

EXISTING BASIN CHARACTERISTICS (9/18/87 PLANS)

25yr EVENT

Flow to Basin: 50.30 CFS

MAX. DISCHARGE PERMITTED 29.87 CFS

AREA OF SITE: 10.38 AC

BASED UPON PROPOSED REVISIONS THE BASIN CHARACTERISTICS ARE MODIFIED AS FOLLOWS:

POST DEV. RUNOFF

2yr	10.38 @ 1.74 =	18.06
5yr	10.38 @ 2.13 =	22.11
15yr	10.38 @ 2.64 =	27.40
25yr	10.38 @ 3.26 =	33.84
100yr	10.38 @ 4.17 =	43.28

PREDEVELOPED RUNOFF

@ 1.09 =	11.38
@ 1.33 =	13.81
@ 1.87 =	19.41
@ 2.31 =	23.98
@ 2.95 =	30.62

MAX. ALLOWABLE RELEASE RATES

	- BYPASS	+ OFFSITE
2yr	11.38 - 4.36 (1.74)	+ 3.86 (1.74) + 3.74 (1.74) = 17.02 CFS
5yr	13.81 - 4.36 (2.13)	+ 3.86 (2.13) + 3.74 (2.13) = 20.71 CFS
15yr	19.41 - 4.36 (2.64)	+ 3.86 (2.64) + 3.74 (2.64) = 27.96 CFS
25yr	23.98 - 4.36 (3.26)	+ 3.86 (3.26) + 3.74 (3.26) = 34.54 CFS
100yr	30.62 - 4.36 (4.17)	+ 3.86 (4.17) + 3.74 (4.17) = 44.13 CFS

Flows to Basin

10.38 - 4.36 + 3.86 + 3.74 =	23.69 CFS	2yr
	29.01 CFS	5yr
	35.96 CFS	15yr
	44.40 CFS	25yr
	56.80 CFS	100yr





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Job No. _____

Date _____

By _____

Chk'd By _____

STAGE VS STORAGE

ELEV	AREA	AVG. AREA	DEPTH	Incl. Vol.	Cumulative
523.5	0				0
		261	0.50	131	
524.0	561	3096	2.0	6192	131
526.0	5670	7621	2.0	15242	6323
528.0	9571	10779	2.0	21558	21565
530.0	1987				43123

DETERMINE T_c

$$\text{SHORT } T_c = \frac{0.007 [0.24(50)]^{0.80}}{3.5^{0.5} (0.05)^{0.4}} = 5.43 \text{ min}$$

$$\text{STANDARD CONC.} = \frac{4}{v} = \frac{250}{2 \frac{2}{3}} = 2.08 \text{ min}$$

$$\text{OPEN CHANNEL} = \frac{1200 \text{ LF}}{5 \frac{2}{3}} = 5 \text{ min}$$

TOTAL USE 12 MIN



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Job No _____

Date _____

By _____

Chk'd By _____

0.65' w SLOT

ELEV	Hw	O _w	H _{ofs}	O _{ofs}	O _T	EQ.
523.5	0	0				w
524.0	0.5	0.69				
524.5	1.0	1.95				
525.0	1.5	3.58				
525.5	2.0	5.52				
526.0	2.5	7.71				
526.5	3.0	10.13				
527.0	3.5	12.77				
527.5	4.0	15.60				
528.0	4.5	18.61				
528.5	5.0	21.80				
529.0	5.5	25.15				
529.5	6.0	28.66	0	0	28.66	
529.75	6.25	30.47	0.25	5.89	36.36	
530.0	6.5	32.32	0.50	16.66	48.97	u



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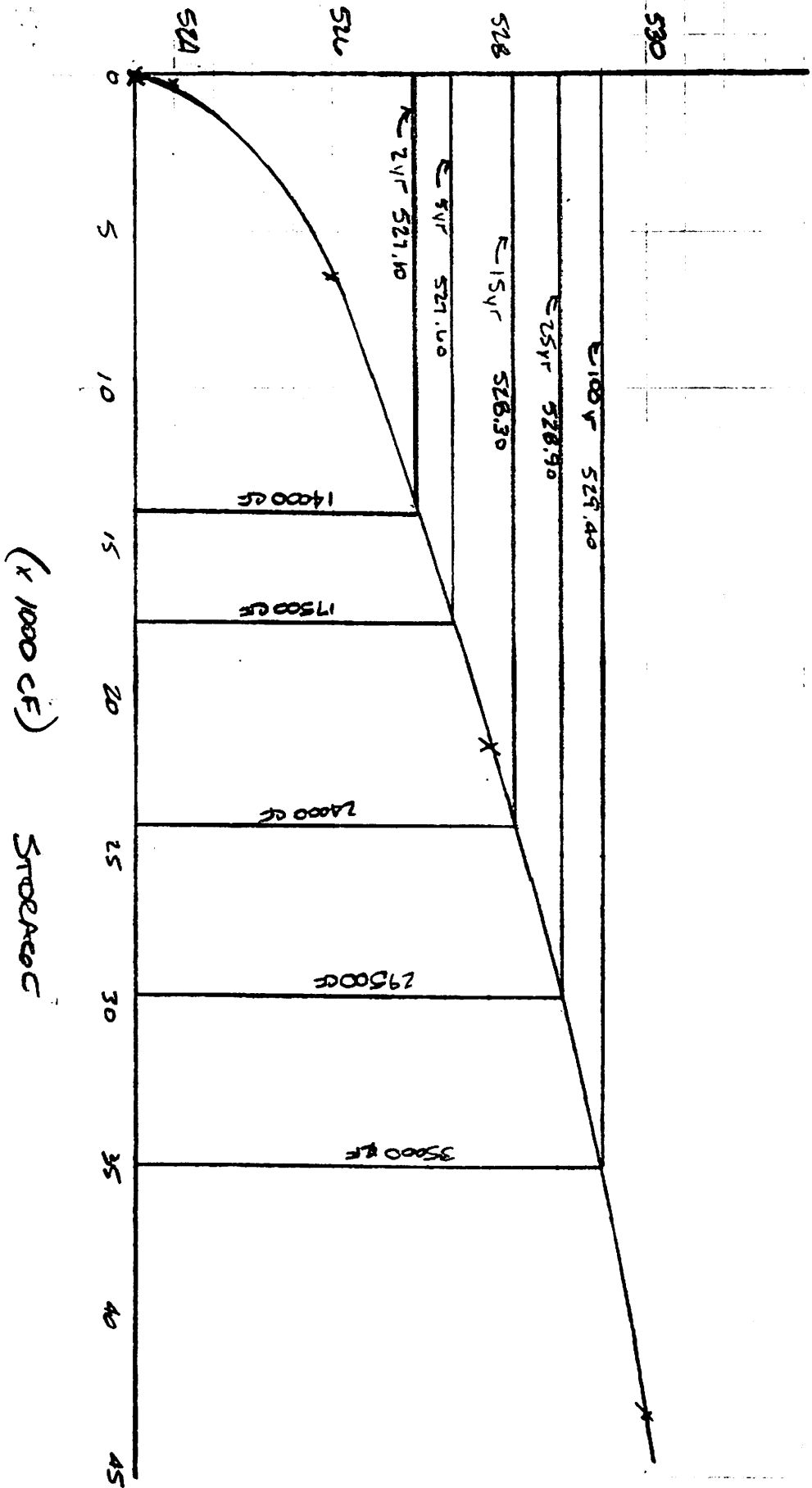
Job No. _____

Date _____

By _____

Chk'd By _____

STAGC JS STORAGE





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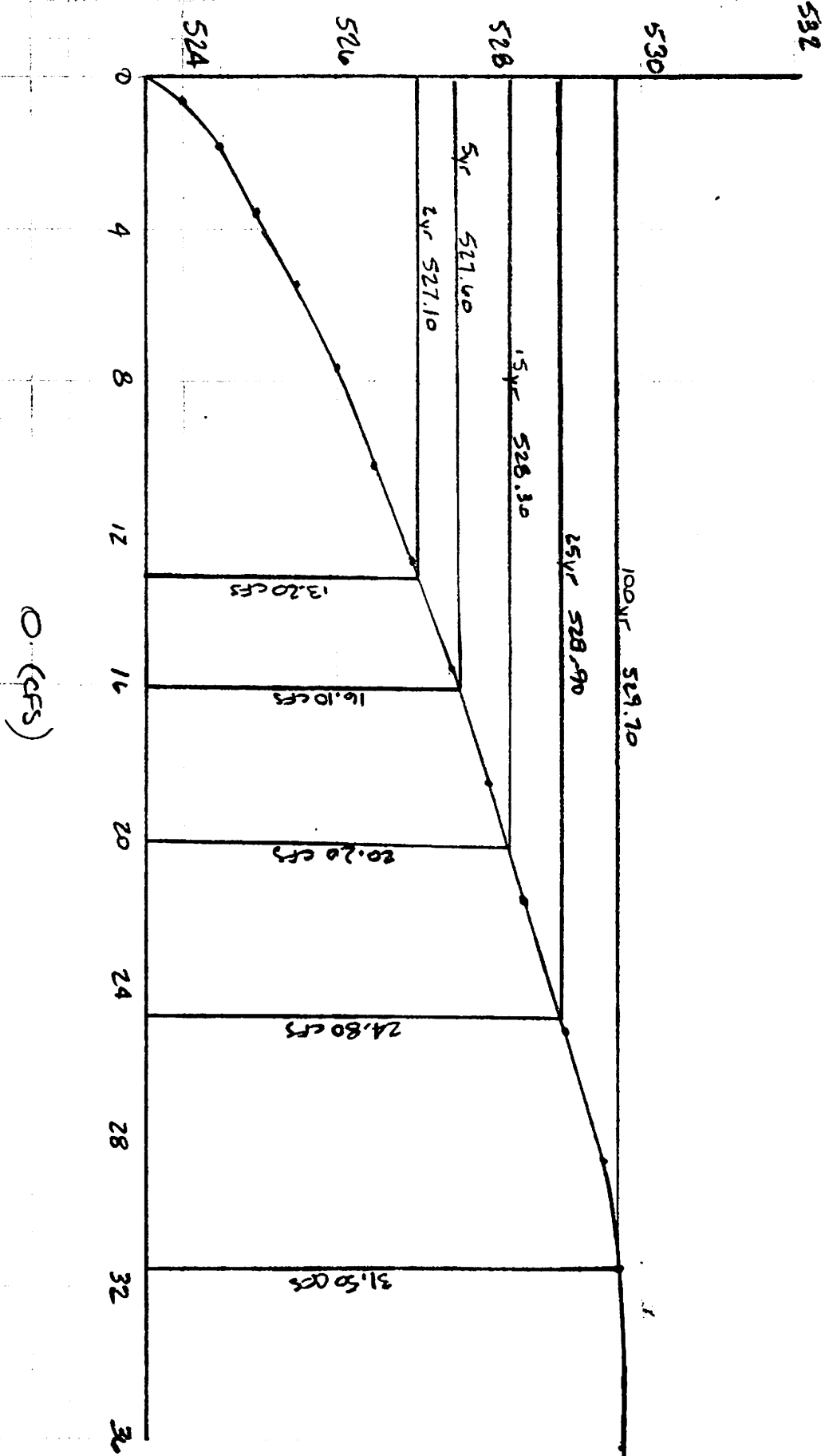
Job No. _____

Date _____

By _____

Chk'd By _____

Outflow is Eval.





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Job No. _____

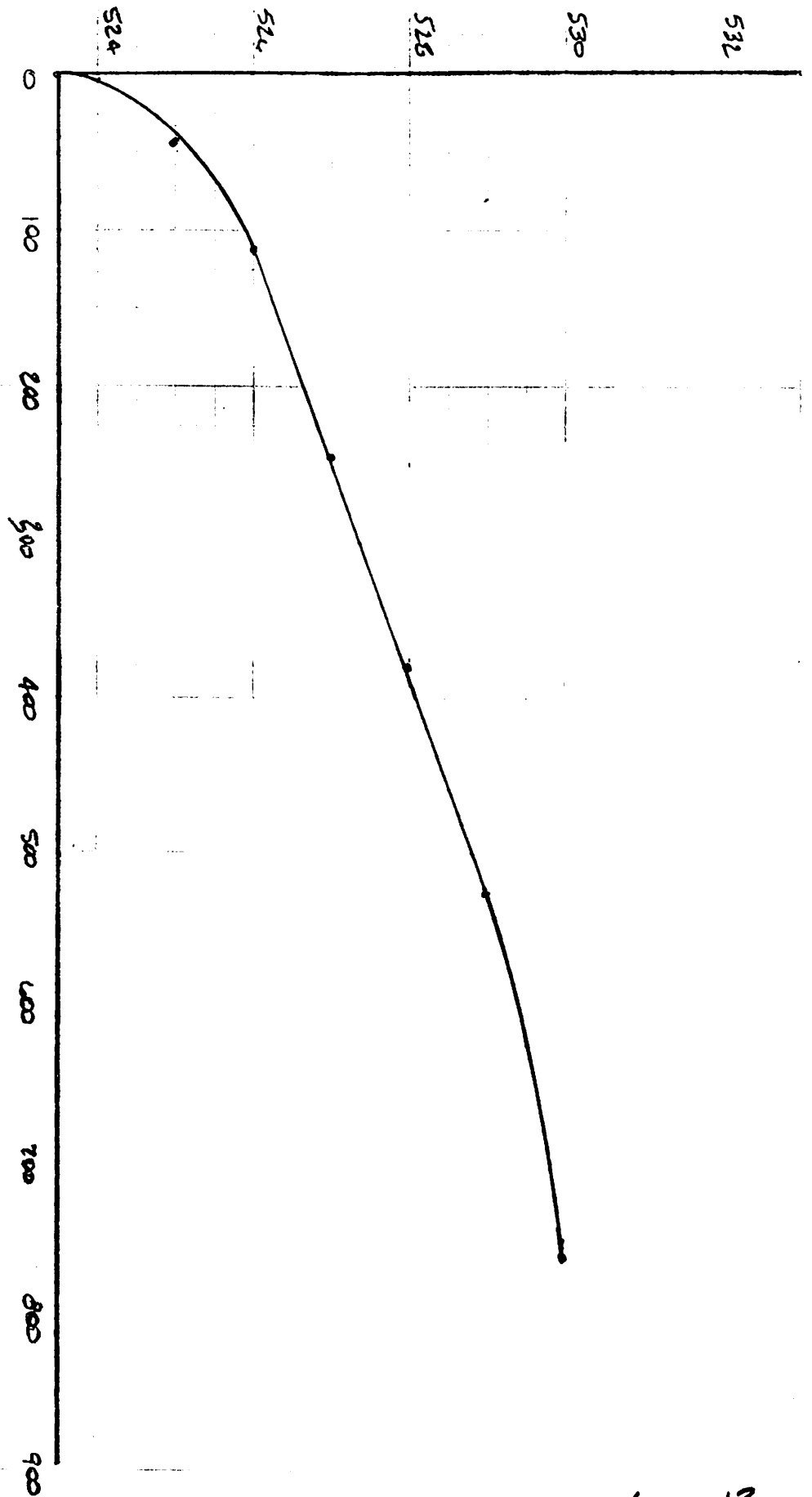
ELVN vs 25/pt+0

Date _____

By _____

Chk'd By _____

25/pt+0 => 0.0165 +0



(525) => 45.25	ELVN	5	25/pt+0
(527) => 246.10	523.5	0	0
(529) => 525.15	524.0	131	2.87
	526.0	6323	113.10
	528.0	21565	378.03
	530.0	43123	767.69

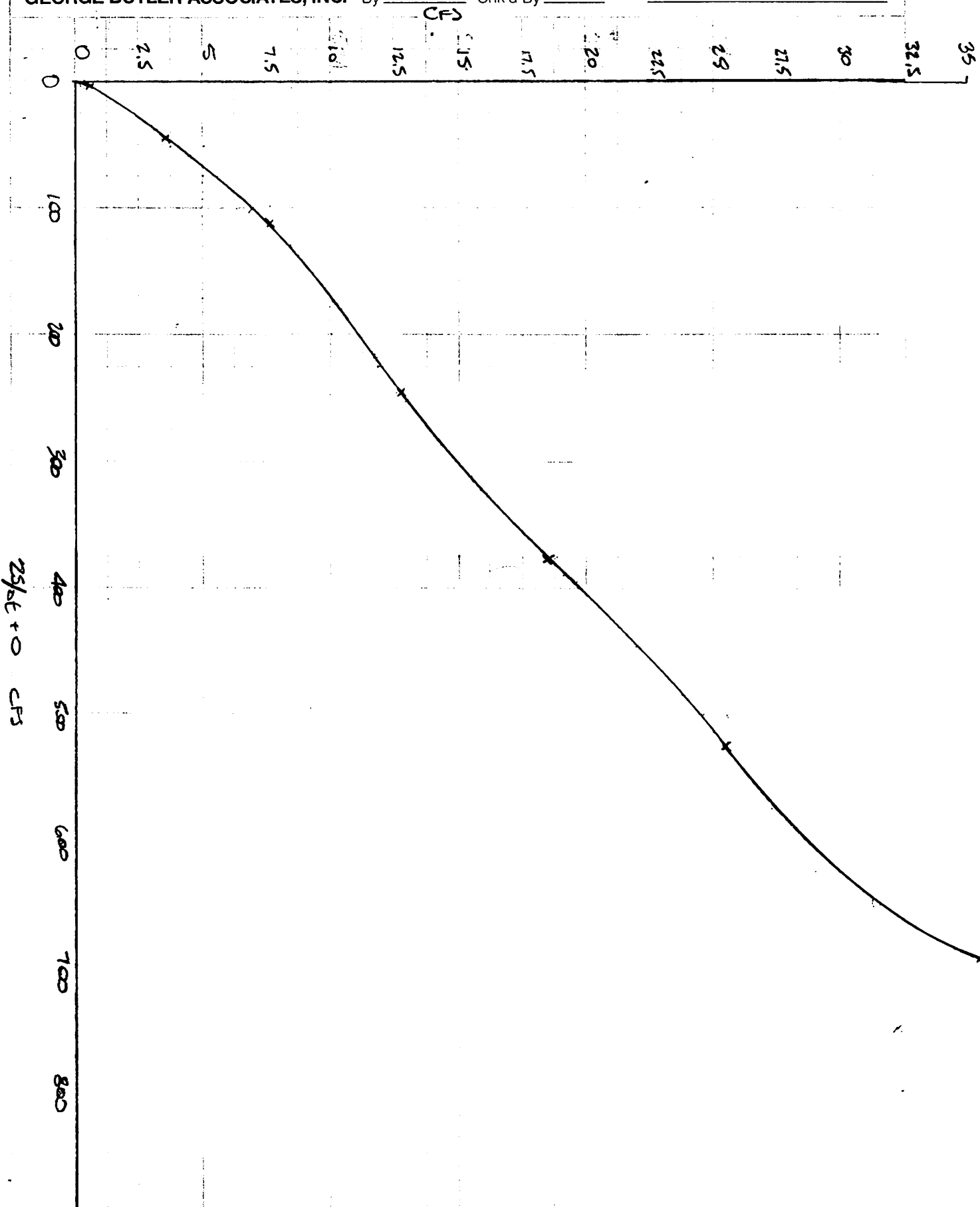


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Job No. 0 is 25/6t + 0

Date _____

By _____ Chk'd By _____





GEORGE BUTLER ASSOCIATES, INC.

Job No. _____

Date _____

By _____ Chk'd By _____

2yr Routine - Available Release Rate = 17.02 cfs

T	In	In ₂	2 $\frac{1}{2}$ st _n -0 _n	2 $\frac{1}{2}$ st _{n+1} +0 _{n+1}	ELEV.	O	Storage
0	0	0	0	0	523.5	0	0
2	3.95	3.95	0	3.95		0.70	
4	7.90	11.85	2.55	14.40		1.20	
6	11.85	19.74	12.00	31.74		2.80	
8	15.79	27.64	24.14	53.78		4.40	
10	19.74	35.53	44.98	80.51		6.00	
12	23.69	43.43	68.51	111.94		7.60	
14	23.69	47.38	96.74	144.12		9.30	
16	23.69	47.38	125.52	172.90		10.10	
18	23.69	47.38	152.70	200.08		11.10	
20	23.69	47.38	177.88	225.26		12.00	
22	19.74	43.43	201.26	244.69		12.70	
24	15.79	35.53	219.29	254.82		13.10	
26	11.85	27.64	228.62	256.26	527.10	13.20	14000 cfs
28	7.90	19.74	229.86	249.60			
30	3.95	11.85					
32	0	3.95					
34		0					

OK < 17.02 cfs



GEORGE BUTLER ASSOCIATES, INC.

Job No. _____

Date _____

By _____ Chk'd By _____

5yr Round - Available Release Rate = 20.71

T	In	In+1	$2\frac{1}{2}t_n - 0_n$	$2\frac{1}{2}t_{n+1} + 0_{n+1}$	Elev	0	Storage
0	0	0	0	0	523.50	0	0
2	4.84	4.84	0	4.84		0.80	
4	9.67	14.51	3.24	17.75		1.30	
6	14.51	24.18	15.15	39.33		3.70	
8	19.34	33.85	31.93	65.78		4.90	
10	24.18	43.52	55.98	99.50		7.00	
12	29.01	53.19	85.50	138.69		8.10	
14	29.01	58.02	122.49	180.51		10.20	
16	29.01	58.02	160.11	218.13		11.90	
18	29.01	58.02	194.33	252.35		13.00	
20	29.01	58.02	226.35	284.37		14.90	
22	24.18	53.19	254.57	307.76		15.60	
24	19.34	43.52	276.56	320.08		16.00	
26	14.51	33.85	288.08	321.93	527.60	16.10	17500CF
28	9.67	24.18	289.73	313.91			
30	4.84	14.18					
32	0	4.84					
34	0	0					
36	0						

→ OK < 20.71



GEORGE BUTLER ASSOCIATES, INC.

Job No. _____

Date _____

By _____ Chk'd By _____

15yr ROUTING - AVAILABLE RELEASE RATE = 27.96 CFS

T	In	In _n	2%t _n -0 _n	2%t _{n+1} +0 _{n+1}	Elc _n	0	STORAGE
0	0	0	0	0	523.5	0	0
2	5.99	5.99	0	5.99		0.80	
4	11.97	17.98	4.39	22.37		2.30	
6	17.98	29.97	17.71	47.74		4.00	
8	23.97	41.95	39.74	81.69		6.00	
10	29.97	53.94	69.69	123.63		7.90	
12	35.96	65.93	107.83	173.76		10.00	
14	35.96	71.86	153.76	225.62		12.00	
16	35.96	71.86	201.62	273.48		14.20	
18	35.96	71.86	245.08	316.94		15.50	
20	35.96	71.86	285.94	357.80		17.50	
22	29.97	65.93	322.80	388.73		19.20	
24	23.97	53.94	350.53	404.27		20.10	
26	17.98	41.95	364.07	406.02	528.30	20.20	24000 CF
28	11.97	29.97	365.62	395.59			
30	5.99	17.98					
32	0	5.99					
34	0	0					
36	0	0					

OK < 27.96 CFS



GEORGE BUTLER ASSOCIATES, INC.

Job No. _____

Date _____

By _____ Chk'd By _____

25yr Rainfall - Average Release Rate = 34.54 cfs

T	In	In ₁	2 1/2 In _n - 0 _n	2 1/2 In _{n+1} + 0 _{n+1}	ELEV	0	Storage
0	0	0	0	0	523.5	0	0
2	7.40	7.40	0	7.40		1.00	
4	14.80	22.20	5.40	27.60		2.50	
6	22.20	37.00	22.60	59.60		4.70	
8	29.60	51.80	50.20	102.00		7.30	
10	37.00	66.60	87.40	154.00		9.60	
12	44.40	81.40	134.80	216.20		11.90	
14	44.40	88.80	192.40	281.20		14.30	
16	44.40	88.80	252.60	341.40		17.00	
18	44.40	88.80	307.40	396.20		19.70	
20	44.40	88.80	356.80	445.60		22.10	
22	37.00	81.40	401.40	487.80		24.20	
24	29.60	66.60	434.40	501.00		24.70	
26	22.20	51.80	451.60	503.40	528.90	24.80	29500 CF
28	14.80	37.00	453.80	490.8		24.50	
30	7.40	22.20					
32	0	7.40					
34	0	0					

OK < 34.54 cfs



GEORGE BUTLER ASSOCIATES, INC.

Job No. _____

Date _____

By _____ Chk'd By _____

100 yr Ratio = AVAILABLE RELEASE RATE = 44.13 cfs

T	In	In	2 1/2' at n - 0 n	2 1/2' at n + 0 n	ELEV	O	STORAGE
0	0	0	0	0	523.5	0	0
2	9.47	9.47	0	9.47		1.10	
4	18.93	28.40	7.27	35.67		3.10	
6	28.40	47.33	29.47	76.80		5.50	
8	37.87	66.27	65.80	132.07		8.60	
10	47.33	85.20	114.87	200.07		11.00	
12	56.80	104.13	178.07	282.20		14.90	
14	56.80	113.60	252.40	366.00		18.40	
16	56.80	113.60	329.20	442.80		22.00	
18	56.80	113.60	398.80	512.40		25.10	
20	56.80	113.60	462.20	575.80		27.50	
22	47.33	104.13	520.80	624.93		30.00	
24	37.87	85.20	564.93	650.13		31.40	
26	28.40	66.27	587.33	653.60	529.70	31.50	35000 CF
28	18.93	47.33	590.60	637.93			
30	9.47	28.40					
32	0	9.47					
34	0	0					
36	0	0					

OK < 44.13 cfs



GEORGE BUTLER ASSOCIATES, INC.

Job No. _____

Date _____

By _____ Chk'd By _____

5' ϕ MH TOP OPEN

589.50

0.65'

523.50



GEORGE BUTLER ASSOCIATES, INC.

Job No. 7391.05

Date _____

By _____ Chk'd By _____

Sediment Storage Calculations

$$\text{Runoff Coefficient} = 0.6$$

$$\text{Area Draining to Basin} = 13.62 \text{ AC}$$

$$150 \text{ CF/AC-YR}$$

$$2(150)(13.62) = 4086 \text{ CF}$$

$$\text{Total Storage RDA} =$$

$$4086 \text{ CF} + 35000 \text{ CF} = 39086 \text{ CF}$$

$$\text{Storage Provided} = 43123 \text{ CF}$$

\therefore OK ✓