

DETENTION ANALYSIS
ST. DOMINIC HIGH SCHOOL
NEW GYMNASIUM & P.A.C.

INTRODUCTION

At the request of St. Dominic High School, we have conducted an analysis for water quality for a dry detention basin. To determine water quality requires the 1 year – 24 hour storm event be analyzed. This is the volume that must be captured and treated per City of O'Fallon Ordinance No. 5271.

SITE AND PROJECT DESCRIPTION

The St. Dominic High School New Gymnasium & P.A.C. is located at 31 St. Dominic Drive in the City of O'Fallon, Saint Charles County, Missouri. The site is located on the west side of St. Dominic Drive, bounded on the north by the Wabash Railroad Company, Norfolk & Western railroad tracks and on the west by Elaine Drive. The entire site area for St. Dominic High School is approximately 29.01 acres. The existing buildings and parking have detention provided by an existing detention basin located on site. The existing basin and improvements are not required to be analyzed for water quality. The proposed Gymnasium & P.A.C. and site improvements are approximately 4.15 acres, and this report will address only the water quality for the proposed parking lot. The drainage area of the proposed improvement enters an existing storm sewer that by-passes the existing detention basin. Only the on-site area need be analyzed.

HYDROLOGIC AND DETENTION ANALYSIS

The storm run-off for the 2 year, 15 year, 25 year and 100 year – 20 minute storm events was determined using the Rational Method. The detention was analyzed using "Hydraflow Hydrographs 2007" (see Appendix).

The project drains to the Peruque Creek watershed through an unnamed tributary

The table below shows the results for the basin.

HYDROLOGIC AND DETENTION SUMMARY TABLE

Storm Event	Pr. Flow to Basin	Max Allow. Outflow	Total Outflow
2 yr.-20 min.	12.19 cfs	4.34 cfs	4.15 cfs
15 yr.-20 min.	19.77 cfs	7.24 cfs	6.85 cfs
25 yr.-20 min.	24.34 cfs	9.98 cfs	7.83 cfs
100 yr.-20 min.	31.20 cfs	11.38 cfs	10.01 cfs

Top of dam = 576.50
100yr. high water = 575.40
Freeboard = 1.10 feet
100yr. high water with low flow blocked = 575.71
Freeboard with low flow blocked = 0.79 feet

The detention basin will not act as a sediment storage basin, the graded site by-passes the detention basin. The sediment storage is accounted for in a sediment trap approved with the grading plans. Sediment from the enlarging of the detention basin is 140 cu. ft. Hydrograph 4 takes into account the sediment in the basin. The sediment had minimal impact on the basin, and detention for all storm events was achieved. The existing basin will be re-graded and immediately seeded.

APPENDIX

CALCULATIONS
ST. DOMINIC HIGH SCHOOL
NEW GYMNASIUM & P.A.C.

Overall Site:

$$Q=(PI)A$$

PI Factors:

Grass/Natural Conditions (5% impervious – including City of O'Fallon run-off factors):

$$\begin{aligned}PI &= 1.15 \text{ (2 year – 20 minute)} \\ &= 1.87 \text{ (15 year – 20 minute)} \\ &= 2.30 \text{ (25 year – 20 minute)} \\ &= 2.95 \text{ (100 year – 20 minute)}\end{aligned}$$

Gravel Conditions (65% impervious – including City of O'Fallon run-off factors):

$$\begin{aligned}PI &= 1.75 \text{ (2 year – 20 minute)} \\ &= 2.60 \text{ (15 year – 20 minute)} \\ &= 3.10 \text{ (25 year – 20 minute)} \\ &= 3.58 \text{ (100 year – 20 minute)}\end{aligned}$$

Pavement/Roof Conditions (100% impervious – including City of O'Fallon run-off factors):

$$\begin{aligned}PI &= 2.39 \text{ (2 year – 20 minute)} \\ &= 3.85 \text{ (15 year – 20 minute)} \\ &= 4.75 \text{ (25 year – 20 minute)} \\ &= 6.08 \text{ (100 year – 20 minute)}\end{aligned}$$

Note: City of O'Fallon Run-off Factors are as follows:

$$\begin{aligned}2 \text{ year} &= 1.0 \\ 15 \text{ year} &= 1.1 \\ 25 \text{ year} &= 1.15 \\ 100 \text{ year} &= 1.25\end{aligned}$$

Campus Area: 29.01 acres

1988 Conditions:

Roof/Pavement:	4.51 acres
Gravel:	0.65 acres
Grass:	23.85 acres

$$Q_{2yr} = (4.51ac.)(2.39) + (0.65ac.)(2.05) + (23.85ac.)(1.15) = 39.54 \text{ cfs}$$
$$Q_{15yr} = (4.51ac.)(3.85) + (0.65ac.)(3.30) + (23.85ac.)(1.87) = 64.11 \text{ cfs}$$
$$Q_{25yr} = (4.51ac.)(4.75) + (0.65ac.)(4.07) + (23.85ac.)(2.30) = 78.92 \text{ cfs}$$
$$Q_{100yr} = (4.51ac.)(6.08) + (0.65ac.)(5.21) + (23.85ac.)(2.95) = 101.16 \text{ cfs}$$

2008 Conditions, including proposed Gymnasium & P.A.C. improvements:

Roof/Pavement:	11.31 acres
Grass:	17.70 acres

$$Q_{2yr} = (11.31ac.)(2.39) + (17.70ac.)(1.15) = 47.39 \text{ cfs}$$
$$Q_{15yr} = (11.31ac.)(3.85) + (17.70ac.)(1.87) = 76.64 \text{ cfs}$$
$$Q_{25yr} = (11.31ac.)(4.75) + (17.70ac.)(2.30) = 93.28 \text{ cfs}$$
$$Q_{100yr} = (11.31ac.)(6.08) + (17.70ac.)(2.95) = 120.98 \text{ cfs}$$

Differential Run-off:

$$Q_{2yr} = 47.39 - 39.54 = 7.85 \text{ cfs}$$
$$Q_{15yr} = 76.64 - 64.11 = 12.53 \text{ cfs}$$
$$Q_{25yr} = 93.28 - 78.92 = 14.36 \text{ cfs}$$
$$Q_{100yr} = 120.98 - 101.16 = 19.82 \text{ cfs}$$

Drainage Area to detention basin: 8.93 acres

Roof/Pavement:	1.55 acres
Grass/Natural:	7.38 acres

$$Q_{2yr} = (1.55ac.)(2.39) + (7.38ac.)(1.15) = 12.19 \text{ cfs}$$
$$Q_{15yr} = (1.55ac.)(3.85) + (7.38ac.)(1.87) = 19.77 \text{ cfs}$$
$$Q_{25yr} = (1.55ac.)(4.75) + (7.38ac.)(2.30) = 24.34 \text{ cfs}$$
$$Q_{100yr} = (1.55ac.)(6.08) + (7.38ac.)(2.95) = 31.20 \text{ cfs}$$

Allowable discharge from the detention basin

$$Q_{2yr} = 12.19 - 7.85 = 4.34 \text{ cfs}$$
$$Q_{15yr} = 19.77 - 12.53 = 7.24 \text{ cfs}$$
$$Q_{25yr} = 24.34 - 14.36 = 9.98 \text{ cfs}$$
$$Q_{100yr} = 31.20 - 19.82 = 11.38 \text{ cfs}$$

Actual discharge versus allowable discharge for detention basin:

$$\begin{aligned}Q_{2\text{yr}} &= 4.21 \text{ cfs} < 4.34 \text{ cfs} \\Q_{15\text{yr}} &= 6.94 \text{ cfs} < 7.24 \text{ cfs} \\Q_{25\text{yr}} &= 7.89 \text{ cfs} < 9.98 \text{ cfs} \\Q_{100\text{yr}} &= 10.51 \text{ cfs} < 11.38 \text{ cfs}\end{aligned}$$

Actual discharge versus allowable discharge for detention basin with Low Flow Blocked:

$$\begin{aligned}Q_{2\text{yr}} &= 1.15 \text{ cfs} < 4.34 \text{ cfs} \\Q_{15\text{yr}} &= 2.77 \text{ cfs} < 7.24 \text{ cfs} \\Q_{25\text{yr}} &= 3.36 \text{ cfs} < 9.98 \text{ cfs} \\Q_{100\text{yr}} &= 14.97 \text{ cfs} < 11.38 \text{ cfs}\end{aligned}$$

Actual discharge versus allowable discharge for detention basin with 2 year sediment:

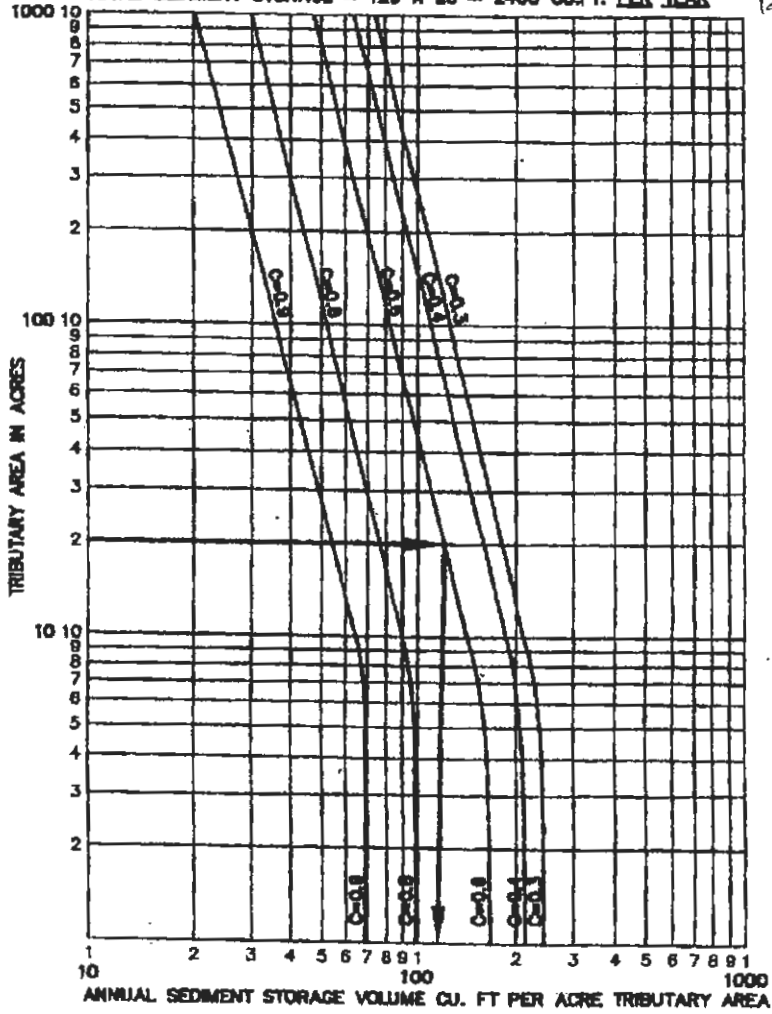
$$\begin{aligned}Q_{2\text{yr}} &= 4.16 \text{ cfs} < 4.34 \text{ cfs} \\Q_{15\text{yr}} &= 6.88 \text{ cfs} < 7.24 \text{ cfs} \\Q_{25\text{yr}} &= 7.85 \text{ cfs} < 9.98 \text{ cfs} \\Q_{100\text{yr}} &= 10.13 \text{ cfs} < 11.38 \text{ cfs}\end{aligned}$$

FIGURE #1 (Chapter 405)

EXAMPLE:

TRIBUTARY AREA = 20 ACRES
 RATIONAL METHOD RUNOFF COEFFICIENT "C" = 0.6
 SEDIMENT STORAGE = 120 CU.FT. PER ACRE PER YEAR
 TOTAL SEDIMENT STORAGE = 120 X 20 = 2400 CU.FT. PER YEAR

0.41 AS
 0.6
 170
 140 CUFT



ANNUAL SEDIMENT STORAGE

$$(170)(0.41)(0.6) = 137 \text{ CU.FT. PER ACRE}$$

$$\approx 140.0 \text{ CUFT}$$

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	15-Yr	25-Yr	50-Yr	100-Yr	
1	Manual	----	----	12.19	----	-----	19.77	24.34	----	31.20	Proposed to Basin
2	Reservoir	1	-----	4.150	----	-----	6.855	7.828	----	10.01	Detention Basin
3	Reservoir	1	-----	1.153	-----	-----	2.766	3.358	-----	14.97	Low Flow Blocked
4	Reservoir	1	----	4.161	----	-----	6.880	7.848	-----	10.13	With 2yr sediment

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	Manual	12.19	1	2	14,629	—	—	—	Proposed to Basin
2	Reservoir	4.150	1	21	14,628	1	573.48	10,300	Detention Basin
3	Reservoir	1.153	1	22	4,086	1	573.94	14,398	Low Flow Blocked
4	Reservoir	4.161	1	21	14,628	1	573.49	10,278	With 2yr sediment
98-380.gpw					Return Period: 2 Year			Friday, Apr 3, 2009	

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual

Storm frequency = 2 yrs

Time interval = 1 min

Peak discharge = 12.19 cfs

Time to peak = 2 min

Hyd. volume = 14,629 cuft

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time -- Outflow
(min cfs)

2	12.19 <<
3	12.19 <<
4	12.19 <<
5	12.19 <<
6	12.19 <<
7	12.19 <<
8	12.19 <<
9	12.19 <<
10	12.19 <<
11	12.19 <<
12	12.19 <<
13	12.19 <<
14	12.19 <<
15	12.19 <<
16	12.19 <<
17	12.19 <<
18	12.19 <<
19	12.19 <<
20	12.19 <<

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

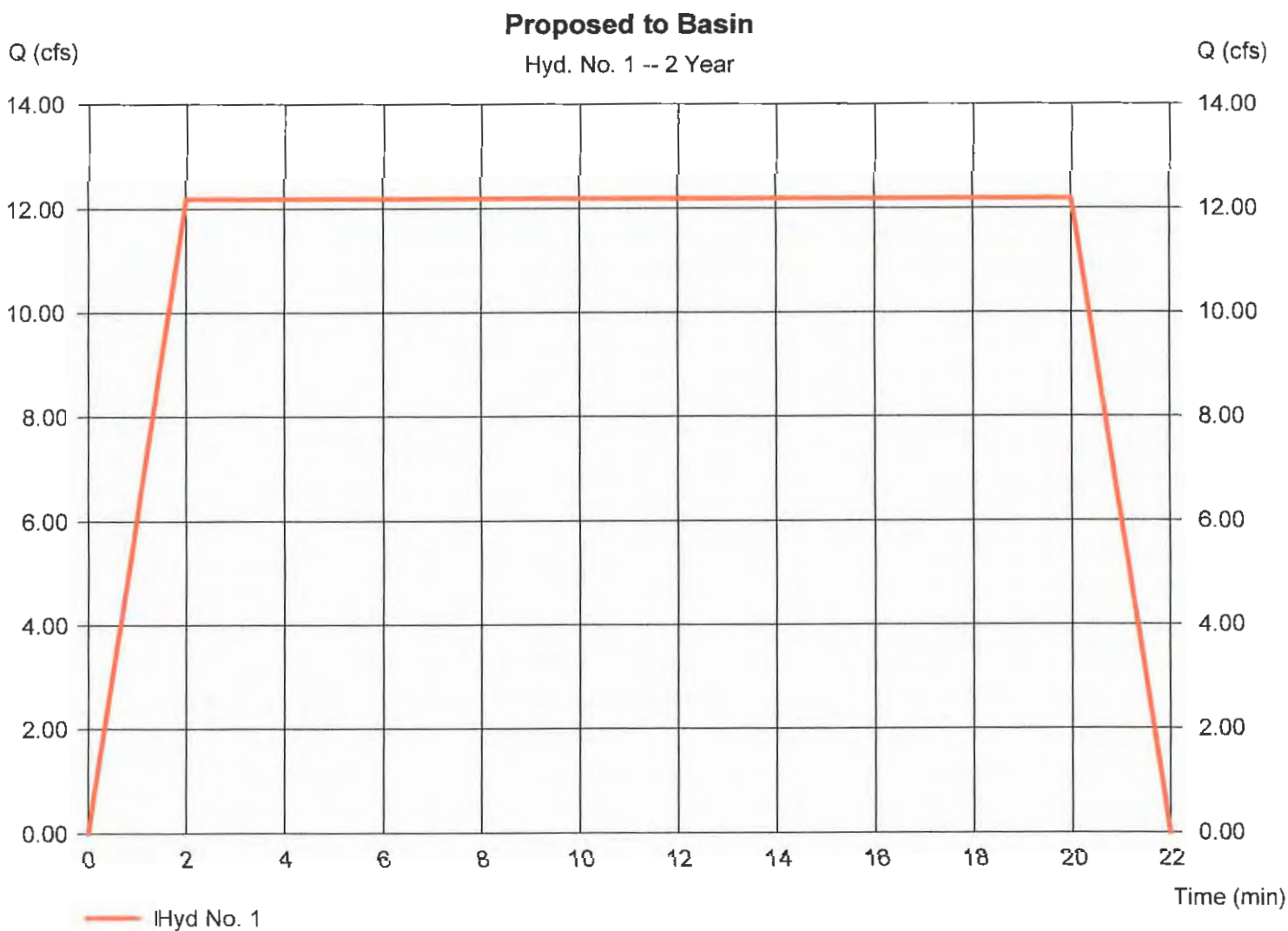
Friday, Apr 3, 2009

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 2 yrs
Time interval = 1 min

Peak discharge = 12.19 cfs
Time to peak = 2 min
Hyd. volume = 14,629 cuft



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 2

Detention Basin

Hydrograph type	= Reservoir	Peak discharge	= 4.150 cfs
Storm frequency	= 2 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 14,628 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 573.48 ft	Max. Storage	= 10,300 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
13	12.19 <<	573.05	3.833	3.785	----	----	----	----	----	----	----	3.785
14	12.19 <<	573.10	3.902	3.836	----	----	----	----	----	----	----	3.836
15	12.19 <<	573.16	3.912	3.885	----	----	----	----	----	----	----	3.885
16	12.19 <<	573.22	3.939	3.934	----	----	----	----	----	----	----	3.934
17	12.19 <<	573.27	4.004	3.982	----	----	----	----	----	----	----	3.982
18	12.19 <<	573.33	4.073	4.030	----	----	----	----	----	----	----	4.030
19	12.19 <<	573.38	4.147	4.076	----	----	----	----	----	----	----	4.076
20	12.19 <<	573.44	4.170	4.122	----	----	----	----	----	----	----	4.122
21	6.100	573.47 <<	4.171	4.150	----	----	----	----	----	----	----	4.150 <<
22	0.000	573.47	4.170	4.143	----	----	----	----	----	----	----	4.143
23	0.000	573.44	4.169	4.120	----	----	----	----	----	----	----	4.120
24	0.000	573.41	4.169	4.097	----	----	----	----	----	----	----	4.097
25	0.000	573.38	4.144	4.074	----	----	----	----	----	----	----	4.074
26	0.000	573.35	4.107	4.051	----	----	----	----	----	----	----	4.051
27	0.000	573.33	4.070	4.028	----	----	----	----	----	----	----	4.028
28	0.000	573.30	4.034	4.005	----	----	----	----	----	----	----	4.005
29	0.000	573.27	4.003	3.982	----	----	----	----	----	----	----	3.982
30	0.000	573.25	3.972	3.959	----	----	----	----	----	----	----	3.959
31	0.000	573.22	3.941	3.936	----	----	----	----	----	----	----	3.936
32	0.000	573.19	3.918	3.913	----	----	----	----	----	----	----	3.913
33	0.000	573.17	3.913	3.889	----	----	----	----	----	----	----	3.889
34	0.000	573.14	3.909	3.866	----	----	----	----	----	----	----	3.866
35	0.000	573.11	3.904	3.843	----	----	----	----	----	----	----	3.843
36	0.000	573.09	3.885	3.820	----	----	----	----	----	----	----	3.820
37	0.000	573.06	3.851	3.797	----	----	----	----	----	----	----	3.797
38	0.000	573.04	3.818	3.774	----	----	----	----	----	----	----	3.774
39	0.000	573.01	3.784	3.751	----	----	----	----	----	----	----	3.751

...End

Hydrograph Report

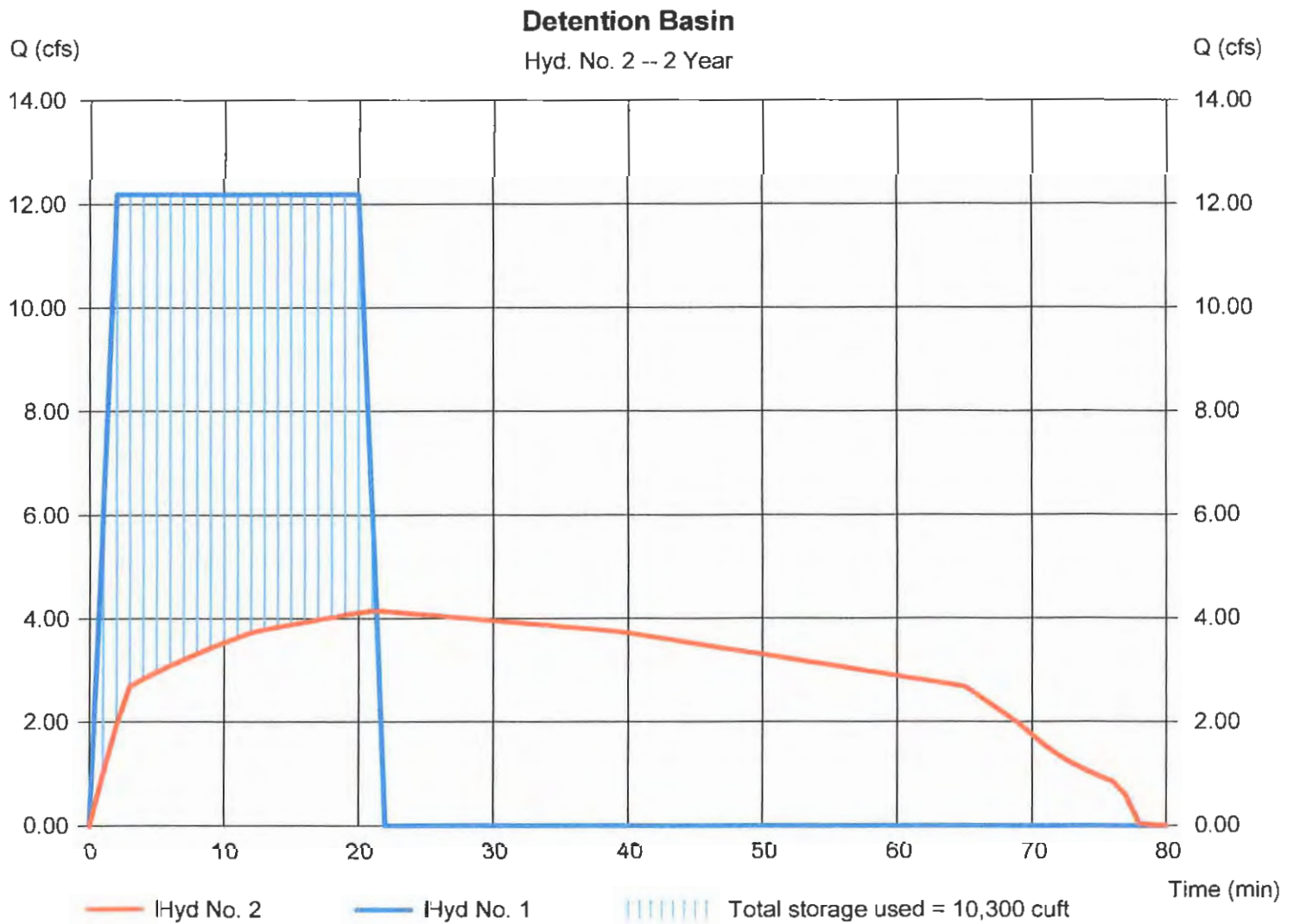
Hyd. No. 2

Detention Basin

Hydrograph type = Reservoir
Storm frequency = 2 yrs
Time interval = 1 min
Inflow hyd. No. = 1 - Proposed to Basin
Reservoir name = Rev. Basin - No Swale

Peak discharge = 4.150 cfs
Time to peak = 21 min
Hyd. volume = 14,628 cuft
Max. Elevation = 573.48 ft
Max. Storage = 10,300 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Pond No. 7 - Rev. Basin - No Swale

Pond Data

Contours - User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 570.40 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	570.40	00	0	0
0.60	571.00	97	29	29
1.60	572.00	2,214	1,156	1,185
2.60	573.00	7,653	4,934	6,118
3.60	574.00	10,016	8,835	14,953
4.60	575.00	10,858	10,437	25,390
5.60	576.00	11,717	11,288	36,677
6.10	576.50	12,152	5,967	42,644

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	13.00	6.00	0.00
Span (in)	= 24.00	6.00	14.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 569.77	570.40	573.50	0.00
Length (ft)	= 81.55	0.00	0.00	0.00
Slope (%)	= 9.53	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.57	Inactive	0.00	0.00
Crest El. (ft)	= 575.30	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Riser	—	—
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	570.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.06	3	570.46	2.30 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
0.12	6	570.52	2.30 ic	0.07 ic	0.00	---	0.00	---	---	---	---	---	0.071
0.18	9	570.58	2.30 ic	0.13 ic	0.00	---	0.00	---	---	---	---	---	0.130
0.24	12	570.64	2.30 ic	0.20 ic	0.00	---	0.00	---	---	---	---	---	0.200
0.30	15	570.70	2.30 ic	0.28 ic	0.00	---	0.00	---	---	---	---	---	0.280
0.36	17	570.76	2.30 ic	0.37 ic	0.00	---	0.00	---	---	---	---	---	0.368
0.42	20	570.82	2.30 ic	0.46 ic	0.00	---	0.00	---	---	---	---	---	0.463
0.48	23	570.88	2.30 ic	0.57 ic	0.00	---	0.00	---	---	---	---	---	0.566
0.54	26	570.94	2.30 ic	0.68 ic	0.00	---	0.00	---	---	---	---	---	0.675
0.60	29	571.00	2.30 ic	0.79 ic	0.00	---	0.00	---	---	---	---	---	0.791
0.70	145	571.10	2.30 ic	1.00 ic	0.00	---	0.00	---	---	---	---	---	0.997
0.80	260	571.20	2.30 ic	1.22 ic	0.00	---	0.00	---	---	---	---	---	1.218
0.90	376	571.30	2.30 ic	1.45 ic	0.00	---	0.00	---	---	---	---	---	1.453
1.00	491	571.40	2.30 ic	1.70 ic	0.00	---	0.00	---	---	---	---	---	1.702
1.10	607	571.50	2.30 ic	1.95 ic	0.00	---	0.00	---	---	---	---	---	1.949
1.20	722	571.60	2.30 ic	2.12 ic	0.00	---	0.00	---	---	---	---	---	2.116
1.30	838	571.70	2.30 ic	2.27 ic	0.00	---	0.00	---	---	---	---	---	2.271
1.40	953	571.80	2.48 ic	2.42 ic	0.00	---	0.00	---	---	---	---	---	2.416
1.50	1,069	571.90	2.59 ic	2.55 ic	0.00	---	0.00	---	---	---	---	---	2.553
1.60	1,185	572.00	2.70 ic	2.68 ic	0.00	---	0.00	---	---	---	---	---	2.683
1.70	1,678	572.10	2.81 ic	2.81 ic	0.00	---	0.00	---	---	---	---	---	2.807
1.80	2,171	572.20	2.93 ic	2.93 ic	0.00	---	0.00	---	---	---	---	---	2.926
1.90	2,665	572.30	3.04 ic	3.04 ic	0.00	---	0.00	---	---	---	---	---	3.040
2.00	3,158	572.40	3.15 ic	3.15 ic	0.00	---	0.00	---	---	---	---	---	3.149
2.10	3,651	572.50	3.27 ic	3.26 ic	0.00	---	0.00	---	---	---	---	---	3.256
2.20	4,145	572.60	3.39 ic	3.36 ic	0.00	---	0.00	---	---	---	---	---	3.358
2.30	4,638	572.70	3.52 ic	3.46 ic	0.00	---	0.00	---	---	---	---	---	3.458
2.40	5,131	572.80	3.64 ic	3.56 ic	0.00	---	0.00	---	---	---	---	---	3.555
2.50	5,625	572.90	3.65 ic	3.65 ic	0.00	---	0.00	---	---	---	---	---	3.650
2.60	6,118	573.00	3.77 ic	3.74 ic	0.00	---	0.00	---	---	---	---	---	3.742
2.70	7,002	573.10	3.90 ic	3.83 ic	0.00	---	0.00	---	---	---	---	---	3.832

Continues on next page...

Rev. Basin - No Swale

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.80	7,885	573.20	3.92 ic	3.92 ic	0.00	---	0.00	---	---	---	---	---	3.919
2.90	8,768	573.30	4.03 ic	4.01 ic	0.00	---	0.00	---	---	---	---	---	4.005
3.00	9,652	573.40	4.17 ic	4.09 ic	0.00	---	0.00	---	---	---	---	---	4.089
3.10	10,535	573.50	4.17 ic	4.17 ic	0.00	---	0.00	---	---	---	---	---	4.172
3.20	11,419	573.60	4.44 ic	4.25 ic	0.13 ic	---	0.00	---	---	---	---	---	4.378
3.30	12,302	573.70	4.72 ic	4.33 ic	0.35 ic	---	0.00	---	---	---	---	---	4.686
3.40	13,186	573.80	5.16 ic	4.41 ic	0.65 ic	---	0.00	---	---	---	---	---	5.061
3.50	14,069	573.90	5.49 ic	4.49 ic	1.00 ic	---	0.00	---	---	---	---	---	5.490
3.60	14,953	574.00	6.06 ic	4.56 ic	1.40 ic	---	0.00	---	---	---	---	---	5.965
3.70	15,996	574.10	6.37 ic	4.64 ic	1.66 ic	---	0.00	---	---	---	---	---	6.297
3.80	17,040	574.20	6.69 ic	4.71 ic	1.88 ic	---	0.00	---	---	---	---	---	6.592
3.90	18,084	574.30	6.86 ic	4.78 ic	2.08 ic	---	0.00	---	---	---	---	---	6.862
4.00	19,127	574.40	7.16 ic	4.85 ic	2.26 ic	---	0.00	---	---	---	---	---	7.114
4.10	20,171	574.50	7.34 ic	4.91 ic	2.43 ic	---	0.00	---	---	---	---	---	7.338
4.20	21,215	574.60	7.64 ic	4.96 ic	2.59 ic	---	0.00	---	---	---	---	---	7.546
4.30	22,259	574.70	7.80 ic	5.01 ic	2.74 ic	---	0.00	---	---	---	---	---	7.752
4.40	23,302	574.80	7.96 ic	5.07 ic	2.88 ic	---	0.00	---	---	---	---	---	7.949
4.50	24,346	574.90	8.14 ic	5.12 ic	3.01 ic	---	0.00	---	---	---	---	---	8.136
4.60	25,390	575.00	8.32 ic	5.18 ic	3.14 ic	---	0.00	---	---	---	---	---	8.317
4.70	26,518	575.10	8.60 ic	5.23 ic	3.26 ic	---	0.00	---	---	---	---	---	8.493
4.80	27,647	575.20	8.76 ic	5.28 ic	3.38 ic	---	0.00	---	---	---	---	---	8.667
4.90	28,776	575.30	8.91 ic	5.34 ic	3.50 ic	---	0.00	---	---	---	---	---	8.836
5.00	29,905	575.40	10.29 ic	5.32 ic	3.61 ic	---	1.32	---	---	---	---	---	10.25
5.10	31,033	575.50	12.69 ic	5.23 ic	3.72 ic	---	3.74	---	---	---	---	---	12.69
5.20	32,162	575.60	15.74 ic	5.05 ic	3.82 ic	---	6.87	---	---	---	---	---	15.74
5.30	33,291	575.70	19.25 ic	4.74 ic	3.92 ic	---	10.58	---	---	---	---	---	19.25
5.40	34,420	575.80	23.10 ic	4.28 ic	4.02 ic	---	14.79	---	---	---	---	---	23.10
5.50	35,548	575.90	27.00 ic	3.64 ic	3.92 ic	---	19.44	---	---	---	---	---	27.00
5.60	36,677	576.00	30.42 ic	2.84 ic	3.06 ic	---	24.52	---	---	---	---	---	30.41
5.65	37,274	576.05	32.02 ic	2.33 ic	2.51 ic	---	27.19	---	---	---	---	---	32.02
5.70	37,871	576.10	32.85 ic	2.04 ic	2.20 ic	---	28.60 s	---	---	---	---	---	32.85
5.75	38,467	576.15	33.35 ic	1.88 ic	2.02 ic	---	29.45 s	---	---	---	---	---	33.35
5.80	39,064	576.20	33.76 ic	1.74 ic	1.88 ic	---	30.14 s	---	---	---	---	---	33.76
5.85	39,661	576.25	34.12 ic	1.63 ic	1.75 ic	---	30.74 s	---	---	---	---	---	34.12
5.90	40,257	576.30	34.44 ic	1.53 ic	1.65 ic	---	31.26 s	---	---	---	---	---	34.44
5.95	40,854	576.35	34.74 ic	1.44 ic	1.55 ic	---	31.74 s	---	---	---	---	---	34.73
6.00	41,451	576.40	35.01 ic	1.36 ic	1.47 ic	---	32.17 s	---	---	---	---	---	35.01
6.05	42,048	576.45	35.26 ic	1.29 ic	1.39 ic	---	32.57 s	---	---	---	---	---	35.25
6.10	42,644	576.50	35.50 ic	1.23 ic	1.32 ic	---	32.94 s	---	---	---	---	---	35.49

...End

Pond Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Pond No. 7 - Rev. Basin - No Swale

Pond Data

Contours - User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 570.40 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	570.40	00	0	0
0.60	571.00	97	29	29
1.60	572.00	2,214	1,156	1,185
2.60	573.00	7,653	4,934	6,118
3.60	574.00	10,016	8,835	14,953
4.60	575.00	10,858	10,437	25,390
5.60	576.00	11,717	11,288	36,677
6.10	576.50	12,152	5,967	42,644

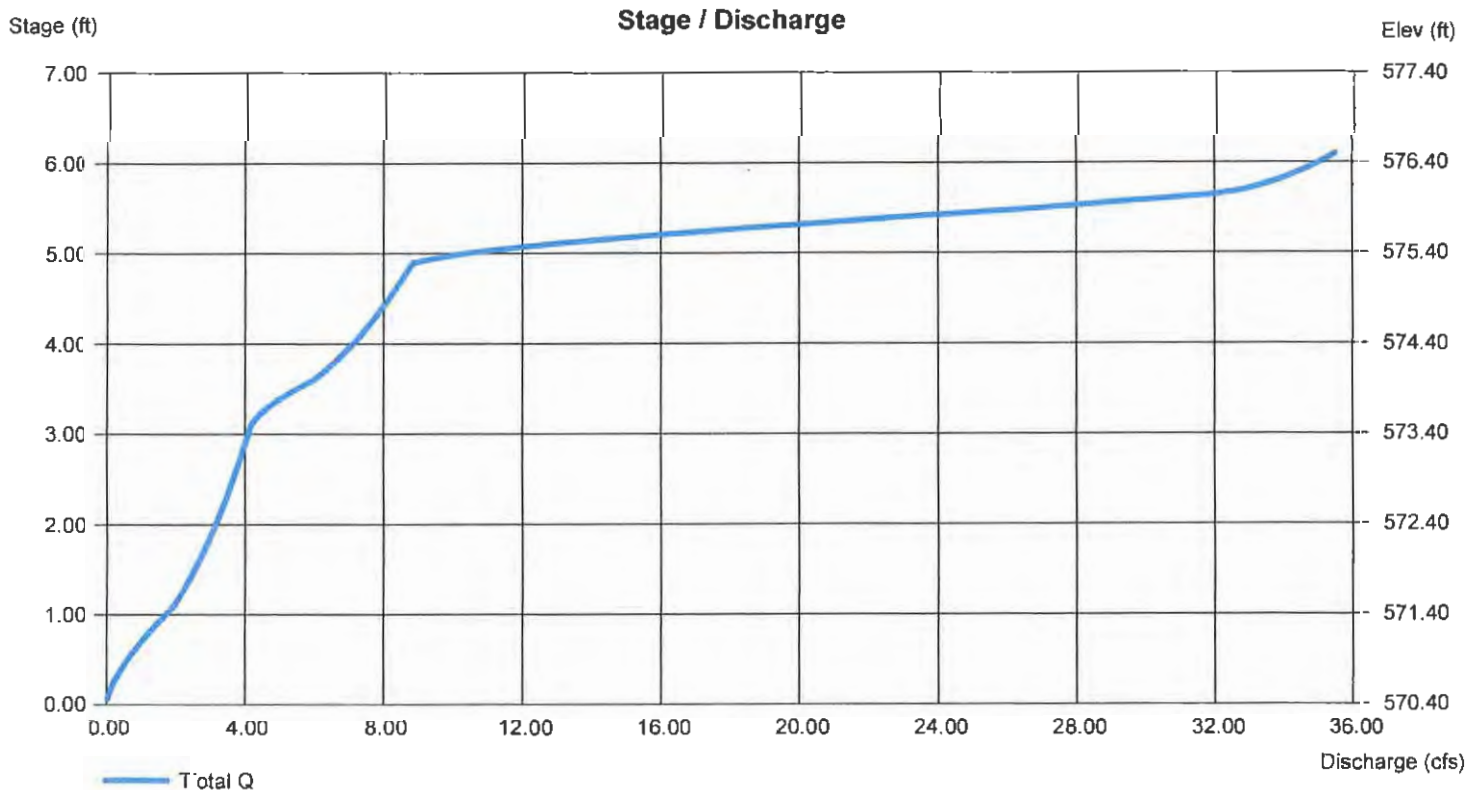
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	13.00	6.00	0.00
Span (in)	= 24.00	6.00	14.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 569.77	570.40	573.50	0.00
Length (ft)	= 81.55	0.00	0.00	0.00
Slope (%)	= 9.53	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.57	Inactive	0.00	0.00
Crest El. (ft)	= 575.30	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Riser	---	---
Multi-Stage	= Yes	Yes	No	No
Exfil. (in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 3

Low Flow Blocked

Hydrograph type	= Reservoir	Peak discharge	= 1.153 cfs
Storm frequency	= 2 yrs	Time to peak	= 22 min
Time interval	= 1 min	Hyd. volume	= 4,086 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 573.94 ft	Max. Storage	= 14,398 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
21	6.100	573.92	2.301	----	1.101	----	----	----	----	----	----	1.101
22	0.000	573.94 <<	2.301	----	1.153	----	----	----	----	----	----	1.153 <<
23	0.000	573.93	2.301	----	1.122	----	----	----	----	----	----	1.122
24	0.000	573.92	2.301	----	1.092	----	----	----	----	----	----	1.092
25	0.000	573.91	2.301	----	1.063	----	----	----	----	----	----	1.063

...End

Hydrograph Report

Hydraflow Hydrographs by Intellsolve v9.2

Friday, Apr 3, 2009

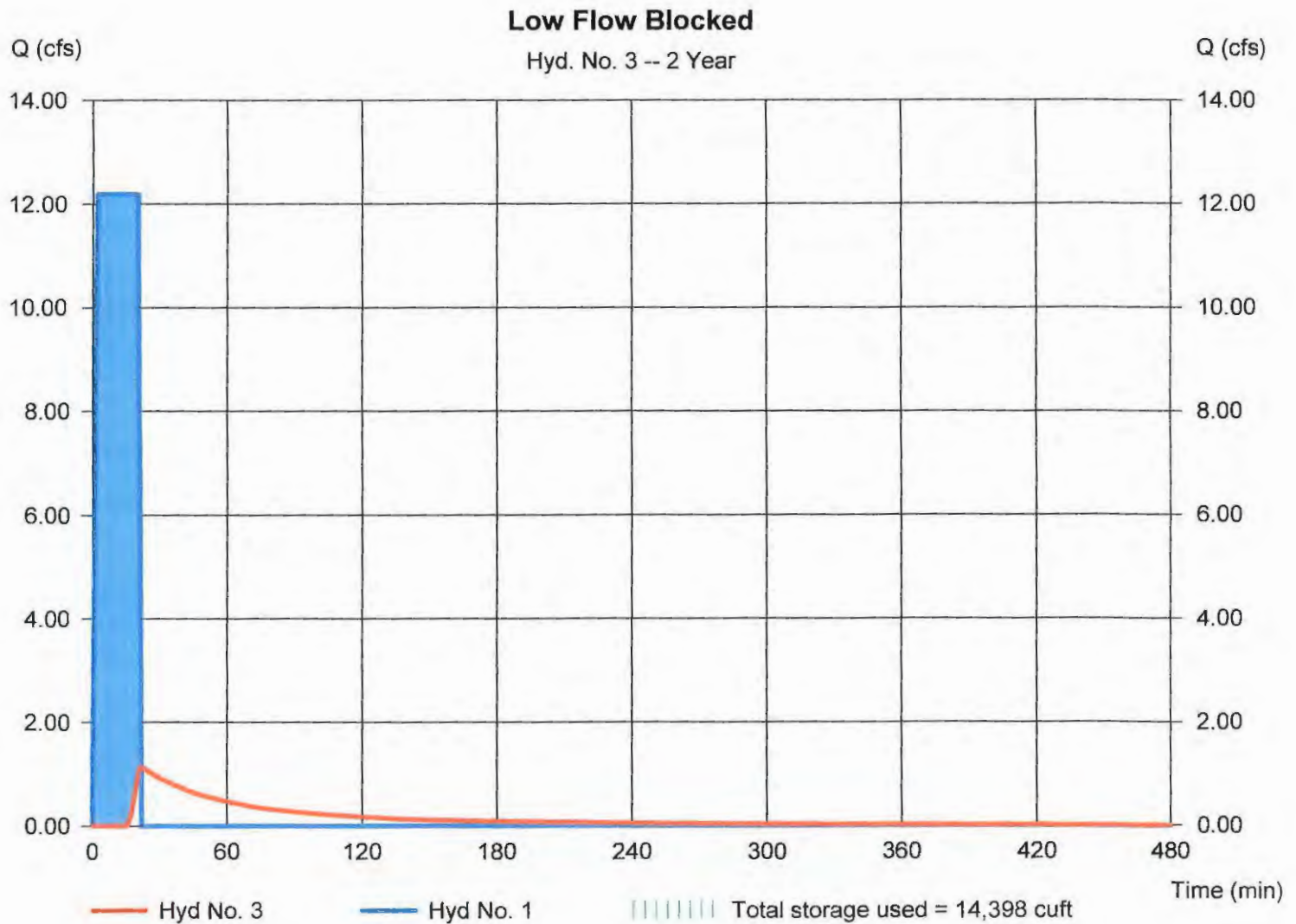
Hyd. No. 3

Low Flow Blocked

Hydrograph type = Reservoir
Storm frequency = 2 yrs
Time interval = 1 min
Inflow hyd. No. = 1 - Proposed to Basin
Reservoir name = Rev. Basin - No Swale LFB

Peak discharge = 1.153 cfs
Time to peak = 22 min
Hyd. volume = 4,086 cuft
Max. Elevation = 573.94 ft
Max. Storage = 14,398 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Pond No. 8 - Rev. Basin - No Swale LFB

Pond Data

Contours - User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 570.40 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	570.40	00	0	0
0.60	571.00	97	29	29
1.60	572.00	2,214	1,156	1,185
2.60	573.00	7,653	4,934	6,118
3.60	574.00	10,016	8,835	14,953
4.60	575.00	10,858	10,437	25,390
5.60	576.00	11,717	11,288	36,677
6.10	576.50	12,152	5,967	42,644

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	Inactive	6.00	0.00
Span (in)	= 24.00	6.00	14.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 569.77	570.40	573.50	0.00
Length (ft)	= 81.55	0.00	0.00	0.00
Slope (%)	= 9.53	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.57	Inactive	0.00	0.00
Crest El. (ft)	= 575.30	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Riser	---	---
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	570.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.06	3	570.46	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.12	6	570.52	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.18	9	570.58	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.24	12	570.64	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.30	15	570.70	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.36	17	570.76	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.42	20	570.82	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.48	23	570.88	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.54	26	570.94	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.60	29	571.00	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.70	145	571.10	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.80	260	571.20	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.90	376	571.30	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	491	571.40	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.10	607	571.50	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.20	722	571.60	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.30	838	571.70	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.40	953	571.80	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.50	1,069	571.90	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.60	1,185	572.00	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.70	1,678	572.10	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.80	2,171	572.20	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.90	2,665	572.30	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.00	3,158	572.40	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.10	3,651	572.50	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.20	4,145	572.60	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.30	4,638	572.70	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.40	5,131	572.80	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.50	5,625	572.90	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.60	6,118	573.00	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.70	7,002	573.10	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.80	7,885	573.20	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.90	8,768	573.30	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
3.00	9,652	573.40	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
3.10	10,535	573.50	2.30 ic	0.00	0.00	---	0.00	---	---	---	---	---	0.000
3.20	11,419	573.60	2.30 ic	0.00	0.13 ic	---	0.00	---	---	---	---	---	0.125
3.30	12,302	573.70	2.30 ic	0.00	0.35 ic	---	0.00	---	---	---	---	---	0.355
3.40	13,186	573.80	2.30 ic	0.00	0.65 ic	---	0.00	---	---	---	---	---	0.652
3.50	14,069	573.90	2.30 ic	0.00	1.00 ic	---	0.00	---	---	---	---	---	1.004
3.60	14,953	574.00	2.30 ic	0.00	1.40 ic	---	0.00	---	---	---	---	---	1.404
3.70	15,996	574.10	2.30 ic	0.00	1.66 ic	---	0.00	---	---	---	---	---	1.662
3.80	17,040	574.20	2.30 ic	0.00	1.88 ic	---	0.00	---	---	---	---	---	1.884
3.90	18,084	574.30	2.30 ic	0.00	2.08 ic	---	0.00	---	---	---	---	---	2.083
4.00	19,127	574.40	2.30 ic	0.00	2.26 ic	---	0.00	---	---	---	---	---	2.264
4.10	20,171	574.50	2.48 ic	0.00	2.43 ic	---	0.00	---	---	---	---	---	2.432
4.20	21,215	574.60	2.59 ic	0.00	2.59 ic	---	0.00	---	---	---	---	---	2.589
4.30	22,259	574.70	2.81 ic	0.00	2.74 ic	---	0.00	---	---	---	---	---	2.737
4.40	23,302	574.80	2.92 ic	0.00	2.88 ic	---	0.00	---	---	---	---	---	2.878
4.50	24,346	574.90	3.03 ic	0.00	3.01 ic	---	0.00	---	---	---	---	---	3.012
4.60	25,390	575.00	3.15 ic	0.00	3.14 ic	---	0.00	---	---	---	---	---	3.140
4.70	26,518	575.10	3.27 ic	0.00	3.26 ic	---	0.00	---	---	---	---	---	3.263
4.80	27,647	575.20	3.39 ic	0.00	3.38 ic	---	0.00	---	---	---	---	---	3.382
4.90	28,776	575.30	3.52 ic	0.00	3.50 ic	---	0.00	---	---	---	---	---	3.497
5.00	29,905	575.40	5.01 ic	0.00	3.61 ic	---	1.32	---	---	---	---	---	4.930
5.10	31,033	575.50	7.48 ic	0.00	3.72 ic	---	3.74	---	---	---	---	---	7.456
5.20	32,162	575.60	10.73 ic	0.00	3.82 ic	---	6.87	---	---	---	---	---	10.69
5.30	33,291	575.70	14.51 ic	0.00	3.92 ic	---	10.58	---	---	---	---	---	14.51
5.40	34,420	575.80	18.81 ic	0.00	4.02 ic	---	14.79	---	---	---	---	---	18.81
5.50	35,548	575.90	23.56 ic	0.00	4.12 ic	---	19.44	---	---	---	---	---	23.56
5.60	36,677	576.00	28.23 ic	0.00	3.71 ic	---	24.52	---	---	---	---	---	28.23
5.65	37,274	576.05	30.34 ic	0.00	3.15 ic	---	27.19	---	---	---	---	---	30.34
5.70	37,871	576.10	32.31 ic	0.00	2.46 ic	---	29.85 s	---	---	---	---	---	32.31
5.75	38,467	576.15	33.03 ic	0.00	2.20 ic	---	30.83 s	---	---	---	---	---	33.03
5.80	39,064	576.20	33.53 ic	0.00	2.02 ic	---	31.51 s	---	---	---	---	---	33.53
5.85	39,661	576.25	33.94 ic	0.00	1.87 ic	---	32.07 s	---	---	---	---	---	33.94
5.90	40,257	576.30	34.30 ic	0.00	1.75 ic	---	32.55 s	---	---	---	---	---	34.30
5.95	40,854	576.35	34.62 ic	0.00	1.64 ic	---	32.98 s	---	---	---	---	---	34.62
6.00	41,451	576.40	34.91 ic	0.00	1.55 ic	---	33.36 s	---	---	---	---	---	34.91
6.05	42,048	576.45	35.18 ic	0.00	1.46 ic	---	33.71 s	---	---	---	---	---	35.17
6.10	42,644	576.50	35.43 ic	0.00	1.38 ic	---	34.04 s	---	---	---	---	---	35.43

...End

Pond Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Pond No. 8 - Rev. Basin - No Swale LFB

Pond Data

Contours - User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 570.40 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	570.40	00	0	0
0.60	571.00	97	29	29
1.60	572.00	2,214	1,156	1,185
2.60	573.00	7,653	4,934	6,118
3.60	574.00	10,016	8,835	14,953
4.60	575.00	10,858	10,437	25,390
5.60	576.00	11,717	11,288	36,677
6.10	576.50	12,152	5,967	42,644

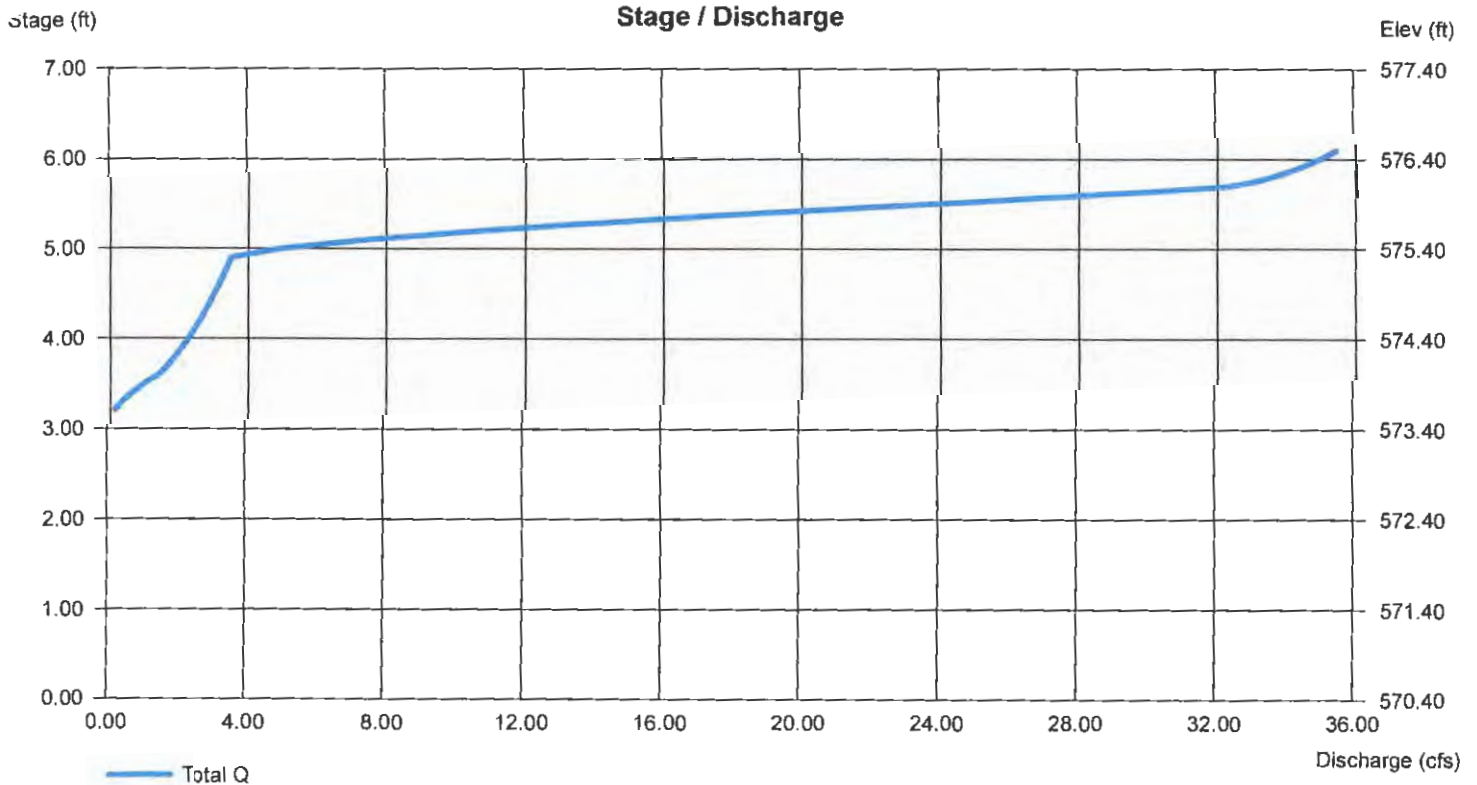
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	Inactive	6.00	0.00
Span (in)	= 24.00	6.00	14.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 569.77	570.40	573.50	0.00
Length (ft)	= 81.55	0.00	0.00	0.00
Slope (%)	= 9.53	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.57	Inactive	0.00	0.00
Crest El. (ft)	= 575.30	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Riser	—	—
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 4

With 2yr sediment

Hydrograph type	= Reservoir	Peak discharge	= 4.161 cfs
Storm frequency	= 2 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 14,628 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 573.49 ft	Max. Storage	= 10,278 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
12	12.19 <<	573.00	3.777	3.746	----	----	----	----	----	----	----	3.746
13	12.19 <<	573.06	3.852	3.797	----	----	----	----	----	----	----	3.797
14	12.19 <<	573.12	3.905	3.848	----	----	----	----	----	----	----	3.848
15	12.19 <<	573.18	3.915	3.898	----	----	----	----	----	----	----	3.898
16	12.19 <<	573.23	3.955	3.946	----	----	----	----	----	----	----	3.946
17	12.19 <<	573.29	4.019	3.994	----	----	----	----	----	----	----	3.994
18	12.19 <<	573.34	4.091	4.041	----	----	----	----	----	----	----	4.041
19	12.19 <<	573.40	4.165	4.087	----	----	----	----	----	----	----	4.087
20	12.19 <<	573.45	4.170	4.133	----	----	----	----	----	----	----	4.133
21	6.100	573.49 <<	4.171	4.161	----	----	----	----	----	----	----	4.161 <<
22	0.000	573.48	4.171	4.154	----	----	----	----	----	----	----	4.154
	0.000	573.45	4.170	4.131	----	----	----	----	----	----	----	4.131
24	0.000	573.42	4.169	4.108	----	----	----	----	----	----	----	4.108
25	0.000	573.40	4.162	4.085	----	----	----	----	----	----	----	4.085
26	0.000	573.37	4.125	4.062	----	----	----	----	----	----	----	4.062
27	0.000	573.34	4.088	4.039	----	----	----	----	----	----	----	4.039
28	0.000	573.31	4.051	4.016	----	----	----	----	----	----	----	4.016
29	0.000	573.29	4.017	3.993	----	----	----	----	----	----	----	3.993
30	0.000	573.26	3.986	3.970	----	----	----	----	----	----	----	3.970
31	0.000	573.23	3.955	3.946	----	----	----	----	----	----	----	3.946
32	0.000	573.20	3.925	3.924	----	----	----	----	----	----	----	3.924
33	0.000	573.18	3.915	3.900	----	----	----	----	----	----	----	3.900
34	0.000	573.15	3.911	3.877	----	----	----	----	----	----	----	3.877
35	0.000	573.13	3.906	3.854	----	----	----	----	----	----	----	3.854
36	0.000	573.10	3.901	3.831	----	----	----	----	----	----	----	3.831
37	0.000	573.07	3.867	3.808	----	----	----	----	----	----	----	3.808
38	0.000	573.05	3.833	3.785	----	----	----	----	----	----	----	3.785
39	0.000	573.02	3.800	3.762	----	----	----	----	----	----	----	3.762

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

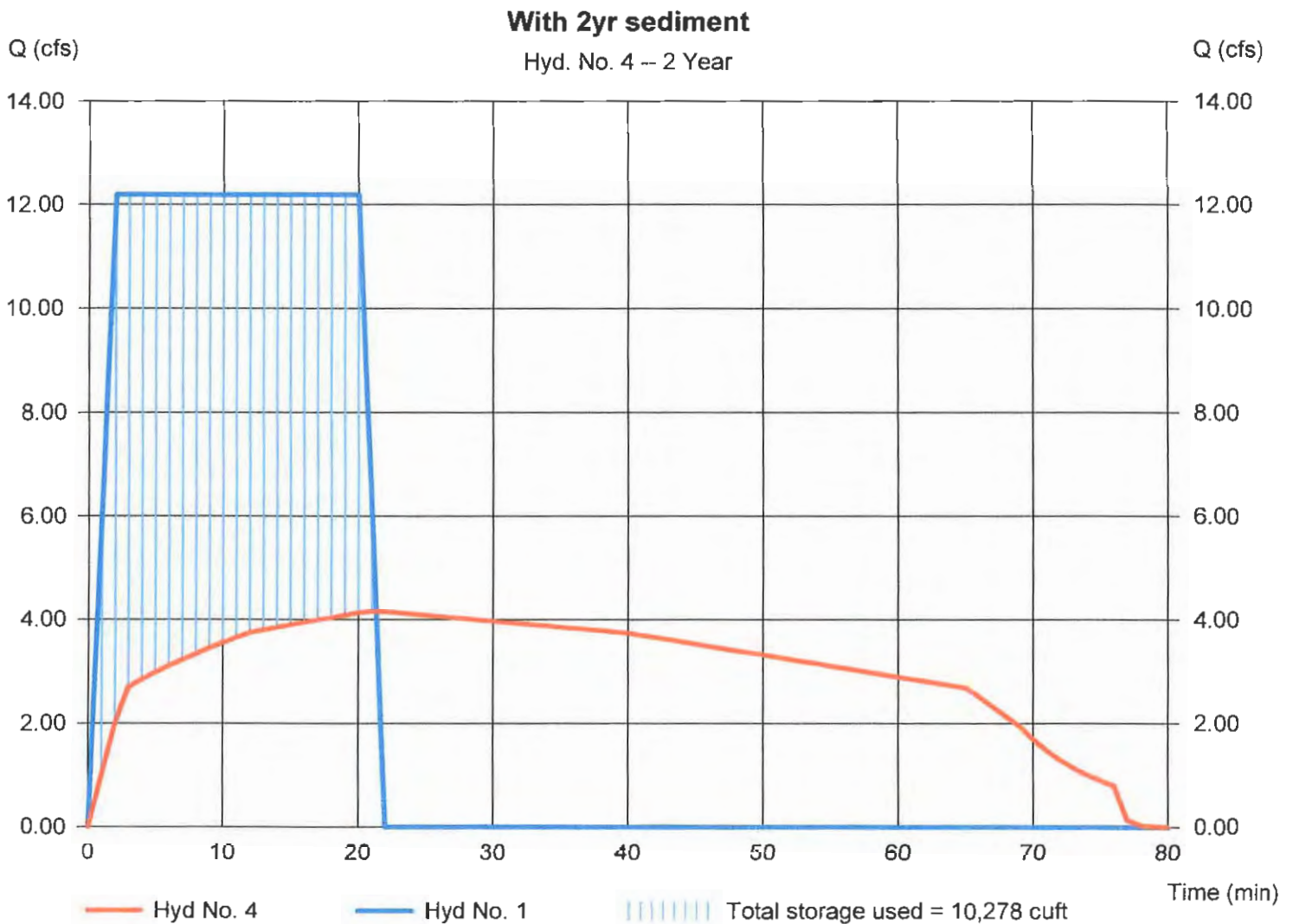
Friday, Apr 3, 2009

Hyd. No. 4

With 2yr sediment

Hydrograph type	= Reservoir	Peak discharge	= 4.161 cfs
Storm frequency	= 2 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 14,628 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Max. Elevation	= 573.49 ft
Reservoir name	= Rev. Basin - No Swale W/sediment	Max. Storage	= 10,278 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Pond No. 9 - Rev. Basin - No Swale W/sediment

Pond Data

Contours - User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 570.40 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	570.40	00	0	0
0.60	571.00	97	29	29
1.60	572.00	2,074	1,086	1,115
2.60	573.00	7,653	4,864	5,978
3.60	574.00	10,016	8,835	14,813
4.60	575.00	10,858	10,437	25,250
5.60	576.00	11,717	11,288	36,537
6.10	576.50	12,152	5,967	42,504

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	13.00	6.00	0.00
Span (in)	= 24.00	6.00	14.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 569.77	570.40	573.50	0.00
Length (ft)	= 81.55	0.00	0.00	0.00
Slope (%)	= 9.53	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.57	Inactive	0.00	0.00
Crest El. (ft)	= 575.30	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Riser	--	--
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	570.40	0.00	0.00	0.00	--	0.00	--	--	--	--	--	0.000
0.06	3	570.46	2.30 ic	0.03 ic	0.00	--	0.00	--	--	--	--	--	0.025
0.12	6	570.52	2.30 ic	0.07 ic	0.00	--	0.00	--	--	--	--	--	0.071
0.18	9	570.58	2.30 ic	0.13 ic	0.00	--	0.00	--	--	--	--	--	0.130
0.24	12	570.64	2.30 ic	0.20 ic	0.00	--	0.00	--	--	--	--	--	0.200
0.30	15	570.70	2.30 ic	0.28 ic	0.00	--	0.00	--	--	--	--	--	0.280
0.36	17	570.76	2.30 ic	0.37 ic	0.00	--	0.00	--	--	--	--	--	0.368
0.42	20	570.82	2.30 ic	0.46 ic	0.00	--	0.00	--	--	--	--	--	0.463
0.48	23	570.88	2.30 ic	0.57 ic	0.00	--	0.00	--	--	--	--	--	0.566
0.54	26	570.94	2.30 ic	0.68 ic	0.00	--	0.00	--	--	--	--	--	0.675
0.60	29	571.00	2.30 ic	0.79 ic	0.00	--	0.00	--	--	--	--	--	0.791
0.70	138	571.10	2.30 ic	1.00 ic	0.00	--	0.00	--	--	--	--	--	0.997
0.80	246	571.20	2.30 ic	1.22 ic	0.00	--	0.00	--	--	--	--	--	1.218
0.90	355	571.30	2.30 ic	1.45 ic	0.00	--	0.00	--	--	--	--	--	1.453
1.00	463	571.40	2.30 ic	1.70 ic	0.00	--	0.00	--	--	--	--	--	1.702
1.10	572	571.50	2.30 ic	1.95 ic	0.00	--	0.00	--	--	--	--	--	1.949
1.20	680	571.60	2.30 ic	2.12 ic	0.00	--	0.00	--	--	--	--	--	2.116
1.30	789	571.70	2.30 ic	2.27 ic	0.00	--	0.00	--	--	--	--	--	2.271
1.40	897	571.80	2.48 ic	2.42 ic	0.00	--	0.00	--	--	--	--	--	2.416
1.50	1,006	571.90	2.59 ic	2.55 ic	0.00	--	0.00	--	--	--	--	--	2.553
1.60	1,115	572.00	2.70 ic	2.68 ic	0.00	--	0.00	--	--	--	--	--	2.683
1.70	1,601	572.10	2.81 ic	2.81 ic	0.00	--	0.00	--	--	--	--	--	2.807
1.80	2,087	572.20	2.93 ic	2.93 ic	0.00	--	0.00	--	--	--	--	--	2.926
1.90	2,574	572.30	3.04 ic	3.04 ic	0.00	--	0.00	--	--	--	--	--	3.040
2.00	3,060	572.40	3.15 ic	3.15 ic	0.00	--	0.00	--	--	--	--	--	3.149
2.10	3,546	572.50	3.27 ic	3.26 ic	0.00	--	0.00	--	--	--	--	--	3.256
2.20	4,033	572.60	3.39 ic	3.36 ic	0.00	--	0.00	--	--	--	--	--	3.358
2.30	4,519	572.70	3.52 ic	3.46 ic	0.00	--	0.00	--	--	--	--	--	3.458
2.40	5,005	572.80	3.64 ic	3.56 ic	0.00	--	0.00	--	--	--	--	--	3.555
2.50	5,492	572.90	3.65 ic	3.65 ic	0.00	--	0.00	--	--	--	--	--	3.650
2.60	5,978	573.00	3.77 ic	3.74 ic	0.00	--	0.00	--	--	--	--	--	3.742
2.70	6,862	573.10	3.90 ic	3.83 ic	0.00	--	0.00	--	--	--	--	--	3.832

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Rev. Basin - No Swale W/sediment

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.80	7,745	573.20	3.92 ic	3.92 ic	0.00	---	0.00	---	---	---	---	---	3.919
2.90	8,628	573.30	4.03 ic	4.01 ic	0.00	---	0.00	---	---	---	---	---	4.005
3.00	9,512	573.40	4.17 ic	4.09 ic	0.00	---	0.00	---	---	---	---	---	4.089
3.10	10,395	573.50	4.17 ic	4.17 ic	0.00	---	0.00	---	---	---	---	---	4.172
3.20	11,279	573.60	4.44 ic	4.25 ic	0.13 ic	---	0.00	---	---	---	---	---	4.378
3.30	12,162	573.70	4.72 ic	4.33 ic	0.35 ic	---	0.00	---	---	---	---	---	4.686
3.40	13,046	573.80	5.16 ic	4.41 ic	0.65 ic	---	0.00	---	---	---	---	---	5.061
3.50	13,929	573.90	5.49 ic	4.49 ic	1.00 ic	---	0.00	---	---	---	---	---	5.490
3.60	14,813	574.00	6.06 ic	4.56 ic	1.40 ic	---	0.00	---	---	---	---	---	5.965
3.70	15,856	574.10	6.37 ic	4.64 ic	1.66 ic	---	0.00	---	---	---	---	---	6.297
3.80	16,900	574.20	6.69 ic	4.71 ic	1.88 ic	---	0.00	---	---	---	---	---	6.592
3.90	17,944	574.30	6.86 ic	4.78 ic	2.08 ic	---	0.00	---	---	---	---	---	6.862
4.00	18,987	574.40	7.16 ic	4.85 ic	2.26 ic	---	0.00	---	---	---	---	---	7.114
4.10	20,031	574.50	7.34 ic	4.91 ic	2.43 ic	---	0.00	---	---	---	---	---	7.338
4.20	21,075	574.60	7.64 ic	4.96 ic	2.59 ic	---	0.00	---	---	---	---	---	7.546
4.30	22,119	574.70	7.80 ic	5.01 ic	2.74 ic	---	0.00	---	---	---	---	---	7.752
4.40	23,162	574.80	7.96 ic	5.07 ic	2.88 ic	---	0.00	---	---	---	---	---	7.949
4.50	24,206	574.90	8.14 ic	5.12 ic	3.01 ic	---	0.00	---	---	---	---	---	8.136
4.60	25,250	575.00	8.32 ic	5.18 ic	3.14 ic	---	0.00	---	---	---	---	---	8.317
4.70	26,378	575.10	8.60 ic	5.23 ic	3.26 ic	---	0.00	---	---	---	---	---	8.493
4.80	27,507	575.20	8.76 ic	5.28 ic	3.38 ic	---	0.00	---	---	---	---	---	8.667
4.90	28,636	575.30	8.91 ic	5.34 ic	3.50 ic	---	0.00	---	---	---	---	---	8.836
5.00	29,765	575.40	10.29 ic	5.32 ic	3.61 ic	---	1.32	---	---	---	---	---	10.25
5.10	30,893	575.50	12.69 ic	5.23 ic	3.72 ic	---	3.74	---	---	---	---	---	12.69
5.20	32,022	575.60	15.74 ic	5.05 ic	3.82 ic	---	6.87	---	---	---	---	---	15.74
5.30	33,151	575.70	19.25 ic	4.74 ic	3.92 ic	---	10.58	---	---	---	---	---	19.25
5.40	34,280	575.80	23.10 ic	4.28 ic	4.02 ic	---	14.79	---	---	---	---	---	23.10
5.50	35,408	575.90	27.00 ic	3.64 ic	3.92 ic	---	19.44	---	---	---	---	---	27.00
5.60	36,537	576.00	30.42 ic	2.84 ic	3.06 ic	---	24.52	---	---	---	---	---	30.41
5.65	37,134	576.05	32.02 ic	2.33 ic	2.51 ic	---	27.19	---	---	---	---	---	32.02
5.70	37,731	576.10	32.85 ic	2.04 ic	2.20 ic	---	28.60 s	---	---	---	---	---	32.85
5.75	38,327	576.15	33.35 ic	1.88 ic	2.02 ic	---	29.45 s	---	---	---	---	---	33.35
5.80	38,924	576.20	33.76 ic	1.74 ic	1.88 ic	---	30.14 s	---	---	---	---	---	33.76
5.85	39,521	576.25	34.12 ic	1.63 ic	1.75 ic	---	30.74 s	---	---	---	---	---	34.12
5.90	40,117	576.30	34.44 ic	1.53 ic	1.65 ic	---	31.26 s	---	---	---	---	---	34.44
5.95	40,714	576.35	34.74 ic	1.44 ic	1.55 ic	---	31.74 s	---	---	---	---	---	34.73
6.00	41,311	576.40	35.01 ic	1.36 ic	1.47 ic	---	32.17 s	---	---	---	---	---	35.01
6.05	41,908	576.45	35.26 ic	1.29 ic	1.39 ic	---	32.57 s	---	---	---	---	---	35.25
6.10	42,504	576.50	35.50 ic	1.23 ic	1.32 ic	---	32.94 s	---	---	---	---	---	35.49

...End

Pond Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Pond No. 9 - Rev. Basin - No Swale W/sediment

Pond Data

Contours - User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 570.40 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	570.40	00	0	0
0.60	571.00	97	29	29
1.60	572.00	2,074	1,086	1,115
2.60	573.00	7,653	4,864	5,978
3.60	574.00	10,016	8,835	14,813
4.60	575.00	10,858	10,437	25,250
5.60	576.00	11,717	11,288	36,537
6.10	576.50	12,152	5,967	42,504

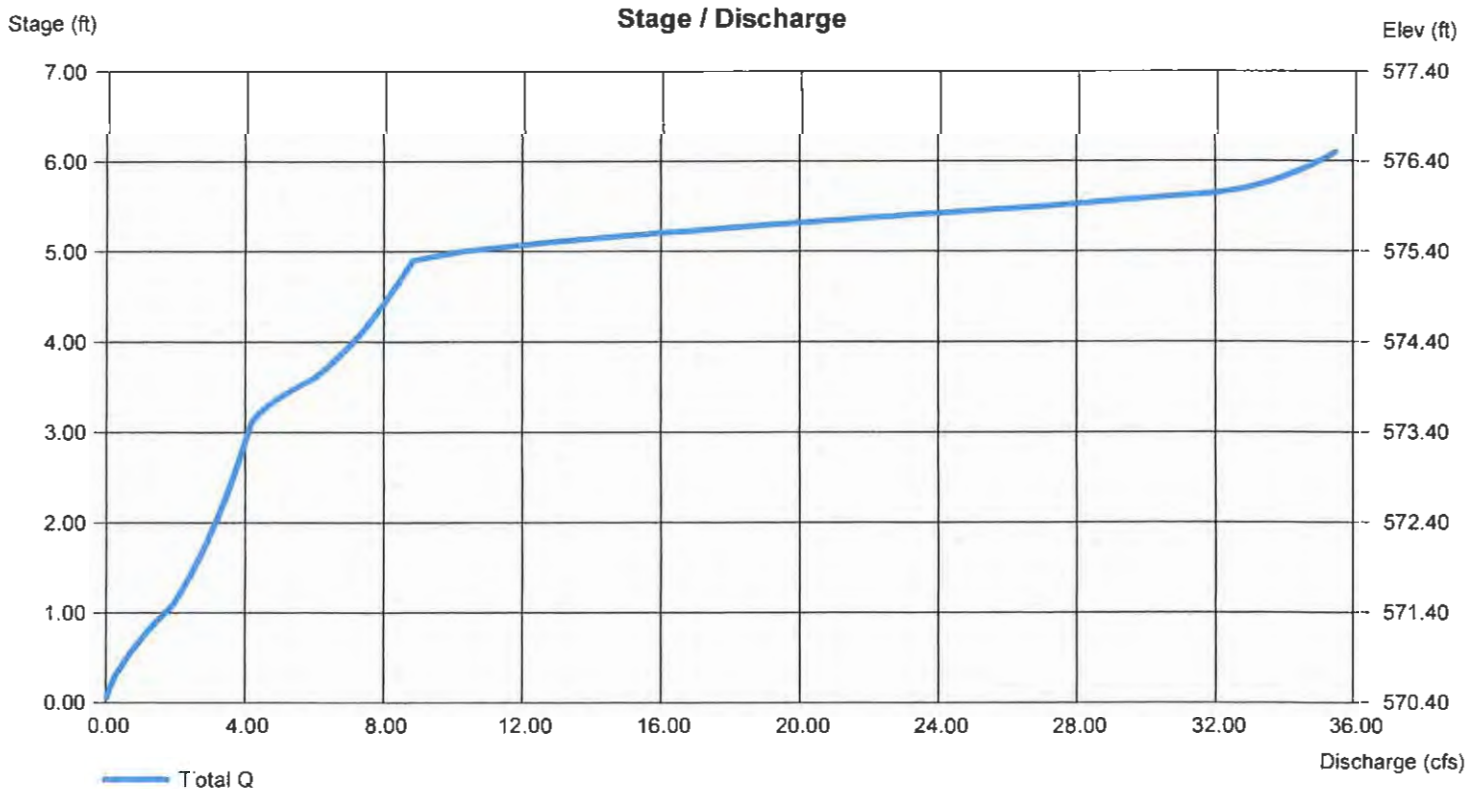
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	13.00	6.00	0.00
Span (in)	= 24.00	6.00	14.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 569.77	570.40	573.50	0.00
Length (ft)	= 81.55	0.00	0.00	0.00
Slope (%)	= 9.53	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.57	Inactive	0.00	0.00
Crest El. (ft)	= 575.30	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Riser	—	—
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. o.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	Manual	19.77	1	2	23,725	---	---	---	Proposed to Basin
2	Reservoir	6.855	1	21	23,724	1	574.31	18,055	Detention Basin
3	Reservoir	2.766	1	22	13,182	1	574.73	22,475	Low Flow Blocked
4	Reservoir	6.880	1	21	23,724	1	574.32	18,017	With 2yr sediment
98-380.gpw					Return Period: 10 Year			Friday, Apr 3, 2009	

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 15 yrs
Time interval = 1 min

Peak discharge = 19.77 cfs
Time to peak = 2 min
Hyd. volume = 14,629 cuft

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time -- Outflow (min cfs)

2	19.77 <<
3	19.77 <<
4	19.77 <<
5	19.77 <<
6	19.77 <<
7	19.77 <<
8	19.77 <<
9	19.77 <<
10	19.77 <<
11	19.77 <<
12	19.77 <<
13	19.77 <<
14	19.77 <<
15	19.77 <<
16	19.77 <<
17	19.77 <<
18	19.77 <<
19	19.77 <<
20	19.77 <<

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

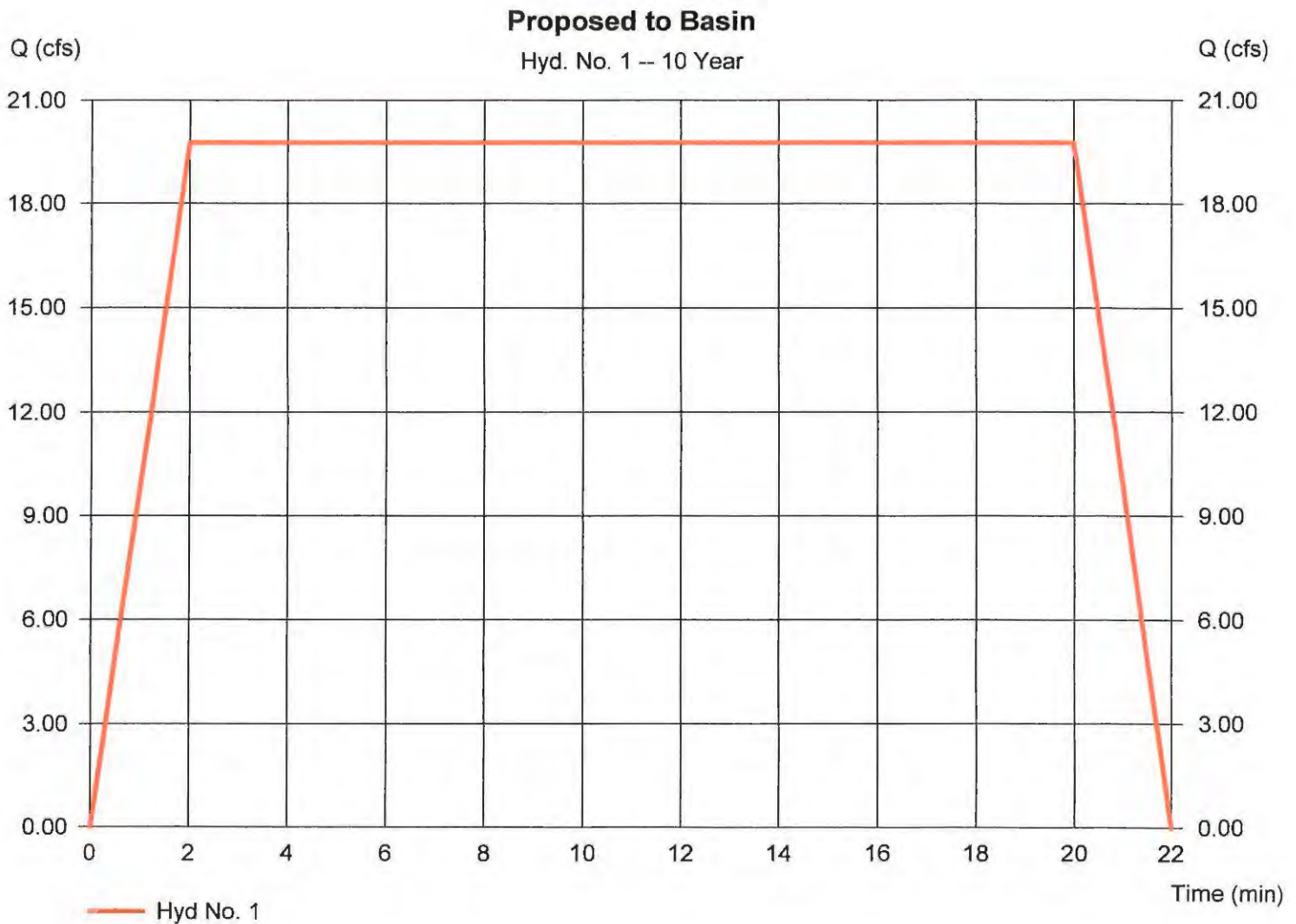
Friday, Apr 3, 2009

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 15 yrs
Time interval = 1 min

Peak discharge = 19.77 cfs
Time to peak = 2 min
Hyd. volume = 23,725 cuft



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 2

Detention Basin

Hydrograph type	= Reservoir	Peak discharge	= 6.855 cfs
Storm frequency	= 1 ¹ / ₂ yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 14,628 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 574.31 ft	Max. Storage	= 18,055 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
18	19.77 <<	574.10	6.370	4.634	1.658	----	----	----	----	----	----	6.292
19	19.77 <<	574.18	6.611	4.690	1.829	----	----	----	----	----	----	6.519
20	19.77 <<	574.25	6.777	4.744	1.985	----	----	----	----	----	----	6.730
21	9.890	574.30 <<	6.858	4.778	2.077	----	----	----	----	----	----	6.855 <<
22	0.000	574.29	6.839	4.770	2.056	----	----	----	----	----	----	6.825
23	0.000	574.25	6.771	4.742	1.978	----	----	----	----	----	----	6.720
24	0.000	574.21	6.704	4.714	1.902	----	----	----	----	----	----	6.616
25	0.000	574.17	6.598	4.687	1.820	----	----	----	----	----	----	6.507
26	0.000	574.13	6.482	4.660	1.738	----	----	----	----	----	----	6.398
27	0.000	574.10	6.368	4.633	1.656	----	----	----	----	----	----	6.289
28	0.000	574.06	6.256	4.607	1.564	----	----	----	----	----	----	6.171

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

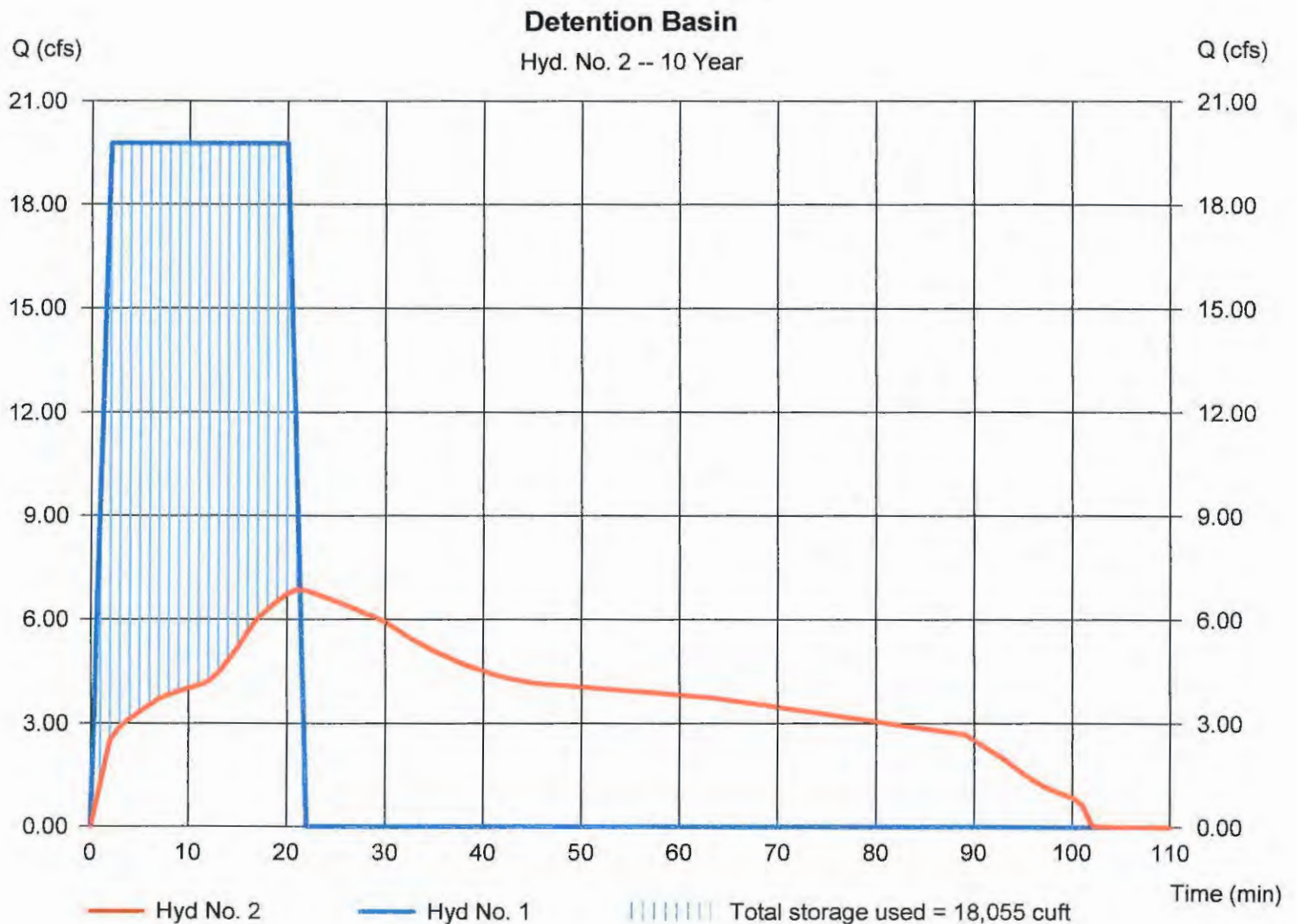
Hyd. No. 2

Detention Basin

Hydrograph type = Reservoir
Storm frequency = 15 yrs
Time interval = 1 min
Inflow hyd. No. = 1 - Proposed to Basin
Reservoir name = Rev. Basin - No Swale

Peak discharge = 6.855 cfs
Time to peak = 21 min
Hyd. volume = 23,724 cuft
Max. Elevation = 574.31 ft
Max. Storage = 18,055 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 3

Low Flow Blocked

Hydrograph type	= Reservoir	Peak discharge	= 2.766 cfs
Storm frequency	= 15 yrs	Time to peak	= 22 min
Time interval	= 1 min	Hyd. volume	= 4,086 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 574.73 ft	Max. Storage	= 22,475 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
19	19.77 <<	574.54	2.524	----	2.494	----	----	----	----	----	----	2.494
20	19.77 <<	574.64	2.672	----	2.646	----	----	----	----	----	----	2.646
21	9.890	574.71	2.815	----	2.749	----	----	----	----	----	----	2.749
22	0.000	574.72 <<	2.829	----	2.767	----	----	----	----	----	----	2.766 <<
23	0.000	574.70	2.811	----	2.744	----	----	----	----	----	----	2.744
24	0.000	574.69	2.782	----	2.721	----	----	----	----	----	----	2.721
25	0.000	574.67	2.749	----	2.698	----	----	----	----	----	----	2.698
26	0.000	574.66	2.715	----	2.675	----	----	----	----	----	----	2.675
27	0.000	574.64	2.682	----	2.653	----	----	----	----	----	----	2.653
28	0.000	574.63	2.649	----	2.630	----	----	----	----	----	----	2.630
29	0.000	574.61	2.617	----	2.608	----	----	----	----	----	----	2.608
30	0.000	574.60	2.587	----	2.586	----	----	----	----	----	----	2.586
31	0.000	574.58	2.571	----	2.562	----	----	----	----	----	----	2.562
32	0.000	574.57	2.555	----	2.539	----	----	----	----	----	----	2.539
33	0.000	574.55	2.540	----	2.517	----	----	----	----	----	----	2.517
34	0.000	574.54	2.524	----	2.494	----	----	----	----	----	----	2.494

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

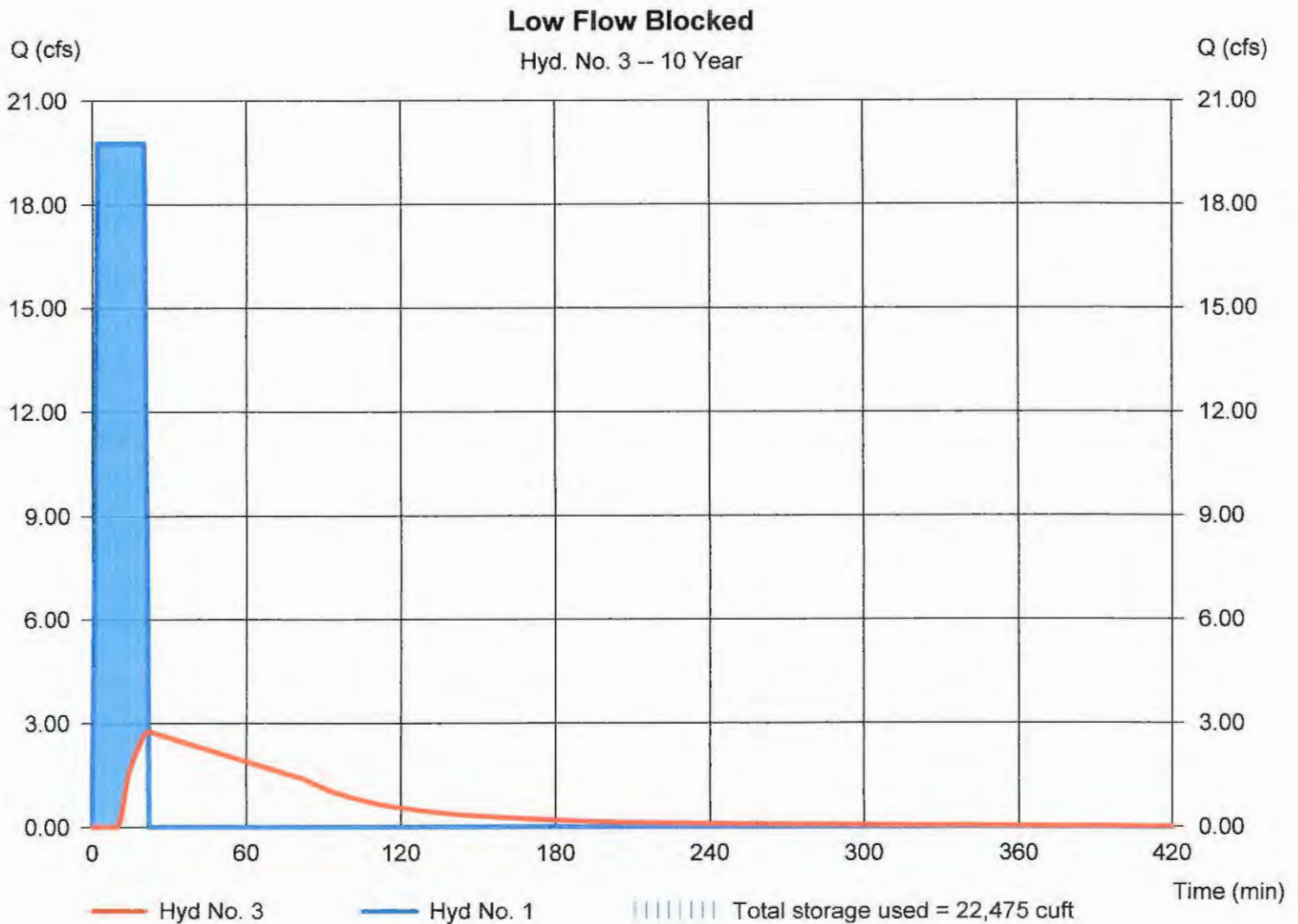
Hyd. No. 3

Low Flow Blocked

Hydrograph type = Reservoir
Storm frequency = 15 yrs
Time interval = 1 min
Inflow hyd. No. = 1 - Proposed to Basin
Reservoir name = Rev. Basin - No Swale LFB

Peak discharge = 2.766 cfs
Time to peak = 22 min
Hyd. volume = 13,182 cuft
Max. Elevation = 574.73 ft
Max. Storage = 22,475 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 4

With 2yr sediment

Hydrograph type	= Reservoir	Peak discharge	= 6.880 cfs
Storm frequency	= 15 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 14,628 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 574.32 ft	Max. Storage	= 18,017 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
18	19.77 <<	574.11	6.402	4.642	1.681	----	----	----	----	----	----	6.323
19	19.77 <<	574.19	6.643	4.697	1.852	----	----	----	----	----	----	6.549
20	19.77 <<	574.26	6.794	4.752	2.005	----	----	----	----	----	----	6.757
21	9.890	574.31 <<	6.884	4.784	2.096	----	----	----	----	----	----	6.880 <<
22	0.000	574.30	6.855	4.777	2.075	----	----	----	----	----	----	6.852
23	0.000	574.26	6.787	4.749	1.997	----	----	----	----	----	----	6.746
24	0.000	574.22	6.720	4.721	1.921	----	----	----	----	----	----	6.642
25	0.000	574.18	6.627	4.694	1.841	----	----	----	----	----	----	6.534
26	0.000	574.14	6.510	4.667	1.758	----	----	----	----	----	----	6.424
27	0.000	574.11	6.395	4.640	1.676	----	----	----	----	----	----	6.316
28	0.000	574.07	6.283	4.613	1.586	----	----	----	----	----	----	6.200

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

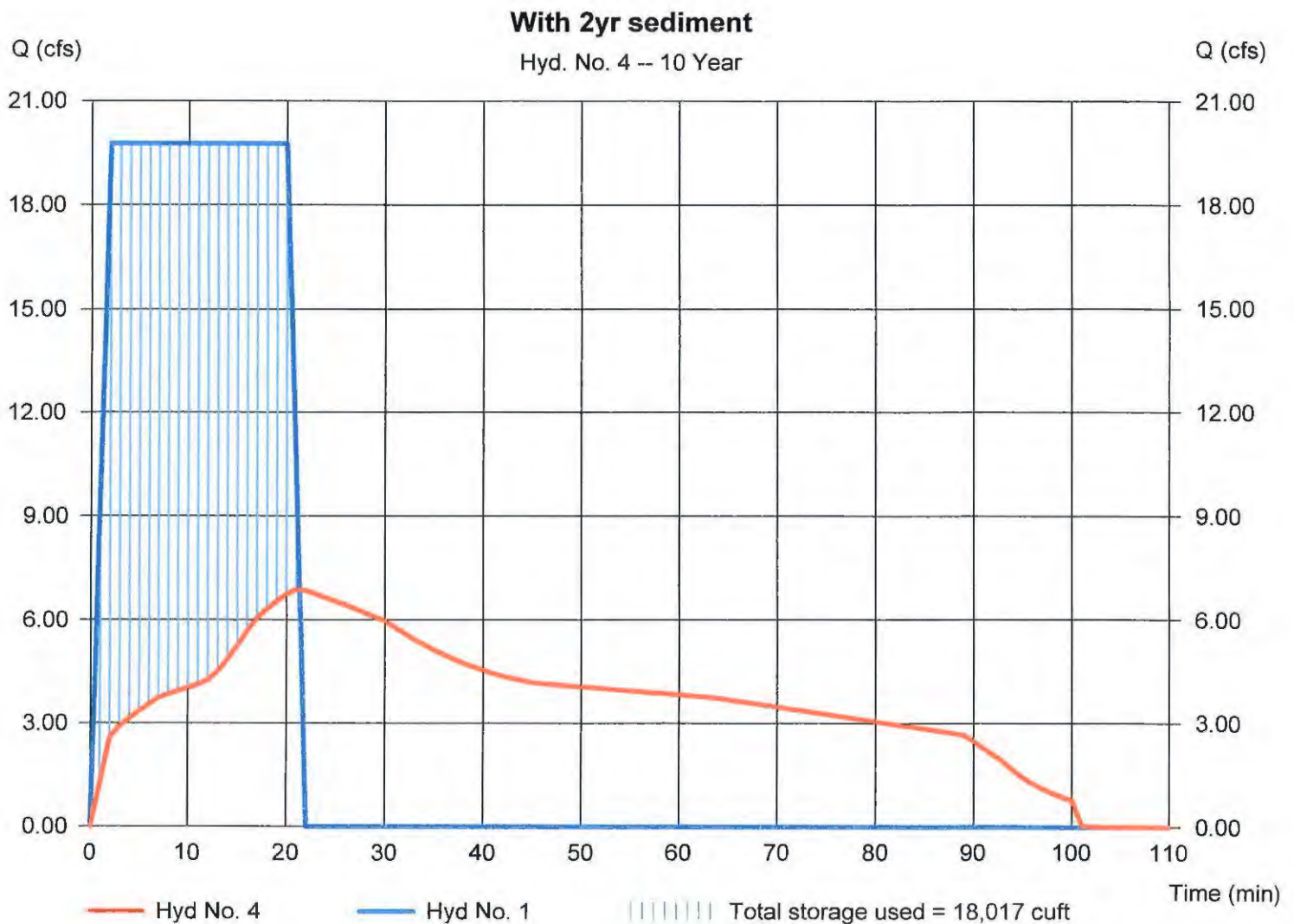
Friday, Apr 3, 2009

Hyd. No. 4

With 2yr sediment

Hydrograph type	= Reservoir	Peak discharge	= 6.880 cfs
Storm frequency	= 15 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 23,724 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Max. Elevation	= 574.32 ft
Reservoir name	= Rev. Basin - No Swale W/sediment	Max. Storage	= 18,017 cuft

Storage Indication method used.



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. o.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	Manual	24.34	1	2	29,208	----	-----	-----	Proposed to Basin
2	Reservoir	7.828	1	21	29,208	1	574.75	22,663	Detention Basin
3	Reservoir	3.358	1	22	18,666	1	575.19	27,419	Low Flow Blocked
4	Reservoir	7.848	1	21	29,208	1	574.76	22,628	With 2yr sediment
98-380.gpw					Return Period: 25 Year			Friday, Apr 3, 2009	

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 25 yrs
Time interval = 1 min

Peak discharge = 24.34 cfs
Time to peak = 2 min
Hyd. volume = 14,629 cuft

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time -- Outflow (min cfs)

2	24.34 <<
3	24.34 <<
4	24.34 <<
5	24.34 <<
6	24.34 <<
7	24.34 <<
8	24.34 <<
9	24.34 <<
10	24.34 <<
11	24.34 <<
12	24.34 <<
13	24.34 <<
14	24.34 <<
15	24.34 <<
16	24.34 <<
17	24.34 <<
18	24.34 <<
19	24.34 <<
20	24.34 <<

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

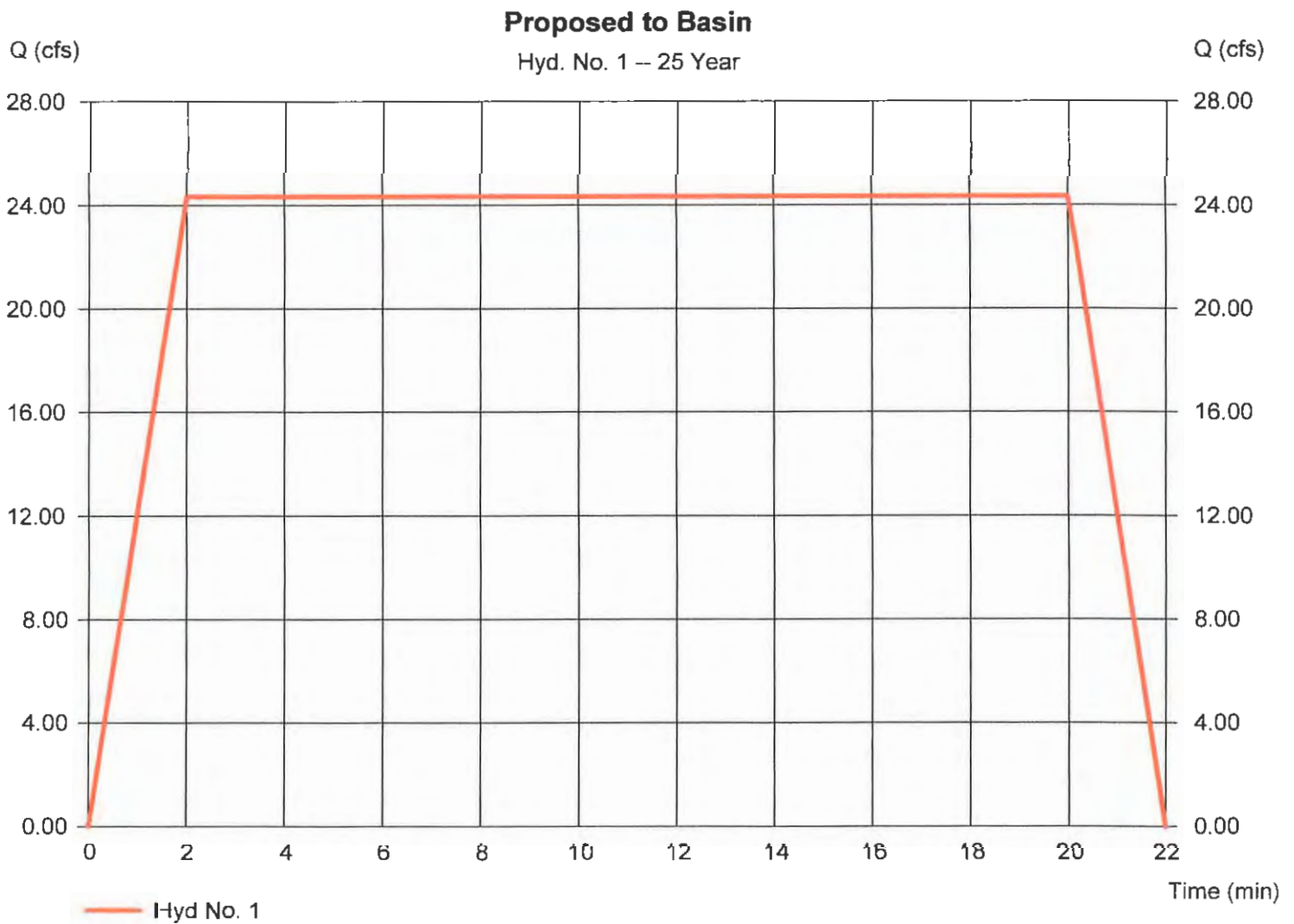
Friday, Apr 3, 2009

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 25 yrs
Time interval = 1 min

Peak discharge = 24.34 cfs
Time to peak = 2 min
Hyd. volume = 29,208 cuft



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 2

Detention Basin

Hydrograph type	= Reservoir	Peak discharge	= 7.828 cfs
Storm frequency	= 25 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 14,628 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 574.75 ft	Max. Storage	= 22,663 cuft

Storage Indication method used.

(Printed values >= 90.00% of Qp.)

Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
17	24.34 <<	574.39	7.122	4.840	2.239	----	----	----	----	----	----	7.080
18	24.34 <<	574.48	7.311	4.897	2.407	----	----	----	----	----	----	7.304
19	24.34 <<	574.58	7.587	4.947	2.562	----	----	----	----	----	----	7.509
20	24.34 <<	574.68	7.767	5.002	2.706	----	----	----	----	----	----	7.707
21	12.17	574.74 <<	7.863	5.036	2.792	----	----	----	----	----	----	7.828 <<
22	0.000	574.73	7.847	5.031	2.778	----	----	----	----	----	----	7.809
23	0.000	574.68	7.776	5.005	2.714	----	----	----	----	----	----	7.719
24	0.000	574.64	7.705	4.980	2.649	----	----	----	----	----	----	7.628
25	0.000	574.60	7.630	4.955	2.584	----	----	----	----	----	----	7.538
26	0.000	574.55	7.500	4.933	2.516	----	----	----	----	----	----	7.449
27	0.000	574.51	7.370	4.911	2.449	----	----	----	----	----	----	7.360
28	0.000	574.47	7.283	4.888	2.380	----	----	----	----	----	----	7.268
29	0.000	574.43	7.210	4.865	2.310	----	----	----	----	----	----	7.175
30	0.000	574.39	7.122	4.840	2.239	----	----	----	----	----	----	7.080

...End

Hydrograph Report

Hydraflow Hydrographs by Intellisolve v9.2

Friday, Apr 3, 2009

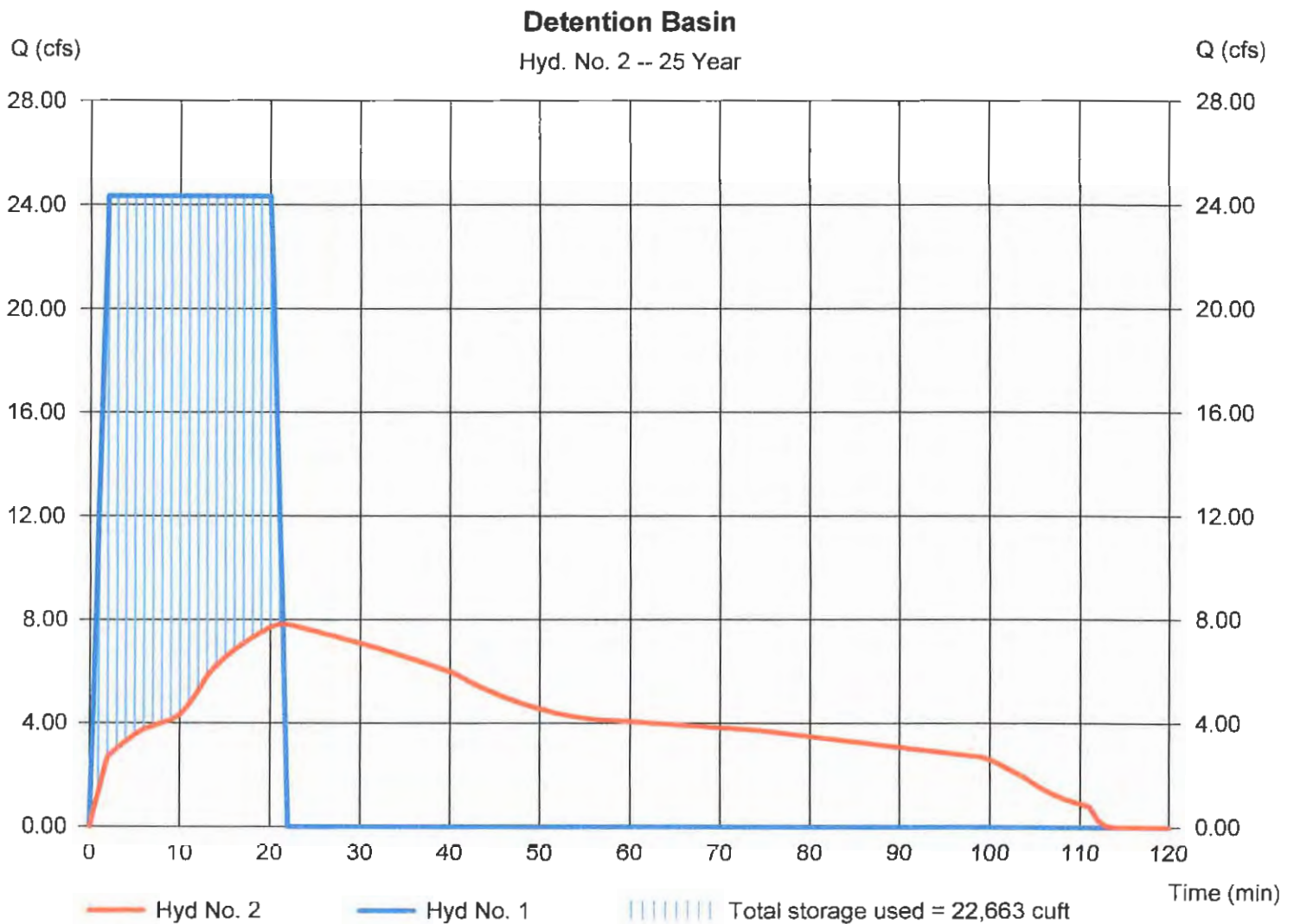
Hyd. No. 2

Detention Basin

Hydrograph type = Reservoir
Storm frequency = 25 yrs
Time interval = 1 min
Inflow hyd. No. = 1 - Proposed to Basin
Reservoir name = Rev. Basin - No Swale

Peak discharge = 7.828 cfs
Time to peak = 21 min
Hyd. volume = 29,208 cuft
Max. Elevation = 574.75 ft
Max. Storage = 22,663 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 3

Low Flow Blocked

Hydrograph type	= Reservoir	Peak discharge	= 3.358 cfs
Storm frequency	= 25 yrs	Time to peak	= 22 min
Time interval	= 1 min	Hyd. volume	= 4,086 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 575.19 ft	Max. Storage	= 27,419 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
19	24.34 <<	574.97	3.117	----	3.103	----	----	----	----	----	----	3.103
20	24.34 <<	575.09	3.253	----	3.246	----	----	----	----	----	----	3.246
21	12.17	575.17	3.350	----	3.341	----	----	----	----	----	----	3.341
22	0.000	575.18 <<	3.368	----	3.358	----	----	----	----	----	----	3.358 <<
23	0.000	575.16	3.346	----	3.337	----	----	----	----	----	----	3.337
24	0.000	575.14	3.324	----	3.316	----	----	----	----	----	----	3.316
25	0.000	575.13	3.303	----	3.295	----	----	----	----	----	----	3.295
26	0.000	575.11	3.282	----	3.274	----	----	----	----	----	----	3.274
27	0.000	575.09	3.261	----	3.253	----	----	----	----	----	----	3.253
28	0.000	575.07	3.240	----	3.232	----	----	----	----	----	----	3.232
29	0.000	575.06	3.220	----	3.211	----	----	----	----	----	----	3.211
30	0.000	575.04	3.199	----	3.190	----	----	----	----	----	----	3.190
31	0.000	575.02	3.179	----	3.169	----	----	----	----	----	----	3.169
32	0.000	575.01	3.159	----	3.149	----	----	----	----	----	----	3.149
33	0.000	574.99	3.138	----	3.127	----	----	----	----	----	----	3.127
34	0.000	574.97	3.117	----	3.104	----	----	----	----	----	----	3.104
35	0.000	574.95	3.096	----	3.081	----	----	----	----	----	----	3.081
36	0.000	574.94	3.076	----	3.058	----	----	----	----	----	----	3.058
37	0.000	574.92	3.055	----	3.036	----	----	----	----	----	----	3.036

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

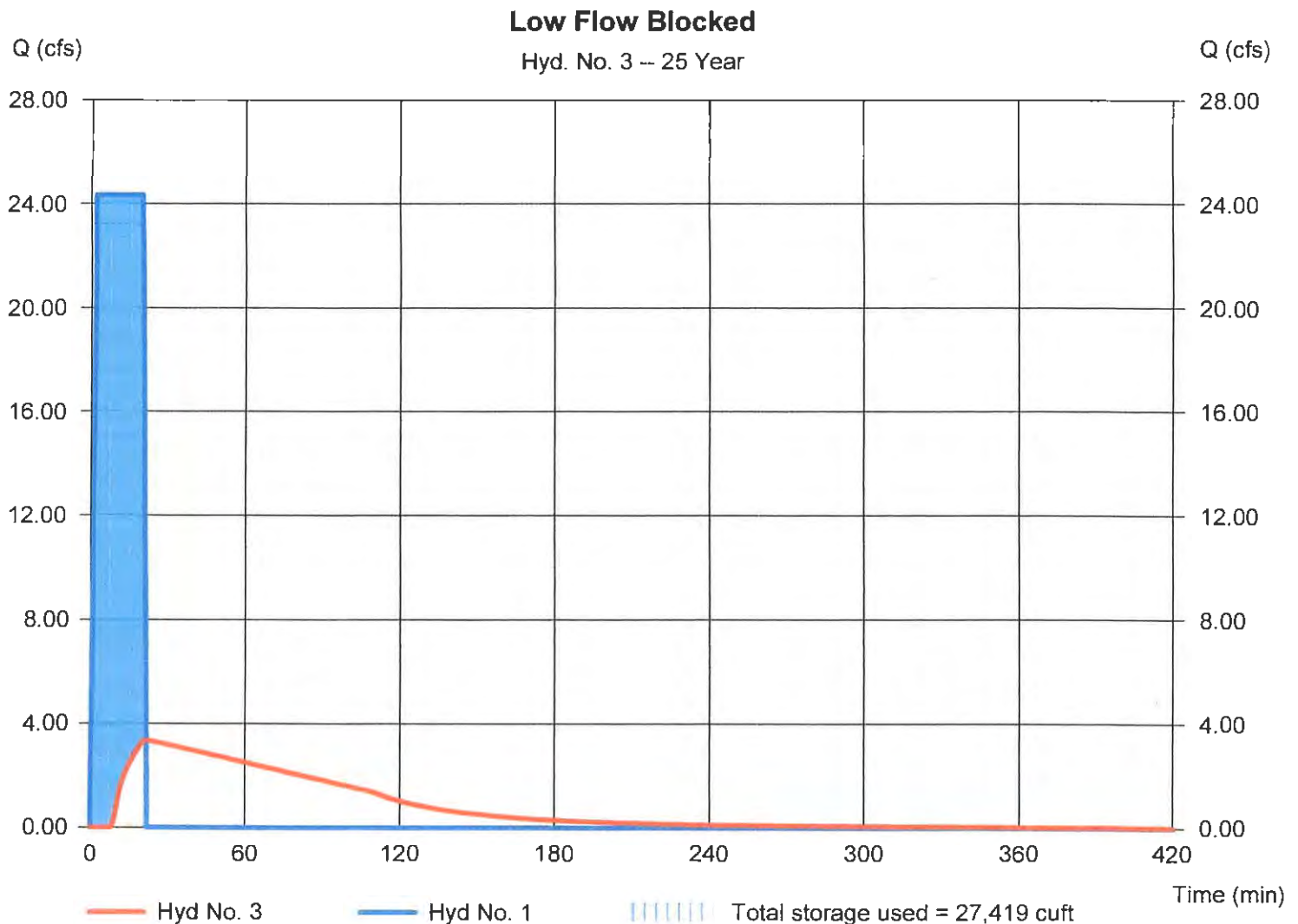
Hyd. No. 3

Low Flow Blocked

Hydrograph type = Reservoir
Storm frequency = 25 yrs
Time interval = 1 min
Inflow hyd. No. = 1 - Proposed to Basin
Reservoir name = Rev. Basin - No Swale LFB

Peak discharge = 3.358 cfs
Time to peak = 22 min
Hyd. volume = 18,666 cuft
Max. Elevation = 575.19 ft
Max. Storage = 27,419 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 4

With 2yr sediment

Hydrograph type	= Reservoir	Peak discharge	= 7.848 cfs
Storm frequency	= 25 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 14,628 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 574.76 ft	Max. Storage	= 22,628 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
17	24.34 <<	574.40	7.154	4.848	2.259	----	----	----	----	----	----	7.107
18	24.34 <<	574.50	7.330	4.903	2.424	----	----	----	----	----	----	7.327
19	24.34 <<	574.59	7.619	4.953	2.578	----	----	----	----	----	----	7.530
20	24.34 <<	574.69	7.783	5.008	2.721	----	----	----	----	----	----	7.728
21	12.17	574.75 <<	7.879	5.042	2.806	----	----	----	----	----	----	7.848 <<
22	0.000	574.74	7.863	5.036	2.792	----	----	----	----	----	----	7.828
23	0.000	574.69	7.791	5.011	2.729	----	----	----	----	----	----	7.739
24	0.000	574.65	7.721	4.985	2.663	----	----	----	----	----	----	7.648
25	0.000	574.61	7.651	4.960	2.598	----	----	----	----	----	----	7.558
26	0.000	574.56	7.529	4.938	2.531	----	----	----	----	----	----	7.469
27	0.000	574.52	7.399	4.916	2.464	----	----	----	----	----	----	7.380
28	0.000	574.48	7.299	4.893	2.395	----	----	----	----	----	----	7.289
29	0.000	574.44	7.226	4.870	2.325	----	----	----	----	----	----	7.196
30	0.000	574.40	7.149	4.847	2.256	----	----	----	----	----	----	7.102

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

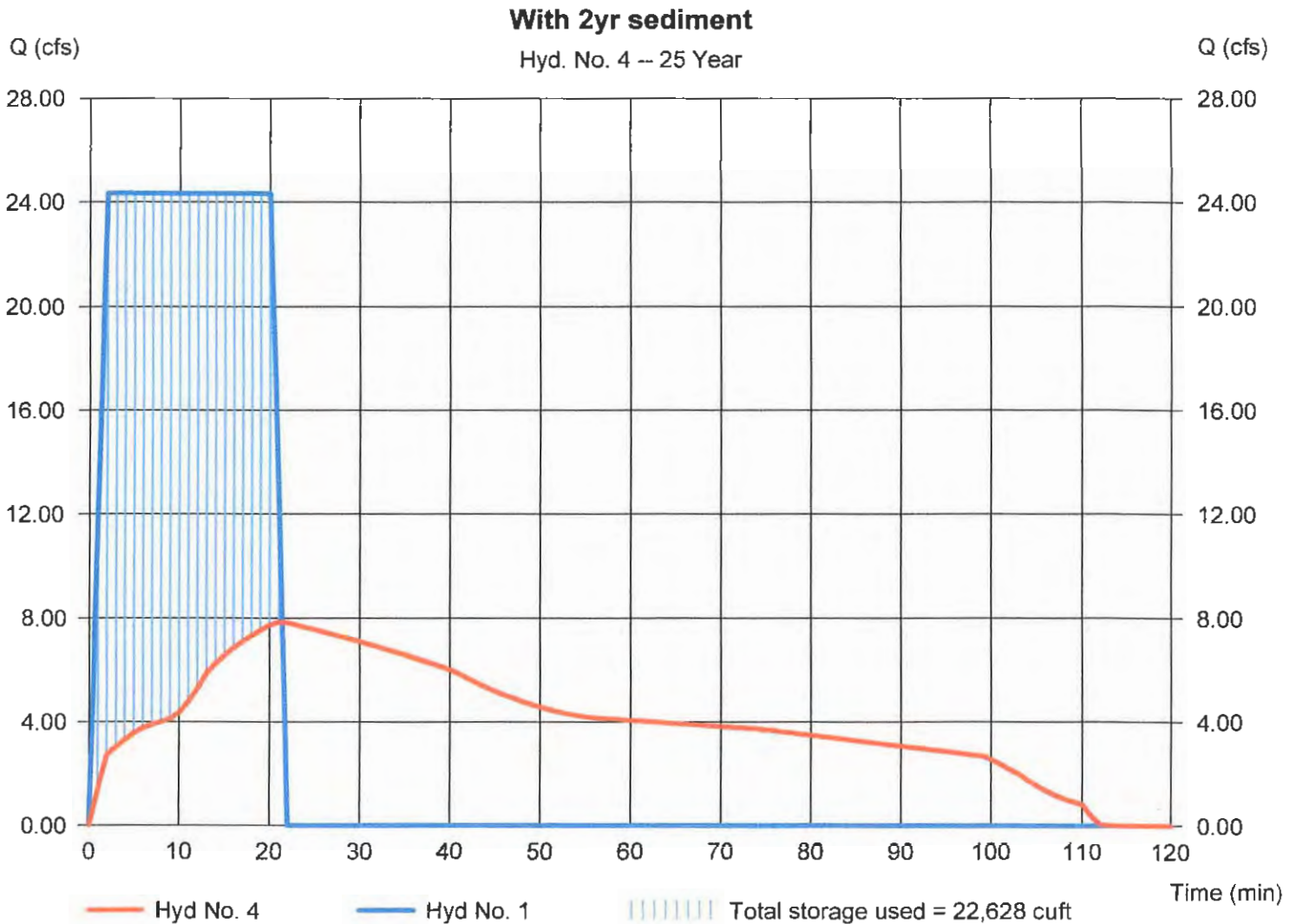
Friday, Apr 3, 2009

Hyd. No. 4

With 2yr sediment

Hydrograph type	= Reservoir	Peak discharge	= 7.848 cfs
Storm frequency	= 25 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 29,208 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Max. Elevation	= 574.76 ft
Reservoir name	= Rev. Basin - No Swale W/sediment	Max. Storage	= 22,628 cuft

Storage Indication method used.



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. no.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description	
1	Manual	31.20	1	2	37,440	—	—	—	Proposed to Basin	
2	Reservoir	10.01	1	21	37,440	1	575.40	29,715	Detention Basin	
3	Reservoir	14.97	1	21	26,898	1	575.71	33,413	Low Flow Blocked	
4	Reservoir	10.13	1	21	37,440	1	575.41	29,672	With 2yr sediment	
98-380.gpw					Return Period: 100 Year			Friday, Apr 3, 2009		

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 100 yrs
Time interval = 1 min

Peak discharge = 31.20 cfs
Time to peak = 2 min
Hyd. volume = 14,629 cuft

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time -- Outflow
(min cfs)

2	31.20 <<
3	31.20 <<
4	31.20 <<
5	31.20 <<
6	31.20 <<
7	31.20 <<
8	31.20 <<
9	31.20 <<
10	31.20 <<
11	31.20 <<
12	31.20 <<
13	31.20 <<
14	31.20 <<
15	31.20 <<
16	31.20 <<
17	31.20 <<
18	31.20 <<
19	31.20 <<
20	31.20 <<

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

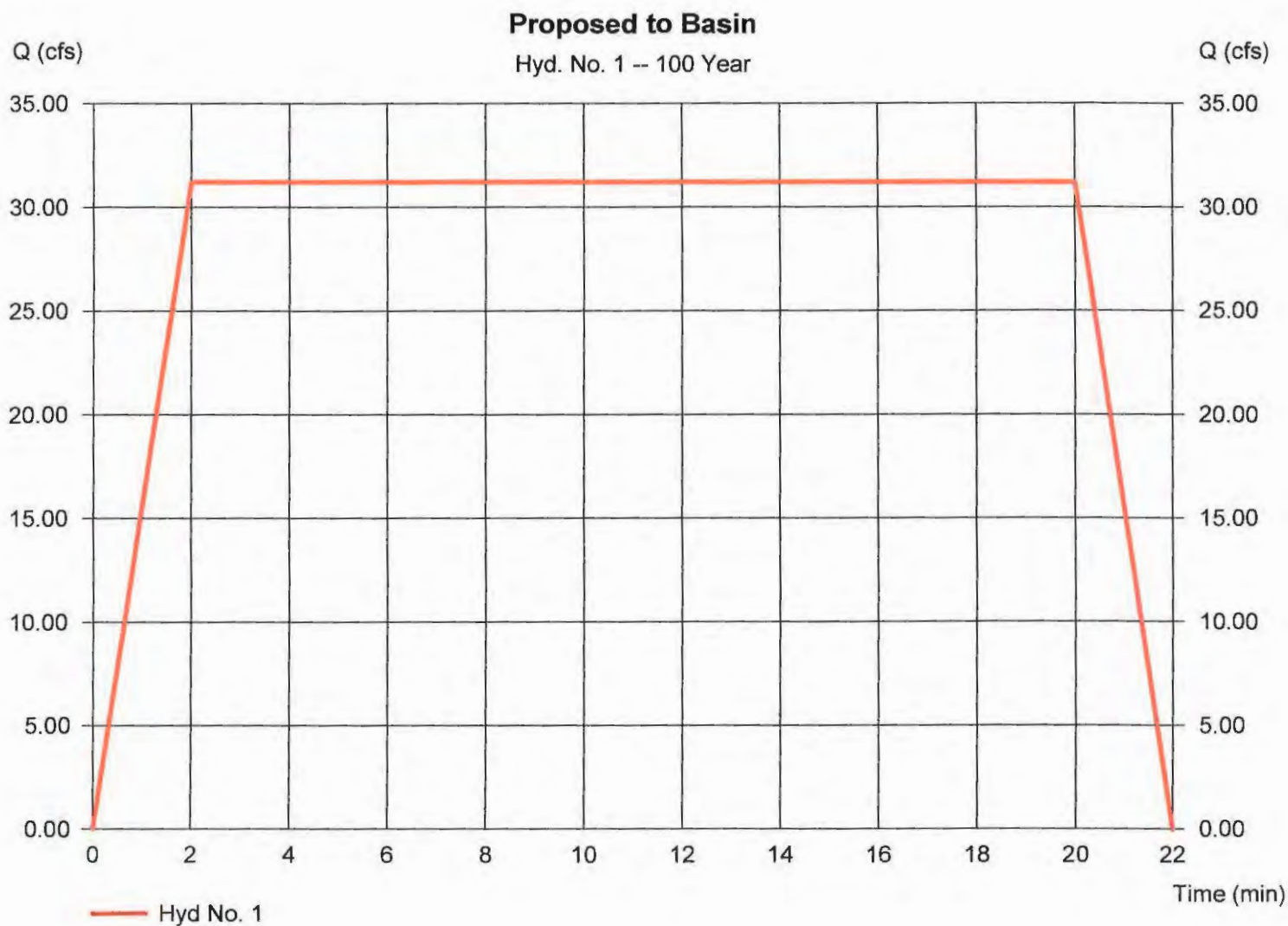
Friday, Apr 3, 2009

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 100 yrs
Time interval = 1 min

Peak discharge = 31.20 cfs
Time to peak = 2 min
Hyd. volume = 37,440 cuft



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 2

Detention Basin

Hydrograph type	= Reservoir	Peak discharge	= 10.01 cfs
Storm frequency	= 100 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 14,628 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 575.40 ft	Max. Storage	= 29,715 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 90.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
21	15.60	575.38 <<	10.06	5.324	3.589	----	1.100	----	----	----	----	10.01 <<
22	0.000	575.37	9.906	5.326	3.577	----	0.950	----	----	----	----	9.853
23	0.000	575.32	9.209	5.335	3.520	----	0.282	----	----	----	----	9.139

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

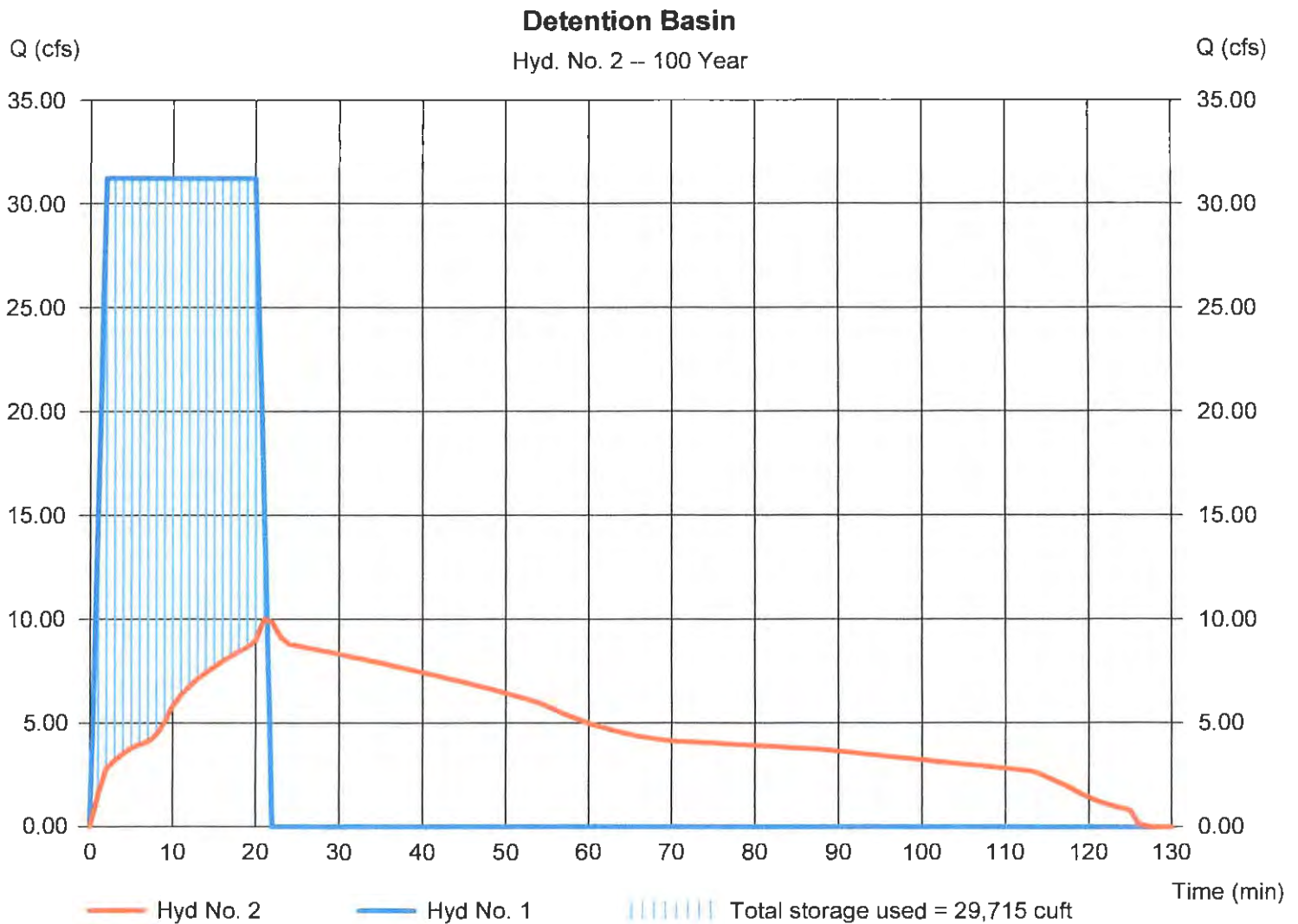
Hyd. No. 2

Detention Basin

Hydrograph type = Reservoir
Storm frequency = 100 yrs
Time interval = 1 min
Inflow hyd. No. = 1 - Proposed to Basin
Reservoir name = Rev. Basin - No Swale

Peak discharge = 10.01 cfs
Time to peak = 21 min
Hyd. volume = 37,440 cuft
Max. Elevation = 575.40 ft
Max. Storage = 29,715 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

Hyd. No. 3

Low Flow Blocked

Hydrograph type	= Reservoir	Peak discharge	= 14.97 cfs
Storm frequency	= 100 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 4,086 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Reservoir name	= Rev. Basin - No S
Max. Elevation	= 575.71 ft	Max. Storage	= 33,413 cuft

Storage Indication method used.

(Printed values >= 90.00% of Qp.)

Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
21	15.60	575.71 <<	14.97	----	3.933	----	11.04	----	----	----	----	14.97 <<
22	0.000	575.68	13.61	----	3.898	----	9.707	----	----	----	----	13.60

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

Friday, Apr 3, 2009

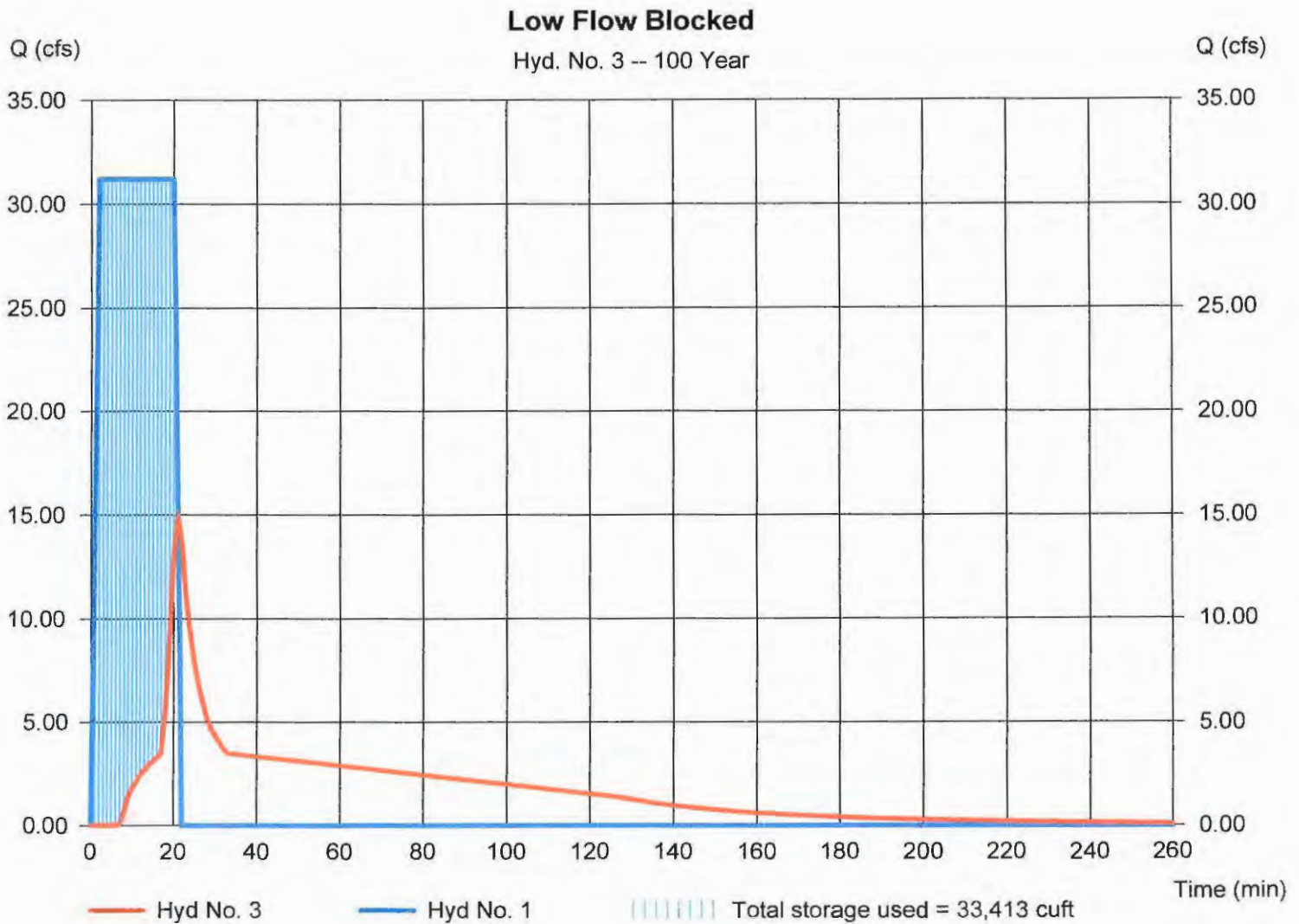
Hyd. No. 3

Low Flow Blocked

Hydrograph type = Reservoir
Storm frequency = 100 yrs
Time interval = 1 min
Inflow hyd. No. = 1 - Proposed to Basin
Reservoir name = Rev. Basin - No Swale LFB

Peak discharge = 14.97 cfs
Time to peak = 21 min
Hyd. volume = 26,898 cuft
Max. Elevation = 575.71 ft
Max. Storage = 33,413 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2

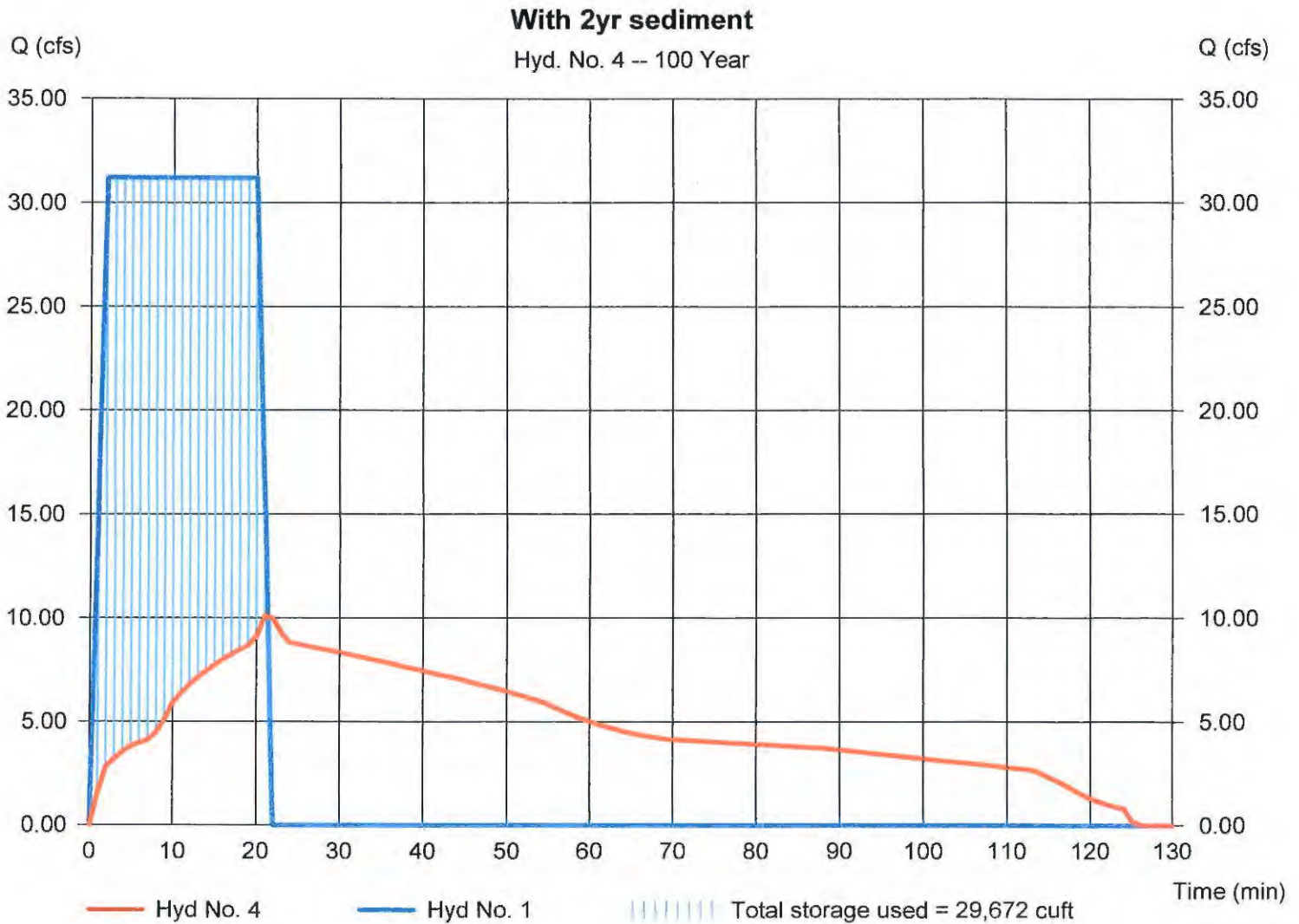
Friday, Apr 3, 2009

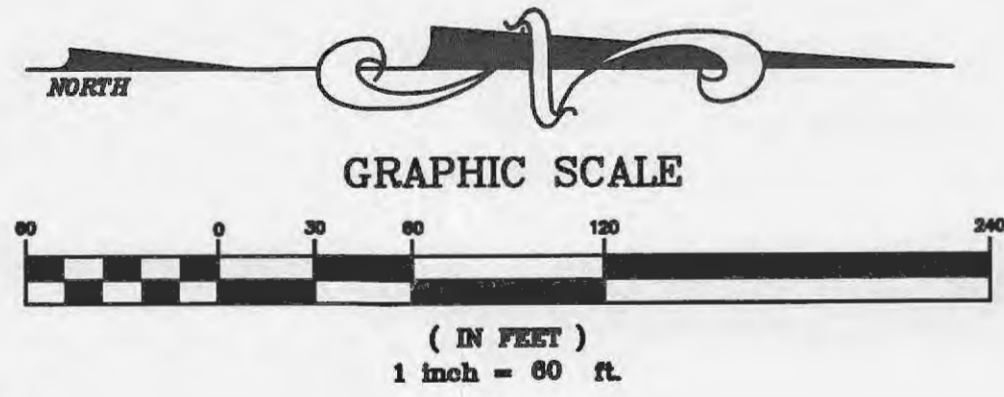
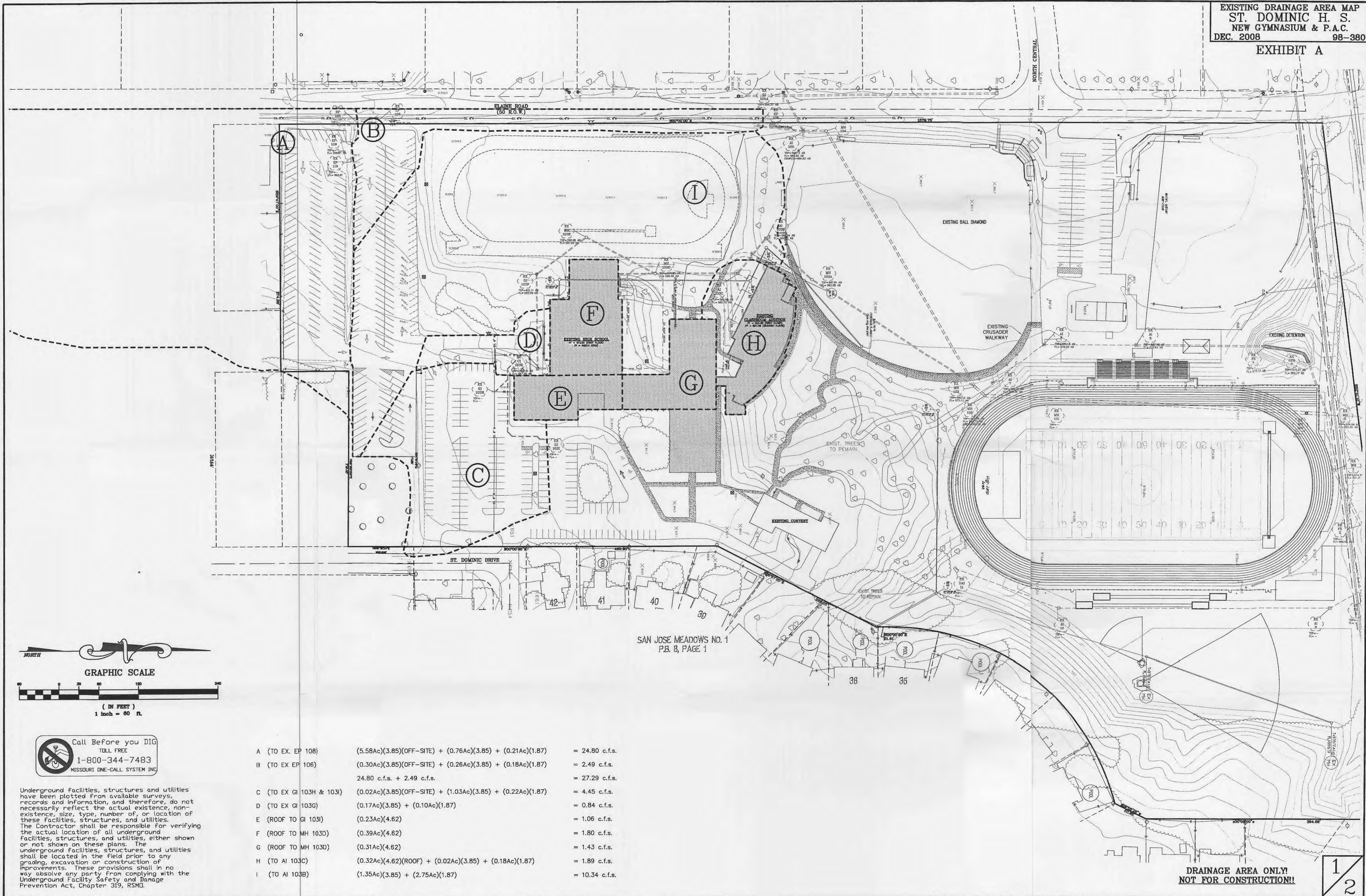
Hyd. No. 4

With 2yr sediment

Hydrograph type	= Reservoir	Peak discharge	= 10.13 cfs
Storm frequency	= 100 yrs	Time to peak	= 21 min
Time interval	= 1 min	Hyd. volume	= 37,440 cuft
Inflow hyd. No.	= 1 - Proposed to Basin	Max. Elevation	= 575.41 ft
Reservoir name	= Rev. Basin - No Swale W/sediment	Max. Storage	= 29,672 cuft

Storage Indication method used.



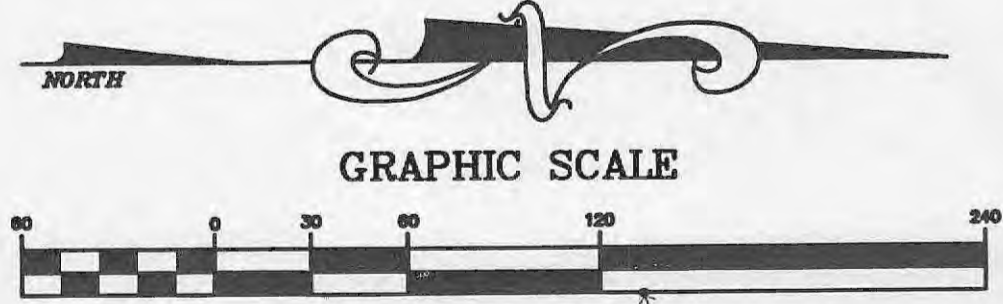
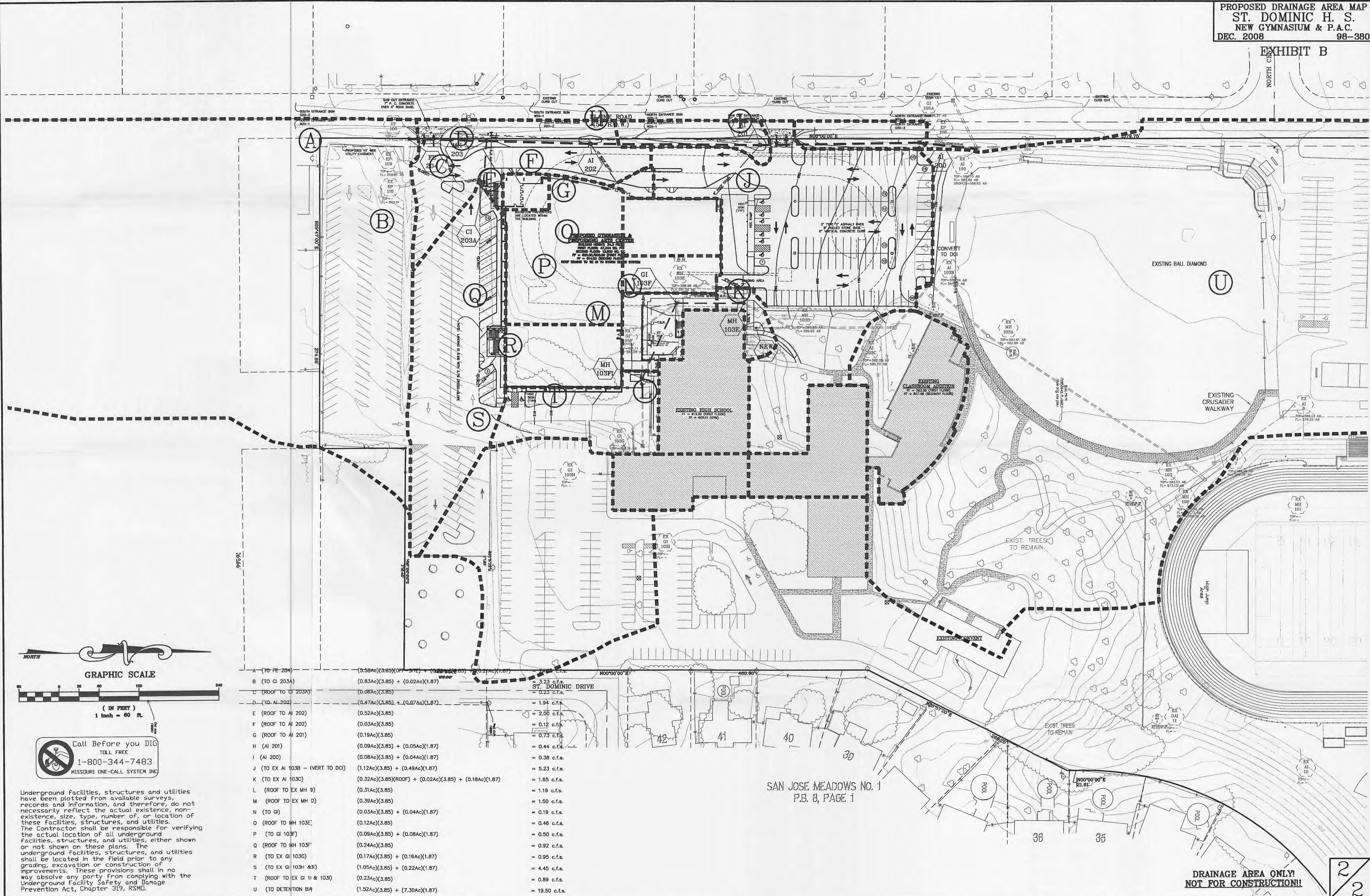


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	24.80 c.f.s. + 2.49 c.f.s.	= 27.29 c.f.s.
C (TO EX. GI 103H & 103I)	(0.02Ac)(3.85)(OFF-SITE) + (1.03Ac)(3.85) + (0.22Ac)(1.87)	= 4.45 c.f.s.
D (TO EX. GI 103G)	(0.17Ac)(3.85) + (0.10Ac)(1.87)	= 0.84 c.f.s.
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F (ROOF TO MH 103D)	(0.39Ac)(4.62)	= 1.80 c.f.s.
G (ROOF TO MH 103D)	(0.31Ac)(4.62)	= 1.43 c.f.s.
H (TO AI 103C)	(0.32Ac)(4.62)(ROOF) + (0.02Ac)(3.85) + (0.18Ac)(1.87)	= 1.89 c.f.s.
I (TO AI 103B)	(1.35Ac)(3.85) + (2.75Ac)(1.87)	= 10.34 c.f.s.

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A (TO PE 204)	(5.58Ac)(3.85)(OFF-311C) + (3.23Ac)(1.87)	3.23 c.f.s.
B (TO CI 203A)	(0.83Ac)(3.85) + (0.02Ac)(1.87)	0.23 c.f.s.
C (ROOF TO CI 203A)	(0.05Ac)(3.85)	1.94 c.f.s.
D (TO AI 202)	(0.47Ac)(3.85) + (0.07Ac)(1.87)	2.00 c.f.s.
E (ROOF TO AI 202)	(0.52Ac)(3.85)	0.12 c.f.s.
F (ROOF TO AI 201)	(0.03Ac)(3.85)	0.73 c.f.s.
G (ROOF TO AI 201)	(0.19Ac)(3.85)	0.44 c.f.s.
H (AI 201)	(0.09Ac)(3.85) + (0.05Ac)(1.87)	0.38 c.f.s.
I (AI 200)	(0.08Ac)(3.85) + (0.04Ac)(1.87)	5.23 c.f.s.
J (TO EX AI 103B - (VERT TO DCI))	(1.12Ac)(3.85) + (0.49Ac)(1.87)	1.65 c.f.s.
K (TO EX AI 103C)	(0.32Ac)(3.85)(ROOF) + (0.02Ac)(3.85) + (0.18Ac)(1.87)	1.19 c.f.s.
L (ROOF TO EX MH 1)	(0.31Ac)(3.85)	1.50 c.f.s.
M (ROOF TO EX MH D)	(0.39Ac)(3.85)	0.19 c.f.s.
N (TO GI)	(0.03Ac)(3.85) + (0.04Ac)(1.87)	0.19 c.f.s.
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R (TO EX GI 103G)	(0.17Ac)(3.85) + (0.16Ac)(1.87)	0.95 c.f.s.
S (TO EX GI 103H & I)	(1.05Ac)(3.85) + (0.22Ac)(1.87)	4.45 c.f.s.
T (ROOF TO EX GI 11 & 103)	(0.23Ac)(3.85)	0.89 c.f.s.
U (TO DETENTION BA)	(1.52Ac)(3.85) + (7.30Ac)(1.87)	19.50 c.f.s.

SAN JOSE MEADOWS NO. 1
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