BAUGHMAN COMPANY, P.A.
ENGINEERING & SURVEYING
315 ELLIS WICHITA, KS. 67211
(316)262-7271 FAX (316)262-0149

LETTER OF TRANSMITTAL

DATE 9/13/93	JOB NO.
ATTENTION:	
RE:	
file.	

TO Vicky Huang P.E
City Engrg.
7th Floor

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items

☐ Plans ☐ Prints ☐ Shop drawings ☐ Samples ☐ Copy of letter
☐ Specifications ☐ Change order ☐ Computer disk ☐ _____

COPIES	DATE	NO.	
1	9/13/93		FINAL DRAINAGE PLAN
			REVISED LAKERIDGE 2ND ADDN.

THESE ARE TRANSMITTED as checked below:

☒ For approval
☐ For your use & information
☐ As requested
☐ Approved as submitted
☐ Approved as noted
☐ Return for corrections
☐ For review and comment
☐ FOR BIDS DUE _____ 19___
☐ _____

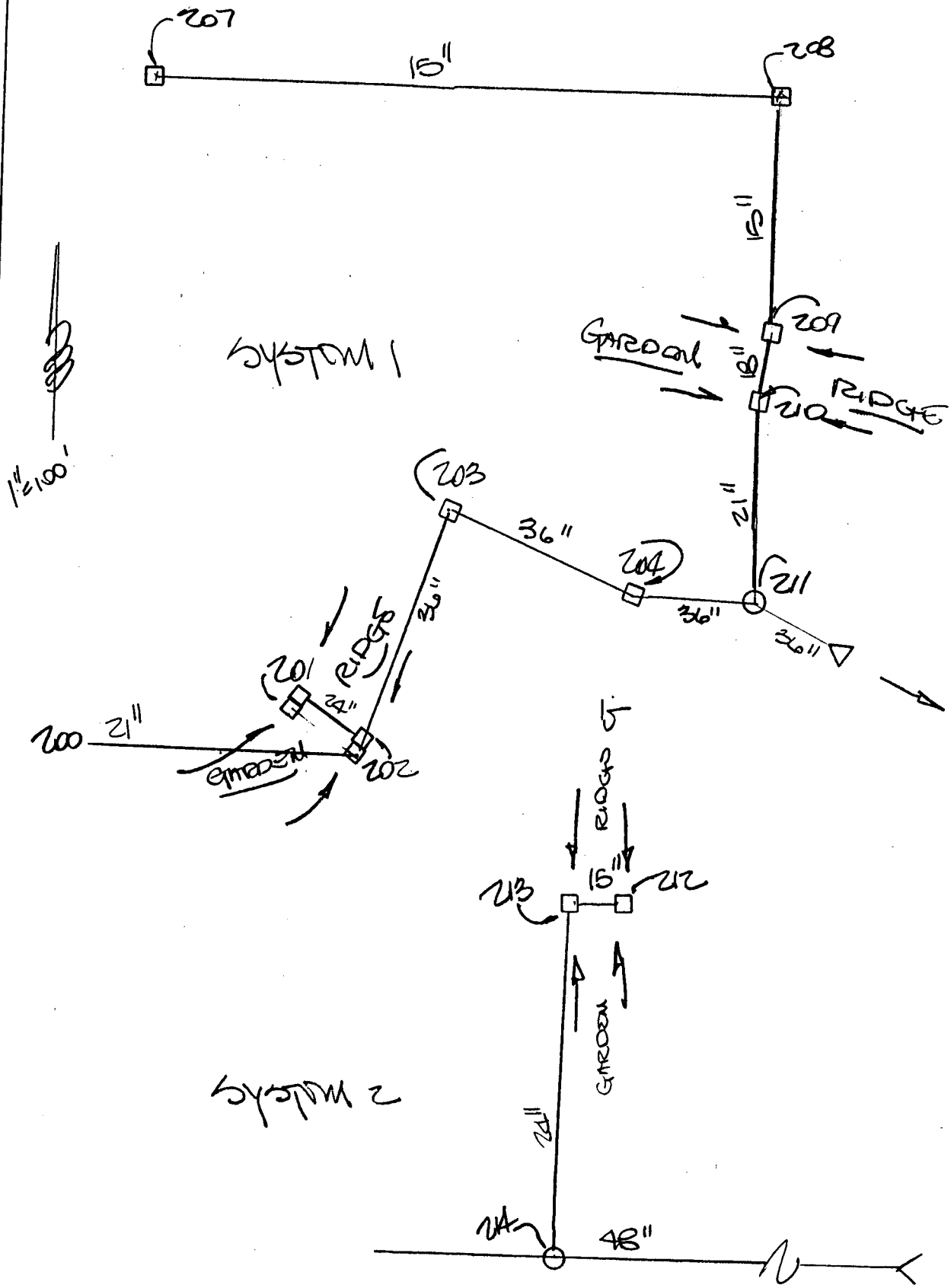
REMARKS: ONLY THE WEST SIDE IS REVISED.
REFER TO OLD PLAN FOR EAST SIDE WHICH REMAINED THE SAME.

COPY TO _____

SIGNED: _____

9/23/93

STORM SEWER SYSTEM -



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

1ST. ST - NO.

Flo calculations —

AREA	SIZE AC.	C	Q_2	Q_5	Q_{100}
A	4.1	0.8	—	15	24
B	0.7	0.5	1.3	—	2.6
C	0.5	0.5	1.0	—	1.8
D	1.8	0.3	2.1	—	4.0
E	1.0	0.5	1.9	—	3.7
F	0.9	0.5	1.7	—	3.3
G	0.8	0.5	1.5	—	2.9
H.	0.8	0.5	1.5	—	2.9
I	0.4	0.4	0.6	—	1.2
J.	7.5	0.5	14.0	—	27.6

9/13/93

PIPE ROUTING CALCULATIONS —

NODE	EXISTG Q.	CFS AREA IN	CFS TOTAL Q	PIPE	S.	REMARKS.
200	13cfs	E. 0	13.0			EXISTG'
201	27.6	E. 3.7	31.3	24"	1.20%	100 YR.
202	31.3cfs	F. 3.3	34.6	30"	0.24%	100 YR.
203	34.6cfs	0	34.6	36"	0.24%	100 YR.
204	34.6	I 1.2	35.8	36"	0.29%	100 YR.
207	0	D 4.0	4.0	15"	0.40%	100
208	4.0	1.0	5.0	15"	0.50%	—
209	5.0	G. 2.9	7.9	18"	0.56%	100
210	7.9	2.9	10.8	21"	0.47%	100
211	204 + 210 = 46.6	0	46.6	36"	0.49%	—
212	0	B 2.6	2.6	15"	0.40%	100
213	2.6	A 24	26.6	24"	1.38%	100
214						

REFER TO PEC 48" ROUTING - 1/28/93 REPORT.

Drainage Plan for Lakeridge 2nd Addition.

*From Lake Ridge Addn. Drainage Plan (4/22/92)

Type C Soil Group

For Lot Drainage to Streets → $C_2 = 0.48$, $C_{100} = 0.68$

For Back Lot Drainage → $C_2 = 0.24$, $C_{100} = 0.51$

Use T_c = 15 min. for All areas.

$i_2 = 3.83$ "/hr.

$i_{100} = 7.37$ "/hr.

Street Capacity for 34' Fc-Fc Pvmt, S = 0.35%

$Q_{max\ 2\ year}$ = 27.2 cfs (From Lake Ridge Drg Plan 4/22/92)

Street Capacity

Area A: D_A = 3.00 Acres (Lots to Street)

$i_2 = 3.83$, $i_{100} = 7.37$

$C_2 = 0.48$, $C_{100} = 0.68$

$Q_2 = (3.00)(3.83)(0.48) = 5.5$ cfs

$Q_{100} = (3.00)(7.37)(0.68) = 15.0$ cfs

Area B: D_A = 3.54 Ac (Lots to Street)

$Q_2 = (3.54)(3.83)(0.48) =$ 6.5 cfs

$Q_{100} = (3.54)(7.37)(0.68) =$ 17.7 cfs

Area C: D_A = 2.55 Ac (Lots to Street)

$Q_2 = (2.55)(3.83)(0.48) =$ 4.7 cfs

$Q_{100} = (2.55)(7.37)(0.68) =$ 12.8 cfs

Area E: D_A = 1.21 Ac (Back lot)

$Q_2 = (1.21)(3.83)(0.24) =$ 1.1 cfs

$Q_{100} = (1.21)(7.37)(0.51) =$ 4.5 cfs

Area F: D_A = 0.63 Ac (Back lot)

$Q_2 = (0.63)(3.83)(0.24) =$ 0.6 cfs

$Q_{100} = (0.63)(7.37)(0.51) =$ 2.4 cfs

Storm Water Sewers All Drain to Proposed Pond To the West of the Plat.

Pond Plan currently under review by FEMA and D.W.R. (State of Kansas).

Area D: D_A = 1.75 Ac (Lots to Street)

$Q_2 = (1.75)(3.83)(0.48) =$ 3.2 cfs

$Q_{100} = (1.75)(7.37)(0.68) =$ 8.8 cfs

Basin A Sump: Size for 100 yr. storm.

Q_{100} = 15.0 cfs < 27.2 cfs (24 yr. st. Cap → O.K.)

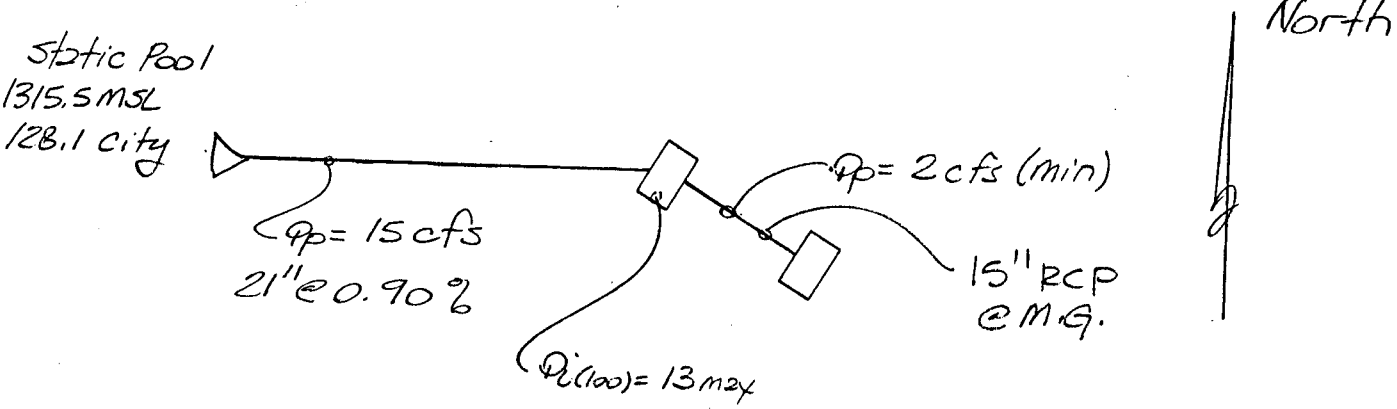
1A Inlets In Sump: Single Inlet (L = 5')

@ T.C. Elev., Head = 0.55' + 4" = 0.88'

C_{2p} = 8.2 cfs (2 yr)

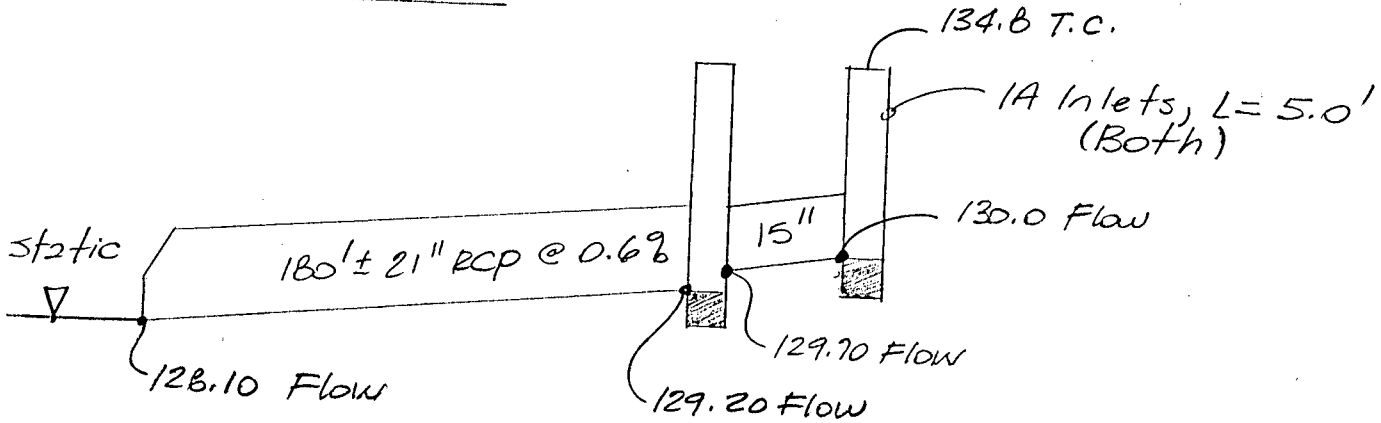
Since Q_{100} = 15 cfs and Q_{i2} = 8.2 (L = 5')

Use 2 1A Inlets (L = 5')



Pipe Sizes from "Design Data 4" Conc. Pipe Assoc.

BASIN A sump.



HGL = 134.8 (TC) − 0.55' (Cb. Ht.) − 0.5' = 133.75

Crit. Depth of Pipe = T.P. = 128.10 + 21" = 129.85

HGL = 133.75 − 129.85 = [illegible]

Basin B Sump : size for 100 yr. storm

2 yr Street Cap. > Q_{100} = 17.7 cfs O.K.

Use 2 1A Inlets (L = 5') As Before

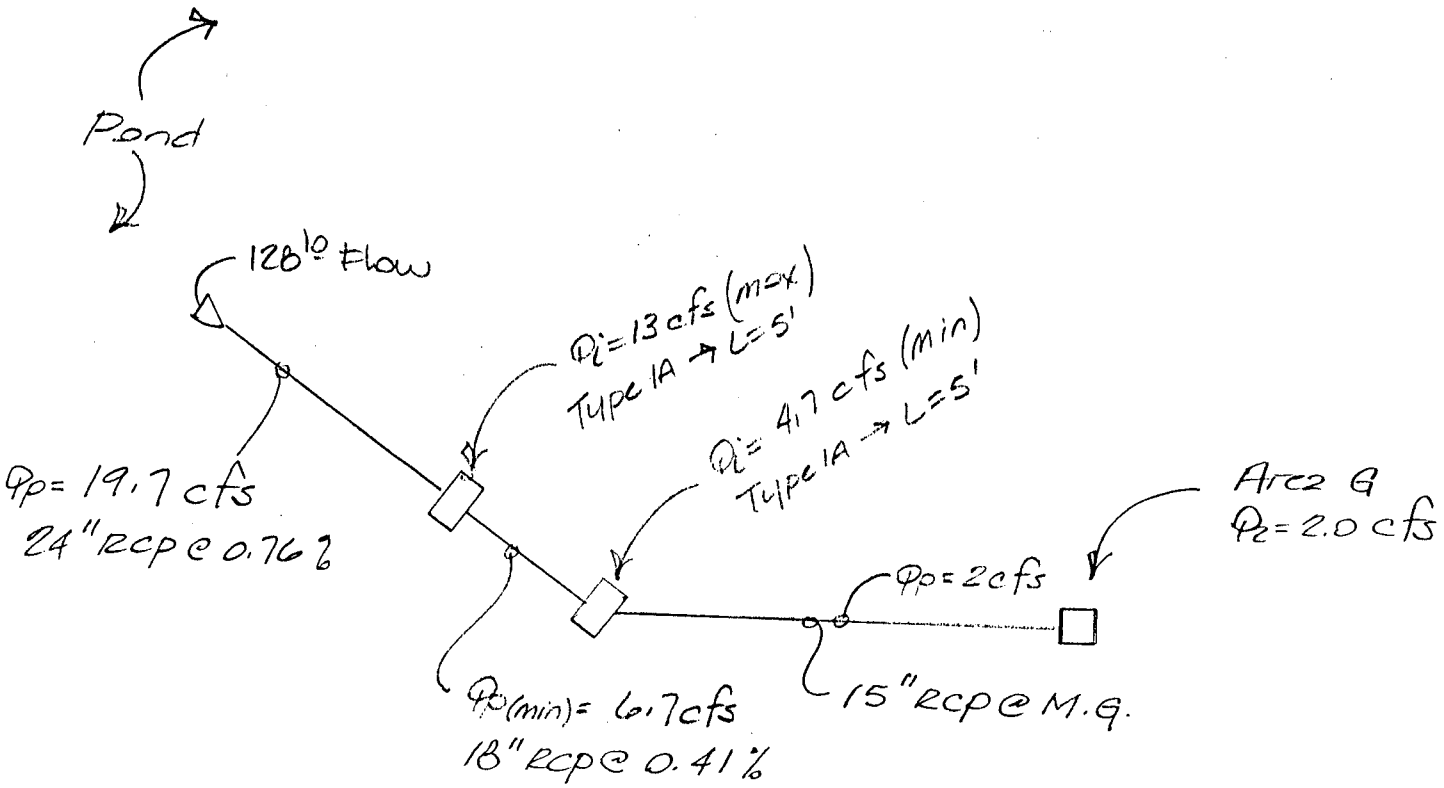
Area G → Backlot Areas

D_A = 2.16 Ac

Q_2 = (2.16)(3.83)(0.24) = 2.0 cfs

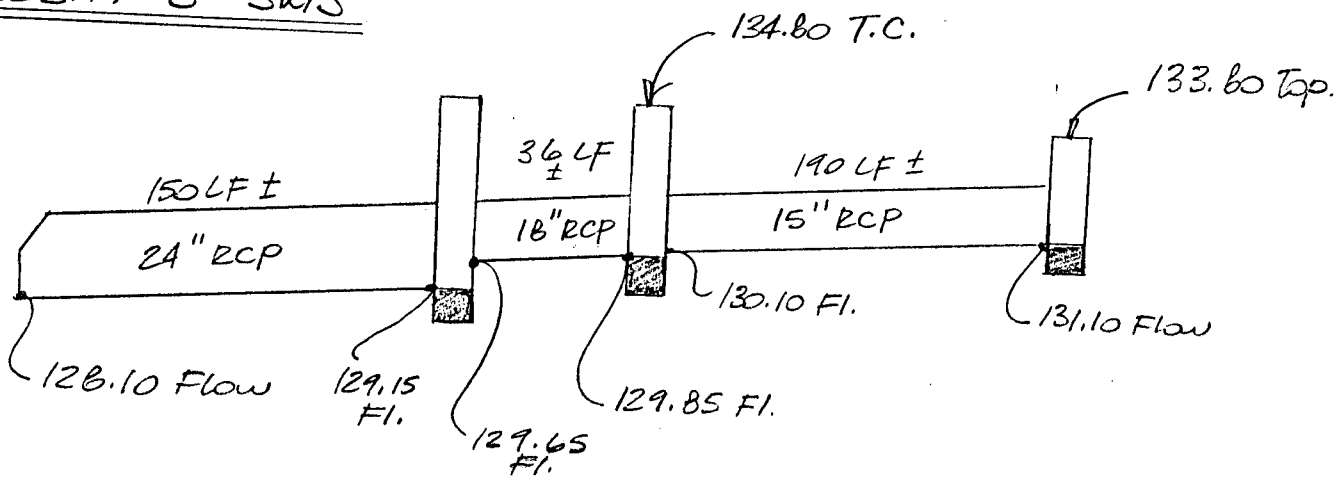
Q_{100} = (2.16)(7.37)(0.51) = 8.1 cfs

Size street sump for 100 yr storm, Q_{100} = 17.7 cfs



BASIN B SUMP

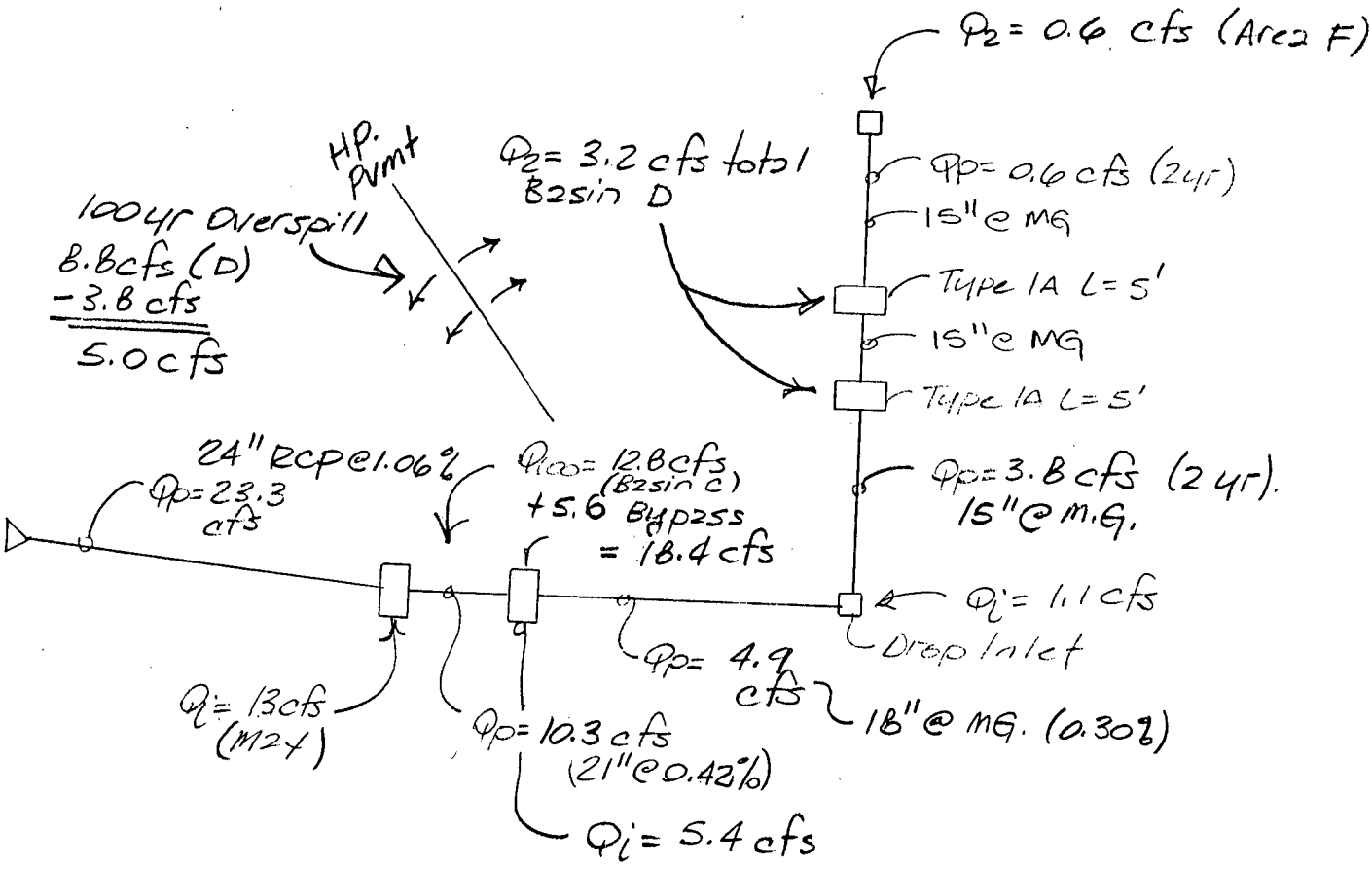
Basin B SWLS



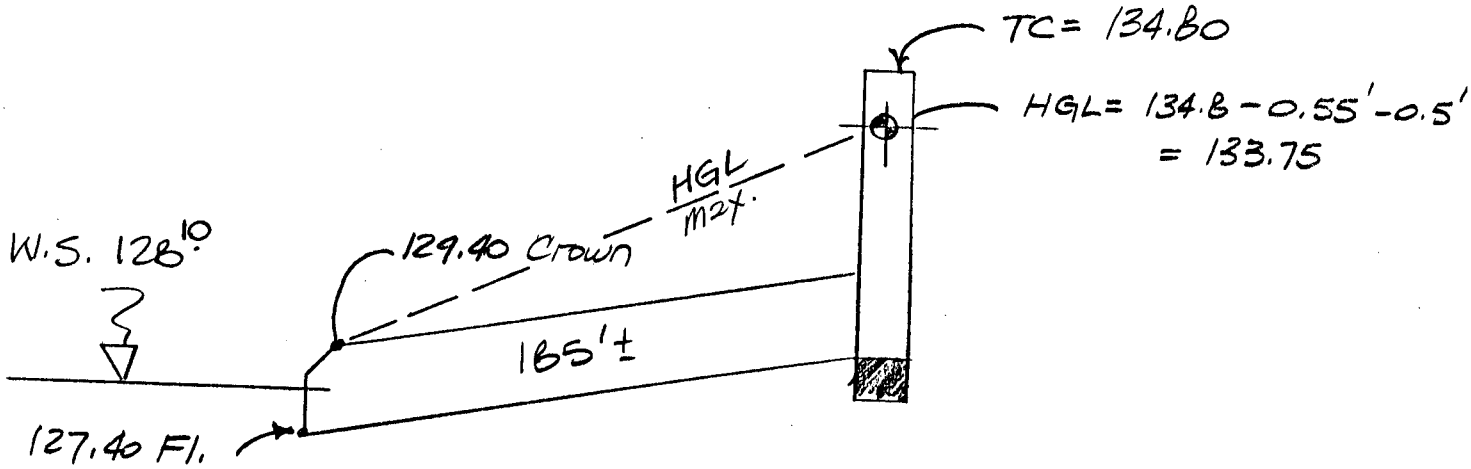
$$HGL = \frac{(134.80 - 0.55 - 0.5) - (128.10 + 2)}{150 + 36} = 1.96\% > 0.7\% \quad O.K.$$

Basin C SWLS

Size for 100 yr. storm Basin C, 2 yr. Storm for Basin D. Backlot for 2 yr.



Check Final Outlet Pipe from Basin C for Capacity.



Use Crown Elev. of Pipe as D.S. HGL (Conservative)

HGL Available = $\frac{133.75 - 129.40}{165}$ = 2.35% > 1.06 req for 24" ϕ

O.K.

System Grades:

Due to Lack of Grade-
Set Flow Lines ± 0.1 foot.