Permit No.	Date	DIN
11-07	May 15 2015	24319

RECEIVED
May 14, 2015
Solid Waste Section
Asheville Regional Office

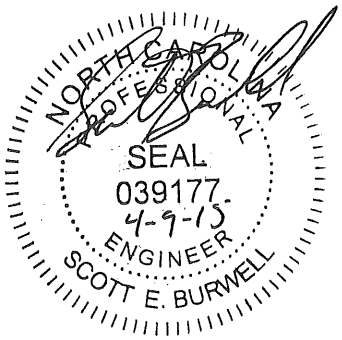
STORMWATER REPORT AND CALCULATIONS

For

Buncombe County Landfill
CDLF Phase 5 Expansion

Buncombe County, NORTH CAROLINA

By: Scott Burwell, PE



McGill ASSOCIATES

Engineering • Planning • Finance
55 Broad Street
Asheville, North Carolina 28801

April, 2015

Sediment Basin 11 Analysis

McGill Associates has provided a grading plan that will add approximately 30,000 SF (.69 Acres) to the drainage area of sediment basin 11. A hydrocad model using the SCS TR-20 method was created of sediment basin 11 to ensure that it contained sufficient storage volume, and that the primary & emergency spillway could adequately pass a 25 year 24 hour storm used by CDM in the Engineering Plan. To complete the analysis of sediment basin 11 the applicable variables from CDM's design calculations were used to create a hydrocad model. CDM's report showed that a 5.79" rainfall depth was used. This value was compared to the current NOAA rainfall depth of 4.36". It was determined that the previous 5.79" rainfall depth shall be used in the current model to be maintain consistency and conservatism. The SCS CN value provided was 85 and was verified via CN tables within the hydrocad software. A 5 minute time of concentration was utilized to maintain consistency with CDM. The outlet structure data for the barrel, riser, and emergency spillway from CDM's report was entered into the hydrocad model. Incremental storage volume was created within hydrocad based on the surface area of the sediment basin contours from field run survey.

The hydrocad model showed that the peak elevation of the sediment basin was 1947.22' during the 25-year storm with the primary spillway carrying 6.69 cfs. The 50 –year, 24 hour storm was evaluated however the NOAA rainfall depth of 4.9" was less than the value that CDM used for the 25 year storm of 5.79". All three design storms (Current NOAA value for 25 year storm, CDM's design value for 25 year storm, and the current NOAA value for the 50 year storm) pass through the primary spillway without the water surface elevation reaching the emergency spillway.

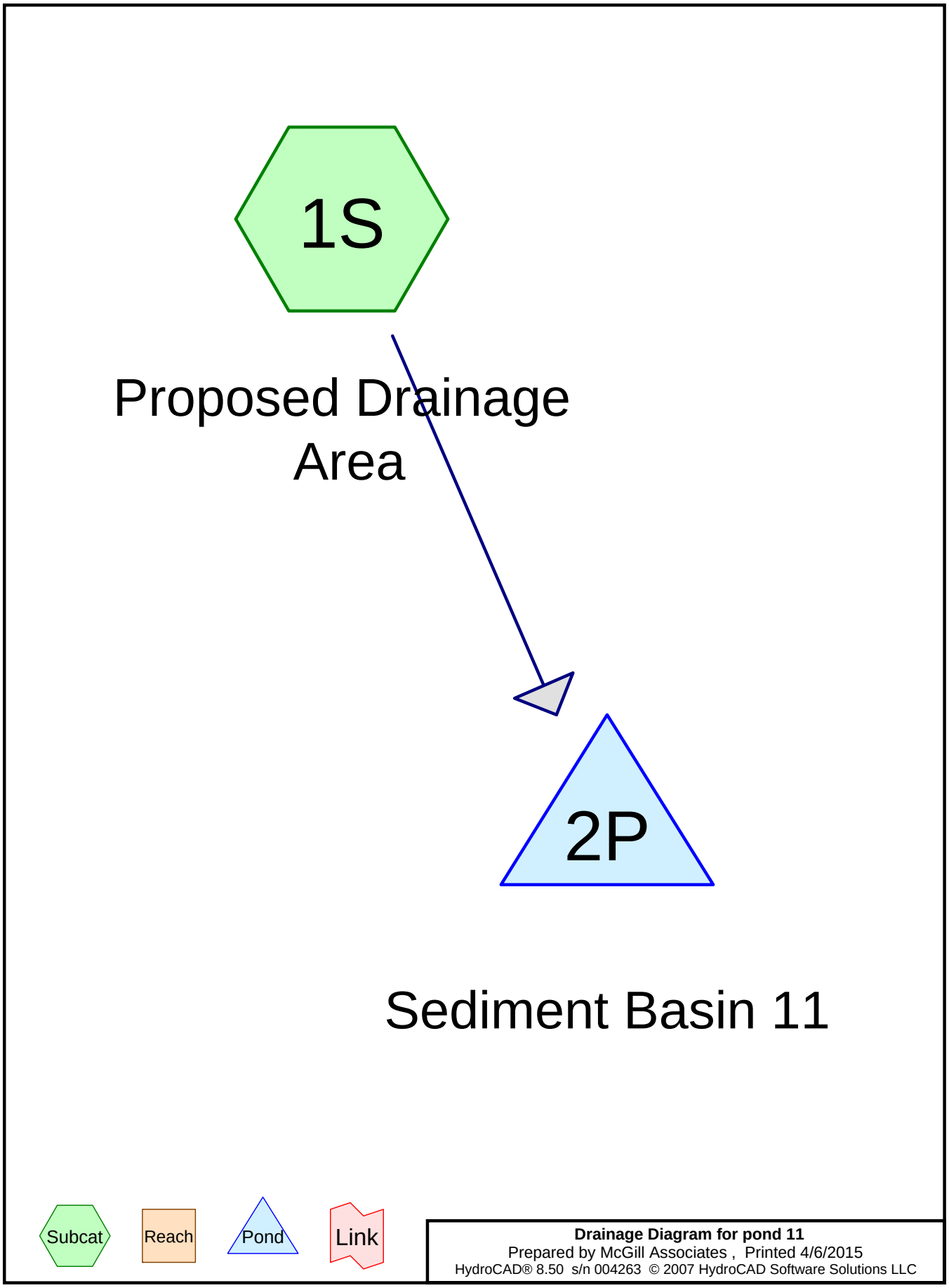
Ditch 11.2 was analyzed to ensure that the provided geometry was sufficient to carry the stormwater that was added by proposed ditch 11.3. The analysis included using CDM's geometry and material values for Ditch 11.2 in conjunction with the proposed drainage area and current NOAA rainfall depth. A nominal depth calculation using Flowmaster software and stability calculation using Tensar software is included in Section 2. Proposed Ditch 11.3 was sized using Flowmaster software, and was analyzed for stability using Tensar software. Calculations for Proposed Ditch 11.3 are included in Section 3.

SECTION 1

SEDIMENT BASIN 11

BUNCOMBE COUNTY LANDFILL

BUNCOMBE COUNTY



Drainage Diagram for pond 11
Prepared by McGill Associates , Printed 4/6/2015
HydroCAD® 8.50 s/n 004263 © 2007 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.690	85	30,000 sf additional (1S)
12.170	85	Fallow, bare soil, HSG B (1S)
12.860		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.000	HSG A	
12.170	HSG B	1S
0.000	HSG C	
0.000	HSG D	
0.690	Other	1S
12.860		**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Proposed Drainage Area Runoff Area=12.860 ac 0.00% Impervious Runoff Depth>3.84"
Tc=5.0 min CN=85 Runoff=90.97 cfs 4.116 af

Pond 2P: Sediment Basin 11 Peak Elev=1,947.22' Storage=112,208 cf Inflow=90.97 cfs 4.116 af
Outflow=6.69 cfs 1.980 af

Total Runoff Area = 12.860 ac Runoff Volume = 4.116 af Average Runoff Depth = 3.84"
100.00% Pervious = 12.860 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Proposed Drainage Area

[49] Hint: Tc<2dt may require smaller dt

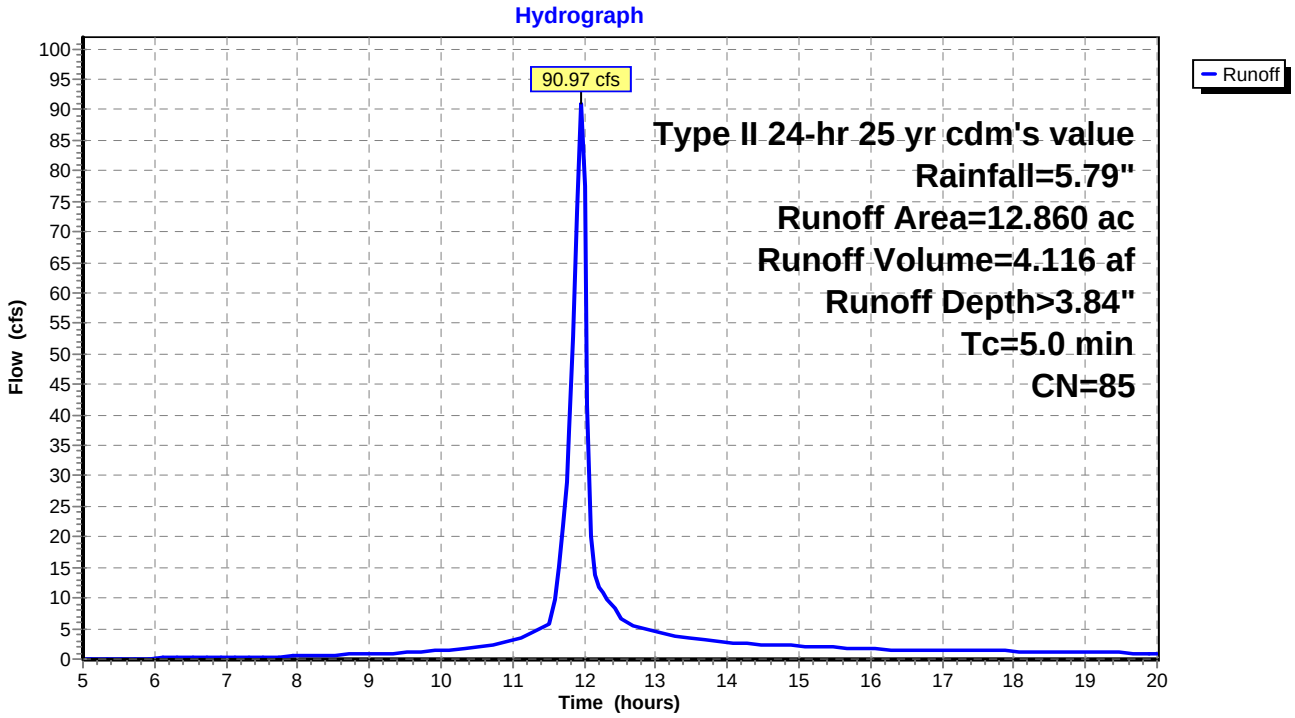
Runoff = 90.97 cfs @ 11.95 hrs, Volume= 4.116 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 yr cdm's value Rainfall=5.79"

	Area (ac)	CN	Description
*	12.170	85	Fallow, bare soil, HSG B
*	0.690	85	30,000 sf additional
	12.860	85	Weighted Average
	12.860		Pervious Area

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

Subcatchment 1S: Proposed Drainage Area



Summary for Pond 2P: Sediment Basin 11

Inflow Area = 12.860 ac, 0.00% Impervious, Inflow Depth > 3.84" for 25 yr cdm's value event
Inflow = 90.97 cfs @ 11.95 hrs, Volume= 4.116 af
Outflow = 6.69 cfs @ 12.53 hrs, Volume= 1.980 af, Atten= 93%, Lag= 34.5 min
Primary = 6.69 cfs @ 12.53 hrs, Volume= 1.980 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,947.22' @ 12.53 hrs Surf.Area= 17,925 sf Storage= 112,208 cf

Plug-Flow detention time= 188.6 min calculated for 1.980 af (48% of inflow)
Center-of-Mass det. time= 107.4 min (869.5 - 762.0)

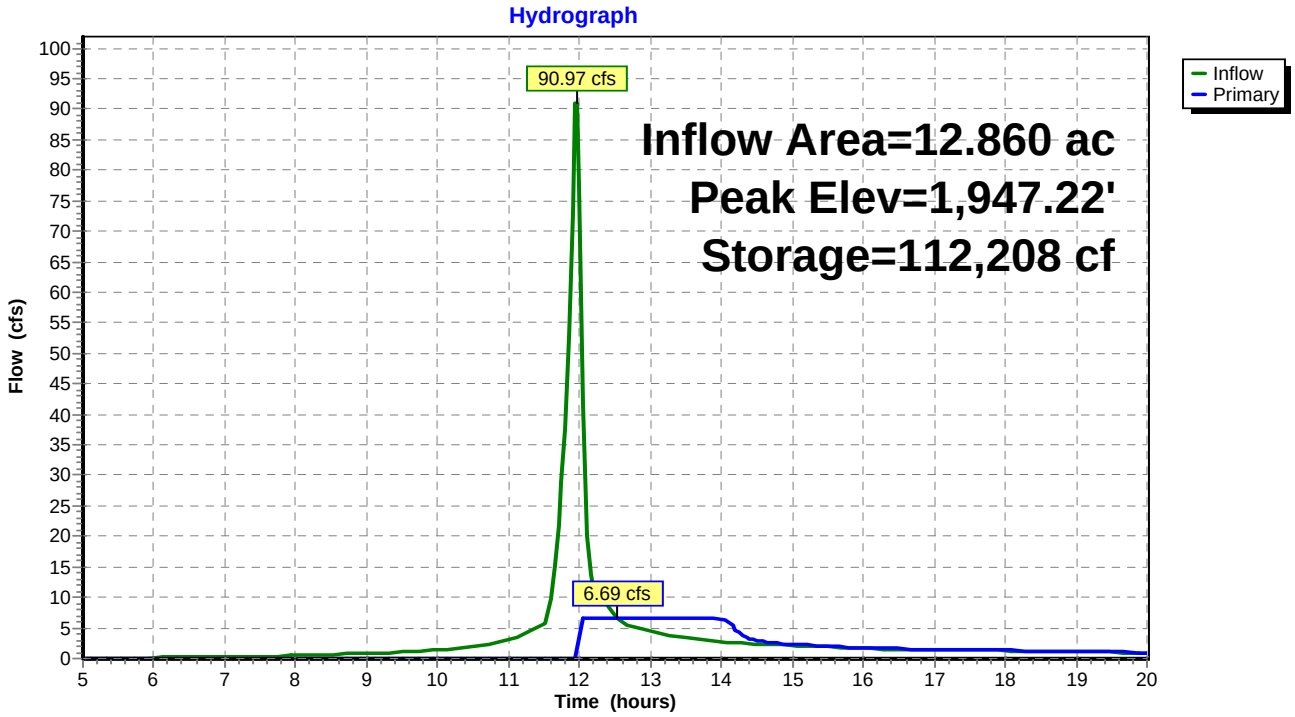
Volume	Invert	Avail.Storage	Storage Description
#1	1,936.00'	168,026 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,936.00	4,400	0	0	4,400
1,938.00	5,430	9,812	9,812	5,543
1,940.00	7,353	12,735	22,546	7,548
1,942.00	9,624	16,926	39,473	9,910
1,944.00	13,177	22,708	62,181	13,543
1,946.00	16,177	29,303	91,484	16,663
1,948.00	19,099	35,236	126,719	19,733
1,950.00	22,248	41,307	168,026	23,042

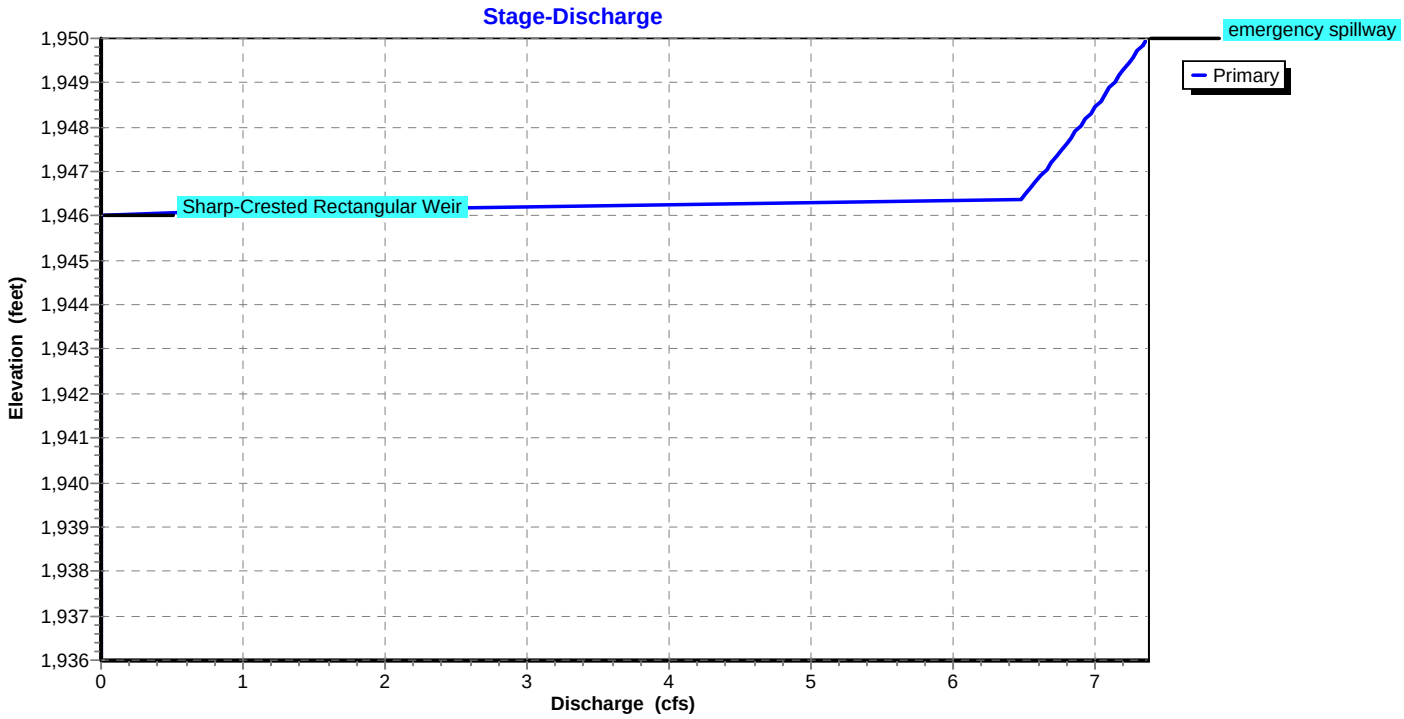
Device	Routing	Invert	Outlet Devices
#1	Primary	1,935.00'	**12.0" x 88.0' long Culvert barrel** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 1,933.00' S= 0.0227 '/' Cc= 0.900 n= 0.025
#2	Device 1	1,946.00'	**9.4' long Sharp-Crested Rectangular Weir** 0 End Contraction(s) 1,946.0' Crest Height
#3	Device 1	1,950.00'	**80.0' long x 12.0' breadth emergency spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=6.69 cfs @ 12.53 hrs HW=1,947.22' (Free Discharge)
└─**1=Culvert barrel** (Barrel Controls 6.69 cfs @ 8.52 fps)
  ├─**2=Sharp-Crested Rectangular Weir** (Passes 6.69 cfs of 41.18 cfs potential flow)
  └─**3=emergency spillway** (Controls 0.00 cfs)

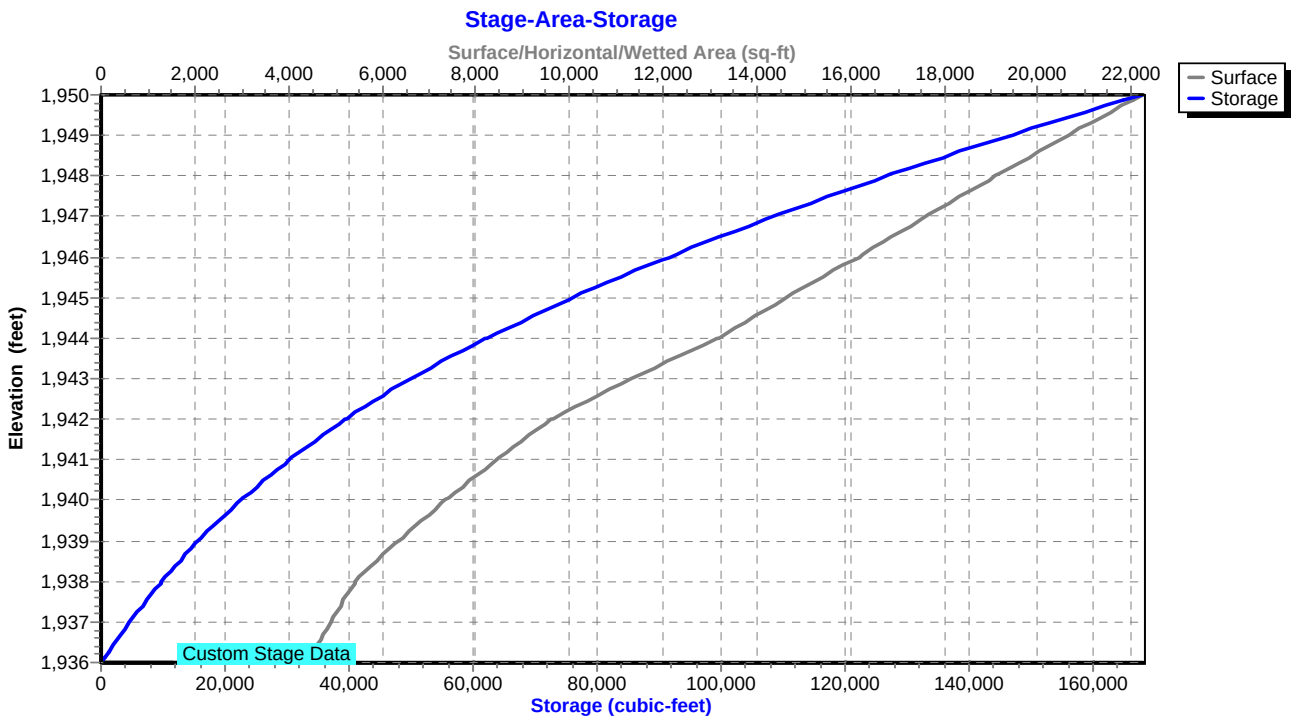
Pond 2P: Sediment Basin 11



Pond 2P: Sediment Basin 11



Pond 2P: Sediment Basin 11



Stage-Discharge for Pond 2P: Sediment Basin 11

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,936.00	0.00	1,937.59	0.00	1,939.18	0.00	1,940.77	0.00
1,936.03	0.00	1,937.62	0.00	1,939.21	0.00	1,940.80	0.00
1,936.06	0.00	1,937.65	0.00	1,939.24	0.00	1,940.83	0.00
1,936.09	0.00	1,937.68	0.00	1,939.27	0.00	1,940.86	0.00
1,936.12	0.00	1,937.71	0.00	1,939.30	0.00	1,940.89	0.00
1,936.15	0.00	1,937.74	0.00	1,939.33	0.00	1,940.92	0.00
1,936.18	0.00	1,937.77	0.00	1,939.36	0.00	1,940.95	0.00
1,936.21	0.00	1,937.80	0.00	1,939.39	0.00	1,940.98	0.00
1,936.24	0.00	1,937.83	0.00	1,939.42	0.00	1,941.01	0.00
1,936.27	0.00	1,937.86	0.00	1,939.45	0.00	1,941.04	0.00
1,936.30	0.00	1,937.89	0.00	1,939.48	0.00	1,941.07	0.00
1,936.33	0.00	1,937.92	0.00	1,939.51	0.00	1,941.10	0.00
1,936.36	0.00	1,937.95	0.00	1,939.54	0.00	1,941.13	0.00
1,936.39	0.00	1,937.98	0.00	1,939.57	0.00	1,941.16	0.00
1,936.42	0.00	1,938.01	0.00	1,939.60	0.00	1,941.19	0.00
1,936.45	0.00	1,938.04	0.00	1,939.63	0.00	1,941.22	0.00
1,936.48	0.00	1,938.07	0.00	1,939.66	0.00	1,941.25	0.00
1,936.51	0.00	1,938.10	0.00	1,939.69	0.00	1,941.28	0.00
1,936.54	0.00	1,938.13	0.00	1,939.72	0.00	1,941.31	0.00
1,936.57	0.00	1,938.16	0.00	1,939.75	0.00	1,941.34	0.00
1,936.60	0.00	1,938.19	0.00	1,939.78	0.00	1,941.37	0.00
1,936.63	0.00	1,938.22	0.00	1,939.81	0.00	1,941.40	0.00
1,936.66	0.00	1,938.25	0.00	1,939.84	0.00	1,941.43	0.00
1,936.69	0.00	1,938.28	0.00	1,939.87	0.00	1,941.46	0.00
1,936.72	0.00	1,938.31	0.00	1,939.90	0.00	1,941.49	0.00
1,936.75	0.00	1,938.34	0.00	1,939.93	0.00	1,941.52	0.00
1,936.78	0.00	1,938.37	0.00	1,939.96	0.00	1,941.55	0.00
1,936.81	0.00	1,938.40	0.00	1,939.99	0.00	1,941.58	0.00
1,936.84	0.00	1,938.43	0.00	1,940.02	0.00	1,941.61	0.00
1,936.87	0.00	1,938.46	0.00	1,940.05	0.00	1,941.64	0.00
1,936.90	0.00	1,938.49	0.00	1,940.08	0.00	1,941.67	0.00
1,936.93	0.00	1,938.52	0.00	1,940.11	0.00	1,941.70	0.00
1,936.96	0.00	1,938.55	0.00	1,940.14	0.00	1,941.73	0.00
1,936.99	0.00	1,938.58	0.00	1,940.17	0.00	1,941.76	0.00
1,937.02	0.00	1,938.61	0.00	1,940.20	0.00	1,941.79	0.00
1,937.05	0.00	1,938.64	0.00	1,940.23	0.00	1,941.82	0.00
1,937.08	0.00	1,938.67	0.00	1,940.26	0.00	1,941.85	0.00
1,937.11	0.00	1,938.70	0.00	1,940.29	0.00	1,941.88	0.00
1,937.14	0.00	1,938.73	0.00	1,940.32	0.00	1,941.91	0.00
1,937.17	0.00	1,938.76	0.00	1,940.35	0.00	1,941.94	0.00
1,937.20	0.00	1,938.79	0.00	1,940.38	0.00	1,941.97	0.00
1,937.23	0.00	1,938.82	0.00	1,940.41	0.00	1,942.00	0.00
1,937.26	0.00	1,938.85	0.00	1,940.44	0.00	1,942.03	0.00
1,937.29	0.00	1,938.88	0.00	1,940.47	0.00	1,942.06	0.00
1,937.32	0.00	1,938.91	0.00	1,940.50	0.00	1,942.09	0.00
1,937.35	0.00	1,938.94	0.00	1,940.53	0.00	1,942.12	0.00
1,937.38	0.00	1,938.97	0.00	1,940.56	0.00	1,942.15	0.00
1,937.41	0.00	1,939.00	0.00	1,940.59	0.00	1,942.18	0.00
1,937.44	0.00	1,939.03	0.00	1,940.62	0.00	1,942.21	0.00
1,937.47	0.00	1,939.06	0.00	1,940.65	0.00	1,942.24	0.00
1,937.50	0.00	1,939.09	0.00	1,940.68	0.00	1,942.27	0.00
1,937.53	0.00	1,939.12	0.00	1,940.71	0.00	1,942.30	0.00
1,937.56	0.00	1,939.15	0.00	1,940.74	0.00	1,942.33	0.00

Stage-Discharge for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,942.36	0.00	1,943.95	0.00	1,945.54	0.00	1,947.13	6.67
1,942.39	0.00	1,943.98	0.00	1,945.57	0.00	1,947.16	6.68
1,942.42	0.00	1,944.01	0.00	1,945.60	0.00	1,947.19	6.69
1,942.45	0.00	1,944.04	0.00	1,945.63	0.00	1,947.22	6.69
1,942.48	0.00	1,944.07	0.00	1,945.66	0.00	1,947.25	6.70
1,942.51	0.00	1,944.10	0.00	1,945.69	0.00	1,947.28	6.71
1,942.54	0.00	1,944.13	0.00	1,945.72	0.00	1,947.31	6.72
1,942.57	0.00	1,944.16	0.00	1,945.75	0.00	1,947.34	6.72
1,942.60	0.00	1,944.19	0.00	1,945.78	0.00	1,947.37	6.73
1,942.63	0.00	1,944.22	0.00	1,945.81	0.00	1,947.40	6.74
1,942.66	0.00	1,944.25	0.00	1,945.84	0.00	1,947.43	6.75
1,942.69	0.00	1,944.28	0.00	1,945.87	0.00	1,947.46	6.76
1,942.72	0.00	1,944.31	0.00	1,945.90	0.00	1,947.49	6.76
1,942.75	0.00	1,944.34	0.00	1,945.93	0.00	1,947.52	6.77
1,942.78	0.00	1,944.37	0.00	1,945.96	0.00	1,947.55	6.78
1,942.81	0.00	1,944.40	0.00	1,945.99	0.00	1,947.58	6.79
1,942.84	0.00	1,944.43	0.00	1,946.02	0.09	1,947.61	6.79
1,942.87	0.00	1,944.46	0.00	1,946.05	0.34	1,947.64	6.80
1,942.90	0.00	1,944.49	0.00	1,946.08	0.70	1,947.67	6.81
1,942.93	0.00	1,944.52	0.00	1,946.11	1.12	1,947.70	6.81
1,942.96	0.00	1,944.55	0.00	1,946.14	1.61	1,947.73	6.82
1,942.99	0.00	1,944.58	0.00	1,946.17	2.15	1,947.76	6.83
1,943.02	0.00	1,944.61	0.00	1,946.20	2.75	1,947.79	6.84
1,943.05	0.00	1,944.64	0.00	1,946.23	3.39	1,947.82	6.84
1,943.08	0.00	1,944.67	0.00	1,946.26	4.08	1,947.85	6.85
1,943.11	0.00	1,944.70	0.00	1,946.29	4.80	1,947.88	6.86
1,943.14	0.00	1,944.73	0.00	1,946.32	5.56	1,947.91	6.87
1,943.17	0.00	1,944.76	0.00	1,946.35	6.36	1,947.94	6.87
1,943.20	0.00	1,944.79	0.00	1,946.38	6.48	1,947.97	6.88
1,943.23	0.00	1,944.82	0.00	1,946.41	6.49	1,948.00	6.89
1,943.26	0.00	1,944.85	0.00	1,946.44	6.49	1,948.03	6.90
1,943.29	0.00	1,944.88	0.00	1,946.47	6.50	1,948.06	6.90
1,943.32	0.00	1,944.91	0.00	1,946.50	6.51	1,948.09	6.91
1,943.35	0.00	1,944.94	0.00	1,946.53	6.52	1,948.12	6.92
1,943.38	0.00	1,944.97	0.00	1,946.56	6.53	1,948.15	6.93
1,943.41	0.00	1,945.00	0.00	1,946.59	6.53	1,948.18	6.93
1,943.44	0.00	1,945.03	0.00	1,946.62	6.54	1,948.21	6.94
1,943.47	0.00	1,945.06	0.00	1,946.65	6.55	1,948.24	6.95
1,943.50	0.00	1,945.09	0.00	1,946.68	6.56	1,948.27	6.96
1,943.53	0.00	1,945.12	0.00	1,946.71	6.56	1,948.30	6.96
1,943.56	0.00	1,945.15	0.00	1,946.74	6.57	1,948.33	6.97
1,943.59	0.00	1,945.18	0.00	1,946.77	6.58	1,948.36	6.98
1,943.62	0.00	1,945.21	0.00	1,946.80	6.59	1,948.39	6.98
1,943.65	0.00	1,945.24	0.00	1,946.83	6.60	1,948.42	6.99
1,943.68	0.00	1,945.27	0.00	1,946.86	6.60	1,948.45	7.00
1,943.71	0.00	1,945.30	0.00	1,946.89	6.61	1,948.48	7.01
1,943.74	0.00	1,945.33	0.00	1,946.92	6.62	1,948.51	7.01
1,943.77	0.00	1,945.36	0.00	1,946.95	6.63	1,948.54	7.02
1,943.80	0.00	1,945.39	0.00	1,946.98	6.63	1,948.57	7.03
1,943.83	0.00	1,945.42	0.00	1,947.01	6.64	1,948.60	7.04
1,943.86	0.00	1,945.45	0.00	1,947.04	6.65	1,948.63	7.04
1,943.89	0.00	1,945.48	0.00	1,947.07	6.66	1,948.66	7.05
1,943.92	0.00	1,945.51	0.00	1,947.10	6.66	1,948.69	7.06

Stage-Discharge for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Primary (cfs)
1,948.72	7.06
1,948.75	7.07
1,948.78	7.08
1,948.81	7.09
1,948.84	7.09
1,948.87	7.10
1,948.90	7.11
1,948.93	7.11
1,948.96	7.12
1,948.99	7.13
1,949.02	7.14
1,949.05	7.14
1,949.08	7.15
1,949.11	7.16
1,949.14	7.16
1,949.17	7.17
1,949.20	7.18
1,949.23	7.19
1,949.26	7.19
1,949.29	7.20
1,949.32	7.21
1,949.35	7.21
1,949.38	7.22
1,949.41	7.23
1,949.44	7.23
1,949.47	7.24
1,949.50	7.25
1,949.53	7.26
1,949.56	7.26
1,949.59	7.27
1,949.62	7.28
1,949.65	7.28
1,949.68	7.29
1,949.71	7.30
1,949.74	7.30
1,949.77	7.31
1,949.80	7.32
1,949.83	7.33
1,949.86	7.33
1,949.89	7.34
1,949.92	7.35
1,949.95	7.35
1,949.98	**7.36**

Stage-Area-Storage for Pond 2P: Sediment Basin 11

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,936.00	4,400	0	1,937.59	5,210	7,631
1,936.03	4,415	132	1,937.62	5,226	7,787
1,936.06	4,429	265	1,937.65	5,242	7,944
1,936.09	4,444	398	1,937.68	5,258	8,102
1,936.12	4,459	532	1,937.71	5,274	8,260
1,936.15	4,473	666	1,937.74	5,290	8,418
1,936.18	4,488	800	1,937.77	5,306	8,577
1,936.21	4,503	935	1,937.80	5,322	8,737
1,936.24	4,518	1,070	1,937.83	5,338	8,897
1,936.27	4,533	1,206	1,937.86	5,354	9,057
1,936.30	4,548	1,342	1,937.89	5,371	9,218
1,936.33	4,562	1,479	1,937.92	5,387	9,379
1,936.36	4,577	1,616	1,937.95	5,403	9,541
1,936.39	4,592	1,753	1,937.98	5,419	9,703
1,936.42	4,607	1,891	1,938.01	5,439	9,866
1,936.45	4,622	2,030	1,938.04	5,466	10,030
1,936.48	4,637	2,169	1,938.07	5,492	10,194
1,936.51	4,652	2,308	1,938.10	5,519	10,359
1,936.54	4,667	2,448	1,938.13	5,546	10,525
1,936.57	4,683	2,588	1,938.16	5,573	10,692
1,936.60	4,698	2,729	1,938.19	5,600	10,860
1,936.63	4,713	2,870	1,938.22	5,627	11,028
1,936.66	4,728	3,012	1,938.25	5,654	11,197
1,936.69	4,743	3,154	1,938.28	5,682	11,367
1,936.72	4,758	3,296	1,938.31	5,709	11,538
1,936.75	4,774	3,439	1,938.34	5,736	11,710
1,936.78	4,789	3,583	1,938.37	5,764	11,883
1,936.81	4,804	3,726	1,938.40	5,791	12,056
1,936.84	4,819	3,871	1,938.43	5,819	12,230
1,936.87	4,835	4,016	1,938.46	5,847	12,405
1,936.90	4,850	4,161	1,938.49	5,874	12,581
1,936.93	4,865	4,307	1,938.52	5,902	12,757
1,936.96	4,881	4,453	1,938.55	5,930	12,935
1,936.99	4,896	4,599	1,938.58	5,958	13,113
1,937.02	4,912	4,747	1,938.61	5,986	13,292
1,937.05	4,927	4,894	1,938.64	6,014	13,472
1,937.08	4,943	5,042	1,938.67	6,042	13,653
1,937.11	4,958	5,191	1,938.70	6,070	13,835
1,937.14	4,974	5,340	1,938.73	6,098	14,017
1,937.17	4,989	5,489	1,938.76	6,126	14,201
1,937.20	5,005	5,639	1,938.79	6,155	14,385
1,937.23	5,021	5,789	1,938.82	6,183	14,570
1,937.26	5,036	5,940	1,938.85	6,212	14,756
1,937.29	5,052	6,092	1,938.88	6,240	14,943
1,937.32	5,068	6,243	1,938.91	6,269	15,130
1,937.35	5,083	6,396	1,938.94	6,298	15,319
1,937.38	5,099	6,548	1,938.97	6,326	15,508
1,937.41	5,115	6,702	1,939.00	6,355	15,698
1,937.44	5,131	6,855	1,939.03	6,384	15,890
1,937.47	5,147	7,010	1,939.06	6,413	16,082
1,937.50	5,162	7,164	1,939.09	6,442	16,274
1,937.53	5,178	7,319	1,939.12	6,471	16,468
1,937.56	5,194	7,475	1,939.15	6,500	16,663

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,939.18	6,529	16,858	1,940.77	8,191	28,528
1,939.21	6,559	17,054	1,940.80	8,225	28,774
1,939.24	6,588	17,252	1,940.83	8,258	29,022
1,939.27	6,617	17,450	1,940.86	8,292	29,270
1,939.30	6,647	17,649	1,940.89	8,326	29,519
1,939.33	6,676	17,848	1,940.92	8,360	29,769
1,939.36	6,706	18,049	1,940.95	8,394	30,021
1,939.39	6,736	18,251	1,940.98	8,428	30,273
1,939.42	6,765	18,453	1,941.01	8,462	30,526
1,939.45	6,795	18,657	1,941.04	8,496	30,781
1,939.48	6,825	18,861	1,941.07	8,530	31,036
1,939.51	6,855	19,066	1,941.10	8,564	31,293
1,939.54	6,885	19,272	1,941.13	8,599	31,550
1,939.57	6,915	19,479	1,941.16	8,633	31,808
1,939.60	6,945	19,687	1,941.19	8,667	32,068
1,939.63	6,975	19,896	1,941.22	8,702	32,328
1,939.66	7,006	20,106	1,941.25	8,737	32,590
1,939.69	7,036	20,316	1,941.28	8,771	32,853
1,939.72	7,066	20,528	1,941.31	8,806	33,116
1,939.75	7,097	20,740	1,941.34	8,841	33,381
1,939.78	7,127	20,954	1,941.37	8,876	33,647
1,939.81	7,158	21,168	1,941.40	8,911	33,914
1,939.84	7,188	21,383	1,941.43	8,946	34,181
1,939.87	7,219	21,599	1,941.46	8,981	34,450
1,939.90	7,250	21,816	1,941.49	9,016	34,720
1,939.93	7,281	22,034	1,941.52	9,051	34,991
1,939.96	7,312	22,253	1,941.55	9,086	35,263
1,939.99	7,343	22,473	1,941.58	9,122	35,536
1,940.02	7,374	22,694	1,941.61	9,157	35,811
1,940.05	7,406	22,915	1,941.64	9,193	36,086
1,940.08	7,438	23,138	1,941.67	9,228	36,362
1,940.11	7,470	23,362	1,941.70	9,264	36,640
1,940.14	7,502	23,586	1,941.73	9,300	36,918
1,940.17	7,534	23,812	1,941.76	9,335	37,198
1,940.20	7,566	24,038	1,941.79	9,371	37,478
1,940.23	7,599	24,266	1,941.82	9,407	37,760
1,940.26	7,631	24,494	1,941.85	9,443	38,043
1,940.29	7,663	24,724	1,941.88	9,479	38,326
1,940.32	7,696	24,954	1,941.91	9,515	38,611
1,940.35	7,728	25,185	1,941.94	9,551	38,897
1,940.38	7,761	25,418	1,941.97	9,588	39,184
1,940.41	7,794	25,651	1,942.00	9,624	39,473
1,940.44	7,826	25,885	1,942.03	9,673	39,762
1,940.47	7,859	26,121	1,942.06	9,722	40,053
1,940.50	7,892	26,357	1,942.09	9,772	40,345
1,940.53	7,925	26,594	1,942.12	9,821	40,639
1,940.56	7,958	26,832	1,942.15	9,871	40,935
1,940.59	7,991	27,072	1,942.18	9,921	41,232
1,940.62	8,024	27,312	1,942.21	9,971	41,530
1,940.65	8,058	27,553	1,942.24	10,021	41,830
1,940.68	8,091	27,795	1,942.27	10,071	42,131
1,940.71	8,124	28,039	1,942.30	10,121	42,434
1,940.74	8,158	28,283	1,942.33	10,172	42,739

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,942.36	10,222	43,044	1,943.95	13,081	61,524
1,942.39	10,273	43,352	1,943.98	13,139	61,918
1,942.42	10,324	43,661	1,944.01	13,191	62,313
1,942.45	10,375	43,971	1,944.04	13,234	62,709
1,942.48	10,426	44,283	1,944.07	13,277	63,107
1,942.51	10,477	44,597	1,944.10	13,320	63,506
1,942.54	10,528	44,912	1,944.13	13,363	63,906
1,942.57	10,580	45,229	1,944.16	13,406	64,307
1,942.60	10,631	45,547	1,944.19	13,449	64,710
1,942.63	10,683	45,866	1,944.22	13,492	65,114
1,942.66	10,735	46,188	1,944.25	13,535	65,520
1,942.69	10,787	46,511	1,944.28	13,578	65,926
1,942.72	10,839	46,835	1,944.31	13,622	66,334
1,942.75	10,891	47,161	1,944.34	13,665	66,744
1,942.78	10,943	47,488	1,944.37	13,709	67,154
1,942.81	10,996	47,817	1,944.40	13,752	67,566
1,942.84	11,048	48,148	1,944.43	13,796	67,979
1,942.87	11,101	48,480	1,944.46	13,840	68,394
1,942.90	11,154	48,814	1,944.49	13,884	68,810
1,942.93	11,207	49,150	1,944.52	13,927	69,227
1,942.96	11,260	49,487	1,944.55	13,971	69,646
1,942.99	11,313	49,825	1,944.58	14,015	70,065
1,943.02	11,366	50,165	1,944.61	14,059	70,486
1,943.05	11,420	50,507	1,944.64	14,104	70,909
1,943.08	11,473	50,851	1,944.67	14,148	71,333
1,943.11	11,527	51,196	1,944.70	14,192	71,758
1,943.14	11,581	51,542	1,944.73	14,236	72,184
1,943.17	11,635	51,890	1,944.76	14,281	72,612
1,943.20	11,689	52,240	1,944.79	14,325	73,041
1,943.23	11,743	52,592	1,944.82	14,370	73,471
1,943.26	11,797	52,945	1,944.85	14,414	73,903
1,943.29	11,852	53,300	1,944.88	14,459	74,336
1,943.32	11,906	53,656	1,944.91	14,504	74,771
1,943.35	11,961	54,014	1,944.94	14,549	75,207
1,943.38	12,016	54,374	1,944.97	14,594	75,644
1,943.41	12,071	54,735	1,945.00	14,639	76,082
1,943.44	12,126	55,098	1,945.03	14,684	76,522
1,943.47	12,181	55,463	1,945.06	14,729	76,963
1,943.50	12,237	55,829	1,945.09	14,774	77,406
1,943.53	12,292	56,197	1,945.12	14,819	77,850
1,943.56	12,348	56,566	1,945.15	14,864	78,295
1,943.59	12,403	56,938	1,945.18	14,910	78,741
1,943.62	12,459	57,311	1,945.21	14,955	79,189
1,943.65	12,515	57,685	1,945.24	15,001	79,639
1,943.68	12,571	58,061	1,945.27	15,046	80,089
1,943.71	12,627	58,439	1,945.30	15,092	80,542
1,943.74	12,684	58,819	1,945.33	15,138	80,995
1,943.77	12,740	59,200	1,945.36	15,184	81,450
1,943.80	12,797	59,583	1,945.39	15,229	81,906
1,943.83	12,853	59,968	1,945.42	15,275	82,364
1,943.86	12,910	60,355	1,945.45	15,321	82,823
1,943.89	12,967	60,743	1,945.48	15,367	83,283
1,943.92	13,024	61,133	1,945.51	15,414	83,745

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,945.54	15,460	84,208	1,947.13	17,798	110,672
1,945.57	15,506	84,672	1,947.16	17,842	111,207
1,945.60	15,552	85,138	1,947.19	17,886	111,743
1,945.63	15,599	85,605	1,947.22	17,931	112,280
1,945.66	15,645	86,074	1,947.25	17,975	112,819
1,945.69	15,692	86,544	1,947.28	18,019	113,358
1,945.72	15,738	87,016	1,947.31	18,064	113,900
1,945.75	15,785	87,488	1,947.34	18,108	114,442
1,945.78	15,832	87,963	1,947.37	18,152	114,986
1,945.81	15,879	88,438	1,947.40	18,197	115,531
1,945.84	15,926	88,915	1,947.43	18,242	116,078
1,945.87	15,973	89,394	1,947.46	18,286	116,626
1,945.90	16,020	89,874	1,947.49	18,331	117,175
1,945.93	16,067	90,355	1,947.52	18,376	117,726
1,945.96	16,114	90,838	1,947.55	18,420	118,278
1,945.99	16,161	91,322	1,947.58	18,465	118,831
1,946.02	16,205	91,807	1,947.61	18,510	119,386
1,946.05	16,247	92,294	1,947.64	18,555	119,942
1,946.08	16,289	92,782	1,947.67	18,600	120,499
1,946.11	16,331	93,271	1,947.70	18,645	121,058
1,946.14	16,374	93,762	1,947.73	18,690	121,618
1,946.17	16,416	94,254	1,947.76	18,736	122,179
1,946.20	16,458	94,747	1,947.79	18,781	122,742
1,946.23	16,501	95,241	1,947.82	18,826	123,306
1,946.26	16,543	95,737	1,947.85	18,871	123,871
1,946.29	16,586	96,234	1,947.88	18,917	124,438
1,946.32	16,628	96,732	1,947.91	18,962	125,006
1,946.35	16,671	97,232	1,947.94	19,008	125,576
1,946.38	16,714	97,732	1,947.97	19,053	126,147
1,946.41	16,756	98,235	1,948.00	19,099	126,719
1,946.44	16,799	98,738	1,948.03	19,144	127,293
1,946.47	16,842	99,242	1,948.06	19,190	127,868
1,946.50	16,885	99,748	1,948.09	19,236	128,444
1,946.53	16,928	100,256	1,948.12	19,281	129,022
1,946.56	16,971	100,764	1,948.15	19,327	129,601
1,946.59	17,014	101,274	1,948.18	19,373	130,182
1,946.62	17,057	101,785	1,948.21	19,418	130,763
1,946.65	17,100	102,297	1,948.24	19,464	131,347
1,946.68	17,143	102,811	1,948.27	19,510	131,931
1,946.71	17,187	103,326	1,948.30	19,556	132,517
1,946.74	17,230	103,842	1,948.33	19,602	133,105
1,946.77	17,273	104,360	1,948.36	19,648	133,693
1,946.80	17,317	104,878	1,948.39	19,694	134,284
1,946.83	17,360	105,399	1,948.42	19,740	134,875
1,946.86	17,404	105,920	1,948.45	19,787	135,468
1,946.89	17,447	106,443	1,948.48	19,833	136,062
1,946.92	17,491	106,967	1,948.51	19,879	136,658
1,946.95	17,535	107,492	1,948.54	19,926	137,255
1,946.98	17,578	108,019	1,948.57	19,972	137,853
1,947.01	17,622	108,547	1,948.60	20,018	138,453
1,947.04	17,666	109,076	1,948.63	20,065	139,055
1,947.07	17,710	109,607	1,948.66	20,112	139,657
1,947.10	17,754	110,139	1,948.69	20,158	140,261

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,948.72	20,205	140,867
1,948.75	20,252	141,474
1,948.78	20,299	142,082
1,948.81	20,345	142,691
1,948.84	20,392	143,303
1,948.87	20,439	143,915
1,948.90	20,486	144,529
1,948.93	20,533	145,144
1,948.96	20,581	145,761
1,948.99	20,628	146,379
1,949.02	20,675	146,999
1,949.05	20,722	147,620
1,949.08	20,770	148,242
1,949.11	20,817	148,866
1,949.14	20,864	149,491
1,949.17	20,912	150,118
1,949.20	20,960	150,746
1,949.23	21,007	151,375
1,949.26	21,055	152,006
1,949.29	21,103	152,638
1,949.32	21,150	153,272
1,949.35	21,198	153,907
1,949.38	21,246	154,544
1,949.41	21,294	155,182
1,949.44	21,342	155,822
1,949.47	21,390	156,463
1,949.50	21,438	157,105
1,949.53	21,486	157,749
1,949.56	21,535	158,394
1,949.59	21,583	159,041
1,949.62	21,631	159,689
1,949.65	21,680	160,339
1,949.68	21,728	160,990
1,949.71	21,777	161,643
1,949.74	21,825	162,297
1,949.77	21,874	162,952
1,949.80	21,922	163,609
1,949.83	21,971	164,268
1,949.86	22,020	164,927
1,949.89	22,069	165,589
1,949.92	22,117	166,251
1,949.95	22,166	166,916
1,949.98	**22,215**	**167,581**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Proposed Drainage Area Runoff Area=12.860 ac 0.00% Impervious Runoff Depth>2.59"
Tc=5.0 min CN=85 Runoff=62.91 cfs 2.776 af

Pond 2P: Sediment Basin 11 Peak Elev=1,946.15' Storage=93,856 cf Inflow=62.91 cfs 2.776 af
Outflow=1.86 cfs 0.646 af

Total Runoff Area = 12.860 ac Runoff Volume = 2.776 af Average Runoff Depth = 2.59"
100.00% Pervious = 12.860 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Proposed Drainage Area

[49] Hint: Tc<2dt may require smaller dt

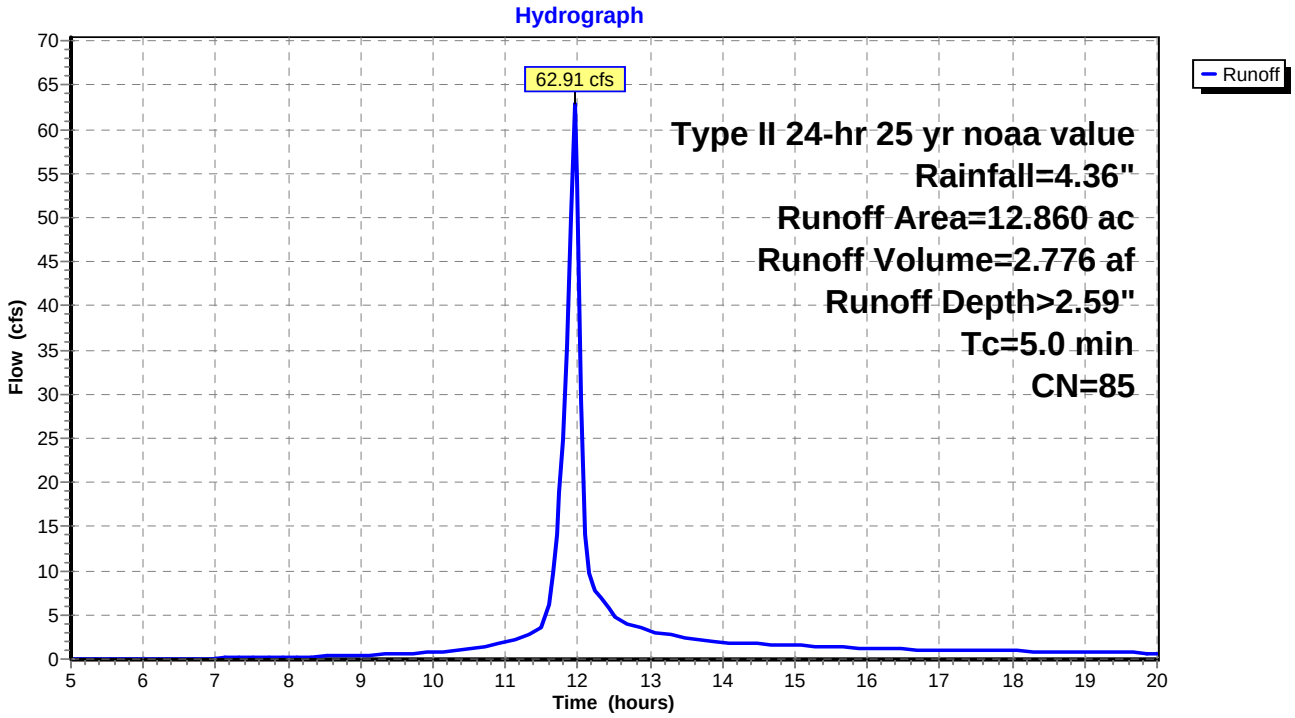
Runoff = 62.91 cfs @ 11.95 hrs, Volume= 2.776 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 yr noaa value Rainfall=4.36"

	Area (ac)	CN	Description
*	12.170	85	Fallow, bare soil, HSG B
*	0.690	85	30,000 sf additional
	12.860	85	Weighted Average
	12.860		Pervious Area

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

Subcatchment 1S: Proposed Drainage Area



Summary for Pond 2P: Sediment Basin 11

Inflow Area = 12.860 ac, 0.00% Impervious, Inflow Depth > 2.59" for 25 yr noaa value event
Inflow = 62.91 cfs @ 11.95 hrs, Volume= 2.776 af
Outflow = 1.86 cfs @ 14.06 hrs, Volume= 0.646 af, Atten= 97%, Lag= 126.2 min
Primary = 1.86 cfs @ 14.06 hrs, Volume= 0.646 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,946.15' @ 14.06 hrs Surf.Area= 16,382 sf Storage= 93,856 cf

Plug-Flow detention time= 307.5 min calculated for 0.644 af (23% of inflow)
Center-of-Mass det. time= 203.2 min (974.4 - 771.2)

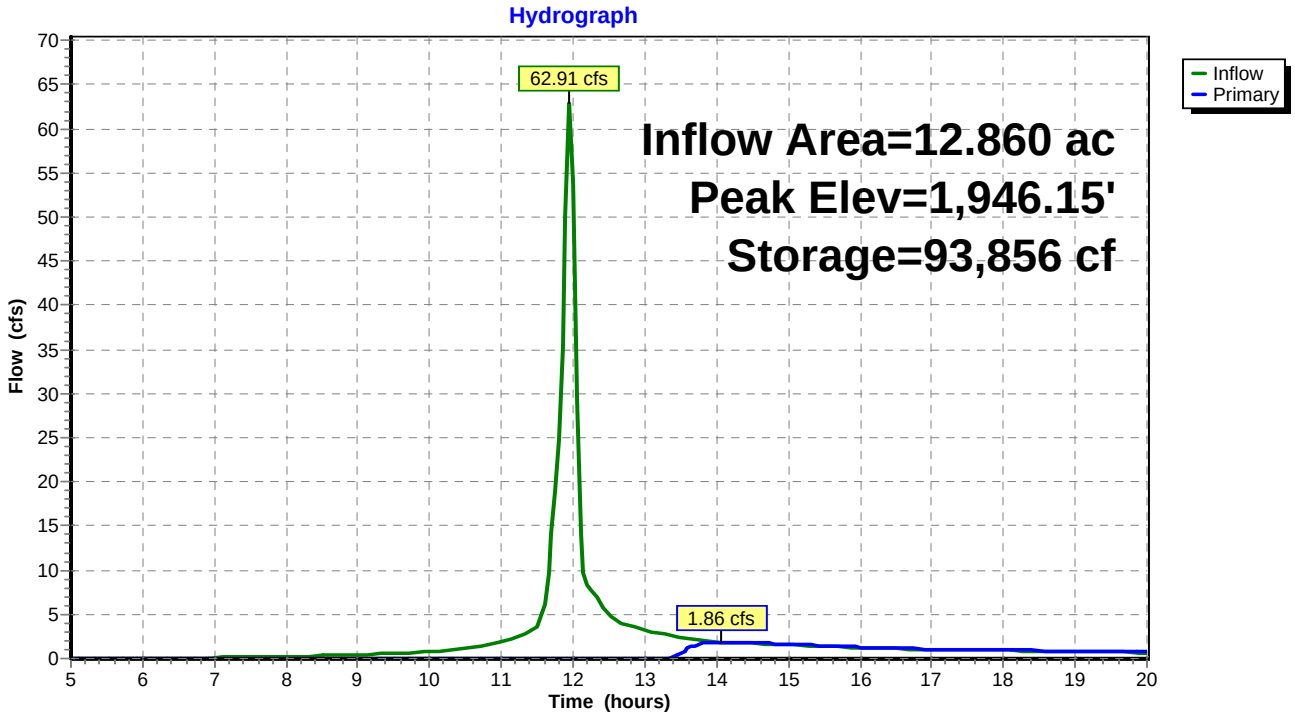
Volume	Invert	Avail.Storage	Storage Description
#1	1,936.00'	168,026 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,936.00	4,400	0	0	4,400
1,938.00	5,430	9,812	9,812	5,543
1,940.00	7,353	12,735	22,546	7,548
1,942.00	9,624	16,926	39,473	9,910
1,944.00	13,177	22,708	62,181	13,543
1,946.00	16,177	29,303	91,484	16,663
1,948.00	19,099	35,236	126,719	19,733
1,950.00	22,248	41,307	168,026	23,042

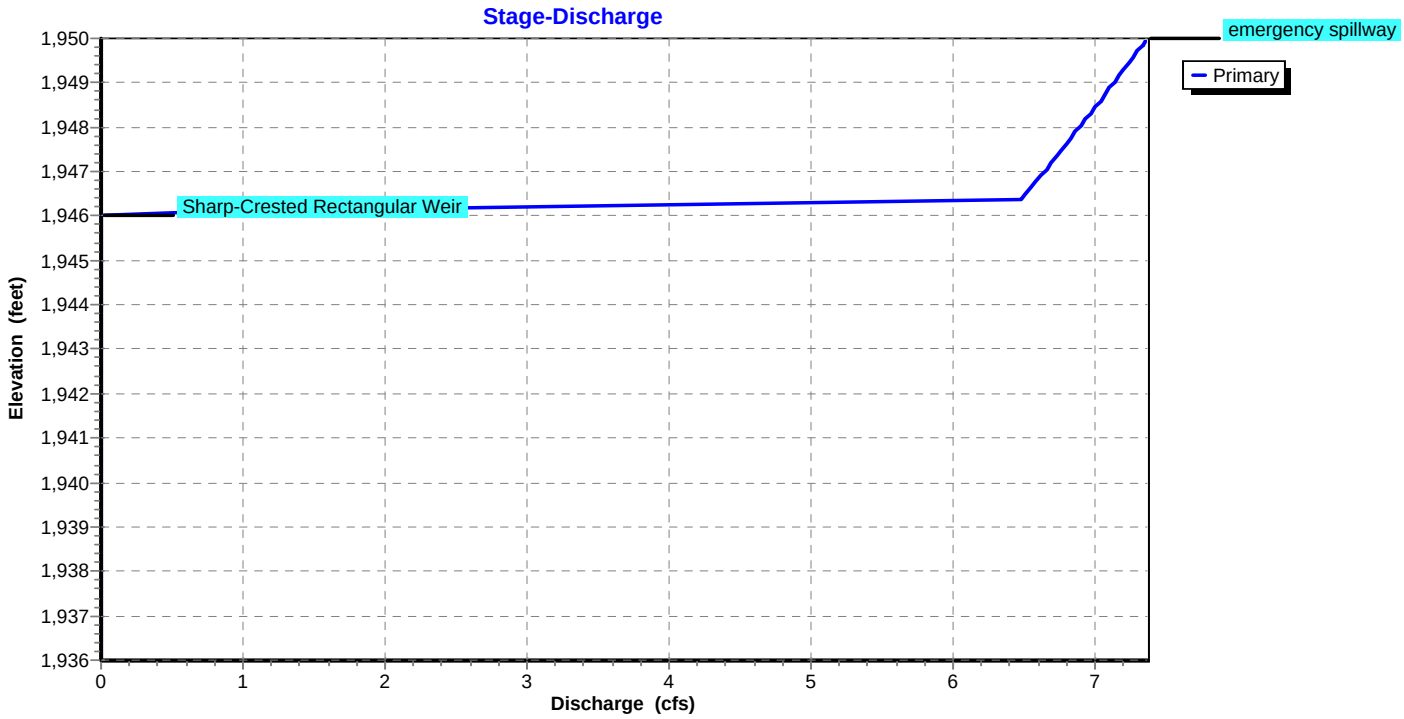
Device	Routing	Invert	Outlet Devices
#1	Primary	1,935.00'	**12.0" x 88.0' long Culvert barrel** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 1,933.00' S= 0.0227 '/' Cc= 0.900 n= 0.025
#2	Device 1	1,946.00'	**9.4' long Sharp-Crested Rectangular Weir** 0 End Contraction(s) 1,946.0' Crest Height
#3	Device 1	1,950.00'	**80.0' long x 12.0' breadth emergency spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=1.71 cfs @ 14.06 hrs HW=1,946.15' (Free Discharge)
└─**1=Culvert barrel** (Passes 1.71 cfs of 6.42 cfs potential flow)
  ├─**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.71 cfs @ 1.25 fps)
  └─**3=emergency spillway** (Controls 0.00 cfs)

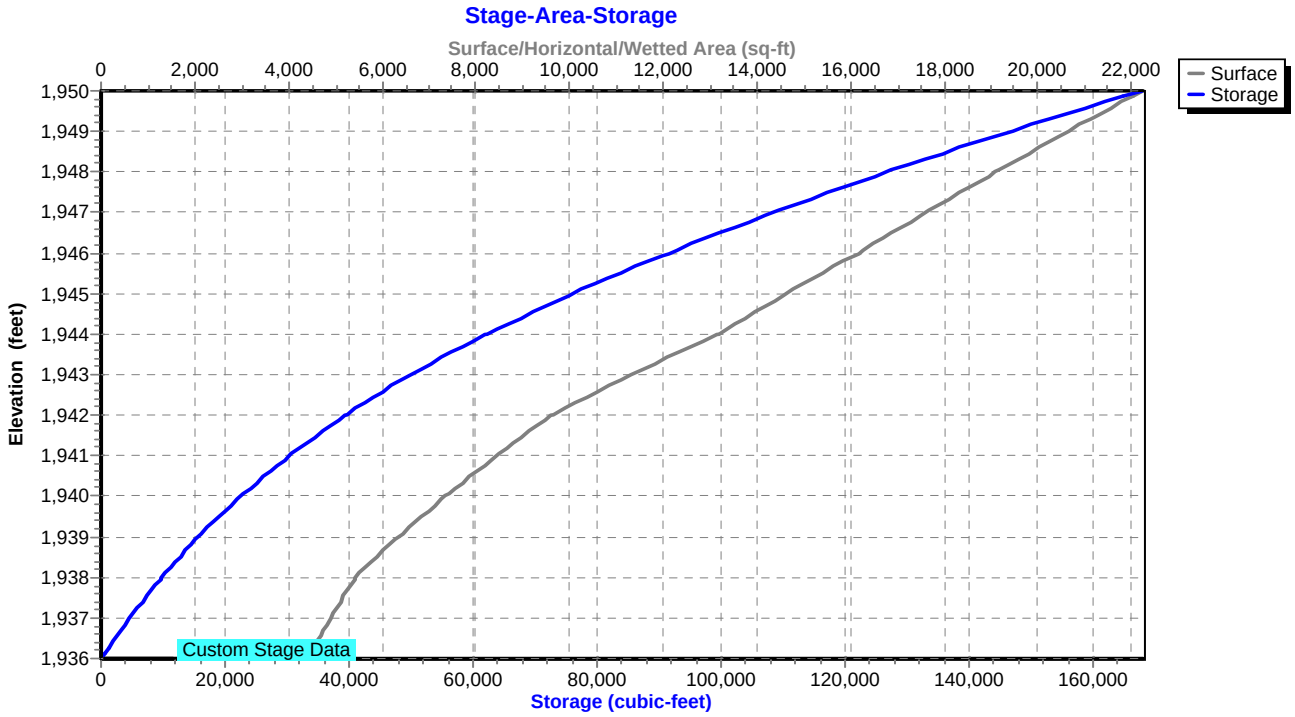
Pond 2P: Sediment Basin 11



Pond 2P: Sediment Basin 11



Pond 2P: Sediment Basin 11



Stage-Discharge for Pond 2P: Sediment Basin 11

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,936.00	0.00	1,937.59	0.00	1,939.18	0.00	1,940.77	0.00
1,936.03	0.00	1,937.62	0.00	1,939.21	0.00	1,940.80	0.00
1,936.06	0.00	1,937.65	0.00	1,939.24	0.00	1,940.83	0.00
1,936.09	0.00	1,937.68	0.00	1,939.27	0.00	1,940.86	0.00
1,936.12	0.00	1,937.71	0.00	1,939.30	0.00	1,940.89	0.00
1,936.15	0.00	1,937.74	0.00	1,939.33	0.00	1,940.92	0.00
1,936.18	0.00	1,937.77	0.00	1,939.36	0.00	1,940.95	0.00
1,936.21	0.00	1,937.80	0.00	1,939.39	0.00	1,940.98	0.00
1,936.24	0.00	1,937.83	0.00	1,939.42	0.00	1,941.01	0.00
1,936.27	0.00	1,937.86	0.00	1,939.45	0.00	1,941.04	0.00
1,936.30	0.00	1,937.89	0.00	1,939.48	0.00	1,941.07	0.00
1,936.33	0.00	1,937.92	0.00	1,939.51	0.00	1,941.10	0.00
1,936.36	0.00	1,937.95	0.00	1,939.54	0.00	1,941.13	0.00
1,936.39	0.00	1,937.98	0.00	1,939.57	0.00	1,941.16	0.00
1,936.42	0.00	1,938.01	0.00	1,939.60	0.00	1,941.19	0.00
1,936.45	0.00	1,938.04	0.00	1,939.63	0.00	1,941.22	0.00
1,936.48	0.00	1,938.07	0.00	1,939.66	0.00	1,941.25	0.00
1,936.51	0.00	1,938.10	0.00	1,939.69	0.00	1,941.28	0.00
1,936.54	0.00	1,938.13	0.00	1,939.72	0.00	1,941.31	0.00
1,936.57	0.00	1,938.16	0.00	1,939.75	0.00	1,941.34	0.00
1,936.60	0.00	1,938.19	0.00	1,939.78	0.00	1,941.37	0.00
1,936.63	0.00	1,938.22	0.00	1,939.81	0.00	1,941.40	0.00
1,936.66	0.00	1,938.25	0.00	1,939.84	0.00	1,941.43	0.00
1,936.69	0.00	1,938.28	0.00	1,939.87	0.00	1,941.46	0.00
1,936.72	0.00	1,938.31	0.00	1,939.90	0.00	1,941.49	0.00
1,936.75	0.00	1,938.34	0.00	1,939.93	0.00	1,941.52	0.00
1,936.78	0.00	1,938.37	0.00	1,939.96	0.00	1,941.55	0.00
1,936.81	0.00	1,938.40	0.00	1,939.99	0.00	1,941.58	0.00
1,936.84	0.00	1,938.43	0.00	1,940.02	0.00	1,941.61	0.00
1,936.87	0.00	1,938.46	0.00	1,940.05	0.00	1,941.64	0.00
1,936.90	0.00	1,938.49	0.00	1,940.08	0.00	1,941.67	0.00
1,936.93	0.00	1,938.52	0.00	1,940.11	0.00	1,941.70	0.00
1,936.96	0.00	1,938.55	0.00	1,940.14	0.00	1,941.73	0.00
1,936.99	0.00	1,938.58	0.00	1,940.17	0.00	1,941.76	0.00
1,937.02	0.00	1,938.61	0.00	1,940.20	0.00	1,941.79	0.00
1,937.05	0.00	1,938.64	0.00	1,940.23	0.00	1,941.82	0.00
1,937.08	0.00	1,938.67	0.00	1,940.26	0.00	1,941.85	0.00
1,937.11	0.00	1,938.70	0.00	1,940.29	0.00	1,941.88	0.00
1,937.14	0.00	1,938.73	0.00	1,940.32	0.00	1,941.91	0.00
1,937.17	0.00	1,938.76	0.00	1,940.35	0.00	1,941.94	0.00
1,937.20	0.00	1,938.79	0.00	1,940.38	0.00	1,941.97	0.00
1,937.23	0.00	1,938.82	0.00	1,940.41	0.00	1,942.00	0.00
1,937.26	0.00	1,938.85	0.00	1,940.44	0.00	1,942.03	0.00
1,937.29	0.00	1,938.88	0.00	1,940.47	0.00	1,942.06	0.00
1,937.32	0.00	1,938.91	0.00	1,940.50	0.00	1,942.09	0.00
1,937.35	0.00	1,938.94	0.00	1,940.53	0.00	1,942.12	0.00
1,937.38	0.00	1,938.97	0.00	1,940.56	0.00	1,942.15	0.00
1,937.41	0.00	1,939.00	0.00	1,940.59	0.00	1,942.18	0.00
1,937.44	0.00	1,939.03	0.00	1,940.62	0.00	1,942.21	0.00
1,937.47	0.00	1,939.06	0.00	1,940.65	0.00	1,942.24	0.00
1,937.50	0.00	1,939.09	0.00	1,940.68	0.00	1,942.27	0.00
1,937.53	0.00	1,939.12	0.00	1,940.71	0.00	1,942.30	0.00
1,937.56	0.00	1,939.15	0.00	1,940.74	0.00	1,942.33	0.00

Stage-Discharge for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,942.36	0.00	1,943.95	0.00	1,945.54	0.00	1,947.13	6.67
1,942.39	0.00	1,943.98	0.00	1,945.57	0.00	1,947.16	6.68
1,942.42	0.00	1,944.01	0.00	1,945.60	0.00	1,947.19	6.69
1,942.45	0.00	1,944.04	0.00	1,945.63	0.00	1,947.22	6.69
1,942.48	0.00	1,944.07	0.00	1,945.66	0.00	1,947.25	6.70
1,942.51	0.00	1,944.10	0.00	1,945.69	0.00	1,947.28	6.71
1,942.54	0.00	1,944.13	0.00	1,945.72	0.00	1,947.31	6.72
1,942.57	0.00	1,944.16	0.00	1,945.75	0.00	1,947.34	6.72
1,942.60	0.00	1,944.19	0.00	1,945.78	0.00	1,947.37	6.73
1,942.63	0.00	1,944.22	0.00	1,945.81	0.00	1,947.40	6.74
1,942.66	0.00	1,944.25	0.00	1,945.84	0.00	1,947.43	6.75
1,942.69	0.00	1,944.28	0.00	1,945.87	0.00	1,947.46	6.76
1,942.72	0.00	1,944.31	0.00	1,945.90	0.00	1,947.49	6.76
1,942.75	0.00	1,944.34	0.00	1,945.93	0.00	1,947.52	6.77
1,942.78	0.00	1,944.37	0.00	1,945.96	0.00	1,947.55	6.78
1,942.81	0.00	1,944.40	0.00	1,945.99	0.00	1,947.58	6.79
1,942.84	0.00	1,944.43	0.00	1,946.02	0.09	1,947.61	6.79
1,942.87	0.00	1,944.46	0.00	1,946.05	0.34	1,947.64	6.80
1,942.90	0.00	1,944.49	0.00	1,946.08	0.70	1,947.67	6.81
1,942.93	0.00	1,944.52	0.00	1,946.11	1.12	1,947.70	6.81
1,942.96	0.00	1,944.55	0.00	1,946.14	1.61	1,947.73	6.82
1,942.99	0.00	1,944.58	0.00	1,946.17	2.15	1,947.76	6.83
1,943.02	0.00	1,944.61	0.00	1,946.20	2.75	1,947.79	6.84
1,943.05	0.00	1,944.64	0.00	1,946.23	3.39	1,947.82	6.84
1,943.08	0.00	1,944.67	0.00	1,946.26	4.08	1,947.85	6.85
1,943.11	0.00	1,944.70	0.00	1,946.29	4.80	1,947.88	6.86
1,943.14	0.00	1,944.73	0.00	1,946.32	5.56	1,947.91	6.87
1,943.17	0.00	1,944.76	0.00	1,946.35	6.36	1,947.94	6.87
1,943.20	0.00	1,944.79	0.00	1,946.38	6.48	1,947.97	6.88
1,943.23	0.00	1,944.82	0.00	1,946.41	6.49	1,948.00	6.89
1,943.26	0.00	1,944.85	0.00	1,946.44	6.49	1,948.03	6.90
1,943.29	0.00	1,944.88	0.00	1,946.47	6.50	1,948.06	6.90
1,943.32	0.00	1,944.91	0.00	1,946.50	6.51	1,948.09	6.91
1,943.35	0.00	1,944.94	0.00	1,946.53	6.52	1,948.12	6.92
1,943.38	0.00	1,944.97	0.00	1,946.56	6.53	1,948.15	6.93
1,943.41	0.00	1,945.00	0.00	1,946.59	6.53	1,948.18	6.93
1,943.44	0.00	1,945.03	0.00	1,946.62	6.54	1,948.21	6.94
1,943.47	0.00	1,945.06	0.00	1,946.65	6.55	1,948.24	6.95
1,943.50	0.00	1,945.09	0.00	1,946.68	6.56	1,948.27	6.96
1,943.53	0.00	1,945.12	0.00	1,946.71	6.56	1,948.30	6.96
1,943.56	0.00	1,945.15	0.00	1,946.74	6.57	1,948.33	6.97
1,943.59	0.00	1,945.18	0.00	1,946.77	6.58	1,948.36	6.98
1,943.62	0.00	1,945.21	0.00	1,946.80	6.59	1,948.39	6.98
1,943.65	0.00	1,945.24	0.00	1,946.83	6.60	1,948.42	6.99
1,943.68	0.00	1,945.27	0.00	1,946.86	6.60	1,948.45	7.00
1,943.71	0.00	1,945.30	0.00	1,946.89	6.61	1,948.48	7.01
1,943.74	0.00	1,945.33	0.00	1,946.92	6.62	1,948.51	7.01
1,943.77	0.00	1,945.36	0.00	1,946.95	6.63	1,948.54	7.02
1,943.80	0.00	1,945.39	0.00	1,946.98	6.63	1,948.57	7.03
1,943.83	0.00	1,945.42	0.00	1,947.01	6.64	1,948.60	7.04
1,943.86	0.00	1,945.45	0.00	1,947.04	6.65	1,948.63	7.04
1,943.89	0.00	1,945.48	0.00	1,947.07	6.66	1,948.66	7.05
1,943.92	0.00	1,945.51	0.00	1,947.10	6.66	1,948.69	7.06

Stage-Discharge for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Primary (cfs)
1,948.72	7.06
1,948.75	7.07
1,948.78	7.08
1,948.81	7.09
1,948.84	7.09
1,948.87	7.10
1,948.90	7.11
1,948.93	7.11
1,948.96	7.12
1,948.99	7.13
1,949.02	7.14
1,949.05	7.14
1,949.08	7.15
1,949.11	7.16
1,949.14	7.16
1,949.17	7.17
1,949.20	7.18
1,949.23	7.19
1,949.26	7.19
1,949.29	7.20
1,949.32	7.21
1,949.35	7.21
1,949.38	7.22
1,949.41	7.23
1,949.44	7.23
1,949.47	7.24
1,949.50	7.25
1,949.53	7.26
1,949.56	7.26
1,949.59	7.27
1,949.62	7.28
1,949.65	7.28
1,949.68	7.29
1,949.71	7.30
1,949.74	7.30
1,949.77	7.31
1,949.80	7.32
1,949.83	7.33
1,949.86	7.33
1,949.89	7.34
1,949.92	7.35
1,949.95	7.35
1,949.98	**7.36**

Stage-Area-Storage for Pond 2P: Sediment Basin 11

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,936.00	4,400	0	1,937.59	5,210	7,631
1,936.03	4,415	132	1,937.62	5,226	7,787
1,936.06	4,429	265	1,937.65	5,242	7,944
1,936.09	4,444	398	1,937.68	5,258	8,102
1,936.12	4,459	532	1,937.71	5,274	8,260
1,936.15	4,473	666	1,937.74	5,290	8,418
1,936.18	4,488	800	1,937.77	5,306	8,577
1,936.21	4,503	935	1,937.80	5,322	8,737
1,936.24	4,518	1,070	1,937.83	5,338	8,897
1,936.27	4,533	1,206	1,937.86	5,354	9,057
1,936.30	4,548	1,342	1,937.89	5,371	9,218
1,936.33	4,562	1,479	1,937.92	5,387	9,379
1,936.36	4,577	1,616	1,937.95	5,403	9,541
1,936.39	4,592	1,753	1,937.98	5,419	9,703
1,936.42	4,607	1,891	1,938.01	5,439	9,866
1,936.45	4,622	2,030	1,938.04	5,466	10,030
1,936.48	4,637	2,169	1,938.07	5,492	10,194
1,936.51	4,652	2,308	1,938.10	5,519	10,359
1,936.54	4,667	2,448	1,938.13	5,546	10,525
1,936.57	4,683	2,588	1,938.16	5,573	10,692
1,936.60	4,698	2,729	1,938.19	5,600	10,860
1,936.63	4,713	2,870	1,938.22	5,627	11,028
1,936.66	4,728	3,012	1,938.25	5,654	11,197
1,936.69	4,743	3,154	1,938.28	5,682	11,367
1,936.72	4,758	3,296	1,938.31	5,709	11,538
1,936.75	4,774	3,439	1,938.34	5,736	11,710
1,936.78	4,789	3,583	1,938.37	5,764	11,883
1,936.81	4,804	3,726	1,938.40	5,791	12,056
1,936.84	4,819	3,871	1,938.43	5,819	12,230
1,936.87	4,835	4,016	1,938.46	5,847	12,405
1,936.90	4,850	4,161	1,938.49	5,874	12,581
1,936.93	4,865	4,307	1,938.52	5,902	12,757
1,936.96	4,881	4,453	1,938.55	5,930	12,935
1,936.99	4,896	4,599	1,938.58	5,958	13,113
1,937.02	4,912	4,747	1,938.61	5,986	13,292
1,937.05	4,927	4,894	1,938.64	6,014	13,472
1,937.08	4,943	5,042	1,938.67	6,042	13,653
1,937.11	4,958	5,191	1,938.70	6,070	13,835
1,937.14	4,974	5,340	1,938.73	6,098	14,017
1,937.17	4,989	5,489	1,938.76	6,126	14,201
1,937.20	5,005	5,639	1,938.79	6,155	14,385
1,937.23	5,021	5,789	1,938.82	6,183	14,570
1,937.26	5,036	5,940	1,938.85	6,212	14,756
1,937.29	5,052	6,092	1,938.88	6,240	14,943
1,937.32	5,068	6,243	1,938.91	6,269	15,130
1,937.35	5,083	6,396	1,938.94	6,298	15,319
1,937.38	5,099	6,548	1,938.97	6,326	15,508
1,937.41	5,115	6,702	1,939.00	6,355	15,698
1,937.44	5,131	6,855	1,939.03	6,384	15,890
1,937.47	5,147	7,010	1,939.06	6,413	16,082
1,937.50	5,162	7,164	1,939.09	6,442	16,274
1,937.53	5,178	7,319	1,939.12	6,471	16,468
1,937.56	5,194	7,475	1,939.15	6,500	16,663

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,939.18	6,529	16,858	1,940.77	8,191	28,528
1,939.21	6,559	17,054	1,940.80	8,225	28,774
1,939.24	6,588	17,252	1,940.83	8,258	29,022
1,939.27	6,617	17,450	1,940.86	8,292	29,270
1,939.30	6,647	17,649	1,940.89	8,326	29,519
1,939.33	6,676	17,848	1,940.92	8,360	29,769
1,939.36	6,706	18,049	1,940.95	8,394	30,021
1,939.39	6,736	18,251	1,940.98	8,428	30,273
1,939.42	6,765	18,453	1,941.01	8,462	30,526
1,939.45	6,795	18,657	1,941.04	8,496	30,781
1,939.48	6,825	18,861	1,941.07	8,530	31,036
1,939.51	6,855	19,066	1,941.10	8,564	31,293
1,939.54	6,885	19,272	1,941.13	8,599	31,550
1,939.57	6,915	19,479	1,941.16	8,633	31,808
1,939.60	6,945	19,687	1,941.19	8,667	32,068
1,939.63	6,975	19,896	1,941.22	8,702	32,328
1,939.66	7,006	20,106	1,941.25	8,737	32,590
1,939.69	7,036	20,316	1,941.28	8,771	32,853
1,939.72	7,066	20,528	1,941.31	8,806	33,116
1,939.75	7,097	20,740	1,941.34	8,841	33,381
1,939.78	7,127	20,954	1,941.37	8,876	33,647
1,939.81	7,158	21,168	1,941.40	8,911	33,914
1,939.84	7,188	21,383	1,941.43	8,946	34,181
1,939.87	7,219	21,599	1,941.46	8,981	34,450
1,939.90	7,250	21,816	1,941.49	9,016	34,720
1,939.93	7,281	22,034	1,941.52	9,051	34,991
1,939.96	7,312	22,253	1,941.55	9,086	35,263
1,939.99	7,343	22,473	1,941.58	9,122	35,536
1,940.02	7,374	22,694	1,941.61	9,157	35,811
1,940.05	7,406	22,915	1,941.64	9,193	36,086
1,940.08	7,438	23,138	1,941.67	9,228	36,362
1,940.11	7,470	23,362	1,941.70	9,264	36,640
1,940.14	7,502	23,586	1,941.73	9,300	36,918
1,940.17	7,534	23,812	1,941.76	9,335	37,198
1,940.20	7,566	24,038	1,941.79	9,371	37,478
1,940.23	7,599	24,266	1,941.82	9,407	37,760
1,940.26	7,631	24,494	1,941.85	9,443	38,043
1,940.29	7,663	24,724	1,941.88	9,479	38,326
1,940.32	7,696	24,954	1,941.91	9,515	38,611
1,940.35	7,728	25,185	1,941.94	9,551	38,897
1,940.38	7,761	25,418	1,941.97	9,588	39,184
1,940.41	7,794	25,651	1,942.00	9,624	39,473
1,940.44	7,826	25,885	1,942.03	9,673	39,762
1,940.47	7,859	26,121	1,942.06	9,722	40,053
1,940.50	7,892	26,357	1,942.09	9,772	40,345
1,940.53	7,925	26,594	1,942.12	9,821	40,639
1,940.56	7,958	26,832	1,942.15	9,871	40,935
1,940.59	7,991	27,072	1,942.18	9,921	41,232
1,940.62	8,024	27,312	1,942.21	9,971	41,530
1,940.65	8,058	27,553	1,942.24	10,021	41,830
1,940.68	8,091	27,795	1,942.27	10,071	42,131
1,940.71	8,124	28,039	1,942.30	10,121	42,434
1,940.74	8,158	28,283	1,942.33	10,172	42,739

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,942.36	10,222	43,044	1,943.95	13,081	61,524
1,942.39	10,273	43,352	1,943.98	13,139	61,918
1,942.42	10,324	43,661	1,944.01	13,191	62,313
1,942.45	10,375	43,971	1,944.04	13,234	62,709
1,942.48	10,426	44,283	1,944.07	13,277	63,107
1,942.51	10,477	44,597	1,944.10	13,320	63,506
1,942.54	10,528	44,912	1,944.13	13,363	63,906
1,942.57	10,580	45,229	1,944.16	13,406	64,307
1,942.60	10,631	45,547	1,944.19	13,449	64,710
1,942.63	10,683	45,866	1,944.22	13,492	65,114
1,942.66	10,735	46,188	1,944.25	13,535	65,520
1,942.69	10,787	46,511	1,944.28	13,578	65,926
1,942.72	10,839	46,835	1,944.31	13,622	66,334
1,942.75	10,891	47,161	1,944.34	13,665	66,744
1,942.78	10,943	47,488	1,944.37	13,709	67,154
1,942.81	10,996	47,817	1,944.40	13,752	67,566
1,942.84	11,048	48,148	1,944.43	13,796	67,979
1,942.87	11,101	48,480	1,944.46	13,840	68,394
1,942.90	11,154	48,814	1,944.49	13,884	68,810
1,942.93	11,207	49,150	1,944.52	13,927	69,227
1,942.96	11,260	49,487	1,944.55	13,971	69,646
1,942.99	11,313	49,825	1,944.58	14,015	70,065
1,943.02	11,366	50,165	1,944.61	14,059	70,486
1,943.05	11,420	50,507	1,944.64	14,104	70,909
1,943.08	11,473	50,851	1,944.67	14,148	71,333
1,943.11	11,527	51,196	1,944.70	14,192	71,758
1,943.14	11,581	51,542	1,944.73	14,236	72,184
1,943.17	11,635	51,890	1,944.76	14,281	72,612
1,943.20	11,689	52,240	1,944.79	14,325	73,041
1,943.23	11,743	52,592	1,944.82	14,370	73,471
1,943.26	11,797	52,945	1,944.85	14,414	73,903
1,943.29	11,852	53,300	1,944.88	14,459	74,336
1,943.32	11,906	53,656	1,944.91	14,504	74,771
1,943.35	11,961	54,014	1,944.94	14,549	75,207
1,943.38	12,016	54,374	1,944.97	14,594	75,644
1,943.41	12,071	54,735	1,945.00	14,639	76,082
1,943.44	12,126	55,098	1,945.03	14,684	76,522
1,943.47	12,181	55,463	1,945.06	14,729	76,963
1,943.50	12,237	55,829	1,945.09	14,774	77,406
1,943.53	12,292	56,197	1,945.12	14,819	77,850
1,943.56	12,348	56,566	1,945.15	14,864	78,295
1,943.59	12,403	56,938	1,945.18	14,910	78,741
1,943.62	12,459	57,311	1,945.21	14,955	79,189
1,943.65	12,515	57,685	1,945.24	15,001	79,639
1,943.68	12,571	58,061	1,945.27	15,046	80,089
1,943.71	12,627	58,439	1,945.30	15,092	80,542
1,943.74	12,684	58,819	1,945.33	15,138	80,995
1,943.77	12,740	59,200	1,945.36	15,184	81,450
1,943.80	12,797	59,583	1,945.39	15,229	81,906
1,943.83	12,853	59,968	1,945.42	15,275	82,364
1,943.86	12,910	60,355	1,945.45	15,321	82,823
1,943.89	12,967	60,743	1,945.48	15,367	83,283
1,943.92	13,024	61,133	1,945.51	15,414	83,745

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,945.54	15,460	84,208	1,947.13	17,798	110,672
1,945.57	15,506	84,672	1,947.16	17,842	111,207
1,945.60	15,552	85,138	1,947.19	17,886	111,743
1,945.63	15,599	85,605	1,947.22	17,931	112,280
1,945.66	15,645	86,074	1,947.25	17,975	112,819
1,945.69	15,692	86,544	1,947.28	18,019	113,358
1,945.72	15,738	87,016	1,947.31	18,064	113,900
1,945.75	15,785	87,488	1,947.34	18,108	114,442
1,945.78	15,832	87,963	1,947.37	18,152	114,986
1,945.81	15,879	88,438	1,947.40	18,197	115,531
1,945.84	15,926	88,915	1,947.43	18,242	116,078
1,945.87	15,973	89,394	1,947.46	18,286	116,626
1,945.90	16,020	89,874	1,947.49	18,331	117,175
1,945.93	16,067	90,355	1,947.52	18,376	117,726
1,945.96	16,114	90,838	1,947.55	18,420	118,278
1,945.99	16,161	91,322	1,947.58	18,465	118,831
1,946.02	16,205	91,807	1,947.61	18,510	119,386
1,946.05	16,247	92,294	1,947.64	18,555	119,942
1,946.08	16,289	92,782	1,947.67	18,600	120,499
1,946.11	16,331	93,271	1,947.70	18,645	121,058
1,946.14	16,374	93,762	1,947.73	18,690	121,618
1,946.17	16,416	94,254	1,947.76	18,736	122,179
1,946.20	16,458	94,747	1,947.79	18,781	122,742
1,946.23	16,501	95,241	1,947.82	18,826	123,306
1,946.26	16,543	95,737	1,947.85	18,871	123,871
1,946.29	16,586	96,234	1,947.88	18,917	124,438
1,946.32	16,628	96,732	1,947.91	18,962	125,006
1,946.35	16,671	97,232	1,947.94	19,008	125,576
1,946.38	16,714	97,732	1,947.97	19,053	126,147
1,946.41	16,756	98,235	1,948.00	19,099	126,719
1,946.44	16,799	98,738	1,948.03	19,144	127,293
1,946.47	16,842	99,242	1,948.06	19,190	127,868
1,946.50	16,885	99,748	1,948.09	19,236	128,444
1,946.53	16,928	100,256	1,948.12	19,281	129,022
1,946.56	16,971	100,764	1,948.15	19,327	129,601
1,946.59	17,014	101,274	1,948.18	19,373	130,182
1,946.62	17,057	101,785	1,948.21	19,418	130,763
1,946.65	17,100	102,297	1,948.24	19,464	131,347
1,946.68	17,143	102,811	1,948.27	19,510	131,931
1,946.71	17,187	103,326	1,948.30	19,556	132,517
1,946.74	17,230	103,842	1,948.33	19,602	133,105
1,946.77	17,273	104,360	1,948.36	19,648	133,693
1,946.80	17,317	104,878	1,948.39	19,694	134,284
1,946.83	17,360	105,399	1,948.42	19,740	134,875
1,946.86	17,404	105,920	1,948.45	19,787	135,468
1,946.89	17,447	106,443	1,948.48	19,833	136,062
1,946.92	17,491	106,967	1,948.51	19,879	136,658
1,946.95	17,535	107,492	1,948.54	19,926	137,255
1,946.98	17,578	108,019	1,948.57	19,972	137,853
1,947.01	17,622	108,547	1,948.60	20,018	138,453
1,947.04	17,666	109,076	1,948.63	20,065	139,055
1,947.07	17,710	109,607	1,948.66	20,112	139,657
1,947.10	17,754	110,139	1,948.69	20,158	140,261

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,948.72	20,205	140,867
1,948.75	20,252	141,474
1,948.78	20,299	142,082
1,948.81	20,345	142,691
1,948.84	20,392	143,303
1,948.87	20,439	143,915
1,948.90	20,486	144,529
1,948.93	20,533	145,144
1,948.96	20,581	145,761
1,948.99	20,628	146,379
1,949.02	20,675	146,999
1,949.05	20,722	147,620
1,949.08	20,770	148,242
1,949.11	20,817	148,866
1,949.14	20,864	149,491
1,949.17	20,912	150,118
1,949.20	20,960	150,746
1,949.23	21,007	151,375
1,949.26	21,055	152,006
1,949.29	21,103	152,638
1,949.32	21,150	153,272
1,949.35	21,198	153,907
1,949.38	21,246	154,544
1,949.41	21,294	155,182
1,949.44	21,342	155,822
1,949.47	21,390	156,463
1,949.50	21,438	157,105
1,949.53	21,486	157,749
1,949.56	21,535	158,394
1,949.59	21,583	159,041
1,949.62	21,631	159,689
1,949.65	21,680	160,339
1,949.68	21,728	160,990
1,949.71	21,777	161,643
1,949.74	21,825	162,297
1,949.77	21,874	162,952
1,949.80	21,922	163,609
1,949.83	21,971	164,268
1,949.86	22,020	164,927
1,949.89	22,069	165,589
1,949.92	22,117	166,251
1,949.95	22,166	166,916
1,949.98	**22,215**	**167,581**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Proposed Drainage Area Runoff Area=12.860 ac 0.00% Impervious Runoff Depth>3.06"
Tc=5.0 min CN=85 Runoff=73.49 cfs 3.276 af

Pond 2P: Sediment Basin 11 Peak Elev=1,946.27' Storage=95,945 cf Inflow=73.49 cfs 3.276 af
Outflow=4.41 cfs 1.143 af

Total Runoff Area = 12.860 ac Runoff Volume = 3.276 af Average Runoff Depth = 3.06"
100.00% Pervious = 12.860 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Proposed Drainage Area

[49] Hint: Tc<2dt may require smaller dt

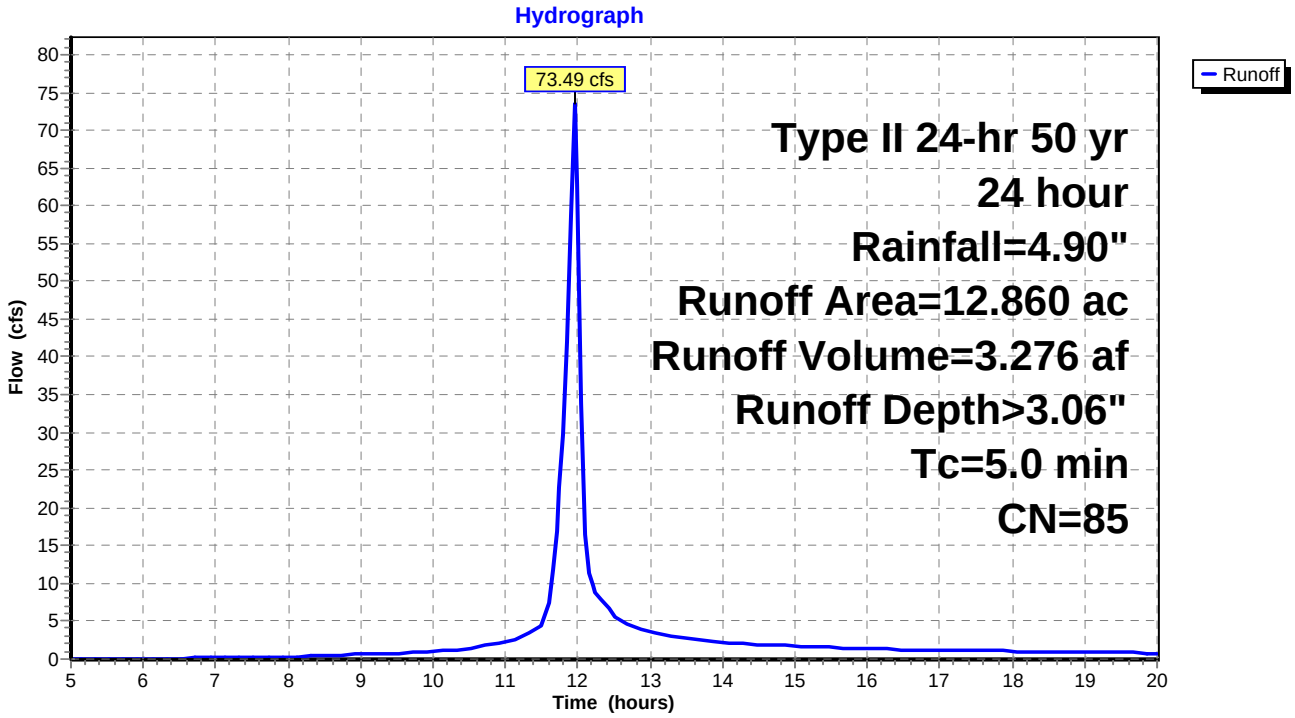
Runoff = 73.49 cfs @ 11.95 hrs, Volume= 3.276 af, Depth> 3.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50 yr, 24 hour Rainfall=4.90"

	Area (ac)	CN	Description
*	12.170	85	Fallow, bare soil, HSG B
*	0.690	85	30,000 sf additional
	12.860	85	Weighted Average
	12.860		Pervious Area

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

Subcatchment 1S: Proposed Drainage Area



Summary for Pond 2P: Sediment Basin 11

Inflow Area = 12.860 ac, 0.00% Impervious, Inflow Depth > 3.06" for 50 yr, 24 hour event
Inflow = 73.49 cfs @ 11.95 hrs, Volume= 3.276 af
Outflow = 4.41 cfs @ 12.73 hrs, Volume= 1.143 af, Atten= 94%, Lag= 46.8 min
Primary = 4.41 cfs @ 12.73 hrs, Volume= 1.143 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,946.27' @ 12.73 hrs Surf.Area= 16,561 sf Storage= 95,945 cf

Plug-Flow detention time= 229.1 min calculated for 1.140 af (35% of inflow)
Center-of-Mass det. time= 139.1 min (906.4 - 767.3)

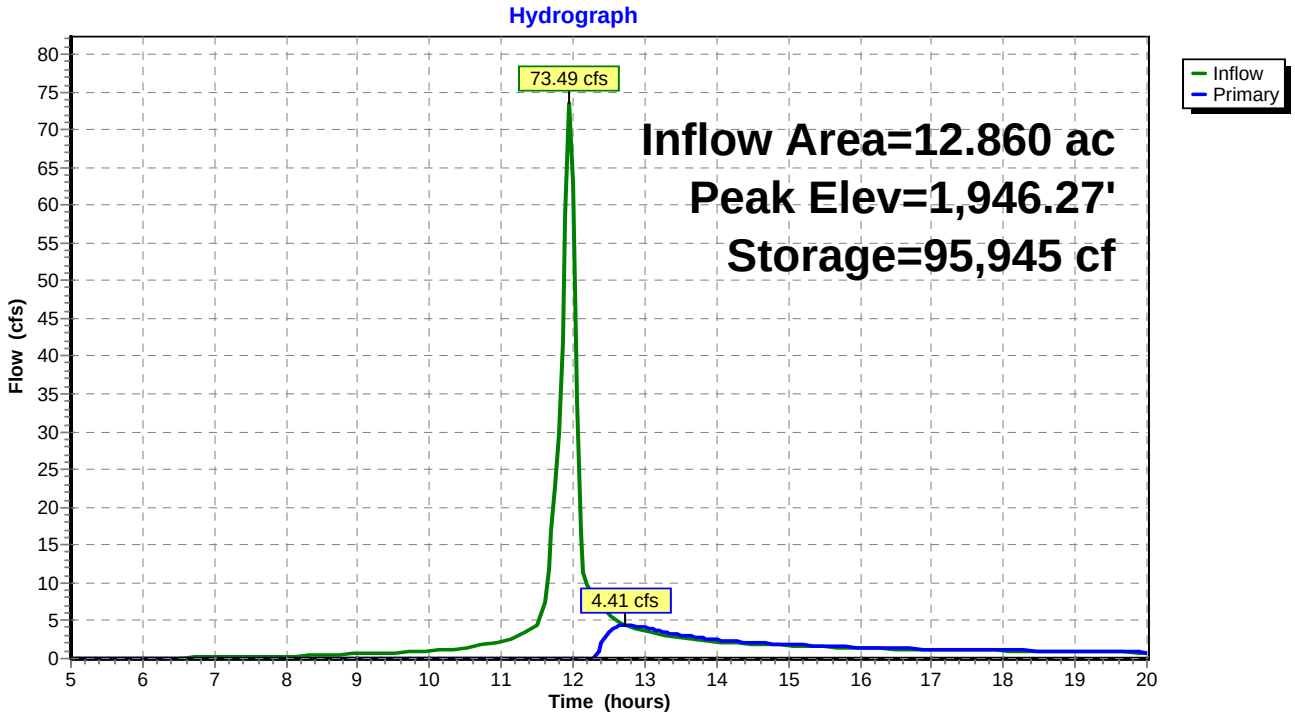
Volume	Invert	Avail.Storage	Storage Description
#1	1,936.00'	168,026 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,936.00	4,400	0	0	4,400
1,938.00	5,430	9,812	9,812	5,543
1,940.00	7,353	12,735	22,546	7,548
1,942.00	9,624	16,926	39,473	9,910
1,944.00	13,177	22,708	62,181	13,543
1,946.00	16,177	29,303	91,484	16,663
1,948.00	19,099	35,236	126,719	19,733
1,950.00	22,248	41,307	168,026	23,042

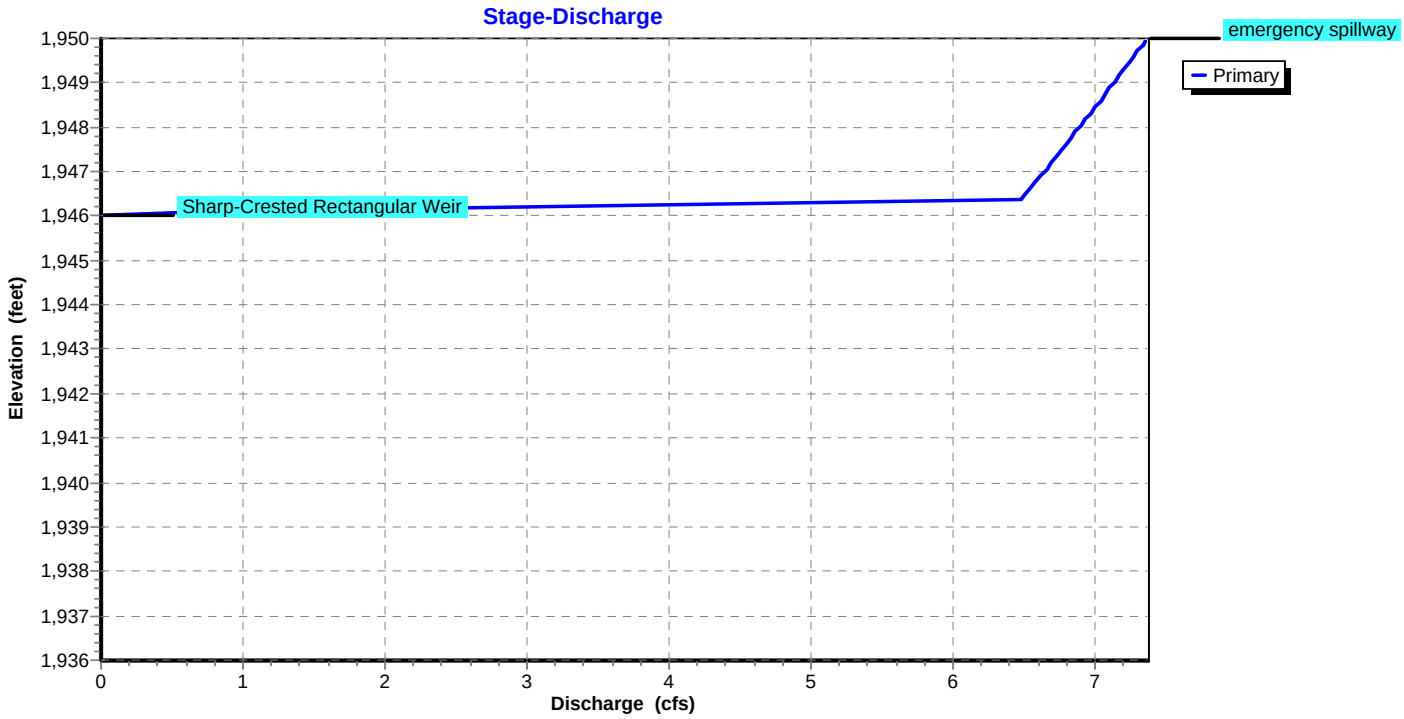
Device	Routing	Invert	Outlet Devices
#1	Primary	1,935.00'	**12.0" x 88.0' long Culvert barrel** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 1,933.00' S= 0.0227 '/' Cc= 0.900 n= 0.025
#2	Device 1	1,946.00'	**9.4' long Sharp-Crested Rectangular Weir** 0 End Contraction(s) 1,946.0' Crest Height
#3	Device 1	1,950.00'	**80.0' long x 12.0' breadth emergency spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=4.37 cfs @ 12.73 hrs HW=1,946.27' (Free Discharge)
└─**1=Culvert barrel** (Passes 4.37 cfs of 6.45 cfs potential flow)
  ├─**2=Sharp-Crested Rectangular Weir** (Weir Controls 4.37 cfs @ 1.71 fps)
  └─**3=emergency spillway** (Controls 0.00 cfs)

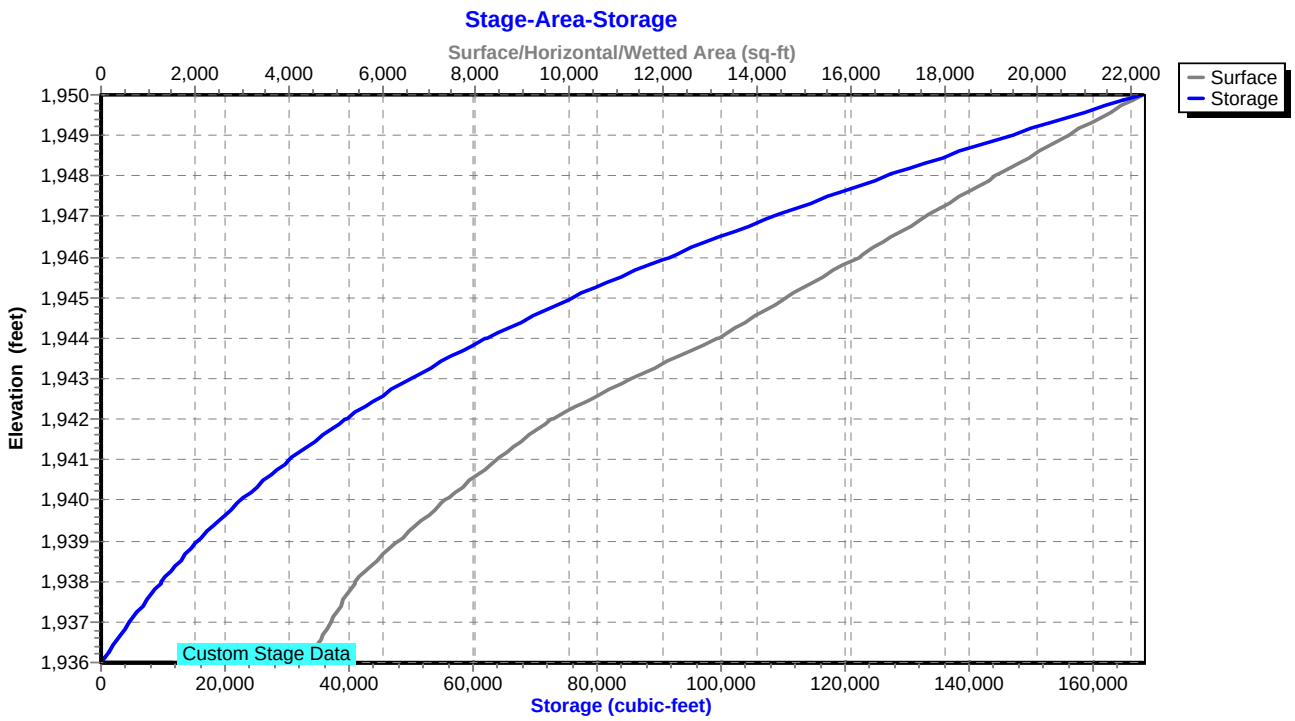
Pond 2P: Sediment Basin 11



Pond 2P: Sediment Basin 11



Pond 2P: Sediment Basin 11



Stage-Discharge for Pond 2P: Sediment Basin 11

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,936.00	0.00	1,937.59	0.00	1,939.18	0.00	1,940.77	0.00
1,936.03	0.00	1,937.62	0.00	1,939.21	0.00	1,940.80	0.00
1,936.06	0.00	1,937.65	0.00	1,939.24	0.00	1,940.83	0.00
1,936.09	0.00	1,937.68	0.00	1,939.27	0.00	1,940.86	0.00
1,936.12	0.00	1,937.71	0.00	1,939.30	0.00	1,940.89	0.00
1,936.15	0.00	1,937.74	0.00	1,939.33	0.00	1,940.92	0.00
1,936.18	0.00	1,937.77	0.00	1,939.36	0.00	1,940.95	0.00
1,936.21	0.00	1,937.80	0.00	1,939.39	0.00	1,940.98	0.00
1,936.24	0.00	1,937.83	0.00	1,939.42	0.00	1,941.01	0.00
1,936.27	0.00	1,937.86	0.00	1,939.45	0.00	1,941.04	0.00
1,936.30	0.00	1,937.89	0.00	1,939.48	0.00	1,941.07	0.00
1,936.33	0.00	1,937.92	0.00	1,939.51	0.00	1,941.10	0.00
1,936.36	0.00	1,937.95	0.00	1,939.54	0.00	1,941.13	0.00
1,936.39	0.00	1,937.98	0.00	1,939.57	0.00	1,941.16	0.00
1,936.42	0.00	1,938.01	0.00	1,939.60	0.00	1,941.19	0.00
1,936.45	0.00	1,938.04	0.00	1,939.63	0.00	1,941.22	0.00
1,936.48	0.00	1,938.07	0.00	1,939.66	0.00	1,941.25	0.00
1,936.51	0.00	1,938.10	0.00	1,939.69	0.00	1,941.28	0.00
1,936.54	0.00	1,938.13	0.00	1,939.72	0.00	1,941.31	0.00
1,936.57	0.00	1,938.16	0.00	1,939.75	0.00	1,941.34	0.00
1,936.60	0.00	1,938.19	0.00	1,939.78	0.00	1,941.37	0.00
1,936.63	0.00	1,938.22	0.00	1,939.81	0.00	1,941.40	0.00
1,936.66	0.00	1,938.25	0.00	1,939.84	0.00	1,941.43	0.00
1,936.69	0.00	1,938.28	0.00	1,939.87	0.00	1,941.46	0.00
1,936.72	0.00	1,938.31	0.00	1,939.90	0.00	1,941.49	0.00
1,936.75	0.00	1,938.34	0.00	1,939.93	0.00	1,941.52	0.00
1,936.78	0.00	1,938.37	0.00	1,939.96	0.00	1,941.55	0.00
1,936.81	0.00	1,938.40	0.00	1,939.99	0.00	1,941.58	0.00
1,936.84	0.00	1,938.43	0.00	1,940.02	0.00	1,941.61	0.00
1,936.87	0.00	1,938.46	0.00	1,940.05	0.00	1,941.64	0.00
1,936.90	0.00	1,938.49	0.00	1,940.08	0.00	1,941.67	0.00
1,936.93	0.00	1,938.52	0.00	1,940.11	0.00	1,941.70	0.00
1,936.96	0.00	1,938.55	0.00	1,940.14	0.00	1,941.73	0.00
1,936.99	0.00	1,938.58	0.00	1,940.17	0.00	1,941.76	0.00
1,937.02	0.00	1,938.61	0.00	1,940.20	0.00	1,941.79	0.00
1,937.05	0.00	1,938.64	0.00	1,940.23	0.00	1,941.82	0.00
1,937.08	0.00	1,938.67	0.00	1,940.26	0.00	1,941.85	0.00
1,937.11	0.00	1,938.70	0.00	1,940.29	0.00	1,941.88	0.00
1,937.14	0.00	1,938.73	0.00	1,940.32	0.00	1,941.91	0.00
1,937.17	0.00	1,938.76	0.00	1,940.35	0.00	1,941.94	0.00
1,937.20	0.00	1,938.79	0.00	1,940.38	0.00	1,941.97	0.00
1,937.23	0.00	1,938.82	0.00	1,940.41	0.00	1,942.00	0.00
1,937.26	0.00	1,938.85	0.00	1,940.44	0.00	1,942.03	0.00
1,937.29	0.00	1,938.88	0.00	1,940.47	0.00	1,942.06	0.00
1,937.32	0.00	1,938.91	0.00	1,940.50	0.00	1,942.09	0.00
1,937.35	0.00	1,938.94	0.00	1,940.53	0.00	1,942.12	0.00
1,937.38	0.00	1,938.97	0.00	1,940.56	0.00	1,942.15	0.00
1,937.41	0.00	1,939.00	0.00	1,940.59	0.00	1,942.18	0.00
1,937.44	0.00	1,939.03	0.00	1,940.62	0.00	1,942.21	0.00
1,937.47	0.00	1,939.06	0.00	1,940.65	0.00	1,942.24	0.00
1,937.50	0.00	1,939.09	0.00	1,940.68	0.00	1,942.27	0.00
1,937.53	0.00	1,939.12	0.00	1,940.71	0.00	1,942.30	0.00
1,937.56	0.00	1,939.15	0.00	1,940.74	0.00	1,942.33	0.00

Stage-Discharge for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,942.36	0.00	1,943.95	0.00	1,945.54	0.00	1,947.13	6.67
1,942.39	0.00	1,943.98	0.00	1,945.57	0.00	1,947.16	6.68
1,942.42	0.00	1,944.01	0.00	1,945.60	0.00	1,947.19	6.69
1,942.45	0.00	1,944.04	0.00	1,945.63	0.00	1,947.22	6.69
1,942.48	0.00	1,944.07	0.00	1,945.66	0.00	1,947.25	6.70
1,942.51	0.00	1,944.10	0.00	1,945.69	0.00	1,947.28	6.71
1,942.54	0.00	1,944.13	0.00	1,945.72	0.00	1,947.31	6.72
1,942.57	0.00	1,944.16	0.00	1,945.75	0.00	1,947.34	6.72
1,942.60	0.00	1,944.19	0.00	1,945.78	0.00	1,947.37	6.73
1,942.63	0.00	1,944.22	0.00	1,945.81	0.00	1,947.40	6.74
1,942.66	0.00	1,944.25	0.00	1,945.84	0.00	1,947.43	6.75
1,942.69	0.00	1,944.28	0.00	1,945.87	0.00	1,947.46	6.76
1,942.72	0.00	1,944.31	0.00	1,945.90	0.00	1,947.49	6.76
1,942.75	0.00	1,944.34	0.00	1,945.93	0.00	1,947.52	6.77
1,942.78	0.00	1,944.37	0.00	1,945.96	0.00	1,947.55	6.78
1,942.81	0.00	1,944.40	0.00	1,945.99	0.00	1,947.58	6.79
1,942.84	0.00	1,944.43	0.00	1,946.02	0.09	1,947.61	6.79
1,942.87	0.00	1,944.46	0.00	1,946.05	0.34	1,947.64	6.80
1,942.90	0.00	1,944.49	0.00	1,946.08	0.70	1,947.67	6.81
1,942.93	0.00	1,944.52	0.00	1,946.11	1.12	1,947.70	6.81
1,942.96	0.00	1,944.55	0.00	1,946.14	1.61	1,947.73	6.82
1,942.99	0.00	1,944.58	0.00	1,946.17	2.15	1,947.76	6.83
1,943.02	0.00	1,944.61	0.00	1,946.20	2.75	1,947.79	6.84
1,943.05	0.00	1,944.64	0.00	1,946.23	3.39	1,947.82	6.84
1,943.08	0.00	1,944.67	0.00	1,946.26	4.08	1,947.85	6.85
1,943.11	0.00	1,944.70	0.00	1,946.29	4.80	1,947.88	6.86
1,943.14	0.00	1,944.73	0.00	1,946.32	5.56	1,947.91	6.87
1,943.17	0.00	1,944.76	0.00	1,946.35	6.36	1,947.94	6.87
1,943.20	0.00	1,944.79	0.00	1,946.38	6.48	1,947.97	6.88
1,943.23	0.00	1,944.82	0.00	1,946.41	6.49	1,948.00	6.89
1,943.26	0.00	1,944.85	0.00	1,946.44	6.49	1,948.03	6.90
1,943.29	0.00	1,944.88	0.00	1,946.47	6.50	1,948.06	6.90
1,943.32	0.00	1,944.91	0.00	1,946.50	6.51	1,948.09	6.91
1,943.35	0.00	1,944.94	0.00	1,946.53	6.52	1,948.12	6.92
1,943.38	0.00	1,944.97	0.00	1,946.56	6.53	1,948.15	6.93
1,943.41	0.00	1,945.00	0.00	1,946.59	6.53	1,948.18	6.93
1,943.44	0.00	1,945.03	0.00	1,946.62	6.54	1,948.21	6.94
1,943.47	0.00	1,945.06	0.00	1,946.65	6.55	1,948.24	6.95
1,943.50	0.00	1,945.09	0.00	1,946.68	6.56	1,948.27	6.96
1,943.53	0.00	1,945.12	0.00	1,946.71	6.56	1,948.30	6.96
1,943.56	0.00	1,945.15	0.00	1,946.74	6.57	1,948.33	6.97
1,943.59	0.00	1,945.18	0.00	1,946.77	6.58	1,948.36	6.98
1,943.62	0.00	1,945.21	0.00	1,946.80	6.59	1,948.39	6.98
1,943.65	0.00	1,945.24	0.00	1,946.83	6.60	1,948.42	6.99
1,943.68	0.00	1,945.27	0.00	1,946.86	6.60	1,948.45	7.00
1,943.71	0.00	1,945.30	0.00	1,946.89	6.61	1,948.48	7.01
1,943.74	0.00	1,945.33	0.00	1,946.92	6.62	1,948.51	7.01
1,943.77	0.00	1,945.36	0.00	1,946.95	6.63	1,948.54	7.02
1,943.80	0.00	1,945.39	0.00	1,946.98	6.63	1,948.57	7.03
1,943.83	0.00	1,945.42	0.00	1,947.01	6.64	1,948.60	7.04
1,943.86	0.00	1,945.45	0.00	1,947.04	6.65	1,948.63	7.04
1,943.89	0.00	1,945.48	0.00	1,947.07	6.66	1,948.66	7.05
1,943.92	0.00	1,945.51	0.00	1,947.10	6.66	1,948.69	7.06

Stage-Discharge for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Primary (cfs)
1,948.72	7.06
1,948.75	7.07
1,948.78	7.08
1,948.81	7.09
1,948.84	7.09
1,948.87	7.10
1,948.90	7.11
1,948.93	7.11
1,948.96	7.12
1,948.99	7.13
1,949.02	7.14
1,949.05	7.14
1,949.08	7.15
1,949.11	7.16
1,949.14	7.16
1,949.17	7.17
1,949.20	7.18
1,949.23	7.19
1,949.26	7.19
1,949.29	7.20
1,949.32	7.21
1,949.35	7.21
1,949.38	7.22
1,949.41	7.23
1,949.44	7.23
1,949.47	7.24
1,949.50	7.25
1,949.53	7.26
1,949.56	7.26
1,949.59	7.27
1,949.62	7.28
1,949.65	7.28
1,949.68	7.29
1,949.71	7.30
1,949.74	7.30
1,949.77	7.31
1,949.80	7.32
1,949.83	7.33
1,949.86	7.33
1,949.89	7.34
1,949.92	7.35
1,949.95	7.35
1,949.98	**7.36**

Stage-Area-Storage for Pond 2P: Sediment Basin 11

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,936.00	4,400	0	1,937.59	5,210	7,631
1,936.03	4,415	132	1,937.62	5,226	7,787
1,936.06	4,429	265	1,937.65	5,242	7,944
1,936.09	4,444	398	1,937.68	5,258	8,102
1,936.12	4,459	532	1,937.71	5,274	8,260
1,936.15	4,473	666	1,937.74	5,290	8,418
1,936.18	4,488	800	1,937.77	5,306	8,577
1,936.21	4,503	935	1,937.80	5,322	8,737
1,936.24	4,518	1,070	1,937.83	5,338	8,897
1,936.27	4,533	1,206	1,937.86	5,354	9,057
1,936.30	4,548	1,342	1,937.89	5,371	9,218
1,936.33	4,562	1,479	1,937.92	5,387	9,379
1,936.36	4,577	1,616	1,937.95	5,403	9,541
1,936.39	4,592	1,753	1,937.98	5,419	9,703
1,936.42	4,607	1,891	1,938.01	5,439	9,866
1,936.45	4,622	2,030	1,938.04	5,466	10,030
1,936.48	4,637	2,169	1,938.07	5,492	10,194
1,936.51	4,652	2,308	1,938.10	5,519	10,359
1,936.54	4,667	2,448	1,938.13	5,546	10,525
1,936.57	4,683	2,588	1,938.16	5,573	10,692
1,936.60	4,698	2,729	1,938.19	5,600	10,860
1,936.63	4,713	2,870	1,938.22	5,627	11,028
1,936.66	4,728	3,012	1,938.25	5,654	11,197
1,936.69	4,743	3,154	1,938.28	5,682	11,367
1,936.72	4,758	3,296	1,938.31	5,709	11,538
1,936.75	4,774	3,439	1,938.34	5,736	11,710
1,936.78	4,789	3,583	1,938.37	5,764	11,883
1,936.81	4,804	3,726	1,938.40	5,791	12,056
1,936.84	4,819	3,871	1,938.43	5,819	12,230
1,936.87	4,835	4,016	1,938.46	5,847	12,405
1,936.90	4,850	4,161	1,938.49	5,874	12,581
1,936.93	4,865	4,307	1,938.52	5,902	12,757
1,936.96	4,881	4,453	1,938.55	5,930	12,935
1,936.99	4,896	4,599	1,938.58	5,958	13,113
1,937.02	4,912	4,747	1,938.61	5,986	13,292
1,937.05	4,927	4,894	1,938.64	6,014	13,472
1,937.08	4,943	5,042	1,938.67	6,042	13,653
1,937.11	4,958	5,191	1,938.70	6,070	13,835
1,937.14	4,974	5,340	1,938.73	6,098	14,017
1,937.17	4,989	5,489	1,938.76	6,126	14,201
1,937.20	5,005	5,639	1,938.79	6,155	14,385
1,937.23	5,021	5,789	1,938.82	6,183	14,570
1,937.26	5,036	5,940	1,938.85	6,212	14,756
1,937.29	5,052	6,092	1,938.88	6,240	14,943
1,937.32	5,068	6,243	1,938.91	6,269	15,130
1,937.35	5,083	6,396	1,938.94	6,298	15,319
1,937.38	5,099	6,548	1,938.97	6,326	15,508
1,937.41	5,115	6,702	1,939.00	6,355	15,698
1,937.44	5,131	6,855	1,939.03	6,384	15,890
1,937.47	5,147	7,010	1,939.06	6,413	16,082
1,937.50	5,162	7,164	1,939.09	6,442	16,274
1,937.53	5,178	7,319	1,939.12	6,471	16,468
1,937.56	5,194	7,475	1,939.15	6,500	16,663

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,939.18	6,529	16,858	1,940.77	8,191	28,528
1,939.21	6,559	17,054	1,940.80	8,225	28,774
1,939.24	6,588	17,252	1,940.83	8,258	29,022
1,939.27	6,617	17,450	1,940.86	8,292	29,270
1,939.30	6,647	17,649	1,940.89	8,326	29,519
1,939.33	6,676	17,848	1,940.92	8,360	29,769
1,939.36	6,706	18,049	1,940.95	8,394	30,021
1,939.39	6,736	18,251	1,940.98	8,428	30,273
1,939.42	6,765	18,453	1,941.01	8,462	30,526
1,939.45	6,795	18,657	1,941.04	8,496	30,781
1,939.48	6,825	18,861	1,941.07	8,530	31,036
1,939.51	6,855	19,066	1,941.10	8,564	31,293
1,939.54	6,885	19,272	1,941.13	8,599	31,550
1,939.57	6,915	19,479	1,941.16	8,633	31,808
1,939.60	6,945	19,687	1,941.19	8,667	32,068
1,939.63	6,975	19,896	1,941.22	8,702	32,328
1,939.66	7,006	20,106	1,941.25	8,737	32,590
1,939.69	7,036	20,316	1,941.28	8,771	32,853
1,939.72	7,066	20,528	1,941.31	8,806	33,116
1,939.75	7,097	20,740	1,941.34	8,841	33,381
1,939.78	7,127	20,954	1,941.37	8,876	33,647
1,939.81	7,158	21,168	1,941.40	8,911	33,914
1,939.84	7,188	21,383	1,941.43	8,946	34,181
1,939.87	7,219	21,599	1,941.46	8,981	34,450
1,939.90	7,250	21,816	1,941.49	9,016	34,720
1,939.93	7,281	22,034	1,941.52	9,051	34,991
1,939.96	7,312	22,253	1,941.55	9,086	35,263
1,939.99	7,343	22,473	1,941.58	9,122	35,536
1,940.02	7,374	22,694	1,941.61	9,157	35,811
1,940.05	7,406	22,915	1,941.64	9,193	36,086
1,940.08	7,438	23,138	1,941.67	9,228	36,362
1,940.11	7,470	23,362	1,941.70	9,264	36,640
1,940.14	7,502	23,586	1,941.73	9,300	36,918
1,940.17	7,534	23,812	1,941.76	9,335	37,198
1,940.20	7,566	24,038	1,941.79	9,371	37,478
1,940.23	7,599	24,266	1,941.82	9,407	37,760
1,940.26	7,631	24,494	1,941.85	9,443	38,043
1,940.29	7,663	24,724	1,941.88	9,479	38,326
1,940.32	7,696	24,954	1,941.91	9,515	38,611
1,940.35	7,728	25,185	1,941.94	9,551	38,897
1,940.38	7,761	25,418	1,941.97	9,588	39,184
1,940.41	7,794	25,651	1,942.00	9,624	39,473
1,940.44	7,826	25,885	1,942.03	9,673	39,762
1,940.47	7,859	26,121	1,942.06	9,722	40,053
1,940.50	7,892	26,357	1,942.09	9,772	40,345
1,940.53	7,925	26,594	1,942.12	9,821	40,639
1,940.56	7,958	26,832	1,942.15	9,871	40,935
1,940.59	7,991	27,072	1,942.18	9,921	41,232
1,940.62	8,024	27,312	1,942.21	9,971	41,530
1,940.65	8,058	27,553	1,942.24	10,021	41,830
1,940.68	8,091	27,795	1,942.27	10,071	42,131
1,940.71	8,124	28,039	1,942.30	10,121	42,434
1,940.74	8,158	28,283	1,942.33	10,172	42,739

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,942.36	10,222	43,044	1,943.95	13,081	61,524
1,942.39	10,273	43,352	1,943.98	13,139	61,918
1,942.42	10,324	43,661	1,944.01	13,191	62,313
1,942.45	10,375	43,971	1,944.04	13,234	62,709
1,942.48	10,426	44,283	1,944.07	13,277	63,107
1,942.51	10,477	44,597	1,944.10	13,320	63,506
1,942.54	10,528	44,912	1,944.13	13,363	63,906
1,942.57	10,580	45,229	1,944.16	13,406	64,307
1,942.60	10,631	45,547	1,944.19	13,449	64,710
1,942.63	10,683	45,866	1,944.22	13,492	65,114
1,942.66	10,735	46,188	1,944.25	13,535	65,520
1,942.69	10,787	46,511	1,944.28	13,578	65,926
1,942.72	10,839	46,835	1,944.31	13,622	66,334
1,942.75	10,891	47,161	1,944.34	13,665	66,744
1,942.78	10,943	47,488	1,944.37	13,709	67,154
1,942.81	10,996	47,817	1,944.40	13,752	67,566
1,942.84	11,048	48,148	1,944.43	13,796	67,979
1,942.87	11,101	48,480	1,944.46	13,840	68,394
1,942.90	11,154	48,814	1,944.49	13,884	68,810
1,942.93	11,207	49,150	1,944.52	13,927	69,227
1,942.96	11,260	49,487	1,944.55	13,971	69,646
1,942.99	11,313	49,825	1,944.58	14,015	70,065
1,943.02	11,366	50,165	1,944.61	14,059	70,486
1,943.05	11,420	50,507	1,944.64	14,104	70,909
1,943.08	11,473	50,851	1,944.67	14,148	71,333
1,943.11	11,527	51,196	1,944.70	14,192	71,758
1,943.14	11,581	51,542	1,944.73	14,236	72,184
1,943.17	11,635	51,890	1,944.76	14,281	72,612
1,943.20	11,689	52,240	1,944.79	14,325	73,041
1,943.23	11,743	52,592	1,944.82	14,370	73,471
1,943.26	11,797	52,945	1,944.85	14,414	73,903
1,943.29	11,852	53,300	1,944.88	14,459	74,336
1,943.32	11,906	53,656	1,944.91	14,504	74,771
1,943.35	11,961	54,014	1,944.94	14,549	75,207
1,943.38	12,016	54,374	1,944.97	14,594	75,644
1,943.41	12,071	54,735	1,945.00	14,639	76,082
1,943.44	12,126	55,098	1,945.03	14,684	76,522
1,943.47	12,181	55,463	1,945.06	14,729	76,963
1,943.50	12,237	55,829	1,945.09	14,774	77,406
1,943.53	12,292	56,197	1,945.12	14,819	77,850
1,943.56	12,348	56,566	1,945.15	14,864	78,295
1,943.59	12,403	56,938	1,945.18	14,910	78,741
1,943.62	12,459	57,311	1,945.21	14,955	79,189
1,943.65	12,515	57,685	1,945.24	15,001	79,639
1,943.68	12,571	58,061	1,945.27	15,046	80,089
1,943.71	12,627	58,439	1,945.30	15,092	80,542
1,943.74	12,684	58,819	1,945.33	15,138	80,995
1,943.77	12,740	59,200	1,945.36	15,184	81,450
1,943.80	12,797	59,583	1,945.39	15,229	81,906
1,943.83	12,853	59,968	1,945.42	15,275	82,364
1,943.86	12,910	60,355	1,945.45	15,321	82,823
1,943.89	12,967	60,743	1,945.48	15,367	83,283
1,943.92	13,024	61,133	1,945.51	15,414	83,745

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,945.54	15,460	84,208	1,947.13	17,798	110,672
1,945.57	15,506	84,672	1,947.16	17,842	111,207
1,945.60	15,552	85,138	1,947.19	17,886	111,743
1,945.63	15,599	85,605	1,947.22	17,931	112,280
1,945.66	15,645	86,074	1,947.25	17,975	112,819
1,945.69	15,692	86,544	1,947.28	18,019	113,358
1,945.72	15,738	87,016	1,947.31	18,064	113,900
1,945.75	15,785	87,488	1,947.34	18,108	114,442
1,945.78	15,832	87,963	1,947.37	18,152	114,986
1,945.81	15,879	88,438	1,947.40	18,197	115,531
1,945.84	15,926	88,915	1,947.43	18,242	116,078
1,945.87	15,973	89,394	1,947.46	18,286	116,626
1,945.90	16,020	89,874	1,947.49	18,331	117,175
1,945.93	16,067	90,355	1,947.52	18,376	117,726
1,945.96	16,114	90,838	1,947.55	18,420	118,278
1,945.99	16,161	91,322	1,947.58	18,465	118,831
1,946.02	16,205	91,807	1,947.61	18,510	119,386
1,946.05	16,247	92,294	1,947.64	18,555	119,942
1,946.08	16,289	92,782	1,947.67	18,600	120,499
1,946.11	16,331	93,271	1,947.70	18,645	121,058
1,946.14	16,374	93,762	1,947.73	18,690	121,618
1,946.17	16,416	94,254	1,947.76	18,736	122,179
1,946.20	16,458	94,747	1,947.79	18,781	122,742
1,946.23	16,501	95,241	1,947.82	18,826	123,306
1,946.26	16,543	95,737	1,947.85	18,871	123,871
1,946.29	16,586	96,234	1,947.88	18,917	124,438
1,946.32	16,628	96,732	1,947.91	18,962	125,006
1,946.35	16,671	97,232	1,947.94	19,008	125,576
1,946.38	16,714	97,732	1,947.97	19,053	126,147
1,946.41	16,756	98,235	1,948.00	19,099	126,719
1,946.44	16,799	98,738	1,948.03	19,144	127,293
1,946.47	16,842	99,242	1,948.06	19,190	127,868
1,946.50	16,885	99,748	1,948.09	19,236	128,444
1,946.53	16,928	100,256	1,948.12	19,281	129,022
1,946.56	16,971	100,764	1,948.15	19,327	129,601
1,946.59	17,014	101,274	1,948.18	19,373	130,182
1,946.62	17,057	101,785	1,948.21	19,418	130,763
1,946.65	17,100	102,297	1,948.24	19,464	131,347
1,946.68	17,143	102,811	1,948.27	19,510	131,931
1,946.71	17,187	103,326	1,948.30	19,556	132,517
1,946.74	17,230	103,842	1,948.33	19,602	133,105
1,946.77	17,273	104,360	1,948.36	19,648	133,693
1,946.80	17,317	104,878	1,948.39	19,694	134,284
1,946.83	17,360	105,399	1,948.42	19,740	134,875
1,946.86	17,404	105,920	1,948.45	19,787	135,468
1,946.89	17,447	106,443	1,948.48	19,833	136,062
1,946.92	17,491	106,967	1,948.51	19,879	136,658
1,946.95	17,535	107,492	1,948.54	19,926	137,255
1,946.98	17,578	108,019	1,948.57	19,972	137,853
1,947.01	17,622	108,547	1,948.60	20,018	138,453
1,947.04	17,666	109,076	1,948.63	20,065	139,055
1,947.07	17,710	109,607	1,948.66	20,112	139,657
1,947.10	17,754	110,139	1,948.69	20,158	140,261

Stage-Area-Storage for Pond 2P: Sediment Basin 11 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,948.72	20,205	140,867
1,948.75	20,252	141,474
1,948.78	20,299	142,082
1,948.81	20,345	142,691
1,948.84	20,392	143,303
1,948.87	20,439	143,915
1,948.90	20,486	144,529
1,948.93	20,533	145,144
1,948.96	20,581	145,761
1,948.99	20,628	146,379
1,949.02	20,675	146,999
1,949.05	20,722	147,620
1,949.08	20,770	148,242
1,949.11	20,817	148,866
1,949.14	20,864	149,491
1,949.17	20,912	150,118
1,949.20	20,960	150,746
1,949.23	21,007	151,375
1,949.26	21,055	152,006
1,949.29	21,103	152,638
1,949.32	21,150	153,272
1,949.35	21,198	153,907
1,949.38	21,246	154,544
1,949.41	21,294	155,182
1,949.44	21,342	155,822
1,949.47	21,390	156,463
1,949.50	21,438	157,105
1,949.53	21,486	157,749
1,949.56	21,535	158,394
1,949.59	21,583	159,041
1,949.62	21,631	159,689
1,949.65	21,680	160,339
1,949.68	21,728	160,990
1,949.71	21,777	161,643
1,949.74	21,825	162,297
1,949.77	21,874	162,952
1,949.80	21,922	163,609
1,949.83	21,971	164,268
1,949.86	22,020	164,927
1,949.89	22,069	165,589
1,949.92	22,117	166,251
1,949.95	22,166	166,916
1,949.98	**22,215**	**167,581**

SECTION 2

DITCH 11.2

BUNCOMBE COUNTY LANDFILL

BUNCOMBE COUNTY

Ditch Composite Runoff Coefficient and Flow

Sediment Basin	total area	C	Q25
11.2	73225.00	0.600	7.22
11.3	32500.000	0.600	3.21

intensity (in/hr)	7.16	Taken From NOAA (25 yr, 5 min duration)
intensity (in/hr)	6.22	Taken From NOAA (10 yr, 5 min duration)
intensity (in/hr)	5.5	Taken From NOAA (2 yr, 5 min duration)

Job No: 14.00713
By: ANW
Date: 4.6.15

Notes:

Worksheet for Ditch 11.2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.069	
Channel Slope	0.08190	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	3.00	ft
Discharge	7.22	ft^3/s

Results

Normal Depth	0.50	ft
Flow Area	2.28	ft^2
Wetted Perimeter	6.19	ft
Hydraulic Radius	0.37	ft
Top Width	6.03	ft
Critical Depth	0.48	ft
Critical Slope	0.10087	ft/ft
Velocity	3.17	ft/s
Velocity Head	0.16	ft
Specific Energy	0.66	ft
Froude Number	0.91	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.48	ft
Channel Slope	0.08190	ft/ft

Tensar International Corporation
5401 St. Wendel-Cynthiana Road
Poseyville, Indiana 47633
Tel. 800.772.2040
Fax 812.867.0247
www.nagreen.com

Erosion Control Materials Design Software
Version 5.0

Project Name: Buncombe County Landfill Phase 5 Expansion
Project Number: 64964
Channel Name: 11.2

Discharge	7.22
Peak Flow Period	0
Channel Slope	0.08
Channel Bottom Width	3
Left Side Slope	3
Right Side Slope	3
Low Flow Liner	
Retardance Class	
Vegtation Type	
Vegetation Density	
Soil Type	Clay Loam

Rock Riprap

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Rock Riprap Unvegetated	Straight	7.22 cfs	5.38 ft/s	0.34 ft	0.032	2 lbs/ft2	1.67 lbs/ft2	1.2	STABLE	--

SECTION 3

DITCH 11.3

BUNCOMBE COUNTY LANDFILL

BUNCOMBE COUNTY

Worksheet for Ditch 11.3

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.033	
Channel Slope	0.04000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	4.00	ft
Discharge	3.21	ft^3/s

Results

Normal Depth	0.23	ft
Flow Area	1.06	ft^2
Wetted Perimeter	5.43	ft
Hydraulic Radius	0.20	ft
Top Width	5.36	ft
Critical Depth	0.25	ft
Critical Slope	0.02685	ft/ft
Velocity	3.03	ft/s
Velocity Head	0.14	ft
Specific Energy	0.37	ft
Froude Number	1.20	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.23	ft
Critical Depth	0.25	ft
Channel Slope	0.04000	ft/ft

Tensar International Corporation
5401 St. Wendel-Cynthiana Road
Poseyville, Indiana 47633
Tel. 800.772.2040
Fax 812.867.0247
www.nagreen.com

Erosion Control Materials Design Software
Version 5.0

Project Name: Buncombe County Landfill Phase 5 Expansion
Project Number: 64964
Channel Name: 11.3

Discharge	3.21
Peak Flow Period	0
Channel Slope	0.04
Channel Bottom Width	4
Left Side Slope	3
Right Side Slope	3
Low Flow Liner	
Retardance Class	
Vegtation Type	
Vegetation Density	
Soil Type	Clay Loam

S150

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
S150 Unvegetated	Straight	3.21 cfs	2.15 ft/s	0.3 ft	0.055	1.75 lbs/ft2	0.76 lbs/ft2	2.31	STABLE	D

SECTION 4

APPENDIX

BUNCOMBE COUNTY LANDFILL

BUNCOMBE COUNTY

NOAA Atlas 14, Volume 2, Version 3
Location name: Alexander, North Carolina, US*
Latitude: 35.7272°, Longitude: -82.6374°
Elevation: 2005 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.321 (0.291-0.356)	0.379 (0.344-0.421)	0.458 (0.414-0.508)	0.518 (0.468-0.574)	0.597 (0.535-0.660)	0.655 (0.584-0.724)	0.713 (0.632-0.790)	0.771 (0.678-0.855)	0.844 (0.735-0.942)	0.901 (0.777-1.01)
10-min	0.513 (0.464-0.569)	0.607 (0.550-0.673)	0.733 (0.663-0.813)	0.829 (0.748-0.918)	0.951 (0.853-1.05)	1.04 (0.930-1.15)	1.13 (1.00-1.25)	1.22 (1.07-1.36)	1.33 (1.16-1.49)	1.42 (1.22-1.59)
15-min	0.642 (0.580-0.711)	0.763 (0.692-0.846)	0.928 (0.839-1.03)	1.05 (0.946-1.16)	1.21 (1.08-1.33)	1.32 (1.18-1.46)	1.43 (1.27-1.59)	1.54 (1.36-1.71)	1.68 (1.46-1.88)	1.78 (1.54-2.00)
30-min	0.880 (0.796-0.974)	1.05 (0.956-1.17)	1.32 (1.19-1.46)	1.52 (1.37-1.68)	1.78 (1.60-1.97)	1.99 (1.77-2.20)	2.19 (1.95-2.43)	2.40 (2.11-2.66)	2.67 (2.33-2.98)	2.88 (2.49-3.23)
60-min	1.10 (0.992-1.22)	1.32 (1.20-1.47)	1.69 (1.53-1.87)	1.98 (1.78-2.19)	2.38 (2.13-2.63)	2.69 (2.40-2.98)	3.02 (2.68-3.35)	3.37 (2.96-3.73)	3.84 (3.34-4.28)	4.21 (3.63-4.72)
2-hr	1.24 (1.13-1.37)	1.49 (1.35-1.65)	1.91 (1.72-2.10)	2.24 (2.02-2.47)	2.70 (2.42-2.98)	3.08 (2.74-3.39)	3.46 (3.06-3.83)	3.87 (3.39-4.28)	4.42 (3.83-4.92)	4.85 (4.16-5.42)
3-hr	1.30 (1.18-1.44)	1.54 (1.40-1.71)	1.95 (1.77-2.16)	2.29 (2.08-2.53)	2.78 (2.50-3.06)	3.19 (2.84-3.51)	3.61 (3.19-3.98)	4.06 (3.55-4.49)	4.68 (4.04-5.21)	5.17 (4.40-5.79)
6-hr	1.54 (1.42-1.69)	1.81 (1.65-1.98)	2.25 (2.05-2.46)	2.62 (2.39-2.86)	3.17 (2.86-3.45)	3.62 (3.25-3.94)	4.10 (3.65-4.47)	4.61 (4.06-5.04)	5.33 (4.61-5.85)	5.88 (5.03-6.47)
12-hr	1.87 (1.72-2.04)	2.19 (2.02-2.39)	2.69 (2.48-2.93)	3.11 (2.85-3.37)	3.67 (3.37-3.98)	4.13 (3.77-4.46)	4.58 (4.16-4.95)	5.02 (4.54-5.45)	5.60 (5.03-6.09)	5.98 (5.35-6.54)
24-hr	2.12 (1.97-2.28)	2.54 (2.37-2.75)	3.18 (2.96-3.42)	3.68 (3.42-3.95)	4.36 (4.05-4.68)	4.90 (4.54-5.25)	5.45 (5.04-5.83)	6.00 (5.53-6.41)	6.71 (6.17-7.17)	7.24 (6.65-7.72)
2-day	2.51 (2.35-2.69)	3.02 (2.83-3.24)	3.73 (3.49-3.99)	4.28 (4.00-4.58)	5.04 (4.70-5.38)	5.63 (5.24-6.00)	6.21 (5.77-6.63)	6.80 (6.30-7.25)	7.56 (6.99-8.05)	8.11 (7.50-8.62)
3-day	2.69 (2.52-2.88)	3.22 (3.03-3.45)	3.96 (3.71-4.22)	4.53 (4.24-4.83)	5.30 (4.95-5.64)	5.90 (5.50-6.28)	6.49 (6.04-6.90)	7.08 (6.58-7.53)	7.84 (7.26-8.32)	8.39 (7.77-8.89)
4-day	2.87 (2.70-3.06)	3.43 (3.23-3.66)	4.18 (3.93-4.46)	4.77 (4.48-5.07)	5.56 (5.21-5.90)	6.17 (5.76-6.55)	6.77 (6.31-7.18)	7.36 (6.85-7.81)	8.12 (7.54-8.60)	8.66 (8.04-9.17)
7-day	3.43 (3.24-3.65)	4.09 (3.85-4.34)	4.93 (4.64-5.23)	5.58 (5.25-5.92)	6.45 (6.06-6.84)	7.12 (6.67-7.54)	7.79 (7.28-8.24)	8.44 (7.88-8.93)	9.28 (8.63-9.82)	9.88 (9.18-10.5)
10-day	3.96 (3.74-4.20)	4.70 (4.44-4.98)	5.60 (5.29-5.93)	6.29 (5.94-6.66)	7.21 (6.80-7.63)	7.91 (7.44-8.37)	8.60 (8.08-9.10)	9.28 (8.69-9.82)	10.1 (9.48-10.7)	10.8 (10.0-11.4)
20-day	5.48 (5.20-5.79)	6.46 (6.13-6.83)	7.56 (7.17-7.99)	8.42 (7.97-8.89)	9.54 (9.01-10.1)	10.4 (9.80-11.0)	11.2 (10.6-11.9)	12.0 (11.3-12.7)	13.1 (12.2-13.8)	13.8 (12.9-14.6)
30-day	6.84 (6.53-7.17)	8.02 (7.66-8.42)	9.19 (8.77-9.64)	10.1 (9.59-10.5)	11.2 (10.6-11.7)	12.0 (11.4-12.6)	12.7 (12.1-13.4)	13.4 (12.8-14.1)	14.3 (13.6-15.1)	14.9 (14.1-15.7)
45-day	8.72 (8.36-9.11)	10.2 (9.76-10.6)	11.5 (11.0-12.0)	12.4 (11.9-12.9)	13.6 (13.0-14.1)	14.4 (13.8-15.0)	15.2 (14.5-15.8)	15.9 (15.1-16.6)	16.7 (15.9-17.4)	17.3 (16.4-18.0)
60-day	10.5 (10.1-10.9)	12.2 (11.7-12.7)	13.6 (13.1-14.2)	14.7 (14.1-15.3)	16.0 (15.3-16.7)	16.9 (16.2-17.6)	17.8 (17.0-18.5)	18.5 (17.7-19.3)	19.4 (18.6-20.3)	20.1 (19.2-20.9)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

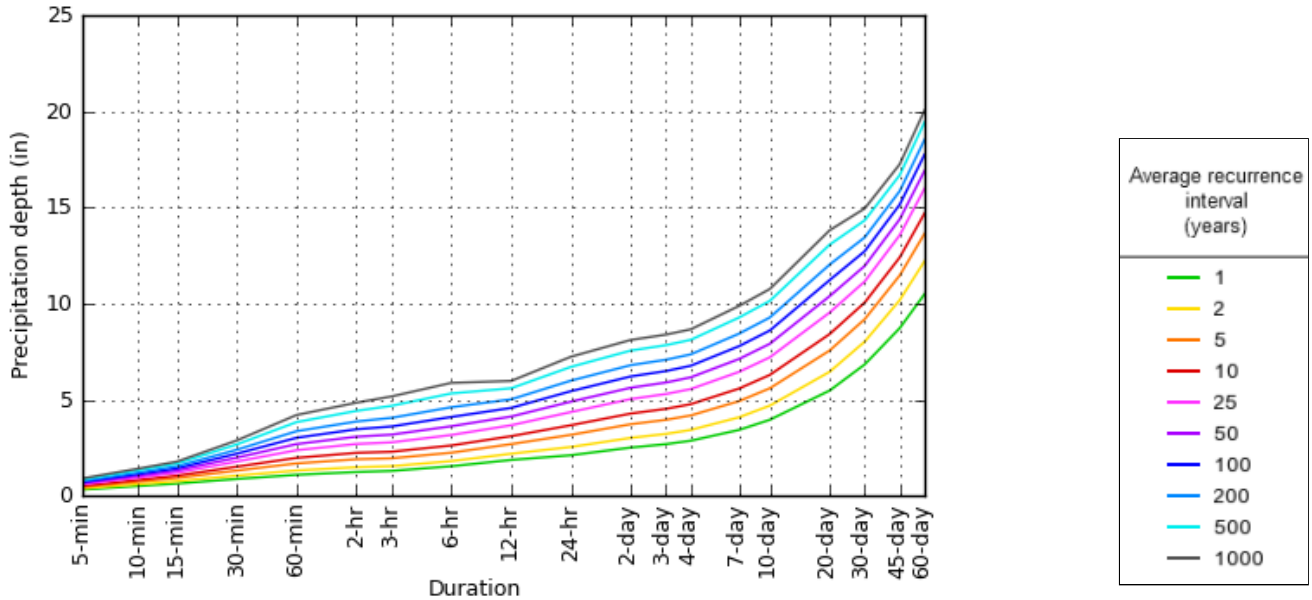
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

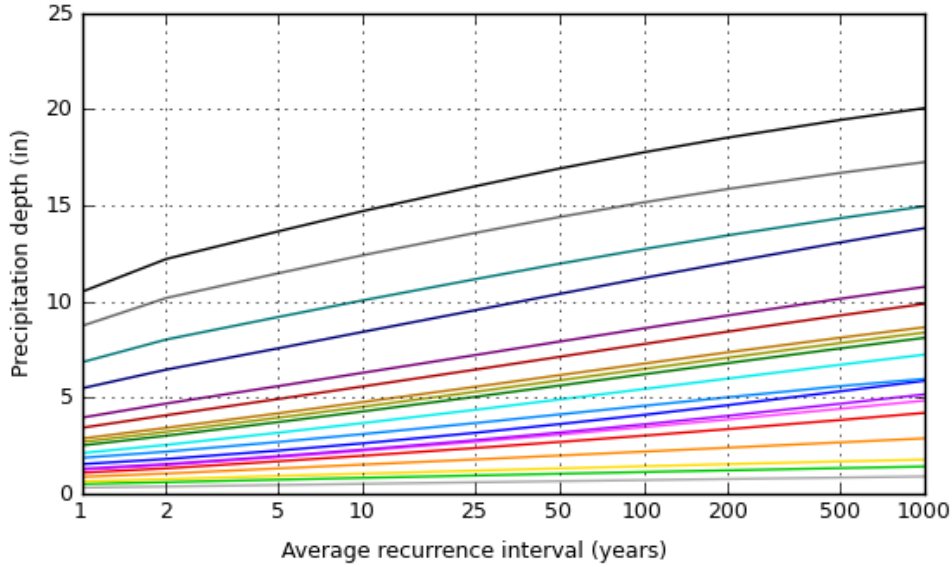
Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

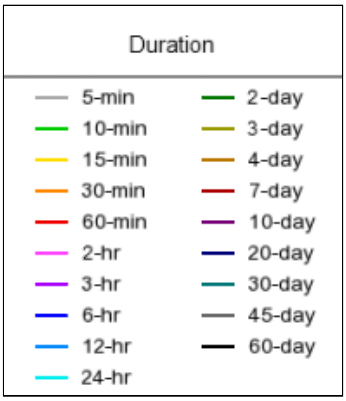
PDS-based depth-duration-frequency (DDF) curves
Latitude: 35.7272°, Longitude: -82.6374°





NOAA Atlas 14, Volume 2, Version 3

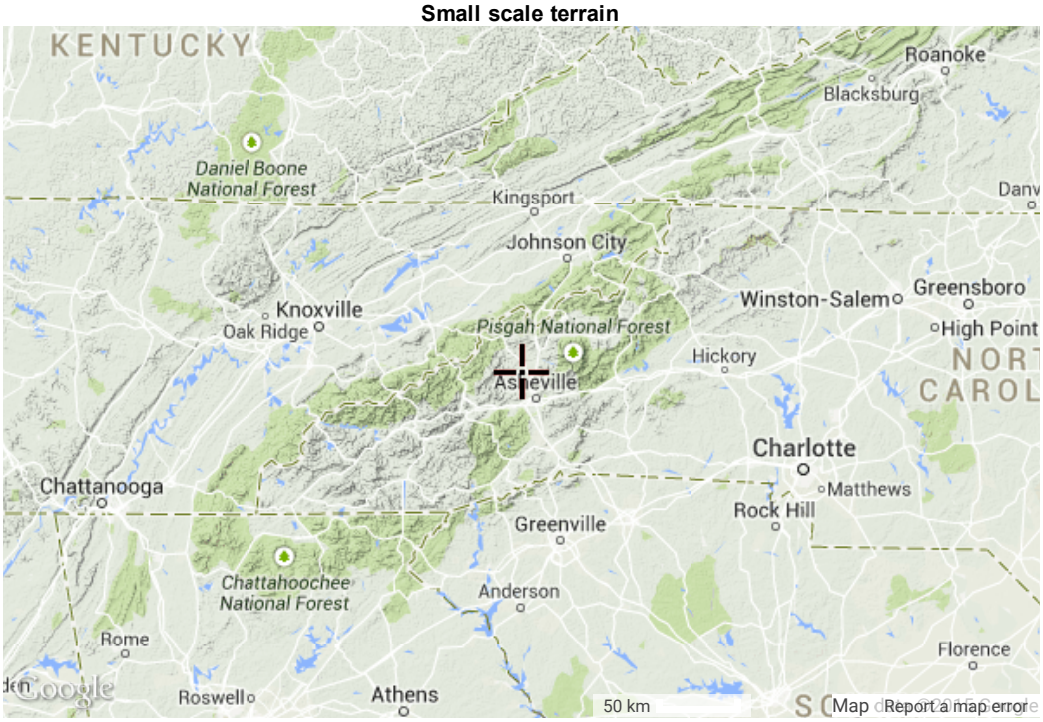
Created (GMT): Thu Apr 2 14:40:35 2015



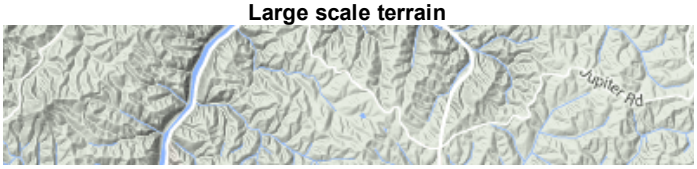
Back to Top

Maps & aerials

Small scale terrain

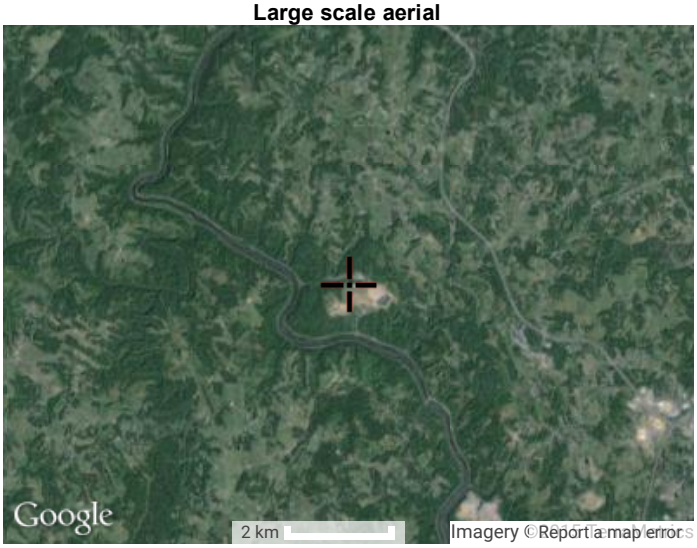


Large scale terrain



Large scale map

Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Office of Hydrologic Development
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

NOAA Atlas 14, Volume 2, Version 3
Location name: Alexander, North Carolina, US*
Latitude: 35.7272°, Longitude: -82.6374°
Elevation: 2005 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	3.85 (3.49-4.27)	4.55 (4.13-5.05)	5.50 (4.97-6.10)	6.22 (5.62-6.89)	7.16 (6.42-7.92)	7.86 (7.01-8.69)	8.56 (7.58-9.48)	9.25 (8.14-10.3)	10.1 (8.82-11.3)	10.8 (9.32-12.1)
10-min	3.08 (2.78-3.41)	3.64 (3.30-4.04)	4.40 (3.98-4.88)	4.97 (4.49-5.51)	5.71 (5.12-6.31)	6.26 (5.58-6.92)	6.80 (6.03-7.53)	7.33 (6.45-8.14)	8.01 (6.98-8.94)	8.51 (7.34-9.55)
15-min	2.57 (2.32-2.84)	3.05 (2.77-3.38)	3.71 (3.36-4.12)	4.19 (3.78-4.64)	4.82 (4.32-5.33)	5.28 (4.71-5.84)	5.73 (5.08-6.34)	6.16 (5.42-6.84)	6.72 (5.85-7.50)	7.12 (6.14-7.99)
30-min	1.76 (1.59-1.95)	2.11 (1.91-2.34)	2.64 (2.38-2.92)	3.04 (2.74-3.36)	3.57 (3.20-3.95)	3.98 (3.55-4.40)	4.39 (3.89-4.86)	4.80 (4.22-5.33)	5.35 (4.66-5.97)	5.76 (4.98-6.47)
60-min	1.10 (0.992-1.22)	1.32 (1.20-1.47)	1.69 (1.53-1.87)	1.98 (1.78-2.19)	2.38 (2.13-2.63)	2.69 (2.40-2.98)	3.02 (2.68-3.35)	3.37 (2.96-3.73)	3.84 (3.34-4.28)	4.21 (3.63-4.72)
2-hr	0.621 (0.563-0.686)	0.746 (0.678-0.826)	0.952 (0.862-1.05)	1.12 (1.01-1.23)	1.35 (1.21-1.49)	1.54 (1.37-1.70)	1.73 (1.53-1.91)	1.93 (1.70-2.14)	2.21 (1.91-2.46)	2.42 (2.08-2.71)
3-hr	0.433 (0.393-0.479)	0.514 (0.467-0.570)	0.651 (0.591-0.719)	0.764 (0.691-0.843)	0.927 (0.831-1.02)	1.06 (0.946-1.17)	1.20 (1.06-1.33)	1.35 (1.18-1.50)	1.56 (1.34-1.74)	1.72 (1.47-1.93)
6-hr	0.258 (0.236-0.283)	0.302 (0.276-0.331)	0.375 (0.343-0.411)	0.438 (0.399-0.478)	0.529 (0.478-0.576)	0.605 (0.543-0.659)	0.685 (0.609-0.747)	0.770 (0.678-0.842)	0.890 (0.770-0.976)	0.982 (0.840-1.08)
12-hr	0.155 (0.143-0.169)	0.182 (0.168-0.198)	0.224 (0.206-0.243)	0.258 (0.237-0.280)	0.305 (0.279-0.330)	0.343 (0.313-0.371)	0.380 (0.345-0.411)	0.417 (0.377-0.452)	0.465 (0.417-0.506)	0.496 (0.444-0.543)
24-hr	0.088 (0.082-0.095)	0.106 (0.099-0.114)	0.132 (0.123-0.142)	0.153 (0.142-0.165)	0.182 (0.169-0.195)	0.204 (0.189-0.219)	0.227 (0.210-0.243)	0.250 (0.230-0.267)	0.280 (0.257-0.299)	0.302 (0.277-0.322)
2-day	0.052 (0.049-0.056)	0.063 (0.059-0.067)	0.078 (0.073-0.083)	0.089 (0.083-0.096)	0.105 (0.098-0.112)	0.117 (0.109-0.125)	0.129 (0.120-0.138)	0.142 (0.131-0.151)	0.157 (0.146-0.168)	0.169 (0.156-0.179)
3-day	0.037 (0.035-0.040)	0.045 (0.042-0.048)	0.055 (0.052-0.059)	0.063 (0.059-0.067)	0.074 (0.069-0.078)	0.082 (0.076-0.087)	0.090 (0.084-0.096)	0.098 (0.091-0.105)	0.109 (0.101-0.116)	0.116 (0.108-0.123)
4-day	0.030 (0.028-0.032)	0.036 (0.034-0.038)	0.044 (0.041-0.046)	0.050 (0.047-0.053)	0.058 (0.054-0.061)	0.064 (0.060-0.068)	0.071 (0.066-0.075)	0.077 (0.071-0.081)	0.085 (0.079-0.090)	0.090 (0.084-0.095)
7-day	0.020 (0.019-0.022)	0.024 (0.023-0.026)	0.029 (0.028-0.031)	0.033 (0.031-0.035)	0.038 (0.036-0.041)	0.042 (0.040-0.045)	0.046 (0.043-0.049)	0.050 (0.047-0.053)	0.055 (0.051-0.058)	0.059 (0.055-0.062)
10-day	0.016 (0.016-0.018)	0.020 (0.018-0.021)	0.023 (0.022-0.025)	0.026 (0.025-0.028)	0.030 (0.028-0.032)	0.033 (0.031-0.035)	0.036 (0.034-0.038)	0.039 (0.036-0.041)	0.042 (0.039-0.045)	0.045 (0.042-0.047)
20-day	0.011 (0.011-0.012)	0.013 (0.013-0.014)	0.016 (0.015-0.017)	0.018 (0.017-0.019)	0.020 (0.019-0.021)	0.022 (0.020-0.023)	0.023 (0.022-0.025)	0.025 (0.024-0.027)	0.027 (0.025-0.029)	0.029 (0.027-0.031)
30-day	0.009 (0.009-0.010)	0.011 (0.011-0.012)	0.013 (0.012-0.013)	0.014 (0.013-0.015)	0.015 (0.015-0.016)	0.017 (0.016-0.017)	0.018 (0.017-0.019)	0.019 (0.018-0.020)	0.020 (0.019-0.021)	0.021 (0.020-0.022)
45-day	0.008 (0.008-0.008)	0.009 (0.009-0.010)	0.011 (0.010-0.011)	0.011 (0.011-0.012)	0.013 (0.012-0.013)	0.013 (0.013-0.014)	0.014 (0.013-0.015)	0.015 (0.014-0.015)	0.015 (0.015-0.016)	0.016 (0.015-0.017)
60-day	0.007 (0.007-0.008)	0.008 (0.008-0.009)	0.009 (0.009-0.010)	0.010 (0.010-0.011)	0.011 (0.011-0.012)	0.012 (0.011-0.012)	0.012 (0.012-0.013)	0.013 (0.012-0.013)	0.014 (0.013-0.014)	0.014 (0.013-0.015)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

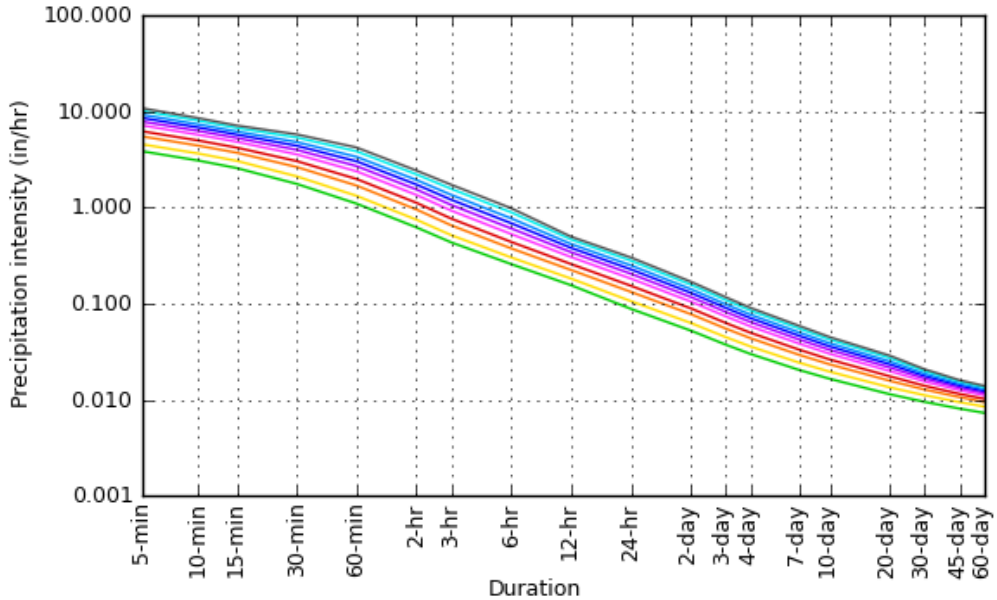
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

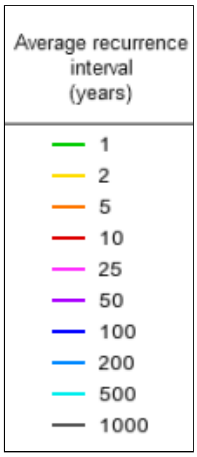
Please refer to NOAA Atlas 14 document for more information.

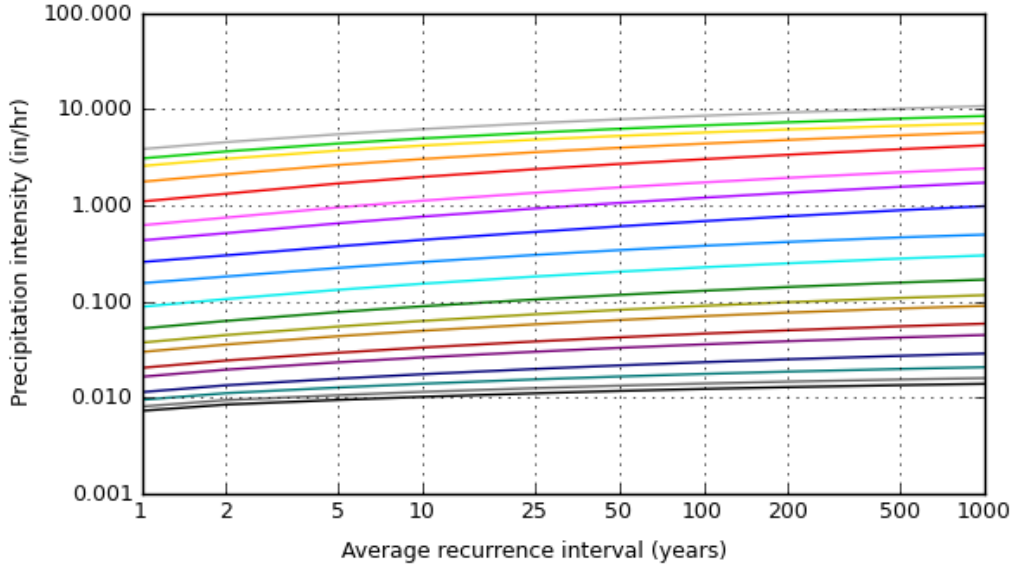
Back to Top

PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 35.7272°, Longitude: -82.6374°

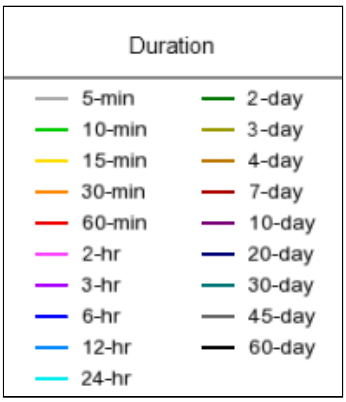






NOAA Atlas 14, Volume 2, Version 3

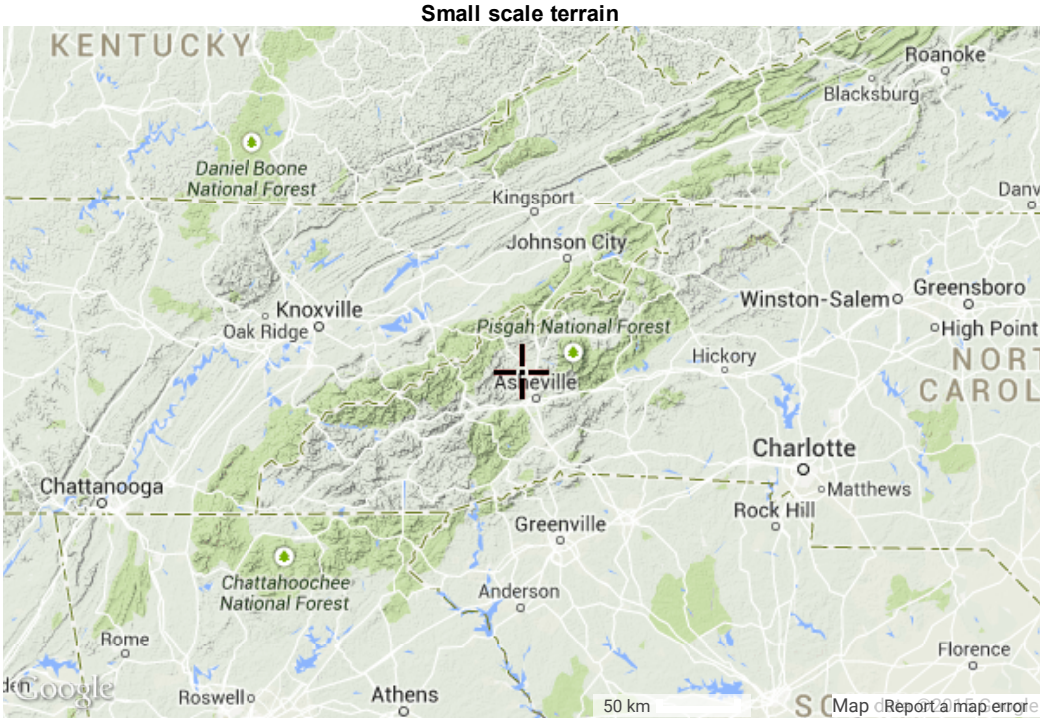
Created (GMT): Thu Apr 2 14:41:11 2015



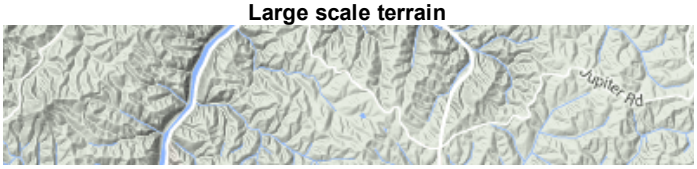
Back to Top

Maps & aerials

Small scale terrain

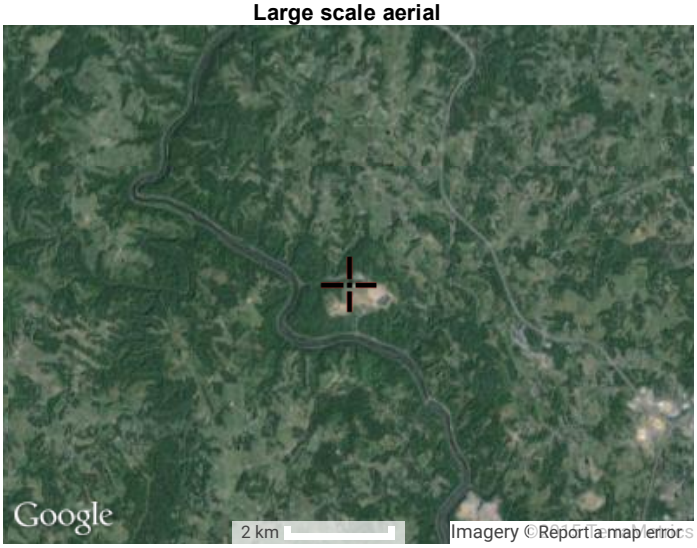


Large scale terrain



Large scale map

Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Office of Hydrologic Development
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer