# Addendum - 1 Stormwater Management Report

for:

Large Scale Ground Mounted Solar Photovoltaic Installation

2394 Main Poland Road Conway, MA 01581

Project Proponent:

Nexamp, LLC

101 Summer Street, 2<sup>nd</sup> Floor Boston, MA 02110

Original Report December 2018 Revised: March 2019





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#### PURPOSE

Revised hydrologic calculations have been performed in response to peer review comments as part of the Site Plan Review and Notice of Intent applications for a proposed ground mounted solar array project at Main Poland Road in Conway, Massachusetts. This report addresses drainage, hydrology and stormwater management comments received from Tighe & Bond and the Town of Conway Planning Board as well as comments made during the Conservation Commission hearings. Stormwater calculations for existing conditions reference the original Stormwater Management Report dated December 2018 as the existing hydrologic analysis remains valid. The calculations were performed to design stormwater collection and attenuation facilities for the site and to demonstrate that the project will meet the standards of the Town of Conway and the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Regulations.

The revisions made in this report are as follows:

- a) the overall scope/scale of the project has been reduced, resulting in a smaller disturbed area in order to maintain a greater natural buffer to wetlands and provide a larger setback and buffer to neighboring lots.
- b) the post development times of concentration (Tc) have been reevaluated to reflect proper cover types of the proposed conditions. Areas of meadow inside the fence are evaluated as "dense grass", areas of brush to be cleared with stumps remaining are evaluated as "forest with heavy litter".
- c) trap rock check dams have been added to the existing drainage channel in the eastern drainage area (PDA-200) to increase times of concentration as well as mitigate existing runoff concerns.
- d) for proposed drainage area (PDA-200) the original time of concentration path was analyzed with revised cover types, which resulted in a large increase in the Tc. An alternate Tc path for PDA-200 is used in this Addendum as it provides an analysis more closely resembling the other areas of proposed disturbance, is closer to the Tc for existing site conditions and is therefore more conservative value than that of the original Tc path.
- e) The detention basin has been slightly enlarged to mitigate the peak flows and provide one-foot of free board.

#### STORMWATER MANAGEMENT STANDARDS

STANDARD #2 – PEAK RATE ATTENUATION.

#### ANALYSIS SUMMARY

In order to assess the impact of the proposed development on peak runoff rates onto down-gradient properties, hydrologic calculations were performed for each of three (3) design storms at the design point(s). The calculations refer to runoff quantities at the final design point(s), the western property line (DP-1), the eastern property line (DP-2), and the wetland system to the south of the property (DP-3).

Calculations of peak runoff rates for existing and proposed site conditions are included and summarized in Table I for comparison of peak runoff rates for the design point for the three (3) design storms. A proposed hydrology plan is provided showing the various sub-watersheds draining to the proposed stormwater management facilities. Stormwater runoff from the overland areas not tributary to the stormwater management facilities will drain by sheet flow or shallow concentrated flow along the existing flow patterns to the design point.

Table I demonstrates that the proposed stormwater management system will be effective in limiting peak rates of runoff from the subject property to approximate pre-development levels.

DRAINAGE AREA	DESIGN STORM EVENT / PEAK RUNOFF (cfs)					
	2-Year	10-Year	100-Year			
Existing (DP-1)	0.5	8.3	35.2			
Proposed (DP-1)	0.4	8.2	35.0			
Existing (DP-2)	0.4	6.1	25.2			
Proposed (DP-2)	0.4	6.1	25.1			
Existing (DP-3)	0.6	3.6	10.5			
Proposed (DP-3)	0.6	3.6	10.5			

#### TABLE I: EXISTING AND PROPOSED PEAK RUNOFF

TABLE II: EXISTING AND PROPOSED RUNOFF VOLUMES

DRAINAGE AREA	DESIGN STORM EVENT / VOLUME (acre-feet)					
	2-Year	10-Year	100-Year			
Existing (DP-1)	Existing (DP-1) 0.31		5.09			
Proposed (DP-1)	0.28	1.76	5.19			
Existing (DP-2)	0.18	0.87	2.37			
Proposed (DP-2)	0.18	0.87	2.37			
Existing (DP-3)	0.12	0.42	1.00			
Proposed (DP-3)	0.12	0.42	1.00			

TABLE III: MAXIMUM WATER ELEVATION

STORMWATER FACILITY	100-YEAR STORM EVENT WATER ELEVATION	TOP / BERM ELEVATION
Detention Basin (DB-100)	1239.4	1240.5

PROPOSED HYDROLOGY





#### Area Listing (all nodes)

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
40,989	30	Brush, Good, HSG A (PDA-100, PDA-200)
176,018	48	Brush, Good, HSG B (PDA-100, PDA-101, PDA-200)
15,261	96	Gravel surface, HSG A (PDA-100, PDA-101)
42,542	96	Gravel surface, HSG B (PDA-100, PDA-101, PDA-200, PDA-300)
655,736	30	Meadow, non-grazed, HSG A (PDA-100, PDA-101, PDA-200)
521,049	58	Meadow, non-grazed, HSG B (PDA-100, PDA-101, PDA-200)
3,320	98	Roofs, HSG B (PDA-200, PDA-300)
71,960	30	Woods, Good, HSG A (PDA-100, PDA-200)
1,155,301	55	Woods, Good, HSG B (PDA-100, PDA-101, PDA-200, PDA-300)
90,219	77	Woods, Good, HSG D (PDA-100)
2,772,396	50	TOTAL AREA

### Soil Listing (all nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
783,947	HSG A	PDA-100, PDA-101, PDA-200
1,898,230	HSG B	PDA-100, PDA-101, PDA-200, PDA-300
0	HSG C	
90,219	HSG D	PDA-100
0	Other	
2,772,396		TOTAL AREA

G:\common\1212A\Eng\	Proposed Conditions
1212 - Proposed-Addendum	
Prepared by Microsoft	
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			-	-			
HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcato Number
 40,989	176,018	0	0	0	217,007	Brush, Good	-
15,261	42,542	0	0	0	57,803	Gravel surface	
655,736	521,049	0	0	0	1,176,785	Meadow, non-grazed	
0	3,320	0	0	0	3,320	Roofs	
71,960	1,155,301	0	90,219	0	1,317,481	Woods, Good	
783,947	1,898,230	0	90,219	0	2,772,396	TOTAL AREA	

## Ground Covers (all nodes)

G:\common\1212A\Eng\			Proposed Conditions
1212 - Proposed-Addendum		Type III 24-hr 2	-year Rainfall=3.20"
Prepared by Microsoft			
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Time span=0.00 Runoff by SCS TI Reach routing by Stor-Ind+T	0-96.00 hrs, dt=0.05 hrs, R-20 method, UH=SCS, Trans method , Pond rc	s, 1921 points , Weighted-CN outing by Stor-Ind r	nethod
Subcatchment PDA-100: Subcat PDA-100 F	<b>0</b> Runoff Area=1,606,717 Flow Length=1,057' Tc=2	sf 0.00% Imperviou 21.3 min CN=48 Ri	us Runoff Depth=0.09" unoff=0.4 cfs 12,048 cf
Subcatchment PDA-101: Subcat PDA-107	1 Runoff Area=176,192 Flow Length=712' Tc=	sf 0.00% Imperviou 24.4 min CN=56 F	is Runoff Depth=0.28" Runoff=0.4 cfs 4,105 cf
Subcatchment PDA-200: Subcat PDA-200	0 Runoff Area=742,322 Flow Length=583' Tc	sf 0.26% Imperviou c=9.8 min CN=50 F	is Runoff Depth=0.13" Runoff=0.4 cfs 7,953 cf
Subcatchment PDA-300: Subcat PDA-300	0 Runoff Area=247,166 Tc=	sf 0.57% Imperviou 12.5 min CN=55 F	is Runoff Depth=0.25" Runoff=0.6 cfs 5,167 cf
Pond DB-100:	Peak Elev=1,237.67' Primary=0.0 cfs 0 cf Se	' Storage=4,105 cf econdary=0.0 cfs 0 c	Inflow=0.4 cfs 4,105 cf f Outflow=0.0 cfs 0 cf
Link DP-1: West		lı Pri	nflow=0.4 cfs 12,048 cf mary=0.4 cfs 12,048 cf
Link DP-2: East		P	Inflow=0.4 cfs 7,953 cf rimary=0.4 cfs 7,953 cf
Link DP-3: South West - Wetlands		P	Inflow=0.6 cfs 5,167 cf rimary=0.6 cfs 5,167 cf

Total Runoff Area = 2,772,396 sf Runoff Volume = 29,274 cfAverage Runoff Depth = 0.13"99.88% Pervious = 2,769,076 sf0.12% Impervious = 3,320 sf

#### Summary for Subcatchment PDA-100: Subcat PDA-100

Runoff 0.4 cfs @ 14.78 hrs, Volume= 12,048 cf, Depth= 0.09" =

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 2-year Rainfall=3.20"

_	A	rea (sf)	CN E	Description							
		20,453	30 E	Brush, Goo	d, HSG A						
		82,293	48 E	Brush, Good, HSG B							
		14,322	96 G	Gravel surface, HSG A							
		5,275	96 G	Gravel surfa	ace, HSG E	}					
	5	14,769	30 N	leadow, no	on-grazed,	HSG A					
	3	19,568	58 N	leadow, no	on-grazed,	HSG B					
	_	38,176	30 V	Voods, Go	od, HSG A						
	5	21,641	55 V	Voods, Go	od, HSG B						
		90,219	<u>// V</u>	vooas, Go	oa, HSG D						
	1,6	06,717	48 V	Veighted A	verage						
	1,606,717 100.00% Pervious Area										
	,	,				-					
	Tc	Lenath	Slone	Velocity	Canacity	Description					
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description					
	Tc (min) 6.2	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description Sheet Flow					
	Tc (min) 6.2	Length (feet) 50	Slope (ft/ft) 0.0400	Velocity (ft/sec) 0.13	Capacity (cfs)	Description Sheet Flow, Grass: Dense, n= 0.240, P2= 3.20"					
	Tc (min) 6.2 8.7	Length (feet) 50 644	Slope (ft/ft) 0.0400 0.0310	Velocity (ft/sec) 0.13 1.23	Capacity (cfs)	Description Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow.					
	Tc (min) 6.2 8.7	Length (feet) 50 644	Slope (ft/ft) 0.0400 0.0310	Velocity (ft/sec) 0.13 1.23	Capacity (cfs)	Description Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Ky= 7.0 fps					
	Tc (min) 6.2 8.7 1.2	Length (feet) 50 644 40	Slope (ft/ft) 0.0400 0.0310 0.0500	Velocity (ft/sec) 0.13 1.23 0.56	Capacity (cfs)	Description         Sheet Flow,         Grass: Dense n= 0.240 P2= 3.20"         Shallow Concentrated Flow,         Short Grass Pasture Kv= 7.0 fps         Shallow Concentrated Flow,					
	Tc (min) 6.2 8.7 1.2	Length (feet) 50 644 40	Slope (ft/ft) 0.0400 0.0310 0.0500	Velocity (ft/sec) 0.13 1.23 0.56	Capacity (cfs)	Description         Sheet Flow,         Grass: Dense n= 0.240 P2= 3.20"         Shallow Concentrated Flow,         Short Grass Pasture Kv= 7.0 fps         Shallow Concentrated Flow,         Forest w/Heavy Litter Kv= 2.5 fps					
	Tc (min) 6.2 8.7 1.2 5.2	Length (feet) 50 644 40 323	Slope (ft/ft) 0.0400 0.0310 0.0500 0.0430	Velocity (ft/sec) 0.13 1.23 0.56 1.04	Capacity (cfs)	Description         Sheet Flow,         Grass: Dense n= 0.240 P2= 3.20"         Shallow Concentrated Flow,         Short Grass Pasture Kv= 7.0 fps         Shallow Concentrated Flow,         Forest w/Heavy Litter Kv= 2.5 fps         Shallow Concentrated Flow,					
	Tc (min) 6.2 8.7 1.2 5.2	Length (feet) 50 644 40 323	Slope (ft/ft) 0.0400 0.0310 0.0500 0.0430	Velocity (ft/sec) 0.13 1.23 0.56 1.04	Capacity (cfs)	Description         Sheet Flow,         Grass: Dense n= 0.240 P2= 3.20"         Shallow Concentrated Flow,         Short Grass Pasture Kv= 7.0 fps         Shallow Concentrated Flow,         Forest w/Heavy Litter Kv= 2.5 fps         Shallow Concentrated Flow,         Woodland Kv= 5.0 fps					

#### Summary for Subcatchment PDA-101: Subcat PDA-101

Runoff = 0.4 cfs @ 12.58 hrs, Volume= 4,105 cf, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description			
40,166	48	Brush, Good, HSG B			
939	96	Gravel surface, HSG A			
11,393	96	Gravel surface, HSG B			
14,471	30	Meadow, non-grazed, HSG A			
105,266	58	Meadow, non-grazed, HSG B			
3,957	55	Woods, Good, HSG B			
176,192	56	Weighted Average			
176,192		100.00% Pervious Area			

**Proposed Conditions** Type III 24-hr 2-year Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow,
					Grass: Dense n= 0.240 P2= 3.20"
3.0	234	0.0340	1.29		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
6.9	163	0.0250	0.40		Shallow Concentrated Flow,
					Forest w/Heavy Litter Kv= 2.5 fps
1.4	118	0.0760	1.38		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
2.3	147	0.1770	1.05		Shallow Concentrated Flow,
					Forest w/Heavy Litter Kv= 2.5 fps

24.4 712 Total

#### Summary for Subcatchment PDA-200: Subcat PDA-200

0.4 cfs @ 12.54 hrs, Volume= Runoff =

7,953 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 2-year Rainfall=3.20"

A	Area (sf)	CN E	Description						
	20,536	30 E	30 Brush, Good, HSG A						
	53,559	48 E	Brush, Goo	d, HSG B					
	25,138	96 0	Gravel surfa	ace, HSG E	3				
	126,497	30 N	leadow, no	on-grazed,	HSG A				
	96,214	58 N	/leadow, no	on-grazed,	HSG B				
	1,919	98 F	Roofs, HSG	βB					
	33,784	30 V	Voods, Go	od, HSG A					
	384,673	55 V	Voods, Go	od, HSG B					
-	742,322	50 V	Veighted A	verage					
-	740,403	9	9.74% Per	rvious Area					
	1,919	0	.26% Impe	ervious Are	а				
То	Longth	Slope	Volocity	Capacity	Description				
(min)	(foot)	(ff/ff)		Capacity (cfs)	Description				
(11111)	<u>(IEEL)</u>			(015)	Shoot Elow				
4./	50	0.0000	0.16		Sheet Flow, $P = 0.240$ P2= 3.20"				
16	200	0 1000	2 21		Shallow Concentrated Flow				
1.0	200	0.1000	2.21		Short Grass Pasture, Ky= 7.0 fps				
20	127	0 1730	1 04		Shallow Concentrated Flow				
2.0	141	0.1700	1.04		Forest w/Heavy Litter Ky= 2.5 fps				
15	198	0 1890	2 17		Shallow Concentrated Flow				
		51.000			Woodland $Kv = 5.0 \text{ fps}$				
9.8	583	Total							

#### Summary for Subcatchment PDA-300: Subcat PDA-300

Runoff =	0.6 cfs @	12.44 hrs,	Volume=	5,167 cf, Depth= 0.25"
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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description					
735	96	Gravel surfa	ace, HSG E	3			
1,401	98	Roofs, HSG	βB				
245,029	55	Woods, Go	od, HSG B				
247,166	55	Weighted A	Weighted Average				
245,765		99.43% Per	vious Area				
1,401		0.57% Impe	ervious Area	a			
Tc Length	Slop	be Velocity	Capacity	Description			
(min) (feet)	(ft/	ft) (ft/sec)	(cfs)				
12.5				Direct Entry,			

#### Summary for Pond DB-100:

Inflow Area =	=	176,192 sf,	0.00% Impervious,	Inflow Depth = 0.28	for 2-year event
Inflow =	:	0.4 cfs @	12.58 hrs, Volume=	4,105 cf	
Outflow =	:	0.0 cfs @	0.00 hrs, Volume=	0 cf, At	ten= 100%, Lag= 0.0 min
Primary =	:	0.0 cfs @	0.00 hrs, Volume=	0 cf	
Secondary =	:	0.0 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Peak Elev= 1,237.67' @ 25.45 hrs Surf.Area= 3,083 sf Storage= 4,105 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow) Center-of-Mass det. time= (not calculated: no outflow)

Volume	Inve	rt Avail.Sto	orage Storag	ge Description				
#1	1,236.0	0' 13,7	73 cf Custo	om Stage Data (P	rismatic)Listed below (Recalc)			
Elevatio	on s	Surf.Area	Inc.Store	Cum.Store				
(tee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)				
1,236.0	0	1,835	0	0				
1,238.0	0	3,330	5,165	5,165				
1,240.0	0	5,278	8,608	13,773				
Device	Routing	Invert	Outlet Devic	ces				
#1	Primary	1,236.00'	12.0" Roui	nd Culvert				
	,		L= 45.0' C	PP, square edge	headwall, Ke= 0.500			
			Inlet / Outle	t Invert= 1.236.00	'/1,235.00' S= 0.0222 '/' Cc= 0.900			
			n= 0.013 C	orrugated PE, sm	ooth interior, Flow Area= 0.79 sf			
#2	#2 Device 1 1.238.30'		6.0" Vert. Orifice/Grate C= 0.600					
#3	Device 1	1,238.50'	10.0" Vert. Orifice/Grate C= 0.600					
#4	#4 Secondary 1,239.90'		10.0' long x 8.0' breadth Broad-Crested Rectangular Weir					

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.66 2.64 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=1,236.00' (Free Discharge) 1=Culvert (Controls 0.0 cfs) 2=Orifice/Grate (Controls 0.0 cfs) 3=Orifice/Grate (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=1,236.00' (Free Discharge) 4=Broad-Crested Rectangular Weir (Controls 0.0 cfs)

#### Summary for Link DP-1: West

Inflow Ar	rea =	1,782,909 sf,	0.00% Impervious,	Inflow Depth = 0	.08"	for 2-year event
Inflow	=	0.4 cfs @	14.78 hrs, Volume=	12,048 cf		•
Primary	=	0.4 cfs @	14.78 hrs, Volume=	12,048 cf,	Atter	n= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

#### Summary for Link DP-2: East

Inflow Ar	rea =	742,322 sf,	0.26% Impervious,	Inflow Depth = $0.13$	3" for 2-year event
Inflow	=	0.4 cfs @	12.54 hrs, Volume=	7,953 cf	-
Primary	=	0.4 cfs @	12.54 hrs, Volume=	7,953 cf, A	tten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

#### Summary for Link DP-3: South West - Wetlands

 Inflow Area =
 247,166 sf, 0.57% Impervious, Inflow Depth = 0.25" for 2-year event

 Inflow =
 0.6 cfs @ 12.44 hrs, Volume=
 5,167 cf

 Primary =
 0.6 cfs @ 12.44 hrs, Volume=
 5,167 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

G:\common\1212A\Eng\			Proposed C	onditions
1212 - Proposed-Addendum	$T_{2}$	ype III 24-hr	10-year Rainfa	all=4.80"
Prepared by Microsoft				
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<b>T</b> : 0.00 (		4004		
Lime span=0.00-5	$96.00$ hrs, dt=0.05 hrs, $20$ mothod UU=SCS $\lambda$	1921 points		
Reach routing by Stor-Ind+Tra	ins method - Pond rou	iting by Stor-I	nd method	
			ia motioa	
Subcatchment PDA-100: Subcat PDA-100	Runoff Area=1,606,717 sf	0.00% Imper	vious Runoff De	pth=0.51"
Flo	w Length=1,057' Tc=21.	.3 min CN=48	Runoff=8.2 cfs	68,946 cf
Subcatchment PDA-101: Subcat PDA-101	Runoff Area=176.192 st	f 0.00% Imper	vious Runoff De	pth=0.94"
F	low Length=712' Tc=24.	4 min CN=56	Runoff=2.2 cfs	13,806 cf
Subcatchment PDA-200: Subcat PDA-200	Runoff Area=742,322 st	0.26% Imper	vious Runoff De	pth=0.61"
	Flow Length=565 TC=9.			57,009 CI
Subcatchment PDA-300: Subcat PDA-300	Runoff Area=247,166 sf	0.57% Imper	vious Runoff De	pth=0.88"
	Tc=12.	.5 min CN=55	Runoff=3.6 cfs	18,170 cf
Pond DR 100:	Peak Flov=1 238 63' St	torage=7.459 c	f Inflow=2.2 cfs	13 806 cf
Primary=0	.3 cfs 7,596 cf Seconda	rv=0.0 cfs 0 cf	Outflow=0.3 cfs	7,596 cf
		5		
Link DP-1: West			Inflow=8.2 cfs	76,542 cf
			Primary=8.2 crs	76,542 CT
Link DP-2: East			Inflow=6.1 cfs	37,889 cf
			Primary=6.1 cfs	37,889 cf
				40 470 -f
LINK DP-3: South West - Wetlands			Primary=3.6 cfs	18,170 CT
				10,170 01
	<b>D</b> (2)/ 1 / 00			

Total Runoff Area = 2,772,396 sf Runoff Volume = 138,811 cfAverage Runoff Depth = 0.60"99.88% Pervious = 2,769,076 sf0.12% Impervious = 3,320 sf

#### Summary for Subcatchment PDA-100: Subcat PDA-100

Runoff 8.2 cfs @ 12.49 hrs, Volume= 68,946 cf, Depth= 0.51" =

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 10-year Rainfall=4.80"

A	rea (sf)	CN D	Description						
	20,453	30 E	30 Brush, Good, HSG A						
	82,293	48 E	Brush, Goo	d, HSG B					
	14,322	96 G	Gravel surfa	ace, HSG A	N Contraction of the second seco				
	5,275	96 G	Gravel surfa	ace, HSG E	3				
5	514,769	30 N	leadow, no	on-grazed,	HSG A				
3	319,568	58 N	leadow, no	on-grazed,	HSG B				
_	38,176	30 V	Voods, Go	od, HSG A					
5	521,641	55 V	Voods, Go	od, HSG B					
	90,219	// V	Voods, Go	od, HSG D					
1,6	606,717	48 V	Veighted A	verage					
1,6	606,717	1	00.00% Pe	ervious Are	a				
То	Longth	Slope	Volocity	Capacity	Description				
(min)	(foot)	(ff/ff)			Description				
<u>(11111)</u>	(1661)			(015)	Shoot Flow				
0.2	50	0.0400	0.13		Sheet Flow, $P = 0.240$ P2= 3.20"				
87	644	0 0310	1 23		Shallow Concentrated Flow				
0.7	044	0.0010	1.20		Short Grass Pasture, Ky= 7.0 fps				
12	40	0 0500	0.56		Shallow Concentrated Flow				
1.2	-0	0.0000	0.50		Forest w/Heavy Litter Ky= 2.5 fps				
52	323	0 0430	1 04		Shallow Concentrated Flow				
0.2	020				Woodland $Kv = 5.0 \text{ fps}$				
21.3	1.057	Total							

#### Summary for Subcatchment PDA-101: Subcat PDA-101

Runoff = 2.2 cfs @ 12.42 hrs, Volume= 13,806 cf, Depth= 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
40,166	48	Brush, Good, HSG B
939	96	Gravel surface, HSG A
11,393	96	Gravel surface, HSG B
14,471	30	Meadow, non-grazed, HSG A
105,266	58	Meadow, non-grazed, HSG B
3,957	55	Woods, Good, HSG B
176,192	56	Weighted Average
176,192		100.00% Pervious Area

Proposed Conditions Type III 24-hr 10-year Rainfall=4.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow,
					Grass: Dense n= 0.240 P2= 3.20"
3.0	234	0.0340	1.29		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
6.9	163	0.0250	0.40		Shallow Concentrated Flow,
					Forest w/Heavy Litter Kv= 2.5 fps
1.4	118	0.0760	1.38		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
2.3	147	0.1770	1.05		Shallow Concentrated Flow,
					Forest w/Heavy Litter Kv= 2.5 fps

24.4 712 Total

#### Summary for Subcatchment PDA-200: Subcat PDA-200

Runoff = 6.1 cfs @ 12.21 hrs, Volume= 37,889 cf, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 10-year Rainfall=4.80"

A	rea (sf)	CN E	Description						
	20,536	30 E	30 Brush, Good, HSG A						
	53,559	48 E	Brush, Goo	d, HSG B					
	25,138	96 0	Gravel surfa	ace, HSG E	3				
1	26,497	30 N	leadow, no	on-grazed,	HSG A				
	96,214	58 N	leadow, no	on-grazed,	HSG B				
	1,919	98 F	Roofs, HSG	βB					
	33,784	30 V	Voods, Go	od, HSG A					
3	84,673	55 V	Voods, Go	od, HSG B					
7	42,322	50 V	Veighted A	verage					
7	40,403	9	9.74% Pei	vious Area					
	1,919	0	.26% Impe	ervious Area	а				
То	Lonath	Slone	Velocity	Canacity	Description				
(min)	(foot)	(ff/ff)		Capacity (cfs)	Description				
4 7			0.18	(013)	Shoot Flow				
4.7	50	0.0000	0.10		Grass: Danse $n=0.240$ P2= 3.20"				
16	208	0 1000	2 21		Shallow Concentrated Flow				
1.0	200	0.1000	2.21		Short Grass Pasture Ky= 7.0 fps				
20	127	0 1730	1 04		Shallow Concentrated Flow				
2.0		0			Forest w/Heavy Litter Ky= 2.5 fps				
1.5	198	0.1890	2.17		Shallow Concentrated Flow.				
					Woodland Kv= 5.0 fps				
9.8	583	Total							

#### Summary for Subcatchment PDA-300: Subcat PDA-300

Runoff =	3.6 cfs @	12.22 hrs, 1	Volume=	18,170 cf, Depth= 0.88"
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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description				
735	96	Gravel surfa	Gravel surface, HSG B			
1,401	98	Roofs, HSG	βB			
245,029	55	Woods, Go	od, HSG B			
247,166	55	Weighted A	Weighted Average			
245,765		99.43% Per	99.43% Pervious Area			
1,401		0.57% Impe	0.57% Impervious Area			
Tc Length	Slop	e Velocity	Capacity	Description		
(min) (feet)	(ft/	ft) (ft/sec)	(cfs)			
12.5				Direct Entry,		

#### Summary for Pond DB-100:

Inflow Area =	176,192 sf,	0.00% Impervious,	Inflow Depth = 0.94" for 10-year event
Inflow =	2.2 cfs @	12.42 hrs, Volume=	13,806 cf
Outflow =	0.3 cfs @	15.07 hrs, Volume=	7,596 cf, Atten= 85%, Lag= 159.1 min
Primary =	0.3 cfs @	15.07 hrs, Volume=	7,596 cf
Secondary =	0.0 cfs @	0.00 hrs, Volume=	0 cf

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Peak Elev= 1,238.63' @ 15.07 hrs Surf.Area= 3,944 sf Storage= 7,459 cf

Plug-Flow detention time= 365.5 min calculated for 7,592 cf (55% of inflow) Center-of-Mass det. time= 228.8 min (1,138.6 - 909.7)

Volume	Inve	ert Avail.St	orage Storage	Description			
#1	1,236.0	0' 13,7	73 cf Custom	n Stage Data (P	rismatic)Listed below (Recalc)		
Elevatio	on	Surf.Area	Inc.Store	Cum.Store			
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)			
1,236.0	0	1,835	0	0			
1,238.0	00	3,330	5,165	5,165			
1,240.0	00	5,278	8,608	13,773			
Device	Routing	Invert	Outlet Device	S			
#1	Primary	1,236.00'	12.0" Round	l Culvert			
			L= 45.0' CP	P, square edge l	headwall, Ke= 0.500		
			Inlet / Outlet I	nvert= 1,236.00	'/1,235.00' S= 0.0222 '/' Cc= 0.900		
			n= 0.013 Col	rrugated PE, sm	ooth interior, Flow Area= 0.79 sf		
#2	Device 1	1,238.30'	6.0" Vert. Or	6.0" Vert. Orifice/Grate C= 0.600			
#3	Device 1	1,238.50'	10.0" Vert. O	rifice/Grate C=	= 0.600		
#4	Seconda	ry 1,239.90'	10.0' long x	8.0' breadth Bre	oad-Crested Rectangular Weir		

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.66 2.64 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.3 cfs @ 15.07 hrs HW=1,238.63' (Free Discharge) 1=Culvert (Passes 0.3 cfs of 5.5 cfs potential flow) 1=2=Orifice/Grate (Orifice Controls 0.3 cfs @ 1.96 fps)

**-3=Orifice/Grate** (Orifice Controls 0.1 cfs @ 1.23 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=1,236.00' (Free Discharge) 4=Broad-Crested Rectangular Weir (Controls 0.0 cfs)

#### Summary for Link DP-1: West

Inflow A	rea =	1,782,909 sf,	0.00% Impervious,	Inflow Depth =	0.52"	for 10-year event
Inflow	=	8.2 cfs @	12.49 hrs, Volume=	76,542 cl	f	
Primary	- =	8.2 cfs @	12.49 hrs, Volume=	76,542 ct	f, Atte	en= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

#### Summary for Link DP-2: East

Inflow Are	ea =	742,322 sf,	0.26% Impervious,	Inflow Depth = 0.61'	for 10-year event
Inflow	=	6.1 cfs @	12.21 hrs, Volume=	37,889 cf	-
Primary	=	6.1 cfs @	12.21 hrs, Volume=	37,889 cf, At	ten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

#### Summary for Link DP-3: South West - Wetlands

 Inflow Area =
 247,166 sf, 0.57% Impervious, Inflow Depth = 0.88" for 10-year event

 Inflow =
 3.6 cfs @ 12.22 hrs, Volume=
 18,170 cf

 Primary =
 3.6 cfs @ 12.22 hrs, Volume=
 18,170 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

G:\common\1212A\Eng\		Proposed Conditions
1212 - Proposed-Addendum	Type III 24-I	nr 100-year Rainfall=7.00"
Prepared by Microsoft		
HydroCAD® 10.00-24 s/n 01522 © 2018 Hydro	CAD Software Solutions LLC	Page 19
Time span=0.00-9 Runoff by SCS TR- Reach routing by Stor-Ind+Tra	96.00 hrs, dt=0.05 hrs, 1921 point 20 method, UH=SCS, Weighted- ans method . Pond routing by St	s CN or-Ind method
Subcatchment PDA-100: Subcat PDA-100 Flow	Runoff Area=1,606,717 sf 0.00% In Length=1,057' Tc=21.3 min CN=4	npervious Runoff Depth=1.49" 8 Runoff=35.0 cfs 199,653 cf
Subcatchment PDA-101: Subcat PDA-101 F	Runoff Area=176,192 sf 0.00% In How Length=712' Tc=24.4 min CN	npervious Runoff Depth=2.22" =56 Runoff=6.1 cfs 32,568 cf
Subcatchment PDA-200: Subcat PDA-200 Flo	Runoff Area=742,322 sf 0.26% In ow Length=583' Tc=9.8 min CN=5	npervious Runoff Depth=1.67" 0 Runoff=25.1 cfs 103,100 cf
Subcatchment PDA-300: Subcat PDA-300	Runoff Area=247,166 sf 0.57% In Tc=12.5 min CN=	npervious Runoff Depth=2.12" 55 Runoff=10.5 cfs 43,745 cf
Pond DB-100: Primary=2.7	Peak Elev=1,239.40' Storage=10,7 cfs 26,358 cf Secondary=0.0 cfs 0	64 cf Inflow=6.1 cfs 32,568 cf o cf Outflow=2.7 cfs 26,358 cf
Link DP-1: West		Inflow=35.0 cfs 226,011 cf Primary=35.0 cfs 226,011 cf
Link DP-2: East		Inflow=25.1 cfs 103,100 cf Primary=25.1 cfs 103,100 cf
Link DP-3: South West - Wetlands		Inflow=10.5 cfs 43,745 cf Primary=10.5 cfs 43,745 cf

Total Runoff Area = 2,772,396 sf Runoff Volume = 379,066 cfAverage Runoff Depth = 1.64"99.88% Pervious = 2,769,076 sf0.12% Impervious = 3,320 sf

#### Summary for Subcatchment PDA-100: Subcat PDA-100

Runoff 35.0 cfs @ 12.36 hrs, Volume= 199,653 cf, Depth= 1.49" =

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 100-year Rainfall=7.00"

	A	rea (sf)	CN E	Description					
		20,453	30 E	Brush, Goo	d, HSG A				
		82,293	48 E	Brush, Goo	d, HSG B				
		14,322	96 0	Gravel surfa	ace, HSG A	Ν			
		5,275	96 G	Gravel surface, HSG B					
	5	14,769	30 N	leadow, no	on-grazed,	HSG A			
	3	19,568	58 N	8 Meadow, non-grazed, HSG B					
		38,176	30 V	30 Woods, Good, HSG A					
	5	21,641	55 V	55 Woods, Good, HSG B					
_		90,219	77 Woods, Good, HSG D						
	1,6	06,717	48 V	48 Weighted Average					
	1,6	606,717	1	00.00% Pe	ervious Are	a			
	Та	Longth	<u></u>		<b>.</b>	Description			
	11.		Clone		Concoity				
	(min)	Length (foot)	Slope	Velocity	Capacity	Description			
_	(min)	(feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)				
_	(min) 6.2	(feet) 50	(ft/ft) 0.0400	Velocity (ft/sec) 0.13	Capacity (cfs)	Sheet Flow,			
	(min) 6.2	(feet) 50	Slope (ft/ft) 0.0400	Velocity (ft/sec) 0.13	Capacity (cfs)	Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"			
	(min) 6.2 8.7	<u>(feet)</u> 50 644	Slope (ft/ft) 0.0400 0.0310	Velocity (ft/sec) 0.13 1.23	Capacity (cfs)	Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Shert Grass Desture, Kur 7.0 for			
	(min) 6.2 8.7	<u>(feet)</u> 50 644	Slope (ft/ft) 0.0400 0.0310	Velocity (ft/sec) 0.13 1.23	Capacity (cfs)	Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps			
	(min) 6.2 8.7 1.2	<u>(feet)</u> 50 644 40	0.0310 0.0500	Velocity (ft/sec) 0.13 1.23 0.56	Capacity (cfs)	Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps Shallow Concentrated Flow, Ecrest w/Heavy Litter Kv= 2.5 fps			
	(min) 6.2 8.7 1.2	<u>(feet)</u> 50 644 40	Slope (ft/ft) 0.0400 0.0310 0.0500 0.0430	Velocity (ft/sec) 0.13 1.23 0.56 1.04	Capacity (cfs)	Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps Shallow Concentrated Flow, Forest w/Heavy Litter Kv= 2.5 fps Shallow Concentrated Flow			
	(min) 6.2 8.7 1.2 5.2	<u>(feet)</u> 50 644 40 323	Slope (ft/ft) 0.0400 0.0310 0.0500 0.0430	Velocity (ft/sec) 0.13 1.23 0.56 1.04	Capacity (cfs)	Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps Shallow Concentrated Flow, Forest w/Heavy Litter Kv= 2.5 fps Shallow Concentrated Flow, Woodland Kv= 5.0 fps			
_	(min) 6.2 8.7 1.2 5.2 21.3	Length (feet) 50 644 40 323 1.057	Slope (ft/ft) 0.0400 0.0310 0.0500 0.0430	Velocity (ft/sec) 0.13 1.23 0.56 1.04	Capacity (cfs)	Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps Shallow Concentrated Flow, Forest w/Heavy Litter Kv= 2.5 fps Shallow Concentrated Flow, Woodland Kv= 5.0 fps			

#### Summary for Subcatchment PDA-101: Subcat PDA-101

Runoff = 6.1 cfs @ 12.37 hrs, Volume= 32,568 cf, Depth= 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 100-year Rainfall=7.00"

Area (sf)	CN	Description	
40,166	48	Brush, Good, HSG B	
939	96	Gravel surface, HSG A	
11,393	96	Gravel surface, HSG B	
14,471	30	Meadow, non-grazed, HSG A	
105,266	58	Meadow, non-grazed, HSG B	
3,957	55	Woods, Good, HSG B	
176,192	56	Weighted Average	
176,192		100.00% Pervious Area	

Proposed Conditions Type III 24-hr 100-year Rainfall=7.00"

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G:\common\1212A\Eng\ **1212 - Proposed-Addendum** Prepared by Microsoft

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow,
					Grass: Dense n= 0.240 P2= 3.20"
3.0	234	0.0340	1.29		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
6.9	163	0.0250	0.40		Shallow Concentrated Flow,
					Forest w/Heavy Litter Kv= 2.5 fps
1.4	118	0.0760	1.38		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
2.3	147	0.1770	1.05		Shallow Concentrated Flow,
					Forest w/Heavy Litter Kv= 2.5 fps

24.4 712 Total

#### Summary for Subcatchment PDA-200: Subcat PDA-200

Runoff = 25.1 cfs @ 12.16 hrs, Volume= 103,100 cf, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 100-year Rainfall=7.00"

30 Brush, Good, HSG A					
Gravel surface, HSG B					
0 Woods, Good, HSG A					

#### Summary for Subcatchment PDA-300: Subcat PDA-300

Runoff = 10.5 cfs @ 12.19 hrs, Volume= 43,745 cf, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Type III 24-hr 100-year Rainfall=7.00"

Area (sf)	CN	Description			
735	96	Gravel surfa	Gravel surface, HSG B		
1,401	98	Roofs, HSC	βB		
245,029	55	Woods, Go	od, HSG B		
247,166	55	Weighted A	Weighted Average		
245,765		99.43% Pe	99.43% Pervious Area		
1,401		0.57% Impe	0.57% Impervious Area		
Tc Length	n Slop	be Velocity	Capacity	Description	
(min) (feet	:) (ft/	ft) (ft/sec)	(cfs)		
12.5				Direct Entry,	

#### Summary for Pond DB-100:

Inflow Area =	176,192 sf,	0.00% Impervious,	Inflow Depth = 2.2	2" for 100-year event
Inflow =	6.1 cfs @	12.37 hrs, Volume=	32,568 cf	
Outflow =	2.7 cfs @	12.83 hrs, Volume=	26,358 cf, A	Atten= 56%, Lag= 27.4 min
Primary =	2.7 cfs @	12.83 hrs, Volume=	26,358 cf	
Secondary =	0.0 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs Peak Elev= 1,239.40' @ 12.83 hrs Surf.Area= 4,690 sf Storage= 10,764 cf

Plug-Flow detention time= 165.1 min calculated for 26,345 cf (81% of inflow) Center-of-Mass det. time= 87.5 min (968.1 - 880.5)

Volume	Inve	rt Avail.Sto	orage Storage	e Description		
#1	1,236.0	0' 13,7	73 cf Custor	n Stage Data (P	rismatic)Listed below (Recalc)	
Elevatio (fee	n t)	Surf.Area	Inc.Store	Cum.Store		
1,236.0	0 0	1,835 3.330	0 5.165	0 5.165		
1,240.0	0	5,278	8,608	13,773		
Device	Routing	Invert	Outlet Devic	es		
#1	Primary	1,236.00'	<b>12.0" Round Culvert</b> L= 45.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,236.00' / 1,235.00' S= 0.0222 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf			
#2 #3 #4	Device 1 Device 1 Secondar	1,238.30' 1,238.50' ry 1,239.90'	6.0" Vert. Orifice/Grate C= 0.600 10.0" Vert. Orifice/Grate C= 0.600 10.0' long x 8.0' breadth Broad-Crested Rectangular Weir			

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.66 2.64 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=2.7 cfs @ 12.83 hrs HW=1,239.39' (Free Discharge) 1=Culvert (Passes 2.7 cfs of 6.4 cfs potential flow) 2=Orifice/Grate (Orifice Controls 0.9 cfs @ 4.43 fps) 3=Orifice/Grate (Orifice Controls 1.8 cfs @ 3.33 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=1,236.00' (Free Discharge) 4=Broad-Crested Rectangular Weir (Controls 0.0 cfs)

#### Summary for Link DP-1: West

Inflow A	rea =	1,782,909 sf,	0.00% Impervious,	Inflow Depth = $1.52$	2" for 100-year event
Inflow	=	35.0 cfs @	12.36 hrs, Volume=	226,011 cf	-
Primary	=	35.0 cfs @	12.36 hrs, Volume=	226,011 cf, A	tten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

#### Summary for Link DP-2: East

Inflow A	rea =	742,322 sf,	0.26% Impervious,	Inflow Depth = 1.	67" for 100-year event
Inflow	=	25.1 cfs @	12.16 hrs, Volume=	103,100 cf	-
Primary	=	25.1 cfs @	12.16 hrs, Volume=	103,100 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

#### Summary for Link DP-3: South West - Wetlands

 Inflow Area =
 247,166 sf, 0.57% Impervious, Inflow Depth = 2.12" for 100-year event

 Inflow =
 10.5 cfs @ 12.19 hrs, Volume=
 43,745 cf

 Primary =
 10.5 cfs @ 12.19 hrs, Volume=
 43,745 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs