ENGINEERING

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STORMWATER DETENTION ANALYSIS

REPORT FOR

LIVING WORD CHRISTIAN SCHOOL

O'Fallon, Missouri

Prepared By: BAX ENGINEERING CO. INC.

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INTRODUCTION:

The purpose of this report is to analyze the storm water detention basins proposed for Living Word Christian School as shown on a plan prepared by Bax Engineering Co. Inc. Two basins are proposed for this development. This site is divided into two subwatersheds which both discharge to a common tributary of Belleau Creek at Tom Ginnever Road. Two basins will provide the necessary attenuation a "West Basin" which is located in the Northwest corner of the site and an "East Basin" which is located in the Southeast corner of the site. The storage volume and outflow rates have been proportioned to insure that the peak rate of runoff leaving the site under post-developed conditions does not exceed the peak rate of runoff leaving the site under pre-developed conditions. The basins have been analyzed to allow the passage of a 100 year frequency-20 minute design storm. The attached calculations are based on the four design storms listed below:

- 2 year frequency-20 minute duration design storm.
- 15 year frequency-20 minute duration design storm.
- 25 year frequency-20 minute duration design storm
- 100 year frequency-20 minute duration design storm

The proposed basins have been designed to provide detention for portions of the future offsite commercial and industrial developments within this watershed. The Basins have been analyzed for the following conditions.

- Ultimate Development – Total development of the School and the future commercial and industrial sites.
- Proposed Development – Ultimate development of the School site.

The storm runoff from these future commercial and industrial sites will be collected into a storm drainage system and piped to the detention basins. Detention has not been provided for any additional development of the future commercial and industrial areas outside of the area indicated on the offsite drainage area map (see "Exhibit A" attached).

TIME OF CONCENTRATION CALCULATIONS:

West Drainage Area

The most remote point of this drainage area is located 1,800 feet Northwest of the outlet. The difference in elevation of this remote point and the outlet is 35 feet. Using this information the time of concentration was calculated as follows:

L = 1,800 feet
S = 35 feet / 1,800 feet = 0.019
$t_c = (0.0078)\ (L/S^{0.5})^{0.77}$ = 11.52 minutes

East Drainage Area

The most remote point of the drainage area is located 1,300 feet Northeast of the basin outlet. The difference in elevation of this remote point and the basin outlet is 30 feet. Using this information the time of concentration was calculated as follows:

L = 1,300 feet
S = 30 feet / 1,300 feet = 0.0231
$t_c = (0.0078)\ (L/S^{0.5})^{0.77}$ = 8.31 minutes

ULTIMATE DEVELOPMENT

Attenuation and Permitted Release Rate Calculations:

WEST Basin 2 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	1.15 cfs/acre	23.00 cfs
7.00 acres	5%	1.15 cfs/acre	8.05 cfs
4.90 acres	5%	1.15 cfs/acre	5.64 cfs
14.28 acres	5%	1.15 cfs/acre	16.42 cfs
Total Q			**53.11 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	100%	2.39 cfs/acre	47.80 cfs
7.00 acres	5%	1.15 cfs/acre	8.05 cfs
4.90 acres	5%	1.15 cfs/acre	5.64 cfs
5.67 acres	100%	2.39 cfs/acre	13.55 cfs
5.39 acres	5%	1.15 cfs/acre	6.20 cfs
Total Q			**81.23 cfs**

Flow to WEST Basin:

Area	% impervious	C.I. Factor	Q
20.00 acres	100%	2.39 cfs/acre	47.80 cfs
7.00 acres	5%	1.15 cfs/acre	8.05 cfs
0.87 acres	5%	1.15 cfs/acre	1.00 cfs
Total Q			**56.85 cfs**

ULTIMATE DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

EAST Basin 2 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	1.15 cfs/acre	7.76 cfs
10.80 acres	5%	1.15 cfs/acre	12.42 cfs
5.71 acres	5%	1.15 cfs/acre	6.57 cfs
Total Q			**26.75 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	100%	2.39 cfs/acre	16.13 cfs
10.80 acres	100%	2.39 cfs/acre	25.81 cfs
4.29 acres	100%	2.39 cfs/acre	10.25 cfs
4.64 acres	5%	1.15 cfs/acre	5.34 cfs
Total Q			**57.53 cfs**

Flow to EAST Basin:

Area	% impervious	C.I. Factor	Q
6.75 acres	100%	2.39 cfs/acre	16.13 cfs
10.80 acres	100%	2.39 cfs/acre	25.81 cfs
2.69 acres	100%	2.39 cfs/acre	6.43 cfs
4.04 acres	5%	1.15 cfs/acre	4.65 cfs
Total Q			**53.02 cfs**

Required Attenuation:

Attenuation = $(Q_{\text{post-developed West Basin}} + Q_{\text{post-developed East Basin}})$
$- (Q_{\text{pre-developed West Basin}} + Q_{\text{pre-developed East Basin}})$
= (81.23 cfs + 57.53 cfs) - (53.11 cfs + 26.75 cfs)

Attenuation = 58.90 cfs

Permitted Release rate:

Permitted Release Rate = $(Q_{\text{in-flow to West Basin}} + Q_{\text{in-flow to East Basin}})$ – Attenuation
= (56.85 cfs +53.02 cfs) – 58.90 cfs

Permitted Release Rate = 50.97 cfs

ULTIMATE DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

WEST Basin 15 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	1.87 cfs/acre	37.40 cfs
7.00 acres	5%	1.87 cfs/acre	13.09 cfs
4.90 acres	5%	1.87 cfs/acre	9.16 cfs
14.28 acres	5%	1.87 cfs/acre	26.70 cfs
Total Q			**86.36 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	100%	3.85 cfs/acre	77.00 cfs
7.00 acres	5%	1.87 cfs/acre	13.09 cfs
4.90 acres	5%	1.87 cfs/acre	9.16 cfs
5.67 acres	100%	3.85 cfs/acre	21.83 cfs
5.39 acres	5%	1.87 cfs/acre	10.08 cfs
Total Q			**131.16 cfs**

Flow to WEST Basin:

Area	% impervious	C.I. Factor	Q
20.00 acres	100%	3.85 cfs/acre	77.00 cfs
7.00 acres	5%	1.87 cfs/acre	13.09 cfs
0.87 acres	5%	1.87 cfs/acre	1.63 cfs
Total Q			**91.72 cfs**

ULTIMATE DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

EAST Basin 15 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	1.87 cfs/acre	12.62 cfs
10.80 acres	5%	1.87 cfs/acre	20.20 cfs
5.71 acres	5%	1.87 cfs/acre	10.68 cfs
Total Q			**43.50 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	100%	3.85 cfs/acre	25.99 cfs
10.80 acres	100%	3.85 cfs/acre	41.58 cfs
4.29 acres	100%	3.85 cfs/acre	16.52 cfs
4.64 acres	5%	1.87 cfs/acre	8.68 cfs
Total Q			**92.76 cfs**

Flow to EAST Basin:

Area	% impervious	C.I. Factor	Q
6.75 acres	100%	3.85 cfs/acre	25.99 cfs
10.80 acres	100%	3.85 cfs/acre	41.58 cfs
2.69 acres	100%	3.85 cfs/acre	10.36 cfs
4.04 acres	5%	1.87 cfs/acre	7.55 cfs
Total Q			**85.48 cfs**

Required Attenuation:

Attenuation = $(Q_{\text{post-developed West Basin}} + Q_{\text{post-developed East Basin}})$
$- (Q_{\text{pre-developed West Basin}} + Q_{\text{pre-developed East Basin}})$
= (131.16 cfs + 92.76 cfs) - (86.36 cfs + 43.50 cfs)

Attenuation = 94.06 cfs

Permitted Release rate:

Permitted Release Rate = $(Q_{\text{in-flow to West Basin}} + Q_{\text{in-flow to East Basin}})$ – Attenuation
= (91.72 cfs + 85.48cfs) – 94.06cfs

Permitted Release Rate = 83.14 cfs

ULTIMATE DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

WEST Basin 25 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	2.37 cfs/acre	47.40 cfs
7.00 acres	5%	2.37 cfs/acre	16.59 cfs
4.90 acres	5%	2.37 cfs/acre	11.61 cfs
14.28 acres	5%	2.37 cfs/acre	33.84 cfs
Total Q			**109.45 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	100%	4.75 cfs/acre	95.00 cfs
7.00 acres	5%	2.37 cfs/acre	16.59 cfs
4.90 acres	5%	2.37 cfs/acre	11.61 cfs
5.67 acres	100%	4.75 cfs/acre	26.93 cfs
5.39 acres	5%	2.37 cfs/acre	12.77 cfs
Total Q			**162.91 cfs**

Flow to Basin:

Area	% impervious	C.I. Factor	Q
20.00 acres	100%	4.75 cfs/acre	95.00 cfs
7.00 acres	5%	2.37 cfs/acre	16.59 cfs
0.87 acres	5%	2.37 cfs/acre	2.06 cfs
Total Q			**113.65 cfs**

ULTIMATE DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

EAST Basin 25 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	2.37 cfs/acre	16.00 cfs
10.80 acres	5%	2.37 cfs/acre	25.60 cfs
5.71 acres	5%	2.37 cfs/acre	13.53 cfs
Total Q			**55.13 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	100%	4.75 cfs/acre	32.06 cfs
10.80 acres	100%	4.75 cfs/acre	51.30 cfs
4.29 acres	100%	4.75 cfs/acre	20.38 cfs
4.64 acres	5%	2.37 cfs/acre	11.00 cfs
Total Q			**114.74 cfs**

Flow to Basin:

Area	% impervious	C.I. Factor	Q
6.75 acres	100%	4.75 cfs/acre	32.06 cfs
10.80 acres	100%	4.75 cfs/acre	51.30 cfs
2.69 acres	100%	4.75 cfs/acre	12.78 cfs
4.04 acres	5%	2.37 cfs/acre	9.57 cfs
Total Q			**105.71 cfs**

Required Attenuation:

Attenuation = $(Q_{\text{post-developed West Basin}} + Q_{\text{post-developed East Basin}})$
$- (Q_{\text{pre-developed West Basin}} + Q_{\text{pre-developed East Basin}})$
= (162.91 cfs + 114.74 cfs) - (109.45 cfs + 55.13 cfs)

Attenuation = 113.07 cfs

Permitted Release rate:

Permitted Release Rate = $(Q_{\text{in-flow to West Basin}} + Q_{\text{in-flow to East Basin}})$ – Attenuation
= (113.65 cfs + 105.71 cfs) – 113.07 cfs

Permitted Release Rate = 106.29 cfs

ULTIMATE DEVELOPMENT

Storm Water Detention Routing Calculations Summary:

A computer program " PONDPACK" was used in routing the design storm through the basin. Results are attached.

2 year – 20 minute storm:

2 year	Inflow	Peak Release	Peak	Top of Berm	Freeboard
20 minute	to Basin	Rate	Elevation	Elevation	
West Basin	56.85 cfs	8.40 cfs	490.25	495.00	4.75 '
East Basin	53.00 cfs	41.17 cfs	481.76	485.50	3.74 '
Total Peak Release Rate		49.57 cfs			
Allowable Peak Release Rate		50.97 cfs			

15 year – 20 minute storm:

15 year	Inflow	Peak Release	Peak	Top of Berm	Freeboard
20 minute	to Basin	Rate	Elevation	Elevation	
West Basin	91.70 cfs	9.56 cfs	491.32	495.00	3.68 '
East Basin	85.50 cfs	65.84 cfs	482.96	485.50	2.54 '
Total Peak Release Rate		75.40 cfs			
Allowable Peak Release Rate		83.14 cfs			

25 year – 20 minute storm:

25 year	Inflow	Peak Release	Peak	Top of Berm	Freeboard
20 minute	to Basin	Rate	Elevation	Elevation	
West Basin	113.70 cfs	10.05 cfs	491.82	495.00	3.18 '
East Basin	105.70 cfs	90.25 cfs	483.34	485.50	2.16 '
Total Peak Release Rate		100.30 cfs			
Allowable Peak Release Rate		106.29 cfs			

ULTIMATE DEVELOPMENT

100 YEAR – 20 MINUTE STORM

This storm was routed assuming the low flow culvert is blocked and water has ponded to the top of the overflow structure.

A computer program " PONDPACK" was used in routing the 100 year – 20 minute duration design storm through the basin. Results are attached.

Summary of results are as follows:

West Basin:

Overflow : 50' grass spillway (Top of Spillway = 484.80)

Peak Release Rate: **110.46 cfs**
Peak Elevation: **493.39**
Top of Berm Elevation: **495.00**

East Basin:

Overflow : Open Top 4' inside diameter manhole (Top of Structure = 482.40)

Peak Release Rate: **129.11 cfs**
Peak Elevation: **484.46**
Top of Berm Elevation: **485.50**

PROPOSED DEVELOPMENT

Attenuation and Permitted Release Rate Calculations:

WEST Basin 2 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	1.15 cfs/acre	23.00 cfs
7.00 acres	5%	1.15 cfs/acre	8.05 cfs
4.90 acres	5%	1.15 cfs/acre	5.64 cfs
14.28 acres	5%	1.15 cfs/acre	16.42 cfs
Total Q			**53.11 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	1.15 cfs/acre	23.00 cfs
7.00 acres	5%	1.15 cfs/acre	8.05 cfs
4.90 acres	5%	1.15 cfs/acre	5.64 cfs
5.67 acres	100%	2.39 cfs/acre	13.55 cfs
5.39 acres	5%	1.15 cfs/acre	6.20 cfs
Total Q			**56.43 cfs**

In-Flow to Basin:

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	1.15 cfs/acre	23.00 cfs
7.00 acres	5%	1.15 cfs/acre	8.05 cfs
0.87 acres	5%	1.15 cfs/acre	1.00 cfs
Total Q			**32.05 cfs**

PROPOSED DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

EAST Basin 2 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	1.15 cfs/acre	7.76 cfs
10.80 acres	5%	1.15 cfs/acre	12.42 cfs
5.71 acres	5%	1.15 cfs/acre	6.57 cfs
Total Q			**26.75 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	1.15 cfs/acre	7.76 cfs
10.80 acres	5%	1.15 cfs/acre	12.42 cfs
4.29 acres	100%	2.39 cfs/acre	10.25 cfs
4.64 acres	5%	1.15 cfs/acre	5.34 cfs
Total Q			**35.77 cfs**

In-Flow to Basin:

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	1.15 cfs/acre	7.76 cfs
10.80 acres	5%	1.15 cfs/acre	12.42 cfs
2.69 acres	100%	2.39 cfs/acre	6.43 cfs
4.04 acres	5%	1.15 cfs/acre	4.65 cfs
Total Q			**31.26 cfs**

Required Attenuation:

Attenuation = $(Q_{\text{post-developed West Basin}} + Q_{\text{post-developed East Basin}})$
$- (Q_{\text{pre-developed West Basin}} + Q_{\text{pre-developed East Basin}})$
= (56.43 cfs + 35.77 cfs) - (53.11 cfs + 26.75 cfs)

Attenuation = 12.34 cfs

Permitted Release rate:

Permitted Release Rate = $(Q_{\text{in-flow to West Basin}} + Q_{\text{in-flow to East Basin}})$ – Attenuation
= (32.05 cfs + 31.26cfs) – 12.34cfs

Permitted Release Rate = 50.97 cfs

PROPOSED DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

WEST Basin 15 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	1.87 cfs/acre	37.40 cfs
7.00 acres	5%	1.87 cfs/acre	13.09 cfs
4.90 acres	5%	1.87 cfs/acre	9.16 cfs
14.28 acres	5%	1.87 cfs/acre	26.70 cfs
Total Q			**86.36 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	1.87 cfs/acre	37.40 cfs
7.00 acres	5%	1.87 cfs/acre	13.09 cfs
4.90 acres	5%	1.87 cfs/acre	9.16 cfs
5.67 acres	100%	3.85 cfs/acre	21.83 cfs
5.39 acres	5%	1.87 cfs/acre	10.08 cfs
Total Q			**91.56 cfs**

In-Flow to Basin:

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	1.87 cfs/acre	37.40 cfs
7.00 acres	5%	1.87 cfs/acre	13.09 cfs
0.87 acres	5%	1.87 cfs/acre	1.63 cfs
Total Q			**52.12 cfs**

PROPOSED DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

EAST Basin 15 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	1.87 cfs/acre	12.62 cfs
10.80 acres	5%	1.87 cfs/acre	20.20 cfs
5.71 acres	5%	1.87 cfs/acre	10.68 cfs
Total Q			**43.50 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	1.87 cfs/acre	12.62 cfs
10.80 acres	5%	1.87 cfs/acre	20.20 cfs
4.29 acres	100%	3.85 cfs/acre	16.52 cfs
4.64 acres	5%	1.87 cfs/acre	8.68 cfs
Total Q			**58.01 cfs**

In-Flow to Basin:

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	1.87 cfs/acre	12.62 cfs
10.80 acres	5%	1.87 cfs/acre	20.20 cfs
2.69 acres	100%	3.85 cfs/acre	10.36 cfs
4.04 acres	5%	1.87 cfs/acre	7.55 cfs
Total Q			**50.73 cfs**

Required Attenuation:

Attenuation = $(Q_{\text{post-developed West Basin}} + Q_{\text{post-developed East Basin}})$
$- (Q_{\text{pre-developed West Basin}} + Q_{\text{pre-developed East Basin}})$
= (91.56 cfs + 58.01 cfs) - (86.36 cfs + 43.50 cfs)

Attenuation = 19.71 cfs

Permitted Release rate:

Permitted Release Rate = $(Q_{\text{in-flow to West Basin}} + Q_{\text{in-flow to East Basin}})$ – Attenuation
= (52.12 cfs + 50.73cfs) – 19.71cfs

Permitted Release Rate = 83.14 cfs

PROPOSED DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

WEST Basin 25 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	2.37 cfs/acre	47.40 cfs
7.00 acres	5%	2.37 cfs/acre	16.59 cfs
4.90 acres	5%	2.37 cfs/acre	11.61 cfs
14.28 acres	5%	2.37 cfs/acre	33.84 cfs
Total Q			**109.45 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	2.37 cfs/acre	47.40 cfs
7.00 acres	5%	2.37 cfs/acre	16.59 cfs
4.90 acres	5%	2.37 cfs/acre	11.61 cfs
5.67 acres	100%	4.75 cfs/acre	26.93 cfs
5.39 acres	5%	2.37 cfs/acre	12.77 cfs
Total Q			**115.31 cfs**

In-Flow to Basin:

Area	% impervious	C.I. Factor	Q
20.00 acres	5%	2.37 cfs/acre	47.40 cfs
7.00 acres	5%	2.37 cfs/acre	16.59 cfs
0.87 acres	5%	2.37 cfs/acre	2.06 cfs
Total Q			**66.05 cfs**

PROPOSED DEVELOPMENT

Attenuation and Permitted Release Rate Calculations :

EAST Basin 25 year – 20 minute Design Storm

Pre-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	2.37 cfs/acre	16.00 cfs
10.80 acres	5%	2.37 cfs/acre	25.60 cfs
5.71 acres	5%	2.37 cfs/acre	13.53 cfs
Total Q			**55.13 cfs**

Post-Developed

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	2.37 cfs/acre	16.00 cfs
10.80 acres	5%	2.37 cfs/acre	25.60 cfs
4.29 acres	100%	4.75 cfs/acre	20.38 cfs
4.64 acres	5%	2.37 cfs/acre	11.00 cfs
Total Q			**72.97 cfs**

In-Flow to Basin:

Area	% impervious	C.I. Factor	Q
6.75 acres	5%	2.37 cfs/acre	16.00 cfs
10.80 acres	5%	2.37 cfs/acre	25.60 cfs
2.69 acres	100%	4.75 cfs/acre	12.78 cfs
4.04 acres	5%	2.37 cfs/acre	9.57 cfs
Total Q			**63.95 cfs**

Required Attenuation:

Attenuation = $(Q_{\text{post-developed West Basin}} + Q_{\text{post-developed East Basin}})$
$- (Q_{\text{pre-developed West Basin}} + Q_{\text{pre-developed East Basin}})$
= (115.31 cfs + 72.97 cfs) - (109.45 cfs + 55.13 cfs)

Attenuation = 23.70 cfs

Permitted Release rate:

Permitted Release Rate = $(Q_{\text{in-flow to West Basin}} + Q_{\text{in-flow to East Basin}})$ – Attenuation
= (66.05 cfs + 63.95cfs) – 23.70cfs

Permitted Release Rate = 106.30 cfs

PROPOSED DEVELOPMENT

Storm Water Detention Routing Calculations Summary:

A computer program " PONDPACK" was used in routing the design storm through the basin. Results are attached.

2 year – 20 minute storm:

2 year	Inflow	Peak Release	Peak	Top of Berm	Freeboard
20 minute	to Basin	Rate	Elevation	Elevation	
West Basin	32.05 cfs	7.48 cfs	489.48	495.00	5.52 '
East Basin	31.26 cfs	30.08 cfs	480.95	485.50	4.55 '
Total Peak Release Rate		38.56 cfs			
Allowable Peak Release Rate		50.97 cfs			

15 year – 20 minute storm:

15 year	Inflow	Peak Release	Peak	Top of Berm	Freeboard
20 minute	to Basin	Rate	Elevation	Elevation	
West Basin	52.12 cfs	8.37 cfs	490.23	495.00	4.77 '
East Basin	50.73 cfs	40.13 cfs	481.65	485.50	3.85 '
Total Peak Release Rate		49.29 cfs			
Allowable Peak Release Rate		83.14 cfs			

25 year – 20 minute storm:

25 year	Inflow	Peak Release	Peak	Top of Berm	Freeboard
20 minute	to Basin	Rate	Elevation	Elevation	
West Basin	66.10 cfs	8.88 cfs	490.65	495.00	4.35 '
East Basin	63.95 cfs	45.22 cfs	482.23	485.50	3.27 '
Total Peak Release Rate		54.10 cfs			
Allowable Peak Release Rate		106.30 cfs			

PROPOSED DEVELOPMENT

100 YEAR – 20 MINUTE STORM

This storm was routed assuming the low flow culvert is blocked and water has ponded to the top of the overflow structure or spillway.

A computer program " PONDPACK" was used in routing the 100 year – 20 minute duration design storm through the basin. Results are attached.

Summary of results are as follows:

West Basin:

Overflow : 50' grass spillway (Top of Spillway = 48.50)

Peak Release Rate: **64.68 cfs**
Peak Elevation: **493.45**
Top of Berm Elevation: **495.00**

East Basin:

Overflow : Open Top 60" (inside diameter) Pre-cast Manhole Structure
(Top of Structure = 482.50)

Peak Release Rate: **75.03 cfs**
Peak Elevation: **483.85**
Top of Berm Elevation: **485.0**

West Detention Basin Characteristics:

Outfall:

60" (inside diameter) Precast Concrete Manhole Structure
10" wide x 12" tall slot at base of structure (Flowline = 486.00)
Elevation of Structure Top = 494.00

Structure shall be installed with a web of safety bars across the top.
(See detail on sheet C-7 of plans prepared by Bax Engineering)

Top of Basin Elevation: **495.00**

East Detention Basin Characteristics:

Outfall:

60" (inside diameter) Precast Concrete Manhole Structure
21" wide x 36" high slot at base of structure (Flowline = 478.00)
Elevation of Structure Top = 482.50

Manhole shall be installed with a web of safety bars across the open top along with an anti vortex device
(See detail on sheet C-7 of plans prepared by Bax Engineering)

Top of Basin Elevation: **485.50**

STORMWATER DETENTION CALCULATIONS

ULTIMATE DEVELOPMENT

EAST BASIN

POND-2 Version: 5.20
S/N:

LIVING WORD CHRISTIAN SCHOOL
DETENTION ANALYSIS
BAX ENGINEERING
9/16/98

CALCULATED 12-23-1998 09:32:42
DISK FILE: 9203WEST.VOL

Planimeter scale: 1 inch = 1 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	* Volume (acre-ft)	Volume Sum (acre-ft)
486.00	0.00	0.00	0.00	0.00	0.00
488.00	7,700.00	0.18	0.18	0.12	0.12
490.00	32,700.00	0.75	1.29	0.86	0.98
492.00	57,698.00	1.32	3.07	2.05	3.03
494.00	80,755.00	1.85	4.75	3.16	6.19

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Outlet Structure File: 9203W .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

***** COMPOSITE OUTFLOW SUMMARY ****

Elevation (ft)	Q (cfs)	Contributing Structures
486.00	0.0	1
486.25	0.3	1
486.50	0.0	2
486.75	1.3	1
487.00	3.1	2
487.25	3.8	2
487.50	4.3	2
487.75	4.9	2
488.00	5.3	2
488.25	5.8	2
488.50	6.1	2
488.75	6.5	2
489.00	6.9	2
489.25	7.2	2
489.50	7.5	2
489.75	7.8	2
490.00	8.1	2
490.25	8.4	2
490.50	8.7	2
490.75	9.0	2
491.00	9.2	2
491.25	9.5	2
491.50	9.7	2
491.75	10.0	2
492.00	10.2	2
492.25	10.4	2
492.50	10.6	2
492.75	10.9	2
493.00	11.1	2
493.25	11.3	2
493.50	11.5	2
493.75	11.7	2
494.00	11.9	2

Outlet Structure File: 9203W .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outlet Structure File: 9203W .STR
Planimeter Input File: 9203WEST.VOL
Rating Table Output File: 9203WEST.PND

Min. Elev.(ft) = 486 Max. Elev.(ft) = 494 Incr.(ft) = .25

Additional elevations (ft) to be included in table:
* *

****
SYSTEM CONNECTIVITY
****

Structure	No.	Q Table		Q Table
ORIFICE	2		->	2
WEIR-VR	1	? 2	->	A

Outflow rating table summary was stored in file:
9203WEST.PND

Outlet Structure File: 9203W .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

>>>>>> Structure No. 2 <<<<<<
(Input Data)

ORIFICE
Orifice - Based on Area and Datum Elevation

E1 elev.(ft)?	486.5
E2 elev.(ft)?	494.001
Orifice coeff.?	0.65
Invert elev.(ft)?	486
Datum elev.(ft) ?	486.5
Orifice area (sq ft)?	0.8333

Outlet Structure File: 9203W .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

>>>>>> Structure No. 1 <<<<<<
(Input Data)

WEIR-VR
Weir - Vertical Rectangular

E1 elev.(ft)?	486
E2 elev.(ft)?	487
Weir coefficient?	3.00
Weir elev.(ft)?	486
Length (ft)?	0.8333
Contracted/Suppressed (C/S)?	C

Outlet Structure File: 9203W .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outflow Rating Table for Structure #2
ORIFICE Orifice - Based on Area and Datum Elevation

Elevation (ft)	Q (cfs)	Computation Messages
486.00	0.0	E < E1= 486.5
486.25	0.0	E < E1= 486.5
486.50	0.0	H =0.0
486.75	2.2	H =.25
487.00	3.1	H =.5
487.25	3.8	H =.750
487.50	4.3	H =1.0
487.75	4.9	H =1.25
488.00	5.3	H =1.5
488.25	5.8	H =1.75
488.50	6.1	H =2.0
488.75	6.5	H =2.25
489.00	6.9	H =2.5
489.25	7.2	H =2.75
489.50	7.5	H =3.0
489.75	7.8	H =3.25
490.00	8.1	H =3.5
490.25	8.4	H =3.75
490.50	8.7	H =4.0
490.75	9.0	H =4.25
491.00	9.2	H =4.5
491.25	9.5	H =4.75
491.50	9.7	H =5.0
491.75	10.0	H =5.25
492.00	10.2	H =5.5
492.25	10.4	H =5.75
492.50	10.6	H =6.0
492.75	10.9	H =6.25
493.00	11.1	H =6.5
493.25	11.3	H =6.75
493.50	11.5	H =7.0
493.75	11.7	H =7.25
494.00	11.9	H =7.5

C = .65 A = .8333 sq.ft.
H (ft) = Table elev. - Datum elev. (486.5 ft)
Q (cfs) = C * A * sqr(2g * H)

Outlet Structure File: 9203W .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outflow Rating Table for Structure #1
WEIR-VR Weir - Vertical Rectangular

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages
486.00	0.0	H =0.0
486.25	0.3	H =.25
486.50	0.8	H =.5
486.75	1.3	H =.750
487.00	0.0	E = or > E2=487
487.25	0.0	E = or > E2=487
487.50	0.0	E = or > E2=487
487.75	0.0	E = or > E2=487
488.00	0.0	E = or > E2=487
488.25	0.0	E = or > E2=487
488.50	0.0	E = or > E2=487
488.75	0.0	E = or > E2=487
489.00	0.0	E = or > E2=487
489.25	0.0	E = or > E2=487
489.50	0.0	E = or > E2=487
489.75	0.0	E = or > E2=487
490.00	0.0	E = or > E2=487
490.25	0.0	E = or > E2=487
490.50	0.0	E = or > E2=487
490.75	0.0	E = or > E2=487
491.00	0.0	E = or > E2=487
491.25	0.0	E = or > E2=487
491.50	0.0	E = or > E2=487
491.75	0.0	E = or > E2=487
492.00	0.0	E = or > E2=487
492.25	0.0	E = or > E2=487
492.50	0.0	E = or > E2=487
492.75	0.0	E = or > E2=487
493.00	0.0	E = or > E2=487
493.25	0.0	E = or > E2=487
493.50	0.0	E = or > E2=487
493.75	0.0	E = or > E2=487
494.00	0.0	E = or > E2=487

C = 3 L (ft) = .8333
H (ft) = Table elev. - Invert elev. (486 ft)
Q (cfs) = C * (L-.2H) * (H**1.5) -- Contracted Weir

Outlet Structure File: 9203W .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outflow Rating Table A
Table A = 2 ? 1

Elevation (ft)	Q (cfs)	Contributing Structures
486.00	0.0	1
486.25	0.3	1
486.50	0.0	2
486.75	1.3	1
487.00	3.1	2
487.25	3.8	2
487.50	4.3	2
487.75	4.9	2
488.00	5.3	2
488.25	5.8	2
488.50	6.1	2
488.75	6.5	2
489.00	6.9	2
489.25	7.2	2
489.50	7.5	2
489.75	7.8	2
490.00	8.1	2
490.25	8.4	2
490.50	8.7	2
490.75	9.0	2
491.00	9.2	2
491.25	9.5	2
491.50	9.7	2
491.75	10.0	2
492.00	10.2	2
492.25	10.4	2
492.50	10.6	2
492.75	10.9	2
493.00	11.1	2
493.25	11.3	2
493.50	11.5	2
493.75	11.7	2
494.00	11.9	2

Outlet Structure File: 9203W100.STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

***** COMPOSITE OUTFLOW SUMMARY ****

Elevation (ft)	Q (cfs)	Contributing Structures
486.00	0.0	
486.50	0.0	
487.00	0.0	
487.50	0.0	
488.00	0.0	
488.50	0.0	
489.00	0.0	
489.50	0.0	
490.00	0.0	
490.50	0.0	
491.00	0.0	
491.50	0.0	
492.00	0.0	
492.50	0.0	1
493.00	45.9	1
493.50	129.5	1
494.00	237.4	1

Outlet Structure File: 9203W100.STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outlet Structure File: 9203W100.STR
Planimeter Input File: 9203WEST.VOL
Rating Table Output File: 9203W100.PND

Min. Elev.(ft) = 486 Max. Elev.(ft) = 494 Incr.(ft) = .5

Additional elevations (ft) to be included in table:
* *

****
SYSTEM CONNECTIVITY
****

Structure	No.	Q Table		Q Table
WEIR-VR	1		->	1

Outflow rating table summary was stored in file:
9203W100.PND

Outlet Structure File: 9203W100.STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

>>>>>> Structure No. 1 <<<<<<
(Input Data)

WEIR-VR
Weir - Vertical Rectangular

E1 elev.(ft)?	492.50
E2 elev.(ft)?	494.001
Weir coefficient?	2.60
Weir elev.(ft)?	492.5
Length (ft)?	50
Contracted/Suppressed (C/S)?	C

Outlet Structure File: 9203W100.STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outflow Rating Table for Structure #1
WEIR-VR Weir - Vertical Rectangular

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages
486.00	0.0	E < Inv.El.= 492.5
486.50	0.0	E < Inv.El.= 492.5
487.00	0.0	E < Inv.El.= 492.5
487.50	0.0	E < Inv.El.= 492.5
488.00	0.0	E < Inv.El.= 492.5
488.50	0.0	E < Inv.El.= 492.5
489.00	0.0	E < Inv.El.= 492.5
489.50	0.0	E < Inv.El.= 492.5
490.00	0.0	E < Inv.El.= 492.5
490.50	0.0	E < Inv.El.= 492.5
491.00	0.0	E < Inv.El.= 492.5
491.50	0.0	E < Inv.El.= 492.5
492.00	0.0	E < Inv.El.= 492.5
492.50	0.0	H =0.0
493.00	45.9	H =.5
493.50	129.5	H =1.0
494.00	237.4	H =1.5

C = 2.6 L (ft) = 50
H (ft) = Table elev. - Invert elev. (492.5 ft)
Q (cfs) = C * (L-.2H) * (H**1.5) -- Contracted Weir

EXECUTED: 12-23-1998 14:48:08 20 minute Return Freq: 2 years

****
*
* LIVING WORD CHRISTIAN SCHOOL *
* WEST BASIN DETENTION ANALYSIS *
* BAX ENGINEERING *
* SEPTEMBER 24, 1998 *
*
****

Inflow Hydrograph: 9203W-2 .HYD
Rating Table file: 9203WEST.PND

----INITIAL CONDITIONS----
Elevation = 486.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
486.00	0.0	0.000	0.0	0.0
486.25	0.3	0.000	0.3	0.6
486.75	1.3	0.006	9.0	10.3
487.00	3.1	0.015	21.3	24.4
487.25	3.8	0.029	41.7	45.5
487.50	4.3	0.050	72.0	76.3
487.75	4.9	0.079	114.4	119.3
488.00	5.3	0.118	170.8	176.1
488.25	5.8	0.168	243.7	249.5
488.50	6.1	0.232	335.8	341.9
488.75	6.5	0.310	449.4	455.9
489.00	6.9	0.405	586.8	593.7
489.25	7.2	0.518	750.2	757.4
489.50	7.5	0.650	941.8	949.3
489.75	7.8	0.803	1163.8	1171.6
490.00	8.1	0.979	1418.7	1426.8
490.25	8.4	1.174	1701.9	1710.3
490.50	8.7	1.386	2008.5	2017.2
490.75	9.0	1.614	2339.1	2348.1
491.00	9.2	1.860	2694.9	2704.1
491.25	9.5	2.123	3076.6	3086.1
491.50	9.7	2.405	3485.2	3494.9
491.75	10.0	2.706	3921.6	3931.6
492.00	10.2	3.027	4386.8	4397.0
492.25	10.4	3.366	4877.7	4888.1
492.50	10.6	3.720	5391.1	5401.7
492.75	10.9	4.090	5927.5	5938.4
493.00	11.1	4.477	6487.3	6498.4
493.25	11.3	4.880	7071.1	7082.4
493.50	11.5	5.299	7679.3	7690.8
493.75	11.7	5.736	8312.6	8324.3

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
494.00	11.9	6.191

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
8971.3	8983.2

Time increment (t) = 1.0 min.

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-2 .HYD
Outflow Hydrograph: 9203FX2 .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	486.00
1.0	4.90	4.9	3.4	4.9	0.74	486.47
2.0	9.90	14.8	13.6	18.2	2.31	486.89
3.0	14.80	24.7	31.2	38.3	3.56	487.16
4.0	19.80	34.6	57.5	65.8	4.13	487.41
5.0	24.70	44.5	92.7	102.0	4.66	487.65
6.0	29.70	54.4	136.9	147.1	5.10	487.87
7.0	34.60	64.3	190.3	201.2	5.47	488.09
8.0	39.60	74.2	252.8	264.5	5.85	488.29
9.0	44.50	84.1	324.7	336.9	6.08	488.49
10.0	49.40	93.9	405.9	418.6	6.37	488.67
11.0	54.40	103.8	496.4	509.7	6.66	488.85
12.0	56.80	111.2	593.7	607.6	6.93	489.02
13.0	56.80	113.6	693.1	707.3	7.11	489.17
14.0	56.80	113.6	792.1	806.7	7.28	489.31
15.0	56.80	113.6	890.9	905.7	7.43	489.44
16.0	56.80	113.6	989.3	1004.5	7.57	489.56
17.0	56.80	113.6	1087.5	1102.9	7.71	489.67
18.0	56.80	113.6	1185.4	1201.1	7.83	489.78
19.0	56.80	113.6	1283.1	1299.0	7.95	489.87
20.0	56.60	113.4	1380.4	1396.5	8.06	489.97
21.0	51.60	108.2	1472.3	1488.6	8.17	490.05
22.0	46.70	98.3	1554.1	1570.6	8.25	490.13
23.0	41.70	88.4	1625.8	1642.5	8.33	490.19
24.0	36.80	78.5	1687.5	1704.3	8.39	490.24
25.0	31.80	68.6	1739.2	1756.1	8.44	490.29
26.1	26.90	58.7	1781.0	1797.9	8.49	490.32
27.1	21.90	48.8	1812.7	1829.8	8.52	490.35
28.1	17.00	38.9	1834.6	1851.6	8.54	490.37
29.1	12.10	29.1	1846.6	1863.7	8.55	490.37
30.1	7.10	19.2	1848.7	1865.8	8.55	490.38
31.1	2.20	9.3	1840.9	1858.0	8.54	490.37
32.1	0.00	2.2	1826.0	1843.1	8.53	490.36
33.1	0.00	0.0	1809.0	1826.0	8.51	490.34
34.1	0.00	0.0	1792.0	1809.0	8.50	490.33
35.1	0.00	0.0	1775.0	1792.0	8.48	490.32
36.1	0.00	0.0	1758.1	1775.0	8.46	490.30
37.1	0.00	0.0	1741.2	1758.1	8.45	490.29
38.1	0.00	0.0	1724.3	1741.2	8.43	490.28
39.1	0.00	0.0	1707.5	1724.3	8.41	490.26
40.1	0.00	0.0	1690.7	1707.5	8.40	490.25
41.1	0.00	0.0	1674.0	1690.7	8.38	490.23
42.1	0.00	0.0	1657.2	1674.0	8.36	490.22
43.1	0.00	0.0	1640.6	1657.2	8.34	490.20
44.1	0.00	0.0	1623.9	1640.6	8.33	490.19

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-2 .HYD
Outflow Hydrograph: 9203FX2 .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	1607.3	1623.9	8.31	490.17
46.1	0.00	0.0	1590.7	1607.3	8.29	490.16
47.1	0.00	0.0	1574.2	1590.7	8.27	490.14
48.1	0.00	0.0	1557.6	1574.2	8.26	490.13
49.1	0.00	0.0	1541.2	1557.6	8.24	490.12
50.1	0.00	0.0	1524.7	1541.2	8.22	490.10
51.1	0.00	0.0	1508.3	1524.7	8.20	490.09
52.1	0.00	0.0	1491.9	1508.3	8.19	490.07
53.1	0.00	0.0	1475.6	1491.9	8.17	490.06
54.1	0.00	0.0	1459.3	1475.6	8.15	490.04
55.1	0.00	0.0	1443.0	1459.3	8.13	490.03
56.1	0.00	0.0	1426.8	1443.0	8.12	490.01
57.1	0.00	0.0	1410.6	1426.8	8.10	490.00
58.1	0.00	0.0	1394.4	1410.6	8.08	489.98
59.1	0.00	0.0	1378.3	1394.4	8.06	489.97

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-2 .HYD
Outflow Hydrograph: 9203FX2 .HYD

Starting Pond W.S. Elevation = 486.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	56.80 cfs
Peak Outflow	=	8.55 cfs
Peak Elevation	=	490.38 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	1.28 ac-ft
Total Storage in Pond	=	1.28 ac-ft

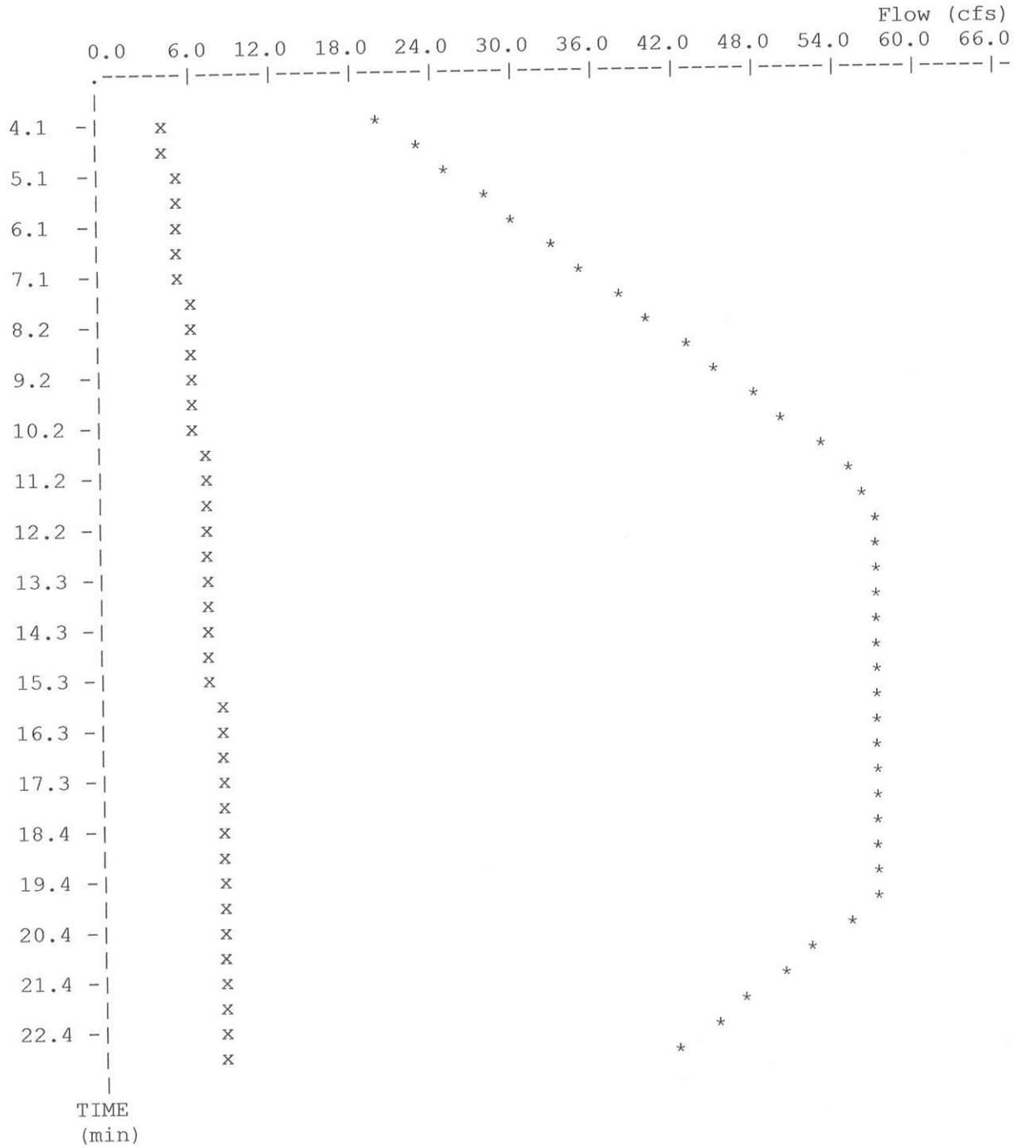
POND-2 Version: 5.20 S/N:

20 minute Return Freq: 2 years

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-2 .HYD
Outflow Hydrograph: 9203FX2 .HYD

EXECUTED: 12-23-1998
14:48:08

Peak Inflow = 56.80 cfs
Peak Outflow = 8.55 cfs
Peak Elevation = 490.38 ft



x File: 9203FX2 .HYD Qmax = 8.6 cfs
* File: 9203W-2 .HYD Qmax = 56.8 cfs

EXECUTED: 12-23-1998 14:48:08 20 minute Return Freq: 15 years

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* *
* LIVING WORD CHRISTIAN SCHOOL *
* WEST BASIN DETENTION ANALYSIS *
* BAX ENGINEERING *
* SEPTEMBER 24, 1998 *
* *
****

Inflow Hydrograph: 9203W-15.HYD
Rating Table file: 9203WEST.PND

----INITIAL CONDITIONS----
Elevation = 486.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
486.00	0.0	0.000
486.25	0.3	0.000
486.75	1.3	0.006
487.00	3.1	0.015
487.25	3.8	0.029
487.50	4.3	0.050
487.75	4.9	0.079
488.00	5.3	0.118
488.25	5.8	0.168
488.50	6.1	0.232
488.75	6.5	0.310
489.00	6.9	0.405
489.25	7.2	0.518
489.50	7.5	0.650
489.75	7.8	0.803
490.00	8.1	0.979
490.25	8.4	1.174
490.50	8.7	1.386
490.75	9.0	1.614
491.00	9.2	1.860
491.25	9.5	2.123
491.50	9.7	2.405
491.75	10.0	2.706
492.00	10.2	3.027
492.25	10.4	3.366
492.50	10.6	3.720
492.75	10.9	4.090
493.00	11.1	4.477
493.25	11.3	4.880
493.50	11.5	5.299
493.75	11.7	5.736

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + 0 (cfs)
0.0	0.0
0.3	0.6
9.0	10.3
21.3	24.4
41.7	45.5
72.0	76.3
114.4	119.3
170.8	176.1
243.7	249.5
335.8	341.9
449.4	455.9
586.8	593.7
750.2	757.4
941.8	949.3
1163.8	1171.6
1418.7	1426.8
1701.9	1710.3
2008.5	2017.2
2339.1	2348.1
2694.9	2704.1
3076.6	3086.1
3485.2	3494.9
3921.6	3931.6
4386.8	4397.0
4877.7	4888.1
5391.1	5401.7
5927.5	5938.4
6487.3	6498.4
7071.1	7082.4
7679.3	7690.8
8312.6	8324.3

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
494.00	11.9	6.191	8971.3	8983.2

Time increment (t) = 1.0 min.

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-15.HYD
Outflow Hydrograph: 9203FX15.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	486.00
1.0	8.00	8.0	5.9	8.0	1.06	486.63
2.0	16.00	24.0	23.3	29.9	3.28	487.06
3.0	23.90	39.9	55.0	63.2	4.09	487.39
4.0	31.90	55.8	101.3	110.8	4.78	487.70
5.0	39.90	71.8	162.5	173.1	5.28	487.99
6.0	47.90	87.8	238.7	250.3	5.80	488.25
7.0	55.80	103.7	330.2	342.4	6.10	488.50
8.0	63.80	119.6	436.9	449.8	6.48	488.74
9.0	71.80	135.6	558.8	572.5	6.84	488.96
10.0	79.80	151.6	696.1	710.4	7.11	489.18
11.0	87.80	167.6	849.0	863.7	7.37	489.39
12.0	91.70	179.5	1013.3	1028.5	7.61	489.59
13.0	91.70	183.4	1181.0	1196.7	7.83	489.77
14.0	91.70	183.4	1348.4	1364.4	8.03	489.94
15.0	91.70	183.4	1515.4	1531.8	8.21	490.09
16.0	91.70	183.4	1682.0	1698.8	8.39	490.24
17.0	91.70	183.4	1848.3	1865.4	8.55	490.38
18.0	91.70	183.4	2014.3	2031.7	8.71	490.51
19.0	91.70	183.4	2179.9	2197.7	8.86	490.64
20.0	91.20	182.9	2344.8	2362.8	9.01	490.76
21.0	83.30	174.5	2501.1	2519.3	9.10	490.87
22.0	75.30	158.6	2641.4	2659.7	9.18	490.97
23.0	67.30	142.6	2765.5	2784.0	9.26	491.05
24.0	59.30	126.6	2873.4	2892.1	9.35	491.12
25.0	51.40	110.7	2965.2	2984.1	9.42	491.18
26.1	43.40	94.8	3041.1	3060.0	9.48	491.23
27.1	35.40	78.8	3100.8	3119.9	9.52	491.27
28.1	27.40	62.8	3144.5	3163.6	9.54	491.30
29.1	19.40	46.8	3172.2	3191.3	9.55	491.31
30.1	11.50	30.9	3184.0	3203.1	9.56	491.32
31.1	3.50	15.0	3179.9	3199.0	9.56	491.32
32.1	0.00	3.5	3164.3	3183.4	9.55	491.31
33.1	0.00	0.0	3145.2	3164.3	9.54	491.30
34.1	0.00	0.0	3126.2	3145.2	9.53	491.29
35.1	0.00	0.0	3107.2	3126.2	9.52	491.27
36.1	0.00	0.0	3088.1	3107.2	9.51	491.26
37.1	0.00	0.0	3069.1	3088.1	9.50	491.25
38.1	0.00	0.0	3050.2	3069.1	9.49	491.24
39.1	0.00	0.0	3031.2	3050.2	9.47	491.23
40.1	0.00	0.0	3012.3	3031.2	9.46	491.21
41.1	0.00	0.0	2993.4	3012.3	9.44	491.20
42.1	0.00	0.0	2974.6	2993.4	9.43	491.19
43.1	0.00	0.0	2955.7	2974.6	9.41	491.18
44.1	0.00	0.0	2936.9	2955.7	9.40	491.16

EXECUTED: 12-23-1998 14:48:08 20 minute Return Freq: 15 years

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-15.HYD
Outflow Hydrograph: 9203FX15.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	2918.2	2936.9	9.38	491.15
46.1	0.00	0.0	2899.4	2918.2	9.37	491.14
47.1	0.00	0.0	2880.7	2899.4	9.35	491.13
48.1	0.00	0.0	2862.1	2880.7	9.34	491.12
49.1	0.00	0.0	2843.4	2862.1	9.32	491.10
50.1	0.00	0.0	2824.8	2843.4	9.31	491.09
51.1	0.00	0.0	2806.2	2824.8	9.29	491.08
52.1	0.00	0.0	2787.6	2806.2	9.28	491.07
53.1	0.00	0.0	2769.1	2787.6	9.27	491.05
54.1	0.00	0.0	2750.6	2769.1	9.25	491.04
55.1	0.00	0.0	2732.1	2750.6	9.24	491.03
56.1	0.00	0.0	2713.7	2732.1	9.22	491.02
57.1	0.00	0.0	2695.3	2713.7	9.21	491.01
58.1	0.00	0.0	2676.9	2695.3	9.20	490.99
59.1	0.00	0.0	2658.5	2676.9	9.18	490.98

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-15.HYD
Outflow Hydrograph: 9203FX15.HYD

Starting Pond W.S. Elevation = 486.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	91.70 cfs
Peak Outflow	=	9.56 cfs
Peak Elevation	=	491.32 ft

***** Summary of Approximate Peak Storage *****

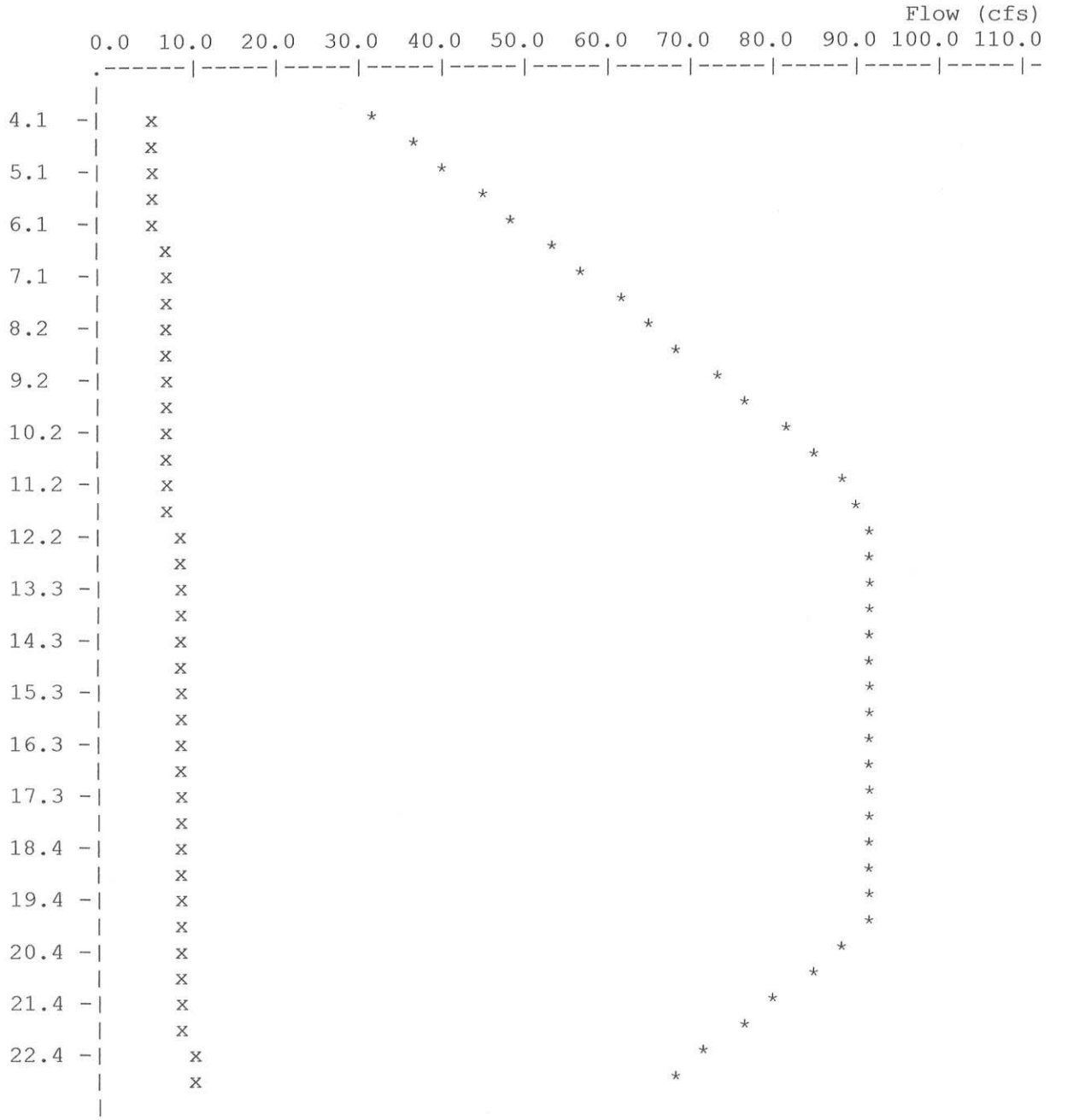
Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	2.20 ac-ft
Total Storage in Pond	=	2.20 ac-ft

20 minute Return Freq: 15 years

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-15.HYD
Outflow Hydrograph: 9203FX15.HYD

EXECUTED: 12-23-1998
14:48:08

Peak Inflow = 91.70 cfs
Peak Outflow = 9.56 cfs
Peak Elevation = 491.32 ft



x File: 9203FX15.HYD Qmax = 9.6 cfs
* File: 9203W-15.HYD Qmax = 91.7 cfs

EXECUTED: 12-23-1998 14:48:08 20 minute Return Freq: 25 years

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*
* LIVING WORD CHRISTIAN SCHOOL *
* WEST BASIN DETENTION ANALYSIS *
* BAX ENGINEERING *
* SEPTEMBER 24, 1998 *
*
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Inflow Hydrograph: 9203W-25.HYD
Rating Table file: 9203WEST.PND

----INITIAL CONDITIONS----
Elevation = 486.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
486.00	0.0	0.000	0.0	0.0
486.25	0.3	0.000	0.3	0.6
486.75	1.3	0.006	9.0	10.3
487.00	3.1	0.015	21.3	24.4
487.25	3.8	0.029	41.7	45.5
487.50	4.3	0.050	72.0	76.3
487.75	4.9	0.079	114.4	119.3
488.00	5.3	0.118	170.8	176.1
488.25	5.8	0.168	243.7	249.5
488.50	6.1	0.232	335.8	341.9
488.75	6.5	0.310	449.4	455.9
489.00	6.9	0.405	586.8	593.7
489.25	7.2	0.518	750.2	757.4
489.50	7.5	0.650	941.8	949.3
489.75	7.8	0.803	1163.8	1171.6
490.00	8.1	0.979	1418.7	1426.8
490.25	8.4	1.174	1701.9	1710.3
490.50	8.7	1.386	2008.5	2017.2
490.75	9.0	1.614	2339.1	2348.1
491.00	9.2	1.860	2694.9	2704.1
491.25	9.5	2.123	3076.6	3086.1
491.50	9.7	2.405	3485.2	3494.9
491.75	10.0	2.706	3921.6	3931.6
492.00	10.2	3.027	4386.8	4397.0
492.25	10.4	3.366	4877.7	4888.1
492.50	10.6	3.720	5391.1	5401.7
492.75	10.9	4.090	5927.5	5938.4
493.00	11.1	4.477	6487.3	6498.4
493.25	11.3	4.880	7071.1	7082.4
493.50	11.5	5.299	7679.3	7690.8
493.75	11.7	5.736	8312.6	8324.3

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
494.00	11.9	6.191	8971.3	8983.2

Time increment (t) = 1.0 min.

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-25.HYD
Outflow Hydrograph: 9203FX25.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	486.00
1.0	9.90	9.9	7.4	9.9	1.26	486.73
2.0	19.80	29.7	30.0	37.1	3.52	487.15
3.0	29.70	49.5	70.9	79.5	4.34	487.52
4.0	39.50	69.2	130.0	140.1	5.05	487.84
5.0	49.40	88.9	207.7	218.9	5.59	488.15
6.0	59.30	108.7	304.3	316.4	6.02	488.43
7.0	69.20	128.5	420.0	432.8	6.42	488.70
8.0	79.10	148.3	554.7	568.3	6.83	488.95
9.0	89.00	168.1	708.5	722.8	7.14	489.20
10.0	98.90	187.9	881.5	896.4	7.42	489.43
11.0	108.70	207.6	1073.8	1089.1	7.69	489.66
12.0	113.70	222.4	1280.3	1296.2	7.95	489.87
13.0	113.70	227.4	1491.3	1507.7	8.19	490.07
14.0	113.70	227.4	1701.9	1718.7	8.41	490.26
15.0	113.70	227.4	1912.1	1929.3	8.61	490.43
16.0	113.70	227.4	2121.8	2139.5	8.81	490.59
17.0	113.70	227.4	2331.2	2349.2	9.00	490.75
18.0	113.70	227.4	2540.4	2558.6	9.12	490.90
19.0	113.70	227.4	2749.3	2767.8	9.25	491.04
20.0	113.10	226.8	2957.3	2976.1	9.41	491.18
21.0	103.20	216.3	3154.5	3173.6	9.54	491.30
22.0	93.30	196.5	3331.7	3351.0	9.63	491.41
23.0	83.40	176.7	3489.0	3508.4	9.71	491.51
24.0	73.50	156.9	3626.3	3645.9	9.80	491.59
25.0	63.60	137.1	3743.6	3763.4	9.88	491.65
26.1	53.70	117.3	3841.0	3860.9	9.95	491.71
27.1	43.90	97.6	3918.6	3938.6	10.00	491.75
28.1	34.00	77.9	3976.5	3996.5	10.03	491.78
29.1	24.10	58.1	4014.5	4034.6	10.04	491.81
30.1	14.20	38.3	4032.7	4052.8	10.05	491.82
31.1	4.30	18.5	4031.1	4051.2	10.05	491.81
32.1	0.00	4.3	4015.3	4035.4	10.04	491.81
33.1	0.00	0.0	3995.2	4015.3	10.04	491.79
34.1	0.00	0.0	3975.2	3995.2	10.03	491.78
35.1	0.00	0.0	3955.1	3975.2	10.02	491.77
36.1	0.00	0.0	3935.1	3955.1	10.01	491.76
37.1	0.00	0.0	3915.1	3935.1	10.00	491.75
38.1	0.00	0.0	3895.1	3915.1	9.99	491.74
39.1	0.00	0.0	3875.2	3895.1	9.97	491.73
40.1	0.00	0.0	3855.2	3875.2	9.96	491.72
41.1	0.00	0.0	3835.4	3855.2	9.95	491.71
42.1	0.00	0.0	3815.5	3835.4	9.93	491.69
43.1	0.00	0.0	3795.6	3815.5	9.92	491.68
44.1	0.00	0.0	3775.8	3795.6	9.91	491.67

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-25.HYD
Outflow Hydrograph: 9203FX25.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	3756.0	3775.8	9.89	491.66
46.1	0.00	0.0	3736.3	3756.0	9.88	491.65
47.1	0.00	0.0	3716.6	3736.3	9.87	491.64
48.1	0.00	0.0	3696.8	3716.6	9.85	491.63
49.1	0.00	0.0	3677.2	3696.8	9.84	491.62
50.1	0.00	0.0	3657.5	3677.2	9.83	491.60
51.1	0.00	0.0	3637.9	3657.5	9.81	491.59
52.1	0.00	0.0	3618.3	3637.9	9.80	491.58
53.1	0.00	0.0	3598.7	3618.3	9.78	491.57
54.1	0.00	0.0	3579.2	3598.7	9.77	491.56
55.1	0.00	0.0	3559.7	3579.2	9.76	491.55
56.1	0.00	0.0	3540.2	3559.7	9.74	491.54
57.1	0.00	0.0	3520.7	3540.2	9.73	491.53
58.1	0.00	0.0	3501.3	3520.7	9.72	491.51
59.1	0.00	0.0	3481.9	3501.3	9.70	491.50

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-25.HYD
Outflow Hydrograph: 9203FX25.HYD

Starting Pond W.S. Elevation = 486.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	113.70 cfs
Peak Outflow	=	10.05 cfs
Peak Elevation	=	491.82 ft

***** Summary of Approximate Peak Storage *****

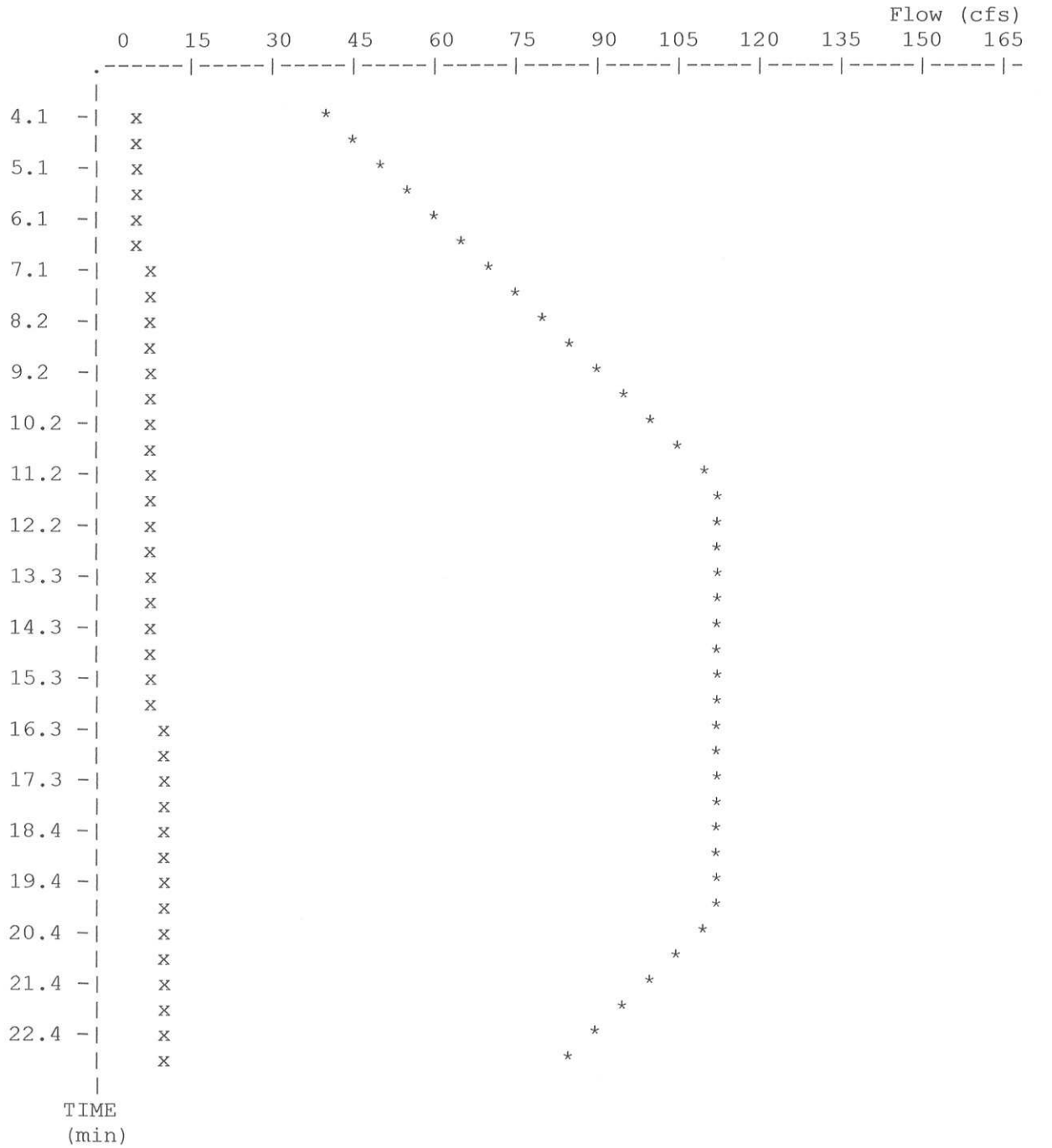
Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	2.79 ac-ft
Total Storage in Pond	=	2.79 ac-ft

20 minute Return Freq: 25 years

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203W-25.HYD
Outflow Hydrograph: 9203FX25.HYD

EXECUTED: 12-23-1998
14:48:08

Peak Inflow = 113.70 cfs
Peak Outflow = 10.05 cfs
Peak Elevation = 491.82 ft



x File: 9203FX25.HYD Qmax = 10.1 cfs
* File: 9203W-25.HYD Qmax = 113.7 cfs

LIVING WORD CHRISTIAN SCHOOL
WEST BASIN DETENTION ANALYSIS
BAX ENGINEERING
SEPTEMBER 24, 1998

Inflow Hydrograph: 9203W100.HYD
Rating Table file: 9203W100.PND

----INITIAL CONDITIONS----
Elevation = 492.00 ft
Outflow = 0.00 cfs
Storage = 3.03 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
486.00	0.0	0.000	0.0	0.0
486.50	0.0	0.002	2.7	2.7
487.00	0.0	0.015	21.3	21.3
487.50	0.0	0.050	72.0	72.0
488.00	0.0	0.118	170.8	170.8
488.50	0.0	0.232	335.8	335.8
489.00	0.0	0.405	586.8	586.8
489.50	0.0	0.650	941.8	941.8
490.00	0.0	0.979	1418.7	1418.7
490.50	0.0	1.386	2008.5	2008.5
491.00	0.0	1.860	2694.9	2694.9
491.50	0.0	2.405	3485.2	3485.2
492.00	0.0	3.027	4386.8	4386.8
492.50	0.0	3.720	5391.1	5391.1
493.00	45.9	4.477	6487.3	6533.2
493.50	129.5	5.299	7679.3	7808.8
494.00	237.4	6.191	8971.3	9208.7

Time increment (t) = 1.0 min.

Pond File: 9203W100.PND
Inflow Hydrograph: 9203W100.HYD
Outflow Hydrograph: 9203100F.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	4386.8	4386.8	0.00	492.00
1.0	12.60	12.6	4399.4	4399.4	0.00	492.01
2.0	25.20	37.8	4437.2	4437.2	0.00	492.03
3.0	37.80	63.0	4500.2	4500.2	0.00	492.06
4.0	50.40	88.2	4588.4	4588.4	0.00	492.10
5.0	63.00	113.4	4701.8	4701.8	0.00	492.16
6.0	75.60	138.6	4840.4	4840.4	0.00	492.23
7.0	88.20	163.8	5004.2	5004.2	0.00	492.31
8.0	100.80	189.0	5193.2	5193.2	0.00	492.40
9.0	113.40	214.2	5406.1	5407.4	0.66	492.51
10.0	126.00	239.4	5625.1	5645.5	10.22	492.61
11.0	138.60	264.6	5849.6	5889.7	20.04	492.72
12.0	144.80	283.4	6073.4	6133.0	29.82	492.82
13.0	144.80	289.6	6284.9	6363.0	39.06	492.93
14.0	144.80	289.6	6477.2	6574.5	48.60	493.02
15.0	144.80	289.6	6644.4	6766.8	61.21	493.09
16.0	144.80	289.6	6789.7	6934.0	72.17	493.16
17.0	144.80	289.6	6915.9	7079.3	81.69	493.21
18.0	144.80	289.6	7025.6	7205.5	89.96	493.26
19.0	144.80	289.6	7120.9	7315.2	97.15	493.31
20.0	144.10	288.9	7203.1	7409.8	103.35	493.34
21.0	131.50	275.6	7263.0	7478.7	107.86	493.37
22.0	118.90	250.4	7293.1	7513.4	110.14	493.38
23.0	106.30	225.2	7297.4	7518.3	110.46	493.39
24.0	93.70	200.0	7279.2	7497.4	109.09	493.38
25.0	81.10	174.8	7241.5	7454.0	106.25	493.36
26.1	68.50	149.6	7186.9	7391.1	102.12	493.34
27.1	55.90	124.4	7117.5	7311.3	96.89	493.30
28.1	43.30	99.2	7035.3	7216.7	90.69	493.27
29.1	30.70	74.0	6942.0	7109.3	83.66	493.23
30.1	18.10	48.8	6839.0	6990.8	75.89	493.18
31.1	5.50	23.6	6727.6	6862.6	67.49	493.13
32.1	0.00	5.5	6615.1	6733.1	59.00	493.08
33.1	0.00	0.0	6512.6	6615.1	51.27	493.03
34.1	0.00	0.0	6422.4	6512.6	45.07	492.99
35.1	0.00	0.0	6339.5	6422.4	41.45	492.95
36.1	0.00	0.0	6263.3	6339.5	38.12	492.92
37.1	0.00	0.0	6193.2	6263.3	35.05	492.88
38.1	0.00	0.0	6128.7	6193.2	32.24	492.85
39.1	0.00	0.0	6069.4	6128.7	29.64	492.82
40.1	0.00	0.0	6014.9	6069.4	27.26	492.80
41.1	0.00	0.0	5964.8	6014.9	25.07	492.77
42.1	0.00	0.0	5918.7	5964.8	23.06	492.75
43.1	0.00	0.0	5876.3	5918.7	21.20	492.73
44.1	0.00	0.0	5837.3	5876.3	19.50	492.71

Pond File: 9203W100.PND
Inflow Hydrograph: 9203W100.HYD
Outflow Hydrograph: 9203100F.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	5801.4	5837.3	17.93	492.70
46.1	0.00	0.0	5768.4	5801.4	16.49	492.68
47.1	0.00	0.0	5738.1	5768.4	15.16	492.67
48.1	0.00	0.0	5710.2	5738.1	13.94	492.65
49.1	0.00	0.0	5684.6	5710.2	12.82	492.64
50.1	0.00	0.0	5661.0	5684.6	11.79	492.63
51.1	0.00	0.0	5639.3	5661.0	10.85	492.62
52.1	0.00	0.0	5619.3	5639.3	9.97	492.61
53.1	0.00	0.0	5601.0	5619.3	9.17	492.60
54.1	0.00	0.0	5584.1	5601.0	8.43	492.59
55.1	0.00	0.0	5568.6	5584.1	7.76	492.58
56.1	0.00	0.0	5554.4	5568.6	7.13	492.58
57.1	0.00	0.0	5541.2	5554.4	6.56	492.57
58.1	0.00	0.0	5529.2	5541.2	6.03	492.57
59.1	0.00	0.0	5518.1	5529.2	5.55	492.56

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203W100.PND
Inflow Hydrograph: 9203W100.HYD
Outflow Hydrograph: 9203100F.HYD

Starting Pond W.S. Elevation = 492.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	144.80 cfs
Peak Outflow	=	110.46 cfs
Peak Elevation	=	493.39 ft

***** Summary of Approximate Peak Storage *****

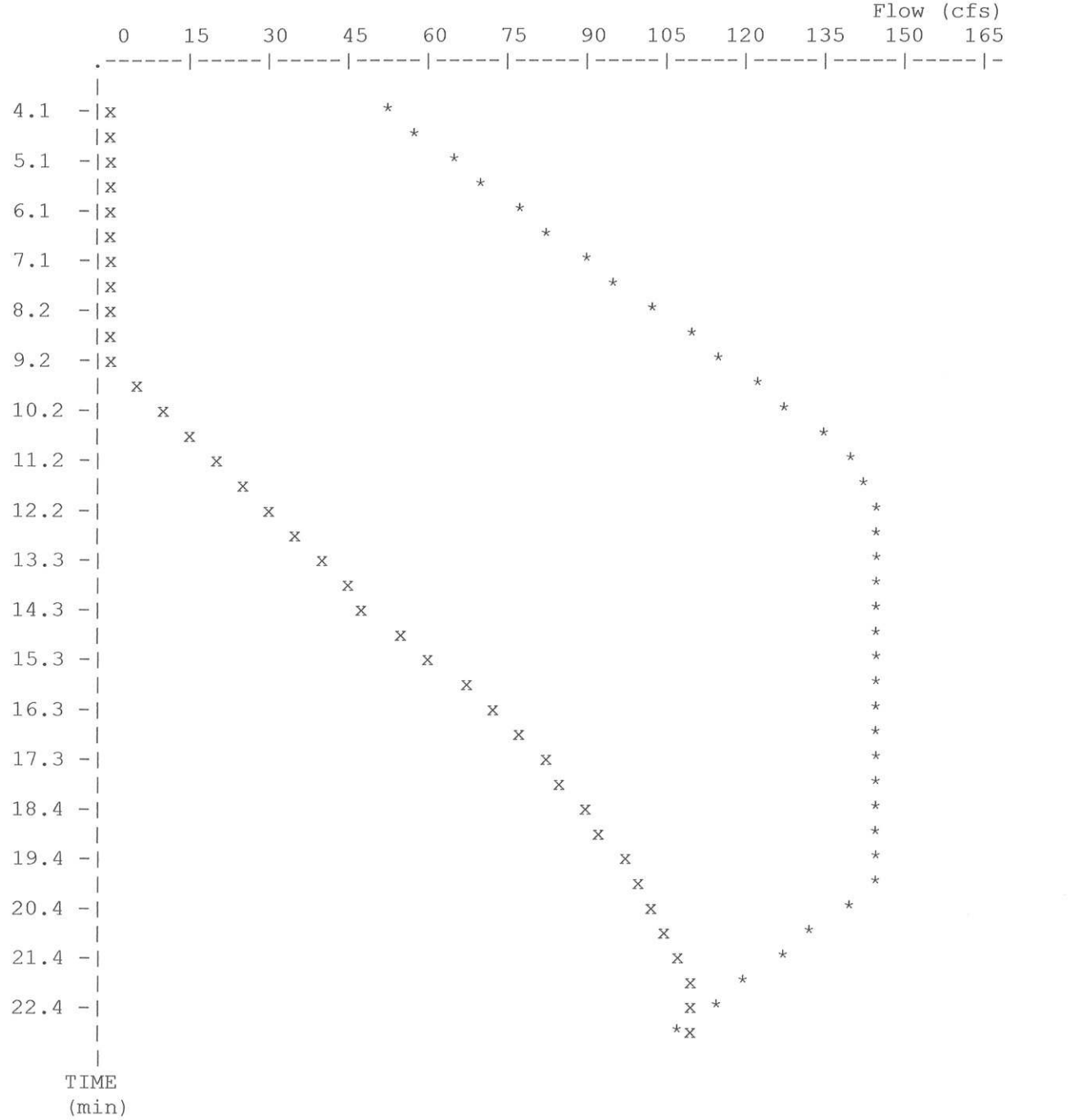
Initial Storage	=	3.03 ac-ft
Peak Storage From Storm	=	2.08 ac-ft
Total Storage in Pond	=	5.11 ac-ft

20 minute Return Freq: 100 years

Pond File: 9203W100.PND
Inflow Hydrograph: 9203W100.HYD
Outflow Hydrograph: 9203100F.HYD

EXECUTED: 12-23-1998
14:48:08

Peak Inflow = 144.80 cfs
Peak Outflow = 110.46 cfs
Peak Elevation = 493.39 ft



x File: 9203100F.HYD Qmax = 110.5 cfs
* File: 9203W100.HYD Qmax = 144.8 cfs

STORMWATER DETENTION CALCULATIONS

ULTIMATE DEVELOPMENT

WEST BASIN

ULT. EAST

POND-2 Version: 5.20
S/N:

LIVING WORD CHRISTIAN SCHOOL
DETENTION ANALYSIS
BAX ENGINEERING
10/13/98

CALCULATED 10-30-1998 09:48:51
DISK FILE: 9203EAST.VOL

Planimeter scale: 1 inch = 1 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	* Volume (acre-ft)	Volume Sum (acre-ft)
478.00	0.00	0.00	0.00	0.00	0.00
480.00	6,475.00	0.15	0.15	0.10	0.10
482.00	16,051.00	0.37	0.75	0.50	0.60
484.00	25,141.00	0.58	1.41	0.94	1.54
485.00	26,621.00	0.61	1.78	0.59	2.13

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Outlet Structure File: 9203E .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

***** COMPOSITE OUTFLOW SUMMARY ****

Elevation (ft)	Q (cfs)	Contributing Structures
478.00	0.0	1
478.25	0.6	1
478.50	1.8	1
478.75	3.1	1
479.00	4.7	1
479.25	6.3	1
479.50	0.0	2
479.75	9.7	1
480.00	11.5	1
480.25	13.2	1
480.50	14.8	1
480.75	16.4	1
481.00	33.5	2
481.25	36.2	2
481.50	38.7	2
481.75	41.1	2
482.00	43.3	2
482.25	45.4	2
482.50	47.4	3 +2
482.75	55.3	3 +2
483.00	67.9	3 +2
483.25	83.6	3 +2
483.50	101.9	3 +2
483.75	122.3	3 +2
484.00	144.7	3 +2
484.25	168.8	3 +2
484.50	194.5	3 +2
484.75	216.4	3 +2
485.00	226.2	3 +2

Outlet Structure File: 9203E .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outlet Structure File: 9203E .STR
Planimeter Input File: 9203EAST.VOL
Rating Table Output File: 9203EAST.PND

Min. Elev.(ft) = 478 Max. Elev.(ft) = 485 Incr.(ft) = .25

Additional elevations (ft) to be included in table:
* *

****
SYSTEM CONNECTIVITY
****

Structure	No.	Q Table		Q Table
ORIFICE	2		->	2
STAND PIPE	3		->	3
WEIR-VR	1	? 2	->	A

Outflow rating table summary was stored in file:
9203EAST.PND

Outlet Structure File: 9203E .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

>>>>>> Structure No. 2 <<<<<<
(Input Data)

ORIFICE
Orifice - Based on Area and Datum Elevation

E1 elev.(ft)?	479.5
E2 elev.(ft)?	485.001
Orifice coeff.?	0.65
Invert elev.(ft)?	478
Datum elev.(ft) ?	479.500
Orifice area (sq ft)?	5.250

Outlet Structure File: 9203E .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

>>>>>> Structure No. 3 <<<<<<
(Input Data)

STAND PIPE
Stand Pipe with weir or orifice flow

E1 elev.(ft)? 482.5
E2 elev.(ft)? 485.001
Crest elev.(ft)? 482.50
Diameter (ft)? 5
Weir coefficient? 3.00
Orifice coefficient? 0.65
Start transition elev.(ft) @ ?
Transition height (ft)?

Outlet Structure File: 9203E .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

>>>>>> Structure No. 1 <<<<<<
(Input Data)

WEIR-VR
Weir - Vertical Rectangular

E1 elev.(ft)?	478
E2 elev.(ft)?	481.00
Weir coefficient?	3.00
Weir elev.(ft)?	478
Length (ft)?	1.75
Contracted/Suppressed (C/S)?	C

Outlet Structure File: 9203E .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outflow Rating Table for Structure #2
ORIFICE Orifice - Based on Area and Datum Elevation

Elevation (ft)	Q (cfs)	Computation Messages
478.00	0.0	E < E1= 479.5
478.25	0.0	E < E1= 479.5
478.50	0.0	E < E1= 479.5
478.75	0.0	E < E1= 479.5
479.00	0.0	E < E1= 479.5
479.25	0.0	E < E1= 479.5
479.50	0.0	H =0.0
479.75	13.7	H =.25
480.00	19.4	H =.5
480.25	23.7	H =.750
480.50	27.4	H =1.0
480.75	30.6	H =1.25
481.00	33.5	H =1.5
481.25	36.2	H =1.75
481.50	38.7	H =2.0
481.75	41.1	H =2.25
482.00	43.3	H =2.5
482.25	45.4	H =2.75
482.50	47.4	H =3.0
482.75	49.4	H =3.25
483.00	51.2	H =3.5
483.25	53.0	H =3.75
483.50	54.8	H =4.0
483.75	56.5	H =4.25
484.00	58.1	H =4.5
484.25	59.7	H =4.75
484.50	61.2	H =5.0
484.75	62.7	H =5.25
485.00	64.2	H =5.5

C = .65 A = 5.25 sq.ft.
H (ft) = Table elev. - Datum elev. (479.5 ft)
Q (cfs) = C * A * sqr(2g * H)

Outlet Structure File: 9203E .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outflow Rating Table for Structure #3
STAND PIPE Stand Pipe with weir or orifice flow

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages
478.00	0.0	E < Inv.El.= 482.5
478.25	0.0	E < El= 482.5
478.50	0.0	E < El= 482.5
478.75	0.0	E < El= 482.5
479.00	0.0	E < El= 482.5
479.25	0.0	E < El= 482.5
479.50	0.0	E < El= 482.5
479.75	0.0	E < El= 482.5
480.00	0.0	E < El= 482.5
480.25	0.0	E < El= 482.5
480.50	0.0	E < El= 482.5
480.75	0.0	E < El= 482.5
481.00	0.0	E < El= 482.5
481.25	0.0	E < El= 482.5
481.50	0.0	E < El= 482.5
481.75	0.0	E < El= 482.5
482.00	0.0	E < El= 482.5
482.25	0.0	E < El= 482.5
482.50	0.0	Weir: H =0.0
482.75	5.9	Weir: H =.25
483.00	16.7	Weir: H =.5
483.25	30.6	Weir: H =.750
483.50	47.1	Weir: H =1.0
483.75	65.9	Weir: H =1.25
484.00	86.6	Weir: H =1.5
484.25	109.1	Weir: H =1.75
484.50	133.3	Weir: H =2.0
484.75	153.6	Orifice: H =2.25
485.00	161.9	Orifice: H =2.5

Weir Cw = 3 Weir length = 15.70796 ft
Orifice Co = .65 Orifice area = 19.63496 sq.ft.
Q (cfs) = (Cw * L * H**1.5) or (Co * A * sqr(2*g*H))
No transition used, transition height = 0.0
Weir equation = Orifice equation @ elev.= 484.6734 ft

Outlet Structure File: 9203E .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outflow Rating Table for Structure #1
WEIR-VR Weir - Vertical Rectangular

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages
478.00	0.0	H =0.0
478.25	0.6	H =.25
478.50	1.8	H =.5
478.75	3.1	H =.750
479.00	4.7	H =1.0
479.25	6.3	H =1.25
479.50	8.0	H =1.5
479.75	9.7	H =1.75
480.00	11.5	H =2.0
480.25	13.2	H =2.25
480.50	14.8	H =2.5
480.75	16.4	H =2.75
481.00	0.0	E = or > E2=481.00
481.25	0.0	E = or > E2=481.00
481.50	0.0	E = or > E2=481.00
481.75	0.0	E = or > E2=481.00
482.00	0.0	E = or > E2=481.00
482.25	0.0	E = or > E2=481.00
482.50	0.0	E = or > E2=481.00
482.75	0.0	E = or > E2=481.00
483.00	0.0	E = or > E2=481.00
483.25	0.0	E = or > E2=481.00
483.50	0.0	E = or > E2=481.00
483.75	0.0	E = or > E2=481.00
484.00	0.0	E = or > E2=481.00
484.25	0.0	E = or > E2=481.00
484.50	0.0	E = or > E2=481.00
484.75	0.0	E = or > E2=481.00
485.00	0.0	E = or > E2=481.00

C = 3 L (ft) = 1.75
H (ft) = Table elev. - Invert elev. (478 ft)
Q (cfs) = C * (L-.2H) * (H**1.5) -- Contracted Weir

Outlet Structure File: 9203E .STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outflow Rating Table A
Table A = 2 ? 1

Elevation (ft)	Q (cfs)	Contributing Structures
478.00	0.0	1
478.25	0.6	1
478.50	1.8	1
478.75	3.1	1
479.00	4.7	1
479.25	6.3	1
479.50	0.0	2
479.75	9.7	1
480.00	11.5	1
480.25	13.2	1
480.50	14.8	1
480.75	16.4	1
481.00	33.5	2
481.25	36.2	2
481.50	38.7	2
481.75	41.1	2
482.00	43.3	2
482.25	45.4	2
482.50	47.4	2
482.75	49.4	2
483.00	51.2	2
483.25	53.0	2
483.50	54.8	2
483.75	56.5	2
484.00	58.1	2
484.25	59.7	2
484.50	61.2	2
484.75	62.7	2
485.00	64.2	2

Outlet Structure File: 9203E100.STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

***** COMPOSITE OUTFLOW SUMMARY ****

Elevation (ft)	Q (cfs)	Contributing Structures
482.50	0.0	1
483.00	16.7	1
483.50	47.1	1
484.00	86.6	1
484.50	133.3	1
485.00	161.9	1

Outlet Structure File: 9203E100.STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outlet Structure File: 9203E100.STR
Planimeter Input File: 9203EAST.VOL
Rating Table Output File: 9203E100.PND

Min. Elev.(ft) = 482.5 Max. Elev.(ft) = 485 Incr.(ft) = .5

Additional elevations (ft) to be included in table:
* *

****
SYSTEM CONNECTIVITY
****

Structure	No.	Q Table		Q Table
STAND PIPE	1		->	1

Outflow rating table summary was stored in file:
9203E100.PND

Outlet Structure File: 9203E100.STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

>>>>>> Structure No. 1 <<<<<<
(Input Data)

STAND PIPE
Stand Pipe with weir or orifice flow

E1 elev.(ft)?	482.5
E2 elev.(ft)?	485.001
Crest elev.(ft)?	482.50
Diameter (ft)?	5
Weir coefficient?	3.00
Orifice coefficient?	0.65
Start transition elev.(ft) @ ?	
Transition height (ft)?	

Outlet Structure File: 9203E100.STR

POND-2 Version: 5.20 S/N:
Date Executed: Time Executed:

****
LIVING WORD CHRISTIAN SCHOOL
DETETNTION ANALYSIS
BAX ENGINEERING 97-9203F
SEPTEMBER 17, 1998
****

Outflow Rating Table for Structure #1
STAND PIPE Stand Pipe with weir or orifice flow

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation	Messages
482.50	0.0	Weir:	H =0.0
483.00	16.7	Weir:	H =.5
483.50	47.1	Weir:	H =1.0
484.00	86.6	Weir:	H =1.5
484.50	133.3	Weir:	H =2.0
485.00	161.9	Orifice:	H =2.5

Weir Cw = 3 Weir length = 15.70796 ft
Orifice Co = .65 Orifice area = 19.63496 sq.ft.
Q (cfs) = (Cw * L * H**1.5) or (Co * A * sqr(2*g*H))
No transition used, transition height = 0.0
Weir equation = Orifice equation @ elev.= 484.6734 ft

EXECUTED: 12-23-1998 14:52:36 20 minute Return Freq: 2 years

LIVING WORD CHRISTIAN SCHOOL
EAST BASIN DETENTION ANALYSIS
BAX ENGINEERING
SEPTEMBER 17, 1998

Inflow Hydrograph: 9203E-2 .HYD
Rating Table file: 9203EAST.PND

----INITIAL CONDITIONS----
Elevation = 478.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
478.00	0.0	0.000	0.0	0.0
478.25	0.6	0.000	0.3	0.9
478.50	1.8	0.002	2.2	4.0
478.75	3.1	0.005	7.6	10.7
479.00	4.6	0.012	18.0	22.6
479.25	6.3	0.024	35.1	41.4
479.75	9.7	0.066	96.2	105.9
480.00	11.5	0.099	143.6	155.1
480.25	13.2	0.139	201.4	214.6
480.50	14.8	0.185	267.5	282.3
480.75	16.4	0.236	342.5	358.9
481.00	33.5	0.295	426.8	460.3
481.25	36.2	0.360	521.1	557.3
481.50	38.7	0.432	625.9	664.6
481.75	41.1	0.512	741.8	782.9
482.00	43.3	0.600	869.3	912.6
482.25	45.4	0.695	1007.0	1052.4
482.50	47.4	0.796	1153.4	1200.8
482.75	55.3	0.903	1308.7	1364.0
483.00	67.9	1.017	1473.2	1541.1
483.25	83.6	1.137	1647.2	1730.8
483.50	101.9	1.263	1830.8	1932.7
483.75	122.3	1.397	2024.5	2146.8
484.00	144.7	1.538	2228.3	2373.0
484.25	168.8	1.683	2439.0	2607.8
484.50	194.5	1.831	2652.6	2847.1
484.75	216.4	1.980	2869.4	3085.8
485.00	226.2	2.132	3089.2	3315.4

Time increment (t) = 1.0 min.

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-2 .HYD
Outflow Hydrograph: 9203EX2 .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	478.00
1.0	6.60	6.6	2.0	6.6	2.30	478.60
2.0	13.10	19.7	12.7	21.7	4.49	478.98
3.0	19.70	32.8	32.5	45.5	6.52	479.28
4.0	26.20	45.9	61.9	78.4	8.25	479.54
5.0	32.80	59.0	100.4	120.9	10.25	479.83
6.0	39.40	72.2	148.6	172.6	12.00	480.07
7.0	45.90	85.3	206.6	233.9	13.66	480.32
8.0	52.50	98.4	274.4	305.0	15.27	480.57
9.0	53.00	105.5	340.0	379.9	19.95	480.80
10.0	53.00	106.0	383.8	446.0	31.09	480.96
11.0	53.00	106.0	421.2	489.8	34.32	481.08
12.0	53.00	106.0	456.5	527.2	35.36	481.17
13.0	53.00	106.0	489.8	562.5	36.32	481.26
14.0	53.00	106.0	521.6	595.8	37.10	481.34
15.0	53.00	106.0	552.0	627.6	37.84	481.41
16.0	53.00	106.0	580.9	658.0	38.54	481.48
17.0	53.00	106.0	608.6	686.9	39.15	481.55
18.0	53.00	106.0	635.1	714.6	39.71	481.61
19.0	53.00	106.0	660.6	741.1	40.25	481.66
20.0	52.60	105.6	684.7	766.2	40.76	481.71
21.0	46.10	98.7	701.2	783.4	41.11	481.75
22.0	39.50	85.6	704.5	786.8	41.17	481.76
23.0	33.00	72.5	695.0	777.0	40.98	481.74
24.0	26.40	59.4	673.4	754.4	40.52	481.69
25.0	19.80	46.2	639.9	719.6	39.81	481.62
26.1	13.30	33.1	595.3	673.0	38.87	481.52
27.1	6.70	20.0	540.2	615.3	37.55	481.39
28.1	0.20	6.9	475.2	547.1	35.92	481.22
29.1	0.00	0.2	407.6	475.4	33.92	481.04
30.1	0.00	0.0	358.4	407.6	24.62	480.87
31.1	0.00	0.0	325.6	358.4	16.39	480.75
32.1	0.00	0.0	294.2	325.6	15.70	480.64
33.1	0.00	0.0	264.1	294.2	15.05	480.54
34.1	0.00	0.0	235.3	264.1	14.37	480.43
35.1	0.00	0.0	208.0	235.3	13.69	480.33
36.1	0.00	0.0	181.9	208.0	13.01	480.22
37.1	0.00	0.0	157.4	181.9	12.27	480.11
38.1	0.00	0.0	134.3	157.4	11.57	480.01
39.1	0.00	0.0	112.8	134.3	10.74	479.89
40.1	0.00	0.0	92.9	112.8	9.95	479.79
41.1	0.00	0.0	74.9	92.9	9.01	479.65
42.1	0.00	0.0	58.7	74.9	8.07	479.51
43.1	0.00	0.0	44.3	58.7	7.22	479.38
44.1	0.00	0.0	31.4	44.3	6.46	479.27

EXECUTED: 12-23-1998 14:52:36 20 minute Return Freq: 2 years

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-2 .HYD
Outflow Hydrograph: 9203EX2 .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	20.6	31.4	5.40	479.12
46.1	0.00	0.0	11.9	20.6	4.35	478.96
47.1	0.00	0.0	5.4	11.9	3.25	478.78
48.1	0.00	0.0	1.3	5.4	2.06	478.55
49.1	0.00	0.0	-0.2	1.3	0.75	478.28
50.1	0.00	0.0	-0.2	-0.2	0.00	478.00
51.1	0.00	0.0	-0.2	-0.2	0.00	478.00
52.1	0.00	0.0	-0.2	-0.2	0.00	478.00
53.1	0.00	0.0	-0.2	-0.2	0.00	478.00
54.1	0.00	0.0	-0.2	-0.2	0.00	478.00
55.1	0.00	0.0	-0.2	-0.2	0.00	478.00
56.1	0.00	0.0	-0.2	-0.2	0.00	478.00
57.1	0.00	0.0	-0.2	-0.2	0.00	478.00
58.1	0.00	0.0	-0.2	-0.2	0.00	478.00
59.1	0.00	0.0	-0.2	-0.2	0.00	478.00

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-2 .HYD
Outflow Hydrograph: 9203EX2 .HYD

Starting Pond W.S. Elevation = 478.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	53.00 cfs
Peak Outflow	=	41.17 cfs
Peak Elevation	=	481.76 ft

***** Summary of Approximate Peak Storage *****

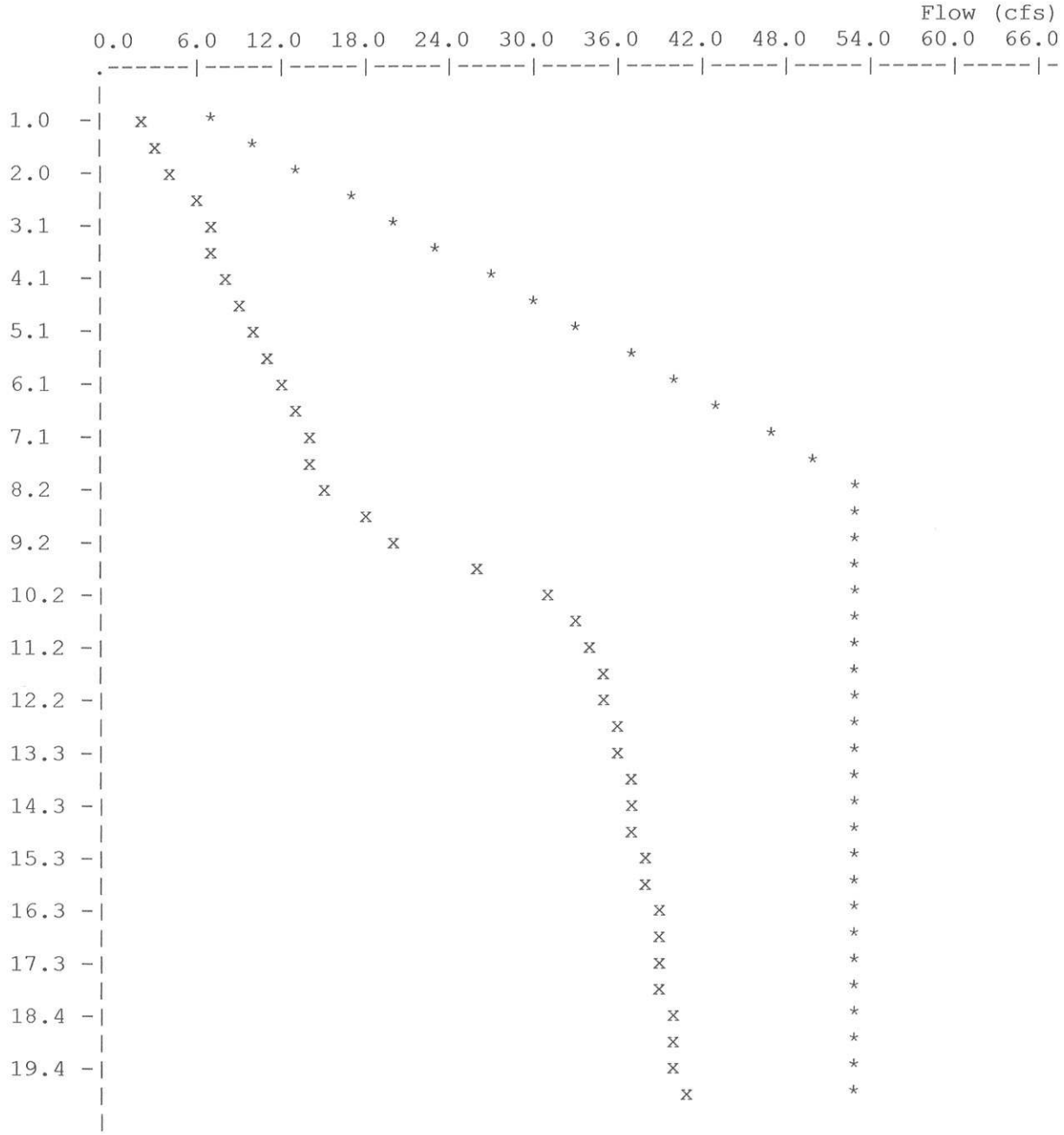
Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	0.51 ac-ft
Total Storage in Pond	=	0.51 ac-ft

20 minute Return Freq: 2 years

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-2 .HYD
Outflow Hydrograph: 9203EX2 .HYD

EXECUTED: 12-23-1998
14:52:36

Peak Inflow = 53.00 cfs
Peak Outflow = 41.17 cfs
Peak Elevation = 481.76 ft



x File: 9203EX2 .HYD Qmax = 41.2 cfs
* File: 9203E-2 .HYD Qmax = 53.0 cfs

EXECUTED: 12-23-1998 14:52:36 20 minute Return Freq: 15 years

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*
* LIVING WORD CHRISTIAN SCHOOL
* EAST BASIN DETENTION ANALYSIS
* BAX ENGINEERING
* SEPTEMBER 17, 1998
*
****

Inflow Hydrograph: 9203E-15.HYD
Rating Table file: 9203EAST.PND

----INITIAL CONDITIONS----
Elevation = 478.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
478.00	0.0	0.000	0.0	0.0
478.25	0.6	0.000	0.3	0.9
478.50	1.8	0.002	2.2	4.0
478.75	3.1	0.005	7.6	10.7
479.00	4.6	0.012	18.0	22.6
479.25	6.3	0.024	35.1	41.4
479.75	9.7	0.066	96.2	105.9
480.00	11.5	0.099	143.6	155.1
480.25	13.2	0.139	201.4	214.6
480.50	14.8	0.185	267.5	282.3
480.75	16.4	0.236	342.5	358.9
481.00	33.5	0.295	426.8	460.3
481.25	36.2	0.360	521.1	557.3
481.50	38.7	0.432	625.9	664.6
481.75	41.1	0.512	741.8	782.9
482.00	43.3	0.600	869.3	912.6
482.25	45.4	0.695	1007.0	1052.4
482.50	47.4	0.796	1153.4	1200.8
482.75	55.3	0.903	1308.7	1364.0
483.00	67.9	1.017	1473.2	1541.1
483.25	83.6	1.137	1647.2	1730.8
483.50	101.9	1.263	1830.8	1932.7
483.75	122.3	1.397	2024.5	2146.8
484.00	144.7	1.538	2228.3	2373.0
484.25	168.8	1.683	2439.0	2607.8
484.50	194.5	1.831	2652.6	2847.1
484.75	216.4	1.980	2869.4	3085.8
485.00	226.2	2.132	3089.2	3315.4

Time increment (t) = 1.0 min.

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-15.HYD
Outflow Hydrograph: 9203EX15.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	478.00
1.0	10.60	10.6	4.4	10.6	3.08	478.75
2.0	21.10	31.7	24.5	36.1	5.83	479.18
3.0	31.70	52.8	60.9	77.3	8.19	479.53
4.0	42.30	74.0	113.4	134.9	10.76	479.90
5.0	52.90	95.2	182.5	208.6	13.03	480.22
6.0	63.40	116.3	268.5	298.8	15.15	480.55
7.0	74.00	137.4	357.3	405.9	24.33	480.87
8.0	84.60	158.6	445.8	515.9	35.05	481.14
9.0	85.50	170.1	540.7	615.9	37.56	481.39
10.0	85.50	171.0	632.4	711.7	39.66	481.60
11.0	85.50	171.0	720.5	803.4	41.45	481.79
12.0	85.50	171.0	805.6	891.5	42.94	481.96
13.0	85.50	171.0	888.1	976.6	44.26	482.11
14.0	85.50	171.0	968.1	1059.1	45.49	482.26
15.0	85.50	171.0	1046.0	1139.1	46.57	482.40
16.0	85.50	171.0	1120.6	1217.0	48.18	482.52
17.0	85.50	171.0	1188.0	1291.6	51.80	482.64
18.0	85.50	171.0	1248.9	1359.0	55.06	482.74
19.0	85.50	171.0	1301.4	1419.9	59.28	482.83
20.0	84.80	170.3	1345.7	1471.7	62.96	482.90
21.0	74.30	159.1	1374.2	1504.8	65.32	482.95
22.0	63.70	138.0	1380.5	1512.2	65.84	482.96
23.0	53.10	116.8	1367.8	1497.3	64.78	482.94
24.0	42.60	95.7	1338.7	1463.5	62.37	482.89
25.0	32.00	74.6	1295.7	1413.3	58.81	482.82
26.1	21.40	53.4	1239.9	1349.1	54.58	482.73
27.1	10.80	32.2	1170.4	1272.1	50.85	482.61
28.1	0.30	11.1	1087.2	1181.5	47.14	482.47
29.1	0.00	0.3	995.8	1087.5	45.87	482.31
30.1	0.00	0.0	906.7	995.8	44.55	482.15
31.1	0.00	0.0	820.3	906.7	43.20	481.99
32.1	0.00	0.0	736.8	820.3	41.73	481.82
33.1	0.00	0.0	656.5	736.8	40.17	481.65
34.1	0.00	0.0	579.5	656.5	38.51	481.48
35.1	0.00	0.0	506.0	579.5	36.72	481.30
36.1	0.00	0.0	436.5	506.0	34.77	481.12
37.1	0.00	0.0	377.5	436.5	29.49	480.94
38.1	0.00	0.0	338.4	377.5	19.55	480.80
39.1	0.00	0.0	306.5	338.4	15.97	480.68
40.1	0.00	0.0	275.9	306.5	15.31	480.58
41.1	0.00	0.0	246.6	275.9	14.65	480.48
42.1	0.00	0.0	218.7	246.6	13.96	480.37
43.1	0.00	0.0	192.1	218.7	13.30	480.26
44.1	0.00	0.0	167.0	192.1	12.56	480.16

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-15.HYD
Outflow Hydrograph: 9203EX15.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	143.3	167.0	11.84	480.05
46.1	0.00	0.0	121.1	143.3	11.07	479.94
47.1	0.00	0.0	100.6	121.1	10.26	479.83
48.1	0.00	0.0	81.8	100.6	9.42	479.71
49.1	0.00	0.0	64.9	81.8	8.43	479.56
50.1	0.00	0.0	49.8	64.9	7.54	479.43
51.1	0.00	0.0	36.4	49.8	6.75	479.32
52.1	0.00	0.0	24.7	36.4	5.85	479.18
53.1	0.00	0.0	15.1	24.7	4.79	479.03
54.1	0.00	0.0	7.8	15.1	3.66	478.84
55.1	0.00	0.0	2.7	7.8	2.53	478.64
56.1	0.00	0.0	0.1	2.7	1.29	478.39
57.1	0.00	0.0	-0.0	0.1	0.08	478.03
58.1	0.00	0.0	-0.0	-0.0	0.00	478.00
59.1	0.00	0.0	-0.0	-0.0	0.00	478.00

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-15.HYD
Outflow Hydrograph: 9203EX15.HYD

Starting Pond W.S. Elevation = 478.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	85.50 cfs
Peak Outflow	=	65.84 cfs
Peak Elevation	=	482.96 ft

***** Summary of Approximate Peak Storage *****

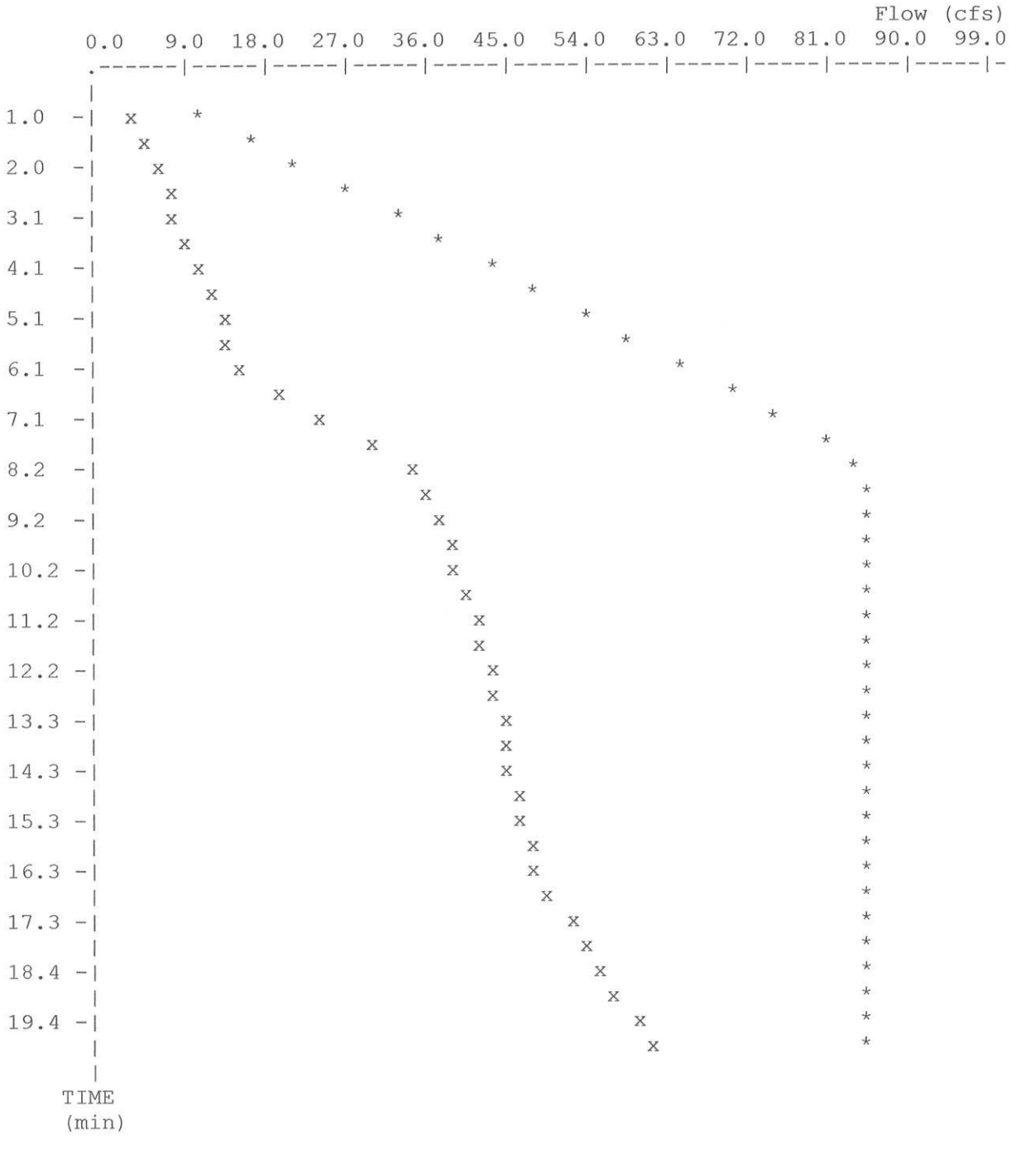
Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	1.00 ac-ft
Total Storage in Pond	=	1.00 ac-ft

20 minute Return Freq: 15 years

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-15.HYD
Outflow Hydrograph: 9203EX15.HYD

EXECUTED: 12-23-1998
14:52:36

Peak Inflow = 85.50 cfs
Peak Outflow = 65.84 cfs
Peak Elevation = 482.96 ft



x File: 9203EX15.HYD Qmax = 65.8 cfs
* File: 9203E-15.HYD Qmax = 85.5 cfs

EXECUTED: 12-23-1998 14:52:36 20 minute Return Freq: 25 years

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*
* LIVING WORD CHRISTIAN SCHOOL *
* EAST BASIN DETENTION ANALYSIS *
* BAX ENGINEERING *
* SEPTEMBER 17, 1998 *
*
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Inflow Hydrograph: 9203E-25.HYD
Rating Table file: 9203EAST.PND

----INITIAL CONDITIONS----
Elevation = 478.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
478.00	0.0	0.000
478.25	0.6	0.000
478.50	1.8	0.002
478.75	3.1	0.005
479.00	4.6	0.012
479.25	6.3	0.024
479.75	9.7	0.066
480.00	11.5	0.099
480.25	13.2	0.139
480.50	14.8	0.185
480.75	16.4	0.236
481.00	33.5	0.295
481.25	36.2	0.360
481.50	38.7	0.432
481.75	41.1	0.512
482.00	43.3	0.600
482.25	45.4	0.695
482.50	47.4	0.796
482.75	55.3	0.903
483.00	67.9	1.017
483.25	83.6	1.137
483.50	101.9	1.263
483.75	122.3	1.397
484.00	144.7	1.538
484.25	168.8	1.683
484.50	194.5	1.831
484.75	216.4	1.980
485.00	226.2	2.132

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
0.0	0.0
0.3	0.9
2.2	4.0
7.6	10.7
18.0	22.6
35.1	41.4
96.2	105.9
143.6	155.1
201.4	214.6
267.5	282.3
342.5	358.9
426.8	460.3
521.1	557.3
625.9	664.6
741.8	782.9
869.3	912.6
1007.0	1052.4
1153.4	1200.8
1308.7	1364.0
1473.2	1541.1
1647.2	1730.8
1830.8	1932.7
2024.5	2146.8
2228.3	2373.0
2439.0	2607.8
2652.6	2847.1
2869.4	3085.8
3089.2	3315.4

Time increment (t) = 1.0 min.

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-25.HYD
Outflow Hydrograph: 9203EX25.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	478.00
1.0	13.10	13.1	6.3	13.1	3.41	478.80
2.0	26.20	39.3	32.5	45.6	6.52	479.28
3.0	39.20	65.4	79.4	97.9	9.28	479.69
4.0	52.30	91.5	147.0	170.9	11.95	480.07
5.0	65.40	117.7	235.9	264.7	14.38	480.43
6.0	78.50	143.9	339.9	379.8	19.93	480.80
7.0	91.50	170.0	440.2	509.9	34.88	481.13
8.0	104.60	196.1	560.2	636.3	38.04	481.43
9.0	105.70	210.3	688.8	770.5	40.85	481.72
10.0	105.70	211.4	814.0	900.2	43.09	481.98
11.0	105.70	211.4	935.4	1025.4	44.99	482.20
12.0	105.70	211.4	1053.5	1146.8	46.67	482.41
13.0	105.70	211.4	1163.9	1264.9	50.50	482.60
14.0	105.70	211.4	1263.1	1375.3	56.10	482.77
15.0	105.70	211.4	1348.2	1474.5	63.16	482.91
16.0	105.70	211.4	1420.7	1559.6	69.43	483.02
17.0	105.70	211.4	1481.2	1632.1	75.43	483.12
18.0	105.70	211.4	1531.8	1692.6	80.44	483.20
19.0	105.70	211.4	1573.7	1743.2	84.72	483.27
20.0	104.90	210.6	1607.4	1784.3	88.45	483.32
21.0	91.90	196.8	1623.7	1804.2	90.25	483.34
22.0	78.80	170.7	1615.7	1794.4	89.37	483.33
23.0	65.70	144.5	1587.6	1760.2	86.26	483.29
24.0	52.60	118.3	1542.8	1705.9	81.54	483.22
25.0	39.50	92.1	1483.6	1634.9	75.67	483.12
26.1	26.50	66.0	1412.4	1549.6	68.60	483.01
27.1	13.40	39.9	1329.1	1452.3	61.58	482.87
28.1	0.30	13.7	1234.3	1342.8	54.27	482.72
29.1	0.00	0.3	1136.5	1234.6	49.04	482.55
30.1	0.00	0.0	1043.4	1136.5	46.53	482.39
31.1	0.00	0.0	952.9	1043.4	45.27	482.23
32.1	0.00	0.0	865.1	952.9	43.91	482.07
33.1	0.00	0.0	780.1	865.1	42.49	481.91
34.1	0.00	0.0	698.0	780.1	41.04	481.74
35.1	0.00	0.0	619.3	698.0	39.38	481.57
36.1	0.00	0.0	544.0	619.3	37.64	481.39
37.1	0.00	0.0	472.3	544.0	35.83	481.22
38.1	0.00	0.0	404.7	472.3	33.83	481.03
39.1	0.00	0.0	356.4	404.7	24.12	480.86
40.1	0.00	0.0	323.7	356.4	16.35	480.74
41.1	0.00	0.0	292.4	323.7	15.67	480.64
42.1	0.00	0.0	262.4	292.4	15.01	480.53
43.1	0.00	0.0	233.7	262.4	14.33	480.43
44.1	0.00	0.0	206.4	233.7	13.65	480.32

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-25.HYD
Outflow Hydrograph: 9203EX25.HYD

INFLOW HYDROGRAPH

TIME (min)	INFLOW (cfs)
45.1	0.00
46.1	0.00
47.1	0.00
48.1	0.00
49.1	0.00
50.1	0.00
51.1	0.00
52.1	0.00
53.1	0.00
54.1	0.00
55.1	0.00
56.1	0.00
57.1	0.00
58.1	0.00
59.1	0.00

ROUTING COMPUTATIONS

I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	180.5	206.4	12.97	480.22
0.0	156.0	180.5	12.22	480.11
0.0	133.0	156.0	11.53	480.00
0.0	111.6	133.0	10.69	479.89
0.0	91.8	111.6	9.91	479.78
0.0	73.9	91.8	8.96	479.64
0.0	57.8	73.9	8.01	479.50
0.0	43.5	57.8	7.17	479.38
0.0	30.7	43.5	6.41	479.27
0.0	20.0	30.7	5.33	479.11
0.0	11.5	20.0	4.28	478.95
0.0	5.1	11.5	3.20	478.77
0.0	1.1	5.1	2.00	478.54
0.0	-0.3	1.1	0.67	478.26
0.0	-0.3	-0.3	0.00	478.00

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-25.HYD
Outflow Hydrograph: 9203EX25.HYD

Starting Pond W.S. Elevation = 478.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	105.70 cfs
Peak Outflow	=	90.25 cfs
Peak Elevation	=	483.34 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	1.18 ac-ft
Total Storage in Pond	=	1.18 ac-ft

POND-2 Version: 5.20 S/N:

20 minute

Return Freq: 25 years

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E-25.HYD
Outflow Hydrograph: 9203EX25.HYD

EXECUTED: 12-23-1998
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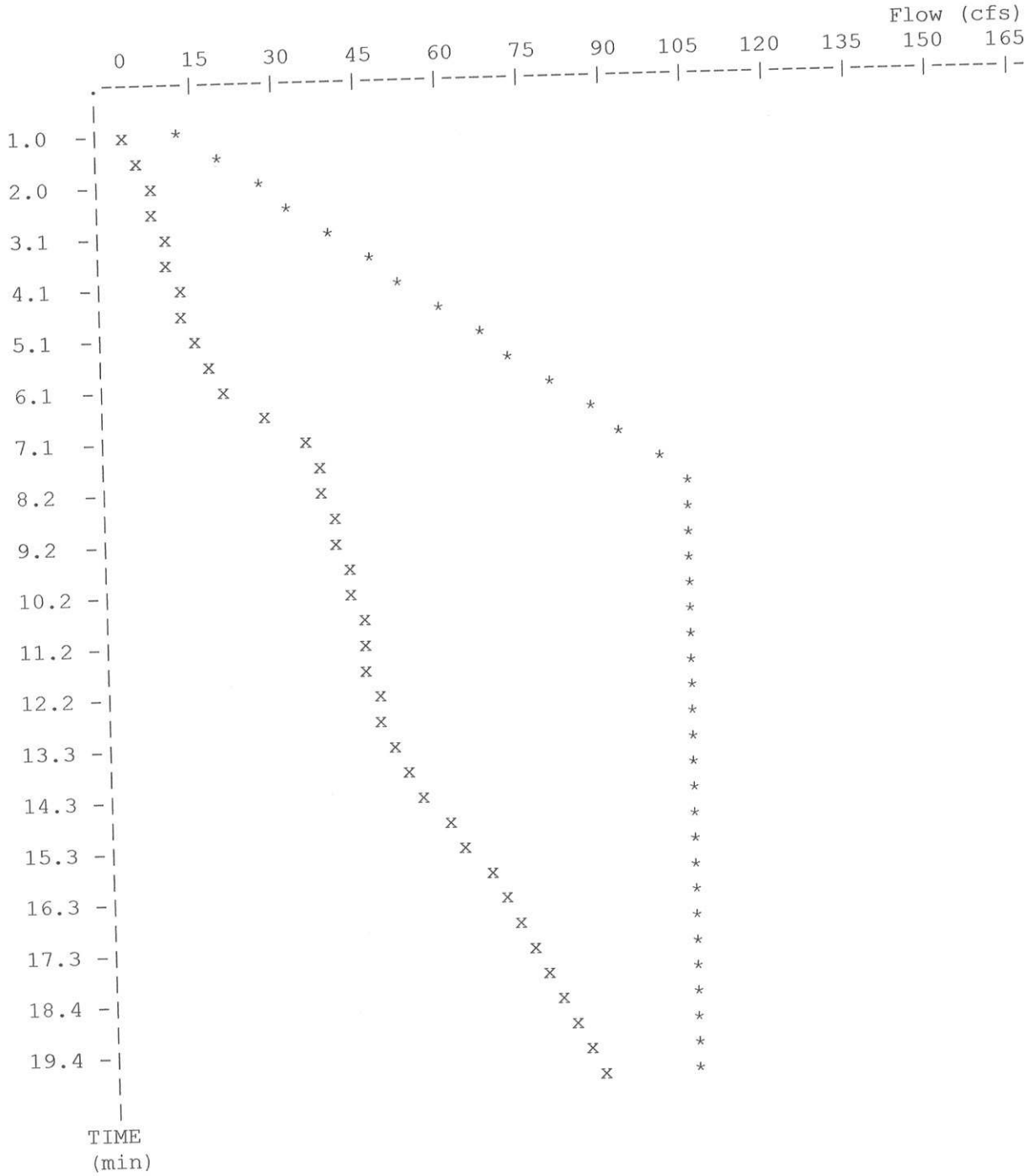
Peak Inflow = 105.70 cfs
Peak Outflow = 90.25 cfs
Peak Elevation = 483.34 ft



x File: 9203EX25.HYD Qmax = 90.3 cfs
* File: 9203E-25.HYD Qmax = 105.7 cfs

LIVING WORD CHRISTIAN SCHOOL
EAST BASIN DETENTION ANALYSIS
BAX ENGINEERING
SEPTEMBER 17, 1998

Inflow Hydrograph: 9203E100.HYD
Rating Table file: 9203E100.PND

----INITIAL CONDITIONS----
Elevation = 482.50 ft
Outflow = 0.00 cfs
Storage = 0.80 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
482.50	0.0	0.796
483.00	16.7	1.017
483.50	47.1	1.263
484.00	86.6	1.538
484.50	133.3	1.831
485.00	161.9	2.132

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
1153.4	1153.4
1473.2	1489.9
1830.8	1877.9
2228.3	2314.9
2652.6	2785.9
3089.2	3251.1

Time increment (t) = 1.0 min.

Pond File: 9203E100.PND
Inflow Hydrograph: 9203E100.HYD
Outflow Hydrograph: 9203EXC .HYD

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	1153.4	1153.4	0.00	482.50
1.0	16.70	16.7	1168.4	1170.1	0.83	482.52
2.0	33.40	50.1	1212.1	1218.5	3.23	482.60
3.0	50.10	83.5	1281.5	1295.6	7.06	482.71
4.0	66.80	116.9	1374.1	1398.4	12.16	482.86
5.0	83.50	150.3	1485.6	1524.4	19.40	483.04
6.0	100.20	183.7	1607.8	1669.3	30.75	483.23
7.0	116.90	217.1	1739.0	1824.9	42.94	483.43
8.0	133.60	250.5	1875.1	1989.5	57.18	483.63
9.0	135.00	268.6	2001.5	2143.7	71.12	483.80
10.0	135.00	270.0	2106.1	2271.5	82.67	483.95
11.0	135.00	270.0	2190.8	2376.1	92.67	484.06
12.0	135.00	270.0	2258.7	2460.8	101.06	484.15
13.0	135.00	270.0	2313.1	2528.7	107.79	484.23
14.0	135.00	270.0	2356.7	2583.1	113.19	484.28
15.0	135.00	270.0	2391.7	2626.7	117.51	484.33
16.0	135.00	270.0	2419.7	2661.7	120.98	484.37
17.0	135.00	270.0	2442.2	2689.7	123.76	484.40
18.0	135.00	270.0	2460.2	2712.2	125.99	484.42
19.0	135.00	270.0	2474.7	2730.2	127.78	484.44
20.0	134.00	269.0	2485.4	2743.7	129.11	484.46
21.0	117.30	251.3	2479.9	2736.7	128.42	484.45
22.0	100.60	217.9	2448.7	2697.8	124.56	484.41
23.0	83.90	184.5	2396.9	2633.2	118.15	484.34
24.0	67.20	151.1	2328.5	2548.0	109.71	484.25
25.0	50.50	117.7	2247.0	2446.2	99.62	484.14
26.1	33.80	84.3	2154.9	2331.3	88.22	484.02
27.1	17.10	50.9	2052.3	2205.8	76.73	483.88
28.1	0.40	17.5	1940.9	2069.8	64.44	483.72
29.1	0.00	0.4	1835.7	1941.3	52.83	483.57
30.1	0.00	0.0	1748.1	1835.7	43.79	483.45
31.1	0.00	0.0	1674.2	1748.1	36.93	483.33
32.1	0.00	0.0	1611.9	1674.2	31.14	483.24
33.1	0.00	0.0	1559.4	1611.9	26.26	483.16
34.1	0.00	0.0	1515.1	1559.4	22.15	483.09
35.1	0.00	0.0	1477.8	1515.1	18.68	483.03
36.1	0.00	0.0	1445.6	1477.8	16.10	482.98
37.1	0.00	0.0	1416.6	1445.6	14.50	482.93
38.1	0.00	0.0	1390.5	1416.6	13.06	482.89
39.1	0.00	0.0	1366.9	1390.5	11.76	482.85
40.1	0.00	0.0	1345.7	1366.9	10.60	482.82
41.1	0.00	0.0	1326.6	1345.7	9.55	482.79
42.1	0.00	0.0	1309.5	1326.6	8.60	482.76
43.1	0.00	0.0	1294.0	1309.5	7.74	482.73
44.1	0.00	0.0	1280.0	1294.0	6.98	482.71

Pond File: 9203E100.PND
Inflow Hydrograph: 9203E100.HYD
Outflow Hydrograph: 9203EXC .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	1267.4	1280.0	6.28	482.69
46.1	0.00	0.0	1256.1	1267.4	5.66	482.67
47.1	0.00	0.0	1245.9	1256.1	5.10	482.65
48.1	0.00	0.0	1236.7	1245.9	4.59	482.64
49.1	0.00	0.0	1228.5	1236.7	4.14	482.62
50.1	0.00	0.0	1221.0	1228.5	3.73	482.61
51.1	0.00	0.0	1214.3	1221.0	3.36	482.60
52.1	0.00	0.0	1208.3	1214.3	3.02	482.59
53.1	0.00	0.0	1202.8	1208.3	2.72	482.58
54.1	0.00	0.0	1197.9	1202.8	2.45	482.57
55.1	0.00	0.0	1193.5	1197.9	2.21	482.57
56.1	0.00	0.0	1189.5	1193.5	1.99	482.56
57.1	0.00	0.0	1185.9	1189.5	1.79	482.55
58.1	0.00	0.0	1182.7	1185.9	1.61	482.55
59.1	0.00	0.0	1179.8	1182.7	1.45	482.54

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203E100.PND
Inflow Hydrograph: 9203E100.HYD
Outflow Hydrograph: 9203EXC .HYD

Starting Pond W.S. Elevation = 482.50 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	135.00 cfs
Peak Outflow	=	129.11 cfs
Peak Elevation	=	484.46 ft

***** Summary of Approximate Peak Storage *****

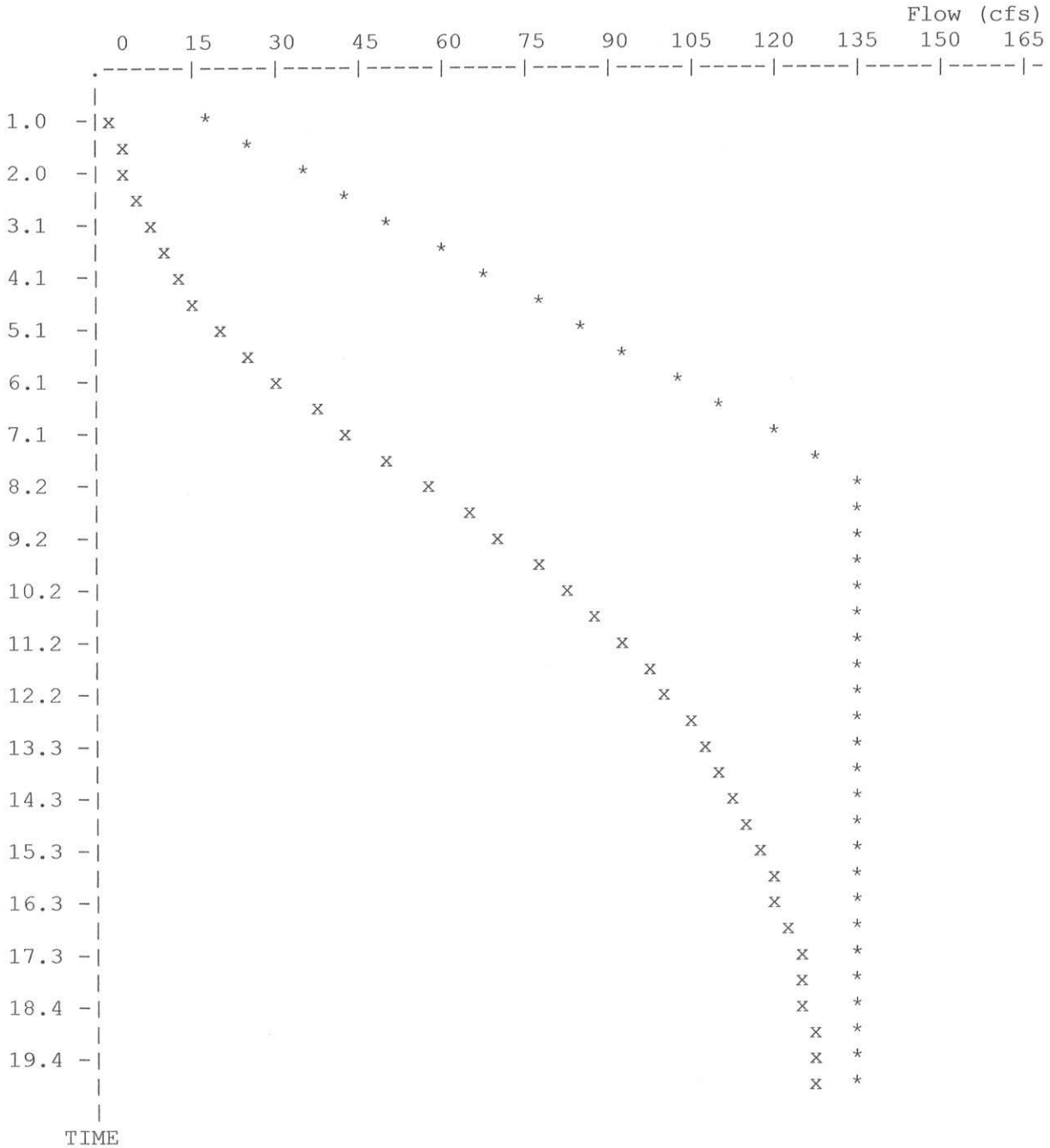
Initial Storage	=	0.80 ac-ft
Peak Storage From Storm	=	1.01 ac-ft
Total Storage in Pond	=	1.80 ac-ft

20 minute Return Freq: 100 years

Pond File: 9203E100.PND
Inflow Hydrograph: 9203E100.HYD
Outflow Hydrograph: 9203EXC .HYD

EXECUTED: 12-23-1998
14:52:36

Peak Inflow = 135.00 cfs
Peak Outflow = 129.11 cfs
Peak Elevation = 484.46 ft



x File: 9203EXC .HYD Qmax = 129.1 cfs
* File: 9203E100.HYD Qmax = 135.0 cfs

STORMWATER DETENTION CALCULATIONS

PROPOSED DEVELOPMENT

WEST BASIN

EXECUTED: 12-23-1998 14:40:19 20 minute Return Freq: 2 years

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**********************************
*                                *
*   LIVING WORD CHRISTIAN SCHOOL *
*   WEST BASIN DETENTION ANALYSIS*
*         BAX ENGINEERING        *
*        SEPTEMBER 24, 1998      *
*                                *
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Inflow Hydrograph: 9203PW2 .HYD
Rating Table file: 9203WEST.PND

----INITIAL CONDITIONS----
Elevation = 486.00 ft
Outflow   =   0.00 cfs
Storage   =   0.00 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
486.00	0.0	0.000
486.25	0.3	0.000
486.75	1.3	0.006
487.00	3.1	0.015
487.25	3.8	0.029
487.50	4.3	0.050
487.75	4.9	0.079
488.00	5.3	0.118
488.25	5.8	0.168
488.50	6.1	0.232
488.75	6.5	0.310
489.00	6.9	0.405
489.25	7.2	0.518
489.50	7.5	0.650
489.75	7.8	0.803
490.00	8.1	0.979
490.25	8.4	1.174
490.50	8.7	1.386
490.75	9.0	1.614
491.00	9.2	1.860
491.25	9.5	2.123
491.50	9.7	2.405
491.75	10.0	2.706
492.00	10.2	3.027
492.25	10.4	3.366
492.50	10.6	3.720
492.75	10.9	4.090
493.00	11.1	4.477
493.25	11.3	4.880
493.50	11.5	5.299
493.75	11.7	5.736

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + 0 (cfs)
0.0	0.0
0.3	0.6
9.0	10.3
21.3	24.4
41.7	45.5
72.0	76.3
114.4	119.3
170.8	176.1
243.7	249.5
335.8	341.9
449.4	455.9
586.8	593.7
750.2	757.4
941.8	949.3
1163.8	1171.6
1418.7	1426.8
1701.9	1710.3
2008.5	2017.2
2339.1	2348.1
2694.9	2704.1
3076.6	3086.1
3485.2	3494.9
3921.6	3931.6
4386.8	4397.0
4877.7	4888.1
5391.1	5401.7
5927.5	5938.4
6487.3	6498.4
7071.1	7082.4
7679.3	7690.8
8312.6	8324.3

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
494.00	11.9	6.191	8971.3	8983.2

Time increment (t) = 1.0 min.

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW2 .HYD
Outflow Hydrograph: 9203FX2 .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	486.00
1.0	2.80	2.8	1.8	2.8	0.52	486.36
2.0	5.60	8.4	7.6	10.2	1.28	486.74
3.0	8.40	14.0	16.1	21.6	2.74	486.95
4.0	11.20	19.6	28.8	35.7	3.47	487.13
5.0	13.90	25.1	46.0	53.9	3.94	487.32
6.0	16.70	30.6	68.0	76.6	4.30	487.50
7.0	19.50	36.2	94.8	104.2	4.69	487.66
8.0	22.30	41.8	126.6	136.6	5.02	487.83
9.0	25.10	47.4	163.4	174.0	5.29	487.99
10.0	27.90	53.0	205.2	216.4	5.57	488.14
11.0	30.70	58.6	252.1	263.8	5.85	488.29
12.0	32.00	62.7	302.8	314.8	6.01	488.43
13.0	32.00	64.0	354.5	366.8	6.19	488.55
14.0	32.00	64.0	405.7	418.5	6.37	488.67
15.0	32.00	64.0	456.6	469.7	6.54	488.77
16.0	32.00	64.0	507.3	520.6	6.69	488.87
17.0	32.00	64.0	557.6	571.3	6.83	488.96
18.0	32.00	64.0	607.7	621.6	6.95	489.04
19.0	32.00	64.0	657.6	671.7	7.04	489.12
20.0	31.90	63.9	707.2	721.5	7.13	489.20
21.0	29.10	61.0	753.8	768.2	7.22	489.26
22.0	26.30	55.4	794.6	809.2	7.28	489.32
23.0	23.50	49.8	829.8	844.4	7.34	489.36
24.0	20.70	44.2	859.2	874.0	7.38	489.40
25.0	17.90	38.6	883.0	897.8	7.42	489.43
26.1	15.20	33.1	901.2	916.1	7.45	489.46
27.1	12.40	27.6	913.8	928.8	7.47	489.47
28.1	9.60	22.0	920.9	935.8	7.48	489.48
29.1	6.80	16.4	922.3	937.3	7.48	489.48
30.1	4.00	10.8	918.2	933.1	7.47	489.48
31.1	1.20	5.2	908.4	923.4	7.46	489.47
32.1	0.00	1.2	894.8	909.6	7.44	489.45
33.1	0.00	0.0	879.9	894.8	7.41	489.43
34.1	0.00	0.0	865.1	879.9	7.39	489.41
35.1	0.00	0.0	850.4	865.1	7.37	489.39
36.1	0.00	0.0	835.7	850.4	7.35	489.37
37.1	0.00	0.0	821.1	835.7	7.32	489.35
38.1	0.00	0.0	806.5	821.1	7.30	489.33
39.1	0.00	0.0	791.9	806.5	7.28	489.31
40.1	0.00	0.0	777.4	791.9	7.25	489.30
41.1	0.00	0.0	763.0	777.4	7.23	489.28
42.1	0.00	0.0	748.5	763.0	7.21	489.26
43.1	0.00	0.0	734.2	748.5	7.18	489.24
44.1	0.00	0.0	719.9	734.2	7.16	489.21

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW2 .HYD
Outflow Hydrograph: 9203FX2 .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	705.6	719.9	7.13	489.19
46.1	0.00	0.0	691.4	705.6	7.11	489.17
47.1	0.00	0.0	677.2	691.4	7.08	489.15
48.1	0.00	0.0	663.1	677.2	7.05	489.13
49.1	0.00	0.0	649.1	663.1	7.03	489.11
50.1	0.00	0.0	635.1	649.1	7.00	489.08
51.1	0.00	0.0	621.1	635.1	6.98	489.06
52.1	0.00	0.0	607.2	621.1	6.95	489.04
53.1	0.00	0.0	593.4	607.2	6.92	489.02
54.1	0.00	0.0	579.6	593.4	6.90	489.00
55.1	0.00	0.0	565.8	579.6	6.86	488.97
56.1	0.00	0.0	552.2	565.8	6.82	488.95
57.1	0.00	0.0	538.6	552.2	6.78	488.92
58.1	0.00	0.0	525.2	538.6	6.74	488.90
59.1	0.00	0.0	511.8	525.2	6.70	488.88

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW2 .HYD
Outflow Hydrograph: 9203FX2 .HYD

Starting Pond W.S. Elevation = 486.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	32.00 cfs
Peak Outflow	=	7.48 cfs
Peak Elevation	=	489.48 ft

***** Summary of Approximate Peak Storage *****

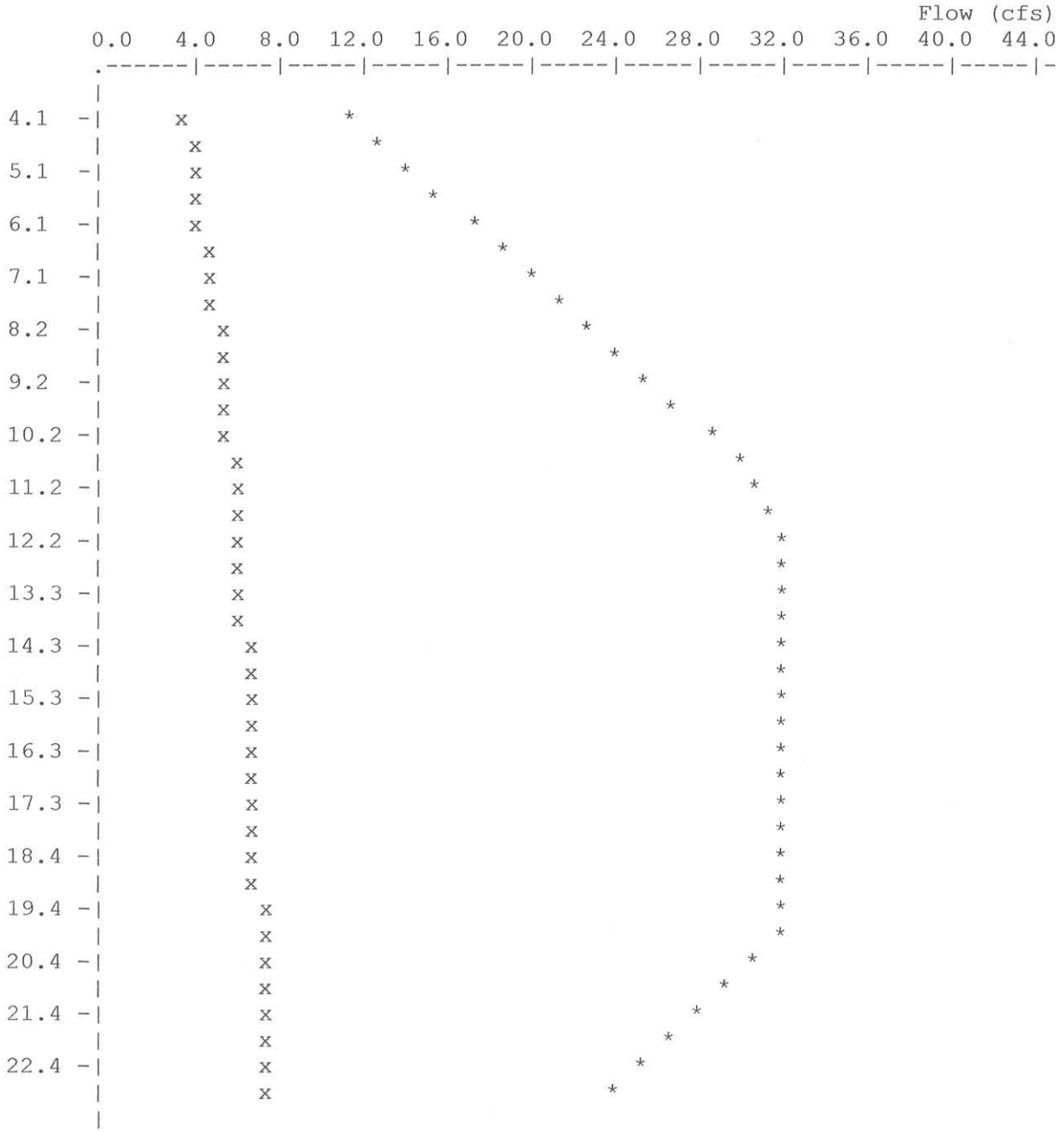
Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	0.64 ac-ft
Total Storage in Pond	=	0.64 ac-ft

20 minute Return Freq: 2 years

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW2 .HYD
Outflow Hydrograph: 9203FX2 .HYD

EXECUTED: 12-23-1998
14:40:19

Peak Inflow = 32.00 cfs
Peak Outflow = 7.48 cfs
Peak Elevation = 489.48 ft



x File: 9203FX2 .HYD Qmax = 7.5 cfs
* File: 9203PW2 .HYD Qmax = 32.0 cfs

****
*
* LIVING WORD CHRISTIAN SCHOOL *
* WEST BASIN DETENTION ANALYSIS *
* BAX ENGINEERING *
* SEPTEMBER 24, 1998 *
*
****

Inflow Hydrograph: 9203PW15.HYD
Rating Table file: 9203WEST.PND

----INITIAL CONDITIONS----
Elevation = 486.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
486.00	0.0	0.000	0.0	0.0
486.25	0.3	0.000	0.3	0.6
486.75	1.3	0.006	9.0	10.3
487.00	3.1	0.015	21.3	24.4
487.25	3.8	0.029	41.7	45.5
487.50	4.3	0.050	72.0	76.3
487.75	4.9	0.079	114.4	119.3
488.00	5.3	0.118	170.8	176.1
488.25	5.8	0.168	243.7	249.5
488.50	6.1	0.232	335.8	341.9
488.75	6.5	0.310	449.4	455.9
489.00	6.9	0.405	586.8	593.7
489.25	7.2	0.518	750.2	757.4
489.50	7.5	0.650	941.8	949.3
489.75	7.8	0.803	1163.8	1171.6
490.00	8.1	0.979	1418.7	1426.8
490.25	8.4	1.174	1701.9	1710.3
490.50	8.7	1.386	2008.5	2017.2
490.75	9.0	1.614	2339.1	2348.1
491.00	9.2	1.860	2694.9	2704.1
491.25	9.5	2.123	3076.6	3086.1
491.50	9.7	2.405	3485.2	3494.9
491.75	10.0	2.706	3921.6	3931.6
492.00	10.2	3.027	4386.8	4397.0
492.25	10.4	3.366	4877.7	4888.1
492.50	10.6	3.720	5391.1	5401.7
492.75	10.9	4.090	5927.5	5938.4
493.00	11.1	4.477	6487.3	6498.4
493.25	11.3	4.880	7071.1	7082.4
493.50	11.5	5.299	7679.3	7690.8
493.75	11.7	5.736	8312.6	8324.3

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
494.00	11.9	6.191	8971.3	8983.2

Time increment (t) = 1.0 min.

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW15.HYD
Outflow Hydrograph: 9203FX15.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	486.00
1.0	4.50	4.5	3.1	4.5	0.70	486.45
2.0	9.10	13.6	12.5	16.7	2.11	486.86
3.0	13.60	22.7	28.3	35.2	3.46	487.13
4.0	18.10	31.7	51.9	60.0	4.03	487.37
5.0	22.70	40.8	83.6	92.7	4.53	487.60
6.0	27.20	49.9	123.5	133.5	5.00	487.81
7.0	31.70	58.9	171.7	182.4	5.34	488.02
8.0	36.30	68.0	228.3	239.7	5.73	488.22
9.0	40.80	77.1	293.4	305.4	5.98	488.40
10.0	45.30	86.1	367.1	379.5	6.23	488.58
11.0	49.90	95.2	449.2	462.3	6.52	488.76
12.0	52.10	102.0	537.7	551.2	6.78	488.92
13.0	52.10	104.2	627.9	641.9	6.99	489.07
14.0	52.10	104.2	717.8	732.1	7.15	489.21
15.0	52.10	104.2	807.4	822.0	7.30	489.33
16.0	52.10	104.2	896.7	911.6	7.44	489.45
17.0	52.10	104.2	985.8	1000.9	7.57	489.56
18.0	52.10	104.2	1074.6	1090.0	7.69	489.66
19.0	52.10	104.2	1163.2	1178.8	7.81	489.76
20.0	51.80	103.9	1251.2	1267.1	7.91	489.84
21.0	47.30	99.1	1334.3	1350.3	8.01	489.93
22.0	42.80	90.1	1408.2	1424.4	8.10	490.00
23.0	38.20	81.0	1472.9	1489.2	8.17	490.06
24.0	33.70	71.9	1528.3	1544.8	8.22	490.10
25.0	29.20	62.9	1574.7	1591.2	8.27	490.14
26.1	24.60	53.8	1611.9	1628.5	8.31	490.18
27.1	20.10	44.7	1639.9	1656.6	8.34	490.20
28.1	15.60	35.7	1658.8	1675.6	8.36	490.22
29.1	11.00	26.6	1668.7	1685.4	8.37	490.23
30.1	6.50	17.5	1669.5	1686.2	8.37	490.23
31.1	2.00	8.5	1661.2	1678.0	8.37	490.22
32.1	0.00	2.0	1646.5	1663.2	8.35	490.21
33.1	0.00	0.0	1629.9	1646.5	8.33	490.19
34.1	0.00	0.0	1613.2	1629.9	8.31	490.18
35.1	0.00	0.0	1596.6	1613.2	8.30	490.16
36.1	0.00	0.0	1580.1	1596.6	8.28	490.15
37.1	0.00	0.0	1563.5	1580.1	8.26	490.14
38.1	0.00	0.0	1547.1	1563.5	8.24	490.12
39.1	0.00	0.0	1530.6	1547.1	8.23	490.11
40.1	0.00	0.0	1514.2	1530.6	8.21	490.09
41.1	0.00	0.0	1497.8	1514.2	8.19	490.08
42.1	0.00	0.0	1481.4	1497.8	8.18	490.06
43.1	0.00	0.0	1465.1	1481.4	8.16	490.05
44.1	0.00	0.0	1448.9	1465.1	8.14	490.03

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW15.HYD
Outflow Hydrograph: 9203FX15.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	1432.6	1448.9	8.12	490.02
46.1	0.00	0.0	1416.4	1432.6	8.11	490.01
47.1	0.00	0.0	1400.2	1416.4	8.09	489.99
48.1	0.00	0.0	1384.1	1400.2	8.07	489.97
49.1	0.00	0.0	1368.0	1384.1	8.05	489.96
50.1	0.00	0.0	1351.9	1368.0	8.03	489.94
51.1	0.00	0.0	1335.9	1351.9	8.01	489.93
52.1	0.00	0.0	1319.9	1335.9	7.99	489.91
53.1	0.00	0.0	1304.0	1319.9	7.97	489.90
54.1	0.00	0.0	1288.0	1304.0	7.96	489.88
55.1	0.00	0.0	1272.2	1288.0	7.94	489.86
56.1	0.00	0.0	1256.3	1272.2	7.92	489.85
57.1	0.00	0.0	1240.5	1256.3	7.90	489.83
58.1	0.00	0.0	1224.8	1240.5	7.88	489.82
59.1	0.00	0.0	1209.1	1224.8	7.86	489.80

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW15.HYD
Outflow Hydrograph: 9203FX15.HYD

Starting Pond W.S. Elevation = 486.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	52.10 cfs
Peak Outflow	=	8.37 cfs
Peak Elevation	=	490.23 ft

***** Summary of Approximate Peak Storage *****

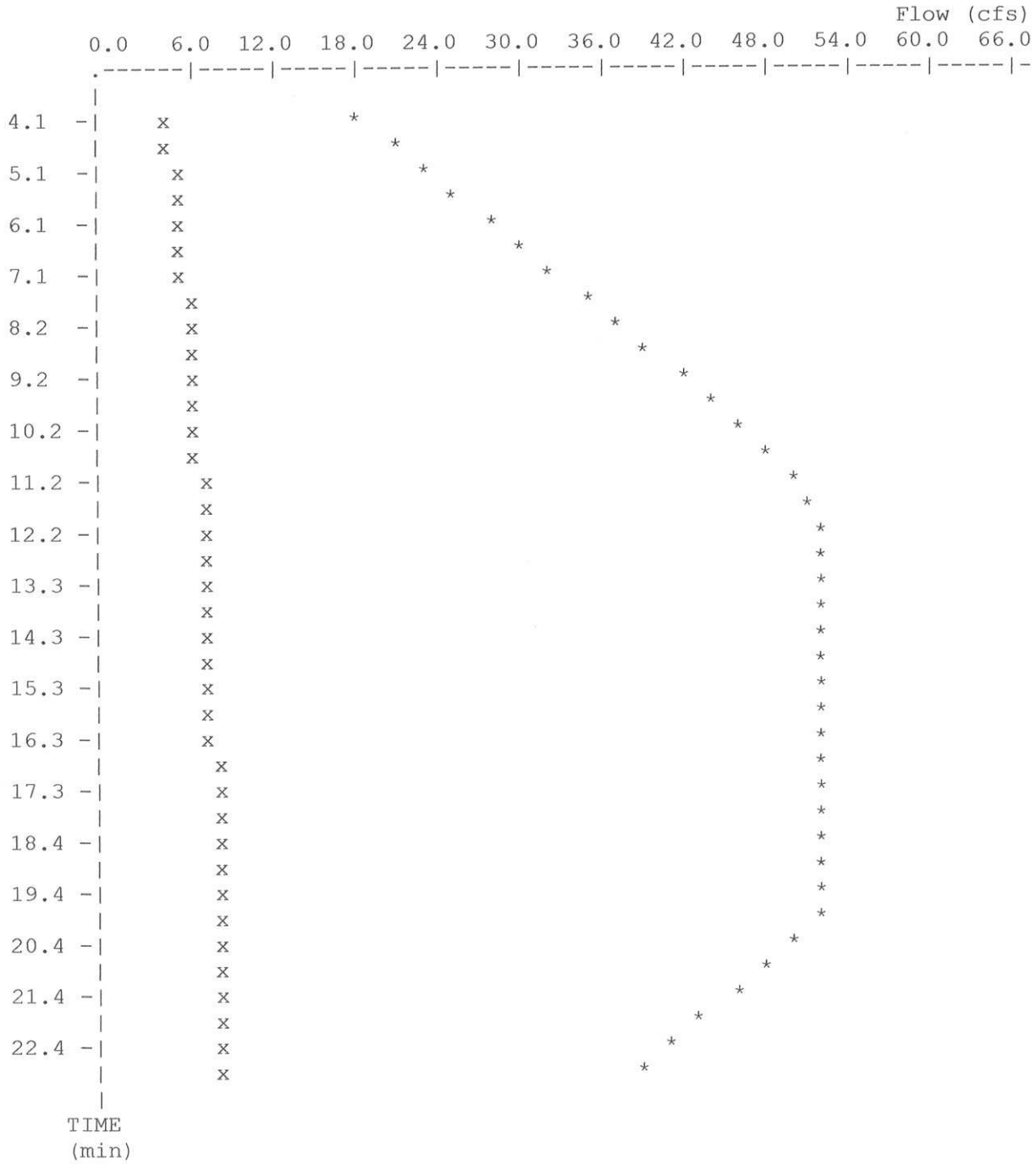
Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	1.16 ac-ft
Total Storage in Pond	=	1.16 ac-ft

20 minute Return Freq: 15 years

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW15.HYD
Outflow Hydrograph: 9203FX15.HYD

EXECUTED: 12-23-1998
14:40:19

Peak Inflow = 52.10 cfs
Peak Outflow = 8.37 cfs
Peak Elevation = 490.23 ft



x File: 9203FX15.HYD Qmax = 8.4 cfs
* File: 9203PW15.HYD Qmax = 52.1 cfs

EXECUTED: 12-23-1998 14:40:19 20 minute Return Freq: 25 years

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*
* LIVING WORD CHRISTIAN SCHOOL
* WEST BASIN DETENTION ANALYSIS
* BAX ENGINEERING
* SEPTEMBER 24, 1998
*
****

Inflow Hydrograph: 9203PW25.HYD
Rating Table file: 9203WEST.PND

----INITIAL CONDITIONS----
Elevation = 486.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
486.00	0.0	0.000
486.25	0.3	0.000
486.75	1.3	0.006
487.00	3.1	0.015
487.25	3.8	0.029
487.50	4.3	0.050
487.75	4.9	0.079
488.00	5.3	0.118
488.25	5.8	0.168
488.50	6.1	0.232
488.75	6.5	0.310
489.00	6.9	0.405
489.25	7.2	0.518
489.50	7.5	0.650
489.75	7.8	0.803
490.00	8.1	0.979
490.25	8.4	1.174
490.50	8.7	1.386
490.75	9.0	1.614
491.00	9.2	1.860
491.25	9.5	2.123
491.50	9.7	2.405
491.75	10.0	2.706
492.00	10.2	3.027
492.25	10.4	3.366
492.50	10.6	3.720
492.75	10.9	4.090
493.00	11.1	4.477
493.25	11.3	4.880
493.50	11.5	5.299
493.75	11.7	5.736

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
0.0	0.0
0.3	0.6
9.0	10.3
21.3	24.4
41.7	45.5
72.0	76.3
114.4	119.3
170.8	176.1
243.7	249.5
335.8	341.9
449.4	455.9
586.8	593.7
750.2	757.4
941.8	949.3
1163.8	1171.6
1418.7	1426.8
1701.9	1710.3
2008.5	2017.2
2339.1	2348.1
2694.9	2704.1
3076.6	3086.1
3485.2	3494.9
3921.6	3931.6
4386.8	4397.0
4877.7	4888.1
5391.1	5401.7
5927.5	5938.4
6487.3	6498.4
7071.1	7082.4
7679.3	7690.8
8312.6	8324.3

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
494.00	11.9	6.191

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
8971.3	8983.2

Time increment (t) = 1.0 min.

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW25.HYD
Outflow Hydrograph: 9203FX25.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	486.00
1.0	5.70	5.7	4.1	5.7	0.82	486.51
2.0	11.50	17.2	15.9	21.3	2.69	486.94
3.0	17.20	28.7	37.0	44.6	3.77	487.24
4.0	23.00	40.2	68.6	77.2	4.31	487.51
5.0	28.70	51.7	110.5	120.3	4.91	487.75
6.0	34.50	63.2	163.1	173.7	5.28	487.99
7.0	40.20	74.7	226.4	237.8	5.72	488.21
8.0	46.00	86.2	300.6	312.6	6.00	488.42
9.0	51.70	97.7	385.7	398.3	6.30	488.62
10.0	57.40	109.1	481.5	494.8	6.61	488.82
11.0	63.20	120.6	588.3	602.1	6.92	489.01
12.0	66.10	129.3	703.4	717.6	7.13	489.19
13.0	66.10	132.2	820.9	835.6	7.32	489.35
14.0	66.10	132.2	938.1	953.1	7.51	489.50
15.0	66.10	132.2	1055.0	1070.3	7.66	489.64
16.0	66.10	132.2	1171.5	1187.2	7.82	489.77
17.0	66.10	132.2	1287.8	1303.7	7.96	489.88
18.0	66.10	132.2	1403.9	1420.0	8.09	489.99
19.0	66.10	132.2	1519.6	1536.1	8.22	490.10
20.0	65.70	131.8	1634.7	1651.4	8.34	490.20
21.0	60.00	125.7	1743.5	1760.4	8.45	490.29
22.0	54.20	114.2	1840.7	1857.7	8.54	490.37
23.0	48.50	102.7	1926.1	1943.4	8.63	490.44
24.0	42.70	91.2	1999.9	2017.3	8.70	490.50
25.0	37.00	79.7	2062.1	2079.6	8.76	490.55
26.1	31.20	68.2	2112.7	2130.3	8.80	490.59
27.1	25.50	56.7	2151.7	2169.4	8.84	490.61
28.1	19.70	45.2	2179.2	2196.9	8.86	490.64
29.1	14.00	33.7	2195.1	2212.9	8.88	490.65
30.1	8.30	22.3	2199.7	2217.4	8.88	490.65
31.1	2.50	10.8	2192.7	2210.5	8.88	490.65
32.1	0.00	2.5	2177.5	2195.2	8.86	490.63
33.1	0.00	0.0	2159.8	2177.5	8.85	490.62
34.1	0.00	0.0	2142.1	2159.8	8.83	490.61
35.1	0.00	0.0	2124.5	2142.1	8.81	490.59
36.1	0.00	0.0	2106.9	2124.5	8.80	490.58
37.1	0.00	0.0	2089.4	2106.9	8.78	490.57
38.1	0.00	0.0	2071.8	2089.4	8.77	490.55
39.1	0.00	0.0	2054.3	2071.8	8.75	490.54
40.1	0.00	0.0	2036.9	2054.3	8.73	490.53
41.1	0.00	0.0	2019.4	2036.9	8.72	490.51
42.1	0.00	0.0	2002.0	2019.4	8.70	490.50
43.1	0.00	0.0	1984.7	2002.0	8.69	490.49
44.1	0.00	0.0	1967.3	1984.7	8.67	490.47

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW25.HYD
Outflow Hydrograph: 9203FX25.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	1950.0	1967.3	8.65	490.46
46.1	0.00	0.0	1932.7	1950.0	8.63	490.45
47.1	0.00	0.0	1915.5	1932.7	8.62	490.43
48.1	0.00	0.0	1898.3	1915.5	8.60	490.42
49.1	0.00	0.0	1881.1	1898.3	8.58	490.40
50.1	0.00	0.0	1864.0	1881.1	8.57	490.39
51.1	0.00	0.0	1846.9	1864.0	8.55	490.38
52.1	0.00	0.0	1829.8	1846.9	8.53	490.36
53.1	0.00	0.0	1812.8	1829.8	8.52	490.35
54.1	0.00	0.0	1795.8	1812.8	8.50	490.33
55.1	0.00	0.0	1778.8	1795.8	8.48	490.32
56.1	0.00	0.0	1761.9	1778.8	8.47	490.31
57.1	0.00	0.0	1745.0	1761.9	8.45	490.29
58.1	0.00	0.0	1728.1	1745.0	8.43	490.28
59.1	0.00	0.0	1711.3	1728.1	8.42	490.26

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW25.HYD
Outflow Hydrograph: 9203FX25.HYD

Starting Pond W.S. Elevation = 486.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	66.10 cfs
Peak Outflow	=	8.88 cfs
Peak Elevation	=	490.65 ft

***** Summary of Approximate Peak Storage *****

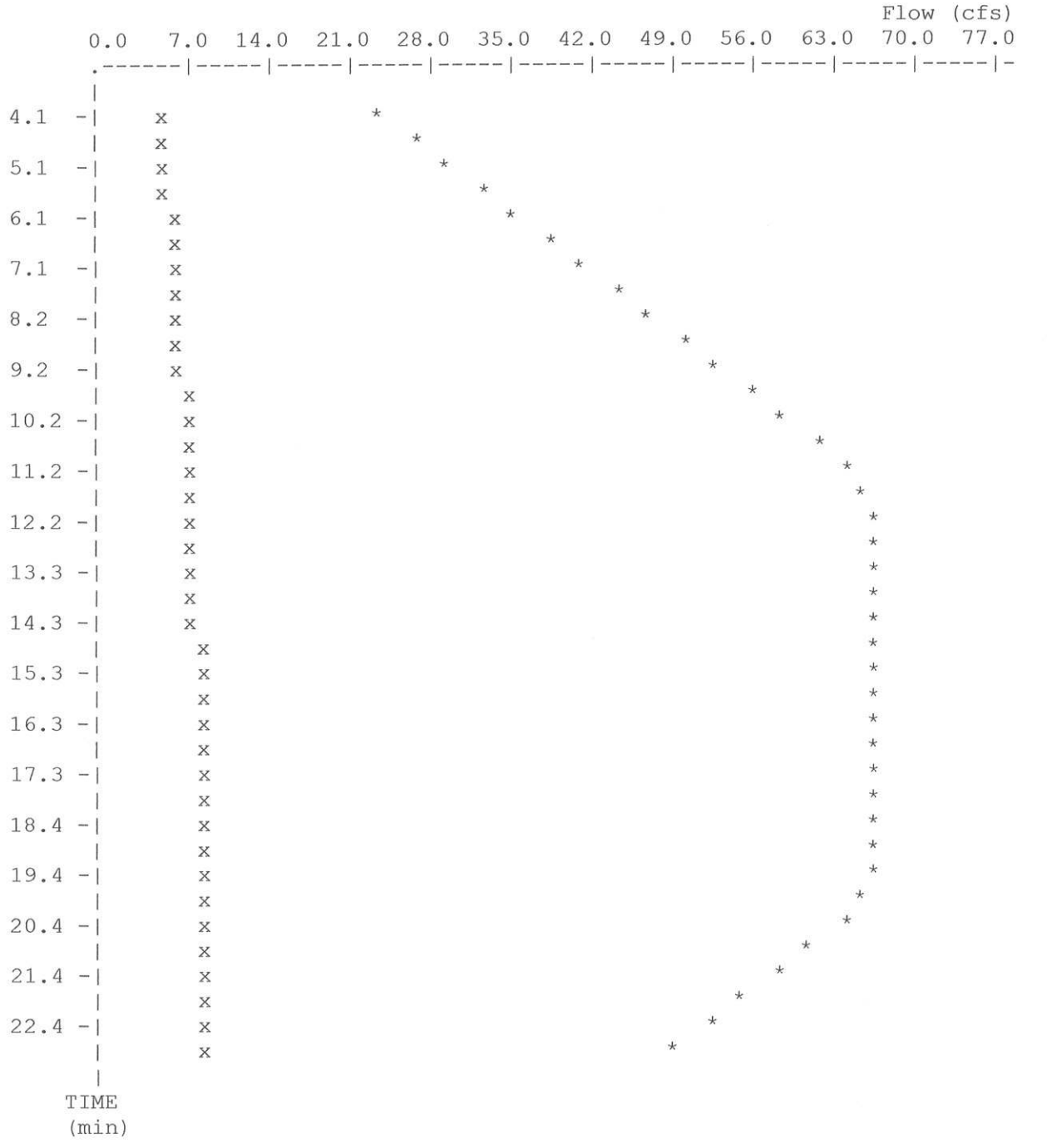
Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	1.52 ac-ft
Total Storage in Pond	=	1.52 ac-ft

20 minute Return Freq: 25 years

Pond File: 9203WEST.PND
Inflow Hydrograph: 9203PW25.HYD
Outflow Hydrograph: 9203FX25.HYD

EXECUTED: 12-23-1998
14:40:19

Peak Inflow = 66.10 cfs
Peak Outflow = 8.88 cfs
Peak Elevation = 490.65 ft



x File: 9203FX25.HYD Qmax = 8.9 cfs
* File: 9203PW25.HYD Qmax = 66.1 cfs

LIVING WORD CHRISTIAN SCHOOL
WEST BASIN DETENTION ANALYSIS
BAX ENGINEERING
SEPTEMBER 24, 1998

Inflow Hydrograph: 9203PW-C.HYD
Rating Table file: 9203W100.POND

----INITIAL CONDITIONS----
Elevation = 492.50 ft
Outflow = 0.00 cfs
Storage = 3.72 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
486.00	0.0	0.000	0.0	0.0
486.50	0.0	0.002	2.7	2.7
487.00	0.0	0.015	21.3	21.3
487.50	0.0	0.050	72.0	72.0
488.00	0.0	0.118	170.8	170.8
488.50	0.0	0.232	335.8	335.8
489.00	0.0	0.405	586.8	586.8
489.50	0.0	0.650	941.8	941.8
490.00	0.0	0.979	1418.7	1418.7
490.50	0.0	1.386	2008.5	2008.5
491.00	0.0	1.860	2694.9	2694.9
491.50	0.0	2.405	3485.2	3485.2
492.00	0.0	3.027	4386.8	4386.8
492.50	0.0	3.720	5391.1	5391.1
493.00	45.9	4.477	6487.3	6533.2
493.50	129.5	5.299	7679.3	7808.8
494.00	237.4	6.191	8971.3	9208.7

Time increment (t) = 1.0 min.

Pond File: 9203W100.PND
Inflow Hydrograph: 9203PW-C.HYD
Outflow Hydrograph: 9203100F.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	5391.1	5391.1	0.00	492.50
1.0	7.20	7.2	5397.8	5398.3	0.29	492.50
2.0	14.30	21.5	5417.0	5419.3	1.13	492.51
3.0	21.50	35.8	5447.8	5452.8	2.48	492.53
4.0	28.60	50.1	5489.4	5497.9	4.29	492.55
5.0	35.80	64.4	5540.7	5553.8	6.54	492.57
6.0	42.90	78.7	5601.0	5619.4	9.17	492.60
7.0	50.10	93.0	5669.7	5694.0	12.17	492.63
8.0	57.20	107.3	5746.0	5777.0	15.51	492.67
9.0	64.40	121.6	5829.3	5867.6	19.15	492.71
10.0	71.50	135.9	5919.0	5965.2	23.07	492.75
11.0	78.70	150.2	6014.7	6069.2	27.25	492.80
12.0	82.20	160.9	6112.6	6175.6	31.53	492.84
13.0	82.20	164.4	6205.8	6277.0	35.60	492.89
14.0	82.20	164.4	6291.5	6370.2	39.35	492.93
15.0	82.20	164.4	6370.3	6455.9	42.79	492.97
16.0	82.20	164.4	6442.7	6534.7	46.00	493.00
17.0	82.20	164.4	6505.6	6607.1	50.74	493.03
18.0	82.20	164.4	6560.3	6670.0	54.87	493.05
19.0	82.20	164.4	6607.8	6724.7	58.45	493.08
20.0	81.80	164.0	6648.7	6771.8	61.54	493.09
21.0	74.60	156.4	6677.7	6805.1	63.72	493.11
22.0	67.50	142.1	6690.4	6819.8	64.68	493.11
23.0	60.30	127.8	6689.0	6818.2	64.58	493.11
24.0	53.20	113.5	6675.4	6802.5	63.55	493.11
25.0	46.00	99.2	6651.2	6774.6	61.72	493.09
26.1	38.90	84.9	6617.7	6736.1	59.20	493.08
27.1	31.70	70.6	6576.2	6688.3	56.07	493.06
28.1	24.60	56.3	6527.7	6632.5	52.41	493.04
29.1	17.40	42.0	6473.1	6569.7	48.29	493.01
30.1	10.30	27.7	6411.6	6500.8	44.60	492.99
31.1	3.10	13.4	6341.9	6425.0	41.55	492.95
32.1	0.00	3.1	6268.3	6345.0	38.34	492.92
33.1	0.00	0.0	6197.8	6268.3	35.25	492.88
34.1	0.00	0.0	6133.0	6197.8	32.42	492.85
35.1	0.00	0.0	6073.3	6133.0	29.81	492.82
36.1	0.00	0.0	6018.5	6073.3	27.42	492.80
37.1	0.00	0.0	5968.1	6018.5	25.21	492.77
38.1	0.00	0.0	5921.7	5968.1	23.19	492.75
39.1	0.00	0.0	5879.0	5921.7	21.32	492.73
40.1	0.00	0.0	5839.8	5879.0	19.61	492.71
41.1	0.00	0.0	5803.8	5839.8	18.03	492.70
42.1	0.00	0.0	5770.6	5803.8	16.58	492.68
43.1	0.00	0.0	5740.1	5770.6	15.25	492.67
44.1	0.00	0.0	5712.0	5740.1	14.02	492.65

Pond File: 9203W100.PND
Inflow Hydrograph: 9203PW-C.HYD
Outflow Hydrograph: 9203100F.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	5686.3	5712.0	12.90	492.64
46.1	0.00	0.0	5662.5	5686.3	11.86	492.63
47.1	0.00	0.0	5640.7	5662.5	10.91	492.62
48.1	0.00	0.0	5620.7	5640.7	10.03	492.61
49.1	0.00	0.0	5602.2	5620.7	9.22	492.60
50.1	0.00	0.0	5585.2	5602.2	8.48	492.59
51.1	0.00	0.0	5569.6	5585.2	7.80	492.58
52.1	0.00	0.0	5555.3	5569.6	7.17	492.58
53.1	0.00	0.0	5542.1	5555.3	6.60	492.57
54.1	0.00	0.0	5530.0	5542.1	6.07	492.57
55.1	0.00	0.0	5518.8	5530.0	5.58	492.56
56.1	0.00	0.0	5508.5	5518.8	5.13	492.56
57.1	0.00	0.0	5499.1	5508.5	4.72	492.55
58.1	0.00	0.0	5490.4	5499.1	4.34	492.55
59.1	0.00	0.0	5482.4	5490.4	3.99	492.54

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203W100.PND
Inflow Hydrograph: 9203PW-C.HYD
Outflow Hydrograph: 9203100F.HYD

Starting Pond W.S. Elevation = 492.50 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	82.20 cfs
Peak Outflow	=	64.68 cfs
Peak Elevation	=	493.11 ft

***** Summary of Approximate Peak Storage *****

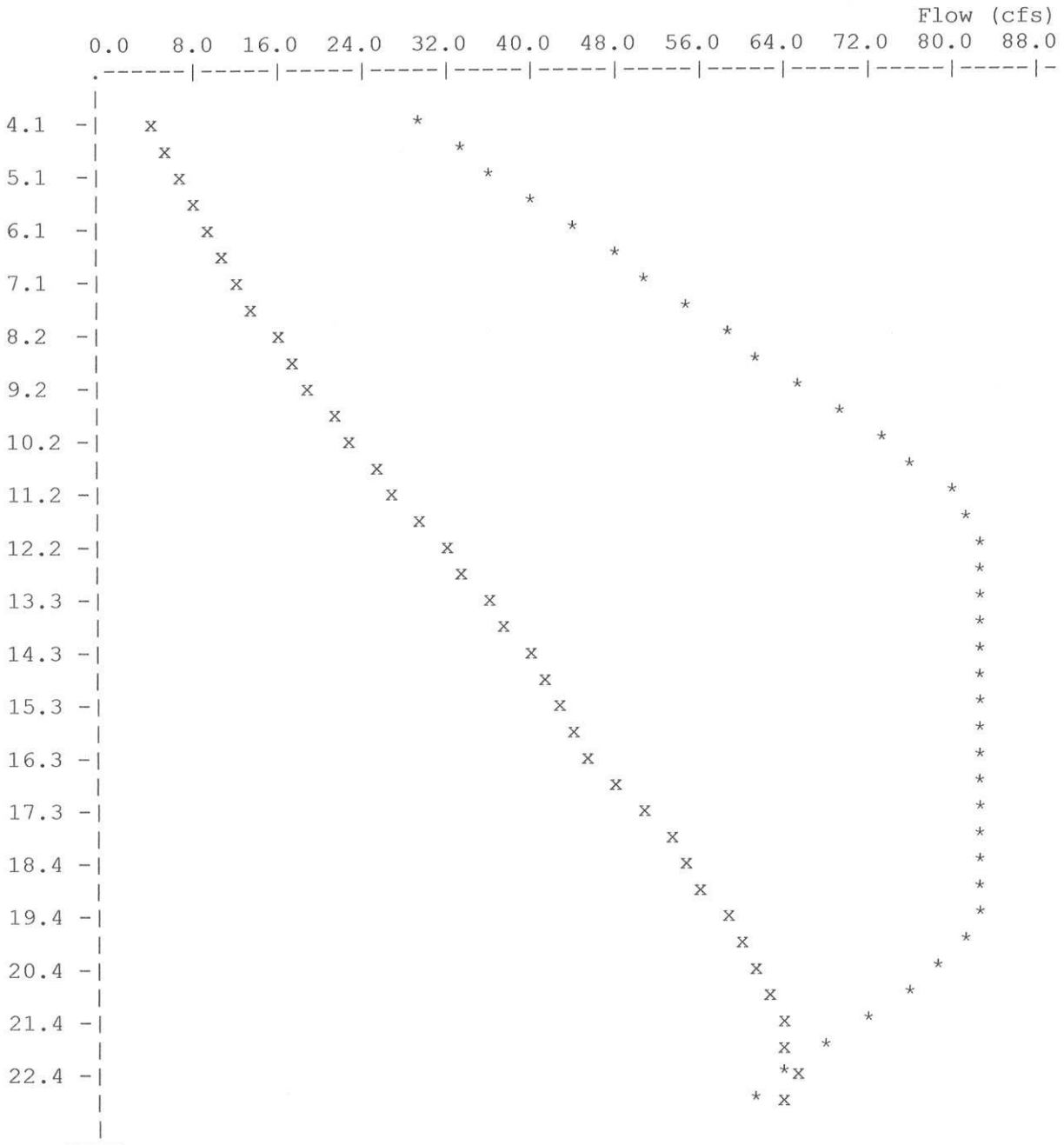
Initial Storage	=	3.72 ac-ft
Peak Storage From Storm	=	0.94 ac-ft
Total Storage in Pond	=	4.66 ac-ft

20 minute Return Freq: 100 years

Pond File: 9203W100.PND
Inflow Hydrograph: 9203PW-C.HYD
Outflow Hydrograph: 9203100F.HYD

EXECUTED: 12-23-1998
14:40:19

Peak Inflow = 82.20 cfs
Peak Outflow = 64.68 cfs
Peak Elevation = 493.11 ft



x File: 9203100F.HYD Qmax = 64.7 cfs
* File: 9203PW-C.HYD Qmax = 82.2 cfs

STORMWATER DETENTION CALCULATIONS

PROPOSED DEVELOPMENT

EAST BASIN

EXECUTED: 12-23-1998 14:46:02 20 minute Return Freq: 2 years

****
*
* LIVING WORD CHRISTIAN SCHOOL
* EAST BASIN DETENTION ANALYSIS
* BAX ENGINEERING
* OCTOBER 16,1998
*
****

Inflow Hydrograph: 9203E2 .HYD
Rating Table file: 9203EAST.PND

----INITIAL CONDITIONS----
Elevation = 478.00 ft
Outflow   =   0.00 cfs
Storage   =   0.00 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
478.00	0.0	0.000	0.0	0.0
478.25	0.6	0.000	0.3	0.9
478.50	1.8	0.002	2.2	4.0
478.75	3.1	0.005	7.6	10.7
479.00	4.6	0.012	18.0	22.6
479.25	6.3	0.024	35.1	41.4
479.75	9.7	0.066	96.2	105.9
480.00	11.5	0.099	143.6	155.1
480.25	13.2	0.139	201.4	214.6
480.50	14.8	0.185	267.5	282.3
480.75	16.4	0.236	342.5	358.9
481.00	33.5	0.295	426.8	460.3
481.25	36.2	0.360	521.1	557.3
481.50	38.7	0.432	625.9	664.6
481.75	41.1	0.512	741.8	782.9
482.00	43.3	0.600	869.3	912.6
482.25	45.4	0.695	1007.0	1052.4
482.50	47.4	0.796	1153.4	1200.8
482.75	55.3	0.903	1308.7	1364.0
483.00	67.9	1.017	1473.2	1541.1
483.25	83.6	1.137	1647.2	1730.8
483.50	101.9	1.263	1830.8	1932.7
483.75	122.3	1.397	2024.5	2146.8
484.00	144.7	1.538	2228.3	2373.0
484.25	168.8	1.683	2439.0	2607.8
484.50	194.5	1.831	2652.6	2847.1
484.75	216.4	1.980	2869.4	3085.8
485.00	226.2	2.132	3089.2	3315.4

Time increment (t) = 1.0 min.

EXECUTED: 12-23-1998 14:46:02 20 minute Return Freq: 2 years

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E2 .HYD
Outflow Hydrograph: 9203X2E .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	478.00
1.0	3.80	3.8	0.4	3.8	1.71	478.48
2.0	7.50	11.3	5.2	11.7	3.23	478.77
3.0	11.30	18.8	14.6	24.0	4.73	479.02
4.0	15.10	26.4	28.4	41.0	6.26	479.24
5.0	18.80	33.9	47.5	62.3	7.41	479.41
6.0	22.60	41.4	71.3	88.9	8.81	479.62
7.0	26.40	49.0	99.9	120.3	10.23	479.82
8.0	30.20	56.6	133.4	156.5	11.54	480.01
9.0	31.30	61.5	169.6	194.9	12.64	480.17
10.0	31.30	62.6	205.0	232.2	13.62	480.31
11.0	31.30	62.6	238.7	267.6	14.45	480.45
12.0	31.30	62.6	270.9	301.3	15.20	480.56
13.0	31.30	62.6	301.7	333.5	15.87	480.67
14.0	31.30	62.6	329.7	364.3	17.33	480.76
15.0	31.30	62.6	348.2	392.3	22.04	480.83
16.0	31.30	62.6	360.5	410.8	25.16	480.88
17.0	31.30	62.6	368.6	423.1	27.23	480.91
18.0	31.30	62.6	374.0	431.2	28.60	480.93
19.0	31.30	62.6	377.6	436.6	29.51	480.94
20.0	31.10	62.4	379.9	440.0	30.08	480.95
21.0	27.30	58.4	378.7	438.3	29.78	480.95
22.0	23.60	50.9	372.9	429.6	28.32	480.92
23.0	19.80	43.4	364.2	416.3	26.09	480.89
24.0	16.00	35.8	353.3	400.0	23.33	480.85
25.0	12.30	28.3	341.1	381.6	20.23	480.81
26.1	8.50	20.8	328.1	361.9	16.92	480.76
27.1	4.70	13.2	309.2	341.3	16.03	480.69
28.1	0.90	5.6	283.9	314.8	15.48	480.61
29.1	0.00	0.9	255.1	284.8	14.85	480.51
30.1	0.00	0.0	226.8	255.1	14.16	480.40
31.1	0.00	0.0	199.8	226.8	13.49	480.29
32.1	0.00	0.0	174.2	199.8	12.78	480.19
33.1	0.00	0.0	150.1	174.2	12.05	480.08
34.1	0.00	0.0	127.5	150.1	11.32	479.97
35.1	0.00	0.0	106.5	127.5	10.49	479.86
36.1	0.00	0.0	87.1	106.5	9.72	479.75
37.1	0.00	0.0	69.7	87.1	8.71	479.60
38.1	0.00	0.0	54.1	69.7	7.79	479.47
39.1	0.00	0.0	40.1	54.1	6.97	479.35
40.1	0.00	0.0	27.8	40.1	6.19	479.23
41.1	0.00	0.0	17.6	27.8	5.07	479.07
42.1	0.00	0.0	9.7	17.6	3.98	478.90
43.1	0.00	0.0	3.9	9.7	2.90	478.71
44.1	0.00	0.0	0.4	3.9	1.73	478.49

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E2 .HYD
Outflow Hydrograph: 9203X2E .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	-0.1	0.4	0.27	478.11
46.1	0.00	0.0	-0.1	-0.1	0.00	478.00
47.1	0.00	0.0	-0.1	-0.1	0.00	478.00
48.1	0.00	0.0	-0.1	-0.1	0.00	478.00
49.1	0.00	0.0	-0.1	-0.1	0.00	478.00
50.1	0.00	0.0	-0.1	-0.1	0.00	478.00
51.1	0.00	0.0	-0.1	-0.1	0.00	478.00
52.1	0.00	0.0	-0.1	-0.1	0.00	478.00
53.1	0.00	0.0	-0.1	-0.1	0.00	478.00
54.1	0.00	0.0	-0.1	-0.1	0.00	478.00
55.1	0.00	0.0	-0.1	-0.1	0.00	478.00
56.1	0.00	0.0	-0.1	-0.1	0.00	478.00
57.1	0.00	0.0	-0.1	-0.1	0.00	478.00
58.1	0.00	0.0	-0.1	-0.1	0.00	478.00
59.1	0.00	0.0	-0.1	-0.1	0.00	478.00

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E2 .HYD
Outflow Hydrograph: 9203X2E .HYD

Starting Pond W.S. Elevation = 478.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	31.30 cfs
Peak Outflow	=	30.08 cfs
Peak Elevation	=	480.95 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	0.28 ac-ft
Total Storage in Pond	=	0.28 ac-ft

20 minute Return Freq: 2 years

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E2 .HYD
Outflow Hydrograph: 9203X2E .HYD

EXECUTED: 12-23-1998
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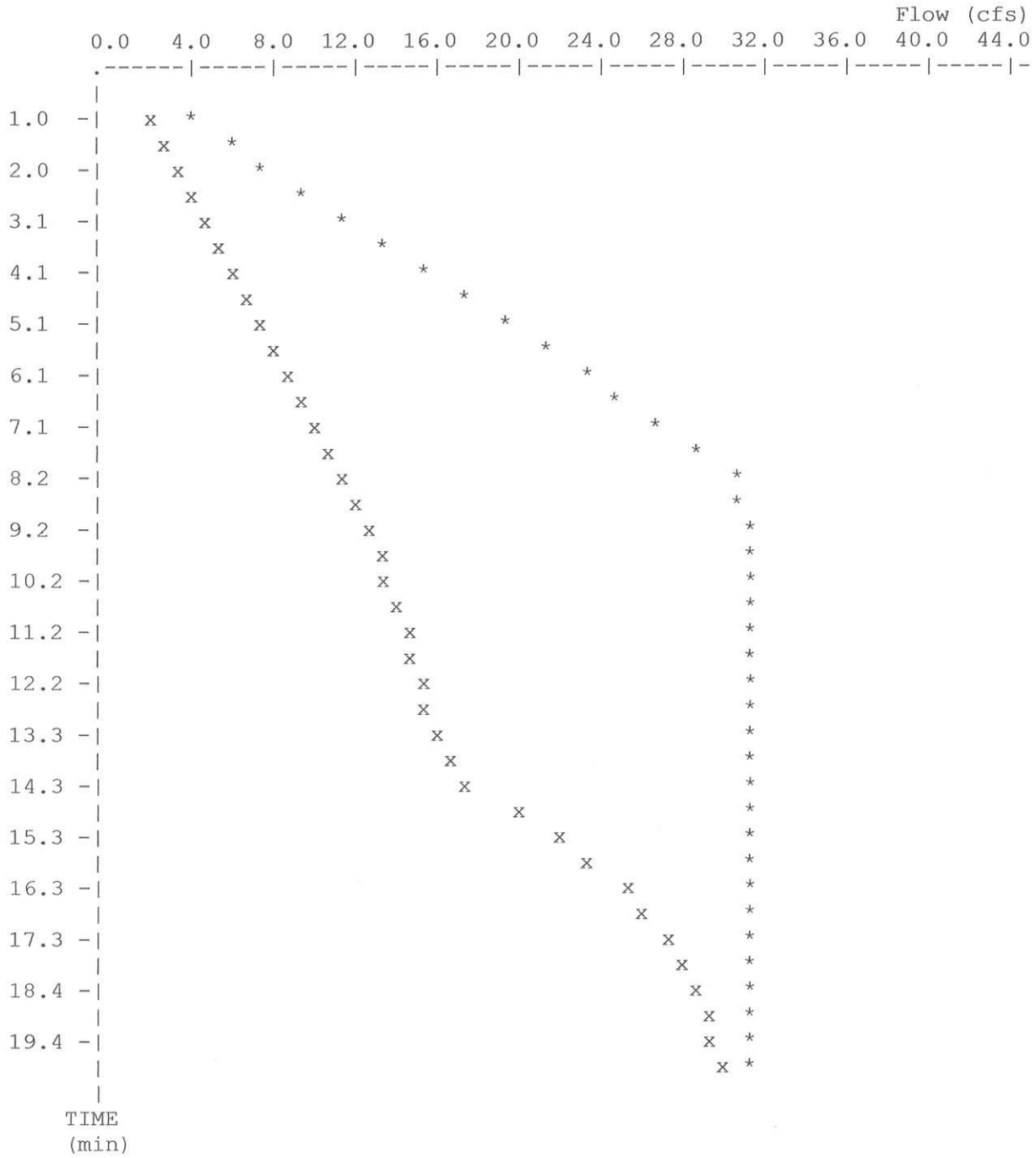
Peak Inflow = 31.30 cfs
Peak Outflow = 30.08 cfs
Peak Elevation = 480.95 ft



x File: 9203X2E .HYD Qmax = 30.1 cfs
* File: 9203E2 .HYD Qmax = 31.3 cfs

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*
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* EAST BASIN DETENTION ANALYSIS
* BAX ENGINEERING
* OCTOBER 16,1998
*
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Inflow Hydrograph: 9203E15 .HYD
Rating Table file: 9203EAST.PND

----INITIAL CONDITIONS----
Elevation = 478.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
478.00	0.0	0.000	0.0	0.0
478.25	0.6	0.000	0.3	0.9
478.50	1.8	0.002	2.2	4.0
478.75	3.1	0.005	7.6	10.7
479.00	4.6	0.012	18.0	22.6
479.25	6.3	0.024	35.1	41.4
479.75	9.7	0.066	96.2	105.9
480.00	11.5	0.099	143.6	155.1
480.25	13.2	0.139	201.4	214.6
480.50	14.8	0.185	267.5	282.3
480.75	16.4	0.236	342.5	358.9
481.00	33.5	0.295	426.8	460.3
481.25	36.2	0.360	521.1	557.3
481.50	38.7	0.432	625.9	664.6
481.75	41.1	0.512	741.8	782.9
482.00	43.3	0.600	869.3	912.6
482.25	45.4	0.695	1007.0	1052.4
482.50	47.4	0.796	1153.4	1200.8
482.75	55.3	0.903	1308.7	1364.0
483.00	67.9	1.017	1473.2	1541.1
483.25	83.6	1.137	1647.2	1730.8
483.50	101.9	1.263	1830.8	1932.7
483.75	122.3	1.397	2024.5	2146.8
484.00	144.7	1.538	2228.3	2373.0
484.25	168.8	1.683	2439.0	2607.8
484.50	194.5	1.831	2652.6	2847.1
484.75	216.4	1.980	2869.4	3085.8
485.00	226.2	2.132	3089.2	3315.4

Time increment (t) = 1.0 min.

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E15 .HYD
Outflow Hydrograph: 9203X15E.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	478.00
1.0	6.10	6.1	1.7	6.1	2.20	478.58
2.0	12.20	18.3	11.4	20.0	4.28	478.95
3.0	18.40	30.6	29.4	42.0	6.34	479.26
4.0	24.50	42.9	56.4	72.3	7.93	479.49
5.0	30.60	55.1	91.7	111.5	9.91	479.78
6.0	36.70	67.3	135.8	159.0	11.61	480.02
7.0	42.80	79.5	188.8	215.3	13.22	480.25
8.0	48.90	91.7	251.0	280.5	14.76	480.49
9.0	50.70	99.6	318.2	350.6	16.23	480.72
10.0	50.70	101.4	366.3	419.6	26.63	480.90
11.0	50.70	101.4	400.3	467.7	33.71	481.02
12.0	50.70	101.4	432.4	501.7	34.65	481.11
13.0	50.70	101.4	462.7	533.8	35.55	481.19
14.0	50.70	101.4	491.4	564.1	36.36	481.27
15.0	50.70	101.4	518.7	592.8	37.03	481.33
16.0	50.70	101.4	544.8	620.1	37.66	481.40
17.0	50.70	101.4	569.7	646.2	38.27	481.46
18.0	50.70	101.4	593.4	671.1	38.83	481.51
19.0	50.70	101.4	616.2	694.8	39.31	481.56
20.0	50.50	101.2	637.8	717.4	39.77	481.61
21.0	44.40	94.9	652.6	732.7	40.08	481.64
22.0	38.20	82.6	654.9	735.2	40.13	481.65
23.0	32.10	70.3	645.3	725.2	39.93	481.63
24.0	26.00	58.1	624.5	703.4	39.49	481.58
25.0	19.90	45.9	592.7	670.4	38.82	481.51
26.1	13.80	33.7	550.8	626.4	37.81	481.41
27.1	7.70	21.5	499.2	572.3	36.55	481.28
28.1	1.50	9.2	438.7	508.4	34.84	481.12
29.1	0.00	1.5	380.0	440.2	30.12	480.95
30.1	0.00	0.0	340.1	380.0	19.96	480.80
31.1	0.00	0.0	308.1	340.1	16.01	480.69
32.1	0.00	0.0	277.4	308.1	15.34	480.58
33.1	0.00	0.0	248.0	277.4	14.68	480.48
34.1	0.00	0.0	220.0	248.0	13.99	480.37
35.1	0.00	0.0	193.4	220.0	13.33	480.27
36.1	0.00	0.0	168.2	193.4	12.59	480.16
37.1	0.00	0.0	144.4	168.2	11.87	480.05
38.1	0.00	0.0	122.2	144.4	11.11	479.95
39.1	0.00	0.0	101.6	122.2	10.30	479.83
40.1	0.00	0.0	82.7	101.6	9.47	479.72
41.1	0.00	0.0	65.7	82.7	8.48	479.57
42.1	0.00	0.0	50.6	65.7	7.58	479.44
43.1	0.00	0.0	37.0	50.6	6.78	479.32
44.1	0.00	0.0	25.2	37.0	5.91	479.19

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E15 .HYD
Outflow Hydrograph: 9203X15E.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	15.5	25.2	4.84	479.03
46.1	0.00	0.0	8.1	15.5	3.71	478.85
47.1	0.00	0.0	2.9	8.1	2.59	478.65
48.1	0.00	0.0	0.2	2.9	1.37	478.41
49.1	0.00	0.0	-0.1	0.2	0.12	478.05
50.1	0.00	0.0	-0.1	-0.1	0.00	478.00
51.1	0.00	0.0	-0.1	-0.1	0.00	478.00
52.1	0.00	0.0	-0.1	-0.1	0.00	478.00
53.1	0.00	0.0	-0.1	-0.1	0.00	478.00
54.1	0.00	0.0	-0.1	-0.1	0.00	478.00
55.1	0.00	0.0	-0.1	-0.1	0.00	478.00
56.1	0.00	0.0	-0.1	-0.1	0.00	478.00
57.1	0.00	0.0	-0.1	-0.1	0.00	478.00
58.1	0.00	0.0	-0.1	-0.1	0.00	478.00
59.1	0.00	0.0	-0.1	-0.1	0.00	478.00

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E15 .HYD
Outflow Hydrograph: 9203X15E.HYD

Starting Pond W.S. Elevation = 478.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	50.70 cfs
Peak Outflow	=	40.13 cfs
Peak Elevation	=	481.65 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	0.48 ac-ft
Total Storage in Pond	=	0.48 ac-ft

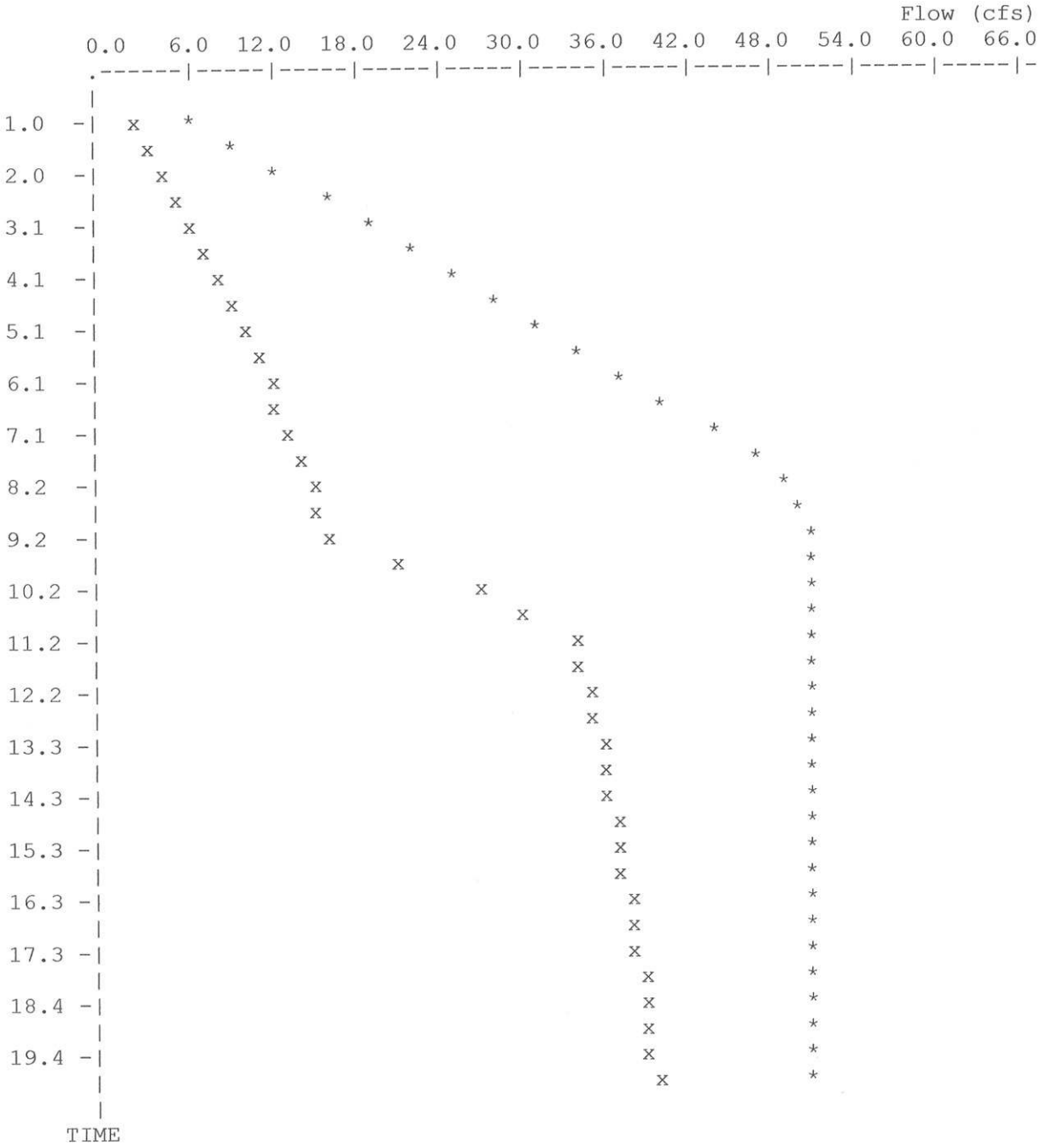
POND-2 Version: 5.20 S/N:

20 minute Return Freq: 15 years

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E15 .HYD
Outflow Hydrograph: 9203X15E.HYD

EXECUTED: 12-23-1998
14:46:02

Peak Inflow = 50.70 cfs
Peak Outflow = 40.13 cfs
Peak Elevation = 481.65 ft



x File: 9203X15E.HYD Qmax = 40.1 cfs
* File: 9203E15 .HYD Qmax = 50.7 cfs

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**********************************
*                                *
*   LIVING WORD CHRISTIAN SCHOOL *
*   EAST BASIN DETENTION ANALYSIS *
*         BAX ENGINEERING        *
*         OCTOBER 16,1998        *
*                                *
**********************************
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Inflow Hydrograph: 9203E25 .HYD
Rating Table file: 9203EAST.PND

----INITIAL CONDITIONS----
Elevation = 478.00 ft
Outflow = 0.00 cfs
Storage = 0.00 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
478.00	0.0	0.000
478.25	0.6	0.000
478.50	1.8	0.002
478.75	3.1	0.005
479.00	4.6	0.012
479.25	6.3	0.024
479.75	9.7	0.066
480.00	11.5	0.099
480.25	13.2	0.139
480.50	14.8	0.185
480.75	16.4	0.236
481.00	33.5	0.295
481.25	36.2	0.360
481.50	38.7	0.432
481.75	41.1	0.512
482.00	43.3	0.600
482.25	45.4	0.695
482.50	47.4	0.796
482.75	55.3	0.903
483.00	67.9	1.017
483.25	83.6	1.137
483.50	101.9	1.263
483.75	122.3	1.397
484.00	144.7	1.538
484.25	168.8	1.683
484.50	194.5	1.831
484.75	216.4	1.980
485.00	226.2	2.132

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
0.0	0.0
0.3	0.9
2.2	4.0
7.6	10.7
18.0	22.6
35.1	41.4
96.2	105.9
143.6	155.1
201.4	214.6
267.5	282.3
342.5	358.9
426.8	460.3
521.1	557.3
625.9	664.6
741.8	782.9
869.3	912.6
1007.0	1052.4
1153.4	1200.8
1308.7	1364.0
1473.2	1541.1
1647.2	1730.8
1830.8	1932.7
2024.5	2146.8
2228.3	2373.0
2439.0	2607.8
2652.6	2847.1
2869.4	3085.8
3089.2	3315.4

Time increment (t) = 1.0 min.

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E25 .HYD
Outflow Hydrograph: 9203X25E.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	478.00
1.0	7.70	7.7	2.7	7.7	2.52	478.64
2.0	15.40	23.1	16.0	25.8	4.89	479.04
3.0	23.10	38.5	40.5	54.5	6.99	479.35
4.0	30.80	53.9	76.2	94.4	9.09	479.66
5.0	38.60	69.4	123.3	145.6	11.15	479.95
6.0	46.30	84.9	182.2	208.2	13.02	480.22
7.0	54.00	100.3	252.9	282.5	14.80	480.50
8.0	61.70	115.7	332.5	368.6	18.04	480.77
9.0	64.00	125.7	391.9	458.2	33.14	480.99
10.0	64.00	128.0	449.6	519.9	35.16	481.15
11.0	64.00	128.0	504.2	577.6	36.67	481.30
12.0	64.00	128.0	556.3	632.2	37.95	481.42
13.0	64.00	128.0	606.1	684.3	39.10	481.54
14.0	64.00	128.0	653.9	734.1	40.11	481.65
15.0	64.00	128.0	699.8	781.9	41.08	481.75
16.0	64.00	128.0	744.0	827.8	41.86	481.84
17.0	64.00	128.0	786.8	872.0	42.61	481.92
18.0	64.00	128.0	828.1	914.8	43.33	482.00
19.0	64.00	128.0	868.2	956.1	43.95	482.08
20.0	63.60	127.6	906.7	995.8	44.55	482.15
21.0	55.90	119.5	936.2	1026.2	45.01	482.20
22.0	48.20	104.1	949.9	1040.3	45.22	482.23
23.0	40.50	88.7	948.2	1038.6	45.19	482.23
24.0	32.80	73.3	931.6	1021.5	44.94	482.19
25.0	25.10	57.9	900.6	989.5	44.46	482.14
26.1	17.40	42.5	855.6	943.1	43.76	482.05
27.1	9.70	27.1	797.1	882.7	42.79	481.94
28.1	1.90	11.6	725.6	808.7	41.54	481.80
29.1	0.00	1.9	647.6	727.5	39.98	481.63
30.1	0.00	0.0	571.0	647.6	38.30	481.46
31.1	0.00	0.0	497.9	571.0	36.52	481.28
32.1	0.00	0.0	428.8	497.9	34.55	481.10
33.1	0.00	0.0	372.5	428.8	28.20	480.92
34.1	0.00	0.0	335.1	372.5	18.69	480.78
35.1	0.00	0.0	303.3	335.1	15.90	480.67
36.1	0.00	0.0	272.8	303.3	15.24	480.57
37.1	0.00	0.0	243.6	272.8	14.57	480.46
38.1	0.00	0.0	215.9	243.6	13.89	480.36
39.1	0.00	0.0	189.4	215.9	13.23	480.25
40.1	0.00	0.0	164.4	189.4	12.48	480.14
41.1	0.00	0.0	140.9	164.4	11.77	480.04
42.1	0.00	0.0	118.9	140.9	10.98	479.93
43.1	0.00	0.0	98.6	118.9	10.18	479.82
44.1	0.00	0.0	80.0	98.6	9.31	479.69

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E25 .HYD
Outflow Hydrograph: 9203X25E.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	63.3	80.0	8.33	479.55
46.1	0.00	0.0	48.4	63.3	7.46	479.42
47.1	0.00	0.0	35.0	48.4	6.67	479.30
48.1	0.00	0.0	23.6	35.0	5.73	479.17
49.1	0.00	0.0	14.2	23.6	4.69	479.01
50.1	0.00	0.0	7.1	14.2	3.54	478.82
51.1	0.00	0.0	2.3	7.1	2.40	478.62
52.1	0.00	0.0	0.0	2.3	1.14	478.36
53.1	0.00	0.0	-0.0	0.0	0.02	478.01
54.1	0.00	0.0	-0.0	-0.0	0.00	478.00
55.1	0.00	0.0	-0.0	-0.0	0.00	478.00
56.1	0.00	0.0	-0.0	-0.0	0.00	478.00
57.1	0.00	0.0	-0.0	-0.0	0.00	478.00
58.1	0.00	0.0	-0.0	-0.0	0.00	478.00
59.1	0.00	0.0	-0.0	-0.0	0.00	478.00

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E25 .HYD
Outflow Hydrograph: 9203X25E.HYD

Starting Pond W.S. Elevation = 478.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	64.00 cfs
Peak Outflow	=	45.22 cfs
Peak Elevation	=	482.23 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	0.00 ac-ft
Peak Storage From Storm	=	0.69 ac-ft
Total Storage in Pond	=	0.69 ac-ft

20 minute Return Freq: 25 years

Pond File: 9203EAST.PND
Inflow Hydrograph: 9203E25 .HYD
Outflow Hydrograph: 9203X25E.HYD

EXECUTED: 12-23-1998
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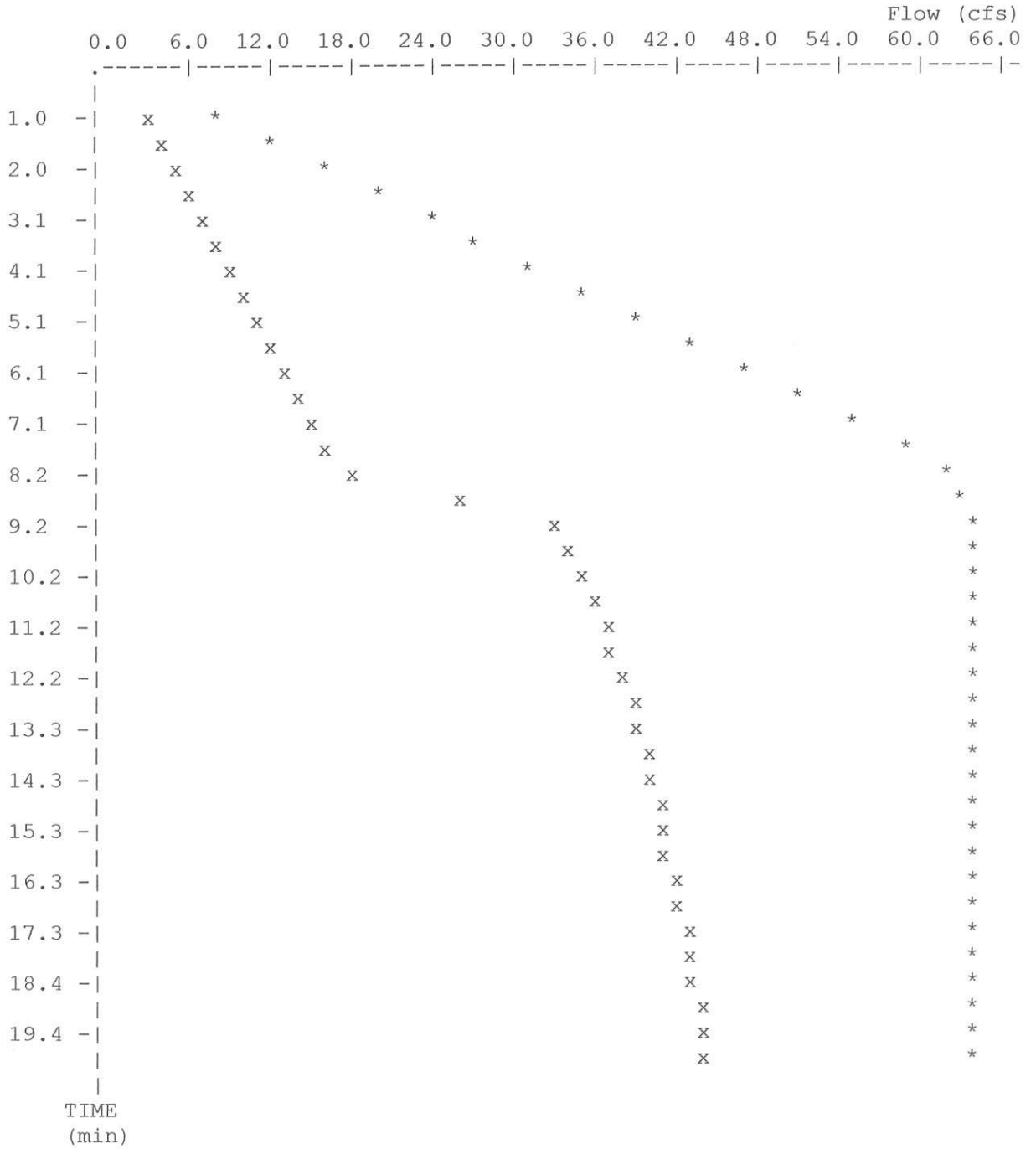
Peak Inflow = 64.00 cfs
Peak Outflow = 45.22 cfs
Peak Elevation = 482.23 ft



x File: 9203X25E.HYD Qmax = 45.2 cfs
* File: 9203E25 .HYD Qmax = 64.0 cfs

LIVING WORD CHRISTIAN SCHOOL
EAST BASIN DETENTION ANALYSIS
BAX ENGINEERING
OCTOBER 16,1998

Inflow Hydrograph: 9203E-C .HYD
Rating Table file: 9203E100.PND

----INITIAL CONDITIONS----
Elevation = 482.50 ft
Outflow = 0.00 cfs
Storage = 0.80 ac-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)	2S/t (cfs)	2S/t + O (cfs)
482.50	0.0	0.796	1153.4	1153.4
483.00	16.7	1.017	1473.2	1489.9
483.50	47.1	1.263	1830.8	1877.9
484.00	86.6	1.538	2228.3	2314.9
484.50	133.3	1.831	2652.6	2785.9
485.00	161.9	2.132	3089.2	3251.1

Time increment (t) = 1.0 min.

Pond File: 9203E100.PND
Inflow Hydrograph: 9203E-C .HYD
Outflow Hydrograph: 9203X-CE.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	1153.4	1153.4	0.00	482.50
1.0	9.70	9.7	1162.1	1163.1	0.48	482.51
2.0	19.30	29.0	1187.4	1191.1	1.87	482.56
3.0	29.00	48.3	1227.5	1235.7	4.08	482.62
4.0	38.60	67.6	1281.1	1295.1	7.03	482.71
5.0	48.30	86.9	1346.7	1368.0	10.65	482.82
6.0	57.90	106.2	1423.1	1452.9	14.86	482.94
7.0	67.60	125.5	1506.0	1548.6	21.30	483.08
8.0	77.20	144.8	1592.2	1650.8	29.31	483.21
9.0	80.10	157.3	1675.4	1749.5	37.04	483.33
10.0	80.10	160.2	1748.1	1835.6	43.79	483.45
11.0	80.10	160.2	1808.6	1908.3	49.84	483.53
12.0	80.10	160.2	1858.2	1968.8	55.31	483.60
13.0	80.10	160.2	1898.8	2018.4	59.79	483.66
14.0	80.10	160.2	1932.0	2059.0	63.46	483.71
15.0	80.10	160.2	1959.3	2092.2	66.47	483.75
16.0	80.10	160.2	1981.6	2119.5	68.93	483.78
17.0	80.10	160.2	1999.9	2141.8	70.95	483.80
18.0	80.10	160.2	2014.9	2160.1	72.61	483.82
19.0	80.10	160.2	2027.2	2175.1	73.96	483.84
20.0	79.60	159.7	2036.8	2186.9	75.03	483.85
21.0	70.00	149.6	2036.5	2186.4	74.98	483.85
22.0	60.30	130.3	2020.4	2166.8	73.21	483.83
23.0	50.70	111.0	1991.3	2131.4	70.01	483.79
24.0	41.00	91.7	1951.8	2083.0	65.64	483.73
25.0	31.40	72.4	1903.5	2024.2	60.32	483.67
26.1	21.70	53.1	1848.2	1956.6	54.21	483.59
27.1	12.10	33.8	1787.1	1882.0	47.47	483.50
28.1	2.40	14.5	1719.3	1801.6	41.12	483.40
29.1	0.00	2.4	1652.0	1721.7	34.86	483.30
30.1	0.00	0.0	1593.2	1652.0	29.40	483.21
31.1	0.00	0.0	1543.6	1593.2	24.79	483.13
32.1	0.00	0.0	1501.8	1543.6	20.91	483.07
33.1	0.00	0.0	1466.5	1501.8	17.63	483.02
34.1	0.00	0.0	1435.5	1466.5	15.54	482.97
35.1	0.00	0.0	1407.5	1435.5	14.00	482.92
36.1	0.00	0.0	1382.2	1407.5	12.61	482.88
37.1	0.00	0.0	1359.5	1382.2	11.36	482.84
38.1	0.00	0.0	1339.1	1359.5	10.23	482.81
39.1	0.00	0.0	1320.6	1339.1	9.21	482.78
40.1	0.00	0.0	1304.0	1320.6	8.30	482.75
41.1	0.00	0.0	1289.1	1304.0	7.48	482.72
42.1	0.00	0.0	1275.6	1289.1	6.73	482.70
43.1	0.00	0.0	1263.5	1275.6	6.07	482.68
44.1	0.00	0.0	1252.6	1263.5	5.46	482.66

Pond File: 9203E100.PND
Inflow Hydrograph: 9203E-C .HYD
Outflow Hydrograph: 9203X-CE.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
45.1	0.00	0.0	1242.7	1252.6	4.92	482.65
46.1	0.00	0.0	1233.9	1242.7	4.43	482.63
47.1	0.00	0.0	1225.9	1233.9	3.99	482.62
48.1	0.00	0.0	1218.7	1225.9	3.60	482.61
49.1	0.00	0.0	1212.2	1218.7	3.24	482.60
50.1	0.00	0.0	1206.4	1212.2	2.92	482.59
51.1	0.00	0.0	1201.1	1206.4	2.63	482.58
52.1	0.00	0.0	1196.4	1201.1	2.37	482.57
53.1	0.00	0.0	1192.1	1196.4	2.13	482.56
54.1	0.00	0.0	1188.3	1192.1	1.92	482.56
55.1	0.00	0.0	1184.8	1188.3	1.73	482.55
56.1	0.00	0.0	1181.7	1184.8	1.56	482.55
57.1	0.00	0.0	1178.9	1181.7	1.40	482.54
58.1	0.00	0.0	1176.4	1178.9	1.26	482.54
59.1	0.00	0.0	1174.1	1176.4	1.14	482.53

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: 9203E100.PND
Inflow Hydrograph: 9203E-C .HYD
Outflow Hydrograph: 9203X-CE.HYD

Starting Pond W.S. Elevation = 482.50 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	80.10 cfs
Peak Outflow	=	75.03 cfs
Peak Elevation	=	483.85 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	0.80 ac-ft
Peak Storage From Storm	=	0.66 ac-ft
Total Storage in Pond	=	1.46 ac-ft

20 minute Return Freq: 100 years

Pond File: 9203E100.PND
Inflow Hydrograph: 9203E-C .HYD
Outflow Hydrograph: 9203X-CE.HYD

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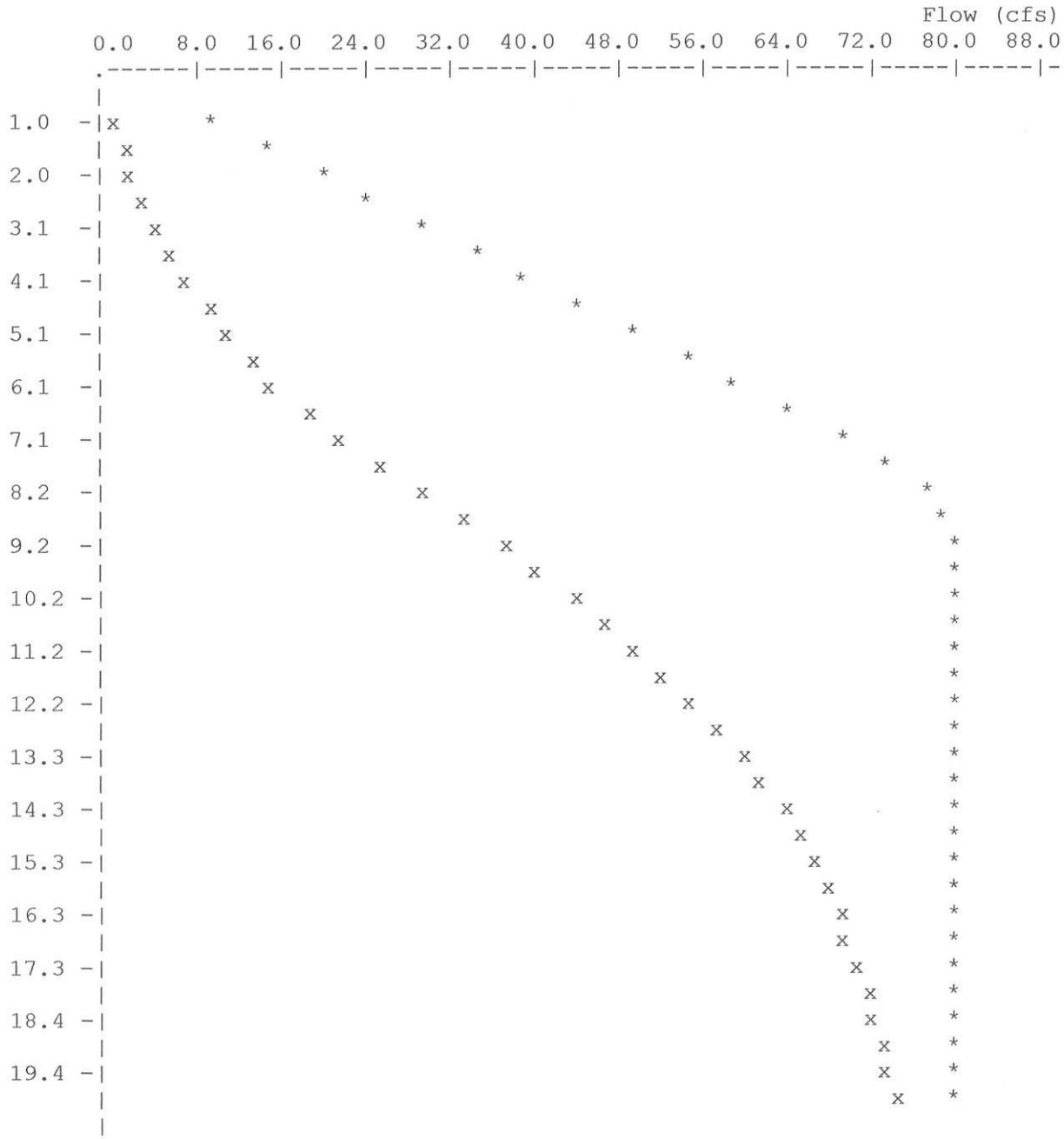
Peak Inflow = 80.10 cfs
Peak Outflow = 75.03 cfs
Peak Elevation = 483.85 ft



x File: 9203X-CE.HYD Qmax = 75.0 cfs
* File: 9203E-C .HYD Qmax = 80.1 cfs

"EXHIBIT A"
97-9203F

AN OFF-SITE DRAINAGE AREA MAP OF
LIVING WORD CHRISTIAN SCHOO