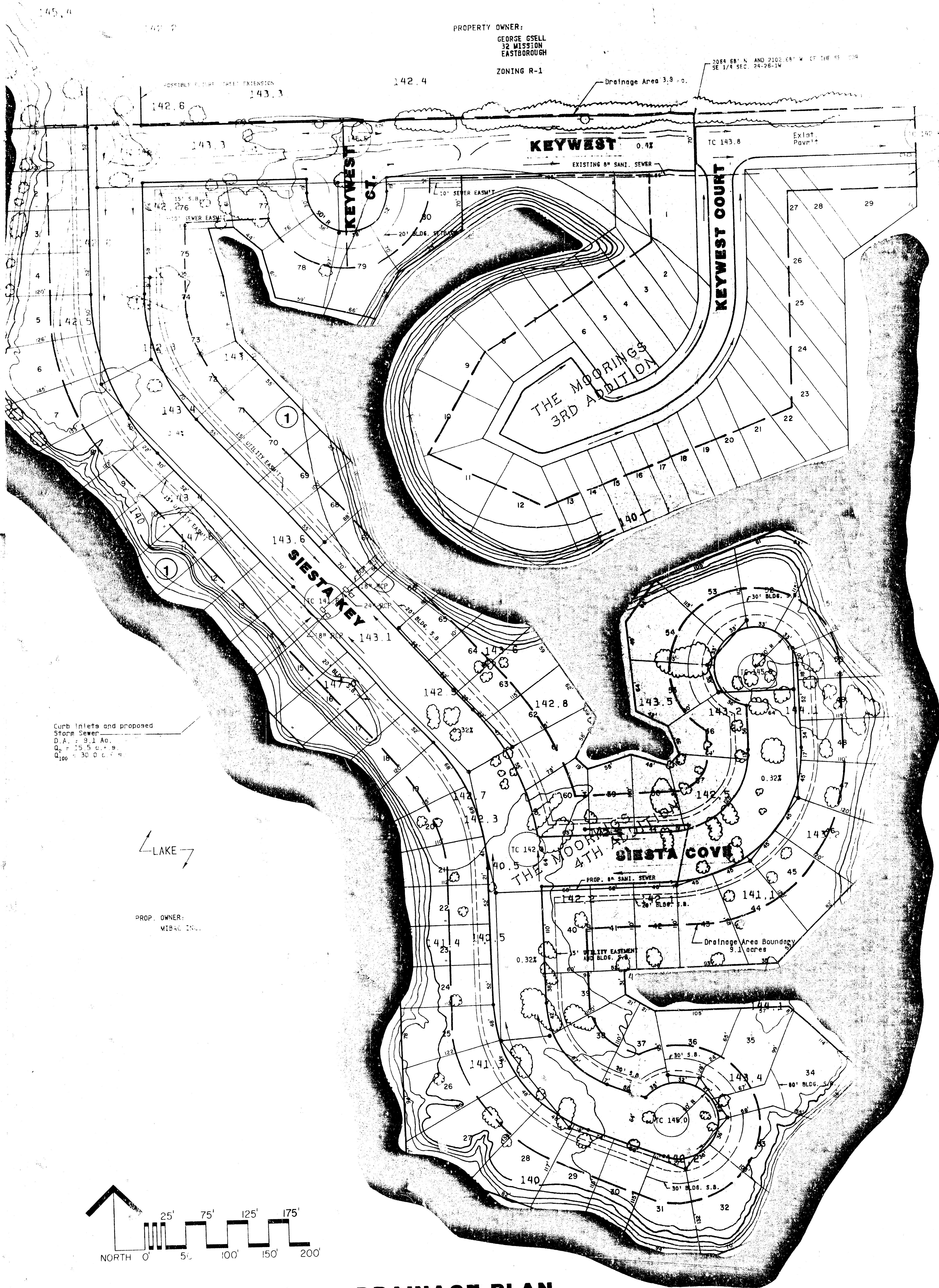




PROPERTY OWNER:  
GEORGE OSELL  
39 MISSION  
EASTBOROUGH  
ZONING R-1

2064 68' N. AND 2102 68' W. OF THE 15' 100' SE 1/4 SEC. 24-28-1W

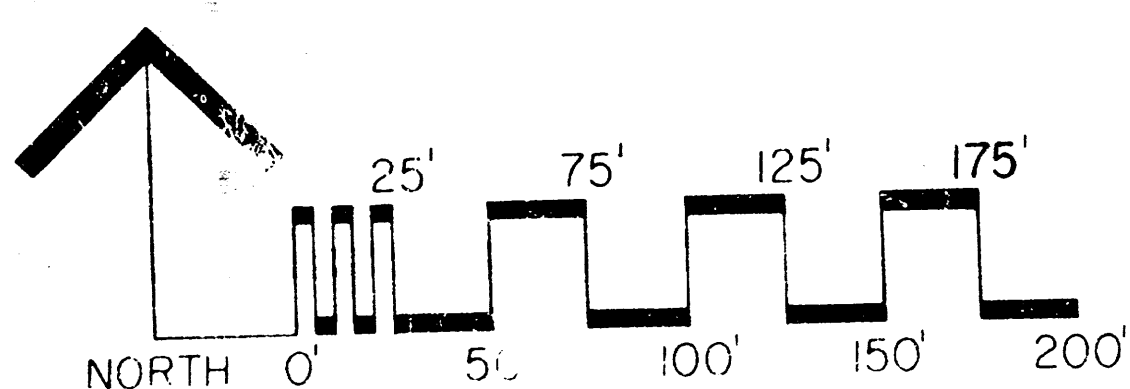
#### GENERAL NOTES:

1. Topographic Survey Dated 5-21-87
2. S.M. "N" Curve in S. Side of Culvert at 45TH St. North and Meridian 141.07 City of Wichita Datum
3. Minimum 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 areas shall have a continuous high point ground elevation of 143.0 City Datum
10. Normal Pond Surface Elevation 138.0

Curb Inlets and proposed Storm Sewer  
D.P. = 9.1 A.D.  
Q<sub>100</sub> = 15.5 C.F.  
Q<sub>100</sub> = 30.0 C.F.

PROP. OWNER:  
MIBAC INC.

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

DA = 7.55 TO EXIST INLETS BETWEEN LOTS 20 AND 21 (4.5000)

L = 1000 @ 2.4% = 13.3 MIN

OVERLAND FLOW

$T_c = 1.5 \sqrt{\frac{L}{A}} = 11.3$  TOTAL  $T_c = 24.6$

$Q_2 = 7.55 \times 0.5 \times 8.35 = 12.6$  cfs DEPTH OF FLOW 0.55' 17.6' WIDE

NOT ENOUGH STREET CAPACITY

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

INTERCEPTING FLOW AT TWO INLETS LOCATED BETWEEN LOT AND 3RD ADDITION

THE MOORINGS 3RD ADDN

DA = 8.05 AC. 70' INLETS @ 9.75' ON N. SIDE (BETWEEN LOT 4 & 5TH ADDN)

OVERLAND FLOW - 80' @ 2.4% - GRASS

$T_c = 1.5 \sqrt{\frac{L}{A}} = 11.3$  MIN

STREET FLOW

900' @ 2.4% = 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

$F_w = \frac{.202}{.016} \left[ \frac{(12.6 - 2) \times 0.315}{1} \right]^{1/2} = 0.77$

$L_1 = 2.49 \times 0.315 \times 77 \times 12.6 = 8.7$

$L_2 = 3.27 \times 0.315 \times 77 \times 12.6 = 9.7$

$L_3 = 1.65 \times 77 \times 12.6 = 16.2$

$L = 3.6$  (TWO TYPE 1-A INLETS)

$Q_1 = \left( \frac{8.6}{1.2} \right)^4$   $Q_1 = 4.4$  cfs 1.3 cfs 34 f/s

$Q_{100} = 9.05 \times 0.5 \times 8.20 = 18.6$  cfs

DEPTH IN STREET 0.56' W = 17.9'

$F_w = \frac{.202}{.016} \left[ \frac{(17.9 - 2) \times 0.315}{1} \right]^{1/2} = .52$

$L_1 = 2.49 \times 0.315 \times 77 \times 17.9 = 12.9$

$L_2 = 3.27 \times 0.315 \times 77 \times 17.9 = 8.5$

$L_3 = 1.65 \times 77 \times 17.9 = 23.2$

$L = 8.6$

$Q_1 = \left( \frac{8.6}{1.2} \right)^4$   $Q_1 = 8.3$  cfs

DESIGN STORM SEWER FOR 8.3 cfs

POE & ASSOCIATES OF KANSAS, INC.  
CONSULTING ENGINEERS  
444 N. Oliver, Suite 110 & Wichita, KS 67202-1110

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.

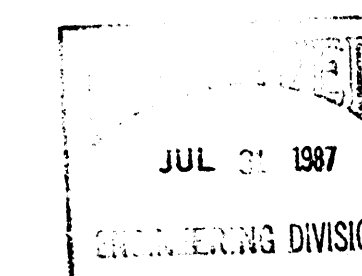
Yours truly,

POE & ASSOCIATES OF KANSAS, INC.

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

KEH:orb

Encls.



7-30-87

THE MOORINGS 4TH ADDN - DRAINAGE PLAN

DRAINAGE TO INLETS LOCATED BETWEEN LOTS 46 AND 47

D.A. = 5.72 AC S. OF INLETS

D.A. = 3.38 AC N. OF INLETS

80' OF 1ST DRAINAGE TO STREET CURB @ 2% GRADE OVER AVERAGE GRASS

2ND ST. FLOW @ 2.4% = 3 MIN.

$T_c = 1.5 \sqrt{\frac{L}{A}} = 11.3$  MIN.  $L_2 = 3.4$   $L_3 = 1.00 = 2.27$

$Q_{100}$  FROM D.A. S. OF INLETS =  $5.72 \times 0.5 \times 4.4 = 12.6$  cfs

DEPTH OF FLOW IN ST. 0.55' Q = 12.9 cfs/SIDE 100 YR DISCHARGE IN ST. OK.

TOTAL FLOW TO INLETS  $Q_{100} = 9.1 \times 0.5 \times 6.6 = 30$  cfs

USE 4 INLETS @ 4 cfs EA.

USE 30" RCP @ 0.6% GRADE @ 32 cfs

100 YR FLOW WILL DISCHARGE THROUGH STORM SEWER.

8 cfs/INLET - USE 18" RCP @ 0.6% BETWEEN INLETS

16 cfs ACROSS STREET - USE 24" RCP @ 0.5%

$Q_2 = 9.1 \times 0.5 \times 3.4 = 15.5$  cfs

JUL 31 1987  
ENGINEERING DIVISION

7-30-87

TRANSVERSE TO STORM SEWER ON THE E. SIDE OF THE 3RD ADDN

D.A. = 3.9 AC OVERLAND FLOW 11.3 MIN SAME AS ON P. 1

775' ST. FLOW @ 2.4% = 6.5 MIN

$11.3 + 6.5 = 17.8$  MIN AT  $L_2 = 3.5$   $L_3 = 1.00 = 2.27$

$Q_2 = 3.9 \times 0.5 \times 3.5 = 6.8$  cfs

$Q_{100} = 3.9 \times 0.5 \times 6.9 = 13.5$  cfs - 12.6 cfs ORIG. CALC.

ORIGINAL CALC. WERE FOR  $Q_{100} = 12.6$  cfs (SEE ATTACHED)

INCREASE IN FLOW INSIGNIFICANT - NO IMPROVEMENTS NEEDED

5-10-88

THE MOORINGS 4TH ADDN - DRAINAGE PLAN REVISED

DA = 5.72 AC S. OF INLETS

DA = 3.38 AC N. OF INLETS

50' OVERLAND FLOW @ 2% 2.4% 2.9% MIN.

900' STREET FLOW 1.58 f/s = 10.13 MIN  $T_c = 13$  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 = 0.73 100YR

$Q_2 = 3.38 \times 0.55 \times 4.08 = 7.58$  cfs = 3.8 cfs/SIDE

$Q_2 = 5.72 \times 0.55 \times 4.08 = 12.94$  cfs = 6.4 cfs/SIDE

$Q_{100} = 3.38 \times 0.73 \times 3.41 = 20.75$  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. DRAINING TO THIS POINT A SWALE MUST BE PROVIDED TO DISCHARGE THE 900' STORM AT THE STORM SEWER.

5-10-88

STREET CAPACITY 30" RCP WITH 100' C/S

$Q = 3.57 + 1.29 = 5.16$   $R = \frac{3.16}{2.33} = 0.33$

$Q = 5.16 \times \frac{1.49}{0.22} \times 0.33^{1/3} = 3.14$  cfs/SIDE FOR 2YR FLOW (0.55' ABOVE F.L.)

$Q = 5.16 + 3.56 = 13.52$   $R = \frac{13.52}{22} = 0.62$

17.5' @  $n = .016$  380  
14.5' @  $n = .030$  435

$715 \div 32 = .022$  COMPOSITE  $n$

$Q = 13.52 \times \frac{1.49}{0.22} \times .42^{1/3} = 29.0$  cfs/SIDE 100 YR STORM (0.35' ABOVE F.L.)