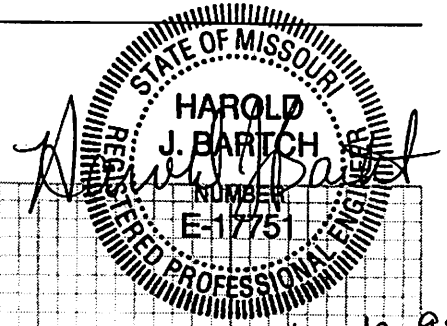


PROJECT NAME MEMCPROJECT #/JOB ORDER # BZ-013 FDATE 10/10/95 REV 10/12/95DESIGNER ESTPAGE 1 OF 20**PICKETT RAY & SILVER**333 Mid Rivers Mall Dr.  
St. Peters, MO 63376Civil Engineers  
Planners  
Land Surveyors

397-1211



10-12-95

PI VALUES

<u>EVENT</u>	<u>5% IMPERV.</u>	<u>100% IMPERV.</u>
15 YR	1.87 CFS/AC	3.85 CFS/AC
25 YR	2.31 CFS/AC	4.75 CFS/AC
50 YR	2.61 CFS/AC	5.38 CFS/AC
100 YR	2.95 CFS/AC	6.08 CFS/AC

ONSITE AREA TRIBUTARY TO LAKE = 32.73 AC  
(100% IMPERV)

OFFSITE AREA TRIBUTARY TO LAKE = 31.31 AC

FLOWS TO BASINONSITE

15 YR = 32.73 AC x 3.85 CFS/AC	= 126.01 CFS
25 YR = 32.73 AC x 4.75 CFS/AC	= 155.47 CFS
50 YR = 32.73 AC x 5.38 CFS/AC	= 176.09 CFS
100 YR = 32.73 AC x 6.08 CFS/AC	= 199.00 CFS

OFFSITE

15 YR = 31.31 AC x 1.87 CFS/AC	= 58.55 CFS
25 YR = 31.31 AC x 2.31 CFS/AC	= 72.73 CFS
50 YR = 31.31 AC x 2.61 CFS/AC	= 81.72 CFS
100 YR = 31.31 AC x 2.95 CFS/AC	= 92.36 CFS

# PICKETT RAY & SILVER

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PROJECT NAME MENC  
PROJECT #/JOB ORDER # 82-013F-10  
DATE 10/10/95  
DESIGNER RST  
PAGE 2 OF 20

## COMBINED FLOWS TO BASIN

15 YR	= 184.56 CFS	= 11,073.6 CFM
25 YR	= 228.20 CFS	= 13,692.0 CFM
50 YR	= 257.81 CFS	= 15,468.60 CFM
100 YR	= 291.36 CFS	= 17,481.60 CFM

## DIFFERENTIAL RUNOFF

15 YR	= 82.56 AC x (3.85 - 1.87)	= 163.47 CFS
25 YR	= 82.56 AC x (4.75 - 2.31)	= 201.45 CFS
50 YR	= 82.56 AC x (5.38 - 2.61)	= 228.69 CFS
100 YR	= 82.56 AC x (6.08 - 2.95)	= 258.41 CFS

## ALLOWABLE DISCHARGE

FORMULA = (Q TO BASIN) - (DIFFERENTIAL RUNOFF)

15 YR	= 184.56 CFS - 163.47 CFS	= 21.09 CFS
25 YR	= 228.20 CFS - 201.45 CFS	= 26.75 CFS
50 YR	= 257.81 CFS - 228.69 CFS	= 29.12 CFS
100 YR	= 291.36 CFS - 258.41 CFS	= 32.95 CFS



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PROJECT #/JOB ORDER # 82-013F-10

DATE 10/10/95

DESIGNER RJT

PAGE 3 OF 20

## REQUIRED VOLUME

$$15 \text{ YR} = 163.47 \times 1200 = 196,164 \text{ CF}$$

$$25 \text{ YR} = 201.45 \times 1200 = 241,740 \text{ CF}$$

$$50 \text{ YR} = 228.69 \times 1200 = 274,428 \text{ CF}$$

$$100 \text{ YR} = 258.41 \times 1200 = 310,092 \text{ CF}$$

2-27-82

82-013F-10  
14 OF 20

1" = 600'

LAKE  
(NOT SHOWN)

UNDEVELOPED AREA  
= 71.60 AC

DEVELOPED AREA  
= 82.56 AC.

MEMC DEVELOPMENT EXHIBIT

**TRIBUTARY AREAS TO DETENTION BASIN**



1" = 200'

22-013F-6  
0 OF 20

# PICKETT RAY & SILVER

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PROJECT #/JOB ORDER # 82-0135-10

DATE 10/10/05

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PAGE 6 OF 20

## DETENTION BASIN SUMMARY

	<u>ALLOW.</u> <u>DISCHARGE</u>	<u>ACTUAL</u> <u>DISCHARGE</u>	<u>REQ'D</u> <u>VOLUME</u>	<u>PROVIDED</u> <u>VOLUME</u>
15 YR	21.09 CFS	15.05 CFS	196,164 CF	210,531 CF
* 25 YR	26.75 CFS	26.65 CFS	241,740 CF	253,715 CF
50 YR	29.12 CFS	36.65 CFS	274,428 CF	281,527 CF
100 YR	32.95 CFS	48.53 CFS	310,092 CF	311,906 CFS

25 YR DESIGN STORM EXCEEDS THE DETENTION REQUIREMENTS, OTHER EVENTS ARE SHOWN FOR INFORMATION ONLY.



**PICKETT RAY & SILVER**

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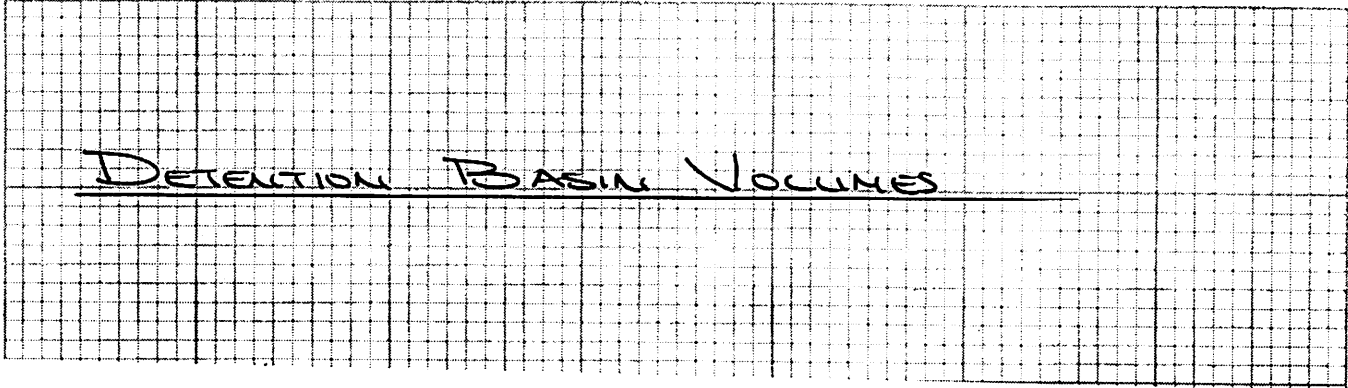
PROJECT NAME MENC

PROJECT #/JOB ORDER # 82-013E-10

DATE 10-10-95

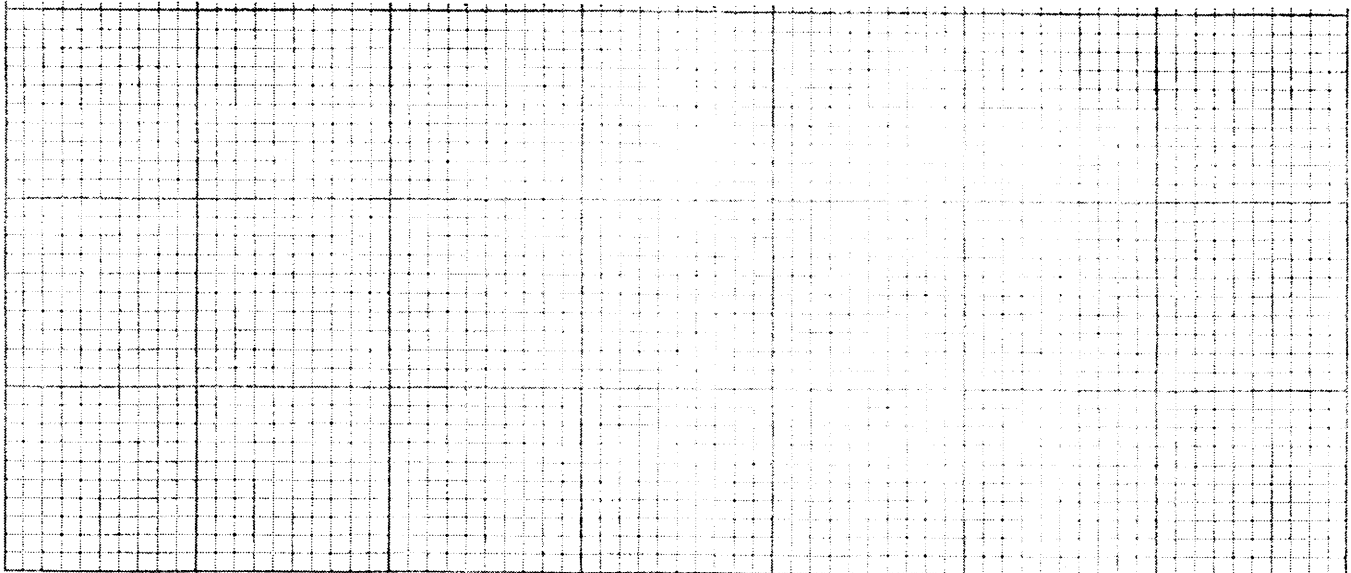
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PAGE 7 OF 20



SUBMITTAL DATE:

ELEVATION	AREA	VOLUME	CUM. VOLUME
458.80	129580	162716	162716
460.00	141612	303277	465993
462.00	161665		



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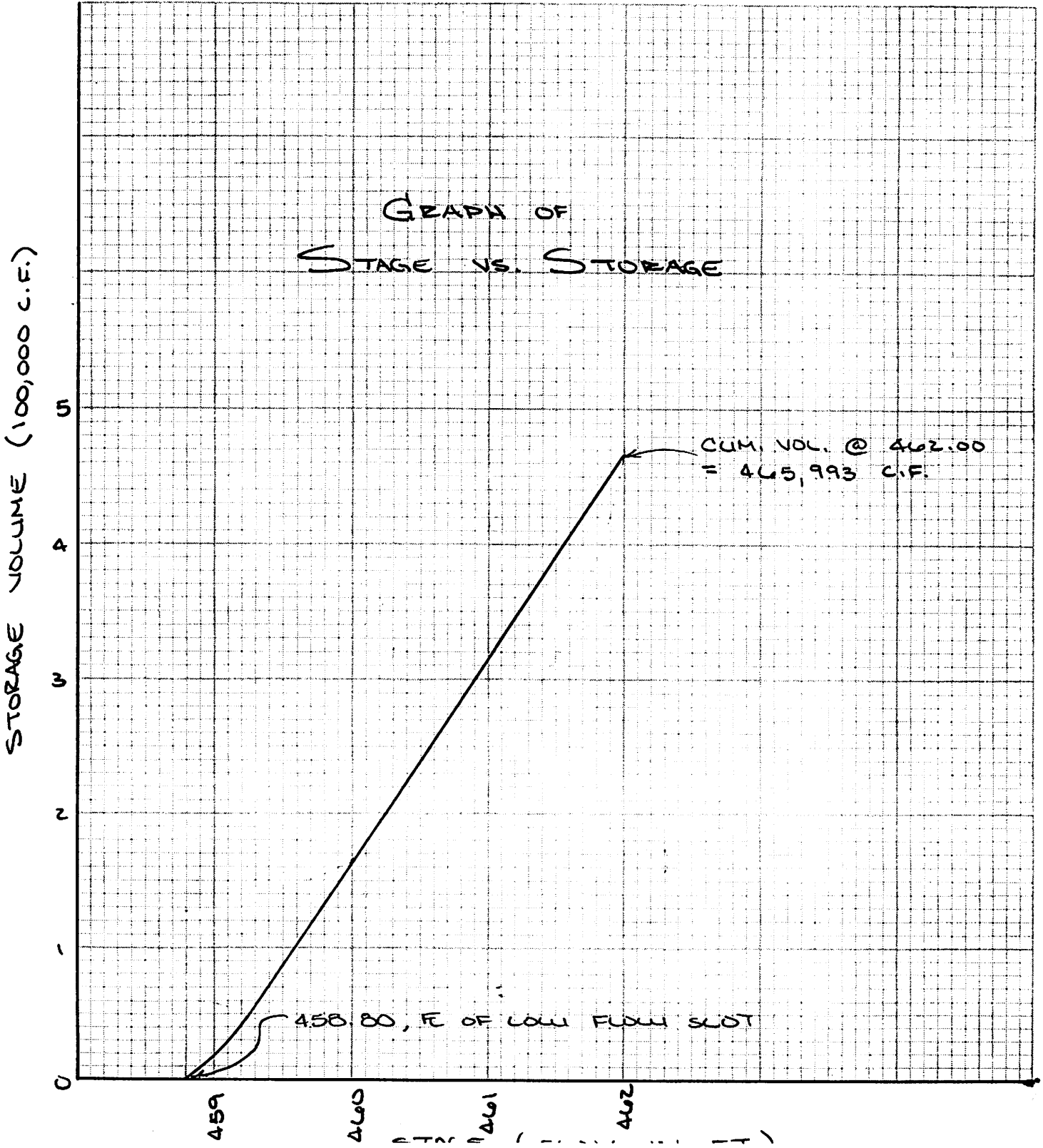
PROJECT NAME MENCO

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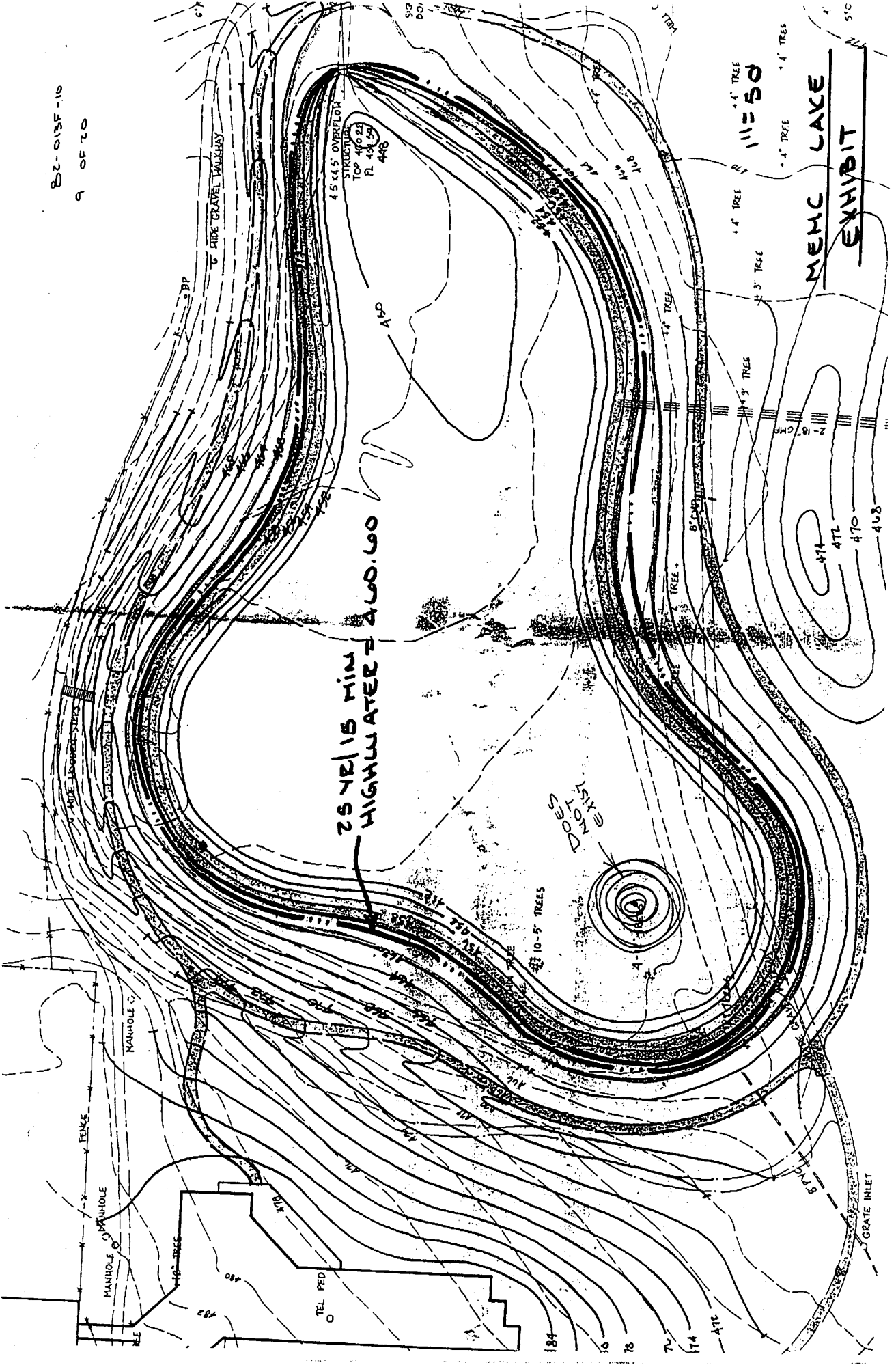
DATE 10/10/95

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PAGE 8 OF 20







**MEMC LAKE EXHIBIT**



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PROJECT #/JOB ORDER # 82-013F-10

DATE 10/10/95

DESIGNER RJT

PAGE 10 OF 20

DETENTION BASIN OUTFALL

```

*****
*
* RECTANGULAR ORIFICE
* 18 in W X 17 in H ELEV= 458.8
*
* Outlet Pipe - 130 ft - 72 in pipe
* UFL= 451.59 LFL= 450.29 n= .013
*
* Overflow Structure - Box Structure
* PERIMETER= 11.5 ft/SILL ELEV= 460
*
*****

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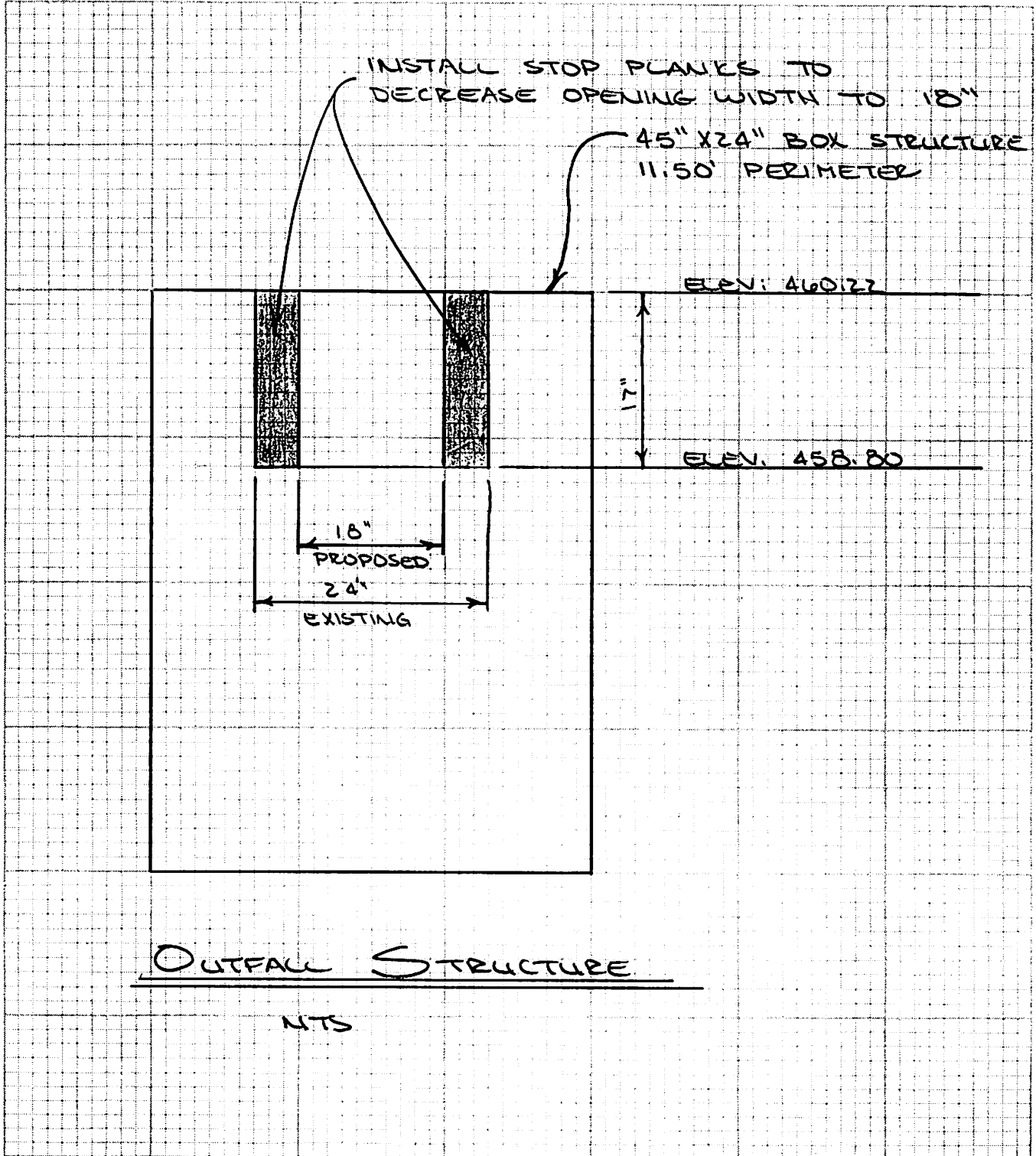
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PROJECT #/JOB ORDER # 82-013F-10

DATE 10/10/95

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PAGE 11 OF 05



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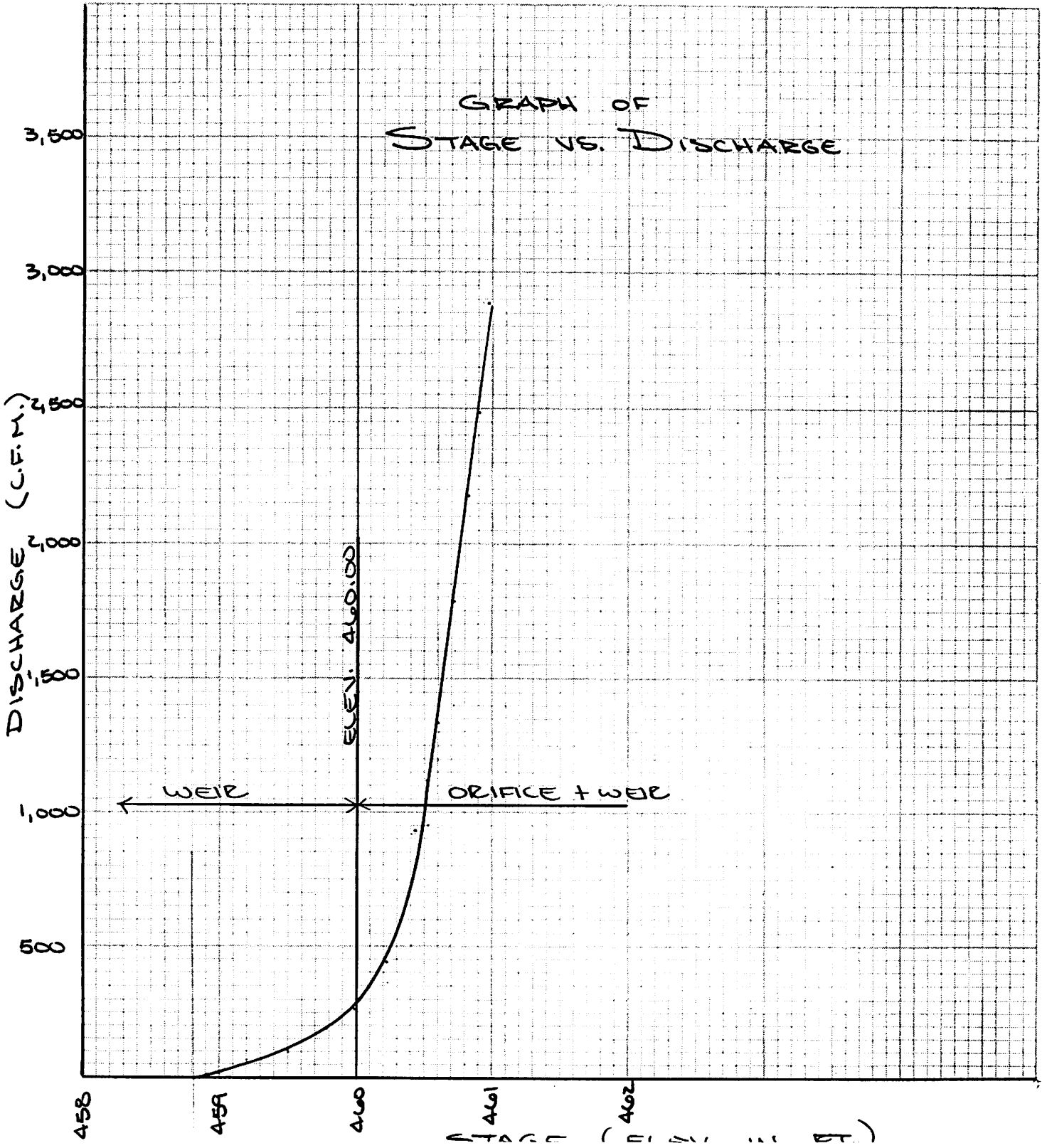
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PROJECT #/JOB ORDER # 82-03F-10

DATE 10/10/95

DESIGNER RST

PAGE 12 OF 20



MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	553.68	553.68	0.00	553.68	458.80
2	1107.36	1661.04	0.06	1660.98	458.81
3	1661.04	3322.02	0.32	3321.70	458.82
4	2214.72	5536.42	0.90	5535.52	458.84
5	2768.40	8303.92	1.93	8301.99	458.86
6	3322.08	11624.07	3.54	11620.53	458.89
7	3875.76	15496.29	5.87	15490.42	458.91
8	4429.44	19919.86	9.03	19910.82	458.95
9	4983.12	24893.94	13.17	24880.77	458.98
10	5536.80	30417.57	18.39	30399.18	459.02
11	6090.48	36489.66	24.84	36464.82	459.07
12	6644.16	43108.98	32.63	43076.35	459.12
13	7197.84	50274.19	41.90	50232.29	459.17
14	7751.52	57983.81	52.76	57931.05	459.23
15	8305.20	66236.25	65.35	66170.90	459.29
16	8858.88	75029.78	79.77	74950.01	459.35
17	9412.56	84362.58	96.16	84266.42	459.42
18	9966.24	94232.66	114.64	94118.02	459.49
19	10519.92	104637.90	135.31	104502.60	459.57
20	11073.60	115576.20	158.32	115417.90	459.65
21	10519.92	125937.90	183.76	125754.10	459.73
22	9966.24	135720.30	209.00	135511.30	459.80
23	9412.56	144923.90	233.79	144690.10	459.87
24	8858.88	153549.00	257.93	153291.10	459.93
25	8305.20	161596.30	281.27	161315.00	459.99
26	7751.52	169066.50	303.64	168762.90	460.04
27	7197.84	175960.70	337.88	175622.80	460.09
28	6644.16	182267.00	387.17	181879.80	460.13
29	6090.48	187970.30	441.77	187528.50	460.16
30	5536.80	193065.30	498.96	192566.40	460.20
31	4983.12	197549.50	552.99	196996.50	460.23
32	4429.44	201425.90	733.92	200692.00	460.25
33	3875.76	204567.80	779.96	203787.80	460.27
34	3322.08	207109.90	817.53	206292.40	460.29
35	2768.40	209060.80	848.69	208212.10	460.30
36	2214.72	210426.80	873.06	209553.70	460.31
37	1661.04	211214.80	890.31	210324.50	460.31
38	1107.36	211431.80	900.34	210531.50	460.32
39	553.68	211085.10	902.99	210182.20	460.31
40	0.00	210182.20	898.47	209283.70	460.31

PEAK OUTFLOW= 15.05 CFS AT 39 MINUTES

# PICKETT RAY & SILVER

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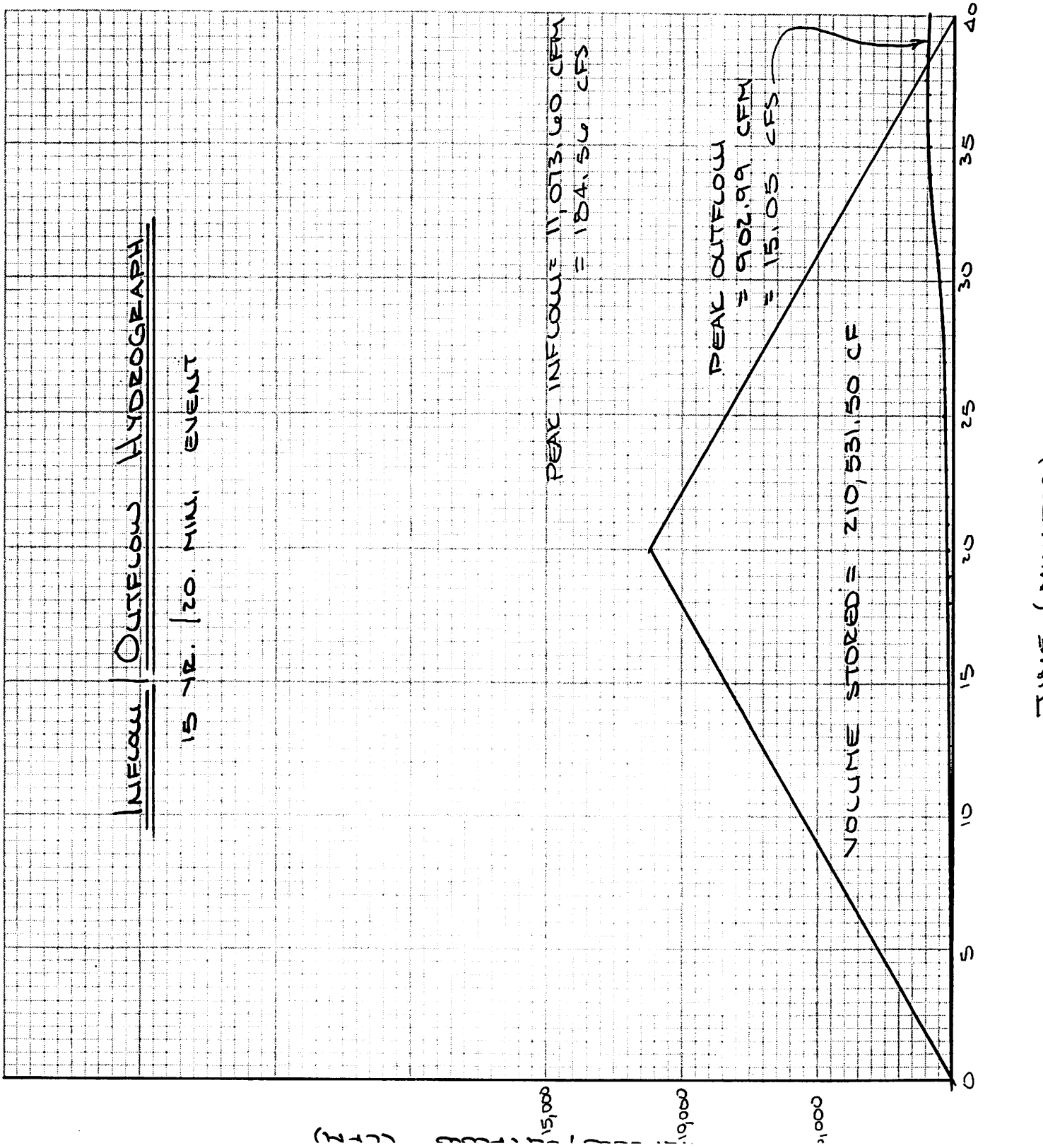
PROJECT NAME MENCO

PROJECT #/JOB ORDER # B2-013F-10

DATE 10/10/95

DESIGNER RST

PAGE 14 OF 20



SUBMITTAL DATE:

CD IN 15 OF 20

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	684.60	684.60	0.00	684.60	458.81
2	1369.20	2053.80	0.08	2053.72	458.82
3	2053.80	4107.52	0.44	4107.08	458.83
4	2738.40	6845.48	1.23	6844.25	458.85
5	3423.00	10267.25	2.65	10264.60	458.88
6	4107.60	14372.20	4.88	14367.32	458.91
7	4792.20	19159.52	8.07	19151.45	458.94
8	5476.80	24628.25	12.42	24615.83	458.98
9	6161.40	30777.23	18.10	30759.13	459.03
10	6846.00	37605.13	25.28	37579.85	459.08
11	7530.60	45110.46	34.14	45076.31	459.13
12	8215.20	53291.51	44.85	53246.66	459.19
13	8899.80	62146.46	57.58	62088.88	459.26
14	9584.40	71673.28	72.50	71600.78	459.33
15	10269.00	81869.78	89.79	81780.00	459.40
16	10953.60	92733.60	109.60	92624.00	459.48
17	11638.20	104262.20	132.10	104130.10	459.57
18	12322.80	116452.90	157.47	116295.40	459.66
19	13007.40	129302.80	185.86	129117.00	459.75
20	13692.00	142809.00	217.43	142591.60	459.85
21	13007.40	155599.00	252.35	155346.60	459.95
22	12322.80	167669.40	286.95	167382.50	460.03
23	11638.20	179020.70	329.56	178691.10	460.11
24	10953.60	189644.70	413.16	189231.60	460.17
25	10269.00	199500.60	516.79	198983.80	460.24
26	9584.40	208568.20	756.80	207811.40	460.30
27	8899.80	216711.20	867.98	215843.20	460.35
28	8215.20	224058.40	978.79	223079.60	460.40
29	7530.60	230610.20	1080.54	229529.70	460.44
30	6846.00	236375.70	1175.36	235200.30	460.48
31	6161.40	241361.70	1274.74	240087.00	460.51
32	5476.80	245563.70	1352.74	244211.00	460.54
33	4792.20	249003.20	1420.13	247583.10	460.56
34	4107.60	251690.70	1492.48	250198.20	460.58
35	3423.00	253621.20	1537.41	252083.80	460.59
36	2738.40	254822.20	1570.20	253252.00	460.60
37	2053.80	255305.80	1590.59	253715.20	460.60
38	1369.20	255084.40	1598.72	253485.70	460.60
39	684.60	254170.20	1594.65	252575.60	460.59
40	0.00	252575.60	1578.76	250996.80	460.58

PEAK OUTFLOW= 26.65 CFS AT 38 MINUTES

# PICKETT RAY & SILVER

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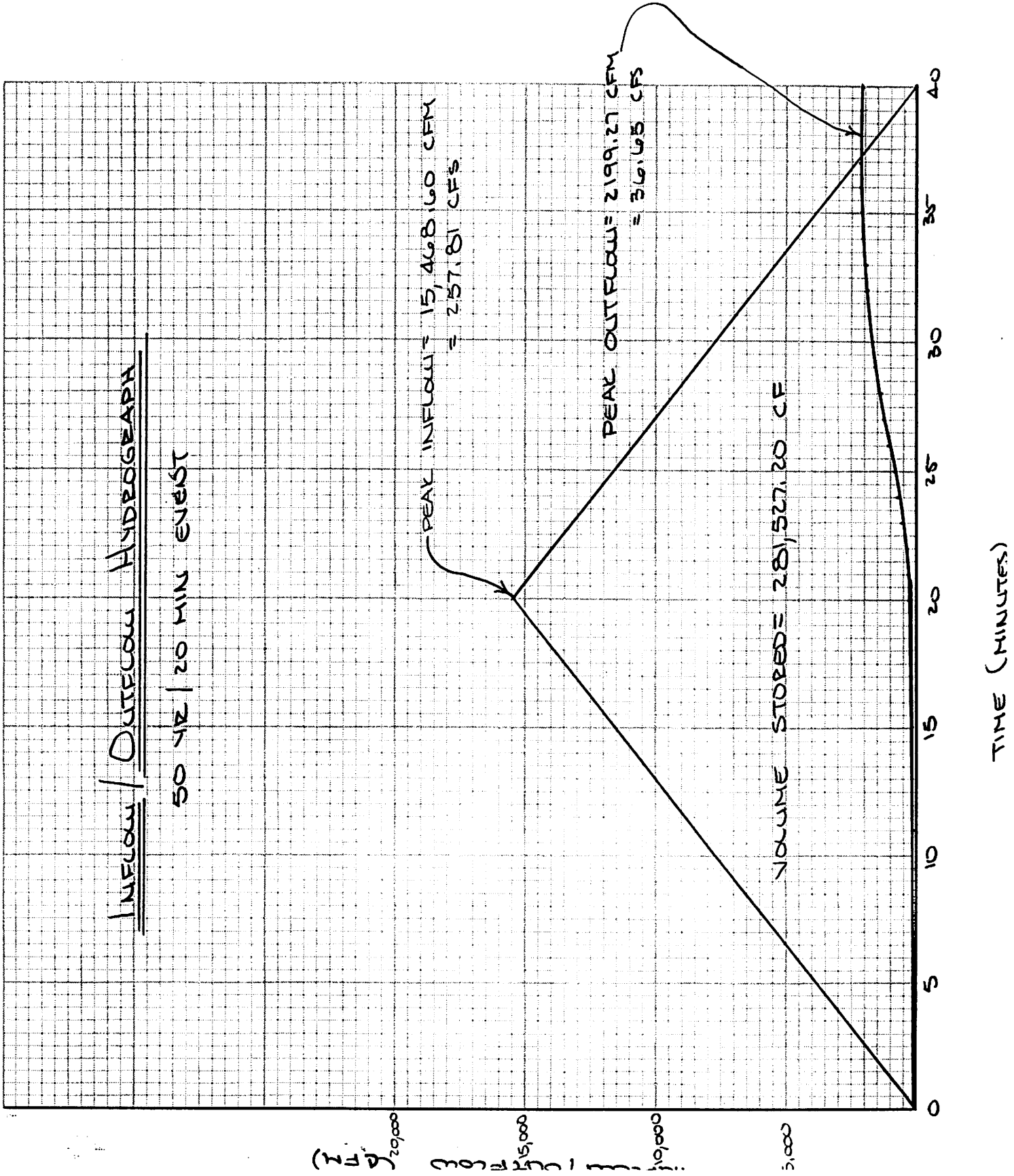
PROJECT NAME MENC

PROJECT #/JOB ORDER # 82-013F-10

DATE 10/10/95

DESIGNER RJT

PAGE 16 OF





SUBMITTAL DATE:

50 YR

17 OF 20

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	874.08	874.08	0.00	874.08	458.81
2	1748.16	2622.24	0.12	2622.12	458.82
3	2622.24	5244.36	0.63	5243.73	458.84
4	3496.32	8740.05	1.78	8738.27	458.86
5	4370.40	13108.67	3.83	13104.84	458.90
6	5244.48	18349.32	7.03	18342.29	458.94
7	6118.56	24460.85	11.64	24449.20	458.98
8	6992.64	31441.84	17.91	31423.93	459.03
9	7866.72	39290.65	26.11	39264.54	459.09
10	8740.80	48005.34	36.46	47968.88	459.15
11	9614.88	57583.76	49.24	57534.53	459.22
12	10488.96	68023.50	64.68	67958.81	459.30
13	11363.04	79321.85	83.03	79238.83	459.38
14	12237.12	91475.94	104.53	91371.42	459.47
15	13111.20	104482.60	129.44	104353.20	459.57
16	13985.28	118338.50	157.98	118180.50	459.67
17	14859.36	133039.90	190.39	132849.50	459.78
18	15733.44	148582.90	226.92	148356.00	459.89
19	16607.52	164963.50	267.80	164695.70	460.01
20	17481.60	182177.30	315.42	181861.90	460.13
21	16607.52	198469.40	441.60	198027.80	460.23
22	15733.44	213761.20	745.70	213015.50	460.33
23	14859.36	227874.90	935.68	226939.20	460.42
24	13985.28	240924.50	1136.82	239787.70	460.51
25	13111.20	252898.90	1347.88	251551.00	460.59
26	12237.12	263788.10	1560.85	262227.20	460.66
27	11363.04	273590.30	1782.66	271807.60	460.72
28	10488.96	282296.60	1965.57	280331.00	460.78
29	9614.88	289945.90	2174.62	287771.30	460.82
30	8740.80	296512.10	2329.88	294182.20	460.87
31	7866.72	302048.90	2487.64	299561.30	460.90
32	6992.64	306553.90	2606.16	303947.70	460.93
33	6118.56	310066.30	2704.37	307361.90	460.95
34	5244.48	312606.40	2806.18	309800.20	460.97
35	4370.40	314170.60	2862.55	311308.00	460.98
36	3496.32	314804.40	2897.52	311906.80	460.98
37	2622.24	314529.10	2911.55	311617.50	460.98
38	1748.16	313365.70	2904.75	310460.90	460.97
39	874.08	311335.00	2877.81	308457.20	460.96
40	0.00	308457.20	2831.37	305625.80	460.94

PEAK OUTFLOW= 48.53 CFS AT 37 MINUTES

# PICKETT RAY & SILVER

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St. Peters, MD 63376

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Land Surveyors

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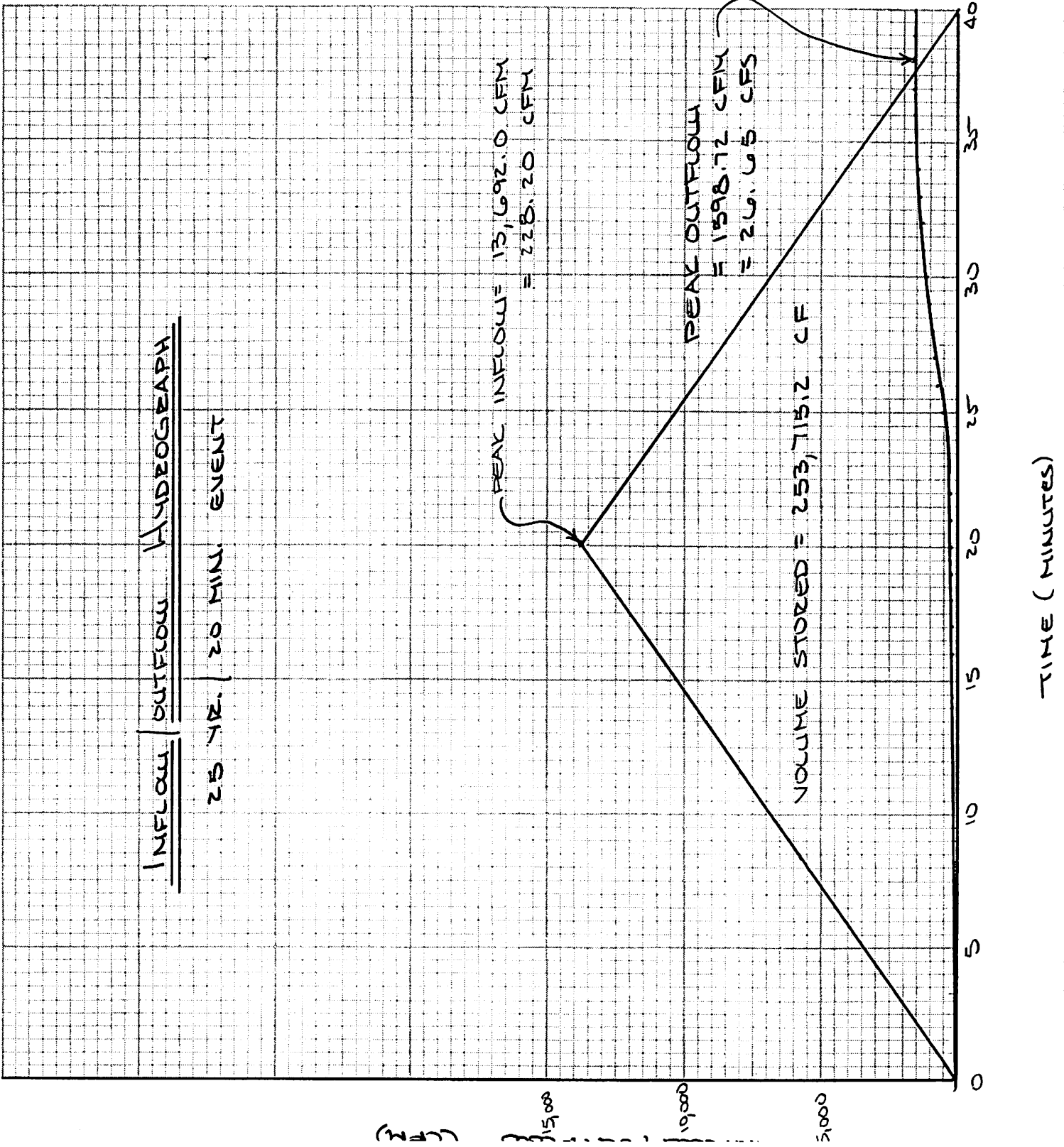
PROJECT NAME MEMO

PROJECT #/JOB ORDER # 82-013F-10

DATE 10/10/95

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PAGE 18 OF



SUBMITTAL DATE:

06-015 F-10  
19 OF 25

100 YR

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	773.43	773.43	0.00	773.43	458.81
2	1546.86	2320.29	0.10	2320.19	458.82
3	2320.29	4640.48	0.52	4639.96	458.83
4	3093.72	7733.68	1.48	7732.20	458.86
5	3867.15	11599.35	3.19	11596.16	458.89
6	4640.58	16236.74	5.85	16230.89	458.92
7	5414.01	21644.90	9.69	21635.21	458.96
8	6187.44	27822.65	14.91	27807.74	459.01
9	6960.87	34768.61	21.73	34746.88	459.06
10	7734.30	42481.18	30.35	42450.83	459.11
11	8507.73	50958.56	40.99	50917.57	459.18
12	9281.16	60198.73	53.85	60144.88	459.24
13	10054.59	70199.47	69.13	70130.35	459.32
14	10828.02	80958.36	87.04	80871.32	459.40
15	11601.45	92472.78	107.78	92365.00	459.48
16	12374.88	104739.90	131.56	104608.30	459.57
17	13148.31	117756.70	158.56	117598.10	459.67
18	13921.74	131519.90	189.00	131330.90	459.77
19	14695.17	146026.00	223.04	145803.00	459.88
20	15468.60	161271.60	260.92	161010.70	459.99
21	14695.17	175705.80	302.78	175403.10	460.08
22	13921.74	189324.80	385.39	188939.40	460.17
23	13148.31	202087.70	513.71	201574.00	460.26
24	12374.88	213948.90	790.57	213158.30	460.33
25	11601.45	224759.80	937.59	223822.20	460.40
26	10828.02	234650.20	1091.23	233559.00	460.47
27	10054.59	243613.50	1248.98	242364.60	460.53
28	9281.16	251645.70	1389.78	250255.90	460.58
29	8507.73	258763.70	1538.45	257225.20	460.62
30	7734.30	264959.50	1660.93	263298.60	460.66
31	6960.87	270259.50	1802.79	268456.60	460.70
32	6187.44	274644.10	1900.82	272743.30	460.73
33	5414.01	278157.30	1983.78	276173.50	460.75
34	4640.58	280814.10	2051.17	278762.90	460.77
35	3867.15	282630.00	2142.40	280487.60	460.78
36	3093.72	283581.40	2177.77	281403.60	460.78
37	2320.29	283723.90	2196.69	281527.20	460.78
38	1546.86	283074.00	2199.27	280874.70	460.78
39	773.43	281648.20	2185.79	279462.40	460.77
40	0.00	279462.40	2156.73	277305.60	460.76

PEAK OUTFLOW= 36.65 CFS AT 38 MINUTES

# PICKETT RAY & SILVER

Civil Engineers  
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333 Mid Rivers Mall Dr.  
St. Peters, MO 63376

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PROJECT NAME MEMPHIS  
PROJECT #/JOB ORDER # 82-013F-10  
DATE 10/10/95  
DESIGNER RJT  
PAGE 20 OF 20

