



GENERAL SURVEY NOTES

- 1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH THE REGULATION OF CONNECTICUT STATE AGENCIES, SECTION 20-300b-1 THROUGH 20-300b-20, AND THE "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC., ON SEPTEMBER 26, 1996.
- 2. THE BOUNDARY DETERMINATION IS BASED UPON THE DEPENDENT RESURVEY METHOD.
- THE SURVEY CONFORMS TO HORIZONTAL CLASS A-2 ACCURACY STANDARDS. VERTICAL DATA CONFORMS TO CLASS V-2 STANDARDS. CONTOURS AND ELEVATIONS REFER TO NAVD 88 DATUM. 4. BEARINGS, COORDINATES AND ELEVATIONS ARE DERIVED FROM THE CONNECTICUT GEODETIC SURVEY
- (CTGS) VIA GPS TECHNOLOGY AND CONVENTIONAL SURVEY METHODS.
- 5. THIS IS AN IMPROVEMENT LOCATION SURVEY. THE PURPOSE OF WHICH IS TO SHOW AS-BUILT CONDITIONS.
- 6. PROPERTY IS ALSO KNOWN AS TOWN OF WESTON TAX LOT 128 ON ASSESSORS MAP 16 BLOCK 2.
- 7. TOTAL AREA = 155,780 SQ.FT. OR 3.576 ACRES
- 8. PROPERTY LIES IN ZONING DISTRICT "TWO ACRE RESIDENTIAL".
- A PORTION OF THE PARCEL LIES WITHIN FLOOD ZONE AE (NO ELEV.) AS SHOWN ON FEMA FIRM MAP 09001C0401F, EFFECTIVE DATE JUNE 18, 2010.
- 10. THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE CONSIDERED APPROXIMATE AND OTHER THAN DEPICTED HEREON, IF ANY, IS UNKNOWN. 11. MAP REFERENCE:
- 11.1. PLAN ENTITLED "MAP OF PROPERTY PREPARED FOR CHARLES NIEWENHOUS, WESTON, CONNECTICUT", SCALE: 1" = 60'. DATED: NOVEMBER 15, 2002, REVISED THRU: JUNE 3, 2003. BY DENNIS A. DEILUS. ON FILE IN THE TOWN OF WESTON CLERK'S OFFICE AS MAP 3625.
- 11.2. PLAN ENTITLED "ZONING MAP OF PROPERTY PREPARED FOR CLC ASSET HOLDINGS LLC, 5 TIFFANY LANE, WESTON, CT.", SCALE: 1" = 30'. DATED: 4/26/18. BY DENNIS A. DEILUS.









- 1. EXCAVATE AND SECURE BOTTOM 8" OF SILT FENCE BELOW GRADE AS SHOW 2. EXCEPT FOR THE END POST, DRIVE ALL SILT FENCE POSTS INTO THE GROUND AT BACK SIDE OF TRENCH SPACED A MAXIMUM OF 10 FT O. C.
- EXCAVATE TO RECESS APPROXIMATELY AND COMPACT SURROUNDING SOIL.
 . Secure coir log with untreated wooden stakes woven through coir log mesh and driven into the ground on both sides of log spaced $12^{\prime\prime}-18^{\prime\prime}$ o. c.
- 5. TIE ADJACENT COIR LOGS TOGETHER WITH BIODEGRADABLE TWINE OR OVERLAP COIR LOG ENDS BY 12" TO PREVENT THE FLOW OF WATER BETWEEN LOGS.





SEDIMENTATION & SOIL EROSION SPECIFICATIONS

- 1. THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.
- 2. ALL CONSTRUCTION ACTIVITIES SHALL PROCEED SO THAT POLLUTION OF ANY WETLANDS, WATERCOURSES, WATERBODY, AND OR CONDUIT CARRYING WATER, ETC. DOES NOT OCCUR. THE CONTRACTOR SHALL LIMIT, INSOFAR AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES AND WATERBODIES, AND TO PREVENT, INSOFAR AS
- 3. CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN THE "GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" (2002) BY THE STATE OF CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION. IMPLEMENTATION NOTES
- 1. THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE INSTALLED PRIOR TO CONSTRUCTION WHENEVER POSSIBLE. ALL CONTROL MEASURES ARE TO BE MAINTAINED IN AN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. ADDITIONAL MEASURES ARE TO BE INSTALLED IF NECESSARY OR REQUIRED DURING CONSTRUCTION PERIOD.
- 2. LAND DISTURBANCE SHALL BE KEPT TO A MINIMUM. RESTABLIZATION TO BE SCHEDULED AS SOON AS PRACTICAL.
- 3. POST AND FABRIC SILTATION BARRIERS SHALL BE INSTALLED AT THE TOE OF ALL CRITICAL CUT AND FILL SLOPES. SILT FENCES AND BARRIERS MUST BE CLEANED OR REPLACED
- 4. ALL STORM DRAINAGE OUTLETS MUST BE STABILIZED, AS REQUIRED, BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.
- 5. SEDIMENT TRAPS, IF APPLICABLE, MUST BE CLEANED WHEN CAPACITY HAS BEEN REDUCED BY AN AVERAGE OF 2' OVER ITS TOTAL AREA OR TO 80% OF ITS DESIGN VOLUMES, WHICHEVER OCCURS FIRST
- 6. SEDIMENT REMOVED FROM THE CONTROL STRUCTURES SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH THE INTENT OF THE PLAN AND IN ACCORDANCE WITH LOCAL, STATE, & FEDERAL REGULATIONS.
- 7. FILL MATERIAL SHALL BE FREE FROM DEBRIS PERISHABLE OR COMBUSTIBLE MATERIAL AND FROZEN OR WET EARTH OR STONES LARGER THAN 6 INCHES IN MAXIMUM DIMENSION. FILL SHALL BE PLACED IN MAXIMUM 12 INCH LOOSE LIFTS AND COMPACTED TO WITHIN 90% OF THE MODIFIED PROCTOR TEST RESULT.
- 8. PAVEMENT BASE COURSE MUST BE PLACED IN ALL PROPOSED PAVEMENT AREAS UPON COMPLETION OF FINE GRADING.
- 9. PERMANENT LANDSCAPED AREAS SHALL BE SEEDED OR SODDED ON ALL EXPOSED AREAS IMMEDIATELY AFTER FINAL GRADING. MULCH AS NECESSARY FOR SEED PROTECTION AND ESTABLISHMENT. LIME AND FERTILIZE PRIOR TO PERMANENT SEEDING. 9.1. TOPSOIL PREPARATION:
- SEEDING 9.1.2. HAVE TOPSOIL TESTED FOR PH, ADD LIME AS NECESSARY TO ACHIEVE PH OF 6.5. APPLY FERTILIZER AT A RATE OF 300 POUNDS PER ACRE OR SEVEN POUNDS PER 4,000 SQUARE FEET USING 10-20-10 OR EQUIVALENT. IN ADDITION, 300 POUNDS 38-0-0 PER ACRE OF SLOW RELEASE NITROGEN MAY BE USED IN LIEU
- OF TOP DRESSING. 9.1.3. WORK LIME AND FERTILIZER INTO SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF FOUR INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE ALL CLAY OR SILTY SOIL AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEED BED WHEREVER FEASIBLE.
- 9.1.4. REMOVE FROM THE SURFACE ALL STONES ONE INCH OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMP, OR OTHER UNSUITABLE MATERIAL.
- 9.1.5. INSPECT SEED BED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT SOIL COMPACT, THE AREA MUST BE RE-TILLED AND COMPACTED AS ABOVE. 9.2. SEED MIXTURE (APPLY AT A RATE OF 200 POUNDS/ACRE):
- 9.2.1. 10% KENTUCKY BLUEGRASS BARON MIX 9.2.2. 20% PERENNIAL RYEGRASS
- 9.2.3. 70% TURF TYPE TALL FESCUE
- 10. THE CONTRACTOR/OWNER IS RESPONSIBLE FOR ALL PAVED ROADWAYS ON AND OFF SITE AND MUST ENSURE THE SITE IS FREE OF SITE GENERATED SEDIMENT AT ALL TIMES. DUST SHALL BE CONTROLLED BY SPRINKLING OR ANOTHER APPROVED METHOD.
- 11. ALL EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSPECTED ON A DAILY BASIS AND CLEANED IMMEDIATELY AFTER EACH STORM.
- 12. WHERE DEWATERING IS NECESSARY, THERE SHALL NOT BE A DISCHARGE DIRECTLY INTO WETLANDS OR WATERCOURSES. PROPER METHODS AND DEVICES SHALL BE UTILIZED TO THE EXTENT PERMITTED BY LAW, SUCH AS PUMPING WATER INTO A TEMPORARY SEDIMENTATION STRUCTURE OR BOWL, PROVIDING SURGE PROTECTION AT THE INLET AND HE OUTLET OF PUMPS, OR FLOATING THE INTAKE OF THE PUMP, OR OTHER METHODS TO MINIMIZE AND RETAIN THE SUSPENDED SOLIDS. IF PUMPING OPERATION CAUSES TURBIDITY PROBLEMS, THE OPERATION SHALL CEASE UNTIL FEASIBLE MEANS OF CONTROLLING TURBIDITY ARE DETERMINED AND IMPLEMENTED.
- 13. THE RESPONSIBILITY FOR: IMPLEMENTING THE EROSION AND SEDIMENT CONTROL PLAN, INFORMING ALL CONCERNED OF THE REQUIREMENT OF THE PLAN; NOTIFYING THE PLANNING AND ZONING COMMISSION, ITS DESIGNATED REPRESENTATIVE OF ANY TRANSFER OF RESPONSIBILITY AND SEEING THAT A COPY OF THE PLAN IS RECEIVED BY ANY SUCCESSOR IN INTEREST TO THE TITLE OF THE LAND OR ANY PORTION THEREOF IS ASSIGNED TO THE OWNER OF RECORD.
- 14. ANY CONVEYANCE OF THIS PROJECT PRIOR TO ITS COMPLETION, WILL TRANSFER FULL RESPONSIBILITY FOR COMPLIANCE WITH THE CERTIFIED PLAN TO ANY SUBSEQUENT OWNERS





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STORM WATER MANAGEMENT ANALYSIS

for

5 Tiffany Lane Weston, Connecticut

June 14, 2018 Revised: March 8, 2024

<u>Prepared for:</u> CLC Asset Holdings, LLC 4514 Cole Avenue, Ste 1175 Dallas, Texas 75205

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Job #851

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- Pond Report
- Storm Water Quality Calculations

1.0 PROJECT DESCRIPTION

A new single-family dwelling, detached studio, detached storage structure, pool, and associated residential appurtenances were constructed in 2020 and will remain. Prior to that, the lot was vacant. The project site, including a storm water management system, was designed by this office in 2018 and subsequently approved by the various town departments. The design was approved. However, the storm water management system was altered by the contractor during construction for unknown reasons, and the designed detention system was not installed.

This report and the associated design have been prepared to adapt the as-built conditions to a compliant storm water management system. The storm water runoff from the detached studio, detached storage structure, pool, a portion of the dwelling, and a portion of the lawn area will be collected, detained, and treated on-site with the use of an underground detention system. The rest of the developed area has been directed along the west side of the driveway where they outlet to stone aprons and landscaped areas.

2.0 SOIL ANALYSIS

The subject parcel was researched and tested for storm water infiltration suitability. According to the Soil Survey of Fairfield County the proposed development area is underlain with Hollis-Chatfield-Rock outcrop complex (75C), having hydrologic soil group "D". The soils were confirmed with excavated test pits. The results of the on-site testing are located on the Site Development Plan from 2018.

3.0 METHODOLOGY & ANALYSIS

Watershed

This study was prepared using the Soil Conservation Service (SCS) methodology. This method outlines procedures for calculating peak rates of runoff resulting from precipitation events and procedures for developing runoff hydrographs. The calculations use the unit hydrograph method as described by Technical Release 55 (TR-55). The rates of runoff for the pre-development and post-development conditions were compared to determine any change as a result of the improvements.

Composite values for area, curve number (CN) and time of concentration (Tc) were calculated for each the pre-development and post-development condition. The curve numbers were calculated using the following values:

Cover Description	Hyd. Condition	CN
Undeveloped: woods-grass combination	Fair "D"	82
Proposed Lawn: grassland	Fair "D"	82
Impervious: house, driveway, improvements	-	98

The pre-development condition was modeled, based on the pre-development condition model designed and approved in 2018, as undeveloped land with cover type woods-grass combination in fair hydrologic condition. The value calculated for the pre development condition was as follows:

Description	Area	CN	<u>Tc</u>
Pre-Development	2.13 acres	82	30.5 min.

The post-development condition was modeled as two sub-watersheds, one of which will be detained, and the other that will flow off-site. "Pond 1 Inflow" consists of runoff from the studio, storage structure, a portion of the dwelling, and a portion of landscaped area and will be detained in pond 1. "Pool Inflow" considers the proposed pool as a storage system up to 4 inches of depth. Overflow from the pool will also be detained in Pond 1. "Undetained Area" consists of runoff from the uncovered deck, walkway, driveway, a portion of the dwelling, and vegetated land that will be allowed to flow offsite as it does today.

Values used for the post-development condition were as follows:

Description	Area	CN	<u>Tc</u>
Undetained Area	1.97 acres	83	31.3 min.
[Proposed Lawn: woods-grass "D"	1.81 acres	82]	
[Impervious: driveway, walkway, etc.	0.16 acres	98]	
Pond 1 Inflow	0.15 acres	91	6 min.
[Impervious: driveway, dwelling, etc.	0.08 acres	98]	
[Proposed Lawn: grassland "D"	0.07 acres	82]	
Pool Inflow	0.01 acres	98	6.0 min.

In accordance with the policies of the Town of Weston, systems shall be designed to accommodate Type III cumulative rainfall distribution. 24-hour rainfall depths for the 2-year, 5-year, 10-year, 25-year, and 50-year storms shall be considered. Rainfall depths were kept consistent with those used in the 2018 report. The rainfall values are as follows:

- A 2-year, 24-hour storm consisting of 3.50 inches of rainfall;
- A 5-year, 24-hour storm consisting of 4.30 inches of rainfall;
- A 10-year, 24-hour storm consisting of 5.10 inches of rainfall;
- A 25-year, 24-hour storm consisting of 6.40 inches of rainfall;
- A 50-year, 24-hour storm consisting of 7.30 inches of rainfall;

The design storm used for this study is the 24 hour SCS Type III cumulative rainfall distribution. All of the watersheds were analyzed by the computer program *Hydraflow Hydrographs Extension for AutoCAD Civil 3D 2019*; the results of which are located in Appendix B. For convenience and to conserve resources, the drainage calculations included in the appendices of this report were limited to the 50 year storm event.

Detention System

Runoff from a portion of the lawn area will be collected into a yard drain and will then be directed into the underground detention system. Here, the runoff will be detained and infiltrate into the surrounding soils. Likewise, runoff from the roofs will be directed to the detention system as well. The system has been designed to collect and detain up to the 50 year storm and keep the proposed development's runoff flow rates below that of the calculated pre-development rates.

The proposed detention systems were routed with the use of the computer program Hydraflow Hydrographs Extension for AutoCAD Civil 3D 2019; the results of which are located in Appendix B. Infiltration rates were used as part of the design; however, the values used were two thirds the measured rates for a factor of safety.

Results

The calculated storm water peak flows are as follows:

	2-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR
CONDITION	FLOW	FLOW	FLOW	FLOW	FLOW
Pre-Development	2.52 CFS	3.50 CFS	4.50 CFS	6.15 CFS	7.30 CFS
Undetained Area	2.43 CFS	3.34 CFS	4.27 CFS	5.80 CFS	6.86 CFS
Pond 1 Inflow	0.40 CFS	0.52 CFS	0.64 CFS	0.84 CFS	0.97 CFS
Pool Inflow	0.04 CFS	0.05 CFS	0.06 CFS	0.08 CFS	0.09 CFS
Pool Route	0.00 CFS	0.00 CFS	0.00 CFS	0.03 CFS	0.06 CFS
Pond 1 Inflow Con	nb.				
With Pool Route	0.40 CFS	0.52 CFS	0.64 CFS	0.84 CFS	0.97 CFS
Pond 1 Route	0.37 CFS	0.50 CFS	0.62 CFS	0.82 CFS	0.94 CFS
Final Combined	2.55 CFS	3.49 CFS	4.46 CFS	6.04 CFS	7.17 CFS

In order to accurately analyze the post-development condition, the Pre-Development hydrograph is compared to a combined hydrograph consisting of the undetained area hydrograph and the final combined hydrographs that result from detention pond outflows.

	2-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR
CONDITION	FLOW	FLOW	FLOW	FLOW	FLOW
Pre-Development	2.52 CFS	3.50 CFS	4.50 CFS	6.15 CFS	7.30 CFS
Final Combined	2.55 CFS	3.49 CFS	4.46 CFS	6.04 CFS	7.17 CFS
PRO. CHANGE	0.03 CFS	-0.01 CFS	-0.04 CFS	-0.11 CFS	-0.13 CFS

The proposed change shows that the 5-year, 10-year, 25-year, and 50-year storm water flow rates are expected to be reduced as a result of the development and proposed system.

4.0 STORM WATER QUALITY ANALYSIS

The majority of storm water introduced to the system will be roof runoff where the observance of any oils, grease or particulates is remote.

The system was planned in accordance with design considerations found in the 2004 Connecticut Stormwater Quality Manual. As stated in the manual they should be enabled to infiltrate the full Water Quality Volume (WQV). The underground detention system (Pond 1) was designed to handle 110.5% of the WQV of the entire site. Calculations for the system are located in Appendix B.

The homeowner will be responsible for the implementation of an annual maintenance program which should include gutter and yard drain cleaning and pipe maintenance. Proper fertilizer and pesticide management and household pet waste management should be observed.

5.0 CONCLUSION

The proposed storm water collection system has been designed to adequately convey the required storm event without any adverse impacts or increase in overall storm water flow and while maintaining adequate water quality.

6.0 **REFERENCES**

1. Urban Hydrology for Small Watersheds, Technical Release No. 55, USDA Soil Conservation Service Publication, June 1986.

2. Rainfall Frequency Values for Connecticut with 24-Hour Storm Duration, United States Department of Commerce and Weather Bureau, T.P. 40, May 1961.

3. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, The Connecticut Council on Soil and Water Conservation.

4. Debo, Thomas N. and Reese, Andrew J., *Municipal Stormwater Management*, Second Edition, Boca Raton, Lewis Publishers, 2003

5. *Web Soil Survey*. 8/1/2006. National Resources Conservation Service <http://websoilsurvey.nrcs.usda.gov/app/>

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CONTENTS:

- USGS Location Map
- Predevelopment Watershed Area Map
- Postdevelopment Watershed Area Map







APPENDIX B Data & Calculations

CONTENTS:

- Hydrograph Return Period Recap
- Graphical Hydrograph Reports
- Pond Report
- Storm Water Quality Calculations

Hydrograph Return Period Recap Hydrafiow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd.	Hydrograph	Inflow	nflow Peak Outflow (cfs)					Hydrograph			
NO.	type (origin)	hyd(s)	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	Description
1	SCS Runoff			2.522		3.497	4.497	6.146	7.295		Predevelopment
3	SCS Runoff			2.433		3.343	4.272	5.799	6.859		Undetained Area
5	SCS Runoff			0.400		0.521	0.642	0.837	0.972		Pond 1 Inflow
7	SCS Runoff			0.043		0.053	0.063	0.079	0.090		Pool Inflow
8	Reservoir	7		0.000		0.002	0.003	0.025	0.055		Pool Route
9	Combine	5, 8		0.400		0.521	0.642	0.837	0.972		Pond 1 Inflow Combined With Pool R
10	Reservoir	9		0.374		0.501	0.622	0.815	0.943		Pond 1 Route
11	Combine	3, 10		2.547		3.492	4.457	6.040	7.167		Final Combined
Pro	j file: 851 Hy	draflow-ne								Irsday (3 / 7 / 2024

Hydrograph Summary Report Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	7.295	2	742	40,769				Predevelopment
3	SCS Runoff	6.859	2	742	38,458				Undetained Area
5	SCS Runoff	0.972	2	724	3,084				Pond 1 Inflow
7	SCS Runoff	0.090	2	724	312				Pool Inflow
8	Reservoir	0.055	2	732	135	7	290.39	179	Pool Route
9	Combine	0.972	2	724	3,219	5, 8			Pond 1 Inflow Combined With Pool R
10	Reservoir	0.943	2	724	2,111	9	284.45	270	Pond 1 Route
11	Combine	7.167	2	742	40,568	3, 10			Final Combined
951					Poturn D	oried: 50 V		Thursday 0	
851	851 Hydraflow-new pro.gpw					eriod: 50 Y	'ear	Thursday, 0	3 / 7 / 2024

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 1

Predevelopment

Hydrograph type	= SCS Runoff	Peak discharge	= 7.295 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.37 hrs
Time interval	= 2 min	Hyd. volume	= 40,769 cuft
Drainage area	= 2.134 ac	Curve number	= 82
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 30.50 min
Total precip.	= 7.30 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 3

Undetained Area

Hydrograph type	= SCS Runoff	Peak discharge	= 6.859 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.37 hrs
Time interval	= 2 min	Hyd. volume	= 38,458 cuft
Drainage area	= 1.970 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 31.30 min
Total precip.	= 7.30 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.811 x 82) + (0.159 x 98)] / 1.970



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Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 5

Pond 1 Inflow

Hydrograph type =	SCS Runoff	Peak discharge	= 0.972 cfs
Storm frequency =	50 yrs	Time to peak	= 12.07 hrs
Time interval =	2 min	Hyd. volume	= 3,084 cuft
Drainage area =	0.151 ac	Curve number	= 89*
Basin Slope =	0.0 %	Hydraulic length	= 0 ft
Tc method =	User	Time of conc. (Tc)	= 6.00 min
Total precip. =	7.30 in	Distribution	= Type III
Storm duration =	24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.084 x 82) + (0.067 x 98)] / 0.151



Thursday, 03 / 7 / 2024

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 7

Pool Inflow

Hydrograph type	= SCS Runoff	Peak discharge	= 0.090 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 312 cuft
Drainage area	= 0.013 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 7.30 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 8

Pool Route

Hydrograph type	= Reservoir	Peak discharge	= 0.055 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 135 cuft
Inflow hyd. No.	= 7 - Pool Inflow	Max. Elevation	= 290.39 ft
Reservoir name	= Pool	Max. Storage	= 179 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 290.07 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	290.07	554	0	0
0.40	290.50	554	222	222

Culvert / Orifice Structures				Weir Structures						
	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]	
Rise (in)	= 0.00	0.00	0.00	0.00	Crest Len (ft)	= 42.70	0.00	0.00	0.00	
Span (in)	= 0.00	0.00	0.00	0.00	Crest El. (ft)	= 290.40	0.00	0.00	0.00	
No. Barrels	= 0	0	0	0	Weir Coeff.	= 3.33	3.33	3.33	3.33	
Invert El. (ft)	= 0.00	0.00	0.00	0.00	Weir Type	= Rect				
Length (ft)	= 0.00	0.00	0.00	0.00	Multi-Stage	= No	No	No	No	
Slope (%)	= 0.00	0.00	0.00	n/a	-					
N-Value	= .013	.013	.013	n/a						
Orifice Coeff.	= 0.60	0.60	0.60	0.60	Exfil.(in/hr)	= 0.000 (by	Wet area)			
Multi-Stage	= n/a	No	No	No	TW Elev. (ft)	= 0.00	,			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage (ft)

Stage / Discharge



Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 9

Pond 1 Inflow Combined With Pool Route

Hydrograph type	= Combine	Peak discharge	= 0.972 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 3,219 cuft
Inflow hyds.	= 5, 8	Contrib. drain. area	= 0.151 ac



9

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 10

Pond 1 Route

Hydrograph type Storm frequency Time interval Inflow hyd. No.	 Reservoir 50 yrs 2 min 9 - Pond 1 Inflow Combined W 48x48 	Peak discharge Time to peak Hyd. volume /MaR.doleRatiten Max. Storage	= 0.943 cfs = 12.07 hrs = 2,111 cuft = 284.45 ft = 270 cuft
Reservoir name	= 48x48	Max. Storage	= 270 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

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Pond No. 1 - 48x48

Pond Data

UG Chambers -Invert elev. = 280.50 ft, Rise x Span = 4.00×2.83 ft, Barrel Len = 20.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No **Encasement** -Invert elev. = 280.00 ft, Width = 3.83 ft, Height = 5.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft) Elevation (ft)		Contour area (sqft)	Incr. Storage (cuft)	ft) Total storage (cuft)			
0.00	280.00	n/a	0	0			
0.50	280.50	n/a	15	15			
1.00	281.00	n/a	32	48			
1.50	281.50	n/a	32	80			
2.00	282.00	n/a	32	112			
2.50	282.50	n/a	32	145			
3.00	283.00	n/a	32	177			
3.50	283.50	n/a	32	209			
4.00	284.00	n/a	32	241			
4.50	284.50	n/a	32	274			
5.00	285.00	n/a	15	289			

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]
Rise (in)	= 8.00	0.00	0.00	0.00	Crest Len (ft)	Inactive	0.00	0.00	0.00
Span (in)	= 8.00	0.00	0.00	0.00	Crest El. (ft)	= 0.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0	Weir Coeff.	= 3.33	3.33	3.33	3.33
Invert El. (ft)	= 283.80	0.00	0.00	0.00	Weir Type	= 1			
Length (ft)	= 71.00	0.00	0.00	0.00	Multi-Stage	= Yes	No	No	No
Slope (%)	= 14.40	0.00	0.00	n/a	C C				
N-Value	= .013	.013	.013	n/a					
Orifice Coeff.	= 0.60	0.60	0.60	0.60	Exfil.(in/hr)	= 3.000 (by Wet area)			
Multi-Stage	= n/a	No	No	No	TW Elev. (ft)	= 0.00	· ,		

Weir Structures

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



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Hyd. No. 11

Final Combined

Hydrograph type	 = Combine = 50 yrs = 2 min = 3, 10 	Peak discharge	= 7.167 cfs
Storm frequency		Time to peak	= 12.37 hrs
Time interval		Hyd. volume	= 40,568 cuft
Inflow hyds.		Contrib. drain. area	= 1.970 ac
innow nyus.	- 3, 10	Contrib. drain. area	- 1.970 ac



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STORM WATER QUALITY CALCULATIONS

POND Underground Detention System

as defined by "2004 Connecticut Stormwater Quality Manual"

Watershed:

	=	248	CF	١	/olume	of desig	ned bas	in	=	27	4	CF
	=	0.006	Acre-Feet									
	=	L" (0.4496) 12	(0.152)	A =	site a	rea in ac	res =	0.15				
WQV	= -	1" (R)(A) 12	-	R = v = C	olumet).05 + (tric runo 0.009(ff coeffic 44.4	cient = () =	0.05 + 0 0.450	.009(I)		
Determine	"Wat	ter Quality Vo	olume" (WQV)	I =	pe	rcent im	pervious	s cover	=	44.4	%	

PER THE MANUAL, THE INFILTRATION SUTRUCTURES SHOULD BE DESIGNED TO MAINTAIN AT LEAST THE WATER QUALITY VOLUME (WQV)

AS DESIGNED, THE DETENTION SYSTEM HAS A TOTAL CAPACITY OF **274 CF**, which EQUATES TO **110.5%** OF THE WQV.

THEREFORE, THE SYSTEMS COMPLY WITH THE REQUIREMENTS OF THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL FOR UNDERGROUND INFILTRATION SYSTEMS.

