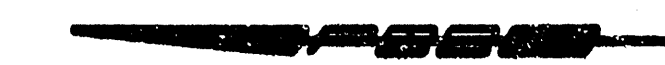


NORTHRIDGE LAKES PATIO HOMES ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS DRAINAGE PLAN



SCALE: 1"=50'

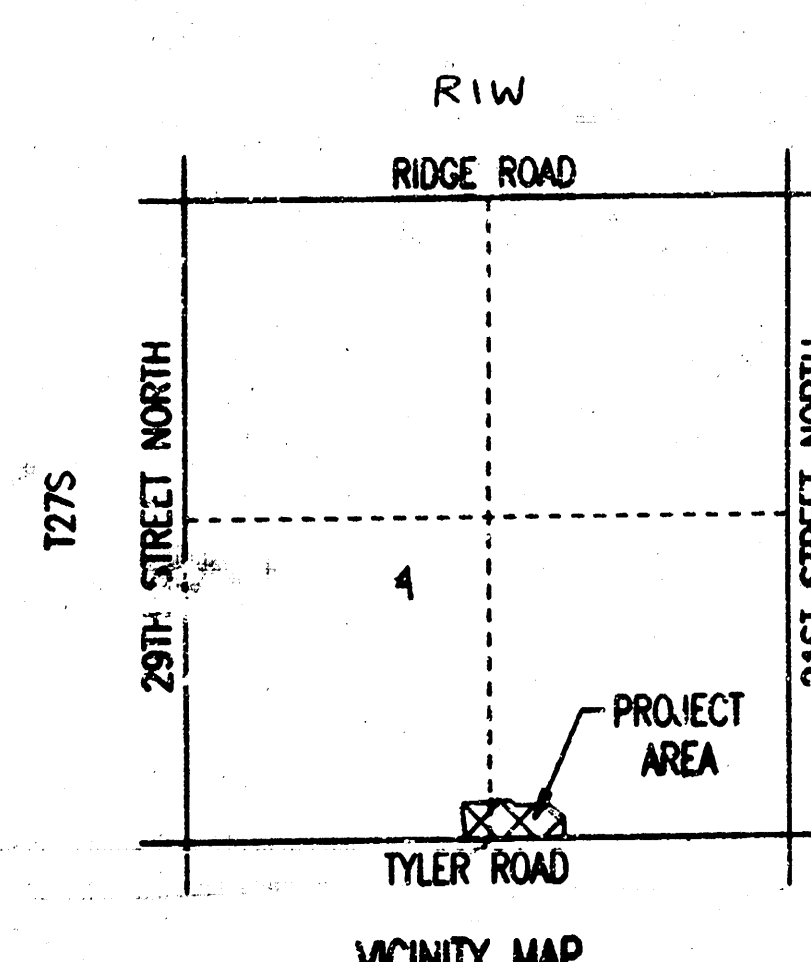
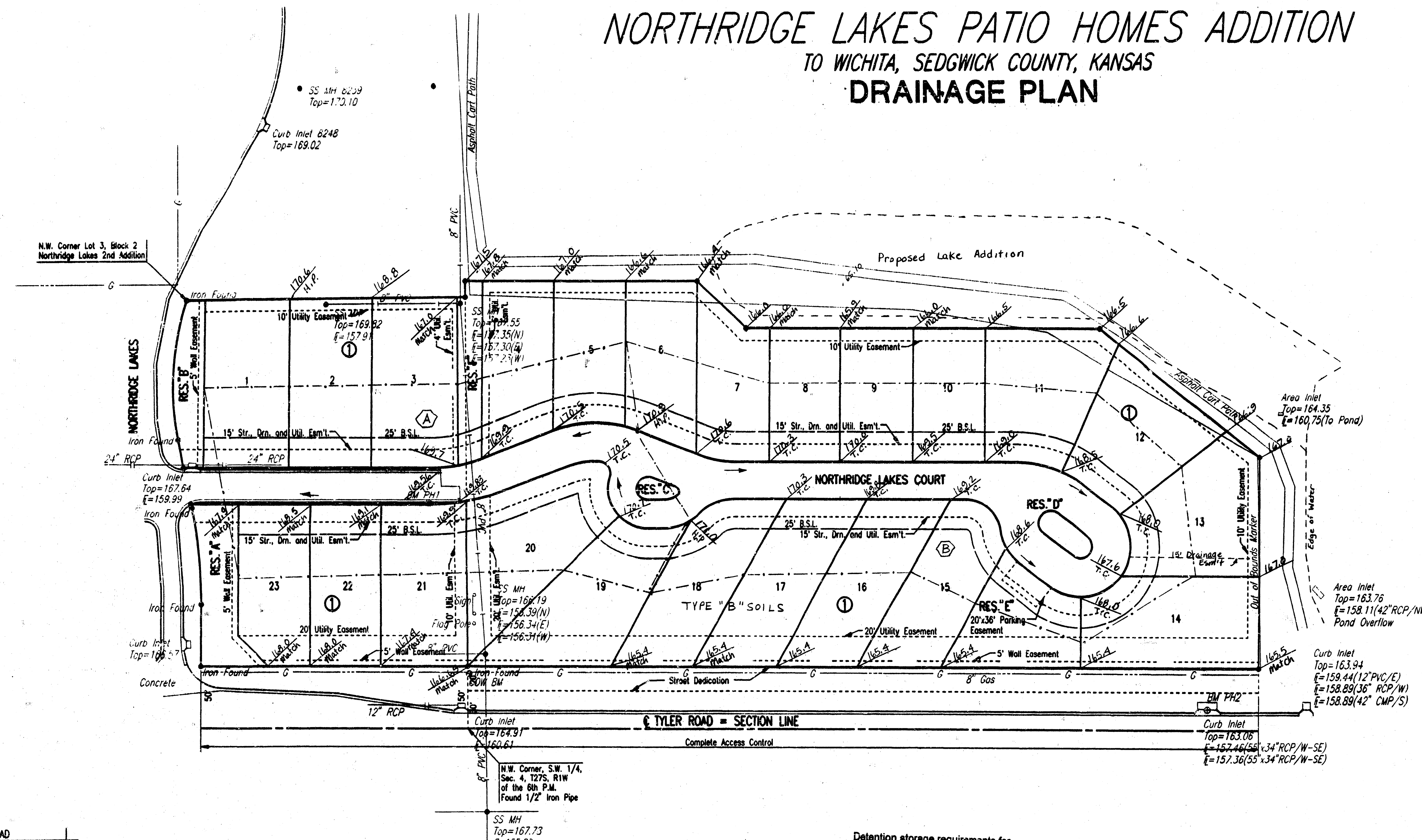
● = IRON SET

JULY 1998
TOPOGRAPHY MAY 1998

C.O.M. B.M.: BRASS DISK 1/2 MILE NORTH OF 21ST STREET
NORTH AND 44' EAST OF E. TYLER ROAD.
ELEV.=165.61

B.M. PH-1: CHISELED "d" IN TOP WEST CURB OF NORTHRIDGE
LAKES COURT AND 25' NORTH OF FIRE HYDRANT
ON EAST CURB.
ELEV.=169.505

B.M. PH-2: CHISELED "d" ON TOP E CURB INLET EAST SIDE TYLER
ROAD AND 150' NORTH OF E. STERLING STREET.
ELEV.=163.06



	2 yr	5 yr	100 yr
i	3.80	4.61	7.36
C	0.62	0.54	0.87

	Area(Ac)	Q ₂	Q ₅	Q ₁₀₀
Basin A	1.36	2.69	3.39	6.71
Basin B	1.69	3.34	4.21	8.33

Detention storage requirements for this plat have not been computed for the following reasons:

Drainage from Lots 4 thru 20 has already been considered in the Reflection Ridge drainage design.

Drainage from Lots 1 thru 3 & 21 thru 23 has already been considered in the Northridge Lakes drainage design.

- LEGEND**
- BASIN BOUNDARY
 - FLOW DIRECTION
 - (A) BASIN IDENTIFIER
 - T.C. TOP OF CURB ELEVATION

DSMR: KCR OPER. SCALE: 1"=50.00
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NORTHRIDGE LAKES PATIO HOMES ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS DRAINAGE PLAN

MIN. OPENING FOR LOTS 12 THRU 14 = 167.0 CITY DATUM

SWS Pipe Sizing

Basin C

$A = 0.61$ Ac. $C_{100} = 0.67$
 $C_2 = 0.52$ $I_{100} = 7.36$
 $I_2 = 3.80$
 $Q_{2C} = A \cdot C_2 \cdot I_2$ $Q_{100C} = A \cdot C_{100} \cdot I_{100}$
 $Q_{2C} = 1.205$ cfs $Q_{100C} = 3.008$ cfs

Size pipes for the 100-Yr storm:
 $n = 0.013$ Try 16 inch pipe
 $R = \frac{D}{4}$ $D = 1.35$
 $A_p = \frac{\pi D^2}{4}$ Minimum slope for 16" pipe
 $S = 0.0038$

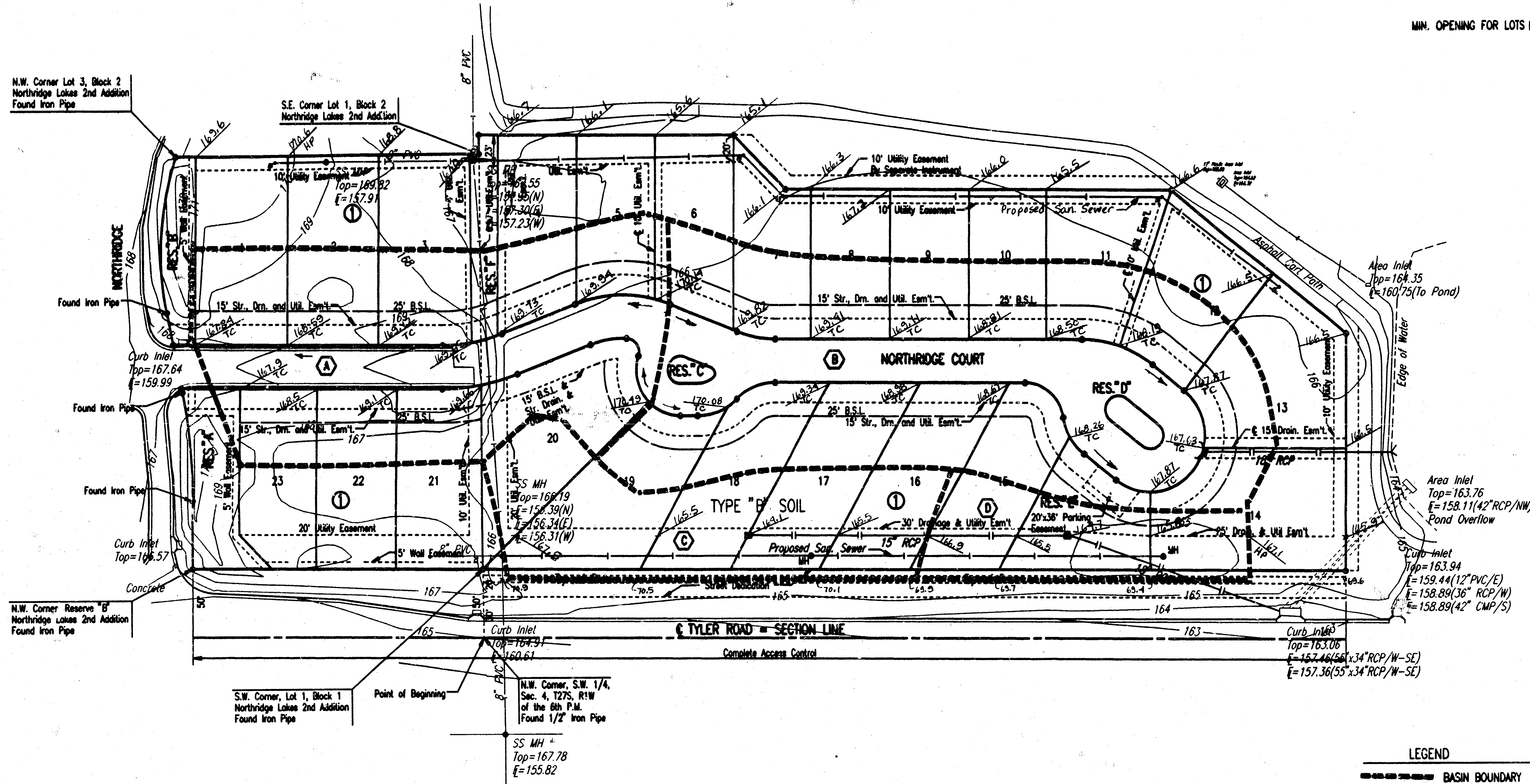
Manning's Equation:
 $Q = \frac{1.49}{n} A_p R^{\frac{2}{3}} S^{\frac{1}{2}}$
 $Q = 3.993$ cfs
 $Q > Q_{100}$ therefore a 16" pipe is acceptable.

Basin D
 $A_D = 0.31$
 $Q_{2D} = A_D \cdot C_2 \cdot I_2$ $Q_{100D} = A_D \cdot C_{100} \cdot I_{100}$
 $Q_{2D} = 0.613$ cfs $Q_{100D} = 1.529$ cfs
 $Q_{100CD} = Q_{100C} + Q_{100D}$
 $Q_{100CD} = 4.537$ cfs
 $A_{100CD} = 4.537$ cfs
 $A_{100CD} = 4.537$ cfs
 $A_{100CD} = 4.537$ cfs

Try 18" pipe:
 $D_D = 1.5$ ft $R_D = \frac{D_D}{4}$
 $A_{pD} = \frac{\pi D_D^2}{4}$ Area of pipe
 $Manning's Equation:$
 $Q_{CD} = \frac{1.49}{n} A_{pD} R_D^{\frac{2}{3}} S^{\frac{1}{2}}$
 $Q_{CD} = 6.493$ cfs
 $Q_{CD} > Q_{100CD}$ Therefore a 18" pipe is acceptable for flow from Basins C and D.

Basin B
 $A = 1.81$ Ac. $C_{100} = 0.67$
 $C_2 = 0.52$ $I_{100} = 7.36$
 $I_2 = 3.80$
 $Q_{2C} = A \cdot C_2 \cdot I_2$ $Q_{100C} = A \cdot C_{100} \cdot I_{100}$
 $Q_{2C} = 3.577$ cfs $Q_{100C} = 8.925$ cfs

Size pipes for the 100-Yr storm:
 $n = 0.013$ Try 18 inch pipe
 $R = \frac{D}{4}$ $D = 1.5$
 $A_p = \frac{\pi D^2}{4}$ Assume slope of 1%
 $S = 0.01$
 $Manning's Equation:$
 $Q = \frac{1.49}{n} A_p R^{\frac{2}{3}} S^{\frac{1}{2}}$
 $Q = 10.533$ cfs
 $Q > Q_{100}$ therefore a 18" pipe is acceptable.



SCALE: 1"=50'
 • = IRON SET (UNLESS OTHERWISE NOTED)

C.O.W. B.M.: BRASS DISK 1/2 MILE NORTH OF 21ST STREET
 NORTH AND 44' EAST OF E TYLER ROAD. ELEV.=165.61
 B.M. PH-1: CHISELED "P" IN TOP WEST CURB OF NORTHRIDGE
 COURT AND 25' NORTH OF FIRE HYDRANT ON
 EAST CURB. ELEV.=169.505
 B.M. PH-2: CHISELED "P" ON TOP OF CURB INLET EAST SIDE TYLER
 ROAD AND 150' NORTH OF E STERLING STREET. ELEV.=163.06

DETENTION STORAGE REQUIREMENTS FOR
 THIS PLAT HAVE NOT BEEN COMPUTED FOR
 THE FOLLOWING REASONS:
 DRAINAGE FROM LOTS 4 THRU 20 HAS
 ALREADY BEEN CONSIDERED IN THE
 REFLECTION RIDGE DRAINAGE DESIGN.
 DRAINAGE FROM LOTS 1 THRU 3 & 21
 THRU 23 HAS ALREADY BEEN CONSIDERED
 IN THE NORTHRIDGE LAKES DRAINAGE
 DESIGN.

Basin	Area (Ac)	I ₂	C ₂	Q ₂ (cfs)	I ₁₀₀	C ₁₀₀	Q ₁₀₀ (cfs)
A	1.24	3.80	0.52	2.45	7.36	0.67	6.11
B	1.81	3.80	0.52	3.55	7.36	0.67	8.93
C	0.61	3.80	0.52	1.21	7.36	0.67	3.01
D	0.31	3.80	0.52	0.61	7.36	0.67	1.53

- LEGEND**
- BASIN BOUNDARY
 - FLOW DIRECTION
 - ⓐ BASIN IDENTIFIER
 - T.C. TOP OF CURB ELEVATION
 - INLET AND PIPE

NOTE:
 TOP OF CURB ELEVATIONS SHOWN ARE FOR ROLL CURB.

MINIMUM OPENINGS:
 LOTS 4-11 = 167.3
 LOTS 14-19 = 168.1

DRAWN BY: JER. SCALE: 1"=50.00
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