77	128	125
523.25	128	79	523.78	128	126
523.26	128	80	523.79	128	127
523.27	128	81	523.80	128	128
523.28	128	82	523.81	128	129
523.29	128	83	523.82	128	129
523.30	128	84	523.83	128	130
523.31	128	85	523.84	128	131
523.32	128	85	523.85	128	132
523.33	128	86	523.86	128	133
523.34	128	87	523.87	128	134
523.35	128	88	523.88	128	135
523.36	128	89	523.89	128	136
523.37	128	90	523.90	128	136
523.38	128	91	523.91	128	137
523.39	128	92	523.92	128	138
523.40	128	92	523.93	128	139
523.41	128	93	523.94	128	140
523.42	128	94	523.95	128	141
523.43	128	95	523.96	128	142
523.44	128	96	523.97	128	142
523.45	128	97	523.98	128	143
523.46	128	98	523.99	128	144
523.47	128	99	524.00	128	145
523.48	128	100	524.01	128	146
523.49	128	100	524.02	128	147
523.50	128	101	524.03	128	147
523.51	128	102	524.04	128	148
523.52	128	103	524.05	128	149
523.53	128	104	524.06	128	150
523.54	128	105	524.07	128	151
523.55	128	106	524.08	128	152
523.56	128	107	524.09	128	153
523.57	128	107	524.10	128	153
523.58	128	108	524.11	128	154
523.59	128	109	524.12	128	155
523.60	128	110	524.13	128	156
523.61	128	111	524.14	128	157
523.62	128	112	524.15	128	158
523.63	128	113	524.16	128	158
523.64	128	114	524.17	128	159
523.65	128	115	524.18	128	160
523.66	128	115	524.19	128	161
523.67	128	116	524.20	128	162
523.68	128	117	524.21	128	162
523.69	128	118	524.22	128	163
523.70	128	119	524.23	128	164
523.71	128	120	524.24	128	165
523.72	128	121	524.25	128	166
523.73	128	122	524.26	128	167
523.74	128	122	524.27	128	167

Stage-Area-Storage for Pond System: 330XLHD (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
524.28	128	168	524.81	128	208
524.29	128	169	524.82	128	209
524.30	128	170	524.83	128	210
524.31	128	171	524.84	128	210
524.32	128	171	524.85	128	211
524.33	128	172	524.86	128	212
524.34	128	173	524.87	128	212
524.35	128	174	524.88	128	213
524.36	128	175	524.89	128	214
524.37	128	175	524.90	128	214
524.38	128	176	524.91	128	215
524.39	128	177	524.92	128	216
524.40	128	178	524.93	128	216
524.41	128	179	524.94	128	217
524.42	128	179	524.95	128	217
524.43	128	180	524.96	128	218
524.44	128	181	524.97	128	219
524.45	128	182	524.98	128	219
524.46	128	183	524.99	128	220
524.47	128	183	525.00	128	220
524.48	128	184	525.01	128	221
524.49	128	185	525.02	128	222
524.50	128	186	525.03	128	222
524.51	128	186	525.04	128	223
524.52	128	187	525.05	128	223
524.53	128	188	525.06	128	224
524.54	128	189	525.07	128	224
524.55	128	189	525.08	128	225
524.56	128	190	525.09	128	226
524.57	128	191	525.10	128	226
524.58	128	192	525.11	128	227
524.59	128	192	525.12	128	227
524.60	128	193	525.13	128	228
524.61	128	194	525.14	128	228
524.62	128	195	525.15	128	229
524.63	128	195	525.16	128	229
524.64	128	196	525.17	128	230
524.65	128	197	525.18	128	230
524.66	128	198	525.19	128	231
524.67	128	198	525.20	128	231
524.68	128	199	525.21	128	232
524.69	128	200	525.22	128	232
524.70	128	201	525.23	128	233
524.71	128	201	525.24	128	233
524.72	128	202	525.25	128	234
524.73	128	203	525.26	128	234
524.74	128	203	525.27	128	235
524.75	128	204	525.28	128	235
524.76	128	205	525.29	128	236
524.77	128	206	525.30	128	236
524.78	128	206	525.31	128	237
524.79	128	207	525.32	128	237
524.80	128	208	525.33	128	238

Stage-Area-Storage for Pond System: 330XLHD (continued)

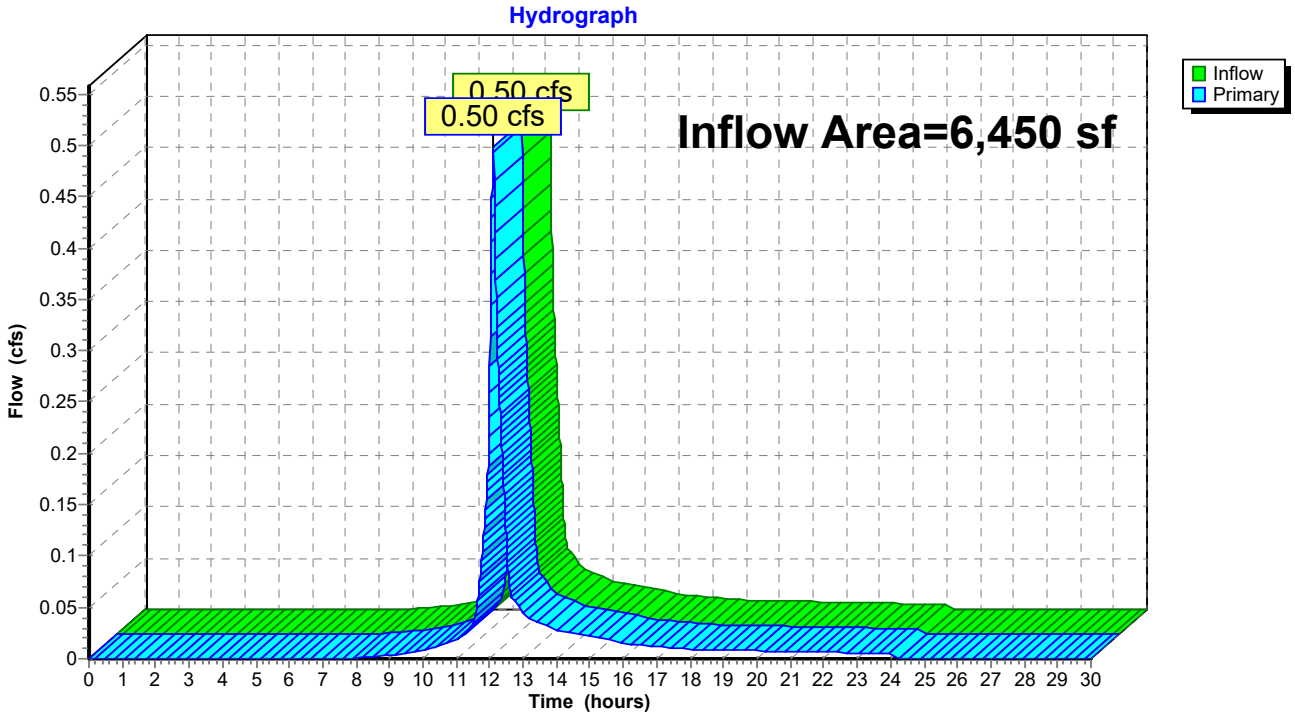
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
525.34	128	238
525.35	128	239
525.36	128	240
525.37	128	240
525.38	128	241
525.39	128	241
525.40	128	242
525.41	128	242
525.42	128	243
525.43	128	243
525.44	128	244
525.45	128	244
525.46	128	245
525.47	128	245
525.48	128	246
525.49	128	246
525.50	128	247
525.51	128	247
525.52	128	248
525.53	128	248
525.54	128	249
525.55	128	249
525.56	128	250
525.57	128	250
525.58	128	251
525.59	128	251
525.60	128	252
525.61	128	252
525.62	128	253
525.63	128	253
525.64	128	254
525.65	128	254
525.66	128	255
525.67	128	255
525.68	128	256
525.69	128	256
525.70	128	**257**

Summary for Link Des Point: Design Point

Inflow Area = 6,450 sf, 32.02% Impervious, Inflow Depth = 2.75" for 25- Year Armonk event
Inflow = 0.50 cfs @ 12.12 hrs, Volume= 1,476 cf
Primary = 0.50 cfs @ 12.12 hrs, Volume= 1,476 cf, Atten= 0%, Lag= 0.0 min

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

Link Des Point: Design Point



PFIZER – JÄHNIG
ENVIRONMENTAL CONSULTING

March 9, 2022

Wetland Delineation Report
710 Bedford Road
Town of North Castle, New York

Introduction:
A wetland delineation was conducted at 710 Bedford Road on March 2, 2022 by Mary Jaehnig, soil scientist. The property is located on the western side of the road and supports a single family dwelling.

The topography descends to the west. An intermittent watercourse flows from south to north at the base of the slopes. The site is within the watershed to the Mianus River.

The edge of wetland on the eastern side of the brook was flagged in the field using chronologically labeled pink ribbon from number 1 to 26. The edge of wetland west of the brook was not flagged at this time.

The NYSDEC regulated wetland K-25 is located approximately 0.15 miles to the west of the site.

Stormwater runoff from Bedford Road is piped to an outlet in the southern portion of the uplands. The channel formed is not an intermittent watercourse and only flows during storm events and immediately after.

Soils and Vegetation:
Soil samples were obtained using an auger. Features noted include color, grain size and depth to hydric indicators. Soils were classified according to guidelines established by the USDA NRCS.

The upland soil is Charlton fine sandy loam. This soil is deep, well drained and formed in glacial till. The depth to the water table usually exceeds 6 feet below grade and the depth to bedrock usually exceeds 5 feet below grade.

The uplands support mature trees that include sugar maple, Norway maple, shagbark hickory, American beech, red oak and yellow poplar. The shrub

17 FAIRVIEW AVE. **RIDGEFIELD, CT 06877** **TEL. (203) 431-8113**
MaryJaehnigSoils@gmail.com

story is sparse but includes multiflora rose, Japanese barberry and honeysuckle. Groundcover includes garlic mustard and Christmas fern.

The wetland consists of Leicester loam, extremely stony. This soil is deep and poorly drained. Stones and boulders cover much of the surface. The water table is located close to grade from fall into spring.

The wetlands support mature trees including red maple, ash and elm. The shrub story includes spicebush and highbush blueberry. Groundcover includes tussock sedge, sensitive fern and skunk cabbage.

Submitted by,

Mary Jaehnig

17 FAIRVIEW AVE. **RIDGEFIELD, CT 06877** **TEL. (203) 431-8113**
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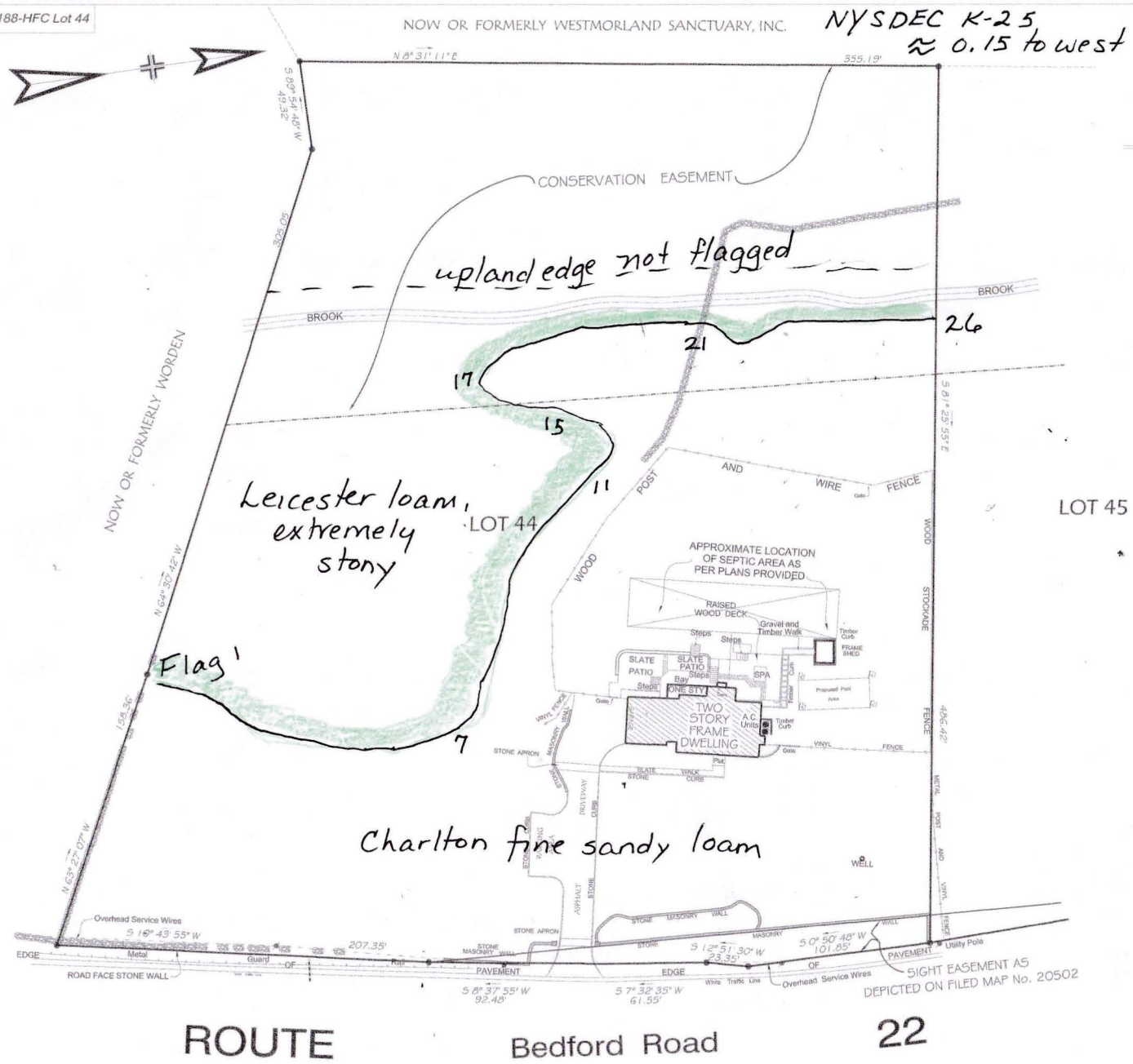
1188-HFC Lot 44



SURVEY OF PROPERTY
SITUATE IN THE
TOWN OF NORTH CASTLE
WESTCHESTER COUNTY
NEW YORK

SCALE : 1"= 40'
SURVEYED: SEPTEMBER 21,2021

40' 0 20' 40' 80' 160'
Graphic Scale

- PREMISES ARE DESIGNATED ON THE TAX MAPS FOR THE TOWN OF NORTH CASTLE
  MAP 95.03 * BLOCK 1 * LOT 2
  PROPERTY AREA = 203,426 Sq. Ft. / 4.6700 Acres
  Address: 710 BEDFORD ROAD
- THE PREMISES SHOWN HEREON BEING LOT 44 AS SHOWN ON A MAP ENTITLED "SUBDIVISION MAP OF COHOMONG WOODS " PREPARED BY HAROLD F. CAMPBELL Jr. , DATED DEC. 24,1980 AND FILED IN THE WESTCHESTER COUNTY CLERK'S OFFICE DIVISION OF LAND RECORDS ON FEB. 18,1981 AS MAP No. 20502.
- ENCROACHMENTS BELOW GRADE AND/OR SUBSURFACE FEATURES, IF ANY, NOT LOCATED OR SHOWN HEREON.
- SURVEY IS SUBJECT TO ANY STATE OF FACTS WHICH AN UP-TO-DATE TITLE EXAMINATION MAY DISCLOSE.
- THE OFFSETS SHOWN ARE FOR INFORMATIONAL PURPOSE ONLY. THEY ARE NOT INTENDED TO ESTABLISH PROPERTY LINES FOR THE ERECTION OF FENCES, STRUCTURES OR ANY OTHER IMPROVEMENT.
-
- UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAWS.
- ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S SEAL SHALL BE CONSIDERED TO BE TRUE VALID COPIES.
- THIS MAP WAS PREPARED FROM AN ACTUAL FIELD SURVEY CONDUCTED ON THE DATE SHOWN AND THAT SAID SURVEY WAS PERFORMED IN ACCORDANCE WITH THE EXISTING " CODE OF PRACTICE FOR LAND SURVEYS " ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS.

PREPARED FOR:
JANET HELLIER

JRL LAND SURVEYING P.C.
Mahopac N.Y. 10541

JOSEPH R. LINK
NEW YORK STATE LICENSED
LAND SURVEYOR NO. 050456

NEW YORK STATE LICENSED
LAND SURVEYOR SEAL

Phone: 914-941-1440 Web http:\\ jrlsurveying.com

Mianus River watershed

Wetland flagged March 2, 2022
Mary Jaehnig, soil sci. 203 431 8113