Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.313	70	Woods, Good, HSG C (SAE1,SAW1,SBE1,SBW1,SCW1,SDE1,SDW1)
6.145	74	grassland, good (SAE1,SAW1,SBE1,SBW1,SCE1,SCVBE1,SCW1,SDE1,SDW1)
0.147	98	Paved parking 60x280 (SAW1,SCW1)
0.084	98	Paved parking 60x500 (SCVBE1)
0.001	98	subtract parking 60x500 (SAE1)
0.125	98	subtract paved parking 60x280 (SBW1)
0.001	98	subtract paved parking 60x400 (SDE1)
0.009	98	subtracted paved parking 60x360 (SDW1)
0.172	98	subtracted paved parking 60x500 (SBE1)
0.001	98	subtracted porous parking 60x500 (SCE1)
8.999		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.313	HSG C	SAE1, SAW1, SBE1, SBW1, SCW1, SDE1, SDW1
0.000	HSG D	
6.685	Other	SAE1, SAW1, SBE1, SBW1, SCE1, SCVBE1, SCW1, SDE1, SDW1
8.999		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment SAE1: Runoff Area=28,438 sf 0.16% Impervious Runoff Depth=3.18"
Flow Length=140' Tc=6.1 min CN=74 Runoff=3.69 cfs 0.173 af

Subcatchment SAW1: Runoff Area=34,216 sf 13.87% Impervious Runoff Depth=3.48"
Flow Length=106' Slope=0.2264 '/' Tc=5.1 min CN=77 Runoff=4.98 cfs 0.228 af

Subcatchment SBE1: Runoff Area=71,631 sf 10.46% Impervious Runoff Depth=3.38"
Flow Length=105' Tc=22.6 min CN=76 Runoff=5.76 cfs 0.463 af

Subcatchment SBW1: Runoff Area=29,686 sf 18.36% Impervious Runoff Depth=3.58"
Flow Length=106' Tc=14.8 min CN=78 Runoff=3.17 cfs 0.203 af

Subcatchment SCE1: Subcat Runoff Area=40,824 sf 0.09% Impervious Runoff Depth=3.18"
Flow Length=129' Tc=4.2 min CN=74 Runoff=5.67 cfs 0.249 af

Subcatchment SCVBE1: Runoff Area=22,934 sf 15.87% Impervious Runoff Depth=3.58"
Flow Length=72' Tc=8.4 min CN=78 Runoff=3.05 cfs 0.157 af

Subcatchment SCW1: Runoff Area=28,985 sf 5.77% Impervious Runoff Depth=3.28"
Flow Length=100' Tc=10.4 min CN=75 Runoff=3.31 cfs 0.182 af

Subcatchment SDE1: Runoff Area=49,047 sf 0.10% Impervious Runoff Depth=3.09"
Flow Length=170' Tc=16.9 min CN=73 Runoff=4.24 cfs 0.290 af

Subcatchment SDW1: Runoff Area=86,214 sf 0.48% Impervious Runoff Depth=2.90"
Flow Length=235' Tc=18.0 min CN=71 Runoff=6.76 cfs 0.478 af

Reach RAE: 5x105 Avg. Depth=0.25' Max Vel=2.58 fps Inflow=3.69 cfs 0.173 af
n=0.030 L=105.0' S=0.0200 '/' Capacity=723.97 cfs Outflow=3.67 cfs 0.173 af

Reach RAW: 8x132 Avg. Depth=0.26' Max Vel=2.73 fps Inflow=6.13 cfs 0.394 af
n=0.030 L=132.0' S=0.0200 '/' Capacity=838.65 cfs Outflow=6.09 cfs 0.394 af

Reach RBE: 6.5x323 Avg. Depth=0.32' Max Vel=3.04 fps Inflow=7.09 cfs 0.620 af
n=0.030 L=393.0' S=0.0200 '/' Capacity=780.70 cfs Outflow=7.02 cfs 0.620 af

Reach RBW: 6.5x205 Avg. Depth=0.24' Max Vel=2.54 fps Inflow=4.31 cfs 0.375 af
n=0.030 L=205.0' S=0.0200 '/' Capacity=780.70 cfs Outflow=4.28 cfs 0.375 af

Reach RCE: 5x325 Avg. Depth=0.32' Max Vel=2.96 fps Inflow=5.67 cfs 0.249 af
n=0.030 L=309.0' S=0.0200 '/' Capacity=723.97 cfs Outflow=5.47 cfs 0.249 af

Reach RCW: 6.5x150 Avg. Depth=0.21' Max Vel=2.34 fps Inflow=3.43 cfs 0.205 af
n=0.030 L=150.0' S=0.0200 '/' Capacity=780.70 cfs Outflow=3.41 cfs 0.205 af

Reach RDE: 5x309 Avg. Depth=0.27' Max Vel=2.70 fps Inflow=4.24 cfs 0.290 af
n=0.030 L=309.0' S=0.0200 '/' Capacity=723.97 cfs Outflow=4.19 cfs 0.290 af

Reach RDW: 6.5x221 Avg. Depth=0.31' Max Vel=2.99 fps Inflow=6.76 cfs 0.478 af
n=0.030 L=221.0' S=0.0200 '/' Capacity=780.70 cfs Outflow=6.71 cfs 0.478 af

Pond CVBE1: Culvert Peak Elev=2,218.15' Inflow=3.05 cfs 0.157 af
Outflow=3.05 cfs 0.157 af

Pond DRYDETA: Dry Detention Pond Peak Elev=2,177.04' Storage=13,807 cf Inflow=13.87 cfs 2.543 af
Primary=0.00 cfs 0.000 af Secondary=13.20 cfs 2.350 af Outflow=13.20 cfs 2.350 af

Pond DRYDETB: Dry Detention Pond Peak Elev=2,200.19' Storage=11,680 cf Inflow=12.29 cfs 2.133 af
Outflow=11.44 cfs 1.991 af

Pond DRYDETC: Dry Detention Pond Peak Elev=2,222.89' Storage=10,984 cf Inflow=8.53 cfs 1.180 af
Outflow=5.43 cfs 1.160 af

Pond DRYDETD: Dry Detention Pond Peak Elev=2,240.81' Storage=11,015 cf Inflow=10.88 cfs 0.748 af
Outflow=5.59 cfs 0.748 af

Pond DS-A-E: 5x50 Peak Elev=2,175.42' Storage=606 cf Inflow=3.67 cfs 0.173 af
Outflow=3.65 cfs 0.164 af

Pond DS-A-W: 8x50 Peak Elev=2,175.00' Storage=502 cf Inflow=6.09 cfs 0.394 af
Outflow=6.08 cfs 0.388 af

Pond DS-B-E: 6.5x50 Peak Elev=2,199.38' Storage=760 cf Inflow=7.02 cfs 0.620 af
Outflow=7.01 cfs 0.609 af

Pond DS-B-W: 6.5x50 Peak Elev=2,199.29' Storage=704 cf Inflow=4.28 cfs 0.375 af
Outflow=4.28 cfs 0.364 af

Pond DS-C-E: 5x50 Peak Elev=2,222.30' Storage=745 cf Inflow=5.47 cfs 0.249 af
Outflow=5.45 cfs 0.238 af

Pond DS-C-W: 6.5x50 Peak Elev=2,222.21' Storage=681 cf Inflow=3.41 cfs 0.205 af
Outflow=3.40 cfs 0.195 af

Pond DS-D-E: 5x50 Peak Elev=2,240.14' Storage=618 cf Inflow=4.19 cfs 0.290 af
Outflow=4.18 cfs 0.280 af

Pond DS-D-W: 6.5x50 Peak Elev=2,240.24' Storage=771 cf Inflow=6.71 cfs 0.478 af
Outflow=6.71 cfs 0.467 af

Link Q10 Secondary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Aof3~Pond CBWQA.hce Inflow=1.16 cfs 0.166 af
Primary=1.16 cfs 0.166 af

Link Q10 Secondary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Aof3~Pond CBWQB.hce Inflow=1.14 cfs 0.171 af
Primary=1.14 cfs 0.171 af

Link Q10 Secondary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Aof3~Pond CBWQC.hce Inflow=0.27 cfs 0.023 af
Primary=0.27 cfs 0.023 af

Total Runoff Area = 8.999 ac Runoff Volume = 2.423 af Average Runoff Depth = 3.23"
93.99% Pervious = 8.458 ac 6.01% Impervious = 0.541 ac

Summary for Subcatchment SAE1:

Runoff = 3.69 cfs @ 11.97 hrs, Volume= 0.173 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	46	98	subtract parking 60x500
*	25,541	74	grassland, good
	2,851	70	Woods, Good, HSG C
	28,438	74	Weighted Average
	28,392		Pervious Area
	46		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1330	0.28		**Sheet Flow, SHT** Grass: Dense n= 0.240 P2= 4.00"
0.1	40	0.0200	7.08	85.01	**Channel Flow, OCF** Area= 12.0 sf Perim= 11.8' r= 1.02' n= 0.030 Earth, grassed & winding
6.1	140	Total			

Summary for Subcatchment SAW1:

Runoff = 4.98 cfs @ 11.96 hrs, Volume= 0.228 af, Depth= 3.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	4,746	98	Paved parking 60x280
*	27,294	74	grassland, good
	2,176	70	Woods, Good, HSG C
	34,216	77	Weighted Average
	29,470		Pervious Area
	4,746		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	106	0.2264	0.35		**Sheet Flow, SHT** Grass: Dense n= 0.240 P2= 4.00"

Summary for Subcatchment SBE1:

Runoff = 5.76 cfs @ 12.16 hrs, Volume= 0.463 af, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	7,495	98	subtracted paved parking 60x500
*	58,520	74	grassland, good
	5,616	70	Woods, Good, HSG C
	71,631	76	Weighted Average
	64,136		Pervious Area
	7,495		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	67	0.0300	0.05		**Sheet Flow, SHT**
					Woods: Dense underbrush n= 0.800 P2= 4.00"
2.0	38	0.2895	0.31		**Sheet Flow, SHT**
					Grass: Dense n= 0.240 P2= 4.00"
22.6	105	Total			

Summary for Subcatchment SBW1:

Runoff = 3.17 cfs @ 12.07 hrs, Volume= 0.203 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	5,451	98	subtract paved parking 60x280
*	22,661	74	grassland, good
	1,574	70	Woods, Good, HSG C
	29,686	78	Weighted Average
	24,235		Pervious Area
	5,451		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	69	0.1014	0.09		**Sheet Flow, SHT**
					Woods: Dense underbrush n= 0.800 P2= 4.00"
1.8	37	0.3514	0.34		**Sheet Flow,**
					Grass: Dense n= 0.240 P2= 4.00"
14.8	106	Total			

Summary for Subcatchment SCE1: Subcat

Runoff = 5.67 cfs @ 11.95 hrs, Volume= 0.249 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	37	98	subtracted porous parking 60x500
*	40,787	74	grassland, good
	40,824	74	Weighted Average
	40,787		Pervious Area
	37		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	84	0.2400	0.34		**Sheet Flow, SHT**
					Grass: Dense n= 0.240 P2= 4.00"
0.1	45	0.0220	7.43	89.16	**Channel Flow, Area above forebay**
					Area= 12.0 sf Perim= 11.8' r= 1.02'
					n= 0.030 Earth, grassed & winding
0.0					**Direct Entry, Direct Entry to meet minimum**
4.2	129	Total			

Summary for Subcatchment SCVBE1:

Runoff = 3.05 cfs @ 12.00 hrs, Volume= 0.157 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	3,640	98	Paved parking 60x500
*	19,294	74	grassland, good
	0	70	Woods, Good, HSG C
	22,934	78	Weighted Average
	19,294		Pervious Area
	3,640		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	34	0.1471	0.09		**Sheet Flow, SHT** Woods: Dense underbrush n= 0.800 P2= 4.00"
2.0	38	0.3158	0.32		**Sheet Flow, SHT** Grass: Dense n= 0.240 P2= 4.00"
8.4	72	Total			

Summary for Subcatchment SCW1:

Runoff = 3.31 cfs @ 12.02 hrs, Volume= 0.182 af, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	1,671	98	Paved parking 60x280
*	23,588	74	grassland, good
	3,726	70	Woods, Good, HSG C
	28,985	75	Weighted Average
	27,314		Pervious Area
	1,671		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	59	0.1360	0.10		**Sheet Flow, SHT** Woods: Dense underbrush n= 0.800 P2= 4.00"
0.2	41	0.1700	2.89		**Shallow Concentrated Flow, SCF** Short Grass Pasture Kv= 7.0 fps
10.4	100	Total			

Summary for Subcatchment SDE1:

Runoff = 4.24 cfs @ 12.09 hrs, Volume= 0.290 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	47	98	subtract paved parking 60x400
*	31,352	74	grassland, good
	17,648	70	Woods, Good, HSG C
	49,047	73	Weighted Average
	49,000		Pervious Area
	47		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	100	0.1500	0.11		**Sheet Flow, SHT** Woods: Dense underbrush n= 0.800 P2= 4.00"
2.0	70	0.0070	0.59		**Shallow Concentrated Flow, SCF to DSW** Short Grass Pasture Kv= 7.0 fps
16.9	170	Total			

Summary for Subcatchment SDW1:

Runoff = 6.76 cfs @ 12.10 hrs, Volume= 0.478 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	413	98	subtracted paved parking 60x360
*	18,630	74	grassland, good
	67,171	70	Woods, Good, HSG C
	86,214	71	Weighted Average
	85,801		Pervious Area
	413		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.1300	0.11		**Sheet Flow, SHT begins in forest** Woods: Dense underbrush n= 0.800 P2= 4.00"
2.2	135	0.1700	1.03		**Shallow Concentrated Flow, SCF to channel** Forest w/Heavy Litter Kv= 2.5 fps
18.0	235	Total			

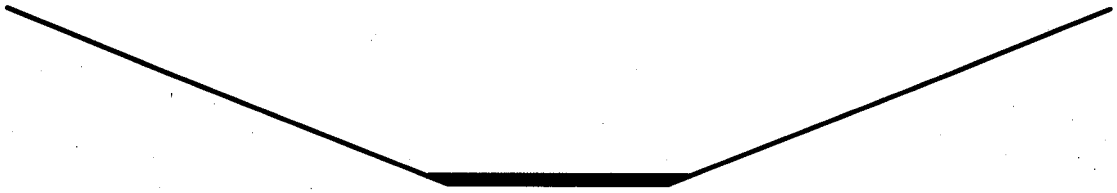
Summary for Reach RAE: 5x105

Inflow Area = 0.653 ac, 0.16% Impervious, Inflow Depth = 3.18" for Q10 event
Inflow = 3.69 cfs @ 11.97 hrs, Volume= 0.173 af
Outflow = 3.67 cfs @ 11.98 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.58 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 2.0 min

Peak Storage= 149 cf @ 11.98 hrs, Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 723.97 cfs

5.00' x 4.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/' Top Width= 25.00'
Length= 105.0' Slope= 0.0200 '/'
Inlet Invert= 2,176.65', Outlet Invert= 2,174.55'



Summary for Reach RAW: 8x132

Inflow Area = 0.785 ac, 13.87% Impervious, Inflow Depth = 6.01" for Q10 event
Inflow = 6.13 cfs @ 11.96 hrs, Volume= 0.394 af
Outflow = 6.09 cfs @ 11.97 hrs, Volume= 0.394 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.73 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.89 fps, Avg. Travel Time= 2.5 min

Peak Storage= 295 cf @ 11.97 hrs, Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 838.65 cfs

8.00' x 4.00' deep channel, n= 0.030
Side Slope Z-value= 2.1 '/' Top Width= 24.80'
Length= 132.0' Slope= 0.0200 '/'
Inlet Invert= 2,177.19', Outlet Invert= 2,174.55'

Summary for Reach RBE: 6.5x323

Inflow Area = 2.171 ac, 11.77% Impervious, Inflow Depth = 3.43" for Q10 event
Inflow = 7.09 cfs @ 12.06 hrs, Volume= 0.620 af
Outflow = 7.02 cfs @ 12.09 hrs, Volume= 0.620 af, Atten= 1%, Lag= 2.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.04 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.97 fps, Avg. Travel Time= 6.8 min

Peak Storage= 908 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 780.70 cfs

6.50' x 4.00' deep channel, n= 0.030
Side Slope Z-value= 2.3 '/' Top Width= 24.90'
Length= 393.0' Slope= 0.0200 '/'
Inlet Invert= 2,206.26', Outlet Invert= 2,198.40'

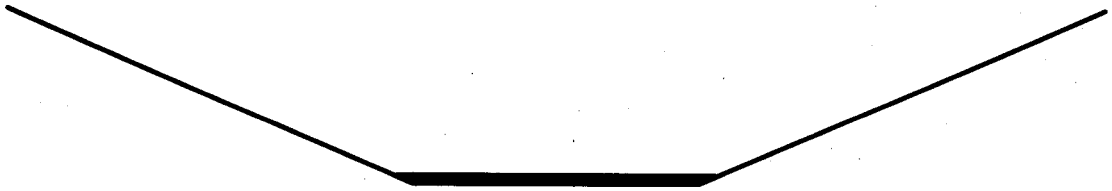
Summary for Reach RBW: 6.5x205

Inflow Area = 0.681 ac, 18.36% Impervious, Inflow Depth = 6.60" for Q10 event
Inflow = 4.31 cfs @ 12.07 hrs, Volume= 0.375 af
Outflow = 4.28 cfs @ 12.08 hrs, Volume= 0.375 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.54 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.90 fps, Avg. Travel Time= 3.8 min

Peak Storage= 345 cf @ 12.08 hrs, Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 780.70 cfs

6.50' x 4.00' deep channel, n= 0.030
Side Slope Z-value= 2.3 '/' Top Width= 24.90'
Length= 205.0' Slope= 0.0200 '/'
Inlet Invert= 2,202.50', Outlet Invert= 2,198.40'



Summary for Reach RCE: 5x325

Inflow Area = 0.937 ac, 0.09% Impervious, Inflow Depth = 3.18" for Q10 event
Inflow = 5.67 cfs @ 11.95 hrs, Volume= 0.249 af
Outflow = 5.47 cfs @ 11.97 hrs, Volume= 0.249 af, Atten= 3%, Lag= 1.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.96 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.88 fps, Avg. Travel Time= 5.8 min

Peak Storage= 571 cf @ 11.97 hrs, Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 723.97 cfs

5.00' x 4.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/' Top Width= 25.00'
Length= 309.0' Slope= 0.0200 '/'
Inlet Invert= 2,227.53', Outlet Invert= 2,221.35'

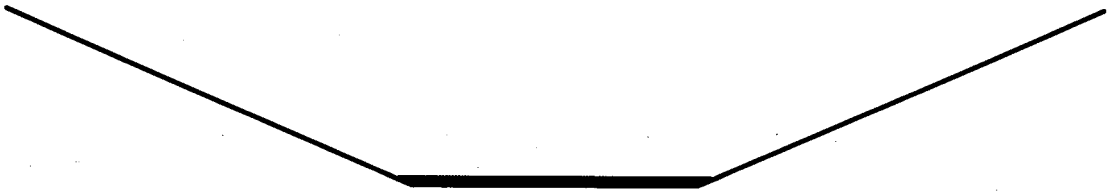
Summary for Reach RCW: 6.5x150

Inflow Area = 0.665 ac, 5.77% Impervious, Inflow Depth = 3.70" for Q10 event
Inflow = 3.43 cfs @ 12.01 hrs, Volume= 0.205 af
Outflow = 3.41 cfs @ 12.02 hrs, Volume= 0.205 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.34 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.85 fps, Avg. Travel Time= 2.9 min

Peak Storage= 218 cf @ 12.02 hrs, Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 780.70 cfs

6.50' x 4.00' deep channel, n= 0.030
Side Slope Z-value= 2.3 '/' Top Width= 24.90'
Length= 150.0' Slope= 0.0200 '/'
Inlet Invert= 2,224.35', Outlet Invert= 2,221.35'



Summary for Reach RDE: 5x309

Inflow Area =	1.126 ac,	0.10% Impervious,	Inflow Depth =	3.09"	for Q10 event
Inflow =	4.24 cfs @	12.09 hrs, Volume=	0.290 af		
Outflow =	4.19 cfs @	12.11 hrs, Volume=	0.290 af,	Atten= 1%,	Lag= 1.3 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.70 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 0.90 fps, Avg. Travel Time= 5.7 min

Peak Storage= 478 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 723.97 cfs

5.00' x 4.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/' Top Width= 25.00'
Length= 309.0' Slope= 0.0200 '/'
Inlet Invert= 2,245.43', Outlet Invert= 2,239.25'

Summary for Reach RDW: 6.5x221

Inflow Area =	1.979 ac,	0.48% Impervious,	Inflow Depth =	2.90"	for Q10 event
Inflow =	6.76 cfs @	12.10 hrs, Volume=	0.478 af		
Outflow =	6.71 cfs @	12.12 hrs, Volume=	0.478 af,	Atten= 1%,	Lag= 1.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.99 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.94 fps, Avg. Travel Time= 3.9 min

Peak Storage= 496 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 780.70 cfs

6.50' x 4.00' deep channel, n= 0.030
Side Slope Z-value= 2.3 '/' Top Width= 24.90'
Length= 221.0' Slope= 0.0200 '/'
Inlet Invert= 2,243.67', Outlet Invert= 2,239.25'

Summary for Pond CVBE1: Culvert

Inflow Area =	0.526 ac,	15.87% Impervious,	Inflow Depth =	3.58"	for Q10 event
Inflow =	3.05 cfs @	12.00 hrs,	Volume=	0.157 af	
Outflow =	3.05 cfs @	12.00 hrs,	Volume=	0.157 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.05 cfs @	12.00 hrs,	Volume=	0.157 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 2,218.15' @ 12.00 hrs
Flood Elev= 2,222.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	2,217.00'	**12.0" x 153.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 2,212.00' S= 0.0327 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Primary	2,222.00'	**Weirover, C= 2.62** Head (feet) 0.00 2.00 Width (feet) 10.00 62.00

Primary OutFlow Max=3.04 cfs @ 12.00 hrs HW=2,218.15' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.04 cfs @ 3.88 fps)
└─**2=Weirover** (Controls 0.00 cfs)

Summary for Pond DRYDETA: Dry Detention Pond

Inflow Area =	8.999 ac,	6.01% Impervious,	Inflow Depth >	3.39"	for Q10 event
Inflow =	13.87 cfs @	12.20 hrs,	Volume=	2.543 af	
Outflow =	13.20 cfs @	12.28 hrs,	Volume=	2.350 af,	Atten= 5%, Lag= 4.6 min
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	
Secondary =	13.20 cfs @	12.28 hrs,	Volume=	2.350 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 2,177.04' @ 12.28 hrs Surf.Area= 3,221 sf Storage= 13,807 cf
Flood Elev= 2,178.65' Surf.Area= 4,059 sf Storage= 19,657 cf

Plug-Flow detention time= 250.7 min calculated for 2.350 af (92% of inflow)
Center-of-Mass det. time= 68.7 min (1,198.4 - 1,129.7)

Volume	Invert	Avail.Storage	Storage Description
#1	2,166.55'	23,579 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 23,590 cf Overall - 11 cf Embedded = 23,579 cf
#2	2,166.55'	4 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1 11 cf Overall x 40.0% Voids
		23,583 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,166.55	11	0	0	11
2,167.55	11	11	11	24
2,167.56	250	1	12	263
2,179.56	4,575	23,578	23,590	5,029

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,166.55	11	0	0	11
2,167.55	11	11	11	24

Device	Routing	Invert	Outlet Devices
#1	Secondary	2,166.55'	**18.0" x 200.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 2,162.55' S= 0.0200 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	2,175.25'	**0.33' W x 0.75' H Vert. Slot Weir** C= 0.600
#3	Device 1	2,176.50'	**2.25' x 2.25' Horiz. Horiz. Top of OCS With Grate** Limited to weir flow C= 0.600
#4	Device 1	2,166.80'	**1.0" Vert. Vert Orifice From Underdrain Collector** C= 0.600
#5	Primary	2,178.05'	**roadway overflow, C= 2.62** Head (feet) 0.00 0.60 Width (feet) 0.00 60.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=2,166.55' (Free Discharge)
└─**5=roadway overflow** (Controls 0.00 cfs)

Secondary OutFlow Max=13.14 cfs @ 12.28 hrs HW=2,177.04' (Free Discharge)
└─**1=Culvert** (Passes 13.14 cfs of 26.55 cfs potential flow)
  ├─**2=Slot Weir** (Orifice Controls 1.41 cfs @ 5.71 fps)
  ├─**3=Horiz. Top of OCS With Grate** (Weir Controls 11.64 cfs @ 2.40 fps)
  └─**4=Vert Orifice From Underdrain Collector** (Orifice Controls 0.08 cfs @ 15.38 fps)

Summary for Pond DRYDETB: Dry Detention Pond

Inflow Area =	7.560 ac,	5.69% Impervious,	Inflow Depth >	3.39"	for Q10 event
Inflow =	12.29 cfs @	12.12 hrs,	Volume=	2.133 af	
Outflow =	11.44 cfs @	12.21 hrs,	Volume=	1.991 af,	Atten= 7%, Lag= 5.8 min
Primary =	11.44 cfs @	12.21 hrs,	Volume=	1.991 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 2,200.19' @ 12.21 hrs Surf.Area= 2,890 sf Storage= 11,680 cf
Flood Elev= 2,202.50' Surf.Area= 4,064 sf Storage= 19,678 cf

Plug-Flow detention time= 260.0 min calculated for 1.991 af (93% of inflow)
Center-of-Mass det. time= 95.8 min (1,209.9 - 1,114.1)

Volume	Invert	Avail.Storage	Storage Description
#1	2,190.40'	23,559 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 23,570 cf Overall - 11 cf Embedded = 23,559 cf
#2	2,190.40'	4 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1 11 cf Overall x 40.0% Voids
		23,564 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,190.40	11	0	0	11
2,191.40	11	11	11	24
2,191.41	250	1	12	263
2,203.40	4,575	23,558	23,570	5,029

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,190.40	11	0	0	11
2,191.40	11	11	11	24

Device	Routing	Invert	Outlet Devices
#1	Primary	2,190.40'	**18.0" x 125.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 2,187.90' S= 0.0200 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	2,198.60'	**0.33' W x 0.67' H Vert. Slot Weir** C= 0.600
#3	Device 1	2,199.60'	**1.75' x 1.75' Horiz. Horiz. Top of OCS with Grate** Limited to weir flow C= 0.600
#4	Device 1	2,190.65'	**1.0" Vert. Vert Orifice From Underdrain Collector** C= 0.600
#5	Primary	2,201.90'	**roadway overflow, C= 2.62** Head (feet) 0.00 0.60 Width (feet) 0.00 60.00

Primary OutFlow Max=11.59 cfs @ 12.21 hrs HW=2,200.19' (Free Discharge)
- **1=Culvert** (Passes 11.59 cfs of 25.58 cfs potential flow)
  - **2=Slot Weir** (Orifice Controls 1.19 cfs @ 5.37 fps)
  - **3=Horiz. Top of OCS with Grate** (Weir Controls 10.32 cfs @ 2.51 fps)
  - **4=Vert Orifice From Underdrain Collector** (Orifice Controls 0.08 cfs @ 14.84 fps)
- **5=roadway overflow** (Controls 0.00 cfs)

Summary for Pond DRYDETC: Dry Detention Pond

Inflow Area =	4.708 ac,	1.06% Impervious,	Inflow Depth =	3.01"	for Q10 event
Inflow =	8.53 cfs @	11.99 hrs, Volume=	1.180 af		
Outflow =	5.43 cfs @	12.44 hrs, Volume=	1.160 af,	Atten= 36%,	Lag= 26.9 min
Primary =	5.43 cfs @	12.44 hrs, Volume=	1.160 af		

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 2,222.89' @ 12.44 hrs Surf.Area= 2,777 sf Storage= 10,984 cf
Flood Elev= 2,225.45' Surf.Area= 4,064 sf Storage= 19,678 cf

Plug-Flow detention time= 331.3 min calculated for 1.160 af (98% of inflow)
Center-of-Mass det. time= 295.6 min (1,339.2 - 1,043.6)

Volume	Invert	Avail.Storage	Storage Description
#1	2,213.35'	23,559 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 23,570 cf Overall - 11 cf Embedded = 23,559 cf
#2	2,213.35'	4 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1 11 cf Overall x 40.0% Voids
		23,564 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,213.35	11	0	0	11
2,214.35	11	11	11	24
2,214.36	250	1	12	263
2,226.35	4,575	23,558	23,570	5,029

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,213.35	11	0	0	11
2,214.35	11	11	11	24

Device	Routing	Invert	Outlet Devices
#1	Primary	2,213.35'	**12.0" x 105.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 2,211.25' S= 0.0200 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	2,220.60'	**0.33' W x 1.75' H Vert. Slot Weir in OCS** C= 0.600
#3	Device 1	2,222.60'	**1.00' x 1.00' Horiz. Top of OCS Grate** Limited to weir flow C= 0.600
#4	Device 1	2,213.60'	**1.0" Vert. Orifice From Underdrain Collector** C= 0.600
#5	Primary	2,224.85'	**Parking Lot Weirover, C= 2.62** Head (feet) 0.00 0.60 Width (feet) 0.00 60.00

Primary OutFlow Max=5.40 cfs @ 12.44 hrs HW=2,222.89' (Free Discharge)
- **1=Culvert** (Passes 5.40 cfs of 11.37 cfs potential flow)
  - **2=Slot Weir in OCS** (Orifice Controls 3.25 cfs @ 5.63 fps)
  - **3=Top of OCS Grate** (Weir Controls 2.07 cfs @ 1.77 fps)
  - **4=Orifice From Underdrain Collector** (Orifice Controls 0.08 cfs @ 14.64 fps)
- **5=Parking Lot Weirover** (Controls 0.00 cfs)

Summary for Pond DRYDETD: Dry Detention Pond

Inflow Area =	3.105 ac,	0.34% Impervious,	Inflow Depth =	2.89"	for Q10 event
Inflow =	10.88 cfs @	12.12 hrs,	Volume=	0.748 af	
Outflow =	5.59 cfs @	12.31 hrs,	Volume=	0.748 af,	Atten= 49%, Lag= 11.5 min
Primary =	5.59 cfs @	12.31 hrs,	Volume=	0.748 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 2,240.81' @ 12.31 hrs Surf.Area= 2,780 sf Storage= 11,015 cf
Flood Elev= 2,243.35' Surf.Area= 4,059 sf Storage= 19,657 cf

Plug-Flow detention time= 306.2 min calculated for 0.748 af (100% of inflow)
Center-of-Mass det. time= 306.2 min (1,160.0 - 853.8)

Volume	Invert	Avail.Storage	Storage Description
#1	2,231.25'	23,579 cf	**Custom Stage Data for basin (Pyramidal)** Listed below (Recalc) 23,590 cf Overall - 11 cf Embedded = 23,579 cf
#2	2,231.25'	4 cf	**Custom Stage Data for underdrain (Pyramidal)** Listed below (Recalc) Inside #1 11 cf Overall x 40.0% Voids
		23,583 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,231.25	11	0	0	11
2,232.25	11	11	11	24
2,232.26	250	1	12	263
2,244.26	4,575	23,578	23,590	5,029

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,231.25	11	0	0	11
2,232.25	11	11	11	24

Device	Routing	Invert	Outlet Devices
#1	Primary	2,231.25'	**12.0" x 135.0' long OCS Outlet Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 2,228.55'. S= 0.0200 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	2,238.50'	**0.33' W x 1.75' H Vert. Slot Weir in OCS** C= 0.600
#3	Device 1	2,240.50'	**1.00' x 1.00' Horiz. Top of OCS with grate and cover** Limited to weir flow C= 0.600
#4	Device 1	2,231.50'	**1.0" Vert. Orifice From Underdrain Collector** C= 0.600
#5	Primary	2,242.75'	**Parking Lot Weirover, C= 2.62**

Head (feet) 0.00 0.60
Width (feet) 0.00 60.00

Primary OutFlow Max=5.58 cfs @ 12.31 hrs HW=2,240.81' (Free Discharge)
- **1=OCS Outlet Culvert** (Passes 5.58 cfs of 11.25 cfs potential flow)
  - **2=Slot Weir in OCS** (Orifice Controls 3.27 cfs @ 5.67 fps)
  - **3=Top of OCS with grate and cover** (Weir Controls 2.23 cfs @ 1.81 fps)
  - **4=Orifice From Underdrain Collector** (Orifice Controls 0.08 cfs @ 14.66 fps)
- **5=Parking Lot Weirover** (Controls 0.00 cfs)

Summary for Pond DS-A-E: 5x50

Inflow Area =	0.653 ac,	0.16% Impervious,	Inflow Depth =	3.18"	for Q10 event
Inflow =	3.67 cfs @	11.98 hrs,	Volume=	0.173 af	
Outflow =	3.65 cfs @	11.99 hrs,	Volume=	0.164 af,	Atten= 0%, Lag= 0.4 min
Primary =	3.65 cfs @	11.99 hrs,	Volume=	0.164 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 2,175.42' @ 11.99 hrs Surf.Area= 591 sf Storage= 606 cf
Flood Elev= 2,177.55' Surf.Area= 1,125 sf Storage= 2,438 cf

Plug-Flow detention time= 45.8 min calculated for 0.164 af (95% of inflow)
Center-of-Mass det. time= 15.5 min (842.8 - 827.3)

Volume	Invert	Avail.Storage	Storage Description
#1	2,173.55'	2,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2,173.55	0	0	0
2,174.55	375	188	188
2,175.05	500	219	406
2,175.55	625	281	688
2,177.55	1,125	1,750	2,438

Device	Routing	Invert	Outlet Devices
#1	Primary	2,173.05'	**6.0" x 24.0' long Culvert X 0.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 2,172.55' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	2,173.55'	**1.2" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	2,173.80'	**1.0" Vert. Vertical Orifice** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	2,175.05'	**Checkdam, C= 2.99** Head (feet) 0.00 0.50 2.50 Width (feet) 0.00 15.00 25.00

Primary OutFlow Max=3.63 cfs @ 11.99 hrs HW=2,175.42' (Free Discharge)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Horizontal Orifice** (Passes 0.00 cfs of 0.05 cfs potential flow)
    - **3=Vertical Orifice** (Passes 0.00 cfs of 0.11 cfs potential flow)
- **4=Checkdam** (Weir Controls 3.63 cfs @ 1.81 fps)

Summary for Pond DS-A-W: 8x50

Inflow Area =	0.785 ac,	13.87% Impervious,	Inflow Depth =	6.01"	for Q10 event
Inflow =	6.09 cfs @	11.97 hrs,	Volume=	0.394 af	
Outflow =	6.08 cfs @	11.98 hrs,	Volume=	0.388 af,	Atten= 0%, Lag= 0.3 min
Primary =	6.08 cfs @	11.98 hrs,	Volume=	0.388 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 2,175.00' @ 11.98 hrs Surf.Area= 602 sf Storage= 502 cf
Flood Elev= 2,177.55' Surf.Area= 1,144 sf Storage= 2,729 cf

Plug-Flow detention time= 16.5 min calculated for 0.388 af (99% of inflow)
Center-of-Mass det. time= 7.6 min (838.9 - 831.4)

Volume	Invert	Avail.Storage	Storage Description
#1	2,173.55'	2,729 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2,173.55	0	0	0
2,174.55	506	253	253
2,175.05	613	280	533
2,175.55	719	333	866
2,177.55	1,144	1,863	2,729

Device	Routing	Invert	Outlet Devices
#1	Primary	2,173.05'	**6.0" x 24.0' long Culvert X 0.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 2,172.55' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	2,173.55'	**1.0" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	2,173.80'	**1.0" Vert. Vertical Orifice/Grate** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	2,174.55'	**Checkdam, C= 2.99** Head (feet) 0.00 0.50 2.50 Width (feet) 0.00 15.00 25.00

Primary OutFlow Max=6.05 cfs @ 11.98 hrs HW=2,175.00' (Free Discharge)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Horizontal Orifice** (Passes 0.00 cfs of 0.03 cfs potential flow)
    - **3=Vertical Orifice/Grate** (Passes 0.00 cfs of 0.09 cfs potential flow)
- **4=Checkdam** (Weir Controls 6.05 cfs @ 2.00 fps)

Summary for Pond DS-B-E: 6.5x50

Inflow Area =	2.171 ac, 11.77% Impervious, Inflow Depth = 3.43" for Q10 event			
Inflow =	7.02 cfs @ 12.09 hrs, Volume=	0.620 af		
Outflow =	7.01 cfs @ 12.10 hrs, Volume=	0.609 af, Atten= 0%, Lag= 0.3 min		
Primary =	7.01 cfs @ 12.10 hrs, Volume=	0.609 af		

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 2,199.38' @ 12.10 hrs Surf.Area= 666 sf Storage= 760 cf
Flood Elev= 2,201.50' Surf.Area= 1,135 sf Storage= 2,583 cf

Plug-Flow detention time= 18.0 min calculated for 0.609 af (98% of inflow)
Center-of-Mass det. time= 7.3 min (843.7 - 836.3)

Volume	Invert	Avail.Storage	Storage Description
#1	2,197.40'	2,583 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2,197.40	0	0	0
2,198.40	440	220	220
2,198.90	556	249	469
2,199.40	672	307	776
2,201.40	1,135	1,807	2,583

Device	Routing	Invert	Outlet Devices
#1	Primary	2,196.90'	**6.0" x 24.0' long Culvert X 0.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 2,196.40' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	2,197.40'	**1.7" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	2,197.65'	**1.0" Vert. Vertical Orifice X 4.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	2,198.90'	**Checkdam, C= 2.99** Head (feet) 0.00 0.50 2.50 Width (feet) 0.00 15.00 25.00

Primary OutFlow Max=7.00 cfs @ 12.10 hrs HW=2,199.38' (Free Discharge)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Horizontal Orifice** (Passes 0.00 cfs of 0.11 cfs potential flow)
    - **3=Vertical Orifice** (Passes 0.00 cfs of 0.48 cfs potential flow)
- **4=Checkdam** (Weir Controls 7.00 cfs @ 2.06 fps)

Summary for Pond DS-B-W: 6.5x50

Inflow Area =	0.681 ac, 18.36% Impervious, Inflow Depth = 6.60" for Q10 event				
Inflow =	4.28 cfs @	12.08 hrs, Volume=	0.375 af		
Outflow =	4.28 cfs @	12.09 hrs, Volume=	0.364 af, Atten= 0%, Lag= 0.4 min		
Primary =	4.28 cfs @	12.09 hrs, Volume=	0.364 af		

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 2,199.29' @ 12.09 hrs Surf.Area= 646 sf Storage= 704 cf
Flood Elev= 2,201.40' Surf.Area= 1,135 sf Storage= 2,583 cf

Plug-Flow detention time= 28.5 min calculated for 0.364 af (97% of inflow)
Center-of-Mass det. time= 11.4 min (849.5 - 838.1)

Volume	Invert	Avail.Storage	Storage Description
#1	2,197.40'	2,583 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2,197.40	0	0	0
2,198.40	440	220	220
2,198.90	556	249	469
2,199.40	672	307	776
2,201.40	1,135	1,807	2,583

Device	Routing	Invert	Outlet Devices
#1	Primary	2,196.90'	**6.0" x 24.0' long Culvert X 0.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 2,196.40' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	2,197.40'	**1.3" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	2,197.65'	**1.0" Vert. Vertical Orifice/Grate X 3.00 columns** X 3 rows with 4.5" cc spacing C= 0.600
#4	Primary	2,198.90'	**Checkdam, C= 2.99** Head (feet) 0.00 0.50 2.50 Width (feet) 0.00 15.00 25.00

Primary OutFlow Max=4.26 cfs @ 12.09 hrs HW=2,199.29' (Free Discharge)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Horizontal Orifice** (Passes 0.00 cfs of 0.06 cfs potential flow)
    - **3=Vertical Orifice/Grate** (Passes 0.00 cfs of 0.26 cfs potential flow)
- **4=Checkdam** (Weir Controls 4.26 cfs @ 1.87 fps)

Summary for Pond DS-C-E: 5x50

Inflow Area = 0.937 ac, 0.09% Impervious, Inflow Depth = 3.18" for Q10 event
Inflow = 5.47 cfs @ 11.97 hrs, Volume= 0.249 af
Outflow = 5.45 cfs @ 11.98 hrs, Volume= 0.238 af, Atten= 1%, Lag= 0.4 min
Primary = 5.45 cfs @ 11.98 hrs, Volume= 0.238 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 2,222.30' @ 11.98 hrs Surf.Area= 661 sf Storage= 745 cf
Flood Elev= 2,224.35' Surf.Area= 1,135 sf Storage= 2,583 cf

Plug-Flow detention time= 38.4 min calculated for 0.238 af (96% of inflow)
Center-of-Mass det. time= 13.5 min (841.6 - 828.2)

Volume	Invert	Avail.Storage	Storage Description
#1	2,220.35'	2,583 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2,220.35	0	0	0
2,221.35	440	220	220
2,221.85	556	249	469
2,222.35	672	307	776
2,224.35	1,135	1,807	2,583

Device	Routing	Invert	Outlet Devices
#1	Primary	2,219.85'	**6.0" x 24.0' long Culvert X 0.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 2,219.35' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	2,220.35'	**1.5" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	2,220.60'	**1.0" Vert. Vertical Orifice X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	2,221.85'	**Checkdam, C= 2.62** Head (feet) 0.00 0.50 2.50 Width (feet) 0.00 15.00 25.00

Primary OutFlow Max=5.42 cfs @ 11.98 hrs HW=2,222.30' (Free Discharge)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Horizontal Orifice** (Passes 0.00 cfs of 0.08 cfs potential flow)
    - **3=Vertical Orifice** (Passes 0.00 cfs of 0.36 cfs potential flow)
- **4=Checkdam** (Weir Controls 5.42 cfs @ 1.76 fps)

Summary for Pond DS-C-W: 6.5x50

Inflow Area = 0.665 ac, 5.77% Impervious, Inflow Depth = 3.70" for Q10 event
Inflow = 3.41 cfs @ 12.02 hrs, Volume= 0.205 af
Outflow = 3.40 cfs @ 12.03 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.5 min
Primary = 3.40 cfs @ 12.03 hrs, Volume= 0.195 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 2,222.21' @ 12.03 hrs Surf.Area= 639 sf Storage= 681 cf
Flood Elev= 2,224.35' Surf.Area= 1,135 sf Storage= 2,583 cf

Plug-Flow detention time= 46.4 min calculated for 0.194 af (95% of inflow)
Center-of-Mass det. time= 16.8 min (843.4 - 826.6)

Volume	Invert	Avail.Storage	Storage Description
#1	2,220.35'	2,583 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2,220.35	0	0	0
2,221.35	440	220	220
2,221.85	556	249	469
2,222.35	672	307	776
2,224.35	1,135	1,807	2,583

Device	Routing	Invert	Outlet Devices
#1	Primary	2,219.85'	**6.0" x 24.0' long Culvert X 0.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 2,219.35' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	2,220.35'	**1.3" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	2,220.60'	**1.0" Vert. Vertical Orifice/Grate** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	2,221.85'	**Checkdam, C= 2.99** Head (feet) 0.00 0.50 2.50 Width (feet) 0.00 15.00 25.00

Primary OutFlow Max=3.38 cfs @ 12.03 hrs HW=2,222.21' (Free Discharge)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Horizontal Orifice** (Passes 0.00 cfs of 0.06 cfs potential flow)
    - **3=Vertical Orifice/Grate** (Passes 0.00 cfs of 0.11 cfs potential flow)
- **4=Checkdam** (Weir Controls 3.38 cfs @ 1.78 fps)

Summary for Pond DS-D-E: 5x50

Inflow Area =	1.126 ac,	0.10% Impervious,	Inflow Depth =	3.09"	for Q10 event
Inflow =	4.19 cfs @	12.11 hrs, Volume=	0.290 af		
Outflow =	4.18 cfs @	12.12 hrs, Volume=	0.280 af,	Atten= 0%,	Lag= 0.3 min
Primary =	4.18 cfs @	12.12 hrs, Volume=	0.280 af		

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 2,240.14' @ 12.12 hrs Surf.Area= 597 sf Storage= 618 cf
Flood Elev= 2,242.25' Surf.Area= 1,125 sf Storage= 2,438 cf

Plug-Flow detention time= 29.3 min calculated for 0.280 af (97% of inflow)
Center-of-Mass det. time= 10.4 min (852.6 - 842.2)

Volume	Invert	Avail.Storage	Storage Description
#1	2,238.25'	2,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2,238.25	0	0	0
2,239.25	375	188	188
2,239.75	500	219	406
2,240.25	625	281	688
2,242.25	1,125	1,750	2,438

Device	Routing	Invert	Outlet Devices
#1	Primary	2,237.75'	**6.0" x 24.0' long Culvert X 0.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 2,237.25' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	2,238.25'	**1.0" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	2,238.50'	**0.8" Vert. Vertical Orifice X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	2,239.75'	**Checkdam Weir, C= 2.99** Head (feet) 0.00 0.50 2.50 Width (feet) 0.00 15.00 25.00
#5	Primary	2,240.25'	**Unused Rock Dam Weir X 0.00, C= 2.62** Head (feet) 0.00 1.00 2.00 Width (feet) 3.00 7.00 25.00

Primary OutFlow Max=4.17 cfs @ 12.12 hrs HW=2,240.14' (Free Discharge)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Horizontal Orifice** (Passes 0.00 cfs of 0.04 cfs potential flow)
    - **3=Vertical Orifice** (Passes 0.00 cfs of 0.22 cfs potential flow)
- **4=Checkdam Weir** (Weir Controls 4.17 cfs @ 1.86 fps)
- **5=Unused Rock Dam Weir** (Controls 0.00 cfs)

Summary for Pond DS-D-W: 6.5x50

Inflow Area =	1.979 ac,	0.48% Impervious,	Inflow Depth =	2.90"	for Q10 event
Inflow =	6.71 cfs @	12.12 hrs,	Volume=	0.478 af	
Outflow =	6.71 cfs @	12.13 hrs,	Volume=	0.467 af,	Atten= 0%, Lag= 0.4 min
Primary =	6.71 cfs @	12.13 hrs,	Volume=	0.467 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 2,240.24' @ 12.13 hrs Surf.Area= 670 sf Storage= 771 cf
Flood Elev= 2,242.25' Surf.Area= 1,135 sf Storage= 2,583 cf

Plug-Flow detention time= 21.4 min calculated for 0.467 af (98% of inflow)
Center-of-Mass det. time= 7.9 min (854.5 - 846.5)

Volume	Invert	Avail.Storage	Storage Description
#1	2,238.25'	2,583 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2,238.25	0	0	0
2,239.25	440	220	220
2,239.75	556	249	469
2,240.25	672	307	776
2,242.25	1,135	1,807	2,583

Device	Routing	Invert	Outlet Devices
#1	Primary	2,237.75'	**6.0" x 24.0' long Culvert X 0.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 2,237.25' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	2,238.25'	**1.0" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	2,238.50'	**1.0" Vert. Vertical Orifice/Grate X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	2,239.75'	**Check Dam Custom Weir, C= 2.62** Head (feet) 0.00 0.50 2.50 Width (feet) 0.00 15.00 25.00

Primary OutFlow Max=6.69 cfs @ 12.13 hrs HW=2,240.24' (Free Discharge)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Horizontal Orifice** (Passes 0.00 cfs of 0.04 cfs potential flow)
    - **3=Vertical Orifice/Grate** (Passes 0.00 cfs of 0.36 cfs potential flow)
- **4=Check Dam Custom Weir** (Weir Controls 6.69 cfs @ 1.84 fps)

Summary for Link CBWQA: S

Inflow =	1.16 cfs @	12.04 hrs,	Volume=	0.166 af	
Primary =	1.16 cfs @	12.04 hrs,	Volume=	0.166 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Q10 Secondary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Aof3~Pond CBWQA.hce

Summary for Link CBWQB: S

Inflow	=	1.14 cfs @	12.06 hrs,	Volume=	0.171 af
Primary	=	1.14 cfs @	12.06 hrs,	Volume=	0.171 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

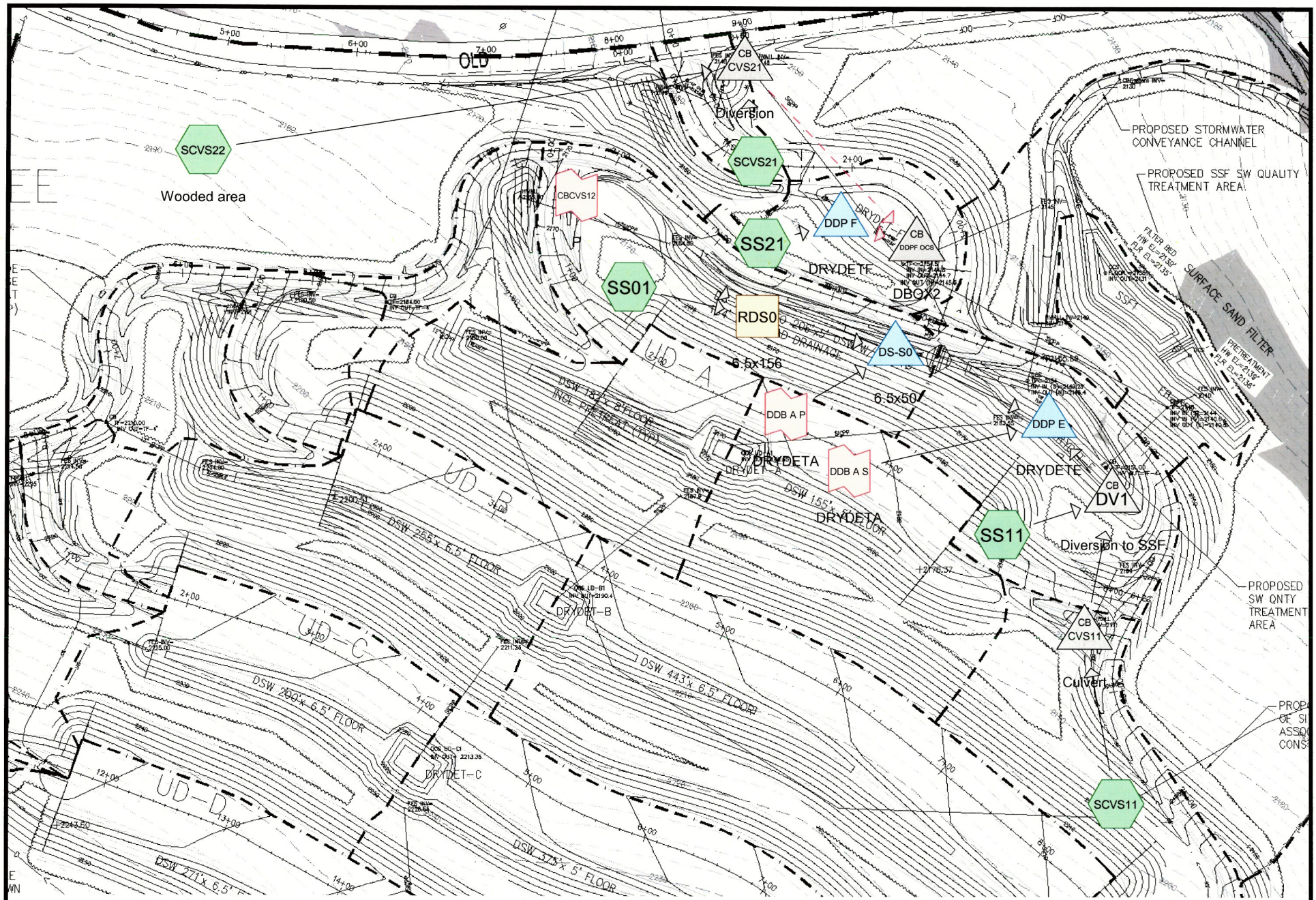
Q10 Secondary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Aof3~Pond CBWQB.hce

Summary for Link CBWQC: S

Inflow	=	0.27 cfs @	11.92 hrs,	Volume=	0.023 af
Primary	=	0.27 cfs @	11.92 hrs,	Volume=	0.023 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Q10 Secondary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Aof3~Pond CBWQC.hce



Subcat Reach Pond Link

Drainage Diagram for PR Upper Discovery Parking TIER A-D 1Cof3

Prepared by NYSDEC DOP BD&C, Printed 3/23/2011

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.873	70	Woods, Good, HSG C (SCVS11,SCVS22,SS01,SS11,SS21)
0.573	74	Pasture/grassland/range, Good, HSG C (SCVS22)
1.888	74	grassland, good (SCVS11,SCVS21,SS01,SS11,SS21)
0.135	98	Paved parking & roofs (SCVS22)
0.104	98	Paved parking 60x280 (SCVS21,SS01)
0.339	98	Paved parking 60x500 (SCVS11,SS11,SS21)
4.912		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.447	HSG C	SCVS11, SCVS22, SS01, SS11, SS21
0.000	HSG D	
2.466	Other	SCVS11, SCVS21, SCVS22, SS01, SS11, SS21
4.912		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment SCVS11: Runoff Area=33,005 sf 16.22% Impervious Runoff Depth=3.48"
Flow Length=87' Tc=9.8 min CN=77 Runoff=4.07 cfs 0.220 af

Subcatchment SCVS21: Runoff Area=6,337 sf 62.84% Impervious Runoff Depth=4.74"
Flow Length=127' Tc=0.9 min CN=89 Runoff=1.34 cfs 0.057 af

Subcatchment SCVS22: Wooded area Runoff Area=103,471 sf 5.69% Impervious Runoff Depth=3.09"
Flow Length=860' Tc=23.4 min CN=73 Runoff=7.42 cfs 0.611 af

Subcatchment SS01: Runoff Area=26,323 sf 2.10% Impervious Runoff Depth=3.18"
Flow Length=65' Tc=10.3 min CN=74 Runoff=2.93 cfs 0.160 af

Subcatchment SS11: Runoff Area=30,033 sf 20.25% Impervious Runoff Depth=3.68"
Flow Length=69' Tc=8.1 min CN=79 Runoff=4.13 cfs 0.211 af

Subcatchment SS21: Runoff Area=14,811 sf 22.36% Impervious Runoff Depth=3.68"
Flow Length=108' Tc=10.0 min CN=79 Runoff=1.91 cfs 0.104 af

Reach RDS0: 6.5x156 Avg. Depth=0.36' Max Vel=3.26 fps Inflow=8.62 cfs 0.336 af
n=0.030 L=156.0' S=0.0200 '/' Capacity=780.70 cfs Outflow=8.57 cfs 0.336 af

Pond CVS11: Culvert Peak Elev=2,172.10' Inflow=4.07 cfs 0.220 af
Outflow=4.07 cfs 0.220 af

Pond CVS21: Diversion Peak Elev=2,149.03' Inflow=7.56 cfs 0.669 af
Primary=6.03 cfs 0.233 af Secondary=1.53 cfs 0.436 af Outflow=7.56 cfs 0.669 af

Pond DDP E: DRYDETE Peak Elev=2,153.60' Storage=6,126 cf Inflow=14.73 cfs 2.750 af
Outflow=12.65 cfs 2.749 af

Pond DDP F: DRYDETF Peak Elev=2,154.29' Storage=845 cf Inflow=1.91 cfs 0.104 af
Primary=0.00 cfs 0.000 af Secondary=0.72 cfs 0.104 af Outflow=0.72 cfs 0.104 af

Pond DDPF OCS: DBOX2 Peak Elev=2,145.59' Inflow=2.25 cfs 0.540 af
Primary=0.00 cfs 0.000 af Secondary=2.25 cfs 0.540 af Outflow=2.25 cfs 0.540 af

Pond DS-S0: 6.5x50 Peak Elev=2,158.02' Storage=786 cf Inflow=8.57 cfs 0.336 af
Outflow=8.55 cfs 0.325 af

Pond DV1: Diversion to SSF Peak Elev=2,151.93' Inflow=8.15 cfs 0.431 af
Primary=5.22 cfs 0.075 af Secondary=2.93 cfs 0.356 af Outflow=8.15 cfs 0.431 af

Link Q10 Primary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Aof3~Pond CVS12.hce Inflow=5.68 cfs 0.175 af
Area= 1.802 ac 18.93% Imperv. Primary=5.68 cfs 0.175 af

Link Q10 Primary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Bof3~Pond DRYDETA.hce Inflow=0.00 cfs 0.000 af
Area= 8.999 ac 6.01% Imperv. Primary=0.00 cfs 0.000 af

Link Q10 Secondary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Bof3~Pond DRYDETA.hce Inflow=13.20 cfs 2.350 af
Primary=13.20 cfs 2.350 af

Total Runoff Area = 4.912 ac Runoff Volume = 1.365 af Average Runoff Depth = 3.33"
88.24% Pervious = 4.334 ac 11.76% Impervious = 0.578 ac

Summary for Subcatchment SCVS11:

Runoff = 4.07 cfs @ 12.01 hrs, Volume= 0.220 af, Depth= 3.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	5,353	98	Paved parking 60x500
*	24,256	74	grassland, good
	3,396	70	Woods, Good, HSG C
	33,005	77	Weighted Average
	27,652		Pervious Area
	5,353		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	54	0.2037	0.11		**Sheet Flow, SHT** Woods: Dense underbrush n= 0.800 P2= 4.00"
1.7	33	0.3333	0.32		**Sheet Flow, SHT** Grass: Dense n= 0.240 P2= 4.00"
9.8	87	Total			

Summary for Subcatchment SCVS21:

Runoff = 1.34 cfs @ 11.91 hrs, Volume= 0.057 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	3,982	98	Paved parking 60x280
*	2,355	74	grassland, good
	6,337	89	Weighted Average
	2,355		Pervious Area
	3,982		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	76	0.0530	2.15		**Sheet Flow, SHT** Smooth surfaces n= 0.011 P2= 4.00"
0.3	51	0.1370	2.59		**Shallow Concentrated Flow, SCF** Short Grass Pasture Kv= 7.0 fps
0.9	127	Total			

Summary for Subcatchment SCVS22: Wooded area

Runoff = 7.42 cfs @ 12.17 hrs, Volume= 0.611 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

Area (sf)	CN	Description
72,606	70	Woods, Good, HSG C
5,892	98	Paved parking & roofs
24,973	74	Pasture/grassland/range, Good, HSG C
103,471	73	Weighted Average
97,579		Pervious Area
5,892		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.1000	0.09		**Sheet Flow, SHT in forest** Woods: Dense underbrush n= 0.800 P2= 4.00"
4.9	268	0.1340	0.92		**Shallow Concentrated Flow, SCF in forest** Forest w/Heavy Litter Kv= 2.5 fps
0.9	492	0.0550	9.10	72.76	**Channel Flow, Roadside along 49a** Area= 8.0 sf Perim= 7.5' r= 1.07' n= 0.040 Earth, cobble bottom, clean sides
23.4	860	Total			

Summary for Subcatchment SS01:

Runoff = 2.93 cfs @ 12.02 hrs, Volume= 0.160 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	553	98	Paved parking 60x280
*	24,144	74	grassland, good
	1,626	70	Woods, Good, HSG C
	26,323	74	Weighted Average
	25,770		Pervious Area
	553		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	46	0.1087	0.08		**Sheet Flow, SHT** Woods: Dense underbrush n= 0.800 P2= 4.00"
1.2	19	0.2632	0.26		**Sheet Flow, SHT** Grass: Dense n= 0.240 P2= 4.00"
10.3	65	Total			

Summary for Subcatchment SS11:

Runoff = 4.13 cfs @ 12.00 hrs, Volume= 0.211 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	6,082	98	Paved parking 60x500
*	22,204	74	grassland, good
	1,747	70	Woods, Good, HSG C
	30,033	79	Weighted Average
	23,951		Pervious Area
	6,082		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	40	0.1750	0.10		**Sheet Flow, SHT** Woods: Dense underbrush n= 0.800 P2= 4.00"
1.4	29	0.4138	0.34		**Sheet Flow, DHT** Grass: Dense n= 0.240 P2= 4.00"
8.1	69	Total			

Summary for Subcatchment SS21:

Runoff = 1.91 cfs @ 12.01 hrs, Volume= 0.104 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	3,311	98	Paved parking 60x500
*	9,267	74	grassland, good
	2,233	70	Woods, Good, HSG C
	14,811	79	Weighted Average
	11,500		Pervious Area
	3,311		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	48	0.1040	0.08		**Sheet Flow, SHT** Woods: Dense underbrush n= 0.800 P2= 4.00"
0.4	60	0.1330	2.55		**Shallow Concentrated Flow, SCF** Short Grass Pasture Kv= 7.0 fps
10.0	108	Total			

Summary for Reach RDS0: 6.5x156

Inflow Area = 2.407 ac, 14.71% Impervious, Inflow Depth = 1.67" for Q10 event
Inflow = 8.62 cfs @ 12.02 hrs, Volume= 0.336 af
Outflow = 8.57 cfs @ 12.03 hrs, Volume= 0.336 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.26 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.88 fps, Avg. Travel Time= 3.0 min

Peak Storage= 410 cf @ 12.03 hrs, Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 780.70 cfs

6.50' x 4.00' deep channel, n= 0.030
Side Slope Z-value= 2.3 '/' Top Width= 24.90'
Length= 156.0' Slope= 0.0200 '/'
Inlet Invert= 2,160.12', Outlet Invert= 2,157.00'

Summary for Pond CVS11: Culvert

Inflow Area = 0.758 ac, 16.22% Impervious, Inflow Depth = 3.48" for Q10 event
Inflow = 4.07 cfs @ 12.01 hrs, Volume= 0.220 af
Outflow = 4.07 cfs @ 12.01 hrs, Volume= 0.220 af, Atten= 0%, Lag= 0.0 min
Primary = 4.07 cfs @ 12.01 hrs, Volume= 0.220 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 2,172.10' @ 12.01 hrs
Flood Elev= 2,175.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	2,171.00'	**15.0" x 46.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 2,169.00' S= 0.0435 '/' Cc= 0.900 n= 0.025 Corrugated metal
#2	Primary	2,175.00'	**Custom Weir/Orifice, C= 2.62** Head (feet) 0.00 2.00 Width (feet) 45.00 46.00

Primary OutFlow Max=4.07 cfs @ 12.01 hrs HW=2,172.10' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.07 cfs @ 3.56 fps)
└─**2=Custom Weir/Orifice** (Controls 0.00 cfs)

Summary for Pond CVS21: Diversion

Inflow Area = 2.521 ac, 8.99% Impervious, Inflow Depth = 3.18" for Q10 event
Inflow = 7.56 cfs @ 12.17 hrs, Volume= 0.669 af
Outflow = 7.56 cfs @ 12.17 hrs, Volume= 0.669 af, Atten= 0%, Lag= 0.0 min
Primary = 6.03 cfs @ 12.17 hrs, Volume= 0.233 af
Secondary = 1.53 cfs @ 12.17 hrs, Volume= 0.436 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 2,149.03' @ 12.17 hrs
Flood Elev= 2,150.50'

Device	Routing	Invert	Outlet Devices
#1	Secondary	2,148.00'	**12.0" x 198.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 2,144.80' S= 0.0162 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	2,148.00'	**8.4" Vert. Vertical Orifice to Treatment** C= 0.600
#3	Primary	2,148.00'	**Immediate downstream channel, C= 2.62** Head (feet) 0.00 2.00 Width (feet) 2.00 12.00
#4	Device 3	2,148.50'	**Custom Weir/Orifice, C= 2.62** Elev. (feet) 2,148.50 2,149.00 2,150.00 Width (feet) 0.00 11.00 16.00

Primary OutFlow Max=6.02 cfs @ 12.17 hrs HW=2,149.03' (Free Discharge)
└─**3=Immediate downstream channel** (Passes 6.02 cfs of 14.03 cfs potential flow)
└─**4=Custom Weir/Orifice** (Weir Controls 6.02 cfs @ 1.92 fps)

Secondary OutFlow Max=1.53 cfs @ 12.17 hrs HW=2,149.03' (Free Discharge)
└─**1=Culvert** (Passes 1.53 cfs of 2.77 cfs potential flow)
└─**2=Vertical Orifice to Treatment** (Orifice Controls 1.53 cfs @ 3.98 fps)

Summary for Pond DDP E: DRYDETE

Inflow Area = 12.852 ac, 9.00% Impervious, Inflow Depth > 2.57" for Q10 event
Inflow = 14.73 cfs @ 12.25 hrs, Volume= 2.750 af
Outflow = 12.65 cfs @ 12.44 hrs, Volume= 2.749 af, Atten= 14%, Lag= 11.3 min
Primary = 12.65 cfs @ 12.44 hrs, Volume= 2.749 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 2,153.60' @ 12.44 hrs Surf.Area= 2,962 sf Storage= 6,126 cf
Flood Elev= 2,156.50' Surf.Area= 5,682 sf Storage= 18,999 cf

Plug-Flow detention time= 13.4 min calculated for 2.749 af (100% of inflow)
Center-of-Mass det. time= 13.1 min (1,152.9 - 1,139.8)

Volume	Invert	Avail.Storage	Storage Description
#1	2,149.00'	21,824 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 21,864 cf Overall - 40 cf Embedded = 21,824 cf
#2	2,149.00'	16 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1 40 cf Overall x 40.0% Voids
		21,840 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,149.00	40	0	0	40
2,149.99	40	40	40	65
2,150.00	673	3	43	698
2,152.00	1,775	2,361	2,403	1,833
2,154.00	3,307	5,003	7,406	3,416
2,155.00	4,308	3,796	11,203	4,447
2,156.00	5,682	4,979	16,182	5,850
2,157.00	5,682	5,682	21,864	6,151

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,149.00	40	0	0	40
2,149.99	40	40	40	65

Device	Routing	Invert	Outlet Devices
#1	Primary	2,146.40'	**24.0" x 46.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 2,146.00' S= 0.0087 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	2,146.40'	**24.0" Vert. Orifice/Grate** C= 0.600
#3	Device 2	2,149.25'	**2.1" Vert. DDP floor underdrain** C= 0.600
#4	Device 2	2,150.50'	**Narrow Vertical 8" Slot Weir, C= 3.10** Head (feet) 0.00 0.50 2.99 3.00 Width (feet) 0.00 0.67 0.67 0.00
#5	Device 2	2,154.00'	**20.0" Horiz. Horizontal Grate** Limited to weir flow C= 0.600
#6	Primary	2,155.89'	**Roadway weirover, C= 2.62** Head (feet) 0.00 0.11 2.11 Width (feet) 0.00 17.50 125.00

Primary OutFlow Max=12.65 cfs @ 12.44 hrs HW=2,153.60' (Free Discharge)
- **1=Culvert** (Passes 12.65 cfs of 37.66 cfs potential flow)
  - **2=Orifice/Grate** (Passes 12.65 cfs of 37.66 cfs potential flow)
    - **3=DDP floor underdrain** (Orifice Controls 0.24 cfs @ 9.94 fps)
    - **4=Narrow Vertical 8" Slot Weir** (Orifice Controls 12.41 cfs @ 6.75 fps)
    - **5=Horizontal Grate** (Controls 0.00 cfs)
- **6=Roadway weirover** (Controls 0.00 cfs)

Summary for Pond DDP F: DRYDETF

Inflow Area = 0.340 ac, 22.36% Impervious, Inflow Depth = 3.68" for Q10 event
Inflow = 1.91 cfs @ 12.01 hrs, Volume= 0.104 af
Outflow = 0.72 cfs @ 12.16 hrs, Volume= 0.104 af, Atten= 62%, Lag= 9.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.72 cfs @ 12.16 hrs, Volume= 0.104 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 2,154.29' @ 12.16 hrs Surf.Area= 2,927 sf Storage= 845 cf
Flood Elev= 2,158.20' Surf.Area= 3,991 sf Storage= 8,729 cf

Plug-Flow detention time= 6.6 min calculated for 0.104 af (100% of inflow)
Center-of-Mass det. time= 6.0 min (823.3 - 817.3)

Volume	Invert	Avail.Storage	Storage Description
#1	2,153.00'	8,721 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 8,741 cf Overall - 20 cf Embedded = 8,721 cf
#2	2,153.00'	8 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1 20 cf Overall x 40.0% Voids
		8,729 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,153.00	20	0	0	20
2,153.99	20	20	20	38
2,154.00	2,763	10	30	2,781
2,156.00	3,990	6,716	6,745	4,092
2,156.50	3,991	1,995	8,741	4,218

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
2,153.00	20	0	0	20
2,153.99	20	20	20	38

Device	Routing	Invert	Outlet Devices
#1	Secondary	2,153.25'	**5.5" Vert. Vertical External Orifice in FLR collctr for SS21WQv** C= 0.600
#2	Secondary	2,154.70'	**12.0" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Primary	2,156.24'	**roadway overflow, C= 2.62** Head (feet) 0.00 1.95 Width (feet) 0.00 132.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=2,153.00' (Free Discharge)
└**3=roadway overflow** (Controls 0.00 cfs)

Secondary OutFlow Max=0.72 cfs @ 12.16 hrs HW=2,154.29' (Free Discharge)
├**1=Vertical External Orifice in FLR collctr for SS21WQv** (Orifice Controls 0.72 cfs @ 4.34 fps)
└**2=Horizontal Orifice** (Controls 0.00 cfs)

Summary for Pond DDPF OCS: DBOX2

Inflow = 2.25 cfs @ 12.17 hrs, Volume= 0.540 af
Outflow = 2.25 cfs @ 12.17 hrs, Volume= 0.540 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 2.25 cfs @ 12.17 hrs, Volume= 0.540 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 2,145.59' @ 12.17 hrs
Flood Elev= 2,158.20'

Device	Routing	Invert	Outlet Devices
#1	Secondary	2,144.70'	**12.0" x 232.0' long Culvert to SSF** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 2,140.60' S= 0.0177 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	2,144.70'	**11.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	2,145.60'	**12.0" x 113.0' long Culvert to CHNL** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 2,145.00' S= 0.0053 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=2,144.70' (Free Discharge)
└─**3=Culvert to CHNL** (Controls 0.00 cfs)

Secondary OutFlow Max=2.25 cfs @ 12.17 hrs HW=2,145.59' (Free Discharge)
└─**1=Culvert to SSF** (Passes 2.25 cfs of 2.38 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 2.25 cfs @ 3.22 fps)

Summary for Pond DS-S0: 6.5x50

Inflow Area =	11.405 ac,	7.84% Impervious,	Inflow Depth =	0.35"	for Q10 event
Inflow =	8.57 cfs @	12.03 hrs,	Volume=	0.336 af	
Outflow =	8.55 cfs @	12.03 hrs,	Volume=	0.325 af,	Atten= 0%, Lag= 0.3 min
Primary =	8.55 cfs @	12.03 hrs,	Volume=	0.325 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 2,158.02' @ 12.03 hrs Surf.Area= 676 sf Storage= 786 cf
Flood Elev= 2,160.10' Surf.Area= 1,135 sf Storage= 2,583 cf

Plug-Flow detention time= 28.6 min calculated for 0.325 af (97% of inflow)
Center-of-Mass det. time= 9.6 min (812.7 - 803.1)

Volume	Invert	Avail.Storage	Storage Description
#1	2,156.00'	2,583 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2,156.00	0	0	0
2,157.00	440	220	220
2,157.50	556	249	469
2,158.00	672	307	776
2,160.00	1,135	1,807	2,583

Device	Routing	Invert	Outlet Devices
#1	Primary	2,155.50'	**6.0" x 24.0' long Culvert X 0.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 2,155.00' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	2,156.00'	**1.7" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	2,156.25'	**1.0" Vert. Vertical Orifice X 4.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	2,157.50'	**Checkdam, C= 2.99** Head (feet) 0.00 0.50 2.50 Width (feet) 0.00 15.00 25.00

Primary OutFlow Max=8.53 cfs @ 12.03 hrs HW=2,158.01' (Free Discharge)
├─**1=Culvert** (Controls 0.00 cfs)
│ └─**2=Horizontal Orifice** (Passes 0.00 cfs of 0.11 cfs potential flow)
│ └─**3=Vertical Orifice** (Passes 0.00 cfs of 0.49 cfs potential flow)
└─**4=Checkdam** (Weir Controls 8.53 cfs @ 2.15 fps)

Summary for Pond DV1: Diversion to SSF

Inflow Area =	1.447 ac,	18.14% Impervious,	Inflow Depth =	3.57"	for Q10 event
Inflow =	8.15 cfs @	12.00 hrs, Volume=	0.431 af		
Outflow =	8.15 cfs @	12.00 hrs, Volume=	0.431 af,	Atten= 0%,	Lag= 0.0 min
Primary =	5.22 cfs @	12.00 hrs, Volume=	0.075 af		
Secondary =	2.93 cfs @	12.00 hrs, Volume=	0.356 af		

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 2,151.93' @ 12.00 hrs
Flood Elev= 2,153.00'

Device	Routing	Invert	Outlet Devices
#1	Secondary	2,147.00'	**12.0" x 66.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 2,144.00' S= 0.0455 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	2,147.00'	**7.2" Vert. Vert Orifice** C= 0.600
#3	Primary	2,151.50'	**Weir in Channel, C= 2.62** Head (feet) 0.00 0.50 2.50 4.50 6.50 Width (feet) 4.00 9.00 19.00 25.00 125.00

Primary OutFlow Max=5.16 cfs @ 12.00 hrs HW=2,151.92' (Free Discharge)
└─**3=Weir in Channel** (Weir Controls 5.16 cfs @ 1.99 fps)

Secondary OutFlow Max=2.93 cfs @ 12.00 hrs HW=2,151.92' (Free Discharge)
└─**1=Culvert** (Passes 2.93 cfs of 7.95 cfs potential flow)
└─**2=Vert Orifice** (Orifice Controls 2.93 cfs @ 10.35 fps)

Summary for Link CBCVS12: P

Inflow Area =	1.802 ac,	18.93% Impervious,	Inflow Depth =	1.17"	for Q10 event
Inflow =	5.68 cfs @	12.02 hrs, Volume=	0.175 af		
Primary =	5.68 cfs @	12.02 hrs, Volume=	0.175 af,	Atten= 0%,	Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Q10 Primary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Aof3~Pond CVS12.hce

Summary for Link DDB A P: DRYDETA

Inflow Area =	8.999 ac,	6.01% Impervious,	Inflow Depth =	0.00"	for Q10 event
Inflow =	0.00 cfs @	0.00 hrs, Volume=	0.000 af		
Primary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af,	Atten= 0%,	Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Q10 Primary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Bof3~Pond DRYDETA.hce

Summary for Link DDB A S: DRYDETA

Inflow =	13.20 cfs @	12.28 hrs, Volume=	2.350 af	
Primary =	13.20 cfs @	12.28 hrs, Volume=	2.350 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Q10 Secondary Outflow Imported from PR Upper Discovery Parking TIER A-D 1Bof3~Pond DRYDETA.hce