

PROPERTY OWNER:
 GEORGE STELL
 EASTBOROUGH
 ZONING R-1

ZONING R-1

KEYWEST
 0.42

KEYWEST COURT

THE MOORINGS
 3RD ADDITION

SIESTA KEY

THE MOORINGS
 4TH ADDITION
 SIESTA COVER

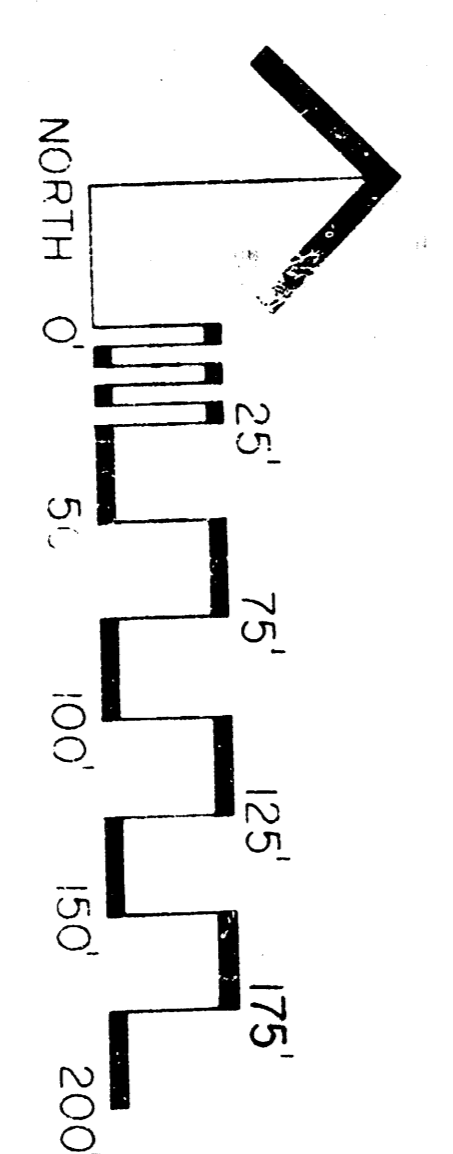
Contour lines and proposed
 drainage lines
 D. 7-55-8-9
 Q. 100-30-0-0-7-8

PROP. OWNER:
 MIBAC INC.

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GENERAL NOTES:

1. Topographic Survey dated 5-21-87
2. 2.1/4" = 1" scale of layout of 45TH ST. North and West lot 141 of City of Merritt Cove
3. Win and lot area 5200 S.F.
4. 50' W.P. front yard setback line
5. Reserve a 10' easement for the water and sewer lines and for the utility lines to be installed in front of the reserved area.
6. All utility lines are to be installed in front of the reserved area.
7. Lot Number of Lots 80 Single Family Residential
8. 30'0" Minimum to 210' 18.6 Min. of Less
9. All lots are to have a Certificate of Occupancy before the start of any work.
10. Natural and Surface Elevation of 15.0'



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 ON)
 L = 1000 @ 2 1/4% = 19.3 MIN
 OVERLAND FLOW
 $T_c = 1.5 \sqrt{\frac{L C_{100}}{4.702}} = 11.3$ TOTAL $T_c = 24.6$
 $Q = 7.55 \times 0.5 \times 3.35 = 12.6 \text{ cfs}$ DEPTH OF FLOW 0.55' 17.6" WIDE
 NOT ENOUGH STREET CAPACITY

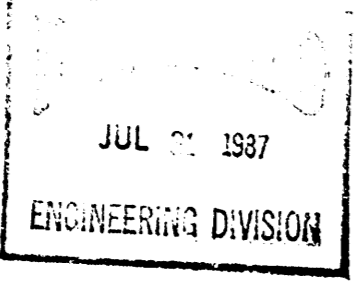
TRY INTERCEPTING FLOW AT TWO WLETS LOCATED BETWEEN LOT AND 3RD ADDITION.

ALTERNATIVES FROM THE MOORINGS TO 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
 $T_c = 1.5 \sqrt{\frac{L C_{100}}{4.702}} = 11.3$ MIN
 STREET FLOW
 900 @ 2 1/4% = 7.3 MIN TOTAL $T_c = 18.6$ MIN.

$Q_2 = 8.05 \times 0.5 \times 3.75 = 9.7 \text{ cfs}$
 DEPTH IN STREET 0.4' W = 12.6' Q = 2.6' V = 2.2 f/s
 $F_w = \frac{2.6}{0.16} \left[\frac{12.6 - 2}{0.515} \right]^{1/2} \cdot 0.052^{1/2} = 0.77$
 $L_1 = 2.49 \times 0.05125^{1/3} \times 77 \times 12.6 = 8.7$
 $L_2 = 3.27 \times 0.05125^{1/3} \times 77 \times 12.6 = 9.7$
 $L_3 = 1.65 \times 0.77 \times 12.6 = 16.2$
 L = 3.6' (TWO TYPE 1-A WLETS)

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



$Q_{100} = 9.05 \times 0.5 \times 3.20 = 14.6 \text{ cfs}$
 DEPTH IN STREET 0.56' W = 17.9'
 $F_w = \frac{14.6}{0.16} \left[\frac{17.9 - 2}{0.515} \right]^{1/2} \cdot 0.052^{1/2} = 0.82$
 $L_1 = 2.49 \times 0.05125^{1/3} \times 82 \times 17.9 = 12.9$
 $L_2 = 3.27 \times 0.05125^{1/3} \times 82 \times 17.9 = 14.5$
 $L_3 = 1.65 \times 0.82 \times 17.9 = 24.2$
 L = 8.6'

$Q_1 = \left(\frac{8.6}{12.6} \right)^4 Q_2 = 3.3 \text{ cfs}$

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.

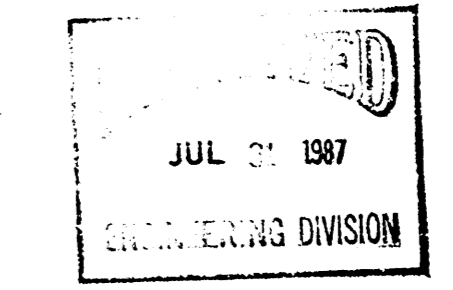
Yours truly,

POE & ASSOCIATES OF KANSAS, INC.

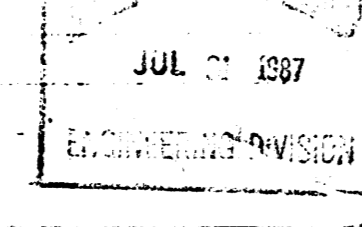
James E. Hill
 James E. Hill, P.E.
 Project Manager

KEH:crb

Encls.

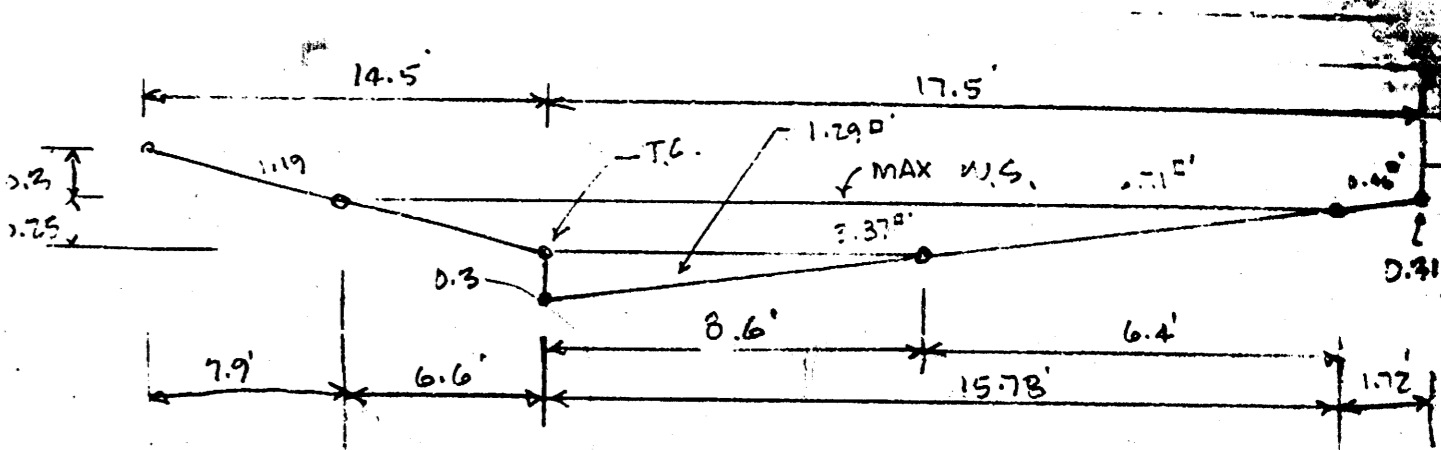


7-30-87
 THE MOORINGS 4TH ADDN - DRAINAGE PLAN
 DRAINAGE TO WLETS LOCATED BETWEEN LOTS 66 AND 67
 D.A. = 5.72 AC S. OF WLETS
 D.A. = 3.39 AC N. OF WLETS
 80' OF 1ST DRAINAGE TO STREET CURB @ 2% GRADE OVER AVERAGE GRADE
 2100 FT. FLOW @ 2 1/4% = 3.4 MIN
 $T_c = 1.5 \sqrt{\frac{L C_{100}}{4.702}} = 11.3$ MIN
 Q_{100} FROM D.A. S. OF WLETS = $5.72 \times 0.5 \times 4.6 = 13.1 \text{ cfs}$
 DEPTH OF FLOW IN ST. 0.55' Q = 12.9 cfs/SIDE 100 YR DISCHARGE W/ ST. OF.
 TOTAL FLOW TO WLETS $Q_{100} = 9.1 \times 0.5 \times 6.6 = 30 \text{ cfs}$
 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%
 $Q_2 = 9.1 \times 0.5 \times 3.4 = 15.5 \text{ cfs}$



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 R/L
 775' ST. FLOW @ 2 1/4% = 6.5 MIN
 $11.3 + 6.5 = 17.8$ MIN AT $T_c = 3.5$ 1100 = 6.9
 $Q_2 = 3.9 \times 0.5 \times 3.5 = 6.8 \text{ cfs}$ 5.2 cfs ORIG CALC.
 $Q_{100} = 3.9 \times 0.5 \times 6.9 = 13.5 \text{ cfs}$ 12.6 cfs ORIG CALC.
 ORIGINAL CALC. WERE FOR $Q_{100} = 12.6 \text{ cfs}$ (SEE ATTACHED)
 INCREASE IN FLOW INSIGNIFICANT - NO IMPROVEMENTS NEEDED

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 2100 MIN.
 900' STREET FLOW 1.58 f/s = 10.13 MIN $T_c = 19$ MIN 2YR.
 900' STREET FLOW 2.14 f/s = 7.43 MIN $T_c = 10.5$ MIN 100YR
 400' GRAD C 1/8 AC LOTS C = 0.55 2YR
 C = 0.75 100YR
 $Q_2 = 3.39 \times 0.55 \times 4.08 = 7.55 \text{ cfs} = 3.8 \text{ cfs/SIDE}$
 $Q_2 = 5.72 \times 0.55 \times 4.08 = 12.94 \text{ cfs} = 6.4 \text{ cfs/SIDE}$
 $Q_{100} = 3.39 \times 0.75 \times 3.41 = 20.75 \text{ cfs}$ 10.4 cfs/SIDE
 $Q_{100} = 5.72 \times 0.75 \times 3.41 = 35.12 \text{ cfs}$ 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

 $Q = 3.57 + 1.29 = 5.16$ $R = \frac{3.16}{2.35} = 0.33$
 $Q = 5.16 \times \frac{1.44}{0.20} \times 0.25^{1/3} \cdot 0.052^{1/2} = 3.14 \text{ cfs} / 4.08 \text{ FOR 2YR FLOW (0.55 ABOVE F.L.)}$
 $Q = 5.16 + 3.56 = 13.52 \text{ cfs}$ $R = \frac{13.52}{32} = 0.42$
 $17.5' @ n = 0.16$ 280
 $14.5' @ n = 0.30$ 435
 $0.715 + 0.32 = 0.22$ COMPOSITE n
 $Q = 13.52 \times \frac{1.44}{0.22} \times 0.25^{1/3} \cdot 0.052^{1/2} = 29.0 \text{ cfs/SIDE}$ 150 YR STORM (0.85' ABOVE F.L.)