



MEMO

TO: Chris Breitenstein, P.E.
Drainage Engineer
City Hall - 7th Floor
455 N. Main
Wichita, Kansas 67202

PROJECT NO. 36-81261-1338
PROJECT: Triple "J" Addition
FPS
DATE: September 30, 1981

COPIES TO:

FROM: Charles S. Brown, P.E.
REFERENCE: Revised Drainage Plan

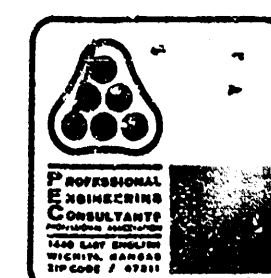
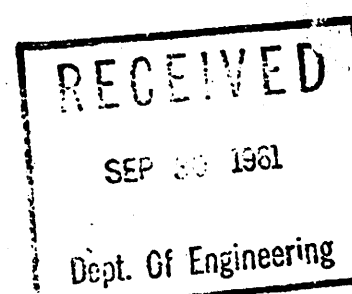
PLEASE ADVISE IMMEDIATELY OF ANY MISCONCEPTIONS OR OMISSIONS YOU BELIEVE TO BE OBTAINED HEREIN.

As discussed by phone today, we are transmitting herewith 2 prints of the Revised Drainage Plan for Triple "J" Addition to Wichita.

The Revision consists of adding a 15' private drainage easement along the east property line of the plat to facilitate a future "V" ditch to drain northward to the proposed channel. A copy of our calculations are enclosed showing the hydraulic characteristics of this "V" ditch.

Also enclosed in a copy of our calculations showing the proposed channel size and the need for a 50' drainage easement at the northeast of the Triple "J" property.

Drainage O.K. Hold for O&M Comments



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Project: Triple "J"
Item: East R Drainage Esm't.

Determine ditch size at east R

$$C = 0.9$$

$$D.A. = 3.47 \text{ ac}$$

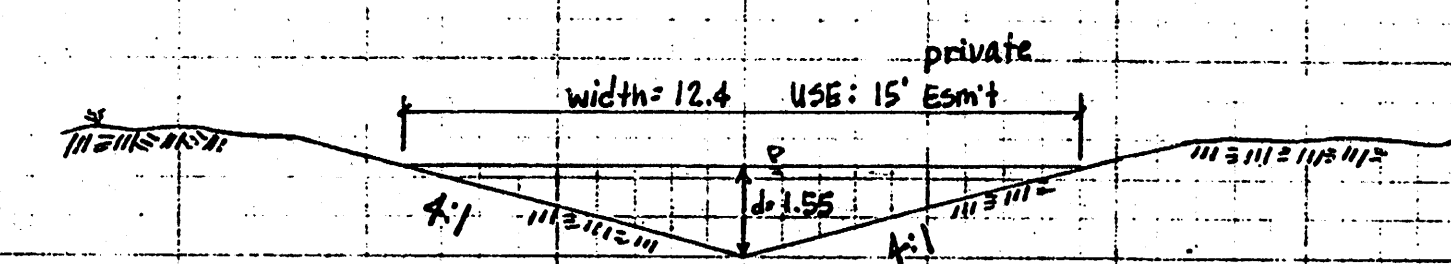
$$t_c = 250' \text{ pavement @ } 1\% \text{ avg slope} = 5 \text{ min.}$$

$$I_g = 8.00$$

$$Q_5 = C I_g A$$

$$= 0.9 \times 8.00 \times 3.47$$

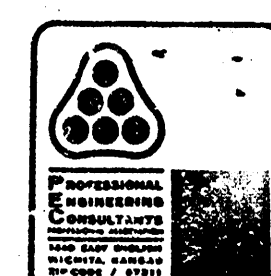
$$= 25 \text{ cfs}$$



$$Q = \frac{1.486}{R} A R^{2/3} S^{1/2}$$
$$25 = \frac{1.486}{0.055} A R^{2/3} (0.0055)^{1/2}$$
$$A R^{2/3} = \frac{25 \times 0.055}{1.486 \times 0.07453} = 7.30$$

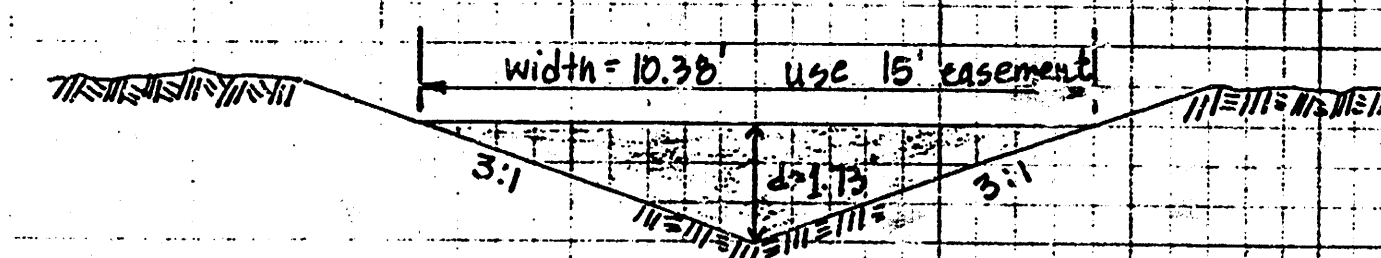
d	A	P	R	R ^{2/3}	A R ^{2/3}
1.0'	4.01	8.246	0.488	0.61735	2.449
1.2'	5.76	9.895	0.582	0.69714	4.0156
1.4'	7.84	11.545	0.670	0.77260	6.057
1.6'	10.24	13.193	0.776	0.84453	8.64
1.5	9.00	12.363	0.726	0.80896	7.25

d = 1.55'



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Project: Triple "J"
Item: East R Drainage Esm't

Alternate Section:



d	A	P	R	R ^{2/3}	A R ^{2/3}
1.6'	7.68	10.119	0.75844	0.832	6.39
1.7'	8.67	10.752	0.80630	0.866	7.51
1.8'	9.72	11.384	0.85381	0.900	8.748

d = 1.73'

USE: 4:1 V Ditch, d = 1.55', w = 12.4', V = 2.64



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Project: Triple "J"
Item:

III. Determine Runoff @ West End Eyed "K" Ditch

$$D.A. = 13.4 \text{ ac}$$

$$C = 0.9$$

$$t_c = 500' \text{ pavement @ } 1\% = 9 \text{ min.}$$

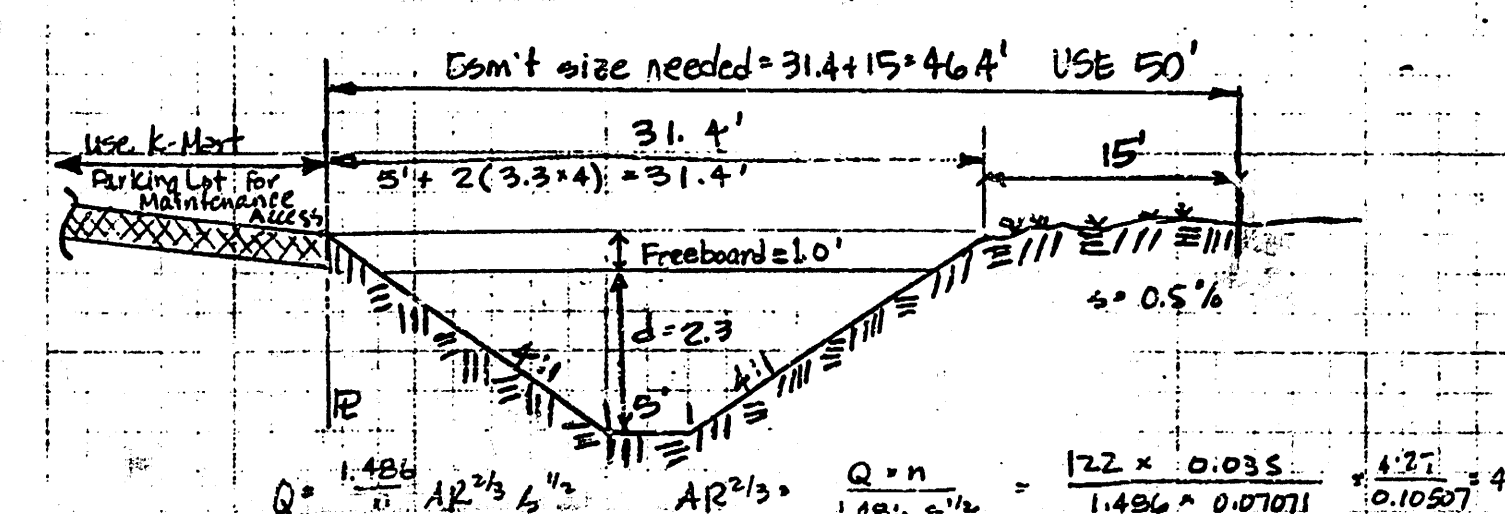
$$+ 400' \text{ channel @ } 3\% = \frac{2}{11} \text{ min.}$$

$$\text{OR } 700' \text{ turf @ } 0.7\% = 28 \text{ min.}$$

$$\text{USE } 11 \text{ min.}$$

$$I_{100} = 10.14$$

$$Q_{100} = C I_{100} A = 0.9 \times 10.14 \times 13.4$$
$$= 122 \text{ cfs.}$$



d	A	P	R	R ^{2/3}	A R ^{2/3}
3'	51	24.74	1.715	1.432	73.07
2.5'	37.5	23.61	1.464	1.23	45.3
2.4'	35.04	24.79	1.413	1.254	44.13
2.3'	32.49	23.96	1.375	1.270	40.14

d = 2.3'