

STORMWATER MANAGEMENT PLAN YELLIN TRAILER PARKING LOT

Haskell Project Number: 3401365 CIVIL PERMIT ISSUE 01-21-2021



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PROJECT NAME:	YELLIN TRAILER PARKING LOT
PROJECT ADDRESS:	1886 UPPER MAPLE ST. Dayville, CT 06241
PROJECT COUNTY:	DAYVILLE, WINDHAM COUNTY, CT.
CLIENT:	FRITO-LAY, INC. 7701 LEGACY DR. PLANO, TEXAS 75024
PREPARED BY:	HASKELL ARCHITECTS AND ENGINEERS, P.C. 111 RIVERSIDE AVENUE JACKSONVILLE, FLORIDA 32202 (904) 791-4500
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HASKELL PROJECT #:	3401365



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SECTION 1 - PROJECT NARRATIVE / SITE CHARACTERISTICS

PROJECT NARRATIVE:

The Yellin Trailer Parking Lot site improvements include the construction of a 9.9 AC asphalt trailer parking lot for staging of Frito-Lay tractor trailers. The project will also include the construction of a new stormwater management pond in the southeast corner of the property that will accommodate discharge from the proposed lot as well as the volume compensation associated with the existing pond that is to be filled in as part of this permit.

Proposed stormwater facilities include the filling in of an existing retention pond and the creation of a new multi-system dry detention pond in the south east corner of the proposed Yellin lot. The proposed pond has been designed to meet pre/post discharge requirements while maintaining one foot of freeboard for the 100 year, 24 hour event. Two hydrodynamic seperators are being utilized in unison with a sediment forbay for pre-treatment upstream of the detention pond. Discharge out of the pond is conveyed via pipe to a swale that runs along the Five-Mile River.

Wetland Impacts:	There are no wetlands on-site that are to be mitigated and/or restored.
Tax Map ID:	002335 (Yellin Property to be Developed)
Existing Land Use:	Tractor Trailer Parking
Proposed Land Use:	Tractor Trailer Parking
Zoning:	Industrial
Class:	Industrial
Flood Zone:	FEMA Zone X
Site Topography:	USGS Map – (Reference Appendix 1.6)
Geological:	NRCS Soils Maps are provided in the appendix
	(Reference Appendix 1.5)
Hydrological Soil Group:	Type A, B Soils (Reference Appendix 1.4)

SITE CHARACTERISTICS:



Existing Stormwater System Narrative:

The existing site is primarily used for trailer storage for Frito-lay and has split coverage of gravel pavements and vegetated land. The existing site has two major drainage basins (herby referred to as EXDA-YELLEN, and EXDA-DEPRESSION, refer to sheet C-171 Pre-Development Drainage Map) that convey runoff from north to south and utlimatly discharge to Five-mile river. Runoff within EXDA-YELLEN flows via sheet flow and shallow concentrated flow from north to south until it is captured in a small grassed swale along the southern property boundary. The swale conveys flow from west to east until reaching the ultimate discharge location near Five-mile river. EXDA-DEPRESSION is a small upland depression that utilized surface storage for discharge from a heavily wooded area before overflowing into the southern swale during larger events.

The existing southern pond on the Frito-Lay property is to be filled in as part of this project. The pond captures runoff from primarily impervious areas to the south of the Frito-lay facility (EXDA-UPPER) and fully contains runoff, without a discharge point, for all storms. Two existing concrete oil-water separators are used as pre-treatment into the pond and will remain in place during the proposed project.

Off-site Drainage Conditions Narrative:

The existing site is bound by Five-mile River to the east, Upper Mapple St. to the west, The Frito-Lay facility to the north, and undeveloped private land to the south. No off-site flows enter the limits of the project's effective drainage area.

Receiving Stream / System: Five-Mile River

SECTION 2 - STORMWATER DESIGN APPROACH

Design Summary:

The design for the proposed site improvements is to utilize a multi-system dry-detention basin to control peak discharges and to provide the required water quality volume. The pond is designed to accommodate both the runoff associated with the Yellen improvements as well as a master planned basin on the "Upper Lot" for 11.24 AC of total area and 11.06 AC of future impervious area. A summary of the post development effective drainage areas can be found in the appendix and on the C-171 Post Development Drainage Area Map. The existing retention pond to the north of the Yellen lot is to be filled in under this document set, thus, this project includes the capture of all upstream stormwater piping that previously drained to the existing pond and conveyance to the proposed Yellen pond. Stormwater quantity and peak discharge control has been designed to meet the pre-develoment peak discharge rate for the 2, 10, 25, and 100 year, 24 hour events. Refer to the tables below for peak discharge summary. The pond fully contains the 100 year, 24 hour event while maintaining 1 foot of freeboard. An emergency overflow for larger events has been provided along the southern pond bank and proper erosion control devices such as a



concrete weir and rip-rap outlet protection have been provided. Peak discharge for the design events is controlled by means of a multi-stage concrete control structure that discharges through an 18" pipe to the point of connection downstream.

Pre-treatment into the pond is provided by several BMP's in series to create an effective BMP treatment train in addition to the required water quality volume supported within the multi-system pond. The upper lot impervious area maintains treatment through two concrete oil-water seperators. Runoff is then conveyed downstream to be treated once again by means of two Hydro-international Downstream Defender hydrodynamic seperators to capture sediment and oils/greases from pavements. All runoff is then discharged into a sediment forbay sized to accommodate 25% of the total water quality volume required for the effective drainage area. The forebay is designed with a low flow, perforated riser pipe and a concrete overflow weir to accommodate larger storms. The forebay also includes a 30 mil liner to prevent contaminants from infiltrating through the soil strata.

The multi-system pond includes 2.95 feet of water quality storage that is slowly infiltrated into the soil strata (type A,B soils). WQv recovery is achieved at 180 hours (7.5 days) which **Haskell will be requesting a variance for based on the 72 hour State of Connecticut requirement.** Effective infiltration rates were calculated based on several geotechnical borings and test pits in the exact location of the proposed pond, and determined to be 0.38 inches per hour. A factor of safety was then applied to this infiltration rate per the Connecticut Stormwater Manual for an effective rate of 0.19 inches per hour. Pond attenuation volume recovery occurs at 240 hours (10 days) based on infiltration practices through the soil strata. **Haskell will be requesting a variance for the recovery time for the pond based on required infiltration through the bottom of the pond.** The pond design fully contains the 100 year event with more than the required 1 foot of freeboard; however, due to the lack of a sufficient outfall point based on the pond bottom elevation, a low flow pipe is not able to be installed at pond bottom

PRE-DEVELOPMENT PEAK DISCHARGE							
POINT OF ANALYSIS DISCHARGES TO 2 YR-24HR (CFS) 10YR-24HR (CFS) 25YR-24HR (CFS) 100YR-24HR (CFS) - -					-		
1	Five-Mile River	4.69	14.41	19.40	30.18		

All routing analysis was performed within Interconnected Pond and Channel Routing version 4 (ICPR 4).

	POST-DEVELOPMENT PEAK DISCHARGE						
POINT OF ANALYSIS DISCHARGES TO 2 YR-24HR (CFS) 10YR-24HR (CFS) 25YR-24HR (CFS) 100YR- 24HR (CFS) - -					-		
1	Five-Mile River	4.24	13.94	15.31	17.57	-	-



SECTION 3 – STORMWATER POLLUTION PREVENTION PLAN

Included in the Civil Engineering Plans on the Erosion & Sediment Control Plans. Refer to the sheets that have been submitted in addition to this hydrology report.

SECTION 4 – STORMWATER OPERATIONS AND MAINTENANCE PLAN

Owner:

FRITO-LAY, INC. 7701 LEGACY DR. PLANO, TEXAS 75024

Operations and Maintenance Entity:

Responsibility for operation and maintenance of the system, which is permitted by the Town of Killingly, shall be the perpetual obligation of a single entity, which wholly owns or controls the lands on which any component of the permitted system is located, and which has the fiscal legal and logistical capability to perform operation and maintenance in accordance with District rules and permit conditions.

The Maintenance Entity is Frito-Lay, Inc. details as follows:

Corporate Entity:	Local Management:
FRITO-LAY, LLC 7701 LEGACY DR. PLANO, TEXAS 75024	Not provided at this time
Design Engineer:	
Joshua R. Hough, P.E. Civil Engineer CT #31834 Haskell Architects & Engineers, P.C. 111 Riverside Ave. Jacksonville, FL 32202 (904) 791-4744	



Operations and Maintenance Requirements:

Operation and maintenance of the storm water management system is required to assure proper functioning of the system. The following procedures are necessary to sustain continual performance of the system:

GENERAL

 All storm water management systems permitted by the Town of Killingly shall be operated and maintained in accordance with the designs, plans, calculations, and other specifications that are submitted with the application, approved by Hillsborough County, and incorporated by reference into any permit issued.

STORMWATER COLLECTION SYSTEM (STORM SEWERS)

 Inspect and clean out all pipes, manholes, inlets, and other drainage structures. All systems shall be kept free of debris, trash, garbage, oils and greases, and other refuse through regular inspection and maintenance. Oils and greases removed from the systems shall be disposed of at a sanitary landfill or by other lawful means.

VEGATATED SWALES

- 1. Inspect the ditch bottoms and side slopes for erosion. Repairs eroded areas and stabilize with fabric, mats, or sod.
- 2. Remove silt and sediment accumulations. Sediment build up within the bottom of the channel shall be removed when 25% of the original WQ_v volume has been exceeded.
- 3. Mow periodically and remove weed and tree growths. Vegetation in dry swales shall be mowed as required during the growing season to maintain grass heights in the 4 to 6 inch range.
- 4. Inspect underdrain system every year. Identify any piping of surface water through the bottom surface to the underdrain pipe. Clear obstructions and repair collapsed or failed underdrain segments.



STORMWATER PONDS:

- 1. Remove silt and sediment accumulations from fore-bay areas of the ponds. Re-stack and replace rip-rap stones which have been shifted during heavy flow events.
- Inspect the pond control structures to ensure reliable performance during rainfall events. Check the interior components. Check the weirs. Remove trash, debris or sediment that hinders flow or release. Remove vegetation or aquatic growth, which has the capacity to hinder flow through the device.
- 3. Inspect the pond side slopes, repair eroded areas, and re-grass where required. Mow and maintain all pond slopes in a neat and clean manner.
- 4. Sediment Sump Maintenance
 - During the inspections the forebay should be inspected for damage to the wier and overflow structure between the forebay and the main section of the pond.
 - Sediment should be monitored in the bottom of the forebay and excess should be removed to ensure that the overflow pipes are not blocked.
 - The rip-rap at the pipes entering the basin and on the overflow structure should be evaluated. Any areas of damage or erosion should be addressed and additional rip-rap added.

Inspection Inspections

The stormwater system shall be inspected bi-annually to ensure that proper operation of the system. Any deficiencies should be recorded and repaired.



APPENDIX 1 – MAPS AND SUPPORTING DOCUMENTS

1.1	VICINITY MAP
1.2	LOCATION MAP
1.3	AERIAL MAP
1.4	USGS MAP
1.5	FEMA MAP
1.6	RAINFALL DATA
1.7	NRCS SOILS MAP
1.8	NRCS HYDROLOGIC SOIL GROUPS

APPENDIX 2 – EXISTING CONDITIONS ANALYSIS

- Pre-Development Drainage Map
- ICPR4 Nodal Diagram
- Basin Summary (TR-55 Worksheets)
- Basin Hydrographs
- ICPR Pond Rounting Analysis Node Maximum Conditions Reports

APPENDIX 3 – POST-DEVELOPMENT CONDITIONS

- Post-Development Drainage Map
- ICPR4 Nodal Diagram
- Basin Summary (TR-55 Worksheets)
- Basin Hydrographs
- ICPR Pond Rounting Analysis Node Maximum Conditions Reports
- Multi-System Pond Cross Sections & Control Structure Details

APPENDIX 4 – WATER QUALITY CALCULATIONS

- Water Quality Calculations
- Wet Pond Cross Sections & Control Structure Details
- BMP Drainage Area Map, C-172



YELLIN TRAILER PARKING LOT

MAPS & SUPPORTING DOCUMENTS **APPENDIX 1**



Client Name:	Frito-Lay		
Project Name:	Project Knight		
Location:	Killingly, CT	Project Num:	3401365
Prepared by:	SBC	Date:	1/21/2021

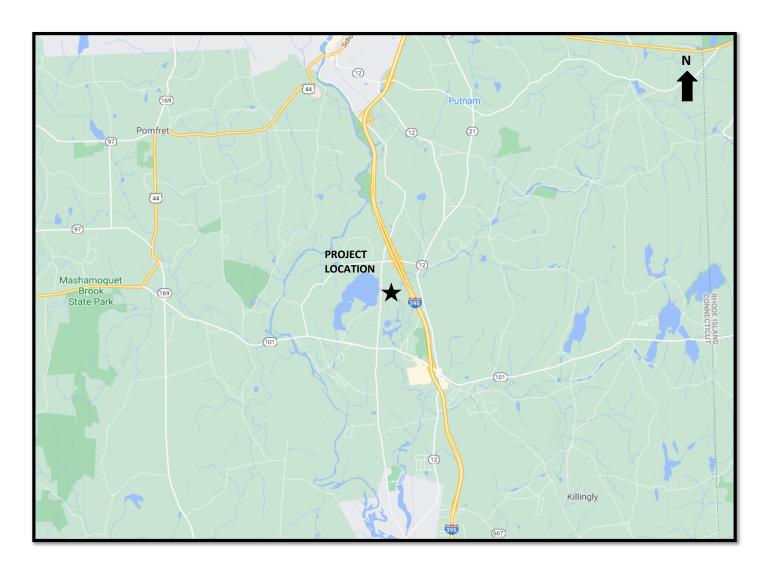
MAPS & SUPPORTING DOCUMENTS

SUB-SECTION	DESCRIPTION
1.1	VICINITY MAP
1.2	LOCATION MAP
1.3	AERIAL PHOTO
1.4	F.E.M.A. MAP
1.5	NRCS HYDROLOGIC SOILS GROUP MAP
1.6	USGS MAP
1.7	NOAA RAINFALL DATA



Client Name:	Frito-Lay		
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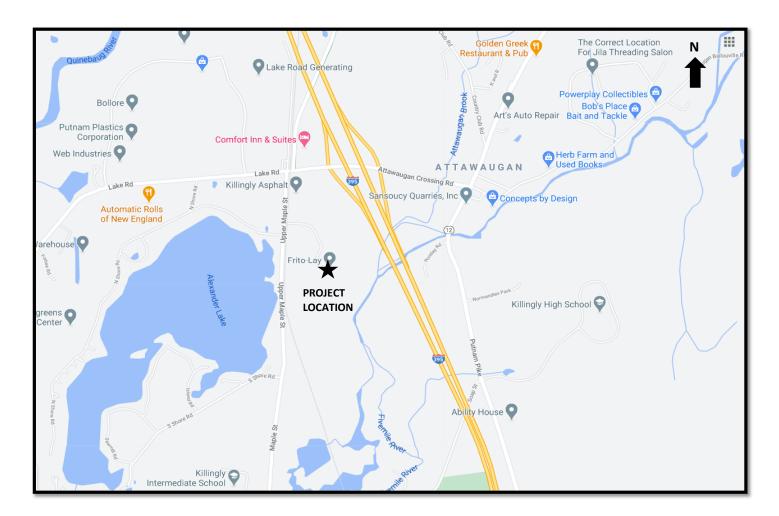
VICINITY MAP





Client Name:	Frito-Lay		
Project Name:	Project Knight		
Location:	Killingly, CT	Project Num:	3401365
Prepared by:	SBC	Date:	1/21/2021

LOCATION MAP





Client Name:	Frito-Lay		
Project Name:	Project Knight		
Location:	Killingly, CT	Project Num:	3401365
Prepared by:	SBC	Date:	1/21/2021

AERIAL PHOTO

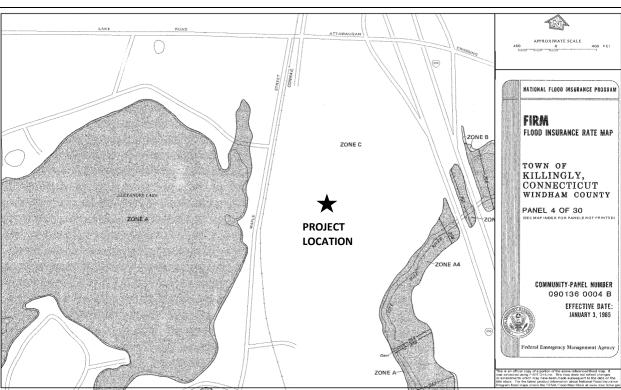




Client Name:	Frito-Lay		
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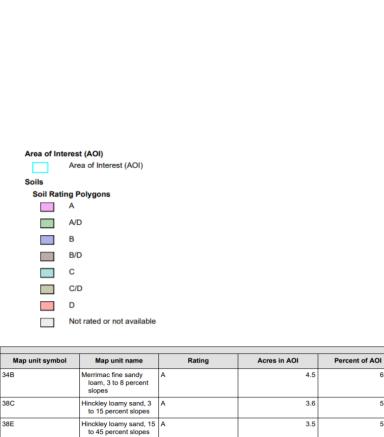
F.E.M.A. MAP





Client Name:	Frito-Lay		
Project Name:	Project Knight		
Location:	Killingly, CT	Project Num:	3401365
Prepared by:	SBC	Date:	1/21/2021

NRCS HYDROLOGIC SOILS GROUP MAP



B/D

в

0.5

58.6

70.7

108

306

Totals for Area of Interest

Saco silt loam

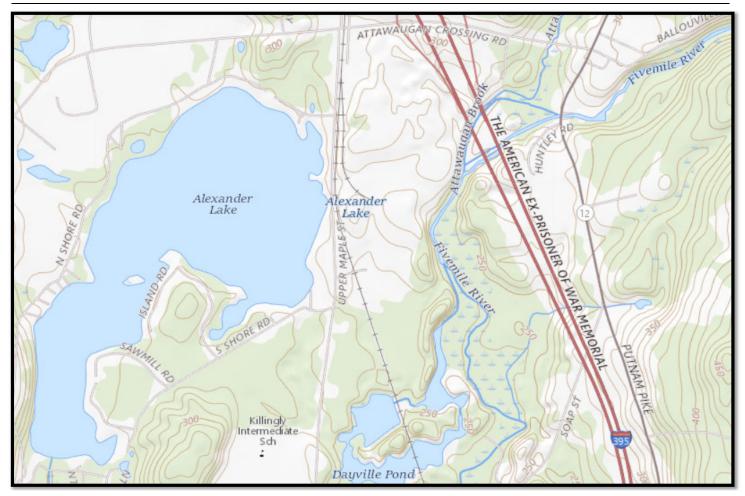
Udorthents-Urban land complex





Client Name:	Frito-Lay		
Project Name:	Project Knight		
Location:	Killingly, CT	Project Num:	3401365
Prepared by:	SBC	Date:	1/21/2021

USGS MAP





Client Name:	Frito-Lay		
Project Name:	Project Knight		
Location:	Killingly, CT	Project Num:	3401365
Prepared by:	SBC	Date:	1/21/2021

1.7

NOAA RAINFALL DATA

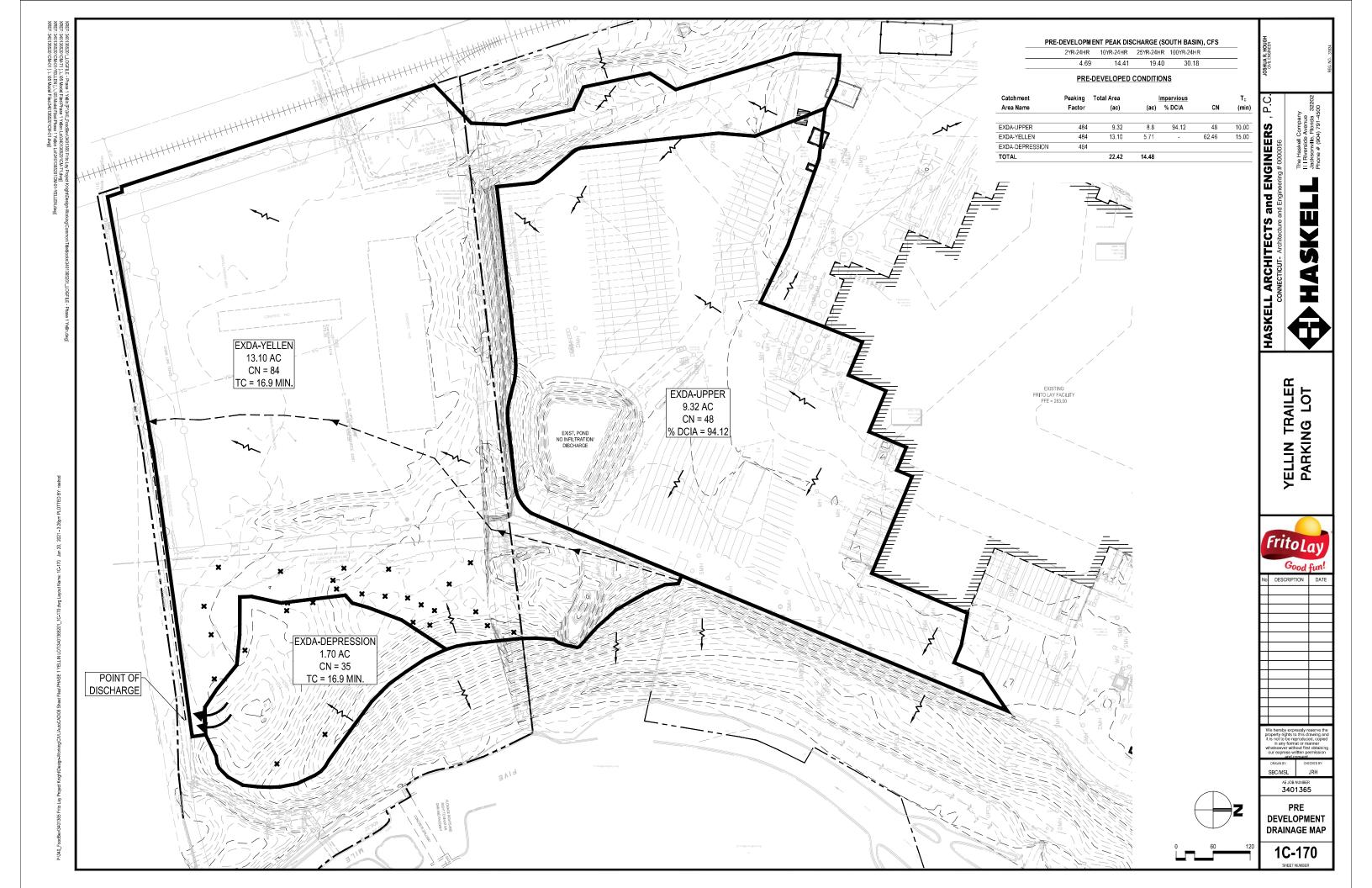
	PD	S-based pre	cipitation fr	equency est	timates with	90% confid	lence interva	als (in inche	s/hour) ¹	
Duration					Average recurrent	ce interval (years)				
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	3.98 (3.10-5.10)	4.75 (3.68-6.07)	5.99 (4.62-7.68)	7.02 (5.39-9.06)	8.42 (6.26-11.3)	9.50 (6.91-13.0)	10.6 (7.49-15.0)	11.8 (7.96-17.1)	13.5 (8.74-20.2)	14.8 (9.37-22.6)
10-min	2.83	3.36	4.24	4.97	5.97	6.73	7.51	8.36	9.55	10.5
	(2.20-3.61)	(2.60-4.30)	(3.28-5.44)	(3.82-6.41)	(4.44-8.00)	(4.90-9.20)	(5.30-10.6)	(5.63-12.1)	(6.19-14.3)	(6.64-16.0)
15-min	2.22	2.64	3.32	3.90	4.68	5.28	5.89	6.56	7.49	8.23
	(1.72-2.83)	(2.04-3.38)	(2.57-4.27)	(2.99-5.02)	(3.48-6.28)	(3.84-7.22)	(4.16-8.32)	(4.42-9.50)	(4.85-11.2)	(5.21-12.5)
30-min	1.55	1.84	2.32	2.72	3.27	3.68	4.11	4.57	5.22	5.73
	(1.20-1.98)	(1.43-2.36)	(1.79-2.98)	(2.09-3.51)	(2.43-4.38)	(2.68-5.03)	(2.90-5.80)	(3.08-6.62)	(3.38-7.80)	(3.63-8.74)
60-min	0.996	1.18	1.49	1.75	2.10	2.36	2.64	2.93	3.35	3.68
	(0.773-1.27)	(0.917-1.51)	(1.15-1.91)	(1.34-2.25)	(1.56-2.81)	(1.72-3.23)	(1.86-3.72)	(1.97-4.25)	(2.17-5.00)	(2.33-5.60)
2-hr	0.636	0.754	0.946	1.11	1.33	1.49	1.66	1.87	2.16	2.41
	(0.497-0.809)	(0.588-0.960)	(0.736-1.21)	(0.854-1.42)	(0.994-1.77)	(1.09-2.04)	(1.19-2.36)	(1.26-2.69)	(1.41-3.22)	(1.53-3.65)
3-hr	0.489	0.579	0.726	0.848	1.02	1.14	1.28	1.44	1.68	1.88
	(0.383-0.619)	(0.453-0.734)	(0.566-0.924)	(0.657-1.09)	(0.765-1.36)	(0.842-1.56)	(0.917-1.81)	(0.971-2.06)	(1.09-2.48)	(1.20-2.84)
6-hr	0.313	0.371	0.467	0.546	0.656	0.736	0.824	0.930	1.09	1.23
	(0.246-0.394)	(0.292-0.468)	(0.366-0.591)	(0.426-0.695)	(0.496-0.871)	(0.547-1.00)	(0.596-1.16)	(0.631-1.33)	(0.712-1.61)	(0.784-1.84)
12-hr	0.196	0.234	0.296	0.348	0.419	0.472	0.528	0.596	0.698	0.785
	(0.155-0.246)	(0.185-0.294)	(0.234-0.373)	(0.273-0.440)	(0.318-0.553)	(0.352-0.636)	(0.383-0.740)	(0.406-0.845)	(0.457-1.02)	(0.502-1.17)
24-hr	0.117	0.141	0.181	0.213	0.258	0.291	0.327	0.370	0.433	0.487
	(0.093-0.146)	(0.112-0.176)	(0.143-0.226)	(0.168-0.268)	(0.197-0.339)	(0.218-0.391)	(0.238-0.455)	(0.253-0.520)	(0.285-0.630)	(0.313-0.721)
2-day	0.066	0.080	0.104	0.123	0.150	0.170	0.191	0.216	0.255	0.288
	(0.053-0.082)	(0.064-0.100)	(0.083-0.129)	(0.097-0.154)	(0.115-0.196)	(0.128-0.226)	(0.140-0.264)	(0.148-0.303)	(0.168-0.368)	(0.185-0.423)
3-day	0.048	0.058	0.075	0.089	0.108	0.123	0.138	0.157	0.185	0.209
	(0.038-0.059)	(0.047-0.072)	(0.060-0.093)	(0.071-0.111)	(0.083-0.141)	(0.093-0.163)	(0.102-0.191)	(0.108-0.219)	(0.122-0.266)	(0.135-0.306)
4-day	0.038	0.047	0.060	0.071	0.087	0.098	0.110	0.125	0.148	0.167
	(0.031-0.047)	(0.037-0.057)	(0.048-0.074)	(0.057-0.088)	(0.067-0.112)	(0.074-0.130)	(0.081-0.152)	(0.086-0.174)	(0.098-0.212)	(0.108-0.244)
7-day	0.026	0.031	0.040	0.047	0.057	0.064	0.072	0.082	0.096	0.109
	(0.021-0.032)	(0.025-0.038)	(0.032-0.049)	(0.038-0.058)	(0.044-0.074)	(0.049-0.085)	(0.053-0.099)	(0.056-0.113)	(0.064-0.137)	(0.070-0.158)

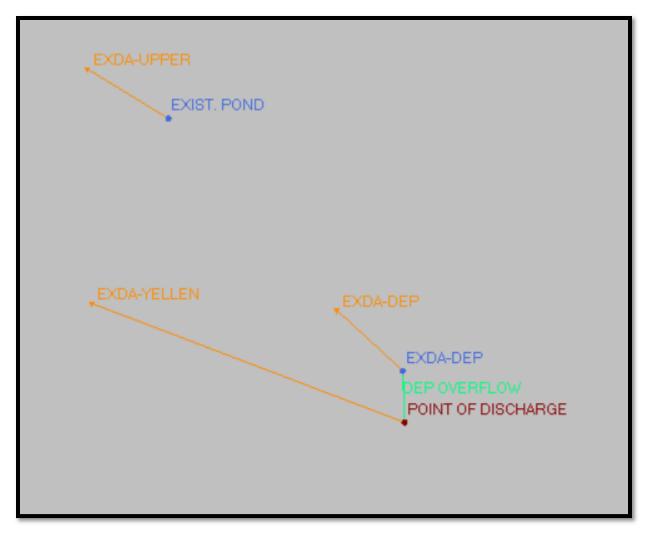


APPENDIX 2 – EXISTING CONDITIONS ANALYSIS

- Pre-Development Drainage Map
- ICPR4 Nodal Diagram
- Basin Summary (TR-55 Worksheets)
- Basin Hydrographs
- ICPR Pond Rounting Analysis Node Maximum Conditions Reports

EXISTING CONDITIONS ANALYSIS APPENDIX 2





ICPR 4 NODAL DIAGRAM



Client Name:	Frito-Lay		
Project Name:	Project Knight		
Location:	Dayville, CT	Project Num:	3401365
Prepared by:	SBC	Date:	5/1/2020

CATCHMENT AREA DATA SUMMARY

PRE-DEVELOPED CONDITIONS

Catchment	Peaking	Total Area	<u> </u>	mpervious		T _c (min)	
Area Name	Factor	(ac)	(ac)	% DCIA	CN		
EXDA-UPPER	484	9.32	8.8	94.12	48	10.00	
EXDA-YELLEN	484	13.10	5.71	-	62.46	15.00	
EXDA-DEPRESSION	484				02.10	10.00	
TOTAL	101	22.42	14.48				



PROPOSED CONDITIONS

CATCHMENT NAME: EXDA-UPPER

#REF!

#REF!

Impervi	ious Cov	verage:											
	8.77	ac. Existing Im	pervious Area							P	eaking Factor =	484	
			mpervious Area										
	-	ac. Planned Fu	uture Impervious A	rea							tchment Area =	9.32	ac
		T / 11		100.00	AL D: 11 O		0 1 (5014)				Composite CN =	48.00	-
	8.77	ac. Total Imper	rvious Area @	100.00	% Directly Co	nnected to Draina	ige System (DCIA)				/ Immensione -	04.42	%
Potonti	ion/Doto	ntion Coverage:								. 5	% Impervious = % Pervious =	94.12	- %
Kelenii	IUN/Dele	•	Detention bottom @) Elev 58 (modele	d senarately as "[Direct" rainfall innu	ıt)				/0 Feivious -	5.00	. /0
						and a rainian mpa				1	% DCIA =	94.12	%
	Incl	ude Retention/Del	tention Surface Ar	ea with DCIA?	No	1	Total DCIA =	8.77	ac				
	lfı	not included with D	DCIA, Retention/D	etention CN =	39				-				
											Tc =	10.0	minutes
											1	1	1
Area	(ac)	Surface Descri	ption								HSG	CN	A x CN
	-	Importious area	not considered "D	inanthy Connected								-	
	0.55		leed-Grass mixture			or Condition					A	- 48	26.3
	0.55	Diusii - Diusii-w	CCC-Crass mixture		ajor element, i oc						^	40	- 20.5
												-	-
												-	-
TIM			ENTRAT										
				ION:					User k	nown or specified	minimum Tc =	10.00	min.
								_		Calculated Sun	n of Tc's Below:	#REF!	min.
0.										0.00	1		
OVER	RLAN	SHEET FLO	W:					2-yr,	24-hr Rainfall =	3.20	inches		
Seg I	No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)
													-
			-									-	
SHAL	LOW	CONCENTRA	TED FLOW:									SubTotal =	
				. <i>.</i> .									
Segi	NO.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
												-	-
		-	-					-				-	-
		-	-					-				-	· ·
	-	-	-					-				-	-
OPEN	N CHA	NNEL FLOW:										SubTotal =	-
Seg I	No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
									1	-			1
		-	-	-	-	-	-	-	-	-	-	-	-
	-				-	-	-	-					
PIPF	FLOW		-	-	-							- SubTotal =	
Segi	No.	L (ft)	Slope (%)	Pipe N	Aaterial	Size ((inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
	-	-	-					-		-		-	-
		-	-					-	-	-	-	-	-
		-	-					-	-	-	-	-	-
ST		GE:		B/	ASIN-1		GENE	RAL NO	TES				
									FLU.				
Stag	-		e Area		ive Storage								
(ft)		(sf)	(acres)	(cf)	(ac.ft.)	-			EXISTING POND	WITH NO DISCH	ARGE OFF SITE.	EXISTING POND	HAS LINER
	262.00	9,702	0.2227	-	-		AND NO INFI						
	263.00	10,667	0.2449	10,181	0.2337	-							
	265.00 266.00	12,714 13,783	0.2919	33,532 46,777	0.7698	-							
	266.00 267.00	13,783	0.3164	46,777 61,107	1.4028	1							
	268.00	14,004	0.3939	77,115	1.4020								
	269.00	18,330	0.4208	94,857	2.1776	-							
	270.00	19,510	0.4200	113,774	2.6119	1							
	271.00	20,712	0.4755	133,882	3.0735								
	272.00	21,926	0.5034	155,198	3.5629								
	-		-	-	-								
	-	-	-	-	-	1							
		V = h/3 x	[A1 + A2 + Sqrt (.	A1 x A2)]		1							



ent Name:	#REF!		
ect Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
pared by:	#REF!	Date:	#REF!

% Impervious =

% Pervious =

% DCIA =

PROPOSED CONDITIONS

5.71 ac. Total Impervious Area @

Impervious Coverage:

PC	DSED CONDITIO	NS	NAME: EX	DA-YEL	LEN		
is Co	verage:						
5.71	ac. Existing Impervious Area				Peaking Factor =	484	
	ac. Proposed Impervious Area						
-	ac. Planned Future Impervious A	Area			Total Catchment Area =	13.10	ac
					Composite CN =	62.46	
5.71	ac. Total Impervious Area @	-	% Directly Connected to Drainage System (DCIA)				

- ac

Retention/Detention Coverage: - ac. Retention/Detention bottom @ Elev 58 (modeled separately as "Direct" rainfall input)

> Include Retention/Detention Surface Area with DCIA? If not included with DCIA, Retention/Detention CN =

				Tc =	15.0	minutes
	Area (ac)	Surface Description		HSG	CN	A x CN
ľ	5.71	Impervious area not considered "Directly Connected"	(Included in Composite CN)		98	559.58
	7.39	Brush - Brush-Weed-Grass mixture with brush the major element, Fair Condition		A	35	258.65
					-	-
					-	-

Total DCIA =

No

39

TIME OF CONCENTRATION:

User known or specified minimum Tc = Calculated Sum of Tc's Below:

15.00 min. #REF! min.

-

43.59 %

56.41 %

> % -

> > 559.58 258.65 ---

OVERLAND	SHEET FLO	W:					2-yr, 2	4-hr Rainfall =	3.20	nches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (mir
							-				-	
-	-	-					-				-	
		-					-				-	
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (mir
-	-	-					-				-	
-	-	-					-				-	
-	-	-					-				-	
-	-	-					-				-	
OPEN CHAI	NNEL FLOW:										SubTotal =	
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{xs} (sf)	WP (ft)	R (ft)	V (fps)	Time (mir
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-		-	
-	-	-	-	-	-	-	-	-	-		-	
PIPE FLOW	1:										SubTotal =	
Seg No.	L (ft)	Slope (%)	Pipe N	laterial	Size (ir	nches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (mi
-	-	-					-	-	-	-	-	
-	-	-					-	-	-	-	-	
	-	-					-	-	-	-	-	

STORAGE: BASIN-1							
Stage	Surfac	e Area	Cummulative Storage				
(ft)	(sf)	(sf) (acres)		(ac.ft.)			
		-	-	-			
		-	-	-			
		-	-	-			
		-	-	-			
		-	-	-			
		-	-	-			
-	-	-	-	-			
-	-	-	-	-			
-	-	-	-	-			
-	-	-	-	-			
-	-	-	-	-			
-	-	-	-	-			
	V = h/3 x	[A1 + A2 + Sqrt (/	A1 x A2)]				

GENERAL NOTES:



CATCHMENT NAME:

lient Name:	#REF!		
ject Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
repared by:	#REF!	Date:	#REF!

EXDA-DEPRESSION

PROPOSED CONDITIONS

Impervious Co												
-	ac. Existing Im	•							F	Peaking Factor =	484	
	· · ·	mpervious Area							_			
-	ac. Planned Fu	ture Impervious A	rea							atchment Area =	1.70	ac
	T		100.00	A/ D: # 0		0 1 (DOIN)				Composite CN =	32.00	
-	ac. Total Imper	vious Area @	100.00	% Directly Co	nnected to Drainag	je System (DCIA)			-			0/
Detention/Dete									_	% Impervious = % Pervious =	-	% %
Retention/Dete	ention Coverage:	otantian battam (Eloy EQ (modele	d concretely on "F	Direct" rainfall input	1				% Pervious =	100.00	%
-	ac. Retention/L	Detention pottom (c	D Elev 20 (modele	a separately as L	pirect rainiali input	.)			-	% DCIA =		%
Incl	lude Retention/Det	tontion Surface Ar	og with DCIA2	No	1	Total DCIA =		ac		% DCIA -		70
	not included with D			39		TOIDI DOIA -	-	ac				
		CIA, Retention/D		55	1					Tc =	10.0	minutes
										10 -	10.0	minutes
									1			
Area (ac)	Surface Descri	ption								HSG	CN	A x CN
-	Impervious area	not considered "D	irectly Connected								-	-
1.70	Woods - grass c	ombination (orcha	rd or tree farm), (Good Condition						А	32	54.40
											-	-
											-	-
											-	-
TIME C	OF CONC	FNTRAT										
								User	known or specified		10.00	min.
									Calculated Sur	n of Tc's Below:	#REF!	min.
		A.					0	04 ha Datafall	2.00	1		
UVERLAN	D SHEET FLO	vv:					∠-yr,	24-hr Rainfall =	3.20	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)
-	_											
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
-	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	-
OPEN CHA	NNEL FLOW:										SubTotal =	
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{xs} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
009 110.	L (19	Siche (10)	which (it)	L. 0.0. (11.1)	T.C. 0.0. (11.1)	WFLOW (W)		1 X5 (01)	W (10)	IX (II)	v (ip3)	
	-											

-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
PIPE FLOW	V:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe N	Naterial	Size (i	inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-					-	-	-	-	-	-

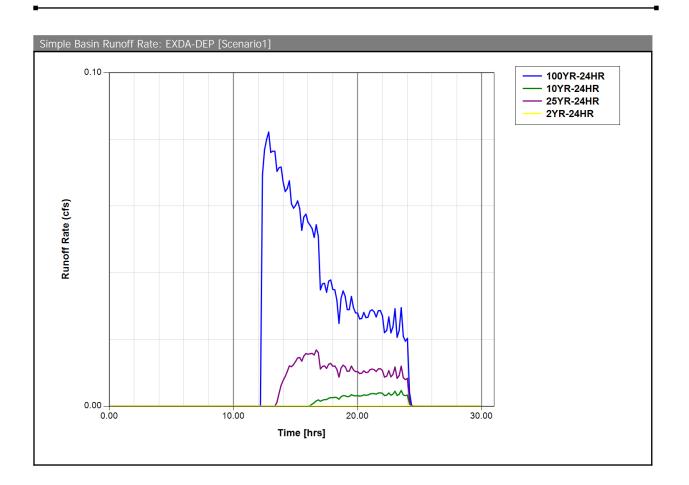
STORA	AGE:	BASIN-1			
Stage	Surfac	e Area	Cummulati	ve Storage	
(ft)	(sf)	(acres)	(cf)	(ac.ft.)	
250.00	928	0.0213	-	-	
252.00	3,404	0.0781	4,073	0.0935	
254.00	6,329	0.1453	13,655	0.3135	
256.00	9,771	0.2243	29,630	0.6802	
258.00	15,019	0.3448	54,233	1.2450	
		-	-	-	
-	-	-	-	-	
-	-	-	-	-	
-	-	-	-	-	
-	-	-	-	-	
-	-	-	-	-	
-	-	-	-	-	
	V = h/3 x	[A1 + A2 + Sqrt (/	A1 x A2)]		

14

GENERAL NOTES:

Simple Basin: EXDA-DEP	
Scenario:	Scenario1
Node:	EXDA-DEP
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	1.7000 ac
Curve Number:	32.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24

Comment:

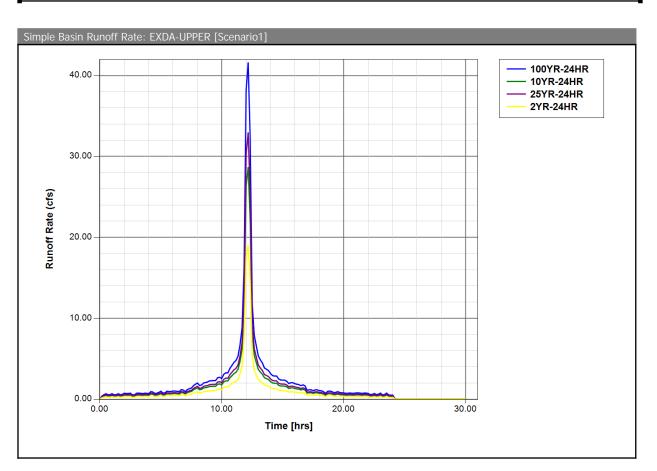


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Simple	Basin:	EXDA-UPPER	

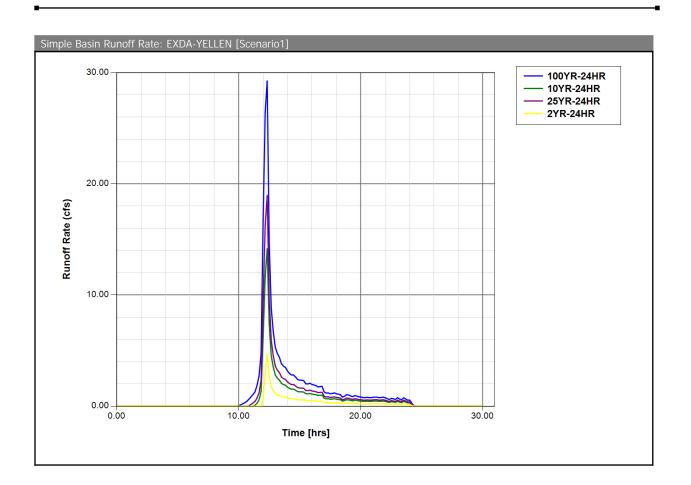
Scenario:	Scenario1
Node:	EXIST. POND
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	9.3200 ac
Curve Number:	48.0
% Impervious:	94.12
% DCIA:	94.12
% Direct:	0.00
Rainfall Name:	~SCSIII-24

Comment:



Simple Basin: EXDA-YELLEN					
Scenario:	Scenario1				
Node:	POINT OF DISCHARGE				
Hydrograph Method:	NRCS Unit Hydrograph				
Infiltration Method:	Curve Number				
Time of Concentration:	15.0000 min				
Max Allowable Q:	0.00 cfs				
Time Shift:	0.0000 hr				
Unit Hydrograph:	UH484				
Peaking Factor:	484.0				
Area:	13.1000 ac				
Curve Number:	62.5				
% Impervious:	0.00				
% DCIA:	0.00				
% Direct:	0.00				
Rainfall Name:	~SCSIII-24				

Comment:



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Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
EXDA-DEP	100YR-24HR	258.00	251.14	0.0004	0.08	0.00	2313
EXDA-DEP	10YR-24HR	258.00	250.09	0.0001	0.00	0.00	988
EXDA-DEP	25YR-24HR	258.00	250.39	0.0003	0.02	0.00	1358
EXDA-DEP	2YR-24HR	258.00	250.00	0.0000	0.00	0.00	871

Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
EXIST. POND	100YR-24HR	272.00	272.88	0.0010	41.62	0.00	21780
EXIST. POND	10YR-24HR	272.00	269.56	0.0010	28.67	0.00	18959
EXIST. POND	25YR-24HR	272.00	270.73	0.0010	32.97	0.00	20360
EXIST. POND	2YR-24HR	272.00	266.48	0.0010	19.03	0.00	14306

Node Max Conditions [Scenario1]

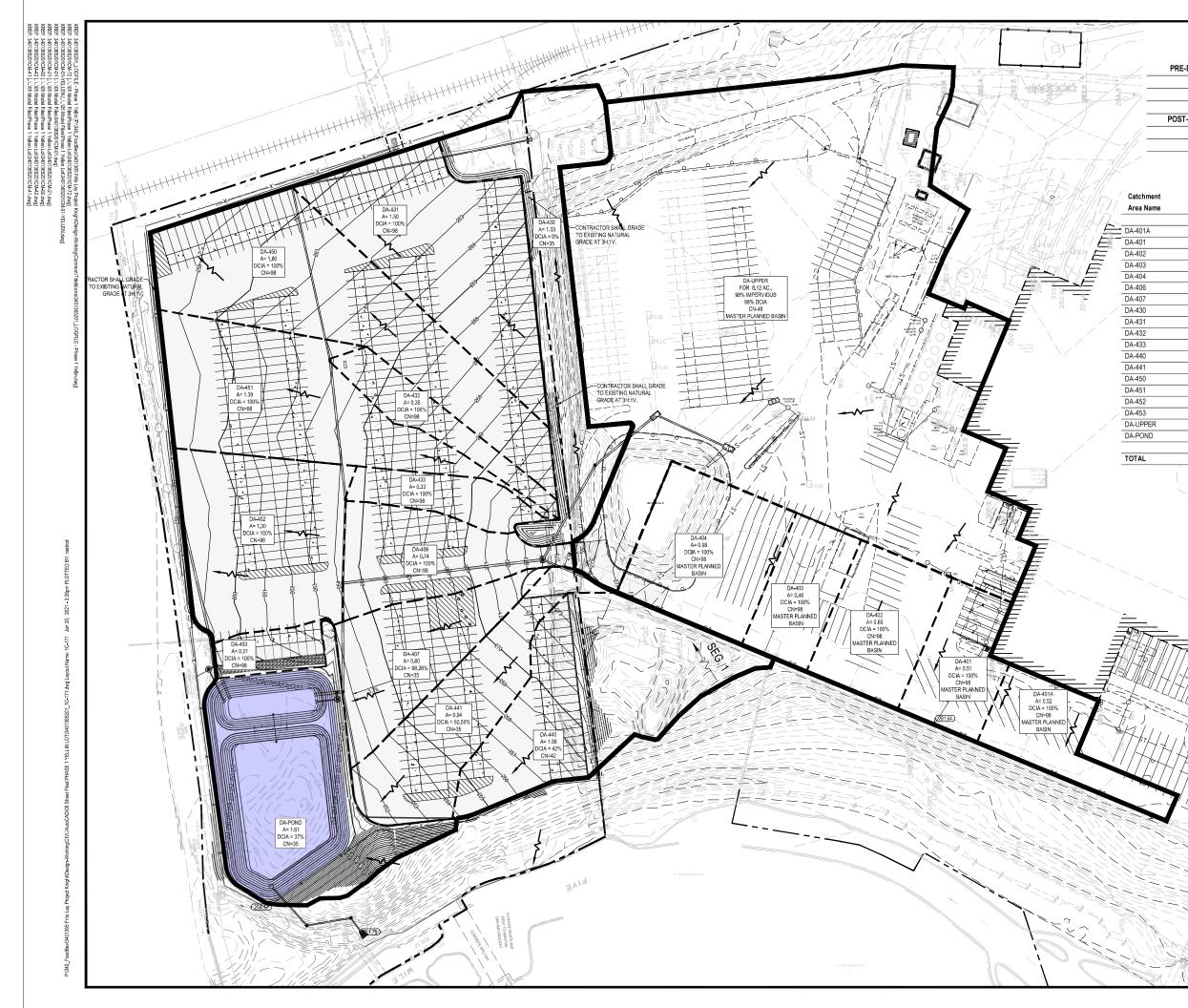
Node Name	Sim Name	Warning	Max Stage	Min/Max	Max Total	Max Total	Max Surface
		Stage [ft]	[ft]	Delta Stage	Inflow [cfs]	Outflow [cfs]	Area [ft2]
				[ft]			
POINT OF	100YR-24HR	255.00	254.00	0.0000	30.18	0.00	0
DISCHARGE							
POINT OF	10YR-24HR	255.00	254.00	0.0000	14.41	0.00	0
DISCHARGE							
POINT OF	25YR-24HR	255.00	254.00	0.0000	19.40	0.00	0
DISCHARGE							
POINT OF	2YR-24HR	255.00	254.00	0.0000	4.69	0.00	0
DISCHARGE							



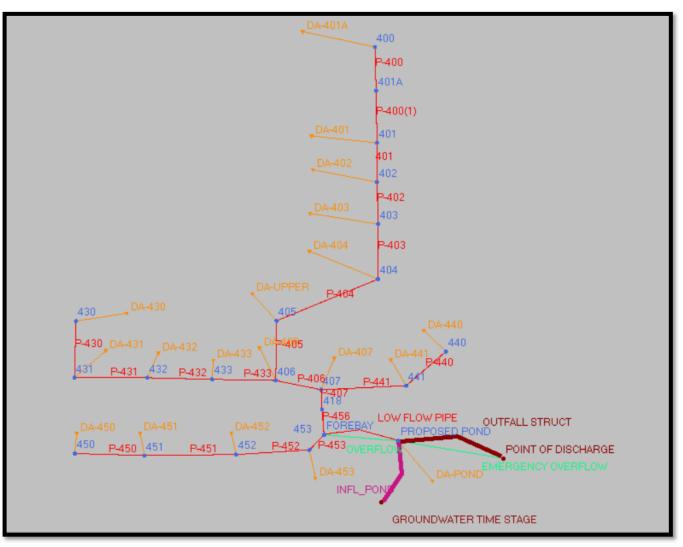
APPENDIX 3 – POST-DEVELOPMENT CONDITIONS

- Post-Development Drainage Map
- ICPR4 Nodal Diagram
- Basin Summary (TR-55 Worksheets)
- Basin Hydrographs
- ICPR Pond Rounting Analysis Node Maximum Conditions Reports
- Multi System Pond Cross Sections & Control Structure Details

POST DEVELOPMENT CONDITIONS ANALYSIS **APPENDIX 3**



YR-24HR		5YR-24HR	100YR-24HR), CFS		JOSHUA R. HOUGH CIVIL ENGINEER	REG. NO. 31834
4.69	14.41	19.40	30.18		_		N
	NT PEAK DISC			I), CFS	_	<u>с</u> .	y 3220: 500
YR-24HR 4.24	10YR-24HR 2 13.94	5YR-24HR 15.31	100YR-24HR 17.57		_	-	ompan venue lorida 791-4
	-DEVELOPED				_	HASKELL ARCHITECTS and ENGINEERS CONNECTICUT- Architecture and Engineering # 0000056	The Haskell Company II I Riverside Avenue Jacksonville, Florida 32202 Phone # (904) 791-4500
Peaking Factor	Total Area (ac)	<u>lr</u> (ac)	npervious % DCIA	CN	T _C (min)	L ARCHITECTS and ENGINEE CONNECTICUT- Architecture and Engineering # 0000056	The Jac
						d E ngine	
484	0.52	0.5	100.00	-	5.00	a D	
484	0.65	0.65	100.00	-	5.00	S a	
484	0.46	0.46	100.00	-	5.00	itectu	ASKE
484 484	0.98	0.98	100.00	-	5.00 5.00	Archi	
484	0.74	0.74	98.26	- 35	10.00		v
484	1.33	-	-	49	5.00		
484	1.50	1.50	100.00	-	-	A	
484	0.35	0.35	100.00	-	5.00	 -] <u></u>	
484	1.56	0.75	42.31	42.00	15.00		
484	0.94	0.87	92.55	35.00	10.00	S	
484	1.80	1.80	100.00	-	5.00	 ⊈	
484	1.39	1.30	100.00	-	5.00	┢╧─┘	
484	0.21	0.21	100.00	-	5.00		
484	8.12	7.96	97.99 37.27	49.00 35.00	10.00	(r I
404	1.01	0.00	51.21	55.00	0.00	i	PARKING LOT
	25.10	21.71				:	1 2 2
						^{\$}	≻ -
						Fri	tolay
	HILL CONTRACTOR						Cood fun!



ICPR 4 NODAL DIAGRAM



Client Name:	Frito-Lay		
Project Name:	Project Knight		
Location:	Dayville, CT	Project Num:	3401365
Prepared by:	SBC	Date:	5/1/2020

CATCHMENT AREA DATA SUMMARY

POST-DEVELOPED CONDITIONS

Catchment	Peaking	Total Area	<u>h</u>	mpervious		Tc	
Area Name	Factor	(ac)	(ac) % DCIA		CN	(min)	
DA-401A	484	0.52	0.5	100.00	-	5.00	
DA-401	484	0.51	0.51	100.00	-	5.00	
DA-402	484	0.65	0.65	100.00	-	5.00	
DA-403	484	0.46	0.46	100.00	-	5.00	
DA-404	484	0.98	0.98	100.00	-	5.00	
DA-406	484	0.74	0.74	100.00	-	5.00	
DA-407	484	0.80	0.79	98.26	35	10.00	
DA-430	484	1.33	-	-	49	5.00	
DA-431	484	1.50	1.50	100.00	-	-	
DA-432	484	0.35	0.35	100.00	-	5.00	
DA-433	484	0.33	0.33	100.00	-	5.00	
DA-440	484	1.56	0.75	42.31	42.00	15.00	
DA-441	484	0.94	0.87	92.55	35.00	10.00	
DA-450	484	1.80	1.80	100.00	-	5.00	
DA-451	484	1.39	1.39	100.00	-	5.00	
DA-452	484	1.30	1.30	100.00	-	5.00	
DA-453	484	0.21	0.21	100.00	-	5.00	
DA-UPPER	484	8.12	7.96	97.99	49.00	10.00	
DA-POND	484	1.61	0.60	37.27	35.00	5.00	

TOTAL

25.10 21.71



Client Name:	#REF!	
Project Name:	#REF!	
Location:	#REF!	Project Num:
Prepared by:	#REF!	Date:

#REF!

#REF!

PROPOSED CONDITIONS

DA-401A CATCHMENT NAME:

Impervious Cov												
0.52	ac. Existing Im								P	eaking Factor =	484	
		ed Impervious Area d Future Impervious Area								tchment Area =	0.52	ac
	<u>,</u>									omposite CN =	-	40
0.52	ac. Total Impervious Area @ 100.00 % Directly Connected to Drainage System (DCIA)											
									9	6 Impervious =	100.00	%
Retention/Dete	ention Coverage:	etention bottom (D Elev 58 (modele	od senarately as "[Direct" rainfall input	t)				% Pervious =	-	%
	ue. Retention/E			to opportatoly as E		9				% DCIA =	100.00	%
Incl	lude Retention/Det	tention Surface Ar	ea with DCIA?	No		Total DCIA =	0.52	ac				
lfı	not included with D	OCIA, Retention/D	etention CN =	39						-		
										Tc =	5.0	minutes
Area (ac)	Surface Descri	ntion								HSG	CN	A x CN
. ,		-								1100		
-	Impervious area	not considered "D	irectly Connected	·							-	-
											-	-
											-	-
											-	-
TIME C	OF CONC	ENTRAT	ION:					User k	nown or specified	minimum Tc =	5.00	min.
									Calculated Sun		#REF!	min.
		M/.					0	24-hr Rainfall =	2.00	inches		
	O SHEET FLO							24-nr Raimaii =	3.20	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)
											-	-
-	-	-					-				-	-
-	- CONCENTRA						-				-	-
											SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
											-	-
-	-	-					-				-	-
-		-									-	-
	NNEL FLOW:						-				- SubTotal =	-
		Class (0/)	\A(; J11- (ft)			d (#)	_	A (of)	14/D (A)	D (#)		
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-		-	-	-	-
PIPE FLOW			-	-	-	-		-		-	- SubTotal =	-
Seg No.	L (ft)	Slope (%)	Dino M	Naterial	Size (i	nches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
			1 ipe ii	atonai	0126 (1	nones)						
-	-	-					-	-	-	-	-	-
-	-						-		-	-		-
STOP			D			CENE	RAL NOT	Ee	-			
STORA				ASIN-1		GENE	RAL NUI	L3.				
Stage	Surfac			ive Storage								
(ft)	(sf)	(acres)	(cf) -	(ac.ft.)								
		-	-	-								
		-	-	-								
		-	-	-								
		-	-	-								
-	-	-	-	-								
-	-	-	-	-								
-	-	-	-	-								
-	-	-	-	-								
-	-	-	-	-								
-	- V = h/3 x [- A1 + A2 + Sqrt (- A1 x A2)]	-								
						L						



CATCHMENT NAME:

t Name:	#REF!		
t Name:	#REF!		
ocation:	#REF!	Project Num:	#REF!
ared by:	#REF!	Date:	#REF!

DA-401

PROPOSED CONDITIONS

Impervious Co												
0.51	ac. Existing Im								P	eaking Factor =	484	
		mpervious Area									0.54	
-	ac. Planned Fu	ture Impervious A	rea							tchment Area =	0.51	ac
0.51	ac. Total Impervious Area @ 100.00 % Directly Connected to Drainage System (DCIA)									Composite CN =		
0.51	ac. Total Imper	vious Alea @	100.00	76 Directly CO	Theoleu to Draina	ge system (DCIA)			% Impervious =	100.00	%
Retention/Dete	ention Coverage:								-	% Pervious =	-	%
-	-	Detention bottom @	D Elev 58 (modele	ed separately as "[Direct" rainfall inpu	it)			_			,0
			3 (1	% DCIA =	100.00	%
Incl	ude Retention/De	tention Surface Ar	ea with DCIA?	No	1	Total DCIA =	0.51	ac				
lfr	not included with [OCIA, Retention/D	etention CN =	39			•	4				
					-					Tc =	5.0	minutes
												0
Area (ac)	Surface Descri	ption								HSG	CN	A x CN
. ,				-								
-	Impervious area	not considered "D	irectly Connected								-	-
											-	-
											-	-
											-	-
											-	-
	OF CONC	ENIRAI	ION:					User	known or specified	minimum Tc =	5.00	min.
										n of Tc's Below:	#REF!	min.
OVERLAND	SHEET FLO	W:					2-yr,	24-hr Rainfall =	3.20	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)
009 110.	E (II)	Giope (70)	Gunace Desc	iipaon.			11	_			v (ipa)	
-	-	-					-				-	-
-	-						-				-	-
-	-						-				-	
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
-	-										-	-
	-	-									-	
-	-	-					-				-	-
OPEN CHA	NNEL FLOW:										SubTotal =	
								4 (-0	110 (1)	5 (0)		T ())
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	
PIPE FLOW	/ :										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe N	Naterial	Size (i	inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
009110.	= ()	0.000 (70)	po	latorial	0.20 (.				(1 (196)	
-	-	-					-	-	· ·	-	-	-
-	-	-					-	-	-	-	-	-
-	-	-				1	-	-	-	-	-	-
STORA	GE:		B/	ASIN-1		GENE	RAL NO	TES:				
Stage (ft)	(sf)	e Area (acres)		ive Storage (ac.ft.)								
(11)	(51)	(acres)	(cf) -	(ac.ii.)								
		-	-	-								
		-	-	-								
			-		1							
-	-		-	-								
-	-	-	-	-	1							
			_		1							

---V = h/3 x [A1 + A2 + Sqrt (A1 x A2)]

-



Client Name:	_
Project Name:	
Location:	
Prepared by:	

nt Name:	#REF!		
ct Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
bared by:	#REF!	Date:	#REF!

CATCHMENT NAME:	

Impervious Co	overage:											
0.65	ac. Existing Im								P	eaking Factor =	484	
	ac. Proposed I										0.05	
-	ac. Planned Fu	uture Impervious A	Area							tchment Area = Composite CN =	0.65	ac
0.65	ac. Total Impe	rvious Area @	100.00	% Directly Co	nnected to Drainag	ae System (DCIA))			Joinpusite Civ -		
0.00	doi rotai impo			70 D.1000. j 00		go o'fotoin (20#)	/			% Impervious =	100.00	%
Retention/Det	ention Coverage:									% Pervious =		%
-	ac. Retention/I	Detention bottom (@ Elev 56 (model	ed separately as "	Direct" rainfall inpu	ut)]			
					7			1		% DCIA =	100.00	%
	clude Retention/De			No 39		Total DCIA =	0.65	ac				
11	not included with [JCIA, Retention/D	elention CN =	39	1					Tc =	5.0	minutes
										10-		minutes
Area (ac) Surface Descri	intion								HSG	CN	A x CN
	-	-								1100	ON	7701
-	Impervious area	not considered "E	Directly Connected	"							-	-
											-	-
-												-
	OF CONC											
								User k	nown or specified		5.00	min.
									Calculated Sur	n of Tc's Below:	#REF!	min.
OVERLAN	D SHEET FLO	W:					2-vr.	24-hr Rainfall =	-	inches		
								2				— ()
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min
-	-	-					-				-	-
-	-	-					-				-	-
-											-	-
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min
-	-	-									-	-
-	-	-									-	-
-	-	-					-				-	-
-	-	-					-				-	-
OPEN CHA	ANNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min
_		-				-						
-			-	-		-	-	-				-
-	-	-	-	-	-	-	-	-			-	-
PIPE FLOW	N:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe I	Material	Size (i	inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min
			F -		(,	1			1	1	,
-		-					-	-	-	-	-	-
	-	-					-	-	-	-	-	-
		-				OFNE						
STOR/	AGE:			-		GENE	RAL NO	TES:				
Stage	Surfac	e Area	Cummula	tive Storage	T							
(ft)	(sf)	(acres)	(cf)	(ac.ft.)								
			-	-								
			-	-								
			-	-								
			-	-	1							
			-	-]							
		-	-	-]							
-	-	-	-	-	ļ							
-	-	-	-	-								
-	-	-	-	-								
	-	-	-	-	1							
		[A1 + A2 + Sqrt (1	t							



Client Name:	
Project Name:	
Location:	
Prepared by:	

it Name:	#REF!		
t Name:	#REF!		
ocation:	#REF!	Project Num:	#REF!
ared by:	#REF!	Date:	#REF!

CATCHMENT NAME:

Impervious Co	verage:											
0.46	ac. Existing Im	pervious Area							P	eaking Factor =	484	
	ac. Proposed I	mpervious Area							ļ			
-	ac. Planned Fu	uture Impervious A	Area							tchment Area =	0.46	ac
									C	omposite CN =	-	
0.46	ac. Total Imper	rvious Area @	100.00	% Directly Co	nnected to Draina	ge System (DCIA)						
										6 Impervious =	100.00	%
	ention Coverage:								-	% Pervious =	-	%
-	ac. Retention/	Detention bottom	@ Elev 56 (model	ed separately as "	Direct" rainfall inpu	it)						
					т			1		% DCIA =	100.00	%
	lude Retention/Det			No	+	Total DCIA =	0.46	ac				
ITI	not included with D	DCIA, Retention/D	etention CN =	39	1					т.	5.0	
										Tc =	5.0	minutes
Area (ac)	Surface Descri	ption								HSG	CN	A x CN
-	Impervious area	not considered "	Directly Connected								-	-
											-	-
											-	-
											-	-
-											-	-
	OF CONC		IUN:					User k	nown or specified	minimum Tc =	5.00	min.
							-		Calculated Sun	n of Tc's Below:	#REF!	min.
OVERLANI	D SHEET FLO	W:					2-yr,	24-hr Rainfall =		inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n			-	V (fps)	Time (min)
Seg No.	L (II)	Slope (76)	Surface Desc	npuon.			П				v (ips)	
-	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	-
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
0091101	= ()	0.000 (70)	0011000 2000	npuoni			i.			. (.po)		
-	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	-
OPEN CHA	NNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
PIPE FLOW	- V•	-	-	-	-	-	-	-	-	-	- SubTotol =	
	۲.										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe M	/laterial	Size (i	nches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
							-					
-							-					
		-							-	-	-	-
STORA	AGE:			-		GENE	RAL NO	TES:				
Stage		e Area	Cummulat	ive Storage	1							
(ft)	(sf)	(acres)	(cf)	(ac.ft.)								
(14)	(01)	(40.00)	-	-	ł							
			-	-	1							
			-	-	1							
			· .	-	1							
			-	-	i i							
			-	-	1							
		-	-	-	i i							
-	-	-	· .	-	1							
-			-	-	i i							
-			-	-	1							
-			-	-	1							
					ł							
		 [A1 + A2 + Sqrt (-	ł							
			-/1									



Client Name:	
Project Name:	
Location:	
Prepared by:	

nt Name:	#REF!		
ct Name:	#REF!		
ocation:	#REF!	Project Num:	#REF!
ared by:	#REF!	Date:	#REF!

CATCHMENT NAME:

Impervious Co	overage:											
0.98	ac. Existing Im	pervious Area							Р	eaking Factor =	484	
		mpervious Area										
-	ac. Planned Fi	uture Impervious A	Area							tchment Area =	0.98	ac
0.98	ac Total Impe	rvious Area @	100.00	% Directly Co	nnected to Draina	ne System (DCIA)			Composite CN =	-	
0.00	uo. rotai impo	inious / nou le	100.00	70 Diroday oo		go oyotoin (Doirt)		-	% Impervious =	100.00	%
Retention/Dete	ention Coverage:									% Pervious =	-	%
-	ac. Retention/	Detention bottom (@ Elev 56 (model	ed separately as "	Direct" rainfall inpu	ut)						
					т			1		% DCIA =	100.00	%
	lude Retention/De not included with [No 39		Total DCIA =	0.98	ac				
1	not included with t	JCIA, Retention/D	elention Civ =		1					Tc =	5.0	minutes
										10		minutoo
Area (ac)) Surface Descr	iption								HSG	CN	A x CN
-	Impervious area	not considered "D	Directly Connected	1"							-	-
											-	-
											-	-
-											-	-
TIME C	OF CONC	ENTRAT	FION:					Lleor	known or specified	minimum To -	5.00	min.
								USEI		n of Tc's Below:	#REF!	min.
											<i>/////////////////////////////////////</i>	
										-		
OVERLAN	D SHEET FLO	W:					2-yr,	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)
_	-	-					-				-	
-	-										-	
-	-	-									-	-
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
	-	-		•			-				-	-
-	-											
-	-	-									-	-
-	-	-					-				-	-
OPEN CHA	ANNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{xs} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
_	-	-		_		_	-	-	-		-	
-	-		-		-	-	-	-		-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-
PIPE FLOW	N:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe I	Material	Size (i	inches)	n	A _{xs} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
					,	,						
	-	-					-	-	-	-	-	-
						CENE			·		1	
STOR/				-	ļ	GENE	KAL NU	ILEN:				
Stage		e Area		tive Storage								
(ft)	(sf)	(acres)	(cf)	(ac.ft.)	ł							
			-	-	1							
			-	-	1							
			-	-	1							
			-	-]							
			-	-	ļ							
		-	-	-	{							
	-	-	-	-	1							
	-	-	-	-	1							
-	-	-	-	-	1							
-	-	-	-	-	1							
		[A1 + A2 + Sqrt (A1 x A2\1		T							



Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
Prepared by:	#REF!	Date:	#REF!

CATCHMENT NAME: DA-406

Impervious Cov	verage:											1
Impervious co		pervious Area							Pr	eaking Factor =	484	
0.74		mpervious Area							r oaking r aotor			
-		uture Impervious A	rea						Total Catchment Area =		0.74	ac
	do: Thannou Tu								Composite CN =			40
0.74	ac. Total Imper	rvious Area @	100.00	% Directly Cor	nnected to Drainag	e System (DCIA)			, s			
									0.	% Impervious =	100.00	%
Retention/Dete	ention Coverage:								, ´`	% Pervious =	-	%
-	1	Detention bottom @) Elev 56 (modele	d senarately as "D	Direct" rainfall input)	1						<i>,</i> ,,
	ac. Retention/L	Setention bottom @	Elev 30 (modeler							% DCIA =	100.00	%
Inc	lude Retention/De	etention Surface An	ea with DCIA?	No	1	Total DCIA =	0.74	ac		10 00011		<i>,</i> ,,
		DCIA, Retention/D		39	1		0.14	uo				
"	not included with t	DOIA, Retention/D			1					Tc =	5.0	minutes
										10-		minutes
									Į			
	r										,	
rea (ac)	Surface Descri	iption								HSG	CN	A x CN
-	Impervious area	not considered "Di	rectly Connected"								-	-
											-	-
											-	-
											-	-
											-	-
	E CONC	ENTRAT										
	IF CONC	ENINAT						User k	known or specified	minimum Tc =	5.00	min.
									Calculated Sum	n of Tc's Below:	#REF!	min.
OVERLAND	D SHEET FLO	W:					2-yr, 2	24-hr Rainfall =	-	inches		
										1		
Seg No.	L (ft)	Slope (%)	Surface Descri	iption:			n				V (fps)	Time (min)
-	-	-					-					-
-		-					-					-
-							-				- CubTatal -	-
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Descri	iption:			k				V (fps)	Time (min)
	-	-					-				-	-
-	-	-					-				-	-
	-	-					-				-	-
-	-	-					-				-	-
OPEN CHA	NNEL FLOW:										SubTotal =	-
			147 Jul (A)		DI 0.0 (114)	. (21)		1 (af)		D (A)	\/ (fr a)	T ' (:)
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-	-	-	-	-	-		-	-	-	
-	-	-		-	-	-	-	-	-			-
					-							-
PIPE FLOW									<u> </u>	<u> </u>	- SubTotal =	-
FIFE FLOW	1.										Sub i olai -	-
Seg No.	L (ft)	Slope (%)	Pipe M	laterial	Size (ir	nches)	n	A _{xs} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
		1									· · · · ·	
-	-	-					-	-	-	-	-	-
-	-	-					-	-	-	-	-	-
	-	-					-	-	-	-	-	-
STORA					1	GENE	RAL NO	TEQ.				
51017	NOL.			•	1	OLNL		LO.				
Stage	Surfac	ce Area	Cummulati	ive Storage								
(ft)	(sf)	(acres)	(cf)	(ac.ft.)								
	-	-	-	-								
	-	-	-	-								
	-	-	-	-								
	4	4			1 1							

-

V = h/3 x [A1 + A2 + Sqrt (A1 x A2)]



Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
Prepared by:	#REF!	Date:	#REF!

DA-407 CATCHMENT NAME:

Impervious Co												
0.79	ac. Existing Im	pervious Area mpervious Area							P	eaking Factor =	484	
- 0.79		uture Impervious Area	vea						Total Ca	tchment Area =	0.80	ac
										Composite CN =	35.00	
0.79	ac. Total Imper	rvious Area @	100.00	% Directly Co	nnected to Drainag	ge System (DCIA)					
Potention/Dot	tention Coverage:									% Impervious = % Pervious =	98.26	%
-		Detention bottom @	D Elev 56 (modele	ed separately as "E	Direct" rainfall inpu	t)				70 Felvious -	1.74	/0
			<u> </u>			-,				% DCIA =	98.26	%
	clude Retention/De			No		Total DCIA =	0.79	ac				
ľ	If not included with I	DCIA, Retention/D	etention CN =	39]					Tc =	10.0	minutes
										10-	10.0	minutes
									1			
Area (ac) Surface Descri	iption								HSG	CN	A x CN
-		not considered "D	iroatly Connected								-	-
0.01		leed-Grass mixture			Condition					A	- 35	0.35
											-	-
											-	-
											-	-
IIME (OF CONC	ENIRAI	ION:					User I	nown or specified	minimum Tc =	10.00	min.
							-		Calculated Sur	n of Tc's Below:	#REF!	min.
OVERI AN	ID SHEET FLO	w					2-vr	24-hr Rainfall =	-	inches		
			Curfere Dees					2.1.1.1.1.0.1.10.1			\/ (fr a)	Time (min)
Seg No.	L (ft)	Slope (%)	Surface Desc	ripuon:			n				V (fps)	Time (min)
-	-	-					-				-	-
	-	-					-				-	
	CONCENTRA						-				SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	rintion:			k				V (fps)	Time (min)
				npuon.								
		-					-				-	
											-	-
-	-	-									-	-
OPEN CHA	ANNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-		-	-	-	-	-
PIPE FLO	W:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe I	Material	Size ((inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-					-	-	-	-	-	-
	-	-					-	-	-	-	-	-
	-	-							-	-	-	-
STOR/	AGE:			-		GENE	ERAL NO	TES:				
Stage	Surfac	ce Area	Cummulat	tive Storage	1							
(ft)	(sf)	(acres)	(cf)	(ac.ft.)								
					-							
					-							
					-							
	-	-	-	-	-							
	-	-	-		-							
-	-	-	-									
-	-	-	-									
-	-	-	-	-	1							
	V = h/3 x	[A1 + A2 + Sqrt (A1 x A2)]									



Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
Prepared by:	#REF!	Date:	#REF!

DA-430 CATCHMENT NAME:

ac. Proposed Impervious Area ac. Planned Future Impervious Area ac. Total Impervious Area ac. Retention/Detention bottom @ Elev 56 (modeled separately as "Direct" rainfall input) ac. Retention/Detention bottom @ Elev 56 (modeled separately as "Direct" rainfall input) Include Retention/Detention CN = ac Total DCIA = ac Total DCIA = ac Total DCIA = ac	Impervious Co													
• •										P	eaking Factor =	484		
. n. Total impriving Average 1000 % Directly Converted to 10 alongs Pageten (OCA) Competent CATe -0.01 Reterior.Collection Collection Gale and Spacetal by Total Collection Total and angol No.01 % - S No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % No.01 % <td></td> <td></td> <td></td> <td>irea</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Total Ca</td> <td>tchment Area =</td> <td>1 33</td> <td>ac</td>				irea						Total Ca	tchment Area =	1 33	ac	
no. no. This importance Area No. State production Compare		do. Thannou tu	ture impervious /											
Reinformation Consigned and Consigned and Server and Provide and and and Server and Consigned and Server and Serve	-	ac. Total Imper	vious Area @	100.00	% Directly Co	nnected to Draina	ge System (DCIA)						
• •														
Node N Indefinition Detroiption N Area 00 133 Open-Space Importance area not considered "Undry" Connector" A 133 Open-Space Open-Space A 133 Open-Space Space A 134 Open-Space 135 Open-Space Space A 136 Open-Space 137 Open-Space 138 Open-Space 139 Open-Space 130 Open-Space 131 Open-Space 132 Open-Space 133 Open-Space 134 Open-Space 135 Open-Space 136 Space 139 Space 130 Space 131 Space 132 Space 133 Space 144 A 144 A 145											% Pervious =	100.00	%	
Nuclei Restrict/Defender Softere Area and DORY No No Test DORA Test DORA Test DORA No No No No No No No No No No No No No No No No No No No No No No Softer Area No No No No No No Softer Area No No <td></td> <td>ac. Retention/E</td> <td>etention bottom (</td> <td>② Elev 56 (modele</td> <td>ed separately as "D</td> <td>Direct" rainfall inpu</td> <td>t)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0/</td>		ac. Retention/E	etention bottom (② Elev 56 (modele	ed separately as "D	Direct" rainfall inpu	t)						0/	
International work with DCA. Relation Discription Tot induction of the discription of t	In	clude Retention/De	tention Surface A	rea with DCIA?	No	1	Total DCIA =	· ·	ac		% DGIA =		70	
New (k0) Subset becorption INS0 ON Ax CN 1 importance are not considered "Directly Connected" A 4.6 65.17 1.33 Open Space: livers, gath coarses, centrations, etc. Fair Condoton A 4.6 65.17 1.33 Open Space: livers, gath coarses, centrations, etc. Fair Condoton A 4.6 65.17 A 4.6 65.17 A 4.6 65.17 Conducted Stand To 5.5 minutes minutes n 3.99, 24 × Roundal = minutes minutes n 1.0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>L</td> <td>40</td> <td></td> <td></td> <td></td> <td></td>								L	40					
Imperior area not considered "Oracely Considered "O						1					Tc =	5.0	minutes	
Imperior area not considered "Oracely Considered "O														
Imprivoz area not connidered "Orientigo en el consecuentidad". A		1									r	·	T	
133 Open Space: lawns, golf ourses, cambries, etc.; Far Cardion A 469 6577 Image: Cambries, etc.; Far Cardion Image: Cambries, etc.;	Area (ac)) Surface Descri	ption								HSG	CN	A x CN	
133 Open Space: lawns, golf ourses, cambries, etc.; Far Cardion A 469 6577 Image: Cambries, etc.; Far Cardion Image: Cambries, etc.;		Impervious area	not considered "D	irectly Connected	'									
Image: State in the state i						ion					A			
TIME OF CONCENTRATION: User income or specified minimum Te # \$500 min. Celocalade Same OF To Saloo: \$500 min. Celocal					<u> </u>							-		
TIME OF CONCENTRATION: User two or sequeling minimum or sequeling minima or sequeling minimum or sequeling minimum or sequeling minima												-	-	
OVERLAND SHEET FLOW: Bergin (h) Sig No. L(l) Siga (h) Surface Description: n - </td <td>-</td> <td></td> <td>-</td> <td>-</td>	-											-	-	
OVERLAND SHEET FLOW: interm														
OVERLAND SHEET FLOW: interm	TIME C	DF CONC	ENTRAT	TION:					Llear k	nown or chooifiod	minimum To =	5.00	Imin	
VERLAND SHEET FLOW: 2-yr. 24-xP Rainfal nches Sign Nc. N (%) Sufface Description: n V (%) Term (min)									Userk				-	
Seq No. L (t) Stope (%) Surface Descriptor: n V (t) Time (mi)										Calculated Sul	IT OF TCS DEIOW.	#NLT:	1	
Seq No. L (t) Stope (%) Surface Descriptor: n V (t) Time (mi)														
- -	OVERLAN	D SHEET FLO	W:					2-yr,	24-hr Rainfall =	-	inches			
- -	Sea No.	L (ff)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)	
i i								1						
Seq No.Note: Subject (%)Surface Description:KSubject (%)Surface Description:KV(fpa)Time (min)Seg No.L (%)Surface Description:kV(fpa)Time (min)OPEN CHAINEL FLOW:VVVVVVVVOPEN CHAINEL FLOW:VVVVVVVVVVVVVVVVVVVVVVVVVOPEN CHAINEL FLOW:VVVVVVSeg No.L (%)VVVVVSige B No.L (%)N/0A 2 (Ø)WP (Ø)NVSige Singe No.L (%)VVSigge Singe No. <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>														
ShallOW CONCENTRATED FLOW: Subject(%) Subject(%) <th colspa="</td"><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td></td>													
Seg No. L (ft) Signe (b) Surface Description: k V (fp) Time (m) -								-						
Image: constraint of the image: constra														
. .	Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)	
Image: constraint of the second s	-	-						-				-	-	
OPEN CHANNEL FLOW:	-	-	-					-				-	-	
OPEN CHANNEL FLOW: SubTetal = Seg No. L (ft) Slope (%) Width (ft) LL S.S. (H:1) Rt S.S. (H:1) n A _{XS} (sf) WP (ft) R (ft) V (fps) Time (min) - <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td>	-	-						-						
Seg No. L (ft) Slope (%) Width (ft) L L S. (H-1) R L S. (H-1) d_{LOW} (ft) n A_{XS} (sf) WP (ft) R (ft) V (fp) Time (in) - <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td>- CubTatal -</td> <td></td>								-				- CubTatal -		
	OPEN CHA	ANNEL FLOW:										Sud I otal =	-	
Image: second control of the second	Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)	
Image: PIPE FLOW: Image: Control of the control of	-	-	-	-	-	-	-	-	-		-		-	
PIPE FLOW: SubTotal =	-	-	-	-	-	-	-	-	-	-	-	-	-	
Seg No. L (ft) Slope (%) Pipe Material Size (inches) n A xs (sf) WP (ft) R (ft) V (fps) Time (min) - <t< td=""><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td>-</td><td>-</td><td>-</td></t<>	-	-	-	-	-	-	-	-	-		-	-	-	
· ·	PIPE FLOW	N:							-			SubTotal =	-	
· ·	Seg No.	L (ft)	Slope (%)	Pipe N	/laterial	Size (inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)	
Image: Strage (th) Surface Area Cummulative Storage (cf) GENERAL NOTES: Image: Strage (sf) Surface Area Cummulative Storage (cf) Image: Strage	-					- (•							
Store Area Cummulative Storage GENERAL NOTES: Image: Cummulative Storage								-	-	-	-		-	
STORAGE: - Stage (ft) Surface Area (sf) Cummulative Storage (cf) GENERAL NOTES: Image: Imag	-		-						-	-	-		-	
Stage (ft) Surface Area (acres) Cummulative Storage (cf) (acres) (cf) (ac.ft.) Image: Communication of the storage of	STOP						CEN		TEQ		·			
(t) (sf) (acres) (cf) (ac.t.) (t) (acres) (cc.t.) (cc.t.)	STUR/	AGE:					GENE	RAL NU	IE9:					
Image: state in the state in														
····································	(ft)	(sf)	(acres)	(cf)	(ac.ft.)	-								
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Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF
Prepared by:	#REF!	Date:	#REF

DA-431 CATCHMENT NAME:

Impervious Cov									-			
1.50	ac. Existing Im	pervious Area mpervious Area							P	eaking Factor =	484	
-		ture Impervious A	rea						Total Ca	tchment Area =	1.50	ac
										omposite CN =	-	
1.50	ac. Total Imper	vious Area @	100.00	% Directly Co	nnected to Drainag	ge System (DCIA)						
Retention/Dete	ntion Coverage:								d	6 Impervious = % Pervious =	100.00	%
-		Detention bottom (d	2) Elev 56 (modele	d separately as "E	Direct" rainfall input	t)				/01 61 1003 -		70
						7				% DCIA =	100.00	%
	lude Retention/De			No		Total DCIA =	1.50	ac				
lf	not included with I	OCIA, Retention/D	etention CN =	39						Tc =	5.0	minutos
										10 -	5.0	minutes
Area (ac)	Surface Descri	ption								HSG	CN	A x CN
-	Imponious area	not considered "Di	iraathy Connected	1							-	-
-	Impervious area		inectity Continected								-	
											-	-
											-	-
-											-	-
TIME C	OF CONC	ENIRAI	ION:					User k	nown or specified	minimum Tc =	5.00	min.
									Calculated Sun	n of Tc's Below:	#REF!	min.
OVERLAND	SHEET FLO	W:					2-yr, 2	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	intion:			n			1	V (fps)	Time (min)
			Suilace Desci									
-	-	-					-				-	-
-							-					
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	iption:			k				V (fps)	Time (min)
-	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	-
	NNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-		-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
- PIPE FLOW	-	-	-	-	-	-	-	-	-	-	- SubTotal =	
		a , (4)	~ .		0. //			4 (-0		5 (0)		
Seg No.	L (ft)	Slope (%)	Pipe N	Naterial	Size (i	inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-					-	-	-	-	-	-
	-	-					-	•	-	-	-	-
		-				OFNE			-	-	-	-
STORA				-		GENE	RAL NO	IES:				
Stage		e Area		ive Storage								
(ft)	(sf)	(acres)	(cf)	(ac.ft.)	_							
					-							
					-							
					-							
		-	-		1							
-	-	-	-	-								
-	-	-	-	-								
-	-	-	-	-	-							
-		-	-									
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Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#RE
Prepared by:	#REF!	Date:	#RE

PROPOSED CONDITIONS

DA-432 CATCHMENT NAME:

Impervious Cov	verage:											
		pervious Area							P	eaking Factor =	484	
0.35		npervious Area										
-	ac. Planned Fu	ture Impervious A	rea							tchment Area =	0.35	ac
0.05			100.00	N D: 11 O		0 ((DOIN)			C	Composite CN =	-	
0.35	ac. Total Imper	vious Area @	100.00	% Directly Cor	nnected to Drainag	ge System (DCIA)				/ I	400.00	0/
Detertion/Dete									5	% Impervious =	100.00	%
	ention Coverage:	ataatiaa kattaa 6	D Flass FC (models	d annandalis an "D	·····					% Pervious =		%
-	ac. Retention/D	etention bottom (Biev 56 (modele	d separately as "D	virect" raintali input	()					100.00	%
Inc	clude Retention/Det	toption Surface Ar	oo with DCIA2	No	1	Total DCIA =	0.35	ac		% DCIA =	100.00	70
	not included with E			39		TOTAL DOIA -	0.33	au				
"	HOL INCIDUED WITH L	JOIA, Retention/D		55	1					Tc =	5.0	minutes
										10-	5.0	minutes
vrea (ac)	Surface Descrip	ption								HSG	CN	A x CN
-	Impervious area r	not considered "D	irectly Connected"								-	-
											-	-
											-	-
											-	-
											-	-
	OF CONC											
		CNIKAI	ION.					User k	nown or specified	minimum Tc =	5.00	min.
									Calculated Sun	n of Tc's Below:	#REF!	min.
										-		
OVERLAND	D SHEET FLO	W:					2-yr, 2	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desci	ription.			n				V (fps)	Time (min)
009110.	2 (17)	0.000 (70)	Currace Debbi	npuon.							v (ipo)	
-	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	-
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.												
009110.	L (ft)	Slope (%)	Surface Desci	ription:			k				V (fps)	Time (min)
009110.			Surface Desci	ription:								
-	-	-	Surface Desc	ription:			-				-	-
-	-	-	Surface Desci	ription:			-				-	-
	- - -	-	Surface Descr	ription:			-				-	-
	- - -	-	Surface Descr	ription:			-				-	-
	- - -	-	Surface Descr	ription:			-				-	-
	- - -	-	Surface Descr	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	-	A _{XS} (sf)	WP (ft)	R (ft)	-	-
- - - OPEN CHA Seg No.	- - - - - - - - - - - - - - - - - - -	- - - Slope (%)	Width (ft)	Lt. S.S. (H:1)			- - - -				- - - SubTotal = V (fps)	- - - - - - - Time (min)
- - - OPEN CHA Seg No. -	- - - - - - - - - - - - - - - - - - -	- - - - Slope (%)	Width (ft)	Lt. S.S. (H:1)	-	-	- - - -	-	-	R (ft)	- - - SubTotal = V (fps)	
- - - OPEN CHA Seg No.	- - - - - - - - - - - - - - - - - - -	- - - Slope (%)	Width (ft)	Lt. S.S. (H:1)			- - - -			-	- - - SubTotal = V (fps)	- - - - Time (min)
- - - - OPEN CHA Seg No. - - - -	- - - - - - - - - - - -	- - - Slope (%) -	Width (ft)	Lt. S.S. (H:1)	-	-	- - - -	-	-	-	- - - - - SubTotal = V (fps) - - - -	
- - - OPEN CHA Seg No. - - - PIPE FLOW	- - - - - - - - - - - - - - - - - - -	- - - - - Slope (%) - - -	Width (ft)	Lt. S.S. (H:1)	-	-	- - - - -	- - -	-	-	- - - SubTotal = V (fps) - - - SubTotal =	- - - - - Time (min) - - - -
- - - - OPEN CHA Seg No. - - - -	- - - - - - - - - - - -	- - - Slope (%) -	Width (ft)	Lt. S.S. (H:1)	-	-	- - - -	-	-	-	- - - - - SubTotal = V (fps) - - - -	
- - - OPEN CHA Seg No. - - - PIPE FLOW	- - - - - - - - - - - - - - - - - - -	- - - - - Slope (%) - - -	Width (ft)	Lt. S.S. (H:1)	-	-	- - - - -	- - -	-	-	- - - SubTotal = V (fps) - - - SubTotal =	- - - - - Time (min) - - - -
- - - OPEN CHA Seg No. - - PIPE FLOW Seg No. -		- - - Slope (%) - - - - - - - - - - - - - - - - - - -	Width (ft)	Lt. S.S. (H:1)	-	-	- - - - -	- - -	-	-	- - - SubTotal = V (fps) - - - SubTotal =	- - - - - Time (min) - - - -
- - - OPEN CHA Seg No. - - - PIPE FLOW	- - - - - - - - - - - - - - - - - - -	- - - - - Slope (%) - - -	Width (ft)	Lt. S.S. (H:1)	-	-	- - - - - - - - - - - - - - - - -	- - - A _{XS} (sf) -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps)	- - - - - - - - - - - - - - - - - - -
- - - OPEN CHA Seg No. - - PIPE FLOW Seg No. - - - - -	- - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	Width (ft)	Lt. S.S. (H:1)	-	- - - inches)	- - - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - PIPE FLOW Seg No. - -	- - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	Width (ft)	Lt. S.S. (H:1)	-	- - - inches)	- - - - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - - - - SEG No. - - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	Width (ft) Pipe N	Lt. S.S. (H:1)	-	- - - inches)	- - - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - PIPE FLOW Seg No. - - - - -		- - - - - - - - - - - - - - - - - - -	Width (ft) Pipe N	Lt. S.S. (H:1)	-	- - - inches)	- - - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - - - - - - - - - - - - - - - - - -			Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - inches)	- - - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - - - - - - - - - - - - - - - - - -			Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - inches)	- - - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - - - - - - - - - - - - - - - - - -			Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - inches)	- - - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - - - - - - - - - - - - - - - - - -			Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - inches)	- - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - - - - - - - - - - - - - - - - - -			Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - inches)	- - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - - - -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - - - - - - - - - - - - - - - - - -			Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - inches)	- - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - WP (ft) -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	
- - - OPEN CHA Seg No. - - - - - - - - - - - - - - - - - - -			Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - inches)	- - - - - - - - - - - - - - -	- - - A _{XS} (sf) - -	- - - WP (ft) -	- - - R (ft)	- - - SubTotal = V (fps) - - SubTotal = V (fps) - -	

--V = h/3 x [A1 + A2 + Sqrt (A1 x A2)]

-

-



Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
Prepared by:	#REF!	Date:	#REF!

DA-433 CATCHMENT NAME:

Impervious Co	verage:											
	ac. Existing Im								P	eaking Factor =	484	
0.33		mpervious Area iture Impervious A	rea						Total Ca	tchment Area =	0.33	ac
			100							Composite CN =	-	20
0.33	ac. Total Imper	vious Area @	100.00	% Directly Co	nnected to Drainag	ge System (DCIA)						
Datastian/Data	ention Coverage:									% Impervious = % Pervious =	- 100.00	%
-		Detention bottom @	D Elev 56 (modele	d separately as "C)irect" rainfall input	t)				% Felvious -		70
			<u> </u>		-	7		-		% DCIA =	100.00	%
	clude Retention/De			No		Total DCIA =	0.33	ac				
п	not included with I	DCIA, Retention/D	etention CN =	39						Tc =	5.0	minutes
Area (ac)	Surface Descri	ption								HSG	CN	A x CN
-	Impervious area	not considered "D	irectly Connected	'							-	-
											-	-
											-	-
-											-	-
TIME C	OF CONC	ENTRAT	ION:					User I	nown or specified	minimum Tc =	5.00	min.
									Calculated Sun	n of Tc's Below:	#REF!	min.
OVERLAN	D SHEET FLO	W:					2-yr,	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)
-	-			1			-				-	
-	-	-										-
-	-	-										-
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
-	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	
OPEN CHA	NNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-		-	-	-	-	-		-	-		-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
PIPE FLOV											SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe I	Naterial	Size (i	inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-					-	-	-	-	-	-
-	-	-					-	-	-	-	-	-
STOR/						CENE	RAL NO	TES				
				=		GENE		IES.				
Stage (ft)	(sf)	e Area (acres)	Cummulat (cf)	ive Storage (ac.ft.)								
(11)	(31)	(80103)	(01)	(do.n.)								
		-	-	-								
-	-	-		-								
-	-	-	-	-								
-	-	-	-	-								
-	- V = h/3 x	- [A1 + A2 + Sqrt (.	- A1 x A2)1	-								
	v - 11/J X	[1							



Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF
Prepared by:	#REF!	Date:	#REF

DA-440 CATCHMENT NAME:

Impervious Co	overage: ac. Existing Im	nervious Area							P	eaking Factor =	484	
0.75		mpervious Area							outing r dotor			
-	ac. Planned Fu	ture Impervious A	rea						Total Ca	tchment Area =	1.56	ac
									(Composite CN =	42.00	
0.75	ac. Total Imper	vious Area @	88.00	% Directly Co	nnected to Drainag	ge System (DCIA)				10.00	01
Potontion/Dot	ention Coverage:									% Impervious = % Pervious =	48.08	%
-		Detention bottom @	@ Elev 56 (modele	d separately as "E	Direct" rainfall inpu	t)				/01 0110003 -	01.02	70
			5 (·)				% DCIA =	42.31	%
Inc	clude Retention/De	tention Surface Ar	rea with DCIA?	No		Total DCIA =	0.66	ac				
lf	f not included with I	DCIA, Retention/D	etention CN =	39						_		
										Tc =	15.0	minutes
Area (ac)	Surface Descri	ntion								HSG	CN	A x CN
		-								100		
0.09			irectly Connected		Condition		(Included in Com	posite CN)		٨	98 35	8.82
0.72	DIUSII - DIUSII-VV	eeu-Glass mixture	e with drush the m	ajoi element, Faii	Condition					A	-	25.20
											-	-
-											-	-
TIME C	OF CONC	ENTRAT	ION:					11		minimum To -	45.00	min
								User	nown or specified		15.00 #REF!	min. min.
		Calculated Sum of Tc's Below:									#NLT :	
										_		
OVERLAN	D SHEET FLO	W:					2-yr,	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desci	iption:			n				V (fps)	Time (min)
		-									-	-
												-
-											-	-
SHALLOW	CONCENTRA	TED FLOW:						•			SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desci	ription:			k				V (fps)	Time (min)
											-	-
-												-
-	-	-									-	-
-	-	-					-				-	
OPEN CHA	ANNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-		-	-	-	-		-	-		-	
-	-		-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
PIPE FLOW	N:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe N	Naterial	Size (inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-							-	-	-	-
	-	-					-	-	-	-	-	
-	-	-					· ·	-	-	-	-	-
STOR/	AGE:			-		GENE	RAL NO	TES:				
		e Area	Cummila									
Stage (ft)	(sf)	e Area (acres)	(cf)	ive Storage (ac.ft.)								
(17)	(01)	(00.00)	(01)	(00.11.)								
					-							
					-							
		-	-	-	-							
-	-	-	-	-								
-	-	-	-	-	1							
-	-	-	-	-								
-	-	-	-	-								
-	- V = b/3 x	-	-	-	-							
	v = h/3 x	[A1 + A2 + Sqrt (ATXAZ)]]							



Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
Prepared by:	#REF!	Date:	#REF!

DA-441 CATCHMENT NAME:

Impervious Co		nonvious Aroa							D	eaking Factor =	484	
0.87		pervious Area mpervious Area										
-		iture Impervious A	rea						Total Ca	tchment Area =	0.94	ac
			400.00	01 D: 11 O		0 ((501))			C	Composite CN =	35.00	
0.87	ac. Total Imper	vious Area @	100.00	% Directly Co	nnected to Drainag	ge System (DCIA)			c	% Impervious =	92.55	%
Retention/Det	tention Coverage:									% Pervious =	7.45	%
-	÷	Detention bottom @	② Elev 56 (modele	d separately as "D	Direct" rainfall inpu	t)						
					-			۹		% DCIA =	92.55	%
	nclude Retention/De			No 39	-	Total DCIA =	0.87	ac				
I	If not included with I	DCIA, Retention/D	etention CN =	29	1					Tc =	10.0	minutes
										I	1	1
Area (ac	c) Surface Descri	ption								HSG	CN	A x CN
	Impervious area	not considered "D	irectly Connected	1							-	-
0.07				ajor element, Fair	Condition					A	35	2.45
											-	-
											-	-
-											-	-
TIME_												
	OF CONC		ION:					User k	nown or specified	minimum Tc =	10.00	min.
									Calculated Sur	n of Tc's Below:	#REF!	min.
OVERLAN	ID SHEET FLO	W:					2-yr,	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:]	\/ (foc)	Time (min)
Seg IND.	L (II)	Siohe (30)	Sunace Desc	npuon.			n V (fps)					Time (min)
-	-	-					-				-	-
-	-	-					-				-	-
SHALLOW	V CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	rintion:			k				V (fps)	Time (min)
-				npuon.								
	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	-
OPEN CH/	ANNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
PIPE FLO	W:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe N	/laterial	Size (inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-					-	-	-	-	-	-
-	-	-					-	-	-	-	-	-
-	-	-					-		-	-	-	-
STOR	AGE:			-		GENE	RAL NO	TES:				
Stage		e Area	Cummulat	ive Storage								
(ft)	(sf)	(acres)	(cf)	(ac.ft.)								
					-							
					-							
		-	-	-								
-	-	-	-	-	-							
	-	-	-	-								
-	-	-	-	-								
-	-		-	-	4							
	V = h/3 x	[A1 + A2 + Sqrt (A1 x A2)]									



Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF
Prepared by:	#REF!	Date:	#REF

DA-450 CATCHMENT NAME:

Impervious Co									_			
1.80	ac. Existing Im ac. Proposed In	pervious Area mpervious Area							P	eaking Factor =	484	
-		iture Impervious A	rea						Total Ca	tchment Area =	1.80	ас
									C	Composite CN =	-	
1.80	ac. Total Imper	vious Area @	100.00	% Directly Co	nnected to Drainaç	ge System (DCIA))			% Impervious =	100.00	%
Retention/Det	ention Coverage:									% Pervious =	-	%
-		Detention bottom @	Elev 56 (modele	ed separately as "C)irect" rainfall input	t)						
				N.	1	TUUDOIA	4.00	1		% DCIA =	100.00	%
	clude Retention/De f not included with I			No 39		Total DCIA =	1.80	ac				
					4					Tc =	5.0	minutes
A	0. (1100	01	4 . 01
Area (ac		-								HSG	CN	A x CN
-	Impervious area	not considered "Di	irectly Connected								-	-
											-	-
											-	-
-											-	-
TIME												
	OF CONC		IUN:					User I	nown or specified		5.00	min.
									Calculated Sun	n of Tc's Below:	#REF!	min.
OVERLAN	D SHEET FLO	W:					2-yr, 2	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)
-	-	-									-	-
-	-	-									-	-
-							-				-	-
	CONCENTRA										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
-	-	-					-				-	-
-	-	-					-				-	-
-	-	-					-				-	-
OPEN CHA	ANNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
PIPE FLO	- N·	-	-	-	-	-	-	-	-	-	- SubTotal =	-
Seg No.	L (ft)	Slope (%)	Dine	Vaterial	Cito /	inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
			гиет		312ë (1							
-	-	-					-	-	-	-	-	-
-	-	-					-	-	-	-	-	-
STOR	AGE:			-		GENE	RAL NO	TES:				
Stage		e Area	Cummulat	tive Storage								
(ft)	(sf)	(acres)	(cf)	(ac.ft.)								
			[1							
-	-		-	-								
-	-	-	-	-								
-												
	-	-	-	-								
-	-			-								



V = h/3 x [A1 + A2 + Sqrt (A1 x A2)]

Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
Prepared by:	#REF!	Date:	#REF!

PROPOSED CONDITIONS

CATCHMENT NAME:

Impervious Co									-			
4.00	ac. Existing Im								P	eaking Factor =	484	
1.39		mpervious Area Iture Impervious A	r00						Total Ca	tchment Area =	1.39	ac
	dc. Fidiliteuru	iture impervious A	lea							Composite CN =	-	au
1.39	ac. Total Imper	vious Area @	100.00	% Directly Co	nnected to Drainag	ge System (DCIA)						
						,				% Impervious =	100.00	%
Retention/Dete	ention Coverage:									% Pervious =	-	%
-	ac. Retention/E	Detention bottom @	D) Elev 56 (modele	d separately as "D	Direct" rainfall input	t)						
					1	T DOM		1		% DCIA =	100.00	%
	clude Retention/De			No 39		Total DCIA =	1.39	ac				
	f not included with I	DGIA, Retention/D		39	1					Tc =	5.0	minutes
										10		
Area (ac)) Surface Descri	ntion								HSG	CN	A x CN
										100		
	Impervious area	not considered "Di	irectly Connected	'							-	-
											-	-
-												
	OF CONC											
			IUN.					User I	known or specified	minimum Tc =	5.00	min.
									Calculated Sur	n of Tc's Below:	#REF!	min.
	D SHEET FLO	w.					2	24-hr Rainfall =	-	inches		
								24-III Raiiiaii -	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)
-	-	-					-				-	
-	-	-					-				-	-
-	-	-					-				-	
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
-	-	-					-				-	
	-	-					-					
-	-	-									-	
-	-	-					-				-	-
OPEN CHA	ANNEL FLOW:										SubTotal =	
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
			.,								1	
-	-	-	-	-	-	-	-	-	-	-	-	-
	-		-	-		-	-	-		-		
PIPE FLOW								ļ			SubTotal =	
		01	D'	1.1.2.1	0 /	·		4 (-6)	14/D (0)	D (0)		T' (')
Seg No.	L (ft)	Slope (%)	Pipe I	Naterial	Size (I	inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-					-	-	-	-	-	
-	-	-					-	-	-	-	-	
-	-	-					-	-	-	-	-	
STOR/	AGE:			-		GENE	RAL NO	TES:				
Stage		e Area	Cummulat	ive Storage								
(ft)	(sf)	(acres)	(cf)	(ac.ft.)								
					-							
			-		1							
-	-	-	-	-								
-	-	-	-	-	1							
-	-	-	-	-								
-	-	-	-	-	-							
-	-	-	-	-	4							
	V = h/3 x	[A1 + A2 + Sqrt ()	A1 x A2)]		1							



V = h/3 x [A1 + A2 + Sqrt (A1 x A2)]

Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
Prepared by:	#REF!	Date:	#REF!

PROPOSED CONDITIONS

DA-452 CATCHMENT NAME:

Impervious Cor												
1.30	ac. Existing Im	pervious Area mpervious Area							P	eaking Factor =	484	
1.00		iture Impervious A	rea						Total Ca	tchment Area =	1.30	ac
									(Composite CN =	-	
1.30	ac. Total Imper	vious Area @	100.00	% Directly Co	nnected to Drainag	ge System (DCIA)					100.00	0/
Retention/Dete	ntion Coverage:									% Impervious = % Pervious =	- 100.00	%
-		Detention bottom @) Elev 56 (modele	d separately as "[Direct" rainfall input	t)						
					1	T D		1		% DCIA =	100.00	%
		tention Surface Ar DCIA, Retention/D		No 39		Total DCIA =	1.30	ac				
					1					Tc =	5.0	minutes
Area (ac)	Surface Descri	ption								HSG	CN	A x CN
-	Impervious area	not considered "D	irectly Connected	•							-	-
											-	
											-	-
-											-	-
TIME C	OF CONC	ENTRAT	ION:					User I	known or specified	minimum Tc =	5.00	min.
									Calculated Sur	n of Tc's Below:	#REF!	min.
OVERLAN	SHEET FLO	W:					2-yr,	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n			_	V (fps)	Time (min)
	-	-									-	-
-	-	-									-	-
-	-	-					-				-	-
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
-	-	-					-				-	-
-	-	-					-				-	
-	-	-									-	
OPEN CHA	NNEL FLOW:							•			SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-	-	-	-	-	-	-		· ·	-	
-	-	-	-	-	-	-	-	-	-	•	-	-
	-	-	-	-	-	-	-	-			- CubTatal -	
PIPE FLOW		01		A	<u>.</u>	·		A (-D	145 (2)	5.47	SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe N	Naterial	Size (i	inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-					-	-	-	-	-	-
-	-	-					-		-	-	-	
STOR/				_		GENE	RAL NO	TES				
		e Area	Cummila			OLINE						
Stage (ft)	(sf)	(acres)	(cf)	ive Storage (ac.ft.)								
()	()	(11.11)	()	(22)								
					-							
		-		-								
-	-	-		-								
-	-	-	-	-								
-	-	-	-	-								
-	- V = h/3 x	- [A1 + A2 + Sart (.	- A1 x A2)]	-	1							



Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
Prepared by:	#REF!	Date:	#REF!

DA-453 CATCHMENT NAME:

Impervious Co	verage:											
iniperriede ee	ac. Existing Im	pervious Area							P	eaking Factor =	484	
0.21	ac. Proposed Ir	mpervious Area										
	ac. Planned Fu	ture Impervious A	rea							tchment Area =	0.21	ac
0.21	ac. Total Imper		100.00	% Directly Co	nnected to Drainag	no Suntom (DCIA)			. (Composite CN =		
0.21	ac. rotarimper	vious Alea @	100.00	70 Directly CO		je System (DOIA)				% Impervious =	100.00	%
Retention/Dete	ention Coverage:									% Pervious =	-	%
-	ac. Retention/D	Detention bottom @) Elev 56 (modele	ed separately as "D	Direct" rainfall input	t)						
					7	TUUDOIA	0.01	1		% DCIA =	100.00	%
	clude Retention/De not included with [No 39		Total DCIA =	0.21	ac				
					1					Tc =	5.0	minutes
	1									1		
Area (ac)	Surface Descri	ption								HSG	CN	A x CN
-	Impervious area	not considered "Di	irectly Connected								-	-
											-	-
											-	-
-											-	-
_											-	-
TIME	OF CONC	FNTRAT										
								User k	nown or specified		5.00	min.
									Calculated Sur	n of Tc's Below:	#REF!	min.
OVERLAN	D SHEET FLO	W:					2-yr,	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			n				V (fps)	Time (min)
_											-	
-	-	-					-				-	
-	-	-					-				-	-
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	ription:			k				V (fps)	Time (min)
-	-										-	
-	-	-					-				-	-
-	-	-					-				-	-
	NNEL FLOW:						-				- SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
- PIPE FLOV	- V·	-	-	-	-	-	-	-	-		- SubTotal =	-
				Votoria!	o	inchoo)	_	A /~~		D (0)		
Seg No.	L (ft)	Slope (%)	Pipe I	Vlaterial	Size (i	inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-					-	-	-	-	-	-
-	-	-					-	-	-	-	-	-
						CENE	RAL NO					
STOR				-		GENE	KAL NU	169:				
Stage	Surfac			tive Storage								
(ft)	(sf)	(acres)	(cf)	(ac.ft.)								
		-	-		-							
-	-	-	-	-	1							
-	-	-	-	-								
-	-	-	-	-								
-	-	-		-	-							
-		- [A1 + A2 + Sqrt ()		-	1							



Client Name:	#REF!		
Project Name:	#REF!		
Location:	#REF!	Project Num:	#REF!
Prepared by:	#REF!	Date:	#REF!

V = h/3 x [A1 + A2 + Sqrt (A1 x A2)]

CATCHMENT NAME: DA-UPPER

Impervious Co									_			
7.96	ac. Existing Im ac. Proposed I								P	eaking Factor =	484	
1.50		iture Impervious A	rea						Total Ca	atchment Area =	8.12	ac
		•							(Composite CN =	49.00	
7.96	ac. Total Imper	vious Area @	100.00	% Directly Co	nnected to Draina	ge System (DCIA)						
Detection/Dete										% Impervious =	97.99	%
Retention/Dete	ention Coverage:	Detention bottom (n Elev 56 (model	ed separately as "[Direct" rainfall innu	+)			-	% Pervious =	2.01	%
				ou sopulatoly us 1		9				% DCIA =	97.99	%
Inc	clude Retention/De	tention Surface Ar	rea with DCIA?	No		Total DCIA =	7.96	ac				
lf	f not included with	DCIA, Retention/D	etention CN =	39						_		
										Tc =	10.0	minutes
Area (ac)	Surface Descri	ntion								HSG	CN	A x CN
. ,										100		
0.16		not considered "D		s, etc.; Fair Condit	ion					A	- 49	- 7.94
0.10	opon opaco. Ia	inio, panio, gon oo								, A	-	-
											-	-
											-	-
TIME C	OF CONC	ENTRAT	TION:					User	known or specified	l minimum Tc =	10.00	min.
									•	n of Tc's Below:	#REF!	min.
	D SHEET FLO	w.					0	04 ha Deiafall -] :h		
-							2-yr,	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desc	cription:			n				V (fps)	Time (min)
-	-	-					-				-	-
-	-	-					· ·				-	-
							-				- SubTotal =	-
Seg No.	L (ft)	Slope (%)	Surface Desc	cription:			k				V (fps)	Time (min)
-	-	-									-	-
-	-	-					-				-	-
	-	-									-	-
OPEN CHA	NNEL FLOW:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Width (ft)	Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-			-	-			-			-	-	
-	-	-		-	-	-	-		-	-	-	-
-	-	-	-	-	-	-		-			-	-
PIPE FLOV	N:										SubTotal =	-
Seg No.	L (ft)	Slope (%)	Pipe	Material	Size (inches)	n	A _{XS} (sf)	WP (ft)	R (ft)	V (fps)	Time (min)
-	-	-										
-	-	-					-			-	-	-
-	-	-					-			-	-	-
STOR/	AGE:			-		GENE	RAL NO	TFS:				
Stage		e Area	Cummula	tive Storage								
(ft)	(sf)	(acres)	(cf)	(ac.ft.)								
()	(-7		(* /									
					-							
					-							
					-							
		-	-	-								
-	-	-	-	-								
-	-	-	-	-	-							
-	-	-	-	-	-							
-	-	-	-	-	-							

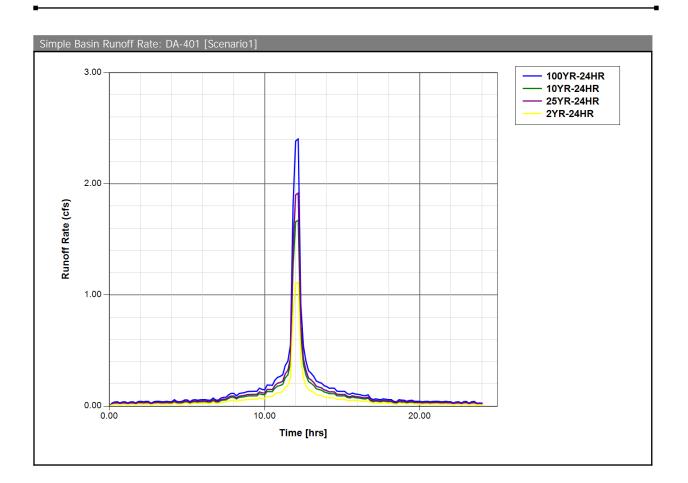


V = h/3 x [A1 + A2 + Sqrt (A1 x A2)]

CATCHMENT NAME: DA-POND

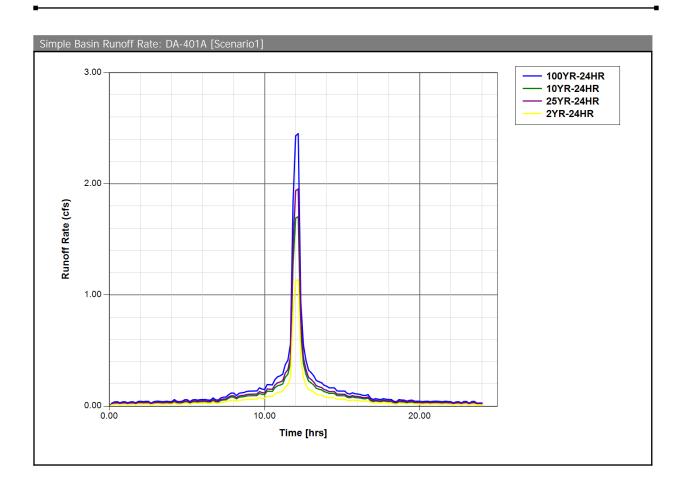
Impervious Cov	verage:											
	ac. Existing Imp	pervious Area							Р	eaking Factor =	484	
0.60		mpervious Area										
	ac. Planned Fu	ture Impervious A	rea							tchment Area =	1.61	ac
0.60	ac Total Imper		100.00	% Directly Cor	nnected to Drainag	a Svetam (DCIA)				composite CN =	35.00	
0.00							% Impervious =	37.27	%			
Retention/Dete	ntion Coverage:									% Pervious =	62.73	%
-	ac. Retention/D	Detention bottom @) Elev 56 (modele	d separately as "D	Direct" rainfall input)						
					•			-		% DCIA =	37.27	%
	lude Retention/Det			Yes		Total DCIA =	0.60	ac		(%DCIA Includes	Retention/Detention Surf	ace Area)
lf	not included with [DCIA, Retention/D	etention CN =	39	J					-		
										Tc =	5.0	minutes
Area (ac)	Surface Descrip	ption								HSG	CN	A x CN
-	Impervious area	not considered "D	irectly Connected								-	-
1.01	Brush - Brush-We	eed-Grass mixture	e with brush the ma	ajor element, Fair	Condition					A	35	35.35
											-	-
-											-	-
-											-	-
	OF CONC	ENIRAI	ION:					User I	known or specified	minimum Tc =	5.00	min.
									Calculated Sur	n of Tc's Below:	#REF!	min.
										1		
OVERLAND	SHEET FLO	W:					2-yr,	24-hr Rainfall =	-	inches		
Seg No.	L (ft)	Slope (%)	Surface Desci	ription:			n				V (fps)	Time (min)
											-	-
-	-										-	-
-	-	-									-	-
SHALLOW	CONCENTRA	TED FLOW:									SubTotal =	-
Sea No.	L (ft)	Slope (%)	Surface Desci	ription:			k					Time (min)
Seg No.	L (ft)	Slope (%)	Surface Desci	ription:			k				V (fps)	Time (min)
•	-	-	Surface Desc	ription:			-				V (fps)	-
-	-	-	Surface Descr	ription:			-				V (fps) - -	-
•	-	-	Surface Descr	ription:			-				V (fps)	-
-	- - - -	-	Surface Descr	ription:			-				V (fps)	-
OPEN CHA	- - - NNEL FLOW:	-			Pt SS (H·1)	d(ft)	-	A.e. (st	W(D (ft)	P (ft)	V (fps) SubTotal =	-
-	- - - -	-	Surface Descr	ription: Lt. S.S. (H:1)	Rt. S.S. (H:1)	d _{FLOW} (ft)	-	A _{xs} (sf)	WP (ft)	R (ft)	V (fps)	-
OPEN CHA Seg No.	- - - NNEL FLOW:		Width (ft)	Lt. S.S. (H:1)	-	d _{FLOW} (ft)	-	-	WP (ft)	R (ft)	V (fps) SubTotal =	-
OPEN CHA Seg No.	- - - - NNEL FLOW: L (ft) - -		Width (ft)	Lt. S.S. (H:1)	-	-	n	-	-	-	V (fps)	
OPEN CHA Seg No.	- - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1)	-	-	- - - -	-	-	-	V (fps)	- - - - - - Time (min) - - -
OPEN CHA Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1)	-	-	- - - - -	-	-	-	V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No.	- - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1)	-	-	n	-	-	-	V (fps)	- - - - - - Time (min) - - -
OPEN CHA Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1)	-	-	- - - - -	-	-	-	V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1)	-	-	- - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No.	- - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	Width (ft)	Lt. S.S. (H:1)	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1)	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. PIPE FLOW Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1)	-	- - - nches)	- - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. PIPE FLOW Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. PIPE FLOW Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft) Pipe N	Lt. S.S. (H:1)	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. PIPE FLOW Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. PIPE FLOW Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. PIPE FLOW Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. PIPE FLOW Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft) Pipe N - Cummulat	Lt. S.S. (H:1) Aterial - ve Storage	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. PIPE FLOW Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1)	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1) Aterial	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. PIPE FLOW Seg No.	- - - - - - - - - - - - - - - - - - -		Width (ft)	Lt. S.S. (H:1)	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -
OPEN CHA Seg No. 			Width (ft)	Lt. S.S. (H:1)	-	- - - nches)	- - - - - - - - - - - - -			- - - R (ft)	V (fps) SubTotal = V (fps) - SubTotal = V (fps) - V (fps)	- - - - - - Time (min) - - - -

Scenario:	Scenario1
Node:	401
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.5100 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24

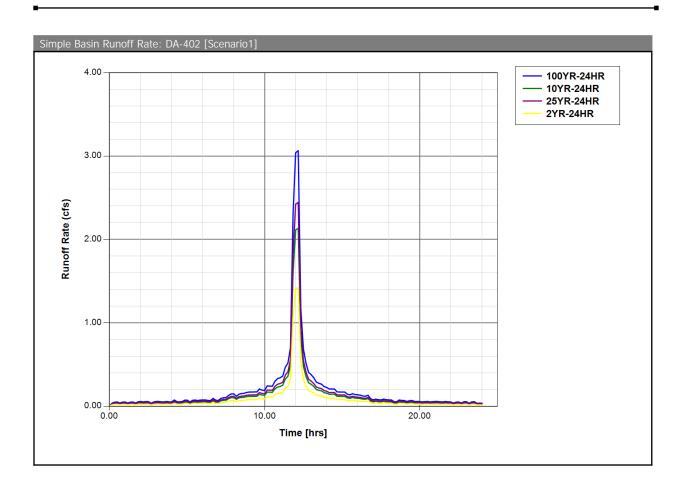


Simple Basin: DA-401A

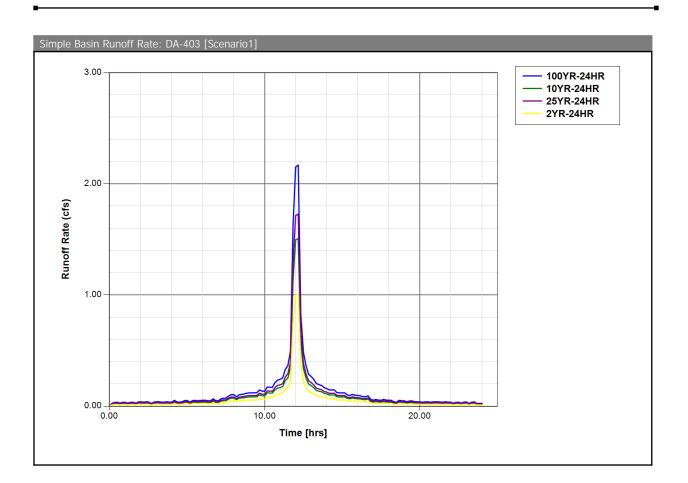
5/1 101/1	
Scenario:	Scenario1
Node:	400
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.5200 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



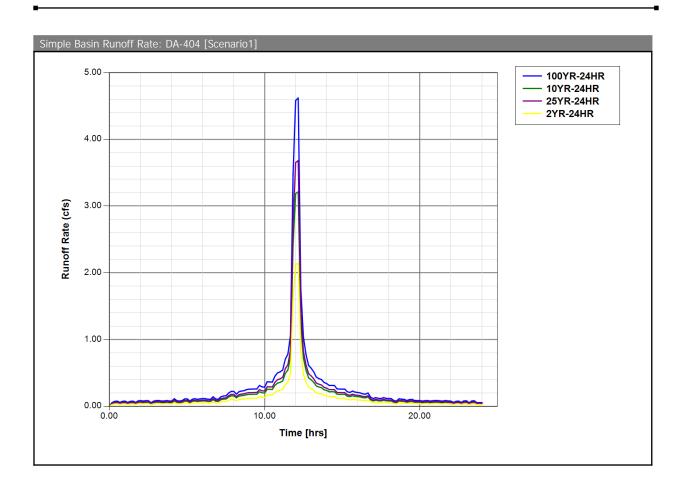
102	
Scenario:	Scenario1
Node:	402
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.6500 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



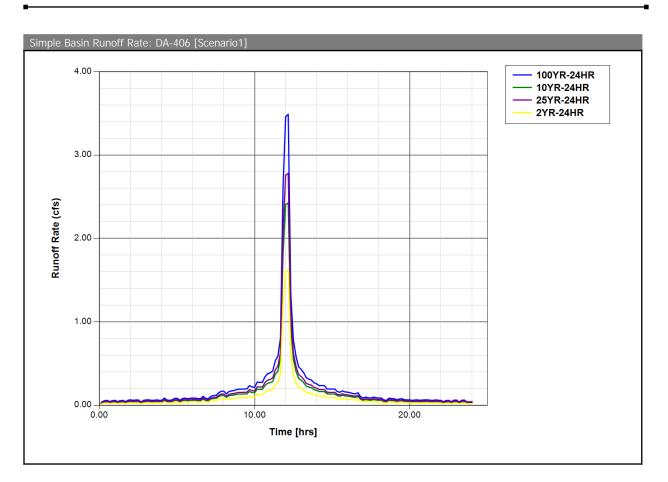
Scenario:	Scenario1
Node:	403
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.4600 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



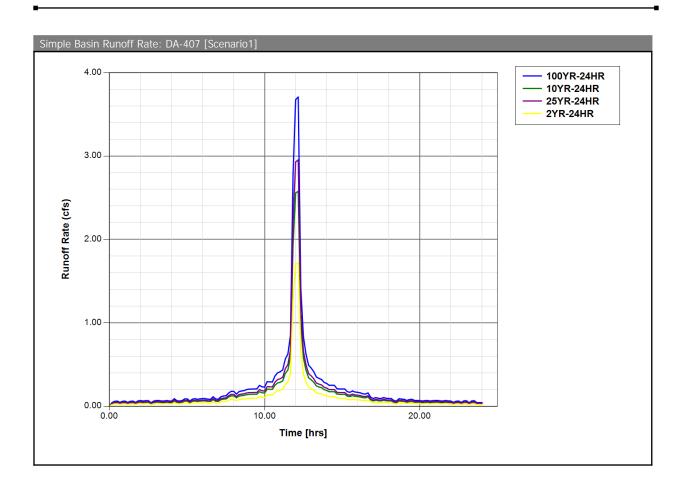
Scenario:	Scenario1
Node:	404
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.9800 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



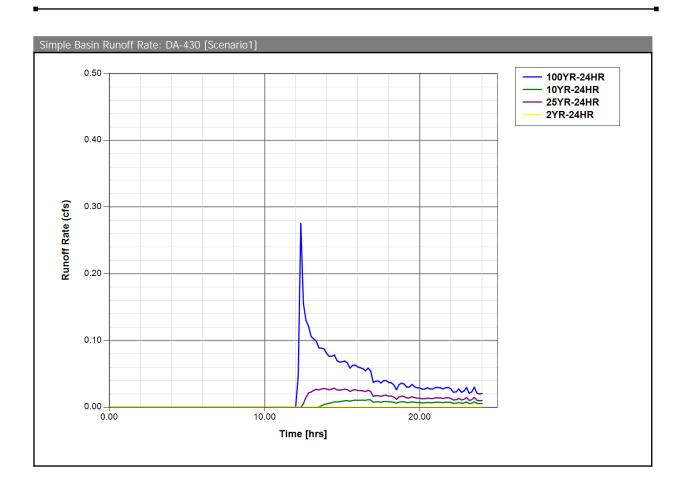
1 100	
Scenario:	Scenario1
Node:	406
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.7400 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



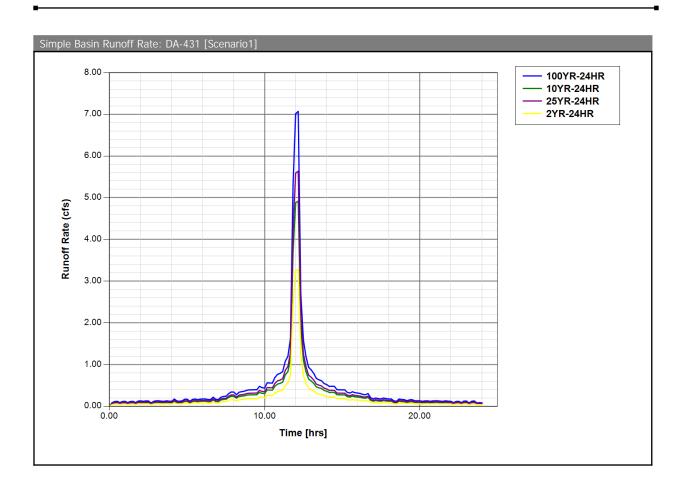
(107	
Scenario:	Scenario1
Node:	407
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.8000 ac
Curve Number:	35.0
% Impervious:	98.26
% DCIA:	98.26
% Direct:	0.00
Rainfall Name:	~SCSIII-24



11 100	
Scenario:	Scenario1
Node:	430
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	1.3300 ac
Curve Number:	35.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24

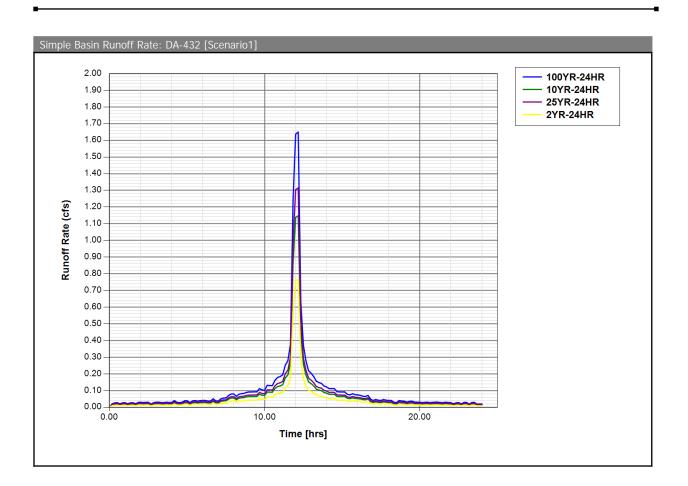


Scenario:	Scenario1
Node:	431
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	1.5000 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



102		
S	Scenario:	Scenario1
	Node:	432
Hydrograph	Method:	NRCS Unit Hydrograph
Infiltration	Method:	Curve Number
Time of Conce	ntration:	5.0000 min
Max Allov	wable Q:	0.00 cfs
Tir	ne Shift:	0.0000 hr
Unit Hyd	rograph:	UH484
Peaking	g Factor:	484.0
	Area:	0.3500 ac
Curve	Number:	98.0
% Imp	pervious:	100.00
	% DCIA:	100.00
9	6 Direct:	0.00
Rainfa	II Name:	~SCSIII-24

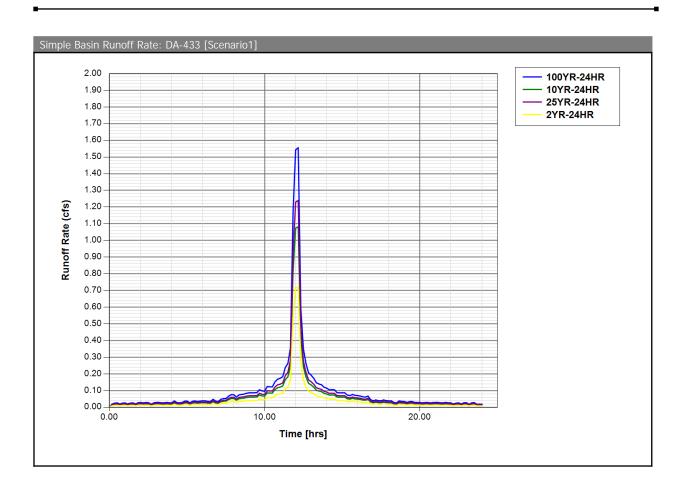
Comment:



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100	
Scenario:	Scenario1
Node:	433
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.3300 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24

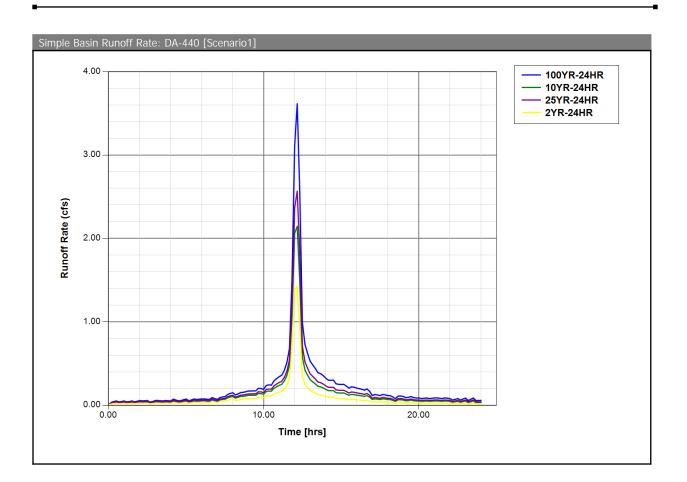
Comment:



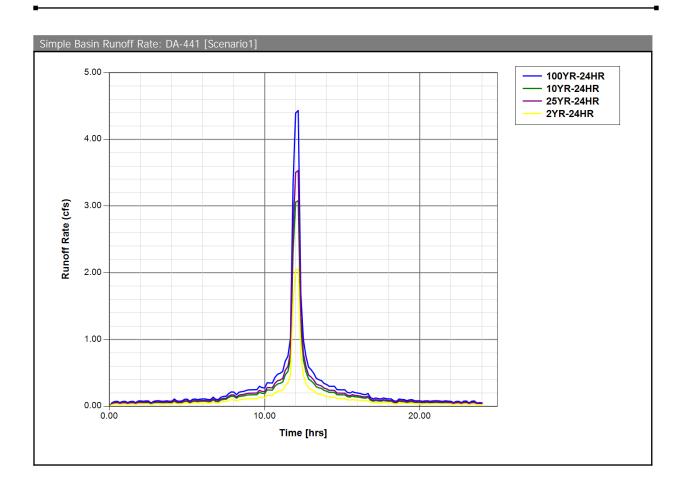
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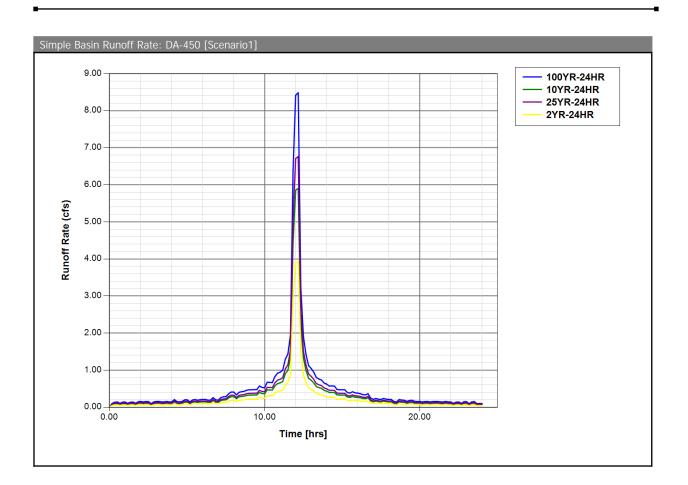
01770	
Scenario:	Scenario1
Node:	440
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	8.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	1.5600 ac
Curve Number:	42.0
% Impervious:	42.00
% DCIA:	42.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



Scenario:	Scenario1
Node:	441
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.9400 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24

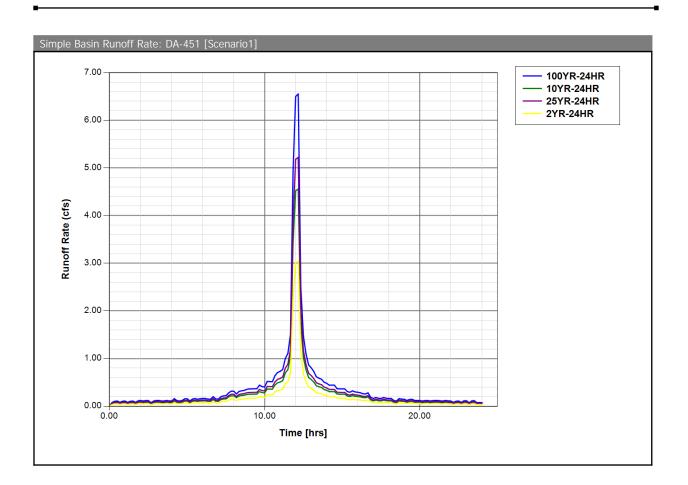


Scenario:	Scenario1
Node:	450
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	1.8000 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



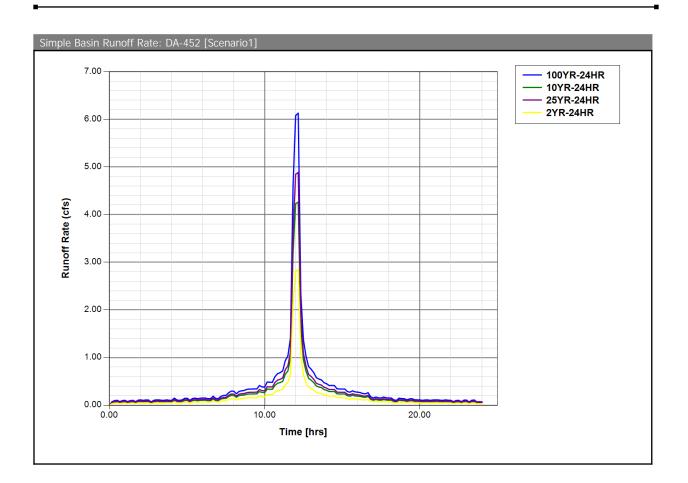
101	
Scenario:	Scenario1
Node:	451
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	1.3900 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24

Comment:

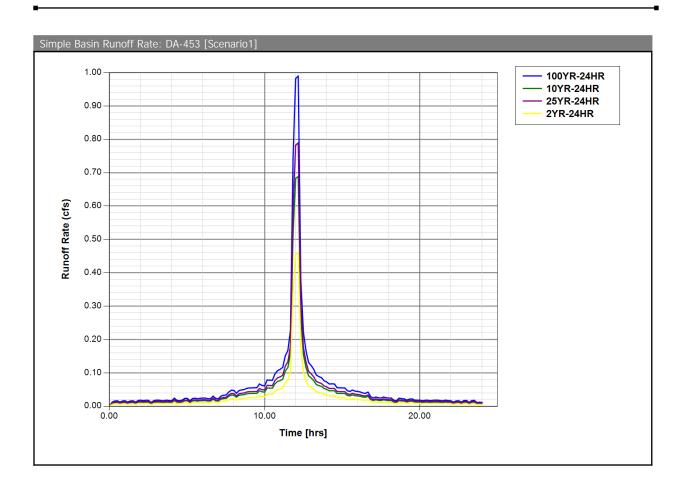


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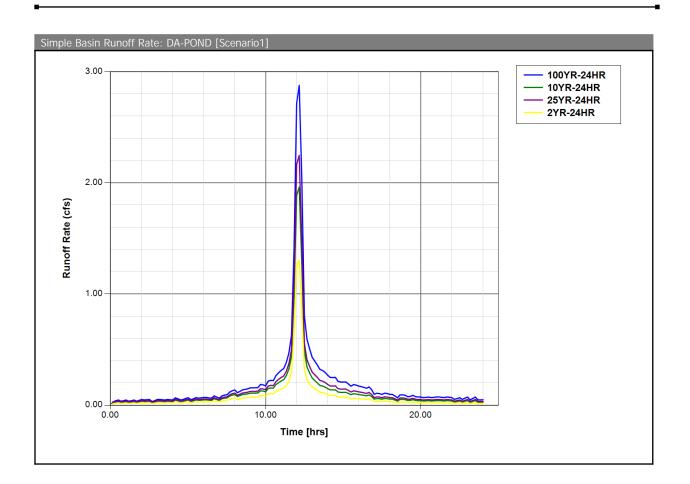
1 +52	
Scenario:	Scenario1
Node:	452
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	1.3000 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



1 100	
Scenario:	Scenario1
Node:	453
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	5.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	0.2100 ac
Curve Number:	98.0
% Impervious:	100.00
% DCIA:	100.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24

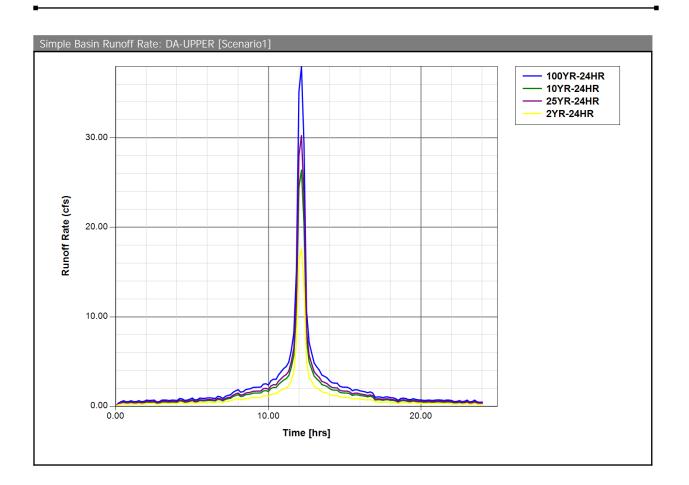


Scenario1
PROPOSED POND
NRCS Unit Hydrograph
Curve Number
8.0000 min
0.00 cfs
0.0000 hr
UH484
484.0
1.6100 ac
35.0
37.27
37.27
0.00
~SCSIII-24



Cim	nla	Basin:		IDDED
эшн	Die	Dasin.	DA-C	

A-UPPER	
Scenario:	Scenario1
Node:	405
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	8.1200 ac
Curve Number:	98.0
% Impervious:	98.00
% DCIA:	98.00
% Direct:	0.00
Rainfall Name:	~SCSIII-24



Node: FOREBAY

Scenario:	Scenario1
Туре:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	250.25 ft
Warning Stage:	258.00 ft

Stage [ft]	Area [ac]	Area [ft2]
250.25	0.0900	3920
251.00	0.1190	5184
252.00	0.1400	6098
253.00	0.1670	7275
254.00	0.1930	8407
255.00	0.2500	10890

Comment:

Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
FOREBAY	100YR-24HR	258.00	257.58	0.0010	88.66	72.77	10893
FOREBAY	10YR-24HR	258.00	255.98	0.0010	67.49	63.88	10893
FOREBAY	25YR-24HR	258.00	256.53	0.0010	76.87	67.37	10893
FOREBAY	2YR-24HR	258.00	254.87	0.0010	46.22	46.10	10568

Node: GROUNDWATER TIME STAGE

Scenario:	Scenario1
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	242.00 ft
Warning Stage:	248.00 ft
Boundary Stage:	

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	242.00
0	0	0	12.0000	244.00
0	0	0	24.0000	246.00
0	0	0	30.0000	248.00
0	0	0	72.0000	246.00
0	0	0	96.0000	242.00

Comment:

Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
GROUNDWAT ER TIME STAGE	100YR-24HR	248.00	246.00	0.0003	0.22	0.00	0
GROUNDWAT ER TIME STAGE	10YR-24HR	248.00	246.00	0.0004	0.20	0.00	0
GROUNDWAT ER TIME STAGE	25YR-24HR	248.00	246.00	0.0004	0.20	0.00	0
GROUNDWAT ER TIME STAGE	2YR-24HR	248.00	246.00	0.0006	0.18	0.00	0

Node: POINT OF DISCHARGE

Scenario:Scenario1Type:Time/StageBase Flow:0.00 cfsInitial Stage:251.75 ftWarning Stage:256.00 ftBoundary Stage:250.00 ft

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	251.75
0	0	0	12.0000	251.75
0	0	0	30.0000	251.75

Comment:

Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning	Max Stage	Min/Max	Max Total	Max Total	Max Surface
		Stage [ft]	[ft]	Delta Stage	Inflow [cfs]	Outflow [cfs]	Area [ft2]
				[ft]			
POINT OF	100YR-24HR	256.00	251.75	0.0000	17.57	0.00	0
DISCHARGE							
POINT OF	10YR-24HR	256.00	251.75	0.0000	13.94	0.00	0
DISCHARGE							
POINT OF	25YR-24HR	256.00	251.75	0.0000	15.31	0.00	0
DISCHARGE							
POINT OF	2YR-24HR	256.00	251.75	0.0000	4.08	0.00	0
DISCHARGE							

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Node: PROPOSED POND

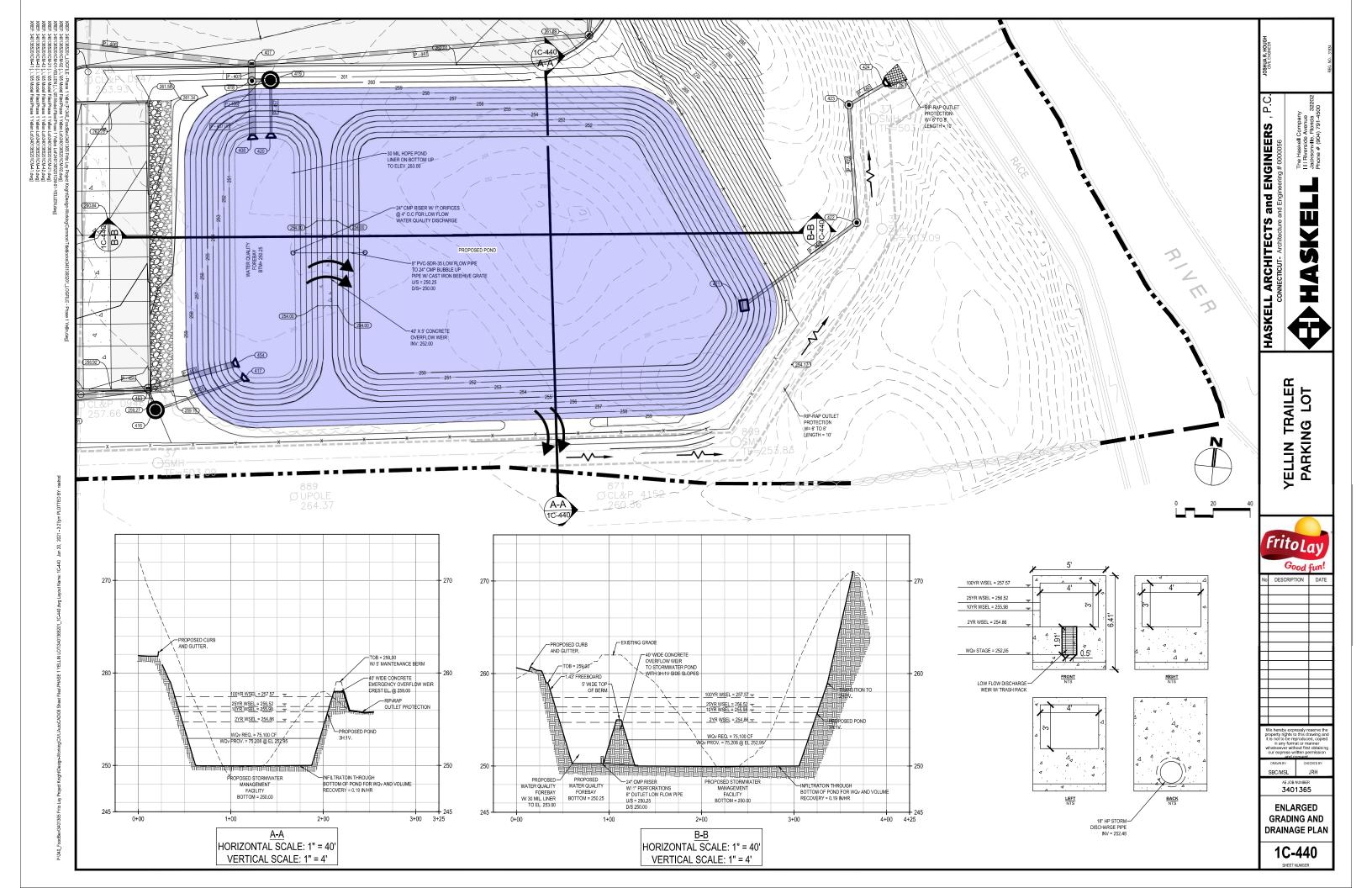
Scenario:	Scenario1
Туре:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	250.00 ft
Warning Stage:	259.00 ft

Stage [ft]	Area [ac]	Area [ft2]
250.00	0.5100	22216
251.00	0.5500	23958
252.00	0.6000	26136
253.00	0.6400	27878
254.00	0.6900	30056
255.00	0.9500	41382
256.00	1.0330	44997
257.00	1.0917	47555
258.00	1.1512	50146
259.00	1.2121	52799

Comment:

Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
PROPOSED POND	100YR-24HR	259.00	257.57	0.0010	75.50	17.78	49023
PROPOSED POND	10YR-24HR	259.00	255.98	0.0010	65.82	14.14	44908
PROPOSED POND	25YR-24HR	259.00	256.52	0.0010	69.56	15.51	46334
PROPOSED POND	2YR-24HR	259.00	254.86	0.0010	47.41	4.25	39850





APPENDIX 4 – WATER QUALITY CALCULATIONS

- Water Quality Calculations and Connecticut Worksheet
- Multi System Pond Cross Sections & Control Structure Details
- BMP Drainage Area Map
- Downstream Defender Hydrodynamic Seperator Summary

FER QUALITY CALCULATIONS APPENDIX 4 A



Stormwater Quality Worksheet

This worksheet is to be used in conjunction with the Connecticut Stormwater Quality Manual for any new land development. It is designed to help the regulated community and regulatory agencies work through the recommendations provided in the 2004 Connecticut Stormwater Quality Manual. It is not currently required to be submitted with any permit applications submitted to the Connecticut Department of Environmental Protection (DEP).

Part I: General Information

1.	List applicant information.			
	Name: Ryan Cuevas			
	Address: 2591 Dallas Parkway #405			
	City/Town: Dallas	State: TX	Zip Code:	75034
	Phone: 817-291-4393	ext.	Fax:	
	E-mail: Ryan.Cuevas@Haskell.com			
	Contact Person:	Title:		
2.	List site information.			
	Site Name: Yellin Lot Trailer Parking			
	Address: 1886 Upper Maple St.			
	City/Town: Dayville	State: CT	Zip Code:	06241
3.	Proposed Stormwater Management Practices (ST	, ,		
	□ Site Planning and Design ⊠	Stormwater Treatment P	ractices	
4.	Critical Resources (check all that apply):			
	On-site	Off-site		
	☐ Wells, aquifers	Neighboring land u	Ises	
	🛛 Wetlands, streams, ponds	Wells, aquifers		
	Public drinking water supplies	Wetlands, streams	, ponds	
	Other: (please describe)	Public drinking wat	er supplies	
		Other: (please des	cribe)	

Part I: General Information (continued)

pl	List any plans and/or reports that may be referenced in this worksheet. In addition to the name of each plan or report, label each consecutively starting with the number 1 (e.g., Report 1: <i>name of report</i> , etc.) Use the plan or report identifier number where necessary in this worksheet.				
PI	an #1; Civil Engineering Plans				
R	eport #1; Stormwater Hydrology and Hydraulic Calculations				
R	eport #2; Stormwater Pollution Prevention Plan				
R	eport #3; Geotechnical Investigation				
ide	ovide the location of the following information. Use the entifier numbers provided in Part I: item 5 of this worksheet consistency.	Plan #	Plan sheet #	Report #	Report page #
Si	ite Description	-	***	-	
i.	Natural and manmade features at the site	1	1C-100		
ii.	Site topography, drainage patterns, flow paths, and ground cover	1	1C-100		
iii.	Impervious area and runoff coefficient			1	24
iv	Site soils as defined by USDA			1	17
۷.	Stormwater discharge from site and known sources of pollutants and sediment loading	1	1C-140	2	4
	 Critical areas, buffers, and setbacks established by authorities 	1	1C-120		
	 Water quality classification of on-site and adjacent water bodies 			1	1C-170
vii	 ii. Identity of any on-site or adjacent waterbodies included on CT 303(d) list of impaired waters 	1	1C-100		
6b. Po	otential Stormwater Impacts				
i.	Potential pollutant sources	1	1C-160		
ii.	relative/calculated load of each pollutant			N/A	
	Summary of calculated pre- and post-development peak flows			1	6
iv	 Summary of calculated pre- and post-development groundwater recharge 			N/A	

Part II: Site Planning and Design

See Chapter 4 of the Stormwater Quality Manual for complete descriptions of concepts listed in this Part.

Α.	Site Planning and Design Concepts Indicate Yes or No for each item listed below and provide a brief	explanation in	the space provided.
1.	Has the development been designed to fit the terrain? Existing topographic information obtained for purposes of s	Yes Yes ite grading.	🗌 No
2.	Has the development been designed to limit land disturbance? Areas outside of construction limits shall remain undisturbe	⊠ Yes d.	🗌 No

Part II: Site Planning and Design (continued)

3.					
	(Where Alternative Site Design techniques have been utilized, describe in Part II. B of this worksheet) Vehicle drive aisles and parking spaces limited to only what is needed.				
4.	Has the development been designed to preserve and utilize natural drainage system? Xes INO Existing overland flow patterns have been utilized in final site grading.				
5.	Have setbacks and vegetated buffers been provide 100' riparian rights setback from Five Mile Rive				
6.	Has the creation of steep slopes been minimized?	🛛 Yes 🗌 No			
	Pond slopes have been designed to 3H:1V max	imum.			
7.	Has pre-development vegetation been maintained?	? ⊠ Yes □ No			
	Areas outside of construction limits will remain	in their natural condition.			
8.	 Briefly describe post-construction landscaping practices used including attention to native/non-invasive planting. 				
	Native evergreen trees to be planted on the west side of project development for screening and buffering.				
В.	Alternative Site Design Check all aspects included in the development des	ign.			
	Reduced street widths	Reduced street lengths			
	Alternative cul-de-sac design	Reduced use of storm sewers			
	Reduced parking lot size	Using permeable paving material			
	Removal of curbing and addition of slotted curb stops	Incorporation of bioretention into parking lot islands			
	Alternative lot development	Incorporation of rain gardens on house lots			
Fo	For all aspects checked, provide a detailed explanation:				
	Overland sheet flow paths have been maximized where possible to reduce the number of storm sewer inlets and pipes required.				

Part III: Stormwater Treatment Practices

Complete Sections A through E for all developments. Complete and include appropriate sheets from Part IV for each practice checked in this Part.

A. Practices Used			
Check all practices used in development. Primary Treatment Practices	Secondary Treatment Practices		
Stormwater Pond (P1)	Conventional		
micropool extended detention pond	Dry detention pond (S1)		
☐ wet pond	Underground detention facilities (S2)		
wet extended detention pond	Deep sump catch basins (S3)		
🛛 multiple pond system	Oil/particle separators (S4)		
pocket pond	Dry wells (S5)		
Stormwater Wetlands (P2)	Permeable pavement (S6)		
shallow wetland	Uegetated filter strips (S7)		
extended detention wetland	Grass drainage channels (S8)		
pond/wetland system	Innovative/ Emerging Technologies		
Infiltration Practices (P3)	Catch basin inserts (S9)		
infiltration Trench	Hydrodynamic separators (S10)		
🛛 infiltration Basin	Media filters (S11)		
Filtering Practices (P4)	Underground infiltration systems (S12)		
surface sand filter	Alum injections (S13)		
underground sand filter			
perimeter sand filter			
organic filter			
bioretention			
Water Quality Swales (P5)			
☐ dry swales			
wet swales			
1. If there is no primary treatment practice used, explain why.			
 Are other innovative emerging technologies proposed that are not listed?			
3. Provide a diagram of the treatment train showing the pr connected. Attach and label a separate sheet to this sh			

Part III: Stormwater Treatment Practices (continued)

В.	Stormwater Quality Management Objectives		
	Check all that apply		
	Groundwater Recharge	Pollutants expected from development	
	Runoff Volume Reduction	🛛 Sediment	
	Stream Channel Protection	Phosphorus	
	🛛 Peak Flow Control	🗌 Nitrogen	
		Metals	
		Hydro-Carbons	
		Bacteria	

C. Downstream Resources: List each stormwater treatment practice (STP) which may affect a downstream resource. Check each downstream resource affected for each STP listed. In the space below each listed practice describe how the STP is designed to reduce impacts to the affected downstream resources.

See Section 8.4 of the Stormwater Quality Manual for additional guidance

Stormwater Treatment Practice	Sensitive Watercourses	Water Supply Aquifers	Lakes and Ponds	Surface Water Drinking Supplies	Estuary/ Coastal
Description:					
Description:					
Description:					
Description:					

Part III: Stormwater Treatment Practices (continued)

D.	Has the STP been designed to minimize the potential for nuisance insects and vectors?
	See Section 8.7 of the Stormwater Quality Manual for guidance
	🛛 Yes 🗌 No
	Provide brief explanation: The proposed dry detention pond is designed to recover stormwater within 5 days of the rainfall event. Also catch basins and inlets have been designed without sumps.
E.	Has the STP been designed to reduce the impact on natural wetlands and vernal pools?
	See Section 8.8 of the Stormwater Quality Manual for guidance
	🗌 Yes 🛛 No
	Provide brief explanation: No natural wetlands or vernal pools exist on the subject property.

A. Stormwater Ponds (P1) (See Chapter 11-P1 of the Stormwater Quality Manual for guidance)

1. Type: (check one) (Reproduce this sheet for each type used.)						
☐ Wet Pond		Wet Extended Detention Pond				
Micropool Extended	d Detention Pond 🛛 🕅 Multip	ple Pond System				
	2. Provide the location of the following information. Use the report and/or plan identifier numbers provided in Part I: item 5 of this worksheet for consistency.					
Parameter	Design Criteria	Provide report and/or plan page or sheet number showing aspect or calculation				
	50 feet from on-site sewage disposal systems	Plan #1; Page 1C-140				
	50 feet from private wells	Plan #1; Page 1C-140				
Cathoole	10 feet from any property line	Plan #1; Page 1C-140				
Setback	20 feet from any structure	Plan #1; Page 1C-140				
	50 feet from any steep slope	Plan #1; Page 1C-140				
		No Vernal Pools				
Droforred Chara	750 feet from any vernal pool					
Preferred Shape	Curvilinear 3:1 or maximum	Plan #1; Page 1C-140				
Side Slopes						
	Terminate at safety benches	Plan #1; Page 1C-140				
Length to Width Ratio	3:1 minimum along the flow path between the inlet and outlet at mid-depth	Plan #1; Page 1C-140				
Pretreatment Volume	10% of WQV 100% of WQV for higher pollutant loadii (see Chapter 7)	Report #1; Page 78, Appendix 4				
Pond Volume	Equal or exceeding WQV	Report #1; Page 78., Appendix 4				
Drainage Area						
Wet ponds	Minimum contributing drainage area 25 acres	N/A				
Extended Detention	Minimum contributing drainage area 10 acres	N/A				
Pocket Ponds	Minimum contributing drainage area 1-5 acres	⁵ N/A				
Underlying Soils	Low permeability unless groundwater intercepted	N/A				
Capacity	Minimum ratio of pool volume to WQV between 2:1 and 4:1	Report #1; Page 78., Appendix 4				
Depth						
Pool	3-6 feet, not greater than 8 feet	Report #1; Page 78., Appendix 4				
Aquatic bench	12-18 inches	N/A				
Low Flow Orifice Protected from clogging		Report #1; Page 78., Appendix 4				
Pond Drain	Present					
Principle Spillway	Inaccessible to children	Plan #1; 1C-120				
Warning Signs	Posted against swimming/skating					
Maintenance Access	Extending to public road	N/A				
Cross Sections		Report #1; Page 78				
Describe Cold Climate Des	ign Features:					
Other Design Features:						

B. Stormwater Wetlands (P2) (See Chapter 11-P2 of the Stormwater Quality Manual for guidance)

Shallow Wetland	 Type: (check one) (Reproduce and complete this sheet for each type used.) Shallow Wetland Pond/Wetland System 				
	Extended Detention Wetland				
	of the following information. Use the repor em 5 of this worksheet for consistency.	t and/or plan identifier numbers			
Parameter	Design Criteria	Provide report and/or plan page or sheet number showing aspect or calculation			
	50 feet from on-site sewage disposal systems				
	50 feet from private wells				
Setback	10 feet from any property line				
	20 feet from any structure				
	50 feet from any steep slope				
	750 feet from any vernal pool				
Preferred Shape	Curvilinear				
-	3:1 or maximum				
Side Slopes	Terminate at safety benches				
Length to Width Ratio	3:1 minimum along the flow path between the inlet and outlet at mid-depth				
	10% of WQV				
Pretreatment Volume	100% of WQV for higher pollutant loading (see Chapter 7)				
Drainage Area	Minimum contributing drainage area 25 acres				
	Surface area of wetland 1 to 1.5% of contributing drainage area				
Underlying Soils	Low permeability unless groundwater intercepted				
Size	Based on calculations on page 11-P2-7 and 8. Approximate guidelines: ratio of wetland to drainage area 0.2 for shallow marshes and 0.1 for extended detention shallow wetland systems				
Depth					
Marsh/Wetland	0.5 to 1.5 feet				
Forebays/Micropools	4-6 feet				
Low Flow Orifice	Protected from clogging				
Wetland Drain	Present				
Principle Spillway	Inaccessible to children				
Warning Signs	Posted against swimming/skating				
Maintenance Access	Extending to public road				
Cross Sections					
Describe Cold Climate Des	sign Features:				
Other Design Features:					

GF.

C. Infiltration Practices (P3) (See Chapter 11-P3 of the Stormwater Quality Manual for guidance)

1. Type: (check one) (Reproduce and complete this sheet for each type used.)					
Trench	Trench 🛛 Basin				
	2. Provide the location of the following information. Use the report and/or plan identifier numbers provided in Part I: item 5 of this worksheet for consistency.				
Parameter	Design Criteria	Provide report and/or plan page or sheet number showing aspect or calculation			
Design Volume	Entire water quality volume (WQV)	Report #2; Page 78., Appendix 4			
Pretreatment Volume	25% of WQV	Report #2; Page 78., Appendix 4			
Maximum Draining Time	48 to 72 hours after storm event (entire WQV)	Report #2; Page 6			
Minimum Draining Time	12 hours (for adequate pollutant removal)	Report #2; Page 6			
Maximum Contributing Drainage					
Trench	5 acres	N/A			
Basin	25 acres	Report #2; Page 32			
Minimum Infiltration Rate	0.3 in/hr (as measured in field	Report #2; Page 6			
Maximum Infiltration Rate	5.0 in/hr (as measured in field)	N/A			
Depth					
Trench	2 to 10 feet (trench depth)	N/A			
Basin	3 feet (pondering depth) recommended	Report #2; Page 78., Appendix 4			
Vegetated Buffers	Around Trench	N/A			
Cross Sections		Report #2; Page 78., Appendix 4			
Describe Cold Climate Design Features:					
Other Design Features:					

D. Filtering Practices (P4) (See Chapter 11-P4 of the Stormwater Quality Manual for guidance)

1. Type: (check one) (Re	. Type: (check one) (Reproduce and complete this sheet for each type used.)			
Surface Filters	Underground Filters			
	of the following information. Use the repo m 5 of this worksheet for consistency.	rt and/or plan identifier numbers		
Parameter	Design Criteria	Provide report and/or plan page or sheet number showing aspect or calculation		
Maximum Drainage Area	5 to 10 acres			
Bio-retention	Less then 5 acres			
Slope	6% or less			
Head Difference	5 to 7 feet			
Underlying Soils	Highly impervious			
Distance to Water Table	At least 3 feet separation			
Pretreatment Volume	at least 25% WQV			
Length to Width Ratio	1.5:1 to 3:1			
Design Volume	At least 75% WQV			
Draining Time	Designed to Drain within 24 hours			
Cross Sections				
Describe Cold Climate Design Features:				
Other Design Features:				

E. Water Quality Swales (P5) (See Chapter 11-P5 of the Stormwater Quality Manual for guidance)

1. Type: (check one) (Reproduce and complete this sheet for each type used.)					
Dry Swale	☐ Wet Swale)			
	2. Provide the location of the following information. Use the report and/or plan identifier numbers provided in Part I: item 5 of this worksheet for consistency.				
Parameter	Design Criteria	Provide report and/or plan page or sheet number showing aspect or calculation			
Pretreatment Volume	25% of the water quality volume (WQV)				
Preferred Shape	Trapezoidal and parabolic				
Bottom Width	4 feet minimum recommended for maintenance, 8 feet maximum, widths up to 16 feet are allowable if a dividing berm or structure is used				
Side Slopes	3(h): 1(v) maximum, 4:1 or flatter recommended for maintenance (where space permits)				
Longitudinal Slope	1% to 2% without check dams, up to 5% with check dams				
Drainage Area	No more than 5 acres				
Sizing Criteria	Length, width, depth and slope needed to provide surface storage for the WQV.				
Dry Swale	Maximum ponding time of 24 hours				
Wet Swale	retains the WQV for 24 hours; ponding may continue longer (5 days recommended maximum duration to avoid potential for mosquito breeding				
Underlying Soil Bed	Equal to Swale width				
Dry Swale	Moderately permeable soils (USCS ML, SM, or SC), 30 inches deep with gravel/pipe underdrain system				
Wet Swale	Undisturbed soils, no underdrain system				
	Surface storage of WQV with maximum ponding depth of 18 inches for water quality treatment				
Depth and Capacity	Safely convey 2-year storm with non- erosive velocity Adequate capacity for 10-year storm with 6				
	inches of freeboard				
Cross Sections					
Describe Cold Climate Design Features:					
Other Design Features:					

Provide location of explanatory narrative, computations and plan/detail for consistent with "Design Consideration" for each measure. Use the report a numbers provided in Part I: item 5 of this worksheet for consistency.	
S1: Dry Detention Ponds	
Explain why this practice is suitable for this site (see pp 11-S1-1 to 2): Dry detention is a suitable design due to the presence of granular, non-pla well as the groundwater not being encountered during onsite geotechnical Geotechnical Investigation	
Item:	Provide report and/or plan page or sheet #:
1. Sediment Forebay with Deep Permanent Pool	Plan #1; Page 1C-140
2. Extended Detention Storage Design (no longer than 5 days)	Report #1; Page 6
3. Outlet Wet Pool	Report #1; Page 75.
4. Pond Configuration	Plan #1; Page 1C-140
5. Low Flow Channels	N/A
6. Dam Safety Section of CTDEP IWRD consulted regarding State jurisdiction?	
S2: Underground Detention Facilities	
Explain why this practice is suitable for this site (see pp 11-S2-1 to 3):	
Item:	Provide report and/or plan page or sheet #:
1. Siting	
2. Pretreatment	
3. Inlets, Outlets, and Overflows	
S3: Deep Sump Catch Basins Explain why this practice is suitable for this site (see pp 11-S3-1 to 3):	
Item:	Provide report and/or plan page or sheet #:
1. Drainage Area	
2. Design	
3. Maintenance	
4. Sediment Disposal	
S4: Oil/Particle Separators	
Explain why this practice is suitable for this site (see pp 11-S4-1 to 6):	
Item:	Provide report and/or plan page or sheet #:
1. Drainage Area	
2. Sizing/Design	
3. Maintenance	

S5: Dry Wells	
Explain why this practice is suitable for this site (see pp 11-S5-1 to 4):	
Item:	Provide report and/or plan page or sheet #:
1. Soils	
2. Land Use	
3. Drainage Area	
4. Water Table/ Bedrock	
5. Size/Depth	
6. Miscellaneous	
7. Construction	
8. Operation and Maintenance	
S6: Permeable Pavement	
Explain why this practice is suitable for this site (see pp 11-S6-1 to 4):	
	Provide report and/or plan
Item:	page or sheet #:
1. Soils	
2. Land Use	
3. Slope	
4. Water Table/ Bedrock	
5. Construction (Site Preparation and Planting)	
6. Operation and Maintenance	
S7: Vegetated Filter Strips and Level Spreaders	
Explain why this practice is suitable for this site (see pp 11-S7-1 to 6):	
	Provide report and/or plan
Item:	page or sheet #:
1. Slope	
2. Soils	
3. Drainage Area	
4. Water Table/ Bedrock	
5. Size	
6. Vegetation	
7. Level Spreader	
8. Construction	
9. Operation and Maintenance	

S8: Grass Drainage Channels	
Explain why this practice is suitable for this site (see pp 11-S8-1 to 3):	
	Provide report and/or plan
Item:	page or sheet #:
1. Provides sufficient channel length	
2. Provides non-erosive velocities	
3. Sufficient capacity and conveyance for 10-year frequency storm event.	
S9: Catch Basin Inserts	
Explain why this practice is suitable for this site (see pp 11-S9-1 to 3):	
	Provide report and/or plan
Item:	page or sheet #:
1. High Flow Bypass	
2. Maintenance	
S10: Hydrodynamic Separators	<u>}</u>
Explain why this practice is suitable for this site (see pp 11-S10-1 to 3):	
To provide pre-treatment of stormwater runoff prior to entering propose	ed forebay.
ltem:	Provide report and/or plan page or sheet #:
1. Drainage Area	Report #1; Page 79.
2. Sizing/Design	Report #1; Page 79.
3. Performance	Report #1; Page 80-81.
4. Maintenance	Report #1; Page 80-81.
5. Sediment Disposal	Report #1; Page 80-81.
S11: Media Filter	
Explain why this practice is suitable for this site (see pp 11-S11-1 to 3):	
Item:	Provide report and/or plan page or sheet #:
1. Sizing/ Design	
2. Maintenance	
3. Sediment Disposal	

S12: Underground Infiltration Systems	
Explain why this practice is suitable for this site (see pp 11-S12-1 to 3):	
Item:	Provide report and/or plan page or sheet #:
1. Siting	
2. Pretreatment	
3. Design Volume	
4. Draining Time	
5. Infiltration Rate	
S13: Alum Injection	
Explain why this practice is suitable for this site (see pp 11-S13-1 to 2):	
Item:	Provide report and/or plan page or sheet #:
1. Design	
2. Operation and Maintenance	

Part V: Calculations Worksheet

For each STP used, provide calculations for each item listed. Use separate sheet for each STP.

ī												
Na	me of STP for whi	ch the following calculations are	provided:									
	Multiple Pond System											
	Hydro Dynamic Separators 1 & 2											
1.	. Compute Water Quality Volume (WQV):											
	Total WQV was determined using 2004 CT. Stormwater Quality Manual, Chapter 7. WQV storage provided at pond stage elevation 252.95.											
	WQV storage pi	rovided at pond stage elevation	n 252.95.									
	WQV = 1.72	(ac-f	ft)									
2.	Compute Water	Quality Flow (WQF):										
	Adlcpr for 1" or	/QF for the Hydro Dynamic sep rainfall. Hydro Dynamic units the calculated WQF. Downstre	were sized based upon manu	facturers technical								
	WQF = 6.21 Tota	al (cfs)										
3.	Compute Ground N/A	dwater Recharge Volume (GRV):										
	GRV =	(ac-1	ft)									
4.	Compute Runoff	Capture Volume (RCV):										
	RCV =	(ac-l	ft)									
5.	Provide Peak Dis	charge Rates for the following	storm events:									
	Storm Event	Pre-Development	Post-Development	Change								
		(cfs)	(cfs)	(+/- cfs)								
	24 hr											
	2-year	4.69	4.24	-0.45								
	10-year	14.41	13.94 -0.47									
	25-year 19.40 15.31 -4.09											
	20 your		100-year 30.18 17.51 -12.67									
	-	30.18	17.51	-12.67								



Client Name:	Frito-Lay		
Project Name:	Project Knight		
Location:	Killingly, CT	Project Num:	3401365
Prepared by:	SBC	Date:	5/1/2020

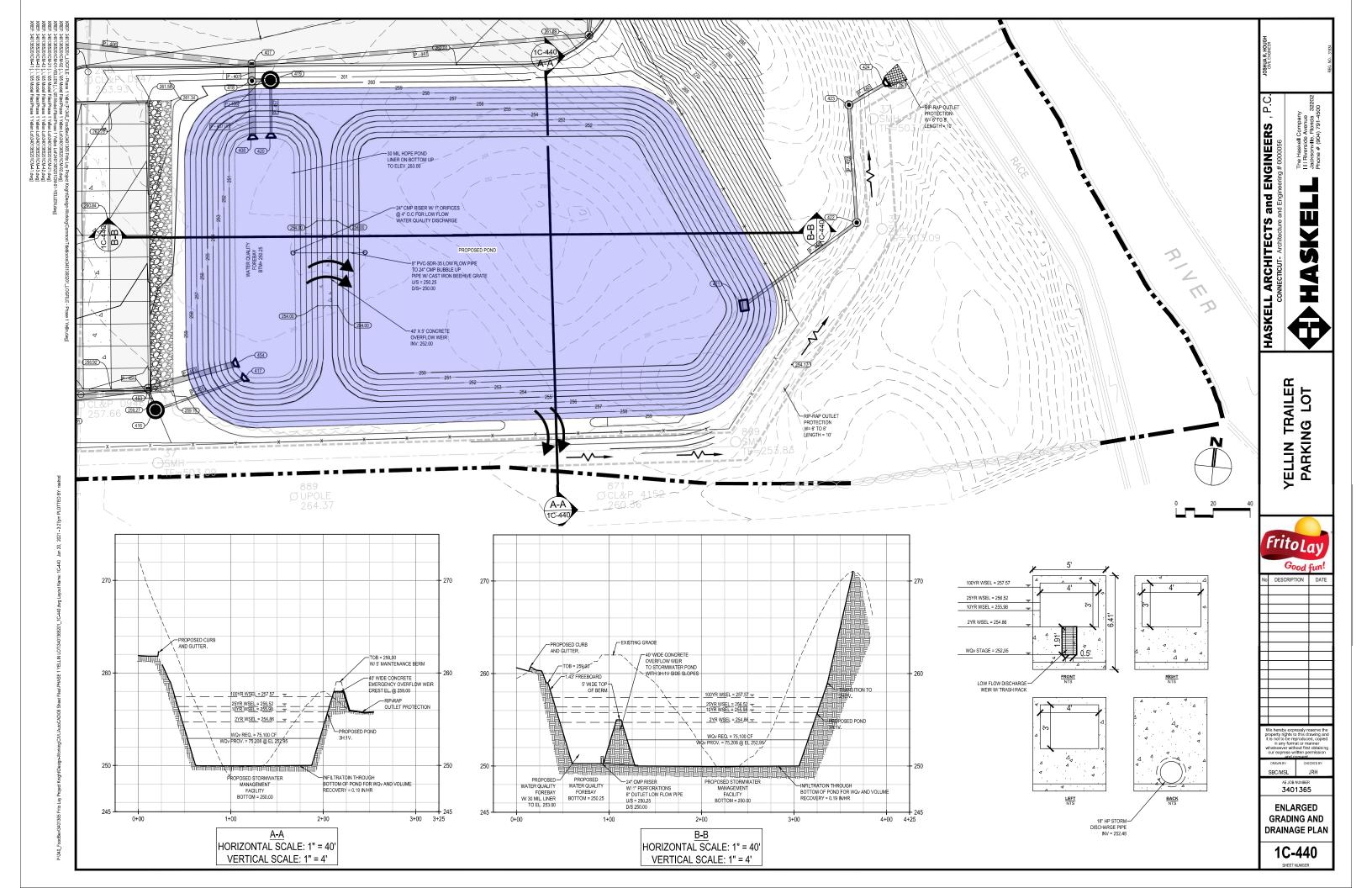
WATER QUALITY VOLUME (WQV)

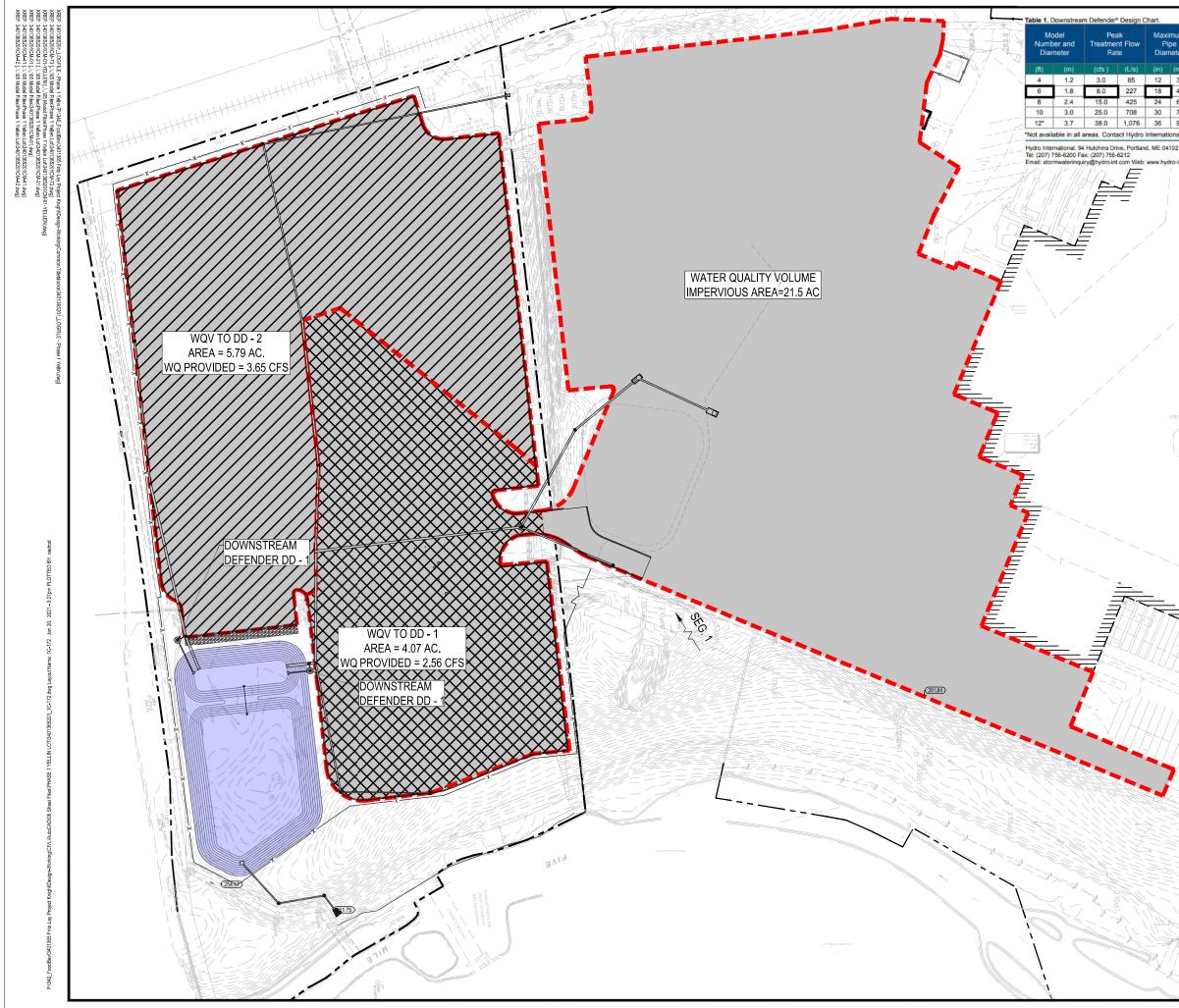
WATER QUALITY VOLUME (WQV) REQUIREMENTS TAKEN FROM: 2004 CONNECTICUT STORMWATER QUALITY MANUAL; CHAPTER 7.

WQV=((1")(R)(A))/12

WHERE:

PERCENT IMPERVIOUS COVER 1= R= VOLUMETRIC RUNOFF COEFFICIENT; 0.05+0.009(I) 25.1 ACRES A= 86 % 1= R 0.824 ACRES A= 25.1 AC-FT WQV= 1.72 CU.FT 75,077 75,100 CU FT. OF STORAGE PROVIDED AT POND STAGE ELEVATION 252.95.





Maximum Pipe Diameter			orage acity	Sedir Stor Capa	age	Distan Outlet I	mum ce from nvert to of Rim	Standard Height from Outlet Invert to Sump Floor	
(in)	(mm)	(gal)	(L)	(yd³)	(m³)	(ft)	(m)	(ft)	(m)
12	300	70	265	0.70	0.53	2.8	0.85	4.1	1.25
18	450	216	818	2.10	1.61	3.2	0.98	5.9	1.80
24	600	540	2,044	4.65	3.56	4.2	1.28	7.7	2.35
30	750	1,050	3,975	8.70	6.65	5.0	1.52	9.4	2.85
36	900	1,770	6,700	14.70	11.24	5.6	1.71	11.2	3.41

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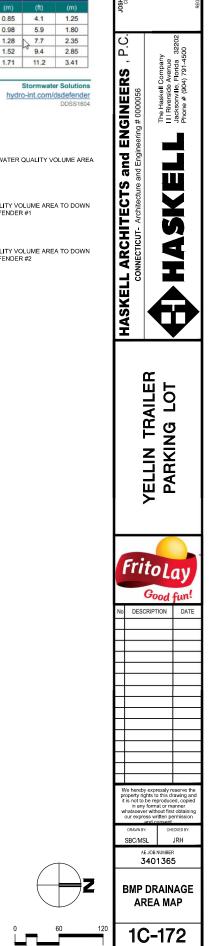
EFFECTIVE WATER QUALITY VOLUME AREA



WATER QUALITY VOLUME AREA TO DOWN STREAM DEFENDER #1



WATER QUALITY VOLUME AREA TO DOWN STREAM DEFENDER #2



SHEET NUMBE







Downstream Defender®

High-Level Treatment in a Small Footprint

Product Profile

The Downstream Defender[®] is an advanced vortex separator used to treat stormwater runoff in pretreatment or stand-alone applications. Its unique flow-modifying internal components distinguish the Downstream Defender[®] from conventional and simple swirl separators that typically bypass untreated peak flows to prevent washout of captured pollutants. Its wide treatment flow range, low headloss, small footprint and low-profile make it a compact and economical solution for capturing nonpoint source pollution.

Components

- 1. Inlet to Precast Vortex Chamber
- 2. Cylindrical Baffle
- 3. Center Shaft

Outlet Pipe
 Sediment Storage Sump

6. Access Lid

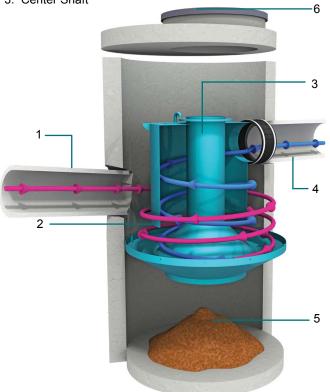


Fig.1 The Downstream Defender[®] has internal components designed to maximize pollutant capture and minimize pollutant washout.

Applications

- Removal of total suspended solids (TSS), floatable trash and petroleum products from stormwater runoff
- New construction or redevelopment of commercial and residential sites
- Pollutant hotspots such as maintenance yards, parking lots, gas stations, streets, highways, airports and transportation hubs
- · Site constrained LID or green infrastructure based developments
- LEED[®] development projects

Advantages

- Special internal components maximize pollutant capture and minimize footprint, headloss and washout
- · Captures and retains a wide range of TSS particles
- · High peak treatment flow rates
- Treats the entire storm with no washout or untreated bypass flows
- Low maintenance requirements no dredging required, and no screens or media to block
- Variable inlet/outlet angles for ease of site layout

How it Works

Advanced hydrodynamic vortex separation is a complex hydraulic process that augments gravity separation with low-energy rotary forces. The flow modifying internal components used in the Downstream Defender[®] harness the energy from vortex flow and maximize the time for separation to occur while deflecting high scour velocities (**Fig.1**).

Polluted stormwater is introduced tangentially into the side of the precast vortex chamber to establish rotational flow. A cylindrical baffle with an inner center shaft creates an outer (magenta arrow) and inner (blue arrow) spiraling column of flow and ensures maximum residence time for pollutant travel between the inlet and outlet.

Oil, trash and other floating pollutants are captured and stored on the surface of the outer spiraling column. Low energy vortex motion directs sediment into the protected sump region. Only after following a long three-dimensional flow path is the treated stormwater discharged from the outlet pipe. Maintenance ports at ground level provide access for easy inspection and clean-out.

Downstream Defender®

Drainage Profile

The Downstream Defender[®] is designed with a submerged tangential inlet to minimize turbulence within the device. Turbulence increases system headlosses and reduces performance by keeping pollutant particles in suspension.

The inlet elevation of the Downstream Defender[®] is located one inlet pipe diameter lower than the elevation of the outlet invert (**Fig.2**). This arrangement ensures that influent flows are introduced to the treatment chamber quiescently below the water surface elevation, minimizing turbulence.

The unique flow-modifying internal components also minimize hydraulic losses. There are no internal weirs or orifices; large clear openings ensure low headloss at peak flow rates with little risk of blockages that cause upstream flooding.

Inspections, Repairs and Clean-out

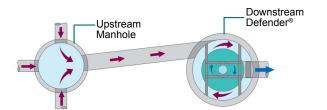
Nobody maintains our systems better than we do. To ensure optimal, ongoing device performance, be sure to recommend Hydro International as a preferred service and maintenance provider to your clients.

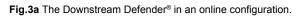


Call **1 (800) 848-2706** to schedule an inspection and clean-out or learn more at **hydro-int.com/service**

Sizing & Design

The Downstream Defender[®] can be used to meet a wide range of stormwater treatment objectives. It is available in 5 precast models that fit easily into the drainage network (**Table 1**). Selection and layout of the appropriate Downstream Defender[®] model depends on site hydraulics, site constraints and local regulations. Both online (**Fig.3a**) and offline (**Fig.3b**) configurations are common.





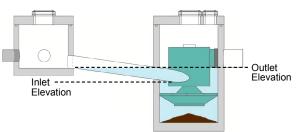


Fig.2 The Downstream Defender® has a submerged inlet that reduces headloss and improves efficiency of pollutant capture.

Table 1. Downstream Defender[®] Design Chart.

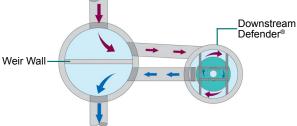


Fig.3b The Downstream Defender[®] in an offline configuration.



Free Stormwater Sizing Tool

This simple online tool will recommend the best separator, model size and online/offline arrangement based on site-specific data entered by the user.

Go to hydro-int.com/sizing to access the tool.

Model Number and Diameter		Peak Treatment Flow Rate		Maximum Pipe Diameter		Oil Storage Capacity		Sediment Storage Capacity		Minimum Distance from Outlet Invert to Top of Rim		Standard from Out to Sum	let Invert
(ft)	(m)	(cfs)	(L/s)	(in)	(mm)	(gal)	(L)	(yd³)	(m³)	(ft)	(m)	(ft)	(m)
4	1.2	3.0	85	12	300	70	265	0.70	0.53	2.8	0.85	4.1	1.25
6	1.8	8.0	227	18	450	216	818	2.10	1.61	3.2	0.98	5.9	1.80
8	2.4	15.0	425	24	600	540	2,044	4.65	3.56	4.2	1.28	7.7	2.35
10	3.0	25.0	708	30	750	1,050	3,975	8.70	6.65	5.0	1.52	9.4	2.85
12*	3.7	38.0	1,076	36	900	1,770	6,700	14.70	11.24	5.6	1.71	11.2	3.41

*Not available in all areas. Contact Hydro International for details.