ENGINEERING
PLANNING
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STORMWATER DETENTION ANALYSIS
PREPARED BY: BAX ENGINEERING CO., INC.
PERUQUE CROSSING – CITY OF O'FALLON
BAX PROJECT NO. **00-11282C**
July 13, 2004 **REVISED BASIN D August 24, 2005**

INTRODUCTION:

This presently undeveloped site is located in the City of O'Fallon, St. Charles County, Missouri. It is proposed that the 13.19-acre tract be developed into commercial lots. The tract of land is broken up into four separate parcels and deposits water in three different watersheds. A storm water detention basin shall be constructed in the southeast area of Lot 6 and modifications to a basin in the northern area of Lot 2. The storage volume and outflow rates shall be proportioned to insure that the peak rate of runoff leaving the tract under post-developed conditions is less than or equal to the peak rate of runoff under pre-developed conditions for the 2, 15 and 25 year-20 minute design storms.

GENERAL SITE DATA AND RUNOFF CALCULATIONS:

The pre-developed P.I. factors to be used for the analysis are:

2 year	0-5%	Impervious	1.15	cfs/ac
15 year	0-5%	Impervious	1.87	cfs/ac
25 year	0-5%	Impervious	2.31	cfs/ac
100 year	0-5%	Impervious	2.95	cfs/ac

The post-developed P.I. factors to be used for the analysis are:

2 year	100%	Impervious	2.39	cfs/ac
15 year	100%	Impervious	3.85	cfs/ac
25 year	100%	Impervious	4.75	cfs/ac
100 year	100%	Impervious	6.08	cfs/ac

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Watershed A

REQUIRED ATTENUATION: (20 minute storms)

The required attenuation for the site was found by subtracting the peak runoff rate from the site under existing conditions from the peak runoff rate from the site under proposed conditions for each design storm. For the required attenuation calculation the MoDot Pavement was assumed to be 0-5% impervious since detention is not required in these basins:

15 year 20 minute storm:

Proposed peak flow rate	Lot A - 0.99	acres @ 3.85 cfs/acre =	3.81 cfs
	Lot B - 0.09	acres @ 3.85 cfs/acre =	0.35 cfs
	MoDOT - 0.91	acres @ 1.87 cfs/acre =	1.70 cfs
	Green Space – 1.98	acres @ 1.87 cfs/acre =	3.70 cfs
			9.56 cfs

Existing peak flow rate 5.20 acres @ 1.87 cfs/acre = 9.72 cfs

9.56 cfs – 9.72 cfs = -0.16 cfs

2 year 20-minute storm: -0.08 cfs
15 year 20-minute storm: -0.16 cfs
25 year 20-minute storm: -0.21 cfs

Since the existing runoff is higher than the proposed runoff detention is not required for this water shed.

Watershed B

REQUIRED ATTENUATION: (20 minute storms)

The required attenuation for the site was found by subtracting the peak runoff rate from the site under existing conditions from the peak runoff rate from the site under proposed conditions for each design storm. For the required attenuation calculation the MoDOT Pavement was assumed to be 0-5% impervious since detention is not required for these areas in the basins:

15 year 20 minute storm:

Proposed peak flow rate	Lot B – 1.86	acres @ 3.85 cfs/acre =	7.16 cfs
	Lot C – 4.83	acres @ 3.85 cfs/acre =	18.60 cfs
	Lot C – 0.79	acres @ 1.87 cfs/acre =	1.48 cfs
	Basin – 0.44	acres @ 3.85 cfs/acre =	2.39 cfs
	MoDOT – 0.00	acres @ 1.87 cfs/acre =	0.00 cfs
	Green Space – 4.12	acres @ 1.87 cfs/acre =	7.70 cfs
			36.63 cfs

Existing peak flow rate: 9.58 acres @ 1.87 cfs/acre = 17.91 cfs

36.63 cfs – 17.91 cfs = 18.72 cfs

2 year 20-minute storm: 11.67 cfs
15 year 20-minute storm: 18.72 cfs
25 year 20-minute storm: 23.08 cfs

BASIN PEAK INFLOW:

Inflows to the basin have been estimated using the drainage area map of the project. (see plans)

STORM	DURATION	RUNOFF
2 YEAR	20 MIN.	13.61 CFS
15 YEAR	20 MIN.	21.94 CFS
25 YEAR	20 MIN.	27.07 CFS
100 YEAR	20 MIN.	34.64 CFS

PERMITTED RELEASE RATE:

The permitted release rate of the basin was found by subtracting the required attenuation from the basin inflow from each drainage area for each design storm:

Design Storm	Basin Inflow	-	Required Attenuation	=	Release Rate
2 year	13.61 cfs	-	11.67 cfs	=	1.94 cfs
15 year	21.94 cfs	-	18.72 cfs	=	3.22 cfs
25 year	27.07 cfs	-	23.08cfs	=	3.99 cfs

STORM ROUTING CALCULATIONS AND RESULTS:

A computer program PONDPACK was used in routing the 2, 15 and 25- year storms through the basin. As found in the routing calculations, the results are as follows:

STORM	PEAK INFLOW	ALLOWABLE RELEASE	CALCULATED RELEASE	PEAK ELEVATION
2 YEAR	13.61 CFS	1.94 CFS	1.89 CFS	535.01 ft
15 YEAR	21.94 CFS	3.22 CFS	2.13 CFS	536.07 ft
25 YEAR	27.07 CFS	3.99 CFS	2.24 CFS	536.59 ft

CHECK 100-YEAR OUTFLOW:(low-flow slots blocked)

Standard Area Inlet Top

WEIR FLOW $Q = C \times L \times H^{(3/2)}$

Where 100-YEAR FLOW			
	Q	=	34.64 cfs
	C	=	3.0
	L	=	11.67
	H	=	0.99 ft
	Sill	=	537.50 ft
	HW	=	538.49 ft

SEDIMENT VOLUME CALCULATION:

The basin shall be analyzed to accommodate 2 years of sediment storage.

-The Drainage area to the basin = 6.29 Acres
-Rational Method runoff coefficient 'c'= 0.6
-Annual sediment storage volume (from figure 2) = 150 ft^3/Acre
-The sediment volume and storage required =

2 years of sediment storage = 6.29 Acres (150 ft^3/Acre/year)(2 years)

2 years of sediment storage = 1,887.0 ft^3

To provide for the additional sediment storage the top of the overflow sill will be set at 537.50.

Volume between the 25-year high water of 536.59 and the overflow sill elevation of 537.50 is 12,775 ft^3.

12,775 ft^3 provided > 1,887 ft^3 required

SUMMARY

2 year-20min H.W.	535.01 ft
15 year-20min H.W.	536.07 ft
25 year-20min H.W.	536.59 ft
100 year-20min H.W. (low flow blocked)	538.49 ft
Low-flow slot	0.4'W x 0.5'H
Low-flow elevation	530.92
Overflow Sill	537.50
Top Of Berm	540.00

Watershed C

REQUIRED ATTENUATION: (20 minute storms)

The required attenuation for the site was found by subtracting the peak runoff rate from the site under existing conditions from the peak runoff rate from the site under proposed conditions for each design storm. For the required attenuation calculation the MoDot Pavement was assumed to be 0-5% impervious since detention is not required in these basins:

15 year 20 minute storm:

Proposed peak flow rate	Lot C - 0.82	acres @ 3.85 cfs/acre =	3.16 cfs
	MoDOT - 0.50	acres @ 1.87 cfs/acre =	0.94 cfs
	Green Space – 0.32	acres @ 1.87 cfs/acre =	0.60 cfs
			4.70 cfs

Existing peak flow rate 5.15 acres @ 1.87 cfs/acre = 9.63 cfs

4.70 cfs – 9.63 cfs = -4.93 cfs

2 year 20-minute storm: -3.02 cfs
15 year 20-minute storm: -4.93 cfs
25 year 20-minute storm: -6.11 cfs

Since the existing runoff is higher than the proposed runoff detention is not required for this water shed.

Watershed D

REQUIRED ATTENUATION: (20 minute storms)

The required attenuation for the site was found by subtracting the peak runoff rate from the site under existing conditions from the peak runoff rate from the site under proposed conditions for each design storm. For the required attenuation calculation the MoDot Pavement was assumed to be 0-5% impervious since detention is not required in these basins:

15 year 20 minute storm:

Proposed peak flow rate
Lot D – 3.15 acres @ 3.85 cfs/acre = 12.13 cfs
MoDOT – 1.13 acres @ 1.87 cfs/acre = 2.11 cfs
Green Space – 3.44 acres @ 1.87 cfs/acre = 6.43 cfs
20.67 cfs

Existing peak flow rate
5.50 acres @ 1.87 cfs/acre = 10.29 cfs

20.67 cfs – 10.29 cfs = 10.39 cfs

2 year 20-minute storm: 6.46 cfs
15 year 20-minute storm: 10.39 cfs
25 year 20-minute storm: 12.81 cfs

BASIN PEAK INFLOW:

Inflows to the basin have been estimated using the drainage area map of the project. (see plans)

STORM	DURATION	RUNOFF
2 YEAR	20 MIN.	8.60 CFS
15 YEAR	20 MIN.	13.99 CFS
25 YEAR	20 MIN.	17.28 CFS
100 YEAR	20 MIN.	22.07 CFS

PERMITTED RELEASE RATE:

The permitted release rate of the basin was found by subtracting the required attenuation from the basin inflow from each drainage area for each design storm:

Design Storm	Basin Inflow	-	Required Attenuation	=	Release Rate
2 year	8.60 cfs	-	6.46 cfs	=	2.14 cfs
15 year	13.99 cfs	-	10.39 cfs	=	3.60 cfs
25 year	17.28 cfs	-	12.81 cfs	=	4.47 cfs

STORM ROUTING CALCULATIONS AND RESULTS:

A computer program PONDPACK was used in routing the 2, 15 and 25- year storms through the basin. As found in the routing calculations, the results are as follows:

STORM	PEAK INFLOW	ALLOWABLE RELEASE	CALCULATED RELEASE	PEAK ELEVATION
2 YEAR	8.60 CFS	2.14 CFS	1.92 CFS	520.37 ft
15 YEAR	13.99 CFS	3.60 CFS	2.26 CFS	521.80 ft
25 YEAR	17.28 CFS	4.47 CFS	2.43 CFS	522.60 ft

CHECK 100-YEAR OUTFLOW:(low-flow slots blocked)

WEIR FLOW $Q = C \times L \times H (3/2)$

Basin A

Where 100-YEAR FLOW	Q	=	22.07
	C	=	3.0
Spillway width	L	=	11.00
	H	=	0.76 ft
	Sill	=	522.82 ft
	100 yr h/w	=	523.58 ft

SEDIMENT VOLUME CALCULATION:

The basin shall be analyzed to accommodate 2 years of sediment storage.

-The Drainage area to the basin = 3.54 Acres
-Rational Method runoff coefficient 'c'= 0.6
-Annual sediment storage volume (from figure 2) = 150 ft^3/Acre
-The sediment volume and storage required =

2 years of sediment storage = 3.54 Acres (150 ft^3/Acre/year)(2 years)

2 years of sediment storage = 1,062.0 ft^3

To provide for the additional sediment storage the top of the overflow sill will be set at 522.82.

Volume between the 25-year high water of 522.60 and the overflow sill elevation of 522.82 is 1,080 ft^3.

1,080 ft^3 provided > 1,062 ft^3 required

SUMMARY

2 year-20min H.W.	520.37 ft
15 year-20min H.W.	521.80 ft
25 year-20min H.W.	522.60 ft
100 year-20min H.W. (low flow blocked)	523.58 ft
Low-flow slot	5"W x 6"H
Low-flow elevation	516.47
Overflow Sill	522.82
Top Of Berm	524.60

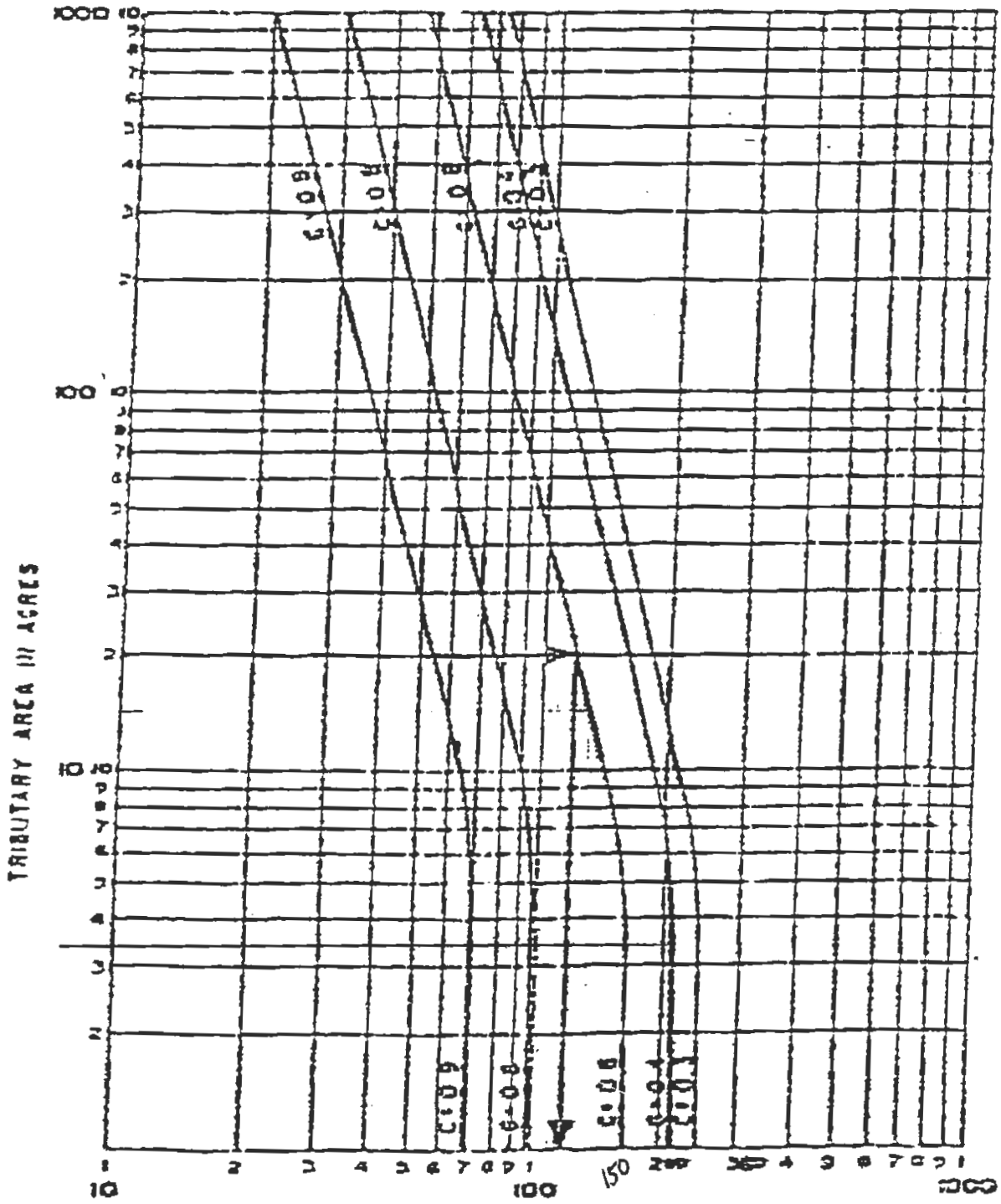
EXAMPLE:

TRIBUTARY AREA = 20 ACRES

RATIONAL METHOD RUNOFF COEFFICIENT "C" = 0.6

SEDIMENT STORAGE = 120 CU FT PER ACRE PER YEAR

TOTAL SEDIMENT STORAGE = 120 x 20 = 2400 CU. FT. PER YEAR.



ANNUAL SEDIMENT STORAGE VOLUME CU FT PER ACRE TRIBUTARY AREA

ANNUAL SEDIMENT STORAGE

POND 9
BASIN B

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POND VOLUME CALCULATIONS

Planimeter scale: 1.00 ft/in

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (cu.ft)	Volume Sum (cu.ft)
530.92	.000	.0000	.0000	0	0
532.00	1426.000	.0327	.0327	513	513
534.00	5957.000	.1368	.2364	6865	7378
536.00	10348.000	.2376	.5546	16104	23483
538.00	18087.000	.4152	.9668	28077	51560
538.50	19197.920	.4407	1.2837	9320	60880

POND VOLUME EQUATIONS

* 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

Name.... Outlet B

File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 530.92 ft
Increment = .10 ft
Max. Elev.= 538.50 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Orifice-Area	2	--->	cv	531.420	540.000
Weir-Rectangular	1	--->	cv	530.920	531.420
Culvert-Circular	cv	--->	TW	528.670	538.500

TW SETUP, DS Channel

Name.... Outlet B

File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = 2
Structure Type = Orifice-Area

# of Openings	=	1
Invert Elev.	=	530.92 ft
Area	=	.2000 sq.ft
Top of Orifice	=	531.42 ft
Datum Elev.	=	531.17 ft
Orifice Coeff.	=	.600

Structure ID = 1
Structure Type = Weir-Rectangular

# of Openings	=	1
Crest Elev.	=	530.92 ft
Weir Length	=	.40 ft
Weir Coeff.	=	3.000000

Weir TW effects (Use adjustment equation)

Name.... Outlet B

File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = cv
Structure Type = Culvert-Circular

No. Barrels	=	1	
Barrel Diameter	=	2.2500	ft
Upstream Invert	=	528.67	ft
Dnstream Invert	=	527.98	ft
Horiz. Length	=	62.00	ft
Barrel Length	=	62.00	ft
Barrel Slope	=	.01113	ft/ft

OUTLET CONTROL DATA...

Mannings n	=	.0130	
Ke	=	.5000	(forward entrance loss)
Kb	=	.010607	(per ft of full flow)
Kr	=	.2000	(reverse entrance loss)
HW Convergence	=	.001	+/- ft

INLET CONTROL DATA...

Equation form	=	1	
Inlet Control K	=	.0098	
Inlet Control M	=	2.0000	
Inlet Control c	=	.03980	
Inlet Control Y	=	.6700	
T1 ratio (HW/D)	=	1.155	
T2 ratio (HW/D)	=	1.301	
Slope Factor	=	-.500	

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...
At T1 Elev = 531.27 ft ---> Flow = 20.87 cfs
At T2 Elev = 531.60 ft ---> Flow = 23.86 cfs

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...

Maximum Iterations=	30	
Min. TW tolerance =	.01	ft
Max. TW tolerance =	.01	ft
Min. HW tolerance =	.01	ft
Max. HW tolerance =	.01	ft
Min. Q tolerance =	.10	cfs
Max. Q tolerance =	.10	cfs

Name.... Outlet B

File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

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

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
530.92	.00	Free Outfall		(no Q: 2,1,cv)
531.02	.04	Free Outfall		1,cv (no Q: 2)
531.12	.11	Free Outfall		1,cv (no Q: 2)
531.22	.20	Free Outfall		1,cv (no Q: 2)
531.32	.30	Free Outfall		1,cv (no Q: 2)
531.42	.48	Free Outfall		2,cv (no Q: 1)
531.52	.57	Free Outfall		2,cv (no Q: 1)
531.62	.65	Free Outfall		2,cv (no Q: 1)
531.72	.71	Free Outfall		2,cv (no Q: 1)
531.82	.78	Free Outfall		2,cv (no Q: 1)
531.92	.83	Free Outfall		2,cv (no Q: 1)
532.02	.89	Free Outfall		2,cv (no Q: 1)
532.12	.94	Free Outfall		2,cv (no Q: 1)
532.22	.99	Free Outfall		2,cv (no Q: 1)
532.32	1.03	Free Outfall		2,cv (no Q: 1)
532.42	1.08	Free Outfall		2,cv (no Q: 1)
532.52	1.12	Free Outfall		2,cv (no Q: 1)
532.62	1.16	Free Outfall		2,cv (no Q: 1)
532.72	1.20	Free Outfall		2,cv (no Q: 1)
532.82	1.24	Free Outfall		2,cv (no Q: 1)
532.92	1.27	Free Outfall		2,cv (no Q: 1)
533.02	1.31	Free Outfall		2,cv (no Q: 1)
533.12	1.34	Free Outfall		2,cv (no Q: 1)
533.22	1.38	Free Outfall		2,cv (no Q: 1)
533.32	1.41	Free Outfall		2,cv (no Q: 1)
533.42	1.44	Free Outfall		2,cv (no Q: 1)
533.52	1.48	Free Outfall		2,cv (no Q: 1)
533.62	1.51	Free Outfall		2,cv (no Q: 1)
533.72	1.54	Free Outfall		2,cv (no Q: 1)
533.82	1.57	Free Outfall		2,cv (no Q: 1)
533.92	1.60	Free Outfall		2,cv (no Q: 1)
534.02	1.63	Free Outfall		2,cv (no Q: 1)
534.12	1.65	Free Outfall		2,cv (no Q: 1)
534.22	1.68	Free Outfall		2,cv (no Q: 1)
534.32	1.71	Free Outfall		2,cv (no Q: 1)
534.42	1.74	Free Outfall		2,cv (no Q: 1)
534.52	1.76	Free Outfall		2,cv (no Q: 1)
534.62	1.79	Free Outfall		2,cv (no Q: 1)

Name.... Outlet B

File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

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

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
534.72	1.81	Free Outfall		2,cv (no Q: 1)
534.82	1.84	Free Outfall		2,cv (no Q: 1)
534.92	1.86	Free Outfall		2,cv (no Q: 1)
535.02	1.89	Free Outfall		2,cv (no Q: 1)
535.12	1.91	Free Outfall		2,cv (no Q: 1)
535.22	1.94	Free Outfall		2,cv (no Q: 1)
535.32	1.96	Free Outfall		2,cv (no Q: 1)
535.42	1.98	Free Outfall		2,cv (no Q: 1)
535.52	2.01	Free Outfall		2,cv (no Q: 1)
535.62	2.03	Free Outfall		2,cv (no Q: 1)
535.72	2.05	Free Outfall		2,cv (no Q: 1)
535.82	2.08	Free Outfall		2,cv (no Q: 1)
535.92	2.10	Free Outfall		2,cv (no Q: 1)
536.02	2.12	Free Outfall		2,cv (no Q: 1)
536.12	2.14	Free Outfall		2,cv (no Q: 1)
536.22	2.16	Free Outfall		2,cv (no Q: 1)
536.32	2.18	Free Outfall		2,cv (no Q: 1)
536.42	2.21	Free Outfall		2,cv (no Q: 1)
536.52	2.23	Free Outfall		2,cv (no Q: 1)
536.62	2.25	Free Outfall		2,cv (no Q: 1)
536.72	2.27	Free Outfall		2,cv (no Q: 1)
536.82	2.29	Free Outfall		2,cv (no Q: 1)
536.92	2.31	Free Outfall		2,cv (no Q: 1)
537.02	2.33	Free Outfall		2,cv (no Q: 1)
537.12	2.35	Free Outfall		2,cv (no Q: 1)
537.22	2.37	Free Outfall		2,cv (no Q: 1)
537.32	2.39	Free Outfall		2,cv (no Q: 1)
537.42	2.41	Free Outfall		2,cv (no Q: 1)
537.52	2.43	Free Outfall		2,cv (no Q: 1)
537.62	2.44	Free Outfall		2,cv (no Q: 1)
537.72	2.46	Free Outfall		2,cv (no Q: 1)
537.82	2.48	Free Outfall		2,cv (no Q: 1)
537.92	2.50	Free Outfall		2,cv (no Q: 1)
538.02	2.52	Free Outfall		2,cv (no Q: 1)
538.12	2.54	Free Outfall		2,cv (no Q: 1)
538.22	2.56	Free Outfall		2,cv (no Q: 1)
538.32	2.57	Free Outfall		2,cv (no Q: 1)
538.42	2.59	Free Outfall		2,cv (no Q: 1)

Name.... Outlet B

File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

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

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
538.50	2.61	Free Outfall		2,cv (no Q: 1)

Name.... B BASIN
File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

LEVEL POOL ROUTING DATA

HYG Dir = E:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 530.92 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 1.00 min

Elevation ft	Outflow cfs	Storage cu.ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
530.92	.00	0	.0000	.00	.00	.00
531.02	.04	0	.0003	.00	.04	.05
531.12	.11	3	.0011	.00	.11	.22
531.22	.20	11	.0025	.00	.20	.56
531.32	.30	26	.0045	.00	.30	1.17
531.42	.48	51	.0070	.00	.48	2.18
531.52	.57	88	.0101	.00	.57	3.50
531.62	.65	140	.0138	.00	.65	5.31
531.72	.71	209	.0180	.00	.71	7.67
531.82	.78	297	.0227	.00	.78	10.68
531.92	.83	408	.0281	.00	.83	14.42
532.02	.89	542	.0334	.00	.89	18.96
532.12	.94	695	.0370	.00	.94	24.12
532.22	.99	864	.0407	.00	.99	29.80
532.32	1.03	1050	.0446	.00	1.03	36.04
532.42	1.08	1253	.0487	.00	1.08	42.85
532.52	1.12	1474	.0529	.00	1.12	50.26
532.62	1.16	1714	.0574	.00	1.16	58.31
532.72	1.20	1974	.0620	.00	1.20	67.00
532.82	1.24	2255	.0668	.00	1.24	76.39

Name.... B BASIN
File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

LEVEL POOL ROUTING DATA

HYG Dir = E:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 530.92 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 1.00 min

Elevation ft	Outflow cfs	Storage cu.ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
532.92	1.27	2556	.0717	.00	1.27	86.47
533.02	1.31	2880	.0769	.00	1.31	97.29
533.12	1.34	3226	.0822	.00	1.34	108.88
533.22	1.38	3596	.0877	.00	1.38	121.24
533.32	1.41	3990	.0934	.00	1.41	134.42
533.42	1.44	4410	.0992	.00	1.44	148.44
533.52	1.48	4855	.1053	.00	1.48	163.31
533.62	1.51	5327	.1115	.00	1.51	179.08
533.72	1.54	5827	.1179	.00	1.54	195.76
533.82	1.57	6355	.1245	.00	1.57	213.39
533.92	1.60	6911	.1312	.00	1.60	231.98
534.02	1.63	7498	.1376	.00	1.63	251.55
534.12	1.65	8107	.1420	.00	1.65	271.88
534.22	1.68	8735	.1465	.00	1.68	292.85
534.32	1.71	9383	.1510	.00	1.71	314.49
534.42	1.74	10051	.1556	.00	1.74	336.77
534.52	1.76	10739	.1603	.00	1.76	359.73
534.62	1.79	11448	.1650	.00	1.79	383.38
534.72	1.81	12177	.1699	.00	1.81	407.71
534.82	1.84	12928	.1747	.00	1.84	432.76

Name.... B BASIN
File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

LEVEL POOL ROUTING DATA

HYG Dir = E:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	530.92 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	1.00 min

Elevation ft	Outflow cfs	Storage cu.ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
534.92	1.86	13699	.1797	.00	1.86	458.51
535.02	1.89	14493	.1847	.00	1.89	484.98
535.12	1.91	15309	.1898	.00	1.91	512.21
535.22	1.94	16147	.1950	.00	1.94	540.16
535.32	1.96	17007	.2002	.00	1.96	568.88
535.42	1.98	17891	.2055	.00	1.98	598.34
535.52	2.01	18797	.2108	.00	2.01	628.58
535.62	2.03	19728	.2163	.00	2.03	659.62
535.72	2.05	20682	.2218	.00	2.05	691.44
535.82	2.08	21660	.2274	.00	2.08	724.08
535.92	2.10	22663	.2330	.00	2.10	757.52
536.02	2.12	23690	.2391	.00	2.12	791.78
536.12	2.14	24748	.2468	.00	2.14	827.09
536.22	2.16	25840	.2547	.00	2.16	863.51
536.32	2.18	26968	.2627	.00	2.18	901.10
536.42	2.21	28129	.2708	.00	2.21	939.84
536.52	2.23	29326	.2790	.00	2.23	979.77
536.62	2.25	30560	.2874	.00	2.25	1020.92
536.72	2.27	31830	.2958	.00	2.27	1063.27
536.82	2.29	33138	.3044	.00	2.29	1106.88

Name.... B BASIN
File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW

LEVEL POOL ROUTING DATA

HYG Dir = E:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 530.92 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 1.00 min

Elevation ft	Outflow cfs	Storage cu.ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
536.92	2.31	34483	.3132	.00	2.31	1151.73
537.02	2.33	35866	.3220	.00	2.33	1197.85
537.12	2.35	37288	.3310	.00	2.35	1245.29
537.22	2.37	38749	.3401	.00	2.37	1294.01
537.32	2.39	40251	.3493	.00	2.39	1344.10
537.42	2.41	41793	.3586	.00	2.41	1395.50
537.52	2.43	43375	.3681	.00	2.43	1448.26
537.62	2.44	45000	.3777	.00	2.44	1502.44
537.72	2.46	46666	.3874	.00	2.46	1557.98
537.82	2.48	48375	.3972	.00	2.48	1614.98
537.92	2.50	50127	.4072	.00	2.50	1673.39
538.02	2.52	51921	.4162	.00	2.52	1733.22
538.12	2.54	53746	.4213	.00	2.54	1794.07
538.22	2.56	55592	.4263	.00	2.56	1855.61
538.32	2.57	57461	.4315	.00	2.57	1917.92
538.42	2.59	59351	.4366	.00	2.59	1980.95
538.50	2.61	60880	.4407	.00	2.61	2031.93

SUMMARY FOR HYDROGRAPH ADDITION
at Node: B BASIN IN

HYG Directory: E:\PONDPACK\A11000PLUS\11282c\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A 30	B STORMS		2a YEAR	002

INFLOWS TO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	2a YEAR	002	16332	1.00	13.61

TOTAL FLOW INTO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	B BASIN IN	002	16332	1.00	13.61

TOTAL NODE INFLOW...
HYG file =
HYG ID = B BASIN IN
HYG Tag = 002

Peak Discharge =	13.61 cfs
Time to Peak =	1.00 min
HYG Volume =	16332 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	13.61	13.61	13.61	13.61
5.00	13.61	13.61	13.61	13.61	13.61
10.00	13.61	13.61	13.61	13.61	13.61
15.00	13.61	13.61	13.61	13.61	13.61
20.00	13.61	.00			

SUMMARY FOR HYDROGRAPH ADDITION
at Node: B BASIN IN

HYG Directory: E:\PONDPACK\A11000PLUS\11282c\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A 30	B STORMS		15a YEAR	015

INFLOWS TO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	15a YEAR	015	26328	1.00	21.94

TOTAL FLOW INTO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	B BASIN IN	015	26328	1.00	21.94

TOTAL NODE INFLOW...
HYG file =
HYG ID = B BASIN IN
HYG Tag = 015

Peak Discharge =	21.94 cfs
Time to Peak =	1.00 min
HYG Volume =	26328 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	21.94	21.94	21.94	21.94
5.00	21.94	21.94	21.94	21.94	21.94
10.00	21.94	21.94	21.94	21.94	21.94
15.00	21.94	21.94	21.94	21.94	21.94
20.00	21.94	.00			

Type.... Node: Pond Inflow Summary
Name.... B BASIN IN Event: 025 yr
File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW
Storm... 025 Tag: 025

SUMMARY FOR HYDROGRAPH ADDITION
at Node: B BASIN IN

HYG Directory: E:\PONDPACK\A11000PLUS\11282c\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A 30	B STORMS		25a YEAR	025

INFLOWS TO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	25a YEAR	025	32482	1.00	27.07

TOTAL FLOW INTO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	B BASIN IN	025	32482	1.00	27.07

TOTAL NODE INFLOW...
HYG file =
HYG ID = B BASIN IN
HYG Tag = 025

Peak Discharge =	27.07 cfs
Time to Peak =	1.00 min
HYG Volume =	32482 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	27.07	27.07	27.07	27.07
5.00	27.07	27.07	27.07	27.07	27.07
10.00	27.07	27.07	27.07	27.07	27.07
15.00	27.07	27.07	27.07	27.07	27.07
20.00	27.07	.00			

SUMMARY FOR HYDROGRAPH ADDITION
at Node: B BASIN IN

HYG Directory: E:\PONDPACK\A11000PLUS\11282c\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A 30	B STORMS		100a YEAR	100

INFLOWS TO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	100a YEAR	100	41567	1.00	34.64

TOTAL FLOW INTO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	B BASIN IN	100	41567	1.00	34.64

TOTAL NODE INFLOW...
HYG file =
HYG ID = B BASIN IN
HYG Tag = 100

Peak Discharge =	34.64 cfs
Time to Peak =	1.00 min
HYG Volume =	41567 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	34.64	34.64	34.64	34.64
5.00	34.64	34.64	34.64	34.64	34.64
10.00	34.64	34.64	34.64	34.64	34.64
15.00	34.64	34.64	34.64	34.64	34.64
20.00	34.64	.00			

Type.... Pond Routing Summary
Name.... B BASIN OUT Tag: 002 Event: 002 yr
File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW
Storm... 002 Tag: 002

LEVEL POOL ROUTING SUMMARY

HYG Dir = E:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	530.92 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	1.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	13.61 cfs	at	1.00 min
Peak Outflow	=	1.89 cfs	at	21.00 min
Peak Elevation	=	535.01 ft		
Peak Storage	=	14419 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	16332
- Infiltration	=	0
- HYG Vol OUT	=	16332
- Retained Vol	=	0
Unrouted Vol	=	0 cu.ft (.000% of Outflow Volume)

POND ROUTED TOTAL OUTFLOW HYG...
HYG file =
HYG ID = B BASIN OUT
HYG Tag = 002

Peak Discharge =	1.89 cfs
Time to Peak =	21.00 min
HYG Volume =	16332 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	.82	1.05	1.19	1.28
5.00	1.36	1.42	1.47	1.52	1.56
10.00	1.60	1.64	1.67	1.70	1.73
15.00	1.76	1.78	1.81	1.83	1.86
20.00	1.88	1.89	1.88	1.88	1.88
25.00	1.87	1.87	1.87	1.86	1.86
30.00	1.85	1.85	1.85	1.84	1.84
35.00	1.84	1.83	1.83	1.83	1.82
40.00	1.82	1.81	1.81	1.81	1.80
45.00	1.80	1.80	1.79	1.79	1.78
50.00	1.78	1.78	1.77	1.77	1.76
55.00	1.76	1.76	1.75	1.75	1.74
60.00	1.74	1.74	1.73	1.73	1.72
65.00	1.72	1.72	1.71	1.71	1.70
70.00	1.70	1.69	1.69	1.69	1.68
75.00	1.68	1.67	1.67	1.66	1.66
80.00	1.65	1.65	1.65	1.64	1.64
85.00	1.63	1.63	1.62	1.62	1.61
90.00	1.61	1.60	1.60	1.59	1.59
95.00	1.58	1.58	1.57	1.57	1.56
100.00	1.56	1.55	1.55	1.54	1.54
105.00	1.53	1.53	1.52	1.52	1.51
110.00	1.50	1.50	1.49	1.49	1.48
115.00	1.47	1.47	1.46	1.46	1.45
120.00	1.44	1.44	1.43	1.42	1.42
125.00	1.41	1.40	1.40	1.39	1.38
130.00	1.37	1.37	1.36	1.35	1.34
135.00	1.34	1.33	1.32	1.31	1.30
140.00	1.30	1.29	1.28	1.27	1.26
145.00	1.25	1.24	1.23	1.22	1.21
150.00	1.20	1.19	1.18	1.17	1.16

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
155.00	1.15	1.14	1.13	1.11	1.10
160.00	1.09	1.08	1.06	1.05	1.03
165.00	1.02	1.00	.99	.97	.96
170.00	.94	.92	.90	.89	.87
175.00	.85	.82	.80	.77	.74
180.00	.71	.67	.62	.57	.49
185.00	.33	.22	.11	.01	.00

Type... Level Routing Summary
Name.... B BASIN OUT Tag: 015 Event: 015 yr
File.... E:\PONDPACK\A11000PLUS\11282c\NEW.PPW
Storm... 015 Tag: 015

LEVEL POOL ROUTING SUMMARY

HYG Dir = E:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 015
Outflow HYG file = NONE STORED - B BASIN OUT 015

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	530.92 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	1.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	21.94 cfs	at	1.00 min
Peak Outflow	=	2.13 cfs	at	21.00 min
Peak Elevation	=	536.07 ft		
Peak Storage	=	24173 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	26328
- Infiltration	=	0
- HYG Vol OUT	=	26328
- Retained Vol	=	0
Unrouted Vol	=	0 cu.ft (.000% of Outflow Volume)

POND ROUTED TOTAL OUTFLOW HYG...
HYG file =
HYG ID = B BASIN OUT
HYG Tag = 015

Peak Discharge =	2.13 cfs
Time to Peak =	21.00 min
HYG Volume =	26328 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	.92	1.18	1.33	1.44
5.00	1.52	1.59	1.65	1.70	1.75
10.00	1.80	1.84	1.88	1.91	1.95
15.00	1.98	2.01	2.04	2.07	2.09
20.00	2.12	2.13	2.13	2.12	2.12
25.00	2.12	2.12	2.11	2.11	2.11
30.00	2.11	2.10	2.10	2.10	2.10
35.00	2.09	2.09	2.09	2.08	2.08
40.00	2.08	2.08	2.07	2.07	2.07
45.00	2.06	2.06	2.06	2.06	2.05
50.00	2.05	2.05	2.04	2.04	2.04
55.00	2.04	2.03	2.03	2.03	2.02
60.00	2.02	2.02	2.01	2.01	2.01
65.00	2.01	2.00	2.00	2.00	1.99
70.00	1.99	1.99	1.98	1.98	1.98
75.00	1.97	1.97	1.97	1.97	1.96
80.00	1.96	1.96	1.95	1.95	1.95
85.00	1.94	1.94	1.94	1.93	1.93
90.00	1.93	1.92	1.92	1.92	1.91
95.00	1.91	1.91	1.90	1.90	1.90
100.00	1.89	1.89	1.89	1.88	1.88
105.00	1.88	1.87	1.87	1.86	1.86
110.00	1.86	1.85	1.85	1.85	1.84
115.00	1.84	1.84	1.83	1.83	1.82
120.00	1.82	1.82	1.81	1.81	1.81
125.00	1.80	1.80	1.79	1.79	1.79
130.00	1.78	1.78	1.78	1.77	1.77
135.00	1.76	1.76	1.76	1.75	1.75
140.00	1.74	1.74	1.74	1.73	1.73
145.00	1.72	1.72	1.71	1.71	1.71
150.00	1.70	1.70	1.69	1.69	1.68

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
155.00	1.68	1.68	1.67	1.67	1.66
160.00	1.66	1.65	1.65	1.64	1.64
165.00	1.64	1.63	1.63	1.62	1.62
170.00	1.61	1.61	1.60	1.60	1.59
175.00	1.59	1.58	1.58	1.57	1.57
180.00	1.56	1.56	1.55	1.55	1.54
185.00	1.54	1.53	1.53	1.52	1.51
190.00	1.51	1.50	1.50	1.49	1.48
195.00	1.48	1.47	1.47	1.46	1.45
200.00	1.45	1.44	1.44	1.43	1.42
205.00	1.42	1.41	1.40	1.39	1.39
210.00	1.38	1.37	1.37	1.36	1.35
215.00	1.34	1.33	1.33	1.32	1.31
220.00	1.30	1.29	1.28	1.28	1.27
225.00	1.26	1.25	1.24	1.23	1.22
230.00	1.21	1.20	1.19	1.18	1.17
235.00	1.16	1.15	1.13	1.12	1.11
240.00	1.10	1.09	1.07	1.06	1.04
245.00	1.03	1.02	1.00	.99	.97
250.00	.95	.94	.92	.90	.88
255.00	.86	.84	.82	.79	.76
260.00	.73	.70	.66	.61	.55
265.00	.46	.30	.19	.08	.00

LEVEL POOL ROUTING SUMMARY

HYG Dir = E:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 025
Outflow HYG file = NONE STORED - B BASIN OUT 025

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	530.92 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	1.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	27.07 cfs	at	1.00 min
Peak Outflow	=	2.24 cfs	at	21.00 min
Peak Elevation	=	536.59 ft		
Peak Storage	=	30216 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	32482
- Infiltration	=	0
- HYG Vol OUT	=	32482
- Retained Vol	=	0
Unrouted Vol	=	0 cu.ft (.000% of Outflow Volume)

POND ROUTED TOTAL OUTFLOW HYG...
HYG file =
HYG ID = B BASIN OUT
HYG Tag = 025

Peak Discharge =	2.24 cfs
Time to Peak =	21.00 min
HYG Volume =	32482 cu.ft

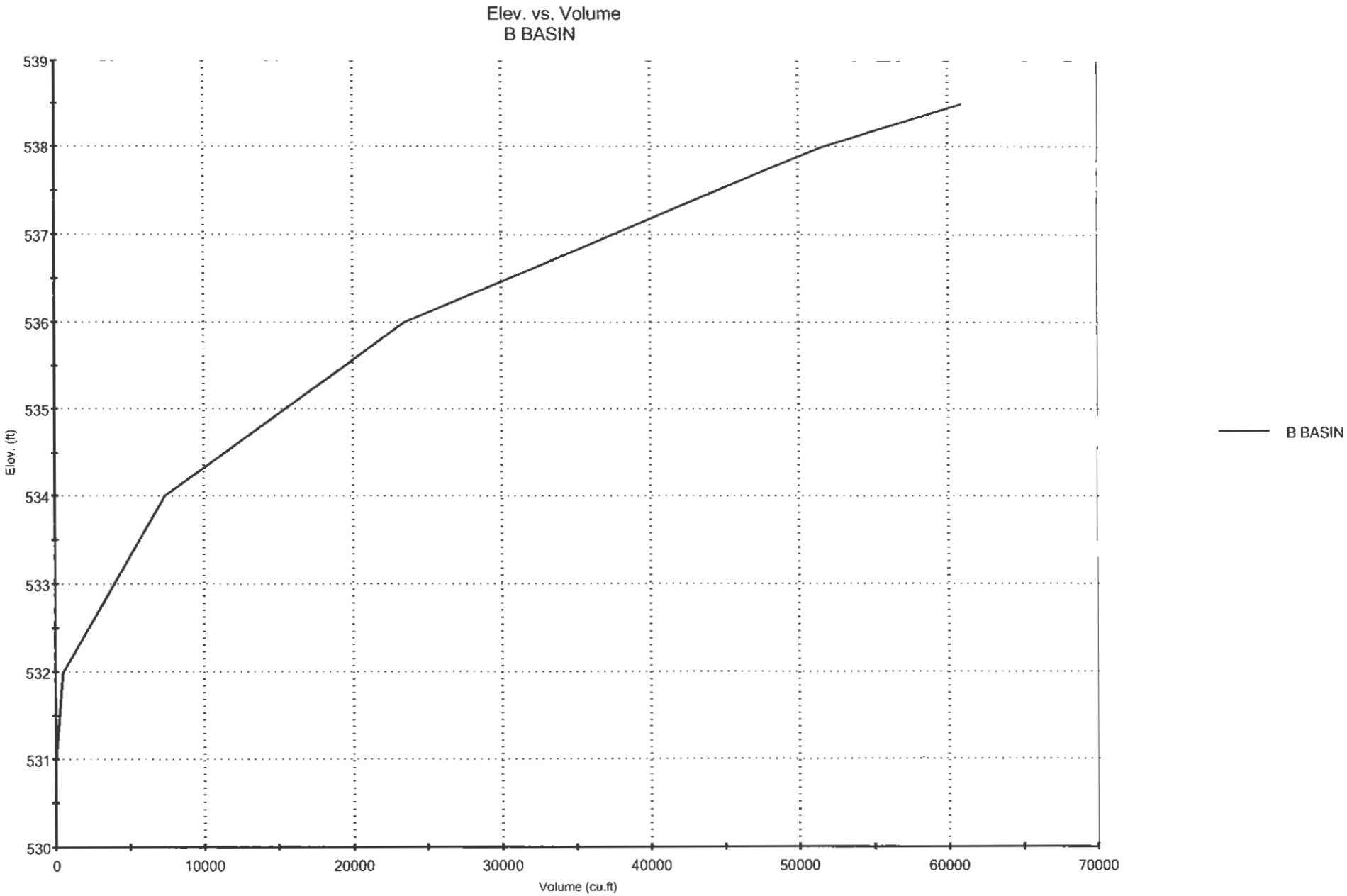
HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	.96	1.25	1.40	1.51
5.00	1.60	1.67	1.73	1.79	1.84
10.00	1.89	1.93	1.98	2.01	2.05
15.00	2.08	2.12	2.15	2.18	2.20
20.00	2.23	2.24	2.24	2.24	2.23
25.00	2.23	2.23	2.23	2.23	2.22
30.00	2.22	2.22	2.22	2.21	2.21
35.00	2.21	2.21	2.20	2.20	2.20
40.00	2.20	2.20	2.19	2.19	2.19
45.00	2.19	2.18	2.18	2.18	2.18
50.00	2.17	2.17	2.17	2.17	2.16
55.00	2.16	2.16	2.16	2.15	2.15
60.00	2.15	2.15	2.14	2.14	2.14
65.00	2.14	2.13	2.13	2.13	2.12
70.00	2.12	2.12	2.12	2.11	2.11
75.00	2.11	2.11	2.10	2.10	2.10
80.00	2.10	2.09	2.09	2.09	2.08
85.00	2.08	2.08	2.08	2.07	2.07
90.00	2.07	2.06	2.06	2.06	2.06
95.00	2.05	2.05	2.05	2.04	2.04
100.00	2.04	2.04	2.03	2.03	2.03
105.00	2.02	2.02	2.02	2.01	2.01
110.00	2.01	2.01	2.00	2.00	2.00
115.00	1.99	1.99	1.99	1.98	1.98
120.00	1.98	1.97	1.97	1.97	1.97
125.00	1.96	1.96	1.96	1.95	1.95
130.00	1.95	1.94	1.94	1.94	1.93
135.00	1.93	1.93	1.92	1.92	1.92
140.00	1.91	1.91	1.91	1.90	1.90
145.00	1.90	1.89	1.89	1.89	1.88
150.00	1.88	1.88	1.87	1.87	1.86

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
155.00	1.86	1.86	1.85	1.85	1.85
160.00	1.84	1.84	1.84	1.83	1.83
165.00	1.82	1.82	1.82	1.81	1.81
170.00	1.81	1.80	1.80	1.79	1.79
175.00	1.79	1.78	1.78	1.78	1.77
180.00	1.77	1.76	1.76	1.76	1.75
185.00	1.75	1.74	1.74	1.74	1.73
190.00	1.73	1.72	1.72	1.71	1.71
195.00	1.71	1.70	1.70	1.69	1.69
200.00	1.68	1.68	1.68	1.67	1.67
205.00	1.66	1.66	1.65	1.65	1.64
210.00	1.64	1.64	1.63	1.63	1.62
215.00	1.62	1.61	1.61	1.60	1.60
220.00	1.59	1.59	1.58	1.58	1.57
225.00	1.57	1.56	1.56	1.55	1.55
230.00	1.54	1.54	1.53	1.53	1.52
235.00	1.51	1.51	1.50	1.50	1.49
240.00	1.49	1.48	1.47	1.47	1.46
245.00	1.45	1.45	1.44	1.44	1.43
250.00	1.42	1.42	1.41	1.40	1.39
255.00	1.39	1.38	1.37	1.37	1.36
260.00	1.35	1.34	1.33	1.33	1.32
265.00	1.31	1.30	1.29	1.29	1.28
270.00	1.27	1.26	1.25	1.24	1.23
275.00	1.22	1.21	1.20	1.19	1.18
280.00	1.17	1.16	1.15	1.13	1.12
285.00	1.11	1.10	1.09	1.07	1.06
290.00	1.05	1.03	1.02	1.00	.99
295.00	.97	.95	.94	.92	.90
300.00	.88	.86	.84	.82	.79
305.00	.77	.73	.70	.66	.61
310.00	.55	.47	.31	.20	.09
315.00	.00				

Index of Starting Page Numbers for ID Names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B BASIN
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538
537
536
535
534
533
532
531
530
Elev. (ft)
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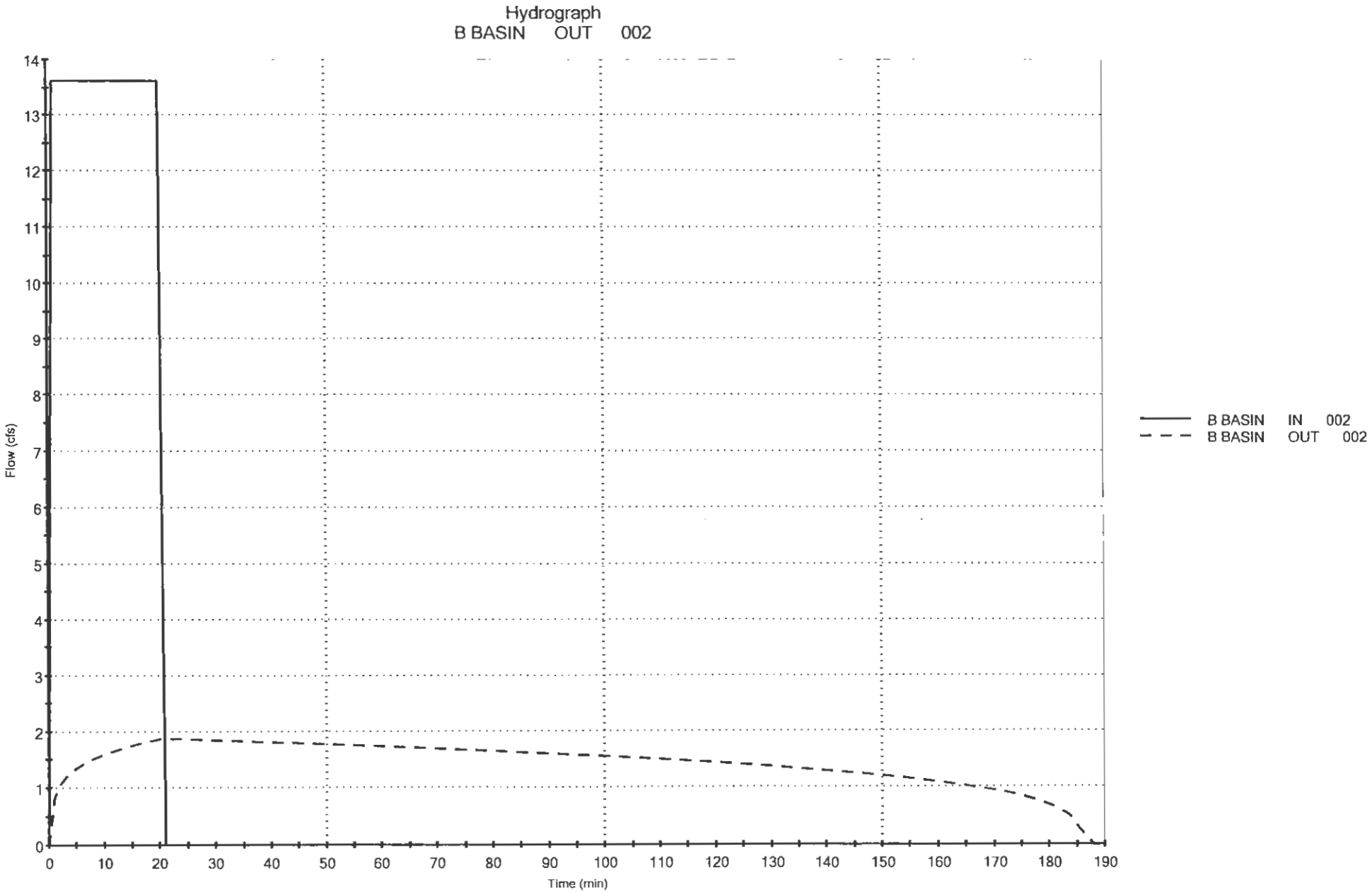
10000
20000
30000
40000
50000
60000
70000
Volume (cu.ft)
B BASIN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Flow (cfs)
Time (min)
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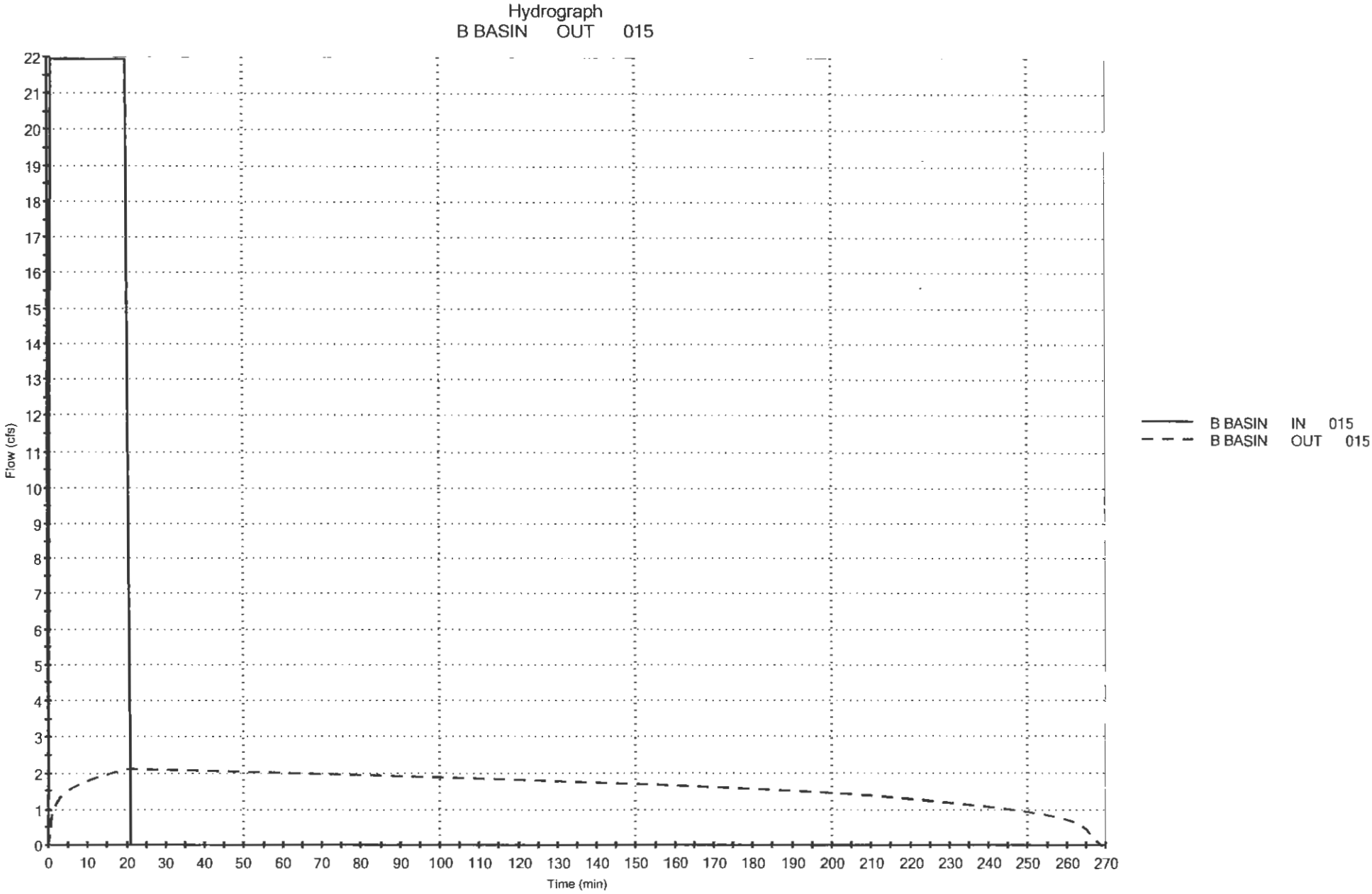
5
6
7
8
9
10
11
12
13
14
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
B BASIN IN 002
B BASIN OUT 002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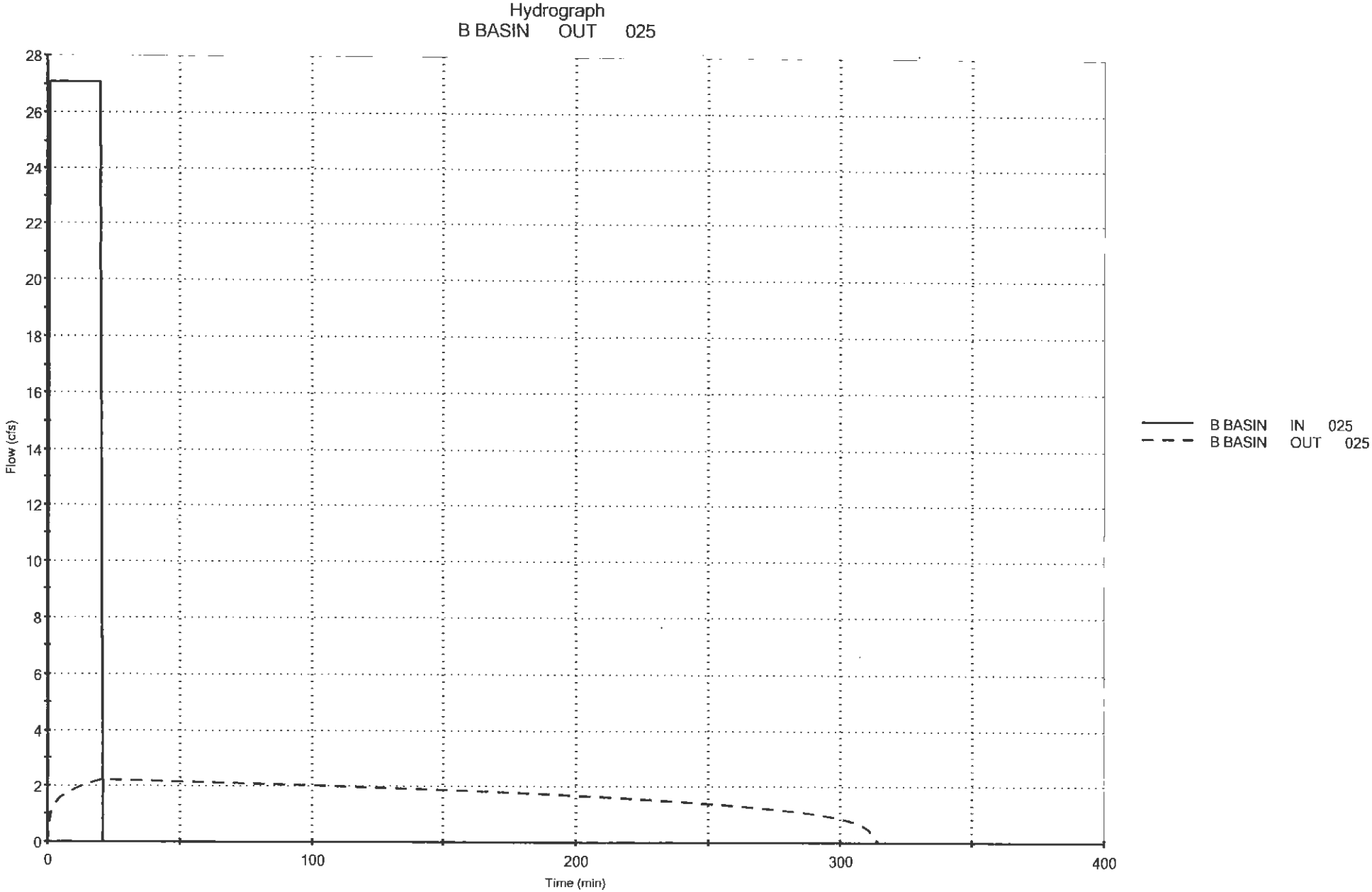
Flow (cfs)
Time (min)
B BASIN IN 015
B BASIN OUT 015


Hydrograph
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Flow (cfs)
Time (min)
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4
6
8
10
12
14
16
18
20
22
24
26
28
0
100
200
300
400
B BASIN IN 025
B BASIN OUT 025

POND 9
BASIN D

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POND VOLUME CALCULATIONS

Planimeter scale: 1.00 ft/in

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (cu.ft)	Volume Sum (cu.ft)
516.47	.000	.0000	.0000	0	0
518.00	2168.000	.0498	.0498	1106	1106
520.00	3799.000	.0872	.2029	5891	6997
522.00	4736.000	.1087	.2933	8518	15515
524.00	5080.000	.1166	.3379	9814	25329

POND VOLUME EQUATIONS

* 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

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REQUESTED POND WS ELEVATIONS:

Min. Elev.= 516.47 ft
Increment = .06 ft
Max. Elev.= 524.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Orifice-Area	2	--->	cv	516.970	524.000
Weir-Rectangular	1	--->	cv	516.470	516.970
Culvert-Circular	cv	--->	TW	514.470	524.000

TW SETUP, DS Channel

OUTLET STRUCTURE INPUT DATA

Structure ID = 2
Structure Type = Orifice-Area

# of Openings	=	1
Invert Elev.	=	516.47 ft
Area	=	.2083 sq.ft
Top of Orifice	=	516.97 ft
Datum Elev.	=	516.72 ft
Orifice Coeff.	=	.600

Structure ID = 1
Structure Type = Weir-Rectangular

# of Openings	=	1
Crest Elev.	=	516.47 ft
Weir Length	=	.42 ft
Weir Coeff.	=	3.000000

Weir TW effects (Use adjustment equation)

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OUTLET STRUCTURE INPUT DATA

Structure ID = cv
Structure Type = Culvert-Circular

No. Barrels	=	1
Barrel Diameter	=	2.0000 ft
Upstream Invert	=	514.47 ft
Dnstream Invert	=	514.00 ft
Horiz. Length	=	46.87 ft
Barrel Length	=	46.87 ft
Barrel Slope	=	.01003 ft/ft

OUTLET CONTROL DATA...

Mannings n	=	.0130	
Ke	=	.5000	(forward entrance loss)
Kb	=	.012411	(per ft of full flow)
Kr	=	.2000	(reverse entrance loss)
HW Convergence	=	.010	+/- ft

INLET CONTROL DATA...

Equation form	=	1
Inlet Control K	=	.0098
Inlet Control M	=	2.0000
Inlet Control c	=	.03980
Inlet Control Y	=	.6700
T1 ratio (HW/D)	=	1.155
T2 ratio (HW/D)	=	1.302
Slope Factor	=	-.500

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev = 516.78 ft ---> Flow = 15.55 cfs
At T2 Elev = 517.07 ft ---> Flow = 17.77 cfs

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...

Maximum Iterations	=	30
Min. TW tolerance	=	.01 ft
Max. TW tolerance	=	.01 ft
Min. HW tolerance	=	.01 ft
Max. HW tolerance	=	.01 ft
Min. Q tolerance	=	.10 cfs
Max. Q tolerance	=	.10 cfs

Type.... Composite Rating Curve
Name.... d new

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

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
516.47	.00	Free Outfall		(no Q: 2,1,cv)
516.53	.02	Free Outfall		1,cv (no Q: 2)
516.59	.05	Free Outfall		1,cv (no Q: 2)
516.65	.10	Free Outfall		1,cv (no Q: 2)
516.71	.15	Free Outfall		1,cv (no Q: 2)
516.77	.21	Free Outfall		1,cv (no Q: 2)
516.83	.27	Free Outfall		1,cv (no Q: 2)
516.89	.34	Free Outfall		1,cv (no Q: 2)
516.95	.42	Free Outfall		1,cv (no Q: 2)
517.01	.54	Free Outfall		2,cv (no Q: 1)
517.07	.59	Free Outfall		2,cv (no Q: 1)
517.13	.64	Free Outfall		2,cv (no Q: 1)
517.19	.69	Free Outfall		2,cv (no Q: 1)
517.25	.73	Free Outfall		2,cv (no Q: 1)
517.31	.77	Free Outfall		2,cv (no Q: 1)
517.37	.81	Free Outfall		2,cv (no Q: 1)
517.43	.84	Free Outfall		2,cv (no Q: 1)
517.49	.88	Free Outfall		2,cv (no Q: 1)
517.55	.91	Free Outfall		2,cv (no Q: 1)
517.61	.95	Free Outfall		2,cv (no Q: 1)
517.67	.98	Free Outfall		2,cv (no Q: 1)
517.73	1.01	Free Outfall		2,cv (no Q: 1)
517.79	1.04	Free Outfall		2,cv (no Q: 1)
517.85	1.07	Free Outfall		2,cv (no Q: 1)
517.91	1.09	Free Outfall		2,cv (no Q: 1)
517.97	1.12	Free Outfall		2,cv (no Q: 1)
518.03	1.15	Free Outfall		2,cv (no Q: 1)
518.09	1.17	Free Outfall		2,cv (no Q: 1)
518.15	1.20	Free Outfall		2,cv (no Q: 1)
518.21	1.22	Free Outfall		2,cv (no Q: 1)
518.27	1.25	Free Outfall		2,cv (no Q: 1)
518.33	1.27	Free Outfall		2,cv (no Q: 1)
518.39	1.30	Free Outfall		2,cv (no Q: 1)
518.45	1.32	Free Outfall		2,cv (no Q: 1)
518.51	1.34	Free Outfall		2,cv (no Q: 1)
518.57	1.36	Free Outfall		2,cv (no Q: 1)
518.63	1.39	Free Outfall		2,cv (no Q: 1)
518.69	1.41	Free Outfall		2,cv (no Q: 1)

Type.... Composite Rating Curve
Name.... d new

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

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
518.75	1.43	Free Outfall		2,cv (no Q: 1)
518.81	1.45	Free Outfall		2,cv (no Q: 1)
518.87	1.47	Free Outfall		2,cv (no Q: 1)
518.93	1.49	Free Outfall		2,cv (no Q: 1)
518.99	1.51	Free Outfall		2,cv (no Q: 1)
519.05	1.53	Free Outfall		2,cv (no Q: 1)
519.11	1.55	Free Outfall		2,cv (no Q: 1)
519.17	1.57	Free Outfall		2,cv (no Q: 1)
519.23	1.59	Free Outfall		2,cv (no Q: 1)
519.29	1.61	Free Outfall		2,cv (no Q: 1)
519.35	1.63	Free Outfall		2,cv (no Q: 1)
519.41	1.64	Free Outfall		2,cv (no Q: 1)
519.47	1.66	Free Outfall		2,cv (no Q: 1)
519.53	1.68	Free Outfall		2,cv (no Q: 1)
519.59	1.70	Free Outfall		2,cv (no Q: 1)
519.65	1.72	Free Outfall		2,cv (no Q: 1)
519.71	1.73	Free Outfall		2,cv (no Q: 1)
519.77	1.75	Free Outfall		2,cv (no Q: 1)
519.83	1.77	Free Outfall		2,cv (no Q: 1)
519.89	1.78	Free Outfall		2,cv (no Q: 1)
519.95	1.80	Free Outfall		2,cv (no Q: 1)
520.01	1.82	Free Outfall		2,cv (no Q: 1)
520.07	1.83	Free Outfall		2,cv (no Q: 1)
520.13	1.85	Free Outfall		2,cv (no Q: 1)
520.19	1.87	Free Outfall		2,cv (no Q: 1)
520.25	1.88	Free Outfall		2,cv (no Q: 1)
520.31	1.90	Free Outfall		2,cv (no Q: 1)
520.37	1.92	Free Outfall		2,cv (no Q: 1)
520.43	1.93	Free Outfall		2,cv (no Q: 1)
520.49	1.95	Free Outfall		2,cv (no Q: 1)
520.55	1.96	Free Outfall		2,cv (no Q: 1)
520.61	1.98	Free Outfall		2,cv (no Q: 1)
520.67	1.99	Free Outfall		2,cv (no Q: 1)
520.73	2.01	Free Outfall		2,cv (no Q: 1)
520.79	2.02	Free Outfall		2,cv (no Q: 1)
520.85	2.04	Free Outfall		2,cv (no Q: 1)
520.91	2.05	Free Outfall		2,cv (no Q: 1)
520.97	2.07	Free Outfall		2,cv (no Q: 1)

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

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
521.03	2.08	Free Outfall	2,cv	(no Q: 1)
521.09	2.10	Free Outfall	2,cv	(no Q: 1)
521.15	2.11	Free Outfall	2,cv	(no Q: 1)
521.21	2.12	Free Outfall	2,cv	(no Q: 1)
521.27	2.14	Free Outfall	2,cv	(no Q: 1)
521.33	2.15	Free Outfall	2,cv	(no Q: 1)
521.39	2.17	Free Outfall	2,cv	(no Q: 1)
521.45	2.18	Free Outfall	2,cv	(no Q: 1)
521.51	2.19	Free Outfall	2,cv	(no Q: 1)
521.57	2.21	Free Outfall	2,cv	(no Q: 1)
521.63	2.22	Free Outfall	2,cv	(no Q: 1)
521.69	2.24	Free Outfall	2,cv	(no Q: 1)
521.75	2.25	Free Outfall	2,cv	(no Q: 1)
521.81	2.26	Free Outfall	2,cv	(no Q: 1)
521.87	2.28	Free Outfall	2,cv	(no Q: 1)
521.93	2.29	Free Outfall	2,cv	(no Q: 1)
521.99	2.30	Free Outfall	2,cv	(no Q: 1)
522.05	2.31	Free Outfall	2,cv	(no Q: 1)
522.11	2.33	Free Outfall	2,cv	(no Q: 1)
522.17	2.34	Free Outfall	2,cv	(no Q: 1)
522.23	2.35	Free Outfall	2,cv	(no Q: 1)
522.29	2.37	Free Outfall	2,cv	(no Q: 1)
522.35	2.38	Free Outfall	2,cv	(no Q: 1)
522.41	2.39	Free Outfall	2,cv	(no Q: 1)
522.47	2.40	Free Outfall	2,cv	(no Q: 1)
522.53	2.42	Free Outfall	2,cv	(no Q: 1)
522.59	2.43	Free Outfall	2,cv	(no Q: 1)
522.65	2.44	Free Outfall	2,cv	(no Q: 1)
522.71	2.45	Free Outfall	2,cv	(no Q: 1)
522.77	2.47	Free Outfall	2,cv	(no Q: 1)
522.83	2.48	Free Outfall	2,cv	(no Q: 1)
522.89	2.49	Free Outfall	2,cv	(no Q: 1)
522.95	2.50	Free Outfall	2,cv	(no Q: 1)
523.01	2.51	Free Outfall	2,cv	(no Q: 1)
523.07	2.53	Free Outfall	2,cv	(no Q: 1)
523.13	2.54	Free Outfall	2,cv	(no Q: 1)
523.19	2.55	Free Outfall	2,cv	(no Q: 1)
523.25	2.56	Free Outfall	2,cv	(no Q: 1)

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

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
523.31	2.57	Free Outfall		2,cv (no Q: 1)
523.37	2.59	Free Outfall		2,cv (no Q: 1)
523.43	2.60	Free Outfall		2,cv (no Q: 1)
523.49	2.61	Free Outfall		2,cv (no Q: 1)
523.55	2.62	Free Outfall		2,cv (no Q: 1)
523.61	2.63	Free Outfall		2,cv (no Q: 1)
523.67	2.64	Free Outfall		2,cv (no Q: 1)
523.73	2.65	Free Outfall		2,cv (no Q: 1)
523.79	2.67	Free Outfall		2,cv (no Q: 1)
523.85	2.68	Free Outfall		2,cv (no Q: 1)
523.91	2.69	Free Outfall		2,cv (no Q: 1)
523.97	2.70	Free Outfall		2,cv (no Q: 1)
524.00	2.71	Free Outfall		2,cv (no Q: 1)

LEVEL POOL ROUTING DATA

HYG Dir = H:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 530.92 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 1.00 min

Elevation ft.	Outflow cfs	Storage cu.ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
530.92	.00	0	.0000	.00	.00	.00
531.02	.04	0	.0003	.00	.04	.05
531.12	.11	3	.0011	.00	.11	.22
531.22	.20	11	.0025	.00	.20	.56
531.32	.30	26	.0045	.00	.30	1.17
531.42	.48	51	.0070	.00	.48	2.18
531.52	.57	88	.0101	.00	.57	3.50
531.62	.65	140	.0138	.00	.65	5.31
531.72	.71	209	.0180	.00	.71	7.67
531.82	.78	297	.0227	.00	.78	10.68
531.92	.83	408	.0281	.00	.83	14.42
532.02	.89	542	.0334	.00	.89	18.96
532.12	.94	695	.0370	.00	.94	24.12
532.22	.99	864	.0407	.00	.99	29.80
532.32	1.03	1050	.0446	.00	1.03	36.04
532.42	1.08	1253	.0487	.00	1.08	42.85
532.52	1.12	1474	.0529	.00	1.12	50.26
532.62	1.16	1714	.0574	.00	1.16	58.31
532.72	1.20	1974	.0620	.00	1.20	67.00
532.82	1.24	2255	.0668	.00	1.24	76.39

LEVEL POOL ROUTING DATA

HYG Dir = H:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	530.92 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	1.00 min

Elevation ft	Outflow cfs	Storage cu.ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
532.92	1.27	2556	.0717	.00	1.27	86.47
533.02	1.31	2880	.0769	.00	1.31	97.29
533.12	1.34	3226	.0822	.00	1.34	108.88
533.22	1.38	3596	.0877	.00	1.38	121.24
533.32	1.41	3990	.0934	.00	1.41	134.42
533.42	1.44	4410	.0992	.00	1.44	148.44
533.52	1.48	4855	.1053	.00	1.48	163.31
533.62	1.51	5327	.1115	.00	1.51	179.08
533.72	1.54	5827	.1179	.00	1.54	195.76
533.82	1.57	6355	.1245	.00	1.57	213.39
533.92	1.60	6911	.1312	.00	1.60	231.98
534.02	1.63	7498	.1376	.00	1.63	251.55
534.12	1.65	8107	.1420	.00	1.65	271.88
534.22	1.68	8735	.1465	.00	1.68	292.85
534.32	1.71	9383	.1510	.00	1.71	314.49
534.42	1.74	10051	.1556	.00	1.74	336.77
534.52	1.76	10739	.1603	.00	1.76	359.73
534.62	1.79	11448	.1650	.00	1.79	383.38
534.72	1.81	12177	.1699	.00	1.81	407.71
534.82	1.84	12928	.1747	.00	1.84	432.76

LEVEL POOL ROUTING DATA

HYG Dir = H:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 530.92 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 1.00 min

Elevation ft	Outflow cfs	Storage cu.ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
534.92	1.86	13699	.1797	.00	1.86	458.51
535.02	1.89	14493	.1847	.00	1.89	484.98
535.12	1.91	15309	.1898	.00	1.91	512.21
535.22	1.94	16147	.1950	.00	1.94	540.16
535.32	1.96	17007	.2002	.00	1.96	568.88
535.42	1.98	17891	.2055	.00	1.98	598.34
535.52	2.01	18797	.2108	.00	2.01	628.58
535.62	2.03	19728	.2163	.00	2.03	659.62
535.72	2.05	20682	.2218	.00	2.05	691.44
535.82	2.08	21660	.2274	.00	2.08	724.08
535.92	2.10	22663	.2330	.00	2.10	757.52
536.02	2.12	23690	.2391	.00	2.12	791.78
536.12	2.14	24748	.2468	.00	2.14	827.09
536.22	2.16	25840	.2547	.00	2.16	863.51
536.32	2.18	26968	.2627	.00	2.18	901.10
536.42	2.21	28129	.2708	.00	2.21	939.84
536.52	2.23	29326	.2790	.00	2.23	979.77
536.62	2.25	30560	.2874	.00	2.25	1020.92
536.72	2.27	31830	.2958	.00	2.27	1063.27
536.82	2.29	33138	.3044	.00	2.29	1106.88

LEVEL POOL ROUTING DATA

HYG Dir = H:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 530.92 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 1.00 min

Elevation ft	Outflow cfs	Storage cu.ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
536.92	2.31	34483	.3132	.00	2.31	1151.73
537.02	2.33	35866	.3220	.00	2.33	1197.85
537.12	2.35	37288	.3310	.00	2.35	1245.29
537.22	2.37	38749	.3401	.00	2.37	1294.01
537.32	2.39	40251	.3493	.00	2.39	1344.10
537.42	2.41	41793	.3586	.00	2.41	1395.50
537.52	2.43	43375	.3681	.00	2.43	1448.26
537.62	2.44	45000	.3777	.00	2.44	1502.44
537.72	2.46	46666	.3874	.00	2.46	1557.98
537.82	2.48	48375	.3972	.00	2.48	1614.98
537.92	2.50	50127	.4072	.00	2.50	1673.39
538.02	2.52	51921	.4162	.00	2.52	1733.22
538.12	2.54	53746	.4213	.00	2.54	1794.07
538.22	2.56	55592	.4263	.00	2.56	1855.61
538.32	2.57	57461	.4315	.00	2.57	1917.92
538.42	2.59	59351	.4366	.00	2.59	1980.95
538.50	2.61	60880	.4407	.00	2.61	2031.93

SUMMARY FOR HYDROGRAPH ADDITION
at Node: B BASIN IN

HYG Directory: H:\PONDPACK\A11000PLUS\11282c\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A 30	B STORMS		2a YEAR	002

INFLOWS TO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	2a YEAR	002	16332	1.00	13.61

TOTAL FLOW INTO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	B BASIN IN	002	16332	1.00	13.61

TOTAL NODE INFLOW...
HYG file =
HYG ID = B BASIN IN
HYG Tag = 002

Peak Discharge =	13.61 cfs
Time to Peak =	1.00 min
HYG Volume =	16332 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	13.61	13.61	13.61	13.61
5.00	13.61	13.61	13.61	13.61	13.61
10.00	13.61	13.61	13.61	13.61	13.61
15.00	13.61	13.61	13.61	13.61	13.61
20.00	13.61	.00			

SUMMARY FOR HYDROGRAPH ADDITION
at Node: B BASIN IN

HYG Directory: H:\PONDPACK\A11000PLUS\11282c\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A 30	B STORMS		15a YEAR	015

INFLOWS TO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	15a YEAR	015	26328	1.00	21.94

TOTAL FLOW INTO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	B BASIN IN	015	26328	1.00	21.94

TOTAL NODE INFLOW...
HYG file =
HYG ID = B BASIN IN
HYG Tag = 015

Peak Discharge =	21.94 cfs
Time to Peak =	1.00 min
HYG Volume =	26328 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	21.94	21.94	21.94	21.94
5.00	21.94	21.94	21.94	21.94	21.94
10.00	21.94	21.94	21.94	21.94	21.94
15.00	21.94	21.94	21.94	21.94	21.94
20.00	21.94	.00			

SUMMARY FOR HYDROGRAPH ADDITION
at Node: B BASIN IN

HYG Directory: H:\PONDPACK\A11000PLUS\11282c\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A 30	B STORMS		25a YEAR	025

INFLOWS TO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	25a YEAR	025	32482	1.00	27.07

TOTAL FLOW INTO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	B BASIN IN	025	32482	1.00	27.07

TOTAL NODE INFLOW...
HYG file =
HYG ID = B BASIN IN
HYG Tag = 025

Peak Discharge =	27.07 cfs
Time to Peak =	1.00 min
HYG Volume =	32482 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	27.07	27.07	27.07	27.07
5.00	27.07	27.07	27.07	27.07	27.07
10.00	27.07	27.07	27.07	27.07	27.07
15.00	27.07	27.07	27.07	27.07	27.07
20.00	27.07	.00			

SUMMARY FOR HYDROGRAPH ADDITION
at Node: B BASIN IN

HYG Directory: H:\PONDPACK\A11000PLUS\11282c\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A 30	B STORMS		100a YEAR	100

INFLOWS TO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	100a YEAR	100	41567	1.00	34.64

TOTAL FLOW INTO: B BASIN IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
	B BASIN IN	100	41567	1.00	34.64

TOTAL NODE INFLOW...
HYG file =
HYG ID = B BASIN IN
HYG Tag = 100

Peak Discharge =	34.64 cfs
Time to Peak =	1.00 min
HYG Volume =	41567 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	34.64	34.64	34.64	34.64
5.00	34.64	34.64	34.64	34.64	34.64
10.00	34.64	34.64	34.64	34.64	34.64
15.00	34.64	34.64	34.64	34.64	34.64
20.00	34.64	.00			

LEVEL POOL ROUTING SUMMARY

HYG Dir = H:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 002
Outflow HYG file = NONE STORED - B BASIN OUT 002

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	530.92 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	1.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	13.61 cfs	at	1.00 min
Peak Outflow	=	1.89 cfs	at	21.00 min
Peak Elevation	=	535.01 ft		
Peak Storage	=	14419 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	16332
- Infiltration	=	0
- HYG Vol OUT	=	16332
- Retained Vol	=	0
Unrouted Vol	=	0 cu.ft (.000% of Outflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = H:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 015
Outflow HYG file = NONE STORED - B BASIN OUT 015

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	530.92 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	1.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	21.94 cfs	at	1.00 min
Peak Outflow	=	2.13 cfs	at	21.00 min
Peak Elevation	=	536.07 ft		
Peak Storage	=	24173 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	26328
- Infiltration	=	0
- HYG Vol OUT	=	26328
- Retained Vol	=	0
Unrouted Vol	=	0 cu.ft (.000% of Outflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = H:\PONDPACK\A11000PLUS\11282c\
Inflow HYG file = NONE STORED - B BASIN IN 025
Outflow HYG file = NONE STORED - B BASIN OUT 025

Pond Node Data = B BASIN
Pond Volume Data = B BASIN
Pond Outlet Data = Outlet B

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	530.92 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	1.00 min

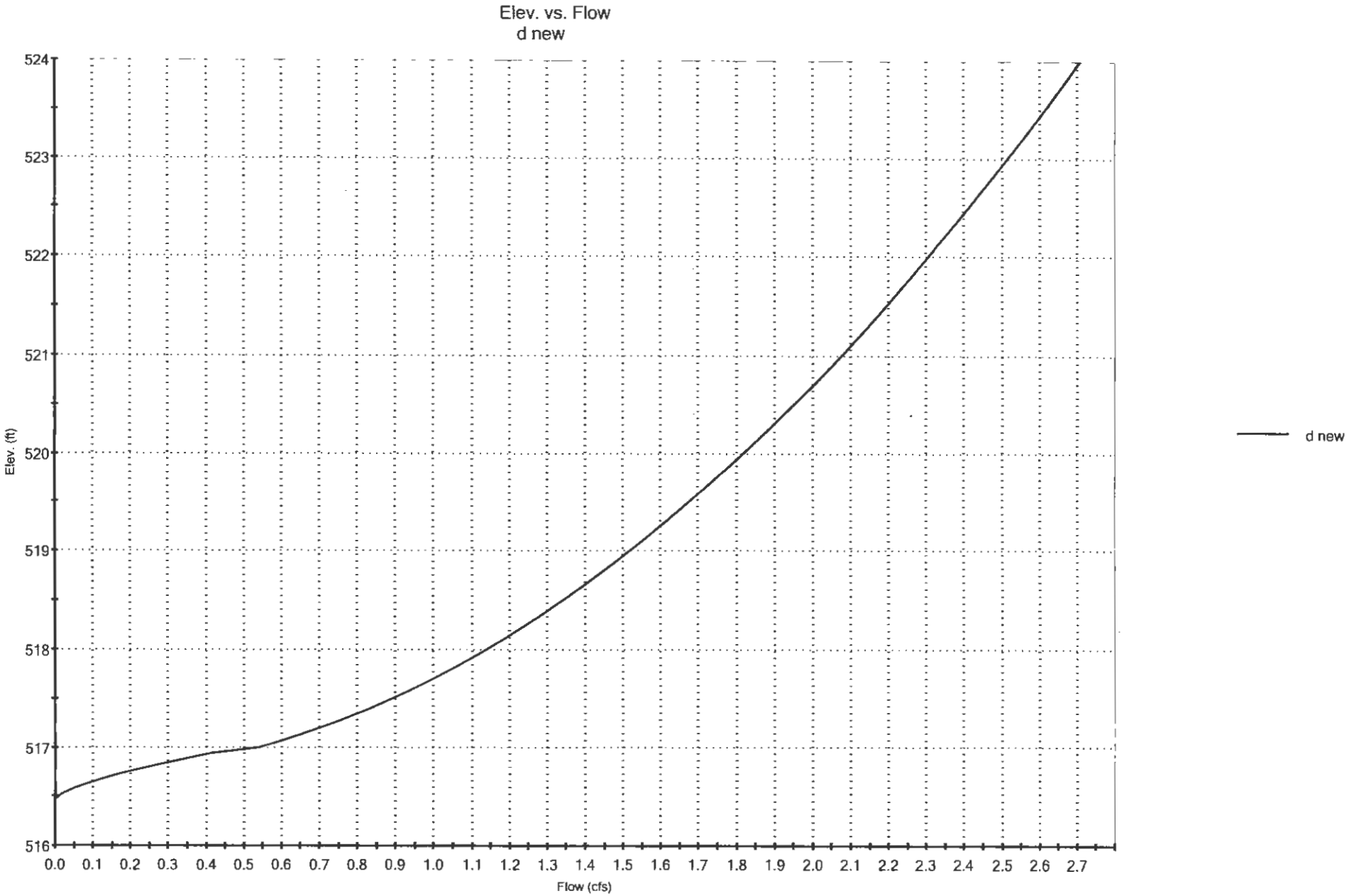
INFLOW/OUTFLOW HYDROGRAPH SUMMARY

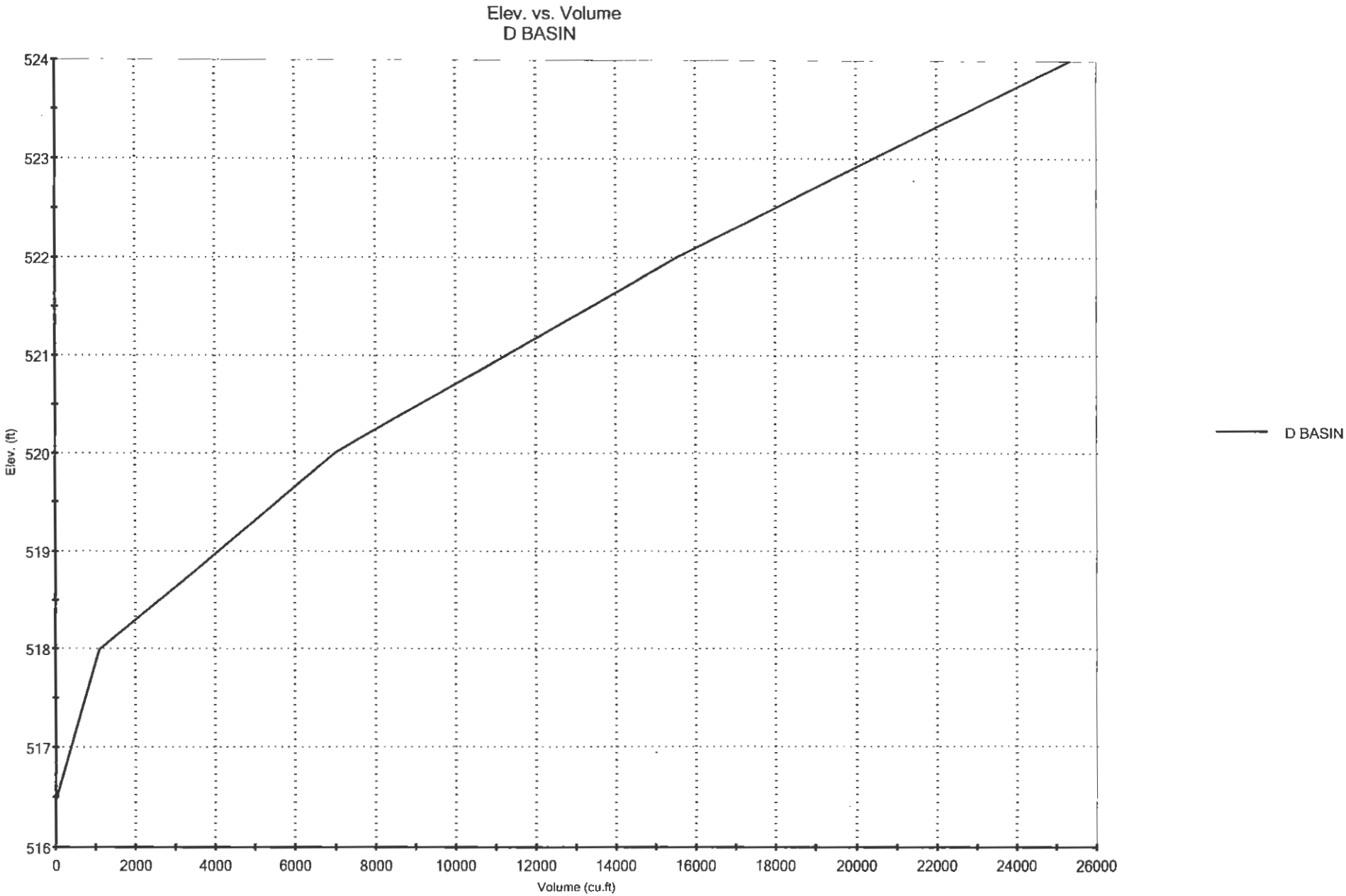
Peak Inflow	=	27.07 cfs	at	1.00 min
Peak Outflow	=	2.24 cfs	at	21.00 min
Peak Elevation	=	536.59 ft		
Peak Storage	=	30216 cu.ft		

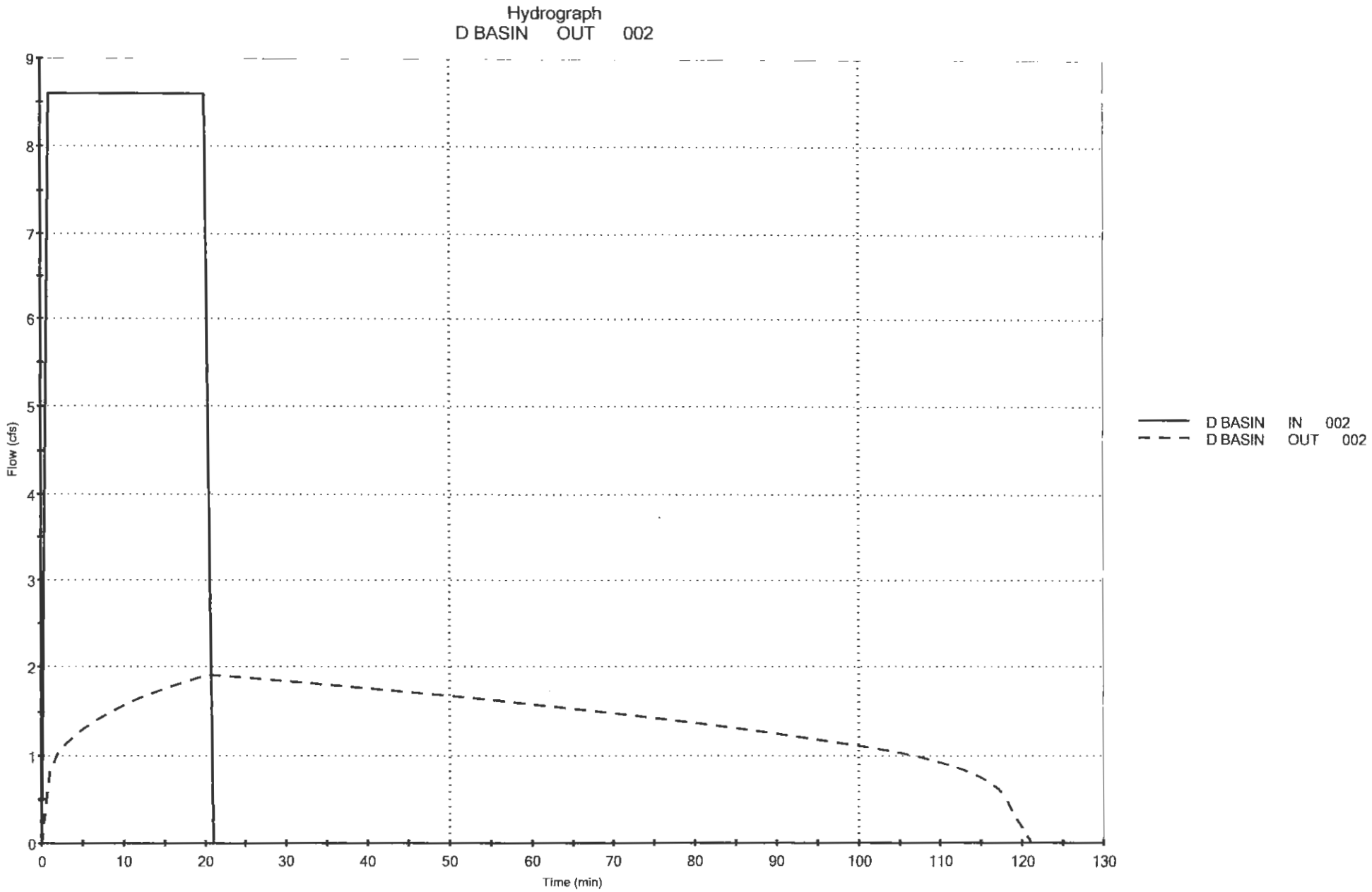
MASS BALANCE (cu.ft)

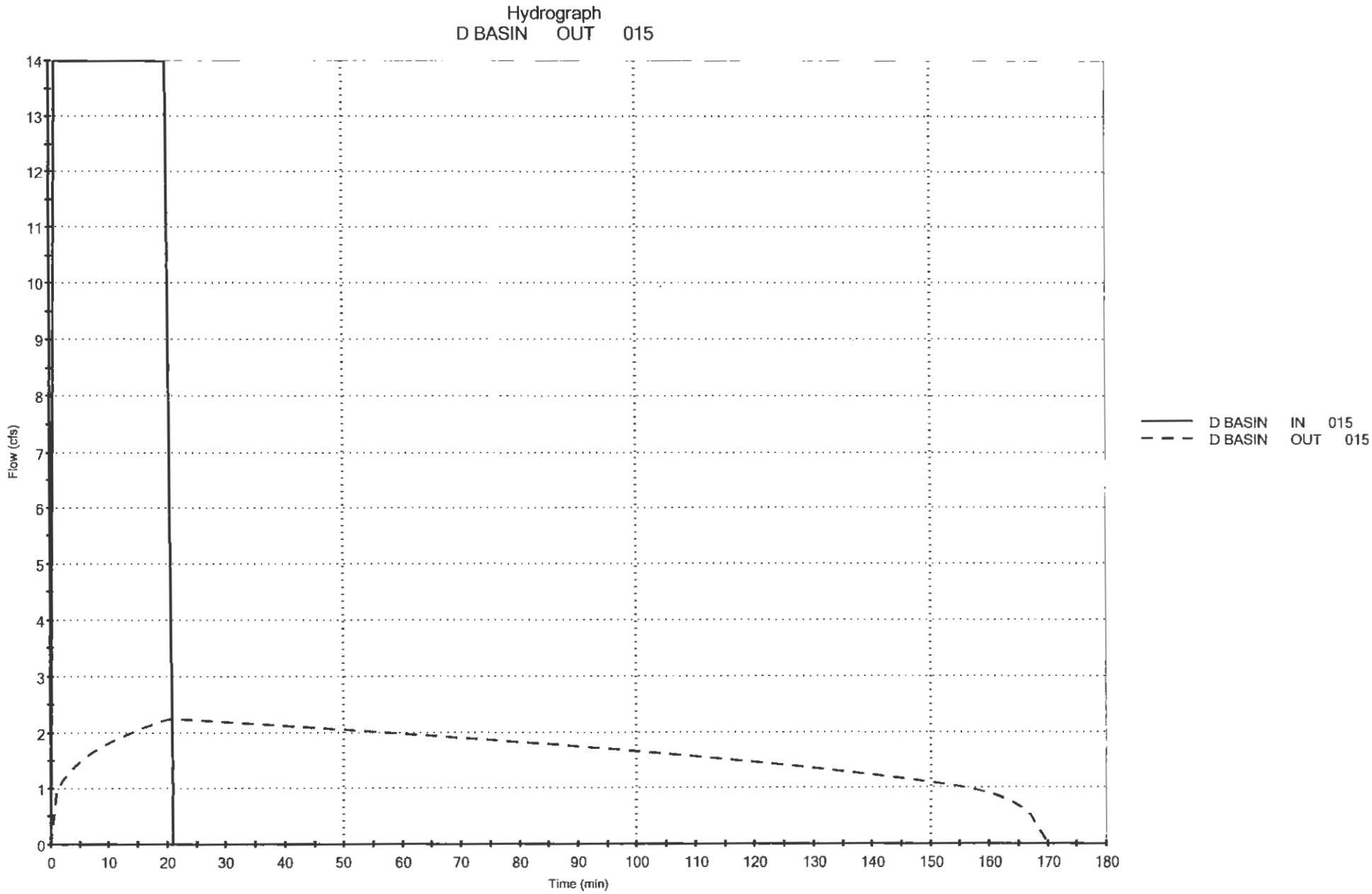
+	Initial Vol	=	0
+	HYG Vol IN	=	32482
-	Infiltration	=	0
-	HYG Vol OUT	=	32482
-	Retained Vol	=	0
	Unrouted Vol	=	0 cu.ft (.000% of Outflow Volume)

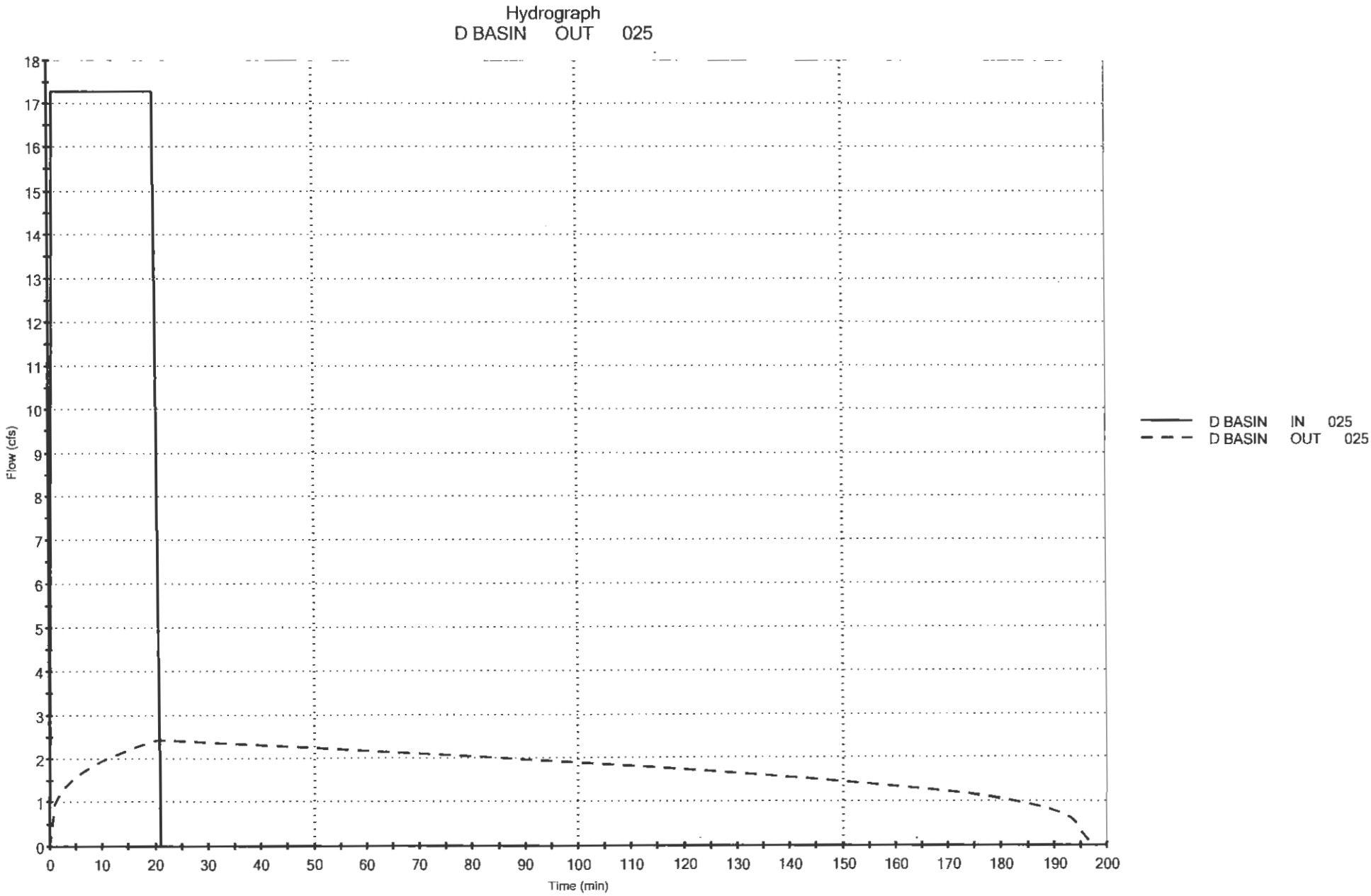
Index of Starting Page Numbers for ID Names


Elev. vs. Flow
d new
Elev. (ft)
524
523
522
521
520
519
518
517
516
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7
Flow (cfs)
d new


Elev. vs. Volume
D BASIN
Elev. (ft)
524
523
522
521
520
519
518
517
516
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
24000
26000
Volume (cu.ft)
D BASIN


Hydrograph
D BASIN OUT 002
Flow (cfs)
Time (min)
0
1
2
3
4
5
6
7
8
9
0
10
20
30
40
50
60
70
80
90
100
110
120
130
D BASIN IN 002
D BASIN OUT 002


Hydrograph
D BASIN OUT 015
Flow (cfs)
Time (min)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
D BASIN IN 015
D BASIN OUT 015


Hydrograph
D BASIN OUT 025
Flow (cfs)
Time (min)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
D BASIN IN 025
D BASIN OUT 025

Revised Drainage

EXHIBIT B
PROPOSED DRAINAGE AREA MAP
PERUQUE CROSSING
TWO TRACTS OF LAND IN U.S. SURVEY 54, AND FRACTIONAL SECTION 26, TOWNSHIP 47 NORTH, RANGE 2 EAST OF THE FIFTH PRINCIPAL MERIDIAN ST. CHARLES COUNTY, MISSOURI

NORFOLK AND SOUTHERN RAILROAD

WEST TERRA

OLD 65 HIGHWAY 40

INTERSTATE 70 RIGHT-OF-WAY

I-70 RAMP

LAKE ST. LOUIS OVERPASS

PROPERTY N/F
S.S. & D. PROPERTIES, L.L.C.

PROPERTY N/F
S.S. & D. PROPERTIES, L.L.C.
2603/1032

PROPERTY N/F
S.S. & D. PROPERTIES, L.L.C.

PROPERTY N/F
JOSEPHINE ANN DITTMEIER
649/1490

EXISTING COMMUTER PARKING LOT

LOT 1

LOT 2
AS-BUILT TOP=533.81
AS-BUILT FL=515.15
PLAT____BOOK_

LOT A
42,937 sq. ft.
0.99 acres

LOT B
84,919 sq. ft.
1.95 acres

LOT C
274,169 sq. ft.
6.29 acres

LOT D
172,327 sq. ft.
3.96 acres

WATERSHED A
Lot A - 0.99 acres @ 3.85 cfs/acre = 3.81 cfs
Lot B - 0.09 acres @ 3.85 cfs/acre = 0.35 cfs
MoDOT - 0.91 acres @ 1.87 cfs/acre = 1.70 cfs
Green Space - 1.98 acres @ 1.87 cfs/acre = 3.70 cfs
9.56 cfs

WATERSHED B
Lot B - 1.86 acres @ 3.85 cfs/acre = 7.16 cfs
Lot C - 4.83 acres @ 3.85 cfs/acre = 18.60 cfs
Lot C - 0.79 acres @ 1.87 cfs/acre = 1.48 cfs
Basin - 0.44 acres @ 3.85 cfs/acre = 2.39 cfs
MoDOT - 0.00 acres @ 1.87 cfs/acre = 0.00 cfs
Green Space - 4.12 acres @ 1.87 cfs/acre = 7.70 cfs
36.63 cfs

WATERSHED C
Lot C - 0.82 acres @ 3.85 cfs/acre = 3.16 cfs
MoDOT - 0.50 acres @ 1.87 cfs/acre = 0.94 cfs
Green Space - 0.32 acres @ 1.87 cfs/acre = 0.60 cfs
4.70 cfs

WATERSHED D
Lot D - 3.15 acres @ 3.85 cfs/acre = 12.13 cfs
MoDOT - 1.13 acres @ 1.87 cfs/acre = 2.11 cfs
Green Space - 3.44 acres @ 1.87 cfs/acre = 6.43 cfs
20.67 cfs

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

PREPARED FOR: S.S.&D. PROPERTIES, L.L.C.
501 FIRST CAPITOL DRIVE
ST. CHARLES, MISSOURI 63301
(636) 946-9753

DISCLAIMER OF RESPONSIBILITY
I hereby specify that the documents intended to be authenticated by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other Drawings, Specifications, Estimates, Reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey.

REVISIONS

6-30-04	CITY COMMENTS

ENGINEERING
PLANNING
SURVEYING

1052 South Cloverleaf Drive
St. Peters, MO. 63376-6445
636-928-5552
FAX 928-1718

5-26-04
DATE

00-11282C
PROJECT NUMBER

2 OF 2
SHEET OF

11282CMODOT-UTILITY
FILE NAME

TCF
DRAWN

TCF RLF
DESIGNED CHECKED