

PROPERTY OWNER:
 GEORGE OSELL
 32 MISSION
 EASTBOROUGH
 ZONING R-1

2064 68' N. AND 2102 68' W. OF THE SE 1/4 SEC. 24-26-1W

Curb Inlets and proposed
 Storm Sewer
 D.F. = 0.1 A.D.
 Q₁₀₀ = 15.5 C.F.
 Q₁₀₀ = 30 C.F.

PROP. OWNER:
 MIBAC INC.

- GENERAL NOTES:**
1. Topographic Survey Dated 5-21-87
 2. S.M. = 1/4 Section S. 1/4 of Section 45TH S. 1/4 and Meridian 141-07 City of Wichita Datum
 3. Min. lot Area 5000 S.F.
 4. 50' Min. Front Yard at Setback Line
 5. Reserve A is reserved for open space and a lake to be owned and maintained by a homeowners association.
 6. Utilities are to be installed in front lot easement and street right-of-way.
 7. Total Number of Lots: 80 Single Family Residential
 8. Total Acreage in Plot: 18.6 More or Less
 9. All lots shall have a Certificate with Point Ground Elevation of 143.0 City Datum
 10. Normal Pond Surface Elevation 143.0

LAKE

PROP. OWNER:
 MIBAC INC.

DRAINAGE PLAN THE MOORINGS 4TH ADDITION

DATE: 7-28-87

OWNER-DEVELOPER:
 MIBAC INC.
 C. BILL BACHMAN, PRES.

THE MOORINGS 3RD ADDN
 D.A. = 7.55 TO EXIST WLETS BETWEEN LOTS 20 AND 21 (6.5 SIDE ONLY)
 L = 1000 @ 2 1/4% = 19.3 MIN
 OVERLAND FLOW
 $T_c = 1.5 \sqrt{\frac{L C_{100}}{A V_{0.02}}} = 11.3$ TOTAL $T_c = 24.6$
 $Q_c = 7.55 \times 0.5 \times 3.35 = 12.6 cfs$ DEPTH OF FLOW 0.55' 17.6" WIDE
 NOT ENOUGH STREET CAPACITY

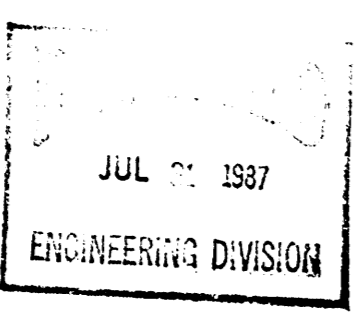
TRY INTERCEPTING FLOW AT TWO WLETS LOCATED BETWEEN LOT AND 3RD ADDITION.

ALTERNATIVES FROM THE MOORINGS 3RD ADDITION

THE MOORINGS 3RD ADDN
 D.A. = 8.05 AC. 70 WLETS @ 9.74 SQ FT ON AVERAGE (BETWEEN LOT 4 AND 5)
 OVERLAND FLOW - 80' @ 2% GRADE
 $T_c = 1.5 \sqrt{\frac{L C_{100}}{A V_{0.02}}} = 11.3$ MIN
 STREET FLOW
 900 @ 2 1/4% = 7.3 MIN TOTAL $T_c = 18.6$ MIN.

$Q_2 = 8.05 \times 0.5 \times 3.75 = 9.7 cfs$
 DEPTH IN STREET 0.4' W = 12.6' Q = 2.6' V = 2.2 f/s
 $F_w = \frac{2.6}{0.16} \left[\frac{(12.6 - 2) \cdot 0.915}{1.48} \right]^{1/2} \cdot 0.052^{1/2} = 0.77$
 $L_1 = 2.49 \times 0.915^{1/3} \times 77 \times 12.6 = 8.7$
 $L_2 = 3.27 \times 0.915^{1/3} \times 77 \times 12.6 = 9.7$
 $L_3 = 1.65 \times 0.915^{1/3} \times 77 \times 12.6 = 16.2$
 $L = 3.6'$ (TWO TYPE 1-A WLETS)

$Q_1 = \left(\frac{8.6}{5.7} \right)^4 Q_2 = 4.4 cfs$ 1.3 cfs STORM SEWER



$Q_{100} = 9.05 \times 0.5 \times 3.20 = 14.6 cfs$
 DEPTH IN STREET 0.56' W = 17.9'
 $F_w = \frac{14.6}{0.16} \left[\frac{(17.9 - 2) \cdot 0.915}{1.48} \right]^{1/2} \cdot 0.052^{1/2} = 0.82$
 $L_1 = 2.49 \times 0.915^{1/3} \times 82 \times 17.9 = 12.9$
 $L_2 = 3.27 \times 0.915^{1/3} \times 82 \times 17.9 = 14.5$
 $L_3 = 1.65 \times 0.915^{1/3} \times 82 \times 17.9 = 24.2$
 $L = 8.6'$

$Q_1 = \left(\frac{8.6}{24.2} \right)^4 Q_2 = 3.3 cfs$
 DESIGN STORM SEWER FOR 3.3 cfs

POE & ASSOCIATES OF KANSAS INC.
 CONSULTING ENGINEERS
 455 North Main Wichita, Kansas 67202

July 30, 1987

Mr. Carl Gibson
 City of Wichita
 Engineering
 7th Floor
 City Hall
 455 North Main
 Wichita, Kansas 67202

Re: The Moorings 4th Addition

Dear Carl:

Enclosed is a drainage plan and drainage runoff calculations for the above captioned addition. Please review and inform me if any additional information will be required.

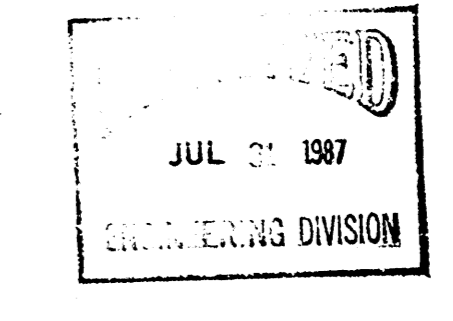
Yours truly,

POE & ASSOCIATES OF KANSAS, INC.

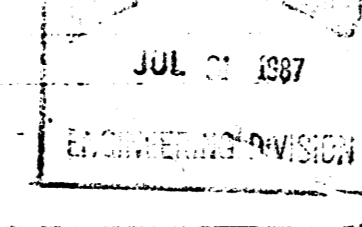
James E. Hill
 James E. Hill, P.E.
 Project Manager

KEH:crb

Encls.

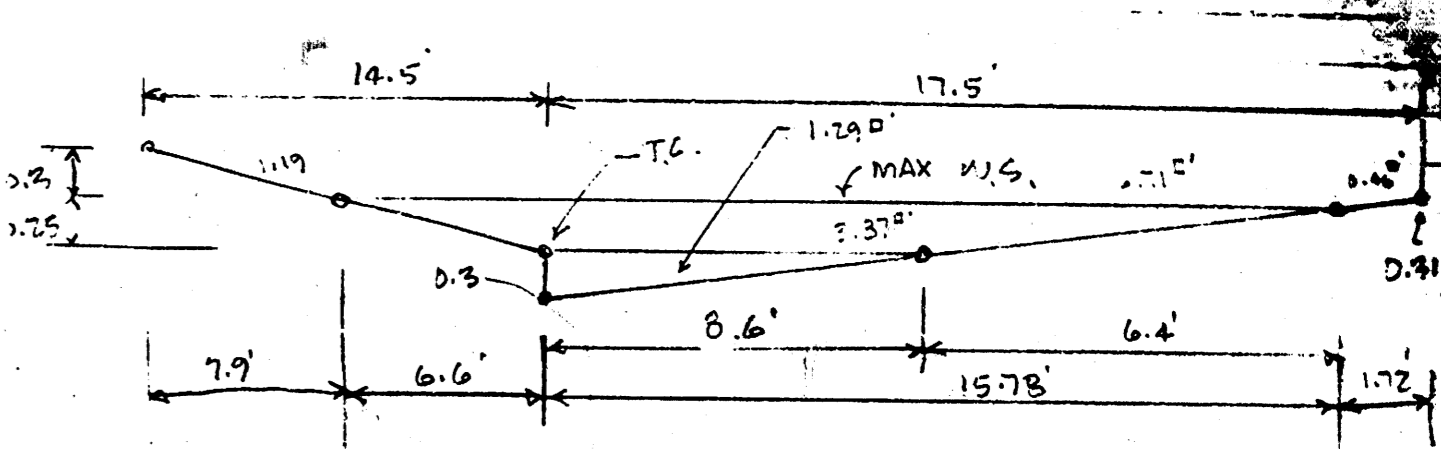


7-30-87
 THE MOORINGS 4TH ADDN - DRAINAGE PLAN
 DRAINAGE TO WLETS LOCATED BETWEEN LOTS 66 AND 67
 D.A. = 5.72 AC S. OF WLETS
 D.A. = 3.39 AC N. OF WLETS
 80' OF 1ST DRAINAGE TO STREET CURB @ 2% GRADE OVER AVERAGE GRADE
 200' ST. FLOW @ 2 1/4% = 3 MIN.
 $T_c = 1.5 \sqrt{\frac{L C_{100}}{A V_{0.02}}} = 11.3$ MIN. $L_2 = 3.4$ $L_{100} = 2.27$
 Q_{100} FROM D.A. S. OF WLETS = $5.72 \times 0.5 \times 4.6 = 13.1 cfs$
 DEPTH OF FLOW IN ST. 0.55' Q = 12.9 cfs/SIDE 100 YR DISCHARGE W/ ST. OF.
 TOTAL FLOW TO WLETS $Q_{100} = 9.1 \times 0.5 \times 6.6 = 30 cfs$
 USE 4 WLETS @ 7.5 cfs EA.
 USE 30" RCP @ 0.16% GRADE @ 32 cfs
 100 YR FLOWS WILL DISCHARGE THROUGH STORM SEWER.
 8 cfs/WLET - USE 18" RCP @ 0.16% BETWEEN WLETS
 10 cfs ACROSS STREET - USE 24" RCP @ 0.15%
 $Q_2 = 9.1 \times 0.5 \times 3.4 = 15.5 cfs$



7-30-87
 DRAINAGE TO STORM SEWER ON THE E. SIDE OF THE 3RD ADDN
 D.A. = 3.9 AC OVERLAND FLOW 11.3 MIN. GRADE AC. ON P.L.
 775' ST. FLOW @ 2 1/4% = 6.5 MIN
 $11.3 + 6.5 = 17.8$ MIN AT T_c $L_2 = 3.5$ $L_{100} = 6.9$
 $Q_2 = 3.9 \times 0.5 \times 3.5 = 6.8 cfs$ 5.2 cfs ORIS CALC.
 $Q_{100} = 3.9 \times 0.5 \times 6.9 = 13.5 cfs$ 12.6 cfs ORIS CALC.
 ORIGINAL CALC. WERE FOR $Q_{100} = 12.6 cfs$ (SEE ATTACHED)
 INCREASE IN FLOW INSIGNIFICANT - NO IMPROVEMENTS NECESSARY

5-10-88
 THE MOORINGS 4TH ADDN - DRAINAGE PLAN REVISED
 D.A. 5.72 AC S. OF WLETS
 D.A. 3.39 AC N. OF WLETS
 80' OVERLAND FLOW @ 2% GRADE 2.24 MIN.
 900' STREET FLOW 1.58 f/s = 10.13 MIN. $T_c = 19$ MIN. 2 YR.
 900' STREET FLOW 2.14 f/s = 7.43 MIN. $T_c = 10.5$ MIN. 100 YR.
 400' GRAD C 1/8 AC LOTS C = 0.55 2 YR C = 0.73 100 YR
 $Q_2 = 3.39 \times 0.55 \times 4.08 = 7.55 cfs = 3.8 cfs/SIDE$
 $Q_2 = 5.72 \times 0.55 \times 4.08 = 12.94 cfs = 6.4 cfs/SIDE$
 $Q_{100} = 3.39 \times 0.73 \times 3.41 = 20.75 cfs$ 10.4 cfs/SIDE
 $Q_{100} = 5.72 \times 0.73 \times 3.41 = 35.12 cfs$ 17.6 cfs/SIDE
 STREET CAPACITY WILL EXCEED BUT IT WILL PROBABLY BE BEST TO TAKE SOME DRAINAGE SOUTH THROUGH ANOTHER STORM SEWER.
 IF TOTAL D.A. DRAINS TO THIS POINT A SWALE MUST BE PROVIDED TO DISCHARGE THE 900' STORM AT THE STORM SEWER.

5-10-88
 STREET CAPACITY 24" RCP WITH ROLL-UP

 $Q = 3.57 + 1.29 = 5.16$ $R = \frac{3.16}{2.35} = 0.33$
 $Q = 5.16 \times \frac{1.48}{0.20} \times 0.25^{1/3} \cdot 0.052^{1/2} = 3.14 cfs / 4.08$ FOR 2 YR FLOW (0.55 ABOVE F.L.)
 $Q = 5.16 + 3.56 = 13.52 cfs$ $R = \frac{13.52}{32} = 0.42$
 $17.5' @ n = 0.16$ 280
 $14.5' @ n = 0.30$ 435
 $7.15 + 32 = 0.22$ COMPOSITE n
 $Q = 13.52 \times \frac{1.48}{0.22} \times 0.25^{1/3} \cdot 0.052^{1/2} = 29.0 cfs / SIDE$ 150 YR STORM (0.85' ABOVE F.L.)