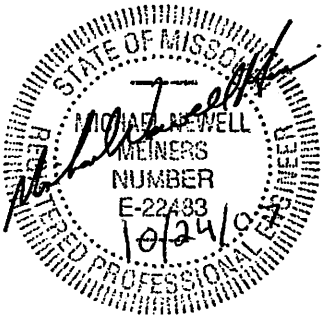
SUNSET HILL CAREFREE COMMUNITY

AS-BUILT DETENTION REPORT

October 24, 2007



SUNSET HILL CAREFREE COMMUNITY

DETENTION BASIN 1

PREPARED BY:

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SCES Project Number: 030755

SUNSET HILLS CAREFREE COMMUNITY (As-built Detention Report)

Detention Requirements:

At SUNSET HILLS CAREFREE COMMUNITY, a subdivision developed by Nelco Development, we have provided detention for the north portion of the property in an onsite detention basin. The detention pond will be a permanent basin.

The detention basin in the north portion of the site is Basin #1. The areas for each stage used in the storage volume calculations were determined from an as-built topo of the basin.

Using the Rational Method the Following Runoff Flows were calculated for pre- and as-built conditions:

EVENT: **PREDEVELOPED**
Onsite Undeveloped Area: 13.8 Acres

	Acres	PI value		Flowrate (cfs)
2 year	13.8	1.17	=	16.15
15 year	13.8	1.87	=	25.81
25 year	13.8	2.31	=	31.88
100 year	13.8	2.95	=	40.71

EVENT: **POSTDEVELOPED**
Onsite Residential 10.97 Acres
Common Ground/No Grade Zone 2.54 Acres

	Acres	PI value		Acres	PI value		Flowrate (cfs)
2 year	10.97	2.2	+	2.54	1.17	=	27.11
15 year	10.97	3.3	+	2.54	1.87	=	40.95
25 year	10.97	4.07	+	2.54	2.31	=	50.52
100 year	10.97	5.21	+	2.54	2.95	=	64.65

REQUIRED REDUCTION:

(postdeveloped - predeveloped)

	Flowrate (cfs)		Flowrate (cfs)		Flowrate (cfs)
2 year	27.11	-	16.15	=	10.96 ✓
15 year	40.95	-	25.81	=	15.14 ✓
25 year	50.52	-	31.88	=	18.64 ✓
100 year	64.65	-	40.71	=	23.94 ✓

FLOWS TO BASIN:
Onsite Residential 8.63 Acres
Common Ground 2.13 Acres

	Acres	PI value		Acres	PI value		Flowrate (cfs)
2 year	8.63	2.2	+	2.13	1.17	=	21.48
15 year	8.63	3.3	+	2.13	1.87	=	32.46
25 year	8.63	4.07	+	2.13	2.31	=	40.04
100 year	8.63	5.21	+	2.13	2.95	=	51.25

ALLOWABLE DISCHARGE FROM BASIN

	(flows to basin - required reduction) Flowrate (cfs)		Flowrate (cfs)		Allowable Flowrate (cfs)
2 year	21.48	-	10.96	=	10.52
15 year	32.46	-	15.14	=	17.32
25 year	40.04	-	18.64	=	21.41
100 year	51.25	-	23.94	=	27.31

TIME OF CONCENTRATION

Using the Kirpich Formula, The Time of Concentration to the lake is calculated with the following:

Tc= 0.00013*L^0.77*S^(-0.385)

L= Length (ft) = 1155 ft

S= Slope = 0.055 ft/ft

Tc= 0.09 Hours = 5.44 minutes

Use 6 Minutes

AS-BUILT ROUTED POND FLOWS:

	Flowrate (cfs)		Flowrate (cfs)	
2 year	7.88	<	10.52	OK
15 year	13.92	<	17.32	OK
25 year	18.43	<	21.41	OK
100 year	24.88	<	27.31	OK

AS-BUILT DETAINED WATER ELEVATIONS:

2 year	510.97
15 year	511.47
25 year	511.81
100 year	512.24

TOP OF DAM: 514.60

CONCRETE STRUCTURE:

WEIR:

2' Foot Wide at

509.83 Elevation

TOP OF BOX:

48" Standpipe

512.33 Top Elevation

NORMAL POOL ELEV: 509.83

LOW POINT ELEV: 498.80

NORMAL POOL DEPTH: 11.03 **FT**

Blocked Low Flow Opening Calculations:

48" Standpipe top elev = 512.33

100-yr Q = 51.25

Weir Condition

Q=CL(h)^3/2

for Q=51.25, C=3.0, L=12.56

h=(Q/CL)^2/3 = 1.23 FT

High water elevation:

HW= 513.56

Freeboard Calculation:

Top of Dam Elev =	514.60
HW Elev (100-year) =	513.56
Freeboard =	**1.04 FT**

Summary Information

Peak Outflow	Peak Elevation	Time
7.88 CFS	510.97	24.00 Min

Storm Data 2 Year Event

Time of Conc(Tc)	Max Peak
6.0 Min.	21.48 Cfs

Basin Data

Elev	Area	Volume
509.75	1	0.00
509.85	15504	775.30
510.00	15854	3127.05
512.00	20010	38991.05
513.00	22107	60049.55
513.40	22950	69061.50

Outlet Structure Data

No.	Structure Description
1	Rectangular Weir - 2.00 ft. Wide; .67 in. Wide Crest at Elev. 509.83
2	Standpipe - 48.00 in. Dia.; Top Elev. 512.33

Outlet Pipe Data

Outlet Pipe - 30.00 in Dia; Length 75.90 ft.; N 0.013; Upper Fl 504.88; Lower Fl 502.25

Pond Routing Information

Intermediate Basin Data

Elev	Disch(CFS)	Storage(CF)	2S/t+O
509.75	0.00	0	0.00
510.00	0.49	3127	104.73
510.25	1.55	7610	255.22
510.50	3.30	12093	406.40
510.75	5.59	16576	558.13
511.00	8.18	21059	710.15
511.25	11.10	25542	862.51
511.50	14.27	30025	1015.11
511.75	17.64	34508	1167.91
512.00	21.20	38991	1320.90
512.25	24.99	44256	1500.18
512.50	32.08	49520	1682.76
512.75	42.88	54785	1869.05
513.00	58.25	60050	2059.90
513.40	75.11	69062	2377.16

Basin Routing Computations

Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
0.00	0.00	0.00	0.00	0.00	0.00	509.75	
1.00	3.58	3.58	3.58	3.55	0.02	509.76	
2.00	7.16	10.74	14.29	14.15	0.07	509.78	
3.00	10.74	17.90	32.05	31.75	0.15	509.83	
4.00	14.32	25.06	56.81	56.27	0.27	509.89	
5.00	17.90	32.22	88.49	87.66	0.42	509.96	
6.00	21.48	39.38	127.04	125.73	0.65	510.04	
7.00	21.48	42.96	168.69	166.80	0.94	510.11	
8.00	21.48	42.96	209.76	207.30	1.23	510.17	
9.00	21.48	42.96	250.26	247.23	1.52	510.24	
10.00	21.48	42.96	290.19	286.27	1.96	510.31	
11.00	21.48	42.96	329.23	324.42	2.41	510.37	
12.00	21.48	42.96	367.38	361.68	2.85	510.44	
13.00	21.48	42.96	404.64	398.07	3.28	510.50	
14.00	21.48	42.96	441.03	433.38	3.83	510.56	
15.00	21.48	42.96	476.34	467.63	4.36	510.62	
16.00	21.48	42.96	510.59	500.84	4.87	510.67	
17.00	21.48	42.96	543.80	533.05	5.37	510.73	
18.00	21.48	42.96	576.01	564.22	5.90	510.78	
19.00	21.48	42.96	607.18	594.32	6.43	510.83	
20.00	21.48	42.96	637.28	623.40	6.94	510.88	
21.00	17.90	39.38	662.78	648.03	7.37	510.92	
22.00	14.32	32.22	680.25	664.91	7.67	510.95	
23.00	10.74	25.06	689.97	674.30	7.84	510.97	
24.00	7.16	17.90	692.20	676.45	7.88	510.97	
25.00	3.58	10.74	687.19	671.60	7.79	510.96	
26.00	0.00	3.58	675.18	660.01	7.59	510.94	

Summary Information

Peak Outflow	Peak Elevation	Time
13.92 CFS	511.47	23.00 Min

Storm Data 15 Year Event

Time of Conc(Tc)	Max Peak
6.0 Min.	32.46 Cfs

Basin Data

Elev	Area	Volume
509.75	1	0.00
509.85	15504	775.30
510.00	15854	3127.05
512.00	20010	38991.05
513.00	22107	60049.55
513.40	22950	69061.50

Outlet Structure Data

No.	Structure Description
1	Rectangular Weir - 2.00 ft. Wide; .67 in. Wide Crest at Elev. 509.83
2	Standpipe - 48.00 in. Dia.; Top Elev. 512.33

Outlet Pipe Data

Outlet Pipe - 30.00 in Dia; Length 75.90 ft.; N 0.013; Upper Fl 504.88; Lower Fl 502.25

Pond Routing Information

Intermediate Basin Data

Elev	Disch(CFS)	Storage(CF)	2S/t+O
509.75	0.00	0	0.00
510.00	0.49	3127	104.73
510.25	1.55	7610	255.22
510.50	3.30	12093	406.40
510.75	5.59	16576	558.13
511.00	8.18	21059	710.15
511.25	11.10	25542	862.51
511.50	14.27	30025	1015.11
511.75	17.64	34508	1167.91
512.00	21.20	38991	1320.90
512.25	24.99	44256	1500.18
512.50	32.08	49520	1682.76
512.75	42.88	54785	1869.05
513.00	58.25	60050	2059.90
513.40	75.11	69062	2377.16

Basin Routing Computations

Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
0.00	0.00	0.00	0.00	0.00	0.00	509.75	
1.00	5.41	5.41	5.41	5.36	0.03	509.76	
2.00	10.82	16.23	21.59	21.38	0.10	509.80	
3.00	16.23	27.05	48.43	47.98	0.23	509.87	
4.00	21.64	37.87	85.85	85.04	0.41	509.95	
5.00	27.05	48.69	133.73	132.33	0.70	510.05	
6.00	32.46	59.51	191.84	189.63	1.11	510.14	
7.00	32.46	64.92	254.55	251.45	1.55	510.25	
8.00	32.46	64.92	316.37	311.85	2.26	510.35	
9.00	32.46	64.92	376.77	370.85	2.96	510.45	
10.00	32.46	64.92	435.77	428.28	3.75	510.55	
11.00	32.46	64.92	493.20	483.98	4.61	510.64	
12.00	32.46	64.92	548.90	538.00	5.45	510.73	
13.00	32.46	64.92	602.92	590.21	6.35	510.82	
14.00	32.46	64.92	655.13	640.64	7.24	510.91	
15.00	32.46	64.92	705.56	689.35	8.10	510.99	
16.00	32.46	64.92	754.27	736.22	9.03	511.07	
17.00	32.46	64.92	801.14	781.28	9.93	511.15	
18.00	32.46	64.92	846.20	824.62	10.79	511.22	
19.00	32.46	64.92	889.54	866.21	11.67	511.29	
20.00	32.46	64.92	931.13	906.07	12.53	511.36	
21.00	27.05	59.51	965.58	939.09	13.24	511.42	
22.00	21.64	48.69	987.78	960.37	13.71	511.46	
23.00	16.23	37.87	998.24	970.39	13.92	511.47	
24.00	10.82	27.05	997.44	969.63	13.91	511.47	
25.00	5.41	16.23	985.86	958.53	13.67	511.45	
26.00	0.00	5.41	963.94	937.52	13.21	511.42	

Summary Information

Peak Outflow	Peak Elevation	Time
18.43 CFS	511.81	23.00 Min

Storm Data 25 Year Event

Time of Conc(Tc)	Max Peak
6.0 Min.	40.04 Cfs

Basin Data

Elev	Area	Volume
509.75	1	0.00
509.85	15504	775.30
510.00	15854	3127.05
512.00	20010	38991.05
513.00	22107	60049.55
513.40	22950	69061.50

Outlet Structure Data

No.	Structure Description
1	Rectangular Weir - 2.00 ft. Wide; .67 in. Wide Crest at Elev. 509.83
2	Standpipe - 48.00 in. Dia.; Top Elev. 512.33

Outlet Pipe Data

Outlet Pipe - 30.00 in Dia; Length 75.90 ft.; N 0.013; Upper Fl 504.88; Lower Fl 502.25

Pond Routing Information

Intermediate Basin Data

Elev	Disch(CFS)	Storage(CF)	2S/t+O
509.75	0.00	0	0.00
510.00	0.49	3127	104.73
510.25	1.55	7610	255.22
510.50	3.30	12093	406.40
510.75	5.59	16576	558.13
511.00	8.18	21059	710.15
511.25	11.10	25542	862.51
511.50	14.27	30025	1015.11
511.75	17.64	34508	1167.91
512.00	21.20	38991	1320.90
512.25	24.99	44256	1500.18
512.50	32.08	49520	1682.76
512.75	42.88	54785	1869.05
513.00	58.25	60050	2059.90
513.40	75.11	69062	2377.16

Basin Routing Computations

Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
0.00	0.00	0.00	0.00	0.00	0.00	509.75	
1.00	6.67	6.67	6.67	6.61	0.03	509.77	
2.00	13.35	20.02	26.63	26.38	0.13	509.81	
3.00	20.02	33.37	59.75	59.18	0.28	509.89	
4.00	26.69	46.71	105.89	104.89	0.50	510.00	
5.00	33.37	60.06	164.95	163.11	0.92	510.10	
6.00	40.04	73.41	236.52	233.68	1.42	510.22	
7.00	40.04	80.08	313.76	309.30	2.23	510.35	
8.00	40.04	80.08	389.38	383.17	3.11	510.47	
9.00	40.04	80.08	463.25	454.93	4.16	510.59	
10.00	40.04	80.08	535.01	524.52	5.24	510.71	
11.00	40.04	80.08	604.60	591.84	6.38	510.83	
12.00	40.04	80.08	671.92	656.86	7.53	510.94	
13.00	40.04	80.08	736.94	719.55	8.70	511.04	
14.00	40.04	80.08	799.63	779.83	9.90	511.15	
15.00	40.04	80.08	859.91	837.80	11.05	511.25	
16.00	40.04	80.08	917.88	893.37	12.25	511.34	
17.00	40.04	80.08	973.45	946.64	13.41	511.43	
18.00	40.04	80.08	1026.72	997.66	14.53	511.52	
19.00	40.04	80.08	1077.74	1046.43	15.65	511.60	
20.00	40.04	80.08	1126.51	1093.05	16.73	511.68	
21.00	33.37	73.41	1166.46	1131.23	17.61	511.75	
22.00	26.69	60.06	1191.29	1154.92	18.19	511.79	
23.00	20.02	46.71	1201.63	1164.78	18.43	511.81	
24.00	13.35	33.37	1198.15	1161.45	18.35	511.80	
25.00	6.67	20.02	1181.47	1145.56	17.96	511.77	
26.00	0.00	6.67	1152.23	1117.63	17.30	511.72	

Summary Information

Peak Outflow	Peak Elevation	Time
24.88 CFS	512.24	23.00 Min

Storm Data 100 Year Event

Time of Conc(Tc)	Max Peak
6.0 Min.	51.25 Cfs

Basin Data

Elev	Area	Volume
509.75	1	0.00
509.85	15504	775.30
510.00	15854	3127.05
512.00	20010	38991.05
513.00	22107	60049.55
513.40	22950	69061.50

Outlet Structure Data

No.	Structure Description
1	Rectangular Weir - 2.00 ft. Wide; .67 in. Wide Crest at Elev. 509.83
2	Standpipe - 48.00 in. Dia.; Top Elev. 512.33

Outlet Pipe Data

Outlet Pipe - 30.00 in Dia; Length 75.90 ft.; N 0.013; Upper Fl 504.88; Lower Fl 502.25

Pond Routing Information

Intermediate Basin Data

Elev	Disch(CFS)	Storage(CF)	2S/t+O
509.75	0.00	0	0.00
510.00	0.49	3127	104.73
510.25	1.55	7610	255.22
510.50	3.30	12093	406.40
510.75	5.59	16576	558.13
511.00	8.18	21059	710.15
511.25	11.10	25542	862.51
511.50	14.27	30025	1015.11
511.75	17.64	34508	1167.91
512.00	21.20	38991	1320.90
512.25	24.99	44256	1500.18
512.50	32.08	49520	1682.76
512.75	42.88	54785	1869.05
513.00	58.25	60050	2059.90
513.40	75.11	69062	2377.16

Basin Routing Computations

Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
0.00	0.00	0.00	0.00	0.00	0.00	509.75	
1.00	8.54	8.54	8.54	8.46	0.04	509.77	
2.00	17.08	25.63	34.09	33.76	0.16	509.83	
3.00	25.63	42.71	76.47	75.75	0.36	509.93	
4.00	34.17	59.79	135.54	134.12	0.71	510.05	
5.00	42.71	76.88	210.99	208.51	1.24	510.18	
6.00	51.25	93.96	302.47	298.27	2.10	510.33	
7.00	51.25	102.50	400.77	394.30	3.24	510.49	
8.00	51.25	102.50	496.80	487.47	4.67	510.65	
9.00	51.25	102.50	589.97	577.70	6.13	510.80	
10.00	51.25	102.50	680.20	664.86	7.67	510.95	
11.00	51.25	102.50	767.36	748.80	9.28	511.09	
12.00	51.25	102.50	851.30	829.52	10.89	511.23	
13.00	51.25	102.50	932.02	906.92	12.55	511.36	
14.00	51.25	102.50	1009.42	981.11	14.15	511.49	
15.00	51.25	102.50	1083.61	1052.05	15.78	511.61	
16.00	51.25	102.50	1154.55	1119.85	17.35	511.73	
17.00	51.25	102.50	1222.35	1184.53	18.91	511.84	
18.00	51.25	102.50	1287.03	1246.21	20.41	511.94	
19.00	51.25	102.50	1348.71	1305.14	21.79	512.04	
20.00	51.25	102.50	1407.64	1361.58	23.03	512.12	
21.00	42.71	93.96	1455.54	1407.45	24.04	512.19	
22.00	34.17	76.88	1484.32	1435.01	24.65	512.23	
23.00	25.63	59.79	1494.80	1445.05	24.88	512.24	
24.00	17.08	42.71	1487.76	1438.31	24.73	512.23	
25.00	8.54	25.63	1463.93	1415.49	24.22	512.20	
26.00	0.00	8.54	1424.03	1377.27	23.38	512.14	

SUNSET HILL CAREFREE COMMUNITY

DETENTION BASIN 2

PREPARED BY:

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(636) 947-0607
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SCES Project Number: 030755

SUNSET HILLS CAREFREE COMMUNITY (As-built Detention Report)

Detention Requirements:

At SUNSET HILLS CAREFREE COMMUNITY, a subdivision developed by Nelco Development, we have provided detention for the south portion of the property in an onsite detention pond.

The detention basin in the south portion of the site is Basin #2. The areas for each stage used in the volume calculations were determined from an as-built topo of the basin.

Using the Rational Method the Following Runoff Flows were calculated for pre- and as-built conditions:

EVENT: **PREDEVELOPED**

Onsite Undeveloped Area: 7.43 Acres

	Acres	PI value		Flowrate (cfs)
2 year	7.43	1.17	=	8.69
15 year	7.43	1.87	=	13.89
25 year	7.43	2.31	=	17.16
100 year	7.43	2.95	=	21.92

EVENT: **POSTDEVELOPED**

Onsite Residential 5.22 Acres

Common Ground/No Grade Zone 1.52 Acres

	Acres	PI value		Acres	PI value		Flowrate (cfs)
2 year	5.22	2.2	+	1.52	1.17	=	13.26
15 year	5.22	3.3	+	1.52	1.87	=	20.07
25 year	5.22	4.07	+	1.52	2.31	=	24.76
100 year	5.22	5.21	+	1.52	2.95	=	31.68

REQUIRED REDUCTION:

(postdeveloped - predeveloped)

	Flowrate (cfs)		Flowrate (cfs)		Flowrate (cfs)
2 year	13.26	-	8.69	=	4.57
15 year	20.07	-	13.89	=	6.17
25 year	24.76	-	17.16	=	7.59
100 year	31.68	-	21.92	=	9.76

FLOWS TO BASIN:

Onsite Residential 4.57 Acres

Common Ground 0.65 Acres

	Acres	PI value		Acres	PI value		Flowrate (cfs)
2 year	4.57	2.2	+	0.65	1.17	=	10.81
15 year	4.57	3.3	+	0.65	1.87	=	16.30
25 year	4.57	4.07	+	0.65	2.31	=	20.10
100 year	4.57	5.21	+	0.65	2.95	=	25.73

ALLOWABLE DISCHARGE FROM BASIN

(flows to basin - required reduction)

	Flowrate (cfs)		Flowrate (cfs)		Flowrate (cfs)
2 year	10.81	-	4.57	=	6.25
15 year	16.30	-	6.17	=	10.12
25 year	20.10	-	7.59	=	12.51
100 year	25.73	-	9.76	=	15.97

TIME OF CONCENTRATION

Using the Kirpich Formula, The Time of Concentration to the lake is calculated with the following:

Tc= 0.00013*L^0.77*S^(-0.385)

L= Length (ft) = 420 ft

S= Slope = 0.062 ft/ft

Tc= 0.04 Hours = 2.38 minutes

Use 2 Minutes

AS-BUILT ROUTED POND FLOWS:

	Released Flowrate		Allowable Flowrate	
2 year	6.13	<	6.25	OK
15 year	7.62	<	10.12	OK
25 year	9.83	<	12.51	OK
100 year	14.02	<	15.97	OK

AS-BUILT DETAINED WATER ELEVATIONS:

2 year	549.73
15 year	550.62
25 year	551.09
100 year	551.72

TOP OF DAM: 553.85

CONCRETE STRUCTURE:

TOP OF BOX:
- 48" Standpipe
- 551.91 Top Elevation

WEIR:
- 1' Wide at
- 550.21 Elevation

ORIFICE
- 12" Height
- 8" Wide
- 545.71 Elevation

48" Standpipe top elev = 551.91

100-yr Q = 25.73

Weir Condition

Q=CL(h)^3/2

for Q=25.73, C=3.0, L=12.56

h=(Q/CL)^2/3 = 0.78 FT

High water elevation:

HW= Top Standpipe+h = **552.69**

Freeboard Calculation:

Top of Dam Elev = 553.85

HW Elev (100-year) = 552.69

Freeboard = 1.16 FT

Summary Information

Peak Outflow	Peak Elevation	Time
6.13 CFS	549.73	21.00 Min

Storm Data 2 Year Event

Time of Conc(Tc)	Max Peak
2.0 Min.	10.81 Cfs

Basin Data

Elev	Area	Volume
545.70	0	0.00
546.00	6	0.90
548.00	1434	1440.90
550.00	4792	7666.90
552.00	10287	22745.90
553.00	14529	35153.90

Outlet Structure Data

No.	Structure Description
1	Rectangular Orifice - 12.00 in High X 8.00 in Wide at Elev. 545.71
2	Rectangular Weir - 1.00 ft. Wide; .67 in. Wide Crest at Elev. 550.21
3	Standpipe - 48.00 in. Dia.; Top Elev. 551.91

Outlet Pipe Data

Outlet Pipe - 18.00 in Dia; Length 103.4 ft.; N 0.013; Upper Fl 539.41; Lower Fl 536.22

Pond Routing Information

Intermediate Basin Data				Basin Routing Computations							
Elev	Disch(CFS)	Storage(CF)	2S/t+O	Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
545.70	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	545.70	
545.95	0.20	1	0.23	1.00	5.41	5.41	5.41	4.22	0.59	546.20	
546.20	0.59	145	5.42	2.00	10.81	16.22	20.43	16.43	2.00	546.77	
546.45	1.10	325	11.93	3.00	10.81	21.62	38.05	30.83	3.61	547.43	
546.70	1.71	505	18.54	4.00	10.81	21.62	52.45	43.81	4.32	547.96	
546.95	2.81	685	25.64	5.00	10.81	21.62	65.43	56.43	4.50	548.11	
547.20	3.25	865	32.08	6.00	10.81	21.62	78.05	68.75	4.65	548.24	
547.45	3.63	1045	38.46	7.00	10.81	21.62	90.37	80.80	4.79	548.36	
547.70	3.98	1225	44.81	8.00	10.81	21.62	102.42	92.59	4.91	548.48	
547.95	4.30	1405	51.14	9.00	10.81	21.62	114.21	104.15	5.03	548.59	
548.20	4.60	2064	73.39	10.00	10.81	21.62	125.77	115.47	5.15	548.70	
548.45	4.88	2842	99.61	11.00	10.81	21.62	137.09	126.57	5.26	548.81	
548.70	5.15	3620	125.82	12.00	10.81	21.62	148.19	137.46	5.37	548.91	
548.95	5.40	4398	152.01	13.00	10.81	21.62	159.08	148.15	5.47	549.02	
549.20	5.64	5177	178.19	14.00	10.81	21.62	169.77	158.64	5.57	549.12	
549.45	5.87	5955	204.37	15.00	10.81	21.62	180.26	168.93	5.66	549.22	
549.70	6.10	6733	230.53	16.00	10.81	21.62	190.55	179.05	5.75	549.32	
549.95	6.31	7511	256.69	17.00	10.81	21.62	200.67	188.99	5.84	549.41	
550.20	6.52	9175	312.35	18.00	10.81	21.62	210.61	198.75	5.93	549.51	
550.45	7.05	11060	375.71	19.00	10.81	21.62	220.37	208.35	6.01	549.60	
550.70	7.91	12945	439.39	20.00	10.81	21.62	229.97	217.79	6.09	549.69	
550.95	9.06	14830	503.38	21.00	5.41	16.22	234.00	221.75	6.13	549.73	
551.20	10.44	16714	567.58	22.00	0.00	5.41	227.16	215.02	6.07	549.67	
551.45	11.95	18599	631.93								
551.70	13.63	20484	696.43								
551.95	18.53	22369	764.17								
552.20	22.78	25228	863.71								
552.45	30.33	28330	974.65								
552.70	30.57	31432	1078.29								
553.00	30.86	35154	1202.66								

Summary Information

Peak Outflow	Peak Elevation	Time
7.62 CFS	550.62	21.00 Min

Storm Data 15 Year Event

Time of Conc(Tc)	Max Peak
2.0 Min.	16.30 Cfs

Basin Data

Elev	Area	Volume
545.70	0	0.00
546.00	6	0.90
548.00	1434	1440.90
550.00	4792	7666.90
552.00	10287	22745.90
553.00	14529	35153.90

Outlet Structure Data

No.	Structure Description
1	Rectangular Orifice - 12.00 in High X 8.00 in Wide at Elev. 545.71
2	Rectangular Weir - 1.00 ft. Wide; .67 in. Wide Crest at Elev. 550.21
3	Standpipe - 48.00 in. Dia.; Top Elev. 551.91

Outlet Pipe Data

Outlet Pipe - 18.00 in Dia; Length 103.4 ft.; N 0.013; Upper Fl 539.41; Lower Fl 536.22

Pond Routing Information

Intermediate Basin Data				Basin Routing Computations							
Elev	Disch(CFS)	Storage(CF)	2S/t+O	Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
545.70	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	545.70	
545.95	0.20	1	0.23	1.00	8.15	8.15	8.15	6.53	0.81	546.30	
546.20	0.59	145	5.42	2.00	16.30	24.45	30.98	24.64	3.17	547.16	
546.45	1.10	325	11.93	3.00	16.30	32.60	57.24	48.47	4.39	548.02	
546.70	1.71	505	18.54	4.00	16.30	32.60	81.07	71.69	4.69	548.27	
546.95	2.81	685	25.64	5.00	16.30	32.60	104.29	94.43	4.93	548.49	
547.20	3.25	865	32.08	6.00	16.30	32.60	127.03	116.71	5.16	548.71	
547.45	3.63	1045	38.46	7.00	16.30	32.60	149.31	138.56	5.38	548.92	
547.70	3.98	1225	44.81	8.00	16.30	32.60	171.16	160.00	5.58	549.13	
547.95	4.30	1405	51.14	9.00	16.30	32.60	192.60	181.06	5.77	549.34	
548.20	4.60	2064	73.39	10.00	16.30	32.60	213.66	201.75	5.95	549.54	
548.45	4.88	2842	99.61	11.00	16.30	32.60	234.35	222.10	6.13	549.74	
548.70	5.15	3620	125.82	12.00	16.30	32.60	254.70	242.11	6.29	549.93	
548.95	5.40	4398	152.01	13.00	16.30	32.60	274.71	261.95	6.38	550.03	
549.20	5.64	5177	178.19	14.00	16.30	32.60	294.55	281.64	6.45	550.12	
549.45	5.87	5955	204.37	15.00	16.30	32.60	314.24	301.18	6.53	550.21	
549.70	6.10	6733	230.53	16.00	16.30	32.60	333.78	320.38	6.70	550.28	
549.95	6.31	7511	256.69	17.00	16.30	32.60	352.98	339.27	6.86	550.36	
550.20	6.52	9175	312.35	18.00	16.30	32.60	371.87	357.84	7.01	550.43	
550.45	7.05	11060	375.71	19.00	16.30	32.60	390.44	375.95	7.25	550.51	
550.70	7.91	12945	439.39	20.00	16.30	32.60	408.55	393.57	7.49	550.58	
550.95	9.06	14830	503.38	21.00	8.15	24.45	418.02	402.78	7.62	550.62	
551.20	10.44	16714	567.58	22.00	0.00	8.15	410.93	395.89	7.52	550.59	
551.45	11.95	18599	631.93								
551.70	13.63	20484	696.43								
551.95	18.53	22369	764.17								
552.20	22.78	25228	863.71								
552.45	30.33	28330	974.65								
552.70	30.57	31432	1078.29								
553.00	30.86	35154	1202.66								

Summary Information

Peak Outflow	Peak Elevation	Time
9.83 CFS	551.09	21.00 Min

Storm Data 25 Year Event

Time of Conc(Tc)	Max Peak
2.0 Min.	20.10 Cfs

Basin Data

Elev	Area	Volume
545.70	0	0.00
546.00	6	0.90
548.00	1434	1440.90
550.00	4792	7666.90
552.00	10287	22745.90
553.00	14529	35153.90

Outlet Structure Data

No.	Structure Description
1	Rectangular Orifice - 12.00 in High X 8.00 in Wide at Elev. 545.71
2	Rectangular Weir - 1.00 ft. Wide; .67 in. Wide Crest at Elev. 550.21
3	Standpipe - 48.00 in. Dia.; Top Elev. 551.91

Outlet Pipe Data

Outlet Pipe - 18.00 in Dia; Length 103.4 ft.; N 0.013; Upper Fl 539.41; Lower Fl 536.22

Pond Routing Information

Intermediate Basin Data				Basin Routing Computations							
Elev	Disch(CFS)	Storage(CF)	2S/t+O	Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
545.70	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	545.70	
545.95	0.20	1	0.23	1.00	10.05	10.05	10.05	8.14	0.96	546.38	
546.20	0.59	145	5.42	2.00	20.10	30.15	38.29	31.04	3.62	547.44	
546.45	1.10	325	11.93	3.00	20.10	40.20	71.24	62.09	4.57	548.18	
546.70	1.71	505	18.54	4.00	20.10	40.20	102.29	92.47	4.91	548.48	
546.95	2.81	685	25.64	5.00	20.10	40.20	132.67	122.24	5.22	548.77	
547.20	3.25	865	32.08	6.00	20.10	40.20	162.44	151.44	5.50	549.05	
547.45	3.63	1045	38.46	7.00	20.10	40.20	191.64	180.12	5.76	549.33	
547.70	3.98	1225	44.81	8.00	20.10	40.20	220.32	208.30	6.01	549.60	
547.95	4.30	1405	51.14	9.00	20.10	40.20	248.50	236.01	6.24	549.87	
548.20	4.60	2064	73.39	10.00	20.10	40.20	276.21	263.44	6.38	550.04	
548.45	4.88	2842	99.61	11.00	20.10	40.20	303.64	290.67	6.49	550.16	
548.70	5.15	3620	125.82	12.00	20.10	40.20	330.87	317.52	6.67	550.27	
548.95	5.40	4398	152.01	13.00	20.10	40.20	357.72	343.93	6.90	550.38	
549.20	5.64	5177	178.19	14.00	20.10	40.20	384.13	369.81	7.16	550.48	
549.45	5.87	5955	204.37	15.00	20.10	40.20	410.01	394.99	7.51	550.58	
549.70	6.10	6733	230.53	16.00	20.10	40.20	435.19	419.49	7.85	550.68	
549.95	6.31	7511	256.69	17.00	20.10	40.20	459.69	443.15	8.27	550.78	
550.20	6.52	9175	312.35	18.00	20.10	40.20	483.35	465.95	8.70	550.87	
550.45	7.05	11060	375.71	19.00	20.10	40.20	506.15	487.91	9.12	550.96	
550.70	7.91	12945	439.39	20.00	20.10	40.20	528.11	508.93	9.59	551.05	
550.95	9.06	14830	503.38	21.00	10.05	30.15	539.08	519.43	9.83	551.09	
551.20	10.44	16714	567.58	22.00	0.00	10.05	529.48	510.24	9.62	551.05	
551.45	11.95	18599	631.93								
551.70	13.63	20484	696.43								
551.95	18.53	22369	764.17								
552.20	22.78	25228	863.71								
552.45	30.33	28330	974.65								
552.70	30.57	31432	1078.29								
553.00	30.86	35154	1202.66								

Summary Information

Peak Outflow	Peak Elevation	Time
14.02 CFS	551.72	21.00 Min

Storm Data 100 Year Event

Time of Conc(Tc)	Max Peak
2.0 Min.	25.73 Cfs

Basin Data

Elev	Area	Volume
545.70	0	0.00
546.00	6	0.90
548.00	1434	1440.90
550.00	4792	7666.90
552.00	10287	22745.90
553.00	14529	35153.90

Outlet Structure Data

No.	Structure Description
1	Rectangular Orifice - 12.00 in High X 8.00 in Wide at Elev. 545.71
2	Rectangular Weir - 1.00 ft. Wide; .67 in. Wide Crest at Elev. 550.21
3	Standpipe - 48.00 in. Dia.; Top Elev. 551.91

Outlet Pipe Data

Outlet Pipe - 18.00 in Dia; Length 103.4 ft.; N 0.013; Upper Fl 539.41; Lower Fl 536.22

Pond Routing Information

Intermediate Basin Data				Basin Routing Computations							
Elev	Disch(CFS)	Storage(CF)	2S/t+O	Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
545.70	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	545.70	
545.95	0.20	1	0.23	1.00	12.86	12.86	12.86	10.49	1.19	546.49	
546.20	0.59	145	5.42	2.00	25.73	38.60	49.08	40.68	4.20	547.87	
546.45	1.10	325	11.93	3.00	25.73	51.46	92.14	82.53	4.80	548.38	
546.70	1.71	505	18.54	4.00	25.73	51.46	133.99	123.54	5.23	548.78	
546.95	2.81	685	25.64	5.00	25.73	51.46	175.00	163.77	5.61	549.17	
547.20	3.25	865	32.08	6.00	25.73	51.46	215.23	203.30	5.97	549.55	
547.45	3.63	1045	38.46	7.00	25.73	51.46	254.76	242.16	6.30	549.93	
547.70	3.98	1225	44.81	8.00	25.73	51.46	293.62	280.73	6.45	550.12	
547.95	4.30	1405	51.14	9.00	25.73	51.46	332.19	318.82	6.68	550.28	
548.20	4.60	2064	73.39	10.00	25.73	51.46	370.28	356.28	7.00	550.43	
548.45	4.88	2842	99.61	11.00	25.73	51.46	407.74	392.78	7.48	550.58	
548.70	5.15	3620	125.82	12.00	25.73	51.46	444.24	428.25	7.99	550.72	
548.95	5.40	4398	152.01	13.00	25.73	51.46	479.71	462.44	8.63	550.86	
549.20	5.64	5177	178.19	14.00	25.73	51.46	513.90	495.33	9.29	550.99	
549.45	5.87	5955	204.37	15.00	25.73	51.46	546.79	526.81	9.99	551.12	
549.70	6.10	6733	230.53	16.00	25.73	51.46	578.27	556.89	10.69	551.24	
549.95	6.31	7511	256.69	17.00	25.73	51.46	608.35	585.56	11.40	551.36	
550.20	6.52	9175	312.35	18.00	25.73	51.46	637.02	612.85	12.09	551.47	
550.45	7.05	11060	375.71	19.00	25.73	51.46	664.31	638.72	12.79	551.58	
550.70	7.91	12945	439.39	20.00	25.73	51.46	690.18	663.25	13.47	551.68	
550.95	9.06	14830	503.38	21.00	12.86	38.60	701.85	673.81	14.02	551.72	
551.20	10.44	16714	567.58	22.00	0.00	12.86	686.67	659.92	13.37	551.66	
551.45	11.95	18599	631.93								
551.70	13.63	20484	696.43								
551.95	18.53	22369	764.17								
552.20	22.78	25228	863.71								
552.45	30.33	28330	974.65								
552.70	30.57	31432	1078.29								
553.00	30.86	35154	1202.66								

SUNSET HILL CAREFREE COMMUNITY

DETENTION BASIN 3

PREPARED BY:

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SCES Project Number: 030755

SUNSET HILLS CAREFREE COMMUNITY (As-built Detention Report)

Detention Requirements:

At SUNSET HILLS CAREFREE COMMUNITY, a subdivision developed by Nelco Development, we have provided detention for the southeast portion of the property in an onsite detention basin. The detention basin will be a dry basin per the Amended Development Plan.

The detention basin in the southeast portion of the site is Basin #3. The areas for each stage used in the volume calculations were determined from an as-built topo of the basin.

Using the Rational Method the Following Runoff Flows were calculated for pre- and as-built conditions:

EVENT: **PREDEVELOPED**

Onsite Undeveloped Area: 2.97 Acres

	Acres	PI value		Flowrate (cfs)
2 year	2.97	1.17	=	3.47
15 year	2.97	1.87	=	5.55
25 year	2.97	2.31	=	6.86
100 year	2.97	2.95	=	8.76

EVENT: **POSTDEVELOPED**

Onsite Residential 2.65 Acres

Common Ground/No Grade Zone 1.62 Acres

	Acres	PI value		Acres	PI value		Flowrate (cfs)
2 year	2.65	2.2	+	1.62	1.17	=	7.73
15 year	2.65	3.3	+	1.62	1.87	=	11.77
25 year	2.65	4.07	+	1.62	2.31	=	14.53
100 year	2.65	5.21	+	1.62	2.95	=	18.59

REQUIRED REDUCTION:

	(postdeveloped - predeveloped) Flowrate (cfs)		Flowrate (cfs)		Flowrate (cfs)	
2 year	7.73	-	3.47	=	4.25	✓
15 year	11.77	-	5.55	=	6.22	✓
25 year	14.53	-	6.86	=	7.67	✓
100 year	18.59	-	8.76	=	9.82	✓

FLOWS TO BASIN:

Onsite Residential 2.65 Acres

Common Ground 1.47 Acres

	Acres	PI value		Acres	PI value		Flowrate (cfs)
2 year	2.65	2.2	+	1.47	1.17	=	7.55
15 year	2.65	3.3	+	1.47	1.87	=	11.49
25 year	2.65	4.07	+	1.47	2.31	=	14.18
100 year	2.65	5.21	+	1.47	2.95	=	18.14

ALLOWABLE DISCHARGE FROM BASIN

	(flows to basin - required reduction) Flowrate (cfs)		Flowrate (cfs)		Allowable Flowrate (cfs)
2 year	7.55	-	4.25	=	3.30
15 year	11.49	-	6.22	=	5.27
25 year	14.18	-	7.67	=	6.51
100 year	18.14	-	9.82	=	8.32

TIME OF CONCENTRATION

Using the Kirpich Formula, The Time of Concentration to the lake is calculated with the following:

Tc= 0.00013*L^0.77*S^(-0.385)

L= Length (ft) = 420 ft

S= Slope = 0.062 ft/ft

Tc= 0.04 Hours = 2.38 minutes

Use 2 Minutes

AS-BUILT ROUTED POND FLOWS:

	Flowrate (cfs)		Flowrate (cfs)	
2 year	3.29	<	3.30	OK
15 year	4.22	<	5.27	OK
25 year	5.04	<	6.51	OK
100 year	6.97	<	8.32	OK

AS-BUILT DETAINED WATER ELEVATIONS:

2 year	549.63
15 year	550.34
25 year	550.85
100 year	551.39

TOP OF DAM:

CONCRETE STRUCTURE:

TOP OF BOX:

48" Standpipe

552.64 Top Elevation

WEIR:

11" Wide at

550.68 Elevation

ORIFICE:

5.4" Wide

17.04" High at

547.81 Elevation

Blocked Low Flow Opening Calculations:

48" Standpipe top elev =	552.64
100-yr Q =	18.14
Weir Condition	
Q=CL(h)^3/2	
for Q=18.14, C=3.0, L=12.56	
h=(Q/CL)^2/3 =	0.61 FT
High water elevation:	
HW= Top Standpipe	**553.25**

Freeboard Calculation:

Top of Dam Elev =	555.50
HW Elev (100-year) =	553.25
Freeboard =	**2.25 FT**

Summary Information

Peak Outflow	Peak Elevation	Time
3.29 CFS	549.63	21.00 Min

Storm Data 2 Year Event

Time of Conc(Tc)	Max Peak
2.0 Min.	7.55 Cfs

Basin Data

Elev	Area	Volume
547.81	0	0.00
548.00	1953	185.54
548.90	4114	2915.76
551.00	6369	13922.78
553.00	8846	29137.78
555.00	11863	49846.79
555.50	12692	55985.54

Outlet Structure Data

No.	Structure Description
1	Standpipe - 48.00 in. Dia.; Top Elev. 552.64
2	Rectangular Weir - .90 ft. Wide; .67 in. Wide Crest at Elev. 550.68
3	Rectangular Orifice - 17.04 in High X 5.40 in Wide at Elev. 547.81

Outlet Pipe Data

Outlet Pipe - 18.00 in Dia; Length 89.00 ft.; N 0.013; Upper Fl 544.14; Lower Fl 541.81

Pond Routing Information

Intermediate Basin Data				Basin Routing Computations							
Elev	Disch(CFS)	Storage(CF)	2S/t+O	Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
547.81	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	547.81	
548.06	0.15	368	12.40	1.00	3.78	3.78	3.78	3.69	0.04	547.89	
548.31	0.41	1126	37.94	2.00	7.55	11.33	15.01	14.66	0.17	548.09	
548.56	0.76	1884	63.57	3.00	7.55	15.10	29.76	29.11	0.33	548.23	
548.81	1.17	2643	89.26	4.00	7.55	15.10	44.21	43.21	0.50	548.37	
549.06	1.64	3754	126.78	5.00	7.55	15.10	58.31	56.93	0.69	548.51	
549.31	2.78	5065	171.60	6.00	7.55	15.10	72.03	70.24	0.90	548.64	
549.56	3.19	6375	215.69	7.00	7.55	15.10	85.34	83.13	1.11	548.77	
549.81	3.55	7685	259.73	8.00	7.55	15.10	98.23	95.67	1.28	548.87	
550.06	3.88	8996	303.74	9.00	7.55	15.10	110.77	107.89	1.44	548.95	
550.31	4.19	10306	347.72	10.00	7.55	15.10	122.99	119.82	1.59	549.03	
550.56	4.47	11617	391.68	11.00	7.55	15.10	134.92	131.23	1.84	549.11	
550.81	4.96	12927	435.85	12.00	7.55	15.10	146.33	142.06	2.13	549.17	
551.06	5.58	14379	484.89	13.00	7.55	15.10	157.16	152.34	2.41	549.23	
551.31	6.56	16281	549.27	14.00	7.55	15.10	167.44	162.09	2.67	549.29	
551.56	7.80	18183	613.90	15.00	7.55	15.10	177.19	171.53	2.83	549.34	
551.81	9.16	20085	678.65	16.00	7.55	15.10	186.63	180.79	2.92	549.40	
552.06	10.66	21987	743.55	17.00	7.55	15.10	195.89	189.87	3.01	549.45	
552.31	12.28	23889	808.56	18.00	7.55	15.10	204.97	198.79	3.09	549.50	
552.56	13.98	25790	873.67	19.00	7.55	15.10	213.89	207.55	3.17	549.55	
552.81	18.86	27692	941.94	20.00	7.55	15.10	222.65	216.15	3.25	549.60	
553.06	26.01	29759	1017.97	21.00	3.78	11.33	227.48	220.90	3.29	549.63	
553.31	26.31	32348	1104.57	22.00	0.00	3.78	224.68	218.15	3.26	549.61	
553.56	26.62	34936	1191.16								
553.81	26.92	37525	1277.75								
554.06	27.22	40114	1364.33								
554.31	27.51	42702	1450.92								
554.56	27.80	45291	1537.49								
554.81	28.09	47879	1624.07								
555.06	28.37	50583	1714.49								
555.50	28.87	55986	1895.05								

Summary Information

Peak Outflow	Peak Elevation	Time
4.22 CFS	550.34	21.00 Min

Storm Data 15 Year Event

Time of Conc(Tc)	Max Peak
2.0 Min.	11.49 Cfs

Basin Data

Elev	Area	Volume
547.81	0	0.00
548.00	1953	185.54
548.90	4114	2915.76
551.00	6369	13922.78
553.00	8846	29137.78
555.00	11863	49846.79
555.50	12692	55985.54

Outlet Structure Data

No.	Structure Description
1	Standpipe - 48.00 in. Dia.; Top Elev. 552.64
2	Rectangular Weir - .90 ft. Wide; .67 in. Wide Crest at Elev. 550.68
3	Rectangular Orifice - 17.04 in High X 5.40 in Wide at Elev. 547.81

Outlet Pipe Data

Outlet Pipe - 18.00 in Dia; Length 89.00 ft.; N 0.013; Upper Fl 544.14; Lower Fl 541.81

Pond Routing Information

Intermediate Basin Data				Basin Routing Computations						
Elev	Disch(CFS)	Storage(CF)	2S/t+O	Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
547.81	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	547.81	
548.06	0.15	368	12.40	1.00	5.74	5.74	5.74	5.61	0.07	547.93	
548.31	0.41	1126	37.94	2.00	11.49	17.24	22.84	22.33	0.26	548.16	
548.56	0.76	1884	63.57	3.00	11.49	22.98	45.31	44.29	0.51	548.38	
548.81	1.17	2643	89.26	4.00	11.49	22.98	67.27	65.63	0.82	548.60	
549.06	1.64	3754	126.78	5.00	11.49	22.98	88.61	86.29	1.16	548.80	
549.31	2.78	5065	171.60	6.00	11.49	22.98	109.27	106.43	1.42	548.94	
549.56	3.19	6375	215.69	7.00	11.49	22.98	129.41	126.01	1.70	549.07	
549.81	3.55	7685	259.73	8.00	11.49	22.98	148.99	144.58	2.20	549.18	
550.06	3.88	8996	303.74	9.00	11.49	22.98	167.56	162.21	2.68	549.29	
550.31	4.19	10306	347.72	10.00	11.49	22.98	185.19	179.38	2.91	549.39	
550.56	4.47	11617	391.68	11.00	11.49	22.98	202.36	196.22	3.07	549.48	
550.81	4.96	12927	435.85	12.00	11.49	22.98	219.20	212.77	3.22	549.58	
551.06	5.58	14379	484.89	13.00	11.49	22.98	235.75	229.04	3.36	549.67	
551.31	6.56	16281	549.27	14.00	11.49	22.98	252.02	245.04	3.49	549.77	
551.56	7.80	18183	613.90	15.00	11.49	22.98	268.02	260.79	3.61	549.86	
551.81	9.16	20085	678.65	16.00	11.49	22.98	283.77	276.30	3.73	549.95	
552.06	10.66	21987	743.55	17.00	11.49	22.98	299.28	291.59	3.85	550.03	
552.31	12.28	23889	808.56	18.00	11.49	22.98	314.57	306.65	3.96	550.12	
552.56	13.98	25790	873.67	19.00	11.49	22.98	329.63	321.51	4.06	550.21	
552.81	18.86	27692	941.94	20.00	11.49	22.98	344.49	336.17	4.16	550.29	
553.06	26.01	29759	1017.97	21.00	5.74	17.24	353.40	344.96	4.22	550.34	
553.31	26.31	32348	1104.57	22.00	0.00	5.74	350.70	342.30	4.20	550.33	
553.56	26.62	34936	1191.16								
553.81	26.92	37525	1277.75								
554.06	27.22	40114	1364.33								
554.31	27.51	42702	1450.92								
554.56	27.80	45291	1537.49								
554.81	28.09	47879	1624.07								
555.06	28.37	50583	1714.49								
555.50	28.87	55986	1895.05								

Summary Information

Peak Outflow	Peak Elevation	Time
5.04 CFS	550.85	21.00 Min

Storm Data 25 Year Event

Time of Conc(Tc)	Max Peak
2.0 Min.	14.18 Cfs

Basin Data

Elev	Area	Volume
547.81	0	0.00
548.00	1953	185.54
548.90	4114	2915.76
551.00	6369	13922.78
553.00	8846	29137.78
555.00	11863	49846.79
555.50	12692	55985.54

Outlet Structure Data

No.	Structure Description
1	Standpipe - 48.00 in. Dia.; Top Elev. 552.64
2	Rectangular Weir - .90 ft. Wide; .67 in. Wide Crest at Elev. 550.68
3	Rectangular Orifice - 17.04 in High X 5.40 in Wide at Elev. 547.81

Outlet Pipe Data

Outlet Pipe - 18.00 in Dia; Length 89.00 ft.; N 0.013; Upper Fl 544.14; Lower Fl 541.81

Pond Routing Information

Intermediate Basin Data				Basin Routing Computations							
Elev	Disch(CFS)	Storage(CF)	2S/t+O	Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
547.81	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	547.81	
548.06	0.15	368	12.40	1.00	7.09	7.09	7.09	6.92	0.08	547.95	
548.31	0.41	1126	37.94	2.00	14.18	21.27	28.19	27.57	0.31	548.21	
548.56	0.76	1884	63.57	3.00	14.18	28.36	55.93	54.62	0.66	548.49	
548.81	1.17	2643	89.26	4.00	14.18	28.36	82.98	80.84	1.07	548.75	
549.06	1.64	3754	126.78	5.00	14.18	28.36	109.20	106.36	1.42	548.94	
549.31	2.78	5065	171.60	6.00	14.18	28.36	134.72	131.05	1.84	549.10	
549.56	3.19	6375	215.69	7.00	14.18	28.36	159.41	154.47	2.47	549.24	
549.81	3.55	7685	259.73	8.00	14.18	28.36	182.83	177.06	2.88	549.37	
550.06	3.88	8996	303.74	9.00	14.18	28.36	205.42	199.23	3.09	549.50	
550.31	4.19	10306	347.72	10.00	14.18	28.36	227.59	221.01	3.29	549.63	
550.56	4.47	11617	391.68	11.00	14.18	28.36	249.37	242.44	3.47	549.75	
550.81	4.96	12927	435.85	12.00	14.18	28.36	270.80	263.53	3.64	549.87	
551.06	5.58	14379	484.89	13.00	14.18	28.36	291.89	284.30	3.79	549.99	
551.31	6.56	16281	549.27	14.00	14.18	28.36	312.66	304.78	3.94	550.11	
551.56	7.80	18183	613.90	15.00	14.18	28.36	333.14	324.97	4.08	550.23	
551.81	9.16	20085	678.65	16.00	14.18	28.36	353.33	344.88	4.22	550.34	
552.06	10.66	21987	743.55	17.00	14.18	28.36	373.24	364.55	4.35	550.46	
552.31	12.28	23889	808.56	18.00	14.18	28.36	392.91	383.94	4.48	550.57	
552.56	13.98	25790	873.67	19.00	14.18	28.36	412.30	402.91	4.70	550.68	
552.81	18.86	27692	941.94	20.00	14.18	28.36	431.27	421.46	4.91	550.78	
553.06	26.01	29759	1017.97	21.00	7.09	21.27	442.73	432.64	5.04	550.85	
553.31	26.31	32348	1104.57	22.00	0.00	7.09	439.73	429.72	5.01	550.83	
553.56	26.62	34936	1191.16								
553.81	26.92	37525	1277.75								
554.06	27.22	40114	1364.33								
554.31	27.51	42702	1450.92								
554.56	27.80	45291	1537.49								
554.81	28.09	47879	1624.07								
555.06	28.37	50583	1714.49								
555.50	28.87	55986	1895.05								

Summary Information

Peak Outflow	Peak Elevation	Time
6.97 CFS	551.39	21.00 Min

Storm Data 100 Year Event

Time of Conc(Tc)	Max Peak
2.0 Min.	18.14 Cfs

Basin Data

Elev	Area	Volume
547.81	0	0.00
548.00	1953	185.54
548.90	4114	2915.76
551.00	6369	13922.78
553.00	8846	29137.78
555.00	11863	49846.79
555.50	12692	55985.54

Outlet Structure Data

No.	Structure Description
1	Standpipe - 48.00 in. Dia.; Top Elev. 552.64
2	Rectangular Weir - .90 ft. Wide; .67 in. Wide Crest at Elev. 550.68
3	Rectangular Orifice - 17.04 in High X 5.40 in Wide at Elev. 547.81

Outlet Pipe Data

Outlet Pipe - 18.00 in Dia; Length 89.00 ft.; N 0.013; Upper Fl 544.14; Lower Fl 541.81

Pond Routing Information

Intermediate Basin Data				Basin Routing Computations						
Elev	Disch(CFS)	Storage(CF)	2S/t+O	Time	Inflow	I1+I2	2S/t+O	2S/t-O	Outflow	Elev	Remarks
547.81	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	547.81	
548.06	0.15	368	12.40	1.00	9.07	9.07	9.07	8.86	0.11	547.99	
548.31	0.41	1126	37.94	2.00	18.14	27.21	36.07	35.28	0.39	548.29	
548.56	0.76	1884	63.57	3.00	18.14	36.28	71.56	69.78	0.89	548.64	
548.81	1.17	2643	89.26	4.00	18.14	36.28	106.06	103.31	1.38	548.92	
549.06	1.64	3754	126.78	5.00	18.14	36.28	139.59	135.66	1.96	549.13	
549.31	2.78	5065	171.60	6.00	18.14	36.28	171.94	166.37	2.78	549.31	
549.56	3.19	6375	215.69	7.00	18.14	36.28	202.65	196.52	3.07	549.49	
549.81	3.55	7685	259.73	8.00	18.14	36.28	232.80	226.14	3.33	549.66	
550.06	3.88	8996	303.74	9.00	18.14	36.28	262.42	255.27	3.57	549.83	
550.31	4.19	10306	347.72	10.00	18.14	36.28	291.55	283.97	3.79	549.99	
550.56	4.47	11617	391.68	11.00	18.14	36.28	320.25	312.26	4.00	550.15	
550.81	4.96	12927	435.85	12.00	18.14	36.28	348.54	340.16	4.19	550.31	
551.06	5.58	14379	484.89	13.00	18.14	36.28	376.44	367.70	4.37	550.47	
551.31	6.56	16281	549.27	14.00	18.14	36.28	403.98	394.77	4.60	550.63	
551.56	7.80	18183	613.90	15.00	18.14	36.28	431.05	421.24	4.90	550.78	
551.81	9.16	20085	678.65	16.00	18.14	36.28	457.52	447.06	5.23	550.92	
552.06	10.66	21987	743.55	17.00	18.14	36.28	483.34	472.21	5.56	551.05	
552.31	12.28	23889	808.56	18.00	18.14	36.28	508.49	496.61	5.94	551.15	
552.56	13.98	25790	873.67	19.00	18.14	36.28	532.89	520.26	6.31	551.25	
552.81	18.86	27692	941.94	20.00	18.14	36.28	556.54	543.13	6.70	551.34	
553.06	26.01	29759	1017.97	21.00	9.07	27.21	570.34	556.41	6.97	551.39	
553.31	26.31	32348	1104.57	22.00	0.00	9.07	565.48	551.73	6.87	551.37	
553.56	26.62	34936	1191.16								
553.81	26.92	37525	1277.75								
554.06	27.22	40114	1364.33								
554.31	27.51	42702	1450.92								
554.56	27.80	45291	1537.49								
554.81	28.09	47879	1624.07								
555.06	28.37	50583	1714.49								
555.50	28.87	55986	1895.05								