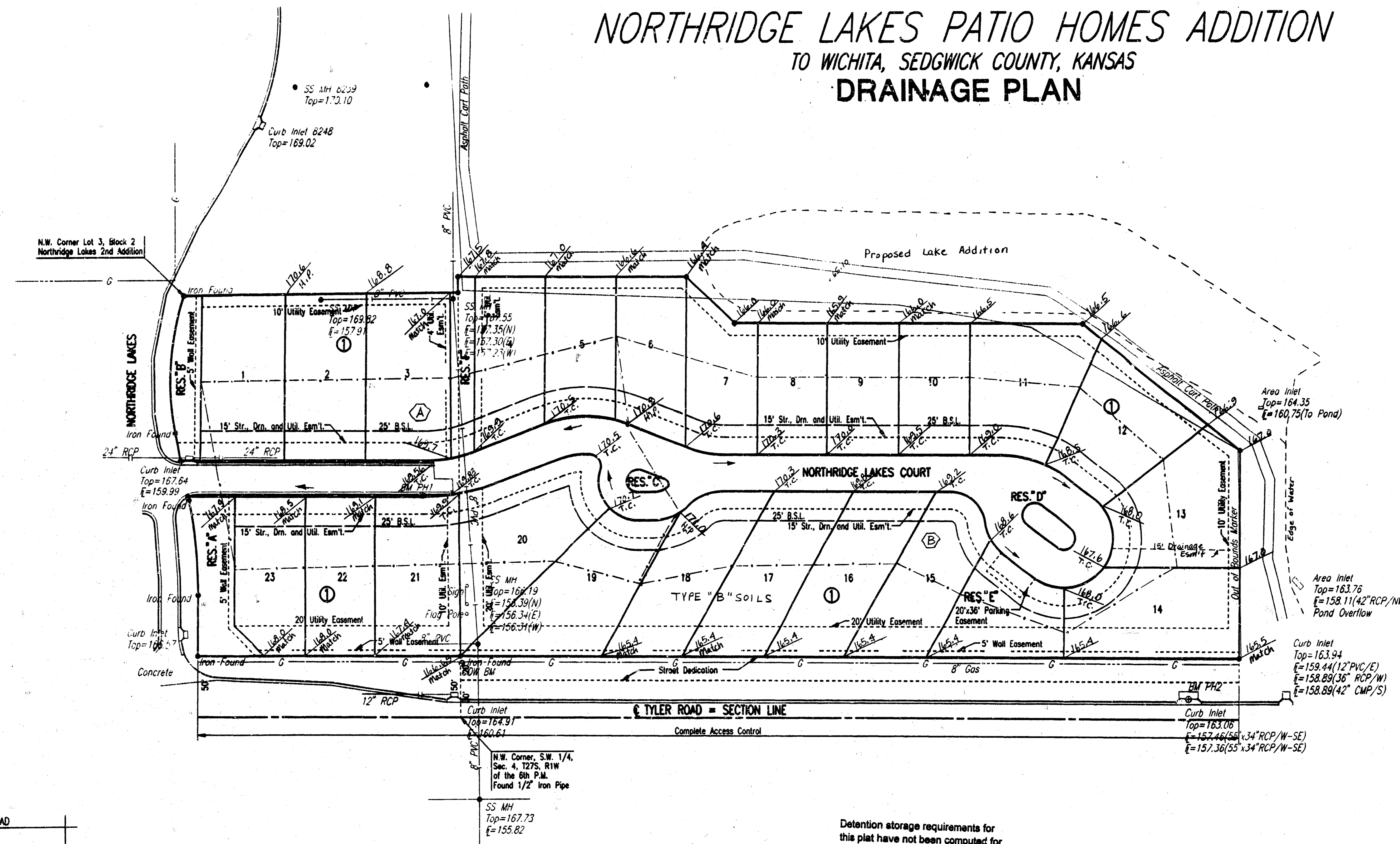


# NORTHRIDGE LAKES PATIO HOMES ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS DRAINAGE PLAN

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 "I" 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 "I" ON TOP E 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.

**LEGEND**  
- - - BASIN BOUNDARY  
→ FLOW DIRECTION  
⊙ BASIN IDENTIFIER  
T.C. TOP OF CURB ELEVATION

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

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

DSNR: KER 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<sub>100</sub> = 0.67  
 C<sub>2</sub> = 0.52 I<sub>100</sub> = 7.36  
 I<sub>2</sub> = 3.80 Q<sub>100C</sub> = A·C<sub>100</sub><sup>2</sup>·I<sub>100</sub>  
 Q<sub>2C</sub> = 1.205 cfs Q<sub>100C</sub> = 3.008 cfs

Size pipes for the 100-Yr storm:  
 n = 0.013 Try 16 inch pipe  
 R =  $\frac{D}{4}$  D = 1.25  
 Minimum slope for 16" pipe  
 A<sub>p</sub> =  $\frac{D^3}{4}$  S = 0.0038

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

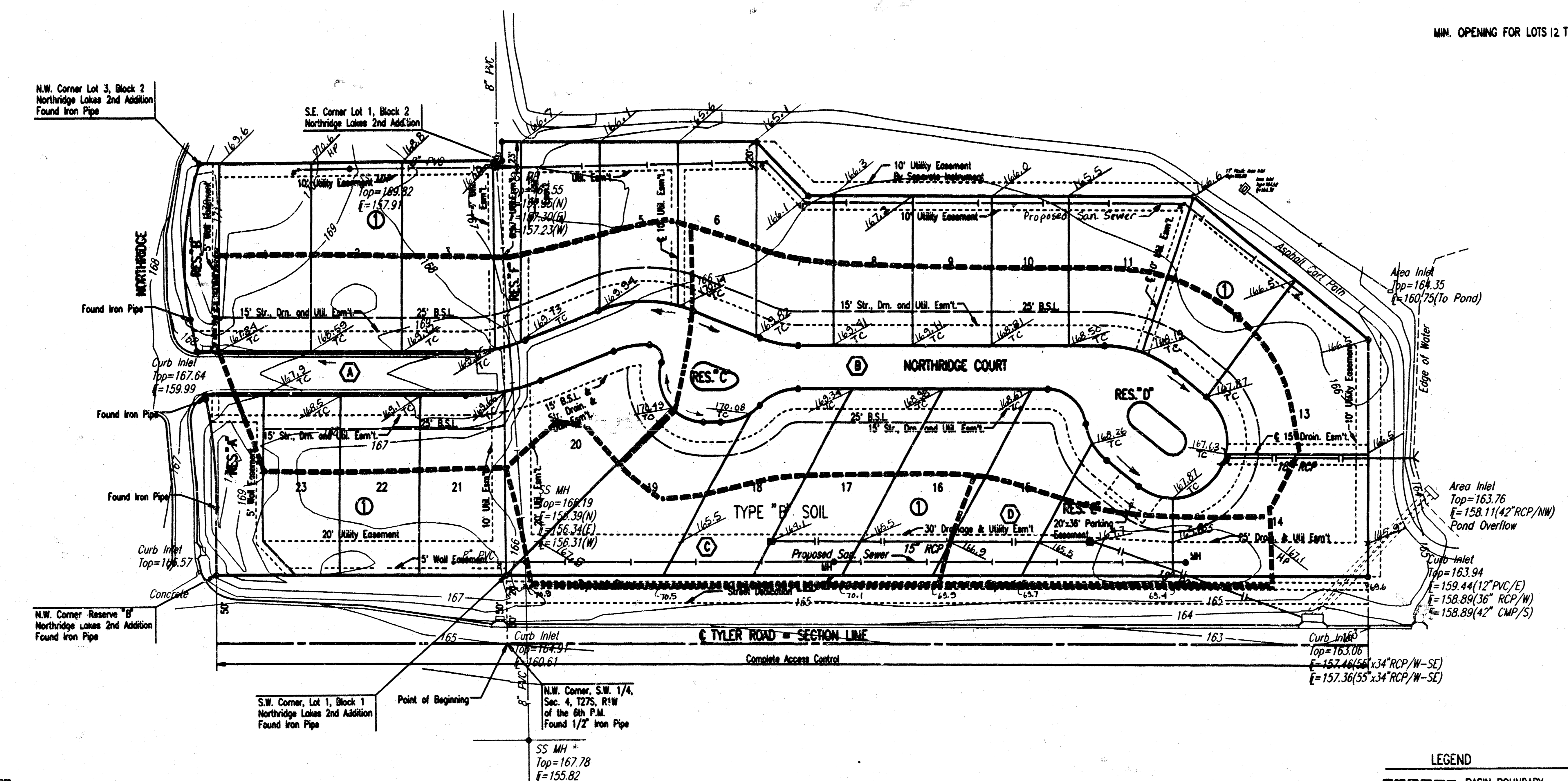
**Basin D**

A<sub>D</sub> = 0.31  
 C<sub>2D</sub> = A<sub>D</sub>·C<sub>2</sub><sup>2</sup>·I<sub>2</sub> Q<sub>100D</sub> = A<sub>D</sub>·C<sub>100</sub><sup>2</sup>·I<sub>100</sub>  
 Q<sub>2D</sub> = 0.613 cfs Q<sub>100D</sub> = 1.529 cfs  
 Q<sub>100CD</sub> = Q<sub>100C</sub> + Q<sub>100D</sub>  
 Q<sub>100CD</sub> = 4.537 cfs  
 Assume S = 0.0038  
 Try 16" pipe:  
 D<sub>D</sub> = 1.5 ft A<sub>D</sub> =  $\frac{D^3}{4}$   
 A<sub>pD</sub> =  $\frac{D^3}{4}$  Area of pipe  
 Manning's Equation:  
 $Q_{CD} = \frac{1.49}{n} A R^{2/3} S^{1/2}$   
 Q<sub>CD</sub> = 6.493 cfs  
 Q<sub>CD</sub> > Q<sub>100CD</sub> Therefore a 16" pipe is acceptable for flow from Basins C and D.

**Basin B**

A = 1.81 Ac. C<sub>100</sub> = 0.67  
 C<sub>2</sub> = 0.52 I<sub>100</sub> = 7.36  
 I<sub>2</sub> = 3.80 Q<sub>100C</sub> = A·C<sub>100</sub><sup>2</sup>·I<sub>100</sub>  
 Q<sub>2C</sub> = 3.577 cfs Q<sub>100C</sub> = 8.925 cfs

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

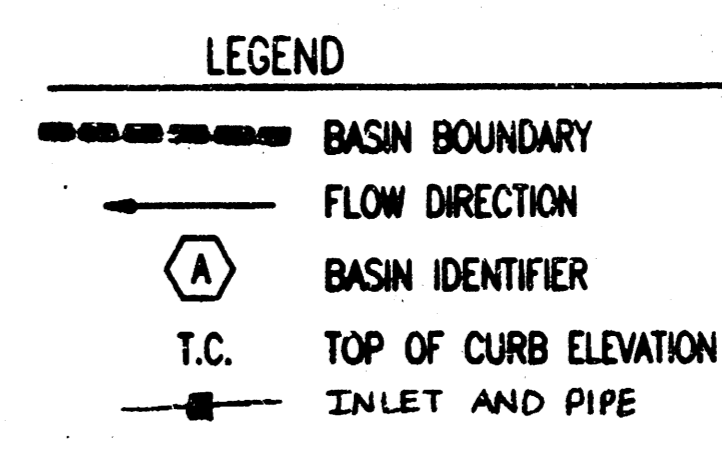


SCALE: 1"=50'  
 ● = IRON SET (UNLESS OTHERWISE NOTED)

- 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 PLAN 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 <sub>2</sub>	C <sub>2</sub>	Q <sub>2</sub> (cfs)	I <sub>100</sub>	C <sub>100</sub>	Q <sub>100</sub> (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



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

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

DSR: AER OPER: SCALE: 1"=50.00  
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