

DRAINAGE REPORT

PROPOSED SINGLE FAMILY DWELLING

Prepared for

20 KATYDID LANE

WESTON, CT

NOVEMBER 17, 2025



CCA, LLC
40 Old New Milford Road
Brookfield, CT

Steven C. Sullivan

Steven C. Sullivan, P.E.



INDEX

GENERAL

SITE DESCRIPTION
DEVELOPMENT DESCRIPTION

SOILS

DESIGN OBJECTIVES

DESIGN CRITERIA

DRAINAGE NARRATIVE

SUMMARY OF PEAK FLOWS

CONCLUSION

APPENDIX

- NRCS WEB SOIL SURVEY
- NOAA ATLAS 14 PRECIPITATION DATA
- HYDROCAD POST DEVELOPMENT DRAINAGE CALCULATIONS-TR20
- DRAINAGE AREA MAP

GENERAL

A. SITE DESCRIPTION:

The site is located on the east side of Katydid Lane, consists of 2.26 acres and is in the R-2AC residential zone. The existing topography of the property slopes in the westerly directions and is moderate to steep sloping. The property is a vacant wooded parcel. The property is in FEMA Flood Zone X (unscreened) as per the FEMA mapping.

B. DEVELOPMENT DESCRIPTION:

This project consists of constructing a new single family dwelling, amenities, driveway, well and septic system. A stormwater management system is proposed for some of the impervious surfaces.

SOILS

Refer to the NRCS Web Soil Survey in the appendix. The drainage calculations used runoff factors for hydrologic group C soils. A percolation test was performed by others and resulted in a 1" in 10 minute rate. For our design, we used a 1" in 10 minute percolation rate with a 1.5 factor of safety. This equates to an exfiltration rate in our design of 3.0 inches per hour.

STORMWATER MANAGEMENT

DESIGN OBJECTIVES:

1. Provide a stormwater gallery system to recharge and attenuate peak flows.

DESIGN CRITERIA:

Design Storms: 50-year

Note: The drainage analysis was designed utilizing the SCS TR-20 method with NOAA Atlas 14 precipitation data for the site.

DRAINAGE NARRATIVE:

The subject of this report is a 2.26 acre residential parcel located at 20 Katydid Lane. The purpose of the report is to analyze the site to determine any change in stormwater runoff resulting from the proposed improvements. The runoff surfaces include lawn, paved driveway, roof areas, pool, patio and woods. The proposed development will increase impervious surface to 8,733 square feet. The total drainage area analyzed consists of 2.51 acres as shown on the attached Drainage Area Map.

Roof leaders from the proposed house and patio area and some of the driveway will discharge into two underground Cultec gallery systems. The gallery systems have been sized to recharge through exfiltration attenuate peak flows for the 50-year storm event. Therefore, the post development peak flow rates will be the same as the pre-development peak flow rates due to some recharge and orifice outlet controls.

SUMMARY OF PEAK FLOWS:

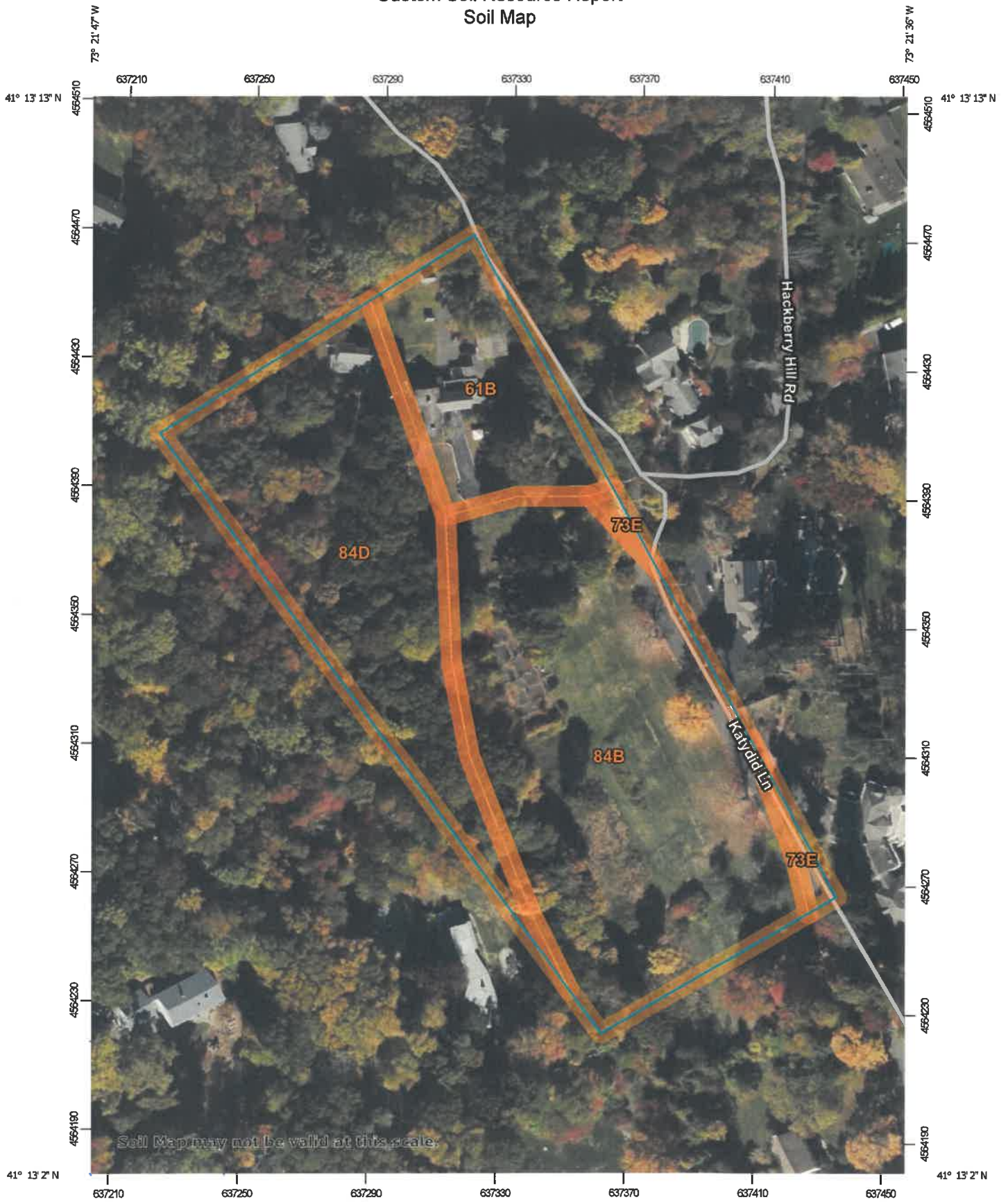
Design Storm	Pre-Development (c.f.s.)	Post-Development (c.f.s.)
50 Year	10.34	10.34

CONCLUSION:

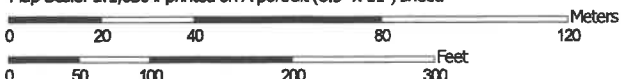
The development meets the design criteria and provides a comprehensive stormwater management plan that incorporates best management practices to reduce impacts and protect the environment. Based upon the analysis performed, CCA believes that through implementation of the recommended engineered stormwater management system and periodic maintenance, the proposed development will not adversely impact the surrounding area.

APPENDIX

Custom Soil Resource Report Soil Map



Map Scale: 1:1,630 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	0.9	15.1%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	0.1	1.5%
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	2.9	50.4%
84D	Paxton and Montauk fine sandy loams, 15 to 25 percent slopes	1.9	33.0%
Totals for Area of Interest		5.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it



NOAA Atlas 14, Volume 10, Version 3
Location name: Weston, Connecticut, USA*
Latitude: 41.2288°, Longitude: -73.3481°
Elevation: 139 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.366 (0.279-0.471)	0.426 (0.324-0.549)	0.524 (0.398-0.678)	0.604 (0.457-0.784)	0.716 (0.526-0.957)	0.802 (0.576-1.08)	0.889 (0.622-1.23)	0.982 (0.658-1.39)	1.11 (0.717-1.61)	1.21 (0.765-1.78)
10-min	0.518 (0.395-0.668)	0.603 (0.459-0.778)	0.742 (0.564-0.960)	0.857 (0.648-1.11)	1.02 (0.745-1.36)	1.14 (0.817-1.54)	1.26 (0.880-1.75)	1.39 (0.931-1.97)	1.57 (1.02-2.28)	1.71 (1.08-2.53)
15-min	0.609 (0.465-0.786)	0.709 (0.541-0.915)	0.872 (0.663-1.13)	1.01 (0.762-1.31)	1.19 (0.876-1.60)	1.34 (0.960-1.81)	1.48 (1.04-2.06)	1.64 (1.10-2.32)	1.85 (1.20-2.68)	2.02 (1.28-2.97)
30-min	0.847 (0.646-1.09)	0.986 (0.751-1.27)	1.21 (0.922-1.57)	1.40 (1.06-1.82)	1.66 (1.22-2.22)	1.86 (1.34-2.51)	2.06 (1.44-2.85)	2.27 (1.52-3.21)	2.54 (1.64-3.69)	2.75 (1.74-4.05)
60-min	1.08 (0.827-1.40)	1.26 (0.962-1.63)	1.55 (1.18-2.01)	1.80 (1.36-2.33)	2.13 (1.56-2.84)	2.38 (1.71-3.22)	2.64 (1.84-3.64)	2.90 (1.94-4.10)	3.23 (2.09-4.69)	3.48 (2.20-5.13)
2-hr	1.39 (1.07-1.78)	1.64 (1.26-2.10)	2.05 (1.57-2.63)	2.39 (1.82-3.08)	2.85 (2.10-3.78)	3.21 (2.32-4.32)	3.57 (2.50-4.92)	3.95 (2.66-5.56)	4.47 (2.90-6.45)	4.88 (3.10-7.15)
3-hr	1.60 (1.23-2.04)	1.90 (1.46-2.42)	2.39 (1.83-3.06)	2.79 (2.13-3.59)	3.35 (2.48-4.44)	3.77 (2.74-5.07)	4.21 (2.97-5.80)	4.68 (3.16-6.56)	5.34 (3.48-7.68)	5.87 (3.74-8.57)
6-hr	2.01 (1.56-2.55)	2.41 (1.86-3.05)	3.05 (2.36-3.88)	3.59 (2.76-4.58)	4.32 (3.22-5.70)	4.88 (3.57-6.53)	5.46 (3.89-7.51)	6.11 (4.14-8.52)	7.05 (4.60-10.1)	7.82 (4.99-11.3)
12-hr	2.48 (1.93-3.12)	2.98 (2.32-3.76)	3.81 (2.96-4.81)	4.49 (3.47-5.69)	5.44 (4.08-7.12)	6.14 (4.52-8.18)	6.89 (4.94-9.45)	7.75 (5.26-10.7)	9.01 (5.89-12.8)	10.0 (6.43-14.5)
24-hr	2.90 (2.28-3.62)	3.53 (2.77-4.42)	4.56 (3.57-5.72)	5.42 (4.22-6.83)	6.60 (4.99-8.62)	7.48 (5.55-9.93)	8.42 (6.10-11.5)	9.55 (6.50-13.1)	11.2 (7.37-15.8)	12.7 (8.13-18.1)
2-day	3.24 (2.57-4.03)	4.02 (3.17-4.99)	5.28 (4.16-6.58)	6.33 (4.96-7.92)	7.78 (5.92-10.1)	8.84 (6.62-11.7)	10.0 (7.32-13.7)	11.4 (7.82-15.6)	13.7 (9.00-19.1)	15.6 (10.0-22.2)
3-day	3.53 (2.80-4.36)	4.38 (3.47-5.42)	5.76 (4.55-7.15)	6.91 (5.43-8.61)	8.50 (6.50-11.0)	9.66 (7.26-12.8)	10.9 (8.04-15.0)	12.5 (8.58-17.1)	15.0 (9.90-20.9)	17.2 (11.1-24.3)
4-day	3.80 (3.02-4.68)	4.70 (3.73-5.80)	6.16 (4.88-7.62)	7.38 (5.81-9.16)	9.05 (6.94-11.7)	10.3 (7.74-13.5)	11.6 (8.56-15.8)	13.3 (9.13-18.1)	15.9 (10.5-22.1)	18.1 (11.7-25.6)
7-day	4.58 (3.66-5.61)	5.56 (4.44-6.82)	7.16 (5.71-8.81)	8.49 (6.73-10.5)	10.3 (7.94-13.2)	11.7 (8.81-15.2)	13.2 (9.67-17.7)	14.9 (10.3-20.4)	17.6 (11.7-24.3)	19.9 (12.9-27.9)
10-day	5.33 (4.28-6.51)	6.36 (5.10-7.78)	8.06 (6.44-9.88)	9.46 (7.52-11.6)	11.4 (8.77-14.5)	12.8 (9.69-16.6)	14.4 (10.5-19.2)	16.2 (11.2-21.7)	18.8 (12.5-25.9)	21.0 (13.6-29.4)
20-day	7.57 (6.12-9.19)	8.73 (7.05-10.6)	10.6 (8.54-12.9)	12.2 (9.74-14.9)	14.3 (11.1-18.0)	16.0 (12.1-20.4)	17.7 (12.9-23.1)	19.5 (13.5-26.0)	22.0 (14.7-30.1)	24.1 (15.6-33.4)
30-day	9.41 (7.63-11.4)	10.6 (8.63-12.9)	12.7 (10.2-15.4)	14.3 (11.5-17.5)	16.7 (12.9-20.8)	18.4 (13.9-23.4)	20.2 (14.8-26.2)	22.1 (15.4-29.3)	24.5 (16.4-33.4)	26.4 (17.2-36.5)
45-day	11.7 (9.50-14.0)	13.0 (10.6-15.6)	15.2 (12.3-18.3)	17.0 (13.7-20.6)	19.5 (15.1-24.2)	21.4 (16.2-26.9)	23.3 (17.0-30.0)	25.2 (17.6-33.3)	27.6 (18.5-37.4)	29.4 (19.2-40.5)
60-day	13.5 (11.0-16.2)	14.9 (12.2-17.9)	17.2 (14.0-20.7)	19.1 (15.5-23.1)	21.8 (17.0-26.9)	23.8 (18.1-29.9)	25.8 (18.9-33.0)	27.8 (19.5-36.5)	30.2 (20.3-40.7)	31.9 (20.9-43.8)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

PF graphical

PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE

Table of Contents

Printed 11/17/2025

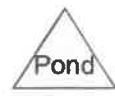
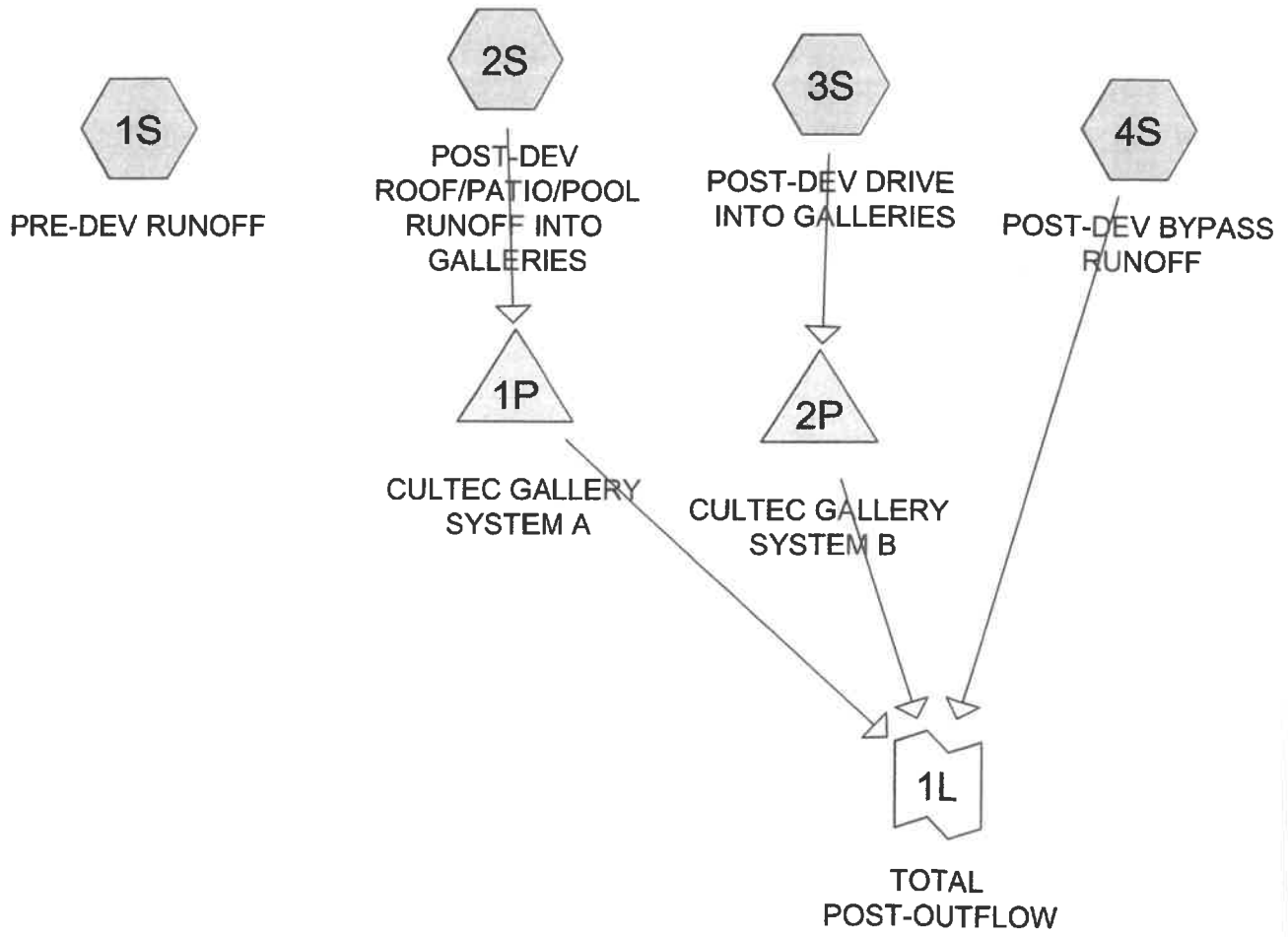
TABLE OF CONTENTS

Project Reports

- 1 Routing Diagram
- 2 Rainfall Events Listing (selected events)
- 3 Area Listing (all nodes)
- 4 Soil Listing (all nodes)
- 5 Ground Covers (all nodes)

50 year Event

- 6 Node Listing
- 7 Subcat 1S: PRE-DEV RUNOFF
- 8 Subcat 2S: POST-DEV ROOF/PATIO/POOL RUNOFF INTO GALLERIES
- 9 Subcat 3S: POST-DEV DRIVE INTO GALLERIES
- 10 Subcat 4S: POST-DEV BYPASS RUNOFF
- 11 Pond 1P: CULTEC GALLERY SYSTEM A
- 14 Pond 2P: CULTEC GALLERY SYSTEM B
- 17 Link 1L: TOTAL POST-OUTFLOW



PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE

Printed 11/17/2025

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	50 year	Type III 24-hr		Default	24.00	1	7.48	2

PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

Printed 11/17/2025

Page 3

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.460	74.0	>75% Grass cover, Good, HSG C (4S)
0.320	71.0	Meadow, non-grazed, HSG C (3S, 4S)
0.043	98.0	Patio/Pool Area (2S)
0.190	98.0	Paved parking, HSG C (3S, 4S)
0.077	98.0	Roof (2S)
3.930	70.0	Woods, Good, HSG C (1S, 4S)
5.020	72.2	TOTAL AREA

PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

Printed 11/17/2025

Page 4

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
4.900	HSG C	1S, 3S, 4S
0.000	HSG D	
0.120	Other	2S
5.020		TOTAL AREA

PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

Printed 11/17/2025

Page 5

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.460	0.000	0.000	0.460	>75% Grass cover, Good	4S
0.000	0.000	0.320	0.000	0.000	0.320	Meadow, non-grazed	3S, 4S
0.000	0.000	0.000	0.000	0.043	0.043	Patio/Pool Area	2S
0.000	0.000	0.190	0.000	0.000	0.190	Paved parking	3S, 4S
0.000	0.000	0.000	0.000	0.077	0.077	Roof	2S
0.000	0.000	3.930	0.000	0.000	3.930	Woods, Good	1S, 4S
0.000	0.000	4.900	0.000	0.120	5.020	TOTAL AREA	

PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 7

Summary for Subcatchment 1S: PRE-DEV RUNOFF

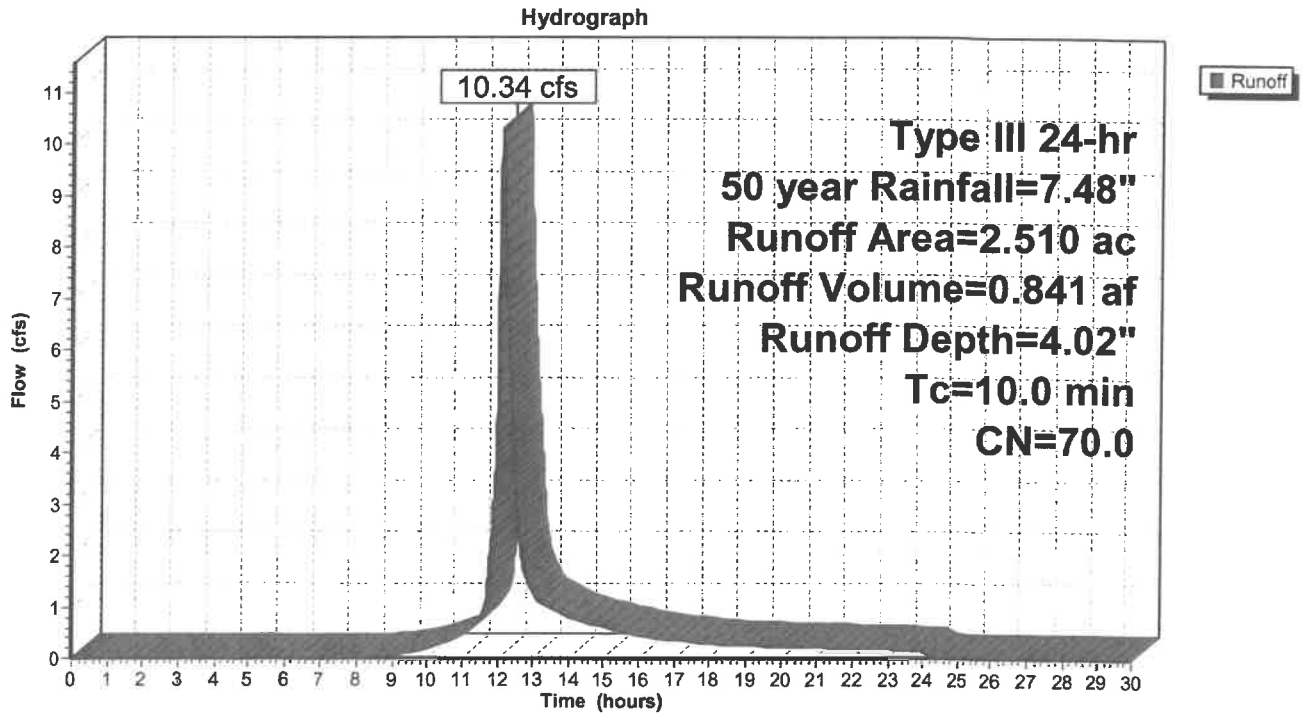
Runoff = 10.34 cfs @ 12.14 hrs, Volume= 0.841 af, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.010 hrs
Type III 24-hr 50 year Rainfall=7.48"

Area (ac)	CN	Description
2.510	70.0	Woods, Good, HSG C
2.510		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Sheet Flow

Subcatchment 1S: PRE-DEV RUNOFF



PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 8

Summary for Subcatchment 2S: POST-DEV ROOF/PATIO/POOL RUNOFF INTO GALLERIES

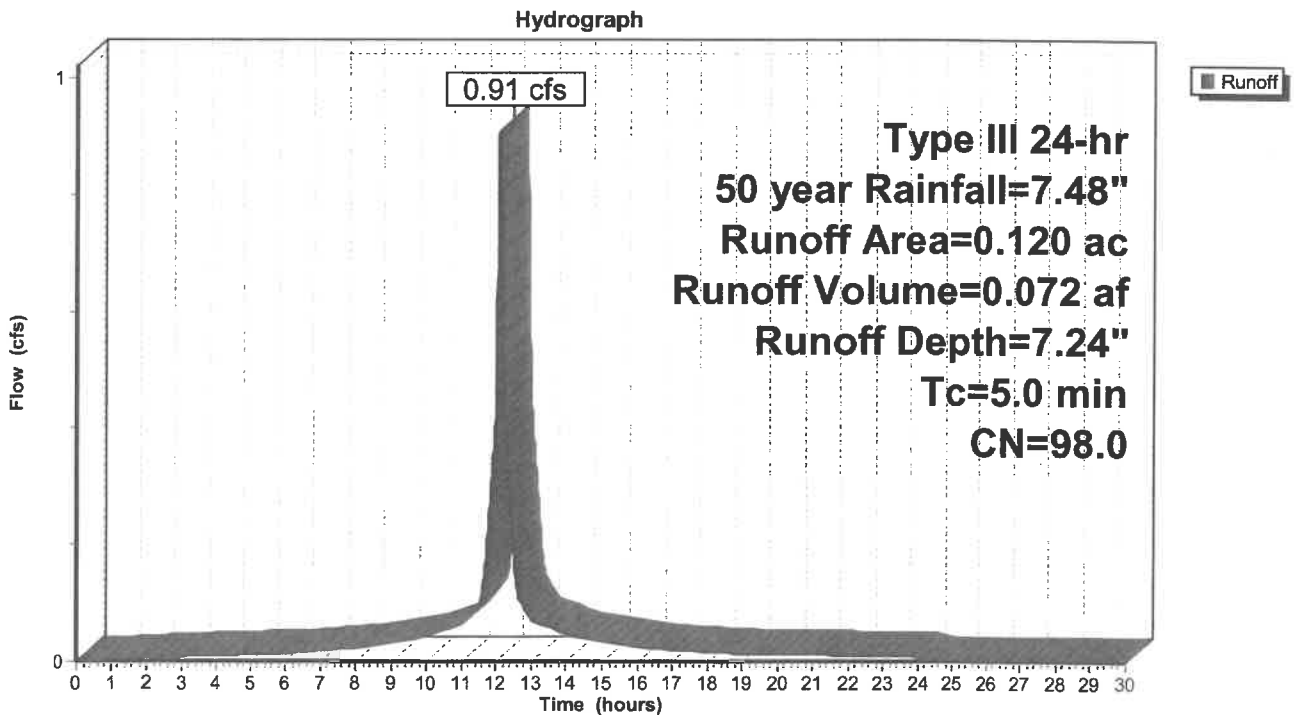
Runoff = 0.91 cfs @ 12.07 hrs, Volume= 0.072 af, Depth= 7.24"
Routed to Pond 1P : CULTEC GALLERY SYSTEM A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.010 hrs
Type III 24-hr 50 year Rainfall=7.48"

Area (ac)	CN	Description
* 0.043	98.0	Patio/Pool Area
* 0.077	98.0	Roof
0.120	98.0	Weighted Average
0.120		100.00% Impervious Area

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

Subcatchment 2S: POST-DEV ROOF/PATIO/POOL RUNOFF INTO GALLERIES



PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 9

Summary for Subcatchment 3S: POST-DEV DRIVE INTO GALLERIES

Runoff = 0.88 cfs @ 12.14 hrs, Volume= 0.075 af, Depth= 5.97"
Routed to Pond 2P : CULTEC GALLERY SYSTEM B

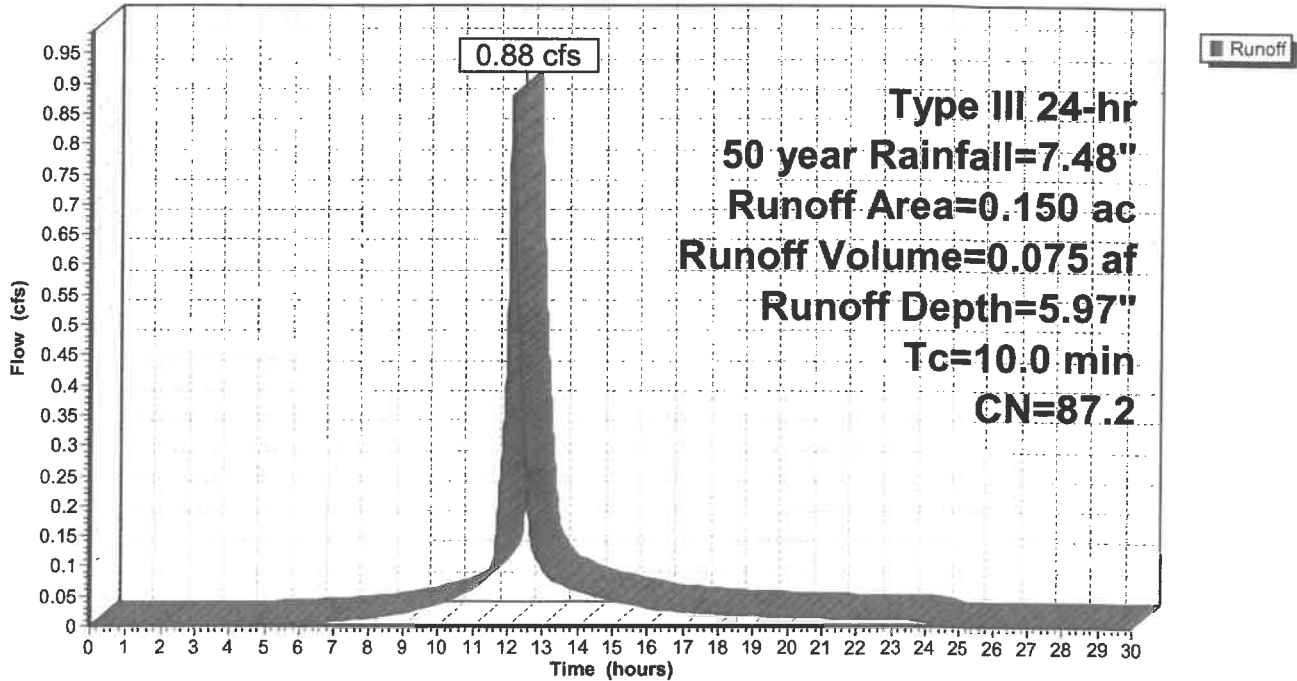
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.010 hrs
Type III 24-hr 50 year Rainfall=7.48"

Area (ac)	CN	Description
0.090	98.0	Paved parking, HSG C
0.060	71.0	Meadow, non-grazed, HSG C
0.150	87.2	Weighted Average
0.060		40.00% Pervious Area
0.090		60.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Sheet Flow

Subcatchment 3S: POST-DEV DRIVE INTO GALLERIES

Hydrograph



PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 10

Summary for Subcatchment 4S: POST-DEV BYPASS RUNOFF

Runoff = 9.78 cfs @ 12.14 hrs, Volume= 0.796 af, Depth= 4.26"
Routed to Link 1L : TOTAL POST-OUTFLOW

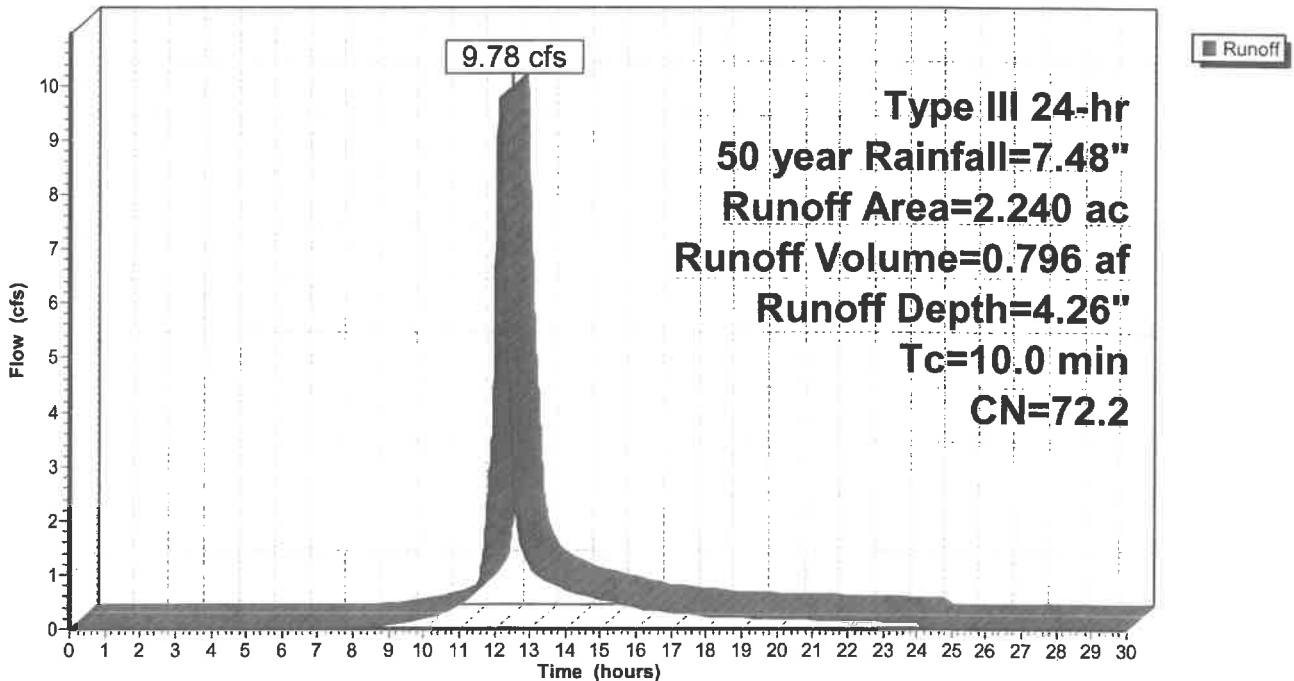
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.010 hrs
Type III 24-hr 50 year Rainfall=7.48"

Area (ac)	CN	Description
1.420	70.0	Woods, Good, HSG C
0.460	74.0	>75% Grass cover, Good, HSG C
0.100	98.0	Paved parking, HSG C
0.260	71.0	Meadow, non-grazed, HSG C
2.240	72.2	Weighted Average
2.140		95.54% Pervious Area
0.100		4.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Sheet Flow

Subcatchment 4S: POST-DEV BYPASS RUNOFF

Hydrograph



PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 11

Summary for Pond 1P: CULTEC GALLERY SYSTEM A

Inflow Area = 0.120 ac, 100.00% Impervious, Inflow Depth = 7.24" for 50 year event
Inflow = 0.91 cfs @ 12.07 hrs, Volume= 0.072 af
Outflow = 0.27 cfs @ 12.37 hrs, Volume= 0.072 af, Atten= 70%, Lag= 18.2 min
Discarded = 0.07 cfs @ 11.24 hrs, Volume= 0.052 af
Primary = 0.20 cfs @ 12.37 hrs, Volume= 0.020 af
Routed to Link 1L : TOTAL POST-OUTFLOW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.010 hrs
Peak Elev= 337.88' @ 12.37 hrs Surf.Area= 938 sf Storage= 780 cf

Plug-Flow detention time= 26.5 min calculated for 0.072 af (100% of inflow)
Center-of-Mass det. time= 26.5 min (767.7 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	336.50'	585 cf	15.00'W x 62.50'L x 2.04'H Field A 1,914 cf Overall - 450 cf Embedded = 1,464 cf x 40.0% Voids
#2A	337.00'	450 cf	Cultec C-100HD x 32 Inside #1 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 4 rows
		1,036 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	336.50'	3.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	337.00'	3.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.07 cfs @ 11.24 hrs HW=336.52' (Free Discharge)

↳ **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.20 cfs @ 12.37 hrs HW=337.88' TW=0.00' (Dynamic Tailwater)

↳ **2=Orifice/Grate** (Orifice Controls 0.20 cfs @ 4.17 fps)

PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 12

Pond 1P: CULTEC GALLERY SYSTEM A - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)

Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf

Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap

Row Length Adjustment= +0.50' x 1.86 sf x 4 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

8 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 60.50' Row Length +12.0" End Stone x 2 = 62.50' Base Length

4 Rows x 36.0" Wide + 4.0" Spacing x 3 + 12.0" Side Stone x 2 = 15.00' Base Width

6.0" Stone Base + 12.5" Chamber Height + 6.0" Stone Cover = 2.04' Field Height

32 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 4 Rows = 450.5 cf Chamber Storage

1,914.1 cf Field - 450.5 cf Chambers = 1,463.6 cf Stone x 40.0% Voids = 585.4 cf Stone Storage

Chamber Storage + Stone Storage = 1,035.9 cf = 0.024 af

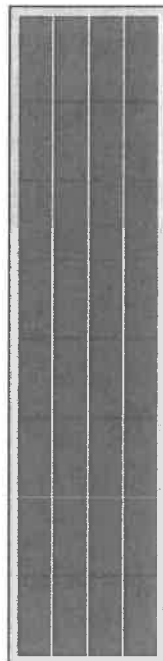
Overall Storage Efficiency = 54.1%

Overall System Size = 62.50' x 15.00' x 2.04'

32 Chambers

70.9 cy Field

54.2 cy Stone



PRE-POST-ANALYSIS

Prepared by CCA, LLC

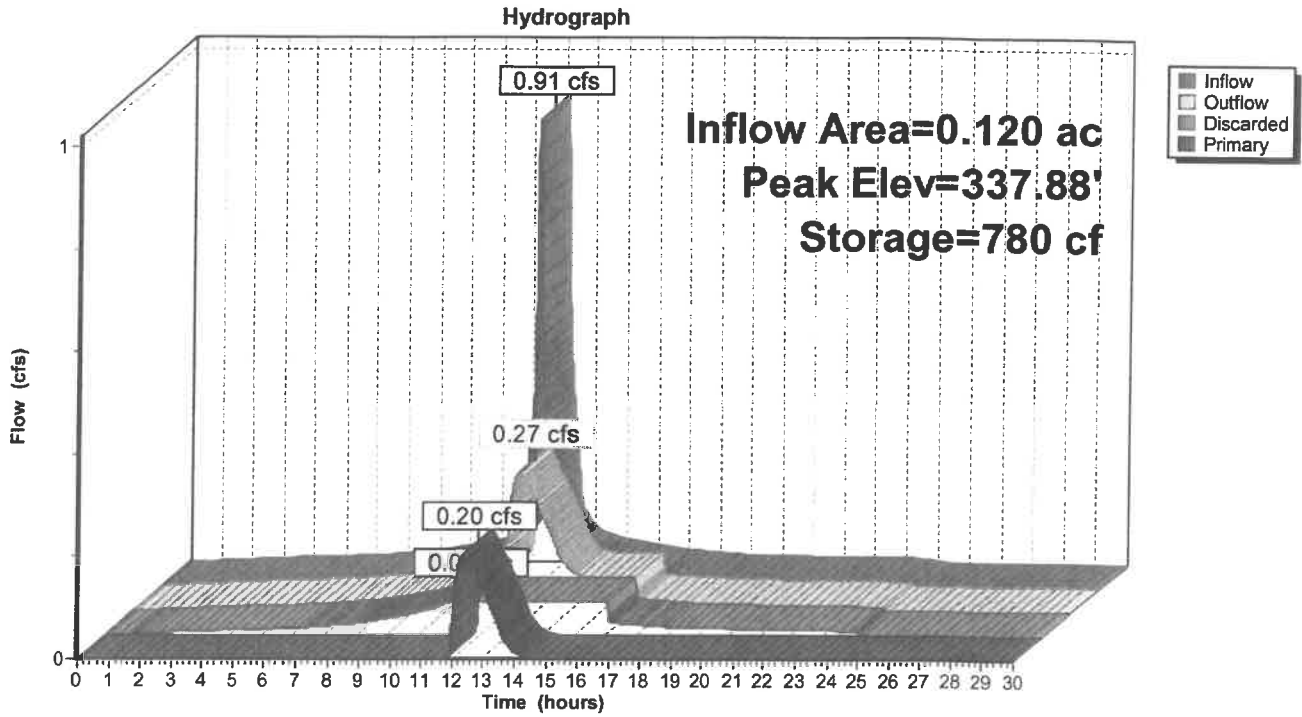
HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 13

Pond 1P: CULTEC GALLERY SYSTEM A



PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 14

Summary for Pond 2P: CULTEC GALLERY SYSTEM B

Inflow Area = 0.150 ac, 60.00% Impervious, Inflow Depth = 5.97" for 50 year event
 Inflow = 0.88 cfs @ 12.14 hrs, Volume= 0.075 af
 Outflow = 0.52 cfs @ 12.29 hrs, Volume= 0.075 af, Atten= 40%, Lag= 9.2 min
 Discarded = 0.04 cfs @ 10.43 hrs, Volume= 0.038 af
 Primary = 0.49 cfs @ 12.29 hrs, Volume= 0.037 af
 Routed to Link 1L : TOTAL POST-OUTFLOW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.010 hrs
 Peak Elev= 345.01' @ 12.29 hrs Surf.Area= 554 sf Storage= 597 cf

Plug-Flow detention time= 21.3 min calculated for 0.075 af (100% of inflow)
 Center-of-Mass det. time= 21.3 min (811.6 - 790.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	343.00'	351 cf	11.67'W x 47.50'L x 2.04'H Field A 1,131 cf Overall - 254 cf Embedded = 877 cf x 40.0% Voids
#2A	343.50'	254 cf	Cultec C-100HD x 18 Inside #1 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 3 rows
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	343.00'	3.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	343.50'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 10.43 hrs HW=343.02' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.49 cfs @ 12.29 hrs HW=345.01' TW=0.00' (Dynamic Tailwater)
 ↑2=Orifice/Grate (Orifice Controls 0.49 cfs @ 5.57 fps)

PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 15

Pond 2P: CULTEC GALLERY SYSTEM B - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)

Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf

Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap

Row Length Adjustment= +0.50' x 1.86 sf x 3 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

6 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 45.50' Row Length +12.0" End Stone x 2 = 47.50' Base Length

3 Rows x 36.0" Wide + 4.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.67' Base Width

6.0" Stone Base + 12.5" Chamber Height + 6.0" Stone Cover = 2.04' Field Height

18 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 3 Rows = 254.1 cf Chamber Storage

1,131.4 cf Field - 254.1 cf Chambers = 877.3 cf Stone x 40.0% Voids = 350.9 cf Stone Storage

Chamber Storage + Stone Storage = 605.0 cf = 0.014 af

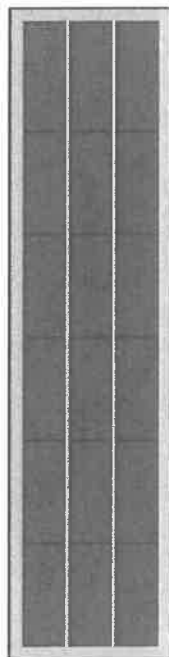
Overall Storage Efficiency = 53.5%

Overall System Size = 47.50' x 11.67' x 2.04'

18 Chambers

41.9 cy Field

32.5 cy Stone



PRE-POST-ANALYSIS

Prepared by CCA, LLC

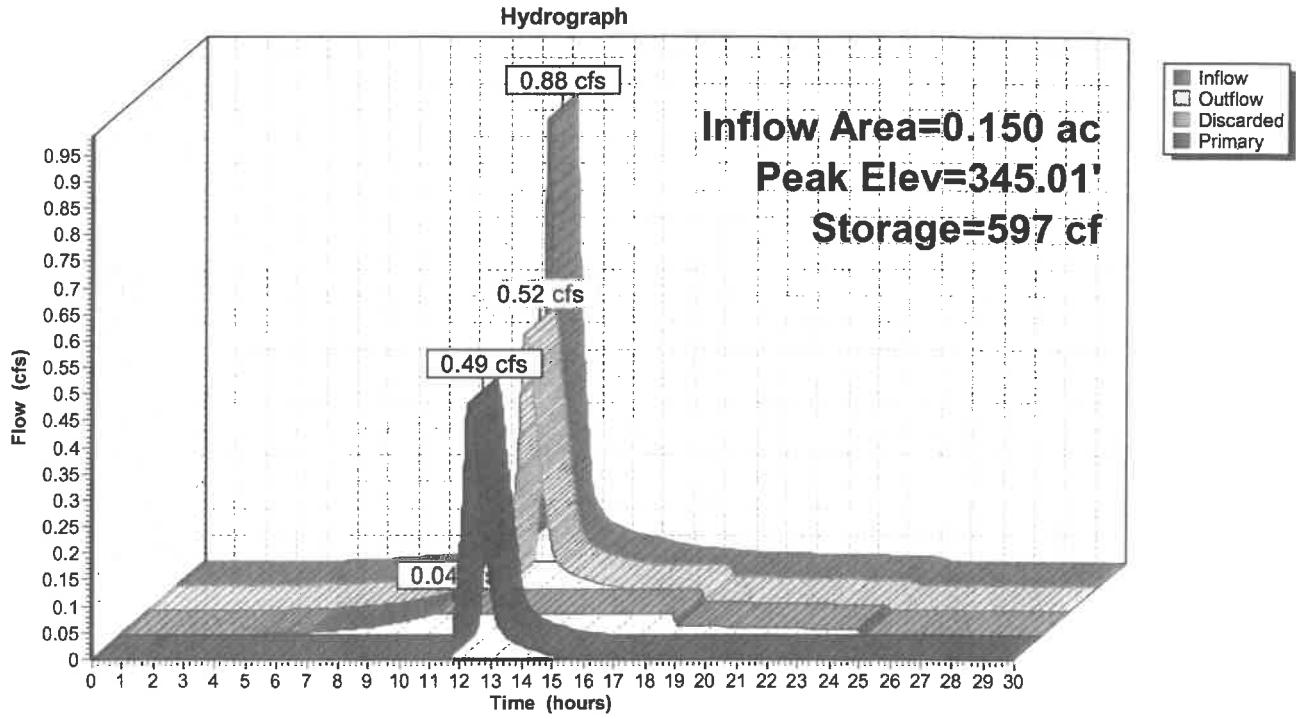
HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE
Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 16

Pond 2P: CULTEC GALLERY SYSTEM B



PRE-POST-ANALYSIS

Prepared by CCA, LLC

HydroCAD® 10.20-7a s/n 01461 © 2025 HydroCAD Software Solutions LLC

20 KATYDID LANE

Type III 24-hr 50 year Rainfall=7.48"

Printed 11/17/2025

Page 17

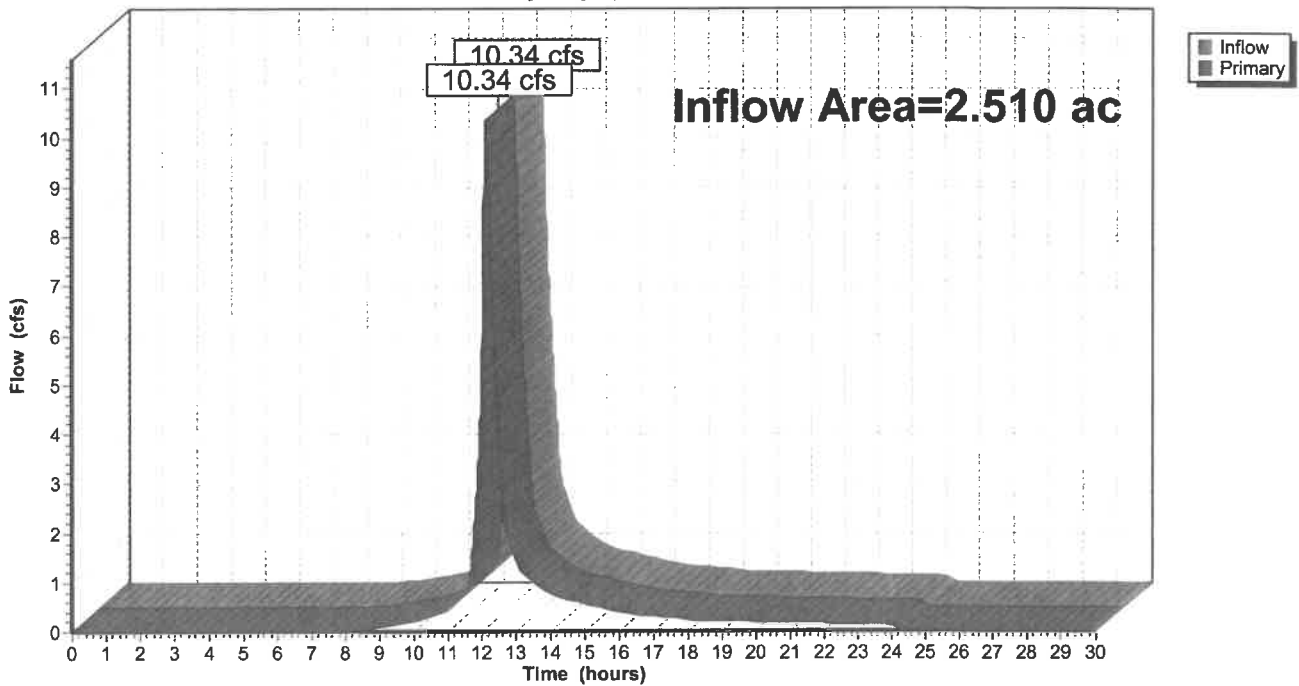
Summary for Link 1L: TOTAL POST-OUTFLOW

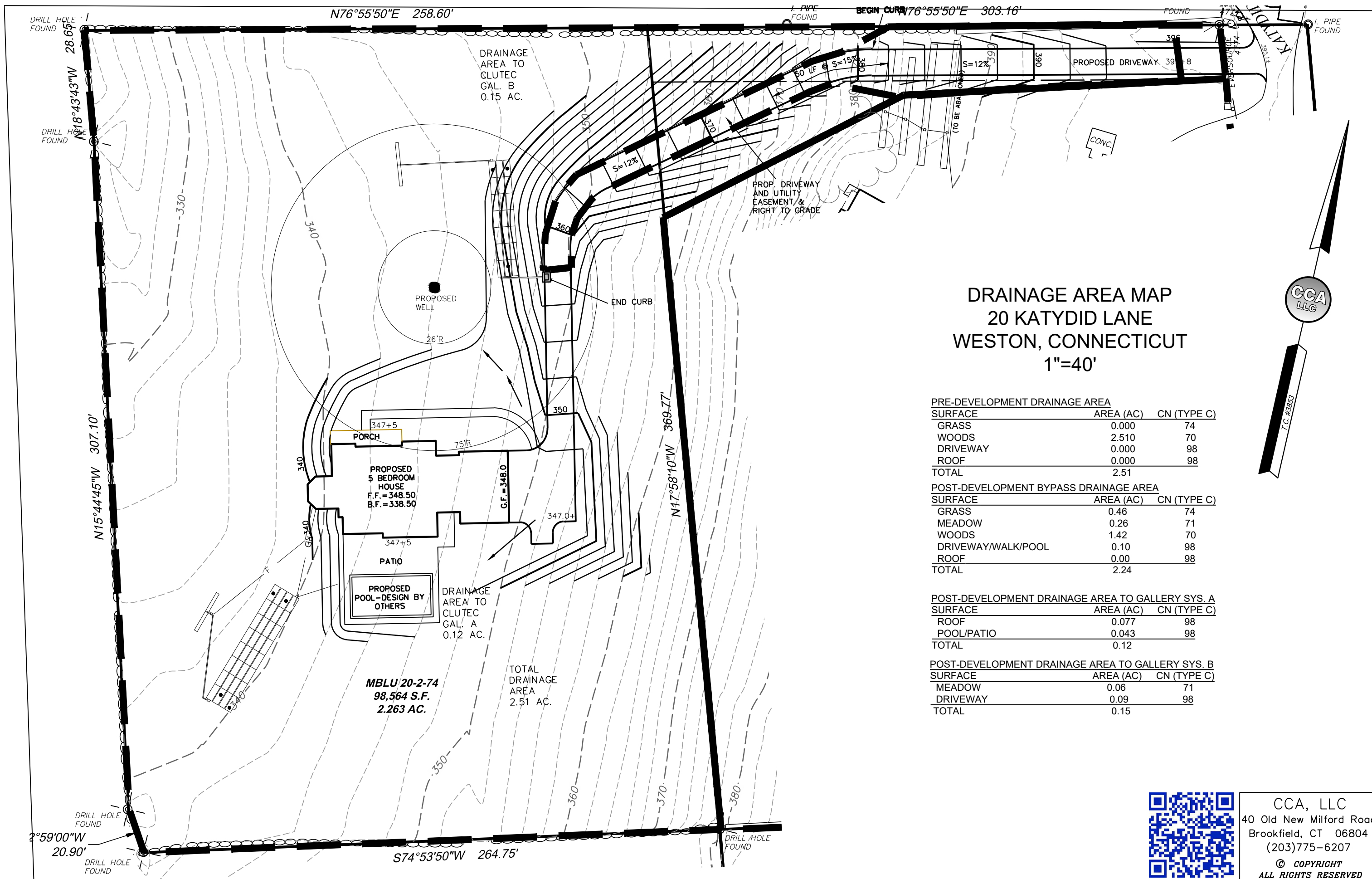
Inflow Area = 2.510 ac, 12.35% Impervious, Inflow Depth = 4.08" for 50 year event
Inflow = 10.34 cfs @ 12.14 hrs, Volume= 0.853 af
Primary = 10.34 cfs @ 12.14 hrs, Volume= 0.853 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.010 hrs

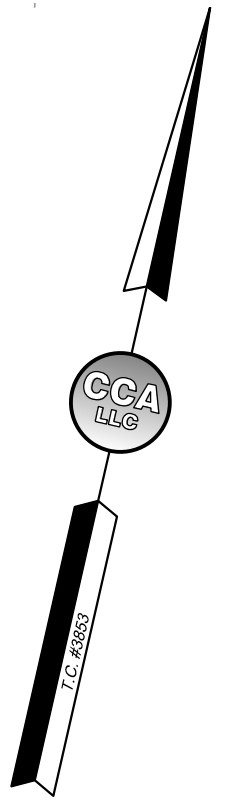
Link 1L: TOTAL POST-OUTFLOW

Hydrograph





DRAINAGE AREA MAP
20 KATYDID LANE
WESTON, CONNECTICUT
1"=40'



PRE-DEVELOPMENT DRAINAGE AREA		
SURFACE	AREA (AC)	CN (TYPE C)
GRASS	0.000	74
WOODS	2.510	70
DRIVEWAY	0.000	98
ROOF	0.000	98
TOTAL	2.51	

POST-DEVELOPMENT BYPASS DRAINAGE AREA		
SURFACE	AREA (AC)	CN (TYPE C)
GRASS	0.46	74
MEADOW	0.26	71
WOODS	1.42	70
DRIVEWAY/WALK/POOL	0.10	98
ROOF	0.00	98
TOTAL	2.24	

POST-DEVELOPMENT DRAINAGE AREA TO GALLERY SYS. A		
SURFACE	AREA (AC)	CN (TYPE C)
ROOF	0.077	98
POOL/PATIO	0.043	98
TOTAL	0.12	

POST-DEVELOPMENT DRAINAGE AREA TO GALLERY SYS. B		
SURFACE	AREA (AC)	CN (TYPE C)
MEADOW	0.06	71
DRIVEWAY	0.09	98
TOTAL	0.15	



CCA, LLC
 40 Old New Milford Road
 Brookfield, CT 06804
 (203)775-6207
 © COPYRIGHT
 ALL RIGHTS RESERVED