

To: Town of Pembroke Planning Board	Date:	November 15, 2018	Memorandum
	Project #:	14239.00	
From: Kenneth Staffier, PE	Re:	Proposed Urgent Care Facility	
Arianna Goss, PE		Stormwater Management Memorandum	

On behalf of D and C Real Estate Trust CTS Fiduciary LLC Trustee (the Applicant), VHB respectfully submits the following Stormwater Management Memorandum, to support the Site Plan Approval application and Site Plans prepared by VHB titled "Proposed Urgent Care Facility" dated November 15, 2018 (the "Project") located at 296 Old Oak Street in Pembroke, MA (the "Site").

# **Project Summary**

Currently, the Site is comprised of an existing 11,250-square-foot footprint retail building and associated paved parking, loading areas, utilities (water, septic system, gas and electric), several leaching catch basins and a stormwater detention basin. The majority of the site is impervious with limited landscaping provided within the paved areas. Specifically, the existing site is comprised of 9.3% roofs ("clean" runoff), 67% impervious surfaces (e.g. pavement, concrete walkways, loading areas, etc.) with little to no treatment, and 23.7% pervious (landscaped) areas.

The proposed Project is a redevelopment of this existing site. The Project proposes to construct a 5,230-squarefoot urgent care facility in the northeastern portion of the site, which will replace some of the existing pavement and will require the removal of the existing detention basin in this area. The Project also includes the construction of a new load dock area for the existing retail building that will remain. The northeast portion of the Site will be redeveloped with a new parking layout and new landscaped areas to accommodate the proposed building.

The existing front parking lot will also be improved as part of the Project; landscaped islands will be constructed, and the parking lot will be resurfaced. The rear parking lot will not be altered as part of the Project. The Project will decrease paved surface areas by approximately 9,700 sf and will add approximately 3,200 sf of pervious area. The table below summarizes the change in cover types resulting from the Project:

# Table 1

	Existing Conditions	<b>Proposed Conditions</b>
Project Area	(% of Total Lot Area)	(% of Total Lot Area)
Roof Area	9 %	15 %
Pavement Area	67 %	50 %
i avement Alea	57 /6	39 //
Pervious Area	24 %	26 %



# **Existing Stormwater Conditions**

The existing stormwater management system is comprised of four (4) leaching catch basins and a detention pond. Stormwater runoff from the site flows to the five Design Points listed below. Figure 1 shows the existing drainage patterns at the site.

# Summary of Design Points and their Tributary Drainage Areas

- DP-1: The northwest portion of the Site drains to a leaching catch basin in the rear parking lot which provides for infiltration.
- DP-2: The southwest corner of the site drains offsite towards a drainage swale adjacent to Route 3.
- DP-3: The central and southern portions of the front parking lot drain to three (3) interconnected leaching catch basins. Overflow from the leaching basins is piped to the drainage system in Old Oak Street.
- DP-4: The northeastern portion of parking lot drains to a detention pond from which the discharge enters a headwall inlet at the corner of Old Oak Street and Church Street and is then piped to the Town drainage system.
- DP-5: The southwest corner and eastern edge of the site of the Site drain offsite towards Old Oak Street.

# **Proposed Stormwater Conditions**

The Project will not impact the existing drainage areas tributary to Design Points DP-1, DP-2 and DP-5, therefore, changes to the existing stormwater management in these areas has not been proposed. The existing leaching catchbasins tributary to DP-3 will be replaced with a new infiltration system (System P2) that replicates the infiltration capacity of the three (3) existing leaching catchbasin, but with improved water quality prior to discharge to the groundwater. The drainage area tributary to DP-4 is significantly impacted by the proposed Project, thus a new stormwater management system for this drainage area is proposed. Below is a summary of the changes to each of the drainage areas. Figure 2 shows the proposed drainage patterns.

# Summary of Changes to Design Points and their Tributary Drainage Areas

- DP-1: The northwest portion of the Site will not be altered as part of the Project. This area will continue to drain to the leaching catch basin in the rear parking lot.
- DP-2: The southwest corner of the site will continue to drain offsite towards the ditch adjacent to Route 3 under post-development conditions. Redevelopment in this portion of the site will slightly increase the drainage area to this design point by about 150 sf. This increase is considered de minimis as it does not result in a change in peak flow rates to this design point.
- DP-3: The central and southern portions of the front parking lot will continue to drain westerly toward Old Oak Street. Redevelopment in this portion of the site will decrease the drainage area to this design point by about 6,000 sf and will increase pervious (landscaped) areas. The three (3) existing leaching catch basins will be replaced with three (3) new catchbasins (with deep sumps and hoods) and a new

subsurface infiltration system (System P2) comprised of 24 Stormtech (SC740) chambers with an isolator row to capture sediment in the stormwater. This system has been designed to replicate the infiltration volume of the existing leaching basins and to treat the first one inch (1") of runoff generated from the paved parking lot. The overflow from the infiltration system will continue to be piped to the drainage system in Old Oak Street. Peak flow rates to DP-3 are decreased under the proposed conditions.

• DP-4: While the Project proposes to redevelop the northeastern portion of the Site, it will continue to drain to the Town drainage system at the corner of Old Oak Street and Church Street.

Runoff generated in the proposed truck dock area at the existing building and from the proposed parking lot for the urgent care facility will be captured in catchbasins with deep sumps and hoods and directed to a subsurface infiltration system (System P3) comprised of 18 Stormtech (SC740) chambers with an isolator row to capture sediment in the stormwater. This system has been designed to treat the first one inch (1") of runoff generated from the paved parking surfaces. The overflow from this infiltration system will be piped to the northeast to the existing headwall drain pipe that discharges into the drain system at the corner of Old Oak Street and Church Street. The headwall inlet will be replaced with a drain manhole structure.

The stormwater runoff from the proposed 5,230 SF urgent care building roof will be directed to a separate subsurface infiltration system (System P1) comprised of 21 Stormtech (SC740) chambers. Because stormwater runoff from roofs does not require treatment, the system does not include an isolator row. Outflow from the roof infiltration system will be piped to the proposed drain manhole at the location of the existing headwall at the corner of Old Oak Street and Church Street.

• DP-5: The southwest corner and eastern edge of the Site will continue to drain offsite towards Old Oak Street under post-development conditions. Redevelopment in this portion of the site will increase the drainage area to this design point by about 1000 sf, but will increase pervious area, thus resulting in lower peak flow rates to this design point.

# **Stormwater Management Standards**

As demonstrated below, the proposed Project complies with the Massachusetts Department of Environmental Protection Stormwater Management Standards.

• Standard 1: No New Untreated Discharges or Erosion to Wetlands

The Project does not propose any new stormwater discharges and therefore complies with Standard 1.

• Standard 2: Peak Rate Attenuation

The following table demonstrates the peak flow rates for the 2-, 10-, 50- and 100-year storms under existing and proposed conditions. The proposed project will decrease the peak flow rates for all storms and design points except for the 2- and 10- year storms at DP-4 which were calculated to increase by 0.1 cfs. We do not anticipate that the additional 0.1 cfs will impact this discharge point.

Peak Discharge Rates in cubic feet per second (cfs)						
Design Point	2-year	10-year	50-year	100-year		
Design Point: 1						
Existing	1.0	1.6	2.2	2.5		
Proposed	1.0	1.6	2.2	2.5		
Design Point: 2						
Existing	0.3	0.5	0.8	0.9		
Proposed	0.3	0.5	0.8	0.9		
Design Point: 3						
Existing	4.3	6.4	8.8	9.9		
Proposed	2.9	4.8	7.0	7.9		
Design Point: 4						
Existing	0.8	2.5	3.9	4.6		
Proposed	0.9	2.6	3.9	4.4		
Design Point: 5						
Existing	0.3	0.6	1.0	1.1		
Proposed	0.2	0.5	0.9	1.1		

# • Standard 3: Stormwater Recharge

The Project proposes to decrease impervious area on the Site, thus increasing stormwater infiltration in the landscaped areas. Additionally, the Project proposes to construct three (3) subsurface infiltration systems to treat and infiltrate the stormwater runoff from the existing main parking field, the new truckdock area at the existing retail building and the new parking lot for the proposed urgent care building. The clean stormwater runoff from the new 5,230 SF urgent care building will also be infiltrated. The recharge volume provided by the proposed infiltration systems exceeds the required recharge volume for the Project.

# • Standard 4: Water Quality

Under existing conditions, the main parking field for the retail building has no water quality devices; stormwater is collected with leaching catchbasin that allow stormwater to enter the groundwater untreated. Runoff from the existing building's truckdock area and the side parking field flows over the pavement to a stone channel and into a landscaped area prior to discharging through a headwall into the stormwater system at the Old Oak Street/Church Street intersection.

The Project proposes to replace the existing leaching catchbasins in the main parking field in front of the existing retail building with modern catchbasins with 4'-deep sumps and oil hoods to clean the stormwater prior to it being directed to a new subsurface infiltration system with an isolator row (System P2). This proposed treatment train will achieve 80% removal of Total Suspended Solids (TSS) from the first 1" of runoff as required for a project site located within a Zone II Wellhead Protection District.

Similarly, runoff generated in the proposed truck dock area at the existing building and runoff from the proposed parking lot for the urgent care facility will also be treated by catchbasins with deep sumps and hoods and the subsurface infiltration system isolator row in proposed System P3.

• **Standard 5:** Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

The Project is not considered a LUHPPL and therefore complies with Standard 5.

• Standard 6: Critical Areas

The Project is located within a Zone II Wellhead Protection Area and is designed to comply with the Standards accordingly.

• **Standard 7:** Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable

The Project is considered a redevelopment and has been designed to comply with all ten Stormwater Management Standards.

• Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Controls

The Project will not disturb more than one (1) acre of land.

• Standard 9: Operation and Maintenance Plan

The stormwater management system and surface areas of the site must be maintained regularly to avoid detrimental effects to the groundwater and the environment. The following is the procedure for maintaining each of the proposed stormwater system components:

# Pavement

- Check pavement areas frequently for spillage and/or pavement staining and clean as necessary.
- Perform periodic sweeping to prevent sediment and debris from entering the stormwater system and/or discharging from the Project Site.

# **Catchbasins**

- All catch basins shall be inspected at least four times per year and cleaned a minimum of once per year.
- Sediment (if more than six inches deep) and/or floatable pollutants shall be pumped from the basin and disposed of at an approved offsite facility in accordance with all applicable regulations.
- Any structural damage or other indication of malfunction will be reported to the site manager and repaired as necessary
- During colder periods, the catch basin grates must be kept free of leaves, snow and ice.
- During warmer periods, the catch basin grates must be kept free of leaves, litter, sand, and debris.

## Subsurface Infiltration Systems

- The subsurface infiltration systems will be inspected at least once each year by removing the manhole/access port covers and determining the thickness of sediment that has accumulated in the sediment removal (isolator) row.
- If sediment is more than six inches deep, it must be suspended via flushing with clean water and removed using a vacuum truck.
- Follow the manufacturer's specifications and instructions for cleaning the pipe headers.
- Emergency overflow pipes will be examined at least once each year and verified that no blockage has occurred.
- System will be observed after rainfalls to see if it is properly draining.

# Roof Leaders

- Perform routine roof inspections quarterly.
- Keep roofs clean and free of debris.
- Keep roof drainage systems clear.
- Keep roof access limited to authorized personnel.
- Clean inlets twice per year or as necessary.

# Vegetated Areas

- Inspect planted areas on a semi-annual basis and remove any litter.
- Maintain planted areas adjacent to pavement to prevent soil washout.
- Immediately clean any soil deposited on pavement.
- Re-seed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
- Plant alternative mixture of grass species in the event of unsuccessful establishment.
- The grass vegetation should be cut to a height between three and four inches.
- Pesticide/Herbicide Usage No pesticides are to be used unless a single spot treatment is required for a specific control application.
- Fertilizer usage should be avoided. If deemed necessary, slow release fertilizer should be used. Fertilizer may be used to begin the establishment of vegetation in bare or damaged areas but should not be applied on a regular basis unless necessary.
- Annual application of compost amendments and aeration are recommended.

• Standard 10: Prohibition of Illicit Discharges

The Project as designed does not include any proposed illicit discharges and therefore complies with Standard 10.

Figure 1: Existing Drainage Conditions







# SCS SOIL CLASSIFICATIONS



BIRCHWOOD - URBAN LAND COMPLEX, O TO 8 PERCENT SLOPES, HSG B/D

CARVER - URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES, HSG A



Existing Drainage Conditions

Figure 1

296 Old Oak Street Pembroke, MA 11/15/2018

Figure 2: Proposed Drainage Conditions







# SCS SOIL CLASSIFICATIONS



BIRCHWOOD - URBAN LAND COMPLEX, O TO 8 PERCENT SLOPES, HSG B/D

CARVER - URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES, HSG A



Proposed Drainage Conditions

Figure 2

296 Old Oak Street Pembroke, MA 11/15/2018

HydroCAD Analysis: Existing Conditions



Total Runoff Area = 122,103 sf Runoff Volume = 23,685 cf Average Runoff Depth = 2.33" 23.56% Pervious = 28,768 sf 76.44% Impervious = 93,335 sf

<b>14239.00-EX</b> Prepared by WATSCCM2012 HydroCAD® 10.00-19_s/n 07577_© 2016 HydroCAD Software Solutions LLC							Type III 24-hr 2-yr Rainfall=3.3 Printed 11/19/20 Page		
<u> </u>				Sumr	nary for Subcatchment EX-1: Rear Parking Lot		1 490		
Runoff	=	1.0 0	cfs @ 12.	17 hrs, Vol	ume= 3,918 cf, Depth= 2.52"				
Runoff b Type III	oy SCS TI 24-hr 2-y	R-20 me /r Rainfa	thod, UH=\$ III=3.38"	SCS, Weigł	ted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs				
А	rea (sf)	CN	Description						
	1.224	49	50-75% Gr	ass cover.	Fair. HSG A				
*	9,629	98	Impervious	,	, -				
*	5,137	98	Roof						
	2,651	79	Woods, Fa	ir, HSG D					
	18,641	92	Weighted A	verage					
	3,875		20.79% Pe	rvious Area					
	14,766		79.21% Im	pervious Ar	ea				
Tc (min)	Length	Slope	Velocity	Capacity	Description				
(11111)	(ieet)	0.0125		(05)	Sheet Flow, Wooded				
12.5	41	0.0123	0.00		Woods: Light underbrush n= 0.400 P2= 3.40"				
0.6	123	0.0330	3.69		Shallow Concentrated Flow, Pavement Paved Kv= 20.3 fps				
12.9	164	Total							
				Summar	v for Subcatchment EX-2: Western Corner of Si	ite			

Runoff = 0.3 cfs @ 12.10 hrs, Volume= 893 cf, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 2-yr Rainfall=3.38"

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	Area (sf)	CN	Description						
	685	49	50-75% Gr	)-75% Grass cover, Fair, HSG A					
*	1,162	98	Impervious						
	4,248	84	50-75% Gr	ass cover, l	Fair, HSG D				
	6,095	83	Weighted A	Average					
	4,933		80.94% Pe	30.94% Pervious Area					
	1,162		19.06% Im	19.06% Impervious Area					
٦	c Length	Slop	e Velocity	Capacity	Description				
(mi	n) (feet)	(ft/f	) (ft/sec)	(cfs)	· · · · · · · · · · · · · · · · · · ·				
6	.6 50	0.012	5 0.13		Sheet Flow, Grassed				

Grass: Short n= 0.150 P2= 3.40"

#### Summary for Subcatchment EX-3: Southern/Central Portion of Site

Runoff = 4.3 cfs @ 12.07 hrs, Volume= 13,988 cf, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 2-yr Rainfall=3.38"

	Area (sf)	CN	Description
	933	49	50-75% Grass cover, Fair, HSG A
*	50,149	98	Impervious
*	2,973	98	Roof
	1,247	84	50-75% Grass cover, Fair, HSG D
	55,302	97	Weighted Average
	2,180		3.94% Pervious Area
	53,122		96.06% Impervious Area

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#### Type III 24-hr 2-yr Rainfall=3.38" Printed 11/19/2018 Page 6

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.10		Sheet Flow, Pavement
1.0	213	0.0320	3.63		Smooth surfaces n= 0.011 P2= 3.40" Shallow Concentrated Flow, Pavement Paved Kv= 20.3 fps
0.1	50	0.0290	8.37	6.57	Pipe Channel, Piped System
0.3	42	0.0010	2.47	7.75	12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished <b>Pipe Channel, Piped System</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished

2.2 355 Total, Increased to minimum Tc = 5.0 min

#### Summary for Subcatchment EX-4: Northeastern Portion of Site

Runoff = 1.3 cfs @ 12.08 hrs, Volume= 4,065 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 2-yr Rainfall=3.38"

	Area (sf)	CN	Description
	12,865	49	50-75% Grass cover, Fair, HSG A
*	17,187	98	Impervious
*	3,058	98	Roof
	33,110	79	Weighted Average
	12,865		38.86% Pervious Area
	20,245		61.14% Impervious Area
	33,110 12,865 20,245	79	Weighted Average 38.86% Pervious Area 61.14% Impervious Area

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Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
0.2	38	0.3300	3.59		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
0.9	225	0.0400	4.06		Shallow Concentrated Flow, Pavement
					Paved Kv= 20.3 fps
2.0	56	0.0010	0.47		Shallow Concentrated Flow, Basin/RipRap
					Grassed Waterway Kv= 15.0 fps
	040	Tatal			

3.1 319 Total, Increased to minimum Tc = 5.0 min

#### Summary for Subcatchment EX-5: Southeastern Portion of Site

Runoff =	0.3 cfs @	12.08 hrs. Volume=	821 cf. Depth= 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 2-yr Rainfall=3.38"

			cochption		
4	1,410	49 5	0-75% Gra	ass cover, I	Fair, HSG A
* 4	1,040	98 Ir	npervious		
	505	84 5	0-75% Gra	ass cover, I	Fair, HSG D
8	3,955	73 V	Veighted A	verage	
4	1,915	5	4.89% Per	vious Area	
4	1,040	4	5.11% Imp	pervious Ar	ea
Tc L	ength	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
3.1	18	0.0110	0.10		Sheet Flow, Grass
					Grass: Short n= 0.150 P2= 3.40"
0.4	32	0.0280	1.29		Sheet Flow, Pavement
					Smooth surfaces n= 0.011 P2= 3.40"
0.1	26	0.0280	3.40		Shallow Concentrated Flow, Pavement
					Paved Kv= 20.3 fps
3.6	76	Total, I	ncreased t	o minimum	1 Tc = 5.0 min

Prepare HydroC/	.00-EX ed by WAT AD® 10.00-1	SCCM2012 <u>) s/n 07577 @</u>	∋ 2016 HydroCAE	) Software Solut	ions LLC	Type III 24-hr 2-yr Rainfall=3.38 Printed 11/19/2018 Page 8
				Summary f	or Pond P1: Existing Basin	
Inflow A Inflow Outflow Primary	Area = = / = / =	33,110 sf, 1.3 cfs @ 0.8 cfs @ 0.8 cfs @	61.14% Impervi 12.08 hrs, Volu 12.18 hrs, Volu 12.18 hrs, Volu	ous, Inflow De me= me= me=	epth = 1.47" for 2-yr event 4,065 cf 3,019 cf, Atten= 40%, Lag= 6.2 min 3,019 cf	
Routing Peak E	) by Stor-Ind lev= 95.92' (	method, 1 im	e Span= 0.00-30 Surf.Area= 1,47	0.00 hrs, dt= 0 0 sf Storage=	.01 hrs = 1,220 cf	
Volume #1	<u>Inver</u> 95.00	<u>t Avail.Sto</u> 2,1	orage Storage 149 cf Custom	Description Stage Data (	Prismatic)_isted below (Recalc)	
Elevati	on S		Inc Store	Cum.Store	•	
(fe	et)	(sq-ft)	(cubic-feet)	(cubic-feet)		
(fe) 95.0	et) 00	urt.Area (sq-ft) 1,183	(cubic-feet) 0	cubic-feet)	<u>)</u>	
(fe) 95.0 96.0	et) 00 00	urf.Area (sq-ft) 1,183 1,495	(cubic-feet) 0 1,339	(cubic-feet) ( 1,339	2	
(fe 95. 96. 96.	et) 00 00 50	urf.Area (sq-ft) 1,183 1,495 1,745	(cubic-feet) 0 1,339 810	(cubic-feet) 0 1,339 2,149		
(fe 95. 96. 96. Device	et) 00 00 50 Routing	urr.Area (sq-ft) 1,183 1,495 1,745 Invert	(cubic-feet) 0 1,339 810 Outlet Device	(cubic-feet) ( 1,339 2,149 s		

Primary OutFlow Max=0.8 cfs @ 12.18 hrs HW=95.92' (Free Discharge) 1=Culvert (Passes 0.8 cfs of 4.5 cfs potential flow) 2=Broad-Crested Rectangular Weir(Weir Controls 0.8 cfs @ 0.84 fps)

#### Summary for Link DP-1: Ex LCB

Inflow Area	a =	18,641 sf,	79.21% Impervious,	Inflow Depth = 2.52"	for 2-yr event
Inflow	=	1.0 cfs @	12.17 hrs, Volume=	3,918 cf	-
Primary	=	1.0 cfs @	12.17 hrs, Volume=	3,918 cf, Atte	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-2: Route 3 Ditch

Inflow Are	ea =	6,095 sf,	19.06% Impervious,	Inflow Depth = 1.76"	for 2-yr event
Inflow	=	0.3 cfs @	12.10 hrs, Volume=	893 cf	-
Primary	=	0.3 cfs @	12.10 hrs, Volume=	893 cf, Att	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-3: Old Oak Street Drainage System

Inflow Are	a =	55,302 sf,	96.06% Impervious,	Inflow Depth = 3.04	for 2-yr event
Inflow	=	4.3 cfs @	12.07 hrs, Volume=	13,988 cf	-
Primary	=	4.3 cfs @	12.07 hrs, Volume=	13,988 cf, At	ten= 0%, Lag= 0.0 min

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

#### Summary for Link DP-4: Ex Headwall at Corner

Inflow Area	a =	33,110 sf,	61.14% Impervious,	Inflow Depth = 1.09"	for 2-yr event
Inflow	=	0.8 cfs @	12.18 hrs, Volume=	3,019 cf	-
Primary	=	0.8 cfs @	12.18 hrs, Volume=	3,019 cf, Atte	n= 0%, Lag= 0.0 min

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

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#### Summary for Link DP-5: Old Oak Street

Inflow A	Area	=	8,955 sf,	45.11% Impervious	, Inflow Depth = 1.10"	for 2-yr event
Inflow		=	0.3 cfs @	12.08 hrs, Volume	= 821 cf	
Primar	у	=	0.3 cfs @	12.08 hrs, Volume	= 821 cf, Att	en= 0%, Lag= 0.0 min

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#### Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX-1: Rear Parking Lot	Runoff Area=18,641 sf 79.21% Impervious Runoff Depth=4.13" Flow Length=164' Tc=12.9 min CN=92 Runoff=1.6 cfs 6.413 cf
SubcatchmentEX-2: Western Corner of Site	Runoff Area=6,095 sf 19.06% Impervious Runoff Depth=3.21" Flow Length=50' Slope=0.0125 '/ Tc=6.6 min CN=83 Runoff=0.5 cfs 1,631 cf
SubcatchmentEX-3: Southern/CentralPortion of Site	Runoff Area=55,302 sf 96.06% Impervious Runoff Depth=4.69" Flow Length=355' Tc=5.0 min CN=97 Runoff=6.4 cfs 21,600 cf
SubcatchmentEX-4: NortheasternPortion of Site	Runoff Area=33,110 sf 61.14% Impervious Runoff Depth=2.84" Flow Length=319' Tc=5.0 min CN=79 Runoff=2.6 cfs 7,825 cf
SubcatchmentEX-5: SoutheasternPortion of Site	Runoff Area=8,955 sf 45.11% Impervious Runoff Depth=2.31" Flow Length=76' Tc=5.0 min CN=73 Runoff=0.6 cfs 1,725 cf
Pond P1: Existing Basin	Peak Elev=96.05' Storage=1,414 cf Inflow=2.6 cfs 7,825 cf Outflow=2.5 cfs 6,779 cf
Link DP-1: Ex LCB	Inflow=1.6 cfs 6,413 cf Primary=1.6 cfs 6,413 cf
Link DP-2: Route 3 Ditch	Inflow=0.5 cfs 1,631 cf Primary=0.5 cfs 1,631 cf
Link DP-3: Old Oak Street Drainage System	Inflow=6.4 cfs 21,600 cf Primary=6.4 cfs 21,600 cf
Link DP-4: Ex Headwall at Corner	Inflow=2.5 cfs 6,779 cf Primary=2.5 cfs 6,779 cf
Link DP-5: Old Oak Street	Inflow=0.6 cfs 1,725 cf Primary=0.6 cfs 1,725 cf

14239.00-EX Prepared by WATSCCM2012 HydroCAD® 10.00-19 s/n 07577 © 2016 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.04" Printed 11/19/2018 Page 12

 Total Runoff Area = 122,103 sf
 Runoff Volume = 39,194 cf
 Average Runoff Depth = 3.85"

 23.56% Pervious = 28,768 sf
 76.44% Impervious = 93,335 sf

#### Summary for Subcatchment EX-1: Rear Parking Lot

Runoff = 1.6 cfs @ 12.17 hrs, Volume= 6,413 cf, Depth= 4.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 10-yr Rainfall=5.04"

_	A	rea (sf)	CN	Description		
		1,224	49	50-75% Gr	ass cover, F	Fair, HSG A
*		9,629	98	mpervious		
*		5,137	98	Roof		
_		2,651	79	Woods, Fa	ir, HSG D	
		18,641	92	Weighted A	verage	
		3,875		20.79% Pe	rvious Area	
		14,766		79.21% Im	pervious Ar	ea
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	12.3	41	0.0125	0.06		Sheet Flow, Wooded
						Woods: Light underbrush n= 0.400 P2= 3.40"
	0.6	123	0.0330	3.69		Shallow Concentrated Flow, Pavement
						Paved Kv= 20.3 fps

12.9 164 Total

6.6

50 0.0125

#### Summary for Subcatchment EX-2: Western Corner of Site

Runoff = 0.5 cfs @ 12.09 hrs, Volume= 1,631 cf, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr  $\,$  10-yr Rainfall=5.04"

<b>142</b> Prep Hydr	<b>39.00-EX</b> pared by WA oCAD® 10.00	ATSC(  -19_s/	CM2012 n 07577 © 2016 HydroCAD Software Solutions LLC	Type III 24-hr 10-yr Rainfall=5.04" Printed 11/19/2018 Page 14
	Area (sf)	CN	Description	
	685	49	50-75% Grass cover, Fair, HSG A	
*	1,162	98	Impervious	
	4,248	84	50-75% Grass cover, Fair, HSG D	
	6,095 4,933	83	Weighted Average 80.94% Pervious Area	

		1,162	1	9.06% Imp	pervious Ar	ea
(mi	Tc n)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

Sheet Flow, Grassed Grass: Short n= 0.150 P2= 3.40"

#### Summary for Subcatchment EX-3: Southern/Central Portion of Site

Runoff = 6.4 cfs @ 12.07 hrs, Volume= 21,600 cf, Depth= 4.69"

0.13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr  $\,$  10-yr Rainfall=5.04"

	Area (sf)	CN	Description
	933	49	50-75% Grass cover, Fair, HSG A
*	50,149	98	Impervious
*	2,973	98	Roof
	1,247	84	50-75% Grass cover, Fair, HSG D
	55,302	97	Weighted Average
	2,180		3.94% Pervious Area
	53,122		96.06% Impervious Area

Detected road is a property data of predocts data at 2000 1000         Description         Project           (min)         (feb)         (ffb)         (ffb)         Since of the predocts at 2000 1000         Since of the predocts at 2000 1000           0.8         500         0.0150         1.10         Since of the predocts at 2000 1000         Since of the predocts at 2000 1000           0.1         500         0.0220         8.37         6.57         Pipe of the 2000 1000         Pipe of the 2000 1000           0.3         42         0.0010         2.47         7.77         Pipe of the 2000 1000         Pipe of the 2000 10000         Pipe of the 2000 100000         Pipe of the 2000000000         Pipe of the 2000000000000		
Lit Lingth         Stand         Version         Column         Column <thcolumn< th=""> <thcolumn< th=""> <thcolumn< th=""></thcolumn<></thcolumn<></thcolumn<>		
0.8         50         0.1150         1.10         Sheet Flow, Pavement Smooth strates m = 0.011 P2= 3.40° Smooth strates m = 0.011 P2= 3.40° Pavet Kree 20.3 js           0.1         50         0.0290         8.37         6.57         Pavet Kree 20.3 js m = 0.012 Concrete pipe. Insided           0.3         42         0.010         2.47         7.75         Pipe Channel, Piped System 2.40         Pavet Kree 20.3 js m = 0.012 Concrete pipe. Insided           2.2         355         Total, Increased to minimum To = 5.0 min         Summary for Subcatchment EX-4: Northeastern Portion of Site           moff         =         2.6 cfc @: 12.07 hrs, Volume =         7.825 cf. Depth = 2.84°           moff         #         50.75 Westand LH=SG A         7.175           12.965         49         50.75% (crass cover, Fair, HSG A         7.1717           12.865         49         50.75% (crass cover, Fair, HSG A         7.1717           12.865         49         50.75% (crass cover, Fair, HSG A         7.1717           12.865         49         50.75% (crass cover, Fair, HSG A         7.1717           12.865         49         50.75% (crass cover, Fair, HSG A         7.1717           12.865         40.0010         30.0010         30.0010		
10         213         0.0320         3.63         Shows and a memory and a provide state of the UNIT P2 and Were 20 3 fps           0.1         50         0.230         0.37         6.57         Pipe Channel, Piped System 1/r = 0.257           0.3         42         0.0010         2.47         77         Pipe Channel, Piped System 2.37 in = 0.507           2.2         355         Total, Increase to minimum Tc = 5.0 min         Summary for Subcatchment EX-4: Northeastern Portion of Site           and fig Size Size Size Size Size Size Size Size		
Paved         Kv=203 tps           0.1         50         0.0230         6.37         Pipe Channel, Piped System           120         Round Avera         0.51 Pipe Intel 11 (**********************************		
Cit         So         Oxade         Oxad		
0.3       42       0.0010       2.47       7.75       Pipe Channel, Pjeed System 2.40       7.8 insided         2.2       355       Total, Increased to minimum To = 5.0 min       1.61       Pointing 1.63       1.61         2.2       355       Total, Increased to minimum To = 5.0 min       Summary for Subcatchment EX-4: Northeastern Portion of Site         anoff       =       2.6 ds @       12.07 hrs, Volume       7.825 cd, Depth = 2.84*         anoff       =       2.6 ds @       12.07 hrs, Volume       7.825 cd, Depth = 2.84*         anoff       =       2.6 ds @       12.07 hrs, Volume       7.825 cd, Depth = 2.84*         anoff       =       2.6 ds @       12.07 hrs, Volume       7.825 cd, Depth = 2.84*         anoff       #       2.6 ds @       12.07 hrs, Volume       7.825 cd, Depth = 2.84*         3.010       7.89       Big Impervious       3.60       7.825 cd, Depth = 2.84*         72.89       38.085       Pervious Area       20.245       61.14% Impervious Area         20.245       61.14% Impervious Area       20.245       61.14% Impervious Area         20.245       51.04% Concols pipe foint       Printed 11/19/2018         (min)       (free)       (free)       Printed 11/19/2018         20.245		
US         Ext         USD Concerts pipe, finished           22         355         Total, Increased to minimum Tc = 5.0 min           Summary for Subcatchment EX-4: Northeastern Portion of Site           anoff         =         2.6 dfs@_12.07 hs, Volume=         7.825 df, Depth= 2.84"           anoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         per lit24+hr 10-yr Rainfall=5.04"           Area (rf)         CN         Description         7.825 df, Depth= 2.84"           12.865         9         50.75% Grass over, Fair, HSG A         7.717           7.187         98         Impervious         3.038           3.038         98         Roof         3.368 dP envious Area           20.245         61.14% Impervious Area         7.717         7.717           7.197         98         Impervious Area         7.717           7.235 dt         0.011 #4 hr 10-yr Rainfall=5.04"         Printed 11/19/2018           7.245         61.14% Impervious Area         7.727         Printed 11/19/2018           7.245         0.011 #4 hr 10-yr Rainfall=5.04"         Printed 11/19/2018           7.255         0.010 #3 dn 0757         2.016 HydroCAD Software Solutions LLC         Printed 11/19/2018           7.26         0.011 #2 an 0757 <t< td=""></t<>		
Image: style         Total, Increased to minimum TC = 5.0 min           Summary for Subcatchment EX-4: Northeastern Portion of Site           anoff         =         2.6 ds @ 12.07 hrs, Volume=         7.825 cf, Depth= 2.84"           anoff         =         2.6 ds @ 12.07 hrs, Volume=         7.825 cf, Depth= 2.84"           anoff         FX         2.6 ds @ 12.07 hrs, Volume=         7.825 cf, Depth= 2.84"           anoff         Virgential Sole         Area (af)         CN         Description           12.865         49         50.75% Grass cover, Fair, HSG A         17.187         30.305         98         Roof           33.110         79         Weighted Average         12.865         38.86% Pervious Area         20.245         61.14% Impervious Area           20.245         61.14% Impervious Area         20.245         61.14% Impervious Area         Page 16           To Length         Stope Viewidty         Casciption         Page 16           To Length         Stope Viewidty         Casciption         Page 16           Q         38         0.3300         3.59         Sheet Flow, Roof         Smooth surfaces n= 0.011         P2=3.40"           Q2         38         0.300         3.59         Sheet Flow, Roof         Smooth surfaces n= 0.011         P2=3		
Its         Odd         Total, Indicated billing for Subcatchment EX-4: Northeastern Portion of Site           anoff         =         2.6 ds @ 12.07 hrs, Volume         7,825 df, Depth= 2.84*           anoff         y         SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs           ret III 24-hr         10-yr Rainfall=5.04*         12.865         46         50-75% Grass cover, Fair, HSG A           17.187         98         Impervious         30.83         98         79         30.83         79           30.83         98         Rood         dAvarage         30.83         79         39.83         79         39.83         79         79         79         70		
Summary for Subcatchment EX 4: Northeastern Portion of Site           unoff = 2.6 cfs @ 12.07 hrs, Volume: 7.825 cf, Depth= 2.84"           andfi by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs           Piel I2A+n: 10/7 Rainfaile-S.04"           Area (sf)         CN           Area (sf)         CN           12.865         49           31.06         9           33.86         Provide           33.86         Provide           33.86         Provide           33.86         Provide           20.245         61.14% Impervious Area           20.245         0.0400           20.245         9.02077           20.245         0.0400           20.250         0.0400           20.		
Junoff         =         2.6 cfs @ 12.07 hrs, Volume         7,825 cf, Depthe 2.84*           unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Spane 0.00-30.00 hrs, dt= 0.01 hrs         12.845         49         50.75% Grass cover, Fair, HSG A           17,827         98         Import/ous         33.110         79         Weighted-Average           33.510         98         Root         33.869% Pervious Area         79         Weighted-Average           12.865         98         Root         38.86% Pervious Area         79         Weighted-Average           12.865         38.86% Pervious Area         79         Weighted-Average         79         79         Weighted-Average           12.865         38.86% Pervious Area         70         79         Weighted-Average         79         79         Weighted-Average           12.865         38.86% Pervious Area         70         70         Weighted-CAB Software Solutions LLC         Printed 11/19/2018           10.90         (feft)         (fft)         (fft)         (fft)         (fft)         79         79         90         79         70         11/19/2018         79           10.2         38         0.3300         3.59         Shoot Fariface n= 0.011         72         3.07         79		
Indf by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         Area (s) CN Description         Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04         Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04"		
It239.00-EX         Type III 24-hr         10-yr Rainfall=5.04"           12,865         49         50-75% Grass cover, Fair, HSG A         17,187         98         Impervious           3,015         99         Roof         33,810         79         Weighted Average         12,865         38,86% Grass cover, Fair, HSG A         17,187         98         Impervious         12,865         38,86% Grass cover, Fair, HSG A         17,187         98         Impervious         12,865         14% Impervious Area         20,245         61,14% Impervious Area           20,245         61,14% Impervious Area         20,245         61,14% Impervious Area         20,245         61,14% Impervious Area         20,245         61,14% Impervious Area         20,245         61,14% Impervious Area         20,245         61,14% Impervious Area         20,245         61,24,171         20,216         20,216         20,216         20,216         20,216         20,216         20,216         20,216         20,216         20,216         20,216         20,216         20,216         20,216		
Area (sf)         CN         Description           12.865         49         50.75% (crass cover, Fair, HSG A           3.358         98         Roof           3.351         17         Weighted Average           12.865         38.86% Pervious Area           20.245         61.14% Impervious Area           20.250         61.040 Concentrated Flow, Roof           Cr         Ength Slope Velocity Capacity Description           (min) (tet) (ft/ft) (ft/sec) (cfs)         Sheet Flow, Roof           0.3         3.300         3.59           Sheet Flow, Roof         Smooth surfaces n= 0.011 P2= 3.40"           0.9         2.25         0.400         4.06           Shallow Concentrated Flow, Roof         S		
12,865       49       50-75% Grass cover, Fair, HSG A         17,187       98       Impervious         33,110       79       Weighted Average         12,865       38.85% Pervious Area         20,245       61.14% Impervious Area         20,245       61.047         20,250       20.040         20,251       Capacity Description         (min)       (fth)         (fth)       (fth)         20,255       0.0400       4.06         20,350       Sheet Flow, Roof         20,255       0.0400       4.06         20,56       0.010       0.47       Sha		
3.058       98       Roof         33,110       79       Weighted Average         12,865       38,86% Pervicus Area         20,245       61.14% Impervious Area         20,250       61.0400         20,250       0.400         20,250       0.400         20,250       0.400         20,250       0.400         20,250       0.400         20,250       0.400         20,250       0.400         20,250       0.400         20,250       0.		
33,110       79       Weighted Average         12,865       33.86% Pervious Area         20,245       61.14% Impervious Area         20,245       700 Pervious Area         20,245       700 Pervious Area         20,245       2018 HydroCAD Software Solutions LLC         70,9       24,010 Pervious Area         20,25       0.400       4.06         9,225       0.400       4.06         9,225       0.400       4.06         9,225       0.400       4.06         9,205       0.400       4.06         9,205       0.400       4.06         9,205       0.400       4.06         9,205       0.400       4.06         9,205		
1232         Substitution           20,245         61.14% Impervious Area           1239.00-EX         Type III 24-hr 10-yr Rainfall=5.04"           repared by WATSCCM2012         Printed 11/19/2018           ordocAD@ 10.00-19 sin 07577 @ 2016 HydroCAD Software Solutions LLC         Printed 11/19/2018           To Length         Slope Velocity Capacity Description           (min)         (fett)         (ft/ft)           0.9         225         0.0400         4.06           Shallow Concentrated Flow, Roof         Smooth surfaces n= 0.011         P2= 3.40"           0.9         225         0.0400         4.06         Shallow Concentrated Flow, Pavement           Paved K=20.3 fps         Carassed Valerway Kv= 15.0 fps         Grassed Valerway Kv= 15.0 fps           3.1         319         Total, Increased to minimum Tc = 5.0 min           Summary for Subcatchment EX-5: Southeastern Portion of Site           anoff         =         0.6 cfs @ 12.08 hrs, Volume=         1,725 cf, Depth= 2.31"           anoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         Pervicus           pe III 24-hr         10-yr Rainfall=5.04"         Markall=5.04"           Area (sf)         CN         Description         Markalle-5.04"           4.400         4		
1239.00-EX       Type III 24-hr       10-yr Rainfall=5.04"         Printed 11/19/2018       Printed 11/19/2018       Printed 11/19/2018         IdeoCAD® 10.00-19 sin 07577 @ 2016 HydroCAD Software Solutions LLC       Printed 11/19/2018         Tc       Length       Slope       Velocity       Capacity       Description         (min)       (feet)       (fifty)       (ftysec)       (cfs)       Printed 11/19/2018         0.2       38       0.3300       3.59       Sheet Flow, Roof       Smooth surfaces n = 0.011 P2= 3.40"         0.9       225       0.0400       4.06       Shallow Concentrated Flow, Pavement       Paved Kv= 20.3 fps         2.0       66       0.0010       0.47       Shallow Concentrated Flow, Basin/RipRap       Grassed Waterway Kv= 15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min       Summary for Subcatchment EX-5: Southeastern Portion of Site         anoff       =       0.6 cfs @ 12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         anoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs       pell 124-hr         pill 124-hr       10-yr Rainfall=5.04       Area (sf)       CN         Area (sf)       CN       Description       4.400       48       Sinpervicus         4040		
Image: Type III 24-hr         Type III 24-hr         10-yr Rainfall=5.04"           Printed by WATSCCM2012         Printed 11/19/2018         Printed 11/19/2018           MicCAD0 10.00-19 s/n 07577 @ 2016 HydroCAD Software Solutions LLC         Page 16           Tc         Length         Slope         Velocity         Capacity         Description           (min)         (fett)         (fftysec)         (cfs)         Printed 11/19/2018           0.2         38         0.3300         3.59         Sheet Flow, Roof         Smooth surfaces n = 0.011         P2 = 3.40"           0.9         2255         0.0400         4.06         Shallow Concentrated Flow, Basin/RipRap         Grassed Waterway         Kv= 15.0 fps           3.1         319         Total, Increased to minimum Tc = 5.0 min         Summary for Subcatchment EX-5: Southeastern Portion of Site           anoff         =         0.6 cfs @ 12.08 hrs, Volume=         1,725 cf, Depth= 2.31"           moff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         pe III 24-hr 10-yr Rainfall=5.04"           Area (sf)         CN         Description         4.410         49         50-75% Grass cover, Fair, HSG A           4,400         94         Impervious         Stor75% Grass cover, Fair, HSG D         Description		
Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         To Length Slope Velocity Capacity Description         (min) (feet) (fuff) (fufsec) (cfs)         0.2       38       0.3300       3.59       Sheet Flow, Roof         0.9       225       0.0400       4.06       Shallow Concentrated Flow, Pavement         Payed Kv=20.3 fbs       Shallow Concentrated Flow, Basin/RipRap       Grassed Waterway Kv= 15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min       Summary for Subcatchment EX-5: Southeastern Portion of Site         Inoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs pe III 24-hr 10-yr Rainfall=5.04"         Area (sf) CN       Description         (Area (sf) CN       Description         Area (sf) CN       Description         (Area (sf) CN       Description         Area (sf)		
Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Structure         Structure         Structure         Printed 11/19/2018         Printed 11/19/2018         Structure         Structure         Printed 11/19/2018         Printed 11/19/2		
Type III 24-hr 10-yr Rainfall=5.04"         repared by WATSCCM2012       Printed 11/19/2018         Printed 11/19/2018         rdcAD® 10.00-19 s/n 07577 @ 2016 HydroCAD Software Solutions LLC       Page 16         Tc Length Slope Velocity Capacity Description         (rhtf)       (rfsec)       (cfs)         0.2       38       0.3300       3.59       Sheet Flow, Roof         0.9       225       0.400       4.06       Shallow Concentrated Flow, Pavement         Payed       Kv= 20.3 fps       Grassed Waterway       Kv= 15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min         Summary for Subcatchment EX-5: Southeastern Portion of Site         anoff       =       0.6 cfs @ 12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         anoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs       pell 24-hr         pell 24-hr       10-yr Rainfall=5.04"         Area (ef)       CN       Description         4,410       49       50-75% Grass cover, Fair, HSG A         4,040       98       Impervious         505       64       Sourdes		
Type III 24-hr 10-yr Rainfall=5.04" Printed 11/19/2018         Type III 24-hr 10-yr Rainfall=5.04" Printed 11/19/2018         Printed 11/19/2018         To Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)         0.2       38       0.3300       3.59         Sheet Flow, Roof Smooth surfaces n = 0.011 P2= 3.40"       Sheet Flow, Pavement Paved Kv= 20.3 fps         2.0       56       0.0010       0.47         Sheet Flow, Roof Smooth surfaces n = 0.011 P2= 3.40"         2.0       56       0.0010       0.47         Sheet Flow, Roof Smooth surfaces n = 0.011 P2= 3.40"         3.1       319       Total, Increased to minimum Tc = 5.0 min         Summary for Subcatchment EX-5: Southeastern Portion of Site         anoff       =       0.6 cfs @ 12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         Inf by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         HI 24-hr 10-yr Rainfall=5.04"         Area (sf) CN Description         4.410       49       50.75% Grass cover, Fair, HSG A         4.040       68       Impervious       50.5         505       64       50.75% Grass cover, Fair, HSG D       50.5		
Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Printed 11/19/2018         Printed 11/19/2018         Printed 11/19/2018         Printed 11/19/2018         Page 16         Tc Length Slope Velocity Capacity Description         (fttb:         0.2       38       0.3300       3.59         Sheet Flow, Roof         Smooth surfaces       n= 0.011       P2= 3.40"         Sheet Flow, Roof         Smooth surfaces       n= 0.011       P2= 3.40"         Sheet Flow, Roof         Smooth surfaces       n= 0.011       P2= 3.40"         0.9       225       0.0400       4.06       Shallow Concentrated Flow, Pavement         Paved       Kv= 20.3 fps       Shallow Concentrated Flow, Basin/RipRap       Grassed Waterway Kv= 15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min       Summary for Subcatchment EX-5: Southeastern Portion of Site         anoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         Page 10         Area (sf) CN Description         4rea (sf) CN Description <tr< td=""></tr<>		
Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Printed 11/19/2018         Printed 11/19/2018         To Length Slope Velocity Capacity Description         (freet) (ft/ft) (ft/sec) (cfs)         0.2       38       0.3300       3.59       Sheet Flow, Roof         0.9       225       0.0400       4.06       Shallow Concentrated Flow, Pavement         Payed Kv= 20.3 fps       2.0       56       0.0010       0.47       Shallow Concentrated Flow, Basin/RipRap         Grassed Waterway Kv= 15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min         Summary for Subcatchment EX-5: Southeastern Portion of Site         Inoff       =       0.6 cfs @ 12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         Inoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs       peill 24-hr       10-yr Rainfall=5.04"         Area (sf) CN Description         4.410       49       50-75% Grass cover, Fair, HSG A       4.040       98       Impervious         505       84       50-75% Grass cover, Fair, HSG D       505       505       505       505		
Type III 24-hr 10-yr Rainfall=5.04"         repared by WATSCCM2012       Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Printed 11/19/2018         To Length Slope Velocity Capacity Description         (ft/ft/ (ft/sec)       (cfs)         0.2       38       0.3300       3.59       Sheet Flow, Roof         0.9       225       0.0400       4.06       Shallow Concentrated Flow, Pavement         Paved       Kv=20.3 fps       2.0       56       0.0010       0.47       Shallow Concentrated Flow, Basin/RipRap       Grassed Waterway Kv=15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min       Summary for Subcatchment EX-5: Southeastern Portion of Site         anoff       =       0.6 cfs @       12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         moff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs       pell 24-hr       10-yr Rainfall=5.04"         Area (sf)       CN       Description         44410       49       50-75% Grass cover, Fair, HSG A         4,070       8       Impervious         50       84       50-75% Grass cover, Fai		
Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Or 10         Of 10         0.011 P2=3.40"         Of Someth Subrace no 0.011 P2=3.40"         Of Someth Subrace no 0.011 P2=3.40"         Summary for Subcatchment EX-5: Southeastern Portion of Site         Inoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs		
Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         drocADB in WATSCCM2012       Printed 11/19/2018         drocADB in 0.00-19 s/n 07577 @ 2016 HydroCAD Software Solutions LLC       Printed 11/19/2018         To Length Slope Velocity Capacity Description         (min) (feet) (ft/ft) (ft/sec) (cfs)         0.2       38       0.3300       3.59       Sheet Flow, Roof         Smooth surfaces n = 0.011       P2 = 3.40"       Shallow Concentrated Flow, Pavement       Page 16         0.9       225       0.0400       4.06       Shallow Concentrated Flow, Pavement       Page 300         2.0       56       0.0010       0.47       Shallow Concentrated Flow, Basin/RipRap Grassed Waterway Kv= 15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min       Summary for Subcatchment EX-5: Southeastern Portion of Site         unoff =       0.6 cfs @ 12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         pel III 24-hr 10-yr Rainfall=5.04"         Area (sf) CN Description         4,410       49       50-75% Grass cover, Fair, HSG A       4,040       98		
Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Stopp Velocity Capacity Description         (frit         0.2       38       0.300       3.59       Sheet Flow, Roof       Smooth surfaces n= 0.011 P2= 3.40"       Stopp Page 16         0.9       225       0.0400       4.06       Shallow Concentrated Flow, Pasement       Printed 11/19/2018       Printed 15.04" <th <="" colspan="2" th=""></th>		
Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Optimized Flow, Basin (Rip Rap Grassed Ver 20.3 fps         2.0       56       0.0010       0.47       Shallow Concentrated Flow, Basin/RipRap Grassed Waterway Kv= 15.0 fps         Summary for Subcatchment EX-5: Southeastern Portion of Site         Inoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         peill 24-hr 10-yr Rainfall=5.04"         Area (sf) CN Descrip		
Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         To Length Slope Velocity Capacity Description         (fift)         0.2 38 0.3300 3.59       Sheet Flow, Roof         Smooth surfaces n= 0.011 P2= 3.40"         0.9       225 0.0400       4.06       Shallow Concentrated Flow, Pavement         Paved Kv= 20.3 fps       Shallow Concentrated Flow, Basin/RipRap       Grassed Waterway Kv= 15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min       Summary for Subcatchment EX-5: Southeastern Portion of Site         unoff = 0.6 cfs @ 12.08 hrs, Volume= 1,725 cf, Depth= 2.31"         area (sf) CN Description         4,410 49 50-75% Grass cover, Fair, HSG A         4,040       98 Impervious       Marge D         505       84 50-75% Grass cover, Fair, HSG D       505		
Type III 24-hr 10-yr Rainfall=5.04"         Type III 24-hr 10-yr Rainfall=5.04"         Printed 11/19/2018         Store of the printed 11/19/2018         Mathew colspan= 0.0011 P2= 3.40"         Output         Output         Printed 11/19/2018         Store of the printed 11/19/2018         Store of the printed 11/19/2018 <th c<="" th=""></th>		
Printed 11/19/2018         Printed 11/19/2018 <th< th=""></th<>		
Image: constraint of the synthesis of the synthesynthesis of the synthesis of the synthesis of the syn		
TcLengthSlopeVelocityCapacityDescription(min)(feet)(ft/ft)(ft/sec)(cfs)0.2380.33003.59Sheet Flow, Roof Smooth surfaces n= 0.011 P2= 3.40"0.92250.04004.06Shallow Concentrated Flow, Pavement Paved Kv= 20.3 fps2.0560.00100.47Shallow Concentrated Flow, Basin/RipRap Grassed Waterway Kv= 15.0 fps3.1319Total, Increased to minimum Tc = 5.0 minSummary for Subcatchment EX-5: Southeastern Portion of Siteunoff=0.6 cfs @12.08 hrs, Volume=1,725 cf, Depth= 2.31"unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs pe III 24-hrArea (sf)CNDescription4,4104950-75% Grass cover, Fair, HSG A 4,0404,04098Impervious 5055058450-75% Grass cover, Fair, HSG D		
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		
0.2       38       0.3300       3.59       Sheet Flow, Roof         0.9       225       0.0400       4.06       Shallow Concentrated Flow, Pavement         Paved       Kv= 20.3 fps         2.0       56       0.0010       0.47       Shallow Concentrated Flow, Basin/RipRap         Grassed Waterway       Kv= 15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min         Summary for Subcatchment EX-5: Southeastern Portion of Site         unoff         9       0.6 cfs @       12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         tree (sf)       CN         Area (sf)       CN       Description         4,410       49       50-75% Grass cover, Fair, HSG A       4,040       98         4,040       98       Impervious       505       84       50-75% Grass cover, Fair, HSG D		
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		
2.056 $0.0010$ $0.47$ Paved KV= 20.3 rps Shallow Concentrated Flow, Basin/RipRap Grassed Waterway Kv= 15.0 fps3.1319Total, Increased to minimum Tc = 5.0 minSummary for Subcatchment EX-5: Southeastern Portion of Siteunoff= $0.6 cfs$ @12.08 hrs, Volume= $1,725 cf$ , Depth= 2.31"unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs 'pe III 24-hr10-yr Rainfall=5.04"Area (sf) 4,410Description4,4104950-75% Grass cover, Fair, HSG A 4,0404,04098Impervious 505845058450-75% Grass cover, Fair, HSG D		
Grassed Waterway Kv= 15.0 fps         3.1       319       Total, Increased to minimum Tc = 5.0 min         Summary for Subcatchment EX-5: Southeastern Portion of Site         unoff       =       0.6 cfs @ 12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs       10.01 hrs         'pe III 24-hr       10-yr Rainfall=5.04"         Area (sf)       CN       Description         4,410       49       50-75% Grass cover, Fair, HSG A         4,040       98       Impervious         505       84       50-75% Grass cover, Fair, HSG D		
3.1       319       Fotal, Increased to minimum Tc = 5.0 min         Summary for Subcatchment EX-5: Southeastern Portion of Site         unoff       =       0.6 cfs @ 12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         unoff by SCS TR-20       method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         'pe III 24-hr       10-yr Rainfall=5.04"         Area (sf)       CN       Description         4,410       49       50-75% Grass cover, Fair, HSG A         4,040       98       Impervious         505       84       50-75% Grass cover, Fair, HSG D		
Summary for Subcatchment EX-5: Southeastern Portion of Site         unoff       =       0.6 cfs @       12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         pe III 24-hr       10-yr Rainfall=5.04"         Area (sf)       CN       Description         4,410       49       50-75% Grass cover, Fair, HSG A         4,040       98       Impervious         505       84       50-75% Grass cover, Fair, HSG D		
unoff       =       0.6 cfs @ 12.08 hrs, Volume=       1,725 cf, Depth= 2.31"         unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         rpe III 24-hr       10-yr Rainfall=5.04"         Area (sf)       CN       Description         4,410       49       50-75% Grass cover, Fair, HSG A         4,040       98       Impervious         505       84       50-75% Grass cover, Fair, HSG D		
Area (sf)         CN         Description           4,410         49         50-75% Grass cover, Fair, HSG A           4,040         98         Impervious           505         84         50-75% Grass cover, Fair, HSG D		
Area (sf)         CN         Description           4,410         49         50-75% Grass cover, Fair, HSG A           4,040         98         Impervious           505         84         50-75% Grass cover, Fair, HSG D		
Area (sf)     CN     Description       4,410     49     50-75% Grass cover, Fair, HSG A       4,040     98     Impervious       505     84     50-75% Grass cover, Fair, HSG D		
Acta (s)/         Or         Description           4,410         49         50-75% Grass cover, Fair, HSG A           4,040         98         Impervious           505         84         50-75% Grass cover, Fair, HSG D		
4,040 98 Impervious 505 84 50-75% Grass cover, Fair, HSG D		
505 84 50-75% Grass cover, Fair, HSG D		
9 OFF 72 Weighted Average		
o,eco 73 vveignted Average 4,915 54.89% Pervious Area		
4,040 45.11% Impervious Area		
Tc. Length Slope Velocity Capacity Description		
(min) (feet) (ft/ft) (ft/sec) (cfs)		
3.1 18 0.0110 0.10 Sheet Flow, Grass		
3.1         10         0.10         Sheet Flow, Grass           Grass: Short         n= 0.150         P2= 3.40"           0.4         32         0.0280         1.29           Sheet Flow, Pavement		
3.1         18         0.0110         0.10         Sheet Flow, Grass Grass: Short         Grass: Short         P= 3.40"           0.4         32         0.0280         1.29         Sheet Flow, Pavement Smooth surfaces         n= 0.011         P2= 3.40"		
A THE TAX AND THE PROPERTY OFFICE		
3.1         18         0.0110         0.10         Sheet Flow, Grass Grass: Short n= 0.150         P2= 3.40"           0.4         32         0.0280         1.29         Sheet Flow, Pavement Smooth surfaces n= 0.011         P2= 3.40"		

3.6 76 Total, Increased to minimum Tc = 5.0 min

#### Summary for Pond P1: Existing Basin

Inflow Area	a =	33,110 sf,	61.14% Impervious,	Inflow Depth = 2.8	34" for 10-yr event
Inflow	=	2.6 cfs @	12.07 hrs, Volume=	7,825 cf	
Outflow	=	2.5 cfs @	12.10 hrs, Volume=	6,779 cf,	Atten= 6%, Lag= 1.6 min
Primary	=	2.5 cfs @	12.10 hrs, Volume=	6,779 cf	-

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 96.05' @ 12.10 hrs Surf.Area= 1,520 sf Storage= 1,414 cf

Plug-Flow detention time=90.5 min calculated for 6,779 cf (87% of inflow) Center-of-Mass det. time= 30.5 min ( 853.6 - 823.2 )

	95.00	2,14	49 cf Custom	Stage Data (Prismatic) isted below (R	lecalc)
Elevati	ion Sur	Area	Inc.Store	Cum.Store	
(fe	et)	(sq-ft)	(cubic-feet)	(cubic-feet)	
95.	.00	1,183	1 3 3 0	U 1 330	
90. 96.	.50	1,745	810	2,149	
Device	Routing	Invert	Outlet Devices	S	
#1	Primary	92.60'	10.0" Round Inlet / Outlet In	I Culvert L= 20.0' Box, headwall w/3 s nvert= 92.60' / 92.50' S= 0.0050 '/' Co	square edges, Ke= 0.500 = 0.900 = 0.55 cf
#2	Device 1	95.80'	8.0' long x 3. Head (feet) 0 Coef. (English	<b>.0' breadth Broad-Crested Rectangul</b> .20 0.40 0.60 0.80 1.00 1.20 1.40 1 .) 2.44 2.58 2.68 2.67 2.65 2.64 2.6	- 0.535 ar Weir .60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 4 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
		tu neetang		r Controls 2.5 Cis (@ 1.24 ips)	
			ulai wen(vven	r Controls 2.5 Cis (gr 1.24 ips)	
				r Controis 2.5 cis (gr 1.24 ips)	
14239	.00-EX				Type III 24-hr 10-yr Rainfall=5.04
14239 Prepar HydroC/	2.000-EX red by WATSC	CCM2012	2016 HvdroCAD	2 Software Solutions LLC	<i>Type III 24-hr 10-yr Rainfall=5.04</i> Printed 11/19/2018 Pare 18
<b>14239</b> Prepar HydroC/	2.00-EX red by WATSO AD® 10.00-19 s	CCM2012 %n 07577 ©	2016 HydroCAD	Summary for Link DP.1: Ex L	<i>Type III 24-hr 10-yr Rainfall=5.04</i> Printed 11/19/2018 Page 18
<b>14239</b> Prepar HydroC/	• <b>.00-EX</b> ed by WATSC AD® 10.00-19 ≤	CCM2012	2016 HydroCAD	) Software Solutions LLC Summary for Link DP-1: Ex I	<i>Type III 24-hr 10-yr Rainfall=5.04'</i> Printed 11/19/2018 Page 18 <b>_CB</b>

Inflow Area	a =	18,641 st,	79.21% Impervious,	Inflow Depth = 4.1	3" for 10-yr event
Inflow	=	1.6 cfs @	12.17 hrs, Volume=	6,413 cf	
Primary	=	1.6 cfs @	12.17 hrs, Volume=	6,413 cf, A	Atten= 0%, Lag= 0.0 min

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

#### Summary for Link DP-2: Route 3 Ditch

Inflow A	Area =	6,095 sf,	19.06% Impervious,	Inflow Depth = 3.21"	for 10-yr event
Inflow	=	0.5 cfs @	12.09 hrs, Volume=	1,631 cf	-
Primary	y =	0.5 cfs @	12.09 hrs, Volume=	1,631 cf, Atte	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-3: Old Oak Street Drainage System

Inflow A	rea =	55,302 sf,	96.06% Impervious,	Inflow Depth = 4.69"	for 10-yr event
Inflow	=	6.4 cfs @	12.07 hrs, Volume=	21,600 cf	•
Primary		6.4 cfs @	12.07 hrs, Volume=	21,600 cf, Atte	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-4: Ex Headwall at Corner

Inflow A	rea =	33,110 sf, 61.14% Imp	pervious, Inflow Depth = 2	2.46" for 10-yr event
Inflow	=	2.5 cfs @ 12.10 hrs, \	Volume= 6,779 cf	f
Primary	=	2.5 cfs @ 12.10 hrs, \	Volume= 6,779 cf	, Atten= 0%, Lag= 0.0 min

#### Summary for Link DP-5: Old Oak Street

Inflow Area	a =	8,955 sf,	45.11% Impervious,	Inflow Depth = 2.31'	for 10-yr event
Inflow	=	0.6 cfs @	12.08 hrs, Volume=	1,725 cf	-
Primary	=	0.6 cfs @	12.08 hrs, Volume=	1,725 cf, Att	ten= 0%, Lag= 0.0 min

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

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Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 20

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX-1: Rear Parking Lot	Runoff Area=18,641 sf 79.21% Impervious Runoff Depth=5.93" Flow Length=164' Tc=12.9 min CN=92 Runoff=2.2 cfs 9.206 cf
SubcatchmentEX-2: Western Corner of Site	Runoff Area=6,095 sf 19.06% Impervious Runoff Depth=4.91" Flow Length=50' Slope=0.0125 '/' Tc=6.6 min CN=83 Runoff=0.8 cfs 2,491 cf
SubcatchmentEX-3: Southern/CentralPortion of Site	Runoff Area=55,302 sf 96.06% Impervious Runoff Depth=6.51" Flow Length=355' Tc=5.0 min CN=97 Runoff=8.8 cfs 30,012 cf
SubcatchmentEX-4: Northeastern Portion of Site	Runoff Area=33,110 sf 61.14% Impervious Runoff Depth=4.47" Flow Length=319' Tc=5.0 min CN=79 Runoff=4.1 cfs 12,321 cf
SubcatchmentEX-5: SoutheasternPortion of Site	Runoff Area=8,955 sf 45.11% Impervious Runoff Depth=3.82" Flow Length=76' Tc=5.0 min CN=73 Runoff=1.0 cfs 2,853 cf
Pond P1: Existing Basin	Peak Elev=96.13' Storage=1,545 cf Inflow=4.1 cfs 12,321 cf Outflow=3.9 cfs 11,275 cf
Link DP-1: Ex LCB	Inflow=2.2 cfs 9,206 cf Primary=2.2 cfs 9,206 cf
Link DP-2: Route 3 Ditch	Inflow=0.8 cfs 2,491 cf Primary=0.8 cfs 2,491 cf
Link DP-3: Old Oak Street Drainage System	Inflow=8.8 cfs 30,012 cf Primary=8.8 cfs 30,012 cf
Link DP-4: Ex Headwall at Corner	Inflow=3.9 cfs 11,275 cf Primary=3.9 cfs 11,275 cf
Link DP-5: Old Oak Street	Inflow=1.0 cfs_2,853 cf Primary=1.0 cfs_2,853 cf

 Total Runoff Area = 122,103 sf
 Runoff Volume = 56,884 cf
 Average Runoff Depth = 5.59"

 23.56%
 Pervious = 28,768 sf
 76.44%
 Impervious = 93,335 sf

<b>14239.</b> Prepare HydroCA	00-EX ed by WA	ATSCCM	Type III 24-hr 50-yr Rainfall=6.87 Printed 11/19/2018			
<u></u>		10 0,110		Sumr	nary for Subcatchment EX-1: Rear Parking Lot	
Runoff	=	2.2 c	fs @ 12.1	7 hrs, Vol	ume= 9,206 cf, Depth= 5.93"	
Runoff b Type III	y SCS TI 24-hr 50	R-20 met -yr Rainfa	thod, UH=\$ all=6.87"	SCS, Weigł	ted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs	
A	rea (sf)	CN E	Description			
	1,224	49 5	50-75% Gra	ass cover, l	Fair, HSG A	
*	9,629	98 l	mpervious			
*	5,137	98 F	Roof			
	2,651	79 V	Voods, Fai	r, HSG D		
	18,641	92 V	Veighted A	verage		
	3,875	2	20.79% Pe	rvious Area		
	14,766	7	'9.21% lm	pervious Ar	ea	
Тс	Lenath	Slope	Velocitv	Capacity	Description	
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	1	
12.3	41	0.0125	0.06		Sheet Flow, Wooded	
					Woods: Light underbrush n= 0.400 P2= 3.40"	
0.6	123	0.0330	3.69		Shallow Concentrated Flow, Pavement Paved Kv= 20.3 fps	
12.9	164	Total				
				Summar	y for Subcatchment EX-2: Western Corner of S	ite

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 2,491 cf, Depth= 4.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr  $\,$  50-yr Rainfall=6.87"

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Type III 24-hr 50-yr Rainfall=6.87"

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	Area (sf)	CN	Description	scription						
	685	49	50-75% Gr	5% Grass cover, Fair, HSG A						
*	1,162	98	Impervious							
	4,248	84	50-75% Gr	ass cover, l	Fair, HSG D					
	6,095	83	Weighted A	verage						
	4,933		80.94% Pe	30.94% Pervious Area						
	1,162		19.06% Im	pervious Ar	rea					
T (mir	c Length	Slop (ft/fl	e Velocity ) (ft/sec)	Capacity (cfs)	Description					
6.	6 50	0.012	5 0.13		Sheet Flow, Grassed					

Grass: Short n= 0.150 P2= 3.40"

# Summary for Subcatchment EX-3: Southern/Central Portion of Site

Runoff = 8.8 cfs @ 12.07 hrs, Volume= 30,012 cf, Depth= 6.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 50-yr Rainfall=6.87"

	Area (sf)	CN	Description
	933	49	50-75% Grass cover, Fair, HSG A
*	50,149	98	Impervious
*	2,973	98	Roof
	1,247	84	50-75% Grass cover, Fair, HSG D
	55,302	97	Weighted Average
	2,180		3.94% Pervious Area
	53,122		96.06% Impervious Area

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Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
0.8	50	0.0150	1.10		Sheet Flow, Pavement
					Smooth surfaces n= 0.011 P2= 3.40"
1.0	213	0.0320	3.63		Shallow Concentrated Flow, Pavement
					Paved Kv= 20.3 fps
0.1	50	0.0290	8.37	6.57	Pipe Channel, Piped System
					12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
					n= 0.012 Concrete pipe, finished
0.3	42	0.0010	2.47	7.75	Pipe Channel, Piped System
					24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'
					n= 0.012 Concrete pipe, finished

2.2 355 Total, Increased to minimum Tc = 5.0 min

#### Summary for Subcatchment EX-4: Northeastern Portion of Site

Runoff = 4.1 cfs @ 12.07 hrs, Volume= 12,321 cf, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 50-yr Rainfall=6.87"

	Area (sf)	CN	Description
	12,865	49	50-75% Grass cover, Fair, HSG A
*	17,187	98	Impervious
*	3,058	98	Roof
	33,110	79	Weighted Average
	12,865		38.86% Pervious Area
	20,245		61.14% Impervious Area
	12,865 20,245		38.86% Pervious Area 61.14% Impervious Area

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Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
0.2	38	0.3300	3.59		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
0.9	225	0.0400	4.06		Shallow Concentrated Flow, Pavement
					Paved Kv= 20.3 fps
2.0	56	0.0010	0.47		Shallow Concentrated Flow, Basin/RipRap
					Grassed Waterway Kv= 15.0 fps
3.1	319	Total, li	ncreased t	o minimum	Tc = 5.0 min

319 Total, Increased to minimum Tc = 5.0 min

#### Summary for Subcatchment EX-5: Southeastern Portion of Site

Runoff = 1.0 cfs @ 12.07 hrs, Volume= 2,853 cf, Depth= 3.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr  $\,$  50-yr Rainfall=6.87"

	Ar	ea (sf)	CN	Description	l	
		4,410	49	50-75% Gr	ass cover, l	Fair, HSG A
*		4,040	98	mpervious		
		505	84	50-75% Gr	ass cover, l	Fair, HSG D
		8.955	73	Neiahted A	verade	
		4,915		54.89% Pe	rvious Area	
		4,040		45.11% Im	pervious Ar	ea
	Tc	Length	Slope	Velocity	Capacity	Description
(I	min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	3.1	18	0.0110	0.10		Sheet Flow, Grass
						Grass: Short n= 0.150 P2= 3.40"
	0.4	32	0.0280	1.29		Sheet Flow, Pavement
						Smooth surfaces n= 0.011 P2= 3.40"
	0.1	26	0.0280	3.40		Shallow Concentrated Flow, Pavement
						Paved Kv= 20.3 fps
	3.6	76	Total,	Increased	to minimum	n Tc = 5.0 min

<b>14239.00-EX</b> Prepared by WATSCCM2012	Type III 24-hr 50-yr Rainfall=6 Printed 11/19/2	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018		
HydroCAD® 10.00-19 s/n 07577 ©	2016 HydroCAD Software Solutions LLC Page	26		
	Summary for Pond P1: Existing Basin			
Inflow Area = 33,110 sf, 6	61.14% Impervious, Inflow Depth = 4.47" for 50-yr event			
Outflow = 3.0  of  0.1	12.00 hrs, Volume = 12,321 cr			
Primary = 3.9  cfs @ 1	12.10 hrs, Volume= $11,275$ cf $11,275$ cf			
Routing by Stor-Ind method. Time	a Span = 0.00-30.00 hrs. dt = 0.01 hrs.			
Peak Elev= 96.13' @ 12.10 hrs S	Surf.Area= 1,562 sf Storage= 1,545 cf			
C				
Plug-Flow detention time=67.0 mi	in calculated for 11.271 cf (91% of inflow)			
lug-riow deternion time=01.0 mi				
Center-of-Mass det. time=24.2 mi	in ( 834.4 - 810.2 )			
Center-of-Mass det. time= 24.2 mi /olume Invert Avail.Stor	iin ( 834.4 - 810.2 )´			
Volume     Invert     Avail.Stor       #1     95.00'     2,14	hin ( 834.4 - 810.2 ) <u>rage Storage Description</u> 49 cf <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)			
Volume     Invert     Avail.Stor       #1     95.00'     2,14	hin ( 834.4 - 810.2 ) hin ( 834.4 - 810.2 )			
Volume     Invert     Avail.Stor       #1     95.00'     2,14       Elevation     Surf.Area       (frot)     (or ft)	in (834.4 - 810.2) rage Storage Description 49 cf Custom Stage Data (PrismaticListed below (Recalc) Inc.Store Cum.Store (aubic foot) (aubic foot)			
Ing - fow determinent anno- 07.6 million       Center-of-Mass det. time= 24.2 million       Volume     Invert       Avail.Stor       #1     95.00'       2,14       Elevation     Surf.Area       (feet)     (sq-ft)       05.00     1.102	in ( 834.4 - 810.2 ) rrage Storage Description 49 cf Custom Stage Data (Prismatic)_isted below (Recalc) Inc.Store Cum.Store (cubic-feet) (cubic-feet)			
Ing - fow determinent anno- of is mine           Center-of-Mass det. time= 24.2 mi           /olume         Invert           #1         95.00'           #1         95.00'           2,14           Elevation         Surf.Area           (feet)         (sq-ft)           95.00         1,183           00         1,105	in (834.4 - 810.2) prage Storage Description 49 cf Custom Stage Data (Prismatic)_isted below (Recalc) Inc.Store Cum.Store (cubic-feet) (cubic-feet) 0 0 1 230 1 230			
Integration and constraints         One of the constraints           Center-of-Mass det. time= 24.2 mi           /olume         Invert         Avail.Stor           #1         95.00'         2,14           Elevation         Surf.Area         (feet)           (feet)         (sq-ft)           95.00         1,183           96.00         1,495           96.00         1,745	iin ( 834.4 - 810.2 ) irrage Storage Description 49 cf Custom Stage Data (Prismatic)_isted below (Recalc) Inc.Store Cum.Store (cubic-feet) 0 0 1,339 1,339 810 2 149			
Inter-of-Mass det. time= 24.2 mi           /olume         Invert         Avail.Stor           #1         95.00'         2,14           Elevation         Surf.Area         (feet)           (feet)         (sq-ft)           95.00         1,183           96.00         1,495           96.50         1,745	nin ( 834.4 - 810.2 ) prage Storage Description 49 cf Custom Stage Data (Prismatic)Listed below (Recalc) Inc.Store Cum.Store (cubic-feet) 0 0 1,339 1,339 810 2,149			
Integration and or of 30 million           Center-of-Mass det. time= 24.2 million           /olume         Invert         Avail.Stor           #1         95.00'         2,14           Elevation         Surf.Area (feet)         (sq-ft)           95.00         1,183           96.00         1,495           96.50         1,745           Device         Routing         Invert	in (834.4 - 810.2) trage Storage Description 49 cf Custom Stage Data (Prismatic)Listed below (Recalc) Inc.Store Cum.Store (cubic-feet) 0 0 1,339 1,339 810 2,149 Outlet Devices			
Integration         Integration <thintegration< th=""> <thintegration< th=""></thintegration<></thintegration<>	in ( 834.4 - 810.2 ) rrage Storage Description 49 cf Custom Stage Data (Prismatic)Listed below (Recalc) Inc.Store Cum.Store (cubic-feet) (cubic-feet) 0 0 1,339 1,339 810 2,149 Outlet Devices 10.0" Round Culvert L= 20.0' Box, headwall w/3 square edges, Ke= 0.500			
Integration         Integration <thintegration< th=""> <thintegration< th=""></thintegration<></thintegration<>	inin ( 834.4 - 810.2 )         orage       Storage Description         49 cf       Custom Stage Data (PrismaticListed below (Recalc)         Inc.Store       Cum.Store         (cubic-feet)       (cubic-feet)         0       0         1,339       1,339         810       2,149         Outlet Devices         10.0" Round Culvert L= 20.0' Box, headwall w/3 square edges, Ke= 0.500         Inlet / Outlet Invert= 92.60' / 92.50' S = 0.0050 '/ Cc= 0.900			
Augregation         Inter-of-Mass det. time= 24.2 mi           Zenter-of-Mass det. time= 24.2 mi           #1         95.00'         2,14           Elevation         Surf.Area           (feet)         (sq-ft)           95.00         1,183           96.00         1,495           96.50         1,745           Device         Routing         Invert           #1         Primary         92.60'	sin ( 834.4 - 810.2 )         orage       Storage Description         49 cf       Custom Stage Data (Prismatic)_isted below (Recalc)         Inc.Store       Cum.Store         (cubic-feet)       (cubic-feet)         0       0         1,339       1,339         810       2,149         Outlet Devices         10.0" Round Culvert L= 20.0' Box, headwall w/3 square edges, Ke= 0.500         Inlet / Outlet Invert= 92.60' / 92.50' S= 0.0050 '/ Cc= 0.900         n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.55 sf			
Ing - for determining - for determining - for determining - for determining - for the end of the e	hin ( 834.4 - 810.2 ) brage Storage Description 49 of Custom Stage Data (Prismatic)Listed below (Recalc) Inc.Store Cum.Store (cubic-feet) (cubic-feet) 0 0 1,339 1,339 810 2,149 Outlet Devices 10.0" Round Culvert L= 20.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 92.60' / 92.50' S= 0.0050 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.55 sf 8.0' long x 3.0' breadth Broad-Crested Rectangular Weir			
Integration         Integration <thintegration< th=""> <thintegration< th=""></thintegration<></thintegration<>	inin ( 834.4 - 810.2 )         prage       Storage Description         49 of       Custom Stage Data (Prismatic)Listed below (Recalc)         Inc.Store       Cum.Store         (cubic-feet)       (cubic-feet)         0       0         1,339       1,339         810       2,149         Outlet Devices         10.0"       Round Culvert L= 20.0'         Box, headwall w/3 square edges, Ke= 0.500         Inlet / Outlet Invert= 92.60' / 92.50'         Solotion provide the pipe, straight & clean, Flow Area= 0.55 sf         8.0' long x 3.0' breadth Broad-Crested Rectangular Weir         Head (feet)       0.20         Head (feet)       0.20			

**2=Broad-Crested Rectangular Weir**(Weir Controls 3.9 cfs @ 1.46 fps)

#### Summary for Link DP-1: Ex LCB

Inflow Are	a =	18,641 sf,	79.21% Impervious,	Inflow Depth = 5.93"	for 50-yr event
Inflow	=	2.2 cfs @	12.17 hrs, Volume=	9,206 cf	-
Primary	=	2.2 cfs @	12.17 hrs, Volume=	9,206 cf, Atte	n= 0%, Lag= 0.0 min

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

#### Summary for Link DP-2: Route 3 Ditch

Inflow Ar	ea =	6,095 sf,	19.06% Impervious,	Inflow Depth = 4.91"	for 50-yr event
Inflow	=	0.8 cfs @	12.09 hrs, Volume=	2,491 cf	
Primary	=	0.8 cfs @	12.09 hrs, Volume=	2,491 cf, Atte	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-3: Old Oak Street Drainage System

Inflow Area	a =	55,302 sf,	96.06% Impervious,	Inflow Depth = 6.51"	for 50-yr event
Inflow	=	8.8 cfs @	12.07 hrs, Volume=	30,012 cf	
Primary	=	8.8 cfs @	12.07 hrs, Volume=	30,012 cf, Att	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-4: Ex Headwall at Corner

Inflow Area	a =	33,110 sf, 61.	.14% Impervious,	Inflow Depth = 4.09"	for 50-yr event
Inflow	=	3.9 cfs @ 12.	.10 hrs, Volume=	11,275 cf	-
Primary	=	3.9 cfs @ 12.	.10 hrs, Volume=	11,275 cf, Atte	n= 0%, Lag= 0.0 min

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

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Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 28

#### Summary for Link DP-5: Old Oak Street

Inflow A	Area =	8,955 sf,	45.11% Impervious,	Inflow Depth = 3.82	2" for 50-yr event
Inflow	=	1.0 cfs @	12.07 hrs, Volume=	2,853 cf	
Primary	/ =	1.0 cfs @	12.07 hrs, Volume=	2,853 cf, A	Atten= 0%, Lag= 0.0 min

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#### Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX-1: Rear Parking Lot	Runoff Area=18,641 sf 79.21% Impervious Runoff Depth=6.72" Flow Length=164' Tc=12.9 min CN=92 Runoff=2.5 cfs 10,434 cf
SubcatchmentEX-2: Western Corner of Site	Runoff Area=6,095 sf 19.06% Impervious Runoff Depth=5.66" Flow Length=50' Slope=0.0125 '/ Tc=6.6 min CN=83 Runoff=0.9 cfs 2,876 cf
SubcatchmentEX-3: Southern/CentralPortion of Site	Runoff Area=55,302 sf 96.06% Impervious Runoff Depth=7.31" Flow Length=355' Tc=5.0 min CN=97 Runoff=9.9 cfs 33,693 cf
SubcatchmentEX-4: NortheasternPortion of Site	Runoff Area=33,110 sf 61.14% Impervious Runoff Depth=5.20" Flow Length=319' Tc=5.0 min CN=79 Runoff=4.8 cfs 14,352 cf
SubcatchmentEX-5: SoutheasternPortion of Site	Runoff Area=8,955 sf 45.11% Impervious Runoff Depth=4.52" Flow Length=76' Tc=5.0 min CN=73 Runoff=1.1 cfs 3,372 cf
Pond P1: Existing Basin	Peak Elev=96.17' Storage=1,597 cf Inflow=4.8 cfs 14,352 cf Outflow=4.6 cfs 13,305 cf
Link DP-1: Ex LCB	Inflow=2.5 cfs 10,434 cf Primary=2.5 cfs 10,434 cf
Link DP-2: Route 3 Ditch	Inflow=0.9 cfs 2,876 cf Primary=0.9 cfs 2,876 cf
Link DP-3: Old Oak Street Drainage System	Inflow=9.9 cfs 33,693 cf Primary=9.9 cfs 33,693 cf
Link DP-4: Ex Headwall at Corner	Inflow=4.6 cfs 13,305 cf Primary=4.6 cfs 13,305 cf
Link DP-5: Old Oak Street	Inflow=1.1 cfs 3,372 cf Primary=1.1 cfs 3,372 cf

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Type III 24-hr 100-yr Rainfall=7.67" Printed 11/19/2018 Page 30

Total Runoff Area = 122,103 sf Runoff Volume = 64,727 cf Average Runoff Depth = 6.36" 23.56% Pervious = 28,768 sf 76.44% Impervious = 93,335 sf

#### Summary for Subcatchment EX-1: Rear Parking Lot

Runoff = 2.5 cfs @ 12.17 hrs, Volume= 10,434 cf, Depth= 6.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 100-yr Rainfall=7.67"

	A	rea (sf)	CN	Description		
		1,224	49	50-75% Gr	ass cover, F	Fair, HSG A
*		9,629	98	mpervious		
*		5,137	98	Roof		
		2,651	79	Woods, Fa	r, HSG D	
		18,641	92	Weighted A	verage	
		3,875		20.79% Pe	rvious Area	
		14,766		79.21% Im	pervious Are	ea
	Tc	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft	(ft/sec)	(cfs)	
	12.3	41	0.0125	0.06		Sheet Flow, Wooded
						Woods: Light underbrush n= 0.400 P2= 3.40"
	0.6	123	0.0330	3.69		Shallow Concentrated Flow, Pavement
						Paved Kv= 20.3 fps

12.9 164 Total

#### Summary for Subcatchment EX-2: Western Corner of Site

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 2,876 cf, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 100-yr Rainfall=7.67"

<b>142</b> Prej Hydr	<b>39.00-EX</b> pared by WA oCAD® 10.00	ATSC( -19_s/i	CM2012 n 07577 © 2016 HydroCAD Software Solutions LLC	Type III 24-hr 100-yr Rainfall=7.67" Printed 11/19/2018 Page 32
	Area (sf)	CN	Description	
	685	49	50-75% Grass cover, Fair, HSG A	
*	1,162	98	Impervious	
	4,248	84	50-75% Grass cover, Fair, HSG D	
	6,095	83	Weighted Average	
	4,933		80.94% Pervious Area	
	1,162		19.06% Impervious Area	

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
6.6	50	0.0125	0.13		Sheet Flow, Grassed

Grass: Short n= 0.150 P2= 3.40"

#### Summary for Subcatchment EX-3: Southern/Central Portion of Site

Runoff = 9.9 cfs @ 12.07 hrs, Volume= 33,693 cf, Depth= 7.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 100-yr Rainfall=7.67"

	Area (sf)	CN	Description
	933	49	50-75% Grass cover, Fair, HSG A
*	50,149	98	Impervious
*	2,973	98	Roof
	1,247	84	50-75% Grass cover, Fair, HSG D
	55,302	97	Weighted Average
	2,180		3.94% Pervious Area
	53,122		96.06% Impervious Area

Prepare	ed by WA		12012 7577 © 201		D Software Solutions LLC	
To	l ength	Slope	Velocity	Canacity	Description Page 3	
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	บรรดเห็นงา	
0.8	50	0.0150	1.10		Sheet Flow, Pavement	
1.0	213	0.0320	3.63		Shallow Concentrated Flow, Pavement	
0.1	50	0 0200	8 37	6 57	Paved Kv= 20.3 fps	
0.1	50	0.0230	0.57	0.57	12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'	
03	42	0 0010	2 47	7 75	n= 0.012 Concrete pipe, finished	
0.5	72	0.0010	2.41	1.15	24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished	
2.2	355	Total, I	ncreased t	o minimum	n Tc = 5.0 min	
			Sı	ummary f	for Subcatchment EX-4: Northeastern Portion of Site	
Runoff	=	4.8 c	fs @ 12.0	)7 hrs, Volu	ume= 14,352 cf, Depth= 5.20"	
Runoff b	y SCS TH	R-20 met	hod, UH=S	SCS, Weigh	hted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs	
ype III 2	24-nr 100	J-yr Rain				
A	rea (sf)		Description	ass cover [	Fair HSG A	
	17,187	98 li	mpervious	133 UUVEI, I	r uii, rioo 74	
	3,058 33 110	98 F	Koof Veighted A	verage		
	12,865	.5 0	8.86% Per	rvious Area	a	
	20,245	6	1.14% Imp	pervious Ar	rea	
<b>4239.(</b> Prepare lydroCAI	<b>00-EX</b> d by WA D® 10.00	TSCCM	12012 7577 © 201	16 HydroCA	Type III 24-hr 100-yr Rainfall=7.6 Printed 11/19/201 D Software Solutions LLC Page 3	
<b>4239.0</b> Prepare lydroCAI Tc (min)	00-EX ed by WA D® 10.00- Length (feet)	TSCCM 19 s/n 0 Slope (ft/ft)	12012 7577 © 207 Velocity (ft/sec)	16 HydroCA Capacity (cfs)	Type III 24-hr 100-yr Rainfall=7.6 Printed 11/19/201 Description	
Prepare lydroCAI Tc (min) 0.2	00-EX ed by WA D® 10.00- Length (feet) 38	TSCCM 19 s/n 0 Slope (ft/ft) 0.3300	2012 7577 © 201 Velocity (ft/sec) 3.59	16 HydroCAI Capacity (cfs)	Type III 24-hr 100-yr Rainfall=7.6 Printed 11/19/201 Description Sheet Flow, Roof	
4239.0 Prepare iydroCAI Tc (min) 0.2 0.9	00-EX d by WA D® 10.00 Length (feet) 38 225	TSCCM .19 s/n 0' Slope (ft/ft) 0.3300 0.0400	2012 7577 © 207 Velocity (ft/sec) 3.59 4.06	16 HydroCAl Capacity (cfs)	Type III 24-hr 100-yr Rainfall=7.6 Printed 11/19/201 Description Sheet Flow, Roof Smooth surfaces n= 0.011 P2= 3.40" Shallow Concentrated Flow, Pavement	
4239.( Prepare lydroCAI Tc (min) 0.2 0.9 2.0	00-EX d by WA D® 10.00- Length (feet) 38 225 56	TSCCM 19 s/n 0 Slope (ft/ft) 0.3300 0.0400	12012 7577 © 207 Velocity (ft/sec) 3.59 4.06	<u>16 HydroCA</u> Capacity (cfs)	Type III 24-hr 100-yr Rainfall=7.60         Printed 11/19/201         Discription         Sheet Flow, Roof         Smooth surfaces n= 0.011 P2= 3.40"         Shallow Concentrated Flow, Pavement         Page 3         Description	
<b>4239.(</b> Prepare lydroCAI Tc (min) 0.2 0.9 2.0	00-EX d by WA D® 10.00- Length (feet) 38 225 56	TSCCM <u>19 s/n 0</u> Slope <u>(ft/ft)</u> 0.3300 0.0400 0.0010	12012 7577 © 207 Velocity (ft/sec) 3.59 4.06 0.47	<u>16 HydroCA</u> Capacity (cfs)	Type III 24-hr 100-yr Rainfall=7.63         Printed 11/19/201         Discription         Sheet Flow, Roof         Smooth surfaces n= 0.011 P2= 3.40"         Shallow Concentrated Flow, Pavement         Page 3.40"         Shallow Concentrated Flow, Pavement         Page 3.40"         Shallow Concentrated Flow, Pavement         Page 3.40"         Shallow Concentrated Flow, Basin/RipRap         Grassed Waterway Kv= 15.0 fps	
<b>4239.0</b> Prepare <u>ydroCAI</u> Tc (min) 0.2 0.9 2.0 3.1	00-EX bd by WA D® 10.00- Length (feet) 38 225 56 319	TSCCM 19 s/n 0 Slope (ft/ft) 0.3300 0.0400 0.0010 Total, 1	12012 7577 © 207 (ft/sec) 3.59 4.06 0.47 ncreased t	16 HydroCAl Capacity (cfs)	Type III 24-hr 100-yr Rainfall=7.6:         Printed 11/19/201         Page 3         Description         Sheet Flow, Roof         Smooth surfaces n= 0.011 P2= 3.40"         Shallow Concentrated Flow, Pavement         Page 3         Description         Shallow Concentrated Flow, Pavement         Page 4K= 20.3 fps         Shallow Concentrated Flow, Basin/RipRap         Grassed Waterway Kv= 15.0 fps         n Tc = 5.0 min	
<b>4239.(</b> Prepare lydroCAI Tc (min) 0.2 0.9 2.0 3.1	00-EX d by WA D® 10.00- Length (feet) 38 225 56 319	TSCCM <u>19 s/n 07</u> Slope (ft/ft) 0.3300 0.0400 0.0010 Total, 1	2012 7577 © 207 Velocity (ft/sec) 3.59 4.06 0.47 ncreased t Su	16 HydroCA Capacity (cfs)	Type III 24-hr 100-yr Rainfall=7.65         Printed 11/19/201         Discription         Sheet Flow, Roof         Smooth surfaces n= 0.011 P2= 3.40"         Shallow Concentrated Flow, Pavement         Payed Kv= 20.3 fps         Shallow Concentrated Flow, Basin/RipRap         Grassed Waterway Kv= 15.0 fps         n Tc = 5.0 min         For Subcatchment EX-5: Southeastern Portion of Site	
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4239.0 Prepare (min) 0.2 0.9 2.0 3.1 Runoff Sunoff Sunoff Dype III 2 Ar	00-EX bd by WA D® 10.00 Length (feet) 38 225 56 319 = y SCS TF 24-hr 100 rea (sf) 4,410 4,040 505 8,955 4,915 4,040 Length (feet)	TSCCM <u>19 s/n 0</u> Slope (ft/ft) 0.3300 0.0400 0.0400 0.0010 Total, 1 1.1 c R-20 met 0-yr Rain <u>CN E</u> 49 5 98 li 84 5 73 V 4 Slope (ft/ft)	2012 7577 © 207 Velocity (ft/sec) 3.59 4.06 0.47 ncreased t <b>Su</b> fs @ 12.0 hod, UH=S fall=7.67" <u>Description</u> 0-75% Gra veighted A 4.89% Per 5.11% Imp 5.11% Imp Velocity (ft/sec)	16 HydroCAI Capacity (cfs) to minimum immary fo 17 hrs, Volu 3CS, Weigh ass cover, F ass cover, F ass cover, F ass cover, F core cover, F ass cover, F ass cover, F cover as a cover, F ass cover, F	Type III 24-hr 100-yr Rainfall=7.6:         Printed 11/19/201         Page 3         Description         Sheet Flow, Roof         Smooth surfaces n= 0.011 P2= 3.40"         Shallow Concentrated Flow, Pavement         Payed Kv= 20.3 fps         Shallow Concentrated Flow, Basin/RipRap         Grassed Watenway Kv= 15.0 fps         n Tc = 5.0 min         For Subcatchment EX-5: Southeastern Portion of Site         ume= 3,372 cf, Depth= 4.52"         htted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         Fair, HSG A         Fair, HSG A         Fair, HSG D         a         Description	
4239.( Prepare lydroCAI Tc (min) 0.2 0.9 2.0 3.1 8unoff bype III 2 Au Crc (min) 3.1	00-EX d by WA D® 10.00- Length (feet) 38 225 56 319 = y SCS TF 24-hr 100 rea (sf) 4,410 4,040 505 8,955 4,915 4,040 Length (feet) 18	TSCCM <u>19 s/n 0</u> Slope (ft/ft) 0.3300 0.0400 0.0400 0.0010 Total, I 1.1 c R-20 met 0-yr Rain <u>CN E</u> 49 5 98 li 84 5 73 V 53 4 Slope (ft/ft) 0.0110	2012 7577 © 207 Velocity (ft/sec) 3.59 4.06 0.47 ncreased t Su fs @ 12.0 hod, UH=5 fall=7.67" Description 0-75% Gra Veighted A 4.89% Per 5.11% Imp Velocity (ft/sec) 0.10	16 HydroCAl Capacity (cfs) to minimum immary fa 07 hrs, Volu SCS, Weigh ass cover, F ass cover, F verage rvious Area pervious Area pervious Area (cfs)	Type III 24-hr 100-yr Rainfall=7.6:         Printed 11/19/201         Page 3         Description         Sheet Flow, Roof         Smooth surfaces n= 0.011 P2= 3.40"         Shallow Concentrated Flow, Pavement         Paved Kv= 20.3 fps         Shallow Concentrated Flow, Basin/RipRap         Grassed Waterway         Grassed Waterway         Grassed Waterway         Kv= 15.0 fps         n Tc = 5.0 min         For Subcatchment EX-5: Southeastern Portion of Site         ume= 3,372 cf, Depth= 4.52"         hted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         Fair, HSG A         Fair, HSG A         Fair, HSG D         Crass: Grass         Crass: Shot n= 0.100, P2= 3.40"	
4239.( Prepare <u>iydroCAI</u> Tc (min) 0.2 0.9 2.0 3.1 Runoff Runoff b ype III 2 AI Tc (min) 3.1 0.4	00-EX d by WA D® 10.00- Length (feet) 38 225 56 319 = y SCS TF 24-hr 100 rea (sf) 4,410 4,040 505 8,955 4,915 4,040 Length (feet) 18 32	TSCCM <u>19 s/n 0</u> Slope <u>(ft/ft)</u> 0.3300 0.0400 0.0010 Total, I 1.1 c R-20 met 0-yr Rain <u>CN E</u> 49 5 98 ln 84 5 73 V 5 73 V 5 84 Slope <u>(ft/ft)</u> 0.0110 0.0280	2012 7577 © 20' Velocity (ft/sec) 3.59 4.06 0.47 ncreased t Su fs @ 12.0 hod, UH=S fall=7.67" Veighted A 4.89% Per 5.11% Imp Velocity (ft/sec) 0.10 1.29	16 HydroCAl Capacity (cfs) to minimum Immary fo 07 hrs, Volu SCS, Weigh ass cover, F werage rvious Area pervious Area pervious Area (cfs)	Type III 24-hr 100-yr Rainfall=7.6: Printed 11/19/201         Page 3         Description         Shet Flow, Roof         Smooth surfaces n = 0.011 P2= 3.40"         Shallow Concentrated Flow, Pavement         Paved Kv= 20.3 fps         Shallow Concentrated Flow, Basin/RipRap         Grassed Waterway       Kv= 15.0 fps         n Tc = 5.0 min         for Subcatchment EX-5: Southeastern Portion of Site         ume=       3,372 cf, Depth= 4.52"         hted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         Fair, HSG A         Fair, HSG A         Fair, HSG A         Pair, HSG D         a         Description         Sheet Flow, Grass         Grass: Short n= 0.150 P2= 3.40"         Sheet Flow, Pavement	
14239.( Prepare <u>iydroCAI</u> Tc (min) 0.2 0.9 2.0 3.1 Runoff b Sype III 2 AI Tc (min) 3.1 0.4 0.4 0.4	00-EX d by WA D® 10.00- Length (feet) 38 225 56 319 = y SCS TF 24-hr 100 rea (sf) 4,410 4,040 505 8,955 4,915 4,040 Length (feet) 18 32 26	TSCCM <u>19 s/n 0</u> Slope (ft/ft) 0.3300 0.0400 0.0010 Total, 1 1.1 c R-20 met 0-yr Rain <u>CN E</u> 49 5 98 ln 84 5 73 V 5 73 V 5 84 Slope (ft/ft) 0.0110 0.0280 0.0220	2012 7577 © 20' Velocity (ft/sec) 3.59 4.06 0.47 ncreased t Su fs @ 12.0 hod, UH=S fall=7.67" Veighted A 4.89% Per 5.11% Imp Velocity (ft/sec) 0.10 1.29 2.46	16 HydroCAl Capacity (cfs) io minimum immary fo 17 hrs, Volu SCS, Weigh ass cover, F iverage rvious Area bervious Area bervious Area bervious Area bervious Area bervious Area	Type III 24-hr 100-yr Rainfall=7.6: Printed 11/19/201         Page 3         Description         Sheet Flow, Roof         Smooth surfaces n= 0.011 P2= 3.40"         Shallow Concentrated Flow, Pavement         Page 3         Shallow Concentrated Flow, Pavement         Page 3         Shallow Concentrated Flow, Pavement         Page 3         Grassed Waterway Kv= 15.0 fps         n Tc = 5.0 min         For Subcatchment EX-5: Southeastern Portion of Site         ume= 3,372 cf, Depth= 4.52"         htted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs         Fair, HSG A         Fair, HSG A         Fair, HSG A         Fair, HSG A         Fair, HSG D         a         Description         Sheet Flow, Grass         Grass 1.001 hrs         Page 3.40"         Sheet Flow, Revenent         Sheet Flow, Revenent         Sheet Flow, Revenent         Shevent Flow Revenent <td co<="" td=""></td>	

3.6 76 Total, Increased to minimum Tc = 5.0 min

#### Summary for Pond P1: Existing Basin

Inflow Area	a =	33,110 sf,	61.14% Impervious,	Inflow Depth = 5.2	0" for 100-yr event
Inflow	=	4.8 cfs @	12.07 hrs, Volume=	14,352 cf	
Outflow	=	4.6 cfs @	12.09 hrs, Volume=	13,305 cf, /	Atten= 4%, Lag= 1.3 min
Primary	=	4.6 cfs @	12.09 hrs, Volume=	13,305 cf	

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev=  $96.17'\,@$  12.09 hrs  $\,$  Surf.Area= 1,579 sf  $\,$  Storage= 1,597 cf

Plug-Flow detention time=60.7 min calculated for 13,305 cf (93% of inflow) Center-of-Mass det. time=22.6 min ( 828.5 - 805.9 )

Volume	Inve	rt Avail.Sto	rage Storage	Description			
#1	95.0	0' 2,14	19 cf Custom	Stage Data (Pri	smatic)_isted below (Recalc)		
Elevatio	on s et)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
95.0 96.0	00 00	1,183 1,495	0 1,339	0 1,339			
96.5	50	1,745	810	2,149			
Device	Routing	Invert	Outlet Device	s			
#1	Primary	92.60'	10.0" Round Inlet / Outlet I	I Culvert L= 20.0 nvert= 92.60' / 92	)' Box, headwall w/3 square edges, Ke= 0.500 .50' S= 0.0050 '/' Cc= 0.900		
#2	Device 1	95.80'	n= 0.011 Cor 8.0' long x 3 Head (feet) 0 Coef. (English	ncrete pipe, straig . <b>0' breadth Broa</b> 9.20 0.40 0.60 0 n) 2.44 2.58 2.6	ht & clean, Flow Area= 0.55 sf <b>d-Crested Rectangular Weir</b> .80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 8 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32		
Primary 1=Cu 2=	Primary OutFlow Max=4.6 cfs @ 12.09 hrs HW=96.17' (Free Discharge) 1=Culvert (Passes 4.6 cfs of 4.7 cfs potential flow) 2=Broad-Crested Rectangular Weir(Weir Controls 4.6 cfs @ 1.55 fps)						

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Type III 24-hr 100-yr Rainfall=7.67" Printed 11/19/2018 Page 36

#### Summary for Link DP-1: Ex LCB

Inflow Ar	rea =	18,641 sf,	79.21% Impervious,	Inflow Depth = 6.72	for 100-yr event
Inflow	=	2.5 cfs @	12.17 hrs, Volume=	10,434 cf	-
Primary	=	2.5 cfs @	12.17 hrs, Volume=	10,434 cf, At	ten= 0%, Lag= 0.0 min

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

#### Summary for Link DP-2: Route 3 Ditch

Inflow Ar	rea =	6,095 sf,	19.06% Impervious,	Inflow Depth = 5.66"	for 100-yr event
Inflow	=	0.9 cfs @	12.09 hrs, Volume=	2,876 cf	•
Primary	=	0.9 cfs @	12.09 hrs, Volume=	2,876 cf, Atte	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-3: Old Oak Street Drainage System

Inflow A	rea =	55,302 sf,	96.06% Impervious,	Inflow Depth = 7.31"	for 100-yr event
Inflow	=	9.9 cfs @	12.07 hrs, Volume=	33,693 cf	-
Primary	=	9.9 cfs @	12.07 hrs, Volume=	33,693 cf, Atte	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-4: Ex Headwall at Corner

Inflow A	Area =	33,110 sf,	61.14% Impervious,	Inflow Depth = 4.82"	for 100-yr event
Inflow	=	4.6 cfs @	12.09 hrs, Volume=	13,305 cf	
Primar	y =	4.6 cfs @	12.09 hrs, Volume=	13,305 cf, Atte	n= 0%, Lag= 0.0 min

#### Summary for Link DP-5: Old Oak Street

Inflow Area	a =	8,955 sf,	45.11% Impervious,	Inflow Depth = 4.52"	for 100-yr event
Inflow	=	1.1 cfs @	12.07 hrs, Volume=	3,372 cf	-
Primary	=	1.1 cfs @	12.07 hrs, Volume=	3,372 cf, Atte	en= 0%, Lag= 0.0 min

HydroCAD Analysis: Proposed Conditions



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Link DP-2: Route 3 Ditch

Link DP-3: Old Oak Street Drainage System

Link DP-4: Ex Headwall at Corner

Link DP-5: Old Oak Street

Type III 24-hr 2-yr Rainfall=3.38" Printed 11/19/2018 Page 3

> Inflow=0.3 cfs 893 cf Primary=0.3 cfs 893 cf

Inflow=2.9 cfs 5,726 cf Primary=2.9 cfs 5,726 cf

Inflow=0.9 cfs 2,353 cf Primary=0.9 cfs 2,353 cf

Inflow=0.2 cfs 710 cf Primary=0.2 cfs 710 cf

Total Runoff Area = 122,593 sf Runoff Volume = 23,438 cf Average Runoff Depth = 2.29" 26.16% Pervious = 32,071 sf 73.84% Impervious = 90,522 sf

Type III 24-hr 2-yr Rainfall=3.38" 14239.00-PR Prepared by WATSCCM2012 HydroCAD® 10.00-19 s/n 07577 © 2016 HydroCAD Software Solutions LLC Printed 11/19/2018 Page 4 Summary for Subcatchment PR-1: Rear Parking Lot Runoff = 1.0 cfs @ 12.17 hrs, Volume= 3,918 cf, Depth= 2.52" Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 2-yr Rainfall=3.38" CN Area (sf) Description 1,224 49 50-75% Grass cover, Fair, HSG A 9,629 5,137 98 Impervious 98 Roof 2,651 79 Woods, Fair, HSG D 18,641 92 Weighted Average 20.79% Pervious Area 3,875 79.21% Impervious Area 14,766 Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs) 0.0125 Sheet Flow, Wooded 12.3 41 0.06 Woods: Light underbrush n= 0.400 P2= 3.40" 0.6 123 0.0330 3.69 Shallow Concentrated Flow, Pavement Paved Kv= 20.3 fps 12.9 164 Total Summary for Subcatchment PR-2: Western Corner of Site

Runoff = 0.3 cfs @ 12.10 hrs, Volume= 893 cf, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 2-yr Rainfall=3.38"

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	Area (sf)	CN	Description	Description					
	685	49	50-75% Gr	ass cover, I	Fair, HSG A				
*	1,162	98	Impervious						
	4,248	84	50-75% Gr	ass cover, l	Fair, HSG D				
	6,095	83	Weighted A	Average					
	4,933		80.94% Pe	80.94% Pervious Area					
	1,162		19.06% Im	pervious Ar	rea				
T (min	c Length i) (feet)	Slop (ft/fl	e Velocity ) (ft/sec)	Capacity (cfs)	Description				
6.	6 50	0.012	5 0.13		Sheet Flow, Grassed				

Grass: Short n= 0.150 P2= 3.40"

## Summary for Subcatchment PR-3: Southern/Central Portion of Site

Runoff = 3.6 cfs @ 12.07 hrs, Volume= 11,306 cf, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 2-yr Rainfall=3.38"

	Area (sf)	CN	Description
	3,882	49	50-75% Grass cover, Fair, HSG A
	43,279	98	Paved parking, HSG A
*	1,097	98	Roof
	1,646	84	50-75% Grass cover, Fair, HSG D
	49,904	94	Weighted Average
	5,528		11.08% Pervious Area
	44,376		88.92% Impervious Area

14239.00-PR	
Prepared by WATSCCM2012	
HydroCAD® 10.00-19 s/n 07577 © 2016 HydroCAD Softw	are Solutions LLC

#### *Type III 24-hr 2-yr Rainfall=3.38"* Printed 11/19/2018 Page 6

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.10		Sheet Flow, Pavement
					Smooth surfaces n= 0.011 P2= 3.40"
1.0	220	0.0320	3.63		Shallow Concentrated Flow, Pavement
					Paved Kv= 20.3 fps
0.2	50	0.0050	3.47	2.73	Pipe Channel, Piped System
					12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
					n= 0.012 Concrete pipe, finished
2.0	320	Total I	ncreased t	o minimum	$T_{c} = 5.0 \text{ min}$

#### Summary for Subcatchment PR-4A: Northeast; Roof, Pavement and Landsdcaping

Runoff = 1.6 cfs @ 12.07 hrs, Volume= 4,779 cf, Depth= 2.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 2-yr Rainfall=3.38"

	A	rea (sf)	CN [	Description							
		3,449	49 5	50-75% Gra	)-75% Grass cover, Fair, HSG A						
		15,045	98 F	Paved park	aved parking, HSG A						
*		5,130	98 F	Roof	-						
		23,624	91 \	Veighted A	verage						
		3,449	1	4.60% Pe	rvious Area						
		20,175	8	35.40% Im	pervious Ar	ea					
	Тс	Length	Slope	Velocity	Capacity	Description					
(I	min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	0.2	38	0.3300	3.59		Sheet Flow, Roof					
						Smooth surfaces n= 0.011 P2= 3.40"					
	0.9	225	0.0400	4.06		Shallow Concentrated Flow, Pavement					
						Paved Kv= 20.3 fps					
	0.2	39	0.0050	4.17	3.28	Pipe Channel, Pipe					
						12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'					
						n= 0.010 PVC, smooth interior					

				•••	initial y 101		
Runoff	=	0.5	cfs @ 12.0	)7 hrs, Volu	ume=	1,710 cf, Depth= 3.15"	
Runoff b Type III 2	y SCS TF 24-hr 2-y	R-20 me /r Rainfa	ethod, UH=\$ all=3.38"	SCS, Weigh	nted-CN, Time	Span= 0.00-30.00 hrs, dt= 0.01 hrs	
A	rea (sf)	CN	Description	J			
	6,522	98	Roof	A			
	6,522		100.00% In	npervious A	vrea		
Tc	Length	Slope	e Velocity	Capacity	Description		
(min) 0.8	(feet) 50	0.015	) (ft/sec)	(CIS)	Sheet Flow	Roof	
0.0	50	0.0150	5 1.10		Smooth sur	aces n= 0.011 P2= 3.40"	
0.8	50	Total,	Increased	to minimum	1 Tc = 5.0 min		
			S	Summary	for Subcat	chment PR-4C: Northeast Pervious Area	
Runoff	=	0.0	cfs @ 12.3	38 hrs, Volu	ume=	121 cf, Depth= 0.19"	
Runoff b Type III 2	y SCS TF 24-hr 2-y	R-20 me /r Rainfa	ethod, UH=8 all=3.38"	SCS, Weigh	nted-CN, Time	Span= 0.00-30.00 hrs, dt= 0.01 hrs	
A	rea (sf)	CN	Description	J			
	7,295	49 08	50-75% Graved parts	ass cover, F	Fair, HSG A		
	7,568	51	Weighted A	Average	<b>\</b>		
	7,295		96.39% Pe	rvious Area			
	213		5.01 /0 IIIIpe	si vious Area	a		
4239 (	00-PR					Type III	24-hr 2-vr Rainfall=3.38'
4239.0 Prepare lydroCA	<b>00-PR</b> ed by WA D® 10.00-	ATSCC	M2012 07577 © 201	16 HydroCA	D Software So	Type III	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
<b>4239.</b> Prepare IydroCA Tc (min)	00-PR ed by WA D® 10.00- Length (feet)	ATSCC -19 s/n Slope (ft/ft	M2012 07577 © 20 ∋ Velocity ) (ft/sec)	<u>16 HydroCA</u> Capacity (cfs)	D Software So Description	Type III	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
4239.0 Prepare lydroCA Tc (min) 2.7	00-PR d by WA D® 10.00- Length (feet) 35	NTSCCI -19 s/n Slope 	M2012 07577 © 20 e Velocity ) (ft/sec) ) 0.22	<u>16 HydroCA</u> Capacity (cfs)	D Software So Description Sheet Flow Grase: Shor	Type III utions LLC Grass 	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
A239. Prepare lydroCA Tc (min) 2.7 1.2	00-PR ed by WA D® 10.00- (feet) 35 102	ATSCCI - <u>19 s/n</u> Slopa (ft/ft 0.057( 0.009(	M2012 07577 © 20 e Velocity ) (ft/sec) ) 0.22 0 1.42	<u>16 HydroCA</u> Capacity (cfs)	D Software So Description Sheet Flow Grass: Shor Shallow CG Grassed W/	Type III utions LLC Grass : n= 0.150 P2= 3.40" ncentrated Flow, Grassed terway. Ky = 15 0 fps	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
4239.0 Prepare IydroCA Tc (min) 2.7 1.2 3.9	00-PR ed by WA D® 10.00 Length (feet) 35 102 137	ATSCC -19 s/n Slope (ft/ft 0.057( 0.009( Total,	M2012 07577 © 20 e Velocity ) (ft/sec) ) 0.22 ) 1.42 Increased f	16 HydroCA Capacity (cfs)	D Software So Description Sheet Flow Grass: Shof Shallow Co Grassed Wa T C = 5.0 min	Type III utions LLC Grass : n= 0.150 P2= 3.40" ncentrated Flow, Grassed terway Kv= 15.0 fps	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
<b>4239.0</b> Prepare lydroCA Tc (min) 2.7 1.2 3.9	00-PR ed by WA D® 10.00- Length (feet) 35 102 137	ATSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total,	M2012 07577 © 20 > Velocity ) (ft/sec) ) 0.22 ) 1.42 Increased f	16 HydroCA Capacity (cfs) to minimum	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa Tc = 5.0 min or Subcatc	Type III utions LLC Grass : n= 0.150 P2= 3.40" ncentrated Flow, Grassed terway Kv= 15.0 fps hment PR-5: Southeastern Portion of Site	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff	00-PR ed by WA D® 10.00- (feet) 35 102 137 =	ATSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.2	M2012 07577 © 20 > Velocity ) (ft/sec) 0 0.22 0 1.42 Increased f St cfs @ 12.0	16 HydroCA Capacity (cfs) to minimum <b>immary f</b> o	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa T c = 5.0 min or Subcatc	Type III         utions LLC         Grass         in = 0.150 P2= 3.40"         incentrated Flow, Grassed         terway Kv= 15.0 fps         hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff b Sype III 2	00-PR ed by WA D® 10.00 Length (feet) 35 102 137 = 	ATSCCI - <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, Total, 0.2 R-20 ma rr Rainfa	M2012 07577 © 20 e Velocity ) (ft/sec) ) 0.22 0 1.42 Increased f St cfs @ 12.0 ethod, UH=\$ all=3.38"	16 HydroCA Capacity (cfs) to minimum <b>immary f</b> )9 hrs, Volu 3CS, Weigh	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa T C = 5.0 min or Subcatc ume= nted-CN, Time	Type III         utions LLC         Grass         in neutrated Flow, Grassed         terway Kv= 15.0 fps         hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"         Span= 0.00-30.00 hrs, dt= 0.01 hrs	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
4239.0 Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff b Sunoff b Sype III 2 A	00-PR ed by WA D® 10.00- Length (feet) 35 102 137 = y SCS TF 24-hr 2-y rea (sf)	ATSCCI - <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.2 R-20 me rr Rainfa CN	M2012 07577 © 20 Velocity ) (ft/sec) ) 0.22 0 1.42 Increased 1 St cfs @ 12.0 ethod, UH=5 all=3.38" Description	16 HydroCA Capacity (cfs) to minimum <b>Immary f</b> )9 hrs, Volu 3CS, Weigh	D Software So Description Sheet Flow Grass: Shof Shallow Co Grassed Wa Tc = 5.0 min or Subcatc ume= nted-CN, Time	Type III         utions LLC         Grass         in n= 0.150 P2= 3.40"         ncentrated Flow, Grassed         terway Kv= 15.0 fps         hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
Attaches a constraint of the second s	00-PR bd by WA D® 10.00 Length (feet) 35 102 137 = y SCS TF 24-hr 2-y rea (sf) 6,035 3,248	NTSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.2 R-20 me rr Rainfa CN 49 98	M2012 07577 © 20 Velocity (ft/sec) 0 0.22 0 1.42 Increased 1 St cfs @ 12.0 ethod, UH=5 all=3.38" Description 50-75% Gri Impervious	16 HydroCAl Capacity (cfs) to minimum <b>Immary f</b> J9 hrs, Volu 3CS, Weigh	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa Tc = 5.0 min or Subcatc ume= nted-CN, Time Fair, HSG A	Type III         utions LLC         Grass         in n= 0.150 P2= 3.40"         ncentrated Flow, Grassed         tenway Kv= 15.0 fps         hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"         Span= 0.00-30.00 hrs, dt= 0.01 hrs	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
Action of the second se	00-PR bd by WA D® 10.00 Length (feet) 35 102 137 = y SCS TF 24-hr 2-y rea (sf) 6,035 3,248 956	NTSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.2 R-20 me rr Rainfa cr Rainfa 49 98 84	M2012 07577 © 20 Velocity (ft/sec) 0 0.22 0 1.42 Increased 1 St Cfs @ 12.0 ethod, UH=S all=3.38" Description 50-75% Gra 50-75% Gra	16 HydroCAl Capacity (cfs) to minimum <b>Immary f</b> 30 hrs, Volu 3CS, Weigh ass cover, f ass cover, f	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa Tc = 5.0 min or Subcatc ume= nted-CN, Time Fair, HSG A Fair, HSG D	Type III         utions LLC         Grass         in n= 0.150 P2= 3.40"         ncentrated Flow, Grassed         terway Kv= 15.0 fps         hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"         span= 0.00-30.00 hrs, dt= 0.01 hrs	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
Action of the second se	00-PR bd by WA D® 10.00- Length (feet) 35 102 137 = y SCS TF 24-hr 2-y rea (sf) 6,035 3,248 956 10,239	ATSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.2 R-20 me r Rainfa 49 98 84 68	M2012 07577 © 20 Velocity (ft/sec) 0 0.22 0 1.42 Increased 1 St Cfs @ 12.0 ethod, UH=S all=3.38" Description 50-75% Gra 50-75% Gra Weighted A	16 HydroCAl Capacity (cfs) to minimum Immary fo 39 hrs, Volu 3CS, Weigh ass cover, f ass cover, f ass cover, f	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa Tc = 5.0 min or Subcatc June= nted-CN, Time Fair, HSG A Fair, HSG D	Type III utions LLC Grass :n = 0.150 P2= 3.40" ncentrated Flow, Grassed terway Kv= 15.0 fps hment PR-5: Southeastern Portion of Site 710 cf, Depth= 0.83" : Span= 0.00-30.00 hrs, dt= 0.01 hrs	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
Attachartic state of the second state of the s	00-PR bd by WA D® 10.00- Length (feet) 35 102 137 = y SCS TF 24-hr 2-y rea (sf) 6,035 3,248 956 10,239 6,991 3,248	ATSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.2 R-20 me r Rainfa 49 98 84 68	M2012 07577 © 20: Velocity (ft/sec) 0 0.22 0 1.42 Increased 1 St Cfs @ 12.0 ethod, UH=S all=3.38" Description 50-75% Gra Impervious 50-75% Gra Weighted A 68.28% Pe	16 HydroCAl Capacity (cfs) to minimum Immary fo J9 hrs, Volu SCS, Weigh ass cover, f ass cover, f verage rvious Area 2ervious Area	D Software So Description Sheet Flow Grass: Shallow Co Grassed Wa Tc = 5.0 min or Subcatc June= nted-CN, Time Fair, HSG A Fair, HSG D	Type III         utions LLC         Grass         in n= 0.150 P2= 3.40"         incentrated Flow, Grassed         terway Kv= 15.0 fps         hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"         span= 0.00-30.00 hrs, dt= 0.01 hrs	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
Arepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Runoff b Sype III 2 A	00-PR d by WA D® 10.00- Length (feet) 35 102 137 = y SCS TF 24-hr 2-y rea (sf) 6,035 3,248 956 10,239 6,991 3,248	ATSCCI -19 s/n Slop4 (ft/ft 0.057( 0.009( Total, 0.2 R-20 me rr Rainfa 49 98 84 68	M2012 07577 © 20: ⇒ Velocity ) (ft/sec) ) 0.22 ) 1.42 Increased f SL cfs @ 12.( athod, UH=S all=3.38" Description 50-75% Gra Impervious 50-75% Gra Weighted A 68.28% Pe 31.72% Imp	16 HydroCAl Capacity (cfs) to minimum Immary fo J9 hrs, Volu SCS, Weigh ass cover, F ass cover, F ass cover, F ass cover, F	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa Tc = 5.0 min or Subcatc June= nted-CN, Time Fair, HSG A Fair, HSG D	Type III         utions LLC         Grass         in n= 0.150 P2= 3.40"         ncentrated Flow, Grassed         terway Kv= 15.0 fps         hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"       Span= 0.00-30.00 hrs, dt= 0.01 hrs	24-hr 2-yr Rainfall=3.38 Printed 11/19/2018 Page 8
Arepare iydroCA Tc (min) 2.7 1.2 3.9 Runoff Sunoff Sunoff Cype III Are Tc (min)	00-PR d by WA D® 10.00- Length (feet) 35 102 137 = y SCS TF 24-hr 2-y rea (sf) 6,035 3,248 956 10,239 6,991 3,248 Length (feet)	ATSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.2 R-20 me rr Rainfa 49 98 84 68 Slope (ft/ft	M2012 07577 © 20 Velocity (fl/sec) 0 0.22 0 1.42 Increased fl SL cfs @ 12.0 ethod, UH=S all=3.38" Description 50-75% Gra Impervious 50-75% Gra Impervious 50-75% Gra Weighted A 68.28% Pe 31.72% Imp e Velocity (fl/cec)	16 HydroCAl Capacity (cfs) to minimum ummary fo 09 hrs, Volu SCS, Weigh ass cover, f ass cover, f ass cover, f ass cover, f ass cover, f cover age rvious Area pervious Area pervious Area	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa Tc = 5.0 min or Subcato ume= nted-CN, Time Fair, HSG A Fair, HSG D ea Description	Type III utions LLC Grass : n= 0.150 P2= 3.40" ncentrated Flow, Grassed terway Kv= 15.0 fps hment PR-5: Southeastern Portion of Site 710 cf, Depth= 0.83" • Span= 0.00-30.00 hrs, dt= 0.01 hrs	24-hr 2-yr Rainfall=3.38 Printed 11/19/2018 Page 8
4239.( Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Sunoff Sunoff Sunoff Dype III 2 Al Creation All Tc (min) 3.1	00-PR d by WA D® 10.00- Length (feet) 35 102 137 = y SCS TF 24-hr 2-y rea (sf) 6,035 3,248 956 10,239 6,991 3,248 Length (feet) 18	ATSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.2 R-20 me rr Rainfa 49 98 84 68 Slope (ft/ft 0.011(	M2012 07577 © 20 Velocity (ft/sec) 0 0.22 0 1.42 Increased 1 St Cfs @ 12.0 ethod, UH=5 all=3.38" Description 50-75% Gr: Impervious 50-75% Gr: Impervious 50-75% Gr: Weighted A 88.28% Pe 31.72% Imp e Velocity (ft/sec) 0 0.10	16 HydroCA Capacity (cfs) to minimum ummary fo J9 hrs, Volu SCS, Weigh ass cover, F ass cover, F verage rvious Area pervious Area pervious Area cervious Area	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa Tc = 5.0 min or Subcatc Jume= nted-CN, Time Fair, HSG A Fair, HSG D ea Description Sheet Flow	Type III         utions LLC         Grass         in n= 0.150 P2= 3.40"         ncentrated Flow, Grassed         terway Kv= 15.0 fps         hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"       Span= 0.00-30.00 hrs, dt= 0.01 hrs         Span= 0.00-30.00 hrs, dt= 0.01 hrs	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
4239.( Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Sunoff Sunoff Sunoff Dype III 2 Ai C (min) 3.1	00-PR d by WA D® 10.00- Length (feet) 35 102 137 = y SCS Tf 24-hr 2-y rea (sf) 6,035 3,248 956 10,239 6,991 3,248 Length (feet) 18 2-4	ATSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.2 R-20 me rr Rainfa cN 49 98 84 68 Slope (ft/ft 0.011( 0.022)	M2012 07577 © 20 Velocity (ft/sec) 0 0.22 0 1.42 Increased 1 St Cfs @ 12.0 ethod, UH=S all=3.38" Description 50-75% Gr: Impervious 50-75% Gr: Weighted A 68.28% Pe 31.72% Imp e Velocity (ft/sec) 0 0.10 1.52	16 HydroCA Capacity (cfs) to minimum ummary fo )9 hrs, Volu 3CS, Weigh ass cover, F ass cover, F verage rvious Area pervious Area pervious Area pervious Area pervious Area	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa or Subcatc June= nted-CN, Time Fair, HSG A Fair, HSG D ea Description Sheet Flow Grass: Shor Sheet Flow	Type III         utions LLC         Grass         in n= 0.150 P2= 3.40"         hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"         Span= 0.00-30.00 hrs, dt= 0.01 hrs         Grass         in = 0.150 P2= 3.40"	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8
Arepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Sunoff Sunoff Sunoff Sunoff Control (min) 3.1 0.6	00-PR d by WA D® 10.00- Length (feet) 35 102 137 = y SCS TF 24-hr 2-y rea (sf) 6,035 3,248 956 10,239 6,991 3,248 Length (feet) 13,248 13,248 13,248 13,248 10,239 13,248 14,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 13,248 14,448 14,448 1	ATSCCI -19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.2 R-20 me rr Rainfa 49 98 84 68 Slope (ft/ft 0.011( 0.033(	M2012 07577 © 20 Velocity (ft/sec) 0 0.22 0 1.42 Increased 1 St Cfs @ 12.0 ethod, UH=5 all=3.38" Description 50-75% Gr: Impervious 50-75% Gr: Impervious 50-75% Gr: Weighted A 68.28% Pe 31.72% Imp e Velocity (ft/sec) 0 0.10 0 1.57	16 HydroCA Capacity (cfs) to minimum ummary fo J9 hrs, Volu SCS, Weigh ass cover, F ass cover, F verage rvious Area pervious Area pervious Area pervious Area pervious Area	D Software So Description Sheet Flow Grass: Shor Shallow Co Grassed Wa Tc = 5.0 min or Subcatc June= nted-CN, Time Fair, HSG A Fair, HSG D Lea Description Sheet Flow Grass: Shor Sheet Flow Smooth sur	Grass         :         n= 0.150         P2= 3.40"           incentrated Flow, Grassed         terway         Kv= 15.0 fps           hment PR-5: Southeastern Portion of Site         710 cf, Depth= 0.83"         Span= 0.00-30.00 hrs, dt= 0.01 hrs           Span= 0.00-30.00 hrs, dt= 0.01 hrs	24-hr 2-yr Rainfall=3.38' Printed 11/19/2018 Page 8

			Summary for Pond P1: Subsurface Infiltration System		
Inflow Area = Inflow = Outflow = Discarded = Primary =	6,522 sf,1 0.5 cfs @ 0.0 cfs @ 0.0 cfs @ 0.0 cfs @	100.00% 12.07   9.67   9.67   0.00	% Impervious, Inflow Depth = 3.15" for 2-yr event hrs, Volume= 1,710 cf hrs, Volume= 1,653 cf, Atten= 96%, Lag= 0.0 min hrs, Volume= 1,653 cf hrs, Volume= 0 cf		
Routing by Stor- Peak Elev= 93.0	Ind method, Tim 3'@ 14.94 hrs	ie Spar Surf.Ai	n= 0.00-30.00 hrs, dt= 0.01 hrs / 2 vrea= 842 sf Storage= 859 cf		
Plug-Flow deter Center-of-Mass	tion time=365.9 det. time=345.5	min ca min ( 1	alculated for 1,653 cf (97% of inflow) 1,099.9 - 754.3)		
Volume In	vert Avail.St	orage	Storage Description		
<b>#1A 9</b> 1	.40' 6	694 cf	<b>15.75'W x 53.46'L x 3.50'H Field A</b> 2 947 cf Overall - 965 cf Embedded = 1 982 cf. x 35 0% Voids		
#2A 91	.90' 9	965 cf	ADS_StormTech SC-740 +Capx 21 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap		
	1.6	59 of	3 Rows of 7 Chambers		
	1,0	000 01			
Storage Grou	p A created with	1 Cham	nber Wizard		
Device Routin	g Invert	Outl	let Devices		
#1 F1111ai	/ 94.40	Inlet	t / Outlet Invert= 94.40' / 94.30' S= 0.0033 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf		
#2 Discar	led 91.40'	1.02	20 in/hr Exfiltration over Surface area Phase-In= 0.01'		
Discarded Outl	low Max=0.0 cf (Exfiltration Co	s @ 9.6 ontrols	67 hrs HW=91.44' (Free Discharge) 0.0 cfs)		
Primary OutFlo	w Max=0.0 cfs /	<u>م</u> ۵ ۵۵			
<sup>1</sup> −1=Culvert (	Controls 0.0 cfs)				
14239.00-PR Prepared by W HydroCAD® 10.0	ATSCCM2012 )-19 s/n 07577 @	2016	Type III 24-hr 2-yr Rainfa Printed 11/ HydroCAD Software Solutions LLC	n//=3.38″ 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0	ATSCCM2012 )-19 s/n 07577 @	2016	Type III 24-hr 2-yr Rainfa Printed 11/ HydroCAD Software Solutions LLC	n//=3.38" 19/2018 Page 10	
<b>14239.00-PR</b> Prepared by W HydroCAD® 10.0	ATSCCM2012 3-19 s/n 07577 @	D 2016 I	Type III 24-hr 2-yr Rainfa Printed 11/ Summary for Pond P2: Subsurface Infiltration System	n//=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0	ATSCCM2012 0-19 s/n 07577 @ 49,904 sf,	88.929	Type III 24-hr 2-yr Rainfa Printed 11/ Summary for Pond P2: Subsurface Infiltration System % Impervious, Inflow Depth = 2.72" for 2-yr event	al/=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow =	ATSCCM2012 )-19 s/n 07577 @ 49,904 sf, 3.6 cfs @ 3.0 cfs @	2016   88.929 12.07   12.12	Type III 24-hr 2-yr Rainfa         Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event         hrs, Volume=       11,306 cf, Atten= 18%, Lag= 3.1 min	al/=3.38″ 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primarv =	ATSCCM2012 -19 s/n 07577 @ 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @	88.929 12.07   12.12   9.48   12.12	Type III 24-hr 2-yr Rainfa         Printed 11/         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event         hrs, Volume=       11,306 cf         hrs, Volume=       11,306 cf, Atten= 18%, Lag= 3.1 min         hrs, Volume=       5,581 cf	nl/=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary =	ATSCCM2012 2-19 s/n 07577 @ 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @	88.929 12.07   12.12   9.48   12.12	Type III 24-hr 2-yr Rainfa         Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event         hrs, Volume=       11,306 cf         hrs, Volume=       11,306 cf         hrs, Volume=       5,581 cf         hrs, Volume=       5,726 cf         p= 0.00 30.00 brs. dt= 0.01 brs. (2)	n//=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary = Routing by Stor- Peak Elev= 94.1	ATSCCM2012 2-19 s/n 07577 @ 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 2.9 cfs @ Ind method, Tim 2'@ 12.12 hrs	88.929 12.07   12.12   9.48   12.12   9.48   12.12   9.48   12.12   9.48	Type III 24-hr 2-yr Rainfa         Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event         hrs, Volume=         11,306 cf, Atten=         hrs, Volume=         11,306 cf, Atten=         hrs, Volume=         5,581 cf         hrs, Volume=         5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2         wrea=         1,826 sf	al/=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary = Routing by Stor- Peak Elev= 94.1 Plug-Flow deter Center-of-Mass	ATSCCM2012 2-19 s/n 07577 ( 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 1.1 cfs @ 2.9 cfs @ Ind method, Tim 2'@ 12.12 hrs tion time=50.5 n det. time=50.4 r	<ul> <li>2016  </li> <li>88.92°</li> <li>12.07</li> <li>12.12  </li> <li>9.48</li> <li>12.12  </li> <li>12</li></ul>	Type III 24-hr 2-yr Rainfa Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event hrs, Volume= 11,306 cf hrs, Volume= 11,306 cf, Atten= 18%, Lag= 3.1 min hrs, Volume= 5,581 cf hrs, Volume= 5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2 rea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow) 34.8 - 784.4 )	al/=3.38″ 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary = Routing by Stor- Peak Elev= 94.1 Plug-Flow deter Center-of-Mass Volume In	ATSCCM2012 -19 s/n 07577 ( 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 1nd method, Tim 2'@ 12.12 hrs tion time=50.5 n det. time= 50.4 r vert Avail.St	<ul> <li>⇒ 2016 f</li> <li>88.929</li> <li>12.07</li> <li>12.12 f</li> <li>9.48 f</li> <li>12.12 l</li> <li>12.12 f</li> <li>ne Spar</li> <li>Surf.Au</li> <li>nin cald</li> <li>nin cald</li> <li>nin ( 82</li> <li>orage</li> </ul>	Type III 24-hr 2-yr Rainfa         Printed 11/         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event         hrs, Volume=       11,306 cf         hrs, Volume=       11,306 cf, Atten= 18%, Lag= 3.1 min         hrs, Volume=       5,581 cf         hrs, Volume=       5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2         vrea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow)         34.8 - 784.4 )         Storage Description	n//=3.38" 19/2018 Page 10	
<b>14239.00-PR</b> Prepared by W         HydroCAD® 10.0         Inflow Area =         Inflow =         Outflow =         Discarded =         Primary =         Routing by Stor-         Peak Elev= 94.1         Plug-Flow deter         Center-of-Mass         Volume       In         #1A       92	ATSCCM2012 <u>-19 s/n 07577 (</u> 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 1nd method, Tim 2' @ 12.12 hrs tion time=50.5 n det. time= 50.4 r vert Avail.Sto .30' 1,4	<ul> <li>⇒ 2016 I</li> <li>88.929</li> <li>12.07 I</li> <li>12.12 I</li> <li>9.48 I</li> <li>12.12 I</li> <li>ne Spar</li> <li>Surf.Au</li> <li>nin calc</li> <li>nin calc</li> <li>nin calc</li> <li>orage</li> <li>165 cf</li> </ul>	Type III 24-hr 2-yr Rainfa Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event hrs, Volume= 11,306 cf, hrs, Volume= 11,306 cf, Atten= 18%, Lag= 3.1 min hrs, Volume= 5,581 cf hrs, Volume= 5,581 cf hrs, Volume= 5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2 rea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow) 34.8 - 784.4 )         Storage Description         20.50'W x 89.06'L x 3.50'H Field A	all=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary = Routing by Stor- Peak Elev= 94.1 Plug-Flow deter Center-of-Mass Volume In #1A 92 #2A 92	ATSCCM2012 <u>0-19 s/n 07577 (</u> 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 2.9 cfs @ 1nd method, Tim 2'@ 12.12 hrs tion time=50.5 n det. time=50.4 r vert Avail.St .30' 1,4 .80' 2,2	<ul> <li>2016 I</li> <li>88.929</li> <li>12.07 I</li> <li>12.12 I</li> <li>9.48 I</li> <li>12.12 I</li> <li>9.48 I</li> <li>12.12 I</li> <li>e Spart</li> <li>nin cald</li> <li>nin cald</li> <li>nin cald</li> <li>nin cald</li> <li>65 cf</li> <li>205 cf</li> </ul>	Type III 24-hr 2-yr Rainfa Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event hrs, Volume= 11,306 cf, Atten= 18%, Lag= 3.1 min hrs, Volume= 5,581 cf hrs, Volume= 5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2 wrea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow) 34.8 - 784.4 )         Storage Description         20.50'W x 89.06'L x 3.50'H Field A 6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids ADS_StormTech SC-740 + Capx 48 Inside #1	n//=3.38" 19/2018 Page 10	
<b>14239.00-PR</b> Prepared by W         HydroCAD® 10.0         Inflow Area =         Inflow =         Outflow =         Outflow =         Discarded =         Primary =         Routing by Stor-         Peak Elev= 94.1         Plug-Flow deter         Center-of-Mass         Volume       In         #1A       92         #2A       92	ATSCCM2012 -19 s/n 07577 ( 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ Ind method, Tim 2'@ 12.12 hrs tion time=50.5 n det. time=50.4 r vert Avail.Str .30' 1,4 .80' 2,2	<ul> <li>⇒ 2016 I</li> <li>88.92°</li> <li>12.07 I</li> <li>12.12 I</li> <li>9.48 I</li> <li>12.12 I</li> <li>9.48 I</li> <li>12.12 I</li> <li>inin calc</li> <li>nin calc</li> <li>nin calc</li> <li>orage</li> <li>165 cf</li> <li>205 cf</li> </ul>	Type III 24-hr 2-yr Rainfa         Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event         hrs, Volume=       11,306 cf         hrs, Volume=       11,306 cf, Atten= 18%, Lag= 3.1 min         hrs, Volume=       5,581 cf         hrs, Volume=       5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2       2         trea=       1,826 sf         Storage       2,147 cf         culated for 11,303 cf (100% of inflow)         34.8 - 784.4 )       3         Storage       Description         20.50'W x 89.06'L x 3.50'H Field A       6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids         ADS_StormTech SC-740 +Capx 48 Inside #1       Effective Size= 44.6''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf         Overall Size=       51.0''W x 30.0''H => 7.56'L with 0.44' Overlap	a//=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary = Routing by Stor- Peak Elev= 94.1 Plug-Flow deter Center-of-Mass Volume In #1A 92 #2A 92	ATSCCM2012 <u>)-19 s/n 07577 (</u> 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 1nd method, Tim 2' @ 12.12 hrs tion time=50.5 n det. time=50.4 r vert Avail.Str .30' 1,4 .80' 2,2 3.6	<ul> <li>2016</li> <li>88.92°</li> <li>12.07</li> <li>12.121</li> <li>9.48</li> <li>12.121</li> <li>ine Spar</li> <li>Surf.Ai</li> <li>nin cald</li> <li>nin cald</li> <li>nin cald</li> <li>orage</li> <li>165 cf</li> <li>205 cf</li> <li>370 cf</li> </ul>	Type III 24-hr 2-yr Rainfa         Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event         hrs, Volume=       11,306 cf         hrs, Volume=       13,06 cf, Atten= 18%, Lag= 3.1 min         hrs, Volume=       5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2         trea=       1,826 sf         Storage       2,147 cf         culated for 11,303 cf (100% of inflow)         34.8 - 784.4 )         Storage Description <b>2.050'W x 89.06'L x 3.50'H Field A</b> 6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids         ADS_StormTech SC-740 + Capx 48 Inside #1         Effective Size= 44.6''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf         Overall Size= 51.0''W x 30.0''H => 7.56'L with 0.44' Overlap         4 Rows of 12 Chambers         Total Available Storage	all=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary = Routing by Stor- Peak Elev= 94.1 Plug-Flow deter Center-of-Mass Volume In #1A 92 #2A 92	ATSCCM2012 2-19 s/n 07577 ( 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ Ind method, Tim 2'@ 12.12 hrs tion time=50.5 n det. time=50.4 r vert Avail.Str .30' 1,4 .80' 2,2 3,6	© 2016 1 88.927 1 12.02 1 9.48 1 12.12 1 9.48 1 12.12 1 e Spar Surf.Ai nin calco orage 465 cf 205 cf	Type III 24-hr 2-yr Rainfa Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event hrs, Volume = 11,306 cf, Atten= 18%, Lag= 3.1 min hrs, Volume = 5,581 cf hrs, Volume = 5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2 wea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow) 34.8 - 784.4 )         Storage Description         20.50°W x 89.06°L x 3.50°H Field A 6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids ADS_StormTech SC-740 + Capx 48 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12°L = 45.9 cf Overall Size= 51.0"W x 30.0"H => 6.45 sf x 7.12°L = 45.9 cf Overall Size= 51.0"W x 30.0"H => 6.45 sf x 7.12°L = 45.9 cf Overall Size= 51.0"W x 30.0"H => 6.45 sf x 7.12°L = 45.9 cf Overall Size= 51.0"W x 30.0"H => 6.45 sf x 7.12°L = 45.9 cf	all=3.38" 19/2018 Page 10	
14239.00-PR         Prepared by W         HydroCAD® 10.0         Inflow Area =         Inflow =         Outflow =         Discarded =         Primary =         Routing by Stor-         Peak Elev= 94.1         Plug-Flow deter         Center-of-Mass         Volume       In         #1A       92         #2A       92         Storage Group	ATSCCM2012 2-19 s/n 07577 ( 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 1.1 cfs @ 2.9 cfs @ 1.1 cfs @ 2.9 cfs @ 1.2 cfs @ 3.0 cfs @ 2.9 cfs @ 3.0 cfs @ 2.9 cfs @ 3.0 cfs @ 2.9 cfs @ 3.0 cfs @ 2.9 cfs @ 3.0 cfs @ 3.	© 2016   88.922 12.07   12.12   9.48   12.12   e Spar Surf.Al nin calc nin ( 83 orage 165 cf 205 cf 370 cf n Cham	Type III 24-hr 2-yr Rainfa Printed 111         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event hrs, Volume 11,306 cf, Atten= 18%, Lag= 3.1 min hrs, Volume 5,581 cf hrs, Volume 5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2 vrea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow) 34.8 - 784.4 )         Storage Description         20.50W x 99.06'L x 3.50'H Field A 6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids ADS_StormTech SC-740 + Capx 48 Inside #1 Effective Size= 44.6'W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf	al/=3.38" 19/2018 Page 10	
14239.00-PR         Prepared by W         HydroCAD® 10.0         Inflow Area =         Inflow =         Outflow =         Discarded =         Primary =         Routing by Stor-Peak Elev= 94.1         Plug-Flow deter         Center-of-Mass         Volume       In         #1A       92         #2A       92         Storage Grouting       1         #1       Primary	ATSCCM2012 <u>-19 s/n 07577 (</u> 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 1nd method, Tim 2'@ 12.12 hrs tion time=50.5 n det. time=50.4 r vert Avail.St 30' 1,2 .80' 2,2 3,6 p A created witt <u>a invert</u> ( 03.14)	<ul> <li>2016  </li> <li>88.922</li> <li>12.07  </li> <li>12.12  </li> <li>9.48  </li> <li>12.12  <!--</td--><td>Type III 24-hr 2-yr Rainfa Printed 11/ Printed 11/         HydroCAD Software Solutions LLC       Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = <math>2.72^{\circ}</math> for 2-yr event hrs, Volume= 11,306 cf, Atten= 18%, Lag= 3.1 min hrs, Volume= 5,581 cf hrs, Volume= 5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2 wea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow) 34.8 - 784.4 )         Storage Description         20.50W x 89.06'L x 3.50'H Field A 6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids ADS_StormTech SC-740 + Capx 48 Inside #1 Effective Size= 44.6'W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H =&gt; 6.45 sf x 7.12'L = 45.9 cf         Total Available Storage       Total Available Storage         nber Wizard       Iet Devices</td><td>al/=3.38" 19/2018 Page 10</td></li></ul>	Type III 24-hr 2-yr Rainfa Printed 11/ Printed 11/         HydroCAD Software Solutions LLC       Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = $2.72^{\circ}$ for 2-yr event hrs, Volume= 11,306 cf, Atten= 18%, Lag= 3.1 min hrs, Volume= 5,581 cf hrs, Volume= 5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2 wea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow) 34.8 - 784.4 )         Storage Description         20.50W x 89.06'L x 3.50'H Field A 6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids ADS_StormTech SC-740 + Capx 48 Inside #1 Effective Size= 44.6'W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf         Total Available Storage       Total Available Storage         nber Wizard       Iet Devices	al/=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary = Routing by Stor- Peak Elev= 94.1 Plug-Flow deter Center-of-Mass Volume In #1A 92 #2A 92 Storage Grou Device Routin #1 Primar	ATSCCM2012 <u>3-19 s/n 07577 (</u> 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 1nd method, Tim 2'@ 12.12 hrs tion time=50.5 n det. time=50.4 r vert Avail.St 30' 1,4 .80' 2,2 3,6 p A created with <u>a Invert</u> ( 93.14'	<ul> <li>⇒ 2016 I</li> <li>88.929</li> <li>12.07 I</li> <li>12.12 I</li> <li>9.48 I</li> <li>12.12 I</li> <li>ne Spar</li> <li>Surf.Ar</li> <li>nin cald</li> <li>a Cham</li> <li>Couth</li> <li>24.0</li> <li>Inlet</li> </ul>	Type III 24-hr 2-yr Rainfa         Printed 11/         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event         hrs, Volume=       11,306 cf         hrs, Volume=       11,306 cf, Atten= 18%, Lag= 3.1 min         hrs, Volume=       5,581 cf         hrs, Volume=       5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2         trea=       1,826 sf         Storage 2,147 cf         culated for 11,303 cf (100% of inflow)         34.8 - 784.4 )       Storage Description <b>20.50°W x 89.06°L x 3.50°H Field A</b> 6,45 sf x 7.12°L = 45.9 cf         Overall Size= 51.0°W x 30.0°H => 6.45 sf x 7.12°L = 45.9 cf         Overall Size= 51.0°W x 30.0°H => 6.45 sf x 7.12°L = 45.9 cf         Overall Size= 51.0°W x 30.0°H => 6.45 sf x 7.12°L = 45.9 cf         Overall Size= 51.0°W x 30.0°H => 6.45 sf x 7.12°L = 45.9 cf         Overall Size= 51.0°W x 30.0°H => 6.45 sf x 7.12°L = 45.9 cf         Overall Size= 51.0°W x 30.0°H => 6.45 sf x 7.12°L = 45.9 cf         Total Available Storage         Intel Available Storage <td c<="" td=""><td>a//=3.38" 19/2018 Page 10</td></td>	<td>a//=3.38" 19/2018 Page 10</td>	a//=3.38" 19/2018 Page 10
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary = Routing by Stor- Peak Elev= 94.1 Plug-Flow deter Center-of-Mass Volume In #1A 92 #2A 92 Storage Grout Device Routin #1 Primar #2 Discarr #3 Primar	ATSCCM2012 <u>)-19 s/n 07577 (</u> 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 1nd method, Tim 2'@ 12.12 hrs tion time=50.5 n det. time=50.4 r vert Avail.Ste .30' 1,4 .80' 2,2 .80' 2,2 .90' 2,2	<ul> <li>⇒ 2016  </li> <li>88.92°</li> <li>12.07  </li> <li>12.12  </li> <li>9.48  </li> <li>12.12  </li> <li>e Spar</li> <li>Surf.Ai</li> <li>nin cald</li> <li>a.48</li> <li>12.12  </li> <li>a.48</li> <li>a.40</li> </ul>	Type III 24-hr 2-yr Rainfa Printed 11/ HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = 2.72" for 2-yr event hrs, Volume= 11,306 cf         hrs, Volume= 11,306 cf, Atten= 18%, Lag= 3.1 min hrs, Volume= 5,581 cf         hrs, Volume= 5,726 cf         n= 0.00-30.00 hrs, dt= 0.01 hrs / 2 vrea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow) 34.8 - 784.4 )         Storage Description         20.50°W x 89.06°L x 3.50°H Field A         6,45 sf x 7.12°L = 45.9 cf         Overall Size= 51.0°W x 30.0°H x 7.56°L with 0.44' Overlap         4 Rows of 12 Chambers         Total Available Storage         nber Wizard         let Devices         " Round OCS Outlet Culvert L= 40.0° CPP, square edge headwall, Ke= 0.500         t/ Outlet Invert = 93.14' / 93.14' S= 0.0000'/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf         10 in Mr Exfiltration over Surface area Phase-In= 0.01''	al/=3.38" 19/2018 Page 10	
14239.00-PR Prepared by W HydroCAD® 10.0 Inflow Area = Inflow = Outflow = Discarded = Primary = Routing by Stor- Peak Elev= 94.1 Plug-Flow deter Center-of-Mass Volume In #1A 92 #2A 92 Storage Grou Device Routin #1 Primar #2 Discard #3 Primar	ATSCCM2012 <u>3-19 s/n 07577 (</u> 49,904 sf, 3.6 cfs @ 3.0 cfs @ 0.1 cfs @ 2.9 cfs @ 2.9 cfs @ 1nd method, Tim 2'@ 12.12 hrs tion time=50.5 n det. time=50.4 n vert Avail.Str 30' 1,4 .80' 2,2 3,6 p A created with <u>a Invert</u> ( 93.14' led 92.30' ( 94.90'	<ul> <li>⇒ 2016  </li> <li>88.929</li> <li>12.07  </li> <li>12.12  </li> <li>9.48  </li> <li>12.12  </li> <li>e Spara</li> <li>Surf.Ai</li> <li>nin calcd</li> <li>nin calcd</li> <li>nin calcd</li> <li>nin calcd</li> <li>orage</li> <li>65 cf</li> <li>370 cf</li> <li>a Cham</li> <li>a Cham</li></ul>	Type III 24-hr 2-yr Rainfa Printed 11         HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         % Impervious, Inflow Depth = $2.72^{"}$ for 2-yr event hrs, Volume 11,306 cf, Atten= 18%, Lag= 3.1 min hrs, Volume 5,581 cf         hrs, Volume 5,581 cf         hrs, Volume 5,726 cf         n=0.00-30.00 hrs, dt= 0.01 hrs / 2         rea= 1,826 sf Storage= 2,147 cf         culated for 11,303 cf (100% of inflow)         34.8 - 784.4 )         Storage Description         20.50°W x 89.06°L x 3.50°H Field A         6,390 of Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids         ADS_StormTech SC-740 + Capx 48 Inside #1         Effective Size= 44.6°W x 30.0°H = 6.45 sf x 7.12°L = 45.9 cf         Overall Size= 51.0°W x 30.0°H = 6.45 sf x 7.12°L = 45.9 cf         Overall Size= 51.0°W x 30.0°H = 7.56°L with 0.44' Overlap         4 Rows of 12 Chambers         Total Available Storage         nber Wizard         let Devices         " Round OCS Outlet Culvert L= 40.0° CPP, square edge headwall, Ke= 0.500         / Outlet Invert= 93.14' / 93.14' S= 0.0000'/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf         10 in/hr Exfiltration over Surface area Phase-In= 0.01' <td>all=3.38" 19/2018 Page 10</td>	all=3.38" 19/2018 Page 10	

**Discarded OutFlow** Max=0.1 cfs @ 9.48 hrs HW=92.34' (Free Discharge) **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=2.9 cfs @ 12.12 hrs HW=94.11' (Free Discharge) 1=OCS Outlet Culvert (Barrel Controls 2.9 cfs @ 2.75 fps) 3=Broad-Crested Rectangular Weir( Controls 0.0 cfs)

#### Summary for Pond P3: Subsurface Infiltration System

[93] Warning: Storage range exceeded by 0.04'

Inflow Area	a =	23,624 sf,	85.40% Impervious,	Inflow Depth = 2.43"	for 2-yr event
Inflow	=	1.6 cfs @	12.07 hrs, Volume=	4,779 cf	-
Outflow	=	0.9 cfs @	12.08 hrs, Volume=	3,676 cf, Atter	n= 43%, Lag= 0.7 min
Discarded	=	0.0 cfs @	8.53 hrs, Volume=	1,444 cf	
Primary	=	0.9 cfs @	12.08 hrs, Volume=	2,232 cf	
Routing by	Stor-Ind I	method. Tin	ne Span= 0.00-30.00	hrs. dt= 0.01 hrs / 2	

Peak Elev= 94.74'@ 12.08 hrs Surf.Area= 749 sf Storage= 1,455 cf

Plug-Flow detention time=215.3 min calculated for 3,676 cf (77% of inflow) Center-of-Mass det. time=133.4 min ( 932.9 - 799.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	91.20'	628 cf	30.00'W x 24.98'L x 3.50'H Field A
			2,623 cf Overall - 827 cf Embedded = 1,796 cf x 35.0% Voids
#2A	91.70'	827 cf	ADS_StormTech SC-740 +Capx 18 Inside #1
			Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
			Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
			6 Rows of 3 Chambers
		1,455 cf	Total Available Storage

Storage Group A created with Chamber Wizard

	ed by WATS	SCCM2012		Printed 11/19/2018
HydroCA	<u>.D® 10.00-19</u>	s/n 07577 ©	2016 HydroCAD Software Solutions LLC	Page 12
Device	Routing	Invert	Outlet Devices	
#1	Primary	94.20'	<b>12.0"</b> Round Culvert L= 77.0' CPP, square edge headwall, Ke= 0.500	low Area= 0.79 sf
#2	Discarded	91.20'	<b>1.020 in/hr Exfiltration over Surface area</b> Phase-In= 0.01'	10w / 10a - 0.75 51
Discaro 1—2=Ex	led OutFlow (filtration (E	Max=0.0 cfs xfiltration Co	@ 8.53 hrs HW=91.24' (Free Discharge) trols 0.0 cfs)	
Primary	/ OutFlow M ulvert (Barre	lax=0.8 cfs @ I Controls 0.8	2 12.08 hrs HW=94.72' (Free Discharge) 8 cfs @ 2.90 fps)	
			Summary for Link DP-1: Ex LCB	
Inflow A	.rea =	18,641 sf,	79.21% Impervious, Inflow Depth = 2.52" for 2-yr event	
Inflow Primary	=	1.0 cfs @ 1.0 cf	12.17 hrs, Volume=         3,918 cf           12.17 hrs, Volume=         3,918 cf, Atten= 0%, Lag= 0.0 min	
Primary	outflow = In	flow, Time Sp	ban= 0.00-30.00 hrs, dt= 0.01 hrs	
			Summary for Link DP-2: Route 3 Ditch	
Inflow A	.rea =	6,095 sf,	19.06% Impervious, Inflow Depth = 1.76" for 2-yr event	
Inflow	= =	0.3 cfs @ 0.3 cfs @	I2.10 hrs, Volume=         893 cf           I2.10 hrs, Volume=         893 cf, Atten= 0%, Lag= 0.0 min	
Fillinary	outflow = In	flow, Time Sp	pan= 0.00-30.00 hrs, dt= 0.01 hrs	
Primary				

#### Summary for Link DP-4: Ex Headwall at Corner

Inflow Area	a =	37,714 sf,	71.51% Impervious,	Inflow Depth = 0.75"	for 2-yr event
Inflow	=	0.9 cfs @	12.08 hrs, Volume=	2,353 cf	-
Primary	=	0.9 cfs @	12.08 hrs, Volume=	2,353 cf, Atte	n= 0%, Lag= 0.0 min

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

#### Summary for Link DP-5: Old Oak Street

Inflow Area	a =	10,239 sf,	31.72% Impervious,	Inflow Depth = 0.83"	for 2-yr event
Inflow	=	0.2 cfs @	12.09 hrs, Volume=	710 cf	-
Primary	=	0.2 cfs @	12.09 hrs, Volume=	710 cf, Atte	en= 0%, Lag= 0.0 min

14239.00-PR Prepared by WATSCCM2012 HydroCAD® 10.00-19 s/n.02577 © 2016 HydroCAD Software Solutions	iype III 24-hr 10-yr Rainfail=5.04 Printed 11/19/2013 Page 1
Time span=0.00-30.0 Runoff by SCS TR-20 Reach routing by Stor-Ind+Trans	00 hrs, dt=0.01 hrs, 3001 points method, UH=SCS, Weighted-CN method - Pond routing by Stor-Ind method
SubcatchmentPR-1: Rear Parking Lot	Runoff Area=18,641 sf 79.21% Impervious Runoff Depth=4.13' Flow Length=164' Tc=12.9 min CN=92 Runoff=1.6 cfs 6,413 cf
SubcatchmentPR-2: Western Corner of Site	Runoff Area=6,095 sf         19.06%         Impervious         Runoff Depth=3.21'           Flow Length=50'         Slope=0.0125 '/'         Tc=6.6 min         CN=83         Runoff=0.5 cfs         1,631 cf
SubcatchmentPR-3: Southern/CentralPortion of Site	Runoff Area=49,904 sf 88.92% Impervious Runoff Depth=4.35' Flow Length=320' Tc=5.0 min CN=94 Runoff=5.6 cfs 18,080 c
SubcatchmentPR-4A: Northeast; Roof, Pavement and Landsdca	apingRunoff Area=23,624 sf85.40% ImperviousRunoff Depth=4.02'Flow Length=302'Tc=5.0 minCN=91Runoff=2.5 cfs7,916 cfs
SubcatchmentPR-4B: New Roof	Runoff Area=6,522 sf 100.00% Impervious Runoff Depth=4.80' Flow Length=50' Slope=0.0150 '/' Tc=5.0 min CN=98 Runoff=0.8 cfs 2,610 c
SubcatchmentPR-4C: Northeast Pervious Area	Runoff Area=7,568 sf 3.61% Impervious Runoff Depth=0.76' Flow Length=137' Tc=5.0 min CN=51 Runoff=0.1 cfs 482 c
SubcatchmentPR-5: SoutheasternPortion of Site	Runoff Area=10,239 sf 31.72% Impervious Runoff Depth=1.91' Flow Length=79' Tc=5.0 min CN=68 Runoff=0.5 cfs 1,628 c
Pond P1: Subsurface Infiltration System	Peak Elev=94.43' Storage=1,521 cf Inflow=0.8 cfs 2,610 c Discarded=0.0 cfs 1,767 cf Primary=0.0 cfs 13 cf Outflow=0.0 cfs 1,780 cf
Pond P2: Subsurface Infiltration System	Peak Elev=94.42' Storage=2,519 cf Inflow=5.6 cfs 18,080 c Discarded=0.1 cfs 6,821 cf Primary=4.8 cfs 11,258 cf Outflow=4.9 cfs 18,080 cf
Pond P3: Subsurface Infiltration System	Peak Elev=95.26' Storage=1,455 cf Inflow=2.5 cfs 7,916 c Discarded=0.0 cfs 1,553 cf Primary=2.5 cfs 5,388 cf Outflow=2.5 cfs 6,941 cf
Link DP-1: Ex LCB	Inflow=1.6 cfs 6,413 c Primary=1 6 cfs 6,413 c

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Link DP-2: Route 3 Ditch

Link DP-3: Old Oak Street Drainage System

Link DP-4: Ex Headwall at Corner

Link DP-5: Old Oak Street

Inflow=0.5 cfs 1,631 cf Primary=0.5 cfs 1,631 cf

Inflow=4.8 cfs 11,258 cf Primary=4.8 cfs 11,258 cf

Inflow=2.6 cfs 5,882 cf Primary=2.6 cfs 5,882 cf

Inflow=0.5 cfs 1,628 cf Primary=0.5 cfs 1,628 cf

Total Runoff Area = 122,593 sf Runoff Volume = 38,760 cf Average Runoff Depth = 3.79" 26.16% Pervious = 32,071 sf 73.84% Impervious = 90,522 sf

<b>14239.</b> Prepare	00-PR		12012			Type III 24-hr 10-yr Rainfall=5.04 Printed 11/19/2018
HydroCA	AD® 10.00	-19 s/n 0	<u>7577 © 20</u>	16 HydroCA	Software Solutions LLC	Page 16
				Sumn	ary for Subcatchment PR-1: Rear Parking I	_ot
Runoff	=	1.6 c	ofs @ 12.1	17 hrs, Volu	me= 6,413 cf, Depth= 4.13"	
Runoff b	ov SCS T	R-20 me	thod. UH=	SCS. Weiał	ed-CN. Time Span= 0.00-30.00 hrs. dt= 0.01 hrs	
Гуре III	24-hr 10	-yr Rainf	all=5.04"	-, 5		
А	vrea (sf)	CN [	Description			
	1.224	49 5	50-75% Gra	ass cover. I	air. HSG A	
	9.629	98 I	mpervious	,.		
	5.137	98 F	Roof			
	2,651	79 \	Noods, Fai	ir, HSG D		
	18 641	92 \	Neighted A	verage		
	3.875	2	20.79% Pe	rvious Area		
	14,766	7	79.21% Im	pervious Ar	a	
Tc	Length	Slope	Velocity	Capacity	Description	
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
12.3	41	0.0125	0.06		Sheet Flow, Wooded	
					Woods: Light underbrush n= 0.400 P2= 3.40"	
0.6	123	0.0330	3.69		Shallow Concentrated Flow, Pavement	
					Paved Kv= 20.3 fps	
		T - 4 - 1				

#### Summary for Subcatchment PR-2: Western Corner of Site

Runoff = 0.5 cfs @ 12.09 hrs, Volume= 1,631 cf, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 10-yr Rainfall=5.04"  $\,$ 

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	Area (sf)	CN	Description	1		
	685	49	50-75% Gr	ass cover, I	air, HSG A	
*	1,162	98	Impervious			
	4,248	84	50-75% Gr	ass cover, l	air, HSG D	
	6,095	83	Weighted A	Average		
	4,933		80.94% Pe	rvious Area		
	1,162		19.06% Im	pervious Ar	ea	
Ţ	c Length	Slop	e Velocity	Capacity	Description	
(mir	) (feet)	(ft/f	) (ft/sec)	(cfs)		
6.	6 50	0.012	5 0.13		Sheet Flow, G	Grassed

Grass: Short n= 0.150 P2= 3.40"

## Summary for Subcatchment PR-3: Southern/Central Portion of Site

Runoff = 5.6 cfs @ 12.07 hrs, Volume= 18,080 cf, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 10-yr Rainfall=5.04"

	Area (sf)	CN	Description
	3,882	49	50-75% Grass cover, Fair, HSG A
	43,279	98	Paved parking, HSG A
*	1,097	98	Roof
	1,646	84	50-75% Grass cover, Fair, HSG D
	49,904	94	Weighted Average
	5,528		11.08% Pervious Area
	44,376		88.92% Impervious Area

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Prepared by WATSCCM2012	
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#### Type III 24-hr 10-yr Rainfall=5.04" Printed 11/19/2018 Page 18

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.10		Sheet Flow, Pavement
1.0	220	0.0320	3.63		Shallow Concentrated Flow, Pavement
0.2	50	0.0050	3.47	2.73	Pipe Channel, Piped System
					12.0" Round Area= 0.8 st Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
2.0	320	Total, Ir	ncreased t	o minimum	Tc = 5.0 min

#### Summary for Subcatchment PR-4A: Northeast; Roof, Pavement and Landsdcaping

Runoff = 2.5 cfs @ 12.07 hrs, Volume= 7,916 cf, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 10-yr Rainfall=5.04"

	A	rea (sf)	CN D	escription		
		3,449	49 5	0-75% Gra	ass cover, I	Fair, HSG A
		15,045	98 F	aved park	ing, HSG A	
1	ł	5,130	98 F	Roof	0,	
		23,624	91 V	Veighted A	verage	
		3,449	1	4.60% Pe	rvious Area	
		20,175	8	5.40% Imp	pervious Ar	ea
	Tc	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	0.2	38	0.3300	3.59		Sheet Flow, Roof
						Smooth surfaces n= 0.011 P2= 3.40"
	0.9	225	0.0400	4.06		Shallow Concentrated Flow, Pavement
						Paved Kv= 20.3 fps
	0.2	39	0.0050	4.17	3.28	Pipe Channel, Pipe
						12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
						n= 0.010 PVC, smooth interior

1.3 302 Total, Increased to minimum Tc = 5.0 min

lunoff	=	0.8	cfs @ 12.0	7 hrs, Vol	ume=	2,610 cf, Dep	pth= 4.80"			
unoff b ype III 2	y SCS TI 24-hr 10-	R-20 me ∙yr Rain	ethod, UH=S fall=5.04"	CS, Weigl	nted-CN, Tim	e Span= 0.00-3	0.00 hrs, dt= 0.0	01 hrs		
A	rea (sf)	CN	Description							
	6,522	98	Roof	nonvious						
	0,522		100.00% III		Nea					
Tc (min)	Length	Slope	e Velocity	Capacity	Description					
0.8	50	0.0150	) 1.10	(03)	Sheet Flow	, Roof				
0.0	50	Total	Inorocod t		Smooth sur	faces n= 0.011	1 P2= 3.40"			
0.8	50	rotal,	Increased t	ummarv	for Subca	tchment PR-	4C: Northeas	et Pervious	Δroa	
lunoff	=	0.1	cfs @ 12.1	0 hrs, Vol	ume=	482 cf, Dep	pth= 0.76"		- i cu	
unoff b ype III 2	y SCS TI 24-hr 10-	R-20 me ∙yr Rain	ethod, UH=S fall=5.04"	CS, Weigl	nted-CN, Tim	e Span= 0.00-3	0.00 hrs, dt= 0.0	01 hrs		
A	rea (sf)	CN	Description			_				
	7,295	49	50-75% Gra	iss cover,	Fair, HSG A					
	273	<u>98</u> 51	Paved park	ng, HSG A	۱					
	7,295	51	96.39% Per	vious Area	I					
	273		3.61% Impe	ervious Are	а					
4239.0	00-PR								Type III 24-hr	10-yr Rainfall=5.04"
4239.( Prepare	<b>00-PR</b> d by WA	TSCC	M2012	6 HydroCA	D Software Sc				Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
<b>4239.</b> ( Prepare lydroCA Tc	00-PR d by WA D® 10.00	TSCCI 19 s/n Slope	M2012 07577 © 201 ∋ Velocity	6 HydroCA Capacity	D Software Sc Description	olutions LLC			Type III 24-hr	<i>10-yr Rainfall=5.04"</i> Printed 11/19/2018 Page 20
<b>4239.</b> 0 Prepare lydroCA Tc (min) 2.7	00-PR d by WA D® 10.00 Length (feet) 35	TSCCI 19 s/n Slopo (ft/ft 0.057	M2012 07577 © 207 > Velocity ) (ft/sec) 0 0.22	<u>6 HydroCA</u> Capacity (cfs)	D Software So Description	olutions LLC			Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
<b>4239.</b> Prepare lydroCA Tc (min) 2.7 1.2	00-PR d by WA D® 10.00 Length (feet) 35 102	TSCC <u>19 s/n</u> Slope (ft/ft 0.057( 0.0090	M2012 07577 © 207 > Velocity ) (ft/sec) 0 0.22 0 1.42	<u>6 HydroCA</u> Capacity (cfs)	D Software So Description Sheet Flow Grass: Sho Shallow C	<b>Jutions LLC</b> <b><i>i</i>, <b>Grass</b> rt n= 0.150 P2 <b>oncentrated FIC</b></b>	2= 3.40" Dw. Grassed		Type III 24-hr	<i>10-yr Rainfall=5.04"</i> Printed 11/19/2018 Page 20
<b>4239.0</b> Prepare lydroCA Tc (min) 2.7 1.2 3.9	00-PR d by WA D® 10.00 Length (feet) 35 102 137	TSCC 19 s/n Slope (ft/ft 0.057( 0.009( Total	M2012 07577 © 207 e Velocity ) (ft/sec) ) 0.22 ) 1.42 Increased t	6 HydroCA Capacity (cfs)	D Software So Description Sheet Flow Grass: Sho Shallow Cd Grassed W Tc = 5.0 mir	olutions LLC 7, Grass rt n= 0.150 P/ oncentrated Flo aterway Kv= 1:	2= 3.40" 2w, Grassed 5.0 fps		Type III 24-hr	<i>10-yr Rainfall=5.04"</i> Printed 11/19/2018 Page 20
<b>4239.0</b> Prepare ydroCA Tc (min) 2.7 1.2 3.9	00-PR d by WA D® 10.00 Length (feet) 35 102 137	TSCCI 19 s/n Slope (ft/ft 0.057( 0.009( Total,	M2012 07577 © 207 e Velocity ) (ft/sec) ) 0.22 0 1.42 Increased t	<u>6 HydroCA</u> Capacity (cfs) o minimum <b>mmary f</b>	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W T c = 5.0 mir or Subcate	olutions LLC 7, Grass rt n= 0.150 P2 oncentrated Flo aterway Kv= 1: 1 Chment PR-5:	2= 3.40" ow, Grassed 5.0 fps : Southeaste	rn Portion c	Type III 24-hr	<i>10-yr Rainfall=5.04"</i> Printed 11/19/2018 Page 20
<b>4239.</b> Prepare lydroCA Tc (min) 2.7 1.2 3.9	00-PR d by WA D® 10.00 Length (feet) 35 102 137	TSCC 19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.5	M2012 07577 © 207 > Velocity ) (ft/sec) ) 0.22 ) 1.42 Increased t Su cfs @ 12.0	<u>6 HydroCA</u> Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol	D Software So Description Grass: Sho Shallow Co Grassed W T C = 5.0 min or Subcato ume=	olutions LLC 7, Grass rt n= 0.150 P2 chreater P10 chreater PR-52 1,628 cf, Dep	2= 3.40" pw, Grassed 5.0 fps : Southeaste pth= 1.91"	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
4239.0 Prepare ydroCA Tc (min) 2.7 1.2 3.9 Runoff Sunoff b Sype III 2	00-PR d by WA D® 10.00 (feet) 35 102 137 = y SCS TI 24-hr 10	TSCCI - <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me yr Rain	M2012 07577 © 207 e Velocity ) (ft/sec) 0 0.22 0 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04"	6 HydroCA Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol SCS, Weigl	D Software So Description Sheet Flow Grass: Sho Shallow Cd Grassed W to Tc = 5.0 min or Subcato ume= nted-CN, Tim	olutions LLC 7, Grass rt n= 0.150 P2 concentrated Flo aterway Kv= 12 1,628 cf, Dep e Span= 0.00-30	2= 3.40" <b>ow, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0	rn Portion o	Type III 24-hr	<i>10-yr Rainfall=5.04"</i> Printed 11/19/2018 Page 20
4239.0 Prepare lydroCA Tc (min) 2.7 1.2 3.9 3.9 Sunoff bype III 2 A	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tf 24-hr 10 rea (sf)	TSCCI <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me cyr Rain CN	M2012 07577 © 207 e Velocity ) (ft/sec) 0 0.22 0 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" Description	<u>6 HydroCA</u> Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol SCS, Weigl	D Software So Description Grass: Sho Shallow Co Grassed W Tc = 5.0 mir or Subcato ume= nted-CN, Tim	<b>blutions LLC</b> <b>7, Grass</b> rt n= 0.150 P2 <b>oncentrated Flo</b> <b>aterway Kv= 1:</b> n <b>chment PR-5:</b> 1,628 cf, Dep e Span= 0.00-30	2= 3.40" bw, Grassed 5.0 fps : Southeaste pth= 1.91" 0.00 hrs, dt= 0.0	rn Portion o	Type III 24-hr	<i>10-yr Rainfall=5.04"</i> Printed 11/19/2018 Page 20
4239.0 Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff b Sype III 2 Ar	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tr 24-hr 10 fea (sf) 6,035 3,248	TSCCI - <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me -yr Rain <u>CN</u> 49 98	M2012 07577 © 207 Velocity (ft/sec) 0 0.22 0 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" <u>Description</u> 50-75% Gra	6 HydroCA Capacity (cfs) o minimurr <b>mmary f</b> 8 hrs, Vol 3CS, Weigl	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W To = 5.0 min or Subcato ume= nted-CN, Tim Fair, HSG A	<b>Jutions LLC</b> <b>7, Grass</b> rt n= 0.150 P2 <b>oncentrated Flo</b> <b>aterway Kv= 1</b> <b>chment PR-5</b> 1,628 cf, Dep e Span= 0.00-36	2= 3.40" <b>bw, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
4239.( Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Sunoff Sunoff b ype III 2	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tr 24-hr 10 fo.035 3,248 956	TSCCI <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me -yr Rain <u>CN</u> 98 84	M2012 07577 © 207 Velocity (ft/sec) 0 0.22 0 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" Description 50-75% Gra 50-75% Gra	6 HydroCA Capacity (cfs) o minimurr <b>mmary f</b> 8 hrs, Vol 3CS, Weigl iss cover, 1	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W Tc = 5.0 mir or Subcato ume= nted-CN, Tim Fair, HSG A Fair, HSG D	<b>Jutions LLC</b> <b>7, Grass</b> <b>1, Grass</b> <b>1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1</b>	2= 3.40" <b>bw, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
4239.( Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Sunoff Sunoff Sunoff b	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tf 24-hr 10 fea (sf) 6,035 3,248 956 10,239	TSCCI <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me -yr Rain <u>CN</u> 98 84 68	M2012 07577 © 207 Velocity (ft/sec) 0 0.22 0 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" Description 50-75% Gra 50-75% Gra Su Veighted A	6 HydroCA Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol 3CS, Weigl iss cover, 1 iss cover, 1 verage	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W Tc = 5.0 mir or Subcato ume= nted-CN, Tim Fair, HSG A Fair, HSG D	<b>Jutions LLC</b> <b>7, Grass</b> <b>7, Grass</b> <b>7, Grass</b> <b>1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1</b>	2= 3.40" <b>bw, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
4239.( Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Sunoff Sunoff Sunoff Sunoff Sunoff	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tf 24-hr 10 fea (sf) 6,035 3,248 956 10,239 6,991 3,248	TSCCI 19 s/n Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me -yr Rain CN 49 98 84 68	M2012 07577 © 207 Velocity (ft/sec) 0 0.22 0 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" Description 50-75% Gra 50-75% Gra 50-75% Gra 1.72% Imc	6 HydroCA Capacity (cfs) o minimum mmary f 8 hrs, Vol 3CS, Weigl iss cover, 1 iss cover, 1 verage vious Area ervious Area	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W Tc = 5.0 mir or Subcato ume= nted-CN, Tim Fair, HSG A Fair, HSG D	<b>Jutions LLC</b> <b>7, Grass</b> <b>7, Grass</b> <b>7, Grass</b> <b>1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1</b>	2= 3.40" <b>bw, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
4239.( Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Sunoff Sunoff Sunoff Sunoff	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tf 24-hr 10 6,035 3,248 956 10,239 6,991 3,248	TSCCI <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me yr Rain CN 98 84 68	M2012 07577 © 207 Velocity (ft/sec) 0 0.22 0 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" Description 50-75% Gra 1mpervious 50-75% Gra 1.72% Imp	6 HydroCA Capacity (cfs) o minimum mmary f 8 hrs, Vol 3CS, Weigl sss cover, 1 sss cover, 1 verage vious Area iervious Ar	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W or C = 5.0 mir or Subcato ume= nted-CN, Tim Fair, HSG A Fair, HSG D	olutions LLC 7, Grass 7, Grass 7, Grass 1, 0, 150 P2 1, 0, 150 P2	2= 3.40" <b>bw, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
4239.( Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Runoff b ype III 2 At Carrier At Carrier Carrier At Carrier	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tf 24-hr 10 rea (sf) 6,035 3,248 956 10,239 6,991 10,239 6,991 10,239 6,991	TSCCI <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me yr Rain CN 49 98 84 68 Slope (ft/ft	M2012 07577 © 20' e Velocity ) (ft/sec) ) 0.22 ) 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" Description 50-75% Gra Impervious 50-75% Gra Weighted A 68.28% Per 31.72% Imp e Velocity ) (ft/sec)	6 HydroCA Capacity (cfs) o minimum mmary f 8 hrs, Vol 3CS, Weigl ass cover, 1 sss cover, 1 verage vious Area verage vious Area verage vious Area capacity (cfs)	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W or C = 5.0 mir or Subcato ume= nted-CN, Tim Fair, HSG A Fair, HSG D ea Description	olutions LLC 7, Grass rt n= 0.150 P; oncentrated Floc aterway Kv= 1: 1,628 cf, Dep e Span= 0.00-30	2= 3.40" <b>bw, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
4239.0 Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Runoff b ype III 2 Ar C (min) 3.1	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tf 24-hr 10 6,035 3,248 956 10,239 6,991 3,248 Length (feet) 18	TSCCI <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me yr Rain <u>CN</u> <u>49</u> 98 <u>84</u> 68 Slope (ft/ft 0.011(	M2012 07577 © 207 e Velocity ) (ft/sec) ) 0.22 ) 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" Description 50-75% Gra Impervious 50-75% Gra Meighted A 68.28% Per 31.72% Imp e Velocity ) (ft/sec) ) 0.10	6 HydroCA Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol 3CS, Weigl ass cover, 1 4 ss c	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W or C = 5.0 mir or Subcato ume= nted-CN, Tim Fair, HSG A Fair, HSG D ea Description Sheet Flow	olutions LLC 7, Grass rt n= 0.150 P; chrentrated Floc aterway Kv= 1: 1,628 cf, Dep e Span= 0.00-30 0, Grass	2= 3.40" <b>bw, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
4239.0 Prepare lydroCA Tc (min) 2.7 1.2 3.9 Runoff Runoff b lype III 2 Au Cr (min) 3.1 0.6	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tf 24-hr 10 fea (sf) 6,035 3,248 956 10,239 10,239 10,239 10,239 10,234 Length (feet) 18 6,91 3,248	TSCCI <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, Total, 0.5 R-20 me yr Rain <u>CN</u> <u>49</u> 98 <u>84</u> 68 Slope (ft/ft 0.011( 0.032)	M2012 07577 © 207 e Velocity ) (ft/sec) ) 0.22 ) 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" Description 50-75% Gra Impervious 50-75% Gra Impervious 50-75% Gra 1.72% Imp e Velocity ) (ft/sec) ) 0.10 1.57	6 HydroCA Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol 3CS, Weigl ass cover, 1 4 ss cover, 1 5 ss c	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W or C = 5.0 min or Subcato ume= nted-CN, Tim Fair, HSG A Fair, HSG A Fair, HSG D hea Description Sheet Flow Grass: Sho Sheet Flow	Arr of the second state of	2= 3.40" <b>bw, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0 2= 3.40"	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20
4239.0 Prepare <u>ydroCA</u> Tc (min) 2.7 1.2 3.9 Runoff Runoff b ype III 2 Au Crc (min) 3.1 0.6	00-PR d by WA D® 10.000 Length (feet) 35 102 137 = y SCS Tf 24-hr 100 rea (sf) 6,035 3,248 956 (991 3,248 Length (feet) 18 61	TSCCI <u>19 s/n</u> Slope (ft/ft 0.057( 0.009( Total, 0.5 R-20 me yr Rain <u>CN</u> <u>49</u> 98 <u>84</u> 68 Slope <u>(ft/ft</u> 0.011( 0.033( 0.033(	M2012 07577 © 207 e Velocity ) (ft/sec) ) 0.22 ) 1.42 Increased t Su cfs @ 12.0 ethod, UH=S fall=5.04" Description 50-75% Gra Impervious 50-75% Gra 1.72% Imp e Velocity ) (ft/sec) ) 0.10 ) 1.57	6 HydroCA Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol CS, Weigl iss cover, I iss cover, I vious Area vious Area vious Area vious Area vious Area vious Area vious Area	D Software So Description Sheet Flow Grass: Sho Shallow Co Grassed W or C = 5.0 min or Subcato ume= nted-CN, Tim Fair, HSG A Fair, HSG A Fair, HSG D bescription Sheet Flow Grass: Sho Sheet Flow Smooth sur	Arrow Contract of the second s	2= 3.40" <b>bw, Grassed</b> 5.0 fps <b>: Southeaste</b> pth= 1.91" 0.00 hrs, dt= 0.0 2= 3.40" 1 P2= 3.40"	rn Portion o	Type III 24-hr	10-yr Rainfall=5.04" Printed 11/19/2018 Page 20

			Summary for Pond I	P1: Subsurface Infiltration System	
Inflow Ar Inflow Outflow Discarde Primary	rea = = = ed = =	6,522 sf,10 0.8 cfs @ 1 0.0 cfs @ 1 0.0 cfs @ 0.0 cfs @ 1	)0% Impervious, Inflow Dep )7 hrs, Volume= 2, /1 hrs, Volume= 1, ł2 hrs, Volume= 1, /1 hrs, Volume=	nth = 4.80" for 10-yr event ,610 cf ,780 cf, Atten= 97%, Lag= 218.4 min ,767 cf 13 cf	
Routing I Peak Ele	by Stor-Ind r ev= 94.43'@	nethod, Time 15.71 hrs	oan= 0.00-30.00 hrs, dt= 0.0 f.Area= 842 sf Storage= 1,{	11 hrs / 2 521 cf	
Plug-Flov Center-o	w detention f-Mass det.	time=403.0 r time=305.1 r	calculated for 1,779 cf (68% ( 1,052.0 - 747.0 )	ն of inflow)	
Volume	Invert	Avail.Sto	e Storage Description		
#1A	91.40'	69	of 15.75'W x 53.46'L x 3.5 2 947 cf Overall - 965 cf	<b>0'H Field A</b> Embedded = 1 982 cf. x 35 0% Voids	
#2A	91.90'	96	of ADS_StormTech SC-74 Effective Size= 44.6"W x Overall Size= 51.0"W x	<b>40 +Cap</b> x 21 Inside #1 x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf 30.0"H x 7.56'L with 0.44' Overlap	
		1.6	<u>3 Rows of 7 Chambers</u>		
Otama					
Stora	ge Group A	created with	amber Wizard		
Device	Routing	Invert	utlet Devices	0' CPD aquero adre beadwell. Kaz 0.500	
#1	Filliary	94.40	ilet / Outlet Invert= 94.40' / 9	4.30' S= 0.0033 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf	
#2	Discarded	91.40'	.020 in/hr Exfiltration over	Surface area Phase-In= 0.01'	
Discarde	ed OutFlow filtration (E	Max=0.0 cfs filtration Cor	8.42 hrs HW=91.44' (Free ols 0.0 cfs)	Discharge)	
Primary	OutFlow M	ax=0.0 cfs @	5.71 hrs HW=94.43' (Free	Discharge)	
└─1=Cu	Ivert (Barre	Controls 0.0	s @ 0.47 tps)		
<b>14239.</b> ( Prepare	<b>00-PR</b> d by WATS	CCM2012		Type III 24-hr 10-yr Rainfall=5 Printed 11/19/2	. <i>04"</i> 018
<b>14239.(</b> Prepare HydroCA	00-PR d by WATS D® 10.00-19	CCM2012 s/n 07577 ©	I6 HydroCAD Software Solutio	Type III 24-hr 10-yr Rainfall=5 Printed 11/19/2 ins LLC Page	0.04" 1018 1018
<b>14239.</b> Prepare HydroCA	0 <b>0-PR</b> d by WATS D® 10.00-19	CCM2012 s/n 07577 ©	16 HydroCAD Software Solutio Summary for Pond I	Type III 24-hr 10-yr Rainfall=5 Printed 11/19/2 Page P2: Subsurface Infiltration System	0 <b>04</b> ″ 018 <u>∋ 22</u>
14239.0 Prepare HydroCA	00-PR d by WATS D® 10.00-19 ea =	CCM2012 s/n 07577 © 49.904 sf. 8	16 HydroCAD Software Solutio Summary for Pond F 32% Impervious, Inflow Dep	Type III 24-hr 10-yr Rainfall=5 Printed 11/19/2 Page P2: Subsurface Infiltration System	0.04″ 018 ∋ 22
14239.( Prepare HydroCAI	00-PR d by WATS D® 10.00-19 rea = =	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1	16 HydroCAD Software Solution         Summary for Pond I         32% Impervious, Inflow Dep         17 hrs, Volume=       18,         4 hrs, Volume=       18,	Type III 24-hr 10-yr Rainfall=5           Printed 11/19/2           Page           P2: Subsurface Infiltration System           th = 4.35" for 10-yr event           080 of           080 of	0 <b>4″</b> 018 <u>≥ 22</u>
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde	00-PR d by WATS D® 10.00-19 rea = = = = =	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 0.1 cfs @	16 HydroCAD Software Solution         Summary for Pond I         32% Impervious, Inflow Dep         17 hrs, Volume=       18,         1 hrs, Volume=       18,         9 hrs, Volume=       6,	<i>Type III 24-hr 10-yr Rainfall=5</i> Printed 11/19/2 Page P2: Subsurface Infiltration System with = 4.35" for 10-yr event 080 cf 080 cf, Atten= 12%, Lag= 2.4 min 821 cf	6. <i>04"</i> 018 <u>⇒ 22</u>
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Outflow Discarde Primary	<b>D0-PR</b> d by WATS D® 10.00-19 ea = = = = = = =	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 0.1 cfs @ 4.9 cfs @ 1 0.1 cfs @	16 HydroCAD Software Solution         Summary for Pond I         32% Impervious, Inflow Dep         17 hrs, Volume=         1 hrs, Volume=         1 hrs, Volume=         9 hrs, Volume=         9 hrs, Volume=         1 hrs, Volume=	<i>Type III 24-hr 10-yr Rainfall=5</i> Printed 11/19/2 Page <b>P2: Subsurface Infiltration System</b> th = 4.35" for 10-yr event 080 cf, Atten= 12%, Lag= 2.4 min 821 cf 258 cf	5. <i>04"</i> 1018 9 <u>22</u>
14239.0 Prepare HydroCAI Inflow Arr Unflow Outflow Discarde Primary Routing I	<b>00-PR</b> d by WATS D® 10.00-19 ea = = = = = = = = = = = = = = = =	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 0.1 cfs @ 1 4.8 cfs @ 1 nethod, Time	16 HydroCAD Software Solution         Summary for Pond I         32% Impervious, Inflow Dep         7 hrs, Volume=       18,         1 hrs, Volume=       18,         9 hrs, Volume=       6,         1 hrs, Volume=       6,         1 hrs, Volume=       11,         0 an=       0.00-30.00 hrs, dt=       0.00	<i>Type III 24-hr 10-yr Rainfall=5</i> Printed 11/19/2 Page <b>P2: Subsurface Infiltration System</b> wh = 4.35" for 10-yr event 080 cf 080 cf, Atten= 12%, Lag= 2.4 min 821 cf 258 cf 11 hrs / 2	5.04″ 1018 <u>∋ 22</u>
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele	00-PR d by WATS D® 10.00-19 ea = = = d = = by Stor-Ind r	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 0.1 cfs @ 4.8 cfs @ 1 nethod, Time 12.11 hrs 5	16 HydroCAD Software Solution         Summary for Pond I         92% Impervious, Inflow Dep         7 hrs, Volume=       18,         19 hrs, Volume=       18,         19 hrs, Volume=       6,         11 hrs, Volume=       6,         11 hrs, Volume=       11,         pan=       0.00-30.00 hrs, dt=       0.00         Area=       1,826 sf       Storage=	<i>Type III 24-hr 10-yr Rainfall=5</i> Printed 11/19/2 Page <b>P2: Subsurface Infiltration System</b> oth = 4.35" for 10-yr event .080 cf 080 cf, Atten= 12%, Lag= 2.4 min 821 cf 258 cf 11 hrs / 2 2,519 cf	004" 018 <u>∋ 22</u>
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing Peak Ele Plug-Flov	00-PR d by WATS D® 10.00-19 ea = = = d = = by Stor-Ind r ev= 94.42' @ w detention	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 0.1 cfs @ 1 0.1 cfs @ 1 4.8 cfs @ 1 nethod, Time 12.11 hrs \$ time=46.4 m	16 HydroCAD Software Solutic         Summary for Pond I         32% Impervious, Inflow Dep         17 hrs, Volume=         18,         9 hrs, Volume=         9 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         14 hrs, Volume=         15 hrs, Volume=         16 hrs, Volume=         17 hrs, Volume=         18,         19 hrs, Volume=         10,         14 hrs, Volume=         11,         200-30.00 hrs, dt=         2. Area=         18,073 cf (100	Type III 24-hr 10-yr Rainfall=5           Printed 11/19/2           Printed 11/19/2           P2: Subsurface Infiltration System           hth = 4.35" for 10-yr event           ,080 cf           ,080 cf      ,	0.04" 018 <u>&gt; 22</u>
14239.( Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Flor Center-o	00-PR d by WATS D® 10.00-19 rea = = = d = = by Stor-Ind r = v= 94.42' @ w detention f-Mass det.	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 0.1 cfs @ 4.8 cfs @ 1 nethod, Time 12.11 hrs \$ time=46.4 m time=46.4 m	16 HydroCAD Software Solutic         Summary for Pond I         32% Impervious, Inflow Dep         17 hrs, Volume=         18,         19 hrs, Volume=         9 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         14 hrs, Volume=         15 Area=         18,073 cf (100         818.7 - 772.3 )	Type III 24-hr 10-yr Rainfall=5           Printed 11//9/2           page           P2: Subsurface Infiltration System           wh = 4.35" for 10-yr event         080 cf           080 cf         Atten= 12%, Lag= 2.4 min           821 cf         258 cf           '1 hrs / 2         2,519 cf           % of inflow)         ************************************	04″ 018 <u>22</u>
14239.( Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Flo Center-o Volume	00-PR d by WATS D® 10.00-19 rea = = = d = = by Stor-Ind r = v= 94.42' @ w detention f-Mass det. 	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 4.9 cfs @ 4.8 cfs @ 1 4.8 cfs @ 1 12.11 hrs 5 time=46.4 m time=46.4 m Avail.Sto	16 HydroCAD Software Solutic         Summary for Pond I         32% Impervious, Inflow Dep         17 hrs, Volume=         18,         19 hrs, Volume=         19 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         14 hrs, Volume=         14 hrs, Volume=         15 hrs, Volume=         16 hrs, Volume=         17 hrs, Volume=         18 hrs, Volume=         11, pan=         0.00-30.00 hrs, dt=         0.1 hrs, Volume=         11, pan=         0.00-30.00 hrs, dt=         0.1 hrs, Volume=         11, pan=         0.00-30.00 hrs, dt=         0.1 hrs, Volume=         17, pan=         0.00-30.00 hrs, dt=         0.1 hrs, Volume=         17, pan=         0.00-30.00 hrs, dt=         0.1 hrs, Volume=         11, pan=         0.00-30.00 hrs, dt=	Type III 24-hr 10-yr Rainfall=8           Printed 11//9/2           Page           P2: Subsurface Infiltration System           off = 4.35" for 10-yr event           080 cf           080 cf           080 cf           258 cf           11 hrs / 2           2,519 cf           % of inflow)	0.04″ 018 ≥ 22
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Floi Center-o Volume #1A	00-PR d by WATS D® 10.00-19 rea = = = d = = by Stor-Ind r ev= 94.42' @ w detention f-Mass det. Invert 92.30'	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 4.8 cfs @ 1 0.1 cfs @ 4.8 cfs @ 1 12.11 hrs \$ time=46.4 m time=46.4 m Avail.Sto 1,4(	16 HydroCAD Software Solutic           Summary for Pond I           32% Impervious, Inflow Dep           7 hrs, Volume=           18, 1           19 hrs, Volume=           9 hrs, Volume=           11 hrs, Volume=           12 hrs, Volume=           14 hrs, Volume=           14 hrs, Volume=           14 hrs, Volume=           15 hrs, Volume=           16 hrs, Volume=           17 hrs, Volume=           18,7 - 772.3 )           e           Storage Description           17 20.50°W x89.06°L x 3.5           6 390 cf Overall = 2 205	Type III 24-hr 10-yr Rainfall=5           Printed 11/19/2         Page           P2: Subsurface Infiltration System           th = 4.35" for 10-yr event           080 cf         Atten= 12%, Lag= 2.4 min           821 cf         2,58 cf           11 hrs / 2           2,519 cf           % of inflow)           O'H Field A           C Field A	5. <i>04"</i> 1018 9 22
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Flor Center-o Volume #1A #2A	00-PR d by WATS D® 10.00-19 ea = = = = = = = = = = = = = = = = = = =	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 0.1 cfs @ 4.8 cfs @ 1 0.1 cfs @ 12.11 hrs 5 time=46.4 m time=46.4 m Avail.Sto 1,44 2,20	16 HydroCAD Software Solutic           Summary for Pond I           92% Impervious, Inflow Dep           17 hrs, Volume=           18, 19 hrs, Volume=           14 hrs, Volume=           10 hrs, Volume=           11, pan=           20.00-30.00 hrs, dt=           10 Area=           1,826 sf           5 torage           20.50'W x 89.06'L x 3.5           6,390 cf           20.50'W x 89.06'L x 3.5           6,390 cf           21 ADS_StormTech SC-72           Effective Size=           21 Size=           21 Size=           21 Size=	Type III 24-hr 10-yr Rainfall=5         Printed 11/19/2         Printed 11/19/2         Page         P2: Subsurface Infiltration System         wh = 4.35" for 10-yr event       080 cf         .080 cf       .080 cf         .080 cf       .125% cf         .080 cf       .125% cf         .11 hrs / 2       .258 cf         .11 hrs / 2       .2519 cf         % of inflow)	004″ 0018 <u>∋ 22</u>
14239.0 Prepare HydroCAI Inflow A Outflow Discarde Primary Routing I Peak Elec Plug-Floi Center-o Volume #1A #2A	00-PR d by WATS D® 10.00-19 ea = = = = by Stor-Ind r = = = = w detention f-Mass det. 	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 0.1 cfs @ 4.8 cfs @ 1 0.1 cfs @ 1.11 hrs 5 time=46.4 m time=46.4 m Avail.Sto 1,44 2,20	16 HydroCAD Software Solutic         Summary for Pond I         92% Impervious, Inflow Dep         17 hrs, Volume=         18, 19 hrs, Volume=         10 hrs, Volume=         11, hrs, Volume=         11, hrs, Volume=         11, hrs, Volume=         10, Area=         1, 826 sf         10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	Type III 24-hr 10-yr Rainfall=5           Printed 11/19/2         Page           P2: Subsurface Infiltration System         Page           nth = 4.35" for 10-yr event         080 cf           080 cf         0.80 cf           0.80 cf         10-yr event           0.80 cf         258 cf           11 hrs / 2         2,519 cf           % of inflow)         0'H Field A           cf Embedded = 4,185 cf x 35.0% Voids         40 + Capx 48 Inside #1           x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf         30.0"H x 7.56'L with 0.44' Overlap	2.04" 018 <u>22</u>
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Flor Center-o Volume #1A #2A	00-PR d by WATS D® 10.00-19 ea = = = by Stor-Ind r = v= 94.42' @ w detention f-Mass det. Invert 92.30' 92.80'	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 0.1 cfs @ 12.11 hrs \$ time=46.4 m ime=46.4 m Avail.Sto 1,44 2,20 3,61	16 HydroCAD Software Solutic         Summary for Pond I         92% Impervious, Inflow Dep         17 hrs, Volume=         18,         19 hrs, Volume=         19 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         13 hrs, Volume=         14 hrs, Volume=         14 hrs, Volume=         15 Area=         18,073 cf (100         818.7 - 772.3 )         e         Storage Description         cf         20.50'W x 89.06'L x 3.5         6,390 cf Overall - 2,205         ADS_StormTech SC-74         Effective Size= 44.6''W x)         Overall Size= 51.0''W x 3         4 Rows of 12 Chambers         cf         10 tal Available Storage	Type III 24-hr 10-yr Rainfall=5         Printed 11/19/2         Page         P2: Subsurface Infiltration System         wth = 4.35" for 10-yr event       .080 cf         .080 cf       .4tten= 12%, Lag= 2.4 min         .821 cf       .258 cf         11 hrs / 2       .2,519 cf         % of inflow)	2.04" 1018 222
14239.( Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Flor Center-o Volume #1A #2A	00-PR d by WATS D® 10.00-19 rea = = d = = by Stor-Ind r = v= 94.42' @ w detention f-Mass det. Invert 92.30' 92.80' ge Group A	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 0.1 cfs @ 12.11 hrs 5 time=46.4 m 12.11 hrs 5 time=46.4 m Avail.Sto 1,44 2,20 3,61 created with	16 HydroCAD Software Solutic         Summary for Pond I         32% Impervious, Inflow Dep         17 hrs, Volume=         18,         19 hrs, Volume=         19 hrs, Volume=         11 hrs, Volume=         16 Area=         18,073 cf (100         818.7 - 772.3 )         e         Storage Description         cf         20.50'W x 89.06'L x 3.5         6,390 cf Overall - 2,205         ADS_StormTech SC-74         Effective Size=         21 ARows of 12 Chambers         31 Total Available Storage         amber Wizard	Type III 24-hr 10-yr Rainfall=5         Printed 11//9/2         Page         P2: Subsurface Infiltration System         wh = 4.35" for 10-yr event       080 cf         080 cf       Atten= 12%, Lag= 2.4 min         .821 cf       .258 cf         11 hrs / 2       .2,519 cf         % of inflow)       0'H Field A         of Embedded = 4,185 cf x 35.0% Voids       40 + Capx 48 Inside #1         x 30.0"H = 0.45 sf x 7.12"L = 45.9 cf       30.0"H x 7.56"L with 0.44" Overlap	0.04" 1018 <u>⇒ 22</u>
14239.( Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Flor Center-o Volume #1A #2A Stora Device	D0-PR d by WATS D® 10.00-19 rea = = d = = by Stor-Ind r = by Stor-Ind r = by Stor-Ind r = by Stor-Ind r = 2.30' 92.80' ge Group A Routing	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 4.9 cfs @ 1 4.8 cfs @ 1 12.11 hrs 5 time=46.4 m Avail.Sto 1,44 2,20 3,67 created with	16 HydroCAD Software Solutic         Summary for Pond I         92% Impervious, Inflow Dep         17 hrs, Volume=         18, 11 hrs, Volume=         19 hrs, Volume=         19 hrs, Volume=         19 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         13 hrs, Volume=         14 hrs, Volume=         14 hrs, Volume=         15 according to the state of th	Type III 24-hr 10-yr Rainfall=5         Printed 111/19/2         Page         P2: Subsurface Infiltration System         wh = 4.35" for 10-yr event       080 cf         080 cf       Atten= 12%, Lag= 2.4 min         821 cf       258 cf         11 hrs / 2       2,519 cf         % of inflow)       6         O'H Field A         cf Embedded = 4,185 cf x 35.0% Voids 40 + Capx 48 Inside #1         < 30.0"H => 6.45 sf x 7.12"L = 45.9 cf         30.0"H => 6.45 sf x 7.12"L = 45.9 cf         30.0"H => 6.45 sf x 7.12"L = 45.9 cf         30.0"H => 6.45 sf x 7.12"L = 45.9 cf	0.04" 018 ≥ 22
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Floi Center-o Volume #1A #2A Stora Device #1	D0-PR d by WATS D® 10.00-19 rea = = = d = = by Stor-Ind r v= 94.42'@ w detention f-Mass det. Invert 92.30' 92.80' ge Group A <u>Routing</u> Primary	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 4.9 cfs @ 1 4.8 cfs @ 1 12.11 hrs \$ time=46.4 m 12.11 hrs \$ time=46.4 m Avail.Sto 1,4( 2,20 3,6) created with Invert 93.14'	16 HydroCAD Software Solutic         Summary for Pond I         92% Impervious, Inflow Dep         7 hrs, Volume=         18, 11 hrs, Volume=         19 hrs, Volume=         19 hrs, Volume=         10 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         13 hrs, Volume=         14 hrs, Volume=         15, Area=         16, Area=         17 20.50*W x 89.06*L x 3.5         6,390 cf Overall         17 20.50*W x 89.06*L x 3.5         6,390 cf Overall         17 20.50*W x 89.06*L x 3.5         16 ADS_StormTech SC-74         Effective Size= 44.6*W x         Overall Size=         17 total Available Storage         amber Wizard         utlet Devices         10,***         10,***	Type III 24-hr 10-yr Rainfall= $\xi$ Printed 11//9/2 Page P2: Subsurface Infiltration System hf = 4.35" for 10-yr event 080 cf 0.80 cf, Atten= 12%, Lag= 2.4 min 821 cf 258 cf 11 hrs / 2 2,519 cf % of inflow) $0^{TH}$ Field A cf Embedded = 4,185 cf x 35.0% Voids 40 + Capx 48 Inside #1 x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf 30.0"H x 7.56'L with 0.44' Overlap	0.04" 018 ≥ 22
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing J Peak Ele Plug-Floi Center-oo Volume #1A #2A Stora: Device #1 #2	D0-PR d by WATS D® 10.00-19 rea = = = d = = by Stor-Ind r rea = = by Stor-Ind r rea = = by Stor-Ind r rea = = 2.30' 92.80' ge Group A <u>Routing</u> Primary Discarded	CCM2012 <u>s/n 07577 @</u> 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 0.1 cfs @ 4.8 cfs @ 1 nethod, Time 12.11 hrs 5 time=46.4 m <u>Avail.Sto</u> 1,44 2,20 3,66 created with <u>Invert</u> 93.14' 92.30'	16 HydroCAD Software Solutic         Summary for Pond I         32% Impervious, Inflow Dep         71 hrs, Volume=         18, 11 hrs, Volume=         19 hrs, Volume=         19 hrs, Volume=         10 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         13 hrs, Volume=         14 hrs, Volume=         15 20.0°U x 89.06°L x 3.5         6,390 cf Overall Size=         16 20.50°W x 89.06°L x 3.5         17 20.50°W x 89.06°L x 3.5         16 20.50°U x 89.06°L x 3.5         17 20.50°W x 89.06°L x 3.5         18 and the storage         28 amber Wizard         utlet Devices         10 in/hr Fyfiltration over	Type III 24-hr 10-yr Rainfall=£ Printed 11/19/2         Printed 11/19/2         page         P2: Subsurface Infiltration System         wh = 4.35" for 10-yr event         .080 cf       .080 cf         .080 cf       .185 cf         .080 cf       .185 cf         .258 cf       .11 hrs / 2         .2,519 cf       .185 cf         % of inflow)       .185 cf x 35.0% Voids <b>0'H Field A</b> .185 cf x 35.0% Voids         .00 - Capx 48 Inside #1       x 30.0"H x 7.56'L with 0.44' Overlap         .1       .187 cf         .187 cf       .121 cf         .198 cf       .121 cf         .198 cf       .121 cf         .198 cf       .1121 cf         .198 cf       .121 cf         .198 cf	0.04" 018 ≥ 22
14239.0 Prepare HydroCAI Inflow Ar Inflow Ar Outflow Discarde Primary Routing J Peak Ele Plug-Flov Center-o Volume #1A #2A Stora Device #1 #2 #3	D0-PR d by WATS D® 10.00-19 ea = = = dd = = by Stor-Ind r ev= 94.42' @ w detention f-Mass det. Invert 92.30' 92.80' ge Group A Routing Primary Discarded Primary	CCM2012 <u>s/n 07577 ©</u> 49,904 sf, 8 5.6 cfs @ 1 4.9 cfs @ 1 0.1 cfs @ 4.8 cfs @ 1 nethod, Time 12.11 hrs S time=46.4 m <u>Avail.Sto</u> 1,44 2,20 3,65 created with <u>Invert</u> 93.14' 92.30' 94.90'	16 HydroCAD Software Solutic         Summary for Pond I         32% Impervious, Inflow Dep         71 hrs, Volume=         18, 11 hrs, Volume=         19 hrs, Volume=         19 hrs, Volume=         10 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         13 hrs, Volume=         14 hrs, Volume=         15 hrs, Volume=         16 hrs, Volume=         17 hrs, Volume=         18 hrs, Volume=         19 hrs, Volume=         10 in/hr Exfiltration over         10 in/hr Exfiltration over	$Type III 24-hr \ 10-yr Rainfall=5 Printed \ 11/19/2 Page P2: Subsurface Infiltration System  wh = 4.35" for 10-yr event  080 of , Atten= 12%, Lag= 2.4 min  .821 of  .258 of  11 hrs / 2  .2,519 of  % of inflow)  0'H Field A  of Embedded = 4,185 cf x 35.0% Voids  40 + Capx 48 Inside #1  x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf  30.0"H x 7.56'L with 0.44' Overlap $	5.04" 1018 222
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Floo Center-o Volume #1A #2A Stora Device #1 #2 #3	D0-PR d by WATS D® 10.00-19 ea = = = by Stor-Ind r ev= 94.42'@ w detention f-Mass det. Invert 92.30' 92.80' ge Group A <u>Routing</u> Primary Discarded Primary	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 0.1 cfs @ 12.11 hrs S time= 46.4 m 12.11 hrs S time= 46.4 m 2,20 3,61 created with Invert 93.14' 92.30' 94.90'	16 HydroCAD Software Solutic         Summary for Pond I         92% Impervious, Inflow Dep         71 hrs, Volume=         18, 19 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         13 hrs, Volume=         14 hrs, Volume=         15 hrs, Volume=         16 hrs, Volume=         17 hrs, Volume=         18 hrs, Volume=         19 hrs, Volume=         10 in/hr Exfiltration over         10 in/hr Exfiltration over         10 in/hr Exfiltration over         0 ing x 0.5' breadth Bro         ead (feet) 0.20 0.40 0.60 0	Type III 24-hr 10-yr Rainfall=5 Printed 11/19/2 Page P2: Subsurface Infiltration System the 4.35" for 10-yr event 0.80 of 0.	2.04" 018 2.22 
14239.0 Prepare HydroCAI Inflow Ar Inflow Outflow Discarde Primary Routing I Peak Ele Plug-Floi Center-o Volume #1A #2A Stora #1 #2 #3	D0-PR d by WATS D® 10.00-19 ea = = = by Stor-Ind r =v= 94.42'@ w detention f-Mass det. <u>Invert</u> 92.30' 92.80' ge Group A <u>Routing</u> Primary Discarded Primary	CCM2012 s/n 07577 © 49,904 sf, 8 5.6 cfs @ 1 0.1 cfs @ 4.9 cfs @ 1 0.1 cfs @ 12.11 hrs 5 time= 46.4 m time= 46.4 m Avail.Sto 2,20 3,67 created with Invert 93.14' 92.30' 94.90'	16 HydroCAD Software Solutic         Summary for Pond I         92% Impervious, Inflow Dep         17 hrs, Volume=         18, 19 hrs, Volume=         19 hrs, Volume=         19 hrs, Volume=         11 hrs, Volume=         19 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         11 hrs, Volume=         12 hrs, Volume=         14 hrs, Volume=         15 an=         0.00-30.00 hrs, dt=         16 Area=         18 Area=         19 Area=         10 Infrective         10 In/hr         10 In/hr         20 Area         21 Area         21 Area         22 Area         23 Area         24 Rows of 12 Chambers         25 Total Available Storage         amber Wizard	Type III 24-hr 10-yr Rainfall=£ Printed 11/19/2         Printed 11/19/2         Page         P2: Subsurface Infiltration System         wth = 4.35" for 10-yr event       080 of         0.80 of       0.80 of         0.80 of       1.415         2.58 of       1.111         11 hrs / 2       2,519 of         % of inflow)       0'H Field A         of Embedded = 4,185 of x 35.0% Voids       40 + Capx 48 Inside #1         x 30.0"H = 0.458 st 7.12"L = 45.9 of       30.0"H x 7.56"L with 0.44' Overlap         3       1/vert L = 40.0" CPP, square edge headwall, Ke= 0.500         3.14' S= 0.0000'' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf         Surface area Phase-In= 0.0'       ad-Crested Rectangular Weir         0.80 1.00       08 3.30 3.32	2.04" 018 2.22 

**Discarded OutFlow** Max=0.1 cfs @ 8.19 hrs HW=92.34' (Free Discharge) **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=4.8 cfs @ 12.11 hrs HW=94.42' (Free Discharge) 1=OCS Outlet Culvert (Barrel Controls 4.8 cfs @ 3.26 fps) 3=Broad-Crested Rectangular Weir( Controls 0.0 cfs)

#### Summary for Pond P3: Subsurface Infiltration System

[93] Warning: Storage range exceeded by 0.56'

Inflow Area	a =	23,624 sf,	85.40% Impervious,	Inflow Depth = 4.02" for 10-yr event
Inflow	=	2.5 cfs @	12.07 hrs, Volume=	7,916 cf
Outflow	=	2.5 cfs @	12.07 hrs, Volume=	6,941 cf, Atten= 0%, Lag= 0.0 min
Discarded	=	0.0 cfs @	6.89 hrs, Volume=	1,553 cf
Primary	=	2.5 cfs @	12.07 hrs, Volume=	5,388 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 95.26' @ 12.07 hrs Surf.Area= 749 sf Storage= 1,455 cf

Plug-Flow detention time= 133.4 min calculated for 6,938 cf (88% of inflow) Center-of-Mass det. time= 77.4 min ( 863.0 - 785.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	91.20'	628 cf	30.00'W x 24.98'L x 3.50'H Field A
			2,623 cf Overall - 827 cf Embedded = 1,796 cf x 35.0% Voids
#2A	91.70'	827 cf	ADS_StormTech SC-740 +Capx 18 Inside #1
			Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
			Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
			6 Rows of 3 Chambers
		1,455 cf	Total Available Storage

Storage Group A created with Chamber Wizard

14239.	00-PR	0010040	Type III 24-hr 10-yr Rainfall=5.04"
Prepare	ed by WATS D® 10.00-19	CCM2012 s/n 07577 ©	2016 HydroCAD Software Solutions LLC Printed 11/19/2018
Device	Routing	Invert	Outlet Devices
#1	Primary	94.20'	<b>12.0" Round Culvert</b> L= 77.0' CPP, square edge headwall, Ke= 0.500
#2	Discarded	91 20'	Inlet / Outlet Invert= 94.20 / 93.80 S= 0.0052 / CC= 0.900 n= 0.012, Flow Area= 0.79 st <b>1 020 in/hr Extiltration over Surface area</b> Phase-In= 0.01
"-	Diobardou	01.20	
Discard	ed OutFlow	Max=0.0 cfs	@ 6.89 hrs HW=91.24' (Free Discharge)
<u>−2=Ex</u>	filtration (Ex	filtration Cor	ntrois 0.0 cts)
Primary	OutFlow Ma	ax=2.5 cfs @	12.07 hrs HW=95.26' (Free Discharge)
1=Ci	Ivert (Barrel	Controls 2.5	cfs @ 3.73 fps)
			Summary for Link DP-1: Ex LCB
Inflow A	rea =	18 641 sf 7	79.21% Impervious Inflow Depth = 4.13" for 10-vr event
Inflow	=	1.6 cfs @ 1	2.17 hrs, Volume= 6.413 cf
Inflow Primary	=	1.6 cfs @ 1 1.6 cfs @ 1	2.17 hrs, Volume=         6,413 cf           2.17 hrs, Volume=         6,413 cf, Atten= 0%, Lag= 0.0 min
Inflow Primary Primary	= = outflow = Infle	1.6 cfs @ 1 1.6 cfs @ 1 ow, Time Sp	2.17 hrs, Volume= 6,413 cf 2.17 hrs, Volume= 6,413 cf 2.17 hrs, Volume= 6,413 cf, Atten= 0%, Lag= 0.0 min an= 0.00-30.00 hrs, dt= 0.01 hrs
Inflow Primary Primary	= = outflow = Infl	1.6 cfs @ 1 1.6 cfs @ 1 ow, Time Sp	2.17 hrs, Volume= 6,413 cf 2.17 hrs, Volume= 6,413 cf 2.17 hrs, Volume= 6,413 cf, Atten= 0%, Lag= 0.0 min an= 0.00-30.00 hrs, dt= 0.01 hrs Summary for Link DP-2: Route 3 Ditch
Inflow Primary Primary Inflow A	= = outflow = Infle rea =	1.6 cfs @ 1 1.6 cfs @ 1 ow, Time Sp 6.095 sf. 1	2.17 hrs, Volume= 6,413 cf 2.17 hrs, Volume= 6,413 cf, Atten= 0%, Lag= 0.0 min an= 0.00-30.00 hrs, dt= 0.01 hrs Summary for Link DP-2: Route 3 Ditch 19.06% Impervious. Inflow Depth = 3.21" for 10-vr event
Inflow Primary Primary Inflow A Inflow	= = outflow = Infle rea = =	1.6 cfs @ 1 1.6 cfs @ 1 ow, Time Sp 6,095 sf, 1 0.5 cfs @ 1	2.17 hrs, Volume=       6,413 cf         2.17 hrs, Volume=       6,413 cf         2.17 hrs, Volume=       6,413 cf         an= 0.00-30.00 hrs, dt= 0.01 hrs         Summary for Link DP-2: Route 3 Ditch         19.06% Impervious, Inflow Depth =       3.21" for 10-yr event         2.09 hrs, Volume=       1,631 cf
Inflow Primary Primary Inflow A Inflow Primary	= = outflow = Inflo rea = =	1.6 cfs @ 1 1.6 cfs @ 1 ow, Time Sp 6,095 sf, 1 0.5 cfs @ 1 0.5 cfs @ 1	2.17 hrs, Volume=       6,413 cf         2.17 hrs, Volume=       6,413 cf         2.17 hrs, Volume=       6,413 cf         an= 0.00-30.00 hrs, dt= 0.01 hrs         Summary for Link DP-2: Route 3 Ditch         19.06% Impervious, Inflow Depth = 3.21" for 10-yr event         2.09 hrs, Volume=       1,631 cf
Inflow Primary Primary Inflow A Inflow Primary Primary	= eutflow = Infle rea = = =	1.6 cfs @ 1 1.6 cfs @ 1 ow, Time Sp 6,095 sf, 1 0.5 cfs @ 1 0.5 cfs @ 1 ow, Time Sp	2.17 hrs, Volume=       6,413 cf         2.17 hrs, Volume=       10.01 hrs         Summary for Link DP-2: Route 3 Ditch         19.06% Impervious, Inflow Depth =       3.21" for 10-yr event         2.09 hrs, Volume=       1,631 cf         2.09 hrs, Volume=       1,631 cf, Atten= 0%, Lag= 0.0 min         an= 0.00-30.00 hrs, dt= 0.01 hrs
Inflow Primary Primary Inflow A Inflow Primary Primary	= = outflow = Influ rea = = = outflow = Influ	1.6 cfs @ 1 1.6 cfs @ 1 ow, Time Sp 6,095 sf, 1 0.5 cfs @ 1 0.5 cfs @ 1 ow, Time Sp	2.17 hrs, Volume=       6,413 cf         Summary for Link DP-2: Route 3 Ditch         19.06% Impervious, Inflow Depth =       3.21" for 10-yr event         2.09 hrs, Volume=       1,631 cf         2.01 hrs       Summary for Link DP-3: Old Oak Street Drainage System
Inflow Primary Primary Inflow A Inflow Primary Primary Inflow A	= = outflow = Influ rea = = 1 outflow = Influ rea =	1.6 cfs @ 1 1.6 cfs @ 1 ow, Time Sp 6,095 sf, 1 0.5 cfs @ 1 0.5 cfs @ 1 ow, Time Sp 49,904 sf, 8	2.17 hrs, Volume=       6,413 cf         an= 0.00-30.00 hrs, dt= 0.01 hrs         Summary for Link DP-2: Route 3 Ditch         19.06% Impervious, Inflow Depth =       3.21" for 10-yr event         2.09 hrs, Volume=       1,631 cf         an= 0.00-30.00 hrs, dt= 0.01 hrs         Summary for Link DP-3: Old Oak Street Drainage System         38.92% Impervious, Inflow Depth =       2.71" for 10-yr event

#### Summary for Link DP-4: Ex Headwall at Corner

Inflow Area	a =	37,714 sf,	71.51% Impervious,	Inflow Depth = 1.87"	for 10-yr event
Inflow	=	2.6 cfs @	12.07 hrs, Volume=	5,882 cf	-
Primary	=	2.6 cfs @	12.07 hrs, Volume=	5,882 cf, Atte	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-5: Old Oak Street

Inflow Area	a =	10,239 sf,	31.72% Impervious,	Inflow Depth = 1.91" for 10-yr event	
Inflow	=	0.5 cfs @	12.08 hrs, Volume=	1,628 cf	
Primary	=	0.5 cfs @	12.08 hrs, Volume=	1,628 cf, Atten= 0%, Lag= 0.0 mir	n

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Time span=0.00-3 Runoff by SCS TR- Reach routing by Stor-Ind+Tra	30.00 hrs, dt=0.01 hrs, 3001 points 20 method, UH=SCS, Weighted-CN ans method - Pond routing by Stor-Ind method
SubcatchmentPR-1: Rear Parking Lot	Runoff Area=18,641 sf 79.21% Impervious Runoff Depth=5.93" Flow Length=164' Tc=12.9 min CN=92 Runoff=2.2 cfs 9,206 cf
SubcatchmentPR-2: Western Corner of Site	Runoff Area=6,095 sf 19.06% Impervious Runoff Depth=4.91" Flow Length=50' Slope=0.0125 '/ Tc=6.6 min CN=83 Runoff=0.8 cfs 2,491 cf
SubcatchmentPR-3: Southern/CentralPortion of Site	Runoff Area=49,904 sf 88.92% Impervious Runoff Depth=6.16" Flow Length=320' Tc=5.0 min CN=94 Runoff=7.8 cfs 25,614 cf
SubcatchmentPR-4A: Northeast; Roof, Pavement and Landso	dcaping Runoff Area=23,624 sf 85.40% Impervious Runoff Depth=5.81" Flow Length=302' Tc=5.0 min CN=91 Runoff=3.6 cfs 11,440 cf
SubcatchmentPR-4B: New Roof	Runoff Area=6,522 sf 100.00% Impervious Runoff Depth=6.63" Flow Length=50' Slope=0.0150 '/' Tc=5.0 min CN=98 Runoff=1.0 cfs 3,604 cf
SubcatchmentPR-4C: Northeast Pervious Area	Runoff Area=7,568 sf 3.61% Impervious Runoff Depth=1.68" Flow Length=137' Tc=5.0 min CN=51 Runoff=0.3 cfs 1,061 cf
SubcatchmentPR-5: Southeastern Portion of Site	Runoff Area=10,239 sf 31.72% Impervious Runoff Depth=3.31" Flow Length=79' Tc=5.0 min CN=68 Runoff=0.9 cfs 2,820 cf
Pond P1: SubsurfaceInfiltrationSystem	Peak Elev=94.74' Storage=1,611 cf Inflow=1.0 cfs 3,604 cf Discarded=0.0 cfs 1,863 cf Primary=0.3 cfs 814 cf Outflow=0.3 cfs 2,677 cf
Pond P2: SubsurfaceInfiltrationSystem	Peak Elev=94.70' Storage=2,837 cf Inflow=7.8 cfs 25,614 cf Discarded=0.1 cfs 7,762 cf Primary=7.0 cfs 17,852 cf Outflow=7.1 cfs 25,614 cf
Pond P3: SubsurfaceInfiltrationSystem	Peak Elev=95.98' Storage=1,455 cf Inflow=3.6 cfs 11,440 cf Discarded=0.0 cfs 1,639 cf Primary=3.6 cfs 8,988 cf Outflow=3.6 cfs 10,626 cf
Link DP-1: Ex LCB	Inflow=2.2 cfs 9,206 cf Primary=2.2 cfs 9,206 cf

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Link DP-2: Route 3 Ditch

Link DP-3: Old Oak Street Drainage System

Link DP-4: Ex Headwall at Corner

Link DP-5: Old Oak Street

Inflow=0.8 cfs 2,491 cf Primary=0.8 cfs 2,491 cf

Inflow=7.0 cfs 17,852 cf Primary=7.0 cfs 17,852 cf

Inflow=3.9 cfs 10,863 cf Primary=3.9 cfs 10,863 cf

Inflow=0.9 cfs 2,820 cf Primary=0.9 cfs 2,820 cf

Total Runoff Area = 122,593 sf Runoff Volume = 56,237 cf Average Runoff Depth = 5.50" 26.16% Pervious = 32,071 sf 73.84% Impervious = 90,522 sf

Type III 24-hr 50-yr Rainfall=6.87" 14239.00-PR Prepared by WATSCCM2012 Printed 11/19/2018 HydroCAD® 10.00-19 s/n 07577 © 2016 HydroCAD Software Solutions LLC Page 28 Summary for Subcatchment PR-1: Rear Parking Lot Runoff = 2.2 cfs @ 12.17 hrs, Volume= 9,206 cf, Depth= 5.93" Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 50-yr Rainfall=6.87" CN Area (sf) Description 1,224 49 50-75% Grass cover, Fair, HSG A 9,629 5,137 98 Impervious 98 Roof 2,651 Woods, Fair, HSG D 79 18,641 92 Weighted Average 20.79% Pervious Area 3,875 79.21% Impervious Area 14,766 Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs) 0.0125 Sheet Flow, Wooded 12.3 41 0.06 Woods: Light underbrush n= 0.400 P2= 3.40" 0.6 123 0.0330 3.69 Shallow Concentrated Flow, Pavement Paved Kv= 20.3 fps 12.9 164 Total

#### Summary for Subcatchment PR-2: Western Corner of Site

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 2,491 cf, Depth= 4.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 50-yr Rainfall=6.87"

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	Area (sf)	CN	Description		
	685	49	50-75% Gr	ass cover, l	Fair, HSG A
*	1,162	98	Impervious		
	4,248	84	50-75% Gr	ass cover, l	Fair, HSG D
	6,095	83	Weighted A	verage	
	4,933		80.94% Pe	rvious Area	a
	1,162		19.06% Im	pervious Ar	rea
T (mir	c Length	Slop (ft/fl	e Velocity ) (ft/sec)	Capacity (cfs)	Description
6.	6 50	0.012	5 0.13		Sheet Flow, Grassed

Grass: Short n= 0.150 P2= 3.40"

## Summary for Subcatchment PR-3: Southern/Central Portion of Site

Runoff = 7.8 cfs @ 12.07 hrs, Volume= 25,614 cf, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 50-yr Rainfall=6.87"

	Area (sf)	CN	Description
	3,882	49	50-75% Grass cover, Fair, HSG A
	43,279	98	Paved parking, HSG A
*	1,097	98	Roof
	1,646	84	50-75% Grass cover, Fair, HSG D
	49,904	94	Weighted Average
	5,528		11.08% Pervious Area
	44,376		88.92% Impervious Area

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#### Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 30

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.10		Sheet Flow, Pavement
					Smooth surfaces n= 0.011 P2= 3.40"
1.0	220	0.0320	3.63		Shallow Concentrated Flow, Pavement
					Paved Kv= 20.3 fps
0.2	50	0.0050	3.47	2.73	Pipe Channel, Piped System
					12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
					n= 0.012 Concrete pipe, finished
2.0	320	Total, I	ncreased t	o minimum	Tc = 5.0 min

#### Summary for Subcatchment PR-4A: Northeast; Roof, Pavement and Landsdcaping

Runoff = 3.6 cfs @ 12.07 hrs, Volume= 11,440 cf, Depth= 5.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr  $\,$  50-yr Rainfall=6.87"

3,449 49 50-75% Grass cover, Fair, HSG A	
15,045 98 Paved parking, HSG A	
* 5,130 98 Roof	
23,624 91 Weighted Average	
3,449 14.60% Pervious Area	
20,175 85.40% Impervious Area	
Tc Length Slope Velocity Capacity Description	
(min) (feet) (ft/ft) (ft/sec) (cfs)	
0.2 38 0.3300 3.59 Sheet Flow, Roof	
Smooth surfaces n= 0.011 P2= 3.40"	
0.9 225 0.0400 4.06 Shallow Concentrated Flow, Pavement	
Paved Kv= 20.3 fps	
0.2 39 0.0050 4.17 3.28 Pipe Channel, Pipe	
12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'	
n= 0.010 PVC, smooth interior	

1.3 302 Total, Increased to minimum Tc = 5.0 min

					-				
unoff =	=	1.0 0	cfs @ 12.07	7 hrs, Vol	ume=	3,604 cf, Depth=	6.63"		
unoff by S /pe III 24-	SCS TF -hr 50-	R-20 me yr Rain	thod, UH=S fall=6.87"	CS, Weigł	nted-CN, Tin	ne Span= 0.00-30.00	hrs, dt= 0.01 hrs		
Area	a (sf)	CN	Description						
<u> </u>	6,522 522	98	Roof 100.00% Im	nervious A	rea				
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	~	100.00 /0 mi						
IC Le (min)	ength (feet)	Siope (ft/ft)	(ft/sec)	(cfs)	Description	1			
0.8	50	0.0150	1.10		Sheet Flow	w, Roof	0.0.40		
0.8	50	Total,	Increased to	minimum	Tc = 5.0 mi	inaces n= 0.011 P.	2= 3.40		
			S	ummary	for Subca	atchment PR-4C:	Northeast Pervi	ous Area	
unoff	=	0.3	cfs @ 12.09	) hrs, Voli	ume=	1,061 cf, Depth=	1.68"		
unoff by S ype III 24-	SCS TF -hr 50-	R-20 me yr Rain'	thod, UH=S fall=6.87"	CS, Weigł	nted-CN, Tin	ne Span= 0.00-30.00	hrs, dt= 0.01 hrs		
Area	a (sf)	CN	Description						
7,	,295 273	49 98	50-75% Gra	ss cover, l	air, HSG A				
7,	273 7,568	51	Weighted Av	/erage	<b>\</b>				
7,	295 273		96.39% Pen 3 61% Impe	/ious Area	а				
	2.0		5.5175 mpe		-				
4239.00-	-PR							Type III 24-h	r 50-yr Rainfall=6.87"
4239.00- repared b	<b>-PR</b> by WA	TSCCN	//2012 17577 © 2011	6 HydroCA	D Software S	iolutions I I C		Type III 24-h	r 50-yr Rainfall=6.87" Printed 11/19/2018 Page 32
4239.00- repared b ydroCAD®	<b>-PR</b> by WA <u>◎ 10.00-</u>	TSCCI 19 s/n (	//2012 \7577 © 2010	<u>6 HydroCA</u>	D Software S	iolutions LLC		Type III 24-h	r <i>50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page <u>32</u>
<b>4239.00-</b> repared b <u>ydroCAD®</u> Tc Le <u>(min)(</u>	l <b>-PR</b> by WA ≥ 10.00- ength (feet)	TSCCM 19 s/n ( Slope (ft/ft)	//2012 /7577 © 201⊦ Velocity (ft/sec)	<u>6 HydroCA</u> Capacity (cfs)	<u>D Software S</u> Descriptior	iolutions LLC		Type III 24-h	r <i>50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 32
<b>4239.00</b> - repared b ydroCAD® Tc Le (min) ( 2.7	- <b>PR</b> by WA ≥ 10.00- ength (feet) 35	TSCCI 19 s/n ( Slope (ft/ft) 0.0570	/2012 07577 © 2010 Velocity (ft/sec) 0.22	6 HydroCA Capacity (cfs)	D Software S Description Sheet Floo	iolutions LLC	40"	Type III 24-h	r <i>50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page <u>32</u>
<b>4239.00</b> - repared b ydroCAD® Tc Le (min) ( 2.7 1.2	P-PR by WA 10.00- ength (feet) 35 102	TSCCM 19 s/n ( Slope (ft/ft) 0.0570 0.0090	/2012 07577 © 2010 Velocity (ft/sec) 0.22 1.42	6 HydroCA Capacity (cfs)	D Software S Descriptior Sheet Flo Grass: Sha Shallow C Grassed W	iolutions LLC n w, Grass ort n= 0.150 P2= 3 oncentrated Flow, 6 vlaterway Kv= 15.0 f	.40" Grassed ps	Type III 24-h	r <i>50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page <u>32</u>
<b>4239.00</b> repared b ydroCAD® Tc Le (min) ( 2.7 1.2 3.9	- <b>PR</b> by WA ≥ 10.00- ength (feet) 35 102 137	TSCCM 19 s/n ( Slope (ft/ft) 0.0570 0.0090 Total,	A2012 17577 © 2011 Velocity (ft/sec) 0.22 1.42 Increased to	<u>6 HydroCA</u> Capacity (cfs)	D Software S Description Sheet Floo Grass: Sho Shallow C Grassed W Tc = 5.0 mi	iolutions LLC n w, Grass ort n= 0.150 P2= 3 ioncentrated Flow, ( Vaterway Kv= 15.0 f in	.40" Grassed ps	Type III 24-h	r <i>50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 32
<b>4239.00</b> repared t ydroCAD® Tc Le (min) ( 2.7 1.2 3.9	<b>1-PR</b> by WA ≥ 10.00- ength (feet) 35 102 137	TSCCM 19 s/n ( Slope (ft/ft) 0.0570 0.0090 Total,	A2012 17577 © 2010 1 Velocity (ft/sec) 1 0.22 1 .42 Increased to Sui	<u>6 HydroCA</u> Capacity (cfs) o minimum <b>mmary f</b>	D Software S Description Sheet Floo Grass: Sho Shallow C Grassed W Tc = 5.0 mi or Subcat	w, Grass ort n= 0.150 P2= 3 oncentrated Flow, ( Vaterway Kv= 15.0 f in chment PR-5: So	.40" Grassed ps butheastern Port	Type III 24-h	r <i>50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 32
<b>4239.00</b> - repared t ydroCAD® Tc Le (min) ( 2.7 1.2 3.9 unoff =	ength (feet) 35 102 137	TSCCM 19 s/n ( Slope (ft/ft) 0.0570 0.0090 Total, 0.9 (	1/2012 1/577 © 2011 Velocity (ft/sec) 0.22 1.42 Increased to Sun cfs @ 12.08	<u>5 HydroCA</u> Capacity (cfs) p minimum <b>mmary f</b> 3 hrs, Voli	D Software S Description Sheet Flor Grass: She Shallow C Grassed V Tc = 5.0 mi or Subcat	w, Grass ort n = 0.150 P2= 3 concentrated Flow, C vaterway Kv= 15.0 f in cchment PR-5: So 2,820 cf, Depth=	.40" Grassed ps outheastern Port 3.31"	Type III 24-h	r <i>50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 32
<b>4239.00</b> repared L ydroCAD® Tc L¢ (min) ( 2.7 1.2 3.9 unoff sy S ype III 24-I	ength (feet) 35 102 137 = SCS TF -hr 50-	TSCCM 19 s/n ( Slope (ft/ft) 0.0570 0.0090 Total, 0.9 o 8-20 me yr Rain	//2012 17577 © 2010 Velocity (ft/sec) 0.22 1.42 Increased to Sun cfs @ 12.00 thod, UH=S fall=6.87"	<u>5 HydroCA</u> Capacity (cfs) 9 minimum <b>mmary f</b> 3 hrs, Voli CS, Weigł	D Software S Description Sheet Flor Grass: She Grassed V Tc = 5.0 mi or Subcat ume= nted-CN, Tin	w, Grass ort n= 0.150 P2= 3 concentrated Flow, C vaterway Kv= 15.0 f in cchment PR-5: So 2,820 cf, Depth= ne Span= 0.00-30.00	.40" Grassed ps outheastern Port 3.31" hrs, dt= 0.01 hrs	Type III 24-h	r <i>50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 32
4239.000 repared t ydroCAD® Tc L& (min) ( 2.7 1.2 3.9 unoff = unoff by S ype III 24-I	- <b>PR</b> by WA <u>≥ 10.00-</u> ength (feet) 35 102 137 = SCS TF- hr 50- a (sf) 2005	TSCCM 19 s/n ( Slope (ft/ft) 0.0570 0.0090 Total, 0.9 d 8-20 me yr Raini <u>CN</u>	A2012 17577 © 2011 Velocity (ft/sec) 0.22 1.42 Increased to Sul cfs @ 12.08 thod, UH=S fall=6.87" Description	6 HydroCA Capacity (cfs) 9 minimum mmary f 8 hrs, Volu CS, Weigt	D Software S Description Grass: She Shallow C Grassed W Tc = 5.0 mi or Subcat ume= nted-CN, Tin	w, Grass ort n= 0.150 P2= 3 oncentrated Flow, C Vaterway Kv= 15.0 f in chment PR-5: So 2,820 cf, Depth= ne Span= 0.00-30.00	.40" Grassed ps butheastern Port 3.31" hrs, dt= 0.01 hrs	Type III 24-h	r <i>50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page <u>32</u>
4239.00- repared t ydroCAD® Tc Le (min) 1 2.7 1.2 3.9 unoff = unoff by S ype III 24-1 <u>Area</u> 6, 3.9	-PR by WA 0 10.00- ength (feet) 35 102 137 = SCS TF -hr 50- a (sf) 0,035 3,248	TSCCN 19 s/n ( Slope (ft/ft) 0.0570 0.0090 Total, 0.9 d 2-20 me yr Raim yr Raim 49 98	A2012 17577 © 2011 Velocity (ft/sec) 0.22 1.42 Increased to Sul 5fs @ 12.04 thod, UH=S fall=6.87" Description 50-75% Gra Impervious	<u>8 HydroCA</u> Capacity (cfs) 9 minimum mmary f 8 hrs, Volu CS, Weigh cS, Weigh	D Software S Description Sheet Floo Grass: Sho Shallow C Grassed W Tc = 5.0 mi or Subcat ume= nted-CN, Tin Fair, HSG A	w, Grass ort n= 0.150 P2= 3 oncentrated Flow, ( Vaterway Kv= 15.0 f in chment PR-5: So 2,820 cf, Depth= ne Span= 0.00-30.00	.40" Grassed ps outheastern Port 3.31" hrs, dt= 0.01 hrs	Type III 24-h	r 50-yr Rainfall=6.87" Printed 11/19/2018 Page 32
4239.00- repared b ydroCAD® Tc Le (min) 1 2.7 1.2 3.9 unoff = unoff by S ype III 24-1 <u>Area</u> <u>6</u> , 3, 3,	- <b>PR</b> by WA <u>0 10.00-</u> ength (feet) 35 102 137 = SCS TF -hr 50- a (sf) 5,035 3,248 956	TSCCM <u>19 s/n (</u> Slope (ft/ft) 0.0570 0.0090 Total, 0.9 c R-20 me yr Rain CN 49 98 84 98	A2012 17577 © 2011 Velocity (ft/sec) 0.22 1.42 Increased to Sun 50 75% Gra Impervious 50 75% Gra	<u>8 HydroCA</u> Capacity (cfs) o minimurr <b>mmary f</b> 8 hrs, Volu CS, Weigh cS, Weigh ss cover, 1	D Software S Description Sheet Floo Grass: Sho Shallow C Grassed W Tc = 5.0 mi or Subcat ume= nted-CN, Tin = air, HSG A =air, HSG D	w, Grass ort n= 0.150 P2= 3 concentrated Flow, ( Vaterway Kv= 15.0 f in chment PR-5: So 2,820 cf, Depth= ne Span= 0.00-30.00	.40" Grassed ps putheastern Port 3.31" hrs, dt= 0.01 hrs	Type III 24-h	r 50-yr Rainfall=6.87" Printed 11/19/2018 Page 32
4239.00- repared b ydroCAD® Tc L€ (min) 1 2.7 1.2 3.9 unoff = unoff by S ype III 24-1 Area 6, 3, 10, 6, 3.	-PR by WA by WA 0 10.00- ength (feet) 35 102 137 = SCS TF -hr 50- a (sf) 0,035 3,248 956 0,239 3,248	TSCCN 19 s/n ( Slope (ft/ft) 0.0570 0.0090 Total, 0.9 d 8-20 me yr Rain CN 49 98 84 68	A2012 17577 © 2011 Velocity (ft/sec) 0.22 1.42 Increased to Sul 250-75% Gra Impervious 50-75% Gra Impervious 50-75% Gra Weighted Av 68.28% Pen Weighted Av 68.28% Pen 31.72% Imp	6 HydroCA Capacity (cfs) o minimum mmary f 8 hrs, Volu CS, Weigh ss cover, I ss cover, I ss cover, I rerage rious Area ervious Area	D Software S Description Grass: Shat Shallow C Grassed W Tc = 5.0 mi or Subcat ume= nted-CN, Tin Fair, HSG A Fair, HSG D ea	w, Grass ort n= 0.150 P2= 3 oncentrated Flow, C Vaterway Kv= 15.0 f in chment PR-5: So 2,820 cf, Depth= ne Span= 0.00-30.00	.40" Grassed ps outheastern Port 3.31" hrs, dt= 0.01 hrs	Type III 24-h	r 50-yr Rainfall=6.87" Printed 11/19/2018 Page 32
4239.00- repared b ydroCAD® Tc Le (min) 1 2.7 1.2 3.9 unoff = unoff by S ype III 24-1 Area 6, 3, 0, 0, 0, 0, 10, 0, 0, 10, 0, 0, 0, 0, 0, 0, 0, 0, 0,	- <b>PR</b> by WA <u>0 10.00-</u> ength (feet) 35 102 137 = SCS TF -hr 50- a (sf) 3,035 3,248 956 0,239 3,991 3,248 0,239	TSCCM <u>19 s/n (</u> Slope (ft/ft) 0.0570 0.0090 Total, 0.9 c R-20 me yr Rain CN <u>49</u> 98 <u>84</u> 68	A2012 17577 © 2011 Velocity (ft/sec) 0.22 1.42 Increased to Sun 50-75% Gra Impervious 50-75% Gra Impervious 50-75% Gra Weighted At Weighted At Weighted At Weighted At Weighted At Weighted At Weighted At Weighted At Weighted At Notes at 1.72% Impervious 1.72%	<u>a HydroCA</u> Capacity (cfs) o minimum <b>mmary f</b> a hrs, Volu CS, Weigh cS, Weigh ss cover, I ss cover, I rerage rvious Are revious Are	D Software S Description Sheet Floo Grass: Sho Shallow C Grassed W Tc = 5.0 mi or Subcat ume= nted-CN, Tin =air, HSG A =air, HSG D ea	w, Grass ort n= 0.150 P2= 3 concentrated Flow, ( Vaterway Kv= 15.0 f in chment PR-5: So 2,820 cf, Depth= ne Span= 0.00-30.00	.40" Grassed ps putheastern Port 3.31" hrs, dt= 0.01 hrs	Type III 24-h	r 50-yr Rainfall=6.87" Printed 11/19/2018 Page 32
4239.00- repared t ydroCAD® Tc Le (min) ( 2.7 1.2 3.9 unoff = unoff by S ype III 24-I Area 6, 3, 10, 6, 3, Tc Le (min) ( 10, 10, 10, 10, 10, 10, 10, 10,	-PR by WA by 10.00- ength (feet) 35 102 137 = SCS TF -hr 50- a (sf) 9,035 8,248 956 9,239 3,991 8,248 ength (feet)	TSCCM <u>19 s/n (</u> Slope (ft/ft) 0.0570 0.0090 Total, 0.9 c R-20 me yr Raint <u>CN</u> <u>49</u> <u>98</u> <u>84</u> 68 Slope (ft/ft)	M2012 17577 © 2011 2 Velocity (ft/sec) 0 0.22 1.42 Increased to Sun 2 Sun 2	6 HydroCA Capacity (cfs) o minimum mmary f 8 hrs, Volu CS, Weigh cS, Weigh ss cover, I ss cover, I verage rious Area ervious Area crvious Area crvious Area crvious Area crvious Area	D Software S Description Sheet Floo Grass Sho Shallow C Grassed W Tc = 5.0 mi or Subcat ume= nted-CN, Tin =air, HSG A =air, HSG D ea Description	iolutions LLC w, Grass ort n= 0.150 P2= 3 ioncentrated Flow, 0 Vaterway Kv= 15.0 f in chment PR-5: So 2,820 cf, Depth= ne Span= 0.00-30.00	.40" Grassed ps outheastern Port 3.31" hrs, dt= 0.01 hrs	Type III 24-h	r 50-yr Rainfall=6.87" Printed 11/19/2018 Page 32
4239.00- repared t ydroCAD® Tc Le (min) ( 2.7 1.2 3.9 unoff = unoff by S ype III 24-I Area 6, 3, 10, 6, 3, 10, 6, 3,	-PR by WA by 10.00- ength (feet) 35 102 137 = SCS TF -hr 50- a (sf) 5,035 3,248 956 956 9,239 3,248 ength (feet) 18	TSCCM <u>19 s/n (</u> Slope (ft/ft) 0.0570 0.0090 Total, 0.9 d 2-20 me yr Raint <u>CN</u> <u>49</u> 98 <u>84</u> 68 Slope (ft/ft) 0.0110	A2012 7577 © 2011 Velocity (ft/sec) 0.22 1.42 Increased to Sun 50 50 50 50 50 50 50 50 50 50	6 HydroCA Capacity (cfs) o minimum mmary f 3 hrs, Voli CS, Weigt css cover, 1 erage ious Area ervious Area ervious Area cruious Area ervious Area	D Software S Description Sheet Floo Grass: She Shallow C Grassed W TC = 5.0 mi or Subcat ume= nted-CN, Tin Fair, HSG A Fair, HSG D ea Description	iolutions LLC w, Grass oncentrated Flow, ( vaterway Kv= 15.0 f in chment PR-5: So 2,820 cf, Depth= ne Span= 0.00-30.00 n w, Grass n	.40" Grassed ps outheastern Port 3.31" hrs, dt= 0.01 hrs	Type III 24-h	r 50-yr Rainfall=6.87" Printed 11/19/2018 Page 32
4239.00 repared b ydroCAD® Tc Le (min) ( 2.7 1.2 3.9 unoff = unoff by S ype III 24-1 Area 6, 3, 10, 6, 3.1 0.6	-PR by WA by WA 10.00- (feet) 35 102 137 = SCS TF -hr 50- a (sf) 5,035 3,248 (sp91 3,248 ength (feet) 18 61	TSCCM 19 s/n ( Slope (ft/ft) 0.0570 0.0090 Total, 0.9 ( 2.20 me yr Rain 49 98 84 68 Slope (ft/ft) 0.0110 0.0330	M2012 17577 © 2011 Velocity (ft/sec) 0.22 1.42 Increased to Sul 2.55 @ 12.08 thod, UH=S fall=6.87" Description 50-75% Gra Impervious 50-75% Gra Weighted Av 68.28% Pen 31.72% Imp Velocity (ft/sec) 0.10 1.57	5 HydroCA Capacity (cfs) o minimum <b>mmary f</b> 3 hrs, Voli CS, Weigh ss cover, I ss cover, I rerage <i>ri</i> ous Areage <i>ri</i> ous Areage <i>ri</i> ous Areage <i>ri</i> ous Areage <i>ri</i> ous Areage	D Software S Description Grass: She Grassed V TC = 5.0 mi or Subcat ume= nted-CN, Tim -air, HSG A -air, HSG D ea Description Sheet Floo Grass: Sho Sheet Floo	w, Grass oncentrated Flow, C vaterway Kv= 15.0 f in cchment PR-5: So 2,820 cf, Depth= ne Span= 0.00-30.00 w, Grass ort n= 0.150 P2= 3 w, Pavement	.40" Grassed ps outheastern Port 3.31" hrs, dt= 0.01 hrs	Type III 24-h	r 50-yr Rainfall=6.87" Printed 11/19/2018 Page 32

3.7 79 Total, Increased to minimum Tc = 5.0 min

		Summary for Pond P1: Subsurface Infiltration System	
nflow Area = nflow = Dutflow = Discarded =	6,522 sf,10 1.0 cfs @ 1 0.3 cfs @ 1 0.0 cfs @	10.00% Impervious, Inflow Depth = 6.63" for 50-yr event           2.07 hrs, Volume=         3,604 cf           2.35 hrs, Volume=         2,677 cf, Atten= 69%, Lag= 17.0 min           7.17 hrs, Volume=         1,863 cf           9.05 hr         Volume=	
'rimary =	0.3 cts @ 1	2.35 hrs, Volume = $814$ ct	
'eak Elev= 94.74'	@ 12.35 hrs	Surf.Area= 842 sf Storage= 1,611 cf	
'lug-Flow detentic ≿enter-of-Mass d€	n time=296.1 r t. time=207.1 r	nin calculated for 2,677 cf (74% of inflow) nin(949.4-742.3)	
/olume Inve	rt Avail.Sto	rage Storage Description	
#1A 91.4 #2A 91.9	0' 6:	<ul> <li>15.75 W x 53.46 L x 3.50 H Field A</li> <li>2,947 cf Overall - 965 cf Embedded = 1,982 cf x 35.0% Voids</li> <li>15 cf ADS_StormTech SC-740 +Capx 21 Inside #1</li> <li>Effective Size= 44.6"W x 30.0"H =&gt; 6.45 sf x 7.12'L = 45.9 cf</li> <li>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap</li> <li>3 Bows of 7 Chambers</li> </ul>	
	1,6	j8 cf Total Available Storage	
Storage Group	A created with	Chamber Wizard	
evice Routing	Invert	Outlet Devices	
#1 Primary	94.40'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.50 Inlet / Outlet Invert= 94.40' / 94.30' S= 0.0033 '/' Cc= 0.900 n= 0.012,	)0 Flow Area= 0.79 sf
#2 Discarde	d 91.40'	1.020 in/hr Exfiltration over Surface area Phase-In= 0.01'	
)iscarded OutFlo	w Max=0.0 cfs (Exfiltration Co	@ 7.17 hrs HW=91.44' (Free Discharge) htrols 0.0 cfs)	
rimary OutFlow	` Max=0.3 cfs @	12.35 hrs HW=94.74' (Free Discharge)	
-1=Culvert (Bar	rel Controls 0.3	cfs @ 1.96 fps)	
<b>4239.00-PR</b> <sup>1</sup> repared by WA	TSCCM2012	2016 HydroCAD Software Solutions LLC	<i>Type III 24-hr 50-yr Rainfall=</i> 6.87" Printed 11/19/2018 Page 34
<b>4239.00-PR</b> Prepared by WA IydroCAD® 10.00-	TSCCM2012 19 s/n 07577 ©	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System	<i>Type III 24-hr 50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 34
<b>4239.00-PR</b> Prepared by WA IydroCAD® 10.00-	TSCCM2012 19 s/n 07577 ©	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System	<i>Type III 24-hr 50-yr Rainfall=</i> 6.87" Printed 11/19/2018 Page 34
<b>4239.00-PR</b> repared by WA <sup>*</sup> ydroCAD® 10.00- nflow Area = nflow =	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System 8.92% Impervious, Inflow Depth = 6.16" for 50-yr event 2.07 hrs, Volume= 25,614 cf	<i>Type III 24-hr 50-yr Rainfall=</i> 6.87" Printed 11/19/2018 Page 34
<b>4239.00-PR</b> Irepared by WA ydroCAD® 10.00- nflow Area = nflow = butflow = iscarded =	FSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System 8.92% Impervious, Inflow Depth = 6.16" for 50-yr event 2.07 hrs, Volume= 25,614 cf 2.11 hrs, Volume= 25,614 cf, Atten= 9%, Lag= 2.1 min 6.85 hrs, Volume= 7,762 cf	<i>Type III 24-hr 50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 34
<b>4239.00-PR</b> 'repared by WA' ydroCAD® 10.00-' iflow Area = iflow = iutflow = iscarded = rimary =	TSCCM2012 19 s/n 07577 © 7.8 cfs @ 7.1 cfs @ 7.0 cfs @ 7.0 cfs @	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System 18.92% Impervious, Inflow Depth = 6.16" for 50-yr event 2.07 hrs, Volume= 25,614 cf 2.11 hrs, Volume= 25,614 cf, Atten= 9%, Lag= 2.1 min 6.85 hrs, Volume= 7,762 cf 2.11 hrs, Volume= 17,852 cf	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 34
4239.00-PR Prepared by WA' prepared by WA' prepared by WA' 10.00- hflow Area = hflow = butflow = biscarded = rrimary = Souting by Stor-In but For Stor-In	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @ 7.0 cfs @ 1 d method, Time	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System 18.92% Impervious, Inflow Depth = 6.16" for 50-yr event 2.07 hrs, Volume= 25,614 cf 2.11 hrs, Volume= 25,614 cf, Atten= 9%, Lag= 2.1 min 6.85 hrs, Volume= 7,762 cf 2.11 hrs, Volume= 17,852 cf Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2	<i>Type III 24-hr 50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page <u>34</u>
<b>4239.00-PR</b> repared by WA' ydroCAD® 10.00- flow Area = nflow = utflow = iscarded = rimary = touting by Stor-In eak Elev= 94.70'	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @ 1 7.0 cfs @ 1 d method, Time @ 12.11 hrs \$	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System i8.92% Impervious, Inflow Depth = 6.16" for 50-yr event 2.07 hrs, Volume= 25,614 cf 2.11 hrs, Volume= 7,762 cf 2.11 hrs, Volume= 17,852 cf Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 iurf.Area= 1,826 sf Storage= 2,837 cf	<i>Type III 24-hr 50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 34
4239.00-PR Prepared by WA' lydroCAD® 10.00- nflow Area = nflow = butflow = biscarded = rimary = couting by Stor-In eak Elev= 94.70' lug-Flow detentic center-of-Mass de	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 0.1 cfs @ 7.0 cfs @ 1 d method, Time @ 12.11 hrs \$ n time=42.2 m t. time=42.2 m	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System 18.92% Impervious, Inflow Depth = 6.16" for 50-yr event 2.07 hrs, Volume= 25,614 cf, 2.11 hrs, Volume= 25,614 cf, Atten= 9%, Lag= 2.1 min 6.85 hrs, Volume= 7,762 cf 2.11 hrs, Volume= 17,852 cf Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 iurf.Area= 1,826 sf Storage= 2,837 cf n calculated for 25,606 cf (100% of inflow) n (806.3 - 764.1)	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 34
4239.00-PR Prepared by WA' lydroCAD® 10.00- iflow Area = iflow = butflow = biscarded = 'rimary = couting by Stor-In 'eak Elev= 94.70' 'lug-Flow detentic center-of-Mass de 'olume Inve	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @ 7.0 cfs @ 1 d method, Time @ 12.11 hrs \$ n time=42.2 m rt Avail Sto	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System 18.92% Impervious, Inflow Depth = 6.16" for 50-yr event 2.07 hrs, Volume= 25,614 cf 2.11 hrs, Volume= 25,614 cf 2.11 hrs, Volume= 7,762 cf 2.11 hrs, Volume= 7,762 cf 2.11 hrs, Volume= 17,852 cf Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 Surf.Area= 1,826 sf Storage= 2,837 cf n calculated for 25,606 cf (100% of inflow) n (806.3 - 764.1) age. Storage Description	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 34
4239.00-PR repared by WA' procAD® 10.00- flow Area = flow = putflow = iscarded = rimary = couting by Stor-In eak Elev= 94.70' lug-Flow detentic center-of-Mass detentic iscarded = flow =	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @ 7.0 cfs @ 10.1 cfs @ 1	2016 HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         892% Impervious, Inflow Depth = 6.16" for 50-yr event         2.07 hrs, Volume=       25,614 cf         2.11 hrs, Volume=       25,614 cf         2.11 hrs, Volume=       7,762 cf         2.11 hrs, Volume=       17,852 cf         Spane 0.00-30.00 hrs, dt= 0.01 hrs / 2         surf.Area= 1,826 sf         Storage 1,826 sf         Storage 2,837 cf         n calculated for 25,606 cf (100% of inflow)         n (806.3 - 764.1)         age         Storage Description         i5 cf         20.50'W x 89.06'L x 3.50'H Field A	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 34
14239.00-PR Prepared by WA' iydroCAD® 10.00- Inflow Area = Inflow = Dutflow = Dutflow = Next Elev= 94.70' Primary = Routing by Stor-In Yeak Elev= 94.70' Primary = Primary =	TSCCM2012 9 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @ 1 0.1 cfs @ 1 0.1 cfs @ 1 1.1 cfs @ 1 0.1 cfs @ 1 1.1 hrs \$ 0.1 cfs @ 1 1.1 cfs @ 1 0.1 cfs @ 1 0	2016 HydroCAD Software Solutions LLC           Summary for Pond P2: Subsurface Infiltration System           8.92% Impervious, Inflow Depth = 6.16" for 50-yr event           2.07 hrs, Volume=         25,614 cf           2.11 hrs, Volume=         25,614 cf, Atten= 9%, Lag= 2.1 min           6.85 hrs, Volume=         7,762 cf           2.11 hrs, Volume=         17,852 cf           Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2           burf.Area= 1,826 sf           Storage Description           i5 cf         20.50'W x 89.06'L x 3.50'H Field A           6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids           I5 cf         ADS_StormTech SC-740 +Cap x 48 Inside #1           Effective Size= 44.6''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf           Overall Size= 51.0''W x 30.0''H => 7.56'L with 0.44' Overlap           4 Rows of 12 Chambers	<i>Type III 24-hr 50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 34
A239.00-PR Prepared by WA' iydroCAD® 10.00- Inflow Area = Inflow = Dutflow = Dutflow = Dutflow = Nouting by Stor-In 'eak Elev= 94.70' 'lug-Flow detentic Center-of-Mass det 'olume Invec #1A 92.3 #2A 92.8	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @ 7.0 cfs @ 1 d method, Time @ 12.11 hrs \$ n time=42.2 m rt Avail.Sto 0' 2,20 3,6	2016 HydroCAD Software Solutions LLC           Summary for Pond P2: Subsurface Infiltration System           88.92% Impervious, Inflow Depth = 6.16" for 50-yr event           2.07 hrs, Volume=         25,614 cf           2.11 hrs, Volume=         25,614 df           2.11 hrs, Volume=         7,762 cf           2.11 hrs, Volume=         7,762 cf           2.11 hrs, Volume=         17,852 cf           Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2           surf.Area= 1,826 sf         Storage= 2,837 cf           n calculated for 25,606 cf (100% of inflow)           n (806.3 - 764.1)           "age         Storage Description           5c f         20.50'W x 89.06'L x 3.50'H Field A           6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids           15 cf         ADS_StormTech SC-740 + Capx 48 Inside #1           Effective Size= 44.6''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf           Overall Size= 51.0''W x 30.0''H => 7.56'L with 0.44' Overlap           4 Rows of 12 Chambers           '0 cf         Total Available Storage	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 34
Image: Algorithm of the system         Arepared by WA <sup>2</sup> Arepared by WA <sup>2</sup> Arepared by UA <sup>2</sup> Inflow Area =         Inflow =         Jutflow =         Jutflow =         Jutflow =         Juscarded =         rimary =         Routing by Stor-In         Yeak Elev= 94.70'         Pug-Flow detentic         Center-of-Mass detentic         Y10g-Flow detentic         Parter of-Mass detentic         Y110g-Flow detentic	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @ 1 0.1 cfs @ 1 d method, Time @ 12.11 hrs \$ m time=42.2 m rt Avail.Sto 0' 1,44 0' 2,24 3,66 A created with	2016 HydroCAD Software Solutions LLC           Summary for Pond P2: Subsurface Infiltration System           88.92% Impervious, Inflow Depth = 6.16" for 50-yr event           2.07 hrs, Volume=         25,614 cf           2.11 hrs, Volume=         25,614 cf           2.11 hrs, Volume=         25,614 cf, Atten= 9%, Lag= 2.1 min           6.85 hrs, Volume=         7,762 cf           2.11 hrs, Volume=         17,852 cf           Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2         300 cf           yurf.Area= 1,826 sf         Storage= 2,837 cf           n calculated for 25,606 cf (100% of inflow)         n (806.3 - 764.1)           rage         Storage Description           i5 cf         20.50"W x 89.06"L x 3.50"H Field A           6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids           15 cf         ADS_StormTech SC-740 + Capx 48 Inside #1           Effective Size= 44.6"W x 30.0"H = x 7.56"L with 0.44' Overlap           4 Rows of 12 Chambers           '0 cf         Total Available Storage           Chamber Wizard	<i>Type III 24-hr 50-yr Rainfall=6.87"</i> Printed 11/19/2018 Page 34
A239.00-PR Prepared by WA' Prepared by WA' Prepared by WA' Provide a state of the second seco	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @ 1 0.1 cfs @ 1 7.0 cfs @ 1 d method, Time @ 12.11 hrs \$ n time=42.2 m rt Avail.Sto 0' 1,44 0' 2,24 3,6' A created with Invert	2016 HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System         88.92% Impervious, Inflow Depth = 6.16" for 50-yr event         2.07 hrs, Volume=       25,614 cf         2.11 hrs, Volume=       25,614 cf, Atten= 9%, Lag= 2.1 min         6.85 hrs, Volume=       7,762 cf         2.11 hrs, Volume=       17,852 cf         Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2       300 for a strange 2,837 cf         n calculated for 25,606 cf (100% of inflow)       n (806.3 - 764.1)         'age Storage Description         56 of 20.50°W x 89.06°L x 3.50°H Field A             6.45 sf x 7.12°L = 45.9 cf          Voerall Size= 51.0°W x 30.0°°H => 6.45 cf with 0.44' Overlap          Rows of 12 Chambers         '0 cf       Total Available Storage         Chamber Wizard         Outlet Devices	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 34
Ideal Storage Group Pevice Routing Marchan Storage Group Primary = Primary = Primar	TSCCM2012 19 s/n 07577 © 49,904 sf, 8 7.8 cfs @ 1 7.1 cfs @ 1 0.1 cfs @ 1 0.1 cfs @ 1 d method, Time @ 12.11 hrs \$ in time= 42.2 m rt Avail.Sto 0' 1,44 0' 2,24 3,66 A created with Invert 93.14'	2016 HydroCAD Software Solutions LLC           Summary for Pond P2: Subsurface Infiltration System           89.92% Impervious, Inflow Depth = 6.16" for 50-yr event           2.07 hrs, Volume=         25,614 cf           2.11 hrs, Volume=         25,614 cf           2.11 hrs, Volume=         7,62 cf           2.11 hrs, Volume=         17,852 cf           Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2           Surf.Area= 1,826 sf           Storage Description           i5 cf         20.5,606 cf (100% of inflow)           n (806.3 - 764.1)           'age         Storage Description           i5 cf         20.5 of Embedded = 4,185 cf x 35.0% Voids           i5 cf         ADS_StormTech SC-740 +Capx 48 Inside #1           Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12"L = 45.9 cf           Overall Size= 51.0"W x 30.0"H => 7.56"L with 0.44' Overlap           4 Rows of 12 Chambers           '0 cf         Total Available Storage           Chamber Wizard         Outlet Devices           24.0" Round OCS Outlet Culvert L= 40.0" CPP, square edge headward	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 34
4239.00-PR Prepared by WAP Prepared by WAP Prepared by WAP Prepared by WAP Presson and the second se	TSCCM2012         19       s/n 07577 ©         49,904 sf, 8         7.8 cfs @         7.1 cfs @         0.1 cfs @         7.0 cfs @         d method, Time         @ 12.11 hrs \$         in time= 42.2 m         rt       Avail.Sto         0'       1,44         0'       2,24         3,6'         A created with         Invert         93.14'         d       92.30'	2016 HydroCAD Software Solutions LLC         Summary for Pond P2: Subsurface Infiltration System $8.92\%$ Impervious, Inflow Depth = 6.16" for 50-yr event         2.07 hrs, Volume=       25,614 cf         2.11 hrs, Volume=       25,614 cf         2.11 hrs, Volume=       7,62 cf         2.11 hrs, Volume=       7,762 cf         2.11 hrs, Volume=       17,852 cf         Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2         burf.Area= 1,826 sf       Storage= 2,837 cf         n calculated for 25,606 cf (100% of inflow)         n (806.3 - 764.1)         rage       Storage Description         i5 cf <b>20.50'W x 89.06'L x 3.50'H Field A</b> 6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids         15 cf <b>ADS_StormTech SC-740 + Cap</b> x 48 Inside #1         Effective Size= 44.6''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf         Overall Size= 51.0''W x 30.0''H x 7.56'L with 0.44' Overlap         4 Rows of 12 Chambers         '0 cf       Total Available Storage         Chamber Wizard         Outlet Devices         24.0'' Round OCS Outlet Culvert L= 40.0'' CPP, square edge headware         Inlet / Outlet Invert= 93.14' / 93.14' S= 0.0000'' Cc= 0.900 n= 0.012,         2.410 in/hr Exfiltration over Surface area	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 34
4239.00-PR         >repared by WA'         lydroCAD® 10.00-         iflow a =         iflow a =         blocarded =         virimary =         couting by Stor-In         'added =         ivirimary =         couting by Stor-In         'added =	ISCCM2012         19 s/n 07577 @         7.8 cfs @ 1         7.1 cfs @ 1         0.1 cfs @ 1         0.1 cfs @ 1         d method, Time         @ 12.11 hrs \$         of 12.11 hrs \$         in time=42.2 m         rt Avail.Sto         0' 2,20         3,6'         A created with         Invert         93.14'         d 92.30'         94.90'	2016 HydroCAD Software Solutions LLC Summary for Pond P2: Subsurface Infiltration System 18.92% Impervious, Inflow Depth = $6.16"$ for 50-yr event 2.07 hrs, Volume= 25,614 cf 2.11 hrs, Volume= 25,614 df, Atten= 9%, Lag= 2.1 min 6.85 hrs, Volume= 7,762 cf 2.11 hrs, Volume= 17,852 cf Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 Surf.Area= 1,826 sf Storage= 2,837 cf n calculated for 25,606 cf (100% of inflow) n (806.3 - 764.1) rage Storage Description 15 cf 20.50°W x 89.06°L x 3.50°H Field A 6,390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids $15$ cf ADS_StormTech SC-740 + Capx 48 Inside #1 Effective Size= 44.6°W x 30.0°H => 6.45 sf x 7.12°L = 45.9 cf Overall Size= 51.0°W x 30.0°H => 7.64°L with 0.44' Overlap 4 Rows of 12 Chambers 10 cf Total Available Storage Chamber Wizard Outlet Devices 24.0° Round OCS Outlet Culvert L= 40.0° CPP, square edge headwa Inlet / Outlet Invert= 93.14' / 93.14' S = 0.0000 /7 Cc= 0.900 n= 0.012, 24.10 in/hr Exfiltration over Surface area Phase-In= 0.01' 4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (670 D 0.0 6.0 0.00 0.0 0.0 0.0 0.0 0.0 0.0 0.	Type III 24-hr 50-yr Rainfall=6.87" Printed 11/19/2018 Page 34

Discarded OutFlow Max=0.1 cfs @ 6.85 hrs HW=92.34' (Free Discharge) -2=Exfiltration (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=7.0 cfs @ 12.11 hrs HW=94.70' (Free Discharge) 1=OCS Outlet Culvert (Barrel Controls 7.0 cfs @ 3.66 fps) 3=Broad-Crested Rectangular Weir( Controls 0.0 cfs)

#### Summary for Pond P3: Subsurface Infiltration System

[93] Warning: Storage range exceeded by 1.28' [88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area	n =	23,624 sf,	85.40% Impervious,	Inflow Depth = 5.81" for 50-yr event
Inflow	=	3.6 cfs @	12.07 hrs, Volume=	11,440 cf
Outflow	=	3.6 cfs @	12.07 hrs, Volume=	10,626 cf, Atten= 0%, Lag= 0.0 min
Discarded	=	0.0 cfs @	5.42 hrs, Volume=	1,639 cf
Primary	=	3.6 cfs @	12.07 hrs, Volume=	8,988 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 95.98'@ 12.07 hrs Surf.Area= 749 sf Storage= 1,455 cf

Plug-Flow detention time=95.2 min calculated for 10,623 cf (93% of inflow) Center-of-Mass det. time=57.5 min ( 833.5 - 776.0 )

= 1,796 cf x 35.0% Voids
8 Inside #1
6.45 sf x 7.12'L = 45.9 cf
56'L with 0.44' Overlap

Storage Group A created with Chamber Wizard

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HydroCA	D® 10.00-18	s/n 07577 ©	2016 HydroCAD Software Sol						Page 36
Device	Routing	Invert	Outlet Devices	77.01 000			_		
#1	Primary	94.20	12.0" Round Cuivert L=	/ 1.0° CPP, sq / 93.80' S= 0.0	uare edge headwa	all, Ke= 0.50 n= 0.012	) Flow Area= (	) 79 sf	
#2	Discarded	91.20'	1.020 in/hr Exfiltration ov	ver Surface are	a Phase-In= 0.01	'   - 0.012,	110007000-0		
T—2=E> Primary T—1=Cı	filtration (E OutFlow N Ilvert (Barre	Exfiltration Cor Max=3.6 cfs @ el Controls 3.6	ntrols 0.0 cfs) 12.07 hrs HW=95.98' (Fro cfs @ 4.61 fps)	ee Discharge)					
			Summa	ary for Link [	OP-1: Ex LCB				
Inflow A	rea =	18,641 sf, 7	9.21% Impervious, Inflow D	Depth = 5.93"	for 50-yr event				
Inflow	=	2.2 cfs @ 1	2.17 hrs, Volume=	9,206 cf					
Primary	=	2.2 cts @ 1	2.17 nrs, volume=	9,206 ct, Atte	n= 0%, Lag= 0.01	nin			
Primary	outflow = In	flow, Time Sp	an= 0.00-30.00 hrs, dt= 0.0	1 hrs					
			Summary	for Link DP-	2: Route 3 Dito	h			
Inflow A	rea =	6,095 sf, 1	9.06% Impervious, Inflow E	Depth = 4.91"	for 50-yr event				
Inflow Drimony	=	0.8 cfs @ 1	2.09 hrs, Volume=	2,491 cf	n= 0%   ag= 0.0	min			
Filliary	-	0.0 CIS @ 1	2.09 ms, volume-	2,491 CI, Alle	n– 0%, Lag– 0.01				
Primary	outflow = In	flow, Time Sp	an= 0.00-30.00 hrs, dt= 0.0	1 hrs					
					k Street Drein	an Suntar	~		

#### Summary for Link DP-4: Ex Headwall at Corner

Inflow Area	a =	37,714 sf,	71.51% Impervious,	Inflow Depth = 3.46"	for 50-yr event
Inflow	=	3.9 cfs @	12.07 hrs, Volume=	10,863 cf	-
Primary	=	3.9 cfs @	12.07 hrs, Volume=	10,863 cf, Atte	en= 0%, Lag= 0.0 min

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

#### Summary for Link DP-5: Old Oak Street

Inflow Area	a =	10,239 sf,	31.72% Impervious,	Inflow Depth = 3.31"	for 50-yr event
Inflow	=	0.9 cfs @	12.08 hrs, Volume=	2,820 cf	-
Primary	=	0.9 cfs @	12.08 hrs, Volume=	2,820 cf, Atte	en= 0%, Lag= 0.0 min

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Time span=0.00- Runoff by SCS TR- Reach routing by Stor-Ind+Tra	30.00 hrs, dt=0.01 hrs, 3001 points -20 method, UH=SCS, Weighted-CN ans method . Pond routing by Stor-Ind method
SubcatchmentPR-1: Rear Parking Lot	Runoff Area=18,641 sf 79.21% Impervious Runoff Depth=6.72" Flow Length=164' Tc=12.9 min CN=92 Runoff=2.5 cfs 10,434 cf
SubcatchmentPR-2: Western Corner of Site	Runoff Area=6,095 sf 19.06% Impervious Runoff Depth=5.66" Flow Length=50' Slope=0.0125 '/' Tc=6.6 min CN=83 Runoff=0.9 cfs 2,876 cf
SubcatchmentPR-3: Southern/CentralPortion of Site	Runoff Area=49,904 sf 88.92% Impervious Runoff Depth=6.95" Flow Length=320' Tc=5.0 min CN=94 Runoff=8.8 cfs 28,919 cf
SubcatchmentPR-4A: Northeast; Roof, Pavement and Lands	dcapingRunoff Area=23,624 sf85.40% ImperviousRunoff Depth=6.60"Flow Length=302'Tc=5.0 minCN=91Runoff=4.0 cfs12,991 cf
SubcatchmentPR-4B: New Roof	Runoff Area=6,522 sf 100.00% Impervious Runoff Depth=7.43" Flow Length=50' Slope=0.0150 '/' Tc=5.0 min CN=98 Runoff=1.2 cfs 4,038 cf
SubcatchmentPR-4C: Northeast Pervious Area	Runoff Area=7,568 sf 3.61% Impervious Runoff Depth=2.15" Flow Length=137' Tc=5.0 min CN=51 Runoff=0.4 cfs 1,357 cf
SubcatchmentPR-5: SoutheasternPortion of Site	Runoff Area=10,239 sf 31.72% Impervious Runoff Depth=3.96" Flow Length=79' Tc=5.0 min CN=68 Runoff=1.1 cfs 3,379 cf
Pond P1: Subsurface Infiltration System	Peak Elev=94.84' Storage=1,641 cf Inflow=1.2 cfs 4,038 cf Discarded=0.0 cfs 1,897 cf Primary=0.5 cfs 1,180 cf Outflow=0.5 cfs 3,077 cf
Pond P2: Subsurface Infiltration System	Peak Elev=94.82' Storage=2,958 cf Inflow=8.8 cfs 28,919 cf Discarded=0.1 cfs 8,052 cf Primary=7.9 cfs 20,867 cf Outflow=8.0 cfs 28,919 cf
Pond P3: Subsurface Infiltration System	Peak Elev=96.25' Storage=1,455 cf Inflow=4.0 cfs 12,991 cf Discarded=0.0 cfs 1,666 cf Primary=4.0 cfs 10,347 cf Outflow=4.0 cfs 12,013 cf
Link DP-1: Ex LCB	Inflow=2.5 cfs 10,434 cf Primarv=2.5 cfs 10,434 cf

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Link DP-2: Route 3 Ditch

Link DP-3: Old Oak Street Drainage System

Link DP-4: Ex Headwall at Corner

Link DP-5: Old Oak Street

Inflow=0.9 cfs 2,876 cf Primary=0.9 cfs 2,876 cf

Inflow=7.9 cfs 20,867 cf Primary=7.9 cfs 20,867 cf

Inflow=4.4 cfs 12,884 cf Primary=4.4 cfs 12,884 cf

Inflow=1.1 cfs 3,379 cf Primary=1.1 cfs 3,379 cf

Total Runoff Area = 122,593 sf Runoff Volume = 63,994 cf Average Runoff Depth = 6.26" 26.16% Pervious = 32,071 sf 73.84% Impervious = 90,522 sf

= SCS TR hr 100- (sf) ,224 ,629 ,137 ,651	2.5 ct 2-20 met 1-yr Rain 2-yr Rain 2-yr Rain 2-yr Rain 2-yr Rain 2-yr Rain 2-yr Rain 2-yr Rain 2-yr Rain 2-5 ct 2-5 ct 2-5 ct 2-5 ct 2-20 met 2-20 met 2-20 met 2-20 met 2-20 met 2-20 met 2-90	fs @ 12.1 hod, UH=S fall=7.67" <u>)escription</u> 0-75% Gra npervious	Sumn 17 hrs, Volu SCS, Weigh ass cover, F	mary for Subc me= 10 ted-CN, Time S	atchment PF 434 cf, Depth= pan= 0.00-30.00	<b>R-1: Rear P</b> : 6.72" ) hrs, dt= 0.01	arking Lo	ot	
= SCS TR hr 100- <u>a (sf)</u> ,224 ,629 ,137 651	2.5 ct 2-20 met 1-yr Rain <u>CN D</u> 49 5 98 Ir 98 R	fs @ 12.1 hod, UH=S fall=7.67" <u>)escription</u> 0-75% Gra npervious	17 hrs, Volu SCS, Weigh ass cover, F	ime= 10 ted-CN, Time S	434 cf, Depth= pan= 0.00-30.00	= 6.72" ) hrs, dt= 0.01	l hrs		
SCS TR hr 100- <u>a (sf)</u> ,224 ,629 ,137	2-20 met I-yr Rain <u>CN D</u> 49 5 98 Ir 98 R	hod, UH=\$ fall=7.67" <u>)escription</u> 0-75% Gra npervious	SCS, Weigh	ted-CN, Time S	oan= 0.00-30.00	0 hrs, dt= 0.01	1 hrs		
nr 100 <u>a (sf)</u> ,224 ,629 ,137 651	<u>CN D</u> 49 5 98 Ir 98 R	<u>)escription</u> 0-75% Gra npervious	ass cover, F	air, HSG A					
a (sf) ,224 ,629 ,137 651	CN D 49 5 98 Ir 98 R	Description 0-75% Gra npervious	ass cover, F	air, HSG A					
,224 ,629 ,137	49 5 98 Ir 98 R	0-75% Gra	ass cover, F	air, HSG A					
,629 ,137 651	98 Ir 98 R	mpervious							
,137	98 R	1							
651		(001							
,001	79 V	Voods, Fai	ir, HSG D						
,641	92 V	Veighted A	verage						
,875	2	.0.79% Per	rvious Area						
,766	7	9.21% Imp	pervious Ar	ea					
enath	Slope	Velocitv	Capacity	Description					
(feet)	(ft/ft)	(ft/sec)	(cfs)						
41	0.0125	0.06		Sheet Flow, W	ooded				
				Woods: Light u	nderbrush n=	0.400 P2= 3	.40"		
123	0.0330	3.69		Shallow Conc Paved Kv= 20	entrated Flow, .3 fps	Pavement			
164	Total				·				
,8 ,7 ei (f	875 766 ngth <u>eet)</u> 41 123 164	775         2           766         7           ngth         Slope           eet)         (ft/ft)           41         0.0125           123         0.0330           164         Total	775         20.79% Pe           766         79.21% Im           ngth         Slope         Velocity           eet)         (ft/ft)         (ft/sec)           41         0.0125         0.06           123         0.0330         3.69           164         Total	75         20.79% Pervious Area           766         79.21% Impervious Area           ngth         Slope         Velocity         Capacity           eet)         (ft/ft)         (ft/sec)         (cfs)           41         0.0125         0.06           123         0.0330         3.69           164         Total         Summar	175         20.79% Pervious Area           766         79.21% Impervious Area           ngth         Slope         Velocity         Capacity         Description           eet)         (ft/ft)         (ft/sec)         (cfs)         Velocity         Velocity         Capacity         Description           41         0.0125         0.06         Sheet Flow, W         Woods: Light un           123         0.0330         3.69         Shallow Conce           164         Total         Summary for Subcate	75       20.79% Pervious Area         766       79.21% Impervious Area         ngth       Slope       Velocity       Capacity       Description         eet)       (ft/ft)       (ft/sec)       (cfs)         41       0.0125       0.06       Sheet Flow, Wooded         123       0.0330       3.69       Shallow Concentrated Flow, Paved         164       Total	75       20.79% Pervious Area         766       79.21% Impervious Area         ngth       Slope       Velocity       Capacity       Description         eet)       (ft/ft)       (ft/sec)       (cfs)         41       0.0125       0.06       Sheet Flow, Wooded         123       0.0330       3.69       Shallow Concentrated Flow, Pavement         Paved       Kv= 20.3 fps         164       Total	75       20.79% Pervious Area         766       79.21% Impervious Area         ngth       Slope       Velocity       Capacity       Description         eet)       (ft/ft)       (ft/sec)       (cfs)         41       0.0125       0.06       Sheet Flow, Wooded         123       0.0330       3.69       Shallow Concentrated Flow, Pavement         Paved       Kv= 20.3 fps         164       Total	i75       20.79% Pervious Area         i66       79.21% Impervious Area         ngth       Slope       Velocity       Capacity       Description         eet)       (ft/ft)       (ft/sec)       (cfs)         41       0.0125       0.06       Sheet Flow, Wooded         Woods:       Light underbrush       n= 0.400       P2= 3.40"         123       0.0330       3.69       Shallow Concentrated Flow, Pavement         Paved       Kv= 20.3 fps       164         164       Total       Summary for Subcatchment PR-2: Western Corner of Site

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 2,876 cf, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 100-yr Rainfall=7.67"

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	Area (sf)	CN	Description		
	685	49	50-75% Gr	ass cover, l	Fair, HSG A
*	1,162	98	Impervious		
	4,248	84	50-75% Gr	ass cover, l	Fair, HSG D
	6,095	83	Weighted A	verage	
	4,933		80.94% Pe	rvious Area	a
	1,162		19.06% Im	pervious Ar	rea
г	c Length	Slop	e Velocity	Capacity	Description
(mii	n) (feet)	(ft/ft	) (ft/sec)	(cfs)	
6	6 50	0.012	5 0.13		Sheet Flow, Grassed

Grass: Short n= 0.150 P2= 3.40"

## Summary for Subcatchment PR-3: Southern/Central Portion of Site

Runoff = 8.8 cfs @ 12.07 hrs, Volume= 28,919 cf, Depth= 6.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 100-yr Rainfall=7.67"

	Area (sf)	CN	Description
	3,882	49	50-75% Grass cover, Fair, HSG A
	43,279	98	Paved parking, HSG A
*	1,097	98	Roof
	1,646	84	50-75% Grass cover, Fair, HSG D
	49,904	94	Weighted Average
	5,528		11.08% Pervious Area
	44,376		88.92% Impervious Area

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#### Type III 24-hr 100-yr Rainfall=7.67" Printed 11/19/2018 Page 42

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.10		Sheet Flow, Pavement
					Smooth surfaces n= 0.011 P2= 3.40"
1.0	220	0.0320	3.63		Shallow Concentrated Flow, Pavement
	50	0 0050	0.47	0.70	Paved Kv= 20.3 tps
0.2	50	0.0050	3.47	2.73	Pipe Channel, Piped System
					12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
					n= 0.012 Concrete pipe, finished
2.0	320	Total Ir	ncreased t	o minimum	Tc = 5.0 min

#### Summary for Subcatchment PR-4A: Northeast; Roof, Pavement and Landsdcaping

Runoff = 4.0 cfs @ 12.07 hrs, Volume= 12,991 cf, Depth= 6.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Type III 24-hr 100-yr Rainfall=7.67"

Alea (SI) CN	Docomption	
3,449 49	50-75% Grass cover,	Fair, HSG A
15,045 98	Paved parking, HSG A	
* 5,130 98	Roof	
23,624 91	Weighted Average	
3,449	14.60% Pervious Area	
20,175	85.40% Impervious Ar	ea
Tc Length Slop	e Velocity Capacity	Description
(min) (feet) (ft/f	t) (ft/sec) (cfs)	
0.2 38 0.330	0 3.59	Sheet Flow, Roof
		Smooth surfaces n= 0.011 P2= 3.40"
0.9 225 0.040	0 4.06	Shallow Concentrated Flow, Pavement
		Paved Kv= 20.3 fps
0.2 39 0.005	0 4.17 3.28	Pipe Channel, Pipe
		12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
		n= 0.010 PVC, smooth interior

Runoff	=	1.2	ofs @ 12.0	7 hrs, Vol	ume=	4,038 cf, Depth= 7.43"				
Runoff b	y SCS TF 24-hr 100	R-20 me 0-yr Rai	thod, UH=8 nfall=7.67"	SCS, Weigl	hted-CN, Tim	e Span= 0.00-30.00 hrs, dt= 0.0	01 hrs			
Ai	rea (sf)	CN	Description							
	6,522	98	Roof							
	6,522		100.00% In	pervious A	Area					
Tc (min)	Length (feet)	Slope	Velocity (ft/sec)	Capacity (cfs)	Description					
0.8	50	0.0150	1.10		Sheet Flow Smooth sur	<b>/, Roof</b> faces n= 0.011 P2= 3.40"				
0.8	50	Total,	Increased t	o minimum	1 Tc = 5.0 mir	1				
			S	ummary	for Subcat	tchment PR-4C: Northeas	st Pervious	Area		
Runoff	=	0.4	cfs @ 12.0	8 hrs, Vol	ume=	1,357 cf, Depth= 2.15"				
Runoff b	y SCS TF 24-hr 100	R-20 me )-yr Rai	thod, UH=8 nfall=7.67"	SCS, Weigl	hted-CN, Tim	e Span= 0.00-30.00 hrs, dt= 0.0	01 hrs			
Ai	rea (sf)	CN	Description							
	7,295 273	49 98	50-75% Gra Paved park	ass cover, l	Fair, HSG A					
	7,568	51	Weighted A	verage	-					
	7,295 273		96.39% Pei 3.61% Impe	vious Area	a a					
	2.0									
4220.0								Tune III 24 h	- 100 yr Poinfall	-7 67"
<b>4239.</b> Prepare łydroCAI	<b>00-PR</b> d by WA D® 10.00-	TSCCI	A2012 ₩7577 © 201	6 HydroCA	D Software Sc	olutions LLC		Type III 24-hi	<sup>r</sup> <i>100-yr Rainfall</i> Printed 11/19 Pa	-7.67" /2018 ge 44
Prepare HydroCAI Tc (min)	00-PR d by WA D® 10.00- Length (feet)	TSCCI 19 s/n ( Slope (ff/ft	//2012 /7577 ⊚ 20: Velocity (ft/sec)	<u>6 HydroCA</u> Capacity (cfs)	<u>D Software Sc</u> Description	olutions LLC		Type III 24-hi	<sup>r</sup> 100-yr Rainfall <sup>,</sup> Printed 11/19 Pa	=7.67" /2018 ge 44
<b>4239.(</b> Prepare IydroCAI Tc (min) 2.7	00-PR d by WA D® 10.00 Length (feet) 35	TSCCI 19 s/n ( Slope (ft/ft) 0.057(	12012 17577 © 200 Velocity (ft/sec) 0.22	<u>l6 HydroCA</u> Capacity (cfs)	D Software Sc Description Sheet Flow	olutions LLC		Type III 24-hi	<i>100-yr Rainfall</i> Printed 11/19 Pa	<del>-</del> 7.67" /2018 g <u>e 44</u>
Prepare lydroCAI Tc (min) 2.7 1.2	00-PR d by WA D® 10.00- Length (feet) 35 102	TSCCI -19 s/n ( Slope (ft/ft) 0.057( 0.009(	1/2012 1/577 © 20/ Velocity (ft/sec) 0.22 1.42	<u>6 HydroCA</u> Capacity (cfs)	D Software Sc Description Sheet Flow Grass: Shoi Shallow Cc Grassed Wi	olutions LLC /, Grass rt n= 0.150 P2= 3.40" oncentrated Flow, Grassed aterway Kv= 15.0 fos		Type III 24-hi	<i><sup>r</sup> 100-yr Rainfall</i> Printed 11/19 Pa	-7.67" /2018 ge 44
<b>4239.0</b> Prepare <u>tydroCAI</u> Tc (min) 2.7 1.2 3.9	00-PR d by WA D® 10.00 Length (feet) 35 102 137	TSCCI 19 s/n ( Slope (ft/ft 0.057( 0.009( Total,	//2012 /7577 © 20 Velocity (ft/sec) 0.22 1.42 Increased t	<u>16 HydroCA</u> Capacity (cfs) o minimum	D Software Sc Description Sheet Flow Grass: Shollow Cc Grassed Wo To C = 5.0 mir	olutions LLC 7, Grass rt n= 0.150 P2= 3.40" oncentrated Flow, Grassed aterway Kv= 15.0 fps		Type III 24-hi	<i><sup>-</sup> 100-yr Rainfall</i> Printed 11/19 Pa	-7.67" /2018 ge 44
<b>14239.</b> Prepare <u>lydroCAI</u> Tc (min) 2.7 1.2 3.9	00-PR d by WA D≋ 10.00- (feet) 35 102 137	TSCCI <u>19 s/n (</u> Slope (ft/ft 0.057( 0.009( Total,	1/2012 1/577 © 20/ Velocity (ft/sec) 0.22 1.42 Increased f	<u>6 HydroCA</u> Capacity (cfs) o minimurr <b>mmary f</b>	D Software Sc Description Sheet Flow Grass: Shoilow Cc Grassed Wi 1 Tc = 5.0 mir For Subcato	olutions LLC 7, Grass rt n= 0.150 P2= 3.40" chreaterway Kv= 15.0 fps 1 chment PR-5: Southeaste	rn Portion o	Type III 24-hi	<sup>r</sup> 100-yr Rainfall <sup>a</sup> Printed 11/19 Pa	-7.67" /2018 ge 44
14239.( Prepare IydroCAI Tc (min) 2.7 1.2 3.9 Runoff	00-PR d by WA D® 10.00 Length (feet) 35 102 137 =	TSCCI 19 s/n ( Slope (ft/ft) 0.057( 0.009( Total, 1.1	A2012 17577 © 20 Velocity (ft/sec) 0.22 1.42 Increased 1 Su Sts @ 12.0	<u>16 HydroCA</u> Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol	D Software Sc Description Sheet Flow Grass: Shoi Shallow Co Grassed Wi T c = 5.0 mir for Subcato ume=	olutions LLC 7, Grass rt n= 0.150 P2= 3.40" oncentrated Flow, Grassed aterway Kv= 15.0 fps 1 chment PR-5: Southeaste 3,379 cf, Depth= 3.96"	rn Portion o	Type III 24-hi	<sup>r</sup> 100-yr Rainfall <sup>,</sup> Printed 11/19 Pa	-7.67" /2018 ge 44
Additional Action of the Addition of the Addit	00-PR d by WA D® 10.00- (feet) 35 102 137 = y SCS TF 24-hr 100	TSCCI <u>19 s/n (</u> <u>Slope</u> (ft/ft 0.057( 0.009( Total, 1.1 R-20 me D-yr Rai	12012 17577 © 20 Velocity (ft/sec) 0.22 1.42 Increased 1 Su cfs @ 12.0 thod, UH=S nfall=7.67"	<u>16 HydroCA</u> Capacity (cfs) o minimum <b>mmary f</b> 18 hrs, Vol 3CS, Weigl	D Software Sc Description Sheet Flow Grass: Shoi Shallow CC Grassed Wi T c = 5.0 mir for Subcato ume= hted-CN, Tim	Jutions LLC           J, Grass           rt         n = 0.150         P2= 3.40"           oncentrated Flow, Grassed           aterway         Kv= 15.0 fps           1           chment PR-5: Southeaste           3,379 cf, Depth= 3.96"           e Span= 0.00-30.00 hrs, dt= 0.00	rn Portion o	Type III 24-hi	<sup>r</sup> 100-yr Rainfall <sup>a</sup> Printed 11/19 Pa	-7.67" /2018 ge 44
Prepare lydroCAI Tc (min) 2.7 1.2 3.9 Runoff Sunoff Sype III 2 Au	00-PR d by WA D® 10.00- Length (feet) 35 102 137 = y SCS TF 24-hr 100 rea (sf)	TSCCI <u>19 s/n (</u> Slope (ft/ft] 0.057( 0.009( Total, 1.1 R-20 me 0-yr Rai CN	1/2012 1/577 © 20 Velocity (ft/sec) 0.22 1.42 Increased 1 Su cfs @ 12.0 thod, UH=5 nfall=7.67" Description	i <u>6 HydroCA</u> Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol SCS, Weigl	D Software Sc Description Sheet Flow Grassed Wi D Tc = 5.0 mir For Subcatc ume= hted-CN, Tim	olutions LLC /, Grass rt n= 0.150 P2= 3.40" oncentrated Flow, Grassed aterway Kv= 15.0 fps n chment PR-5: Southeaste 3,379 cf, Depth= 3.96" e Span= 0.00-30.00 hrs, dt= 0.0	rn Portion o	Type III 24-hi	<sup>7</sup> 100-yr Rainfall <sup>2</sup> Printed 11/19 Pa	-7.67" /2018 ge 44
Prepare tydroCAI Tc (min) 2.7 1.2 3.9 Runoff Sunoff b Sype III 2 Ar	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS TF 24-hr 100 rea (sf) 6,035 3,249	TSCCI <u>19 s/n (</u> Slope (ft/ft] 0.057( 0.009( Total, 1.1 R-20 me D-yr Rai <u>CN</u> 49	1/2012 1/577 © 20 Velocity (ft/sec) 0.22 1.42 Increased 1 Su cfs @ 12.0 thod, UH=S nfall=7.67" Description 50-75% Gra	i6 HydroCA Capacity (cfs) o minimum <b>mmary f</b> 8 hrs, Vol SCS, Weigl	D Software Sc Description Sheet Flow Grass: Shoi Shallow Cc Grassed Wa n Tc = 5.0 mir for Subcatc ume= hted-CN, Tim Fair, HSG A	olutions LLC 7, Grass rt n= 0.150 P2= 3.40" oncentrated Flow, Grassed aterway Kv= 15.0 fps n chment PR-5: Southeaste 3,379 cf, Depth= 3.96" e Span= 0.00-30.00 hrs, dt= 0.0	rn Portion of	Type III 24-hi	7 <i>100-yr Rainfall</i> Printed 11/19 Pa	-7.67" /2018 ge 44
I 4239.( Prepare IydroCAI Tc (min) 2.7 1.2 3.9 Runoff Runoff b Type III 2 Ar	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS TF 24-hr 100 rea (sf) 6,035 3,248 956	TSCCI 19 s/n ( Slope (ft/ft) 0.057( 0.009( Total, 1.1 R-20 me 0-yr Rai CN 98 84	//2012 //577 © 20 Velocity (ft/sec) 0.22 1.42 Increased 1 Su ofs @ 12.0 thod, UH=S ofall=7.67" Description 50-75% Gra 50-75% Gra	6 HydroCA Capacity (cfs) o minimur <b>mmary f</b> 8 hrs, Vol SCS, Weigl ass cover, 1 ass cover, 1	D Software Sc Description Shelew Flow Grass: Shoi Shallow Cc Grassed Wa T C = 5.0 mir for Subcatc ume= hted-CN, Tim Fair, HSG A Fair, HSG D	olutions LLC /, Grass rt n= 0.150 P2= 3.40" oncentrated Flow, Grassed aterway Kv= 15.0 fps 1 chment PR-5: Southeaste 3,379 cf, Depth= 3.96" e Span= 0.00-30.00 hrs, dt= 0.0	rn Portion o	Type III 24-hi	<sup>-</sup> <i>100-yr Rainfall</i> Printed 11/19 Pa	-7.67" /2018 ge 44
Aunoff by ype III 2	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS Tf 24-hr 100 rea (sf) 6,035 3,248 956 10,239 6,991 3,248	TSCCI <u>19 s/n (</u> Slope <u>(ft/ft)</u> 0.057( 0.009() Total, 1.1 R-20 me D-yr Rai <u>CN</u> <u>98</u> <u>84</u> 68	12012 17577 © 20 Velocity (ft/sec) 0.22 1.42 Increased 1 Su 25 @ 12.0 thod, UH=S 16 (10 - 10 - 10 50-75% Gra mpervious 50-75% Gra mpervious 50-75% Gra 1.72% Imp	6 HydroCA Capacity (cfs) o minimur mmary f 8 hrs, Vol 3CS, Weigl ass cover, 1 ass cover, 1 ass cover, 2 verage vious Area pervious Area	D Software Sc Description Shelet Flow Grass: Shoi Shallow Cc Grassed Wa T C = 5.0 mir for Subcatc ume= hted-CN, Tim Fair, HSG A Fair, HSG D a ea	olutions LLC 7, Grass rt n= 0.150 P2= 3.40" oncentrated Flow, Grassed aterway Kv= 15.0 fps n chment PR-5: Southeaste 3,379 cf, Depth= 3.96" e Span= 0.00-30.00 hrs, dt= 0.0	rn Portion o	Type III 24-hi	<sup>-</sup> 100-yr Rainfall- Printed 11/19 Pa	7.67" /2018 ge 44
I 4239.( Prepare tydroCAI Tc (min) 2.7 1.2 3.9 Runoff Runoff bi Tc (min)	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS TF 24-hr 100 rea (sf) 6,035 3,248 956 10,239 6,991 3,248 Length (feet)	TSCCI <u>19 s/n (</u> Slope <u>(ft/ft]</u> 0.057( 0.009() Total, 1.1 R-20 me 0-yr Rai <u>CN</u> <u>49</u> 98 <u>84</u> 68	1/2012         1/577 © 20°         Velocity         (ft/sec)         0.22         1.42         Increased 1         Su         cfs @ 12.0         thod, UH=S         fall=7.67"         Description         50-75% Gramervious         50-75% Gramervi	6 HydroCA Capacity (cfs) o minimum mmary f 8 hrs, Vol SCS, Weigl ass cover, 1 ass cover, 1 ass cover, 2 verage vious Area vervious Area vervious Area vervious Area	D Software Sc Description Sheet Flow Grass: Shoi Shallow Cc Grassed Wa T C = 5.0 mir for Subcatc ume= hted-CN, Tim Fair, HSG A Fair, HSG D a rea Description	olutions LLC /, Grass rt n= 0.150 P2= 3.40" oncentrated Flow, Grassed aterway Kv= 15.0 fps 1 chment PR-5: Southeaste 3,379 cf, Depth= 3.96" e Span= 0.00-30.00 hrs, dt= 0.0	rn Portion o	Type III 24-hi	<sup>-</sup> 100-yr Rainfall- Printed 11/19 Pa	-7.67" /2018 ge 44
14239.( Prepare iydroCAI Tc (min) 2.7 1.2 3.9 Runoff Sunoff b Type III 2 Au Tc (min) 3.1	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS TF 24-hr 100 6,035 3,248 956 10,239 6,991 3,248 Length (feet) 18	TSCCI <u>19 s/n (</u> Slope <u>(ft/ft)</u> 0.057( 0.009() Total, 1.1 R-20 me 0-yr Rai <u>CN</u> 49 98 <u>84</u> 68 Slope <u>(ft/ft)</u> 0.011()	A2012 17577 © 20 Velocity (ft/sec) 0.22 1.42 Increased 1 Su 50-75% Gra Impervious 50-75% Gra Impervious 50-75% Gra Meighted A 58.28% Per 31.72% Imp Velocity (ft/sec) 0.10	6 HydroCA Capacity (cfs) o minimum mmary f 8 hrs, Vol 3CS, Weigl ass cover, 1 ass cover, 1 verage vious Area vervious Ar capacity (cfs)	D Software Sc Description Shelt Flow Grass: Shol Shallow Cc Grassed Wa T c = 5.0 mir for Subcatc ume= hted-CN, Tim Fair, HSG A Fair, HSG D a rea Description Sheet Flow	olutions LLC 7, Grass rt n= 0.150 P2= 3.40" oncentrated Flow, Grassed aterway Kv= 15.0 fps 1 chment PR-5: Southeaste 3,379 cf, Depth= 3.96" e Span= 0.00-30.00 hrs, dt= 0.0 7, Grass	rn Portion of D1 hrs	Type III 24-hi	<sup>-</sup> 100-yr Rainfall- Printed 11/19 Pa	-7.67" /2018 ge 44
14239.0 Prepare <u>tydroCAI</u> Tc (min) 2.7 1.2 3.9 Runoff b ype III 2 Au Tc (min) 3.1 0.6	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS TF 24-hr 100 rea (sf) 6,035 3,248 956 10,239 6,991 3,248 Length (feet) 18 6,1	TSCCI <u>19 s/n (</u> <u>500000</u> <u>500000</u> <u>500000</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1.1</u> <u>1</u>	1/2012         1/577 © 20'         Velocity (ft/sec)         0.22         1.42         Increased 1         Su         cfs @ 12.0         thod, UH=S         offall=7.67"         Description         50-75% Gra         Weighted A         38.28% Per         31.72% Imp         Velocity (ft/sec)         0.10         1.57	6 HydroCA Capacity (cfs) o minimum mmary f 8 hrs, Vol 3CS, Weigl ass cover, 1 ass cover, 1 ass cover, 1 ass cover, 1 ass cover, 1 ass cover, 1 capacity (cfs)	D Software Sc Description Sheet Flow Grass: Shoi Shallow Cc Grassed Wr T C = 5.0 mir for Subcatc ume= hted-CN, Tim Fair, HSG A Fair, HSG D A a Description Sheet Flow Grass: Shoi Sheet Flow	Jutions LLC         /, Grass         rt n= 0.150 P2= 3.40"         oncentrated Flow, Grassed         aterway Kv= 15.0 fps         n         chment PR-5: Southeaste         3,379 cf, Depth= 3.96"         e Span= 0.00-30.00 hrs, dt= 0.00000 hrs, dt= 0.00000000000000000000000000000000000	rn Portion o	Type III 24-hi	<sup>•</sup> 100-yr Rainfall <sup>3</sup> Printed 11/19 Pa	-7.67" /2018 ge 44
Alternative Altern	00-PR d by WA D® 10.00 Length (feet) 35 102 137 = y SCS TF 24-hr 100 rea (sf) 6,035 3,248 956 10,239 6,991 3,248 Length (feet) 18 61 	TSCCI <u>19 s/n (</u> Slope (ft/ft 0.057( 0.009( Total, 1.1 R-20 me 0-yr Rai <u>CN</u> <u>49</u> 98 <u>84</u> 68 Slope (ft/ft 0.011( 0.033( Total)	1/2012         1/577 © 20'         Velocity (ft/sec)         0.22         1.42         Increased 1         Su         cfs @ 12.0         thod, UH=S         ofall=7.67"         Description         50-75% Gra         Weighted A         38.28% Pei         31.72% Imp         Velocity (ft/sec)         0.10         1.57	6 HydroCA Capacity (cfs) o minimum mmary f 8 hrs, Vol 3CS, Weigl ass cover, 1 4ss c	D Software Sc Description Sheet Flow Grass: Shoi Shallow Cc Grassed Wa T C = 5.0 mir for Subcatc ume= hted-CN, Tim Fair, HSG A Fair, HSG A Fair, HSG D Bescription Sheet Flow Grass: Shoi Sheet Flow	Jutions LLC         /, Grass         rt n= 0.150 P2= 3.40"         oncentrated Flow, Grassed         aterway Kv= 15.0 fps         n         chment PR-5: Southeaste         3,379 cf, Depth= 3.96"         e Span= 0.00-30.00 hrs, dt= 0.000000 hrs, dt= 0.00000000000000000000000000000000000	rn Portion o	Type III 24-hi	<sup>•</sup> 100-yr Rainfall Printed 11/19 Pa	=7.67" /2018 ge 44

nflow Area = Iflow = Putflow = iscarded =		
nflow = nutflow = niscarded =	6,522 st,100.00% impervious, inflow Depth = 7.43" for 100-yr event	
iscarded =	1.2 cfs @ 12.07 hrs, Volume= 4,038 cf 0.5 cfs @ 12.22 hrs, Volume= 3.077 cf_Atten= 55% Lag= 9.1 min	
	0.0 cfs @ 6.73 hrs, Volume= 1,897 cf	
nmary =	0.5 cfs @ 12.22 hrs, Volume= 1,180 cf	
outing by Stor-Ind eak Elev= 94.84' (	l method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 @ 12.22 hrs Surf.Area= 842 sf Storage= 1,641 cf	
lug-Flow detention enter-of-Mass det	n time=265.2 min calculated for 3,076 cf (76% of inflow) t. time=179.7 min ( 920.6 - 740.8 )	
olume Inver	t Avail.Storage Storage Description	
#1A 91.40	)' 694 cf <b>15.75'W x 53.46'L x 3.50'H Field A</b>	
#2A 91.90	2,947 cl Overall - 905 cl Elhoedded - 1,962 cl x 55.0% Volds 965 cf ADS_StormTech SC-740 +Capx 21 Inside #1	
	Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap	
	3 Rows of 7 Chambers	
	1,658 cf Total Available Storage	
Storage Group A	A created with Chamber Wizard	
evice Routing	Invert Outlet Devices	
#1 Primary	94.40' <b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500	
#2 Discarded	91.40' <b>1.020 in/hr Exfiltration over Surface area</b> Phase-In= 0.01'	
iscarded OutFlo	w Max=0.0 cfs @ 6.73 brs. HW=91.44' (Free Discharge)	
-2=Exfiltration (	Exfiltration Controls 0.0 cfs)	
rimary OutFlow	Max=0.5 cfs @ 12.22 hrs HW=94.84' (Free Discharge)	
<b>4239.00-PR</b> repared by WAT	Type III 24-hr 100-yr Rainfall=7.67" SCCM2012 Printed 11/19/2018	
<b>4239.00-PR</b> repared by WAT ydroCAD® 10.00-1	Type III 24-hr 100-yr Rainfall=7.67" SCCM2012 Printed 11/19/2018 9 s/n 07577 © 2016 HydroCAD Software Solutions LLC Page 46 Summary for Bond P2: Subsurface Infiltration System	
<b>4239.00-PR</b> repared by WAT ydroCAD® 10.00-1	Type III 24-hr 100-yr Rainfall=7.67" SCCM2012 Printed 11/19/2018 9 s/n 07577 © 2016 HydroCAD Software Solutions LLC Page 46 Summary for Pond P2: Subsurface Infiltration System	
<b>4239.00-PR</b> repared by WAT <u>ydroCAD® 10.00-1</u> flow Area =	Type III 24-hr 100-yr Rainfall=7.67"           'SCCM2012         Printed 11/19/2018           9 s/n 07577 © 2016 HydroCAD Software Solutions LLC         Page 46           Summary for Pond P2: Subsurface Infiltration System           49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event           8.8 cfs @ 12.07 brs. Volume=         28.019 cf	
<b>4239.00-PR</b> repared by WAT <u>ydroCAD® 10.00-1</u> iflow Area = iflow = utflow =	Type III 24-hr 100-yr Rainfall=7.67"         SCCM2012         9 s/n 07577 © 2016 HydroCAD Software Solutions LLC       Printed 11/19/2018         Page 46         Summary for Pond P2: Subsurface Infiltration System         49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event         8.8 cfs @ 12.07 hrs, Volume=       28,919 cf         8.0 cfs @ 12.07 hrs, Volume=       28,919 cf, Atten= 8%, Lag= 2.0 min	
<b>4239.00-PR</b> repared by WAT <u>ydroCAD® 10.00-1</u> iflow Area = iflow = utflow = iscarded = rimary =	Type III 24-hr 100-yr Rainfall=7.67"         SCCM2012         9 s/n 07577 © 2016 HydroCAD Software Solutions LLC       Printed 11/19/2018         Page 46         Summary for Pond P2: Subsurface Infiltration System         49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event         8.8 cfs @ 12.07 hrs, Volume=       28,919 cf         8.0 cfs @ 12.10 hrs, Volume=       28,919 cf, Atten= 8%, Lag= 2.0 min         0.1 cfs @ 6.42 hrs, Volume=       8,052 cf	
<b>4239.00-PR</b> repared by WAT ydroCAD® 10.00-1 iflow Area = iflow = utflow = iscarded = rimary =	Type III 24-hr 100-yr Rainfall=7.67"         'SCCM2012       Printed 11/19/2018         9 s/n 07577 © 2016 HydroCAD Software Solutions LLC       Page 46         Summary for Pond P2: Subsurface Infiltration System         49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event         8.8 cfs @ 12.07 hrs, Volume=       28,919 cf         8.0 cfs @ 12.10 hrs, Volume=       28,919 cf, Atten= 8%, Lag= 2.0 min         0.1 cfs @ 6.42 hrs, Volume=       8,052 cf         7.9 cfs @ 12.10 hrs, Volume=       20,867 cf	
4239.00-PR repared by WAT ydroCAD® 10.00-1 iflow Area = iflow = utflow = iscarded = rimary = outing by Stor-Ind eak Elev= 94.82°(	Type III 24-hr 100-yr Rainfall=7.67"         SCCM2012         9 s/n 07577 © 2016 HydroCAD Software Solutions LLC       Page 46         Summary for Pond P2: Subsurface Infiltration System         49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event         8.8 cfs @ 12.07 hrs, Volume=       28,919 cf         8.0 cfs @ 12.10 hrs, Volume=       28,919 cf, Atten= 8%, Lag= 2.0 min         0.1 cfs @ 6.42 hrs, Volume=       20,867 cf         Imethod, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2       @ 12.10 hrs, Surf.Area= 1.826 sf	
4239.00-PR repared by WAT ydroCAD® 10.00-1 iflow Area = iflow = iscarded = rimary = outing by Stor-Ind eak Elev= 94.82' ( lug-Flow detention enter-of-Mass det	Type III 24-hr 100-yr Rainfall=7.67"         Printed 11/19/2018         9 s/n 07577 © 2016 HydroCAD Software Solutions LLC       Page 46         Summary for Pond P2: Subsurface Infiltration System         49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event       8.8 cfs @ 12.07 hrs, Volume= 28,919 cf         8.0 cfs @ 12.10 hrs, Volume= 28,919 cf       8.0 cfs @ 12.10 hrs, Volume= 28,919 cf         1.1 cfs @ 6.42 hrs, Volume= 28,919 cf       1.1 cfs @ 6.42 hrs, Volume= 8,052 cf         7.9 cfs @ 12.10 hrs, Volume= 20,867 cf       1         1 method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2       2         21.2.10 hrs Surf.Area= 1,826 sf Storage= 2,958 cf       1         1 time=40.2 min calculated for 28,909 cf (100% of inflow)       1         . time=40.2 min (801.7 - 761.4 )       1	
4239.00-PR repared by WAT ydroCAD® 10.00-1 flow Area = iflow = iscarded = rimary = outing by Stor-Ind eak Elev= 94.82' ( lug-Flow detentior enter-of-Mass det olumo	Type III 24-hr 100-yr Rainfall=7.67"         Printed 11/19/2018         9 s/n 07577 © 2016 HydroCAD Software Solutions LLC       Page 46         Summary for Pond P2: Subsurface Infiltration System         49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event       8.8 cfs @ 12.07 hrs, Volume= 28,919 cf         8.8 cfs @ 12.07 hrs, Volume= 28,919 cf       8.0 cfs @ 12.10 hrs, Volume= 28,919 cf, Atten= 8%, Lag= 2.0 min         0.1 cfs @ 12.10 hrs, Volume= 20,867 cf       9.052 cf         Imethod, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2         @ 12.10 hrs Surf.Area= 1,826 sf Storage= 2,958 cf         1 time=40.2 min calculated for 28,909 cf (100% of inflow)         1 time= 40.2 min (801.7 - 761.4)	
4239.00-PR repared by WAT ydroCAD® 10.00-1 offlow Area = inflow = interflow = iscarded = rimary = outing by Stor-Ind eak Elev= 94.82' ( lug-Flow detention enter-of-Mass det olume Inver #1A 92.30	Type III 24-hr 100-yr Rainfall=7.67" Printed 11/19/2018         SCCM2012       Printed 11/19/2018         9 s/n 07577 © 2016 HydroCAD Software Solutions LLC       Page 46         Summary for Pond P2: Subsurface Infiltration System         49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event         8.8 cfs @ 12.07 hrs, Volume= 28,919 cf         8.0 cfs @ 12.10 hrs, Volume= 28,919 cf         0.1 cfs @ 6.42 hrs, Volume= 8,052 cf         7.9 cfs @ 12.10 hrs, Volume= 20,867 cf         Imeethod, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2         @ 12.10 hrs Surf.Area= 1,826 sf Storage= 2,958 cf         1 time=40.2 min calculated for 28,909 cf (100% of inflow)         1 time=40.2 min (801.7 - 761.4)         t       Avail.Storage Storage Description         1 (455 cf 20.50"W x 89.06"L x 3.50"H Field A	
4239.00-PR repared by WAT ydroCAD® 10.00-1 iflow Area = iflow = iscarded = rimary = outing by Stor-Ind eak Elev= 94.82' ( lug-Flow detentior enter-of-Mass det olume Inver #1A 92.30	Type III 24-hr 100-yr Rainfall=7.67" Printed 11/19/2018         9 s/n 07577 © 2016 HydroCAD Software Solutions LLC       Page 46         Summary for Pond P2: Subsurface Infiltration System         49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event       8.8 cfs @ 12.07 hrs, Volume= 28,919 cf         8.0 cfs @ 12.07 hrs, Volume= 28,919 cf       8.0 cfs @ 12.10 hrs, Volume= 28,919 cf, Atten= 8%, Lag= 2.0 min         0.1 cfs @ 6.42 hrs, Volume= 8,052 cf       7.9 cfs @ 12.10 hrs, Volume= 20,867 cf         Imethod, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2       0 12.10 hrs, Suff.Area= 1,826 sf Storage= 2,958 cf         n time= 40.2 min calculated for 28,909 cf (100% of inflow) :       :         time= 40.2 min (801.7 - 761.4)       1         t       Avail.Storage       Storage Description         i       1,465 cf       20.50'W x 89.06'L x 3.50'H Field A         6.390 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids       0.205 cf	
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4239.00-PR repared by WAT ydroCAD® 10.00-1 iflow Area = iflow = iscarded = rimary = outing by Stor-Ind eak Elev= 94.82' ( lug-Flow detentior enter-of-Mass det olume Inver #1A 92.30 #2A 92.80 Storage Group A	$Type III 24-hr 100-yr Rainfall=7.67"$ Printed 11/19/2018 Page 46 Summary for Pond P2: Subsurface Infiltration System 49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event 8.8 of $\oplus$ 12.07 hrs, Volume= 28,919 of 8.0 of $\oplus$ 12.10 hrs, Volume= 28,919 of 9.052 of 12.10 hrs, Volume= 8,052 of 7.9 of $\oplus$ 6.42 hrs, Volume= 20,867 of 11method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 9 12.10 hrs, Volume= 2,958 cf 11method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 9 12.10 hrs, Surf.Area= 1,826 sf Storage= 2,958 cf 11method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 9 12.10 hrs, Surf.Area= 1,826 sf Storage 2,958 cf 11method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 9 12.10 hrs, Surf.Area= 1,826 sf Storage 2,958 cf 1 time=40.2 min (8017 - 761.4) 1 Avail.Storage Storage Description 7 1,465 cf 20.50'W x 89.06'L x 3.50'H Field A 6,330 of Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids 7 2,205 cf ADS, Storm Tech SC-740 - Capx 48 linside #1 Effective Size= 44.6'W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W x 30.0''H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0''W	
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4239.00-PR Prepared by WAT ydroCAD® 10.00-1 flow Area = flow = iscarded = rimary = outing by Stor-Ind eak Elev= 94.82'( lug-Flow detention enter-of-Mass det olume Inver #1A 92.30 #2A 92.80 Storage Group A evice Routing #1 Primary #2 Discarded	Type III 24-hr 100-yr Rainfali=7.67" Printed 11/19/2018 Page 46           SCCM2012           9 s/n 07577 © 2016 HydroCAD Software Solutions LLC         Page 46           Summary for Pond P2: Subsurface Infiltration System           49,904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event         8.8 ofs @ 12.07 hrs, Volume= 28,919 of           8.0 ofs @ 12.10 hrs, Volume= 28,919 of         8.052 of           10.1 ofs @ 6.42 hrs, Volume= 20,867 of         11.00 hrs, Volume= 20,867 of           Imethod, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2         2           12.10 hrs, Volume= 20,867 of         11.00 hrs, Volume= 20,867 of           11method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2         2           12.10 hrs, Stormare 1,826 sf         Storage 2,958 of           1 time= 40.2 min calculated for 28,909 of (100% of inflow)         1           1 time= 40.2 min (801.7 - 761.4)         1           1 Avail.Storage         Storage Description           1         1.465 of 20.50W x 83.00°H x 3.00°H x	
4239.00-PR Prepared by WAT ydroCAD® 10.00-1 flow Area = iflow = iutflow = iscarded = rimary = outing by Stor-Ind eak Elev= 94.82' ( lug-Flow detention enter-of-Mass det olume Inver #1A 92.30 #2A 92.80 Storage Group A evice Routing #1 Primary #2 Discarded #3 Primary	Type III 24-hr 100-yr Rainfall=7.67" Printed 11/19/2018 Page 46         SCCM2012         9 sh 07577 @ 2016 HydroCAD Software Solutions LLC         Page 46         Summary for Pond P2: Subsurface Infiltration System         49.904 sf, 88.92% Impervious, Inflow Depth = 6.95" for 100-yr event         8.01 (2.07 hrs, Volume= 28.919 cf         8.01 (2.07 hrs, Volume= 28.919 cf         8.01 (2.10 hrs, Volume= 28.919 cf         8.01 (2.10 hrs, Volume= 20.867 cf         Immethod, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2         @ 12.10 hrs, Volume= 20.867 cf         Immethod, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2         @ 12.10 hrs, Suff.Area= 1,826 sf Storage= 2,958 cf         1 time= 40.2 min calculated for 28.909 cf (100% of inflow)         time= 40.2 min (801.7 - 761.4)         1         1 Avail.Storage Description         Y         1,465 cf 20.50W x 89.06L x 3.50H Field A         6,330 cf Overall - 2,205 cf Embedded = 4,185 cf x 35.0% Voids         Y         2,205 cf Embedded = 4,185 cf x 35.0% Voids         Y         2,205 cf Embedded = 4,185 cf x 35.0% Voids	

**Discarded OutFlow** Max=0.1 cfs @ 6.42 hrs HW=92.34' (Free Discharge) **-2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=7.9 cfs @ 12.10 hrs HW=94.82' (Free Discharge) 1=OCS Outlet Culvert (Barrel Controls 7.9 cfs @ 3.81 fps) 3=Broad-Crested Rectangular Weir( Controls 0.0 cfs)

## Summary for Pond P3: Subsurface Infiltration System

[93] Warning: Storage range exceeded by 1.55'

Inflow Area	a =	23,624 sf,	85.40% Impervious,	Inflow Depth = 6.60" for 100-yr event
Inflow	=	4.0 cfs @	12.07 hrs, Volume=	12,991 cf
Outflow	=	4.0 cfs @	12.07 hrs, Volume=	12,013 cf, Atten= 0%, Lag= 0.0 min
Discarded	=	0.0 cfs @	4.86 hrs, Volume=	1,666 cf
Primary	=	4.0 cfs @	12.07 hrs, Volume=	10,347 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 96.25' @ 12.07 hrs Surf.Area= 749 sf Storage= 1,455 cf

Plug-Flow detention time=93.9 min calculated for 12,009 cf (92% of inflow) Center-of-Mass det. time= 54.4 min ( 827.3 - 772.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	91.20'	628 cf	30.00'W x 24.98'L x 3.50'H Field A
			2,623 cf Overall - 827 cf Embedded = 1,796 cf x 35.0% Voids
#2A	91.70'	827 cf	ADS_StormTech SC-740 +Capx 18 Inside #1
			Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
			Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
			6 Rows of 3 Chambers
		1,455 cf	Total Available Storage

Storage Group A created with Chamber Wizard

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HydroCA	<u>D® 10.00-19 s</u>	/n 07577 ©	2016 HydroCAD Software Solutions LLC Page 48
Device	Routina	Invert	Outlet Devices
#1	Primary	94.20'	12.0" Round Culvert L= 77.0' CPP, square edge headwall, Ke= 0.500
#2	Discarded	91.20'	<b>1.020 in/hr Exfiltration over Surface area</b> Phase-In= 0.01'
Discard	led OutFlow N	/lax=0.0 cfs	@ 4.86 hrs HW=91.24' (Free Discharge)
T—2=E×	filtration (Exf	iltration Cor	trols 0.0 cfs)
Primary	<b>OutFlow</b> Ma:	x=4.0 cfs @	12.07 hrs HW=96.25' (Free Discharge)
T—1=Ci	Ilvert (Barrel (	Controls 4.0	cfs @ 5.12 fps)
			Summary for Link DP-1: Ex LCB
Inflow A	rea =	18,641 sf, 7	9.21% Impervious, Inflow Depth = 6.72" for 100-yr event
Inflow Primary	= 2	2.5 cfs @ 1 2.5 cfs @ 1	2.17 hrs, Volume= 10,434 cf 2.17 hrs, Volume= 10,434 cf Atten= 0% Lag= 0.0 min
Duinaam		uu Time On	
Primary	outriow = Infio	w, Time Sp	an= 0.00-30.00 nrs, dt= 0.01 nrs
			Summary for Link DP-2: Route 3 Ditch
-	rea =	6,095 sf, 1	9.06% Impervious, Inflow Depth = 5.66" for 100-yr event
Inflow A		) Q c fe @ 1	2.09 hrs Volume= 2.876 cf
Inflow A Inflow Primary	= 0	)9 cfs @ 1	2.09  brs Volume= $2.876  cf$ Atten= 0%   ag= 0.0 min
Inflow A Inflow Primary	= C = 0	0.9 cfs @ 1	2.09 hrs, Volume 2,876 cf, Atten= 0%, Lag= 0.0 min
Inflow A Inflow Primary Primary	= C = C outflow = Inflo	).9 cfs @ 1 ow, Time Sp	2.09 hrs, Volume= 2,876 cf, Atten= 0%, Lag= 0.0 min an= 0.00-30.00 hrs, dt= 0.01 hrs
Inflow A Inflow Primary Primary	= C = C outflow = Inflo	0.9 cfs @ 1	an= 0.00-30.00 hrs, dt= 0.01 hrs Summary for Link DP-3: Old Oak Street Drainage System
Inflow A Inflow Primary Primary Inflow A	= C = C outflow = Inflo rea = 2	1.9 cfs @ 1 ww, Time Sp 49,904 sf, 8	2.09 hrs, Volume 2,876 cf, Atten= 0%, Lag= 0.0 min an= 0.00-30.00 hrs, dt= 0.01 hrs Summary for Link DP-3: Old Oak Street Drainage System 8.92% Impervious, Inflow Depth = 5.02" for 100-yr event

#### Summary for Link DP-4: Ex Headwall at Corner

Inflow Area	a =	37,714 sf,	71.51% Impervious,	Inflow Depth = 4.10	for 100-yr event
Inflow	=	4.4 cfs @	12.07 hrs, Volume=	12,884 cf	-
Primary	=	4.4 cfs @	12.07 hrs, Volume=	12,884 cf, At	ten= 0%, Lag= 0.0 min

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

#### Summary for Link DP-5: Old Oak Street

Inflow Area	a =	10,239 sf,	31.72% Impervious,	Inflow Depth = 3.96"	for 100-yr event
Inflow	=	1.1 cfs @	12.08 hrs, Volume=	3,379 cf	
Primary	=	1.1 cfs @	12.08 hrs, Volume=	3,379 cf, Atte	en= 0%, Lag= 0.0 min

**Recharge Calculations** 



# **Recharge Calculations**

Project Name:	Urgent Care Facilit	Proj. No.:	14239.00	
		Date:	11/14/2018	
roject Location:	Pembroke, MA	Calculated by:	AFG	

Project Location: Pembroke, MA Calculated by:

## **Proposed New Impervious Surface Summary**

Net Proposed New Impervious Areas by Hydrologic Soil Group (HSG) in acres						
Subcatchment	HSG A	HSG B	HSG C	HSG D	Total Area	
PR-3	-0.16		0		0	
PR-4	0.15		0		0	
TOTAL	-0.01	0.00	0.00	0.00	-0.01	

Project proposes to increase impervious area in PR-4.

### **Required Recharge Volume in PR-4 (Cubic Feet)**

HSG	Area	Recharge Depth*	Volume	
	(acres)	(in.)	(c.f.)	
Α	0.1	0.60	317	
В	0.0	0.35	0	
С	0.0	0.25	0	
D	0.0	0.10	0	
τοται			317	Ī

Assumptions:

\* Massachusetts DEP Infiltration requirement: HSG A = 0.60 in; HSG B = 0.35 in; HSG C = 0.25 in; HSG D = 0.10 in.

#### **Capture Area Adjustment**

Required Recharge Volume		317	c.f.
Total Impervious Area in PR-4		0.15	acres
Total Impervious Area Draining to Recharge Fa	0.15	acres	
Capture Area Adjustment Factor	1.00	-	
	Adjusted Required Recharge Volume:	317	c.f.

## Subcatchment PR-3

Project does not result in an increase in impervious area in PR-4.

Project proposes to remove the three existing leaching catch basins in this scubcatchment and replace their infiltration capacity with Subsurface System P2.

Estimated Storage Provided By Existing LCBs to be R	emoved:	
LCBs are $\pm 3'$ deep. Assume LCBs are 8' diameter v	vith 4' perimiter of stone.	
Volume provided by each Existing LCB -	603 cf	
Total Volume Provided by Existing LCB=	1809 cf	
Infiltration Volume Provided by System P2	& Surrounding Stone:	3670 cf*
	5	*From HydroCAD Model
Subcatchment PR-4		-
Project results in an increase in impervious area in PR-3 I	by 0.15 ac.	
Project proposes to infiltrate runoff in Subsurface Infiltra	tion Systems P1 and P3.	
Infiltration Volume Provided by System P1	& Surrounding Stone:	1658 cf*
	5	*From HydroCAD Model
Infiltration Volume Provided by System P3	& Surrounding Stone:	1455 cf*
······································	<b>y</b>	*From HydroCAD Model

**Drawdown Calculations** 

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# Hydrograph for Pond P1: Subsurface Infiltration System

Time	Inflow	Storage	Elevation	Outflow	Discarded	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)	(cts)	(cfs)
0.00	0.0	0	91.40	0.0	0.0	0.0
2.00	0.0	4	91.41	0.0	0.0	0.0
4.00	0.0	7	91.42	0.0	0.0	0.0
6.00	0.0	10	91.43	0.0	0.0	0.0
8.00	0.0	34	91.51	0.0	0.0	0.0
10.00	0.1	188	91.96	0.0	0.0	0.0
12.00	0.8	1,067	93.39	0.0	0.0	0.0
14.00	0.1	1,548	94.53	0.1	0.0	0.0
16.00	0.0	1,533	94.47	0.0	0.0	0.0
18.00	0.0	1,518	94.42	0.0	0.0	0.0
20.00	0.0	1,494	94.34	0.0	0.0	0.0
22.00	0.0	1,451	94.21	0.0	0.0	0.0
24.00	0.0	1,389	94.05	0.0	0.0	0.0
26.00	0.0	1,248	93.74	0.0	0.0	0.0
28.00	0.0	1,105	93.46	0.0	0.0	0.0
30.00	0.0	962	93.21	0.0	0.0	0.0
32.00	0.0	819	92.96	0.0	0.0	0.0
34.00	0.0	676	92.73	0.0	0.0	0.0
36.00	0.0	533	92 50	0.0	0.0	0.0
38.00	0.0	390	92 27	0.0	0.0	0.0
40.00	0.0	246	92.05	0.0	0.0	0.0
40.00	0.0	103	91 75	0.0	0.0	0.0
44 00	0.0	0	91.40	0.0	0.0	0.0
46.00	0.0	0	91 40	0.0	0.0	0.0
48.00	0.0	Õ	91 40	0.0	0.0	0.0
50.00	0.0	0	91 40	0.0	0.0	0.0
52.00	0.0	Õ	91 40	0.0	0.0	0.0
54 00	0.0	Õ	91.10	0.0	0.0	0.0
56.00	0.0	0	91 40	0.0	0.0	0.0
58.00	0.0	0	91.40 91.40	0.0	0.0	0.0
60.00	0.0	0	01.40 01.40	0.0	0.0	0.0
62.00	0.0	0	01.40	0.0	0.0	0.0
64.00	0.0	0	91.40	0.0	0.0	0.0
66.00	0.0	0	91.40	0.0	0.0	0.0
68.00	0.0	0	91.40	0.0	0.0	0.0
70.00	0.0	0	91.40	0.0	0.0	0.0
70.00	0.0	0	91.40	0.0	0.0	0.0
72.00	0.0	0	91.40	0.0	0.0	0.0
74.00	0.0	0	91.40	0.0	0.0	0.0
70.00	0.0	0	91.40	0.0	0.0	0.0
78.00	0.0	0	91.40	0.0	0.0	0.0
80.00	0.0	0	91.40	0.0	0.0	0.0
82.00	0.0	0	91.40	0.0	0.0	0.0
84.00	0.0	0	91.40	0.0	0.0	0.0
86.00	0.0	0	91.40	0.0	0.0	0.0
88.00	0.0	0	91.40	0.0	0.0	0.0
90.00	0.0	0	91.40	0.0	0.0	0.0
92.00	0.0	0	91.40	0.0	0.0	0.0
94.00	0.0	0	91.40	0.0	0.0	0.0
96.00	0.0	0	91.40	0.0	0.0	0.0

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# Hydrograph for Pond P2: Subsurface Infiltration System

Time Inflow	Storage	Elevation	Outflow	Discarded	Primary
(hours) (cfs)	(cubic-feet)	(feet)	(cfs)	(cfs)	(cfs)
0.00 0.0	0	92.30	0.0	0.0	0.0
2.00 0.0	1	92.30	0.0	0.0	0.0
4.00 0.0	10	92.32	0.0	0.0	0.0
6.00 0.1	19	92.33	0.1	0.1	0.0
8.00 0.2	242	92.68	0.1	0.1	0.0
10.00 0.4	1,238	93.44	0.3	0.1	0.2
12.00 <b>5.9</b>	2,420	94.34	4.4	0.1	4.3
14.00 <b>0.4</b>	1,352	93.52	0.5	0.1	0.4
16.00 0.2	1,187	93.40	0.3	0.1	0.2
18.00 0.1	1,065	93.31	0.2	0.1	0.1
20.00 0.1	984	93.26	0.1	0.1	0.0
22.00 0.1	912	93.21	0.1	0.1	0.0
24.00 0.1	782	93.12	0.1	0.1	0.0
26.00 0.0	70	92.41	0.1	0.1	0.0
28.00 0.0	0	92.30	0.0	0.0	0.0
30.00 0.0	0	92.30	0.0	0.0	0.0
32.00 0.0	0	92.30	0.0	0.0	0.0
34.00 0.0	0	92.30	0.0	0.0	0.0
36.00 0.0	0	92.30	0.0	0.0	0.0
38.00 0.0	0	92.30	0.0	0.0	0.0
40.00 0.0	0	92.30	0.0	0.0	0.0
42.00 0.0	0	92.30	0.0	0.0	0.0
44.00 0.0	0	92.30	0.0	0.0	0.0
46.00 0.0	0	92.30	0.0	0.0	0.0
48.00 0.0	0	92.30	0.0	0.0	0.0
50.00 0.0	0	92.30	0.0	0.0	0.0
52.00 0.0	0	92.30	0.0	0.0	0.0
54.00 0.0	0	92.30	0.0	0.0	0.0
56.00 0.0	0	92.30	0.0	0.0	0.0
58.00 0.0	0	92.30	0.0	0.0	0.0
60.00 0.0	0	92.30	0.0	0.0	0.0
62.00 0.0	0	92.30	0.0	0.0	0.0
	0	92.30	0.0	0.0	0.0
68.00 0.0	0	92.30	0.0	0.0	0.0
70.00 0.0	0	92.30	0.0	0.0	0.0
70.00 0.0	0	92.30	0.0	0.0	0.0
72.00 0.0	0	92.30	0.0	0.0	0.0
76.00 0.0	0	92.30	0.0	0.0	0.0
78.00 0.0	0	92.30	0.0	0.0	0.0
80.00 0.0	0	92.30	0.0	0.0	0.0
82.00 0.0	0	92.30	0.0	0.0	0.0
84.00 0.0	0	92.30	0.0	0.0	0.0
86.00 0.0	0	92.30	0.0	0.0	0.0
88.00 0.0	0	92.30 Q2 20	0.0	0.0	0.0
	0	92.30 02.30	0.0		0.0
92.00 0.0	0	92.30 Q2 20	0.0	0.0	0.0
94.00 0.0	0	92.00	0.0	0.0	0.0
96.00 0.0	0	92.30	0.0	0.0	0.0

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# Hydrograph for Pond P3: Subsurface Infiltration System

Time	Inflow	Storage	Elevation	Outflow	Discarded	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)	(cfs)	(cfs)
0.00	0.0	0	91.20	0.0	0.0	0.0
2.00	0.0	0	91.20	0.0	0.0	0.0
4.00	0.0	6	91.22	0.0	0.0	0.0
6.00	0.0	39	91.35	0.0	0.0	0.0
8.00	0.1	258	91.92	0.0	0.0	0.0
10.00	0.2	940	93.21	0.0	0.0	0.0
12.00	2.7	1,455	95.33	2.7	0.0	2.7
14.00	0.2	1,388	94.44	0.2	0.0	0.2
16.00	0.1	1,369	94.37	0.1	0.0	0.1
18.00	0.1	1,357	94.33	0.1	0.0	0.1
20.00	0.1	1,352	94.31	0.1	0.0	0.0
22.00	0.0	1,348	94.29	0.0	0.0	0.0
24.00	0.0	1,345	94.28	0.0	0.0	0.0
26.00	0.0	1,217	93.85	0.0	0.0	0.0
28.00	0.0	1,090	93.53	0.0	0.0	0.0
30.00	0.0	963	93.25	0.0	0.0	0.0
32.00	0.0	835	92.99	0.0	0.0	0.0
34.00	0.0	708	92.74	0.0	0.0	0.0
36.00	0.0	580	92.50	0.0	0.0	0.0
38.00	0.0	453	92.27	0.0	0.0	0.0
40.00	0.0	326	92.04	0.0	0.0	0.0
42.00	0.0	198	91.82	0.0	0.0	0.0
44.00	0.0	71	91.47	0.0	0.0	0.0
<b>46.00</b>	0.0	0	91.20	0.0	0.0	0.0
48.00	0.0	0	91.20	0.0	0.0	0.0
50.00	0.0	0	91.20	0.0	0.0	0.0
52.00	0.0	0	91.20	0.0	0.0	0.0
54.00	0.0	0	91.20	0.0	0.0	0.0
56.00	0.0	0	91.20	0.0	0.0	0.0
58.00	0.0	0	91.20	0.0	0.0	0.0
60.00	0.0	0	91.20	0.0	0.0	0.0
62.00	0.0	0	91.20	0.0	0.0	0.0
64.00	0.0	0	91.20	0.0	0.0	0.0
66.00	0.0	0	91.20	0.0	0.0	0.0
68.00	0.0	0	91.20	0.0	0.0	0.0
70.00	0.0	0	91.20	0.0	0.0	0.0
72.00	0.0	0	91.20	0.0	0.0	0.0
74.00	0.0	0	91.20	0.0	0.0	0.0
76.00	0.0	0	91.20	0.0	0.0	0.0
78.00	0.0	0	91.20	0.0	0.0	0.0
80.00	0.0	0	91.20	0.0	0.0	0.0
82.00	0.0	0	91.20	0.0	0.0	0.0
84.00	0.0	0	91.20	0.0	0.0	0.0
86.00	0.0	0	91.20	0.0	0.0	0.0
88.00	0.0	0	91.20	0.0	0.0	0.0
90.00	0.0	0	91.20	0.0	0.0	0.0
92.00	0.0	0	91.20	0.0	0.0	0.0
94.00	0.0	0	91.20	0.0	0.0	0.0
96.00	0.0	0	91.20	0.0	0.0	0.0

Water Quality Volume Calculations

- Whb	er Quality Volur	me Calculations		
VIIC	Project Name	: Urgent Care Facility	Proj. No.:	14239.00
		. Dombroka MA	Date:	Nov-18
	Project Location	: Pembroke, MA	Calculated by:	AFG
	<u>Drainag</u>	<u>e Area PR-3</u>		
Water Quality Volume				
Total Area of Impervious Co	ver (acres) =	1.0	Does not include roo	of areas.
Required WQV:			<b>-</b> · · ·	
<u>Required:</u>	Runoff	Depth to be Treated (in.)	Required Volume (cu.ft.)	
		1.00	3,607	
Subsurface Infiltration Basin P2	2			
WQV (cu.ft.) Provided by S	C-740 Chambers	& Surrounding Stone =	*From HydroCAD	Model
	<u>Drainag</u>	<u>e Area PR-4</u>		
Water Quality Volume				
Total Area of Impervious Co	ver (acres) =	0.3	Does not include roo	of areas.
Required WQV:				
<u>Required:</u>	Runoff	Depth to be Treated (in.)	Required	
		1.00	<b>1,244</b>	
Subsurface Infiltration Basin P3	<u>l</u>			
WQV (cu.ft.) Provided by S	C-740 Chambers	& Surrounding Stone =	1455*	
			*From HydroCAD	Model

**TSS Removal Calculations** 

# TSS Removal Calculation Worksheet



101 Walnut Street	Project Name:	Urgent Care Facility	Sheet:	1 of 1	
Post Office Box 9151	Project Number:	14239.00	Date:	14-Nov-2018	
P 617 924 1770	Location:	Pembroke, MA	Computed by:	AFG	
1 017.524.1770	Discharge Point:	DP-3 & DP-4	Checked by:	SRC	
	Drainage Area(s):	PR-3 & PR-4			

# **1. Pre-Treatment prior to Infiltration**

BMP*	TSS Removal Rate*	Starting TSS Load**	Amount Removed (C*D)	Remaining Load (D-E)
Deep Sump and Hooded Catch Basin	25%	100%	25%	75%
Isolator Row	25%	75%	19%	56%
	0%	56%	0%	56%
		Due Tree tree to	TCC Demonst	4.40/

Pre-Treatment TSS Removal =

# 44%

# 2. Total TSS Removal including Pretreatment 1.

BMP*	TSS Removal Rate*	Starting TSS Load**	Amount Removed (C*D)	Remaining Load (D-E)
Subsurface Infiltration Structure	80%	100%	80%	20%
	0%	20%	0%	20%
	0%	20%	0%	20%
	0%	20%	0%	20%

\* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1.

\*\* Equals remaining load from previous BMP (E)

**Treatment Train** TSS Removal =

80%