



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

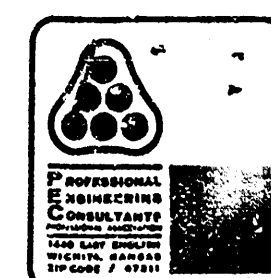
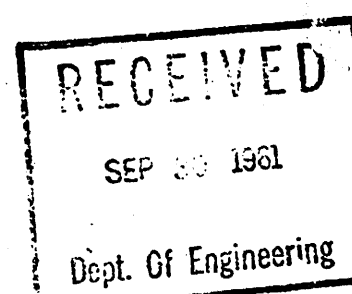
PLEASE ADVISE IMMEDIATELY OF ANY MISCONCEPTIONS OR OMISSIONS YOU BELIEVE TO BE OBTAINED HEREIN.

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

$$C = 0.9$$

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

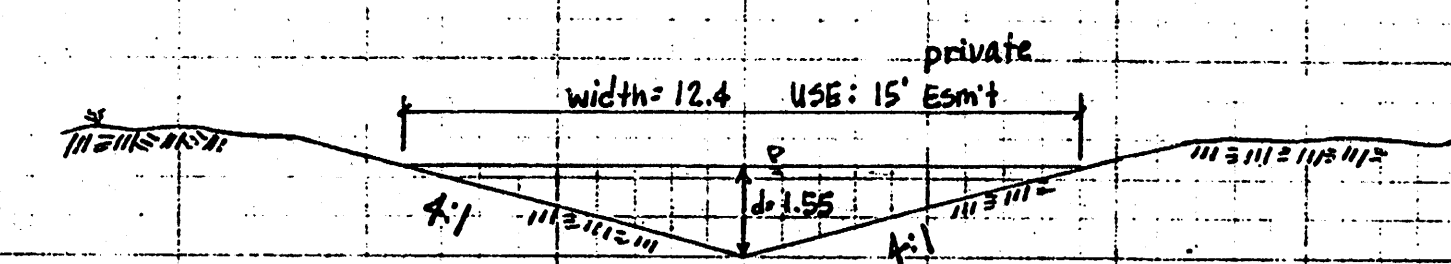
$$t_c = 250' \text{ pavement @ } 1\% \text{ avg slope} = 5 \text{ min.}$$

$$I_g = 8.00$$

$$Q_5 = C I_g A$$

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

$$= 25 \text{ cfs}$$



$$Q = \frac{1.486}{R} A R^{2/3} S^{1/2}$$

$$25 = \frac{1.486}{R} A R^{2/3} (0.0055)^{1/2}$$

$$A R^{2/3} = \frac{25 \times 0.0055}{1.486} = 7.30$$

$$d \quad A \quad P \quad R \quad R^{2/3} \quad A R^{2/3}$$

$$1.0' \quad 4.01' \quad 8.246' \quad 0.488 \quad 0.61735 \quad 2.449$$

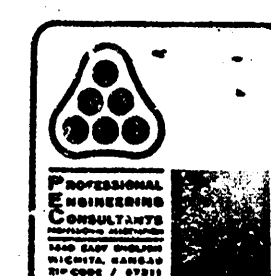
$$1.2' \quad 5.76' \quad 9.895' \quad 0.582 \quad 0.63714 \quad 4.0156$$

$$1.4' \quad 7.84' \quad 11.545' \quad 0.670 \quad 0.77260 \quad 6.057$$

$$1.6' \quad 10.24' \quad 13.193' \quad 0.776 \quad 0.84453 \quad 8.64$$

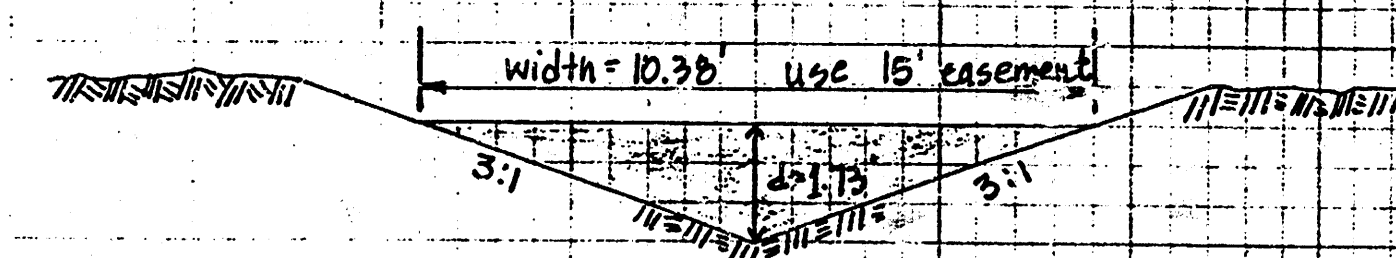
$$1.8' \quad 12.96' \quad 14.841' \quad 0.882 \quad 0.90896 \quad 12.25$$

$$d = 1.55'$$



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

Alternate Section:



$$d \quad A \quad P \quad R \quad R^{2/3} \quad A R^{2/3}$$

$$1.6' \quad 7.68' \quad 10.119' \quad 0.75844 \quad 0.832 \quad 6.32$$

$$1.7' \quad 8.67' \quad 10.752' \quad 0.80630 \quad 0.866 \quad 7.51$$

$$1.8' \quad 9.72' \quad 11.384' \quad 0.85381 \quad 0.900 \quad 8.748$$

$$d = 1.73'$$

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

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

$$C = 0.9$$

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

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

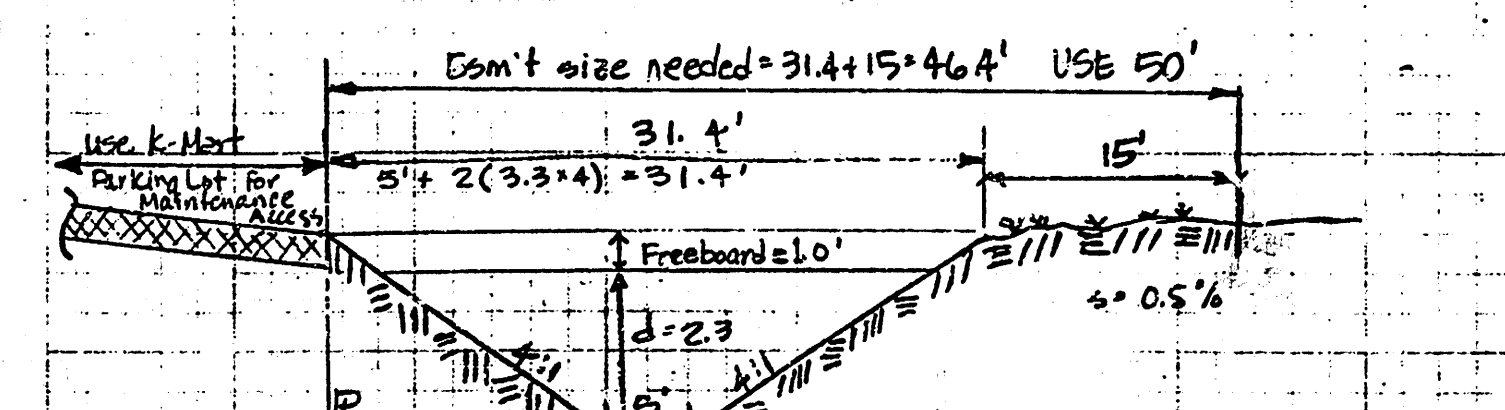
$$\text{OR } 700' \text{ turf @ } 0.7\% = 22 \text{ min.}$$

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

$$T_{100} = 10.14$$

$$Q_{100} = C I_{100} A = 0.9 \times 10.14 \times 13.4$$

$$= 122 \text{ cfs.}$$



$$Q = \frac{1.486}{R} A R^{2/3} S^{1/2}$$

$$122 = \frac{1.486}{R} A R^{2/3} (0.0055)^{1/2}$$

$$A R^{2/3} = \frac{122 \times 0.0055}{1.486} = 4.21$$

$$d \quad A \quad P \quad R \quad R^{2/3} \quad A R^{2/3}$$

$$3' \quad 51' \quad 21.74' \quad 1.715 \quad 1.432 \quad 73.07$$

$$2.5' \quad 31.5' \quad 25.61' \quad 1.404 \quad 1.231 \quad 40.3$$

$$2.4' \quad 25.04' \quad 24.79' \quad 1.413 \quad 1.254 \quad 34.13$$

$$2.3' \quad 20.43' \quad 23.93' \quad 1.375 \quad 1.200 \quad 30.14$$

$$d = 2.3'$$