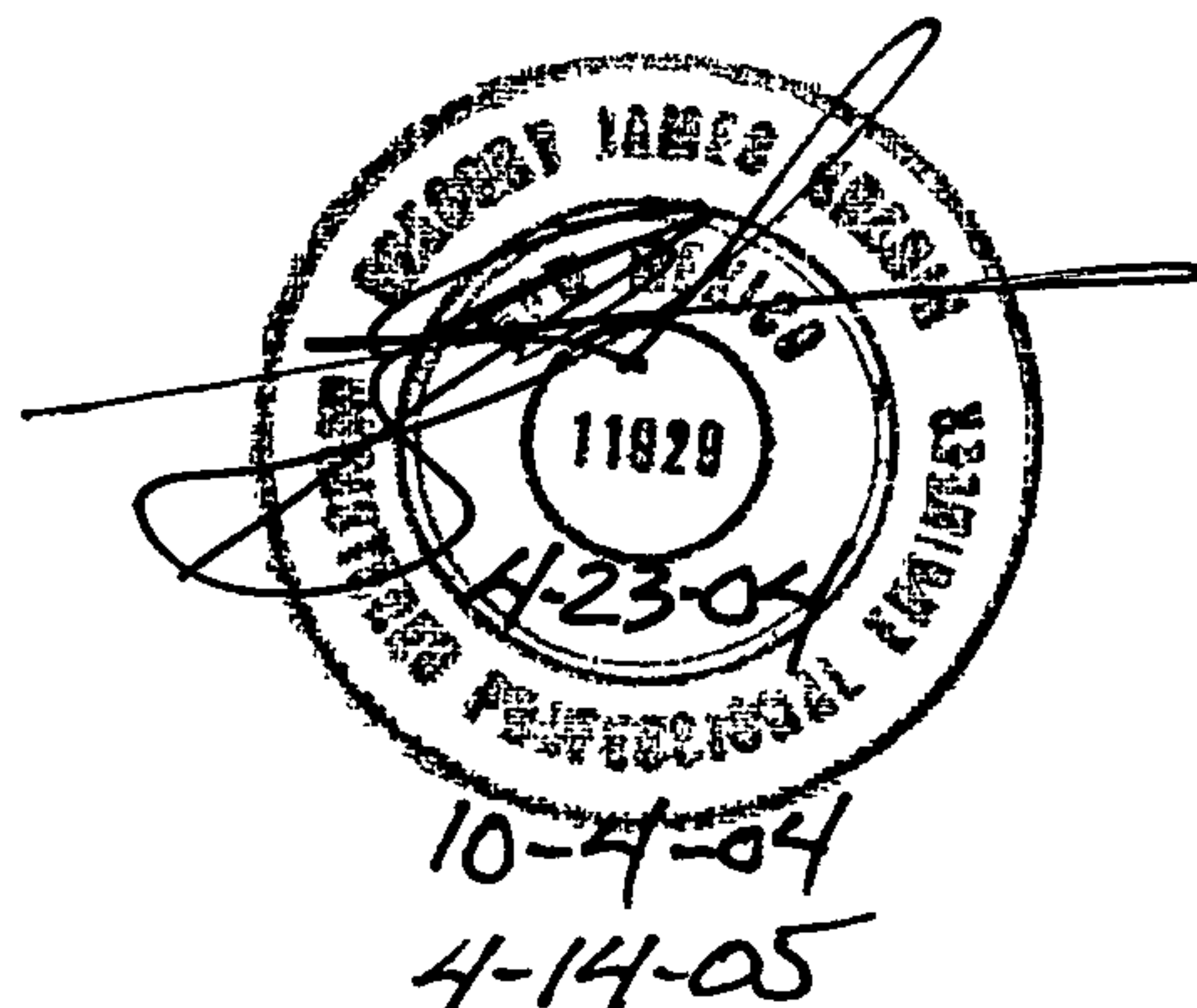
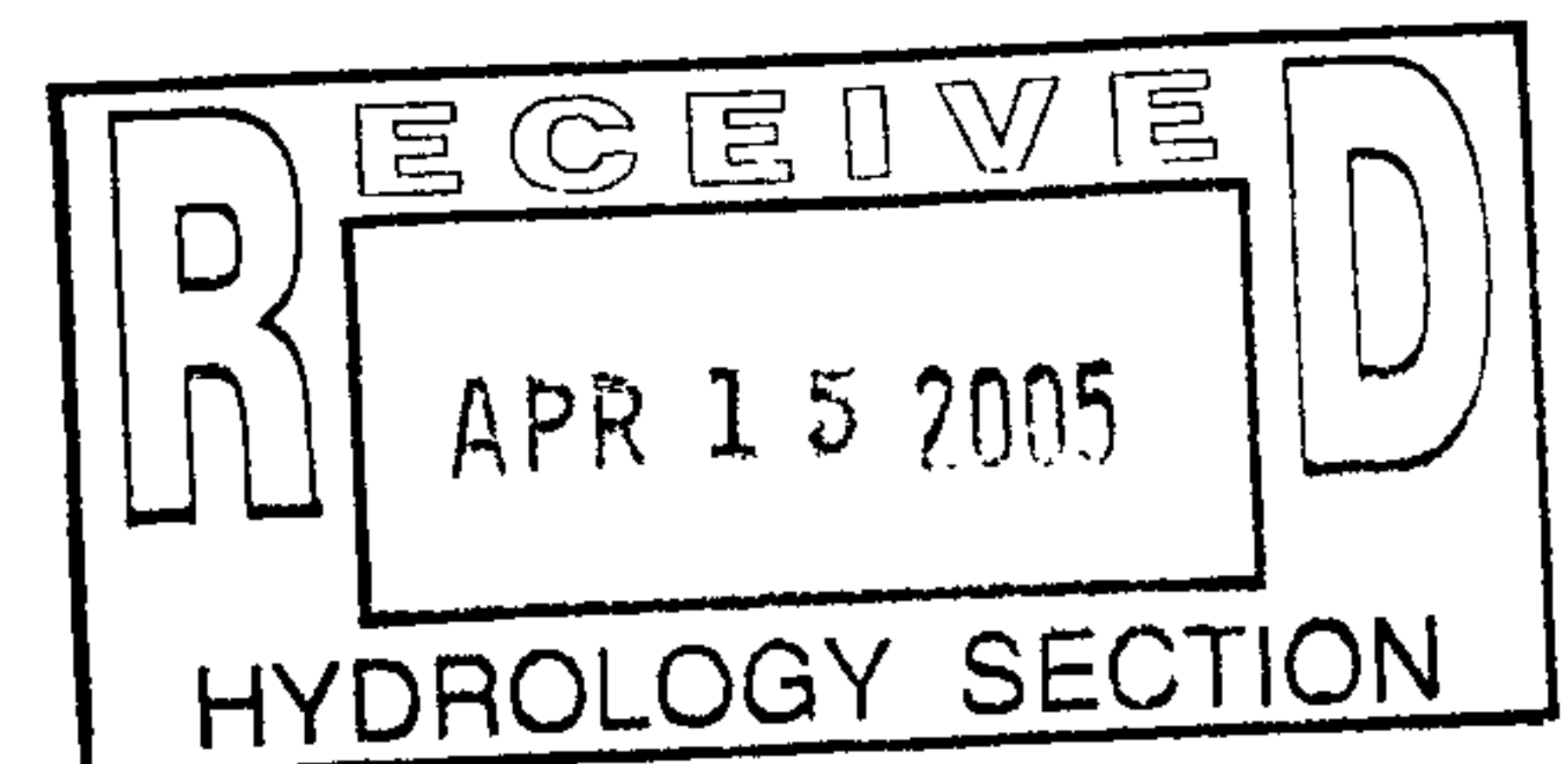
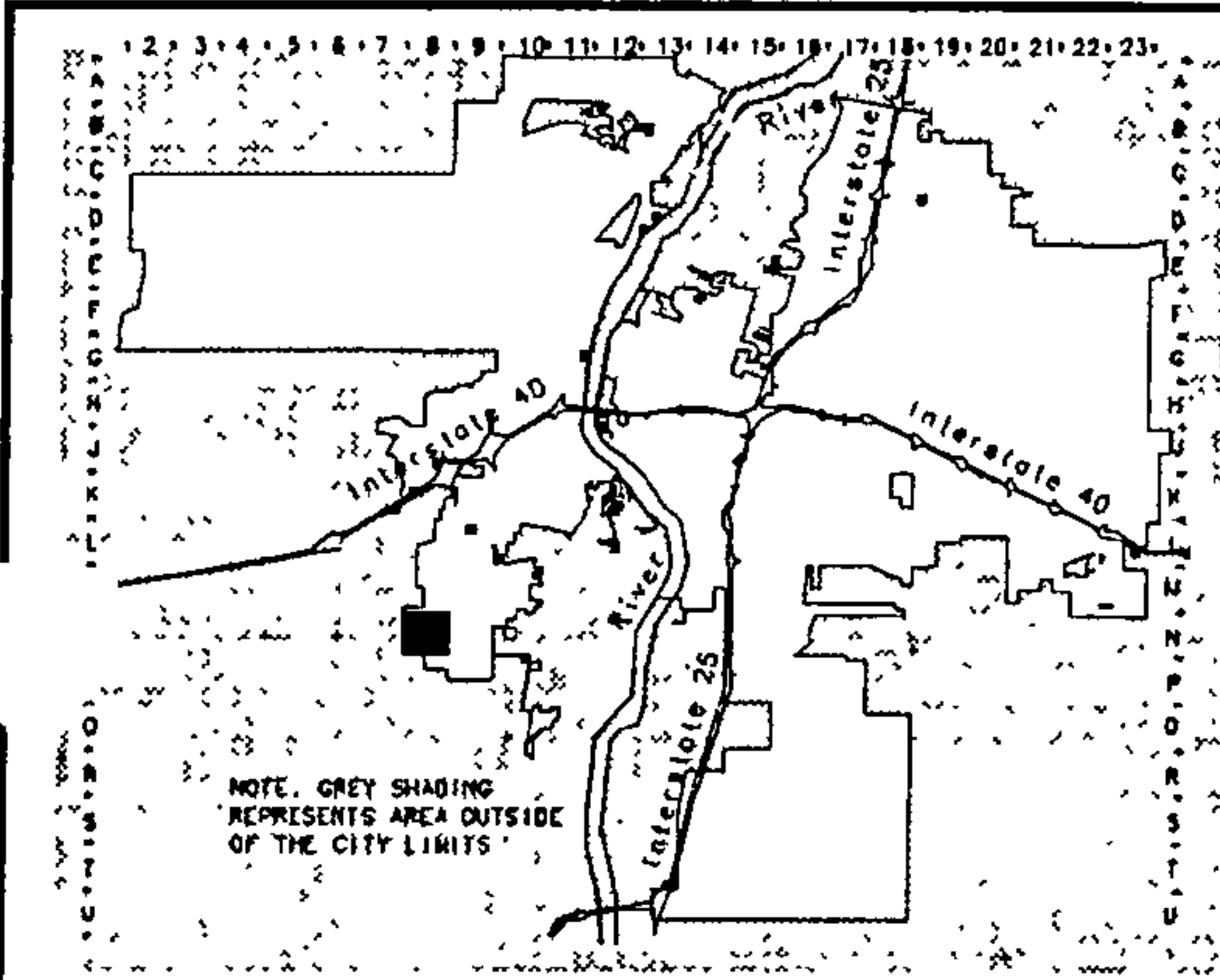
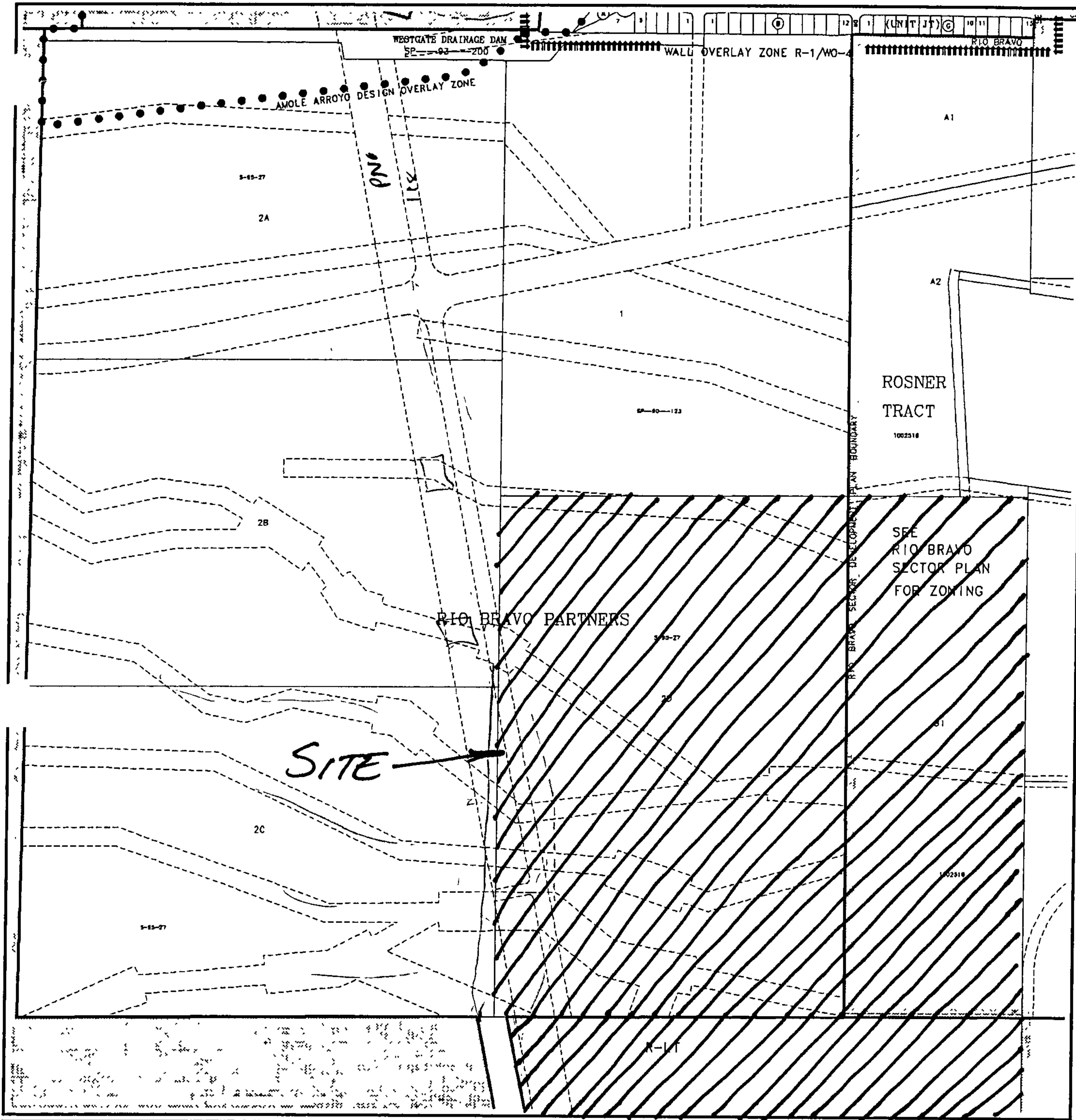


DRAINAGE REPORT
for
ANDERSON HEIGHTS SUBDIVISION

APRIL 2004





Albuquerque **G**eographic **I**nformation **S**ystem
PLANNING DEPARTMENT

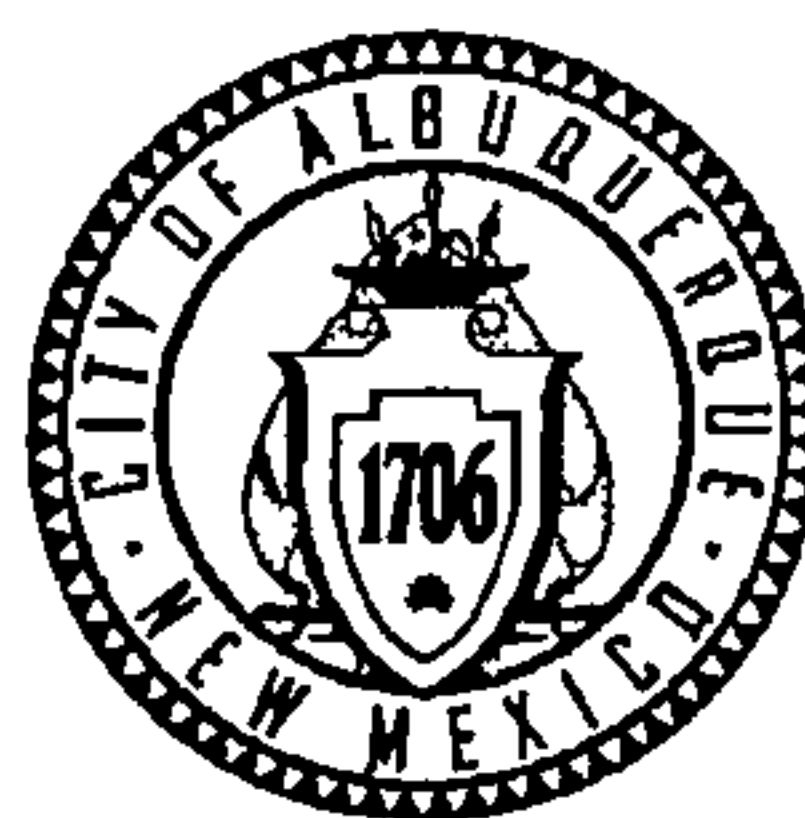
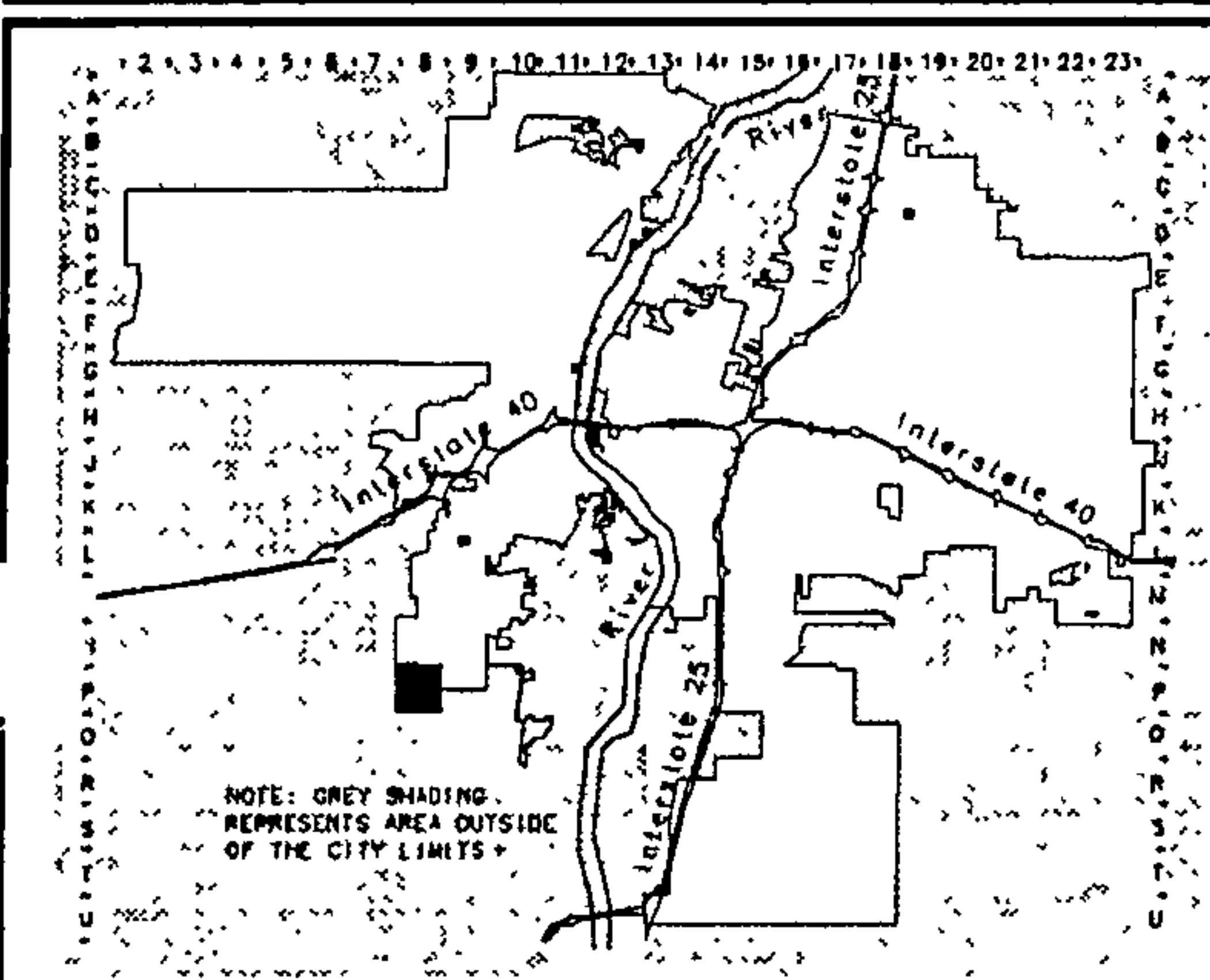
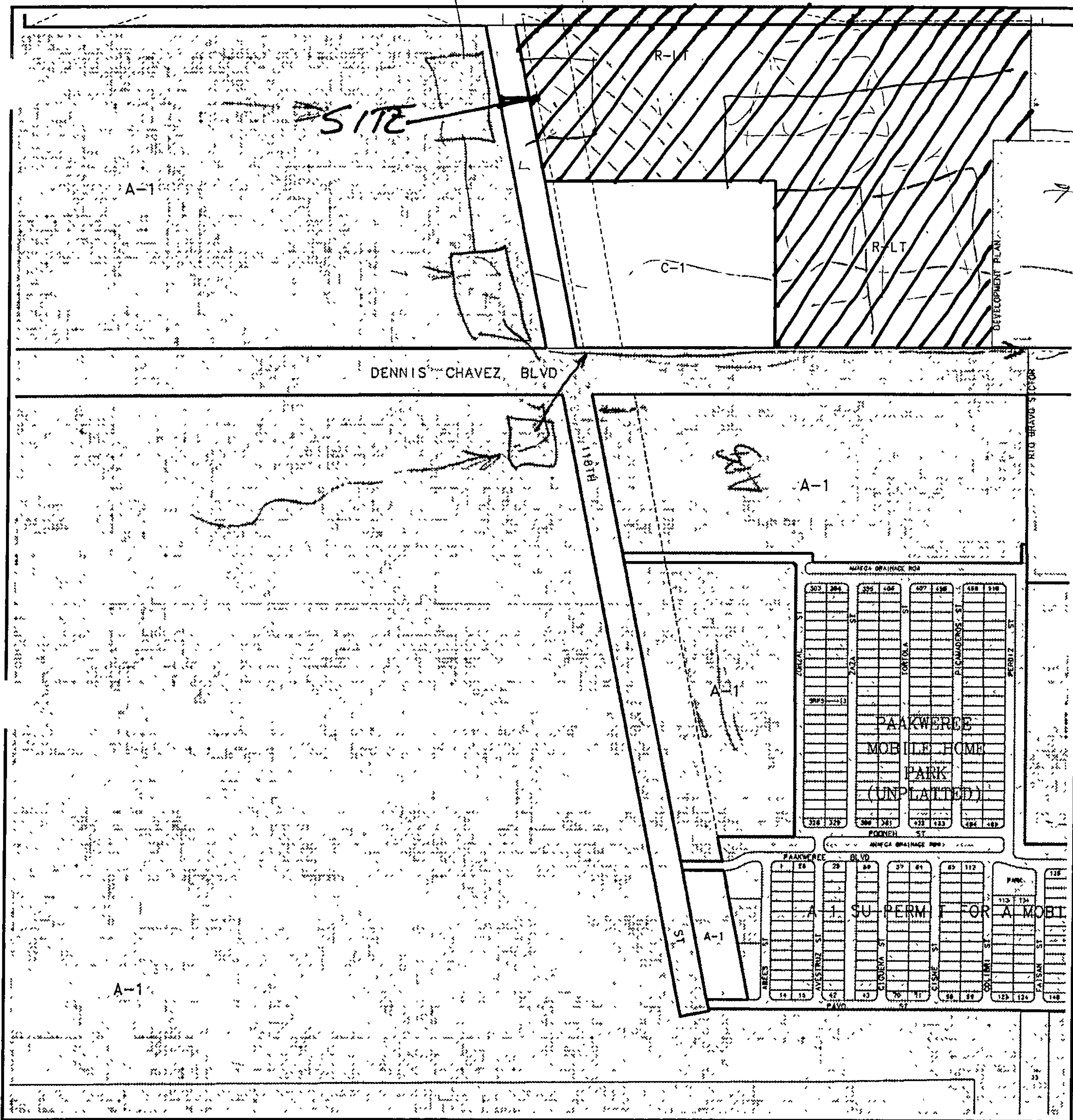
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Zone Atlas Page

N-8-Z

Map Amended through November 01, 2003



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Map Amended through November 01, 2003



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 1 OF _____

REVISED 8-5-04

- PROJECT CONSISTS OF 230.9696 AC AT THE NE CORNER OF 118TH ST SW AND DENNIS CHAVEZ BLVD SW.
- PART OF THE PROJECT DOES LIE IN A 100 YEAR FLOOD ZONE (SEE ATTACHED MAP #3 35001C0319E, 317E, 336E & 338E.)
- A LOMR WILL BE COMPLETED TO REMOVE THE FLOODPLAIN AND DIVERT THE FLOW THROUGH THE 118TH ST POND SYSTEM TO THE RIO BRAVO CHANNEL.
- THIS REPORT WILL DESIGN THAT SYSTEM.
- ONSITE RUNOFF WILL FLOW IN TWO DIRECTIONS. THE FIRST ^{Why?} WILL DRAIN THE NORTH $\frac{2}{3}$ INTO A (DETENTION POND) THAT WILL DISCHARGE TO THE ANDERSON HILLS STORMDRAIN STUBOUT PROVIDED WITH AN ALLOWABLE DISCHARGE AND THE SECOND WILL DRAIN THE LOWER $\frac{1}{3}$ TO THE RIO BRAVO CHANNEL.
- NO OFFSITE FLOWS WILL ENTER THE SITE. ALONG THE NORTH WE WILL TAKE THE SOUTH HALF OF THE ROAD RUNOFF INTO THE SITE AND ALONG THE WEST 118TH ST, RUNOFF WILL ENTER THE STORMDRAIN SYSTEM AND DRAIN TO THE RIO BRAVO CHANNEL.

• DETERMINE RUNOFF PER LOT

	40' LOTS	45' LOTS	50' LOTS
# OF LOTS	366 (23.67%)	894 (67.45%)	103 (8.88%)
PAOS	30x65	35x65	40x65
PAD AREA	713,700 SF	2,033,850 SF	267,800 SF
DRIVE PAD AREA	146,400 SF	357,600 SF	41,200 SF
TYPE "D"	19.7452 AC	54.9001 AC	7.0937 AC

ROW = 55.0694 AC

80% D = 44.0555 AC

20% B = 11.0139 AC

• AREA WITHOUT PARKS + COLOBEL AVE

= 230.9696 - 10.6931 - 4.2576

= 216.0189 AC

TYPE "D" = 19.7452 + 54.9001 + 7.0937 + 40.6494 = 121.5369 AC
= 56.2690

TYPE "B" = 43.7490

$P_1 = 1.90$ in.

$P_6 = 2.25$ in.

$P_{24} = 2.70$ in.



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 2 OF _____

REVISED 8-5-04

FROM AHYMO OUTPUT SHEETS 44-50

$$Q = 740.43 \text{ CFS}$$

40' LOTS (23.67%) 175.26 CFS 0.478852 CFS/LOT	45' LOTS (67.45%) 499.42 CFS 0.558635 CFS/LOT	50' LOTS (8.88%) 65.75 CFS 0.638351 CFS/LOT

• FIND PARK RUNOFF

	NORTH	MIDDLE	SOUTH	EAST (POND)
AREA	2.0	2.4891	2.1733	
TYPE B	50%	50%	50%	
TYPE C	50%	50%	50%	
TYPE D	0%	0%	0%	

FROM AHYMO OUTPUT SHEETS 48-54

$$Q \quad 5.02 \text{ CFS} \quad 6.25 \text{ CFS} \quad 5.46 \text{ CFS}$$

• DETERMINE CURB TRANSITIONS AND STORM DRAIN

• FIND CURB TRANSITION ON CACHE ROAD

$$\text{SLOPE} = 4.40\% \quad n = 0.017 \quad 32' \text{ F-F MTBL C+G}$$

$$d = 0.24$$

$$WP = 11.115$$

$$A = 1.205$$

$$V_{1/2} = 4.169 \text{ F/S}$$

$$Q_{1/2} = 5.0245 \text{ CFS}$$

$$d + v^2/2g = 0.51 \text{ OF}$$

$$\begin{aligned} \text{NO OF LOTS} &= 5.0245 / 0.558635 \\ &= 8.99 \text{ LOTS} \end{aligned}$$

TRANSITION BETWEEN LOTS 6+7 ON
THE NORTH SIDE AND LOTS 6+7 ON
THE SOUTH SIDE OF CACHE ROAD.

• FIND FLOW AT WEST SIDE OF DRUMLIN STREET ON CACHE ROAD

$$\begin{aligned} Q &= 27.5 \times 0.558635 \\ &= 15.362463 \text{ CFS} \end{aligned}$$

• FIND FLOW AT WEST SIDE OF CAIRN ST ON BURIN ROAD

$$\begin{aligned} Q &= 20.5 \times 0.558635 \\ &= 11.452018 \text{ CFS} \end{aligned}$$

• FIND FLOW AT SOUTH SIDE OF BURIN ROAD ON CAIRN ST AND
AT NORTH SIDE OF BARROW ROAD ON CAIRN ST.

$$Q = 5.02 \text{ CFS FROM PARK}$$

$$Q = 2.51 \text{ CFS IN EACH DIRECTION DUE TO HIGH POINT.}$$

• FIND FLOW AT WEST SIDE OF DRUMLIN ST ON BURIN RD

$$\begin{aligned} Q &= 11.452018 + 2.51 + (7 \times 0.558635) \\ &= 17.872463 \text{ CFS} \end{aligned}$$



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 3 OF _____

REVISED 8-5-04

- FIND FLOW AT NORTH SIDE OF BURIN RD ON DRUMLIN ST

$$Q = 23 \times 0.558635 + 2.51 \\ = 15.358605 \text{ CFS}$$

- FIND d ON DRUMLIN ST

$$32' \text{ F-F } S = 0.75\% \quad n = 0.017 \quad \text{STD C+G}$$

- Q ON DRUMLIN ST BETWEEN LOTS 57+58

$$Q = 17.872463 + 15.358605 + 5 \times 0.558635 \\ = 36.024243 \text{ CFS}$$

$$d = 0.57$$

$$WP = 33.14$$

$$A = 10.57$$

$$V = 3.53 \text{ F/S}$$

$$Q = 37.35 \text{ CFS} > 36.02 \text{ OK}$$

$$d + v^2/2g = 0.76 < 0.85 \text{ OK}$$

- ADD TWO DBL "A" INLETS AT THIS POINT
FROM NOMO SHEET 43

$$Q_{\text{GRATE}} = 7.4 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 36.024243 - 2(7.4) \\ = 21.224243 \text{ CFS}$$

- FIND Q ON AMOLE MESA AVE AT DRUMLIN ST.

$$A = 0.93 \text{ AC FOR SOUTH HALF OF ROAD}$$

$$\text{TYPE "D"} = 73.17\%$$

$$\text{TYPE "B"} = 26.83\%$$

$$\text{FROM HYDRO OUTPUT SHEETS 48-54}$$

$$Q = 3.56 \text{ CFS}$$

- FIND Q ON CACHE RD JUST EAST OF DRUMLIN ST.

$$Q = 15.362463 + 3.56 + 21.224243 + 1 \times 0.558635 \\ = 40.705341 \text{ CFS}$$

$$d = 0.49 \quad S = 2.0\%$$

$$WP = 32.98$$

$$A = 8.01$$

$$V = 4.81 \text{ F/S}$$

$$Q = 38.55 \text{ CFS} < 40.71 \quad \text{BUT AT INTERSECTION } \underline{OK}$$

$$d + v^2/2g = 0.85 \underline{OK}$$

- ADD TWO DBL "A" INLETS AT EAST RETURNS
FROM NOMO SHEET 43

$$Q_{\text{GRATE}} = 9.4 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 40.705341 - 2(9.4) \\ = 21.905341 \text{ CFS}$$



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SUBJECT DRAINAGE CALCS
BY GSK DATE 4-5-04
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SHEET 4 OF _____

Revised 8-5-04

• FIND LOCATION OF NEXT INLET IN CACHE RD.

• FIND CAPACITY $S = 5\%$ 32' F-F $n = 0.017$ STD C+G

$$d = 0.38$$

$$wP = 15.13$$

$$A = 2.26$$

$$V_{1/2} = 5.50 \text{ F/S}$$

$$Q_{1/2} = 12.44 \text{ CFS}$$

$$d + V^2/2g = 0.85 \text{ OK}$$

$$Q = 2 \times 12.44$$

$$= 24.88 \text{ CFS}$$

• FIND NUMBER OF LOTS TO ADD

$$Q = 24.88 - 21.905341$$

$$= 2.974659 \text{ CFS}$$

$$\text{LOTS} = 2.974659 / 0.558635$$

$$= 5.32 \text{ SAY 5 LOTS USE 4}$$

$$Q = 21.905341 + 4(0.558635)$$

$$= 24.139881 \text{ CFS}$$

• ADD TWO "B" INLETS - ONE BETWEEN LOTS 3 + 4 ON THE NORTH SIDE OF CACHE RD AND ONE BETWEEN LOTS 59 + 60 ON THE SOUTH SIDE.

FROM NOMO SHEET 44

$$Q_{\text{gate}} = 9.6 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 24.139881 - 2(9.6)$$

$$= 4.93988 \text{ CFS}$$

• FIND LOCATION OF NEXT INLET

$S = 5.0\%$ 32' F-F $n = 0.017$ STD C+G

$$Q = 24.88$$

• FIND NUMBER OF LOTS TO ADD

$$Q = 24.88 - 4.93988 = 19.94012 \text{ CFS}$$

$$\text{LOTS} = 19.94012 / 0.558635$$

$$= 35.69$$

• ADD 26 LOTS BECAUSE FLOW FROM HAMMERSTONE STREET WILL BE ADDED AND BE TOO MUCH.

$$Q = 4.93988 + 26(0.558635)$$

$$= 19.46439 \text{ CFS}$$



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PROJECT ANDERSON HEIGHTS

SUBJECT DRAINAGE CALCS

BY GJK DATE 4-5-04

CHECKED _____ DATE _____

SHEET 5 OF _____

Revised 8-5-04

$$\begin{aligned}d &= 0.36 \\WP &= 14.11 \\A &= 1.9756 \\V &= 5.27 \text{ F/S} \\Q &= 10.41 \text{ CFS} \\d + V^2/2g &= 0.79 < 0.85 \text{ OK}\end{aligned}$$

ADD TWO "B" INLETS - ONE BETWEEN LOTS 16+17 ON THE NORTH SIDE OF CACHE RD AND THE OTHER BETWEEN LOTS 72+73 ON THE SOUTH SIDE.

FROM NOMO SHEET 44

$$Q_{\text{GRATE}} = 8.4 \text{ CFS}$$

$$\begin{aligned}Q_{\text{PAST INLETS}} &= 19.46439 - 2(8.4) \\&= 2.66439 \text{ CFS}\end{aligned}$$

- FIND CURB TRANSITION ON NEPHRITE ROAD AND LITHIC ROAD
28' F-F $S = 5.0\%$ $n = 0.017$ MTBL C+G

$$\begin{aligned}d &= 0.23 \\WP &= 10.605 \\A &= 1.0989 \\V_{1/2} &= 4.312 \text{ F/S} \\Q_{1/2} &= 4.7385 \text{ CFS} \\d + V^2/2g &= 0.52\end{aligned}$$

$$\begin{aligned}\text{NO OF LOTS} &= 4.7385 / 0.57264 \\&= 8.27 \text{ LOTS}\end{aligned}$$

TRANSITION BETWEEN LOTS 83+84 ON THE NORTH SIDE AND LOTS 84+9 ON THE SOUTH SIDE OF NEPHRITE RD.

TRANSITION BETWEEN LOTS 14+15 ON THE NORTH SIDE AND LOTS 99+100 ON THE SOUTH SIDE OF LITHIC RD.

- FIND FLOW AT WEST SIDE OF HAMMERSTONE ON NEPHRITE RD

$$\begin{aligned}Q &= 29 \times 0.558635 \\&= 16.200415 \text{ CFS}\end{aligned}$$

- FIND FLOW AT WEST SIDE OF HAMMERSTONE ON LITHIC RD.

$$\begin{aligned}Q &= 27 \times 0.558635 \\&= 15.083145 \text{ CFS}\end{aligned}$$

- FIND FLOW IN HAMMERSTONE JUST NORTH OF NEPHRITE RD

$$\begin{aligned}Q &= 16.200415 + 15.083145 + 7(0.558635) \\&= 35.194005 \text{ CFS}\end{aligned}$$

- ADD 4 LOTS BEFORE ADDING INLETS

$$\begin{aligned}Q &= 35.194005 + (4 \times 0.558635) \\&= 37.428545 \text{ CFS}\end{aligned}$$



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SUBJECT DRAINAGE CALCS
BY GJK DATE 4-5-04
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SHEET 6 OF _____

REVISED 8-5-04

- ADD TWO DBL "A" INLETS BETWEEN LOTS 23+24 ON HAMMERSTONE

$$\begin{aligned}d &= 0.49 & S &= 2.0\% & 32' F-F & n &= 0.017 & STD C+G \\wP &= 32.98 \\A &= 8.01 \\V &= 4.81 F/S \\Q &= 38.55 CFS > 37.42 OK \\d + V^2/2g &= 0.85\end{aligned}$$

FROM NOMO SHEET 43

$$Q_{GATE} = 9.4 CFS$$

$$\begin{aligned}Q_{PAST INLETS} &= 37.42545 - 2(9.4) \\&= 18.62545 CFS\end{aligned}$$

- FIND Q JUST EAST OF HAMMERSTONE ON CACHE RD

$$\begin{aligned}Q &= 2.66439 + 18.62545 + 3 \times 0.558635 \\&= 22.96884 CFS\end{aligned}$$

- FIND Q JUST WEST OF IRONSTONE ST ON CACHE RD

$$\begin{aligned}Q &= 22.96884 + 4 \times 0.558635 \\&= 25.20338 CFS\end{aligned}$$

- FIND d $S = 2.14\%$ 32' F-F $n = 0.017$ STD C+G

$$\begin{aligned}d &= .43 \\wP &= 32.86 \\A &= 6.09 \\V &= 4.16 F/S \\Q &= 25.31 CFS \approx 25.20 OK \\d + V^2/2g &= 0.70\end{aligned}$$

- ADD TWO "B" INLETS - ONE AT WEST RETURN AND ONE BETWEEN LOTS 23+24 ON THE NORTH SIDE OF CACHE.

FROM NOMO SHEET 44

$$Q_{GATE} = 9.6 CFS$$

$$\begin{aligned}Q_{PAST INLETS} &= 25.20338 - 2(9.6) \\&= 6.00338 CFS\end{aligned}$$

- FIND Q JUST SOUTH OF CACHE RD ON IRONSTONE ST.

$$\begin{aligned}Q &= 8 \times 0.558635 \\&= 4.46908 CFS\end{aligned}$$

- FIND Q ON AMOLE MESA AVE AT SCARP ST

$$A = 1.3837 AC \text{ FOR SOUTH HALF OF ROAD}$$

$$\text{TYPE "D"} = 73.17\%$$

$$\text{TYPE "B"} = 26.83\%$$

FROM HYMO OUTPUT SHEETS 48-54

$$Q = 5.29 CFS$$



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SUBJECT DRAINAGE CALCS
BY GJK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 7 OF _____

Revised 8-5-04

- FIND CAPACITY OF CACHE AT 4th, 32' F-F, STD C+G, $n=0.017$

$$d = .41$$

$$WP = 32.82$$

$$A = 5.45$$

$$V = 5.28 \text{ F/S}$$

$$Q = 28.79 \text{ CFS}$$

$$d + v^2/2g = 0.84 \approx 0.85 \text{ OK}$$

- FIND LOCATION OF NEXT INLET

- FIND ADDITIONAL LOTS

$$Q = 28.79 - 4,46908 - 5.29 - 6,00338 \\ = 13,02754 \text{ CFS}$$

$$LOTS = 13,02754 / 0.558635$$

$$= 23.32 \text{ use } 23$$

$$Q = 4,46908 + 5.29 + 6,00338 + 23(0.558635) = 28,611065$$

- ADD TWO DBL "A" INLETS - ONE BETWEEN LOTS 4+5 ON THE NORTH SIDE AND ONE BETWEEN LOTS 12+13 ON THE SOUTHSIDE OF CACHE RD.

FROM NOMO SHEET 43

$$Q_{\text{GATE}} = 7.8 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 28,611065 - 2(7.8) \\ = 13,011065 \text{ CFS}$$

- FIND Q NORTH OF KNUCKLE ON TEPHRA ST.

$$Q = 13,011065 + 10(0.558635) \\ = 18,597415 \text{ CFS}$$

- FIND d $S=1\%$, 28' F-F, STD C+G, $n=0.017$

$$d = 0.44$$

$$WP = 28.88$$

$$A = 6.19$$

$$V = 3.13 \text{ F/S}$$

$$Q = 19.37 \text{ CFS} \approx 18.60 \text{ OK}$$

ADD TWO "B" INLETS AT THIS POINT

FROM NOMO SHEET 44

$$Q_{\text{GATE}} = 5.4 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 18,597415 - 2(5.4) \\ = 7,797415 \text{ CFS}$$

- FIND Q WEST OF KNUCKLE ON QUERN RD

$$Q = 26 \times 0.558635 \\ = 14.52451 \text{ CFS}$$



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 8 OF _____

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• ADD TWO DBL "A" INLETS AT THIS POINT.

• FIND d $S=5\%$; 28' F-F, STD C+G, $n=0.017$

$$d = .33$$

$$WP = 12.58$$

$$A = 1.5856$$

$$V_{\frac{1}{2}} = 4.9136 \text{ F/S}$$

$$Q_{\frac{1}{2}} = 7.791 \text{ CFS} \rightarrow 2 \times 7.791 = 15.582 > 14.52451 \text{ OK}$$

$$d + v^2/2g = 0.70 \text{ OK}$$

FROM NOMO SHEET 43

$$Q_{\text{GATE}} = 5.8 \text{ CFS}$$

$$Q_{\text{PRT INLETS}} = 14.52451 - 2(5.8) \\ = 2.92451 \text{ CFS}$$

• FIND Q AT SUMP INLET IN QUERN KNUCKLE

$$Q = 7.797415 + 2.92451 + 4(0.558635) \\ = 12.956465 \text{ CFS}$$

• ADD DBL "A" DBL THROAT IN SUMP

$$Q/p = 3.0 \text{ H}^{1.5}$$

$$P = 17 \text{ FOR DBL "A"}$$

$$H = 0.40 < 0.67 \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.64 < 0.85 \text{ OK}$$

• FIND Q ON PITOCHÉ PL JUST NORTH OF SITULA RD

$$Q = 34 \times 0.558635 \\ = 18.99359 \text{ CFS}$$

• FIND Q ON SITULA RD JUST WEST OF PITOCHÉ ST

$$Q = 26 \times 0.558635 \\ = 14.52451 \text{ CFS}$$

• CAPACITY OF PITOCHÉ PL - $S=0.5\%$, 28' F-F, $n=0.017$, STD C+G

$$d = 0.66$$

$$WP = 29.32$$

$$A = 12.35$$

$$V = 3.47 \text{ F/S}$$

$$Q = 42.89 \text{ CFS}$$

$$d + v^2/2g = 0.85 \text{ OK}$$



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PROJECT ANDERSON HEIGHTS
SUBJECT DAMAGE CALCS
BY GJK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 9 OF _____

Revised 8-5-04

- FIND Q ON PITOCHÉ PL JUST NORTH OF SHARD RD

$$Q = 18.99359 + 14.52451 + (5 \times 0.558635) \\ = 36.31275 \text{ cfs} < 42.89 \text{ OK}$$

- FIND Q ON SHARD RD AT PITOCHÉ PL

ONLY THE NORTH SIDE DRAINS TO PITOCHÉ ST

$$Q = 13 \times 0.558635 \\ = 7.262255 \text{ cfs}$$

THE FLOW ADDED FLOW IN PITOCHÉ PL WILL BE MORE
THAN STREET CAN HANDLE. ADD TWO DBL "A" INLETS
ON PITOCHÉ PL. ONE BETWEEN LOTS 56+57 AND ONE
AT THE RETURN.

$$d = 0.62$$

$$WP = 29.22$$

$$A = 11.23$$

$$V = 3.27 \text{ F/S}$$

$$Q = 36.69 \text{ cfs} \approx 36.31 \text{ OK}$$

FROM NOMO SHEET 43

$$Q_{\text{GATE}} = 8.8 \text{ cfs}$$

$$Q_{\text{PAST INLETS}} = 36.31275 - 2(8.8) \\ = 18.71275$$

- FIND Q ON PITOCHÉ PL JUST SOUTH OF SHARD RD

$$Q = 18.71275 + 7.262255 + (2 \times 0.558635) \\ = 27.0908 \text{ cfs}$$

ADD SIX MORE LOTS

$$Q = 27.0908 + (6 \times 0.558635) \\ = 30.44261 \text{ cfs}$$

$$d = 0.58$$

$$28' \text{ F-F } S = 0.5\% \quad n = 0.017 \quad \text{STD C+G}$$

$$WP = 29.16$$

$$A = 10.11$$

$$V = 3.05 \text{ F/S}$$

$$Q = 30.84 \text{ cfs} \approx 30.44 \text{ OK}$$

ADD TWO "B" INLETS - ONE BETWEEN LOTS 61+62 ON THE EAST
SIDE AND BETWEEN LOTS 65+66 ON THE WEST SIDE OF
PITOCHÉ PL

FROM NOMO SHEET 44

$$Q_{\text{GATE}} = 8.6 \text{ cfs}$$

$$Q_{\text{PAST INLETS}} = 30.44261 - 2(8.6) \\ = 13.24261 \text{ cfs}$$



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PROJECT ANDERSON HEIGHTS
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BY GJK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 10 OF _____

- FIND Q AT TERMINUS OF PITOCHÉ PL FOR SUMP INLET

$$Q = 13,24261 + 4(0.558635) \\ = 15.47715 \text{ CFS}$$

USE A DBL "A" DBL THROAT INLET IN SUMP

$$Q/p = 3.0 H^{1.5} \quad P = 17$$

$$H = 0.45 < 0.67 \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.72 < 0.85 \text{ OK}$$

- FIND Q AT THE END OF SHARD CT.

$$Q = 28 \times 0.558635 \\ = 15.64178 \text{ CFS}$$

USE A DBL "A" DBL THROAT INLET IN SUMP

$$Q/p = 3.0 H^{1.5} \quad P = 17$$

$$H = 0.45 < 0.67 \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.72 < 0.85 \text{ OK}$$

- FIND Q ON POTSHARD ST JUST NORTH OF COLOBEL AVE

$$Q = 5 \times 0.558635 \\ = 2.793175 \text{ CFS}$$

- FIND Q AT THE TERMINUS OF GORGET PL

$$Q = 17 \times 0.558635 \\ = 9.496795 \text{ CFS}$$

USE A DBL "A" DBL THROAT INLET IN SUMP

$$Q/p = 3.0 H^{1.5} \quad P = 17.0$$

$$H = 0.33' < 0.67 \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.52 < 0.85 \text{ OK}$$

- FIND Q AT THE TERMINUS OF WEIR CT, ULU CT+URN CT
THESE ARE ALL IDENTICAL IN DESIGN

$$Q = 11 \times 0.558635 \\ = 6.144985 \text{ CFS}$$

USE A SGL "A" DBL THROAT INLET IN SUMP

$$Q/p = 3.0 H^{1.5} \quad P = 11.0$$

$$H = 0.33' < 0.67 \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.52 < 0.85 \text{ OK}$$



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PROJECT ANDERSON HEIGHTS

SUBJECT DRAINAGE CALCS

BY GJK DATE 4-5-04

CHECKED _____ DATE _____

SHEET 11 OF _____

- FIND Q IN BASKETMAKER WHERE FLOW CROSSES CROWN

$$S = 2.67 \quad 32' F-F \quad n = 0.017 \quad STD \quad C+G$$

$$d = .405$$

$$WP = 32.81$$

$$A = 5.29$$

$$V = 4.23 \text{ F/S}$$

$$Q = 22.3827 \text{ CFS} \quad Q_{1/2} = 11.19 \text{ CFS}$$

$$d + V^2/2g = 0.68$$

$$NO \text{ OF LOTS} = 11.19 / 0.558635$$

$$= 20.03 \text{ LOTS}$$

THIS IS JUST PAST URN CT.

- FIND Q CROSSING CROWN AND ENTERING TEJA CT.

$$Q = (26 \times 0.558635) - 11.19$$

$$= 3.33451 \text{ CFS}$$

- FIND Q AT TERMINUS OF TEJA CT.

$$Q = (11 \times 0.558635) + 3.33451$$

$$= 9.479495 \text{ CFS}$$

USE SGL "A" DBL THROAT

$$Q/p = 3.0 \text{ H}^{1.5} \quad p = 11$$

$$H = 0.44 < 0.67 \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.69 < 0.85 \text{ OK}$$

- FIND Q IN BASKETMAKER JUST WEST OF HAMMERSTONE ST.

$$Q = (32 \times 0.558635) - 3.33451$$

$$= 14.54181 \text{ CFS}$$

- FIND Q IN HAMMERSTONE ST JUST NORTH OF COLOBEL AVE.

$$Q = (18 \times 0.558635) + 14.54181$$

$$= 24.59724 \text{ CFS}$$

- FIND CAPACITY OF HAMMERSTONE AT COLOBEL AVE

$$S = 3.62\% \quad n = 0.017 \quad 32' F-F \quad STD \quad C+G$$

$$d = 0.42$$

$$WP = 32.84$$

$$A = 5.77$$

$$V = 5.217 \text{ F/S}$$

$$Q = 30.10 \text{ CFS} > 24.59724 \text{ OK}$$

$$d + V^2/2g = 0.84$$



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- FIND FLOW IN COLOBEL AVE JUST WEST OF DUERSON TAIL

$$A = 1055 \times 68 = 1,6469 \text{ AC}$$

88% "D" 12% "B"

FROM HYMO OUTPUT SHEETS 48-54

$$Q = 6.87 \text{ CFS}$$

- FIND d $S = 3.76\%$ 48' F-F $n = 0.017$ STD C+G

$$d = 0.27$$

$$WP = 9.52$$

$$A = 0.941$$

$$V = 3.62 \text{ F/S}$$

$$Q = 3.41 \text{ CFS} \quad 2 \times = 6.82 \approx 6.87 \text{ OK}$$

(SEE SHEET 15)

- * AT DUERSON TAIL ALL FLOW WILL CONTINUE EAST. 12.218987 CFS
ON DUERSON TAIL WILL ADD TO COLOBEL. FLOW ON
SOUTH SIDE OF COLOBEL = $6.87 / 2 + 12.218987 = 15.653987 \text{ CFS}$

- FIND FLOW IN COLOBEL AVE AT MORRISSEY TAIL.

$$\text{AREA OF COLOBEL AVE} = 2.6107 \text{ AC}$$

88% "D" 12% "B"

FROM HYMO OUTPUT SHEETS 48-54

$$Q = 10.88 \text{ CFS}$$

$$\text{FLOW FROM HAMMERSTONE} = 24.59724 \text{ CFS}$$

$$\text{FLOW FROM POTSHARD} = 2.793175 \text{ CFS}$$

$$Q = 10.88 + 24.59724 + 2.793175 + 3.44 \\ = 41.710415 \text{ CFS}$$

- FIND CAPACITY OF HALF OF ROADWAY

48' F-F, $n = 0.017$, STD C+G, $S = 3.0\%$

$$d = 0.47$$

$$WP = 19.72$$

$$A = 3.79$$

$$V_{1/2} = 5.04 \text{ F/S}$$

$$Q_{1/2} = 19.11 \text{ CFS}$$

$$d + \frac{V^2}{2g} = 0.864 \approx 0.87 \text{ OK}$$

- FIND FLOW IN COLOBEL AVE JUST EAST OF HAMMERSTONE

36.3% OF COLOBEL FLOW IS AT THIS POINT

$$Q = 0.363(10.88) + 24.59724 + 3.44 \\ = 31.98619 \text{ CFS}$$

$$\text{FLOW ON NORTH HALF} = 30.01147 \text{ CFS}$$

$$\text{FLOW ON SOUTH HALF} = 1.97472 \text{ CFS}$$



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PROJECT ANDERSON HEIGHTS
SUBJECT DAMAGE CALCS
BY GJK DATE 4-5-04
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SHEET 13 OF _____

Revised 8-5-04

• FIND d FOR NORTHSIDE

$$\begin{aligned}d &= 0.46 & 48' \text{ F-F}, n=0.017, \text{ STD C+G}, S=3.25\% \\wP &= 19.21 \\A &= 3.60 \\V_{1/2} &= 5.16 \text{ F/S} \\Q_{1/2} &= 18.58 \text{ CFS} < 30.01 \text{ CFS} \quad \underline{NG} \\d + v^2/2g &= 0.87 \text{ OK}\end{aligned}$$

ADD TWO DBL "A" INLETS ON HAMMERSTONE - ONE BETWEEN
LOTS 1+2 ON THE EASTSIDE AND LOTS 1+2 ON THE WESTSIDE.

$$\begin{aligned}Q &= 24.59724 - 2(0.558635) \\&= 23.47997 \text{ CFS}\end{aligned}$$

$$\begin{aligned}d &= 0.39 & S=3.62\%, n=0.017, 32' \text{ F-F}, \text{ STD C+G} \\wP &= 15.64 \\A &= 2.41 \\V_{1/2} &= 4.78 \text{ F/S} \\Q_{1/2} &= 11.52 \text{ CFS}\end{aligned}$$

FROM NOMO SHEET 43

$$\begin{aligned}Q_{\text{GATE}} &= 7.0 \text{ CFS} \\Q \text{ PAST INLETS} &= 23.47997 - 2(7.0) \\&= 9.47997 \text{ CFS}\end{aligned}$$

• Q AT COLOBEL IN HAMMERSTONE

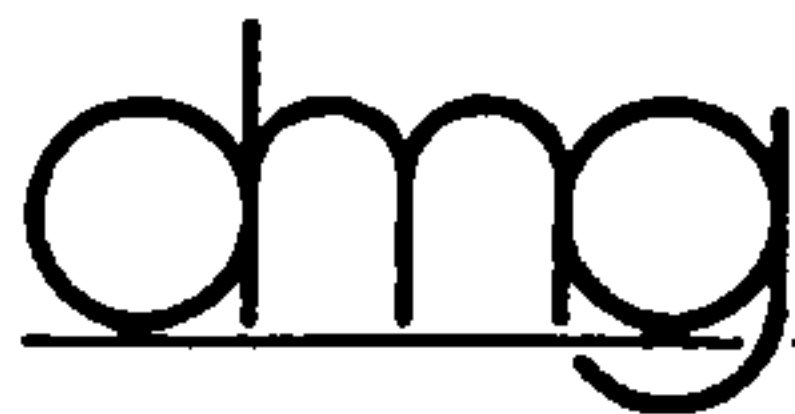
$$\begin{aligned}Q &= 9.47997 + 2(0.558635) \\&= 10.59724 \text{ CFS}\end{aligned}$$

• REVISED COLOBEL NORTHSIDE FLOW

$$\begin{aligned}Q &= 10.59724 + 3.44 + 1.97472 \\&= 16.01196 \text{ CFS} < 18.58 \text{ CFS} \quad \underline{OK} \text{ AND } 19.11 \text{ CFS} \quad \underline{OK}\end{aligned}$$

• FIND LOCATION OF INLET ON COLOBEL

$$\begin{aligned}Q &= 19.11 - 16.01196 = 3.09804 \text{ CFS} & \text{THIS IS ADDITIONAL} \\& \text{- THIS FLOW IS 50\% FOR WIDTH. FLOW ALLOWED ON} \\& \text{- TOTAL FLOW IS } 2 \times 3.09804 = 6.19608 \text{ CFS } 3\% \text{ STREET,} \\& \text{WHICH IS EQUAL TO 56.95\% OF} \\& \text{FLOW IN COLOBEL,} \\& \text{- THIS CORRESPONDS TO A DISTANCE OF 952 FOR THE} \\& \text{INLET LOCATION PAST RETURN BUT THE FLOW FROM} \\& \text{POTSHARD WILL ADD TOO MUCH. THERE FOR ADD} \\& \text{INLET AT WEST RETURN OF POTSHARD ON} \\& \text{COLOBEL.}\end{aligned}$$



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• FIND Q AT RETURN

$$642 \text{ LF OF COLOBEL} = 1.0022 \text{ AC} = 38.39\%$$

$$Q = 16.01196 + \frac{0.3839(10.88)}{2}$$
$$= 18.100285 \text{ CFS}$$

$$d = 0.46 \quad S = 3.0\%, \text{ 48' F-F, } n = 0.017, \text{ STD C+G}$$
$$WP = 19.21$$
$$A = 3.60$$
$$V_{1/2} = 4.96 \text{ F/S}$$
$$Q_{1/2} = 17.85 \text{ CFS} \approx 1810 \text{ OK}$$

ADD ONE DBL "A" INLET AT THIS POINT

FROM NOMO SHEET 43

$$Q_{\text{GRATE}} = 9.0 \text{ CFS}$$

$$Q_{\text{PAST INLET}} = 18.100285 - 9$$
$$= 9.100285 \text{ CFS}$$

• FIND FLOW IN COLOBEL AT MORRISSEY

$$\text{FLOW IN NORTHSIDE} = 9.100285 + 2.793175 + \frac{0.2531(10.88)}{2}$$
$$= 13.270324 \text{ CFS}$$

$$\text{FLOW IN SOUTHSIDE} = \frac{0.637(10.88)}{2} + 15.653987 = 19.119267 \text{ CFS}$$

ADD A DBL "A" INLET AT MORRISSEY ON THE NORTH
SIDE OF COLOBEL.

$$d = 0.42 \quad S = 3.0\%, \text{ 48' F-F, } n = 0.017, \text{ STD C+G}$$
$$WP = 17.17$$
$$A = 2.89$$
$$V_{1/2} = 4.616 \text{ F/S}$$
$$Q_{1/2} = 13.34 \text{ CFS} \approx 13.27 \text{ OK}$$

FROM NOMO SHEET 43

$$Q_{\text{GRATE}} = 7.6 \text{ CFS}$$

$$Q_{\text{PAST INLET}} = 13.270324 - 7.6$$
$$= 5.670324 \text{ CFS}$$

THIS FLOW CONTINUES
EAST TO THE ADJACENT
SUBDIVISION.

• ADD A DBL "A" INLET ON THE SOUTHSIDE OF COLOBEL AT MORRISSEY.
FROM NOMO SHEET 43

$$Q_{\text{GRATE}} = 9.4 \text{ CFS}$$

$$Q_{\text{PAST INLET AND TURNS SOUTH ONTO MORRISSEY}} = 19.119267 - 9.4$$
$$= 9.719267 \text{ CFS}$$



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PROJECT ANDERSON HEIGHTS
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- FIND Q ON MANESS LANE JUST WEST OF DUERSON TRAIL.

$$Q = 35 \times 0.638351 \\ = 22.342285 \text{ CFS}$$

REMOVE TWO LOTS AND ADD TWO SGL "A" INLETS
ON MANESS LANE BETWEEN LOTS 1+2 ON THE NORTHSIDE
AND LOTS 1+2 ON THE SOUTHSIDE

$$Q = 33 \times 0.638351 \\ = 21.065583 \text{ CFS}$$

- FIND d S = 2.19% , 32' F-F, STD CHG, n = 0.017

$$d = 0.41 \\ WP = 32.82 \\ A = 5.45 \\ V = 3.91 \text{ F/S} \\ Q = 21.30 \text{ CFS} \approx 21.07 \text{ OK} \\ d + u^2/2g = 0.65'$$

FROM NOMO SHEET 45.

$$Q_{\text{GATE}} = 5.7 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 21.065583 - 2(5.7) \\ = 9.665583 \text{ CFS}$$

- FIND FLOW IN DUERSON TRAIL JUST SOUTH OF COLODEL.

$$Q = 9.665583 + 4(0.638351) \\ = 12.218987 \text{ CFS (GO TO SHEET 12)}$$

- FIND FLOW IN FRAZIER LANE JUST WEST OF DUERSON TRAIL

$$Q = 28 \times 0.638351 \\ = 17.873828 \text{ CFS}$$

- FIND FLOW IN DUERSON TRAIL JUST NORTH OF HUMPHRIES LANE

$$Q = 17.873828 + 8 \times 0.638351 \\ = 22.980636 \text{ CFS}$$

- FIND FLOW IN HUMPHRIES LANE JUST WEST OF DUERSON TRAIL

$$Q = 26 \times 0.478852 + 6.25 \\ = 18.700152 \text{ CFS}$$

- ADD TWO SGL "A" INLETS ON DUERSON TRAIL BEFORE HUMPHRIES

$$d = 0.47 \quad 32' \text{ F-F, } n = 0.015, S = 1.0\%, \text{ STD CHG} \\ WP = 32.94 \\ A = 7.37 \\ V = 3.22 \text{ F/S} \\ Q = 23.74 \approx 22.98 \text{ OK}$$



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FROM NOMO SHEET 43

$$Q_{GATE} = 4.0 \text{ CFS}$$

$$Q_{PAST \text{ INLETS}} = 22.980636 - 2(4.0) \\ = 10.980636 \text{ CFS}$$

• ADD TWO DBL "A" INLETS ON HUMPHRIES WEST OF QUERSON

$$d = 0.40 \quad S = 2.19\%, \text{ 32' F-F, STD C+G, } n = 0.017 \\ W_P = 16.15 \\ A = 2.5656 \\ V_{1/2} = 3.79 \text{ F/S} \\ Q_{1/2} = 9.73 \text{ CFS} \quad 2 \times 9.73 = 19.46 \text{ CFS} \approx 18.70$$

FROM NOMO SHEET 43

$$Q_{GATE} = 4.0 \text{ CFS}$$

$$Q_{PAST \text{ INLETS}} = 18.700152 - 2(4.0) \\ = 10.700152 \text{ CFS}$$

• FIND Q JUST EAST OF QUERSON ON HUMPHRIES

$$Q = 10.980636 + 10.700152 \\ = 21.680788 \text{ CFS}$$

• FIND d $S = 5.56\%$, 32' F-F, STD C+G, $n = 0.017$

$$d = 0.36 \\ W_P = 14.11 \\ A = 1.9756 \\ V_{1/2} = 5.56 \text{ F/S} \\ Q_{1/2} = 10.98 \text{ CFS} \quad 2 \times 10.98 = 21.96 \text{ CFS} \approx 21.68 \text{ CFS} \\ d + V^2/cg = 0.84 \text{ OK}$$

• Add TWO "B" INLETS AT EAST RETURNS ON HUMPHRIES
FROM NOMO SHEET 44

$$Q_{GATE} = 8.8 \text{ CFS}$$

$$Q_{PAST \text{ INLETS}} = 21.680788 - 2(8.8) \\ = 4.080788 \text{ CFS}$$

• FIND FLOW ON HUMPHRIES JUST WEST OF MCKINNON WAY.

$$Q = 18 \times 0.478852 + 4.080788 \\ = 12.700124 \text{ CFS}$$

• FIND FLOW ON FENCIK LINE JUST WEST OF MCKINNON WAY

$$Q = 24 \times 0.638351 \\ = 15.320424 \text{ CFS}$$

• FIND FLOW ON MCKINNON WAY - JUST NORTH OF HUMPHRIES

$$Q = 15.320424 + 28 \times 0.478852 \\ = 28.728280 \text{ CFS}$$



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• FIND Q ON HUMPHRIES JUST EAST OF McKINNON WAY

$$Q = 28,728280 + 12,700124 \\ = 41,428404 \text{ CFS}$$

• ADD THREE LOTS

$$Q = 41,428404 + 3(0.478852) \\ = 42,86496 \text{ CFS}$$

ADD TWO DBL "A" INLETS - ONE BETWEEN LOTS 21+22 ON THE
SOUTHSIDE AND THE OTHER BETWEEN LOTS 139 + 140 ON THE
NORTHSIDE OF HUMPHRIES.

$$d = 0.60 \\ w_p = 33.20 \\ A = 11.53 \\ V = 3.74 \text{ F/S} \\ Q = 43.12 \text{ CFS} \approx 42.86 \text{ OK} \\ d + V^2/2g = 0.82 < 0.85 \text{ OK}$$

FROM NOMO SHEET 43

$$Q_{\text{GATE}} = 8.8 \text{ CFS} \\ Q_{\text{PAST INLETS}} = 42.86496 - 2(8.8) \\ = 25.26496 \text{ CFS}$$

• FIND Q ON VAN HORNE WAY JUST SOUTH OF HILGENBERG LANE

$$Q = 25.26496 + 11 \times 0.478852 \\ = 30.532332 \text{ CFS}$$

ADD TWO "B" INLETS - ONE AT RETURN AND THE
OTHER BETWEEN LOTS 135 + 136 ON THE WEST SIDE.

$$d = 0.53 \\ w_p = 33.06 \\ A = 9.29 \\ V = 3.32 \text{ F/S} \\ Q = 30.17 \text{ CFS} \approx 30.53 \text{ OK}$$

FROM NOMO SHEET 44

$$Q_{\text{GATE}} = 8.0 \text{ CFS} \\ Q_{\text{PAST INLETS}} = 30.532332 - 2(8.0) \\ = 14.532332 \text{ CFS}$$

• FIND Q ON VAN HORNE WAY NORTH OF HILGENBERG LANE

$$Q = 18 \times 0.478852 \\ = 8.619336 \text{ CFS}$$

• FIND Q ON HILGENBERG JUST WEST OF GAULT TRAIL

$$Q = 14.532332 + 8.619336 + 26 \times 0.478852 \\ = 35.60182 \text{ CFS}$$



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• FIND CAPACITY OF HILGENBERG

$$\begin{aligned}d &= 0.415 & S &= 3.89\% \text{ , } 32' \text{ F-F, STD C+G, } n=0.017 \\wP &= 32.83 \\A &= 5.61 \\V &= 5.31 \text{ F/S} \\Q &= 29.78 \text{ CFS} < 35.60182 \text{ NG} \\d+V^2/2g &= 0.85 \text{ OK}\end{aligned}$$

FIND LOCATION OF INLETS

$$\begin{aligned}Q &= 35.60182 - 29.78 = 5.82182 \text{ CFS} \\L &= 5.82182 / 0.478852 = 12.1578\end{aligned}$$

ADD TWO DBL 'A' INLETS BETWEEN LOTS 110 + 111 ON THE
NORTHSIDE AND LOTS 6 + 7 ON THE SOUTHSIDE OF HILGENBERG

FROM NOMO SHEET 43

$$\begin{aligned}Q_{\text{GATE}} &= 7.8 \text{ CFS} \\Q_{\text{POST INLETS}} &= 35.60182 - 12(0.478852) - 2(7.8) \\&= 14.255596 \text{ CFS}\end{aligned}$$

• FIND Q ON GAULT TRAIL JUST NORTH OF HILGENBERG

$$\begin{aligned}Q &= 18 \times 0.478852 \\&= 8.619336 \text{ CFS}\end{aligned}$$

• FIND Q ON GAULT TRAIL 4 LOTS SOUTH OF HILGENBERG AND
THE ADD TWO DBL 'X' INLETS

$$\begin{aligned}Q &= 14.255596 + 8.619336 + 4(0.478852) \\&= 24.79034 \text{ CFS}\end{aligned}$$

• FIND D $S = 1.0\%$, 32' F-F, STD C+G, $n = 0.017$

$$\begin{aligned}d &= 0.48 \\wP &= 32.96 \\A &= 7.69 \\V &= 3.31 \text{ F/S} \\Q &= 25.48 \text{ CFS} \approx 24.79 \text{ OK}\end{aligned}$$

FROM NOMO SHEET 43

$$\begin{aligned}Q_{\text{GATE}} &= 6.2 \text{ CFS} \\Q_{\text{POST INLETS}} &= 24.79034 - 2(6.2) \\&= 12.39034 \text{ CFS}\end{aligned}$$

• FIND Q AT DBL 'X' DBL THROAT SUMP INLET AT INTERSECTION
OF GAULT TRAIL + COVERT LANE

$$\begin{aligned}Q &= 12.39034 + 25 \times (0.478852) \\&= 24.36164 \text{ CFS}\end{aligned}$$



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• DETERMINE SUMP

$$Q = 24.36164 \text{ CFS}$$

$$Q/p = 3.04 \text{ } ^{1.5} \quad P = 17$$

$$H = 0.61' < 0.67 \text{ } \underline{OK}$$

ASSUME 50% CLOGGED

$$H = 0.97' > 0.85 \text{ } \underline{NG}$$

• ADD ANOTHER DBL "A" DBL THROAT

$$H = 0.38' < 0.67 \text{ } \underline{OK}$$

ASSUME 50% CLOGGED

$$H = 0.61' < 0.85 \text{ } \underline{OK}$$

• FIND FLOW ON McMICHAEL LWE AT DUERSON (WESTSIDE)

$$Q = 37 \times 0.478852 \\ = 17.717524 \text{ CFS}$$

• FIND FLOW ON McMICHAEL LWE ON WEST SIDE OF MCKINNON WAY

$$Q = 17.717524 + 19(0.478852) \\ = 26.815712 \text{ CFS}$$

ADD TWO DBL "A" INLETS - ONE AT WEST RETURN AND
THE OTHER BETWEEN LOTS 12+13 ON THE SOUTHWEST SIDE

$$d = .40$$

$$WP = 16.15$$

$$A = 2.5658$$

$$V_{1/2} = 5.13 \text{ F/S}$$

$$Q_{1/2} = 13.16 \quad 13.16 \times 2 = 26.32 \text{ CFS } \approx 26.81 \text{ } \underline{OK}$$

$$d + v^2/2g = 0.81 < 0.85 \text{ } \underline{OK}$$

FROM NOMO SHEET 43

$$Q_{INLET} = 7.8 \text{ CFS}$$

$$Q_{PAST INLETS} = 26.815712 - 2(7.8) \\ = 11.215712 \text{ CFS}$$

• FIND Q ON McMICHAEL LWE JUST WEST OF PAYTON TRAIL

$$Q = 11.215712 + 20 \times 0.478852 \\ = 20.792752 \text{ CFS}$$

• FIND Q ON GENTRY LWE JUST WEST OF DUERSON TRAIL

$$Q = 8 \times 0.638351 + 50 \times 0.478852 \\ = 29.049408 \text{ CFS}$$



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- ADD TWO DBL "A" INLETS - ONE AT THE RETURN AND ONE BETWEEN LOTS 33+34 ON THE SOUTH side of GENTRY LANE

$$\begin{aligned}d &= 0.41 & S &= 4.0\% , 32' F-F , STD C+G , n = 0.017 \\WP &= 32.82 \\A &= 5.45 \\V &= 5.28 \text{ F/S} \\Q &= 28.79 \text{ CFS} \approx 29.049 \text{ OK} \\d + V^2/2g &= 0.84\end{aligned}$$

FROM NODD SHEET 43

$$Q_{\text{INLET}} = 8.0 \text{ CFS}$$

$$\begin{aligned}Q_{\text{PAST INLETS}} &= 29.049408 - 2(8.0) \\&= 13.049408 \text{ CFS}\end{aligned}$$

- FIND NEXT INLET

ADD 32 LOTS

$$\begin{aligned}Q &= 13.049408 + 32(0.478852) \\&= 28.372672 \text{ CFS}\end{aligned}$$

- ADD TWO DBL "A" INLETS - ONE BETWEEN LOTS 37+38 ON THE NORTHSIDE AND LOTS 50+51 ON THE SOUTHSIDE OF GENTRY LANE.

$$Q_{\text{INLET}} = 8.0 \text{ CFS}$$

$$\begin{aligned}Q_{\text{PAST INLETS}} &= 28.372672 - 2(8.0) \\&= 12.372672 \text{ CFS}\end{aligned}$$

- FIND FLOW ON GENTRY LANE JUST WEST OF PAYTON TRAIL

$$\begin{aligned}Q &= 12.372672 + 14 \times 0.478852 \\&= 19.0766 \text{ CFS}\end{aligned}$$

- FIND Q ON PAYTON TRAIL JUST NORTH OF GENTRY LANE

$$\begin{aligned}Q &= 20.792752 + 11(0.478852) \\&= 26.060124 \text{ CFS}\end{aligned}$$

- ADD TWO "B" INLETS ON GENTRY 2 LOTS WEST OF PAYTON TRAIL

$$\begin{aligned}Q &= 19.0766 - 4 \times 0.478852 \\&= 17.161192 \text{ CFS}\end{aligned}$$

ONE BETWEEN LOTS 42+43
ON THE NORTHSIDE AND
LOTS 55+56 ON THE SOUTH.

$$\begin{aligned}d &= 0.36 \\WP &= 14.11 \\A &= 1.9756 \\V_{1/2} &= 4.71 \text{ F/S} \\Q_{1/2} &= 9.31 \text{ CFS} & 9.31 \times 2 &= 18.62 \approx 17.16 \text{ OK}\end{aligned}$$



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALC
BY GSK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 21 OF _____

Revised 8-5-04

FROM NOMO SHEET 44

$$Q_{GATE} = 7.6 \text{ CFS}$$

$$Q_{PAST \text{ INLETS}} = 17.161192 - 2(7.6) \\ = 1.961192 \text{ CFS}$$

- ADD TWO DBL "A" INLETS ON PAYTON - ONE BETWEEN LOTS 61+62 ON THE EASTSIDE AND ONE AT THE RETURN OF GENTRY.

$$Q = 26.060124$$

$$d = 0.44 \quad S = 2.0\% , 32' \text{ F-F , STD CG , } n = 0.017 \\ WP = 32.88 \\ A = 6.41 \\ V = 4.16 \text{ F/S} \\ Q = 26.64 \text{ CFS} \approx 26.06 \text{ OK}$$

FROM NOMO SHEET 43

$$Q_{GATE} = 7.4 \text{ CFS}$$

$$Q_{PAST \text{ INLETS}} = 26.060124 - 2 \times 7.4 \\ = 11.260124 \text{ CFS}$$

- FIND SUMP Q AT PAYTON TERMINUS

$$Q = 1.961192 + 11.260124 + 8 \times 0.478852 \\ = 17.052132$$

$$Q/p = 3.0 \text{ H}^{1.5} \quad p = 22 \text{ FOR TWO SGL "A" INLETS}$$

$$H = 0.41' < 0.67 \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.64' < 0.85 \text{ OK}$$

- FIND Q ON ANTLER TOOL RD JUST WEST OF

$$Q = 50 \times 0.558635 + 2.73 (\text{HDLF PARK RUNOFF}) \\ = 30.66175 \text{ CFS} \quad \text{TOO MUCH}$$

TAKE AWAY SIX LOTS

$$Q = 30.66175 - 6 \times 0.558635 \\ = 27.30994 \text{ CFS}$$

$$d = 0.40 \quad 28' \text{ F-F , STD C+G , } n = 0.017 , S = 4.0\% \\ WP = 28.80 \\ A = 5.07 \\ V = 5.49 \text{ F/S} \\ Q = 27.84 \text{ CFS} \approx 27.30994 \text{ OK} \\ d + v^2/2g = 0.87'$$



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PROJECT ANDERSON HEIGHTS
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BY GSK DATE 4-5-04
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SHEET 22 OF _____

Revised 8-5-04

• ADD TWO DBL "A" INLETS - ONE BETWEEN LOTS 26+27 ON THE
NORTHSIDE AND LOTS 3+4 ON THE SOUTHSIDE OF ANTLER TOOL RD

FROM NOMO SHEET 43

$$Q_{\text{NITE}} = 7.6 \text{ cfs}$$

$$Q_{\text{PAST INLETS}} = 27.30994 - 2(7.6) \\ = 12.10994 \text{ cfs}$$

• ADD 30 LOTS TO NEXT INLET

$$Q = 12.10994 + 30 \times 0.558635 \\ = 28.86899 \text{ cfs}$$

$$d = 0.41 \quad S = 3.54\%, \text{ 28' F-F, } n = 0.017, \text{ STD C+G} \\ WP = 28.82 \\ A = 5.35 \\ V = 5.35 \text{ F/S} \\ Q = 28.63 \approx 28.87 \text{ OK} \\ d + V^2/2g = 0.85 \text{ OK}$$

• ADD TWO DBL "A" INLETS ON ANTLER TOOL RD BETWEEN
LOTS 10+11 ON THE NORTHSIDE AND LOTS 5+6 ON THE SOUTH

FROM NOMO SHEET 43

$$Q_{\text{NITE}} = 7.4 \text{ cfs}$$

$$Q_{\text{PAST INLETS}} = 26.86899 - 2(7.4) \\ = 12.06899 \text{ cfs}$$

• FIND Q ON BEAKER ROAD JUST WEST OF ENRATIC ST KNUCKLE

$$Q = 41 \times 0.558635 \\ = 22.904035 \text{ cfs}$$

• FIND d $S = 3.07\%$, 28' F-F, STD C+G, $n = 0.017$

$$d = 39 \\ WP = 28.78 \\ A = 4.79 \\ V = 4.63 \text{ F/S} \\ Q = 22.20 \text{ cfs} \approx 22.90 \text{ OK} \\ d + V^2/2g = 0.72 \text{ OK}$$

• FIND Q ON ENRATIC STREET JUST SOUTH OF BALES SEALS ROAD

$$Q = 22.904035 + 13 \times 0.558635 \\ = 30.16629 \text{ cfs}$$

FIND d $S = 1.0\%$ 28' F-F STD C+G, $n = 0.017$

$$d = 0.51 \\ WP = 29.02 \quad Q = 30.55 \text{ OK} \\ A = 8.15 \quad d + V^2/2g = 0.73 \text{ OK} \\ V = 3.75 \text{ F/S}$$



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 23 OF _____

Revised 8-5-04

- FIND Q ON BALE SEALS RD JUST WEST OF ERRATIC STREET

$$Q = 37 \times 0.558635 \\ = 20.669495 \text{ CFS}$$

- FIND CAPACITY OF BALE SEALS ROAD JUST EAST OF ERRATIC STREET

$$d = 0.46 \quad 28' \text{ F-F}, S = 2.3\%, n = 0.017 \text{ STD C+G}$$

$$WP = 28.92$$

$$A = 6.75$$

$$V = 5.025 \text{ F/S}$$

$$Q = 33.92 \text{ CFS} < 20.669495 + 30.16629 = 50.835785 \text{ CFS} \quad \underline{\text{NG}}$$

$$d + V^2/2g = 0.85$$

ADD INLETS

- ADD TWO DBL "A" INLETS ON ERRATIC - ONE BETWEEN 9+10 ON THE WEST SIDE AND LOTS 33+34 ON THE EAST SIDE

$$Q = 30.16629 - 2(0.558635)$$

$$= 29.04902 \text{ CFS}$$

$$d = 0.5 \quad S = 1\%, 28' \text{ F-F}, \text{STD C+G}, n = 0.017$$

$$WP = 29.00$$

$$A = 7.87$$

$$V = 3.66 \text{ F/S}$$

$$Q = 28.84 \text{ CFS} \approx 29.05 \text{ OK}$$

FROM NOMO SHEET 43

$$Q_{\text{GATE}} = 6.8 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 29.04902 - 2(6.8)$$

$$= 15.44902 \text{ CFS}$$

- ADD TWO DBL "A" INLETS ON BALE SEALS - ONE AT RETURN ON THE NORTH SIDE AND AT RETURN ON SOUTH SIDE.

$$d = 0.39 \quad S = 3.0\%, 40' \text{ F-F}, \text{STD C+G}, n = 0.017$$

$$WP = 15.64$$

$$A = 2.41$$

$$V = 4.35 \text{ F/S}$$

$$Q = 10.49 \text{ CFS} \quad 2 \times 10.49 = 20.98 \text{ CFS} \approx 20.67 \text{ OK}$$

$$d + V^2/2g = 0.68$$

FROM NOMO SHEET 43

$$Q_{\text{GATE}} = 6.6 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 20.669495 - 2(6.6)$$

$$= 7.469495 \text{ CFS}$$

- FIND Q IN BALE SEALS JUST EAST OF ERRATIC STREET

$$Q = 15.44902 + 7.469495 + 2(0.558635)$$

$$= 24.035785 \text{ CFS} < 33.92 \text{ CFS} \quad \underline{\text{OK}}$$



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
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- ADD FOUR LOTS ON BALE SEALS AND ADD TWO "B" INLETS ONE AT RETURN OF STELA STREET AND ONE BETWEEN LOTS 20 + 21 ON THE NORTH SIDE.

$$Q = 24.635785 + 4 (0.558635) \\ = 26.270325 \text{ CFS}$$

• FIND d $S = 2.39\%$, 28' F-F, STD C+G, $n = 0.017$
 $d = 0.43$
 $WP = 28.86$
 $A = 5.91$
 $V = 4.61 \text{ F/S}$
 $Q = 27.25 \text{ CFS} \approx 26.27 \text{ OK}$

FROM NOMO SHEET 44

$$Q_{\text{GATE}} = 9.6 \text{ CFS} \\ Q_{\text{PAST INLETS}} = 26.270325 - 2(9.6) \\ = 7.070325 \text{ CFS}$$

- FIND Q ON BALE SEALS BETWEEN LOTS 8 + 9 ON SOUTH SIDE
 $Q = 7.070325 + 22 \times 0.558635$
 $= 19.360295 \text{ CFS}$

- ADD TWO DBL "A" INLETS AT THIS POINT - ONE ON EACH SIDE

• FIND d $S = 3.82\%$, 28' F-F, $n = 0.017$, STD C+G
 $d = 0.37$
 $WP = 28.74$
 $A = 4.23$
 $V = 4.76 \text{ F/S}$
 $Q = 20.14 \text{ CFS} \approx 19.36 \text{ OK}$
 $d + v^2/2g = 0.72$

FROM NOMO SHEET 43

$$Q_{\text{GATE}} = 6.4 \text{ CFS} \\ Q_{\text{PAST INLETS}} = 19.360295 - 2(6.4) \\ = 6.560295 \text{ CFS}$$

- FIND Q ON FLINT AXE STREET JUST SOUTH OF ANTLER TOOL
 $Q = 6.560295 + 9 \times 0.558635$
 $= 11.58801 \text{ CFS}$

- FIND Q ON ANTLER TOOL JUST WEST OF FLINT AXE
 $Q = 12.06899 + 10 \times 0.558635$
 $= 17.65534 \text{ CFS}$

- FIND Q ON ANTLER TOOL JUST WEST OF MORRISSEY STREET
 $Q = 11.58801 + 17.65534 + 5 \times 0.558635$
 $= 32.036525 \text{ CFS}$



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
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SHEET 25 OF _____

- FIND Q ON MORRISSEY JUST NORTH OF ANTLER TOOL

$$Q = 19 \times 0.558635 + 32.036525 \\ = 42.650590 \text{ CFS}$$

- ADD TWO DBL "A" INLETS AT THIS POINT - ONE ON EACH SIDE

$$d = 0.57$$

$$WP = 41.14$$

$$A = 11.57$$

$$V = 3.75 \text{ F/S}$$

$$Q = 43.41 \text{ CFS} \approx 42.65 \text{ OK}$$

$$d + v^2/2g = 0.79 \text{ OK}$$

$$Q_{\text{INLET}} = 8.6 \text{ CFS FROM NOMO SHEET 43}$$

$$Q_{\text{PAST INLETS}} = 42.65 - 2(8.6) \\ = 25.45059 \text{ CFS}$$

- ADD TWO DBL "A" INLETS IN SUMP CONDITION AT THE LOW POINT JUST NORTH OF LOT 120

$$Q = 25.45059 + 2(0.558635) \\ = 26.56786 \text{ CFS}$$

$$Q/P = 3.0 \text{ H}^{1.5} \quad P = 17 \text{ FOR ONE DBL "A" DBL THROAT}$$

$$H = 0.41' < 0.67' \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.65' < 0.85' \text{ OK}$$

- ADD TWO SGL "A" DBL THROAT INLETS IN SUMP CONDITION AT THE NORTH END OF THE PARK IN MORRISSEY TO DRAIN THE REMAINING PART OF THE ROAD.

$$Q = 9.719267 \text{ CFS (SEE SHEET 14)}$$

$$Q/P = 3.0 \text{ H}^{1.5} \quad P = 11 \text{ FOR SGL "A" DBL THROAT}$$

$$H = 0.28' < 0.67' \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.44' < 0.85' \text{ OK}$$



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GSK DATE 4-5-04
CHECKED _____ DATE _____
SHEET 26 OF _____

Revised 8-5-04

1. FIND Q ON FEATHER EDGE STREET JUST NORTH OF PITHOS ROAD

$$Q = 57 \times 0.558635 \\ = 31.842195 \text{ CFS}$$

FIND d 28' F-F, $n = 0.017$, STD C+G, $S = 1.12\%$

$$d = 0.51 \\ W_P = 29.02 \\ A = 8.15 \\ V = 3.967 \text{ F/S} \\ Q = 32.33 \text{ CFS} \approx 31.84 \text{ CFS} \\ d + V^2/2g = 0.75 \text{ OK}$$

2. FIND Q ON FEATHER EDGE STREET JUST SOUTH OF PITHOS ROAD

$$Q = 36 \times 0.558635 \\ = 20.11086 \text{ CFS}$$

FIND d 28' F-F, $n = 0.017$, STD C+G, $S = 1.0\%$

$$d = 0.45 \\ W_P = 28.90 \\ A = 6.47 \\ V = 3.22 \text{ F/S} \\ Q = 20.85 \text{ CFS} \approx 20.11 \text{ OK} \\ d + V^2/2g = 0.61 \text{ OK}$$

3. ADD ONE DBL "A" INLET JUST SOUTH OF RETURN AND BETWEEN LOTS 35 + 36 ON FEATHER EDGE STREET NORTH OF PITHOS RD.

$$Q = 31.842195 - 0.558635 \\ = 31.28356 \text{ CFS}$$

FROM NOMO SHEET 43

$$Q_{\text{GATE}} = 7.0 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 31.28356 - 2(7.0) \\ = 17.28356 \text{ CFS}$$

4. ADD ONE DBL "A" INLET JUST NORTH OF RETURN OF MEGAFAUNA AND ONE BETWEEN LOTS 1+2 ON THE EAST SIDE OF FEATHER EDGE ST SOUTH OF PITHOS RD.

$$Q = 20.11086 - 0.558635 \\ = 19.552225 \text{ CFS}$$

FROM NOMO SHEET 43 $d = 0.44$

$$Q_{\text{GATE}} = 5.0 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 19.552225 - 2(5.0) \\ = 9.552225 \text{ CFS}$$



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PROJECT ANDERSON HEIGHTS
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BY GJK DATE 4-5-04
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SHEET 27 OF _____

Revised 8-5-04

- FIND Q ON PITHOS ROAD JUST WEST OF MORRISSEY STREET
 $Q = 17.28356 + 9.552225 + 2 \times 0.558635$
 $= 27.953055 \text{ CFS}$

- ADD TWO "B" INLETS AT THIS POINT

$$\begin{aligned}d &= 0.5 & S &= 1.0\%, 28' \text{ F-F}, n = 0.017, \text{ STD C+G} \\WP &= 29.06 \\A &= 7.87 \\V &= 3.66 \text{ F/S} \\Q &= 28.84 \text{ CFS} \approx 27.95 \text{ OK} \\d + V^2/2g &= 0.71\end{aligned}$$

FROM NOMO SHEET 44

$$\begin{aligned}Q \text{ GATE} &= 8.0 \text{ CFS} \\Q \text{ PAST INLETS} &= 27.953055 - 2(8.0) \\&= 11.953055 \text{ CFS}\end{aligned}$$

- FIND Q ON MORRISSEY STREET JUST NORTH OF PITHOS ROAD
 $Q = 25 \times 0.558635$
 $= 13.965875 \text{ CFS}$

- FIND Q ON MORRISSEY STREET JUST SOUTH OF PITHOS ROAD
 $Q = 11.953055 + 13.965875 + 0.558635$
 $= 26.477565 \text{ CFS}$

- FIND Q ON MORRISSEY JUST NORTH OF MICROLITH ROAD
 $Q = 26.477565 + 14(0.558635)$
 $= 34.298455 \text{ CFS}$

- FIND Q ON MICROLITH ROAD JUST WEST OF MORRISSEY
 $Q = 29 \times 0.558635$
 $= 16.200415 \text{ CFS}$

- ADD TWO DBL "A" INLETS ON MORRISSEY - ONE BETWEEN LOTS 9+10
ON THE WEST SIDE AND LOTS 86+87 ON THE EAST SIDE

$$\begin{aligned}Q &= 34.298455 - 4(0.558635) \\&= 32.063915 \text{ CFS}\end{aligned}$$

$$\begin{aligned}d &= 0.48 & S &= 1.53\%, \text{ STD C+G}, n = 0.017, 28' \text{ F-F} \\WP &= 28.96 \\A &= 7.27 \\V &= 4.30 \text{ F/S} \\Q &= 31.28 \text{ CFS} \approx 32.06 \text{ OK} \\d + V^2/2g &= 0.77 \text{ OK}\end{aligned}$$

FROM NOMO SHEET 43

$$Q \text{ GATE} = 7.4 \text{ CFS}$$



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SUBJECT DRAINAGE CALCS
BY GJK DATE 4-5-04
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SHEET 28 OF _____

REVISED 8-5-04

$$Q_{\text{PAST INLETS}} = 32.063915 - 2(7.4) \\ = 17.263915 \text{ CFS}$$

- ADD TWO DBL "A" INLETS ON MICROLITH JUST WEST OF MORRISSEY

$$d = 0.35 \quad S = 4.0\% \text{ , STD C+G , } n = 0.017, 28' \text{ F-F} \\ WP = 13.60 \quad Q = 16.200415 \text{ CFS} \\ A = 1.84 \\ V_{1/2} = 4.61 \text{ F/S} \\ Q_{1/2} = 8.48 \text{ CFS} \quad 2 \times 8.48 = 16.96 \approx 16.20 \text{ OK} \\ d + V^2/2g = 0.68 \text{ OK}$$

FROM NOMO SHEET 43

$$Q_{\text{GATE}} = 5.8 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 16.200415 - 2(5.8) \\ = 4.600415 \text{ CFS}$$

- ADD 2 DBL "A" INLETS IN SUMP AT TERMINUS OF MICROLITH.

$$Q = 17.263915 + 4.600415 + 7 \times 0.558635 \\ = 25.774775 \text{ CFS}$$

$$Q/p = 3.04^{1.5} \quad P = 17 \text{ FOR ONE DBL "A"}$$

$$H = 0.40 < 0.67 \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.63 < 0.85 \text{ OK}$$

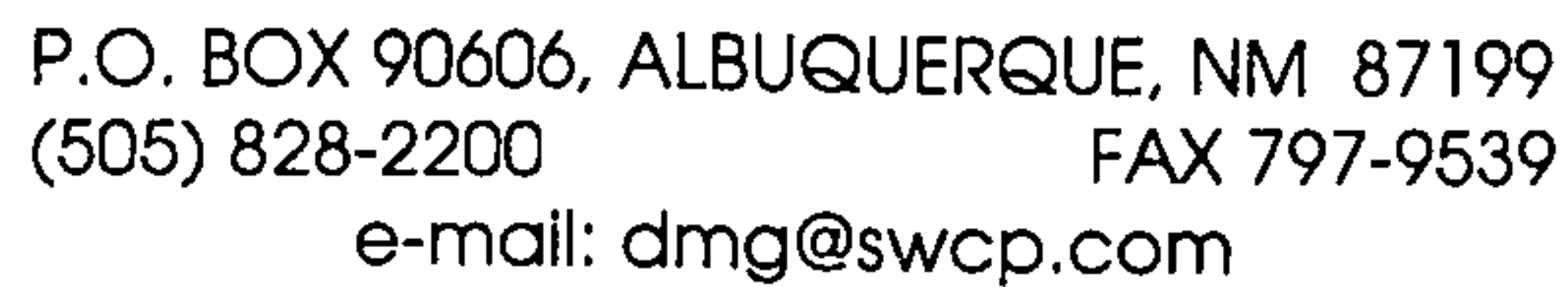
VERIFY CAPACITY OF MICROLITH TERMINUS

$$d = 0.49 \quad S = 1.0\% \text{ , } 25' \text{ F-F, STD C+G, } n = 0.017 \\ WP = 25.98 \\ A = 7.045 \\ V = 3.662 \text{ F/S} \\ Q = 25.80 \text{ CFS} \approx 25.77 \text{ OK} \\ d + V^2/2g = 0.70 \text{ OK}$$

- SIZE POND

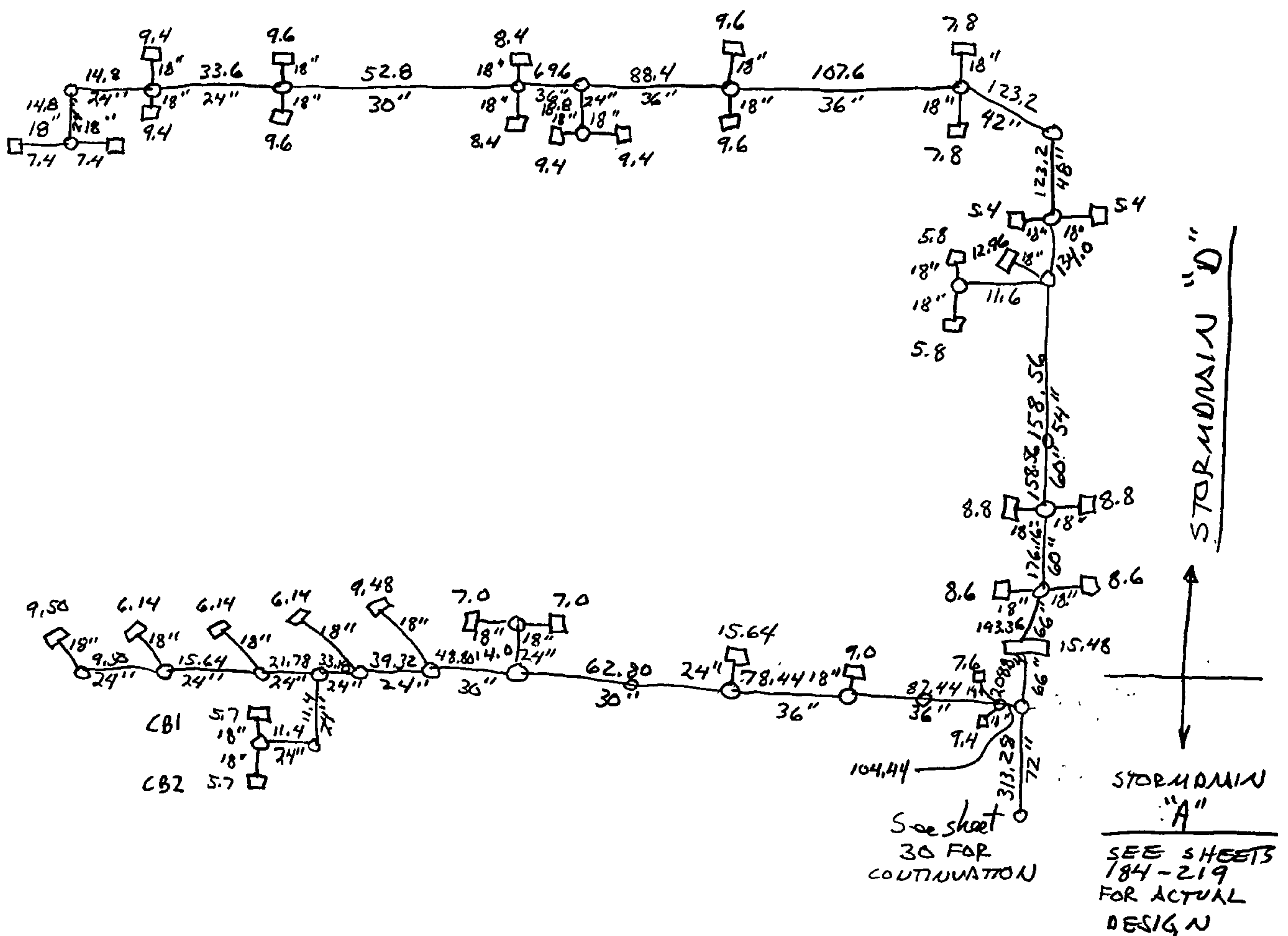
$$\text{INFLOW INTO POND} = 313.28 + 139.16 + 79.05 + 53.48 = 584.97 \text{ CFS}$$

ELEV	AREA (SF)	VOLUME (AC-FT)	OUTFLOW (30" ORIFICE)	
34	91,504	0.00	0.00	
35	95,299	2.15	23.635	FROM A4440 OUTPUT SHEETS 55-58
36	99,169	4.38	33.486	
37	103,114	6.71	40.938	PEAK DISCHARGE = 59.24 CFS
38	107,128	9.12	47.27	MAX WATER SURFACE = 40.29
39	111,219	11.63	52.85	
40	115,379	14.23	57.894	
41	119,609	16.93	62.534	



Revised 8-5-04
4-11-05

FROM NOMO SHEET 47





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PROJECT ANDERSON HEIGHTS

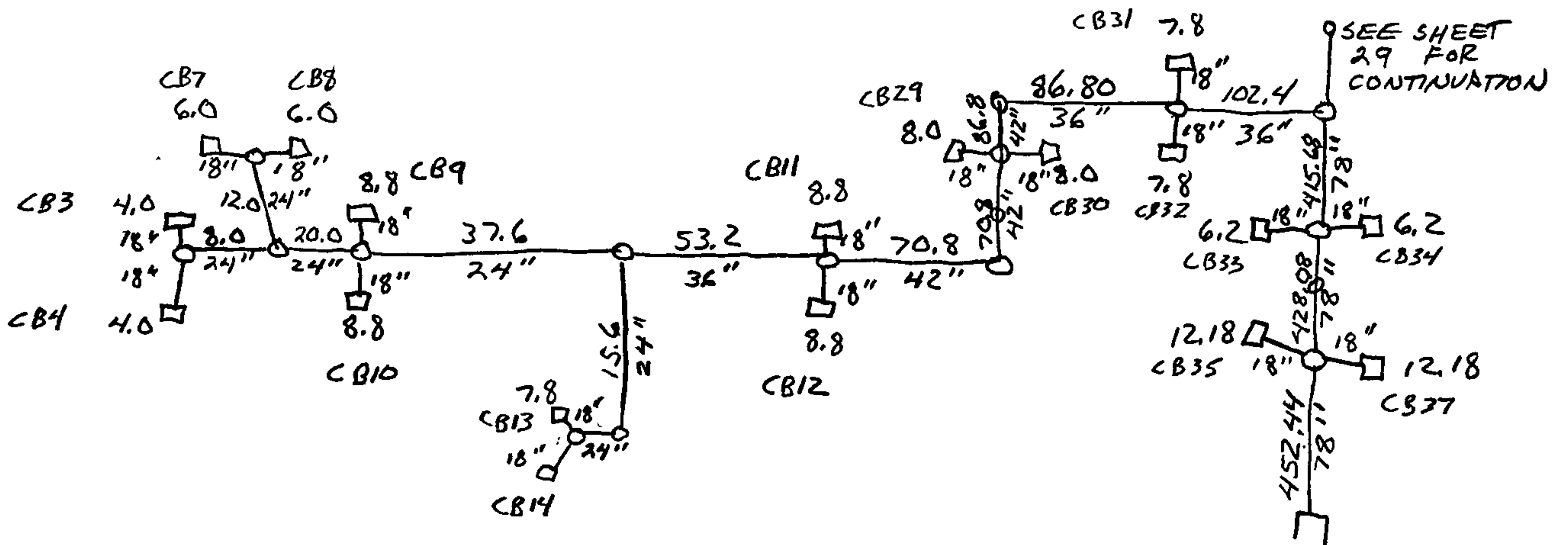
SUBJECT DRAINAGE CALCS

BY GJK DATE 4-5-04

CHECKED _____ DATE _____

SHEET 30 OF _____

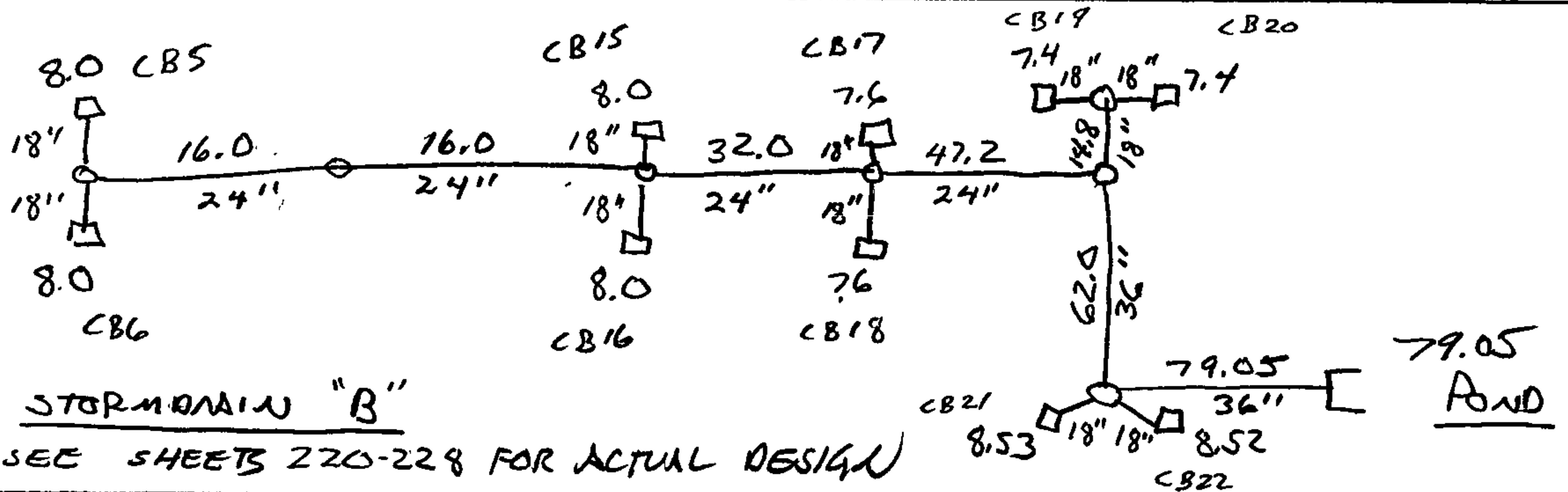
REVISED 8-5-04, 4-11-05



STORM MAIN "A"

SEE SHEETS 184-219 FOR ACTUAL DESIGN

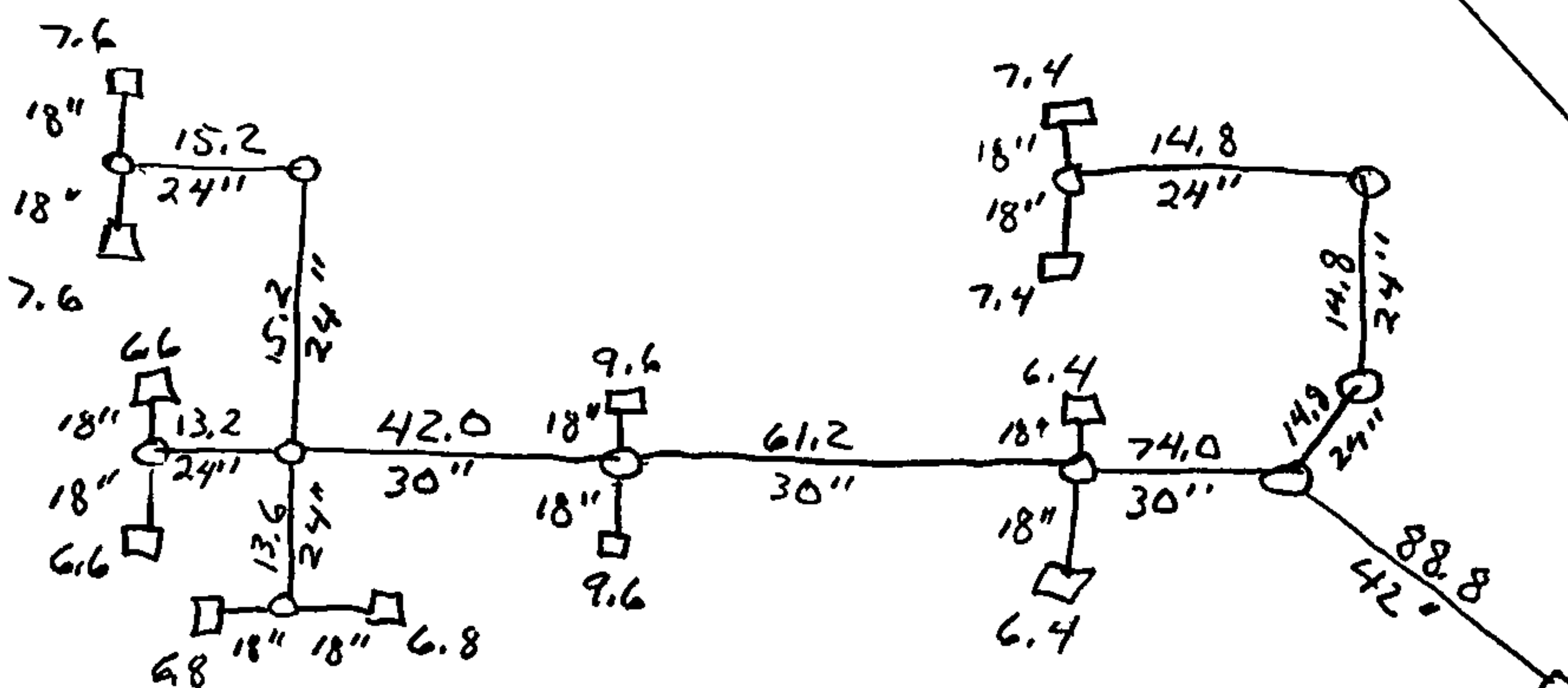
452.44
POND



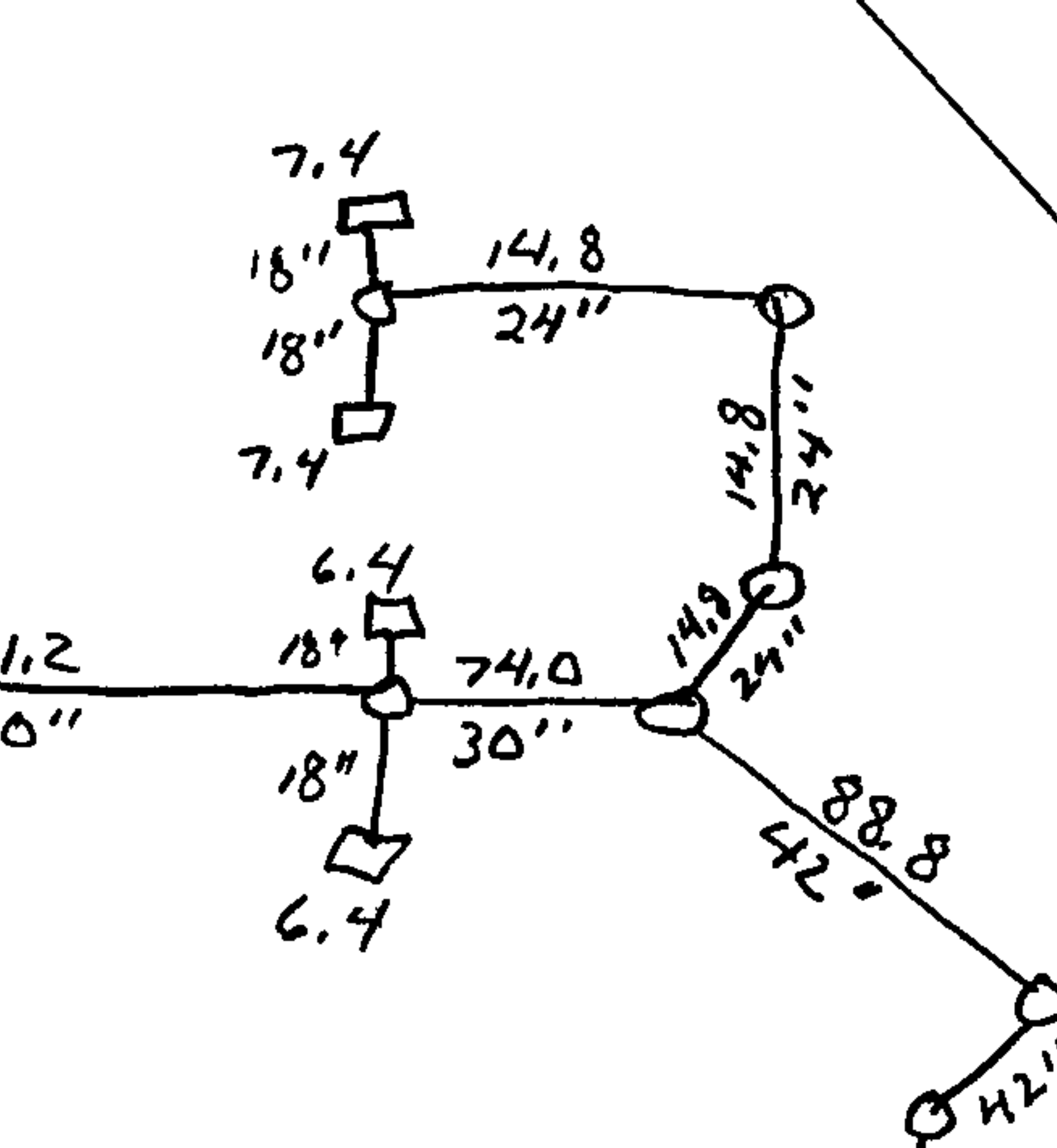
STORM MAIN "B"

SEE SHEETS 220-228 FOR ACTUAL DESIGN

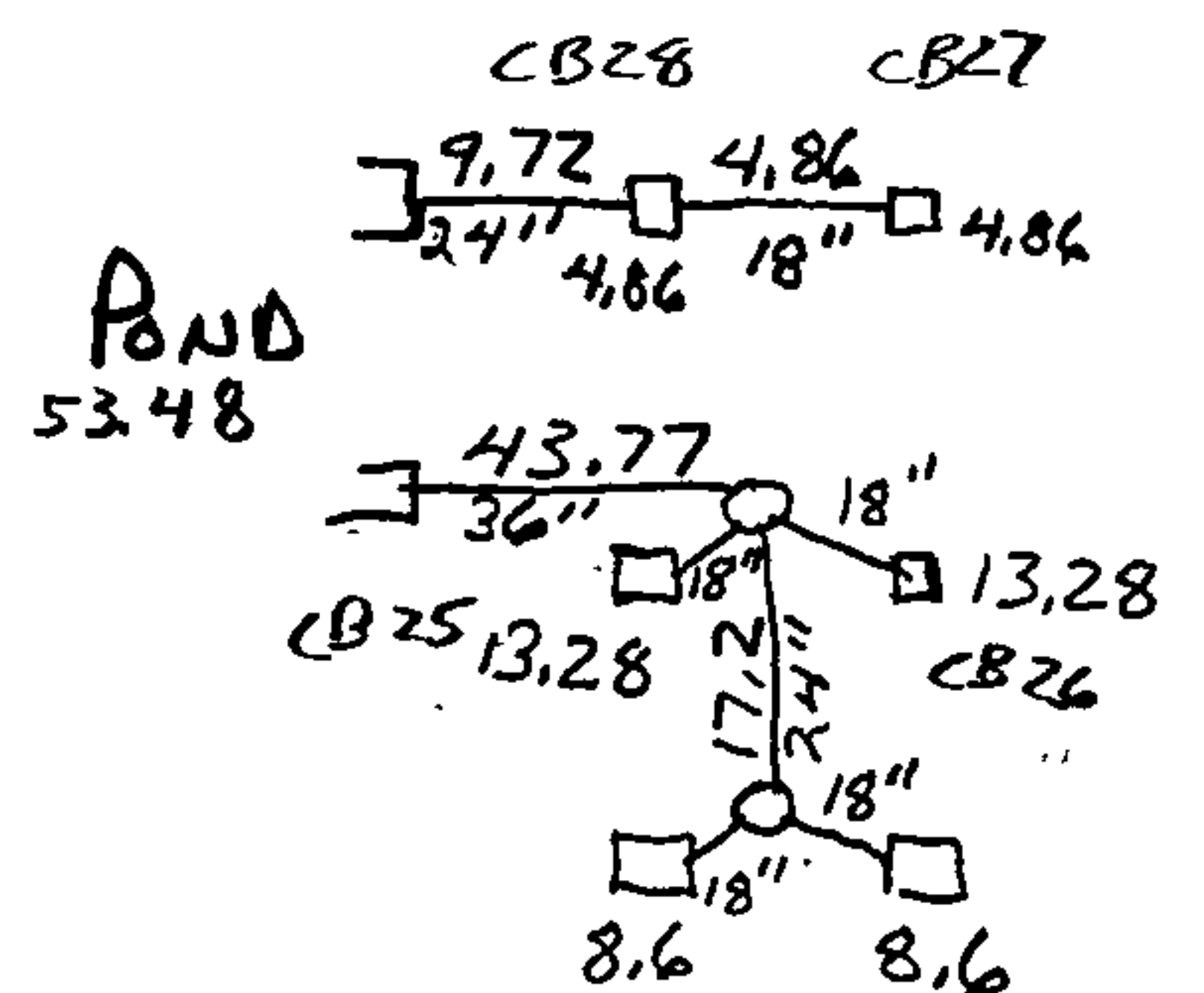
79.05
POND



STORM MAIN "E"

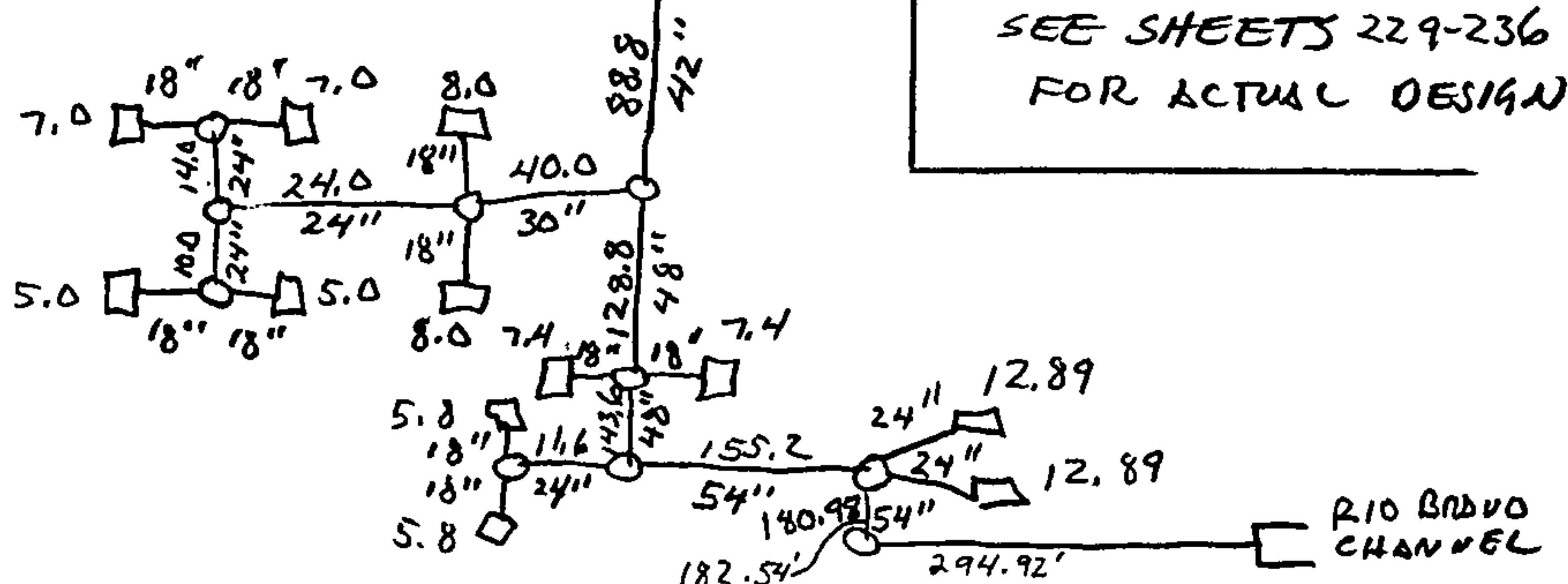


STORM MAIN "F"



STORM MAIN "C"

SEE SHEETS 229-236
FOR ACTUAL DESIGN



RIO BORDO
CHANNEL



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PROJECT ANDERSON HEIGHTS

SUBJECT DRAINAGE CALCS

BY GJK DATE 4-21-04

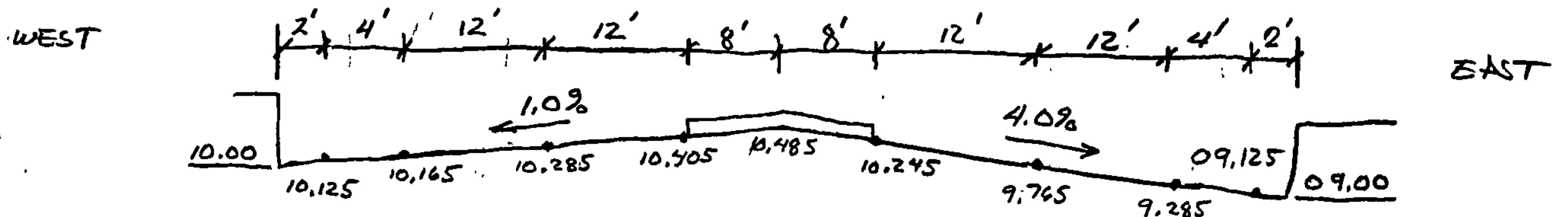
CHECKED _____ DATE _____

SHEET 3/ OF _____

REVISED 8-5-04

- DETERMINE INLETS ON 118TH STREET

CAPACITY OF ONE LANE OPEN



$S = 1.0\%$ $n = 0.017$ 1% CROSS SLOPE
 $d = 0.285$ WATER CAN BE IN THE BIKE LANE AND FIRST DRIVE LANE
 $WP = 18.285$
 $A = 1.725$
 $V_{1/2} = 1.8 \text{ F/S}$
 $Q_{1/2} = 3.12 \text{ CFS}$

$S = 1.0\%$ $n = 0.017$ 4% CROSS SLOPE
 $d = 0.565$ $d = 0.51$
 $WP = 13.565$ $WP = 12.135$
 $A = 3.425$ $A = 2.7478$
 $V_{1/2} = 3.49 \text{ F/S}$ $V = 3.247 \text{ F/S}$
 $Q_{1/2} = 11.96 \text{ CFS}$ $Q = 8.92 \text{ CFS}$
 $d + V^2/20 = 0.75 \text{ NG}$ $d + V^2/20 = 0.67 \text{ OF}$

- FIND Q FOR 118TH

TYPE "D" = 76.53%

TYPE "B" = 23.47%

FROM HIGH POINT ON 118TH TO DENNIS CHAVEZ IS 4974' W/ 98' ROW
TOTAL AREA = 11.1904 AC

FROM HYDRO OUTPUT SHEETS 59-63

$Q_{100} = 43.57 \text{ CFS}$

$Q_{10} = 27.26 \text{ CFS}$

Q_{10} per LINEAR FOOT PER HALF OF ROW
 $= \frac{27.26}{4974(2)} = 0.002740 \text{ CFS}$

- FIND LENGTH OF 118TH BEFORE AN INLET IS REQUIRED

$L = \frac{3.12}{0.00274} = 1140.44 \text{ FT SAY } 1140$

FOR 1% CROSS SLOPE - WEST SIDE

FROM NODD SHEET 42 SGL "A"

$Q_{INLET} = 1.65 \text{ CFS}$

$Q_{AFT INLET} = 3.12 - 1.65 = 1.47 \text{ CFS}$

- FIND NEXT INLET

$L = \frac{1.47}{0.00274} = 536.50 \text{ FT SAY } 536$

$L = \frac{8.92}{0.00274} = 3255 \text{ FT}$

FOR 4% CROSS SLOPE - EAST SIDE



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PROJECT ANDERSON HEIGHTS

SUBJECT DRAINAGE CALCS

BY GJK DATE 4-21-04

CHECKED _____ DATE _____

SHEET 32 OF _____

REVISED 8-5-04

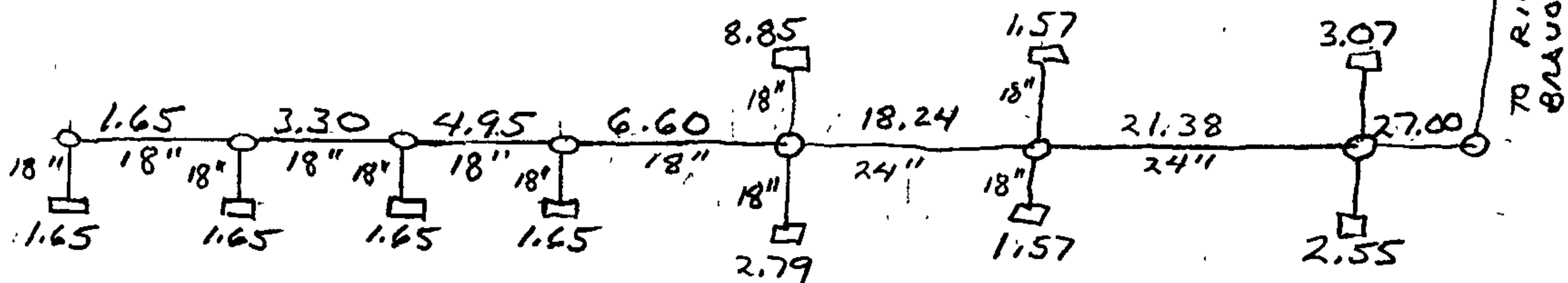
DESIGN STORM DRAIN ON 118TH FOR 10 YEAR STORM

HIGH POINT SGL "A" SGL "A" SGL "A" SGL "A"
16+76.19 28+16.19 33+52.19 38+88.19 44+24.19

DBL "A" DBL THT
SUMP
46+97

DBL "A" DBL THT
SUMP
51+17

SGL "A"
66+00.00



FIND Q AT 46+97 SUMP INLET

WEST SIDE HIGH POINT IS 49+07
 $49+07 - 44+24.19 = 482.81 \text{ LF}$

$$Q = 482.81 (0.00274) + 1.47$$

$$= 2.79 \text{ CFS}$$

EAST SIDE HIGH POINT IS 49+07
 $49+07 - 16+76.19 = 3230.81 \text{ LF}$

$$Q = 3230.81 (0.00274)$$

$$= 8.85 \text{ CFS}$$

FIND Q AT 51+17 SUMP INLET - BOTH EAST AND WEST SIDES

HIGH POINT IS 54+80.33
 $54+80.33 - 49+07 =$

$$Q = 573.33 (0.00274)$$

$$= 1.57 \text{ CFS}$$

FIND Q AT 66+00.00

WEST SIDE $Q = (66+00 - 54+80.33) (0.00274)$
 $= 3.07 \text{ CFS}$

EAST SIDE $Q = (66+00 - 54+80.33)$
 $(0.00274) = 3.07 \text{ CFS}$

WEST SIDE $d = 0.25$ $S = 3.0\%$
 $WP = 14.75$
 $A = 1.156$
 $V = 2.77 \text{ F/S}$
 $Q = 3.21 \text{ CFS} \approx 3.07 \text{ OK}$

FROM NUDO SHEET 46

$$Q_{\text{INLET}} = 2.25 \text{ CFS}$$

$$Q \text{ PAST INLETS INTO DENNIS CHAUER}$$

$$= 3.07 - 2.25 = 0.82 \text{ CFS}$$

EAST SIDE $d = 0.29$ $S = 3.0\%$
 $WP = 6.415$
 $A = 0.7953$
 $V = 3.764 \text{ F/S}$
 $Q = 2.99 \text{ CFS} \approx 3.07 \text{ OK}$

FROM NUDO SHEET 46

$Q_{\text{INLET}} = 3.2 \text{ CFS}$ ALL FLOW
ENTERS INLET
BECAUSE OF 42 CROSS
SLOPE



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GSK DATE 4-21-04
CHECKED _____ DATE _____
SHEET 33 OF _____

REVISED 8-5-04

• DESIGN STORM DRAIN ON 118th FOR 100 YEAR STORM

Q PER LINEAR FOOT PER HALF OF ROW

$$= \frac{43.57}{4974 \cdot (2)} = 0.00438 \text{ CFS}$$

• FIND d AT FIRST INLET ON WESTSIDE 28+16.19

$$Q = 1140 \times 0.00438 = 4.99 \text{ CFS}$$

$$d = 0.32 \quad S = 1.0\% \quad 1\% \text{ CROSS SLOPE } 30' \text{ F-F}$$

$$WP = 21.82$$

$$A = 2.42$$

$$V = 2.02 \text{ F/S}$$

$$Q = 4.89 \text{ CFS} \approx 4.99 \text{ CFS OK}$$

$$d + 0.25 = 0.38 < 0.87 \text{ OK}$$

FROM NOMO SHEET 46

$$Q_{\text{GATE}} = 2.10 \text{ CFS}$$

$$Q_{\text{PAST INLET}} = 4.99 - 2.10 \\ = 2.89 \text{ CFS}$$

• FIND d AT NEXT INLET - 33+52.19

$$Q = 2.89 + 536(0.00438) \\ = 5.24 \text{ CFS}$$

$$d = 0.33$$

$$WP = 22.83$$

$$A = 2.636$$

$$V = 2.07 \text{ F/S}$$

$$Q = 5.46 \text{ CFS} \approx 5.24 \text{ CFS OK}$$

$$Q_{\text{GATE}} = 2.20$$

$$Q_{\text{PAST INLET}} = 5.24 - 2.20 \\ = 3.04 \text{ CFS}$$

• FIND d AT NEXT INLET - 38+88.19

$$Q = 3.04 + 536(0.00438) \\ = 5.39 \text{ CFS}$$

$$d = 0.33$$

$$WP = 22.83$$

$$A = 2.636$$

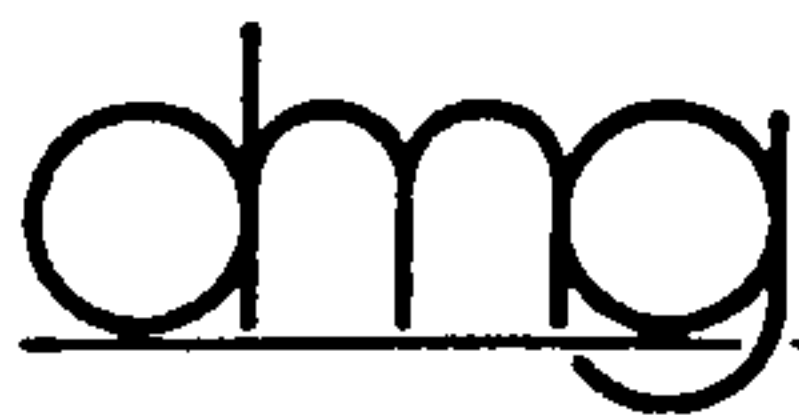
$$V = 2.07 \text{ F/S}$$

$$Q = 5.46 \text{ CFS} \approx 5.39 \text{ CFS}$$

FROM NOMO SHEET 46

$$Q_{\text{GATE}} = 2.2 \text{ CFS}$$

$$Q_{\text{PAST INLET}} = 5.39 - 2.2 \\ = 3.19 \text{ CFS}$$



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BY GJK DATE 4-21-04
CHECKED _____ DATE _____
SHEET 34 OF _____

REVISED 8-5-04

• FIND d AT NEXT INLET - 44+24.19

$$Q = 3.19 + 536(0.00438) \\ = 5.54 \text{ CFS}$$

$$d = 0.33$$

$$WP = 22.83$$

$$A = 2.636$$

$$V = 2.07 \text{ F/S}$$

$$Q = 5.46 \text{ CFS} \approx 5.54 \text{ OK}$$

FROM NOMO SHEET 46

$$Q_{\text{GATE}} = 2.2 \text{ CFS}$$

$$Q_{\text{PAST INLET}} = 5.54 - 2.2 \\ = 3.34 \text{ CFS}$$

• FIND d AT NEXT INLET - 46+97 SUMP INLET

$$Q = 3.34 + 482.81(0.00438) \\ = 5.45 \text{ CFS}$$

SUMP INLET

$$Q/p = 3.0 \text{ H}^{1.5} \quad P = 17 \text{ FOR DBL "A" DBL THT}$$

$$H = 0.22 < 0.67' \text{ OK} \quad \text{ALSO LESS THAN } 0.285' \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.36' \text{ OK}$$

• FIND d AT NEXT INLET - 51+17 SUMP INLET

$$Q = 573.33(0.00438) \\ = 2.51 \text{ CFS}$$

SUMP INLET DBL "A" DBL THT

$$H = 0.13' < 0.67' \text{ OK} < 0.285' \text{ OK}$$

ASSUME 50% CLOGGED

$$H = 0.21' \text{ OK}$$



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• FIND d AT NEXT INLET - 66+00
 $Q = (66+00 - 54+80.33) \times 0.00438$
 $= 4.90 \text{ CFS}$

$d = 0.28$ $S = 3.0\%$
 $WP = 17.78$
 $A = 1.636$
 $V_{1/2} = 3.086 \text{ F/S}$
 $Q_{1/2} = 5.05 \text{ CFS} \approx 4.90 \text{ OK}$

FROM NOMO SHEET 46

$Q_{\text{gate}} = 2.85 \text{ CFS}$

Q PAST INLET AND INTO DENNIS CHAVEZ ON WESTSIDE

$Q = 4.90 - 2.85$
 $= 2.05 \text{ CFS}$

.... FIND d AT FIRST INLET ON EASTSIDE - 46+97
 $Q = 3230.81 (0.00438)$ SUMP INLET
 $= 14.15 \text{ CFS}$

SUMP INLET $S = 1.0\%$ 4" CROWN 25' F-F
DBL "A" DBL THROAT

$Q/p = 3.0 \text{ H}^{1.5}$

$H = 0.43' < 0.67 \text{ OK}$ $< 0.565 \text{ OK}$

ASSUME 50% CLOGGED

$H = 0.68 < 0.87 \text{ OK}$

• FIND d AT NEXT INLET - 51+17 SUMP INLET

$Q = 573.33 \times 0.00438$
 $= 2.51 \text{ CFS}$

SUMP INLET

$H = 0.13' < 0.67' \text{ OK}$

ASSUME 50% CLOGGED

$H = 0.21' \text{ OK}$



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-21-04
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SHEET 36 OF _____

REVISED 8-5-04

FIND d AT NEXT INLET - 66 + 00

$$Q = 1119.67 \times 0.00438 \\ = 4.90 \text{ CFS}$$

$$d = 0.34 \quad S = 3.09\%$$

$$WP = 7.715$$

$$A = 1.1328$$

$$V = 4.2138 \text{ F/S}$$

$$Q = 4.77 \text{ CFS} \approx 4.90 \text{ CFS} \text{ OK}$$

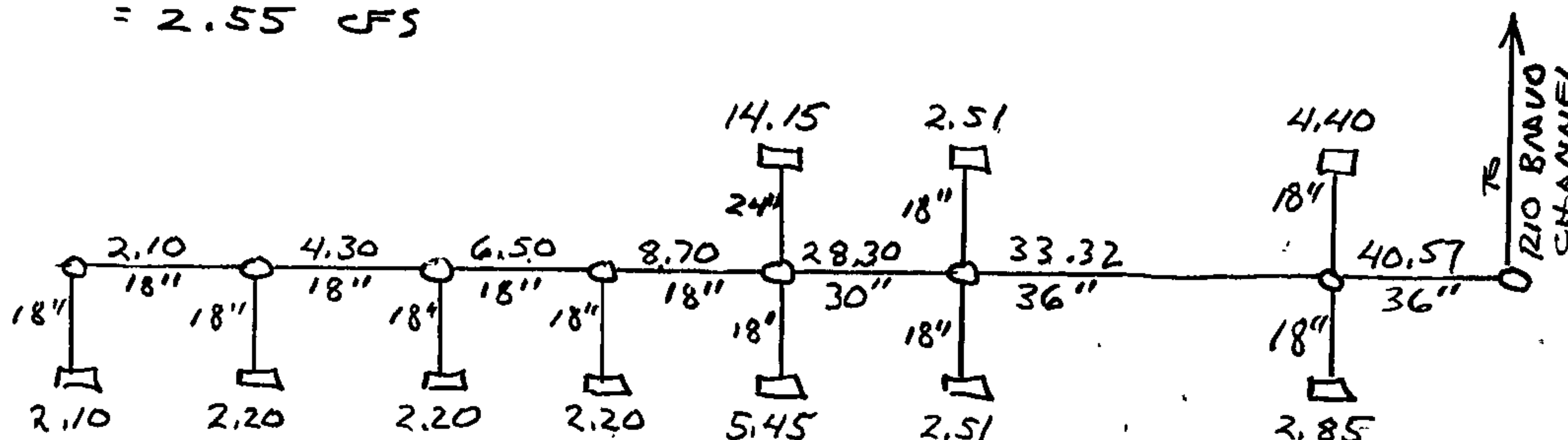
$$d + V^2/2g = 0.62 < 0.87 \text{ OK}$$

FROM NAMED SHEET 46

$$Q_{\text{GATE}} = 4.4 \text{ CFS} \quad Q_{\text{PAST INLET}} = 4.90 - 4.4 = 0.5 \text{ CFS}$$

FIND TOTAL Q INTO DENNIS CHAVEZ FROM 118th ST.

$$Q = 2.05 + 0.50 \\ = 2.55 \text{ CFS}$$



THIS STORMWATER GOVERNS OVER THE 10 YR.



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GJK DATE 5-10-04
CHECKED _____ DATE _____
SHEET 37 OF _____

REVISED 3-11-05

- DESIGN THE 118th STREET DETENTION POND SYSTEM
THIS WILL AMEND THE RIO BRAVO OMP. (APPENDIX "A")
SEE ANYMO OUTPUT SHEETS 69-129

- THIS IS THE DESIGN FOR BUILDOUT
SEE SHEETS 40 FOR EXISTING FLOW INTO THE NEW
POND SYSTEM

- POND #2

BASINS THAT DRAIN TO IT ARE

BASIN	AREA(SM)	A%	B%	C%	D%
A60106	0.0501	0	28	23	49
A60107A	0.0313	0	28	23	49
A60108	0.0924	0	48	17	35
A60109	0.0414	0	28	23	49

TOTAL 0.2152

COMBINED TOTAL 0 36.59 20.42 42.99

- POND #3

BASINS THAT DRAIN TO IT ARE

BASIN	AREA(SM)	A%	B%	C%	D%
A60110	0.1046	0	40	19	41
A60111	0.0384	0	28	23	49

TOTAL 0.1430

COMBINED TOTAL 0 36.78 20.07 43.15

PLUS ROUTED FLOW FROM POND 2

- POND #4

BASINS THAT DRAIN TO IT ARE

BASIN	AREA(SM)	A%	B%	C%	D%
A60116N	0.0381	0	28	23	49
A60113	0.0580	0	29	23	48

TOTAL 0.0961

COMBINED TOTAL 0 28.6 23 48.4

PLUS ROUTED FLOW FROM POND 3



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALLS
BY GJK DATE 5-10-04
CHECKED _____ DATE _____
SHEET 38 OF _____

• POND #5

BASINS THAT DRAIN TO IT ARE

BASIN	AREA(SM)	A%	B%	C%	D%
A60114	0.2162	0	46	17	37
A60115	0.0764	0	32	21	47
A601165	0.0244	0	28	23	49
TOTAL	0.3170				

COMBINED TOTAL	0	41.24	18.43	40.33

PLUS ROUTED FLOW FROM POND 4

• POND #6

BASINS THAT DRAIN INTO IT ARE

BASIN	AREA(SM)	A%	B%	C%	D%
201	0.0969	0	27	27	46

PLUS ROUTED FLOW FROM POND 5

• POND #8

BASINS THAT DRAIN INTO IT ARE

BASIN	AREA(SM)	A%	B%	C%	D%
202	0.0826	0	27	27	46
2035	0.0386	0	35.6	35.6	28.8

- POND #6 DISCHARGES TO A MANHOLE WHICH ALSO ACCEPTS FLOW FROM BASIN 203N. THIS MANHOLE IS AT THE NW CORNER OF DENNIS CHAVEZ & 118TH STREET.
- THIS FLOW TRAVELS EAST UNDER 118TH TO A MANHOLE WHERE THE FLOW FROM POND #8 IS ADDED.
- AS THE FLOW TRAVELS EAST THE FLOW FROM BASIN 204W DIRECTLY JOINS THE FLOW. THIS FLOW WILL CONTINUE EAST AND ENTER THE RIO BRAVO CHANNEL THROUGH A NEW HEADWALL.
- THE FLOW FROM BASIN 204E WILL DISCHARGE TO A MH IN THE DENNIS CHAVEZ ROW AND TURN EAST WHERE IT WILL ENTER THE RIO BRAVO CHANNEL THROUGH A NEW HEADWALL. THIS PIPE WILL PARALLEL THE ONE FROM 118TH ST.



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PROJECT ANDERSON HEIGHTS

SUBJECT DRAINAGE CALCS

BY GSK DATE 8-3-09

CHECKED _____ DATE _____

SHEET 39 OF _____

• SIZE POUNDS

POND #2

ELEV	AREA (SF)	VOL (AC-FT)	OUTPUT (48" ORIFICE) CFS
56	35,846	0	0
57	38,630	0.85	60.51
58	41,483	1.77	85.57
59	44,407	2.75	104.80
60	47,401	3.80	121.01
61	50,465	4.93	135.30
62	53,599	6.13	148.21

POND #3

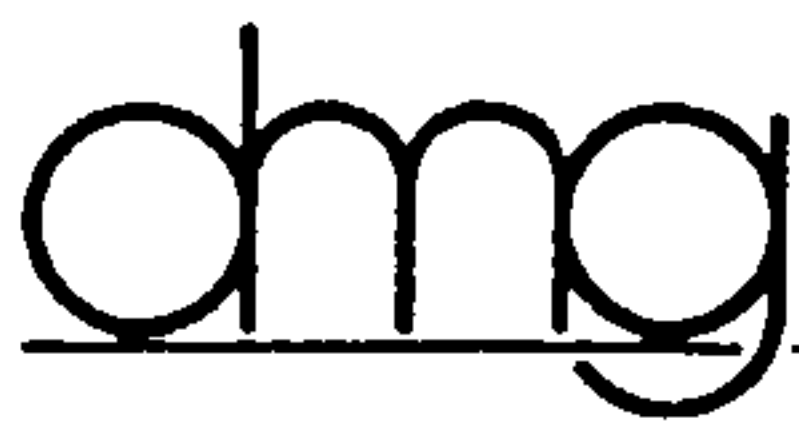
ELEV	AREA (SF)	VOL (AC-FT)	OUTPUT (48" ORIFICE) CFS
46	68,680	0	0
47	72,743	1.62	60.51
48	76,872	3.34	85.57
49	81,066	5.15	104.80
50	85,326	7.06	121.01
51	89,652	9.07	135.30
52	94,043	11.18	148.21

POND #4

ELEV	AREA (SF)	VOL (AC-FT)	OUTPUT (CFS) 48" ORIFICE
37	31,494	0	0
38	33,985	0.75	60.51
39	36,548	1.56	85.57
40	39,183	2.43	104.80
41	41,889	3.36	121.01
42	45,179	4.36	135.30
43	49,372	5.45	148.21

POND #5

ELEV	AREA (SF)	VOL (AC-FT)	OUTPUT (CFS) 2-42" ORIFICES
32	81,177	0	0
33	85,090	1.91	92.66
34	89,069	3.91	131.02
35	93,114	6.00	160.48
36	97,225	8.18	185.30
37	101,401	10.46	207.18
38	105,644	12.84	226.94



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PROJECT ANDERSON HEIGHTS

SUBJECT DRAINAGE CALCS

BY GSK DATE 8-3-04

CHECKED _____ DATE _____

SHEET 40 OF _____

POND #6

ELEV	AREA (SF)	VOL (AC-FT)	OUTPUT (CFS) 54" ORIFICE
26	58,282	0	0
27	63,043	1.39	76.58
28	67,874	2.90	108.30
29	72,775	4.51	132.64
30	77,746	6.24	153.15
31	82,787	8.08	171.23
32	87,899	10.04	197.58
33	93,081	12.12	202.60
34	98,333	14.31	216.59

POND #8

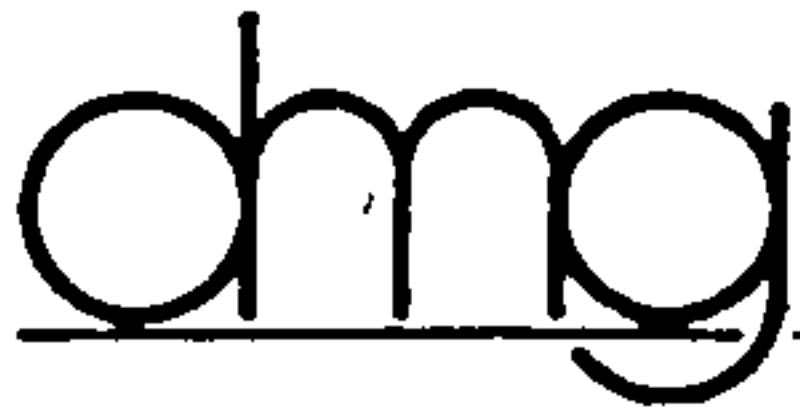
ELEV	AREA (SF)	VOL (AC-FT)	OUTPUT (CFS) 36" ORIFICE
15	47,447	0	0
16	50,454	1.12	15.13
17	53,535	2.32	21.39
18	56,690	3.58	26.20
19	59,919	4.92	30.25
20	63,223	6.33	33.82

FROM HYMO OUTPUT SHEETS

POND	Q _{in}	Q _{out}	MAX WATER SURFACE	MAX STORAGE
2	388.95	140.83	61.43 < 62	5.4437
3	367.30	135.16	50.99 < 52	9.0497
4	193.77	132.74	41.82 < 43	4.1808
5	635.67	217.31	37.51 < 38	11.6804
6	334.92	197.07	31.98 < 34	10.0022
8	222.07	30.73	19.13 < 20	5.1078

• SIZE POND CONNECTOR PIPES (SEE NOMO SHEET 47)

POND'S/STRUCTURE	LENGTH (FT)	SLOPE (%)	GRAVITY Q (CFS)	SIZE
2-3	148	6.76	350 > 141	48"
3-4	446	2.02	200 > 135	48"
4-5	407	1.23	160 > 133	48"
5-6	261	2.30	2x150 = 300 > 217	2x42"
6-MH1	240	4.38	400 > 197.07	54"
8-MH2	285	1.67	40 > 30.73	30"



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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GJK DATE 3-11-05
CHECKED _____ DATE _____
SHEET 40A OF _____

- FOR ANDERSON HEIGHTS THE POND SYSTEM WILL NOT BE USED TO ITS FULL POTENTIAL, ONLY EXISTING FLOWS WILL ENTER THE SYSTEM.
- FOR THIS WE WILL USE 90% A AND 10% B AND TREATMENTS. THE REDUCED FLOW WILL ELIMINATE THE NEED FOR THE STATE ENGINEER TO GET INVOLVED AT THIS TIME. THE PROPERTY TO THE WEST OF THE PONDS WILL FURTHER DEFINE THE PONDS. THE DEPTHS OF THE PONDS WILL REMAIN BUT THE ACTUAL AREA MAY CHANGE AS THAT DESIGN PROGRESSES. WESTPAC INVESTMENTS ^{HAS} PURCHASED THE PROPERTY AND OUR OFFICE IS CURRENTLY DOING A WATER STUDY PRIOR TO DEVELOPMENT & PREPARING A SKETCH PLAT FROM THE AHYMO OUTPUT SHEETS 237-282

POND	Q _{in}	Q _{out} (cfs)	MAX WATER SURFACE	POND BOTTOM	MAX STORAGE(AC-Ft)
2	167.99	81.86	57.85	56.00	1.6338
3	172.88	78.28	47.71	46.00	2.8394
4	96.23	77.16	38.67	37.00	1.2882
5	285.87	127.35	33.90	32.00	3.7185
6	168.30	113.02	28.19	26.00	3.2119

- SINCE THE PONDS ARE IN SOMEWHAT OF A DAM CONDITION THE STATE ENGINEER WILL NEED TO BE INFORMED FOR THE BUILDOUT DESIGN. BUT SINCE THERE IS LESS THAN FOUR (4) AC-FT IN ALL OF THE PONDS THERE IS NO NEED TO SUBMIT TO THE STATE ENGINEER AT THIS TIME FOR THE EXISTING FLOW.
- WATER QUALITY CONTROL WILL BE DONE WITH THE WESTPAC PROJECT. THOSE WILL BE WHERE STORMWATER ENTERS THE PONDS WHICH IS UNKNOWN AT THIS TIME. NO WATER QUALITY CONTROL IS REQUIRED FOR THE EXISTING RUNOFF. THE PONDS WILL TAKE SOME OF THE SILT OUT.
- THE OVER ALL FLOW AT THE CONDESHIRE BOXES WITH THE EXISTING FLOW IS ONLY 967.26 CFS, THIS FLOW IS LESS THAN THAT SHOWN IN THE ANALYSIS REPORT FOR THE CONDESHIRE BOX CULVERT BY JULIE COONROD AT THE UNIVERSITY OF NEW MEXICO. NO IMPROVEMENTS ARE REQUIRED AT THIS TIME.

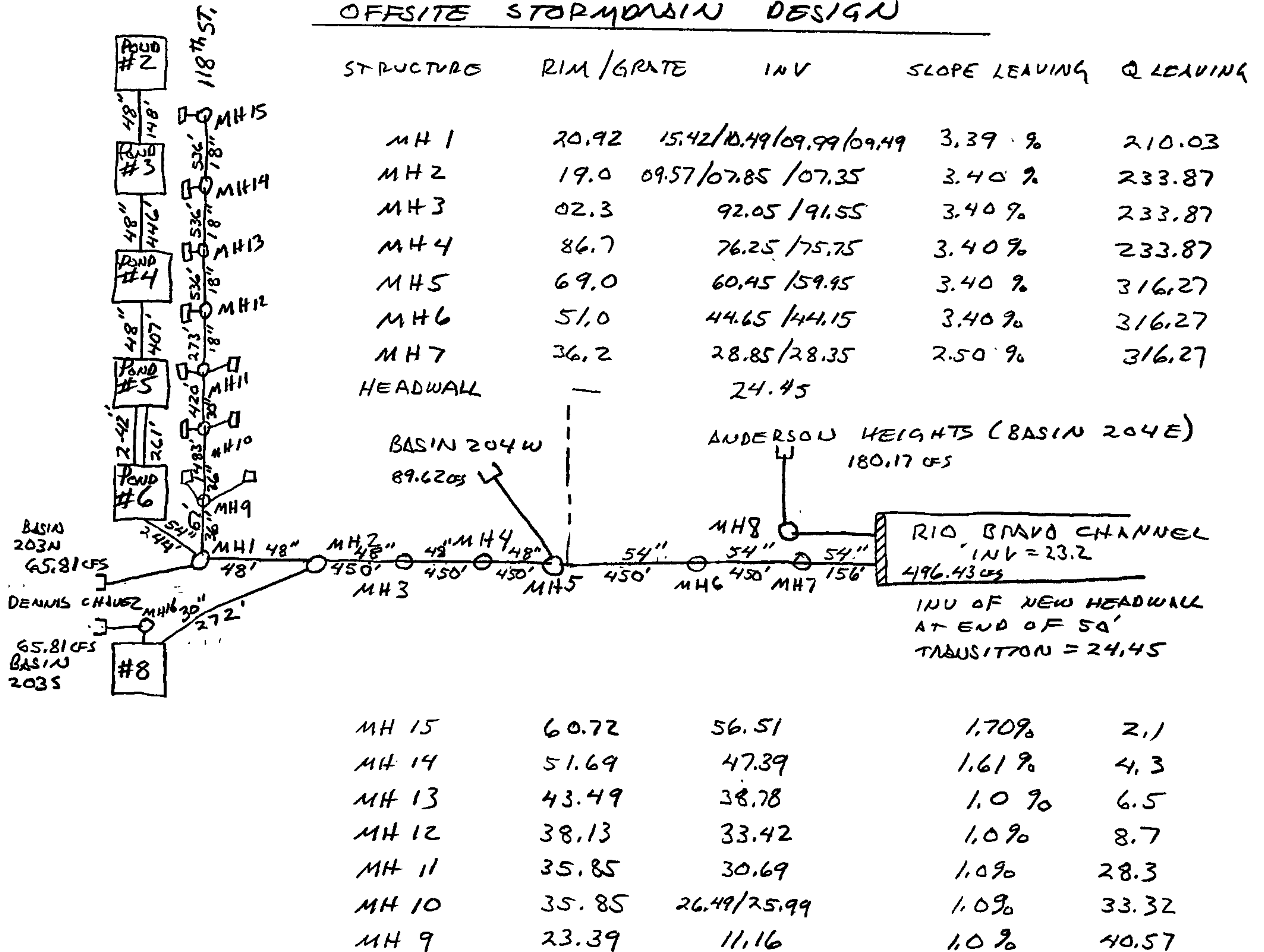


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PROJECT ANDERSON HEIGHTS
SUBJECT DRAINAGE CALCS
BY GJK DATE 8-3-04
CHECKED _____ DATE _____
SHEET 41 OF _____

OFFSITE STORMDRAIN DESIGN



- DETERMINE DENNIS CHAVEZ STORMDRAIN WEST OF 118TH ST
AT THIS POINT WE ARE ONLY CONCERNED WITH
THE PIPES THAT TIE TO POND #8 AND MH1. THE EXISTING
RUNOFF IS PRESENTLY ON THE SURFACE IN SOIL CEMENT
SWALES. WE PROPOSE TO BUILD A HEADWALL ON THE
NORTH AND SOUTH SIDE OF DENNIS CHAVEZ IN THE
EXISTING SWALES JUST WEST OF 118TH STREET. THIS
FLOW WILL ENTER THE HEADWALL FLOW TO A MANHOLE
AND ENTER POND 8 ON THE SOUTH SIDE AND MH1 ON
THE NORTH SIDE.

FROM 114 MO OUTPUT SHEETS 64-68

Q₁₀₀ = 75.74 CFS

Q₁₀ = 40.85 CFS

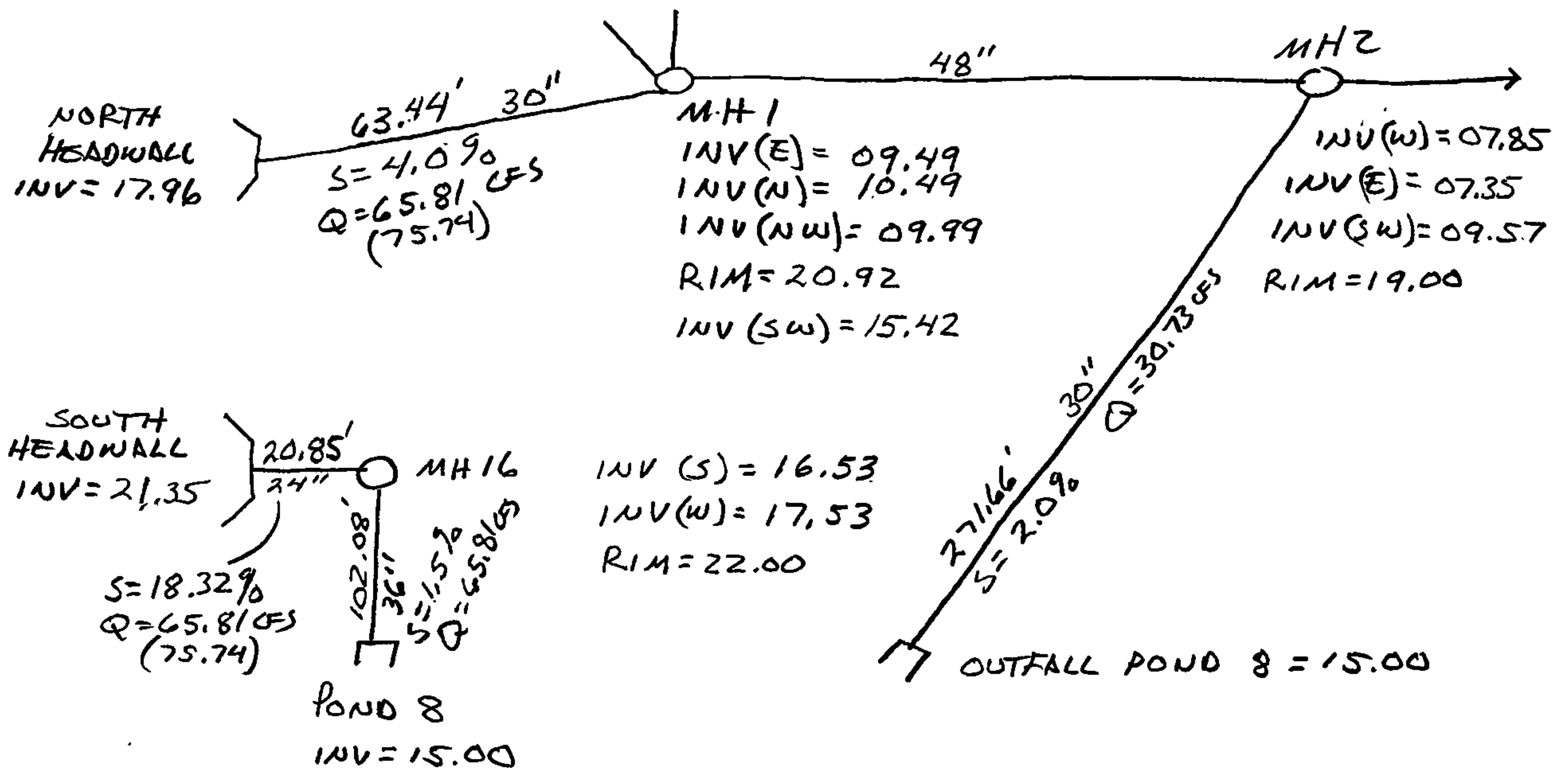
> THIS IS BASED ON DEVELOPED FLOW



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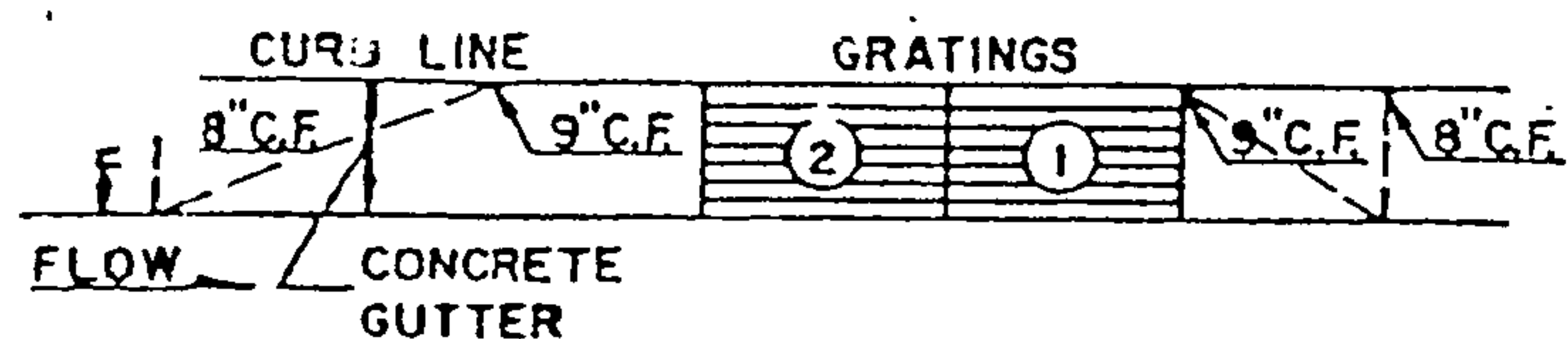
PROJECT ANDERSON HEIGHTS
SUBJECT DAMAGE CALCS
BY GSK DATE 8-9-04
CHECKED _____ DATE _____
SHEET 42 OF _____



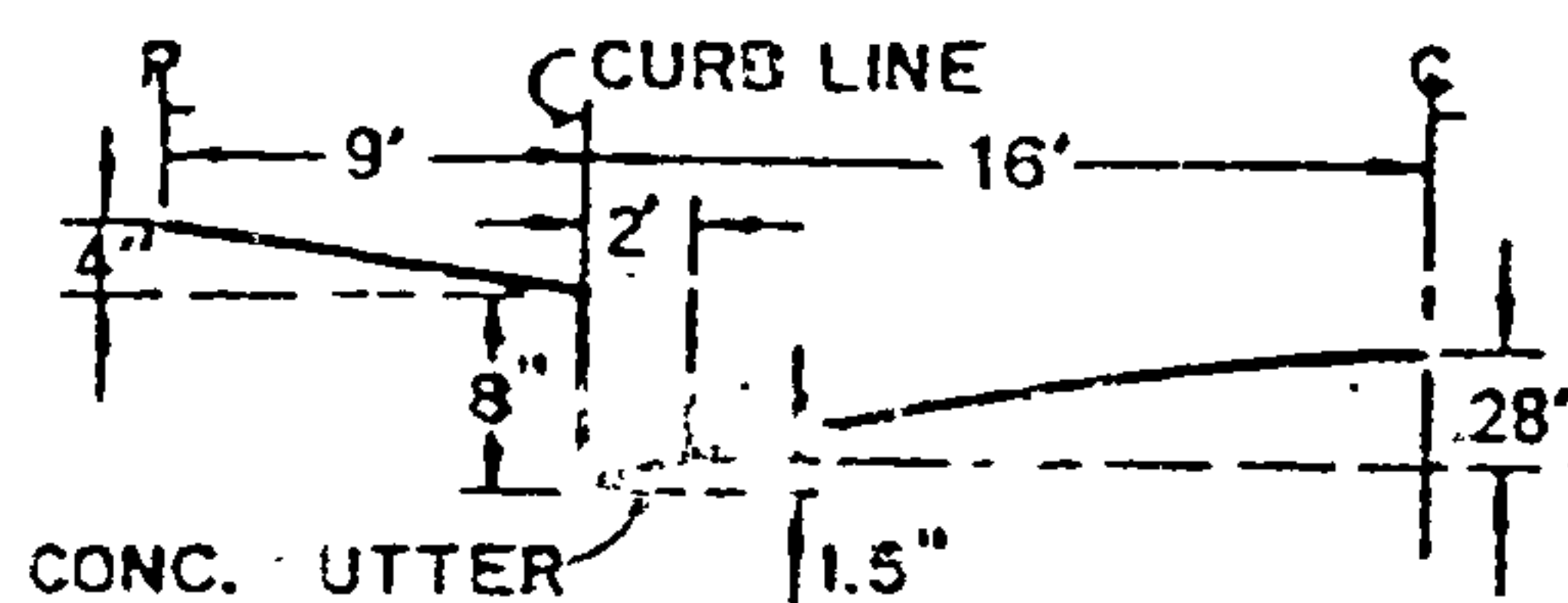
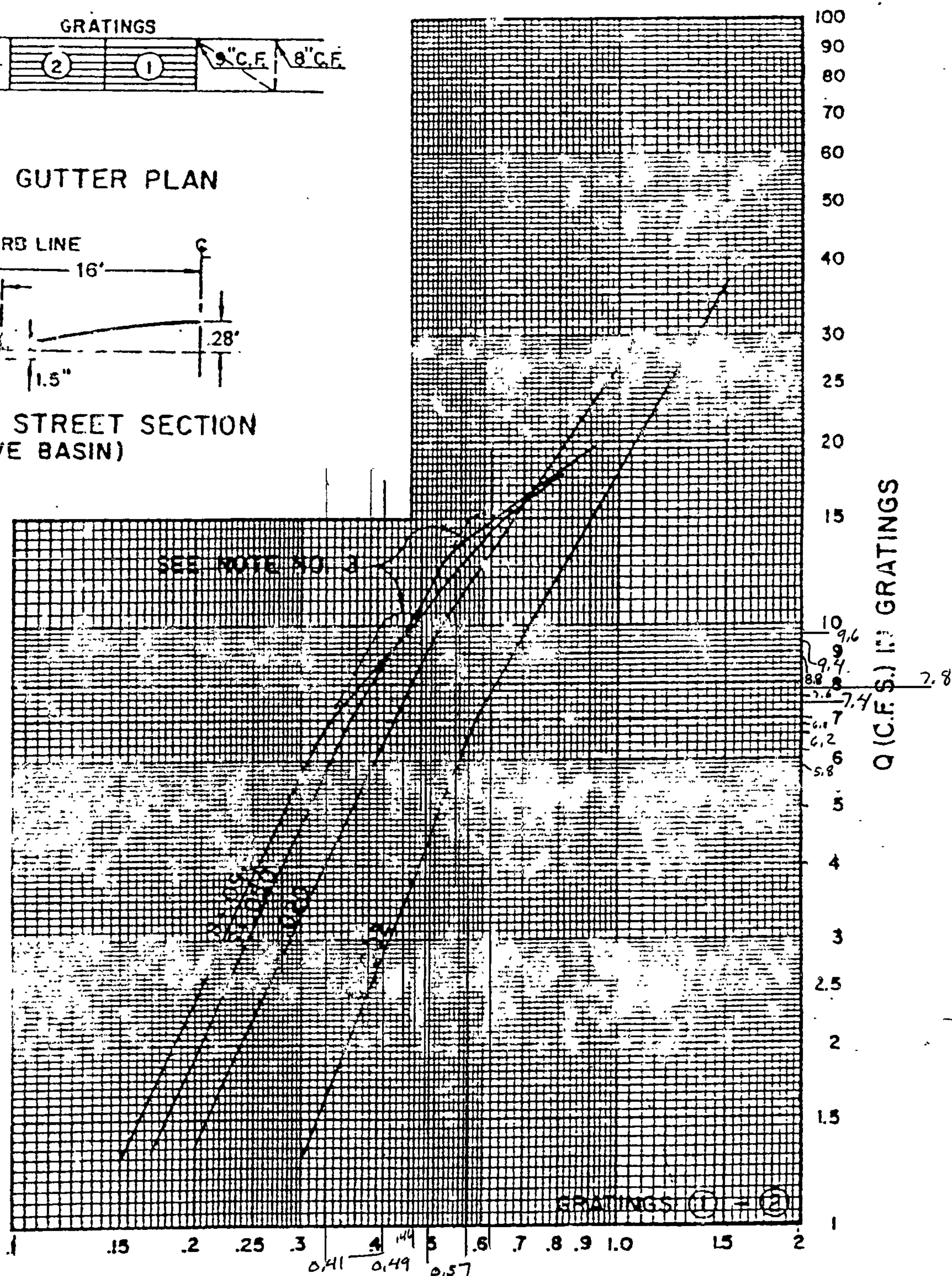
- FOR THE PIPE GOING INTO MH1 USE 30" RCP
AT 4% FROM NOKO SHEET 47 30" @ 4% CARRIES 80 CFS
- FOR THE PIPE BETWEEN MH16 & POND 8 USE 36" RCP
AT 1.5% FROM NOKO SHEET 47 36" @ 1.5% CARRIES 80 CFS
- FOR THE PIPE BETWEEN POND 8 & MH2 USE 30" RCP
AT 2% FROM NOKO SHEET 47 30" @ 2% CARRIES 57 CFS
- • • SEE PRINTOUTS OF OFFSITE STORMWATER DESIGN SHEETS
 - 1) STORMWATER FROM PONDS 6+8 TO RIO BRAVO CHANNEL SHEETS 130-142
 - 2) 118th ST STORMWATER SHEETS 143-159
 - 3) POND CONNECTOR PIPES SHEETS 160-183

GRATING CAPACITIES FOR TYPE DOUBLE "A", "C," AND "D"

43

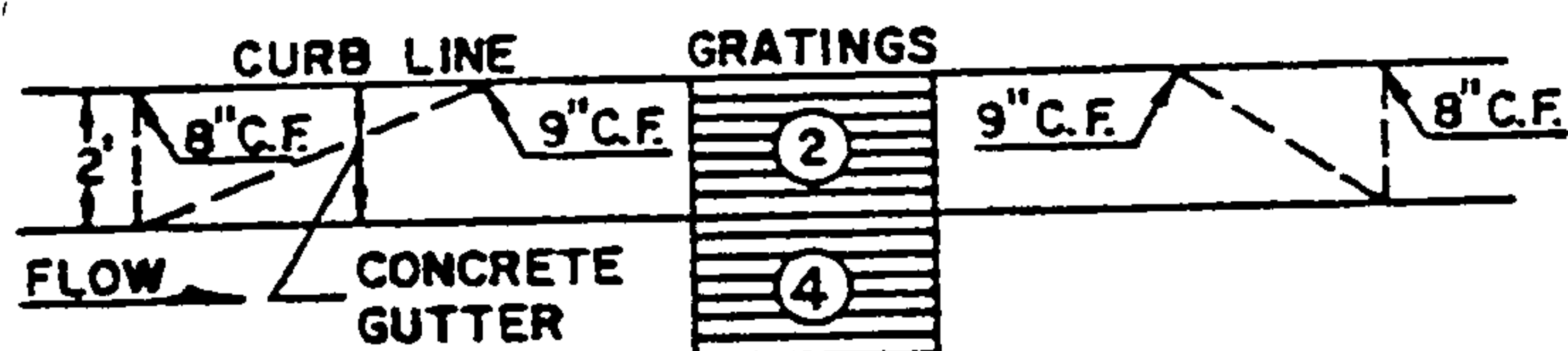


GRATING & GUTTER PLAN

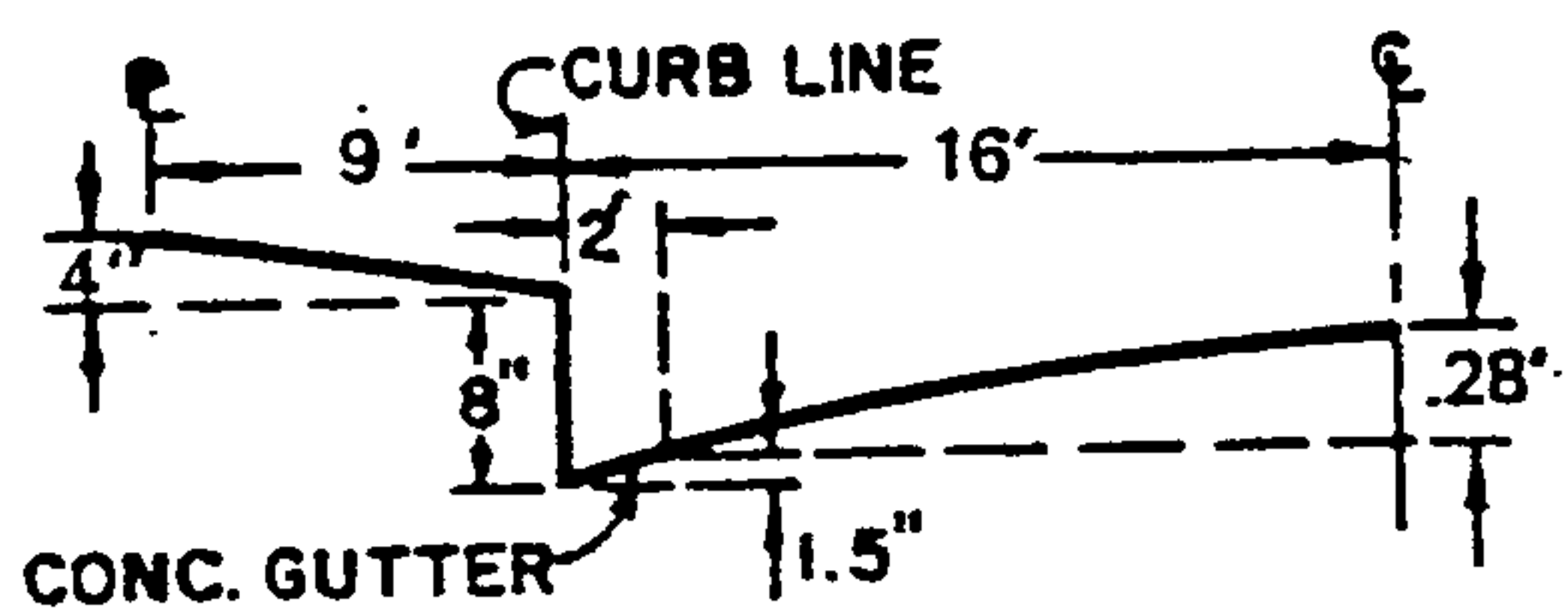
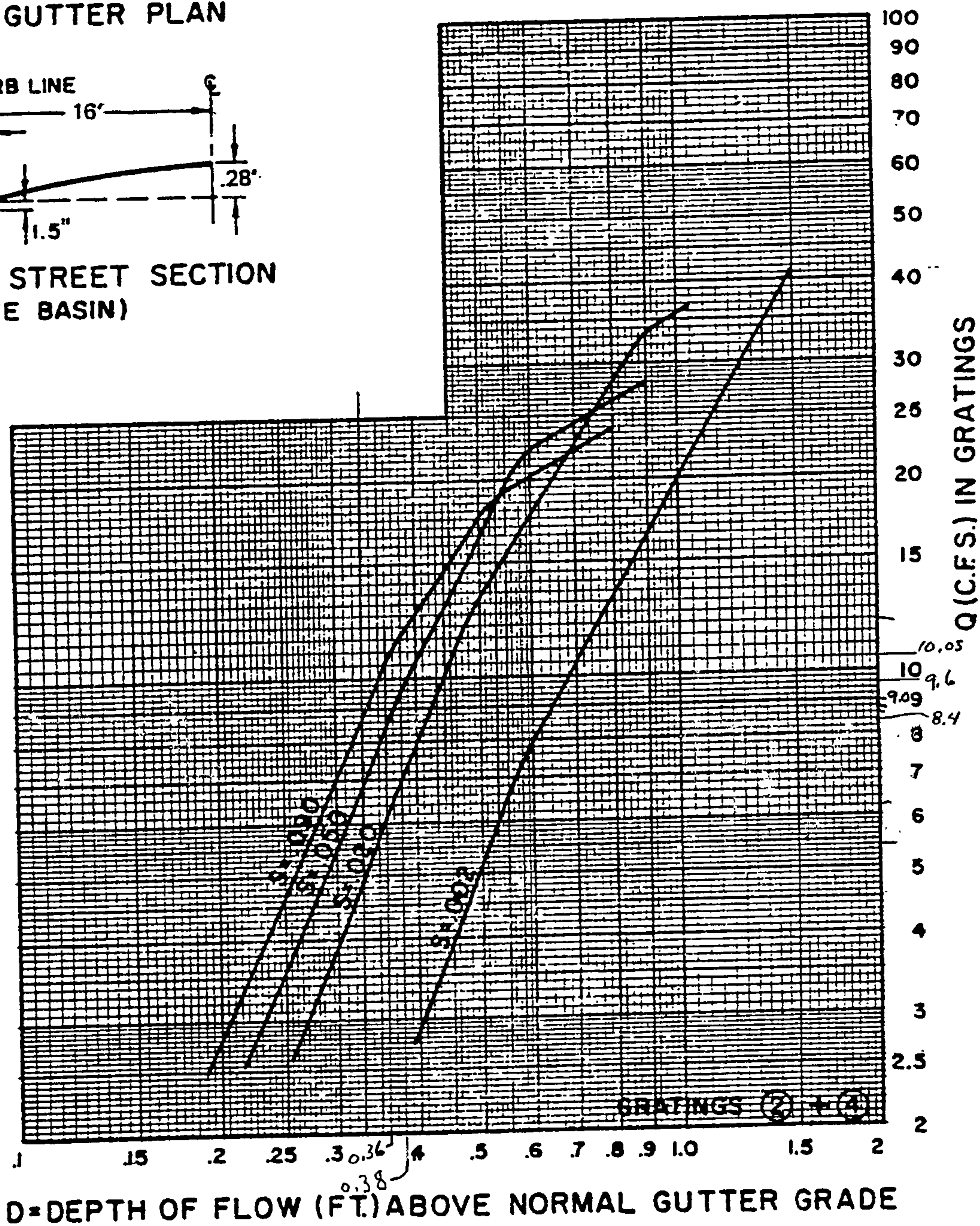
TYPICAL HALF STREET SECTION
(ABOVE BASIN)

D = DEPTH OF FLOW (FT.) ABOVE NORMAL GUTTER GRADE

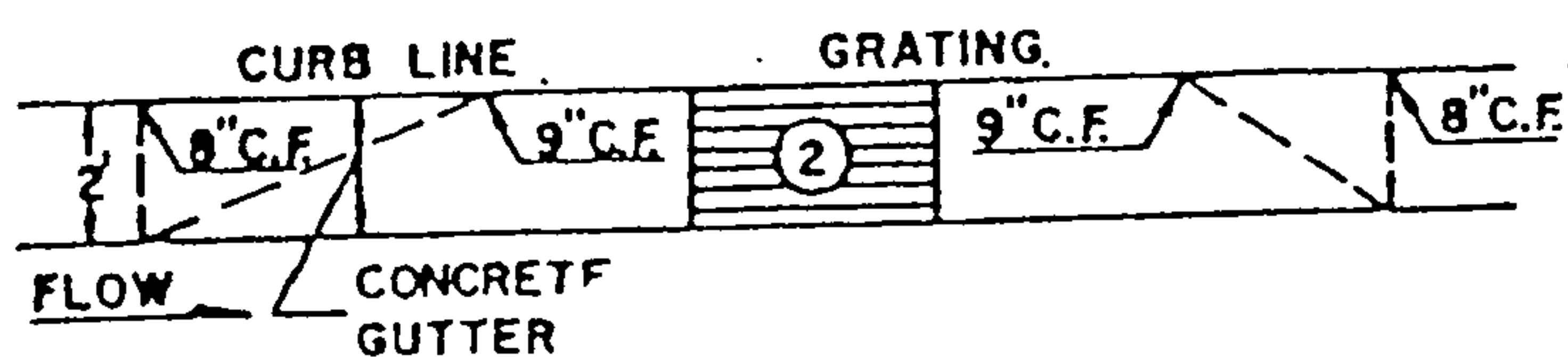
GRATING CAPACITIES FOR TYPE "B"



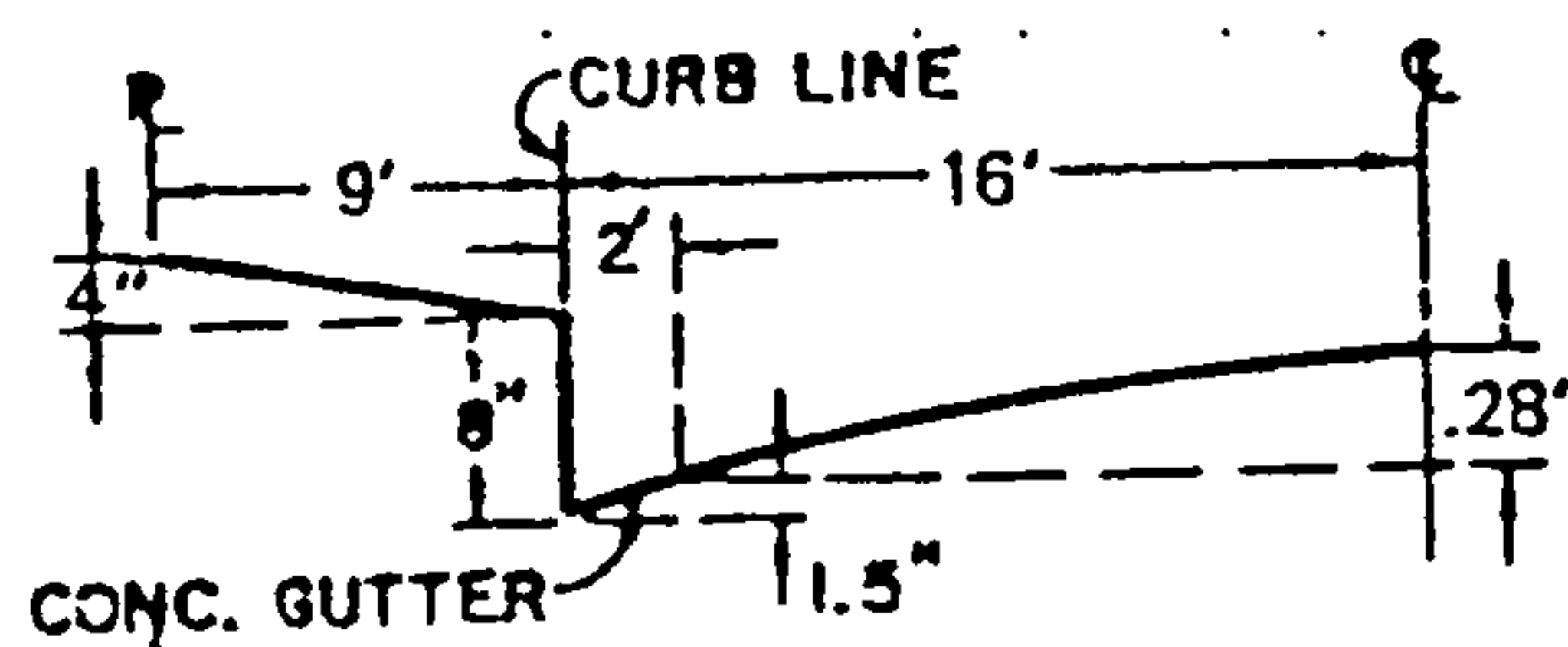
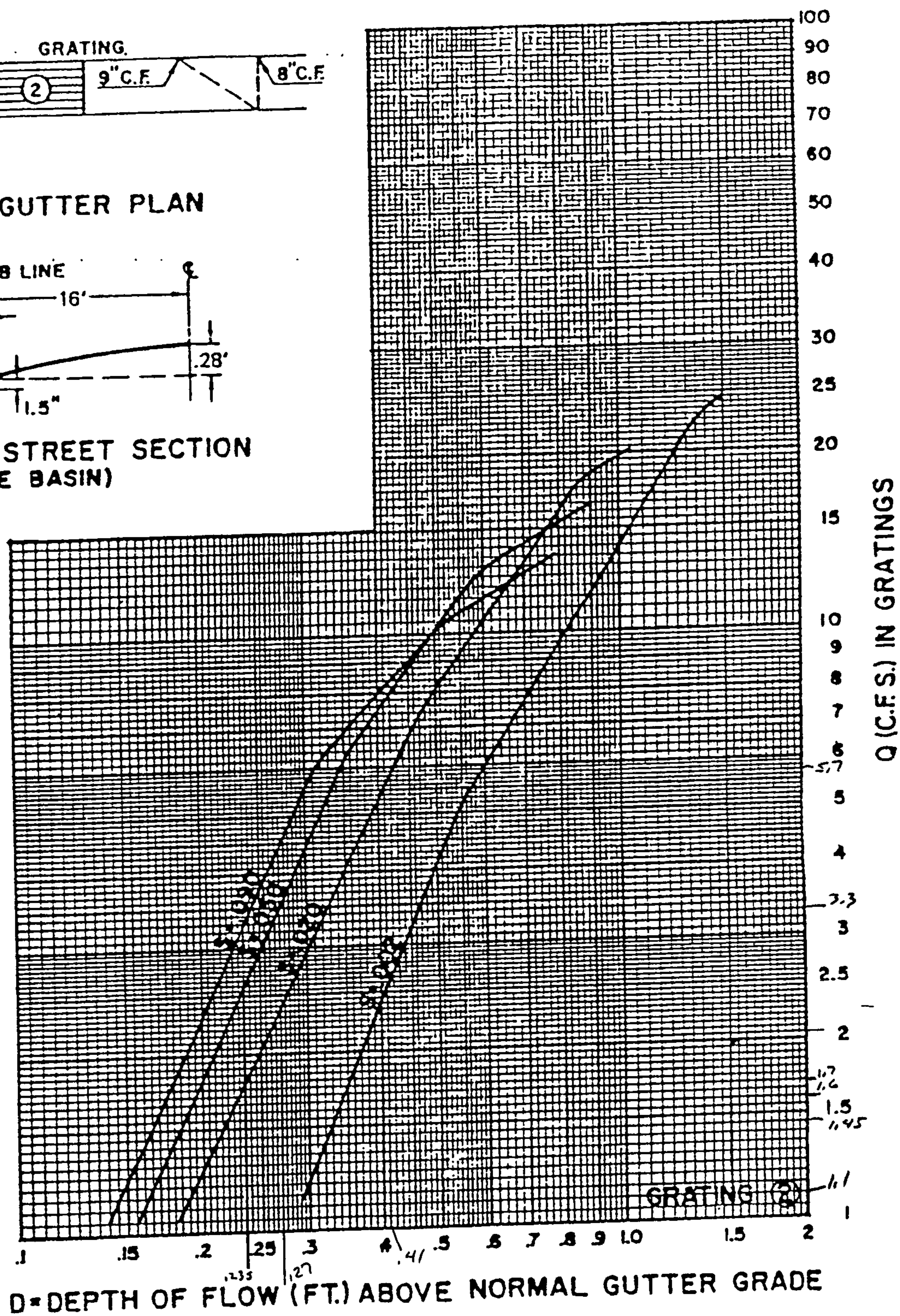
GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)

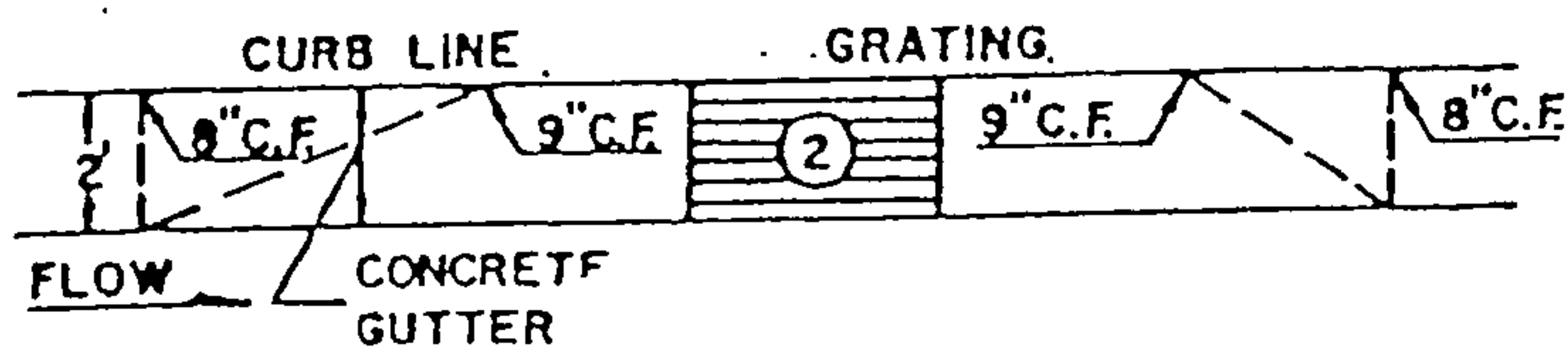
GRATING CAPACITIES FOR TYPE "A", "C" and "D".



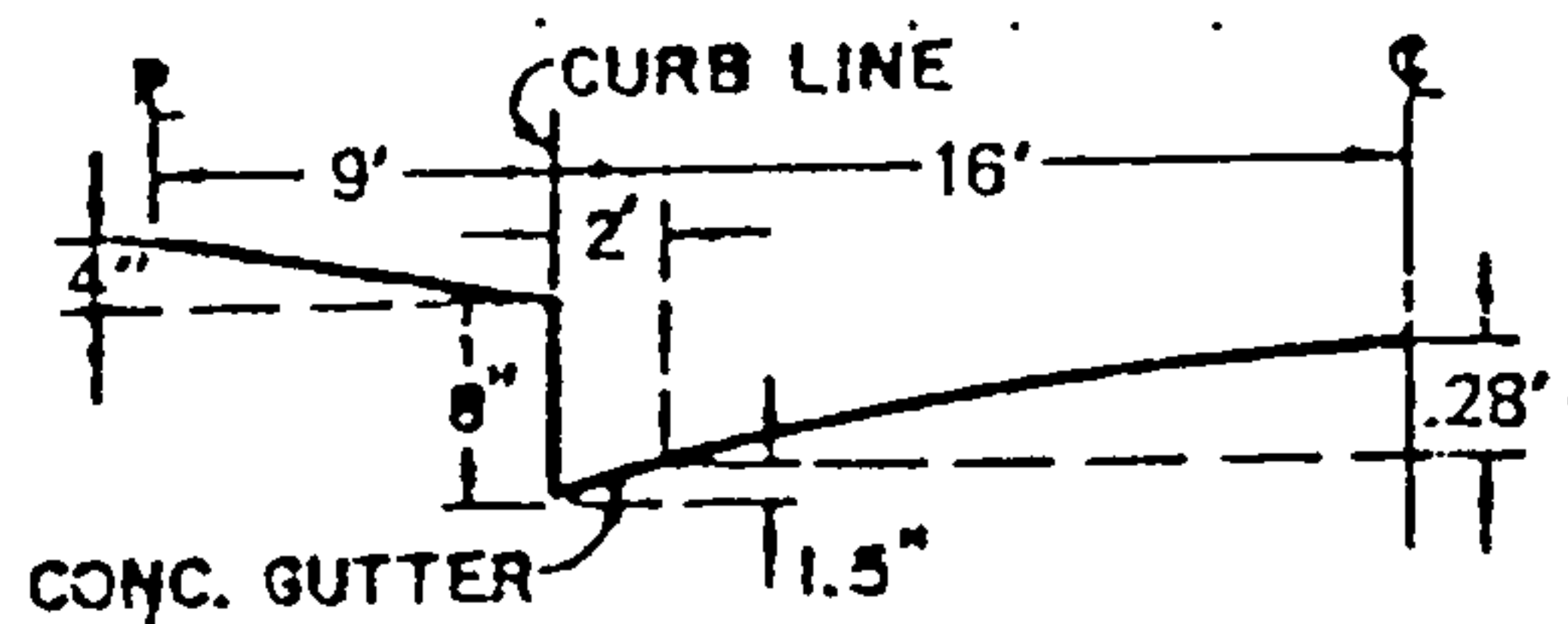
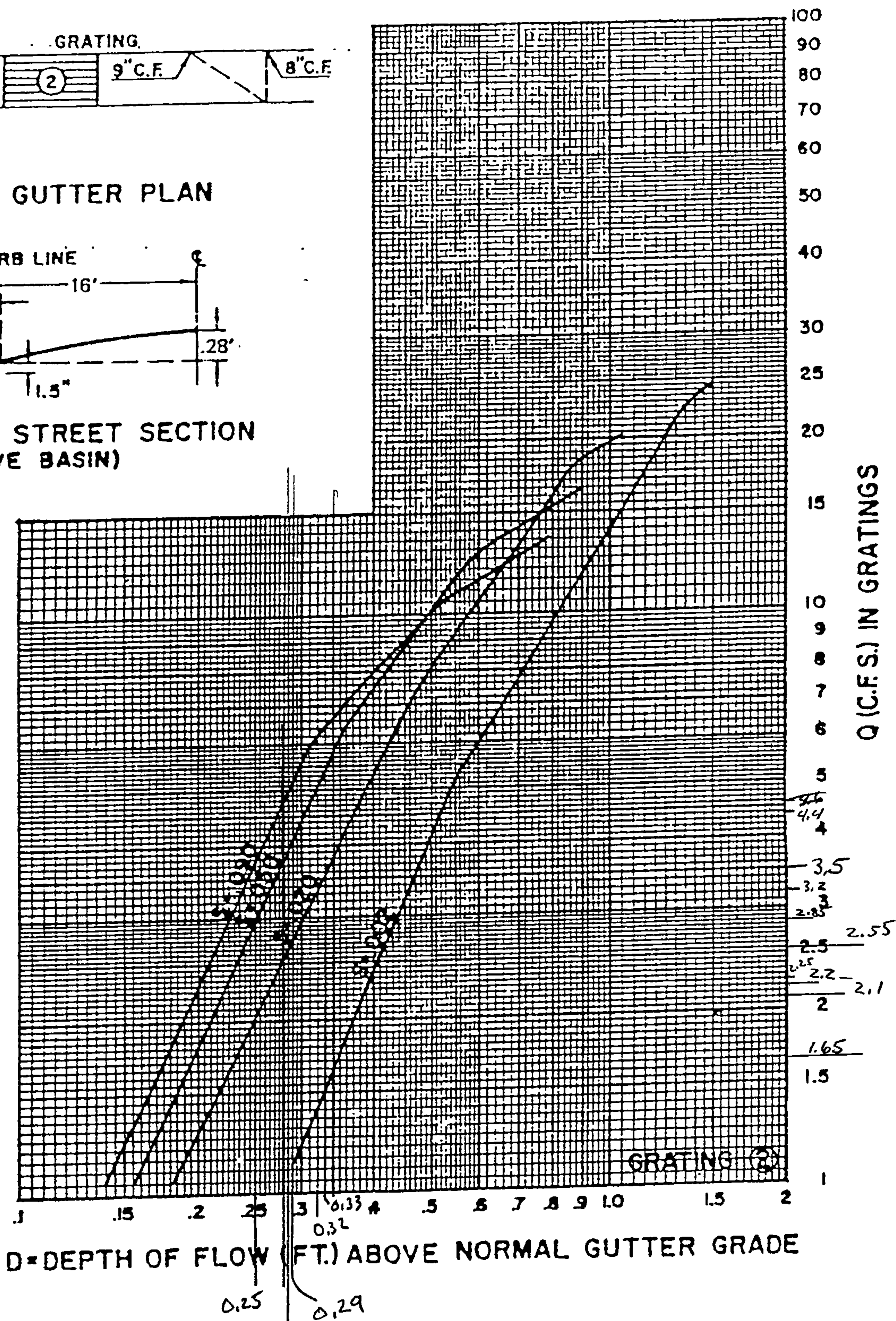
GRATING & GUTTER PLAN

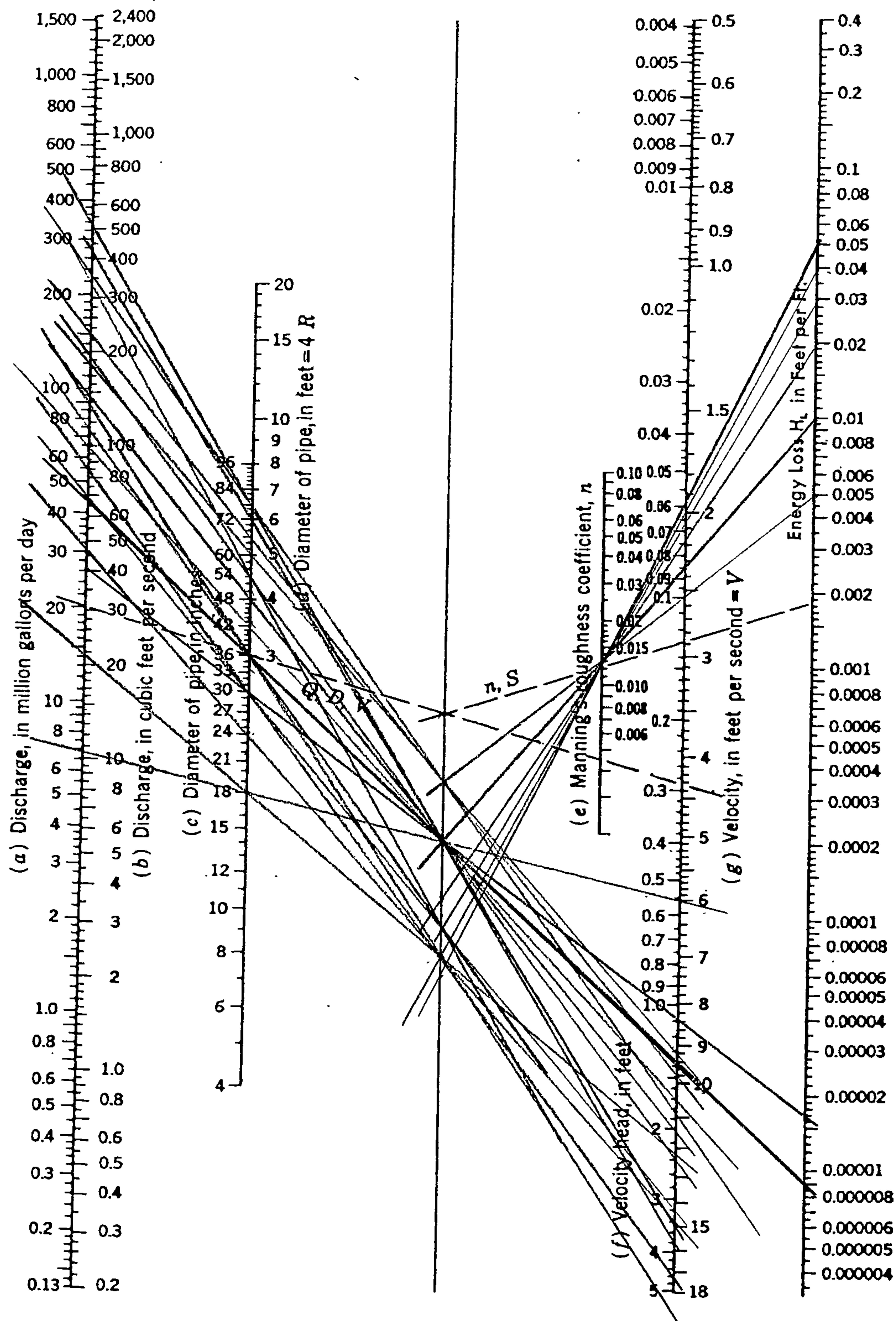
TYPICAL HALF STREET SECTION
(ABOVE BASIN)

GRATING CAPACITIES FOR TYPE "A", "C" and "D".



GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)



Alignment chart for energy loss in pipes, for Manning's formula.
 Note: Use chart for flow computations, $H_L = S$

Figure 3-29a Nomograph for solution of Manning's formula.


```

START                TIME=0.0
***** HYDROGRAPH FOR ANDERSON HEIGHTS WITHOUT PARKS & COLOBEL AVE
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.90 IN RAIN SIX=2.25 IN
                     RAIN DAY=2.70 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.337530 SQ MI
                     PER A=0 B=43.74 C=0 D=56.26
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
***** HYDORGRAPH FOR ANDERSON HEIGHTS NORTH PARK
COMPUTE NM HYD       ID=2 HYD NO=102.1 AREA=0.003125 SQ MI
                     PER A=0 B=50 C=50 D=0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
***** HYDORGRAPH FOR ANDERSON HEIGHTS MIDDLE PARK
COMPUTE NM HYD       ID=3 HYD NO=103.1 AREA=0.003889 SQ MI
                     PER A=0 B=50 C=50 D=0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
***** HYDORGRAPH FOR ANDERSON HEIGHTS SOUTH PARK
COMPUTE NM HYD       ID=4 HYD NO=104.1 AREA=0.003396 SQ MI
                     PER A=0 B=50 C=50 D=0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=4 CODE=1
***** HYDORGRAPH FOR ANDERSON HEIGHTS NORTH ROAD AT FIRST ENTRANCE
COMPUTE NM HYD       ID=5 HYD NO=105.1 AREA=0.001453 SQ MI
                     PER A=0 B=26.83 C=0 D=73.17
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=5 CODE=1
***** HYDORGRAPH FOR ANDERSON HEIGHTS NORTH ROAD AT SECOND ENTRANCE
COMPUTE NM HYD       ID=6 HYD NO=106.1 AREA=0.002162 SQ MI
                     PER A=0 B=26.83 C=0 D=73.17
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=6 CODE=1
***** HYDORGRAPH FOR ANDERSON HEIGHTS COLOBEL AT DUERSON
COMPUTE NM HYD       ID=7 HYD NO=107.1 AREA=0.002573 SQ MI
                     PER A=0 B=12 C=0 D=88
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=7 CODE=1
***** HYDORGRAPH FOR ANDERSON HEIGHTS COLOBEL AT MORRISSEY
COMPUTE NM HYD       ID=8 HYD NO=108.1 AREA=0.004079 SQ MI
                     PER A=0 B=12 C=0 D=88
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=8 CODE=1
FINISH

```


AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994

RUN DATE (MON/DAY/YR) = 08/06/2004

START TIME (HR:MIN:SEC) = 09:06:05 USER NO.=

M_GOODWN.I01

INPUT FILE = AHEIGHTS.DAT

START TIME=0.0

***** HYDROGRAPH FOR ANDERSON HEIGHTS WITHOUT PARKS & COLOBEL AVE
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN

RAIN ONE=1.90 IN RAIN SIX=2.25 IN

RAIN DAY=2.70 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
ATLAS 2 - PEAK AT 1.40 HR.

DT = .033330 HOURS END TIME = 5.999400

HOURS	.0000	.0018	.0036	.0055	.0074	.0094
.0114	.0134	.0155	.0177	.0199	.0222	.0245
.0269	.0293	.0319	.0345	.0372	.0399	.0428
.0458	.0489	.0521	.0554	.0589	.0625	.0663
.0703	.0745	.0789	.0836	.0888	.0944	.1004
.1133	.1421	.1865	.2502	.3372	.4515	.5973
.7788	1.0003	1.2059	1.2918	1.3643	1.4288	1.4874
1.5414	1.5916	1.6384	1.6823	1.7237	1.7627	1.7995
1.8344	1.8674	1.8987	1.9284	1.9566	1.9834	1.9898
1.9958	2.0014	2.0068	2.0120	2.0169	2.0216	2.0262
2.0306	2.0349	2.0390	2.0430	2.0469	2.0507	2.0543
2.0579	2.0614	2.0648	2.0681	2.0713	2.0745	2.0776
2.0806	2.0836	2.0865	2.0894	2.0922	2.0949	2.0976
2.1003	2.1029	2.1055	2.1080	2.1105	2.1129	2.1153
2.1177	2.1201	2.1224	2.1247	2.1269	2.1291	2.1313
2.1335	2.1356	2.1377	2.1398	2.1418	2.1439	2.1459
2.1478	2.1498	2.1517	2.1537	2.1555	2.1574	2.1593
2.1611	2.1629	2.1647	2.1665	2.1683	2.1700	2.1718
2.1735	2.1752	2.1769	2.1785	2.1802	2.1818	2.1834
2.1850	2.1866	2.1882	2.1898	2.1914	2.1929	2.1944
2.1959	2.1975	2.1990	2.2004	2.2019	2.2034	2.2048
2.2063	2.2077	2.2091	2.2105	2.2119	2.2133	2.2147

2.2161
 2.2174 2.2188 2.2201 2.2215 2.2228 2.2241
 2.2254
 2.2267 2.2280 2.2293 2.2306 2.2318 2.2331
 2.2343
 2.2356 2.2368 2.2381 2.2393 2.2405 2.2417
 2.2429
 2.2441 2.2453 2.2465 2.2476 2.2488 2.2500

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.337530 SQ MI
 PER A=0 B=43.74 C=0 D=56.26
 TP=0.1333 HR MASS RAINFALL=-1

K = .076592HR TP = .133300HR K/TP RATIO = .574586
 SHAPE CONSTANT, N = 6.644495
 UNIT PEAK = 718.21 CFS UNIT VOLUME = .9998 B =
 504.16 P60 = 1.9000
 AREA = .189894 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .118362HR TP = .133300HR K/TP RATIO = .887938
 SHAPE CONSTANT, N = 3.994899
 UNIT PEAK = 392.99 CFS UNIT VOLUME = 1.000 B =
 354.83 P60 = 1.9000
 AREA = .147636 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.43793 INCHES = 25.8849 ACRE-FEET
 PEAK DISCHARGE RATE = 740.43 CFS AT 1.500 HOURS BASIN
 AREA = .3375 SQ. MI.

***** HYDORGRAPH FOR ANDERSON HEIGHTS NORTH PARK
 COMPUTE NM HYD ID=2 HYD NO=102.1 AREA=0.003125 SQ MI
 PER A=0 B=50 C=50 D=0
 TP=0.1333 HR MASS RAINFALL=-1

K = .118483HR TP = .133300HR K/TP RATIO = .888844
 SHAPE CONSTANT, N = 3.990548
 UNIT PEAK = 8.3116 CFS UNIT VOLUME = .9988 B =
 354.54 P60 = 1.9000
 AREA = .003125 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 102.10

RUNOFF VOLUME = .84675 INCHES , = .1411 ACRE-FEET
 PEAK DISCHARGE RATE = 5.02 CFS AT 1.500 HOURS BASIN
 AREA = .0031 SQ. MI.

***** HYDROGRAPH FOR ANDERSON HEIGHTS MIDDLE PARK
 COMPUTE NM HYD ID=3 HYD NO=103.1 AREA=0.003889 SQ MI
 PER A=0 B=50 C=50 D=0
 TP=0.1333 HR MASS RAINFALL=-1

K = .118483HR TP = .133300HR K/TP RATIO = .888844
 SHAPE CONSTANT, N = 3.990548
 UNIT PEAK = 10.344 CFS UNIT VOLUME = .9992 B =
 354.54 P60 = 1.9000
 AREA = .003889 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 103.10

RUNOFF VOLUME = .84675 INCHES = .1756 ACRE-FEET
 PEAK DISCHARGE RATE = 6.25 CFS AT 1.500 HOURS BASIN
 AREA = .0039 SQ. MI.

***** HYDROGRAPH FOR ANDERSON HEIGHTS SOUTH PARK
 COMPUTE NM HYD ID=4 HYD NO=104.1 AREA=0.003396 SQ MI
 PER A=0 B=50 C=50 D=0
 TP=0.1333 HR MASS RAINFALL=-1

K = .118483HR TP = .133300HR K/TP RATIO = .888844
 SHAPE CONSTANT, N = 3.990548
 UNIT PEAK = 9.0324 CFS UNIT VOLUME = .9989 B =
 354.54 P60 = 1.9000
 AREA = .003396 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 104.10

RUNOFF VOLUME = .84675 INCHES = .1534 ACRE-FEET
 PEAK DISCHARGE RATE = 5.46 CFS AT 1.500 HOURS BASIN
 AREA = .0034 SQ. MI.

***** HYDROGRAPH FOR ANDERSON HEIGHTS NORTH ROAD AT FIRST ENTRANCE
 COMPUTE NM HYD ID=5 HYD NO=105.1 AREA=0.001453 SQ MI
 PER A=0 B=26.83 C=0 D=73.17
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 4.1974 CFS UNIT VOLUME = .9965 B =
 526.28 P60 = 1.9000
 AREA = .001063 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .130761HR TP = .133300HR K/TP RATIO = .980950
 SHAPE CONSTANT, N = 3.599930
 UNIT PEAK = .95793 CFS UNIT VOLUME = .9863 B =
 327.55 P60 = 1.9000
 AREA = .000390 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 105.10

RUNOFF VOLUME = 1.66087 INCHES = .1287 ACRE-FEET
 PEAK DISCHARGE RATE = 3.56 CFS AT 1.500 HOURS BASIN
 AREA = .0015 SQ. MI.

***** HYDROGRAPH FOR ANDERSON HEIGHTS NORTH ROAD AT SECOND ENTRANCE
 COMPUTE NM HYD ID=6 HYD NO=106.1 AREA=0.002162 SQ MI
 PER A=0 B=26.83 C=0 D=73.17
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 6.2456 CFS UNIT VOLUME = .9976 B =
 526.28 P60 = 1.9000
 AREA = .001582 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .130761HR TP = .133300HR K/TP RATIO = .980950
 SHAPE CONSTANT, N = 3.599930
 UNIT PEAK = 1.4254 CFS UNIT VOLUME = .9903 B =
 327.55 P60 = 1.9000
 AREA = .000580 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 106.10

RUNOFF VOLUME = 1.66087 INCHES = .1915 ACRE-FEET

PEAK DISCHARGE RATE = 5.29 CFS AT 1.500 HOURS BASIN
 AREA = .0022 SQ. MI.

***** HYDROGRAPH FOR ANDERSON HEIGHTS COLOBEL AT DUERSON
 COMPUTE NM HYD ID=7 HYD NO=107.1 AREA=0.002573 SQ MI
 PER A=0 B=12 C=0 D=88
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 8.9393 CFS UNIT VOLUME = .9981 B =
 526.28 P60 = 1.9000
 AREA = .002264 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .130761HR TP = .133300HR K/TP RATIO = .980950
 SHAPE CONSTANT, N = 3.599930
 UNIT PEAK = .75870 CFS UNIT VOLUME = .9822 B =
 327.55 P60 = 1.9000
 AREA = .000309 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 107.10

RUNOFF VOLUME = 1.85638 INCHES = .2547 ACRE-FEET
 PEAK DISCHARGE RATE = 6.87 CFS AT 1.500 HOURS BASIN
 AREA = .0026 SQ. MI.

***** HYDROGRAPH FOR ANDERSON HEIGHTS COLOBEL AT MORRISSEY
 COMPUTE NM HYD ID=8 HYD NO=108.1 AREA=0.004079 SQ MI
 PER A=0 B=12 C=0 D=88
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 14.172 CFS UNIT VOLUME = .9985 B =
 526.28 P60 = 1.9000
 AREA = .003590 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .130761HR TP = .133300HR K/TP RATIO = .980950
 SHAPE CONSTANT, N = 3.599930
 UNIT PEAK = 1.2028 CFS UNIT VOLUME = .9885 B =
 327.55 P60 = 1.9000
 AREA = .000489 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .033330

PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 108.10

RUNOFF VOLUME = 1.85638 INCHES = .4038 ACRE-FEET
PEAK DISCHARGE RATE = 10.88 CFS AT 1.500 HOURS BASIN
AREA = .0041 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 09:06:05


```

START                TIME=0.0
*****
*****  HYDROGRAPH FOR ANDERSON HEIGHTS POND
***
**
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.90 IN RAIN SIX=2.25 IN
                     RAIN DAY=2.70 IN DT=0.03333 HR
COMPUTE NM HYD       ID=2 HYD NO=102 AREA=0.266890 SQ MI
                     PER A=0 PER B=43.74 PER C=0 PER D=56.26
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
*
*ORIFICE = 30"
ROUTE RESERVOIR      ID=5  HYD NO=105  INLOW ID=2  CODE=24
                     OUTFLOW  (CFS)      STORAGE (AC-FT)  ELEVATION
                     0.00              0.00              34
                     23.635             2.15              35
                     33.486             4.38              36
                     40.938             6.71              37
                     47.27              9.12              38
                     52.85             11.63              49
                     57.894            14.23              40
                     62.534            16.93              41
PRINT HYD            ID=5 CODE=1
FINISH

```


AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994

RUN DATE (MON/DAY/YR) = 08/06/2004
START TIME (HR:MIN:SEC) = 09:26:50 USER NO.=
M_GOODWN.I01
INPUT FILE = AHPOND.DAT

START TIME=0.0

***** HYDROGRAPH FOR ANDERSON HEIGHTS POND

**

RAINFALL

TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.90 IN RAIN SIX=2.25 IN
RAIN DAY=2.70 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
ATLAS 2 - PEAK AT 1.40 HR.

	DT =	.033330 HOURS	END TIME =	5.999400	
HOURS					
	.0000	.0018	.0036	.0055	.0074
.0114					.0094
	.0134	.0155	.0177	.0199	.0222
.0269					.0245
	.0293	.0319	.0345	.0372	.0399
.0458					.0428
	.0489	.0521	.0554	.0589	.0625
.0703					.0663
	.0745	.0789	.0836	.0888	.0944
.1133					.1004
	.1421	.1865	.2502	.3372	.4515
.7788					.5973
	1.0003	1.2059	1.2918	1.3643	1.4288
1.5414					1.4874
	1.5916	1.6384	1.6823	1.7237	1.7627
1.8344					1.7995
	1.8674	1.8987	1.9284	1.9566	1.9834
1.9958					1.9898
	2.0014	2.0068	2.0120	2.0169	2.0216
2.0306					2.0262
	2.0349	2.0390	2.0430	2.0469	2.0507
2.0579					2.0543
	2.0614	2.0648	2.0681	2.0713	2.0745
2.0806					2.0776
	2.0836	2.0865	2.0894	2.0922	2.0949
2.1003					2.0976
	2.1029	2.1055	2.1080	2.1105	2.1129
2.1177					2.1153
	2.1201	2.1224	2.1247	2.1269	2.1291
2.1335					2.1313
	2.1356	2.1377	2.1398	2.1418	2.1439
2.1478					2.1459
	2.1498	2.1517	2.1537	2.1555	2.1574
2.1611					2.1593
	2.1629	2.1647	2.1665	2.1683	2.1700
2.1735					2.1718
	2.1752	2.1769	2.1785	2.1802	2.1818
2.1850					2.1834
	2.1866	2.1882	2.1898	2.1914	2.1929
2.1959					2.1944

	2.1975	2.1990	2.2004	2.2019	2.2034	2.2048
2.2063						
	2.2077	2.2091	2.2105	2.2119	2.2133	2.2147
2.2161						
	2.2174	2.2188	2.2201	2.2215	2.2228	2.2241
2.2254						
	2.2267	2.2280	2.2293	2.2306	2.2318	2.2331
2.2343						
	2.2356	2.2368	2.2381	2.2393	2.2405	2.2417
2.2429						
	2.2441	2.2453	2.2465	2.2476	2.2488	2.2500

COMPUTE NM HYD ID=2 HYD NO=102 AREA=0.266890 SQ MI
 PER A=0 PER B=43.74 PER C=0 PER D=56.26
 TP=0.1333 HR MASS RAINFALL=-1

K = .075873HR TP = .133300HR K/TP RATIO = .569188
 SHAPE CONSTANT, N = 6.724174
 UNIT PEAK = 572.26 CFS UNIT VOLUME = .9997 B =
 508.04 P60 = 1.9000
 AREA = .150152 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .120624HR TP = .133300HR K/TP RATIO = .904907
 SHAPE CONSTANT, N = 3.915174
 UNIT PEAK = 306.05 CFS UNIT VOLUME = 1.000 B =
 349.47 P60 = 1.9000
 AREA = .116738 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 102.00

RUNOFF VOLUME = 1.43793 INCHES = 20.4676 ACRE-FEET
 PEAK DISCHARGE RATE = 584.97 CFS AT 1.500 HOURS BASIN
 AREA = .2669 SQ. MI.

*
 *ORIFICE = 30"
 ROUTE RESERVOIR ID=5 HYD NO=105 INLOW ID=2 CODE=24
 OUTFLOW (CFS) STORAGE (AC-FT) ELEVATION
 0.00 0.00 34
 23.635 2.15 35
 33.486 4.38 36
 40.938 6.71 37
 47.27 9.12 38
 52.85 11.63 49
 57.894 14.23 40
 62.534 16.93 41

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	34.00	.000	.00
.80	.00	34.00	.000	.00
1.60	419.94	38.75	9.292	47.65
2.40	23.61	40.13	14.570	58.48
3.20	4.70	48.81	11.586	52.75
4.00	2.80	37.77	8.555	45.79
4.80	2.66	36.67	5.943	38.49
5.60	2.99	35.75	3.824	31.03
6.40	.29	35.01	2.171	23.73
7.20	.01	34.49	1.053	11.57
8.00	.00	34.24	.509	5.60
8.80	.00	34.11	.246	2.71
9.60	.00	34.06	.119	1.31
10.40	.00	34.03	.058	.63
11.20	.00	34.01	.028	.31
12.00	.00	34.01	.013	.15
12.80	.00	34.00	.006	.07
13.60	.00	34.00	.003	.03
14.40	.00	34.00	.002	.02
15.20	.00	34.00	.001	.01
16.00	.00	34.00	.000	.00

PEAK DISCHARGE = 59.242 CFS - PEAK OCCURS AT HOUR 2.17
 MAXIMUM WATER SURFACE ELEVATION = 40.290
 MAXIMUM STORAGE = 15.0142 AC-FT INCREMENTAL TIME=
 .033330HRS

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 105.00

RUNOFF VOLUME = 1.43793 INCHES = 20.4676 ACRE-FEET
 PEAK DISCHARGE RATE = 59.24 CFS AT 2.166 HOURS BASIN
 AREA = .2669 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 09:26:50


```
START                TIME=0.0
***** HYDROGRAPH FOR ANDERSON HEIGHTS 118th ROW FROM HIGH POINT
***** (STA 16+76.19) ON 118TH TO DENNIS CHAVEZ
***** 4974' X 98' = 11.1904 ACRES
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.90 IN RAIN SIX=2.25 IN
                     RAIN DAY=2.70 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.017485 SQ MI
                     PER A=0 B=23.47 C=0 D=76.53
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
***** 10 YEAR STORM
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.27 IN RAIN SIX=1.50 IN
                     RAIN DAY=1.80 IN DT=0.03333 HR
COMPUTE NM HYD       ID=2 HYD NO=101.2 AREA=0.017485 SQ MI
                     PER A=0 B=23.47 C=0 D=76.53
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
FINISH
```


AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994

RUN DATE (MON/DAY/YR) = 08/05/2004
START TIME (HR:MIN:SEC) = 14:05:13 USER NO.=

M_GOODWN.I01

INPUT FILE = AH118ROW.DAT

START TIME=0.0
***** HYDROGRAPH FOR ANDERSON HEIGHTS 118th ROW FROM HIGH POINT
***** (STA 16+76.19) ON 118TH TO DENNIS CHAVEZ
***** 4974' X 98' = 11.1904 ACRES
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.90 IN RAIN SIX=2.25 IN
RAIN DAY=2.70 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
ATLAS 2 - PEAK AT 1.40 HR.

	DT =	.033330 HOURS	END TIME =	5.999400
HOURS				
	.0000	.0018	.0036	.0055 .0074 .0094
.0114	.0134	.0155	.0177	.0199 .0222 .0245
.0269	.0293	.0319	.0345	.0372 .0399 .0428
.0458	.0489	.0521	.0554	.0589 .0625 .0663
.0703	.0745	.0789	.0836	.0888 .0944 .1004
.1133	.1421	.1865	.2502	.3372 .4515 .5973
.7788	1.0003	1.2059	1.2918	1.3643 1.4288 1.4874
1.5414	1.5916	1.6384	1.6823	1.7237 1.7627 1.7995
1.8344	1.8674	1.8987	1.9284	1.9566 1.9834 1.9898
1.9958	2.0014	2.0068	2.0120	2.0169 2.0216 2.0262
2.0306	2.0349	2.0390	2.0430	2.0469 2.0507 2.0543
2.0579	2.0614	2.0648	2.0681	2.0713 2.0745 2.0776
2.0806	2.0836	2.0865	2.0894	2.0922 2.0949 2.0976
2.1003	2.1029	2.1055	2.1080	2.1105 2.1129 2.1153
2.1177	2.1201	2.1224	2.1247	2.1269 2.1291 2.1313
2.1335	2.1356	2.1377	2.1398	2.1418 2.1439 2.1459
2.1478	2.1498	2.1517	2.1537	2.1555 2.1574 2.1593
2.1611	2.1629	2.1647	2.1665	2.1683 2.1700 2.1718
2.1735	2.1752	2.1769	2.1785	2.1802 2.1818 2.1834
2.1850	2.1866	2.1882	2.1898	2.1914 2.1929 2.1944
2.1959	2.1975	2.1990	2.2004	2.2019 2.2034 2.2048

2.2063						
	2.2077	2.2091	2.2105	2.2119	2.2133	2.2147
2.2161						
	2.2174	2.2188	2.2201	2.2215	2.2228	2.2241
2.2254						
	2.2267	2.2280	2.2293	2.2306	2.2318	2.2331
2.2343						
	2.2356	2.2368	2.2381	2.2393	2.2405	2.2417
2.2429						
	2.2441	2.2453	2.2465	2.2476	2.2488	2.2500

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.017485 SQ MI
 PER A=0 B=23.47 C=0 D=76.53
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 52.830 CFS UNIT VOLUME = .9992 B =
 526.28 P60 = 1.9000
 AREA = .013381 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .130761HR TP = .133300HR K/TP RATIO = .980950
 SHAPE CONSTANT, N = 3.599930
 UNIT PEAK = 10.084 CFS UNIT VOLUME = .9989 B =
 327.55 P60 = 1.9000
 AREA = .004104 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.70517 INCHES = 1.5901 ACRE-FEET
 PEAK DISCHARGE RATE = 43.57 CFS AT 1.500 HOURS BASIN
 AREA = .0175 SQ. MI.

***** 10 YEAR STORM

RAINFALL

TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=1.27 IN RAIN SIX=1.50 IN
 RAIN DAY=1.80 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
 ATLAS 2 - PEAK AT 1.40 HR.

	DT =	.033330 HOURS		END TIME =	5.999400
HOURS					
	.0000	.0012	.0023	.0036	.0048
.0074					.0061
	.0087	.0100	.0114	.0129	.0143
.0174					.0158
	.0190	.0206	.0223	.0240	.0258
.0296					.0277
	.0316	.0337	.0358	.0381	.0404
					.0429

.0455						
	.0482	.0510	.0541	.0576	.0613	.0653
.0740						
	.0932	.1229	.1655	.2236	.3000	.3975
.5188						
	.6668	.8043	.8617	.9101	.9532	.9924
1.0285						
	1.0621	1.0934	1.1227	1.1504	1.1764	1.2010
1.2243						
	1.2464	1.2674	1.2872	1.3061	1.3240	1.3282
1.3322						
	1.3359	1.3395	1.3429	1.3462	1.3493	1.3524
1.3553						
	1.3581	1.3608	1.3635	1.3661	1.3686	1.3710
1.3733						
	1.3756	1.3779	1.3801	1.3822	1.3843	1.3864
1.3884						
	1.3903	1.3923	1.3942	1.3960	1.3978	1.3996
1.4014						
	1.4031	1.4048	1.4065	1.4081	1.4097	1.4113
1.4129						
	1.4144	1.4160	1.4175	1.4189	1.4204	1.4218
1.4233						
	1.4247	1.4261	1.4274	1.4288	1.4301	1.4314
1.4328						
	1.4340	1.4353	1.4366	1.4378	1.4391	1.4403
1.4415						
	1.4427	1.4439	1.4451	1.4462	1.4474	1.4485
1.4496						
	1.4508	1.4519	1.4530	1.4541	1.4551	1.4562
1.4573						
	1.4583	1.4594	1.4604	1.4614	1.4624	1.4634
1.4644						
	1.4654	1.4664	1.4674	1.4684	1.4693	1.4703
1.4712						
	1.4722	1.4731	1.4740	1.4750	1.4759	1.4768
1.4777						
	1.4786	1.4795	1.4804	1.4812	1.4821	1.4830
1.4838						
	1.4847	1.4855	1.4864	1.4872	1.4881	1.4889
1.4897						
	1.4905	1.4913	1.4921	1.4930	1.4938	1.4945
1.4953						
	1.4961	1.4969	1.4977	1.4985	1.4992	1.5000

COMPUTE NM HYD ID=2 HYD NO=101.2 AREA=0.017485 SQ MI
 PER A=0 B=23.47 C=0 D=76.53
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 52.830 CFS UNIT VOLUME = .9992 B =
 526.28 P60 = 1.2700
 AREA = .013381 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .141549HR TP = .133300HR K/TP RATIO = 1.061885
 SHAPE CONSTANT, N = 3.325462

63

UNIT PEAK = 9.4624 CFS UNIT VOLUME = .9986 B =
307.36 P60 = 1.2700
AREA = .004104 SQ MI IA = .50000 INCHES INF =
1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 101.20

RUNOFF VOLUME = 1.02609 INCHES = .9569 ACRE-FEET
PEAK DISCHARGE RATE = 27.26 CFS AT 1.500 HOURS BASIN
AREA = .0175 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 14:05:13


```
START                TIME=0.0
***** HYDROGRAPH FOR ANDERSON HEIGHTS DENNIS CHAVEZ ROW
***** BASIN 203S AND 203N - IT IS THE SAME FOR BOTH SIDES
***** 0.0386 SQUARE MILES PER HALF INCLUDES 36' OF ASPHALT
RAINFALL              TYPE=1 RAIN QUARTER=0.0 IN
                      RAIN ONE=1.90 IN RAIN SIX=2.25 IN
                      RAIN DAY=2.70 IN DT=0.03333 HR
COMPUTE NM HYD        ID=1 HYD NO=101.1 AREA=0.0386 SQ MI
                      PER A=0 B=35.6 C=35.6 D=28.8
                      TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD             ID=1 CODE=1
***** 10 YEAR STORM
RAINFALL              TYPE=1 RAIN QUARTER=0.0 IN
                      RAIN ONE=1.27 IN RAIN SIX=1.50 IN
                      RAIN DAY=1.80 IN DT=0.03333 HR
COMPUTE NM HYD        ID=2 HYD NO=101.2 AREA=0.0386 SQ MI
                      PER A=0 B=35.6 C=35.6 D=28.8
                      TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD             ID=2 CODE=1
FINISH
```


AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994

RUN DATE (MON/DAY/YR) = 08/09/2004
START TIME (HR:MIN:SEC) = 15:38:00 USER NO.=
M_GOODWN.I01
INPUT FILE = AHB203NS.DAT

START TIME=0.0
***** HYDROGRAPH FOR ANDERSON HEIGHTS DENNIS CHAVEZ ROW
***** BASIN 203S AND 203N - IT IS THE SAME FOR BOTH SIDES
***** 0.0386 SQUARE MILES PER HALF INCLUDES 36' OF ASPHALT
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.90 IN RAIN SIX=2.25 IN
RAIN DAY=2.70 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
ATLAS 2 - PEAK AT 1.40 HR.

HOURS	DT =	.033330 HOURS	END TIME =	5.999400
.0000	.0018	.0036	.0055	.0074
.0114	.0134	.0155	.0177	.0199
.0269	.0293	.0319	.0345	.0372
.0458	.0489	.0521	.0554	.0589
.0703	.0745	.0789	.0836	.0888
.1133	.1421	.1865	.2502	.3372
.7788	1.0003	1.2059	1.2918	1.3643
1.5414	1.5916	1.6384	1.6823	1.7237
1.8344	1.8674	1.8987	1.9284	1.9566
1.9958	2.0014	2.0068	2.0120	2.0169
2.0306	2.0349	2.0390	2.0430	2.0469
2.0579	2.0614	2.0648	2.0681	2.0713
2.0806	2.0836	2.0865	2.0894	2.0922
2.1003	2.1029	2.1055	2.1080	2.1105
2.1177	2.1201	2.1224	2.1247	2.1269
2.1335	2.1356	2.1377	2.1398	2.1418
2.1478	2.1498	2.1517	2.1537	2.1555
2.1611	2.1629	2.1647	2.1665	2.1683
2.1735	2.1752	2.1769	2.1785	2.1802
2.1850	2.1866	2.1882	2.1898	2.1914
2.1959	2.1975	2.1990	2.2004	2.2019

2.2063						
	2.2077	2.2091	2.2105	2.2119	2.2133	2.2147
2.2161						
	2.2174	2.2188	2.2201	2.2215	2.2228	2.2241
2.2254						
	2.2267	2.2280	2.2293	2.2306	2.2318	2.2331
2.2343						
	2.2356	2.2368	2.2381	2.2393	2.2405	2.2417
2.2429						
	2.2441	2.2453	2.2465	2.2476	2.2488	2.2500

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.0386 SQ MI
 PER A=0 B=35.6 C=35.6 D=28.8
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 43.890 CFS UNIT VOLUME = .9991 B =
 526.28 P60 = 1.9000
 AREA = .011117 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .118483HR TP = .133300HR K/TP RATIO = .888844
 SHAPE CONSTANT, N = 3.990548
 UNIT PEAK = 73.097 CFS UNIT VOLUME = 1.000 B =
 354.54 P60 = 1.9000
 AREA = .027483 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.18309 INCHES = 2.4356 ACRE-FEET
 PEAK DISCHARGE RATE = 75.74 CFS AT 1.500 HOURS BASIN
 AREA = .0386 SQ. MI.

***** 10 YEAR STORM

RAINFALL

TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=1.27 IN RAIN SIX=1.50 IN
 RAIN DAY=1.80 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
 ATLAS 2 - PEAK AT 1.40 HR.

	DT =	.033330 HOURS		END TIME =	5.999400
HOURS					
	.0000	.0012	.0023	.0036	.0048
.0074					
	.0087	.0100	.0114	.0129	.0143
.0174					
	.0190	.0206	.0223	.0240	.0258
.0296					
	.0316	.0337	.0358	.0381	.0404
					.0429

.0455						
	.0482	.0510	.0541	.0576	.0613	.0653
.0740						
	.0932	.1229	.1655	.2236	.3000	.3975
.5188						
	.6668	.8043	.8617	.9101	.9532	.9924
1.0285						
	1.0621	1.0934	1.1227	1.1504	1.1764	1.2010
1.2243						
	1.2464	1.2674	1.2872	1.3061	1.3240	1.3282
1.3322						
	1.3359	1.3395	1.3429	1.3462	1.3493	1.3524
1.3553						
	1.3581	1.3608	1.3635	1.3661	1.3686	1.3710
1.3733						
	1.3756	1.3779	1.3801	1.3822	1.3843	1.3864
1.3884						
	1.3903	1.3923	1.3942	1.3960	1.3978	1.3996
1.4014						
	1.4031	1.4048	1.4065	1.4081	1.4097	1.4113
1.4129						
	1.4144	1.4160	1.4175	1.4189	1.4204	1.4218
1.4233						
	1.4247	1.4261	1.4274	1.4288	1.4301	1.4314
1.4328						
	1.4340	1.4353	1.4366	1.4378	1.4391	1.4403
1.4415						
	1.4427	1.4439	1.4451	1.4462	1.4474	1.4485
1.4496						
	1.4508	1.4519	1.4530	1.4541	1.4551	1.4562
1.4573						
	1.4583	1.4594	1.4604	1.4614	1.4624	1.4634
1.4644						
	1.4654	1.4664	1.4674	1.4684	1.4693	1.4703
1.4712						
	1.4722	1.4731	1.4740	1.4750	1.4759	1.4768
1.4777						
	1.4786	1.4795	1.4804	1.4812	1.4821	1.4830
1.4838						
	1.4847	1.4855	1.4864	1.4872	1.4881	1.4889
1.4897						
	1.4905	1.4913	1.4921	1.4930	1.4938	1.4945
1.4953						
	1.4961	1.4969	1.4977	1.4985	1.4992	1.5000

COMPUTE NM HYD ID=2 HYD NO=101.2 AREA=0.0386 SQ MI
 PER A=0 B=35.6 C=35.6 D=28.8
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 43.890 CFS UNIT VOLUME = .9991 B =
 526.28 P60 = 1.2700
 AREA = .011117 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .033330

K = .124683HR TP = .133300HR K/TP RATIO = .935354
 SHAPE CONSTANT, N = 3.781209

UNIT PEAK = 70.163 CFS UNIT VOLUME = 1.000 B =
340.31 P60 = 1.2700
AREA = .027483 SQ MI IA = .42500 INCHES INF =
1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 101.20

RUNOFF VOLUME = .60293 INCHES = 1.2412 ACRE-Feet
PEAK DISCHARGE RATE = 40.85 CFS AT 1.500 HOURS BASIN
AREA = .0386 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 15:38:00

(s16.66H

AHYMO S' RY TABLE (AHYMO194) - AMAFCA Hydrologic Model - Janua 1994
INPUT F. = AH118-DS.DAT

RUN DATE (MON/DAY/YR) =08/06/2004
USER NO.= M_GOODWN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION

START
*S
*S
*S
*S
*S
*S 100-YR, 24-HR STORM WITHOUT SEDIMENT
*S FILE NAME: RB_DMP.DAT
*S BY: RICHARD STOCKTON
*S REVISED BY MARK GOODWIN AND ASSOCIATES 8-04-04.
*S LAST REVISION: 7-15-03
*S*****
*S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM FROM THE
*S SACATE BLANCO WATERSHED WEST OF THE POWERLINE EASEMENT (AKA SOUTH
*S POWERLINE DIVERSION AND DETENTION FACILITY);
*S AND THE RIO BRAVO WATERSHED.
*S
*S FLOWS FROM THIS WATERSHED ARE CONVEYED TO HUBBLE LAKE DETENTION
*S FACILITY VIA THE HUBBLE LAKE/AMOLE DIVERSION CHANNEL.
*S
*S THE ORGINIAL RIO BRAVO MODEL WAS DEVELOPED BY AVID (AND ACCEPTED BY
*S THE COUNTY). ASSUMPTIONS MADE IN THE AVID MODEL ARE INVALID, AND HAVE
*S BEEN CORRECTED WITH THE 4-25-03 REVISIONS. DIVERSIONS TO THE BOREGA DAM
*S AND THE AMOLE CHANNEL REDUCE THIS BASIN AND 114 AC. OF THE SACATE BLANCO
*S BELOW THE POWER LINE IS ADDED TO THE RIO BRAVO CHANNEL.
*S PONDS 7 & 9 ARE DELETED AND POND 10 IS ADDED.
*S
*S PONDS 2,3,4,5,6,8 & 10 WERE SIZED FOR DEVELOPED FLOW AND USED ACTUAL TOPO
*S TO SIZE. THE BASINS WERE RENAMED AND SIZED PER HOW THEY DRAINED TO EACH
*S POND. THE DENNIS CHAVEZ ROW RUNOFF EAST OF 118TH STREET WAS TAKEN OUT
*S OF THE RIO BRAVO CHANNEL TO REDUCE THE IMPACT AT THE CONDISHIRE BOXES.
*S THIS FLOW (BASINS 210, 213 & 216)ALONG WITH BASIN 215 WILL NEED TO BE
*S DESIGNED INTO A STORMDRAIN THAT WILL BE CONSTRUCTED ON THE SOUTH SIDE OF
*S DENNIS CHAVEZ AND TIE DIRECTLY TO THE HUBBLE CHANNEL AT THE EAST END OF
*S BASIN 216. DENNIS CHAVEZ BASIN 203 WILL BE SPLIT N & S WITH THE SOUTH HALF
*S BEING ROUTED THROUGH POND 8
*S*****
*S ANALYSIS ASSUMPTIONS:
*S*****
*S 1. ALL LAND IN THE RIO BRAVO BASIN IS MODELED AS DEVELOPED CONDITION AT
*S 6 DU/AC, EXCEPT ANDERSON HILLS WHERE LOWER DENSITIES ARE CERTAIN, AND
*S EXCEPT IN BASINS 201 AND 202 WHERE THERE IS NO LIGHT.
*S 2. THE PUNCH HYD COMMAND WAS ADDED TO THE END OF THIS FILE SO THE OUTFALL
*S HYDROGRAPH COULD BE USED IN THE AMOLE DEL NORTE EXISTING CONDITIONS MODEL
*S AA100D1B.DAT, WHICH WILL BE USED IN THE ANALYSIS OF THE AMOLE ARROYO SYSTE

*S
 *S 3. N LKING FACTORS WERE ADDED TO THE AREA TRIBUTARY TO THE) BRAVO
 *S C EL DUE TO THE INCORPORATION OF DETENTION PONDS. HOWE\ BULKING FACT
 *S HAVE BEEN ADDED TO BASINS TRIBUTARY TO HUBBELL CHANNEL AND LAKE.
 *S
 *S*****
 *S RAINFALL FROM NOAA ATLAS 2
 *S THESE VALUES WERE REDUCED FOR AREA BY 12%, 5% AND 3% FOR 1, 6, AND 24 HOUR
 RAINFALL TYPE= 2
 *S*****
 *S
 *S*****
 *S ADD BASINS FROM SOUTH POWERLINE DIVERSION
 *S TO THE RIO BRAVO RUN
 *S
 *S*****
 *S
 *S APPLY A 3% SEDIMENT BULKING FACTOR TO ALL COMPUTED HYDROGRAPHS

RAIN24= 2.660

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = NOTATION
SEDIMENT BULK										PK BF = 1.03
*S CALCULATE THE FLOW FROM SUB-BASINS A60106, A60107A, 60108 & 60109										
COMPUTE NM HYD	INTOPOND2	-	1	.21520	388.95	16.602	1.44649	1.500	2.824	PER IMP= 42.99
*S										
*S ROUTE FLOW THROUGH POND 2 - 48" ORIFICE										
ROUTE RESERVOIR	POND2.OUT	1	2	.21520	140.83	16.602	1.44648	1.750	1.022	AC-FT= 5.444
*S										
*S CALCULATE THE FLOW FROM SUB-BASINS A60110 & A60111										
COMPUTE NM HYD	INTOPOND3	-	3	.14300	259.34	11.048	1.44860	1.500	2.834	PER IMP= 43.15
*S										
*S ADD THE ROUTED FLOW FROM POND 2 TO THE FLOW FROM INTOPOND3										
*S HYD=POND3.IN IS THE TOTAL INFLOW INTO POND 3.										
ADD HYD	POND3.IN	2& 3	4	.35820	367.30	27.650	1.44733	1.500	1.602	
*S										
*S ROUTE FLOW THROUGH POND 3 - 48" ORIFICE										
ROUTE RESERVOIR	POND3.OUT	4	5	.35820	135.16	27.650	1.44733	2.200	.590	AC-FT= 9.050
*S										
*S CALCULATE THE FLOW FROM SUB-BASINS A60113 & A60116N										
COMPUTE NM HYD	INTOPOND4	-	6	.05800	110.57	4.817	1.55728	1.500	2.979	PER IMP= 48.40
*S										
*S ADD THE ROUTED FLOW FROM POND 3 TO THE FLOW FROM INTOPOND4										
ADD HYD	POND4.IN	5& 6	7	.41620	193.77	32.467	1.46265	1.500	.727	
*S										
*S ROUTE FLOW THROUGH POND 4 - 48" ORIFICE										
ROUTE RESERVOIR	POND4.OUT	7	8	.41620	132.74	32.467	1.46265	2.550	.498	AC-FT= 4.181
*S										
*S CALCULATE THE FLOW FROM SUB-BASINS A60114, A60115 & A60116S										
COMPUTE NM HYD	INTOPOND5	-	9	.31700	557.78	23.502	1.39013	1.500	2.749	PER IMP= 40.33
*S										
*S ADD THE ROUTED FLOW FROM POND 4 TO THE FLOW FROM INTOPOND5										
ADD HYD	POND5.IN	8& 9	10	.73320	635.67	55.969	1.43129	1.500	1.355	
*S										
*S ROUTE FLOW THROUGH POND 5 - TWO 42" ORIFICES										
ROUTE RESERVOIR	POND5.OUT	10	11	.73320	217.31	55.969	1.43129	2.050	.463	AC-FT= 11.680
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 201										
COMPUTE NM HYD	INTOPOND6	-	12	.09690	183.13	7.870	1.52279	1.500	2.953	PER IMP= 46.00
*S										
*S ADD THE ROUTED FLOW FROM POND 5 TO THE FLOW FROM INTOPOND6										
ADD HYD	POND6.IN	11&12	13	.83010	334.92	63.839	1.44197	1.550	.630	
*S										
*S ROUTE FLOW THROUGH POND 6 - 54" ORIFICE										
ROUTE RESERVOIR	POND6.OUT	13	14	.83010	197.07	63.839	1.44197	2.750	.371	AC-FT= 10.002
*S										
*S*****										
*S										
*S COMPUTE FLOWS FROM SUB-BASIN 202										
COMPUTE NM HYD	INTOPOND8	-	15	.08260	156.26	6.708	1.52279	1.500	2.956	PER IMP= 46.00
*S										

*S COMPUTE FLOWS FROM SUB-BASIN 203S (DENNIS CHAVEZ BLVD - SOUTH HALF OF ROW 36'
 COMPUTE HYD 203S.0 - 16 .03860 65.8 2.505 1.21684 1.500 2.664 PER IMP= 2
 *S
 ADD HYD JUNCTION 15&16 17 .12120 222.07 9.213 1.42534 1.500 2.863
 *S
 *S ROUTE FLOWS THROUGH POND 8 - 30" ORIFICE
 ROUTE RESERVOIR POND8.OUT 17 18 .12120 30.73 9.213 1.42533 2.050 .396 AC-FT= 5.108
 *S
 *S COMPUTE FLOWS FROM SUB-BASIN 203N (DENNIS CHAVEZ BLVD - NORTH HALF OF ROW 36'
 COMPUTE NM HYD 203N.0 - 19 .03860 65.81 2.505 1.21684 1.500 2.664 PER IMP= 28.80
 *S
 *S COMPUTE FLOWS FROM SUB-BASIN 118TH (118TH STREET-4974' NORTH OF DENNIS CHAVEZ

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHAR (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = NOTATION
COMPUTE NM HYD	118TH.0	-	28	.01749	38.00	1.898	2.03489	1.500	3.396	PER IMP= 76.53
*S										
*S ADD THE FLOWS FROM POND6.ROUTE TO THE FLOWS FROM SUB-BASIN 203N										
*S AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH1)										
ADD HYD	JUNCTION 19&14	20		.86870	198.14	66.344	1.43197	2.700	.356	
*S										
*S ADD THE FLOWS FROM 118TH TO THE FLOWS AT MH1										
ADD HYD	JUNCTION 20&28	29		.88619	210.03	68.242	1.44386	1.550	.370	
*S										
*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLO										
*S FROM POND8.ROUTE AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH										
ADD HYD	JUNCTION 29&18	21		1.00739	233.87	77.455	1.44163	1.550	.363	
*S										
*S										
*S COMPUTE FLOWS FROM SUB-BASIN 204W (COMMERCIAL TRACT DIRECTLY TO CHANNEL)										
COMPUTE NM HYD	204.00	-	22	.04037	89.62	4.524	2.10119	1.500	3.468	PER IMP= 80.00
*S										
*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLO										
*S FROM SUB-BASIN 204W AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ										
ADD HYD	JUNCTION 21&22	23		1.04776	316.27	81.979	1.46705	1.500	.472	
*S										
*S COMPUTE FLOWS FROM SUB-BASIN 204E (ANDERSON HEIGHTS DIRECTLY TO CHANNEL)										
COMPUTE NM HYD	206.00	-	24	.09400	180.17	8.260	1.64761	1.500	2.995	PER IMP= 56.26
*S										
*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLO										
*S FROM SUB-BASIN 204E AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ										
*S THIS IS THE FLOW THAT WILL ENTER THE RIO BRAVO CHANNEL AT THE EASTERN EDGE OF										
*S ANDERSON HEIGHTS										
ADD HYD	JUNCTION 23&24	25		1.14176	496.43	90.239	1.48191	1.500	.679	
*S										
*S COMPUTE FLOWS FROM SUB-BASINS 205, 206, 60122 & 60123 (ANDERSON HEIGHTS TO PO										
COMPUTE NM HYD	INTOPOND10	-	26	.26689	501.99	23.452	1.64761	1.500	2.939	PER IMP= 56.26
*S										
*S ROUTE FLOWS THROUGH POND 10 - 30" ORIFICE										
ROUTE RESERVOIR	POND10.OUT	26	27	.26689	55.87	23.451	1.64753	2.150	.327	AC-FT= 13.187
*S										
ROUTE	209.10	27	4	.26689	55.84	23.451	1.64752	2.200	.327	
COMPUTE NM HYD	207.00	-	1	.03023	48.84	2.455	1.52279	1.550	2.524	PER IMP= 46.00
ADD HYD	JUNCTION 4& 1	2		.29712	88.50	25.906	1.63483	1.600	.465	
ROUTE	208.10	2	4	.29712	88.98	25.906	1.63482	1.600	.468	
COMPUTE NM HYD	208.A	-	1	.03201	54.71	2.448	1.43385	1.500	2.671	PER IMP= 41.00
ADD HYD	JUNCTION 4& 1	2		.32913	138.94	28.354	1.61528	1.550	.660	
ROUTE	209.10	2	4	.32913	138.32	28.354	1.61527	1.550	.657	
COMPUTE NM HYD	208.B	-	1	.02696	51.38	2.215	1.54057	1.500	2.978	PER IMP= 47.00
ADD HYD	JUNCTION 4& 1	2		.35609	183.86	30.569	1.60961	1.550	.807	
COMPUTE NM HYD	209.00	-	1	.01110	16.34	1.113	1.88065	1.650	2.301	PER IMP= 65.00
ADD HYD	JUNCTION 2& 1	4		.36719	197.69	31.682	1.61781	1.550	.841	
ADD HYD	JUNCTION 4&25	3		1.50895	681.78	121.921	1.51498	1.500	.706	

ROUTE		210.10	3	4	1.50895	685.13	121.921	1.51498	1.550	.709		
COMPUTF	HYD	211.00	-	1	.15300	242.	14.209	1.74130	1.600	2.473	PER IMP=	5
COMPUTF	HYD	212.00	-	2	.00950	17.	.953	1.88065	1.550	2.814	PER IMP=	6
ADD HYD		JUNCTION	1& 2	3	.16250	258.60	15.162	1.74945	1.550	2.487		
ADD HYD		JUNCTION	3& 4	5	1.67145	943.73	137.083	1.53777	1.550	.882		
COMPUTE NM	HYD	214.00	-	1	.05930	94.84	5.507	1.74131	1.600	2.499	PER IMP=	57.00
ADD HYD		JUNCTION	5& 1	3	1.73075	1038.43	142.590	1.54475	1.550	.937		
ROUTE		216.10	3	4	1.73075	1032.74	142.590	1.54475	1.550	.932		
FINISH												

(s10H

START 0.0 HOURS PC=0 PL=-1
 *S
 *S RIO BRAVO
 *S
 *S
 *S
 *S 100-YR, 24-HR STORM WITHOUT SEDIMENT
 *S FILE NAME: RB_DMP.DAT
 *S BY: RICHARD STOCKTON
 *S REVISED BY MARK GOODWIN AND ASSOCIATES 8-04-04.
 *S LAST REVISION: 7-15-03
 *S*****

 *S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM FROM THE
 *S SACATE BLANCO WATERSHED WEST OF THE POWERLINE EASEMENT (AKA SOUTH
 *S POWERLINE DIVERSION AND DETENTION FACILITY);
 *S AND THE RIO BRAVO WATERSHED.
 *S
 *S FLOWS FROM THIS WATERSHED ARE CONVEYED TO HUBBLE LAKE DETENTION
 *S FACILITY VIA THE HUBBLE LAKE/AMOLE DIVERSION CHANNEL.
 *S
 *S THE ORGINIAL RIO BRAVO MODEL WAS DEVELOPED BY AVID (AND ACCEPTED BY
 *S THE COUNTY). ASSUMPTIONS MADE IN THE AVID MODEL ARE INVALID, AND
 HAVE
 *S BEEN CORRECTED WITH THE 4-25-03 REVISIONS. DIVERSIONS TO THE BOREGA
 DAM
 *S AND THE AMOLE CHANNEL REDUCE THIS BASIN AND 114 AC. OF THE SACATE
 BLANCO
 *S BELOW THE POWER LINE IS ADDED TO THE RIO BRAVO CHANNEL.
 *S PONDS 7 & 9 ARE DELETED AND POND 10 IS ADDED.
 *S
 *S PONDS 2,3,4,5,6,8 & 10 WERE SIZED FOR DEVELOPED FLOW AND USED ACTUAL
 TOPO
 *S TO SIZE. THE BASINS WERE RENAMED AND SIZED PER HOW THEY DRAINED TO
 EACH
 *S POND. THE DENNIS CHAVEZ ROW RUNOFF EAST OF 118TH STREET WAS TAKEN OUT
 *S OF THE RIO BRAVO CHANNEL TO REDUCE THE IMPACT AT THE CONDISHIRE
 BOXES.
 *S THIS FLOW (BASINS 210, 213 & 216)ALONG WITH BASIN 215 WILL NEED TO BE
 *S DESIGNED INTO A STORMDRAIN THAT WILL BE CONSTRUCTED ON THE SOUTH SIDE
 OF
 *S DENNIS CHAVEZ AND TIE DIRECTLY TO THE HUBBLE CHANNEL AT THE EAST END
 OF
 *S BASIN 216. DENNIS CHAVEZ BASIN 203 WILL BE SPLIT N & S WITH THE SOUTH
 HALF
 *S BEING ROUTED THROUGH POND 8
 *S*****
 *S ANALYSIS ASSUMPTIONS:
 *S*****
 *S 1. ALL LAND IN THE RIO BRAVO BASIN IS MODELED AS DEVELOPED CONDITION
 AT
 *S 6 DU/AC, EXCEPT ANDERSON HILLS WHERE LOWER DENSITIES ARE CERTAIN,
 AND
 *S EXCEPT IN BASINS 201 AND 202 WHERE THERE IS NO LIGHT.
 *S 2. THE PUNCH HYD COMMAND WAS ADDED TO THE END OF THIS FILE SO THE
 OUTFALL
 *S HYDROGRAPH COULD BE USED IN THE AMOLE DEL NORTE EXISTING
 CONDITIONS MODEL
 *S AA100D1B.DAT, WHICH WILL BE USED IN THE ANALYSIS OF THE AMOLE
 ARROYO SYSTEM.
 *S


```

*S 3. NO BULKING FACTORS WERE ADDED TO THE AREA TRIBUTARY TO THE RIO
BRAVO
*S   CHANNEL DUE TO THE INCORPORATION OF DETENTION PONDS. HOWEVER,
BULKING FACTORS
*S   HAVE BEEN ADDED TO BASINS TRIBUTARY TO HUBBELL CHANNEL AND LAKE.
*S
*****
*S RAINFALL FROM NOAA ATLAS 2
*S THESE VALUES WERE REDUCED FOR AREA BY 12%, 5% AND 3% FOR 1, 6, AND 24
HOUR
RAINFALL          TYPE=2  0.0  1.64  2.11  2.66      DT=0.05
* *S 10 YEAR 24HR STORM  CONDITION
* RAINFALL          TYPE=2  0.0  1.08  1.41  1.78      DT=0.05
*****
*S
*****
*S ADD BASINS FROM SOUTH POWERLINE DIVERSION
*S TO THE RIO BRAVO RUN
*S
*****
*S
*S APPLY A 3% SEDIMENT BULKING FACTOR TO ALL COMPUTED HYDROGRAPHS
SEDIMENT BULK      CODE=1    BULKING FACTOR = 1.03
*S CALCULATE THE FLOW FROM SUB-BASINS A60106, A60107A, 60108 & 60109
COMPUTE NM HYD      ID=1  HYD=INTOPOND2  AREA=0.2152 SQ MI
                    A=0  B=36.59  C=20.42  D=42.99
                    TP=0.1333  MASSRAIN=-1
PRINT HYD           ID=1  CODE=1
*S
*S ROUTE FLOW THROUGH POND 2 - 48" ORIFICE
ROUTE RESERVOIR      ID=2  HYD=POND2.OUT  I=1  CODE=10
                    Q OUT      STORE      ELEV
                    0.0        0.0        5256
                    60.51      0.85        5257
                    85.57      1.77        5258
                    104.80     2.75        5259
                    121.01     3.80        5260
                    135.30     4.93        5261
                    148.21     6.13        5262
PRINT HYD           ID=2  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASINS A60110 & A60111
COMPUTE NM HYD      ID=3  HYD=INTOPOND3  AREA=0.1430 SQ MI
                    A=0  B=36.78  C=20.07  D=43.15
                    TP=0.1333  MASSRAIN=-1
PRINT HYD           ID=3  CODE=1
*S
*S ADD THE ROUTED FLOW FROM POND 2 TO THE FLOW FROM INTOPOND3
*S HYD=POND3.IN IS THE TOTAL INFLOW INTO POND 3.
ADD HYD             ID=4  HYD=POND3.IN  I=2  II=3
PRINT HYD           ID=4  CODE=1
*S
*S ROUTE FLOW THROUGH POND 3 - 48" ORIFICE
ROUTE RESERVOIR      ID=5  HYD=POND3.OUT  I=4  CODE=10
                    Q OUT      STORE      ELEV
                    0.0        0.0        5246
                    60.51      1.62        5247
                    85.57      3.34        5248
                    104.80     5.15        5249

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121.01      7.06      5250
135.30      9.07      5251
148.21     11.18      5252
PRINT HYD      ID=5 CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASINS A60113 & A60116N
COMPUTE NM HYD      ID=6  HYD=INTOPOND4  AREA=0.0580 SQ MI
                    A=0  B=28.6 C=23  D=48.4
                    TP=0.1333  MASSRAIN=-1
PRINT HYD      ID=6  CODE=1
*S
*S ADD THE ROUTED FLOW FROM POND 3 TO THE FLOW FROM INTOPOND4
ADD HYD      ID=7  HYD=POND4.IN  I=5  II=6
PRINT HYD      ID=7  CODE=1
*S
*S ROUTE FLOW THROUGH POND 4 - 48" ORIFICE
ROUTE RESERVOIR      ID=8 HYD=POND4.OUT I=7 CODE=10
                    Q OUT      STORE      ELEV
                    0.0        0.0        5237
                    60.51      0.75        5238
                    85.57      1.56        5239
                    104.80      2.43        5240
                    121.01      3.36        5241
                    135.30      4.36        5242
                    148.21      5.45        5243
PRINT HYD      ID=8 CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASINS A60114, A60115 & A60116S
COMPUTE NM HYD      ID=9  HYD=INTOPOND5  AREA=0.3170 SQ MI
                    A=0  B=41.24 C=18.43 D=40.33
                    TP=0.1333  MASSRAIN=-1
PRINT HYD      ID=9  CODE=1
*S
*S ADD THE ROUTED FLOW FROM POND 4 TO THE FLOW FROM INTOPOND5
ADD HYD      ID=10 HYD=POND5.IN  I=8  II=9
PRINT HYD      ID=10 CODE=1
*S
*S ROUTE FLOW THROUGH POND 5 - TWO 42" ORIFICES
ROUTE RESERVOIR      ID=11 HYD=POND5.OUT I=10 CODE=10
                    Q OUT      STORE      ELEV
                    0.0        0.0        5232
                    92.66      1.91        5233
                    131.02      3.91        5234
                    160.48      6.00        5235
                    185.30      8.18        5236
                    207.18      10.46       5237
                    226.94      12.84       5238
PRINT HYD      ID=11 CODE=1
*S
*S COMPUTE HYDROGRAPH FOR BASIN 201
COMPUTE NM HYD      ID=12 HYD NO=INTOPOND6  AREA=0.0969 SQ MI
                    A=0  B=27  C=27  D=46
                    TP=0.1333 HR
                    MASS RAINFALL=-1
PRINT HYD      ID=12 CODE=1
*S ADD THE ROUTED FLOW FROM POND 5 TO THE FLOW FROM INTOPOND6
ADD HYD      ID=13 HYD=POND6.IN I=11 II=12
PRINT HYD      ID=13 CODE=1
*S
*S ROUTE FLOW THROUGH POND 6 - 54" ORIFICE
ROUTE RESERVOIR      ID=14 HYD=POND6.OUT I=13 CODE=10

```


Q OUT	STORE	ELEV
0.0	0.0	5226
76.58	1.39	5227
108.30	2.90	5228
132.64	4.51	5229
153.15	6.24	5230
171.23	8.08	5231
197.58	10.04	5232
202.60	12.12	5233
216.59	14.31	5234

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PRINT HYD ID=14 CODE=1
*S
*S*****
*S
*S COMPUTE FLOWS FROM SUB-BASIN 202
COMPUTE NM HYD ID=15 HYD NO=INTOPOND8 AREA=0.0826 SQ MI
A=0 B=27 C=27 D=46
TP=0.1333 HR
MASS RAINFALL=-1
PRINT HYD ID=15 CODE=1
*S
*S COMPUTE FLOWS FROM SUB-BASIN 203S (DENNIS CHAVEZ BLVD - SOUTH HALF OF
ROW 36' OF PAVEMENT)
COMPUTE NM HYD ID=16 HYD NO=203S.0 AREA=0.0386 SQ MI
A=0 B=35.6 C=35.6 D=28.8
TP=0.1333 HR
MASS RAINFALL=-1
PRINT HYD ID=16 CODE=1
*S
ADD HYD ID=17 HYD=JUNCTION I=15 II=16
PRINT HYD ID=17 CODE=10
*S
*S ROUTE FLOWS THROUGH POND 8 - 30" ORIFICE
ROUTE RESERVOIR ID=18 HYD=POND8.OUT I=17 CODE=10
Q OUT STORE ELEV
0.0 0.0 5215
15.13 1.12 5216
21.39 2.32 5217
26.20 3.58 5218
30.25 4.92 5219
33.82 6.33 5220
PRINT HYD ID=18 CODE=1
*S
*S COMPUTE FLOWS FROM SUB-BASIN 203N (DENNIS CHAVEZ BLVD - NORTH HALF OF
ROW 36' OF PAVEMENT)
COMPUTE NM HYD ID=19 HYD NO=203N.0 AREA=0.0386 SQ MI
A=0 B=35.6 C=35.6 D=28.8
TP=0.1333 HR
MASS RAINFALL=-1
PRINT HYD ID=19 CODE=1
*S
*S COMPUTE FLOWS FROM SUB-BASIN 118TH (118TH STREET-4974' NORTH OF
DENNIS CHAVEZ)
COMPUTE NM HYD ID=28 HYD NO=118TH.0 AREA=0.017485 SQ MI
A=0 B=23.47 C=0 D=76.53
TP=0.1333 HR
MASS RAINFALL=-1
PRINT HYD ID=28 CODE=1
*S
*S ADD THE FLOWS FROM POND6.ROUTE TO THE FLOWS FROM SUB-BASIN 203N
*S AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH1)

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	33.49	4.38	5237
	40.94	6.71	5238
	47.27	9.12	5239
	52.85	11.63	5240
	57.89	14.23	5241
	62.53	16.93	5242
PRINT HYD	ID=27	CODE=1	
*S			
COMPUTE RATING CURVE	CID=1	VS NO=1	CODE=-1
	SLP=0.024	D=3.0	N=0.013
COMPUTE TRAVEL TIME	ID=4	REACH NO=1	NO VS=1 L=1900 FT
	SLP=0.024		
ROUTE	OUTFLOW ID=4	OUTFLOW HYD=209.1	
	INFLOW ID=27	DT=0.0	
PRINT HYD	ID=4	CODE=1	
COMPUTE NM HYD	ID=1	HYD NO=207.0	DA=0.03023 SQ MI
	%A, B, C, & D	0 27 27 46	
	TP=0.18	HR	
	MASS RAINFALL=-1		
PRINT HYD	ID=1	CODE=1	
ADD HYD	ID=2	HYD=JUNCTION I=4	II=1
PRINT HYD	ID=2	CODE=10	
COMPUTE RATING CURVE	CID=1	VS NO=1	CODE=-1
	SLP=0.007	D=4.0	N=0.013
COMPUTE TRAVEL TIME	ID=4	REACH NO=1	NO VS=1 L=560 FT
	SLP=0.007		
ROUTE	OUTFLOW ID=4	OUTFLOW HYD=208.1	
	INFLOW ID=2	DT=0.0	
PRINT HYD	ID=4	CODE=1	
COMPUTE NM HYD	ID=1	HYD NO=208.A	DA=0.03201 SQ MI
	%A, B, C, & D	0 29.5 29.5 41	
	TP=0.15	HR	
	MASS RAINFALL=-1		
PRINT HYD	ID=1	CODE=1	
ADD HYD	ID=2	HYD=JUNCTION I=4	II=1
PRINT HYD	ID=2	CODE=10	
COMPUTE RATING CURVE	CID=1	VS NO=1	CODE=-1
	SLP=0.010	D=4.0	N=0.013
COMPUTE TRAVEL TIME	ID=4	REACH NO=1	NO VS=1 L=600 FT
	SLP=0.010		
ROUTE	OUTFLOW ID=4	OUTFLOW HYD=209.1	
	INFLOW ID=2	DT=0.0	
PRINT HYD	ID=4	CODE=1	
COMPUTE NM HYD	ID=1	HYD NO=208.B	DA=0.02696 SQ MI
	%A, B, C, & D	0 26.5 26.5 47	
	TP=0.1333	HR	
	MASS RAINFALL=-1		
PRINT HYD	ID=1	CODE=1	
ADD HYD	ID=2	HYD=JUNCTION I=4	II=1
PRINT HYD	ID=2	CODE=10	
COMPUTE NM HYD	ID=1	HYD NO=209.0	DA=0.0111 SQ MI
	%A, B, C, & D	0 11 24 65	
	TP=0.27	HR	
	MASS RAINFALL=-1		
PRINT HYD	ID=1	CODE=1	
ADD HYD	ID=4	HYD=JUNCTION I=2	II=1
PRINT HYD	ID=4	CODE=10	
ADD HYD	ID=3	HYD=JUNCTION I=4	II=25
PRINT HYD	ID=3	CODE=10	
COMPUTE RATING CURVE	CID=1	VN=1	NS=1 MIN EL=100 MAX EL=104
	CS=0.028	FS=0.028	N=0.013 DIST=26

	DIST	EL	DIST	EL
	0	104	08	100
	18	100	26	104
COMPUTE TRAVEL TIME	ID=4	RN=1	NVS=1	L=2750 S=0.028
ROUTE	ID=4	HYD=210.1	INFLOW	ID=3 DT=0.0
PRINT HYD	ID=4	CODE=1		
COMPUTE NM HYD	ID=1	HYD NO=211.0	DA=0.1530	SQ MI
	%A, B, C, & D	0 14 29 57		
	TP=0.21	HR		
	MASS RAINFALL=-1			
PRINT HYD	ID=1	CODE=1		
COMPUTE NM HYD	ID=2	HYD NO=212.0	DA=0.0095	SQ MI
	%A, B, C, & D	0 11 24 65		
	TP=0.19	HR		
	MASS RAINFALL=-1			
PRINT HYD	ID=2	CODE=1		
ADD HYD	ID=3	HYD=JUNCTION	I=1 II=2	
PRINT HYD	ID=3	CODE=10		
ADD HYD	ID=5	HYD=JUNCTION	I=3 II=4	
PRINT HYD	ID=5	CODE=10		
COMPUTE NM HYD	ID=1	HYD NO=214.0	DA=0.0593	SQ MI
	%A, B, C, & D	0 14 29 57		
	TP=0.21	HR		
	MASS RAINFALL=-1			
PRINT HYD	ID=1	CODE=1		
ADD HYD	ID=3	HYD=JUNCTION	I=5 II=1	
PRINT HYD	ID=3	CODE=10		
COMPUTE RATING CURVE	CID=1	VN=1	NS=1	MIN EL=100 MAX EL=104
	CS=0.014	FS=0.014	N=0.013	DIST=26
	DIST	EL	DIST	EL
	0	104	08	100
	18	100	26	104
COMPUTE TRAVEL TIME	ID=4	RN=1	NVS=1	L=1400 S=0.014
ROUTE	ID=4	HYD=216.1	INFLOW	ID=3 DT=0.0
PRINT HYD	ID=4	CODE=1		
FINISH				

□(s16.66H□□□□□□□□□□

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994

RUN DATE (MON/DAY/YR) = 08/06/2004
START TIME (HR:MIN:SEC) = 10:41:50 USER NO.=

M_GOODWN.I01

INPUT FILE = AH118-DS.DAT

START 0.0 HOURS PC=0 PL=-1

*S

*S

RIO BRAVO

*S

*S

*S

*S 100-YR, 24-HR STORM WITHOUT SEDIMENT

*S FILE NAME: RB_DMP.DAT

*S BY: RICHARD STOCKTON

*S REVISED BY MARK GOODWIN AND ASSOCIATES 8-04-04.

*S LAST REVISION: 7-15-03

*S*****

*S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM FROM
THE

*S SACATE BLANCO WATERSHED WEST OF THE POWERLINE EASEMENT (AKA
SOUTH

*S POWERLINE DIVERSION AND DETENTION FACILITY);

*S AND THE RIO BRAVO WATERSHED.

*S

*S FLOWS FROM THIS WATERSHED ARE CONVEYED TO HUBBLE LAKE DETENTION

*S FACILITY VIA THE HUBBLE LAKE/AMOLE DIVERSION CHANNEL.

*S

*S THE ORGINIAL RIO BRAVO MODEL WAS DEVELOPED BY AVID (AND ACCEPTED
BY

*S THE COUNTY). ASSUMPTIONS MADE IN THE AVID MODEL ARE INVALID,
AND HAVE

*S BEEN CORRECTED WITH THE 4-25-03 REVISIONS. DIVERSIONS TO THE
BOREGA DAM

*S AND THE AMOLE CHANNEL REDUCE THIS BASIN AND 114 AC. OF THE
SACATE BLANCO

*S BELOW THE POWER LINE IS ADDED TO THE RIO BRAVO CHANNEL.

*S PONDS 7 & 9 ARE DELETED AND POND 10 IS ADDED.

*S

*S PONDS 2,3,4,5,6,8 & 10 WERE SIZED FOR DEVELOPED FLOW AND USED
ACTUAL TOPO

*S TO SIZE. THE BASINS WERE RENAMED AND SIZED PER HOW THEY DRAINED
TO EACH

*S POND. THE DENNIS CHAVEZ ROW RUNOFF EAST OF 118TH STREET WAS
TAKEN OUT

*S OF THE RIO BRAVO CHANNEL TO REDUCE THE IMPACT AT THE CONDISHIRE
BOXES.

*S THIS FLOW (BASINS 210, 213 & 216)ALONG WITH BASIN 215 WILL NEED
TO BE

*S DESIGNED INTO A STORMDRAIN THAT WILL BE CONSTRUCTED ON THE SOUTH
SIDE OF

*S DENNIS CHAVEZ AND TIE DIRECTLY TO THE HUBBLE CHANNEL AT THE EAST
END OF

*S BASIN 216. DENNIS CHAVEZ BASIN 203 WILL BE SPLIT N & S WITH THE
SOUTH HALF

*S BEING ROUTED THROUGH POND 8

*S*****

*S ANALYSIS ASSUMPTIONS:

*S*****

*S 1. ALL LAND IN THE RIO BRAVO BASIN IS MODELED AS DEVELOPED
CONDITION AT

*S 6 DU/AC, EXCEPT ANDERSON HILLS WHERE LOWER DENSITIES ARE
CERTAIN, AND

*S EXCEPT IN BASINS 201 AND 202 WHERE THERE IS NO LIGHT.

*S 2. THE PUNCH HYD COMMAND WAS ADDED TO THE END OF THIS FILE SO
THE OUTFALL

*S HYDROGRAPH COULD BE USED IN THE AMOLE DEL NORTE EXISTING
CONDITIONS MODEL

*S AA100D1B.DAT, WHICH WILL BE USED IN THE ANALYSIS OF THE AMOLE
ARROYO SYSTE

*S

*S 3. NO BULKING FACTORS WERE ADDED TO THE AREA TRIBUTARY TO THE
RIO BRAVO

*S CHANNEL DUE TO THE INCORPORATION OF DETENTION PONDS. HOWEVER,
BULKING FACT

*S HAVE BEEN ADDED TO BASINS TRIBUTARY TO HUBBELL CHANNEL AND
LAKE.

*S

*S*****

*S RAINFALL FROM NOAA ATLAS 2

*S THESE VALUES WERE REDUCED FOR AREA BY 12%, 5% AND 3% FOR 1, 6,
AND 24 HOUR

RAINFALL TYPE=2 0.0 1.64 2.11 2.66 DT=0.05

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
ATLAS 2 - PEAK AT 1.40 HR.

HOURS	DT =	.050000 HOURS	END TIME =	24.000000
	.0000	.0055	.0112	.0171 .0231 .0294
.0359	.0426	.0496	.0568	.0644 .0723 .0805
.0892	.0983	.1079	.1180	.1289 .1404 .1528
.1663	.1732	.1808	.2030	.2553 .3452 .4843
.6846	.9584	1.1744	1.2720	1.3535 1.4248 1.4886
1.5464	1.5992	1.6475	1.6921	1.7332 1.7711 1.8063
1.8151	1.8234	1.8312	1.8386	1.8457 1.8525 1.8590
1.8652	1.8712	1.8771	1.8827	1.8882 1.8935 1.8986
1.9037	1.9086	1.9134	1.9181	1.9226 1.9271 1.9315
1.9358	1.9400	1.9442	1.9483	1.9523 1.9562 1.9601
1.9639	1.9676	1.9713	1.9749	1.9785 1.9821 1.9855
1.9890	1.9924	1.9957	1.9990	2.0023 2.0055 2.0087
2.0119	2.0150	2.0181	2.0211	2.0241 2.0271 2.0301

2.0330						
	2.0359	2.0388	2.0416	2.0444	2.0472	2.0500
2.0527						
	2.0554	2.0581	2.0608	2.0635	2.0661	2.0687
2.0713						
	2.0738	2.0764	2.0789	2.0814	2.0839	2.0863
2.0888						
	2.0912	2.0936	2.0960	2.0984	2.1007	2.1031
2.1054						
	2.1077	2.1100	2.1123	2.1146	2.1169	2.1192
2.1215						
	2.1237	2.1260	2.1283	2.1305	2.1328	2.1350
2.1372						
	2.1394	2.1416	2.1438	2.1460	2.1482	2.1504
2.1526						
	2.1548	2.1569	2.1591	2.1612	2.1634	2.1655
2.1676						
	2.1697	2.1719	2.1740	2.1761	2.1782	2.1803
2.1823						
	2.1844	2.1865	2.1885	2.1906	2.1927	2.1947
2.1967						
	2.1988	2.2008	2.2028	2.2048	2.2068	2.2088
2.2108						
	2.2128	2.2148	2.2168	2.2188	2.2207	2.2227
2.2247						
	2.2266	2.2286	2.2305	2.2324	2.2344	2.2363
2.2382						
	2.2401	2.2420	2.2439	2.2458	2.2477	2.2496
2.2515						
	2.2534	2.2552	2.2571	2.2590	2.2608	2.2627
2.2645						
	2.2664	2.2682	2.2700	2.2719	2.2737	2.2755
2.2773						
	2.2791	2.2809	2.2827	2.2845	2.2863	2.2881
2.2899						
	2.2917	2.2935	2.2952	2.2970	2.2987	2.3005
2.3023						
	2.3040	2.3057	2.3075	2.3092	2.3109	2.3127
2.3144						
	2.3161	2.3178	2.3195	2.3212	2.3229	2.3246
2.3263						
	2.3280	2.3297	2.3314	2.3331	2.3347	2.3364
2.3381						
	2.3397	2.3414	2.3430	2.3447	2.3463	2.3480
2.3496						
	2.3512	2.3529	2.3545	2.3561	2.3577	2.3594
2.3610						
	2.3626	2.3642	2.3658	2.3674	2.3690	2.3706
2.3721						
	2.3737	2.3753	2.3769	2.3785	2.3800	2.3816
2.3832						
	2.3847	2.3863	2.3878	2.3894	2.3909	2.3925
2.3940						
	2.3955	2.3971	2.3986	2.4001	2.4017	2.4032
2.4047						
	2.4062	2.4077	2.4092	2.4107	2.4122	2.4137
2.4152						
	2.4167	2.4182	2.4197	2.4212	2.4227	2.4241
2.4256						
	2.4271	2.4285	2.4300	2.4315	2.4329	2.4344
2.4358						

2.4459	2.4373	2.4387	2.4402	2.4416	2.4431	2.4445
2.4559	2.4474	2.4488	2.4502	2.4516	2.4531	2.4545
2.4657	2.4573	2.4587	2.4601	2.4615	2.4629	2.4643
2.4754	2.4671	2.4685	2.4699	2.4713	2.4727	2.4740
2.4850	2.4768	2.4782	2.4795	2.4809	2.4823	2.4836
2.4944	2.4864	2.4877	2.4891	2.4904	2.4918	2.4931
2.5038	2.4958	2.4971	2.4985	2.4998	2.5011	2.5024
2.5130	2.5051	2.5064	2.5077	2.5091	2.5104	2.5117
2.5221	2.5143	2.5156	2.5169	2.5182	2.5195	2.5208
2.5311	2.5234	2.5247	2.5260	2.5272	2.5285	2.5298
2.5400	2.5324	2.5336	2.5349	2.5362	2.5374	2.5387
2.5488	2.5412	2.5425	2.5438	2.5450	2.5463	2.5475
2.5574	2.5500	2.5512	2.5525	2.5537	2.5550	2.5562
2.5660	2.5587	2.5599	2.5611	2.5624	2.5636	2.5648
2.5745	2.5672	2.5685	2.5697	2.5709	2.5721	2.5733
2.5829	2.5757	2.5769	2.5781	2.5793	2.5805	2.5817
2.5912	2.5841	2.5853	2.5865	2.5877	2.5888	2.5900
2.5994	2.5924	2.5936	2.5947	2.5959	2.5971	2.5983
2.6076	2.6006	2.6018	2.6029	2.6041	2.6052	2.6064
2.6156	2.6087	2.6099	2.6110	2.6122	2.6133	2.6144
2.6236	2.6167	2.6179	2.6190	2.6202	2.6213	2.6224
2.6314	2.6247	2.6258	2.6269	2.6281	2.6292	2.6303
2.6392	2.6325	2.6337	2.6348	2.6359	2.6370	2.6381
2.6469	2.6403	2.6414	2.6425	2.6436	2.6447	2.6458
2.6546	2.6480	2.6491	2.6502	2.6513	2.6524	2.6535
	2.6557	2.6568	2.6578	2.6589	2.6600	

* *S 10 YEAR 24HR STORM CONDITION

* RAINFALL TYPE=2 0.0 1.08 1.41 1.78 DT=0.05

*S*****

*S

*S*****

*S ADD BASINS FROM SOUTH POWERLINE DIVERSION

*S TO THE RIO BRAVO RUN


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*S
*S*****
*S
*S  APPLY A 3% SEDIMENT BULKING FACTOR TO ALL COMPUTED HYDROGRAPHS
SEDIMENT BULK          CODE=1    BULKING FACTOR = 1.03
*S CALCULATE THE FLOW FROM SUB-BASINS A60106, A60107A, 60108 &
60109
  COMPUTE NM HYD          ID=1  HYD=INTOPOND2  AREA=0.2152 SQ MI
                          A=0  B=36.59  C=20.42  D=42.99
                          TP=0.1333  MASSRAIN=-1

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      K = .076954HR      TP = .133300HR      K/TP RATIO = .577299
SHAPE CONSTANT, N = 6.605146
      UNIT PEAK = 348.57  CFS      UNIT VOLUME = .9988      B =
502.23      P60 = 1.6400
      AREA = .092514 SQ MI      IA = .10000 INCHES      INF =
.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

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      K = .121811HR      TP = .133300HR      K/TP RATIO = .913814
SHAPE CONSTANT, N = 3.874819
      UNIT PEAK = 319.13  CFS      UNIT VOLUME = 1.001      B =
346.74      P60 = 1.6400
      AREA = .122686 SQ MI      IA = .44627 INCHES      INF =
1.09956 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

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BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

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PRINT HYD          ID=1  CODE=1

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HYDROGRAPH FROM AREA

INTOPOND2

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      RUNOFF VOLUME = 1.44649 INCHES      = 16.6017 ACRE-FEET
      PEAK DISCHARGE RATE = 388.95 CFS AT 1.500 HOURS BASIN
AREA = .2152 SQ. MI.

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*S
*S ROUTE FLOW THROUGH POND 2 - 48" ORIFICE
ROUTE RESERVOIR      ID=2  HYD=POND2.OUT  I=1  CODE=10
      Q OUT          STORE          ELEV
      0.0            0.0            5256
      60.51          0.85            5257
      85.57          1.77            5258
      104.80         2.75            5259
      121.01         3.80            5260
      135.30         4.93            5261
      148.21         6.13            5262

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* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

.00	.00	5256.00	.000	.00
.50	.00	5256.00	.000	.00
1.00	10.02	5256.09	.074	5.27
1.50	388.95	5259.19	2.954	107.96
2.00	70.51	5260.71	4.599	131.11
2.50	12.05	5257.65	1.446	76.73
3.00	4.71	5256.19	.166	11.80
3.50	3.01	5256.06	.053	3.78
4.00	2.51	5256.04	.038	2.68
4.50	2.43	5256.04	.034	2.45
5.00	2.46	5256.04	.034	2.44
5.50	2.61	5256.04	.036	2.56
6.00	2.79	5256.04	.038	2.73
6.50	2.78	5256.05	.039	2.79
7.00	2.71	5256.04	.038	2.72
7.50	2.63	5256.04	.037	2.64
8.00	2.54	5256.04	.036	2.56
8.50	2.46	5256.04	.035	2.48
9.00	2.39	5256.04	.034	2.41
9.50	2.33	5256.04	.033	2.35
10.00	2.27	5256.04	.032	2.28
10.50	2.22	5256.04	.031	2.22
11.00	2.15	5256.04	.030	2.17
11.50	2.10	5256.03	.030	2.11
12.00	2.04	5256.03	.029	2.07
12.50	1.99	5256.03	.028	2.01
13.00	1.93	5256.03	.028	1.97
13.50	1.91	5256.03	.027	1.93
14.00	1.87	5256.03	.027	1.89
14.50	1.85	5256.03	.026	1.85
15.00	1.80	5256.03	.025	1.81
15.50	1.77	5256.03	.025	1.78
16.00	1.72	5256.03	.024	1.74
16.50	1.70	5256.03	.024	1.71
17.00	1.66	5256.03	.024	1.68
17.50	1.64	5256.03	.023	1.64
18.00	1.60	5256.03	.023	1.62
18.50	1.58	5256.03	.022	1.58
19.00	1.55	5256.03	.022	1.56
19.50	1.54	5256.03	.022	1.53
20.00	1.49	5256.02	.021	1.51
20.50	1.48	5256.02	.021	1.48
21.00	1.45	5256.02	.021	1.46
21.50	1.43	5256.02	.020	1.44
22.00	1.39	5256.02	.020	1.42
22.50	1.38	5256.02	.020	1.40
23.00	1.37	5256.02	.019	1.38
23.50	1.35	5256.02	.019	1.36
24.00	1.32	5256.02	.019	1.34
24.50	.07	5256.00	.004	.28
25.00	.01	5256.00	.000	.03
25.50	.00	5256.00	.000	.00

PEAK DISCHARGE = 140.826 CFS - PEAK OCCURS AT HOUR 1.75
 MAXIMUM WATER SURFACE ELEVATION = 5261.428
 MAXIMUM STORAGE = 5.4437 AC-FT INCREMENTAL TIME=
 .050000HRS

PRINT HYD

ID=2 CODE=1

HYDROGRAPH FROM AREA

POND2.OUT

RUNOFF VOLUME = 1.44648 INCHES = 16.6017 ACRE-FEET
 PEAK DISCHARGE RATE = 140.83 CFS AT 1.750 HOURS BASIN
 AREA = .2152 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASINS A60110 & A60111

COMPUTE NM HYD ID=3 HYD=INTOPOND3 AREA=0.1430 SQ MI
 A=0 B=36.78 C=20.07 D=43.15
 TP=0.1333 MASSRAIN=-1

K = .074918HR TP = .133300HR K/TP RATIO = .562028
 SHAPE CONSTANT, N = 6.832942
 UNIT PEAK = 237.60 CFS UNIT VOLUME = .9990 B =
 513.28 P60 = 1.6400
 AREA = .061705 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .122965HR TP = .133300HR K/TP RATIO = .922464
 SHAPE CONSTANT, N = 3.836561
 UNIT PEAK = 209.87 CFS UNIT VOLUME = 1.001 B =
 344.12 P60 = 1.6400
 AREA = .081296 SQ MI IA = .44704 INCHES INF =
 1.10173 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA

INTOPOND3

RUNOFF VOLUME = 1.44860 INCHES = 11.0479 ACRE-FEET
 PEAK DISCHARGE RATE = 259.34 CFS AT 1.500 HOURS BASIN
 AREA = .1430 SQ. MI.

*S

*S ADD THE ROUTED FLOW FROM POND 2 TO THE FLOW FROM INTOPOND3

*S HYD=POND3.IN IS THE TOTAL INFLOW INTO POND 3.

ADD HYD ID=4 HYD=POND3.IN I=2 II=3

PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA

POND3.IN

RUNOFF VOLUME = 1.44733 INCHES = 27.6496 ACRE-FEET
 PEAK DISCHARGE RATE = 367.30 CFS AT 1.500 HOURS BASIN

AREA = .3582 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 3 - 48" ORIFICE

ROUTE RESERVOIR ID=5 HYD=POND3.OUT I=4 CODE=10

Q OUT	STORE	ELEV
0.0	0.0	5246
60.51	1.62	5247
85.57	3.34	5248
104.80	5.15	5249
121.01	7.06	5250
135.30	9.07	5251
148.21	11.18	5252

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5246.00	.000	.00
.50	.00	5246.00	.000	.00
1.00	11.99	5246.06	.096	3.59
1.50	367.30	5247.91	3.177	83.20
2.00	177.93	5250.80	8.676	132.50
2.50	84.65	5250.68	8.436	130.80
3.00	14.92	5249.06	5.268	105.80
3.50	5.78	5247.25	2.053	66.82
4.00	4.35	5246.34	.546	20.40
4.50	4.07	5246.13	.203	7.60
5.00	4.09	5246.08	.129	4.82
5.50	4.30	5246.07	.116	4.34
6.00	4.59	5246.07	.119	4.45
6.50	4.65	5246.08	.123	4.61
7.00	4.53	5246.08	.122	4.58
7.50	4.39	5246.07	.119	4.46
8.00	4.25	5246.07	.116	4.33
8.50	4.12	5246.07	.112	4.20
9.00	4.01	5246.07	.109	4.08
9.50	3.90	5246.07	.106	3.96
10.00	3.79	5246.06	.103	3.86
10.50	3.70	5246.06	.100	3.75
11.00	3.60	5246.06	.098	3.66
11.50	3.51	5246.06	.095	3.57
12.00	3.43	5246.06	.093	3.49
12.50	3.34	5246.06	.091	3.40
13.00	3.26	5246.06	.089	3.32
13.50	3.20	5246.05	.087	3.25
14.00	3.14	5246.05	.085	3.18
14.50	3.08	5246.05	.083	3.11
15.00	3.01	5246.05	.082	3.05
15.50	2.96	5246.05	.080	2.99
16.00	2.89	5246.05	.078	2.93
16.50	2.84	5246.05	.077	2.88
17.00	2.79	5246.05	.076	2.83
17.50	2.74	5246.05	.074	2.77
18.00	2.68	5246.04	.073	2.72
18.50	2.64	5246.04	.072	2.67
19.00	2.60	5246.04	.070	2.63
19.50	2.56	5246.04	.069	2.58

20.00	2.50	5246.04	.068	2.54
20.50	2.47	5246.04	.067	2.50
21.00	2.43	5246.04	.066	2.46
21.50	2.40	5246.04	.065	2.42
22.00	2.35	5246.04	.064	2.39
22.50	2.32	5246.04	.063	2.35
23.00	2.29	5246.04	.062	2.31
23.50	2.26	5246.04	.061	2.28
24.00	2.22	5246.04	.060	2.25
24.50	.32	5246.02	.031	1.17
25.00	.04	5246.01	.009	.33
25.50	.00	5246.00	.002	.08
26.00	.00	5246.00	.000	.02
26.50	.00	5246.00	.000	.00

PEAK DISCHARGE = 135.155 CFS - PEAK OCCURS AT HOUR 2.20
 MAXIMUM WATER SURFACE ELEVATION = 5250.990
 MAXIMUM STORAGE = 9.0497 AC-FT INCREMENTAL TIME=
 .050000HRS

PRINT HYD ID=5 CODE=1

HYDROGRAPH FROM AREA

POND3.OUT

RUNOFF VOLUME = 1.44733 INCHES = 27.6495 ACRE-FEET
 PEAK DISCHARGE RATE = 135.16 CFS AT 2.200 HOURS BASIN
 AREA = .3582 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASINS A60113 & A60116N

COMPUTE NM HYD ID=6 HYD=INTOPOND4 AREA=0.0580 SQ MI

A=0 B=28.6 C=23 D=48.4

TP=0.1333 MASSRAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 110.83 CFS UNIT VOLUME = .9990 B =
 526.28 P60 = 1.6400
 AREA = .028072 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .121259HR TP = .133300HR K/TP RATIO = .909666
 SHAPE CONSTANT, N = 3.893491
 UNIT PEAK = 78.133 CFS UNIT VOLUME = 1.001 B =
 348.00 P60 = 1.6400
 AREA = .029928 SQ MI IA = .43314 INCHES INF =
 1.06279 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA

INTOPOND4

RUNOFF VOLUME = 1.55728 INCHES = 4.8171 ACRE-FEET
 PEAK DISCHARGE RATE = 110.57 CFS AT 1.500 HOURS BASIN
 AREA = .0580 SQ. MI.

*S

*S ADD THE ROUTED FLOW FROM POND 3 TO THE FLOW FROM INTOPOND4

ADD HYD ID=7 HYD=POND4.IN I=5 II=6

PRINT HYD ID=7 CODE=1

HYDROGRAPH FROM AREA

POND4.IN

RUNOFF VOLUME = 1.46265 INCHES = 32.4666 ACRE-FEET
 PEAK DISCHARGE RATE = 193.77 CFS AT 1.500 HOURS BASIN
 AREA = .4162 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 4 - 48" ORIFICE

ROUTE RESERVOIR ID=8 HYD=POND4.OUT I=7 CODE=10

Q OUT	STORE	ELEV
0.0	0.0	5237
60.51	0.75	5238
85.57	1.56	5239
104.80	2.43	5240
121.01	3.36	5241
135.30	4.36	5242
148.21	5.45	5243

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5237.00	.000	.00
.50	.00	5237.00	.000	.00
1.00	6.66	5237.05	.039	3.17
1.50	193.77	5238.69	1.312	77.89
2.00	153.09	5241.30	3.663	125.35
2.50	134.15	5241.82	4.179	132.71
3.00	107.15	5241.45	3.811	127.46
3.50	67.71	5240.12	2.537	106.66
4.00	21.16	5237.98	.738	59.55
4.50	8.33	5237.20	.151	12.19
5.00	5.56	5237.10	.077	6.23
5.50	5.14	5237.09	.065	5.22
6.00	5.29	5237.09	.065	5.23
6.50	5.46	5237.09	.067	5.42
7.00	5.40	5237.09	.067	5.42
7.50	5.26	5237.09	.066	5.30
8.00	5.10	5237.08	.064	5.15
8.50	4.94	5237.08	.062	4.99
9.00	4.81	5237.08	.060	4.85

9.50	4.67	5237.08	.058	4.71
10.00	4.54	5237.08	.057	4.58
10.50	4.43	5237.07	.055	4.46
11.00	4.31	5237.07	.054	4.35
11.50	4.20	5237.07	.052	4.23
12.00	4.11	5237.07	.051	4.14
12.50	4.01	5237.07	.050	4.04
13.00	3.91	5237.07	.049	3.95
13.50	3.83	5237.06	.048	3.86
14.00	3.75	5237.06	.047	3.77
14.50	3.67	5237.06	.046	3.69
15.00	3.60	5237.06	.045	3.62
15.50	3.53	5237.06	.044	3.55
16.00	3.45	5237.06	.043	3.47
16.50	3.39	5237.06	.042	3.41
17.00	3.33	5237.06	.042	3.35
17.50	3.27	5237.05	.041	3.28
18.00	3.21	5237.05	.040	3.23
18.50	3.15	5237.05	.039	3.17
19.00	3.10	5237.05	.039	3.11
19.50	3.05	5237.05	.038	3.06
20.00	2.99	5237.05	.037	3.01
20.50	2.94	5237.05	.037	2.96
21.00	2.90	5237.05	.036	2.91
21.50	2.86	5237.05	.036	2.87
22.00	2.81	5237.05	.035	2.83
22.50	2.77	5237.05	.035	2.79
23.00	2.73	5237.05	.034	2.74
23.50	2.69	5237.04	.033	2.70
24.00	2.65	5237.04	.033	2.67
24.50	1.19	5237.03	.020	1.63
25.00	.33	5237.01	.007	.54
25.50	.08	5237.00	.002	.14
26.00	.02	5237.00	.000	.03
26.50	.00	5237.00	.000	.01
27.00	.00	5237.00	.000	.00

PEAK DISCHARGE = 132.739 CFS - PEAK OCCURS AT HOUR 2.55
 MAXIMUM WATER SURFACE ELEVATION = 5241.821
 MAXIMUM STORAGE = 4.1808 AC-FT INCREMENTAL TIME=
 .050000HRS

PRINT HYD

ID=8 CODE=1

HYDROGRAPH FROM AREA

POND4.OUT

RUNOFF VOLUME = 1.46265 INCHES = 32.4667 ACRE-FEET
 PEAK DISCHARGE RATE = 132.74 CFS AT 2.550 HOURS BASIN
 AREA = .4162 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASINS A60114, A60115 & A60116S
 COMPUTE NM HYD ID=9 HYD=INTOPOND5 AREA=0.3170 SQ MI
 A=0 B=41.24 C=18.43 D=40.33
 TP=0.1333 MASSRAIN=-1

K = .079697HR TP = .133300HR K/TP RATIO = .597880
 SHAPE CONSTANT, N = 6.321230

UNIT PEAK = 468.18 CFS UNIT VOLUME = .9984 B =
 488.16 P60 = 1.6400
 AREA = .127846 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .121235HR TP = .133300HR K/TP RATIO = .909493
 SHAPE CONSTANT, N = 3.894282
 UNIT PEAK = 493.90 CFS UNIT VOLUME = 1.001 B =
 348.06 P60 = 1.6400
 AREA = .189154 SQ MI IA = .45367 INCHES INF =
 1.12028 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA

INTOPOND5

RUNOFF VOLUME = 1.39013 INCHES = 23.5023 ACRE-FEET
 PEAK DISCHARGE RATE = 557.78 CFS AT 1.500 HOURS BASIN
 AREA = .3170 SQ. MI.

*S

*S ADD THE ROUTED FLOW FROM POND 4 TO THE FLOW FROM INTOPOND5

ADD HYD ID=10 HYD=POND5.IN I=8 II=9

PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA

POND5.IN

RUNOFF VOLUME = 1.43129 INCHES = 55.9689 ACRE-FEET
 PEAK DISCHARGE RATE = 635.67 CFS AT 1.500 HOURS BASIN
 AREA = .7332 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 5 - TWO 42" ORIFICES

ROUTE RESERVOIR ID=11 HYD=POND5.OUT I=10 CODE=10

Q OUT	STORE	ELEV
0.0	0.0	5232
92.66	1.91	5233
131.02	3.91	5234
160.48	6.00	5235
185.30	8.18	5236
207.18	10.46	5237
226.94	12.84	5238

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5232.00	.000	.00
.50	.00	5232.00	.000	.00
1.00	16.92	5232.07	.134	6.49
1.50	635.67	5234.60	5.172	148.82
2.00	224.75	5237.51	11.669	217.22
2.50	150.12	5236.85	10.112	203.84
3.00	134.16	5235.91	7.986	183.09
3.50	110.86	5235.00	5.999	160.47
4.00	63.03	5233.90	3.704	127.07
4.50	15.54	5232.56	1.075	52.16
5.00	9.64	5232.18	.339	16.44
5.50	8.82	5232.11	.205	9.97
6.00	9.08	5232.10	.187	9.09
6.50	9.27	5232.10	.190	9.22
7.00	9.16	5232.10	.190	9.20
7.50	8.93	5232.10	.186	9.02
8.00	8.65	5232.09	.181	8.77
8.50	8.39	5232.09	.175	8.51
9.00	8.15	5232.09	.170	8.27
9.50	7.93	5232.09	.166	8.03
10.00	7.71	5232.08	.161	7.81
10.50	7.52	5232.08	.157	7.60
11.00	7.32	5232.08	.153	7.41
11.50	7.13	5232.08	.149	7.22
12.00	6.96	5232.08	.145	7.05
12.50	6.79	5232.07	.142	6.88
13.00	6.62	5232.07	.139	6.72
13.50	6.50	5232.07	.136	6.57
14.00	6.36	5232.07	.133	6.44
14.50	6.24	5232.07	.130	6.29
15.00	6.10	5232.07	.127	6.17
15.50	5.99	5232.07	.125	6.04
16.00	5.86	5232.06	.122	5.92
16.50	5.76	5232.06	.120	5.81
17.00	5.65	5232.06	.118	5.71
17.50	5.55	5232.06	.115	5.59
18.00	5.44	5232.06	.113	5.50
18.50	5.35	5232.06	.111	5.39
19.00	5.26	5232.06	.109	5.30
19.50	5.18	5232.06	.107	5.21
20.00	5.07	5232.06	.106	5.13
20.50	5.00	5232.05	.104	5.04
21.00	4.92	5232.05	.102	4.96
21.50	4.85	5232.05	.101	4.89
22.00	4.75	5232.05	.099	4.81
22.50	4.69	5232.05	.098	4.74
23.00	4.63	5232.05	.096	4.67
23.50	4.57	5232.05	.095	4.60
24.00	4.49	5232.05	.094	4.54
24.50	1.74	5232.03	.057	2.77
25.00	.55	5232.01	.023	1.13
25.50	.14	5232.00	.007	.36
26.00	.03	5232.00	.002	.10
26.50	.01	5232.00	.000	.02
27.00	.00	5232.00	.000	.01
PEAK DISCHARGE = 217.313 CFS - PEAK OCCURS AT HOUR 2.05				
MAXIMUM WATER SURFACE ELEVATION = 5237.513				
MAXIMUM STORAGE = 11.6804 AC-FT INCREMENTAL TIME=				

.050000HRS

PRINT HYD

ID=11 CODE=1

HYDROGRAPH FROM AREA

POND5.OUT

RUNOFF VOLUME = 1.43129 INCHES = 55.9689 ACRE-FEET
 PEAK DISCHARGE RATE = 217.31 CFS AT 2.050 HOURS BASIN
 AREA = .7332 SQ. MI.

*S

*S COMPUTE HYDROGRAPH FOR BASIN 201

COMPUTE NM HYD ID=12 HYD NO=INTOPOND6 AREA=0.0969 SQ MI
 A=0 B=27 C=27 D=46
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .073618HR TP = .133300HR K/TP RATIO = .552276
 SHAPE CONSTANT, N = 6.986901
 UNIT PEAK = 174.09 CFS UNIT VOLUME = .9990 B =
 520.63 P60 = 1.6400
 AREA = .044574 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .119384HR TP = .133300HR K/TP RATIO = .895602
 SHAPE CONSTANT, N = 3.958420
 UNIT PEAK = 138.33 CFS UNIT VOLUME = 1.001 B =
 352.39 P60 = 1.6400
 AREA = .052326 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD

ID=12 CODE=1

HYDROGRAPH FROM AREA

INTOPOND6

RUNOFF VOLUME = 1.52279 INCHES = 7.8697 ACRE-FEET
 PEAK DISCHARGE RATE = 183.13 CFS AT 1.500 HOURS BASIN
 AREA = .0969 SQ. MI.

*S ADD THE ROUTED FLOW FROM POND 5 TO THE FLOW FROM INTOPOND6

ADD HYD ID=13 HYD=POND6.IN I=11 II=12

PRINT HYD ID=13 CODE=1

HYDROGRAPH FROM AREA

POND6.IN

RUNOFF VOLUME = 1.44197 INCHES = 63.8386 ACRE-FEET
 PEAK DISCHARGE RATE = 334.92 CFS AT 1.550 HOURS BASIN
 AREA = .8301 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 6 - 54" ORIFICE

ROUTE RESERVOIR ID=14 HYD=POND6.OUT I=13 CODE=10

Q OUT	STORE	ELEV
0.0	0.0	5226
76.58	1.39	5227
108.30	2.90	5228
132.64	4.51	5229
153.15	6.24	5230
171.23	8.08	5231
197.58	10.04	5232
202.60	12.12	5233
216.59	14.31	5234

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5226.00	.000	.00
.50	.00	5226.00	.000	.00
1.00	11.36	5226.06	.077	4.25
1.50	331.95	5227.81	2.607	102.15
2.00	250.64	5231.08	8.228	173.22
2.50	209.35	5231.91	9.872	195.32
3.00	185.28	5231.92	9.888	195.54
3.50	161.89	5231.55	9.157	185.71
4.00	128.27	5230.88	7.858	169.05
4.50	53.32	5229.45	5.287	141.86
5.00	17.63	5227.27	1.794	85.06
5.50	11.22	5226.28	.392	21.62
6.00	10.44	5226.15	.212	11.66
6.50	10.56	5226.14	.193	10.64
7.00	10.50	5226.14	.191	10.54
7.50	10.29	5226.14	.188	10.38
8.00	10.00	5226.13	.184	10.12
8.50	9.69	5226.13	.178	9.82
9.00	9.42	5226.12	.173	9.54
9.50	9.16	5226.12	.168	9.27
10.00	8.90	5226.12	.164	9.01
10.50	8.67	5226.11	.159	8.76
11.00	8.45	5226.11	.155	8.54
11.50	8.23	5226.11	.151	8.32
12.00	8.04	5226.11	.148	8.13
12.50	7.84	5226.10	.144	7.93
13.00	7.65	5226.10	.141	7.75
13.50	7.50	5226.10	.137	7.57
14.00	7.34	5226.10	.134	7.41
14.50	7.18	5226.09	.131	7.24
15.00	7.03	5226.09	.129	7.10
15.50	6.90	5226.09	.126	6.95
16.00	6.75	5226.09	.124	6.81
16.50	6.63	5226.09	.121	6.68

17.00	6.51	5226.09	.119	6.56
17.50	6.38	5226.08	.117	6.44
18.00	6.27	5226.08	.115	6.32
18.50	6.15	5226.08	.113	6.21
19.00	6.05	5226.08	.111	6.10
19.50	5.95	5226.08	.109	6.00
20.00	5.84	5226.08	.107	5.90
20.50	5.75	5226.08	.105	5.80
21.00	5.66	5226.07	.104	5.71
21.50	5.58	5226.07	.102	5.62
22.00	5.49	5226.07	.100	5.53
22.50	5.41	5226.07	.099	5.45
23.00	5.33	5226.07	.097	5.37
23.50	5.25	5226.07	.096	5.28
24.00	5.18	5226.07	.095	5.22
24.50	2.80	5226.05	.068	3.76
25.00	1.14	5226.02	.033	1.83
25.50	.36	5226.01	.012	.69
26.00	.10	5226.00	.004	.22
26.50	.02	5226.00	.001	.06
27.00	.01	5226.00	.000	.01
27.50	.00	5226.00	.000	.00

PEAK DISCHARGE = 197.072 CFS - PEAK OCCURS AT HOUR 2.75
 MAXIMUM WATER SURFACE ELEVATION = 5231.980
 MAXIMUM STORAGE = 10.0022 AC-FT INCREMENTAL TIME=
 .050000HRS

PRINT HYD ID=14 CODE=1

HYDROGRAPH FROM AREA

POND6.OUT

RUNOFF VOLUME = 1.44197 INCHES = 63.8385 ACRE-FEET
 PEAK DISCHARGE RATE = 197.07 CFS AT 2.750 HOURS BASIN
 AREA = .8301 SQ. MI.

*S
 *S*****
 *S
 *S COMPUTE FLOWS FROM SUB-BASIN 202
 COMPUTE NM HYD ID=15 HYD NO=INTOPOND8 AREA=0.0826 SQ MI
 A=0 B=27 C=27 D=46
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .073215HR TP = .133300HR K/TP RATIO = .549252
 SHAPE CONSTANT, N = 7.036088
 UNIT PEAK = 149.07 CFS UNIT VOLUME = .9990 B =
 522.96 P60 = 1.6400
 AREA = .037996 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .119466HR TP = .133300HR K/TP RATIO = .896217
 SHAPE CONSTANT, N = 3.955535
 UNIT PEAK = 117.85 CFS UNIT VOLUME = 1.001 B =

352.19 P60 = 1.6400
 AREA = .044604 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA

INTOPOND8

RUNOFF VOLUME = 1.52279 INCHES = 6.7083 ACRE-FEET
 PEAK DISCHARGE RATE = 156.26 CFS AT 1.500 HOURS BASIN
 AREA = .0826 SQ. MI.

*S
 *S COMPUTE FLOWS FROM SUB-BASIN 203S (DENNIS CHAVEZ BLVD - SOUTH
 HALF OF ROW 36'
 COMPUTE NM HYD ID=16 HYD NO=203S.0 AREA=0.0386 SQ MI
 A=0 B=35.6 C=35.6 D=28.8
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 43.890 CFS UNIT VOLUME = .9989 B =
 526.28 P60 = 1.6400
 AREA = .011117 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .119581HR TP = .133300HR K/TP RATIO = .897081
 SHAPE CONSTANT, N = 3.951476
 UNIT PEAK = 72.558 CFS UNIT VOLUME = 1.001 B =
 351.92 P60 = 1.6400
 AREA = .027483 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=16 CODE=1

HYDROGRAPH FROM AREA

203S.0

RUNOFF VOLUME = 1.21684 INCHES = 2.5050 ACRE-FEET
 PEAK DISCHARGE RATE = 65.81 CFS AT 1.500 HOURS BASIN
 AREA = .0386 SQ. MI.


```
*S
ADD HYD                      ID=17 HYD=JUNCTION I=15 II=16
PRINT HYD                   ID=17 CODE=10
```

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS	HRS	CFS	HRS	CFS	HRS
CFS	HRS	CFS	CFS	CFS	HRS	CFS	HRS
	.000	.0			5.500	1.4	11.000
1.1	16.500	.9			22.000	.7	
	.500	.0			6.000	1.5	11.500
1.1	17.000	.9			22.500	.7	
	1.000	5.4			6.500	1.5	12.000
1.1	17.500	.9			23.000	.7	
	1.500	222.1			7.000	1.4	12.500
1.1	18.000	.9			23.500	.7	
	2.000	38.4			7.500	1.4	13.000
1.0	18.500	.8			24.000	.7	
	2.500	6.4			8.000	1.3	13.500
1.0	19.000	.8			24.500	.0	
	3.000	2.5			8.500	1.3	14.000
1.0	19.500	.8			25.000	.0	
	3.500	1.6			9.000	1.3	14.500
1.0	20.000	.8					
	4.000	1.3			9.500	1.2	15.000
1.0	20.500	.8					
	4.500	1.3			10.000	1.2	15.500
.9	21.000	.8					
	5.000	1.3			10.500	1.2	16.000
.9	21.500	.8					

```
RUNOFF VOLUME =      1.42534 INCHES      =      9.2134 ACRE-FEET
PEAK DISCHARGE RATE =      222.07 CFS    AT    1.500 HOURS    BASIN
AREA =      .1212 SQ. MI.
```

```
*S
*S ROUTE FLOWS THROUGH POND 8 - 30" ORIFICE
ROUTE RESERVOIR          ID=18 HYD=POND8.OUT I=17 CODE=10
```

```
Q OUT    STORE    ELEV
0.0      0.0      5215
15.13    1.12    5216
21.39    2.32    5217
26.20    3.58    5218
30.25    4.92    5219
33.82    6.33    5220
```

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5215.00	.000	.00
.50	.00	5215.00	.000	.00
1.00	5.37	5215.05	.057	.77

1.50	222.07	5216.89	2.187	20.70
2.00	38.41	5219.12	5.085	30.67
2.50	6.43	5218.71	4.533	29.08
3.00	2.50	5217.98	3.557	26.11
3.50	1.59	5217.25	2.633	22.58
4.00	1.33	5216.59	1.833	18.85
4.50	1.28	5216.05	1.181	15.45
5.00	1.31	5215.64	.717	9.69
5.50	1.39	5215.40	.453	6.12
6.00	1.48	5215.27	.305	4.12
6.50	1.48	5215.20	.221	2.99
7.00	1.44	5215.15	.173	2.33
7.50	1.40	5215.13	.143	1.94
8.00	1.35	5215.11	.125	1.69
8.50	1.31	5215.10	.113	1.53
9.00	1.27	5215.09	.106	1.43
9.50	1.24	5215.09	.100	1.35
10.00	1.20	5215.09	.096	1.29
10.50	1.18	5215.08	.092	1.25
11.00	1.14	5215.08	.089	1.21
11.50	1.11	5215.08	.087	1.17
12.00	1.09	5215.08	.084	1.14
12.50	1.06	5215.07	.082	1.11
13.00	1.03	5215.07	.080	1.08
13.50	1.02	5215.07	.078	1.06
14.00	.99	5215.07	.077	1.04
14.50	.98	5215.07	.075	1.01
15.00	.95	5215.07	.073	.99
15.50	.94	5215.06	.072	.97
16.00	.92	5215.06	.070	.95
16.50	.90	5215.06	.069	.93
17.00	.88	5215.06	.068	.92
17.50	.87	5215.06	.066	.90
18.00	.85	5215.06	.065	.88
18.50	.84	5215.06	.064	.87
19.00	.82	5215.06	.063	.85
19.50	.82	5215.06	.062	.84
20.00	.79	5215.05	.061	.82
20.50	.78	5215.05	.060	.81
21.00	.77	5215.05	.059	.80
21.50	.76	5215.05	.058	.78
22.00	.74	5215.05	.057	.77
22.50	.73	5215.05	.056	.76
23.00	.72	5215.05	.055	.75
23.50	.72	5215.05	.054	.74
24.00	.70	5215.05	.054	.73
24.50	.04	5215.03	.037	.51
25.00	.00	5215.02	.022	.29
25.50	.00	5215.01	.013	.17
26.00	.00	5215.01	.007	.10
26.50	.00	5215.00	.004	.06
27.00	.00	5215.00	.002	.03
27.50	.00	5215.00	.001	.02
TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
28.00	.00	5215.00	.001	.01
28.50	.00	5215.00	.000	.01
29.00	.00	5215.00	.000	.00
PEAK DISCHARGE = 30.725 CFS - PEAK OCCURS AT HOUR 2.05				

MAXIMUM WATER SURFACE ELEVATION = 5219.133
 MAXIMUM STORAGE = 5.1078 AC-FT INCREMENTAL TIME=
 .050000HRS

PRINT HYD ID=18 CODE=1

HYDROGRAPH FROM AREA

POND8.OUT

RUNOFF VOLUME = 1.42533 INCHES = 9.2133 ACRE-FEET
 PEAK DISCHARGE RATE = 30.73 CFS AT 2.050 HOURS BASIN
 AREA = .1212 SQ. MI.

*S
 *S COMPUTE FLOWS FROM SUB-BASIN 203N (DENNIS CHAVEZ BLVD - NORTH
 HALF OF ROW 36'
 COMPUTE NM HYD ID=19 HYD NO=203N.0 AREA=0.0386 SQ MI
 A=0 B=35.6 C=35.6 D=28.8
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 43.890 CFS UNIT VOLUME = .9989 B =
 526.28 P60 = 1.6400
 AREA = .011117 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .119581HR TP = .133300HR K/TP RATIO = .897081
 SHAPE CONSTANT, N = 3.951476
 UNIT PEAK = 72.558 CFS UNIT VOLUME = 1.001 B =
 351.92 P60 = 1.6400
 AREA = .027483 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=19 CODE=1

HYDROGRAPH FROM AREA

203N.0

RUNOFF VOLUME = 1.21684 INCHES = 2.5050 ACRE-FEET
 PEAK DISCHARGE RATE = 65.81 CFS AT 1.500 HOURS BASIN
 AREA = .0386 SQ. MI.

*S
 *S COMPUTE FLOWS FROM SUB-BASIN 118TH (118TH STREET-4974' NORTH OF
 DENNIS CHAVEZ


```
COMPUTE NM HYD                                ID=28  HYD NO=118TH.0  AREA=0.017485 SQ MI
                                              A=0  B=23.47  C=0  D=76.53
                                              TP=0.1333 HR
                                              MASS RAINFALL=-1

      K = .072649HR  TP = .133300HR  K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
      UNIT PEAK = 52.830  CFS  UNIT VOLUME = .9989  B =
526.28  P60 = 1.6400
      AREA = .013381 SQ MI  IA = .10000 INCHES  INF =
.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

      K = .135039HR  TP = .133300HR  K/TP RATIO = 1.013045
SHAPE CONSTANT, N = 3.484507
      UNIT PEAK = 9.8267  CFS  UNIT VOLUME = .9994  B =
319.20  P60 = 1.6400
      AREA = .004104 SQ MI  IA = .50000 INCHES  INF =
1.25000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

      BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR = 1.03000 AT
PEAK FLOW.
```

```
PRINT HYD                                ID=28  CODE=1

                                              HYDROGRAPH FROM AREA
118TH.0

      RUNOFF VOLUME = 2.03489 INCHES  = 1.8976 ACRE-FEET
      PEAK DISCHARGE RATE = 38.00 CFS  AT 1.500 HOURS  BASIN
AREA = .0175 SQ. MI.
```

```
*S
*S ADD THE FLOWS FROM POND6.ROUTE TO THE FLOWS FROM SUB-BASIN 203N
*S AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH1)
ADD HYD                                ID=20  HYD=JUNCTION  I=19  II=14
PRINT HYD                                ID=20  CODE=10
```

				HYDROGRAPH FROM AREA			
JUNCTION							
FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS		HRS	CFS		HRS
CFS	HRS	CFS		HRS	CFS		
	.000	.0		6.000	12.0		12.000
8.4	18.000	6.5		24.000	5.4		
	.500	.0		6.500	11.0		12.500
8.2	18.500	6.4		24.500	3.8		
	1.000	5.5		7.000	10.9		13.000
8.0	19.000	6.3		25.000	1.8		
	1.500	168.0		7.500	10.7		13.500
7.8	19.500	6.2		25.500	.7		
	2.000	183.2		8.000	10.4		14.000

7.6	20.000	6.1	26.000	.2	
	2.500	197.1	8.500	10.1	14.500
7.5	20.500	6.0	26.500	.1	
	3.000	196.2	9.000	9.8	15.000
7.3	21.000	5.9	27.000	.0	
	3.500	186.1	9.500	9.5	15.500
7.2	21.500	5.8	27.500	.0	
	4.000	169.4	10.000	9.3	16.000
7.0	22.000	5.7			
	4.500	142.1	10.500	9.0	16.500
6.9	22.500	5.6			
	5.000	85.4	11.000	8.8	17.000
6.8	23.000	5.5			
	5.500	21.9	11.500	8.6	17.500
6.6	23.500	5.4			

RUNOFF VOLUME = 1.43197 INCHES = 66.3436 ACRE-FEET
 PEAK DISCHARGE RATE = 198.14 CFS AT 2.700 HOURS BASIN
 AREA = .8687 SQ. MI.

*S

*S ADD THE FLOWS FROM 118TH TO THE FLOWS AT MH1

ADD HYD ID=29 HYD=JUNCTION I=20 II=28

PRINT HYD ID=29 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS		HRS	CFS
	.000	.0		6.000	12.4
8.7	18.000	6.7		24.000	5.6
	.500	.0		6.500	11.4
8.5	18.500	6.6		24.500	3.8
	1.000	6.9		7.000	11.3
8.3	19.000	6.5		25.000	1.8
	1.500	206.0		7.500	11.1
8.1	19.500	6.4		25.500	.7
	2.000	191.8		8.000	10.8
7.9	20.000	6.3		26.000	.2
	2.500	198.4		8.500	10.5
7.7	20.500	6.2		26.500	.1
	3.000	196.8		9.000	10.2
7.6	21.000	6.1		27.000	.0
	3.500	186.5		9.500	9.9
7.4	21.500	6.0		27.500	.0
	4.000	169.7		10.000	9.6
7.3	22.000	5.9			
	4.500	142.5		10.500	9.4
7.1	22.500	5.8			
	5.000	85.7		11.000	9.1
7.0	23.000	5.7			
	5.500	22.3		11.500	8.9
6.9	23.500	5.6			

RUNOFF VOLUME = 1.44386 INCHES = 68.2412 ACRE-FEET
 PEAK DISCHARGE RATE = 210.03 CFS AT 1.550 HOURS BASIN

AREA = .8862 SQ. MI.

*S
 *S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS
 CHAVEZ TO THE FLO
 *S FROM POND8.ROUTE AT THE JUNCTION POINT ON THE NORTH SIDE OF
 DENNIS CHAVEZ (MH
 ADD HYD ID=21 HYD=JUNCTION I=29 II=18
 PRINT HYD ID=21 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS
	.000	.0	6.000	16.5	12.000
9.8	18.000	7.6	24.000	6.3	
	.500	.0	6.500	14.4	12.500
9.6	18.500	7.5	24.500	4.3	
	1.000	7.7	7.000	13.6	13.000
9.3	19.000	7.4	25.000	2.1	
	1.500	226.7	7.500	13.0	13.500
9.1	19.500	7.2	25.500	.9	
	2.000	222.5	8.000	12.5	14.000
8.9	20.000	7.1	26.000	.3	
	2.500	227.5	8.500	12.0	14.500
8.7	20.500	7.0	26.500	.1	
	3.000	222.9	9.000	11.6	15.000
8.6	21.000	6.9	27.000	.0	
	3.500	209.1	9.500	11.2	15.500
8.4	21.500	6.8	27.500	.0	
	4.000	188.6	10.000	10.9	16.000
8.2	22.000	6.7	28.000	.0	
	4.500	157.9	10.500	10.6	16.500
8.1	22.500	6.6	28.500	.0	
	5.000	95.4	11.000	10.3	17.000
7.9	23.000	6.5	29.000	.0	
	5.500	28.4	11.500	10.0	17.500
7.8	23.500	6.4	29.500	.0	

RUNOFF VOLUME = 1.44163 INCHES = 77.4545 ACRE-FEET
 PEAK DISCHARGE RATE = 233.87 CFS AT 1.550 HOURS BASIN
 AREA = 1.0074 SQ. MI.

*S
 *S
 *S COMPUTE FLOWS FROM SUB-BASIN 204W (COMMERCIAL TRACT DIRECTLY TO
 CHANNEL)
 COMPUTE NM HYD ID=22 HYD NO=204.0 AREA=0.040372 SQ MI
 A=0 B=20 C=0 D=80
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = 127.51 CFS UNIT VOLUME = .9990 B =
 526.28 P60 = 1.6400
 AREA = .032298 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000.

K = .135039HR TP = .133300HR K/TP RATIO = 1.013045
 SHAPE CONSTANT, N = 3.484507
 UNIT PEAK = 19.335 CFS UNIT VOLUME = 1.000 B =
 319.20 P60 = 1.6400
 AREA = .008074 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=22 CODE=1

PARTIAL HYDROGRAPH 204.00

RUNOFF VOLUME = 2.10119 INCHES = 4.5242 ACRE-FEET
 PEAK DISCHARGE RATE = 89.62 CFS AT 1.500 HOURS BASIN
 AREA = .0404 SQ. MI.

*S
 *S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS
 CHAVEZ TO THE FLO
 *S FROM SUB-BASIN 204W AT THE JUNCTION POINT ON THE NORTH SIDE OF
 DENNIS CHAVEZ
 ADD HYD ID=23 HYD=JUNCTION I=21 II=22
 PRINT HYD ID=23 CODE=10

HYDROGRAPH FROM AREA
 JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS
	.000	.0	6.000	17.5	12.000
10.5	18.000	8.2	24.000	6.7	
	.500	.0	6.500	15.3	12.500
10.3	18.500	8.0	24.500	4.3	
	1.000	11.2	7.000	14.5	13.000
10.0	19.000	7.9	25.000	2.1	
	1.500	316.3	7.500	13.9	13.500
9.8	19.500	7.8	25.500	.9	
	2.000	243.1	8.000	13.4	14.000
9.6	20.000	7.6	26.000	.3	
	2.500	230.6	8.500	12.9	14.500
9.4	20.500	7.5	26.500	.1	
	3.000	224.3	9.000	12.4	15.000
9.2	21.000	7.4	27.000	.0	
	3.500	210.1	9.500	12.0	15.500

9.0	21.500	7.3	27.500	.0	
	4.000	189.4	10.000	11.7	16.000
8.8	22.000	7.2	28.000	.0	
	4.500	158.8	10.500	11.4	16.500
8.7	22.500	7.1	28.500	.0	
	5.000	96.3	11.000	11.1	17.000
8.5	23.000	7.0	29.000	.0	
	5.500	29.3	11.500	10.8	17.500
8.3	23.500	6.8	29.500	.0	

RUNOFF VOLUME = 1.46705 INCHES = 81.9787 ACRE-FEET
 PEAK DISCHARGE RATE = 316.27 CFS AT 1.500 HOURS BASIN
 AREA = 1.0478 SQ. MI.

*S
 *S COMPUTE FLOWS FROM SUB-BASIN 204E (ANDERSON HEIGHTS DIRECTLY TO CHANNEL)

COMPUTE NM HYD ID=24 HYD NO=206.0 AREA=0.0940 SQ MI
 A=0 B=43.74 C=0 D=56.26
 TP=0.13 HR
 MASS RAINFALL=-1

K = .071716HR TP = .130000HR K/TP RATIO = .551663
 SHAPE CONSTANT, N = 6.996823
 UNIT PEAK = 211.99 CFS UNIT VOLUME = .9993 B =
 521.10 P60 = 1.6400
 AREA = .052884 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .130613HR TP = .130000HR K/TP RATIO = 1.004712
 SHAPE CONSTANT, N = 3.513590
 UNIT PEAK = 101.63 CFS UNIT VOLUME = 1.001 B =
 321.32 P60 = 1.6400
 AREA = .041116 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=24 CODE=1

PARTIAL HYDROGRAPH 206.00

RUNOFF VOLUME = 1.64761 INCHES = 8.2600 ACRE-FEET
 PEAK DISCHARGE RATE = 180.17 CFS AT 1.500 HOURS BASIN
 AREA = .0940 SQ. MI.

*S
 *S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS
 CHAVEZ TO THE FLO
 *S FROM SUB-BASIN 204E AT THE JUNCTION POINT ON THE NORTH SIDE OF

DENNIS CHAVEZ

*S THIS IS THE FLOW THAT WILL ENTER THE RIO BRAVO CHANNEL AT THE
EASTERN EDGE OF

*S ANDERSON HEIGHTS

ADD HYD

PRINT HYD

ID=25 HYD=JUNCTION I=23 II=24

ID=25 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS
11.7	.000	.0	6.000	19.1	12.000
11.4	18.000	9.1	24.000	7.5	12.500
11.1	.500	.0	6.500	16.9	13.000
10.9	18.500	8.9	24.500	4.3	13.500
10.7	1.000	17.1	7.000	16.1	14.000
10.4	19.000	8.8	25.000	2.1	14.500
10.2	1.500	496.4	7.500	15.4	15.000
10.0	19.500	8.7	25.500	.9	15.500
9.8	2.000	279.2	8.000	14.8	16.000
9.6	20.000	8.5	26.000	.3	16.500
9.5	2.500	236.4	8.500	14.3	17.000
9.3	20.500	8.4	26.500	.1	17.500
	3.000	226.7	9.000	13.8	
	21.000	8.2	27.000	.0	
	3.500	211.7	9.500	13.4	
	21.500	8.1	27.500	.0	
	4.000	190.8	10.000	13.0	
	22.000	8.0	28.000	.0	
	4.500	160.2	10.500	12.6	
	22.500	7.8	28.500	.0	
	5.000	97.7	11.000	12.3	
	23.000	7.7	29.000	.0	
	5.500	30.8	11.500	12.0	
	23.500	7.6	29.500	.0	

RUNOFF VOLUME = 1.48191 INCHES = 90.2386 ACRE-FEET

PEAK DISCHARGE RATE = 496.43 CFS AT 1.500 HOURS BASIN

AREA = 1.1418 SQ. MI.

*S

*S COMPUTE FLOWS FROM SUB-BASINS 205, 206, 60122 & 60123 (ANDERSON
HEIGHTS TO PO

COMPUTE NM HYD
MI

ID=26 HYD NO=INTOPOND10 AREA=0.266890 SQ

A=0 B=43.74 C=0 D=56.26

TP=0.1333 HR

MASS RAINFALL=-1

K = .078411HR TP = .133300HR K/TP RATIO = .588233

SHAPE CONSTANT, N = 6.450921

UNIT PEAK = 557.17 CFS UNIT VOLUME = .9985 B =

494.64 P60 = 1.6400

AREA = .150152 SQ MI IA = .10000 INCHES INF =

.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER

METHOD - DT = .050000

K = .127832HR TP = .133300HR K/TP RATIO = .958978
 SHAPE CONSTANT, N = 3.684588
 UNIT PEAK = 292.12 CFS UNIT VOLUME = 1.001 B =
 333.56 P60 = 1.6400
 AREA = .116738 SQ MI IA = .50000 INCHES INF =
 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=26 CODE=1

HYDROGRAPH FROM AREA

INTOPOND10

RUNOFF VOLUME = 1.64761 INCHES = 23.4521 ACRE-FEET
 PEAK DISCHARGE RATE = 501.99 CFS AT 1.500 HOURS BASIN
 AREA = .2669 SQ. MI.

*S

*S ROUTE FLOWS THROUGH POND 10 - 30" ORIFICE

ROUTE RESERVOIR ID=27 HYD=POND10.OUT I=26 CODE=10

Q OUT	STORE	ELEV
0.0	0.00	5235
23.64	2.15	5236
33.49	4.38	5237
40.94	6.71	5238
47.27	9.12	5239
52.85	11.63	5240
57.89	14.23	5241
62.53	16.93	5242

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5235.00	.000	.00
.50	.00	5235.00	.000	.00
1.00	16.20	5235.08	.175	1.93
1.50	501.99	5237.41	5.344	36.57
2.00	104.39	5240.47	12.854	55.22
2.50	17.43	5240.31	12.449	54.44
3.00	7.16	5239.64	10.729	50.85
3.50	4.77	5238.93	8.946	46.81
4.00	4.05	5238.24	7.283	42.44
4.50	3.94	5237.60	5.783	37.98
5.00	4.00	5237.04	4.466	33.77
5.50	4.23	5236.53	3.343	28.91
6.00	4.53	5236.12	2.416	24.82
6.50	4.52	5235.79	1.693	18.61
7.00	4.40	5235.57	1.222	13.43
7.50	4.27	5235.43	.919	10.10

8.00	4.12	5235.34	.722	7.93
8.50	4.00	5235.28	.592	6.51
9.00	3.88	5235.24	.506	5.57
9.50	3.79	5235.21	.448	4.93
10.00	3.68	5235.19	.408	4.49
10.50	3.60	5235.18	.379	4.17
11.00	3.49	5235.17	.358	3.94
11.50	3.40	5235.16	.341	3.75
12.00	3.32	5235.15	.329	3.61
12.50	3.23	5235.15	.317	3.49
13.00	3.14	5235.14	.308	3.39
13.50	3.10	5235.14	.300	3.30
14.00	3.04	5235.14	.292	3.22
14.50	3.00	5235.13	.285	3.14
15.00	2.92	5235.13	.279	3.07
15.50	2.87	5235.13	.273	3.00
16.00	2.80	5235.12	.267	2.94
16.50	2.76	5235.12	.262	2.88
17.00	2.70	5235.12	.257	2.83
17.50	2.66	5235.12	.252	2.77
18.00	2.60	5235.12	.247	2.72
18.50	2.56	5235.11	.243	2.67
19.00	2.52	5235.11	.239	2.62
19.50	2.49	5235.11	.234	2.58
20.00	2.42	5235.11	.230	2.53
20.50	2.40	5235.11	.226	2.49
21.00	2.36	5235.10	.223	2.45
21.50	2.32	5235.10	.219	2.41
22.00	2.26	5235.10	.216	2.37
22.50	2.24	5235.10	.213	2.34
23.00	2.22	5235.10	.209	2.30
23.50	2.20	5235.10	.206	2.26
24.00	2.14	5235.09	.203	2.24
24.50	.13	5235.07	.152	1.67
25.00	.02	5235.05	.098	1.08
25.50	.00	5235.03	.062	.69
26.00	.00	5235.02	.040	.44
26.50	.00	5235.01	.025	.28
27.00	.00	5235.01	.016	.18
27.50	.00	5235.00	.010	.11

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

28.00	.00	5235.00	.006	.07
28.50	.00	5235.00	.004	.04
29.00	.00	5235.00	.003	.03
29.50	.00	5235.00	.002	.02

PEAK DISCHARGE = 55.869 CFS - PEAK OCCURS AT HOUR 2.15

MAXIMUM WATER SURFACE ELEVATION = 5240.599

MAXIMUM STORAGE = 13.1872 AC-FT INCREMENTAL TIME=

.050000HRS

PRINT HYD

ID=27 CODE=1

HYDROGRAPH FROM AREA

POND10.OUT

RUNOFF VOLUME = 1.64753 INCHES = 23.4510 ACRE-FEET
 PEAK DISCHARGE RATE = 55.87 CFS AT 2.150 HOURS BASIN

AREA = .2669 SQ. MI.

*S

COMPUTE RATING CURVE

CID=1 VS NO=1 CODE=-1
SLP=0.024 D=3.0 N=0.013

		RATING CURVE PIPE SECTION 1.0		
		WATER	FLOW	
FLOW	MAX	SURFACE	AREA	
RATE	WIDTH	ELEV	SQ FT	CFS
FT				
.00	.00	.00	.00	
.54	1.33	.16	.14	
2.35	1.83	.31	.39	
5.47	2.18	.47	.71	
9.84	2.44	.63	1.07	
15.36	2.63	.78	1.46	
21.92	2.78	.94	1.89	
29.36	2.89	1.09	2.33	
37.54	2.96	1.25	2.79	
46.28	2.99	1.41	3.26	
55.39	3.00	1.56	3.72	
64.66	3.00	1.72	4.19	
73.88	3.00	1.88	4.65	
82.81	3.00	2.03	5.10	
91.16	3.00	2.19	5.53	
98.65	3.00	2.35	5.93	
104.87	3.00	2.50	6.30	
109.32	3.00	2.66	6.62	
111.15	3.00	2.81	6.89	
111.15	3.00	3.00	7.07	

COMPUTE TRAVEL TIME

ID=4 REACH NO=1 NO VS=1 L=1900 FT
SLP=0.024

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
.1368	.156	.140	.54
.0877	.313	.391	2.35
.0681	.469	.706	5.47
.0573	.625	1.068	9.84
.0503	.782	1.465	15.36
.0455	.938	1.889	21.92
.0419	1.094	2.332	29.36
.0392	1.251	2.790	37.54
.0371	1.407	3.255	46.28
.0355	1.563	3.724	55.39
.0342	1.720	4.191	64.66
.0332	1.876	4.650	73.88
.0325	2.032	5.097	82.81
.0320	2.189	5.525	91.16
.0317	2.345	5.928	98.65
.0317	2.501	6.297	104.87
.0320	2.658	6.622	109.32
.0327	2.814	6.887	111.15
.0336	3.000	7.069	111.15

ROUTE OUTFLOW ID=4 OUTFLOW HYD=209.1
 INFLOW ID=27 DT=0.0
 PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 209.10

RUNOFF VOLUME = 1.64752 INCHES = 23.4509 ACRE-FEET
 PEAK DISCHARGE RATE = 55.84 CFS AT 2.200 HOURS BASIN
 AREA = .2669 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=207.0 DA=0.03023 SQ MI
 %A, B, C, & D 0 27 27 46
 TP=0.18 HR
 MASS RAINFALL=-1

K = .098100HR TP = .180000HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 40.657 CFS UNIT VOLUME = .9993 B =
 526.28 P60 = 1.6400
 AREA = .013906 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .161475HR TP = .180000HR K/TP RATIO = .897081
 SHAPE CONSTANT, N = 3.951476
 UNIT PEAK = 31.916 CFS UNIT VOLUME = .9999 B =
 351.92 P60 = 1.6400
 AREA = .016324 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 207.00

RUNOFF VOLUME = 1.52279 INCHES = 2.4551 ACRE-FEET
 PEAK DISCHARGE RATE = 48.84 CFS AT 1.550 HOURS BASIN
 AREA = .0302 SQ. MI.

ADD HYD
 PRINT HYD

ID=2 HYD=JUNCTION I=4 II=1
 ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS	HRS	CFS	HRS
	.000	.0	6.000	25.5	12.000
3.9	18.000	3.0	24.000	2.4	
	.500	.0	6.500	19.5	12.500
3.8	18.500	2.9	24.500	1.8	
	1.000	2.2	7.000	14.1	13.000
3.7	19.000	2.9	25.000	1.2	
	1.500	77.6	7.500	10.7	13.500
3.6	19.500	2.8	25.500	.8	
	2.000	67.0	8.000	8.5	14.000
3.5	20.000	2.8	26.000	.5	
	2.500	57.1	8.500	7.0	14.500
3.4	20.500	2.7	26.500	.3	
	3.000	52.1	9.000	6.0	15.000
3.3	21.000	2.7	27.000	.2	
	3.500	47.6	9.500	5.3	15.500
3.3	21.500	2.6	27.500	.1	
	4.000	43.1	10.000	4.9	16.000

3.2	22.000	2.6	28.000	.1	
	4.500	38.6	10.500	4.5	16.500
3.1	22.500	2.6	28.500	.1	
	5.000	34.4	11.000	4.3	17.000
3.1	23.000	2.5	29.000	.0	
	5.500	29.6	11.500	4.1	17.500
3.0	23.500	2.5	29.500	.0	

RUNOFF VOLUME = 1.63483 INCHES = 25.9060 ACRE-FEET
 PEAK DISCHARGE RATE = 88.50 CFS AT 1.600 HOURS BASIN
 AREA = .2971 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
 SLP=0.007 D=4.0 N=0.013

		RATING CURVE PIPE SECTION 1.0		
		WATER	FLOW	
FLOW	MAX	SURFACE	AREA	
RATE	WIDTH	ELEV	SQ FT	CFS
FT				
		.00	.00	
.00	.00	.21	.25	
.63	1.78	.42	.69	
2.74	2.44	.63	1.25	
6.36	2.91	.83	1.90	
11.44	3.25	1.04	2.60	
17.87	3.51	1.25	3.36	
25.49	3.71	1.46	4.15	
34.15	3.85	1.67	4.96	
43.66	3.94	1.88	5.79	
53.83	3.99	2.08	6.62	
64.42	4.00	2.29	7.45	
75.21	4.00	2.50	8.27	
85.93	4.00	2.71	9.06	
96.31	4.00	2.92	9.82	
106.03	4.00	3.13	10.54	
114.73	4.00	3.34	11.20	
121.97	4.00	3.54	11.77	
127.15	4.00	3.75	12.24	

129.28 4.00

4.00 12.57

129.28 4.00

COMPUTE TRAVEL TIME

ID=4 REACH NO=1 NO VS=1 L=560 FT
SLP=0.007

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL

WATER AVERAGE FLOW

DEPTH AREA RATE

TIME

FEET SQ.FT. CFS

HRS

	.208	.250	.63
.0616	.417	.695	2.74
.0395	.625	1.255	6.36
.0307	.834	1.898	11.44
.0258	1.042	2.604	17.87
.0227	1.251	3.358	25.49
.0205	1.459	4.146	34.15
.0189	1.668	4.960	43.66
.0177	1.876	5.788	53.83
.0167	2.084	6.621	64.42
.0160	2.293	7.451	75.21
.0154	2.501	8.267	85.93
.0150	2.710	9.062	96.31
.0146	2.918	9.823	106.03
.0144	3.127	10.539	114.73
.0143	3.335	11.195	121.97
.0143	3.544	11.773	127.15
.0144	3.752	12.243	129.28
.0147	4.000	12.566	129.28
.0151			

ROUTE

OUTFLOW ID=4 OUTFLOW HYD=208.1

INFLOW ID=2 DT=0.0

PRINT HYD

ID=4 CODE=1

PARTIAL HYDROGRAPH 208.10

RUNOFF VOLUME = 1.63482 INCHES = 25.9059 ACRE-FEET

PEAK DISCHARGE RATE = 88.98 CFS AT 1.600 HOURS BASIN
AREA = .2971 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=208.A DA=0.03201 SQ MI
%A, B, C, & D 0 29.5 29.5 41
TP=0.15 HR
MASS RAINFALL=-1

K = .081750HR TP = .150000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 46.046 CFS UNIT VOLUME = 1.000 B =
526.28 P60 = 1.6400
AREA = .013124 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .134562HR TP = .150000HR K/TP RATIO = .897081
SHAPE CONSTANT, N = 3.951474
UNIT PEAK = 44.309 CFS UNIT VOLUME = 1.000 B =
351.92 P60 = 1.6400
AREA = .018886 SQ MI IA = .42500 INCHES INF =
1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 208.A

RUNOFF VOLUME = 1.43385 INCHES = 2.4479 ACRE-FEET
PEAK DISCHARGE RATE = 54.71 CFS AT 1.500 HOURS BASIN
AREA = .0320 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=4 II=1
PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS	HRS	CFS	HRS
	.000	.0	6.000	26.0	12.000
4.2	18.000	3.2	24.000	2.6	
	.500	.0	6.500	20.1	12.500
4.1	18.500	3.1	24.500	1.8	
	1.000	3.0	7.000	14.7	13.000
4.0	19.000	3.1	25.000	1.2	
	1.500	128.6	7.500	11.2	13.500
3.9	19.500	3.0	25.500	.8	

	2.000	78.0	8.000	8.9	14.000
3.8	20.000	3.0	26.000	.5	
	2.500	59.2	8.500	7.4	14.500
3.7	20.500	2.9	26.500	.3	
	3.000	52.9	9.000	6.4	15.000
3.6	21.000	2.9	27.000	.2	
	3.500	48.2	9.500	5.7	15.500
3.5	21.500	2.8	27.500	.1	
	4.000	43.6	10.000	5.2	16.000
3.5	22.000	2.8	28.000	.1	
	4.500	39.1	10.500	4.9	16.500
3.4	22.500	2.7	28.500	.1	
	5.000	34.8	11.000	4.6	17.000
3.3	23.000	2.7	29.000	.0	
	5.500	30.1	11.500	4.4	17.500
3.3	23.500	2.7	29.500	.0	

RUNOFF VOLUME = 1.61528 INCHES = 28.3537 ACRE-FEET
 PEAK DISCHARGE RATE = 138.94 CFS AT 1.550 HOURS BASIN
 AREA = .3291 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
 SLP=0.010 D=4.0 N=0.013

		RATING CURVE PIPE SECTION 1.0		
		WATER	FLOW	
FLOW	MAX	SURFACE	AREA	
RATE	WIDTH	ELEV	SQ FT	CFS
FT				
		.00	.00	
.00	.00	.21	.25	
.75	1.78	.42	.69	
3.27	2.44	.63	1.25	
7.60	2.91	.83	1.90	
13.68	3.25	1.04	2.60	
21.35	3.51	1.25	3.36	
30.47	3.71	1.46	4.15	
40.82	3.85	1.67	4.96	
52.19	3.94	1.88	5.79	
64.33	3.99	2.08	6.62	
77.00	4.00	2.29	7.45	
89.89	4.00	2.50	8.27	
102.71	4.00	2.71	9.06	
115.11	4.00			

		2.92	9.82
126.73	4.00		
		3.13	10.54
137.13	4.00		
		3.34	11.20
145.78	4.00		
		3.54	11.77
151.97	4.00		
		3.75	12.24
154.52	4.00		
		4.00	12.57
154.52	4.00		

COMPUTE TRAVEL TIME

ID=4 REACH NO=1 NO VS=1 L=600 FT
SLP=0.010

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
	.208	.250	.75
.0553	.417	.695	3.27
.0354	.625	1.255	7.60
.0275	.834	1.898	13.68
.0231	1.042	2.604	21.35
.0203	1.251	3.358	30.47
.0184	1.459	4.146	40.82
.0169	1.668	4.960	52.19
.0158	1.876	5.788	64.33
.0150	2.084	6.621	77.00
.0143	2.293	7.451	89.89
.0138	2.501	8.267	102.71
.0134	2.710	9.062	115.11
.0131	2.918	9.823	126.73
.0129	3.127	10.539	137.13
.0128	3.335	11.195	145.78
.0128	3.544	11.773	151.97
.0129	3.752	12.243	154.52
.0132	4.000	12.566	154.52

.0136

ROUTE

OUTFLOW ID=4 OUTFLOW HYD=209.1
INFLOW ID=2 DT=0.0
ID=4 CODE=1

PRINT HYD

PARTIAL HYDROGRAPH 209.10

RUNOFF VOLUME = 1.61527 INCHES = 28.3537 ACRE-FEET
PEAK DISCHARGE RATE = 138.32 CFS AT 1.550 HOURS BASIN
AREA = .3291 SQ. MI.

COMPUTE NM HYD

ID=1 HYD NO=208.B DA=0.02696 SQ MI
%A, B, C, & D 0 26.5 26.5 47
TP=0.1333 HR
MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 50.027 CFS UNIT VOLUME = .9989 B =
526.28 P60 = 1.6400
AREA = .012671 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .119581HR TP = .133300HR K/TP RATIO = .897081
SHAPE CONSTANT, N = 3.951476
UNIT PEAK = 37.723 CFS UNIT VOLUME = 1.001 B =
351.92 P60 = 1.6400
AREA = .014289 SQ MI IA = .42500 INCHES INF =
1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD

ID=1 CODE=1

HYDROGRAPH FROM AREA 208.B

RUNOFF VOLUME = 1.54057 INCHES = 2.2151 ACRE-FEET
PEAK DISCHARGE RATE = 51.38 CFS AT 1.500 HOURS BASIN
AREA = .0270 SQ. MI.

ADD HYD

ID=2 HYD=JUNCTION I=4 II=1
ID=2 CODE=10

PRINT HYD

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS		HRS	CFS		HRS

CFS	HRS	CFS	HRS	CFS	
	.000	.0	6.000	26.5	12.000
4.5	18.000	3.4	24.000	2.8	
	.500	.0	6.500	20.6	12.500
4.4	18.500	3.4	24.500	1.9	
	1.000	3.8	7.000	15.2	13.000
4.2	19.000	3.3	25.000	1.3	
	1.500	174.9	7.500	11.6	13.500
4.1	19.500	3.2	25.500	.8	
	2.000	87.9	8.000	9.3	14.000
4.0	20.000	3.2	26.000	.5	
	2.500	61.0	8.500	7.8	14.500
3.9	20.500	3.1	26.500	.4	
	3.000	53.7	9.000	6.7	15.000
3.9	21.000	3.1	27.000	.2	
	3.500	48.7	9.500	6.0	15.500
3.8	21.500	3.0	27.500	.1	
	4.000	44.0	10.000	5.5	16.000
3.7	22.000	3.0	28.000	.1	
	4.500	39.5	10.500	5.2	16.500
3.6	22.500	2.9	28.500	.1	
	5.000	35.3	11.000	4.9	17.000
3.6	23.000	2.9	29.000	.0	
	5.500	30.6	11.500	4.7	17.500
3.5	23.500	2.9	29.500	.0	

RUNOFF VOLUME = 1.60961 INCHES = 30.5688 ACRE-FEET
 PEAK DISCHARGE RATE = 183.86 CFS AT 1.550 HOURS BASIN
 AREA = .3561 SQ. MI.

COMPUTE NM HYD

ID=1 HYD NO=209.0 DA=0.0111 SQ MI
 %A, B, C, & D 0 11 24 65
 TP=0.27 HR
 MASS RAINFALL=-1

K = .147150HR TP = .270000HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 14.063 CFS UNIT VOLUME = .9992 B =
 526.28 P60 = 1.6400
 AREA = .007215 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .230582HR TP = .270000HR K/TP RATIO = .854009
 SHAPE CONSTANT, N = 4.166404
 UNIT PEAK = 5.2680 CFS UNIT VOLUME = .9976 B =
 366.12 P60 = 1.6400
 AREA = .003885 SQ MI IA = .39714 INCHES INF =
 .96200 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 209.00

RUNOFF VOLUME = 1.88065 INCHES = 1.1133 ACRE-FEET
PEAK DISCHARGE RATE = 16.34 CFS AT 1.650 HOURS BASIN
AREA = .0111 SQ. MI.

ADD HYD ID=4 HYD=JUNCTION I=2 II=1
PRINT HYD ID=4 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS			HRS	CFS	
CFS	HRS	CFS			HRS	CFS	HRS
	.000	.0			6.000	26.7	12.000
4.7	18.000	3.5			24.000	2.9	
	.500	.0			6.500	20.8	12.500
4.5	18.500	3.5			24.500	1.9	
	1.000	4.2			7.000	15.4	13.000
4.4	19.000	3.4			25.000	1.3	
	1.500	185.3			7.500	11.8	13.500
4.3	19.500	3.4			25.500	.8	
	2.000	94.9			8.000	9.5	14.000
4.2	20.000	3.3			26.000	.5	
	2.500	62.7			8.500	8.0	14.500
4.1	20.500	3.3			26.500	.4	
	3.000	54.4			9.000	6.9	15.000
4.0	21.000	3.2			27.000	.2	
	3.500	49.1			9.500	6.2	15.500
3.9	21.500	3.1			27.500	.1	
	4.000	44.3			10.000	5.7	16.000
3.8	22.000	3.1			28.000	.1	
	4.500	39.7			10.500	5.3	16.500
3.8	22.500	3.1			28.500	.1	
	5.000	35.5			11.000	5.1	17.000
3.7	23.000	3.0			29.000	.0	
	5.500	30.8			11.500	4.9	17.500
3.6	23.500	3.0			29.500	.0	

RUNOFF VOLUME = 1.61781 INCHES = 31.6821 ACRE-FEET
PEAK DISCHARGE RATE = 197.69 CFS AT 1.550 HOURS BASIN
AREA = .3672 SQ. MI.

ADD HYD ID=3 HYD=JUNCTION I=4 II=25
PRINT HYD ID=3 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

	TIME	FLOW		TIME	FLOW		TIME
FLOW	TIME	FLOW	FLOW	TIME	FLOW	FLOW	
	HRS	CFS		HRS	CFS		HRS
CFS	HRS	CFS		HRS	CFS		
	.000	.0		6.000	45.8		12.000

16.4	18.000	12.7	24.000	10.4	
	.500	.0	6.500	37.8	12.500
15.9	18.500	12.4	24.500	6.2	
	1.000	21.3	7.000	31.5	13.000
15.5	19.000	12.2	25.000	3.4	
	1.500	681.8	7.500	27.3	13.500
15.2	19.500	12.0	25.500	1.7	
	2.000	374.2	8.000	24.3	14.000
14.9	20.000	11.8	26.000	.9	
	2.500	299.1	8.500	22.2	14.500
14.5	20.500	11.6	26.500	.5	
	3.000	281.1	9.000	20.7	15.000
14.2	21.000	11.4	27.000	.3	
	3.500	260.8	9.500	19.6	15.500
13.9	21.500	11.3	27.500	.2	
	4.000	235.1	10.000	18.7	16.000
13.6	22.000	11.1	28.000	.1	
	4.500	199.9	10.500	18.0	16.500
13.4	22.500	10.9	28.500	.1	
	5.000	133.1	11.000	17.4	17.000
13.1	23.000	10.7	29.000	.0	
	5.500	61.6	11.500	16.8	17.500
12.9	23.500	10.6	29.500	.0	

RUNOFF VOLUME = 1.51498 INCHES = 121.9206 ACRE-FEET
 PEAK DISCHARGE RATE = 681.78 CFS AT 1.500 HOURS BASIN
 AREA = 1.5089 SQ. MI.

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.028 FS=0.028 N=0.013 DIST=26
 DIST EL DIST EL
 0 104 08 100
 18 100 26 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
			SURFACE	AREA
RATE	WIDTH		ELEV	SQ FT
FT				CFS
.00	.00		100.00	.00
14.38	10.84		100.21	2.19
46.14	11.68		100.42	4.57
91.86	12.53		100.63	7.11
150.45	13.37		100.84	9.84
221.50	14.21		101.05	12.74
304.88	15.05		101.26	15.82
400.61	15.89		101.47	19.08
			101.68	22.52

508.81	16.74	101.89	26.13
629.67	17.58	102.11	29.92
763.40	18.42	102.32	33.88
910.26	19.26	102.53	38.03
1070.51	20.11	102.74	42.35
1244.44	20.95	102.95	46.85
1432.33	21.79	103.16	51.52
1634.48	22.63	103.37	56.38
1851.19	23.47	103.58	61.41
2082.77	24.32	103.79	66.61
2329.51	25.16	104.00	72.00
2591.73	26.00		

COMPUTE TRAVEL TIME

ID=4 RN=1 NVS=1 L=2750 S=0.028

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.1166	.211	2.194	14.38
.0756	.421	4.565	46.14
.0592	.632	7.114	91.86
.0500	.842	9.839	150.45
.0439	1.053	12.742	221.50
.0396	1.263	15.823	304.88
.0364	1.474	19.080	400.61
.0338	1.684	22.515	508.81
.0317	1.895	26.127	629.67
.0299	2.105	29.917	763.40
.0284	2.316	33.883	910.26
.0271	2.526	38.028	1070.51
.0260	2.737	42.349	1244.44
	2.947	46.847	1432.33

123

.0250			
	3.158	51.523	1634.48
.0241			
	3.368	56.376	1851.19
.0233			
	3.579	61.407	2082.77
.0225			
	3.789	66.615	2329.51
.0218			
	4.000	72.000	2591.73
.0212			

ROUTE ID=4 HYD=210.1 INFLOW ID=3 DT=0.0
 PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 210.10

RUNOFF VOLUME = 1.51498 INCHES = 121.9205 ACRE-FEET
 PEAK DISCHARGE RATE = 685.13 CFS AT 1.550 HOURS BASIN
 AREA = 1.5089 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=211.0 DA=0.1530 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.21 HR
 MASS RAINFALL=-1

K = .118470HR TP = .210000HR K/TP RATIO = .564143
 SHAPE CONSTANT, N = 6.800429
 UNIT PEAK = 212.51 CFS UNIT VOLUME = 1.000 B =
 511.72 P60 = 1.6400
 AREA = .087210 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .180544HR TP = .210000HR K/TP RATIO = .859733
 SHAPE CONSTANT, N = 4.136265
 UNIT PEAK = 114.08 CFS UNIT VOLUME = 1.000 B =
 364.15 P60 = 1.6400
 AREA = .065790 SQ MI IA = .39884 INCHES INF =
 .96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 211.00

RUNOFF VOLUME = 1.74130 INCHES = 14.2090 ACRE-FEET
 PEAK DISCHARGE RATE = 242.18 CFS AT 1.600 HOURS BASIN
 AREA = .1530 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=212.0 DA=0.0095 SQ MI
%A, B, C, & D 0 11 24 65
TP=0.19 HR
MASS RAINFALL=-1

K = .103550HR TP = .190000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.104 CFS UNIT VOLUME = .9996 B =
526.28 P60 = 1.6400
AREA = .006175 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .162262HR TP = .190000HR K/TP RATIO = .854009
SHAPE CONSTANT, N = 4.166404
UNIT PEAK = 6.4070 CFS UNIT VOLUME = .9985 B =
366.12 P60 = 1.6400
AREA = .003325 SQ MI IA = .39714 INCHES INF =
.96200 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 212.00

RUNOFF VOLUME = 1.88065 INCHES = .9529 ACRE-FEET
PEAK DISCHARGE RATE = 17.11 CFS AT 1.550 HOURS BASIN
AREA = .0095 SQ. MI.

ADD HYD ID=3 HYD=JUNCTION I=1 II=2
PRINT HYD ID=3 CODE=10

JUNCTION HYDROGRAPH FROM AREA

FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS
	.000	.0	5.500	2.6	11.000
2.2	16.500	1.7	22.000	1.4	
	.500	.0	6.000	2.8	11.500
2.1	17.000	1.7	22.500	1.4	
	1.000	7.2	6.500	2.8	12.000
2.1	17.500	1.7	23.000	1.4	
	1.500	220.9	7.000	2.7	12.500
2.0	18.000	1.6	23.500	1.4	
	2.000	81.9	7.500	2.7	13.000
2.0	18.500	1.6	24.000	1.3	
	2.500	18.3	8.000	2.6	13.500
1.9	19.000	1.6	24.500	.2	
	3.000	7.5	8.500	2.5	14.000

125

1.9	19.500	1.5	25.000	.0	
	3.500	4.0	9.000	2.4	14.500
1.9	20.000	1.5	25.500	.0	
	4.000	2.9	9.500	2.4	15.000
1.8	20.500	1.5	26.000	.0	
	4.500	2.6	10.000	2.3	15.500
1.8	21.000	1.5			
	5.000	2.5	10.500	2.2	16.000
1.7	21.500	1.5			

RUNOFF VOLUME = 1.74945 INCHES = 15.1618 ACRE-FEET
 PEAK DISCHARGE RATE = 258.60 CFS AT 1.550 HOURS BASIN
 AREA = .1625 SQ. MI.

ADD HYD ID=5 HYD=JUNCTION I=3 II=4
 PRINT HYD ID=5 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS
	.000	.0	6.000	49.5	12.000
18.5	18.000	14.3	24.000	11.8	
	.500	.0	6.500	41.1	12.500
18.0	18.500	14.1	24.500	7.3	
	1.000	19.8	7.000	34.7	13.000
17.6	19.000	13.8	25.000	4.0	
	1.500	857.5	7.500	30.4	13.500
17.2	19.500	13.6	25.500	2.0	
	2.000	459.7	8.000	27.3	14.000
16.8	20.000	13.4	26.000	1.0	
	2.500	318.5	8.500	25.0	14.500
16.5	20.500	13.1	26.500	.5	
	3.000	289.6	9.000	23.4	15.000
16.1	21.000	12.9	27.000	.3	
	3.500	266.1	9.500	22.1	15.500
15.8	21.500	12.8	27.500	.2	
	4.000	239.6	10.000	21.1	16.000
15.5	22.000	12.5	28.000	.1	
	4.500	205.2	10.500	20.3	16.500
15.2	22.500	12.4	28.500	.1	
	5.000	139.9	11.000	19.6	17.000
14.9	23.000	12.2	29.000	.0	
	5.500	67.2	11.500	19.0	17.500
14.6	23.500	12.0	29.500	.0	

RUNOFF VOLUME = 1.53777 INCHES = 137.0822 ACRE-FEET
 PEAK DISCHARGE RATE = 943.73 CFS AT 1.550 HOURS BASIN
 AREA = 1.6714 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=214.0 DA=0.0593 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.21 HR
 MASS RAINFALL=-1

K = .114450HR TP = .210000HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 84.708 CFS UNIT VOLUME = 1.000 B =
 526.28 P60 = 1.6400
 AREA = .033801 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .179892HR TP = .210000HR K/TP RATIO = .856628
 SHAPE CONSTANT, N = 4.152552
 UNIT PEAK = 44.346 CFS UNIT VOLUME = .9999 B =
 365.22 P60 = 1.6400
 AREA = .025499 SQ MI IA = .39884 INCHES INF =
 .96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 214.00

RUNOFF VOLUME = 1.74131 INCHES = 5.5071 ACRE-FEET
 PEAK DISCHARGE RATE = 94.84 CFS AT 1.600 HOURS BASIN
 AREA = .0593 SQ. MI.

ADD HYD ID=3 HYD=JUNCTION I=5 II=1
 PRINT HYD ID=3 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS
	.000	.0		6.000	50.5	12.000	
19.3	18.000	14.9		24.000	12.3		
	.500	.0		6.500	42.1	12.500	
18.8	18.500	14.6		24.500	7.3		
	1.000	22.4		7.000	35.7	13.000	
18.3	19.000	14.4		25.000	4.0		
	1.500	937.9		7.500	31.3	13.500	
17.9	19.500	14.2		25.500	2.0		
	2.000	489.4		8.000	28.2	14.000	
17.5	20.000	13.9		26.000	1.0		
	2.500	325.0		8.500	25.9	14.500	
17.1	20.500	13.7		26.500	.5		
	3.000	292.2		9.000	24.2	15.000	
16.8	21.000	13.5		27.000	.3		
	3.500	267.5		9.500	23.0	15.500	
16.4	21.500	13.3		27.500	.2		
	4.000	240.6		10.000	21.9	16.000	

16.1	22.000	13.1	28.000	.1	
	4.500	206.2	10.500	21.1	16.500
15.8	22.500	12.9	28.500	.1	
	5.000	140.8	11.000	20.4	17.000
15.5	23.000	12.7	29.000	.0	
	5.500	68.1	11.500	19.8	17.500
15.2	23.500	12.5	29.500	.0	

RUNOFF VOLUME = 1.54475 INCHES = 142.5894 ACRE-FEET
 PEAK DISCHARGE RATE = 1038.43 CFS AT 1.550 HOURS BASIN
 AREA = 1.7307 SQ. MI.

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.014 FS=0.014 N=0.013 DIST=26
 DIST EL DIST EL
 0 104 08 100
 18 100 26 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
RATE	WIDTH		SURFACE	AREA
FT			ELEV	SQ FT CFS
.00	.00		100.00	.00
10.17	10.84		100.21	2.19
32.63	11.68		100.42	4.57
64.95	12.53		100.63	7.11
106.38	13.37		100.84	9.84
156.63	14.21		101.05	12.74
215.58	15.05		101.26	15.82
283.27	15.89		101.47	19.08
359.79	16.74		101.68	22.52
445.24	17.58		101.89	26.13
539.81	18.42		102.11	29.92
643.65	19.26		102.32	33.88
756.97	20.11		102.53	38.03
879.95	20.95		102.74	42.35
1012.81	21.79		102.95	46.85
1155.75	22.63		103.16	51.52
			103.37	56.38

1308.99 23.47

103.58 61.41

1472.74 24.32

103.79 66.61

1647.21 25.16

104.00 72.00

1832.63 26.00

COMPUTE TRAVEL TIME ID=4 RN=1 NVS=1 L=1400 S=0.014

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL

WATER

AVERAGE

FLOW

TIME

DEPTH

AREA

RATE

HRS

FEET

SQ. FT.

CFS

.211 2.194 10.17

.0839

.421 4.565 32.63

.0544

.632 7.114 64.95

.0426

.842 9.839 106.38

.0360

1.053 12.742 156.63

.0316

1.263 15.823 215.58

.0285

1.474 19.080 283.27

.0262

1.684 22.515 359.79

.0243

1.895 26.127 445.24

.0228

2.105 29.917 539.81

.0216

2.316 33.883 643.65

.0205

2.526 38.028 756.97

.0195

2.737 42.349 879.95

.0187

2.947 46.847 1012.81

.0180

3.158 51.523 1155.75

.0173

3.368 56.376 1308.99

.0167

3.579 61.407 1472.74

.0162

3.789 66.615 1647.21

.0157

4.000 72.000 1832.63

.0153

ROUTE

ID=4 HYD=216.1 INFLOW ID=3 DT=0.0

PRINT HYD

ID=4 CODE=1

PARTIAL HYDROGRAPH 216.10

RUNOFF VOLUME = 1.54475 INCHES = 142.5892 ACRE-FEET
PEAK DISCHARGE RATE = 1032.74 CFS AT 1.550 HOURS BASIN
AREA = 1.7307 SQ. MI.

FINISH

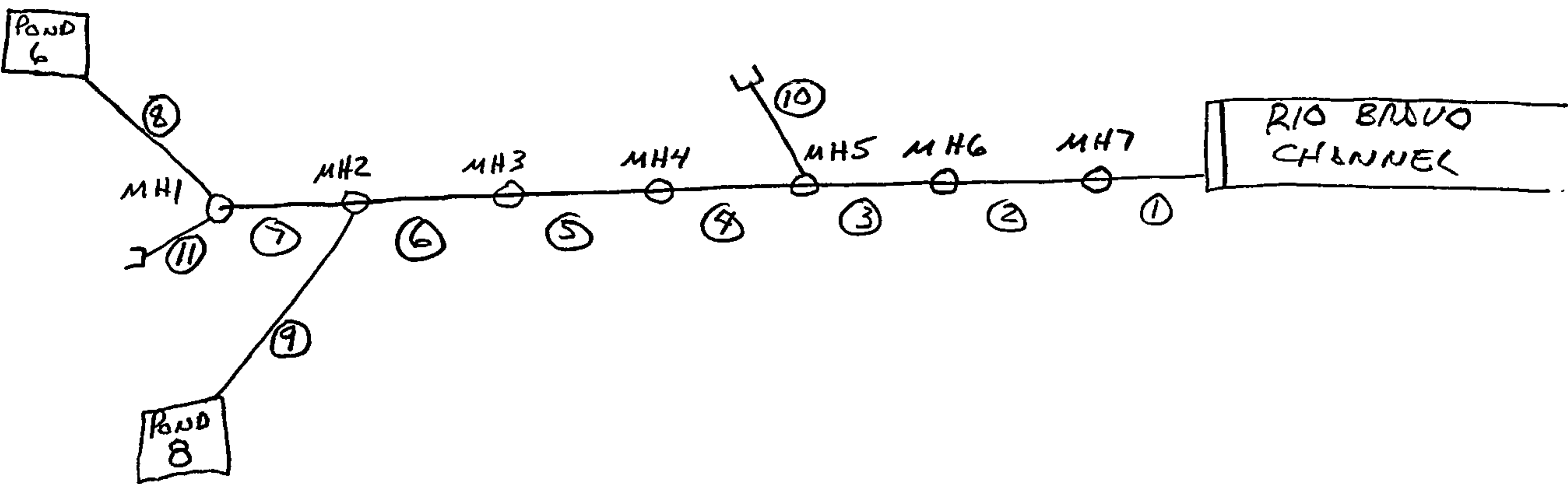
NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 10:41:50
□(s10H□□□□□□□□□□□□□□□□

ANDERSON HEIGHTS

OUTFALL FROM PONDS 6 & 8

TO THE RIO BRAVO CHANNEL

REVISED 4-5-05



LEGEND

④ LINE NUMBER

MH6 STORMDRAIN MANHOLE

Run date: 04-05-2005
File: c:ah6&8.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 316.3 / HT = 54 / WID = 54 / N = .013 / L = 356.2 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5128.16	54.00	5123.66	19.89	5134.30	0.00	-.95	15.90
UPSTRM	5137.89	53.25	5133.45	19.94	5144.06	12.66	2.54	15.86

Drainage area (ac)	= 0	Slope of invert (%)	= 2.748
Runoff coefficient	= 0	Slope energy grade line (%)	= 2.740
Time of conc (min)	= 13	Critical depth (in)	= 53.22
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 289.8
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 83.2
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 6
Flow contrib (cfs)	= 316.2	Confluence angle (deg)	= 0
Default Q (cfs)	= 316.27	Natural ground elev (ft)	= 5140.5
Line capac. (cfs)	= 326.0	Line storage (cuft)	= 5657

LINE 2 / Q = 316.3 / HT = 54 / WID = 54 / N = .013 / L = 450 / JLC = .25

 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5139.43	54.00	5133.95	19.89	5145.57	0.00	2.04	15.90
UPSTRM	5153.69	53.25	5149.25	19.94	5159.86	12.66	3.54	15.86

Drainage area (ac)	=	0	Slope of invert (%)	=	3.400
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.175
Time of conc (min)	=	11	Critical depth (in)	=	53.22
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	289.8
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	83.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	316.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	316.27	Natural ground elev (ft)	=	5157.3
Line capac. (cfs)	=	362.6	Line storage (cuft)	=	7146

LINE 3 / Q = 316.3 / HT = 54 / WID = 54 / N = .013 / L = 450 / JLC = .25

 3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5155.23	54.00	5149.75	19.89	5161.37	0.00	3.04	15.90
UPSTRM	5169.49	53.25	5165.05	19.94	5175.66	12.66	4.75	15.86

Drainage area (ac)	=	0	Slope of invert (%)	=	3.400
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.175
Time of conc (min)	=	8	Critical depth (in)	=	53.22
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	289.8
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	83.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	316.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	316.27	Natural ground elev (ft)	=	5174.3
Line capac. (cfs)	=	362.6	Line storage (cuft)	=	7146

LINE 4 / Q = 233.9 / HT = 48 / WID = 48 / N = .013 / L = 300 / JLC = .25

1 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5171.03	48.00	5165.55	18.61	5176.41	0.00	4.75	12.56
UPSTRM	5179.69	47.33	5175.75	18.66	5185.10	11.25	6.95	12.53

Drainage area (ac)	=	0	Slope of invert (%)	=	3.400
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.897
Time of conc (min)	=	7	Critical depth (in)	=	47.30
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	214.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	61.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	233.8	Confluence angle (deg)	=	0
Default Q (cfs)	=	233.87	Natural ground elev (ft)	=	5186.7
Line capac. (cfs)	=	264.9	Line storage (cuft)	=	3764

LINE 5 / Q = 233.9 / HT = 48 / WID = 48 / N = .013 / L = 450 / JLC = .25

 5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5181.05	48.00	5176.25	18.61	5186.43	0.00	6.45	12.56
UPSTRM	5195.49	47.33	5191.55	18.66	5200.90	11.25	6.75	12.53

Drainage area (ac)	=	0	Slope of invert (%)	=	3.400
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.217
Time of conc (min)	=	4	Critical depth (in)	=	47.30
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	214.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	61.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	233.8	Confluence angle (deg)	=	0
Default Q (cfs)	=	233.87	Natural ground elev (ft)	=	5202.3
Line capac. (cfs)	=	264.9	Line storage (cuft)	=	5646

LINE 6 / Q = 233.9 / HT = 48 / WID = 48 / N = .013 / L = 450 / JLC = .25

 5 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5196.85	48.00	5192.05	18.61	5202.23	0.00	6.25	12.56
UPSTRM	5211.29	47.33	5207.35	18.66	5216.70	11.25	7.85	12.53

Drainage area (ac)	=	0	Slope of invert (%)	=	3.400
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.217
Time of conc (min)	=	2	Critical depth (in)	=	47.30
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	214.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	61.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	233.8	Confluence angle (deg)	=	0
Default Q (cfs)	=	233.87	Natural ground elev (ft)	=	5219.2
Line capac. (cfs)	=	264.9	Line storage (cuft)	=	5646

LINE 7 / Q = 210.0 / HT = 48 / WID = 48 / N = .013 / L = 48.32 / JLC = .25

7 / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5212.65	48.00	5207.85	16.72	5216.99	0.00	7.35	12.56
UPSTRM	5213.68	48.00	5209.49	16.71	5218.02	0.00	7.3	12.57

Drainage area (ac)	=	0	Slope of invert (%)	=	3.394
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.138
Time of conc (min)	=	1	Critical depth (in)	=	46.99
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	192.4
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	55.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	210	Confluence angle (deg)	=	0
Default Q (cfs)	=	210.03	Natural ground elev (ft)	=	5220.8
Line capac. (cfs)	=	264.7	Line storage (cuft)	=	607

LINE 8 / Q = 197.1 / HT = 54 / WID = 54 / N = .013 / L = 233.28 / JLC = .25

8 / DNLN = 7

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5214.77	54.00	5209.99	12.39	5217.15	0.00	6.3	15.90
UPSTRM	5230.22	48.71	5225.50	13.05	5232.86	32.10	4	15.10

Drainage area (ac)	=	0	Slope of invert (%)	=	6.649
Runoff coefficient	=	0	Slope energy grade line (%)	=	6.736
Time of conc (min)	=	0	Critical depth (in)	=	48.63
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	180.6
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	51.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	197	Confluence angle (deg)	=	45
Default Q (cfs)	=	197.07	Natural ground elev (ft)	=	5234
Line capac. (cfs)	=	507.1	Line storage (cuft)	=	3616

LINE 9 / Q = 30.7 / HT = 30 / WID = 30 / N = .013 / L = 271.66 / JLC = .25

9 / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5212.65	30.00	5208.85	6.26	5213.26	0.00	7.85	4.91
UPSTRM	5217.09	22.25	5215.00	7.87	5218.06	26.27	2.5	3.90

Drainage area (ac)	=	0	Slope of invert (%)	=	2.264
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.768
Time of conc (min)	=	0	Critical depth (in)	=	22.23
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	28.2
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	8.1
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	30.7	Confluence angle (deg)	=	45
Default Q (cfs)	=	30.73	Natural ground elev (ft)	=	5220
Line capac. (cfs)	=	61.7	Line storage (cuft)	=	1197

LINE 10 / Q = 89.6 / HT = 42 / WID = 42 / N = .013 / L = 100 / JLC = .25

10 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5171.03	42.00	5165.55	9.32	5172.38	0.00	5.25	9.62
UPSTRM	5172.16	42.00	5166.55	9.31	5173.51	0.00	7.95	9.62

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.130
Time of conc (min)	=	0	Critical depth (in)	=	34.78
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	82.1
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	23.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	89.6	Confluence angle (deg)	=	45
Default Q (cfs)	=	89.62	Natural ground elev (ft)	=	5178
Line capac. (cfs)	=	100.6	Line storage (cuft)	=	962

LINE 11 / Q = 65.8 / HT = 30 / WID = 30 / N = .013 / L = 63.44 / JLC = .25

11 / DNLN = 7

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5217.13	20.55	5215.42	18.36	5222.37	27.87	2.87	3.58
UPSTRM	5220.98	20.55	5217.96	18.36	5226.22	27.87	1.54	3.58

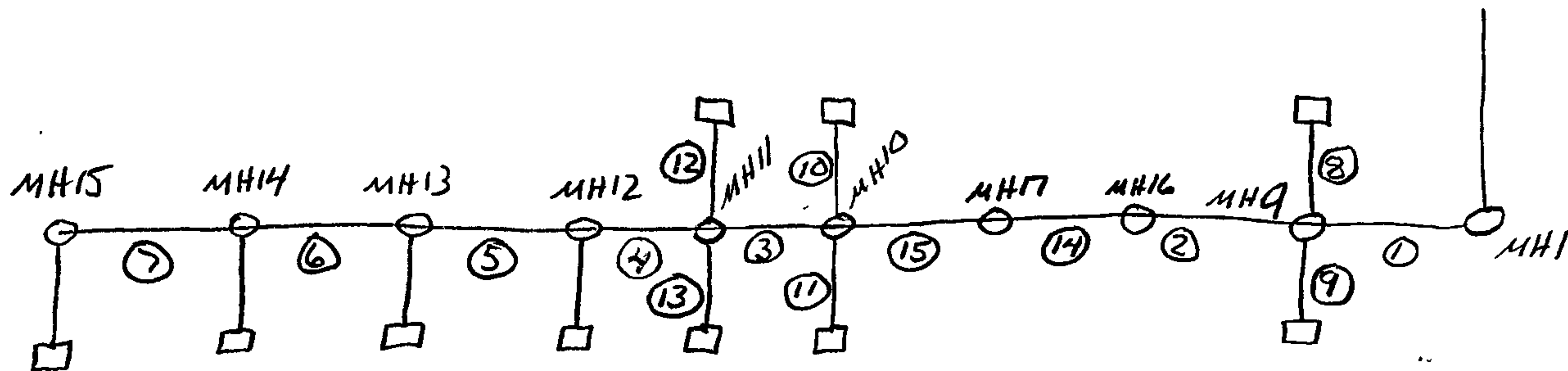
Drainage area (ac)	=	0	Slope of invert (%)	=	4.004
Runoff coefficient	=	0	Slope energy grade line (%)	=	4.004
Time of conc (min)	=	0	Critical depth (in)	=	29.37
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	60.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	17.3
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	65.8	Confluence angle (deg)	=	45
Default Q (cfs)	=	65.81	Natural ground elev (ft)	=	5222
Line capac. (cfs)	=	82.1	Line storage (cuft)	=	227

HYDRAULIC REPORT FOR

ANDERSON HEIGHTS

118TH STREET STORMDRAIN

REVISED 3-25-05



LEGEND

④ LINE NUMBER

MH12 STORMDRAIN MANHOLE

1
0

Run date: 03-25-2005
File: c:ah118.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 40.6 / HT = 36 / WID = 36 / N = .013 / L = 55.07 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5219.87	36.00	5210.49	5.74	5220.38	0.00	8.7	7.07
UPSTRM	5220.07	36.00	5211.04	5.74	5220.59	0.00	7.25	7.07

Drainage area (ac)	=	0	Slope of invert (%)	=	0.998
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.370
Time of conc (min)	=	22	Critical depth (in)	=	24.36
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	37.2
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	10.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	40.5	Confluence angle (deg)	=	90
Default Q (cfs)	=	40.57	Natural ground elev (ft)	=	5221.3
Line capac. (cfs)	=	66.6	Line storage (cuft)	=	389

LINE 2 / Q = 33.3 / HT = 36 / WID = 36 / N = .013 / L = 581.17 / JLC = .25

2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5220.20	36.00	5211.04	4.71	5220.55	0.00	7.25	7.07
UPSTRM	5221.65	36.00	5216.85	4.71	5222.00	0.00	12.25	7.07

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.250
Time of conc (min)	=	19	Critical depth (in)	=	22.07
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	30.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	8.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	33.3	Confluence angle (deg)	=	0
Default Q (cfs)	=	33.32	Natural ground elev (ft)	=	5232.1
Line capac. (cfs)	=	66.7	Line storage (cuft)	=	4108

LINE 3 / Q = 28.3 / HT = 30 / WID = 30 / N = .013 / L = 581.17 / JLC = .25

3 / DNLN = 15

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5228.11	27.09	5225.85	6.01	5228.67	16.73	7.54	4.71
UPSTRM	5233.44	21.38	5231.66	7.56	5234.33	27.15	1.63	3.74

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.974
Time of conc (min)	=	11	Critical depth (in)	=	21.33
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	25.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	7.4
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	28.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	28.3	Natural ground elev (ft)	=	5235.8
Line capac. (cfs)	=	41.0	Line storage (cuft)	=	2455

LINE 4 / Q = 8.7 / HT = 24 / WID = 24 / N = .013 / L = 286.13 / JLC = .25

4 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5233.66	24.00	5231.66	2.77	5233.78	0.00	2.13	3.14
UPSTRM	5235.47	12.59	5234.42	5.21	5235.89	23.97	1.68	1.67

Drainage area (ac)	=	0	Slope of invert (%)	=	0.965
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.737
Time of conc (min)	=	9	Critical depth (in)	=	12.53
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	8.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	2.3
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	8.6	Confluence angle (deg)	=	0
Default Q (cfs)	=	8.7	Natural ground elev (ft)	=	5238.1
Line capac. (cfs)	=	22.2	Line storage (cuft)	=	688

LINE 5 / Q = 6.5 / HT = 24 / WID = 24 / N = .013 / L = 530.77 / JLC = .25

5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5235.57	13.86	5234.42	3.38	5235.75	23.62	1.68	1.93
UPSTRM	5240.43	10.85	5239.53	4.71	5240.78	23.89	1.87	1.38

Drainage area (ac)	=	0	Slope of invert (%)	=	0.963
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.947
Time of conc (min)	=	6	Critical depth (in)	=	10.83
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	6.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	1.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	6.5	Confluence angle (deg)	=	0
Default Q (cfs)	=	6.5	Natural ground elev (ft)	=	5243.4
Line capac. (cfs)	=	22.2	Line storage (cuft)	=	877

150

LINE 6 / Q = 4.3 / HT = 24 / WID = 24 / N = .013 / L = 538.09 / JLC = .25

6 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5240.52	11.88	5239.53	2.64	5240.63	23.99	1.87	1.63
UPSTRM	5245.45	8.85	5244.71	4.09	5245.71	23.16	4.68	1.05

Drainage area (ac)	=	0	Slope of invert (%)	=	0.963
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.944
Time of conc (min)	=	3	Critical depth (in)	=	8.81
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	3.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	1.1
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	4.3	Confluence angle (deg)	=	0
Default Q (cfs)	=	4.3	Natural ground elev (ft)	=	5251.4
Line capac. (cfs)	=	22.2	Line storage (cuft)	=	721

LINE 7 / Q = 2.1 / HT = 24 / WID = 24 / N = .013 / L = 536 / JLC = .25

 / / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5245.51	9.63	5244.71	1.70	5245.56	23.65	4.68	1.23
UPSTRM	5255.01	6.19	5254.45	3.28	5255.17	20.99	4.04	0.64

Drainage area (ac)	=	0	Slope of invert (%)	=	1.817
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.794
Time of conc (min)	=	0	Critical depth (in)	=	6.16
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	1.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	0.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	2	Confluence angle (deg)	=	0
Default Q (cfs)	=	2.1	Natural ground elev (ft)	=	5260.5
Line capac. (cfs)	=	30.5	Line storage (cuft)	=	502

LINE 8 / Q = 4.4 / HT = 18 / WID = 18 / N = .013 / L = 60 / JLC = .25

 3 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5220.20	18.00	5213.20	2.49	5220.30	0.00	6.59	1.77
UPSTRM	5220.33	18.00	5213.80	2.49	5220.43	0.00	6.1	1.77

Drainage area (ac)	=	0	Slope of invert (%)	=	0.999
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.216
Time of conc (min)	=	0	Critical depth (in)	=	9.60
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	4.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	1.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	4.4	Confluence angle (deg)	=	90
Default Q (cfs)	=	4.4	Natural ground elev (ft)	=	5221.4
Line capac. (cfs)	=	10.5	Line storage (cuft)	=	106

LINE 9 / Q = 2.8 / HT = 18 / WID = 18 / N = .013 / L = 25 / JLC = .25

9 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5220.20	18.00	5213.20	1.61	5220.24	0.00	6.59	1.77
UPSTRM	5220.23	18.00	5213.80	1.61	5220.27	0.00	7.7	1.77

Drainage area (ac)	=	0	Slope of invert (%)	=	2.398
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.115
Time of conc (min)	=	0	Critical depth (in)	=	7.73
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	2.6
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	0.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	2.8	Confluence angle (deg)	=	-90
Default Q (cfs)	=	2.85	Natural ground elev (ft)	=	5223
Line capac. (cfs)	=	16.3	Line storage (cuft)	=	44

LINE 10 / Q = 2.5 / HT = 18 / WID = 18 / N = .013 / L = 60 / JLC = .25

 10 / DNLN = 15

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5228.54	6.16	5228.03	4.69	5228.89	17.08	6.37	0.53
UPSTRM	5229.23	6.16	5228.63	4.69	5229.57	17.08	4.37	0.53

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.143
Time of conc (min)	=	0	Critical depth (in)	=	7.25
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	2.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	0.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	2.5	Confluence angle (deg)	=	90
Default Q (cfs)	=	2.51	Natural ground elev (ft)	=	5234.5
Line capac. (cfs)	=	10.5	Line storage (cuft)	=	32

LINE 11 / Q = 2.5 / HT = 18 / WID = 18 / N = .013 / L = 25 / JLC = .25

 L1 / DNLN = 15

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5228.44	4.92	5228.03	6.41	5229.08	16.04	6.37	0.39
UPSTRM	5229.20	4.92	5228.63	6.41	5229.84	16.04	5.37	0.39

Drainage area (ac)	=	0	Slope of invert (%)	=	2.400
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.039
Time of conc (min)	=	0	Critical depth (in)	=	7.25
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	2.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	0.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	2.5	Confluence angle (deg)	=	-90
Default Q (cfs)	=	2.51	Natural ground elev (ft)	=	5235.5
Line capac. (cfs)	=	16.3	Line storage (cuft)	=	10

LINE 12 / Q = 14.1 / HT = 24 / WID = 24 / N = .013 / L = 60 / JLC = .25

 .2 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5233.66	24.00	5231.66	4.50	5233.98	0.00	2.13	3.14
UPSTRM	5233.87	17.85	5232.26	5.65	5234.37	20.96	.24	2.51

Drainage area (ac)	=	0	Slope of invert (%)	=	0.999
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.645
Time of conc (min)	=	0	Critical depth (in)	=	15.98
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	13.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	3.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	14.1	Confluence angle (deg)	=	90
Default Q (cfs)	=	14.15	Natural ground elev (ft)	=	5234.5
Line capac. (cfs)	=	22.6	Line storage (cuft)	=	169

LINE 13 / Q = 5.4 / HT = 18 / WID = 18 / N = .013 / L = 25 / JLC = .25

 13 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5233.66	18.00	5231.66	3.08	5233.81	0.00	2.63	1.77
UPSTRM	5233.77	17.62	5232.26	3.10	5233.91	5.17	1.74	1.76

Drainage area (ac)	=	0	Slope of invert (%)	=	2.398
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.410
Time of conc (min)	=	0	Critical depth (in)	=	10.69
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	5.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	1.4
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	5.4	Confluence angle (deg)	=	-90
Default Q (cfs)	=	5.45	Natural ground elev (ft)	=	5235.5
Line capac. (cfs)	=	16.3	Line storage (cuft)	=	44

LINE 14 / Q = 33.3 / HT = 36 / WID = 36 / N = .013 / L = 450 / JLC = .25

 14 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5221.74	36.00	5216.85	4.71	5222.08	0.00	12.25	7.07
UPSTRM	5223.19	22.09	5221.35	7.32	5224.02	35.06	13.64	4.55

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.431
Time of conc (min)	=	16	Critical depth (in)	=	22.07
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	30.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	8.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	33.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	33.3	Natural ground elev (ft)	=	5238
Line capac. (cfs)	=	66.7	Line storage (cuft)	=	2613

LINE 15 / Q = 33.3 / HT = 36 / WID = 36 / N = .013 / L = 450 / JLC = .25

15 / DNLN = 14

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5223.40	24.59	5221.35	6.46	5224.05	33.44	13.64	5.16
UPSTRM	5227.90	22.09	5225.85	7.33	5228.73	35.06	7.04	4.55

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.995
Time of conc (min)	=	14	Critical depth (in)	=	22.07
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	30.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	8.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	33.3	Confluence angle (deg)	=	0
Default Q (cfs)	=	33.32	Natural ground elev (ft)	=	5235.9
Line capac. (cfs)	=	66.7	Line storage (cuft)	=	2185

Connector Pipe from

pond 2 to pond 3

48 in. RCP at 7.32%

Existing Conditions

161

1
0

Run date: 03-31-2005
File: c:ahp2-3d.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 81.9 / HT = 48 / WID = 48 / N = .013 / L = 129.71 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5247.28	15.30	5246.00	23.73	5256.02	44.74	2	3.45
UPSTRM	5258.96	15.30	5255.50	23.73	5267.71	44.74	2.5	3.45

Drainage area (ac)	=	0	Slope of invert (%)	=	7.324
Runoff coefficient	=	0	Slope energy grade line (%)	=	7.324
Time of conc (min)	=	0	Critical depth (in)	=	32.10
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	75.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	21.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	81.8	Confluence angle (deg)	=	0
Default Q (cfs)	=	81.86	Natural ground elev (ft)	=	5262
Line capac. (cfs)	=	388.8	Line storage (cuft)	=	447

HYDRAULIC REPORT FOR

163

Connector Pipe from

pond 2 to pond 3

48 in. RCP at 7.32%

Developed Conditions

1
0

Run date: 03-31-2005
File: c:ahp2-3d.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

165

LINE 1 / Q = 140.8 / HT = 48 / WID = 48 / N = .013 / L = 129.71 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5250.99	48.00	5246.00	11.21	5252.94	0.00	2	12.56
UPSTRM	5259.65	43.30	5255.50	11.80	5261.81	28.53	2.5	11.93

Drainage area (ac)	=	0	Slope of invert (%)	=	7.324
Runoff coefficient	=	0	Slope energy grade line (%)	=	6.422
Time of conc (min)	=	0	Critical depth (in)	=	43.23
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	129.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	37.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	140.8	Confluence angle (deg)	=	0
Default Q (cfs)	=	140.83	Natural ground elev (ft)	=	5262
Line capac. (cfs)	=	388.8	Line storage (cuft)	=	1589

HYDRAULIC REPORT FOR

166

Connector Pipe from

pond 3 to pond 4

48 in. RCP at 2.00%

Existing Conditions

1
0

167

Run date: 04-05-2005
File: c:ahp3-4e.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 78.3 / HT = 48 / WID = 48 / N = .013 / L = 425.22 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5238.76	21.11	5237.00	14.71	5242.12	47.65	2	5.32
UPSTRM	5248.10	21.11	5245.50	14.71	5251.46	47.65	2.5	5.32

Drainage area (ac)	=	0	Slope of invert (%)	=	1.999
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.999
Time of conc (min)	=	0	Critical depth (in)	=	31.39
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	71.7
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	20.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	78.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	78.28	Natural ground elev (ft)	=	5252
Line capac. (cfs)	=	203.1	Line storage (cuft)	=	2263

HYDRAULIC REPORT FOR

Connector Pipe from

pond 3 to pond 4

48 in. RCP at 2.00%

Developed conditions

170

1
0

Run date: 04-04-2005
File: c:ahp3-4d.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 135.2 / HT = 48 / WID = 48 / N = .013 / L = 425.22 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5241.82	48.00	5237.00	10.76	5243.62	0.00	2	12.56
UPSTRM	5249.56	42.56	5245.50	11.47	5251.60	30.43	2.5	11.78

Drainage area (ac)	=	0	Slope of invert (%)	=	1.999
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.758
Time of conc (min)	=	0	Critical depth (in)	=	42.49
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	123.8
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	35.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	135.1	Confluence angle (deg)	=	0
Default Q (cfs)	=	135.16	Natural ground elev (ft)	=	5252
Line capac. (cfs)	=	203.1	Line storage (cuft)	=	5176

HYDRAULIC REPORT FOR

172

Connector Pipe from

pond 4 to pond 5

48 in. RCP at 1.16%

Existing Conditions

173

1
0

Run date: 04-05-2005
File: c:ahp4-5e.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 77.2 / HT = 48 / WID = 48 / N = .013 / L = 388.94 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5234.01	24.10	5232.00	12.22	5236.33	48.00	2	6.32
UPSTRM	5239.09	24.10	5236.50	12.22	5241.40	48.00	2.5	6.32

Drainage area (ac)	=	0	Slope of invert (%)	=	1.157
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.157
Time of conc (min)	=	0	Critical depth (in)	=	31.17
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	70.7
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	20.3
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	77.1	Confluence angle (deg)	=	0
Default Q (cfs)	=	77.16	Natural ground elev (ft)	=	5243
Line capac. (cfs)	=	154.5	Line storage (cuft)	=	2457

175

HYDRAULIC REPORT FOR

Connector Pipe from

pond 4 to pond 5

48 in. RCP at 1.16%

Developed Conditions

1
0

Run date: 04-04-2005
File: c:ahp4-5d.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 132.7 / HT = 48 / WID = 48 / N = .013 / L = 388.94 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5237.51	48.00	5232.00	10.57	5239.24	0.00	2	12.56
UPSTRM	5241.27	48.00	5236.50	10.56	5243.00	0.00	2.5	12.57

Drainage area (ac)	=	0	Slope of invert (%)	=	1.157
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.854
Time of conc (min)	=	0	Critical depth (in)	=	41.70
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	121.6
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	34.9
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	132.7	Confluence angle (deg)	=	0
Default Q (cfs)	=	132.74	Natural ground elev (ft)	=	5243
Line capac. (cfs)	=	154.5	Line storage (cuft)	=	4887

HYDRAULIC REPORT FOR

Connector Pipe from

pond 5 to pond 6

2-42 in. RCP at 2.37%

Existing Conditions

Run date: 04-05-2005
File: c:ahp5-6e.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

140

LINE 1 / Q = 108.7 / HT = 42 / WID = 42 / N = .013 / L = 232.21 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5228.19	26.28	5226.00	17.15	5232.76	40.65	4.5	6.33
UPSTRM	5234.83	26.28	5231.50	17.15	5239.40	40.65	3	6.33

Drainage area (ac)	=	0	Slope of invert (%)	=	2.369
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.368
Time of conc (min)	=	0	Critical depth (in)	=	38.43
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	99.6
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	28.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	108.6	Confluence angle (deg)	=	0
Default Q (cfs)	=	108.66	Natural ground elev (ft)	=	5238
Line capac. (cfs)	=	154.8	Line storage (cuft)	=	1471

1
0

HYDRAULIC REPORT FOR

191

Connector Pipe from

pond 5 to pond 6

2-42 in. RCP at 2.37%

Developed Conditions

1
0

182

Run date: 04-05-2005
File: c:ahp5-6d.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 108.7 / HT = 42 / WID = 42 / N = .013 / L = 232.21 / JLC = .25

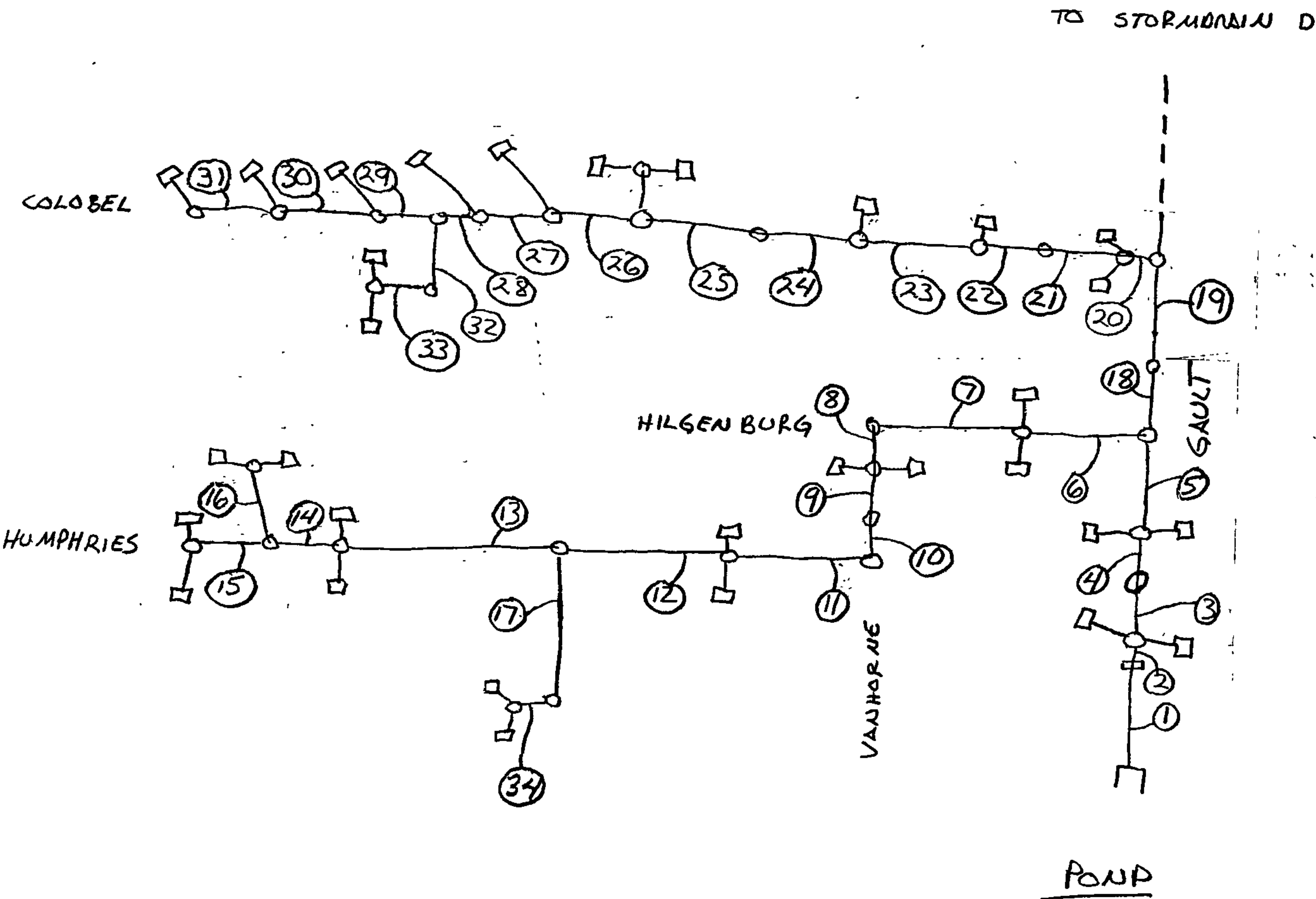
1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5231.98	42.00	5226.00	11.30	5233.96	0.00	4.5	9.62
UPSTRM	5235.24	38.49	5231.50	11.76	5237.39	23.25	3	9.24

Drainage area (ac)	=	0	Slope of invert (%)	=	2.369
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.247
Time of conc (min)	=	0	Critical depth (in)	=	38.43
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	99.6
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	28.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	108.6	Confluence angle (deg)	=	0
Default Q (cfs)	=	108.66	Natural ground elev (ft)	=	5238
Line capac. (cfs)	=	154.8	Line storage (cuft)	=	2189

ANDERSON HEIGHTS

STORMDRAIN A



1
0

185

Run date: 03-30-2005
File: C:AHSDA.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 452.4 / HT = 84 / WID = 84 / N = .013 / L = 170 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5140.50	78.00	5134.00	12.05	5142.75	39.65	0	37.56
UPSTRM	5141.05	74.35	5134.85	12.56	5143.49	53.57	2.14	36.03

Drainage area (ac)	=	0	Slope of invert (%)	=	0.500
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.436
Time of conc (min)	=	16	Critical depth (in)	=	65.25
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	414.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	119.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	452.4	Confluence angle (deg)	=	0
Default Q (cfs)	=	452.44	Natural ground elev (ft)	=	5144
Line capac. (cfs)	=	451.8	Line storage (cuft)	=	6255

LINE 2 / Q = 452.4 / HT = 84 / WID = 84 / N = .013 / L = 9 / JLC = .25

2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5141.66	81.70	5134.85	11.82	5143.83	24.15	2.14	38.29
UPSTRM	5141.69	81.43	5134.90	11.86	5143.87	28.93	2.1	38.14

Drainage area (ac)	=	0	Slope of invert (%)	=	0.553
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.496
Time of conc (min)	=	16	Critical depth (in)	=	65.25
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	414.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	119.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	452.3	Confluence angle (deg)	=	0
Default Q (cfs)	=	452.4	Natural ground elev (ft)	=	5144
Line capac. (cfs)	=	475.3	Line storage (cuft)	=	344

LINE 3 / Q = 440.3 / HT = 84 / WID = 84 / N = .013 / L = 44 / JLC = .25

3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5142.23	84.00	5134.90	11.44	5144.27	0.00	2.1	38.48
UPSTRM	5142.44	84.00	5135.12	11.44	5144.47	0.00	1.87	38.48

Drainage area (ac)	=	0	Slope of invert (%)	=	0.500
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.474
Time of conc (min)	=	16	Critical depth (in)	=	64.37
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	403.4
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	115.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	440.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	440.26	Natural ground elev (ft)	=	5144
Line capac. (cfs)	=	452.0	Line storage (cuft)	=	1693

LINE 4 / Q = 428.1 / HT = 78 / WID = 78 / N = .013 / L = 74 / JLC = .25

 1 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5142.95	78.00	5135.12	12.90	5145.53	0.00	2.37	33.18
UPSTRM	5143.44	78.00	5135.49	12.90	5146.03	0.00	2.2	33.18

Drainage area (ac)	=	0	Slope of invert (%)	=	0.500
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.666
Time of conc (min)	=	16	Critical depth (in)	=	64.71
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	392.2
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	112.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	428	Confluence angle (deg)	=	0
Default Q (cfs)	=	428.08	Natural ground elev (ft)	=	5144.2
Line capac. (cfs)	=	370.8	Line storage (cuft)	=	2455

LINE 5 / Q = 415.7 / HT = 78 / WID = 78 / N = .013 / L = 140 / JLC = .25

 5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5144.09	78.00	5135.49	12.53	5146.53	0.00	2.2	33.18
UPSTRM	5144.97	78.00	5136.19	12.53	5147.41	0.00	3.01	33.18

Drainage area (ac)	=	0	Slope of invert (%)	=	0.500
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.629
Time of conc (min)	=	15	Critical depth (in)	=	63.76
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	380.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	109.3
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	415.6	Confluence angle (deg)	=	0
Default Q (cfs)	=	415.68	Natural ground elev (ft)	=	5145.7
Line capac. (cfs)	=	370.7	Line storage (cuft)	=	4645

LINE 6 / Q = 102.4 / HT = 42 / WID = 42 / N = .013 / L = 253 / JLC = .25

 6 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5145.58	42.00	5138.37	10.65	5147.34	0.00	3.83	9.62
UPSTRM	5149.12	37.89	5145.96	11.21	5151.07	24.97	6.54	9.14

Drainage area (ac)	= 0	Slope of invert (%)	= 3.000
Runoff coefficient	= 0	Slope energy grade line (%)	= 1.474
Time of conc (min)	= 8	Critical depth (in)	= 37.82
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 93.8
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 26.9
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 6
Flow contrib (cfs)	= 102.4	Confluence angle (deg)	= 90
Default Q (cfs)	= 102.4	Natural ground elev (ft)	= 5156
Line capac. (cfs)	= 174.3	Line storage (cuft)	= 2372

LINE 7 / Q = 86.8 / HT = 42 / WID = 42 / N = .013 / L = 352 / JLC = .25

 / / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5149.60	42.00	5145.96	9.02	5150.87	0.00	6.54	9.62
UPSTRM	5163.54	34.27	5160.68	10.33	5165.19	32.55	4.61	8.41

Drainage area (ac)	=	0	Slope of invert (%)	=	4.182
Runoff coefficient	=	0	Slope energy grade line (%)	=	4.069
Time of conc (min)	=	6	Critical depth (in)	=	34.22
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	79.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	22.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	86.8	Confluence angle (deg)	=	0
Default Q (cfs)	=	86.8	Natural ground elev (ft)	=	5168.8
Line capac. (cfs)	=	205.7	Line storage (cuft)	=	3172

LINE 8 / Q = 86.8 / HT = 42 / WID = 42 / N = .013 / L = 24 / JLC = .25

 8 / DNLN = 7

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5163.95	39.24	5160.68	9.24	5165.28	19.83	4.61	9.39
UPSTRM	5163.92	35.98	5160.92	9.89	5165.44	29.44	4.78	8.77

Drainage area (ac)	=	0	Slope of invert (%)	=	0.999
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.670
Time of conc (min)	=	6	Critical depth (in)	=	34.22
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	79.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	22.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	86.8	Confluence angle (deg)	=	90
Default Q (cfs)	=	86.8	Natural ground elev (ft)	=	5169.2
Line capac. (cfs)	=	100.6	Line storage (cuft)	=	218

LINE 9 / Q = 70.8 / HT = 42 / WID = 42 / N = .013 / L = 129 / JLC = .25

 9 / DNLN = 8

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5164.30	40.54	5160.92	7.42	5165.15	14.07	4.78	9.54
UPSTRM	5164.79	30.96	5162.21	9.31	5166.14	36.97	4.58	7.60

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.763
Time of conc (min)	=	5	Critical depth (in)	=	30.91
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	64.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	18.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	70.8	Confluence angle (deg)	=	0
Default Q (cfs)	=	70.8	Natural ground elev (ft)	=	5170.3
Line capac. (cfs)	=	100.6	Line storage (cuft)	=	1106

LINE 10 / Q = 70.8 / HT = 42 / WID = 42 / N = .013 / L = 83.23 / JLC = .25

10 / DNLN = 9

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5165.13	35.00	5162.21	8.11	5166.15	29.88	4.58	8.73
UPSTRM	5165.66	30.96	5163.08	9.31	5167.01	36.97	4.21	7.60

Drainage area (ac)	=	0	Slope of invert (%)	=	1.045
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.031
Time of conc (min)	=	4	Critical depth (in)	=	30.91
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	64.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	18.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	70.8	Confluence angle (deg)	=	0
Default Q (cfs)	=	70.8	Natural ground elev (ft)	=	5170.8
Line capac. (cfs)	=	102.9	Line storage (cuft)	=	680

LINE 11 / Q = 70.8 / HT = 42 / WID = 42 / N = .013 / L = 84.52 / JLC = .25

11 / DNLN = 10

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5166.00	35.00	5163.08	8.11	5167.02	29.88	4.21	8.73
UPSTRM	5166.51	30.96	5163.93	9.31	5167.86	36.97	4.06	7.60

Drainage area (ac)	=	0	Slope of invert (%)	=	1.006
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.992
Time of conc (min)	=	4	Critical depth (in)	=	30.91
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	64.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	18.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	70.8	Confluence angle (deg)	=	90
Default Q (cfs)	=	70.8	Natural ground elev (ft)	=	5171.5
Line capac. (cfs)	=	100.9	Line storage (cuft)	=	690

LINE 12 / Q = 53.2 / HT = 36 / WID = 36 / N = .013 / L = 173.56 / JLC = 75

12 / DNLN = 11

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5166.85	29.00	5164.43	8.63	5168.00	28.01	4.06	6.16
UPSTRM	5168.50	27.93	5166.17	9.04	5169.77	30.03	5.03	5.88

Drainage area (ac)	=	0	Slope of invert (%)	=	1.002
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.015
Time of conc (min)	=	3	Critical depth (in)	=	27.89
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	48.7
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	14.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	53.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	53.2	Natural ground elev (ft)	=	5174.2
Line capac. (cfs)	=	66.8	Line storage (cuft)	=	1045

LINE 13 / Q = 37.6 / HT = 24 / WID = 24 / N = .013 / L = 385.55 / JLC = 5

13 / DNLN = 12

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5168.81	24.00	5166.17	11.97	5171.04	0.00	6.03	3.14
UPSTRM	5186.85	23.51	5184.89	12.03	5189.10	6.78	4.5	3.13

Drainage area (ac)	=	0	Slope of invert (%)	=	4.855
Runoff coefficient	=	0	Slope energy grade line (%)	=	4.683
Time of conc (min)	=	1	Critical depth (in)	=	23.49
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	34.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	9.9
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	37.5	Confluence angle (deg)	=	0
Default Q (cfs)	=	37.6	Natural ground elev (ft)	=	5191.4
Line capac. (cfs)	=	49.8	Line storage (cuft)	=	1208

LINE 14 / Q = 20.0 / HT = 24 / WID = 24 / N = .013 / L = 49.56 / JLC = .25

14 / DNLN = 13

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5187.41	24.00	5184.89	6.37	5188.04	0.00	4.5	3.14
UPSTRM	5188.54	19.01	5186.96	7.49	5189.42	19.47	4.43	2.67

Drainage area (ac)	=	0	Slope of invert (%)	=	4.176
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.776
Time of conc (min)	=	1	Critical depth (in)	=	19.00
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	18.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	5.3
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	20	Confluence angle (deg)	=	0
Default Q (cfs)	=	20	Natural ground elev (ft)	=	5193.4
Line capac. (cfs)	=	46.2	Line storage (cuft)	=	144

LINE 15 / Q = 8.0 / HT = 24 / WID = 24 / N = .013 / L = 68.94 / JLC = .25

15 / DNLN = 14

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5188.76	21.63	5186.96	2.66	5188.87	13.38	4.43	3.01
UPSTRM	5189.95	12.05	5188.85	5.07	5190.35	24.00	4.14	1.58

Drainage area (ac)	=	0	Slope of invert (%)	=	2.742
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.148
Time of conc (min)	=	0	Critical depth (in)	=	12.02
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	7.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	2.1
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	8	Confluence angle (deg)	=	0
Default Q (cfs)	=	8	Natural ground elev (ft)	=	5195
Line capac. (cfs)	=	37.5	Line storage (cuft)	=	158

LINE 16 / Q = 12.0 / HT = 24 / WID = 24 / N = .013 / L = 99.67 / JLC = .25

16 / DNLN = 14

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5188.76	21.63	5186.96	3.98	5189.01	13.38	4.43	3.01
UPSTRM	5189.81	14.72	5188.45	5.94	5190.36	23.37	4.44	2.02

Drainage area (ac)	=	0	Slope of invert (%)	=	1.495
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.357
Time of conc (min)	=	0	Critical depth (in)	=	14.72
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	11.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	3.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	12	Confluence angle (deg)	=	90
Default Q (cfs)	=	12	Natural ground elev (ft)	=	5194.9
Line capac. (cfs)	=	27.7	Line storage (cuft)	=	251

LINE 17 / Q = 15.6 / HT = 24 / WID = 24 / N = .013 / L = 260 / JLC = .25

 17 / DNLN = 12

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5168.81	24.00	5166.17	4.97	5169.20	0.00	6.03	3.14
UPSTRM	5170.17	16.83	5168.77	6.63	5170.85	21.97	2.52	2.35

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.637
Time of conc (min)	=	0	Critical depth (in)	=	16.78
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	14.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	4.1
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	15.6	Confluence angle (deg)	=	90
Default Q (cfs)	=	15.6	Natural ground elev (ft)	=	5173.3
Line capac. (cfs)	=	22.6	Line storage (cuft)	=	714

LINE 18 / Q = 313.3 / HT = 78 / WID = 78 / N = .013 / L = 183 / JLC = .25

18 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5145.58	78.00	5136.19	9.44	5146.96	0.00	3.01	33.18
UPSTRM	5146.23	78.00	5137.10	9.44	5147.62	0.00	4.69	33.18

Drainage area (ac)	=	0	Slope of invert (%)	=	0.497
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.357
Time of conc (min)	=	14	Critical depth (in)	=	55.35
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	287.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	82.4
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	313.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	313.28	Natural ground elev (ft)	=	5148.3
Line capac. (cfs)	=	369.8	Line storage (cuft)	=	6072

LINE 19 / Q = 313.3 / HT = 78 / WID = 78 / N = .013 / L = 195 / JLC = .25

 19 / DNLN = 18

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5146.58	78.00	5137.10	9.44	5147.96	0.00	4.69	33.18
UPSTRM	5147.28	78.00	5138.08	9.44	5148.66	0.00	3.71	33.18

Drainage area (ac)	=	0	Slope of invert (%)	=	0.503
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.357
Time of conc (min)	=	13	Critical depth (in)	=	55.35
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	287.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	82.4
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	313.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	313.28	Natural ground elev (ft)	=	5148.3
Line capac. (cfs)	=	371.7	Line storage (cuft)	=	6470

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LINE 20 / Q = 104.4 / HT = 36 / WID = 36 / N = .013 / L = 20 / JLC = .25

20 / DNLN = 19

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5147.62	36.00	5142.15	14.77	5151.01	0.00	3.14	7.07
UPSTRM	5148.11	36.00	5142.75	14.77	5151.50	0.00	3.45	7.07

Drainage area (ac)	=	0	Slope of invert (%)	=	3.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.450
Time of conc (min)	=	13	Critical depth (in)	=	35.24
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	95.7
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	27.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	104.4	Confluence angle (deg)	=	90
Default Q (cfs)	=	104.4	Natural ground elev (ft)	=	5149.2
Line capac. (cfs)	=	115.5	Line storage (cuft)	=	141

LINE 21 / Q = 87.4 / HT = 36 / WID = 36 / N = .013 / L = 96.3 / JLC = .25

21 / DNLN = 20

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5148.96	36.00	5142.75	12.37	5151.34	0.00	3.45	7.07
UPSTRM	5150.62	36.00	5145.64	12.37	5152.99	0.00	3.65	7.07

Drainage area (ac)	=	0	Slope of invert (%)	=	3.001
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.719
Time of conc (min)	=	12	Critical depth (in)	=	34.27
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	80.1
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	23.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	87.4	Confluence angle (deg)	=	0
Default Q (cfs)	=	87.44	Natural ground elev (ft)	=	5152.3
Line capac. (cfs)	=	115.5	Line storage (cuft)	=	681

LINE 22 / Q = 87.4 / HT = 36 / WID = 36 / N = .013 / L = 145.24 / JLC =

22 / DNLN = 21

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5151.21	36.00	5145.64	12.37	5153.59	0.00	3.65	7.07
UPSTRM	5153.71	36.00	5150.00	12.37	5156.09	0.00	3.79	7.07

Drainage area (ac)	=	0	Slope of invert (%)	=	3.002
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.719
Time of conc (min)	=	11	Critical depth (in)	=	34.27
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	80.1
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	23.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	87.4	Confluence angle (deg)	=	0
Default Q (cfs)	=	87.44	Natural ground elev (ft)	=	5156.8
Line capac. (cfs)	=	115.6	Line storage (cuft)	=	1027

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LINE 23 / Q = 78.4 / HT = 36 / WID = 36 / N = .013 / L = 147.55 / JLC =

23 / DNLN = 22

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5154.30	36.00	5150.00	11.10	5156.22	0.00	3.79	7.07
UPSTRM	5157.21	33.47	5154.42	11.45	5159.25	18.40	3.87	6.85

Drainage area (ac)	=	0	Slope of invert (%)	=	2.996
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.052
Time of conc (min)	=	10	Critical depth (in)	=	33.42
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	71.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	20.6
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	78.4	Confluence angle (deg)	=	0
Default Q (cfs)	=	78.44	Natural ground elev (ft)	=	5161.3
Line capac. (cfs)	=	115.4	Line storage (cuft)	=	1027

LINE 24 / Q = 62.8 / HT = 30 / WID = 30 / N = .013 / L = 104.63 / JLC =

24 / DNLN = 23

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5157.72	30.00	5154.42	12.80	5160.26	0.00	4.37	4.91
UPSTRM	5159.99	29.21	5157.56	12.89	5162.57	9.62	4.54	4.87

Drainage area (ac)	=	0	Slope of invert (%)	=	3.001
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.210
Time of conc (min)	=	10	Critical depth (in)	=	29.13
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	57.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	16.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	62.7	Confluence angle (deg)	=	0
Default Q (cfs)	=	62.8	Natural ground elev (ft)	=	5164.6
Line capac. (cfs)	=	71.0	Line storage (cuft)	=	512

LINE 25 / Q = 62.8 / HT = 30 / WID = 30 / N = .013 / L = 393.7 / JLC = .25

25 / DNLN = 24

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5160.64	30.00	5157.56	12.80	5163.18	0.00	4.54	4.91
UPSTRM	5171.80	29.16	5169.37	12.90	5174.38	9.91	4.92	4.87

Drainage area (ac)	=	0	Slope of invert (%)	=	3.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.845
Time of conc (min)	=	8	Critical depth (in)	=	29.13
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	57.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	16.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	62.7	Confluence angle (deg)	=	0
Default Q (cfs)	=	62.8	Natural ground elev (ft)	=	5176.8
Line capac. (cfs)	=	71.0	Line storage (cuft)	=	1925

LINE 26 / Q = 48.8 / HT = 30 / WID = 30 / N = .013 / L = 216.47 / JLC =

26 / DNLN = 25

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5172.45	30.00	5169.37	9.94	5173.98	0.00	4.92	4.91
UPSTRM	5179.83	27.89	5177.51	10.26	5181.47	15.34	4.79	4.76

Drainage area (ac)	=	0	Slope of invert (%)	=	3.760
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.459
Time of conc (min)	=	6	Critical depth (in)	=	27.85
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	44.7
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	12.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	48.7	Confluence angle (deg)	=	0
Default Q (cfs)	=	48.8	Natural ground elev (ft)	=	5184.8
Line capac. (cfs)	=	79.5	Line storage (cuft)	=	1046

LINE 27 / Q = 39.3 / HT = 24 / WID = 24 / N = .013 / L = 295 / JLC = .25

27 / DNLN = 26

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5180.24	24.00	5177.51	12.52	5182.68	0.00	5.29	3.14
UPSTRM	5190.56	23.51	5188.60	12.58	5193.02	6.78	5.29	3.13

Drainage area (ac)	=	0	Slope of invert (%)	=	3.759
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.505
Time of conc (min)	=	5	Critical depth (in)	=	23.49
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	36.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	10.3
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	39.3	Confluence angle (deg)	=	0
Default Q (cfs)	=	39.32	Natural ground elev (ft)	=	5195.9
Line capac. (cfs)	=	43.9	Line storage (cuft)	=	924

LINE 28 / Q = 33.2 / HT = 24 / WID = 24 / N = .013 / L = 51.63 / JLC = .25

28 / DNLN = 27

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5191.17	24.00	5188.60	10.56	5192.91	0.00	5.29	3.14
UPSTRM	5192.49	23.12	5190.56	10.69	5194.26	9.05	5.33	3.10

Drainage area (ac)	=	0	Slope of invert (%)	=	3.796
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.623
Time of conc (min)	=	5	Critical depth (in)	=	23.09
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	30.4
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	8.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	33.1	Confluence angle (deg)	=	0
Default Q (cfs)	=	33.18	Natural ground elev (ft)	=	5197.9
Line capac. (cfs)	=	44.1	Line storage (cuft)	=	161

LINE 29 / Q = 21.8 / HT = 24 / WID = 24 / N = .013 / L = 243.37 / JLC =

29 / DNLN = 28

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5192.93	24.00	5190.56	6.93	5193.68	0.00	5.33	3.14
UPSTRM	5201.94	19.86	5200.29	7.83	5202.90	18.13	4.7	2.78

Drainage area (ac)	=	0	Slope of invert (%)	=	3.998
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.789
Time of conc (min)	=	3	Critical depth (in)	=	19.83
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	20.0
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	5.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	21.7	Confluence angle (deg)	=	0
Default Q (cfs)	=	21.78	Natural ground elev (ft)	=	5207
Line capac. (cfs)	=	45.2	Line storage (cuft)	=	720

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LINE 30 / Q = 15.6 / HT = 24 / WID = 24 / N = .013 / L = 295 / JLC = .25

 30 / DNLN = 29

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5202.18	22.72	5200.29	5.07	5202.58	10.26	4.7	3.09
UPSTRM	5214.40	16.83	5213.00	6.65	5215.09	21.97	5.29	2.35

Drainage area (ac)	=	0	Slope of invert (%)	=	4.308
Runoff coefficient	=	0	Slope energy grade line (%)	=	4.239
Time of conc (min)	=	2	Critical depth (in)	=	16.80
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	14.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	4.1
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	15.6	Confluence angle (deg)	=	0
Default Q (cfs)	=	15.64	Natural ground elev (ft)	=	5220.3
Line capac. (cfs)	=	46.9	Line storage (cuft)	=	802

LINE 31 / Q = 9.5 / HT = 24 / WID = 24 / N = .013 / L = 283.98 / JLC =

31 / DNLN = 30

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5214.57	18.88	5213.00	3.55	5214.77	19.40	5.29	2.68
UPSTRM	5230.71	13.13	5229.50	5.40	5231.16	23.89	5.89	1.76

Drainage area (ac)	=	0	Slope of invert (%)	=	5.810
Runoff coefficient	=	0	Slope energy grade line (%)	=	5.772
Time of conc (min)	=	0	Critical depth (in)	=	13.10
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	8.7
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	2.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	9.5	Confluence angle (deg)	=	0
Default Q (cfs)	=	9.5	Natural ground elev (ft)	=	5237.4
Line capac. (cfs)	=	54.5	Line storage (cuft)	=	630

LINE 32 / Q = 11.4 / HT = 24 / WID = 24 / N = .013 / L = 169 / JLC = .25

32 / DNLN = 28

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5192.93	24.00	5190.56	3.63	5193.13	0.00	5.33	3.14
UPSTRM	5194.20	14.37	5193.00	5.80	5194.72	23.53	5.1	1.96

Drainage area (ac)	=	0	Slope of invert (%)	=	1.444
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.939
Time of conc (min)	=	1	Critical depth (in)	=	14.35
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	10.4
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	3.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	11.3	Confluence angle (deg)	=	90
Default Q (cfs)	=	11.4	Natural ground elev (ft)	=	5200.1
Line capac. (cfs)	=	27.2	Line storage (cuft)	=	431

218

LINE 33 / Q = 11.4 / HT = 24 / WID = 24 / N = .013 / L = 92.6 / JLC = .25

33 / DNLN = 32

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5194.33	15.94	5193.00	4.97	5194.71	22.30	5.1	2.29
UPSTRM	5196.45	14.37	5195.12	5.80	5196.97	23.53	4.27	1.96

Drainage area (ac)	=	0	Slope of invert (%)	=	2.290
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.440
Time of conc (min)	=	0	Critical depth (in)	=	14.35
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	10.4
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	3.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	11.3	Confluence angle (deg)	=	90
Default Q (cfs)	=	11.4	Natural ground elev (ft)	=	5201.4
Line capac. (cfs)	=	34.2	Line storage (cuft)	=	197

LINE 34 / Q = 15.6 / HT = 24 / WID = 24 / N = .013 / L = 30 / JLC = .25

 4 / DNLN = 17

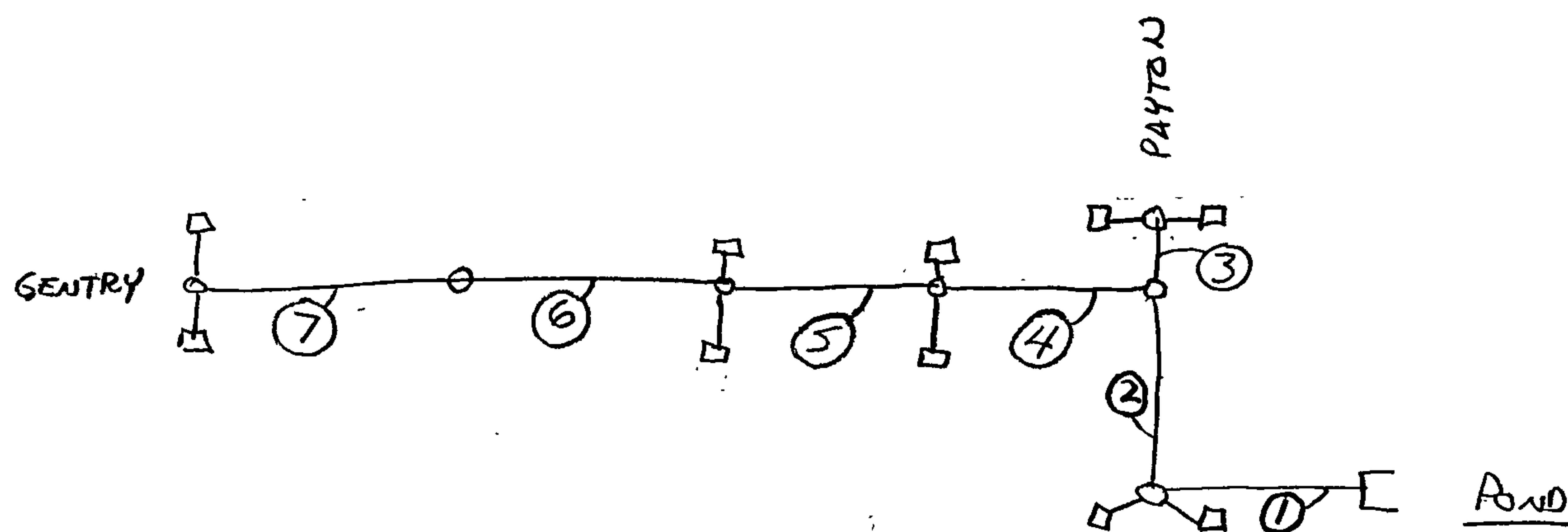
	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5170.34	18.87	5168.77	5.83	5170.87	19.40	2.52	2.68
UPSTRM	5171.54	16.83	5169.97	6.63	5172.23	21.97	2.42	2.35

Drainage area (ac)	=	0	Slope of invert (%)	=	4.001
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.947
Time of conc (min)	=	0	Critical depth (in)	=	16.78
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	14.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	4.1
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	15.6	Confluence angle (deg)	=	90
Default Q (cfs)	=	15.6	Natural ground elev (ft)	=	5174.4
Line capac. (cfs)	=	45.2	Line storage (cuft)	=	75

HYDRAULIC REPORT FOR

ANDERSON HEIGHTS

STORMDRAIN 3



1
0

Run date: 03-29-2005
File: c:AHSDb.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 79.1 / HT = 36 / WID = 36 / N = .013 / L = 186 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5140.50	36.00	5134.00	11.19	5142.44	0.00	4	7.07
UPSTRM	5145.20	33.47	5142.41	11.54	5147.27	18.40	5.29	6.85

Drainage area (ac)	=	0	Slope of invert (%)	=	4.522
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.594
Time of conc (min)	=	6	Critical depth (in)	=	33.42
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	72.4
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	20.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	79	Confluence angle (deg)	=	0
Default Q (cfs)	=	79.05	Natural ground elev (ft)	=	5150.7
Line capac. (cfs)	=	141.8	Line storage (cuft)	=	1294

LINE 2 / Q = 62.0 / HT = 36 / WID = 36 / N = .013 / L = 67.32 / JLC = .25

2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5145.72	36.00	5142.41	8.77	5146.91	0.00	5.29	7.07
UPSTRM	5147.03	30.13	5144.52	9.81	5148.53	26.60	4.47	6.32

Drainage area (ac)	=	0	Slope of invert (%)	=	3.134
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.399
Time of conc (min)	=	5	Critical depth (in)	=	30.11
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	56.8
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	16.3
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	62	Confluence angle (deg)	=	90
Default Q (cfs)	=	62	Natural ground elev (ft)	=	5152
Line capac. (cfs)	=	118.1	Line storage (cuft)	=	451

LINE 3 / Q = 14.8 / HT = 24 / WID = 24 / N = .013 / L = 43.3 / JLC = .25

 3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5147.40	22.62	5145.52	4.80	5147.76	10.26	4.47	3.09
UPSTRM	5147.92	16.39	5146.39	6.48	5148.57	22.34	4.6	2.29

Drainage area (ac)	=	0	Slope of invert (%)	=	2.010
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.866
Time of conc (min)	=	0	Critical depth (in)	=	16.35
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	13.6
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	3.9
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	14.8	Confluence angle (deg)	=	0
Default Q (cfs)	=	14.8	Natural ground elev (ft)	=	5153
Line capac. (cfs)	=	32.1	Line storage (cuft)	=	116

LINE 4 / Q = 47.2 / HT = 24 / WID = 24 / N = .013 / L = 104.08 / JLC = .24

4 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5147.22	20.43	5145.52	16.56	5151.48	17.08	4.47	2.85
UPSTRM	5151.54	20.43	5149.84	16.56	5155.80	17.08	3.95	2.85

Drainage area (ac)	=	0	Slope of invert (%)	=	4.150
Runoff coefficient	=	0	Slope energy grade line (%)	=	4.150
Time of conc (min)	=	5	Critical depth (in)	=	23.78
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	43.2
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	12.4
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	47.2	Confluence angle (deg)	=	90
Default Q (cfs)	=	47.2	Natural ground elev (ft)	=	5155.8
Line capac. (cfs)	=	46.1	Line storage (cuft)	=	297

LINE 5 / Q = 32.0 / HT = 24 / WID = 24 / N = .013 / L = 200 / JLC = .25

 5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5152.56	24.00	5149.84	10.19	5154.18	0.00	3.95	3.14
UPSTRM	5159.75	22.88	5157.84	10.36	5161.41	10.15	3.95	3.09

Drainage area (ac)	=	0	Slope of invert (%)	=	4.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.619
Time of conc (min)	=	4	Critical depth (in)	=	22.85
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	29.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	8.4
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	32	Confluence angle (deg)	=	0
Default Q (cfs)	=	32	Natural ground elev (ft)	=	5163.8
Line capac. (cfs)	=	45.2	Line storage (cuft)	=	623

LINE 6 / Q = 16.0 / HT = 24 / WID = 24 / N = .013 / L = 331.43 / JLC = .25

6 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5160.16	24.00	5157.84	5.09	5160.57	0.00	3.95	3.14
UPSTRM	5172.52	17.05	5171.10	6.70	5173.22	21.77	4	2.39

Drainage area (ac)	=	0	Slope of invert (%)	=	4.001
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.818
Time of conc (min)	=	2	Critical depth (in)	=	17.00
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	14.7
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	4.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	16	Confluence angle (deg)	=	0
Default Q (cfs)	=	16	Natural ground elev (ft)	=	5177.1
Line capac. (cfs)	=	45.2	Line storage (cuft)	=	916

LINE 7 / Q = 16.0 / HT = 24 / WID = 24 / N = .013 / L = 350 / JLC = .25

 7 / DNLN = 6

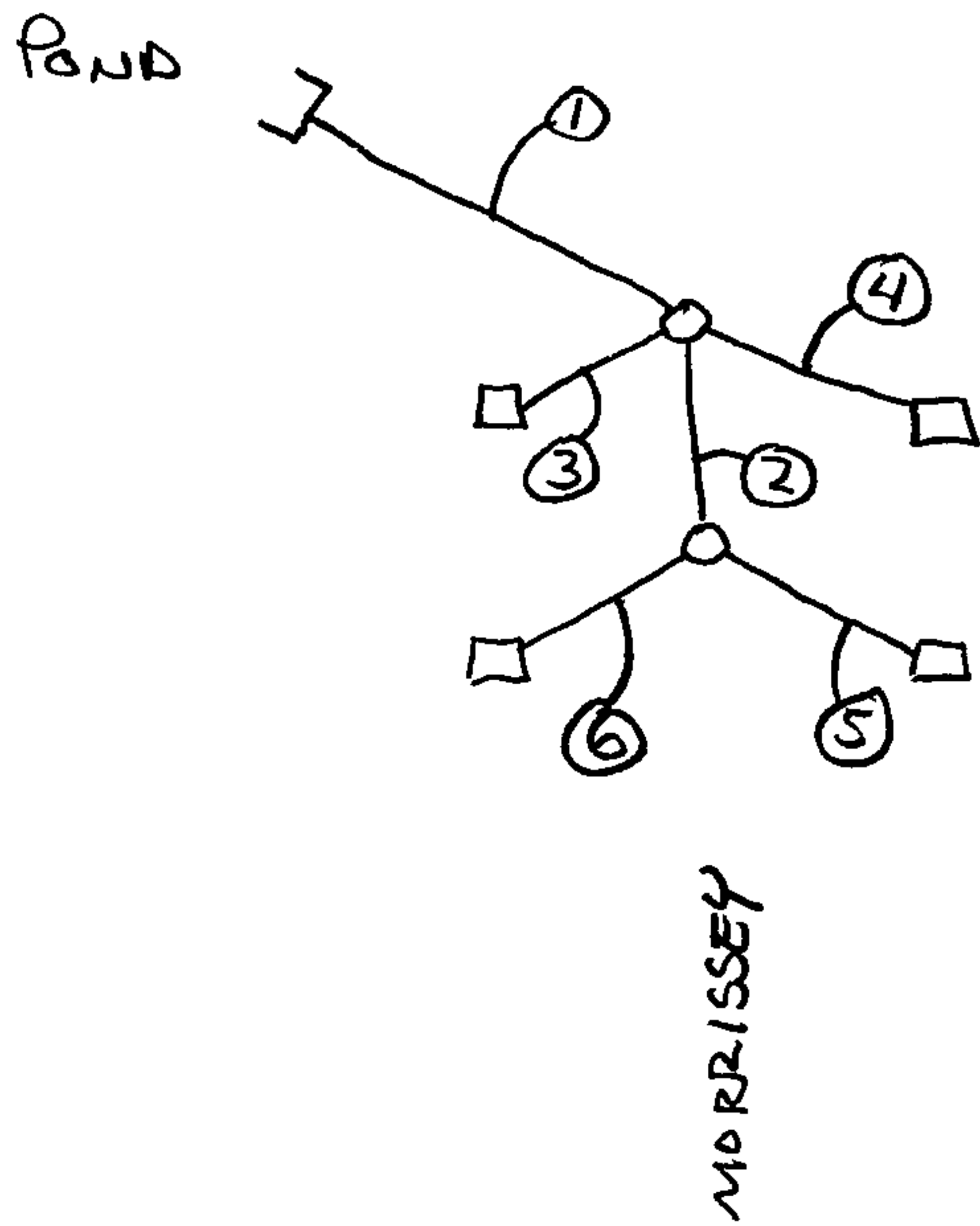
	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5172.70	19.14	5171.10	5.84	5173.23	18.67	4	2.74
UPSTRM	5186.87	17.05	5185.27	6.70	5187.56	21.77	3.83	2.39

Drainage area (ac)	=	0	Slope of invert (%)	=	4.049
Runoff coefficient	=	0	Slope energy grade line (%)	=	4.047
Time of conc (min)	=	0	Critical depth (in)	=	17.00
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	14.7
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	4.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	16	Confluence angle (deg)	=	0
Default Q (cfs)	=	16	Natural ground elev (ft)	=	5191.1
Line capac. (cfs)	=	45.5	Line storage (cuft)	=	897

HYDRAULIC REPORT FOR

ANDERSON HEIGHTS

STORMDRAIN C



1
0

Run date: 04-07-2005
File: c:ahsdc.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 43.8 / HT = 54 / WID = 54 / N = .013 / L = 63.97 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5140.50	54.00	5134.00	2.75	5140.62	0.00	2.5	15.90
UPSTRM	5140.53	54.00	5134.32	2.75	5140.65	0.00	1.97	15.90

Drainage area (ac)	=	0	Slope of invert (%)	=	0.500
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.050
Time of conc (min)	=	1	Critical depth (in)	=	22.77
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	40.1
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	11.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	43.7	Confluence angle (deg)	=	0
Default Q (cfs)	=	43.77	Natural ground elev (ft)	=	5140.8
Line capac. (cfs)	=	139.1	Line storage (cuft)	=	1017

LINE 2 / Q = 17.2 / HT = 48 / WID = 48 / N = .013 / L = 60.42 / JLC = .25

2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5140.56	48.00	5134.32	1.37	5140.59	0.00	2.47	12.56
UPSTRM	5140.57	48.00	5134.62	1.37	5140.60	0.00	2.37	12.57

Drainage area (ac)	=	0	Slope of invert (%)	=	0.497
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.015
Time of conc (min)	=	0	Critical depth (in)	=	14.72
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	15.8
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	4.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	17.2	Confluence angle (deg)	=	90
Default Q (cfs)	=	17.2	Natural ground elev (ft)	=	5141
Line capac. (cfs)	=	101.3	Line storage (cuft)	=	759

LINE 3 / Q = 13.3 / HT = 48 / WID = 48 / N = .013 / L = 9.49 / JLC = .25

3 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5140.56	48.00	5134.32	1.06	5140.58	0.00	2.47	12.56
UPSTRM	5140.57	48.00	5134.42	1.06	5140.58	0.00	1.97	12.57

Drainage area (ac)	=	0	Slope of invert (%)	=	1.055
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.057
Time of conc (min)	=	0	Critical depth (in)	=	12.93
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	12.2
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	3.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	13.2	Confluence angle (deg)	=	90
Default Q (cfs)	=	13.28	Natural ground elev (ft)	=	5140.4
Line capac. (cfs)	=	147.5	Line storage (cuft)	=	119

LINE 4 / Q = 13.3 / HT = 48 / WID = 48 / N = .013 / L = 31.36 / JLC = .25

4 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5140.56	48.00	5134.32	1.06	5140.58	0.00	2.47	12.56
UPSTRM	5140.57	48.00	5134.63	1.06	5140.59	0.00	1.77	12.57

Drainage area (ac)	=	0	Slope of invert (%)	=	0.989
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.023
Time of conc (min)	=	0	Critical depth (in)	=	12.93
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	12.2
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	3.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	13.2	Confluence angle (deg)	=	90
Default Q (cfs)	=	13.28	Natural ground elev (ft)	=	5140.4
Line capac. (cfs)	=	142.8	Line storage (cuft)	=	394

LINE 5 / Q = 8.6 / HT = 24 / WID = 24 / N = .013 / L = 47.14 / JLC = .25

5 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5140.58	24.00	5134.62	2.74	5140.69	0.00	4.37	3.14
UPSTRM	5140.67	24.00	5135.09	2.74	5140.79	0.00	3.7	3.14

Drainage area (ac)	=	0	Slope of invert (%)	=	0.996
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.207
Time of conc (min)	=	0	Critical depth (in)	=	12.46
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	7.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	2.3
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	8.6	Confluence angle (deg)	=	45
Default Q (cfs)	=	8.6	Natural ground elev (ft)	=	5140.8
Line capac. (cfs)	=	22.6	Line storage (cuft)	=	148

LINE 6 / Q = 8.6 / HT = 24 / WID = 24 / N = .013 / L = 18.33 / JLC = .25

 6 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5140.58	24.00	5134.62	2.74	5140.69	0.00	4.37	3.14
UPSTRM	5140.63	24.00	5134.80	2.74	5140.75	0.00	3.8	3.14

Drainage area (ac)	=	0	Slope of invert (%)	=	0.980
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.145
Time of conc (min)	=	0	Critical depth (in)	=	12.46
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	7.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	2.3
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	8.6	Confluence angle (deg)	=	45
Default Q (cfs)	=	8.6	Natural ground elev (ft)	=	5140.6
Line capac. (cfs)	=	22.4	Line storage (cuft)	=	58

(s16.66H

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = POND2-6.DAT

RUN DATE (MON/DAY/YR) =03/11/2005
USER NO.= M_GOODWN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION

START
*S
*S
*S
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*S
*S 100-YR, 24-HR STORM WITHOUT SEDIMENT
*S FILE NAME: RB_DMP.DAT
*S BY: RICHARD STOCKTON
→ *S REVISED BY MARK GOODWIN AND ASSOCIATES 3-11-05. EXIST FLOW INTO PONDS 2-6 ←
*S LAST REVISION: 7-15-03
*S*****
*S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM FROM THE
*S SACATE BLANCO WATERSHED WEST OF THE POWERLINE EASEMENT (AKA SOUTH
*S POWERLINE DIVERSION AND DETENTION FACILITY);
*S AND THE RIO BRAVO WATERSHED.
*S
*S FLOWS FROM THIS WATERSHED ARE CONVEYED TO HUBBLE LAKE DETENTION
*S FACILITY VIA THE HUBBLE LAKE/AMOLE DIVERSION CHANNEL.
*S
*S THE ORGINIAL RIO BRAVO MODEL WAS DEVELOPED BY AVID (AND ACCEPTED BY
*S THE COUNTY). ASSUMPTIONS MADE IN THE AVID MODEL ARE INVALID, AND HAVE
*S BEEN CORRECTED WITH THE 4-25-03 REVISIONS. DIVERSIONS TO THE BOREGA DAM
*S AND THE AMOLE CHANNEL REDUCE THIS BASIN AND 114 AC. OF THE SACATE BLANCO
*S BELOW THE POWER LINE IS ADDED TO THE RIO BRAVO CHANNEL.
*S PONDS 7 & 9 ARE DELETED AND POND 10 IS ADDED.
*S
*S PONDS 2,3,4,5,6,8 & 10 WERE SIZED FOR DEVELOPED FLOW AND USED ACTUAL TOPO
*S TO SIZE. THE BASINS WERE RENAMED AND SIZED PER HOW THEY DRAINED TO EACH
*S POND. THE DENNIS CHAVEZ ROW RUNOFF EAST OF 118TH STREET WAS TAKEN OUT
*S OF THE RIO BRAVO CHANNEL TO REDUCE THE IMPACT AT THE CONDISHIRE BOXES.
*S THIS FLOW (BASINS 210, 213 & 216)ALONG WITH BASIN 215 WILL NEED TO BE
*S DESIGNED INTO A STORMDRAIN THAT WILL BE CONSTRUCTED ON THE SOUTH SIDE OF
*S DENNIS CHAVEZ AND TIE DIRECTLY TO THE HUBBLE CHANNEL AT THE EAST END OF
*S BASIN 216. DENNIS CHAVEZ BASIN 203 WILL BE SPLIT N & S WITH THE SOUTH HALF
*S BEING ROUTED THROUGH POND 8
*S*****
*S ANALYSIS ASSUMPTIONS:
*S*****
*S 1. ALL LAND IN THE RIO BRAVO BASIN IS MODELED AS DEVELOPED CONDITION AT
*S 6 DU/AC, EXCEPT ANDERSON HILLS WHERE LOWER DENSITIES ARE CERTAIN, AND
*S EXCEPT IN BASINS 201 AND 202 WHERE THERE IS NO LIGHT.

*S 2. ! UNCH HYD COMMAND WAS ADDED TO THE END OF THIS FILE S ! OUTFALL
 *S 1 OGRAPH COULD BE USED IN THE AMOLE DEL NORTE EXISTING . ITIONS MODEL
 *S AA100D1B.DAT, WHICH WILL BE USED IN THE ANALYSIS OF THE AMOLE ARROYO SYSTE
 *S
 *S 3. NO BULKING FACTORS WERE ADDED TO THE AREA TRIBUTARY TO THE RIO BRAVO
 *S CHANNEL DUE TO THE INCORPORATION OF DETENTION PONDS. HOWEVER, BULKING FACT
 *S HAVE BEEN ADDED TO BASINS TRIBUTARY TO HUBBELL CHANNEL AND LAKE.
 *S
 *S*****
 *S RAINFALL FROM NOAA ATLAS 2
 *S THESE VALUES WERE REDUCED FOR AREA BY 12%, 5% AND 3% FOR 1, 6, AND 24 HOUR
 RAINFALL TYPE= 2
 *S*****
 *S
 *S*****
 *S ADD BASINS FROM SOUTH POWERLINE DIVERSION
 *S TO THE RIO BRAVO RUN
 *S
 *S*****
 *S
 *S APPLY A 3% SEDIMENT BULKING FACTOR TO ALL COMPUTED HYDROGRAPHS

RAIN24= 2.660

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION
SEDIMENT BULK										PK BF = 1.03
*S CALCULATE THE FLOW FROM SUB-BASINS A60106, A60107A, 60108 & 60109	COMPUTE NM HYD	INTOPOND2	- 1	.21520	167.99	4.406	.38393	1.500	1.220	PER IMP= .00
*S										
*S ROUTE FLOW THROUGH POND 2 - 48" ORIFICE	ROUTE RESERVOIR	POND2.OUT	1 2	.21520	81.86	4.406	.38393	1.650	.594	AC-FT= 1.634
*S										
*S CALCULATE THE FLOW FROM SUB-BASINS A60110 & A60111	COMPUTE NM HYD	INTOPOND3	- 3	.14300	108.03	2.928	.38393	1.500	1.180	PER IMP= .00
*S										
*S ADD THE ROUTED FLOW FROM POND 2 TO THE FLOW FROM INTOPOND3										
*S HYD=POND3.IN IS THE TOTAL INFLOW INTO POND 3.										
ADD HYD	POND3.IN	2& 3	4	.35820	172.88	7.334	.38392	1.550	.754	
*S										
*S ROUTE FLOW THROUGH POND 3 - 48" ORIFICE	ROUTE RESERVOIR	POND3.OUT	4 5	.35820	78.28	7.334	.38392	1.900	.341	AC-FT= 2.839
*S										
*S CALCULATE THE FLOW FROM SUB-BASINS A60113 & A60116N	COMPUTE NM HYD	INTOPOND4	- 6	.05800	42.30	1.188	.38393	1.500	1.139	PER IMP= .00
*S										
*S ADD THE ROUTED FLOW FROM POND 3 TO THE FLOW FROM INTOPOND4										
ADD HYD	POND4.IN	5& 6	7	.41620	96.23	8.522	.38392	1.600	.361	
*S										
*S ROUTE FLOW THROUGH POND 4 - 48" ORIFICE	ROUTE RESERVOIR	POND4.OUT	7 8	.41620	77.16	8.522	.38392	2.100	.290	AC-FT= 1.288
*S										
*S CALCULATE THE FLOW FROM SUB-BASINS A60114, A60115 & A60116S	COMPUTE NM HYD	INTOPOND5	- 9	.31700	259.40	6.491	.38393	1.500	1.279	PER IMP= .00
*S										
*S ADD THE ROUTED FLOW FROM POND 4 TO THE FLOW FROM INTOPOND5										
ADD HYD	POND5.IN	8& 9	10	.73320	285.87	15.013	.38392	1.500	.609	
*S										
*S ROUTE FLOW THROUGH POND 5 - TWO 42" ORIFICES	ROUTE RESERVOIR	POND5.OUT	10 11	.73320	127.35	15.013	.38392	1.750	.271	AC-FT= 3.719
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 201										
COMPUTE NM HYD	INTOPOND6	- 12		.09690	71.73	1.984	.38393	1.500	1.157	PER IMP= .00
*S ADD THE ROUTED FLOW FROM POND 5 TO THE FLOW FROM INTOPOND6										
ADD HYD	POND6.IN	11&12	13	.83010	168.30	16.997	.38392	1.550	.317	
*S										
*S ROUTE FLOW THROUGH POND 6 - 54" ORIFICE	ROUTE RESERVOIR	POND6.OUT	13 14	.83010	113.01	16.997	.38392	2.300	.213	AC-FT= 3.212
*S										
*S*****										
*S										

239

*S COMP FLOWS FROM SUB-BASIN 202										
COMPUTE	HYD	INTOPOND8	-	15	.08260	156.2	6.708	1.52279	1.500	2.956 PER IMP= 46.0
*S										
*S COMPUTE FLOWS FROM SUB-BASIN 203S (DENNIS CHAVEZ BLVD - SOUTH HALF OF ROW 36'										
COMPUTE	NM HYD	203S.0	-	16	.03860	65.81	2.505	1.21684	1.500	2.664 PER IMP= 28.80
*S										
ADD	HYD	JUNCTION 15&16		17	.12120	222.07	9.213	1.42534	1.500	2.863
*S										
*S ROUTE FLOWS THROUGH POND 8 - 30" ORIFICE										
ROUTE	RESERVOIR	POND8.OUT		17 18	.12120	30.73	9.213	1.42533	2.050	.396 AC-FT= 5.108
*S										
*S COMPUTE FLOWS FROM SUB-BASIN 203N (DENNIS CHAVEZ BLVD - NORTH HALF OF ROW 36'										
COMPUTE	NM HYD	203N.0	-	19	.03860	65.81	2.505	1.21684	1.500	2.664 PER IMP= 28.80
*S										
*S COMPUTE FLOWS FROM SUB-BASIN 118TH (118TH STREET-4974' NORTH OF DENNIS CHAVEZ										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = NOTATION
COMPUTE NM HYD	118TH.0	-	28	.01749	38.00	1.898	2.03489	1.500	3.396	PER IMP= 76.53
*S										
*S ADD THE FLOWS FROM POND6.ROUTE TO THE FLOWS FROM SUB-BASIN 203N										
*S AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH1)										
ADD HYD	JUNCTION 19&14	20		.86870	125.61	19.502	.42093	1.600	.226	
*S										
*S ADD THE FLOWS FROM 118TH TO THE FLOWS AT MH1										
ADD HYD	JUNCTION 20&28	29		.88619	154.03	21.400	.45278	1.550	.272	
*S										
*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLO										
*S FROM POND8.ROUTE AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH										
ADD HYD	JUNCTION 29&18	21		1.00739	177.87	30.613	.56979	1.550	.276	
*S										
*S										
*S COMPUTE FLOWS FROM SUB-BASIN 204W (COMMERCIAL TRACT DIRECTLY TO CHANNEL)										
COMPUTE NM HYD	204.00	-	22	.04037	89.62	4.524	2.10119	1.500	3.468	PER IMP= 80.00
*S										
*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLO										
*S FROM SUB-BASIN 204W AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ										
ADD HYD	JUNCTION 21&22	23		1.04776	256.35	35.137	.62879	1.550	.382	
*S										
*S COMPUTE FLOWS FROM SUB-BASIN 204E (ANDERSON HEIGHTS DIRECTLY TO CHANNEL)										
COMPUTE NM HYD	206.00	-	24	.09400	180.17	8.260	1.64761	1.500	2.995	PER IMP= 56.26
*S										
*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLO										
*S FROM SUB-BASIN 204E AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ										
*S THIS IS THE FLOW THAT WILL ENTER THE RIO BRAVO CHANNEL AT THE EASTERN EDGE OF										
*S ANDERSON HEIGHTS										
ADD HYD	JUNCTION 23&24	25		1.14176	431.66	43.397	.71267	1.500	.591	
*S										
*S COMPUTE FLOWS FROM SUB-BASINS 205, 206, 60122 & 60123 (ANDERSON HEIGHTS TO PO										
COMPUTE NM HYD	INTOPOND10	-	26	.26689	501.99	23.452	1.64761	1.500	2.939	PER IMP= 56.26
*S										
*S ROUTE FLOWS THROUGH POND 10 - 30" ORIFICE										
ROUTE RESERVOIR	POND10.OUT	26	27	.26689	55.87	23.451	1.64753	2.150	.327	AC-FT= 13.187
*S										
ROUTE	209.10	27	4	.26689	55.84	23.451	1.64752	2.200	.327	
COMPUTE NM HYD	207.00	-	1	.03023	48.84	2.455	1.52279	1.550	2.524	PER IMP= 46.00
ADD HYD	JUNCTION 4& 1	2		.29712	88.50	25.906	1.63483	1.600	.465	
ROUTE	208.10	2	4	.29712	88.98	25.906	1.63482	1.600	.468	
COMPUTE NM HYD	208.A	-	1	.03201	54.71	2.448	1.43385	1.500	2.671	PER IMP= 41.00
ADD HYD	JUNCTION 4& 1	2		.32913	138.94	28.354	1.61528	1.550	.660	
ROUTE	209.10	2	4	.32913	138.32	28.354	1.61527	1.550	.657	
COMPUTE NM HYD	208.B	-	1	.02696	51.38	2.215	1.54057	1.500	2.978	PER IMP= 47.00
ADD HYD	JUNCTION 4& 1	2		.35609	183.86	30.569	1.60961	1.550	.807	

COMPUT	HYD	209.00	-	1	.01110	16.	1.113	1.88065	1.650	2.301	PER IMP= (,
ADD HYD	JUNCTION	2& 1	4		.36719	197.00	31.682	1.61781	1.550	.841	
ADD HYD	JUNCTION	4&25	3		1.50895	617.01	75.079	.93293	1.500	.639	
ROUTE		210.10	3	4	1.50895	623.83	75.079	.93293	1.550	.646	
COMPUTE NM HYD		211.00	-	1	.15300	242.18	14.209	1.74130	1.600	2.473	PER IMP= 57.00
COMPUTE NM HYD		212.00	-	2	.00950	17.11	.953	1.88065	1.550	2.814	PER IMP= 65.00
ADD HYD	JUNCTION	1& 2	3		.16250	258.60	15.162	1.74945	1.550	2.487	
ADD HYD	JUNCTION	3& 4	5		1.67145	882.43	90.241	1.01231	1.550	.825	
COMPUTE NM HYD		214.00	-	1	.05930	94.84	5.507	1.74131	1.600	2.499	PER IMP= 57.00
ADD HYD	JUNCTION	5& 1	3		1.73075	977.12	95.748	1.03729	1.550	.882	
ROUTE		216.10	3	4	1.73075	967.26	95.748	1.03729	1.550	.873	
FINISH											

(s10H

START 0.0 HOURS PC=0 PL=-1

*S

*S RIO BRAVO

*S

*S

*S

*S 100-YR, 24-HR STORM WITHOUT SEDIMENT

*S FILE NAME: RB_DMP.DAT

*S BY: RICHARD STOCKTON

→ *S REVISED BY MARK GOODWIN AND ASSOCIATES 3-11-05. EXIST FLOW INTO PONDS 2-6

*S LAST REVISION: 7-15-03

*S*****

*S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM FROM THE

*S SACATE BLANCO WATERSHED WEST OF THE POWERLINE EASEMENT (AKA SOUTH

*S POWERLINE DIVERSION AND DETENTION FACILITY);

*S AND THE RIO BRAVO WATERSHED.

*S

*S FLOWS FROM THIS WATERSHED ARE CONVEYED TO HUBBLE LAKE DETENTION

*S FACILITY VIA THE HUBBLE LAKE/AMOLE DIVERSION CHANNEL.

*S

*S THE ORGINIAL RIO BRAVO MODEL WAS DEVELOPED BY AVID (AND ACCEPTED BY

*S THE COUNTY). ASSUMPTIONS MADE IN THE AVID MODEL ARE INVALID, AND HAVE

*S BEEN CORRECTED WITH THE 4-25-03 REVISIONS. DIVERSIONS TO THE BOREGA DAM

*S AND THE AMOLE CHANNEL REDUCE THIS BASIN AND 114 AC. OF THE SACATE BLANCO

*S BELOW THE POWER LINE IS ADDED TO THE RIO BRAVO CHANNEL.

*S PONDS 7 & 9 ARE DELETED AND POND 10 IS ADDED.

*S

*S PONDS 2,3,4,5,6,8 & 10 WERE SIZED FOR DEVELOPED FLOW AND USED ACTUAL TOPO

*S TO SIZE. THE BASINS WERE RENAMED AND SIZED PER HOW THEY DRAINED TO EACH

*S POND. THE DENNIS CHAVEZ ROW RUNOFF EAST OF 118TH STREET WAS TAKEN OUT

*S OF THE RIO BRAVO CHANNEL TO REDUCE THE IMPACT AT THE CONDISHIRE BOXES.

*S THIS FLOW (BASINS 210, 213 & 216)ALONG WITH BASIN 215 WILL NEED TO BE

*S DESIGNED INTO A STORMDRAIN THAT WILL BE CONSTRUCTED ON THE SOUTH SIDE OF

*S DENNIS CHAVEZ AND TIE DIRECTLY TO THE HUBBLE CHANNEL AT THE EAST END OF

*S BASIN 216. DENNIS CHAVEZ BASIN 203 WILL BE SPLIT N & S WITH THE SOUTH HALF

*S BEING ROUTED THROUGH POND 8

*S*****

*S ANALYSIS ASSUMPTIONS:

*S*****

*S 1. ALL LAND IN THE RIO BRAVO BASIN IS MODELED AS DEVELOPED CONDITION AT

*S 6 DU/AC, EXCEPT ANDERSON HILLS WHERE LOWER DENSITIES ARE CERTAIN, AND

*S EXCEPT IN BASINS 201 AND 202 WHERE THERE IS NO LIGHT.

*S 2. THE PUNCH HYD COMMAND WAS ADDED TO THE END OF THIS FILE SO THE OUTFALL

*S HYDROGRAPH COULD BE USED IN THE AMOLE DEL NORTE EXISTING CONDITIONS MODEL

*S AA100D1B.DAT, WHICH WILL BE USED IN THE ANALYSIS OF THE AMOLE ARROYO SYSTEM.

*S

*S 3. NO BULKING FACTORS WERE ADDED TO THE AREA TRIBUTARY TO THE RIO BRAVO

*S CHANNEL DUE TO THE INCORPORATION OF DETENTION PONDS. HOWEVER, BULKING FACTORS

*S HAVE BEEN ADDED TO BASINS TRIBUTARY TO HUBBELL CHANNEL AND LAKE.

*S

*S*****

*S RAINFALL FROM NOAA ATLAS 2

*S THESE VALUES WERE REDUCED FOR AREA BY 12%, 5% AND 3% FOR 1, 6, AND 24 HOUR

RAINFALL TYPE=2 0.0 1.64 2.11 2.66 DT=0.05

* *S 10 YEAR 24HR STORM CONDITION

* RAINFALL TYPE=2 0.0 1.08 1.41 1.78 DT=0.05

*S*****


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*S
*S*****
*S ADD BASINS FROM SOUTH POWERLINE DIVERSION
*S TO THE RIO BRAVO RUN
*S
*S*****
*S
*S APPLY A 3% SEDIMENT BULKING FACTOR TO ALL COMPUTED HYDROGRAPHS
SEDIMENT BULK      CODE=1  BULKING FACTOR = 1.03
*S CALCULATE THE FLOW FROM SUB-BASINS A60106, A60107A, 60108 & 60109
COMPUTE NM HYD      ID=1  HYD=INTOPOND2  AREA=0.2152 SQ MI
      A=90 B=10 C=0 D=0
      TP=0.1333  MASSRAIN=-1
PRINT HYD          ID=1  CODE=1
*S
*S ROUTE FLOW THROUGH POND 2 - 48" ORIFICE
ROUTE RESERVOIR    ID=2  HYD=POND2.OUT I=1 CODE=10
      Q OUT      STORE  ELEV
      0.0        0.0    5256
      60.51      0.85    5257
      85.57      1.77    5258
      104.80     2.75    5259
      121.01     3.80    5260
      135.30     4.93    5261
      148.21     6.13    5262
PRINT HYD          ID=2  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASINS A60110 & A60111
COMPUTE NM HYD      ID=3  HYD=INTOPOND3  AREA=0.1430 SQ MI
      A=90 B=10 C=0 D=0
      TP=0.1333  MASSRAIN=-1
PRINT HYD          ID=3  CODE=1
*S
*S ADD THE ROUTED FLOW FROM POND 2 TO THE FLOW FROM INTOPOND3
*S HYD=POND3.IN IS THE TOTAL INFLOW INTO POND 3.
ADD HYD             ID=4  HYD=POND3.IN I=2 II=3
PRINT HYD           ID=4  CODE=1
*S
*S ROUTE FLOW THROUGH POND 3 - 48" ORIFICE
ROUTE RESERVOIR    ID=5  HYD=POND3.OUT I=4 CODE=10
      Q OUT      STORE  ELEV
      0.0        0.0    5246
      60.51      1.62    5247
      85.57      3.34    5248
      104.80     5.15    5249
      121.01     7.06    5250
      135.30     9.07    5251
      148.21     11.18   5252
PRINT HYD          ID=5  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASINS A60113 & A60116N
COMPUTE NM HYD      ID=6  HYD=INTOPOND4  AREA=0.0580 SQ MI
      A=90 B=10 C=0 D=0
      TP=0.1333  MASSRAIN=-1
PRINT HYD          ID=6  CODE=1
*S
*S ADD THE ROUTED FLOW FROM POND 3 TO THE FLOW FROM INTOPOND4

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ADD HYD          ID=7 HYD=POND4.IN I=5 II=6
PRINT HYD        ID=7 CODE=1
*S
*S ROUTE FLOW THROUGH POND 4 - 48" ORIFICE
ROUTE RESERVOIR  ID=8 HYD=POND4.OUT I=7 CODE=10
      Q OUT   STORE  ELEV
      0.0     0.0    5237
      60.51   0.75   5238
      85.57   1.56   5239
      104.80  2.43   5240
      121.01  3.36   5241
      135.30  4.36   5242
      148.21  5.45   5243
PRINT HYD        ID=8 CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASINS A60114, A60115 & A60116S
COMPUTE NM HYD   ID=9 HYD=INTOPOND5 AREA=0.3170 SQ MI
      A=90 B=10 C=0 D=0
      TP=0.1333 MASSRAIN=-1
PRINT HYD        ID=9 CODE=1
*S
*S ADD THE ROUTED FLOW FROM POND 4 TO THE FLOW FROM INTOPOND5
ADD HYD          ID=10 HYD=POND5.IN I=8 II=9
PRINT HYD        ID=10 CODE=1
*S
*S ROUTE FLOW THROUGH POND 5 - TWO 42" ORIFICES
ROUTE RESERVOIR  ID=11 HYD=POND5.OUT I=10 CODE=10
      Q OUT   STORE  ELEV
      0.0     0.0    5232
      92.66   1.91   5233
      131.02  3.91   5234
      160.48  6.00   5235
      185.30  8.18   5236
      207.18  10.46  5237
      226.94  12.84  5238
PRINT HYD        ID=11 CODE=1
*S
*S COMPUTE HYDROGRAPH FOR BASIN 201
COMPUTE NM HYD   ID=12 HYD NO=INTOPOND6 AREA=0.0969 SQ MI
      A=90 B=10 C=0 D=0
      TP=0.1333 HR
      MASS RAINFALL=-1
PRINT HYD        ID=12 CODE=1
*S ADD THE ROUTED FLOW FROM POND 5 TO THE FLOW FROM INTOPOND6
ADD HYD          ID=13 HYD=POND6.IN I=11 II=12
PRINT HYD        ID=13 CODE=1
*S
*S ROUTE FLOW THROUGH POND 6 - 54" ORIFICE
ROUTE RESERVOIR  ID=14 HYD=POND6.OUT I=13 CODE=10
      Q OUT   STORE  ELEV
      0.0     0.0    5226
      76.58   1.39   5227
      108.30  2.90   5228
      132.64  4.51   5229
      153.15  6.24   5230
      171.23  8.08   5231
      197.58  10.04  5232

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202.60  12.12  5233
216.59  14.31  5234
PRINT HYD      ID=14 CODE=1
*S
*S*****
*S
*S COMPUTE FLOWS FROM SUB-BASIN 202
COMPUTE NM HYD      ID=15 HYD NO=INTOPOND8 AREA=0.0826 SQ MI
      A=0 B=27 C=27 D=46
      TP=0.1333 HR
      MASS RAINFALL=-1
PRINT HYD      ID=15 CODE=1
*S
*S COMPUTE FLOWS FROM SUB-BASIN 203S (DENNIS CHAVEZ BLVD - SOUTH HALF OF ROW 36' OF PAVEMENT)
COMPUTE NM HYD      ID=16 HYD NO=203S.0 AREA=0.0386 SQ MI
      A=0 B=35.6 C=35.6 D=28.8
      TP=0.1333 HR
      MASS RAINFALL=-1
PRINT HYD      ID=16 CODE=1
*S
ADD HYD      ID=17 HYD=JUNCTION I=15 II=16
PRINT HYD      ID=17 CODE=10
*S
*S ROUTE FLOWS THROUGH POND 8 - 30" ORIFICE
ROUTE RESERVOIR      ID=18 HYD=POND8.OUT I=17 CODE=10
      Q OUT  STORE  ELEV
      0.0    0.0    5215
      15.13  1.12   5216
      21.39  2.32   5217
      26.20  3.58   5218
      30.25  4.92   5219
      33.82  6.33   5220
PRINT HYD      ID=18 CODE=1
*S
*S COMPUTE FLOWS FROM SUB-BASIN 203N (DENNIS CHAVEZ BLVD - NORTH HALF OF ROW 36' OF PAVEMENT)
COMPUTE NM HYD      ID=19 HYD NO=203N.0 AREA=0.0386 SQ MI
      A=0 B=35.6 C=35.6 D=28.8
      TP=0.1333 HR
      MASS RAINFALL=-1
PRINT HYD      ID=19 CODE=1
*S
*S COMPUTE FLOWS FROM SUB-BASIN 118TH (118TH STREET-4974' NORTH OF DENNIS CHAVEZ)
COMPUTE NM HYD      ID=28 HYD NO=118TH.0 AREA=0.017485 SQ MI
      A=0 B=23.47 C=0 D=76.53
      TP=0.1333 HR
      MASS RAINFALL=-1
PRINT HYD      ID=28 CODE=1
*S
*S ADD THE FLOWS FROM POND6.ROUTE TO THE FLOWS FROM SUB-BASIN 203N
*S AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH1)
ADD HYD      ID=20 HYD=JUNCTION I=19 II=14
PRINT HYD      ID=20 CODE=10
*S
*S ADD THE FLOWS FROM 118TH TO THE FLOWS AT MH1
ADD HYD      ID=29 HYD=JUNCTION I=20 II=28
PRINT HYD      ID=29 CODE=10
*S

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↓
 STAYED THE SAME
 AS THE BUILDOUT
 VERSION


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*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLOWS
*S FROM POND8.ROUTE AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH2)
ADD HYD          ID=21 HYD=JUNCTION I=29 II=18
PRINT HYD        ID=21 CODE=10
*S
*S
*S COMPUTE FLOWS FROM SUB-BASIN 204W (COMMERCIAL TRACT DIRECTLY TO CHANNEL)
COMPUTE NM HYD    ID=22 HYD NO=204.0 AREA=0.040372 SQ MI
                  A=0 B=20 C=0 D=80
                  TP=0.1333 HR
                  MASS RAINFALL=-1
PRINT HYD        ID=22 CODE=1
*S
*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLOWS
*S FROM SUB-BASIN 204W AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH5)
ADD HYD          ID=23 HYD=JUNCTION I=21 II=22
PRINT HYD        ID=23 CODE=10
*S
*S COMPUTE FLOWS FROM SUB-BASIN 204E (ANDERSON HEIGHTS DIRECTLY TO CHANNEL)
COMPUTE NM HYD    ID=24 HYD NO=206.0 AREA=0.0940 SQ MI
                  A=0 B=43.74 C=0 D=56.26
                  TP=0.13 HR
                  MASS RAINFALL=-1
PRINT HYD        ID=24 CODE=1
*S
*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLOWS
*S FROM SUB-BASIN 204E AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ
*S THIS IS THE FLOW THAT WILL ENTER THE RIO BRAVO CHANNEL AT THE EASTERN EDGE OF
*S ANDERSON HEIGHTS
ADD HYD          ID=25 HYD=JUNCTION I=23 II=24
PRINT HYD        ID=25 CODE=10
*S
*S COMPUTE FLOWS FROM SUB-BASINS 205, 206, 60122 & 60123 (ANDERSON HEIGHTS TO POND 10)
COMPUTE NM HYD    ID=26 HYD NO=INTOPOND10 AREA=0.266890 SQ MI
                  A=0 B=43.74 C=0 D=56.26
                  TP=0.1333 HR
                  MASS RAINFALL=-1
PRINT HYD        ID=26 CODE=1
*S
*S ROUTE FLOWS THROUGH POND 10 - 30" ORIFICE
ROUTE RESERVOIR   ID=27 HYD=POND10.OUT I=26 CODE=10
                  Q OUT  STORE  ELEV
                  0.0    0.00   5235
                  23.64   2.15   5236
                  33.49   4.38   5237
                  40.94   6.71   5238
                  47.27   9.12   5239
                  52.85  11.63   5240
                  57.89  14.23   5241
                  62.53  16.93   5242
PRINT HYD        ID=27 CODE=1
*S
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
                  SLP=0.024 D=3.0 N=0.013
COMPUTE TRAVEL TIME ID=4 REACH NO=1 NO VS=1 L=1900 FT
                  SLP=0.024
ROUTE            OUTFLOW ID=4 OUTFLOW HYD=209.1

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        INFLOW ID=27 DT=0.0
PRINT HYD      ID=4 CODE=1
COMPUTE NM HYD  ID=1 HYD NO=207.0 DA=0.03023 SQ MI
        %A, B, C, & D 0 27 27 46
        TP=0.18 HR
        MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
ADD HYD        ID=2 HYD=JUNCTION I=4 II=1
PRINT HYD      ID=2 CODE=10
COMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1
        SLP=0.007 D=4.0 N=0.013
COMPUTE TRAVEL TIME  ID=4 REACH NO=1 NO VS=1 L=560 FT
        SLP=0.007
ROUTE          OUTFLOW ID=4 OUTFLOW HYD=208.1
        INFLOW ID=2 DT=0.0
PRINT HYD      ID=4 CODE=1
COMPUTE NM HYD  ID=1 HYD NO=208.A DA=0.03201 SQ MI
        %A, B, C, & D 0 29.5 29.5 41
        TP=0.15 HR
        MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
ADD HYD        ID=2 HYD=JUNCTION I=4 II=1
PRINT HYD      ID=2 CODE=10
COMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1
        SLP=0.010 D=4.0 N=0.013
COMPUTE TRAVEL TIME  ID=4 REACH NO=1 NO VS=1 L=600 FT
        SLP=0.010
ROUTE          OUTFLOW ID=4 OUTFLOW HYD=209.1
        INFLOW ID=2 DT=0.0
PRINT HYD      ID=4 CODE=1
COMPUTE NM HYD  ID=1 HYD NO=208.B DA=0.02696 SQ MI
        %A, B, C, & D 0 26.5 26.5 47
        TP=0.1333 HR
        MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
ADD HYD        ID=2 HYD=JUNCTION I=4 II=1
PRINT HYD      ID=2 CODE=10
COMPUTE NM HYD  ID=1 HYD NO=209.0 DA=0.0111 SQ MI
        %A, B, C, & D 0 11 24 65
        TP=0.27 HR
        MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
ADD HYD        ID=4 HYD=JUNCTION I=2 II=1
PRINT HYD      ID=4 CODE=10
ADD HYD        ID=3 HYD=JUNCTION I=4 II=25
PRINT HYD      ID=3 CODE=10
COMPUTE RATING CURVE  CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
        CS=0.028 FS=0.028 N=0.013 DIST=26
        DIST EL    DIST EL
        0    104    08    100
        18    100    26    104
COMPUTE TRAVEL TIME  ID=4 RN=1 NVS=1 L=2750 S=0.028
ROUTE          ID=4 HYD=210.1 INFLOW ID=3 DT=0.0
PRINT HYD      ID=4 CODE=1
COMPUTE NM HYD  ID=1 HYD NO=211.0 DA=0.1530 SQ MI
        %A, B, C, & D 0 14 29 57
        TP=0.21 HR

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      MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
COMPUTE NM HYD      ID=2 HYD NO=212.0 DA=0.0095 SQ MI
      %A, B, C, & D 0 11 24 65
      TP=0.19 HR
      MASS RAINFALL=-1
PRINT HYD      ID=2 CODE=1
ADD HYD      ID=3 HYD=JUNCTION I=1 II=2
PRINT HYD      ID=3 CODE=10
ADD HYD      ID=5 HYD=JUNCTION I=3 II=4
PRINT HYD      ID=5 CODE=10
COMPUTE NM HYD      ID=1 HYD NO=214.0 DA=0.0593 SQ MI
      %A, B, C, & D 0 14 29 57
      TP=0.21 HR
      MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
ADD HYD      ID=3 HYD=JUNCTION I=5 II=1
PRINT HYD      ID=3 CODE=10
COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
      CS=0.014 FS=0.014 N=0.013 DIST=26
      DIST EL DIST EL
      0 104 08 100
      18 100 26 104
COMPUTE TRAVEL TIME ID=4 RN=1 NVS=1 L=1400 S=0.014
ROUTE ID=4 HYD=216.1 INFLOW ID=3 DT=0.0
PRINT HYD ID=4 CODE=1
FINISH

```


□(s16.66H□□□□□□□□□□

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994

RUN DATE (MON/DAY/YR) = 03/11/2005

START TIME (HR:MIN:SEC) = 11:27:51 USER NO.= M_GOODWN.I01

INPUT FILE = POND2-6.DAT

START 0.0 HOURS PC=0 PL=-1

*S

*S RIO BRAVO

*S

*S

*S

*S 100-YR, 24-HR STORM WITHOUT SEDIMENT

*S FILE NAME: RB_DMP.DAT

*S BY: RICHARD STOCKTON

*S REVISED BY MARK GOODWIN AND ASSOCIATES 3-11-05. EXIST FLOW INTO PONDS 2-6

*S LAST REVISION: 7-15-03

*S*****

*S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM FROM THE

*S SACATE BLANCO WATERSHED WEST OF THE POWERLINE EASEMENT (AKA SOUTH

*S POWERLINE DIVERSION AND DETENTION FACILITY);

*S AND THE RIO BRAVO WATERSHED.

*S

*S FLOWS FROM THIS WATERSHED ARE CONVEYED TO HUBBLE LAKE DETENTION

*S FACILITY VIA THE HUBBLE LAKE/AMOLE DIVERSION CHANNEL.

*S

*S THE ORGINIAL RIO BRAVO MODEL WAS DEVELOPED BY AVID (AND ACCEPTED BY

*S THE COUNTY). ASSUMPTIONS MADE IN THE AVID MODEL ARE INVALID, AND HAVE

*S BEEN CORRECTED WITH THE 4-25-03 REVISIONS. DIVERSIONS TO THE BOREGA DAM

*S AND THE AMOLE CHANNEL REDUCE THIS BASIN AND 114 AC. OF THE SACATE BLANCO

*S BELOW THE POWER LINE IS ADDED TO THE RIO BRAVO CHANNEL.

*S PONDS 7 & 9 ARE DELETED AND POND 10 IS ADDED.

*S

*S PONDS 2,3,4,5,6,8 & 10 WERE SIZED FOR DEVELOPED FLOW AND USED ACTUAL TOPO

*S TO SIZE. THE BASINS WERE RENAMED AND SIZED PER HOW THEY DRAINED TO EACH

*S POND. THE DENNIS CHAVEZ ROW RUNOFF EAST OF 118TH STREET WAS TAKEN OUT

*S OF THE RIO BRAVO CHANNEL TO REDUCE THE IMPACT AT THE CONDISHIRE BOXES.

*S THIS FLOW (BASINS 210, 213 & 216)ALONG WITH BASIN 215 WILL NEED TO BE

*S DESIGNED INTO A STORMDRAIN THAT WILL BE CONSTRUCTED ON THE SOUTH SIDE OF

*S DENNIS CHAVEZ AND TIE DIRECTLY TO THE HUBBLE CHANNEL AT THE EAST END OF

*S BASIN 216. DENNIS CHAVEZ BASIN 203 WILL BE SPLIT N & S WITH THE SOUTH HALF

*S BEING ROUTED THROUGH POND 8

*S*****

*S ANALYSIS ASSUMPTIONS:

*S*****

*S 1. ALL LAND IN THE RIO BRAVO BASIN IS MODELED AS DEVELOPED CONDITION AT

*S 6 DU/AC, EXCEPT ANDERSON HILLS WHERE LOWER DENSITIES ARE CERTAIN, AND

*S EXCEPT IN BASINS 201 AND 202 WHERE THERE IS NO LIGHT.

*S 2. THE PUNCH HYD COMMAND WAS ADDED TO THE END OF THIS FILE SO THE OUTFALL

*S HYDROGRAPH COULD BE USED IN THE AMOLE DEL NORTE EXISTING CONDITIONS MODEL

*S AA100D1B.DAT, WHICH WILL BE USED IN THE ANALYSIS OF THE AMOLE ARROYO SYSTE

*S

*S 3. NO BULKING FACTORS WERE ADDED TO THE AREA TRIBUTARY TO THE RIO BRAVO

*S CHANNEL DUE TO THE INCORPORATION OF DETENTION PONDS. HOWEVER, BULKING FACT

*S HAVE BEEN ADDED TO BASINS TRIBUTARY TO HUBBELL CHANNEL AND LAKE.

*S

*S*****

*S RAINFALL FROM NOAA ATLAS 2

*S THESE VALUES WERE REDUCED FOR AREA BY 12%, 5% AND 3% FOR 1, 6, AND 24 HOUR

RAINFALL TYPE=2 0.0 1.64 2.11 2.66 DT=0.05

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .050000 HOURS END TIME = 24.000000 HOURS

.0000	.0055	.0112	.0171	.0231	.0294	.0359
.0426	.0496	.0568	.0644	.0723	.0805	.0892
.0983	.1079	.1180	.1289	.1404	.1528	.1663
.1732	.1808	.2030	.2553	.3452	.4843	.6846
.9584	1.1744	1.2720	1.3535	1.4248	1.4886	1.5464
1.5992	1.6475	1.6921	1.7332	1.7711	1.8063	1.8151
1.8234	1.8312	1.8386	1.8457	1.8525	1.8590	1.8652
1.8712	1.8771	1.8827	1.8882	1.8935	1.8986	1.9037
1.9086	1.9134	1.9181	1.9226	1.9271	1.9315	1.9358
1.9400	1.9442	1.9483	1.9523	1.9562	1.9601	1.9639
1.9676	1.9713	1.9749	1.9785	1.9821	1.9855	1.9890
1.9924	1.9957	1.9990	2.0023	2.0055	2.0087	2.0119
2.0150	2.0181	2.0211	2.0241	2.0271	2.0301	2.0330
2.0359	2.0388	2.0416	2.0444	2.0472	2.0500	2.0527
2.0554	2.0581	2.0608	2.0635	2.0661	2.0687	2.0713
2.0738	2.0764	2.0789	2.0814	2.0839	2.0863	2.0888
2.0912	2.0936	2.0960	2.0984	2.1007	2.1031	2.1054
2.1077	2.1100	2.1123	2.1146	2.1169	2.1192	2.1215
2.1237	2.1260	2.1283	2.1305	2.1328	2.1350	2.1372
2.1394	2.1416	2.1438	2.1460	2.1482	2.1504	2.1526
2.1548	2.1569	2.1591	2.1612	2.1634	2.1655	2.1676
2.1697	2.1719	2.1740	2.1761	2.1782	2.1803	2.1823
2.1844	2.1865	2.1885	2.1906	2.1927	2.1947	2.1967
2.1988	2.2008	2.2028	2.2048	2.2068	2.2088	2.2108
2.2128	2.2148	2.2168	2.2188	2.2207	2.2227	2.2247
2.2266	2.2286	2.2305	2.2324	2.2344	2.2363	2.2382
2.2401	2.2420	2.2439	2.2458	2.2477	2.2496	2.2515
2.2534	2.2552	2.2571	2.2590	2.2608	2.2627	2.2645
2.2664	2.2682	2.2700	2.2719	2.2737	2.2755	2.2773
2.2791	2.2809	2.2827	2.2845	2.2863	2.2881	2.2899
2.2917	2.2935	2.2952	2.2970	2.2987	2.3005	2.3023
2.3040	2.3057	2.3075	2.3092	2.3109	2.3127	2.3144
2.3161	2.3178	2.3195	2.3212	2.3229	2.3246	2.3263
2.3280	2.3297	2.3314	2.3331	2.3347	2.3364	2.3381
2.3397	2.3414	2.3430	2.3447	2.3463	2.3480	2.3496
2.3512	2.3529	2.3545	2.3561	2.3577	2.3594	2.3610
2.3626	2.3642	2.3658	2.3674	2.3690	2.3706	2.3721
2.3737	2.3753	2.3769	2.3785	2.3800	2.3816	2.3832
2.3847	2.3863	2.3878	2.3894	2.3909	2.3925	2.3940
2.3955	2.3971	2.3986	2.4001	2.4017	2.4032	2.4047
2.4062	2.4077	2.4092	2.4107	2.4122	2.4137	2.4152
2.4167	2.4182	2.4197	2.4212	2.4227	2.4241	2.4256
2.4271	2.4285	2.4300	2.4315	2.4329	2.4344	2.4358
2.4373	2.4387	2.4402	2.4416	2.4431	2.4445	2.4459
2.4474	2.4488	2.4502	2.4516	2.4531	2.4545	2.4559
2.4573	2.4587	2.4601	2.4615	2.4629	2.4643	2.4657
2.4671	2.4685	2.4699	2.4713	2.4727	2.4740	2.4754
2.4768	2.4782	2.4795	2.4809	2.4823	2.4836	2.4850
2.4864	2.4877	2.4891	2.4904	2.4918	2.4931	2.4944
2.4958	2.4971	2.4985	2.4998	2.5011	2.5024	2.5038

2.5051 2.5064 2.5077 2.5091 2.5104 2.5117 2.5130
 2.5143 2.5156 2.5169 2.5182 2.5195 2.5208 2.5221
 2.5234 2.5247 2.5260 2.5272 2.5285 2.5298 2.5311
 2.5324 2.5336 2.5349 2.5362 2.5374 2.5387 2.5400
 2.5412 2.5425 2.5438 2.5450 2.5463 2.5475 2.5488
 2.5500 2.5512 2.5525 2.5537 2.5550 2.5562 2.5574
 2.5587 2.5599 2.5611 2.5624 2.5636 2.5648 2.5660
 2.5672 2.5685 2.5697 2.5709 2.5721 2.5733 2.5745
 2.5757 2.5769 2.5781 2.5793 2.5805 2.5817 2.5829
 2.5841 2.5853 2.5865 2.5877 2.5888 2.5900 2.5912
 2.5924 2.5936 2.5947 2.5959 2.5971 2.5983 2.5994
 2.6006 2.6018 2.6029 2.6041 2.6052 2.6064 2.6076
 2.6087 2.6099 2.6110 2.6122 2.6133 2.6144 2.6156
 2.6167 2.6179 2.6190 2.6202 2.6213 2.6224 2.6236
 2.6247 2.6258 2.6269 2.6281 2.6292 2.6303 2.6314
 2.6325 2.6337 2.6348 2.6359 2.6370 2.6381 2.6392
 2.6403 2.6414 2.6425 2.6436 2.6447 2.6458 2.6469
 2.6480 2.6491 2.6502 2.6513 2.6524 2.6535 2.6546
 2.6557 2.6568 2.6578 2.6589 2.6600

* S 10 YEAR 24HR STORM CONDITION

* RAINFALL TYPE=2 0.0 1.08 1.41 1.78 DT=0.05

*S*****

*S

*S*****

*S ADD BASINS FROM SOUTH POWERLINE DIVERSION

*S TO THE RIO BRAVO RUN

*S

*S*****

*S

*S APPLY A 3% SEDIMENT BULKING FACTOR TO ALL COMPUTED HYDROGRAPHS

SEDIMENT BULK CODE=1 BULKING FACTOR = 1.03

*S CALCULATE THE FLOW FROM SUB-BASINS A60106, A60107A, 60108 & 60109

COMPUTE NM HYD ID=1 HYD=INTOPOND2 AREA=0.2152 SQ MI

A=90 B=10 C=0 D=0

TP=0.1333 MASSRAIN=-1

K = .150597HR TP = .133300HR K/TP RATIO = 1.129759 SHAPE CONSTANT, N = 3.132591

UNIT PEAK = 472.15 CFS UNIT VOLUME = .9997 B = 292.46 P60 = 1.6400

AREA = .215200 SQ MI IA = .63500 INCHES INF = 1.62800 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA INTOPOND2

RUNOFF VOLUME = .38393 INCHES = 4.4064 ACRE-FEET

PEAK DISCHARGE RATE = 167.99 CFS AT 1.500 HOURS BASIN AREA = .2152 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 2 - 48" ORIFICE

ROUTE RESERVOIR ID=2 HYD=POND2.OUT I=1 CODE=10

Q OUT	STORE	ELEV
0.0	0.0	5256
60.51	0.85	5257
85.57	1.77	5258
104.80	2.75	5259
121.01	3.80	5260
135.30	4.93	5261
148.21	6.13	5262

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

.00	.00	5256.00	.000	.00
.50	.00	5256.00	.000	.00
1.00	.00	5256.00	.000	.00
1.50	167.99	5257.01	.860	60.79
2.00	13.75	5256.77	.656	46.71
2.50	4.55	5256.14	.120	8.56
3.00	1.50	5256.04	.035	2.47
3.50	.50	5256.01	.011	.80
4.00	.16	5256.00	.004	.26
4.50	.05	5256.00	.001	.09
5.00	.02	5256.00	.000	.03
5.50	.01	5256.00	.000	.01
6.00	.00	5256.00	.000	.00

PEAK DISCHARGE = 81.860 CFS - PEAK OCCURS AT HOUR 1.65

MAXIMUM WATER SURFACE ELEVATION = 5257.852

MAXIMUM STORAGE = 1.6338 AC-FT INCREMENTAL TIME = .050000HRS

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA POND2.OUT

RUNOFF VOLUME = .38393 INCHES = 4.4064 ACRE-FEET

PEAK DISCHARGE RATE = 81.86 CFS AT 1.650 HOURS BASIN AREA = .2152 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASINS A60110 & A60111

COMPUTE NM HYD ID=3 HYD=INTOPOND3 AREA=0.1430 SQ MI

A=90 B=10 C=0 D=0

TP=0.1333 MASSRAIN=-1

K = .157898HR TP = .133300HR K/TP RATIO = 1.184528 SHAPE CONSTANT, N = 2.996788

UNIT PEAK = 302.05 CFS UNIT VOLUME = .9988 B = 281.56 P60 = 1.6400

AREA = .143000 SQ MI IA = .63500 INCHES INF = 1.62800 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA INTOPOND3

RUNOFF VOLUME = .38393 INCHES = 2.9281 ACRE-FEET
PEAK DISCHARGE RATE = 108.03 CFS AT 1.500 HOURS BASIN AREA = .1430 SQ. MI.

*S
*S ADD THE ROUTED FLOW FROM POND 2 TO THE FLOW FROM INTOPOND3
*S HYD=POND3.IN IS THE TOTAL INFLOW INTO POND 3.
ADD HYD ID=4 HYD=POND3.IN I=2 II=3
PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA POND3.IN

RUNOFF VOLUME = .38392 INCHES = 7.3344 ACRE-FEET
PEAK DISCHARGE RATE = 172.88 CFS AT 1.550 HOURS BASIN AREA = .3582 SQ. MI.

*S
*S ROUTE FLOW THROUGH POND 3 - 48" ORIFICE
ROUTE RESERVOIR ID=5 HYD=POND3.OUT I=4 CODE=10

Q OUT	STORE	ELEV
0.0	0.0	5246
60.51	1.62	5247
85.57	3.34	5248
104.80	5.15	5249
121.01	7.06	5250
135.30	9.07	5251
148.21	11.18	5252

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5246.00	.000	.00
.50	.00	5246.00	.000	.00
1.00	.00	5246.00	.000	.00
1.50	168.82	5246.55	.893	33.37
2.00	55.98	5247.66	2.753	77.02
2.50	11.79	5246.74	1.194	44.59
3.00	3.60	5246.23	.378	14.12
3.50	1.19	5246.07	.120	4.50
4.00	.40	5246.02	.039	1.46
4.50	.13	5246.01	.013	.48
5.00	.05	5246.00	.004	.16
5.50	.02	5246.00	.001	.05
6.00	.00	5246.00	.000	.02
6.50	.00	5246.00	.000	.00
PEAK DISCHARGE = 78.277 CFS - PEAK OCCURS AT HOUR 1.90				
MAXIMUM WATER SURFACE ELEVATION = 5247.709				
MAXIMUM STORAGE = 2.8394 AC-FT INCREMENTAL TIME= .050000HRS				
PRINT HYD ID=5 CODE=1				

HYDROGRAPH FROM AREA POND3.OUT

RUNOFF VOLUME = .38392 INCHES = 7.3344 ACRE-FEET
 PEAK DISCHARGE RATE = 78.28 CFS AT 1.900 HOURS BASIN AREA = .3582 SQ. MI.

*S
 *S CALCULATE THE FLOW FROM SUB-BASINS A60113 & A60116N
 COMPUTE NM HYD ID=6 HYD=INTOPOND4 AREA=0.0580 SQ MI
 A=90 B=10 C=0 D=0
 TP=0.1333 MASSRAIN=-1

K = .166038HR TP = .133300HR K/TP RATIO = 1.245594 SHAPE CONSTANT, N = 2.862682
 UNIT PEAK = 117.67 CFS UNIT VOLUME = .9981 B = 270.43 P60 = 1.6400
 AREA = .058000 SQ MI IA = .63500 INCHES INF = 1.62800 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA INTOPOND4

RUNOFF VOLUME = .38393 INCHES = 1.1876 ACRE-FEET
 PEAK DISCHARGE RATE = 42.30 CFS AT 1.500 HOURS BASIN AREA = .0580 SQ. MI.

*S
 *S ADD THE ROUTED FLOW FROM POND 3 TO THE FLOW FROM INTOPOND4
 ADD HYD ID=7 HYD=POND4.IN I=5 II=6
 PRINT HYD ID=7 CODE=1

HYDROGRAPH FROM AREA POND4.IN

RUNOFF VOLUME = .38392 INCHES = 8.5220 ACRE-FEET
 PEAK DISCHARGE RATE = 96.23 CFS AT 1.600 HOURS BASIN AREA = .4162 SQ. MI.

*S
 *S ROUTE FLOW THROUGH POND 4 - 48" ORIFICE
 ROUTE RESERVOIR ID=8 HYD=POND4.OUT I=7 CODE=10

Q OUT	STORE	ELEV
0.0	0.0	5237
60.51	0.75	5238
85.57	1.56	5239
104.80	2.43	5240
121.01	3.36	5241
135.30	4.36	5242
148.21	5.45	5243

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

.00	.00	5237.00	.000	.00
.50	.00	5237.00	.000	.00
1.00	.00	5237.00	.000	.00
1.50	75.67	5237.44	.328	26.46
2.00	80.84	5238.65	1.273	76.69
2.50	45.99	5238.27	.969	67.28
3.00	14.63	5237.38	.282	22.78
3.50	4.68	5237.12	.088	7.12
4.00	1.52	5237.04	.028	2.30
4.50	.50	5237.01	.009	.75
5.00	.17	5237.00	.003	.25
5.50	.05	5237.00	.001	.08
6.00	.02	5237.00	.000	.03
6.50	.00	5237.00	.000	.01

PEAK DISCHARGE = 77.162 CFS - PEAK OCCURS AT HOUR 2.10

MAXIMUM WATER SURFACE ELEVATION = 5238.665

MAXIMUM STORAGE = 1.2882 AC-FT INCREMENTAL TIME = .050000HRS

PRINT HYD ID=8 CODE=1

HYDROGRAPH FROM AREA POND4.OUT

RUNOFF VOLUME = .38392 INCHES = 8.5220 ACRE-FEET

PEAK DISCHARGE RATE = 77.16 CFS AT 2.100 HOURS BASIN AREA = .4162 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASINS A60114, A60115 & A60116S

COMPUTE NM HYD ID=9 HYD=INTOPOND5 AREA=0.3170 SQ MI

A=90 B=10 C=0 D=0

TP=0.1333 MASSRAIN=-1

K = .140758HR TP = .133300HR K/TP RATIO = 1.055949 SHAPE CONSTANT, N = 3.343813

UNIT PEAK = 734.23 CFS UNIT VOLUME = 1.000 B = 308.75 P60 = 1.6400

AREA = .317000 SQ MI IA = .63500 INCHES INF = 1.62800 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA INTOPOND5

RUNOFF VOLUME = .38393 INCHES = 6.4909 ACRE-FEET

PEAK DISCHARGE RATE = 259.40 CFS AT 1.500 HOURS BASIN AREA = .3170 SQ. MI.

*S

*S ADD THE ROUTED FLOW FROM POND 4 TO THE FLOW FROM INTO POND5

ADD HYD ID=10 HYD=POND5.IN I=8 II=9

PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA POND5.IN

RUNOFF VOLUME = .38392 INCHES = 15.0129 ACRE-FEET

PEAK DISCHARGE RATE = 285.87 CFS AT 1.500 HOURS BASIN AREA = .7332 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 5 - TWO 42" ORIFICES

ROUTE RESERVOIR ID=11 HYD=POND5.OUT I=10 CODE=10

Q OUT	STORE	ELEV
0.0	0.0	5232
92.66	1.91	5233
131.02	3.91	5234
160.48	6.00	5235
185.30	8.18	5236
207.18	10.46	5237
226.94	12.84	5238

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

.00	.00	5232.00	.000	.00
.50	.00	5232.00	.000	.00
1.00	.00	5232.00	.000	.00
1.50	285.87	5232.80	1.524	73.94
2.00	96.48	5233.73	3.364	120.55
2.50	73.34	5233.21	2.340	100.90
3.00	24.64	5232.54	1.034	50.16
3.50	7.69	5232.19	.353	17.14
4.00	2.47	5232.06	.116	5.61
4.50	.81	5232.02	.038	1.82
5.00	.27	5232.01	.012	.60
5.50	.09	5232.00	.004	.20
6.00	.03	5232.00	.001	.06
6.50	.01	5232.00	.000	.02
7.00	.00	5232.00	.000	.00

PEAK DISCHARGE = 127.347 CFS - PEAK OCCURS AT HOUR 1.75

MAXIMUM WATER SURFACE ELEVATION = 5233.904

MAXIMUM STORAGE = 3.7185 AC-FT INCREMENTAL TIME = .050000HRS

PRINT HYD ID=11 CODE=1

HYDROGRAPH FROM AREA POND5.OUT

RUNOFF VOLUME = .38392 INCHES = 15.0129 ACRE-FEET

PEAK DISCHARGE RATE = 127.35 CFS AT 1.750 HOURS BASIN AREA = .7332 SQ. MI.

*S

*S COMPUTE HYDROGRAPH FOR BASIN 201

COMPUTE NM HYD ID=12 HYD NO=INTOPOND6 AREA=0.0969 SQ MI

A=90 B=10 C=0 D=0

TP=0.1333 HR

MASS RAINFALL=-1

K = .162559HR TP = .133300HR K/TP RATIO = 1.219499 SHAPE CONSTANT, N = 2.917951

UNIT PEAK = 199.95 CFS UNIT VOLUME = .9983 B = 275.06 P60 = 1.6400

AREA = .096900 SQ MI IA = .63500 INCHES INF = 1.62800 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA INTOPOND6

RUNOFF VOLUME = .38393 INCHES = 1.9841 ACRE-FEET

PEAK DISCHARGE RATE = 71.73 CFS AT 1.500 HOURS BASIN AREA = .0969 SQ. MI.

*S ADD THE ROUTED FLOW FROM POND 5 TO THE FLOW FROM INTOPOND6

ADD HYD ID=13 HYD=POND6.IN I=11 II=12

PRINT HYD ID=13 CODE=1

HYDROGRAPH FROM AREA POND6.IN

RUNOFF VOLUME = .38392 INCHES = 16.9970 ACRE-FEET

PEAK DISCHARGE RATE = 168.30 CFS AT 1.550 HOURS BASIN AREA = .8301 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 6 - 54" ORIFICE

ROUTE RESERVOIR ID=14 HYD=POND6.OUT I=13 CODE=10

Q OUT STORE ELEV

0.0 0.0 5226

76.58 1.39 5227

108.30 2.90 5228

132.64 4.51 5229

153.15 6.24 5230

171.23 8.08 5231

197.58 10.04 5232

202.60 12.12 5233

216.59 14.31 5234

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5226.00	.000	.00

.50	.00	5226.00	.000	.00
1.00	.00	5226.00	.000	.00
1.50	145.68	5226.49	.678	37.38
2.00	126.89	5228.08	3.028	110.23
2.50	103.17	5228.15	3.134	111.84
3.00	50.98	5227.49	2.127	92.07
3.50	17.43	5226.48	.671	36.98
4.00	5.71	5226.15	.209	11.49
4.50	1.86	5226.05	.067	3.69
5.00	.61	5226.02	.022	1.20
5.50	.20	5226.01	.007	.39
6.00	.06	5226.00	.002	.13
6.50	.02	5226.00	.001	.04
7.00	.00	5226.00	.000	.01
7.50	.00	5226.00	.000	.00

PEAK DISCHARGE = 113.015 CFS - PEAK OCCURS AT HOUR 2.30

MAXIMUM WATER SURFACE ELEVATION = 5228.194

MAXIMUM STORAGE = 3.2119 AC-FT INCREMENTAL TIME = .050000HRS

PRINT HYD ID=14 CODE=1

HYDROGRAPH FROM AREA POND6.OUT

RUNOFF VOLUME = .38392 INCHES = 16.9969 ACRE-FEET

PEAK DISCHARGE RATE = 113.01 CFS AT 2.300 HOURS BASIN AREA = .8301 SQ. MI.

*S

*S*****

*S

*S COMPUTE FLOWS FROM SUB-BASIN 202

COMPUTE NM HYD ID=15 HYD NO=INTOPOND8 AREA=0.0826 SQ MI

A=0 B=27 C=27 D=46

TP=0.1333 HR

MASS RAINFALL=-1

K = .073215HR TP = .133300HR K/TP RATIO = .549252 SHAPE CONSTANT, N = 7.036088

UNIT PEAK = 149.07 CFS UNIT VOLUME = .9990 B = 522.96 P60 = 1.6400

AREA = .037996 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .119466HR TP = .133300HR K/TP RATIO = .896217 SHAPE CONSTANT, N = 3.955535

UNIT PEAK = 117.85 CFS UNIT VOLUME = 1.001 B = 352.19 P60 = 1.6400

AREA = .044604 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA INTOPOND8

RUNOFF VOLUME = 1.52279 INCHES = 6.7083 ACRE-FEET

PEAK DISCHARGE RATE = 156.26 CFS AT 1.500 HOURS BASIN AREA = .0826 SQ. MI.

*S

*S COMPUTE FLOWS FROM SUB-BASIN 203S (DENNIS CHAVEZ BLVD - SOUTH HALF OF ROW 36'

COMPUTE NM HYD ID=16 HYD NO=203S.0 AREA=0.0386 SQ MI

A=0 B=35.6 C=35.6 D=28.8

TP=0.1333 HR

MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = 43.890 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.6400

AREA = .011117 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .119581HR TP = .133300HR K/TP RATIO = .897081 SHAPE CONSTANT, N = 3.951476

UNIT PEAK = 72.558 CFS UNIT VOLUME = 1.001 B = 351.92 P60 = 1.6400

AREA = .027483 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=16 CODE=1

HYDROGRAPH FROM AREA 203S.0

RUNOFF VOLUME = 1.21684 INCHES = 2.5050 ACRE-FEET

PEAK DISCHARGE RATE = 65.81 CFS AT 1.500 HOURS BASIN AREA = .0386 SQ. MI.

*S

ADD HYD ID=17 HYD=JUNCTION I=15 II=16

PRINT HYD ID=17 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	5.500	1.4	11.000	1.1	16.500	.9	22.000	.7
.500	.0	6.000	1.5	11.500	1.1	17.000	.9	22.500	.7
1.000	5.4	6.500	1.5	12.000	1.1	17.500	.9	23.000	.7
1.500	222.1	7.000	1.4	12.500	1.1	18.000	.9	23.500	.7
2.000	38.4	7.500	1.4	13.000	1.0	18.500	.8	24.000	.7
2.500	6.4	8.000	1.3	13.500	1.0	19.000	.8	24.500	.0
3.000	2.5	8.500	1.3	14.000	1.0	19.500	.8	25.000	.0
3.500	1.6	9.000	1.3	14.500	1.0	20.000	.8		
4.000	1.3	9.500	1.2	15.000	1.0	20.500	.8		
4.500	1.3	10.000	1.2	15.500	.9	21.000	.8		
5.000	1.3	10.500	1.2	16.000	.9	21.500	.8		

RUNOFF VOLUME = 1.42534 INCHES = 9.2134 ACRE-FEET

PEAK DISCHARGE RATE = 222.07 CFS AT 1.500 HOURS BASIN AREA = .1212 SQ. MI.

*S

*S ROUTE FLOWS THROUGH POND 8 - 30" ORIFICE

ROUTE RESERVOIR ID=18 HYD=POND8.OUT I=17 CODE=10

Q OUT STORE ELEV

0.0 0.0 5215

15.13 1.12 5216

21.39 2.32 5217

26.20 3.58 5218

30.25 4.92 5219

33.82 6.33 5220

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

.00	.00	5215.00	.000	.00
.50	.00	5215.00	.000	.00
1.00	5.37	5215.05	.057	.77
1.50	222.07	5216.89	2.187	20.70
2.00	38.41	5219.12	5.085	30.67
2.50	6.43	5218.71	4.533	29.08
3.00	2.50	5217.98	3.557	26.11
3.50	1.59	5217.25	2.633	22.58
4.00	1.33	5216.59	1.833	18.85
4.50	1.28	5216.05	1.181	15.45
5.00	1.31	5215.64	.717	9.69
5.50	1.39	5215.40	.453	6.12
6.00	1.48	5215.27	.305	4.12
6.50	1.48	5215.20	.221	2.99
7.00	1.44	5215.15	.173	2.33
7.50	1.40	5215.13	.143	1.94
8.00	1.35	5215.11	.125	1.69
8.50	1.31	5215.10	.113	1.53
9.00	1.27	5215.09	.106	1.43
9.50	1.24	5215.09	.100	1.35
10.00	1.20	5215.09	.096	1.29
10.50	1.18	5215.08	.092	1.25
11.00	1.14	5215.08	.089	1.21
11.50	1.11	5215.08	.087	1.17
12.00	1.09	5215.08	.084	1.14
12.50	1.06	5215.07	.082	1.11
13.00	1.03	5215.07	.080	1.08
13.50	1.02	5215.07	.078	1.06
14.00	.99	5215.07	.077	1.04
14.50	.98	5215.07	.075	1.01
15.00	.95	5215.07	.073	.99
15.50	.94	5215.06	.072	.97
16.00	.92	5215.06	.070	.95
16.50	.90	5215.06	.069	.93
17.00	.88	5215.06	.068	.92
17.50	.87	5215.06	.066	.90
18.00	.85	5215.06	.065	.88
18.50	.84	5215.06	.064	.87
19.00	.82	5215.06	.063	.85

19.50	.82	5215.06	.062	.84
20.00	.79	5215.05	.061	.82
20.50	.78	5215.05	.060	.81
21.00	.77	5215.05	.059	.80
21.50	.76	5215.05	.058	.78
22.00	.74	5215.05	.057	.77
22.50	.73	5215.05	.056	.76
23.00	.72	5215.05	.055	.75
23.50	.72	5215.05	.054	.74
24.00	.70	5215.05	.054	.73
24.50	.04	5215.03	.037	.51
25.00	.00	5215.02	.022	.29
25.50	.00	5215.01	.013	.17
26.00	.00	5215.01	.007	.10
26.50	.00	5215.00	.004	.06
27.00	.00	5215.00	.002	.03
27.50	.00	5215.00	.001	.02

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

28.00	.00	5215.00	.001	.01
28.50	.00	5215.00	.000	.01
29.00	.00	5215.00	.000	.00

PEAK DISCHARGE = 30.725 CFS - PEAK OCCURS AT HOUR 2.05

MAXIMUM WATER SURFACE ELEVATION = 5219.133

MAXIMUM STORAGE = 5.1078 AC-FT INCREMENTAL TIME = .050000HRS

PRINT HYD ID=18 CODE=1

HYDROGRAPH FROM AREA POND8.OUT

RUNOFF VOLUME = 1.42533 INCHES = 9.2133 ACRE-FEET

PEAK DISCHARGE RATE = 30.73 CFS AT 2.050 HOURS BASIN AREA = .1212 SQ. MI.

*S

*S COMPUTE FLOWS FROM SUB-BASIN 203N (DENNIS CHAVEZ BLVD - NORTH HALF OF ROW 36'

COMPUTE NM HYD ID=19 HYD NO=203N.0 AREA=0.0386 SQ MI

A=0 B=35.6 C=35.6 D=28.8

TP=0.1333 HR

MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = 43.890 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.6400

AREA = .011117 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .119581HR TP = .133300HR K/TP RATIO = .897081 SHAPE CONSTANT, N = 3.951476

UNIT PEAK = 72.558 CFS UNIT VOLUME = 1.001 B = 351.92 P60 = 1.6400

AREA = .027483 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=19 CODE=1

HYDROGRAPH FROM AREA 203N.0

RUNOFF VOLUME = 1.21684 INCHES = 2.5050 ACRE-FEET
 PEAK DISCHARGE RATE = 65.81 CFS AT 1.500 HOURS BASIN AREA = .0386 SQ. MI.

*S

*S COMPUTE FLOWS FROM SUB-BASIN 118TH (118TH STREET-4974' NORTH OF DENNIS CHAVEZ

COMPUTE NM HYD ID=28 HYD NO=118TH.0 AREA=0.017485 SQ MI

A=0 B=23.47 C=0 D=76.53

TP=0.1333 HR

MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 52.830 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.6400
 AREA = .013381 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .135039HR TP = .133300HR K/TP RATIO = 1.013045 SHAPE CONSTANT, N = 3.484507
 UNIT PEAK = 9.8267 CFS UNIT VOLUME = .9994 B = 319.20 P60 = 1.6400
 AREA = .004104 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=28 CODE=1

HYDROGRAPH FROM AREA 118TH.0

RUNOFF VOLUME = 2.03489 INCHES = 1.8976 ACRE-FEET
 PEAK DISCHARGE RATE = 38.00 CFS AT 1.500 HOURS BASIN AREA = .0175 SQ. MI.

*S

*S ADD THE FLOWS FROM POND6.ROUTE TO THE FLOWS FROM SUB-BASIN 203N

*S AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH1)

ADD HYD ID=20 HYD=JUNCTION I=19 II=14

PRINT HYD ID=20 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	5.000	1.5	10.000	.3	15.000	.2	20.000	.2
.500	.0	5.500	.7	10.500	.3	15.500	.2	20.500	.2
1.000	1.2	6.000	.5	11.000	.3	16.000	.2	21.000	.2
1.500	103.2	6.500	.4	11.500	.3	16.500	.2	21.500	.2
2.000	120.2	7.000	.3	12.000	.2	17.000	.2	22.000	.2
2.500	113.6	7.500	.3	12.500	.2	17.500	.2	22.500	.2

264

3.000	92.7	8.000	.3	13.000	.2	18.000	.2	23.000	.2
3.500	37.4	8.500	.3	13.500	.2	18.500	.2	23.500	.2
4.000	11.8	9.000	.3	14.000	.2	19.000	.2	24.000	.2
4.500	4.0	9.500	.3	14.500	.2	19.500	.2	24.500	.0

RUNOFF VOLUME = .42093 INCHES = 19.5020 ACRE-FEET

PEAK DISCHARGE RATE = 125.61 CFS AT 1.600 HOURS BASIN AREA = .8687 SQ. MI.

*S

*S ADD THE FLOWS FROM 118TH TO THE FLOWS AT MH1

ADD HYD ID=29 HYD=JUNCTION I=20 II=28

PRINT HYD ID=29 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	1.9	10.000	.6	15.000	.5	20.000	.4
.500	.0	5.500	1.1	10.500	.6	15.500	.5	20.500	.4
1.000	2.7	6.000	.9	11.000	.6	16.000	.5	21.000	.4
1.500	141.2	6.500	.8	11.500	.6	16.500	.5	21.500	.4
2.000	128.8	7.000	.7	12.000	.5	17.000	.4	22.000	.4
2.500	114.9	7.500	.7	12.500	.5	17.500	.4	22.500	.4
3.000	93.3	8.000	.7	13.000	.5	18.000	.4	23.000	.4
3.500	37.8	8.500	.7	13.500	.5	18.500	.4	23.500	.4
4.000	12.1	9.000	.6	14.000	.5	19.000	.4	24.000	.3
4.500	4.3	9.500	.6	14.500	.5	19.500	.4	24.500	.0

RUNOFF VOLUME = .45278 INCHES = 21.3996 ACRE-FEET

PEAK DISCHARGE RATE = 154.03 CFS AT 1.550 HOURS BASIN AREA = .8862 SQ. MI.

*S

*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLO

*S FROM POND8.ROUTE AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ (MH

ADD HYD ID=21 HYD=JUNCTION I=29 II=18

PRINT HYD ID=21 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	5.0	12.000	1.7	18.000	1.3	24.000	1.1
.500	.0	6.500	3.8	12.500	1.6	18.500	1.3	24.500	.5
1.000	3.5	7.000	3.1	13.000	1.6	19.000	1.3	25.000	.3
1.500	161.9	7.500	2.6	13.500	1.6	19.500	1.2	25.500	.2
2.000	159.5	8.000	2.4	14.000	1.5	20.000	1.2	26.000	.1
2.500	144.0	8.500	2.2	14.500	1.5	20.500	1.2	26.500	.1
3.000	119.4	9.000	2.1	15.000	1.5	21.000	1.2	27.000	.0
3.500	60.4	9.500	2.0	15.500	1.4	21.500	1.2	27.500	.0
4.000	31.0	10.000	1.9	16.000	1.4	22.000	1.1	28.000	.0
4.500	19.8	10.500	1.8	16.500	1.4	22.500	1.1	28.500	.0
5.000	11.5	11.000	1.8	17.000	1.4	23.000	1.1	29.000	.0
5.500	7.2	11.500	1.7	17.500	1.3	23.500	1.1	29.500	.0

265

RUNOFF VOLUME = .56979 INCHES = 30.6128 ACRE-FEET
 PEAK DISCHARGE RATE = 177.87 CFS AT 1.550 HOURS BASIN AREA = 1.0074 SQ. MI.

*S

*S

*S COMPUTE FLOWS FROM SUB-BASIN 204W (COMMERCIAL TRACT DIRECTLY TO CHANNEL)

COMPUTE NM HYD ID=22 HYD NO=204.0 AREA=0.040372 SQ MI

A=0 B=20 C=0 D=80

TP=0.1333 HR

MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 127.51 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 1.6400
 AREA = .032298 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .135039HR TP = .133300HR K/TP RATIO = 1.013045 SHAPE CONSTANT, N = 3.484507
 UNIT PEAK = 19.335 CFS UNIT VOLUME = 1.000 B = 319.20 P60 = 1.6400
 AREA = .008074 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=22 CODE=1

PARTIAL HYDROGRAPH 204.00

RUNOFF VOLUME = 2.10119 INCHES = 4.5242 ACRE-FEET
 PEAK DISCHARGE RATE = 89.62 CFS AT 1.500 HOURS BASIN AREA = .0404 SQ. MI.

*S

*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLO

*S FROM SUB-BASIN 204W AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ

ADD HYD ID=23 HYD=JUNCTION I=21 II=22

PRINT HYD ID=23 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	6.0	12.000	2.4	18.000	1.9	24.000	1.5
.500	.0	6.500	4.7	12.500	2.3	18.500	1.8	24.500	.5
1.000	7.0	7.000	4.0	13.000	2.3	19.000	1.8	25.000	.3
1.500	251.5	7.500	3.6	13.500	2.2	19.500	1.8	25.500	.2
2.000	180.1	8.000	3.2	14.000	2.2	20.000	1.7	26.000	.1
2.500	147.1	8.500	3.0	14.500	2.1	20.500	1.7	26.500	.1
3.000	120.8	9.000	2.9	15.000	2.1	21.000	1.7	27.000	.0
3.500	61.3	9.500	2.8	15.500	2.1	21.500	1.7	27.500	.0
4.000	31.9	10.000	2.7	16.000	2.0	22.000	1.6	28.000	.0
4.500	20.6	10.500	2.6	16.500	2.0	22.500	1.6	28.500	.0

5.000	12.4	11.000	2.5	17.000	1.9	23.000	1.6	29.000	.0
5.500	8.1	11.500	2.5	17.500	1.9	23.500	1.6	29.500	.0

RUNOFF VOLUME = .62879 INCHES = 35.1370 ACRE-FEET
 PEAK DISCHARGE RATE = 256.35 CFS AT 1.550 HOURS BASIN AREA = 1.0478 SQ. MI.

*S

*S COMPUTE FLOWS FROM SUB-BASIN 204E (ANDERSON HEIGHTS DIRECTLY TO CHANNEL)

COMPUTE NM HYD ID=24 HYD NO=206.0 AREA=0.0940 SQ MI

A=0 B=43.74 C=0 D=56.26

TP=0.13 HR

MASS RAINFALL=-1

K = .071716HR TP = .130000HR K/TP RATIO = .551663 SHAPE CONSTANT, N = 6.996823
 UNIT PEAK = 211.99 CFS UNIT VOLUME = .9993 B = 521.10 P60 = 1.6400
 AREA = .052884 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .130613HR TP = .130000HR K/TP RATIO = 1.004712 SHAPE CONSTANT, N = 3.513590
 UNIT PEAK = 101.63 CFS UNIT VOLUME = 1.001 B = 321.32 P60 = 1.6400
 AREA = .041116 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=24 CODE=1

PARTIAL HYDROGRAPH 206.00

RUNOFF VOLUME = 1.64761 INCHES = 8.2600 ACRE-FEET
 PEAK DISCHARGE RATE = 180.17 CFS AT 1.500 HOURS BASIN AREA = .0940 SQ. MI.

*S

*S ADD THE FLOWS FROM THE JUNCTION ON THE NORTH SIDE OF DENNIS CHAVEZ TO THE FLO

*S FROM SUB-BASIN 204E AT THE JUNCTION POINT ON THE NORTH SIDE OF DENNIS CHAVEZ

*S THIS IS THE FLOW THAT WILL ENTER THE RIO BRAVO CHANNEL AT THE EASTERN EDGE OF

*S ANDERSON HEIGHTS

ADD HYD ID=25 HYD=JUNCTION I=23 II=24

PRINT HYD ID=25 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	7.6	12.000	3.6	18.000	2.8	24.000	2.3
.500	.0	6.500	6.3	12.500	3.5	18.500	2.7	24.500	.6
1.000	12.8	7.000	5.6	13.000	3.4	19.000	2.7	25.000	.3
1.500	431.7	7.500	5.1	13.500	3.3	19.500	2.7	25.500	.2
2.000	216.3	8.000	4.7	14.000	3.3	20.000	2.6	26.000	.1
2.500	152.9	8.500	4.5	14.500	3.2	20.500	2.6	26.500	.1
3.000	123.2	9.000	4.3	15.000	3.1	21.000	2.5	27.000	.0

3.500	63.0	9.500	4.1	15.500	3.1	21.500	2.5	27.500	.0
4.000	33.3	10.000	4.0	16.000	3.0	22.000	2.4	28.000	.0
4.500	22.0	10.500	3.9	16.500	2.9	22.500	2.4	28.500	.0
5.000	13.8	11.000	3.8	17.000	2.9	23.000	2.4	29.000	.0
5.500	9.6	11.500	3.7	17.500	2.8	23.500	2.3	29.500	.0

RUNOFF VOLUME = .71267 INCHES = 43.3970 ACRE-FEET
 PEAK DISCHARGE RATE = 431.66 CFS AT 1.500 HOURS BASIN AREA = 1.1418 SQ. MI.

*S

*S COMPUTE FLOWS FROM SUB-BASINS 205, 206, 60122 & 60123 (ANDERSON HEIGHTS TO PO
 COMPUTE NM HYD ID=26 HYD NO=INTOPOND10 AREA=0.266890 SQ MI

A=0 B=43.74 C=0 D=56.26

TP=0.1333 HR

MASS RAINFALL=-1

K = .078411HR TP = .133300HR K/TP RATIO = .588233 SHAPE CONSTANT, N = 6.450921
 UNIT PEAK = 557.17 CFS UNIT VOLUME = .9985 B = 494.64 P60 = 1.6400
 AREA = .150152 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .127832HR TP = .133300HR K/TP RATIO = .958978 SHAPE CONSTANT, N = 3.684588
 UNIT PEAK = 292.12 CFS UNIT VOLUME = 1.001 B = 333.56 P60 = 1.6400
 AREA = .116738 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=26 CODE=1

HYDROGRAPH FROM AREA INTOPOND10

RUNOFF VOLUME = 1.64761 INCHES = 23.4521 ACRE-FEET
 PEAK DISCHARGE RATE = 501.99 CFS AT 1.500 HOURS BASIN AREA = .2669 SQ. MI.

*S

*S ROUTE FLOWS THROUGH POND 10 - 30" ORIFICE

ROUTE RESERVOIR ID=27 HYD=POND10.OUT I=26 CODE=10

Q OUT STORE ELEV

0.0	0.00	5235
23.64	2.15	5236
33.49	4.38	5237
40.94	6.71	5238
47.27	9.12	5239
52.85	11.63	5240
57.89	14.23	5241
62.53	16.93	5242

* * * * *

TIME INFLOW ELEV VOLUME OUTFLOW

(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
.00	.00	5235.00	.000	.00
.50	.00	5235.00	.000	.00
1.00	16.20	5235.08	.175	1.93
1.50	501.99	5237.41	5.344	36.57
2.00	104.39	5240.47	12.854	55.22
2.50	17.43	5240.31	12.449	54.44
3.00	7.16	5239.64	10.729	50.85
3.50	4.77	5238.93	8.946	46.81
4.00	4.05	5238.24	7.283	42.44
4.50	3.94	5237.60	5.783	37.98
5.00	4.00	5237.04	4.466	33.77
5.50	4.23	5236.53	3.343	28.91
6.00	4.53	5236.12	2.416	24.82
6.50	4.52	5235.79	1.693	18.61
7.00	4.40	5235.57	1.222	13.43
7.50	4.27	5235.43	.919	10.10
8.00	4.12	5235.34	.722	7.93
8.50	4.00	5235.28	.592	6.51
9.00	3.88	5235.24	.506	5.57
9.50	3.79	5235.21	.448	4.93
10.00	3.68	5235.19	.408	4.49
10.50	3.60	5235.18	.379	4.17
11.00	3.49	5235.17	.358	3.94
11.50	3.40	5235.16	.341	3.75
12.00	3.32	5235.15	.329	3.61
12.50	3.23	5235.15	.317	3.49
13.00	3.14	5235.14	.308	3.39
13.50	3.10	5235.14	.300	3.30
14.00	3.04	5235.14	.292	3.22
14.50	3.00	5235.13	.285	3.14
15.00	2.92	5235.13	.279	3.07
15.50	2.87	5235.13	.273	3.00
16.00	2.80	5235.12	.267	2.94
16.50	2.76	5235.12	.262	2.88
17.00	2.70	5235.12	.257	2.83
17.50	2.66	5235.12	.252	2.77
18.00	2.60	5235.12	.247	2.72
18.50	2.56	5235.11	.243	2.67
19.00	2.52	5235.11	.239	2.62
19.50	2.49	5235.11	.234	2.58
20.00	2.42	5235.11	.230	2.53
20.50	2.40	5235.11	.226	2.49
21.00	2.36	5235.10	.223	2.45
21.50	2.32	5235.10	.219	2.41
22.00	2.26	5235.10	.216	2.37
22.50	2.24	5235.10	.213	2.34
23.00	2.22	5235.10	.209	2.30
23.50	2.20	5235.10	.206	2.26
24.00	2.14	5235.09	.203	2.24
24.50	.13	5235.07	.152	1.67
25.00	.02	5235.05	.098	1.08
25.50	.00	5235.03	.062	.69
26.00	.00	5235.02	.040	.44
26.50	.00	5235.01	.025	.28
27.00	.00	5235.01	.016	.18

27.50 .00 5235.00 .010 .11

TIME INFLOW ELEV VOLUME OUTFLOW
(HRS) (CFS) (FEET) (AC-FT) (CFS)

28.00 .00 5235.00 .006 .07

28.50 .00 5235.00 .004 .04

29.00 .00 5235.00 .003 .03

29.50 .00 5235.00 .002 .02

PEAK DISCHARGE = 55.869 CFS - PEAK OCCURS AT HOUR 2.15

MAXIMUM WATER SURFACE ELEVATION = 5240.599

MAXIMUM STORAGE = 13.1872 AC-FT INCREMENTAL TIME = .050000HRS

PRINT HYD ID=27 CODE=1

HYDROGRAPH FROM AREA POND10.OUT

RUNOFF VOLUME = 1.64753 INCHES = 23.4510 ACRE-FEET

PEAK DISCHARGE RATE = 55.87 CFS AT 2.150 HOURS BASIN AREA = .2669 SQ. MI.

*S

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1

SLP=0.024 D=3.0 N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.16	.14	.54	1.33
.31	.39	2.35	1.83
.47	.71	5.47	2.18
.63	1.07	9.84	2.44
.78	1.46	15.36	2.63
.94	1.89	21.92	2.78
1.09	2.33	29.36	2.89
1.25	2.79	37.54	2.96
1.41	3.26	46.28	2.99
1.56	3.72	55.39	3.00
1.72	4.19	64.66	3.00
1.88	4.65	73.88	3.00
2.03	5.10	82.81	3.00
2.19	5.53	91.16	3.00
2.35	5.93	98.65	3.00
2.50	6.30	104.87	3.00
2.66	6.62	109.32	3.00
2.81	6.89	111.15	3.00
3.00	7.07	111.15	3.00

COMPUTE TRAVEL TIME ID=4 REACH NO=1 NO VS=1 L=1900 FT

SLP=0.024

TRAVEL TIME TABLE

REACH= 1.0

WATER	AVERAGE	FLOW	TRAVEL
DEPTH	AREA	RATE	TIME
FEET	SQ.FT.	CFS	HRS
.156	.140	.54	.1368
.313	.391	2.35	.0877
.469	.706	5.47	.0681
.625	1.068	9.84	.0573
.782	1.465	15.36	.0503
.938	1.889	21.92	.0455
1.094	2.332	29.36	.0419
1.251	2.790	37.54	.0392
1.407	3.255	46.28	.0371
1.563	3.724	55.39	.0355
1.720	4.191	64.66	.0342
1.876	4.650	73.88	.0332
2.032	5.097	82.81	.0325
2.189	5.525	91.16	.0320
2.345	5.928	98.65	.0317
2.501	6.297	104.87	.0317
2.658	6.622	109.32	.0320
2.814	6.887	111.15	.0327
3.000	7.069	111.15	.0336

ROUTE OUTFLOW ID=4 OUTFLOW HYD=209.1
 INFLOW ID=27 DT=0.0
 PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 209.10

RUNOFF VOLUME = 1.64752 INCHES = 23.4509 ACRE-FEET
 PEAK DISCHARGE RATE = 55.84 CFS AT 2.200 HOURS BASIN AREA = .2669 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=207.0 DA=0.03023 SQ MI
 %A, B, C, & D 0 27 27 46
 TP=0.18 HR
 MASS RAINFALL=-1

K = .098100HR TP = .180000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 40.657 CFS UNIT VOLUME = .9993 B = 526.28 P60 = 1.6400
 AREA = .013906 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .161475HR TP = .180000HR K/TP RATIO = .897081 SHAPE CONSTANT, N = 3.951476
 UNIT PEAK = 31.916 CFS UNIT VOLUME = .9999 B = 351.92 P60 = 1.6400
 AREA = .016324 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 207.00

RUNOFF VOLUME = 1.52279 INCHES = 2.4551 ACRE-FEET
 PEAK DISCHARGE RATE = 48.84 CFS AT 1.550 HOURS BASIN AREA = .0302 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=4 II=1
 PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	25.5	12.000	3.9	18.000	3.0	24.000	2.4
.500	.0	6.500	19.5	12.500	3.8	18.500	2.9	24.500	1.8
1.000	2.2	7.000	14.1	13.000	3.7	19.000	2.9	25.000	1.2
1.500	77.6	7.500	10.7	13.500	3.6	19.500	2.8	25.500	.8
2.000	67.0	8.000	8.5	14.000	3.5	20.000	2.8	26.000	.5
2.500	57.1	8.500	7.0	14.500	3.4	20.500	2.7	26.500	.3
3.000	52.1	9.000	6.0	15.000	3.3	21.000	2.7	27.000	.2
3.500	47.6	9.500	5.3	15.500	3.3	21.500	2.6	27.500	.1
4.000	43.1	10.000	4.9	16.000	3.2	22.000	2.6	28.000	.1
4.500	38.6	10.500	4.5	16.500	3.1	22.500	2.6	28.500	.1
5.000	34.4	11.000	4.3	17.000	3.1	23.000	2.5	29.000	.0
5.500	29.6	11.500	4.1	17.500	3.0	23.500	2.5	29.500	.0

RUNOFF VOLUME = 1.63483 INCHES = 25.9060 ACRE-FEET
 PEAK DISCHARGE RATE = 88.50 CFS AT 1.600 HOURS BASIN AREA = .2971 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
 SLP=0.007 D=4.0 N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.21	.25	.63	1.78
.42	.69	2.74	2.44
.63	1.25	6.36	2.91
.83	1.90	11.44	3.25
1.04	2.60	17.87	3.51
1.25	3.36	25.49	3.71
1.46	4.15	34.15	3.85
1.67	4.96	43.66	3.94
1.88	5.79	53.83	3.99
2.08	6.62	64.42	4.00
2.29	7.45	75.21	4.00
2.50	8.27	85.93	4.00
2.71	9.06	96.31	4.00
2.92	9.82	106.03	4.00
3.13	10.54	114.73	4.00
3.34	11.20	121.97	4.00
3.54	11.77	127.15	4.00
3.75	12.24	129.28	4.00
4.00	12.57	129.28	4.00

COMPUTE TRAVEL TIME ID=4 REACH NO=1 NO VS=1 L=560 FT
SLP=0.007

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.208	.250	.63	.0616
.417	.695	2.74	.0395
.625	1.255	6.36	.0307
.834	1.898	11.44	.0258
1.042	2.604	17.87	.0227
1.251	3.358	25.49	.0205
1.459	4.146	34.15	.0189
1.668	4.960	43.66	.0177
1.876	5.788	53.83	.0167
2.084	6.621	64.42	.0160
2.293	7.451	75.21	.0154
2.501	8.267	85.93	.0150
2.710	9.062	96.31	.0146
2.918	9.823	106.03	.0144
3.127	10.539	114.73	.0143
3.335	11.195	121.97	.0143
3.544	11.773	127.15	.0144
3.752	12.243	129.28	.0147
4.000	12.566	129.28	.0151

ROUTE OUTFLOW ID=4 OUTFLOW HYD=208.1
 INFLOW ID=2 DT=0.0
PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 208.10

RUNOFF VOLUME = 1.63482 INCHES = 25.9059 ACRE-FEET
PEAK DISCHARGE RATE = 88.98 CFS AT 1.600 HOURS BASIN AREA = .2971 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=208.A DA=0.03201 SQ MI
%A, B, C, & D 0 29.5 29.5 41
TP=0.15 HR
MASS RAINFALL=-1

K = .081750HR TP = .150000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 46.046 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.6400
AREA = .013124 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .134562HR TP = .150000HR K/TP RATIO = .897081 SHAPE CONSTANT, N = 3.951474
UNIT PEAK = 44.309 CFS UNIT VOLUME = 1.000 B = 351.92 P60 = 1.6400
AREA = .018886 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 208.A

RUNOFF VOLUME = 1.43385 INCHES = 2.4479 ACRE-FEET
 PEAK DISCHARGE RATE = 54.71 CFS AT 1.500 HOURS BASIN AREA = .0320 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=4 II=1
 PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	26.0	12.000	4.2	18.000	3.2	24.000	2.6
.500	.0	6.500	20.1	12.500	4.1	18.500	3.1	24.500	1.8
1.000	3.0	7.000	14.7	13.000	4.0	19.000	3.1	25.000	1.2
1.500	128.6	7.500	11.2	13.500	3.9	19.500	3.0	25.500	.8
2.000	78.0	8.000	8.9	14.000	3.8	20.000	3.0	26.000	.5
2.500	59.2	8.500	7.4	14.500	3.7	20.500	2.9	26.500	.3
3.000	52.9	9.000	6.4	15.000	3.6	21.000	2.9	27.000	.2
3.500	48.2	9.500	5.7	15.500	3.5	21.500	2.8	27.500	.1
4.000	43.6	10.000	5.2	16.000	3.5	22.000	2.8	28.000	.1
4.500	39.1	10.500	4.9	16.500	3.4	22.500	2.7	28.500	.1
5.000	34.8	11.000	4.6	17.000	3.3	23.000	2.7	29.000	.0
5.500	30.1	11.500	4.4	17.500	3.3	23.500	2.7	29.500	.0

RUNOFF VOLUME = 1.61528 INCHES = 28.3537 ACRE-FEET
 PEAK DISCHARGE RATE = 138.94 CFS AT 1.550 HOURS BASIN AREA = .3291 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
 SLP=0.010 D=4.0 N=0.013

RATING CURVE PIPE SECTION 1.0

WATER	FLOW	FLOW	MAX
SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT	CFS	FT
.00	.00	.00	.00
.21	.25	.75	1.78
.42	.69	3.27	2.44
.63	1.25	7.60	2.91
.83	1.90	13.68	3.25
1.04	2.60	21.35	3.51
1.25	3.36	30.47	3.71
1.46	4.15	40.82	3.85
1.67	4.96	52.19	3.94
1.88	5.79	64.33	3.99
2.08	6.62	77.00	4.00
2.29	7.45	89.89	4.00
2.50	8.27	102.71	4.00
2.71	9.06	115.11	4.00

2.92	9.82	126.73	4.00
3.13	10.54	137.13	4.00
3.34	11.20	145.78	4.00
3.54	11.77	151.97	4.00
3.75	12.24	154.52	4.00
4.00	12.57	154.52	4.00

COMPUTE TRAVEL TIME ID=4 REACH NO=1 NO VS=1 L=600 FT
SLP=0.010

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.208	.250	.75	.0553
.417	.695	3.27	.0354
.625	1.255	7.60	.0275
.834	1.898	13.68	.0231
1.042	2.604	21.35	.0203
1.251	3.358	30.47	.0184
1.459	4.146	40.82	.0169
1.668	4.960	52.19	.0158
1.876	5.788	64.33	.0150
2.084	6.621	77.00	.0143
2.293	7.451	89.89	.0138
2.501	8.267	102.71	.0134
2.710	9.062	115.11	.0131
2.918	9.823	126.73	.0129
3.127	10.539	137.13	.0128
3.335	11.195	145.78	.0128
3.544	11.773	151.97	.0129
3.752	12.243	154.52	.0132
4.000	12.566	154.52	.0136

ROUTE OUTFLOW ID=4 OUTFLOW HYD=209.1
INFLOW ID=2 DT=0.0
PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 209.10

RUNOFF VOLUME = 1.61527 INCHES = 28.3537 ACRE-FEET
PEAK DISCHARGE RATE = 138.32 CFS AT 1.550 HOURS BASIN AREA = .3291 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=208.B DA=0.02696 SQ MI
%A, B, C, & D 0 26.5 26.5 47
TP=0.1333 HR
MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 50.027 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.6400
AREA = .012671 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .119581HR TP = .133300HR K/TP RATIO = .897081 SHAPE CONSTANT, N = 3.951476
 UNIT PEAK = 37.723 CFS UNIT VOLUME = 1.001 B = 351.92 P60 = 1.6400
 AREA = .014289 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 208.B

RUNOFF VOLUME = 1.54057 INCHES = 2.2151 ACRE-FEET
 PEAK DISCHARGE RATE = 51.38 CFS AT 1.500 HOURS BASIN AREA = .0270 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=4 II=1
 PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	26.5	12.000	4.5	18.000	3.4	24.000	2.8
.500	.0	6.500	20.6	12.500	4.4	18.500	3.4	24.500	1.9
1.000	3.8	7.000	15.2	13.000	4.2	19.000	3.3	25.000	1.3
1.500	174.9	7.500	11.6	13.500	4.1	19.500	3.2	25.500	.8
2.000	87.9	8.000	9.3	14.000	4.0	20.000	3.2	26.000	.5
2.500	61.0	8.500	7.8	14.500	3.9	20.500	3.1	26.500	.4
3.000	53.7	9.000	6.7	15.000	3.9	21.000	3.1	27.000	.2
3.500	48.7	9.500	6.0	15.500	3.8	21.500	3.0	27.500	.1
4.000	44.0	10.000	5.5	16.000	3.7	22.000	3.0	28.000	.1
4.500	39.5	10.500	5.2	16.500	3.6	22.500	2.9	28.500	.1
5.000	35.3	11.000	4.9	17.000	3.6	23.000	2.9	29.000	.0
5.500	30.6	11.500	4.7	17.500	3.5	23.500	2.9	29.500	.0

RUNOFF VOLUME = 1.60961 INCHES = 30.5688 ACRE-FEET
 PEAK DISCHARGE RATE = 183.86 CFS AT 1.550 HOURS BASIN AREA = .3561 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=209.0 DA=0.0111 SQ MI
 %A, B, C, & D 0 11 24 65
 TP=0.27 HR
 MASS RAINFALL=-1

K = .147150HR TP = .270000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 14.063 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.6400
 AREA = .007215 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .230582HR TP = .270000HR K/TP RATIO = .854009 SHAPE CONSTANT, N = 4.166404
 UNIT PEAK = 5.2680 CFS UNIT VOLUME = .9976 B = 366.12 P60 = 1.6400
 AREA = .003885 SQ MI IA = .39714 INCHES INF = .96200 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 209.00

RUNOFF VOLUME = 1.88065 INCHES = 1.1133 ACRE-FEET

PEAK DISCHARGE RATE = 16.34 CFS AT 1.650 HOURS BASIN AREA = .0111 SQ. MI.

ADD HYD ID=4 HYD=JUNCTION I=2 II=1

PRINT HYD ID=4 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	26.7	12.000	4.7	18.000	3.5	24.000	2.9
.500	.0	6.500	20.8	12.500	4.5	18.500	3.5	24.500	1.9
1.000	4.2	7.000	15.4	13.000	4.4	19.000	3.4	25.000	1.3
1.500	185.3	7.500	11.8	13.500	4.3	19.500	3.4	25.500	.8
2.000	94.9	8.000	9.5	14.000	4.2	20.000	3.3	26.000	.5
2.500	62.7	8.500	8.0	14.500	4.1	20.500	3.3	26.500	.4
3.000	54.4	9.000	6.9	15.000	4.0	21.000	3.2	27.000	.2
3.500	49.1	9.500	6.2	15.500	3.9	21.500	3.1	27.500	.1
4.000	44.3	10.000	5.7	16.000	3.8	22.000	3.1	28.000	.1
4.500	39.7	10.500	5.3	16.500	3.8	22.500	3.1	28.500	.1
5.000	35.5	11.000	5.1	17.000	3.7	23.000	3.0	29.000	.0
5.500	30.8	11.500	4.9	17.500	3.6	23.500	3.0	29.500	.0

RUNOFF VOLUME = 1.61781 INCHES = 31.6821 ACRE-FEET

PEAK DISCHARGE RATE = 197.69 CFS AT 1.550 HOURS BASIN AREA = .3672 SQ. MI.

ADD HYD ID=3 HYD=JUNCTION I=4 II=25

PRINT HYD ID=3 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	34.2	12.000	8.2	18.000	6.3	24.000	5.2
.500	.0	6.500	27.2	12.500	8.0	18.500	6.2	24.500	2.5
1.000	17.0	7.000	20.9	13.000	7.8	19.000	6.1	25.000	1.6
1.500	617.0	7.500	16.9	13.500	7.6	19.500	6.0	25.500	1.0
2.000	311.2	8.000	14.2	14.000	7.4	20.000	5.9	26.000	.6
2.500	215.6	8.500	12.4	14.500	7.3	20.500	5.8	26.500	.4
3.000	177.6	9.000	11.2	15.000	7.1	21.000	5.7	27.000	.3
3.500	112.1	9.500	10.3	15.500	7.0	21.500	5.6	27.500	.2
4.000	77.6	10.000	9.7	16.000	6.8	22.000	5.5	28.000	.1
4.500	61.7	10.500	9.2	16.500	6.7	22.500	5.4	28.500	.1
5.000	49.3	11.000	8.8	17.000	6.6	23.000	5.4	29.000	.0
5.500	40.4	11.500	8.5	17.500	6.5	23.500	5.3	29.500	.0

RUNOFF VOLUME = .93293 INCHES = 75.0790 ACRE-FEET
 PEAK DISCHARGE RATE = 617.01 CFS AT 1.500 HOURS BASIN AREA = 1.5089 SQ. MI.

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.028 FS=0.028 N=0.013 DIST=26
 DIST EL DIST EL
 0 104 08 100
 18 100 26 104

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.21	2.19	14.38	10.84
100.42	4.57	46.14	11.68
100.63	7.11	91.86	12.53
100.84	9.84	150.45	13.37
101.05	12.74	221.50	14.21
101.26	15.82	304.88	15.05
101.47	19.08	400.61	15.89
101.68	22.52	508.81	16.74
101.89	26.13	629.67	17.58
102.11	29.92	763.40	18.42
102.32	33.88	910.26	19.26
102.53	38.03	1070.51	20.11
102.74	42.35	1244.44	20.95
102.95	46.85	1432.33	21.79
103.16	51.52	1634.48	22.63
103.37	56.38	1851.19	23.47
103.58	61.41	2082.77	24.32
103.79	66.61	2329.51	25.16
104.00	72.00	2591.73	26.00

COMPUTE TRAVEL TIME ID=4 RN=1 NVS=1 L=2750 S=0.028

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.211	2.194	14.38	.1166
.421	4.565	46.14	.0756
.632	7.114	91.86	.0592
.842	9.839	150.45	.0500
1.053	12.742	221.50	.0439
1.263	15.823	304.88	.0396
1.474	19.080	400.61	.0364
1.684	22.515	508.81	.0338
1.895	26.127	629.67	.0317
2.105	29.917	763.40	.0299
2.316	33.883	910.26	.0284
2.526	38.028	1070.51	.0271
2.737	42.349	1244.44	.0260

	2.947	46.847	1432.33	.0250
	3.158	51.523	1634.48	.0241
	3.368	56.376	1851.19	.0233
	3.579	61.407	2082.77	.0225
	3.789	66.615	2329.51	.0218
	4.000	72.000	2591.73	.0212
ROUTE	ID=4 HYD=210.1 INFLOW ID=3 DT=0.0			
PRINT HYD	ID=4 CODE=1			

PARTIAL HYDROGRAPH 210.10

RUNOFF VOLUME = .93293 INCHES = 75.0789 ACRE-FEET
 PEAK DISCHARGE RATE = 623.83 CFS AT 1.550 HOURS BASIN AREA = 1.5089 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=211.0 DA=0.1530 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.21 HR
 MASS RAINFALL=-1

K = .118470HR TP = .210000HR K/TP RATIO = .564143 SHAPE CONSTANT, N = 6.800429
 UNIT PEAK = 212.51 CFS UNIT VOLUME = 1.000 B = 511.72 P60 = 1.6400
 AREA = .087210 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .180544HR TP = .210000HR K/TP RATIO = .859733 SHAPE CONSTANT, N = 4.136265
 UNIT PEAK = 114.08 CFS UNIT VOLUME = 1.000 B = 364.15 P60 = 1.6400
 AREA = .065790 SQ MI IA = .39884 INCHES INF = .96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 211.00

RUNOFF VOLUME = 1.74130 INCHES = 14.2090 ACRE-FEET
 PEAK DISCHARGE RATE = 242.18 CFS AT 1.600 HOURS BASIN AREA = .1530 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=212.0 DA=0.0095 SQ MI
 %A, B, C, & D 0 11 24 65
 TP=0.19 HR
 MASS RAINFALL=-1

K = .103550HR TP = .190000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 17.104 CFS UNIT VOLUME = .9996 B = 526.28 P60 = 1.6400
 AREA = .006175 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .162262HR TP = .190000HR K/TP RATIO = .854009 SHAPE CONSTANT, N = 4.166404

UNIT PEAK = 6.4070 CFS UNIT VOLUME = .9985 B = 366.12 P60 = 1.6400
 AREA = .003325 SQ MI IA = .39714 INCHES INF = .96200 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 212.00

RUNOFF VOLUME = 1.88065 INCHES = .9529 ACRE-FEET
 PEAK DISCHARGE RATE = 17.11 CFS AT 1.550 HOURS BASIN AREA = .0095 SQ. MI.

ADD HYD ID=3 HYD=JUNCTION I=1 II=2
 PRINT HYD ID=3 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	5.500	2.6	11.000	2.2	16.500	1.7	22.000	1.4
.500	.0	6.000	2.8	11.500	2.1	17.000	1.7	22.500	1.4
1.000	7.2	6.500	2.8	12.000	2.1	17.500	1.7	23.000	1.4
1.500	220.9	7.000	2.7	12.500	2.0	18.000	1.6	23.500	1.4
2.000	81.9	7.500	2.7	13.000	2.0	18.500	1.6	24.000	1.3
2.500	18.3	8.000	2.6	13.500	1.9	19.000	1.6	24.500	.2
3.000	7.5	8.500	2.5	14.000	1.9	19.500	1.5	25.000	.0
3.500	4.0	9.000	2.4	14.500	1.9	20.000	1.5	25.500	.0
4.000	2.9	9.500	2.4	15.000	1.8	20.500	1.5	26.000	.0
4.500	2.6	10.000	2.3	15.500	1.8	21.000	1.5		
5.000	2.5	10.500	2.2	16.000	1.7	21.500	1.5		

RUNOFF VOLUME = 1.74945 INCHES = 15.1618 ACRE-FEET
 PEAK DISCHARGE RATE = 258.60 CFS AT 1.550 HOURS BASIN AREA = .1625 SQ. MI.

ADD HYD ID=5 HYD=JUNCTION I=3 II=4
 PRINT HYD ID=5 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	37.5	12.000	10.4	18.000	8.0	24.000	6.6
.500	.0	6.500	31.0	12.500	10.1	18.500	7.8	24.500	3.0
1.000	17.6	7.000	24.5	13.000	9.8	19.000	7.7	25.000	1.8
1.500	787.8	7.500	20.2	13.500	9.6	19.500	7.6	25.500	1.1
2.000	398.9	8.000	17.2	14.000	9.4	20.000	7.4	26.000	.7
2.500	236.0	8.500	15.3	14.500	9.2	20.500	7.3	26.500	.5
3.000	188.2	9.000	13.9	15.000	9.0	21.000	7.2	27.000	.3
3.500	120.2	9.500	12.9	15.500	8.8	21.500	7.1	27.500	.2
4.000	82.0	10.000	12.1	16.000	8.6	22.000	7.0	28.000	.1
4.500	65.4	10.500	11.5	16.500	8.4	22.500	6.9	28.500	.1

5.000	52.9	11.000	11.1	17.000	8.3	23.000	6.8	29.000	.0
5.500	43.4	11.500	10.7	17.500	8.1	23.500	6.7	29.500	.0

RUNOFF VOLUME = 1.01231 INCHES = 90.2406 ACRE-FEET
 PEAK DISCHARGE RATE = 882.43 CFS AT 1.550 HOURS BASIN AREA = 1.6714 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=214.0 DA=0.0593 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.21 HR
 MASS RAINFALL=-1

K = .114450HR TP = .210000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 84.708 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.6400
 AREA = .033801 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .179892HR TP = .210000HR K/TP RATIO = .856628 SHAPE CONSTANT, N = 4.152552
 UNIT PEAK = 44.346 CFS UNIT VOLUME = .9999 B = 365.22 P60 = 1.6400
 AREA = .025499 SQ MI IA = .39884 INCHES INF = .96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 214.00

RUNOFF VOLUME = 1.74131 INCHES = 5.5071 ACRE-FEET
 PEAK DISCHARGE RATE = 94.84 CFS AT 1.600 HOURS BASIN AREA = .0593 SQ. MI.

ADD HYD ID=3 HYD=JUNCTION I=5 II=1
 PRINT HYD ID=3 CODE=10

HYDROGRAPH FROM AREA JUNCTION

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	38.5	12.000	11.1	18.000	8.6	24.000	7.1
.500	.0	6.500	32.0	12.500	10.8	18.500	8.4	24.500	3.1
1.000	20.3	7.000	25.5	13.000	10.5	19.000	8.3	25.000	1.8
1.500	868.2	7.500	21.1	13.500	10.3	19.500	8.1	25.500	1.1
2.000	428.7	8.000	18.2	14.000	10.1	20.000	8.0	26.000	.7
2.500	242.5	8.500	16.2	14.500	9.9	20.500	7.9	26.500	.5
3.000	190.8	9.000	14.7	15.000	9.6	21.000	7.7	27.000	.3
3.500	121.6	9.500	13.7	15.500	9.5	21.500	7.6	27.500	.2
4.000	83.0	10.000	12.9	16.000	9.2	22.000	7.5	28.000	.1
4.500	66.3	10.500	12.4	16.500	9.1	22.500	7.4	28.500	.1
5.000	53.8	11.000	11.9	17.000	8.9	23.000	7.3	29.000	.0
5.500	44.3	11.500	11.5	17.500	8.7	23.500	7.2	29.500	.0

RUNOFF VOLUME = 1.03729 INCHES = 95.7478 ACRE-FEET

PEAK DISCHARGE RATE = 977.12 CFS AT 1.550 HOURS BASIN AREA = 1.7307 SQ. MI.

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104

CS=0.014 FS=0.014 N=0.013 DIST=26

DIST	EL	DIST	EL
0	104	08	100
18	100	26	104

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
100.00	.00	.00	.00
100.21	2.19	10.17	10.84
100.42	4.57	32.63	11.68
100.63	7.11	64.95	12.53
100.84	9.84	106.38	13.37
101.05	12.74	156.63	14.21
101.26	15.82	215.58	15.05
101.47	19.08	283.27	15.89
101.68	22.52	359.79	16.74
101.89	26.13	445.24	17.58
102.11	29.92	539.81	18.42
102.32	33.88	643.65	19.26
102.53	38.03	756.97	20.11
102.74	42.35	879.95	20.95
102.95	46.85	1012.81	21.79
103.16	51.52	1155.75	22.63
103.37	56.38	1308.99	23.47
103.58	61.41	1472.74	24.32
103.79	66.61	1647.21	25.16
104.00	72.00	1832.63	26.00

COMPUTE TRAVEL TIME ID=4 RN=1 NVS=1 L=1400 S=0.014

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.211	2.194	10.17	.0839
.421	4.565	32.63	.0544
.632	7.114	64.95	.0426
.842	9.839	106.38	.0360
1.053	12.742	156.63	.0316
1.263	15.823	215.58	.0285
1.474	19.080	283.27	.0262
1.684	22.515	359.79	.0243
1.895	26.127	445.24	.0228
2.105	29.917	539.81	.0216
2.316	33.883	643.65	.0205
2.526	38.028	756.97	.0195
2.737	42.349	879.95	.0187
2.947	46.847	1012.81	.0180
3.158	51.523	1155.75	.0173

	3.368	56.376	1308.99	.0167
	3.579	61.407	1472.74	.0162
	3.789	66.615	1647.21	.0157
	4.000	72.000	1832.63	.0153
ROUTE	ID=4	HYD=216.1	INFLOW ID=3	DT=0.0
PRINT HYD	ID=4	CODE=1		

PARTIAL HYDROGRAPH 216.10

RUNOFF VOLUME = 1.03729 INCHES = 95.7476 ACRE-FEET
PEAK DISCHARGE RATE = 967.26 CFS AT 1.550 HOURS BASIN AREA = 1.7307 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 11:27:51
□(s10H□□□□□□□□□□□□□□□□

APPENDIX “A”


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START                0.0 HOURS    PC=0    PL=-1
*S
*S                RIO BRAVO
*S
*S
*S
*S 100-YR, 24-HR STORM WITHOUT SEDIMENT
*S FILE NAME: RB DMP.DAT
*S BY: RICHARD STOCKTON
*S REVISED BY JAMES D. HUGHES @MARK GOODWIN AND ASSOCIATES 8-25-03.
*S LAST REVISION: 4-22-98
*S*****
*****
*S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM FROM THE
*S SACATE BLANCO WATERSHED WEST OF THE POWERLINE EASEMENT (AKA SOUTH
*S POWERLINE DIVERSION AND DETENTION FACILITY);
*S AND THE RIO BRAVO WATERSHED.
*S
*S FLOWS FROM THIS WATERSHED ARE CONVEYED TO HUBBLE LAKE DETENTION
*S FACILITY VIA THE HUBBLE LAKE/AMOLE DIVERSION CHANNEL.
*S
*S THE ORGINIAL RIO BRAVO MODEL WAS DEVELOPED BY AVID (AND ACCEPTED BY
*S THE COUNTY). ASSUMPTIONS MADE IN THE AVID MODEL ARE INVALID, AND
HAVE
*S BEEN CORRECTED WITH THE 4-25-03 REVISIONS. DIVERSIONS TO THE BOREGA
DAM
*S AND THE AMOLE CHANNEL REDUCE THIS BASIN AND 114 AC. OF THE SACATE
BLANCO
*S BELOW THE POWER LINE IS ADDED TO THE RIO BRAVO CHANNEL.
*S PONDS 7 & 9 ARE DELETED AND POND 10 IS ADDED.
*S*****
*S ANALYSIS ASSUMPTIONS:
*S*****
*S 1. ALL LAND IN THE RIO BRAVO BASIN IS MODELED AS DEVELOPED CONDITION
AT
*S    6 DU/AC, EXCEPT ANDERSON HILLS WHERE LOWER DENSITIES ARE CERTAIN,
AND
*S    EXCEPT IN BASINS 201 AND 202 WHERE THERE IS NO LIGHT.
*S 2. THE PUNCH HYD COMMAND WAS ADDED TO THE END OF THIS FILE SO THE
OUTFALL
*S    HYDROGRAPH COULD BE USED IN THE AMOLE DEL NORTE EXISTING
CONDITIONS MODEL
*S    AA100D1B.DAT, WHICH WILL BE USED IN THE ANALYSIS OF THE AMOLE
ARROYO SYSTEM.
*S
*S 3. NO BULKING FACTORS WERE ADDED TO THE AREA TRIBUTARY TO THE RIO
BRAVO
*S    CHANNEL DUE TO THE INCORPORATION OF DETENTION PONDS. HOWEVER,
BULKING FACTORS
*S    HAVE BEEN ADDED TO BASINS TRIBUTARY TO HUBBELL CHANNEL AND LAKE.
*S
*S*****
*****
*S RAINFALL FROM NOAA ATLAS 2
*S THESE VALUES WERE REDUCED FOR AREA BY 12%, 5% AND 3% FOR 1, 6, AND 24
HOUR
RAINFALL                TYPE=2  0.0  1.64  2.11  2.66      DT=0.05
* *S 10 YEAR 24HR STORM  CONDITION
* RAINFALL                TYPE=2  0.0  1.08  1.41  1.78      DT=0.05
*S*****
*****

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*S
*S*****
*S ADD BASINS FROM SOUTH POWERLINE DIVERSION
*S TO THE RIO BRAVO RUN
*S
*S*****
*S
*S APPLY A 3% SEDIMENT BULKING FACTOR TO ALL COMPUTED HYDROGRAPHS
SEDIMENT BULK          CODE=1    BULKING FACTOR = 1.03
*S CALCULATE THE FLOW FROM SUB-BASIN A60106
COMPUTE NM HYD          ID=1  HYD=A60106  AREA=0.0501 SQ MI
                        A=0  B=28  C=23  D=49
                        TP=0.133  MASSRAIN=-1

PRINT HYD              ID=1  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60107A
COMPUTE NM HYD          ID=2  HYD=A60107A  AREA=0.0313 SQ MI
                        A=0  B=28  C=23  D=49
                        TP=0.133  MASSRAIN=-1

PRINT HYD              ID=2  CODE=1
*S
ADD HYD                 ID=3  HYD=A60107A.1  I=1  II=2
PRINT HYD              ID=3  CODE=1
*S
*S ROUTE THE COMBINED FLOW FROM SUB-BASIN A60107A.
COMPUTE RATING CURVE    CID=1  VS NO=1  NO SEGS=1
                        MIN ELEV=100.0 FT  MAX ELEV=103.0 FT
                        CH SLP=.03  FP SLOPE=.03
                        N=-.03  DIST=29
                        DIST      ELEV      DIST      ELEV      DIST      ELEV
                        0         103.0    12.0       100.0    17.0       100.0
                        29.0      103.0

COMPUTE TRAVEL TIME     ID=12 REACH NO=1  NO VS=1  L=600 FT
                        SLP=.03
ROUTE                   OUTFLOW ID=12  OUTFLOW HYD=6107.5
                        INFLOW ID=3  DT=0.0

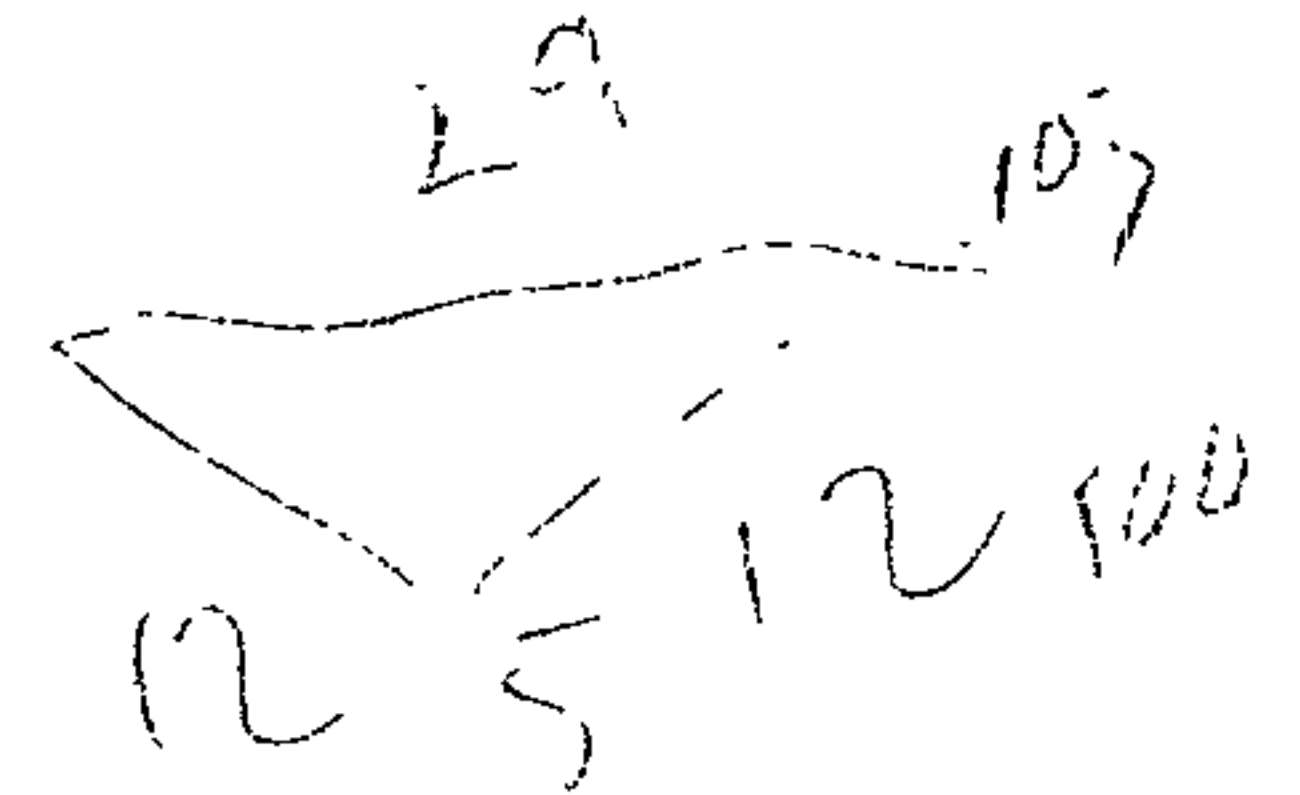
PRINT HYD              ID=12 CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60108
COMPUTE NM HYD          ID=1  HYD=A60108  AREA=0.0924 SQ MI
                        A=0  B=48  C=17  D=35
                        TP=0.133  MASSRAIN=-1

PRINT HYD              ID=2  CODE=1
*S
*S ROUTE FLOW FROM SUB-BASIN A60108 THROUGH SUB-BASIN A60109 TO POND 2
COMPUTE RATING CURVE    CID=1  VN=1  NS=1  MIN EL=100  MAX EL=104
                        CS=0.05  FS=0.05  N=0.03  DIST=28
                        DIST      EL      DIST      EL
                        0         104     4         100
                        24        100     28        104

COMPUTE TRAVEL TIME     ID=10  RN=1  NVS=1  L=800  S=0.05
ROUTE                   ID=10  HYD=A60108.5  INFLOW ID=1  DT=0.0
PRINT HYD              ID=10  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60109
COMPUTE NM HYD          ID=2  HYD=A60109  AREA=0.0414 SQ MI
                        A=0  B=28  C=23  D=49
                        TP=0.133  MASSRAIN=-1

PRINT HYD              ID=2  CODE=1
*S
*S ADD THE ROUTED FLOW FROM SUB-BASIN POND2.A1 TO THE FLOW FROM SUB-

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BASIN A60108.5
ADD HYD          ID=11  HYD=POND2.A2  I=12  II=10
PRINT HYD        ID=11  CODE=1
*S
*S ADD THE ROUTED FLOW FROM SUB-BASIN POND2.A2 TO THE FLOW FROM SUB-
BASIN A60109
*S HYD=POND2.IN IS THE TOTAL INFLOW INTO POND 2.
ADD HYD          ID=11  HYD=POND2.IN  I=11  II=2
PRINT HYD        ID=11  CODE=1
*S
*S ROUTE FLOW THROUGH POND 2
ROUTE RESERVOIR  ID=20 HYD=POND2.OUT I=11 CODE=10
                Q OUT    STORE    ELEV
                0        0        10
                22.2     2        11
                49.4     4        11.5
                89.2     7        12
                143.5    10        12.5
PRINT HYD        ID=20 CODE=1
*S
*S ROUTE FLOWS TO POND 3
COMPUTE RATING CURVE  CID=1  VN=1  NS=1  MIN EL=100  MAX EL=104
                     CS=0.005  FS=0.005  N=0.03  DIST=29
                     DIST    EL        DIST    EL
                     0        104      12        100
                     17       100      29        104
COMPUTE TRAVEL TIME  ID=11  RN=1  NVS=1  L=800  S=0.005
ROUTE                ID=11  HYD=POND2.ROUTE  INFLOW ID=20  DT=0.0
PRINT HYD            ID=11  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60110
COMPUTE NM HYD       ID=1  HYD=A60110  AREA=0.1046 SQ MI
                     A=0  B=40  C=19  D=41
                     TP=0.133  MASSRAIN=-1
PRINT HYD            ID=1  CODE=1
*S
*S ROUTE FLOW FROM SUB-BASIN A60110 THROUGH SUB-BASIN A60111 TO POND 3
COMPUTE RATING CURVE  CID=1  VN=1  NS=1  MIN EL=100  MAX EL=104
                     CS=0.053  FS=0.053  N=0.03  DIST=18
                     DIST    EL        DIST    EL
                     0        104      4        100
                     14       100      18        104
COMPUTE TRAVEL TIME  ID=10  RN=1  NVS=1  L=1700  S=0.053
ROUTE                ID=10  HYD=A60110.5  INFLOW ID=1  DT=0.0
PRINT HYD            ID=10  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60111
COMPUTE NM HYD       ID=1  HYD=A60111  AREA=0.0384 SQ MI
                     A=0  B=28  C=23  D=49
                     TP=0.133  MASSRAIN=-1
PRINT HYD            ID=1  CODE=1
*S
*S ADD THE ROUTED FLOW FROM SUB-BASIN A60110.5 TO THE FLOW FROM SUB-
BASIN A60111.
ADD HYD          ID=11  HYD=POND3.A1  I=11  II=10
PRINT HYD        ID=11  CODE=1
*S
*S ADD THE ROUTED FLOW FROM POND2.ROUTE TO THE FLOW FROM SUB-BASIN
A60111.
*S HYD=POND3.IN IS THE TOTAL INFLOW INTO POND 3.
ADD HYD          ID=10 HYD=POND3.IN  I=11  II=1

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PRINT HYD ID=10 CODE=1
*S
*S ROUTE FLOW THROUGH POND 3
ROUTE RESERVOIR ID=30 HYD=POND3.OUT I=10 CODE=10
Q OUT STORE ELEV
0 0 10
39.1 1 11
82.0 3 11.5
141.1 5 12
217.8 8 12.5
PRINT HYD ID=30 CODE=1
*S
*S ROUTE FLOWS TO POND 4
COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
CS=0.005 FS=0.005 N=0.03 DIST=34
DIST EL DIST EL
0 104 12 100
22 100 34 104
COMPUTE TRAVEL TIME ID=10 RN=1 NVS=1 L=500 S=0.005
ROUTE ID=10 HYD=POND3.ROUTE INFLOW ID=30 DT=0.0
PRINT HYD ID=10 CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60113
COMPUTE NM HYD ID=1 HYD=A60113 AREA=0.0580 SQ MI
A=0 B=29 C=23 D=48
TP=0.133 MASSRAIN=-1
PRINT HYD ID=1 CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60116N
COMPUTE NM HYD ID=2 HYD=A60116N AREA=0.0381 SQ MI
A=0 B=28 C=23 D=49
TP=0.133 MASSRAIN=-1
PRINT HYD ID=2 CODE=1
*S
*S ADD THE ROUTED FLOW FROM POND 3.ROUTE TO THE FLOW FROM SUB-BASIN
A60113.
ADD HYD ID=10 HYD=POND4.A1 I=10 II=1
PRINT HYD ID=10 CODE=1
*S
*S ADD THE ROUTED FLOW FROM SUB-BASIN POND3.A1 TO THE FLOW FROM SUB-
BASIN A60116N
*S HYD=POND2.IN IS THE TOTAL INFLOW INTO POND 2.
ADD HYD ID=10 HYD=POND4.IN I=10 II=2
PRINT HYD ID=10 CODE=1
*S
*S ROUTE FLOW THROUGH POND 4
ROUTE RESERVOIR ID=40 HYD=POND4.OUT I=10 CODE=10
Q OUT STORE ELEV
0 0 10
39.1 1 11
82.0 3 11.5
141.1 5 12
217.8 8 12.5
313.4 10 13
PRINT HYD ID=40 CODE=1
*S
*S ROUTE FLOWS TO POND 5
COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
CS=0.005 FS=0.005 N=0.03 DIST=34
DIST EL DIST EL
0 104 12 100
```



```

                22      100      34      104
COMPUTE TRAVEL TIME  ID=10  RN=1  NVS=1  L=450  S=0.005
ROUTE              ID=10  HYD=POND4.ROUTE  INFLOW ID=40  DT=0.0
PRINT HYD          ID=10  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60114
COMPUTE NM HYD      ID=1  HYD=A60114  AREA=0.2162  SQ MI
                   A=0  B=46  C=17  D=37
                   TP=0.133  MASSRAIN=-1
PRINT HYD          ID=1  CODE=1
*S
*S ROUTE FLOW FROM SUB-BASIN A60114 THROUGH SUB-BASIN A60116S TO POND 5.
COMPUTE RATING CURVE  CID=1  VN=1  NS=1  MIN EL=100  MAX EL=104
                   CS=0.046  FS=0.046  N=0.03  DIST=18
                   DIST      EL      DIST      EL
                   0        104      4        100
                   14       100      18       104
COMPUTE TRAVEL TIME  ID=11  RN=1  NVS=1  L=700  S=0.046
ROUTE              ID=11  HYD=A60114.5  INFLOW ID=1  DT=0.0
PRINT HYD          ID=11  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60115
COMPUTE NM HYD      ID=2  HYD=A60115  AREA=0.0764  SQ MI
                   A=0  B=32  C=21  D=47
                   TP=0.133  MASSRAIN=-1
PRINT HYD          ID=2  CODE=1
*S
*S ROUTE FLOW FROM SUB-BASIN A60115 THROUGH SUB-BASIN A60116S TO POND 5.
COMPUTE RATING CURVE  CID=1  VN=1  NS=1  MIN EL=100  MAX EL=104
                   CS=0.044  FS=0.044  N=0.03  DIST=18
                   DIST      EL      DIST      EL
                   0        104      4        100
                   14       100      18       104
COMPUTE TRAVEL TIME  ID=12  RN=1  NVS=1  L=900  S=0.044
ROUTE              ID=12  HYD=A60115.5  INFLOW ID=2  DT=0.0
PRINT HYD          ID=12  CODE=1
*S
*S CALCULATE THE FLOW FROM SUB-BASIN A60116S
COMPUTE NM HYD      ID=1  HYD=A60116S  AREA=0.0244  SQ MI
                   A=0  B=28  C=23  D=49
                   TP=0.133  MASSRAIN=-1
PRINT HYD          ID=1  CODE=1
*S
*S ADD THE ROUTED FLOW FROM POND4.ROUTE TO THE FLOW FROM SUB-BASIN
A60114.5
ADD HYD              ID=10  HYD=POND5.A1  I=10  II=11
PRINT HYD          ID=10  CODE=1
*S
*S ADD THE ROUTED FLOW FROM SUB-BASIN POND5.A1 TO THE FLOW FROM SUB-
BASIN A60115.5
ADD HYD              ID=10  HYD=POND5.A2  I=10  II=12
PRINT HYD          ID=10  CODE=1
*S
*S ADD THE ROUTED FLOW FROM SUB-BASIN POND5.A2 TO THE FLOW SUB-BASIN
A60116S.5
*S HYD=POND5.IN IS THE TOTAL INFLOW INTO POND 5.
ADD HYD              ID=10  HYD=POND5.IN  I=10  II=1
PRINT HYD          ID=10  CODE=1
*S
*S ROUTE FLOW THROUGH POND 5
ROUTE RESERVOIR      ID=50  HYD=POND5.OUT  I=10  CODE=10

```


Q OUT	STORE	ELEV
0	0	10
39.1	1	11
82.0	3	11.5
141.1	5	12
217.8	7	12.5
313.4	9	13
429.3	11	13.5

```

PRINT HYD ID=50 CODE=1
*S
*S ROUTE FLOWS TO POND 6
COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
CS=0.005 FS=0.005 N=0.03 DIST=34
DIST EL DIST EL
0 104 12 100
22 100 34 104
COMPUTE TRAVEL TIME ID=10 RN=1 NVS=1 L=900 S=0.005
ROUTE ID=10 HYD=POND5.ROUTE INFLOW ID=50 DT=0.0
PRINT HYD ID=10 CODE=1
*S
*S*****
*S COMPUTE HYDROGRAPH FOR 201 OF RIO BRAVO
COMPUTE NM HYD ID=11 HYD NO=201.0 DA=0.0969 SQ MI
%A=0 %B=27 %C=27 %D=46
TP=0.1333 HR
MASS RAINFALL=-1
PRINT HYD ID=11 CODE=1
*S ADD THE ROUTED FLOW FROM POND 5.ROUTE TO THE FLOW FROM SUB-BASIN 201
ADD HYD ID= 11 HYD=POND6.IN I=10 II=11
PRINT HYD ID=11 CODE=1
*S
*S ROUTE FLOW THROUGH POND 6
ROUTE RESERVOIR ID=60 HYD=POND6.OUT I=11 CODE=10


| Q OUT | STORE | ELEV |
|-------|-------|------|
| 0     | 0     | 10   |
| 39.1  | 1     | 11   |
| 82.0  | 3     | 11.5 |
| 141.1 | 5     | 12   |
| 217.8 | 7     | 12.5 |
| 313.4 | 9     | 13   |
| 429.3 | 11    | 13.5 |


PRINT HYD ID=60 CODE=1
*S
*S ROUTE FLOWS TO POND 6
COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
CS=0.005 FS=0.005 N=0.03 DIST=34
DIST EL DIST EL
0 104 12 100
22 100 34 104
COMPUTE TRAVEL TIME ID=10 RN=1 NVS=1 L=600 S=0.005
ROUTE ID=10 HYD=POND6.ROUTE INFLOW ID=60 DT=0.0
PRINT HYD ID=10 CODE=1
*S
*S*****
*S COMPUTE FLOWS FROM SUB-BASIN 202 OF RIO BRAVO
COMPUTE NM HYD ID=1 HYD NO=202.0 DA=0.0826 SQ MI
%A=0 %B=27 %C=27 %D=46
TP=0.1333 HR
MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

```



```

*S ROUTE FLOWS THROUGH POND 8
ROUTE RESERVOIR      ID=80 HYD=POND8.OUT I=1 CODE=10
                     Q OUT    STORE    ELEV
                     0         0        10
                     39.7      3        11
                     48.6      6        11.5
                     56.2      9        12
                     62.8      12       12.5
                     68.8      15       13

PRINT HYD            ID=80 CODE=1
*S
*S ROUTE FLOWS TO JUNCTION
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
                     SLP=0.01 D=3.0 N=0.013
COMPUTE TRAVEL TIME  ID=11 REACH NO=1 NO VS=1 L=600 FT
                     SLP=0.01
ROUTE                OUTFLOW ID=11 OUTFLOW HYD=POND8.ROUTE
                     INFLOW ID=80 DT=0.0
PRINT HYD            ID=11 CODE=1
*S
*S ADD THE FLOWS FROM POND6.ROUTE TO THE FLOWS FROM POND8.ROUTE
*S AT THE JUNCTION POINT
ADD HYD              ID=11 HYD=JUNCTION I=11 II=10
PRINT HYD            ID=11 CODE=10
COMPUTE NM HYD       ID=1 HYD NO=203.0 DA=0.0772 SQ MI
                     %A, B, C, & D 0 30 30 40
                     TP=0.1333 HR
                     MASS RAINFALL=-1

PRINT HYD            ID=1 CODE=1
ADD HYD              ID=2 HYD=JUNCTION I=11 II=1
PRINT HYD            ID=2 CODE=10
COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
                     CS=0.029 FS=0.029 N=0.013 DIST=26
                     DIST    EL    DIST    EL
                     0       104    08      100
                     18      100    26      104

COMPUTE TRAVEL TIME  ID=3 RN=1 NVS=1 L=2400 S=0.029
ROUTE                ID=3 HYD=204.1 INFLOW ID=2 DT=0.0
PRINT HYD            ID=3 CODE=1
COMPUTE NM HYD       ID=1 HYD NO=204.0 DA=0.1093 SQ MI
                     %A, B, C, & D 0 14 29 57
                     TP=0.21 HR
                     MASS RAINFALL=-1

PRINT HYD            ID=1 CODE=1
ADD HYD              ID=2 HYD=JUNCTION I=3 II=1
PRINT HYD            ID=2 CODE=10
COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
                     CS=0.027 FS=0.027 N=0.013 DIST=26
                     DIST    EL    DIST    EL
                     0       104    08      100
                     18      100    26      104

COMPUTE TRAVEL TIME  ID=3 RN=1 NVS=1 L=2150 S=0.027
ROUTE                ID=3 HYD=210.1 INFLOW ID=2 DT=0.0
PRINT HYD            ID=3 CODE=1
COMPUTE NM HYD       ID=1 HYD NO=205.0 DA=0.1776 SQ MI
                     %A, B, C, & D 0 14 29 57
                     TP=0.20 HR
                     MASS RAINFALL=-1

PRINT HYD            ID=1 CODE=1
ROUTE RESERVOIR      ID=2 HYD=POND10.OUT I=1 CODE=10
                     Q OUT    STORE    ELEV

```


	0	0.00	0
	19.7	2.14	2
	27.9	4.53	4
	34.2	7.18	6
	39.5	10.09	8
	44.2	13.29	10
	48.4	16.79	12
PRINT HYD	ID=2	CODE=1	
COMPUTE RATING CURVE	CID=1	VS NO=1	CODE=-1
	SLP=0.025	D=2.5	N=0.013
COMPUTE TRAVEL TIME	ID=4	REACH NO=1	NO VS=1 L=900 FT
	SLP=0.025		
ROUTE	OUTFLOW ID=4	OUTFLOW HYD=206.1	
	INFLOW ID=2	DT=0.0	
PRINT HYD	ID=4	CODE=1	
COMPUTE NM HYD	ID=1	HYD NO=206.0	DA=0.0210 SQ MI
	%A, B, C, & D	0 14 29 57	
	TP=0.13	HR	
	MASS RAINFALL=-1		
PRINT HYD	ID=1	CODE=1	
ADD HYD	ID=2	HYD=JUNCTION	I=4 II=1
PRINT HYD	ID=2	CODE=10	
COMPUTE RATING CURVE	CID=1	VS NO=1	CODE=-1
	SLP=0.024	D=3.0	N=0.013
COMPUTE TRAVEL TIME	ID=4	REACH NO=1	NO VS=1 L=1900 FT
	SLP=0.024		
ROUTE	OUTFLOW ID=4	OUTFLOW HYD=209.1	
	INFLOW ID=2	DT=0.0	
PRINT HYD	ID=4	CODE=1	
COMPUTE NM HYD	ID=1	HYD NO=207.0	DA=0.03023 SQ MI
	%A, B, C, & D	0 27 27 46	
	TP=0.18	HR	
	MASS RAINFALL=-1		
PRINT HYD	ID=1	CODE=1	
ADD HYD	ID=2	HYD=JUNCTION	I=4 II=1
PRINT HYD	ID=2	CODE=10	
COMPUTE RATING CURVE	CID=1	VS NO=1	CODE=-1
	SLP=0.007	D=4.0	N=0.013
COMPUTE TRAVEL TIME	ID=4	REACH NO=1	NO VS=1 L=560 FT
	SLP=0.007		
ROUTE	OUTFLOW ID=4	OUTFLOW HYD=208.1	
	INFLOW ID=2	DT=0.0	
PRINT HYD	ID=4	CODE=1	
COMPUTE NM HYD	ID=1	HYD NO=208.A	DA=0.03201 SQ MI
	%A, B, C, & D	0 29.5 29.5 41	
	TP=0.15	HR	
	MASS RAINFALL=-1		
PRINT HYD	ID=1	CODE=1	
ADD HYD	ID=2	HYD=JUNCTION	I=4 II=1
PRINT HYD	ID=2	CODE=10	
COMPUTE RATING CURVE	CID=1	VS NO=1	CODE=-1
	SLP=0.010	D=4.0	N=0.013
COMPUTE TRAVEL TIME	ID=4	REACH NO=1	NO VS=1 L=600 FT
	SLP=0.010		
ROUTE	OUTFLOW ID=4	OUTFLOW HYD=209.1	
	INFLOW ID=2	DT=0.0	
PRINT HYD	ID=4	CODE=1	
COMPUTE NM HYD	ID=1	HYD NO=208.B	DA=0.02696 SQ MI
	%A, B, C, & D	0 26.5 26.5 47	
	TP=0.1333	HR	
	MASS RAINFALL=-1		


```

PRINT HYD          ID=1 CODE=1
ADD HYD            ID=2 HYD=JUNCTION I=4 II=1
PRINT HYD          ID=2 CODE=10
COMPUTE NM HYD     ID=1  HYD NO=209.0  DA=0.0111 SQ MI
                   %A, B, C, & D 0 11 24 65
                   TP=0.27 HR
                   MASS RAINFALL=-1

PRINT HYD          ID=1 CODE=1
ADD HYD            ID=4 HYD=JUNCTION I=2 II=1
PRINT HYD          ID=4 CODE=10
COMPUTE NM HYD     ID=1  HYD NO=210.0  DA=0.0391 SQ MI
                   %A, B, C, & D 0 30 30 40
                   TP=0.1333 HR
                   MASS RAINFALL=-1

PRINT HYD          ID=1 CODE=1
ADD HYD            ID=2 HYD=JUNCTION I=3 II=1
PRINT HYD          ID=2 CODE=10
ADD HYD            ID=3 HYD=JUNCTION I=4 II=2
PRINT HYD          ID=3 CODE=10
COMPUTE RATING CURVE CID=1  VN=1  NS=1  MIN EL=100  MAX EL=104
                   CS=0.028  FS=0.028  N=0.013  DIST=26
                   DIST      EL      DIST      EL
                   0         104      08         100
                   18        100      26         104

COMPUTE TRAVEL TIME ID=4  RN=1  NVS=1  L=2750 S=0.028
ROUTE              ID=4  HYD=210.1 INFLOW ID=3  DT=0.0
PRINT HYD          ID=4  CODE=1
COMPUTE NM HYD     ID=1  HYD NO=211.0  DA=0.1530 SQ MI
                   %A, B, C, & D 0 14 29 57
                   TP=0.21 HR
                   MASS RAINFALL=-1

PRINT HYD          ID=1 CODE=1
COMPUTE NM HYD     ID=2  HYD NO=212.0  DA=0.0095 SQ MI
                   %A, B, C, & D 0 11 24 65
                   TP=0.19 HR
                   MASS RAINFALL=-1

PRINT HYD          ID=2 CODE=1
ADD HYD            ID=3 HYD=JUNCTION I=1 II=2
PRINT HYD          ID=3 CODE=10
COMPUTE NM HYD     ID=1  HYD NO=213.0  DA=0.0297 SQ MI
                   %A, B, C, & D 0 30 30 40
                   TP=0.1333 HR
                   MASS RAINFALL=-1

PRINT HYD          ID=1 CODE=1
ADD HYD            ID=2 HYD=JUNCTION I=4 II=1
PRINT HYD          ID=2 CODE=10
ADD HYD            ID=4 HYD=JUNCTION I=3 II=2
PRINT HYD          ID=4 CODE=10
COMPUTE NM HYD     ID=1  HYD NO=214.0  DA=0.0593 SQ MI
                   %A, B, C, & D 0 14 29 57
                   TP=0.21 HR
                   MASS RAINFALL=-1

PRINT HYD          ID=1 CODE=1
ADD HYD            ID=3 HYD=JUNCTION I=4 II=1
PRINT HYD          ID=3 CODE=10
COMPUTE NM HYD     ID=1  HYD NO=215.0  DA=0.0310 SQ MI
                   %A, B, C, & D 0 14 29 57
                   TP=0.21 HR
                   MASS RAINFALL=-1

PRINT HYD          ID=1 CODE=1
ADD HYD            ID=2 HYD=JUNCTION I=1 II=3

```


PRINT HYD
COMPUTE RATING CURVE

COMPUTE TRAVEL TIME
ROUTE
PRINT HYD
COMPUTE NM HYD

PRINT HYD
ADD HYD
PRINT HYD
FINISH

ID=2 CODE=10
CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
CS=0.014 FS=0.014 N=0.013 DIST=26
DIST EL DIST EL
0 104 08 100
18 100 26 104
ID=4 RN=1 NVS=1 L=1400 S=0.014
ID=4 HYD=216.1 INFLOW ID=2 DT=0.0
ID=4 CODE=1
ID=1 HYD NO=216.0 DA=0.0269 MI
%A, B, C, & D 0 30 30 40
TP=0.14 HR
MASS RAINFALL=-1
ID=1 CODE=1
ID=2 HYD=JUNCTION I=1 II=4
ID=2 CODE=10

□(s16.66H□□□□□□□□□□

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994

RUN DATE (MON/DAY/YR) = 04/14/2004
START TIME (HR:MIN:SEC) = 13:53:42 USER NO.=

M_GOODWN.I01

INPUT FILE = AH118.DAT

START 0.0 HOURS PC=0 PL=-1

*S

*S RIO BRAVO

*S

*S

*S

*S 100-YR, 24-HR STORM WITHOUT SEDIMENT

*S FILE NAME: RB_DMP.DAT

*S BY: RICHARD STOCKTON

*S REVISED BY JAMES D. HUGHES @MARK GOODWIN AND ASSOCIATES 8-25-03.

*S LAST REVISION: 4-22-98

*S*****

*S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM FROM
THE

*S SACATE BLANCO WATERSHED WEST OF THE POWERLINE EASEMENT (AKA
SOUTH

*S POWERLINE DIVERSION AND DETENTION FACILITY);

*S AND THE RIO BRAVO WATERSHED.

*S

*S FLOWS FROM THIS WATERSHED ARE CONVEYED TO HUBBLE LAKE DETENTION

*S FACILITY VIA THE HUBBLE LAKE/AMOLE DIVERSION CHANNEL.

*S

*S THE ORGINIAL RIO BRAVO MODEL WAS DEVELOPED BY AVID (AND ACCEPTED
BY

*S THE COUNTY). ASSUMPTIONS MADE IN THE AVID MODEL ARE INVALID,
AND HAVE

*S BEEN CORRECTED WITH THE 4-25-03 REVISIONS. DIVERSIONS TO THE
BOREGA DAM

*S AND THE AMOLE CHANNEL REDUCE THIS BASIN AND 114 AC. OF THE
SACATE BLANCO

*S BELOW THE POWER LINE IS ADDED TO THE RIO BRAVO CHANNEL.

*S PONDS 7 & 9 ARE DELETED AND POND 10 IS ADDED.

*S*****

*S ANALYSIS ASSUMPTIONS:

*S*****

*S 1. ALL LAND IN THE RIO BRAVO BASIN IS MODELED AS DEVELOPED
CONDITION AT

*S 6 DU/AC, EXCEPT ANDERSON HILLS WHERE LOWER DENSITIES ARE
CERTAIN, AND

*S EXCEPT IN BASINS 201 AND 202 WHERE THERE IS NO LIGHT.

*S 2. THE PUNCH HYD COMMAND WAS ADDED TO THE END OF THIS FILE SO
THE OUTFALL

*S HYDROGRAPH COULD BE USED IN THE AMOLE DEL NORTE EXISTING
CONDITIONS MODEL

*S AA100D1B.DAT, WHICH WILL BE USED IN THE ANALYSIS OF THE AMOLE
ARROYO SYSTE

*S

*S 3. NO BULKING FACTORS WERE ADDED TO THE AREA TRIBUTARY TO THE

RIO BRAVO

*S CHANNEL DUE TO THE INCORPORATION OF DETENTION PONDS. HOWEVER,
BULKING FACT

*S HAVE BEEN ADDED TO BASINS TRIBUTARY TO HUBBELL CHANNEL AND
LAKE.

*S

*S*****

*S RAINFALL FROM NOAA ATLAS 2
*S THESE VALUES WERE REDUCED FOR AREA BY 12%, 5% AND 3% FOR 1, 6,
AND 24 HOUR
RAINFALL TYPE=2 0.0 1.64 2.11 2.66 DT=0.05

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
ATLAS 2 - PEAK AT 1.40 HR.

HOURS	DT = .050000 HOURS	END TIME = 24.000000
	.0000	.0055 .0112 .0171 .0231 .0294
.0359	.0426	.0496 .0568 .0644 .0723 .0805
.0892	.0983	.1079 .1180 .1289 .1404 .1528
.1663	.1732	.1808 .2030 .2553 .3452 .4843
.6846	.9584	1.1744 1.2720 1.3535 1.4248 1.4886
1.5464	1.5992	1.6475 1.6921 1.7332 1.7711 1.8063
1.8151	1.8234	1.8312 1.8386 1.8457 1.8525 1.8590
1.8652	1.8712	1.8771 1.8827 1.8882 1.8935 1.8986
1.9037	1.9086	1.9134 1.9181 1.9226 1.9271 1.9315
1.9358	1.9400	1.9442 1.9483 1.9523 1.9562 1.9601
1.9639	1.9676	1.9713 1.9749 1.9785 1.9821 1.9855
1.9890	1.9924	1.9957 1.9990 2.0023 2.0055 2.0087
2.0119	2.0150	2.0181 2.0211 2.0241 2.0271 2.0301
2.0330	2.0359	2.0388 2.0416 2.0444 2.0472 2.0500
2.0527	2.0554	2.0581 2.0608 2.0635 2.0661 2.0687
2.0713	2.0738	2.0764 2.0789 2.0814 2.0839 2.0863
2.0888	2.0912	2.0936 2.0960 2.0984 2.1007 2.1031
2.1054	2.1077	2.1100 2.1123 2.1146 2.1169 2.1192
2.1215	2.1237	2.1260 2.1283 2.1305 2.1328 2.1350
2.1372	2.1394	2.1416 2.1438 2.1460 2.1482 2.1504
2.1526	2.1548	2.1569 2.1591 2.1612 2.1634 2.1655
2.1676	2.1697	2.1719 2.1740 2.1761 2.1782 2.1803

2.1823						
	2.1844	2.1865	2.1885	2.1906	2.1927	2.1947
2.1967						
	2.1988	2.2008	2.2028	2.2048	2.2068	2.2088
2.2108						
	2.2128	2.2148	2.2168	2.2188	2.2207	2.2227
2.2247						
	2.2266	2.2286	2.2305	2.2324	2.2344	2.2363
2.2382						
	2.2401	2.2420	2.2439	2.2458	2.2477	2.2496
2.2515						
	2.2534	2.2552	2.2571	2.2590	2.2608	2.2627
2.2645						
	2.2664	2.2682	2.2700	2.2719	2.2737	2.2755
2.2773						
	2.2791	2.2809	2.2827	2.2845	2.2863	2.2881
2.2899						
	2.2917	2.2935	2.2952	2.2970	2.2987	2.3005
2.3023						
	2.3040	2.3057	2.3075	2.3092	2.3109	2.3127
2.3144						
	2.3161	2.3178	2.3195	2.3212	2.3229	2.3246
2.3263						
	2.3280	2.3297	2.3314	2.3331	2.3347	2.3364
2.3381						
	2.3397	2.3414	2.3430	2.3447	2.3463	2.3480
2.3496						
	2.3512	2.3529	2.3545	2.3561	2.3577	2.3594
2.3610						
	2.3626	2.3642	2.3658	2.3674	2.3690	2.3706
2.3721						
	2.3737	2.3753	2.3769	2.3785	2.3800	2.3816
2.3832						
	2.3847	2.3863	2.3878	2.3894	2.3909	2.3925
2.3940						
	2.3955	2.3971	2.3986	2.4001	2.4017	2.4032
2.4047						
	2.4062	2.4077	2.4092	2.4107	2.4122	2.4137
2.4152						
	2.4167	2.4182	2.4197	2.4212	2.4227	2.4241
2.4256						
	2.4271	2.4285	2.4300	2.4315	2.4329	2.4344
2.4358						
	2.4373	2.4387	2.4402	2.4416	2.4431	2.4445
2.4459						
	2.4474	2.4488	2.4502	2.4516	2.4531	2.4545
2.4559						
	2.4573	2.4587	2.4601	2.4615	2.4629	2.4643
2.4657						
	2.4671	2.4685	2.4699	2.4713	2.4727	2.4740
2.4754						
	2.4768	2.4782	2.4795	2.4809	2.4823	2.4836
2.4850						
	2.4864	2.4877	2.4891	2.4904	2.4918	2.4931
2.4944						
	2.4958	2.4971	2.4985	2.4998	2.5011	2.5024
2.5038						
	2.5051	2.5064	2.5077	2.5091	2.5104	2.5117
2.5130						
	2.5143	2.5156	2.5169	2.5182	2.5195	2.5208
2.5221						

2.5311	2.5234	2.5247	2.5260	2.5272	2.5285	2.5298
2.5400	2.5324	2.5336	2.5349	2.5362	2.5374	2.5387
2.5488	2.5412	2.5425	2.5438	2.5450	2.5463	2.5475
2.5574	2.5500	2.5512	2.5525	2.5537	2.5550	2.5562
2.5660	2.5587	2.5599	2.5611	2.5624	2.5636	2.5648
2.5745	2.5672	2.5685	2.5697	2.5709	2.5721	2.5733
2.5829	2.5757	2.5769	2.5781	2.5793	2.5805	2.5817
2.5912	2.5841	2.5853	2.5865	2.5877	2.5888	2.5900
2.5994	2.5924	2.5936	2.5947	2.5959	2.5971	2.5983
2.6076	2.6006	2.6018	2.6029	2.6041	2.6052	2.6064
2.6156	2.6087	2.6099	2.6110	2.6122	2.6133	2.6144
2.6236	2.6167	2.6179	2.6190	2.6202	2.6213	2.6224
2.6314	2.6247	2.6258	2.6269	2.6281	2.6292	2.6303
2.6392	2.6325	2.6337	2.6348	2.6359	2.6370	2.6381
2.6469	2.6403	2.6414	2.6425	2.6436	2.6447	2.6458
2.6546	2.6480	2.6491	2.6502	2.6513	2.6524	2.6535
	2.6557	2.6568	2.6578	2.6589	2.6600	

* *S 10 YEAR 24HR STORM CONDITION

* RAINFALL TYPE=2 0.0 1.08 1.41 1.78 DT=0.05

*S*****

*S

*S*****

*S ADD BASINS FROM SOUTH POWERLINE DIVERSION

*S TO THE RIO BRAVO RUN

*S

*S*****

*S

*S APPLY A 3% SEDIMENT BULKING FACTOR TO ALL COMPUTED HYDROGRAPHS

SEDIMENT BULK CODE=1 BULKING FACTOR = 1.03

*S CALCULATE THE FLOW FROM SUB-BASIN A60106

COMPUTE NM HYD ID=1 HYD=A60106 AREA=0.0501 SQ MI

A=0 B=28 C=23 D=49

TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 97.139 CFS UNIT VOLUME = .9990 B =
 526.28 P60 = 1.6400
 AREA = .024549 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .120824HR TP = .133000HR K/TP RATIO = .908450
SHAPE CONSTANT, N = 3.899004
UNIT PEAK = 66.928 CFS UNIT VOLUME = 1.001 B =
348.38 P60 = 1.6400
AREA = .025551 SQ MI IA = .43235 INCHES INF =
1.06059 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA

A60106

RUNOFF VOLUME = 1.56878 INCHES = 4.1918 ACRE-FEET
PEAK DISCHARGE RATE = 96.02 CFS AT 1.500 HOURS BASIN
AREA = .0501 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASIN A60107A

COMPUTE NM HYD ID=2 HYD=A60107A AREA=0.0313 SQ MI

A=0 B=28 C=23 D=49

TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 60.688 CFS UNIT VOLUME = .9990 B =
526.28 P60 = 1.6400
AREA = .015337 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .120824HR TP = .133000HR K/TP RATIO = .908450
SHAPE CONSTANT, N = 3.899004
UNIT PEAK = 41.813 CFS UNIT VOLUME = 1.001 B =
348.38 P60 = 1.6400
AREA = .015963 SQ MI IA = .43235 INCHES INF =
1.06059 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA

A60107A

RUNOFF VOLUME = 1.56878 INCHES = 2.6188 ACRE-FEET

PEAK DISCHARGE RATE = 59.99 CFS AT 1.500 HOURS BASIN
 AREA = .0313 SQ. MI.

*S
 ADD HYD ID=3 HYD=A60107A.1 I=1 II=2
 PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA

A60107A.1

RUNOFF VOLUME = 1.56877 INCHES = 6.8105 ACRE-Feet
 PEAK DISCHARGE RATE = 156.01 CFS AT 1.500 HOURS BASIN
 AREA = .0814 SQ. MI.

*S
 *S ROUTE THE COMBINED FLOW FROM SUB-BASIN A60107A.
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=100.0 FT MAX ELEV=103.0 FT
 CH SLP=.03 FP SLOPE=.03
 N=-.03 DIST=29
 DIST ELEV DIST ELEV DIST
 ELEV
 100.0
 29.0 103.0

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
RATE	WIDTH		SURFACE	AREA
FT			ELEV	SQ FT CFS
.00	.00		100.00	.00
2.07	6.26		100.16	.89
6.91	7.53		100.32	1.98
14.36	8.79		100.47	3.27
24.50	10.05		100.63	4.75
37.52	11.32		100.79	6.44
53.60	12.58		100.95	8.33
72.94	13.84		101.11	10.41
95.73	15.11		101.26	12.70
122.16	16.37		101.42	15.18
152.42	17.63		101.58	17.87

186.71	18.90	101.74	20.75
225.19	20.16	101.89	23.83
268.05	21.42	102.05	27.12
315.47	22.68	102.21	30.60
367.62	23.95	102.37	34.28
424.68	25.21	102.53	38.16
486.80	26.47	102.68	42.24
554.16	27.74	102.84	46.52
626.93	29.00	103.00	51.00

COMPUTE TRAVEL TIME ID=12 REACH NO=1 NO VS=1 L=600 FT
 SLP=.03

TRAVEL TIME TABLE			
REACH= 1.0			
TRAVEL	WATER	AVERAGE	FLOW
TIME	DEPTH	AREA	RATE
HRS	FEET	SQ.FT.	CFS
.0717	.158	.889	2.07
.0477	.316	1.978	6.91
.0379	.474	3.266	14.36
.0323	.632	4.754	24.50
.0286	.789	6.441	37.52
.0259	.947	8.327	53.60
.0238	1.105	10.413	72.94
.0221	1.263	12.698	95.73
.0207	1.421	15.183	122.16
.0195	1.579	17.868	152.42
.0185	1.737	20.751	186.71
.0176	1.895	23.835	225.19
.0169	2.053	27.117	268.05
.0162	2.211	30.599	315.47
.0155	2.368	34.281	367.62
	2.526	38.162	424.68

.0150	2.684	42.242	486.80
.0145	2.842	46.522	554.16
.0140	3.000	51.002	626.93

.0136
 ROUTE OUTFLOW ID=12 OUTFLOW HYD=6107.5
 INFLOW ID=3 DT=0.0
 PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA

6107.50

RUNOFF VOLUME = 1.56878 INCHES = 6.8106 ACRE-FEET
 PEAK DISCHARGE RATE = 153.56 CFS AT 1.500 HOURS BASIN
 AREA = .0814 SQ. MI.

*S
 *S CALCULATE THE FLOW FROM SUB-BASIN A60108
 COMPUTE NM HYD ID=1 HYD=A60108 AREA=0.0924 SQ MI
 A=0 B=48 C=17 D=35
 TP=0.133 MASSRAIN=-1

K = .073326HR TP = .133000HR K/TP RATIO = .551325
 SHAPE CONSTANT, N = 7.002307
 UNIT PEAK = 126.77 CFS UNIT VOLUME = .9990 B =
 521.36 P60 = 1.6400
 AREA = .032340 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .126076HR TP = .133000HR K/TP RATIO = .947942
 SHAPE CONSTANT, N = 3.728965
 UNIT PEAK = 152.04 CFS UNIT VOLUME = 1.001 B =
 336.68 P60 = 1.6400
 AREA = .060060 SQ MI IA = .46077 INCHES INF =
 1.14015 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA

A60107A

RUNOFF VOLUME = 1.56878 INCHES = 2.6188 ACRE-FEET
 PEAK DISCHARGE RATE = 59.99 CFS AT 1.500 HOURS BASIN
 AREA = .0313 SQ. MI.

*S
 *S ROUTE FLOW FROM SUB-BASIN A60108 THROUGH SUB-BASIN A60109 TO
 POND 2
 COMPUTE RATING CURVE

CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.05 FS=0.05 N=0.03 DIST=28
 DIST EL DIST EL
 0 104 4 100
 24 100 28 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP	WATER	FLOW	
RATE	WIDTH	SURFACE	AREA	
FT		ELEV	SQ FT	CFS
.00	.00	100.00	.00	
16.47	20.42	100.21	4.25	
52.20	20.84	100.42	8.60	
102.45	21.26	100.63	13.03	
165.31	21.68	100.84	17.55	
239.60	22.11	101.05	22.16	
324.53	22.53	101.26	26.86	
419.50	22.95	101.47	31.65	
524.09	23.37	101.68	36.52	
637.93	23.79	101.89	41.48	
760.75	24.21	102.11	46.54	
892.32	24.63	102.32	51.68	
1032.47	25.05	102.53	56.91	
1181.05	25.47	102.74	62.23	
1337.92	25.89	102.95	67.63	
1503.00	26.32	103.16	73.13	
1676.20	26.74	103.37	78.71	
1857.45	27.16	103.58	84.39	
2046.71	27.58	103.79	90.15	
2243.94	28.00	104.00	96.00	

COMPUTE TRAVEL TIME ID=10 RN=1 NVS=1 L=800 S=0.05

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
	.211	4.255	16.47
.0574	.421	8.598	52.20
.0366	.632	13.030	102.45
.0283	.842	17.551	165.31
.0236	1.053	22.161	239.60
.0206	1.263	26.859	324.53
.0184	1.474	31.645	419.50
.0168	1.684	36.521	524.09
.0155	1.895	41.485	637.93
.0145	2.105	46.537	760.75
.0136	2.316	51.678	892.32
.0129	2.526	56.908	1032.47
.0122	2.737	62.227	1181.05
.0117	2.947	67.634	1337.92
.0112	3.158	73.130	1503.00
.0108	3.368	78.714	1676.20
.0104	3.579	84.387	1857.45
.0101	3.789	90.149	2046.71
.0098	4.000	96.000	2243.94
.0095			
ROUTE	ID=10	HYD=A60108.5	INFLOW ID=1 DT=0.0
PRINT HYD	ID=10	CODE=1	

HYDROGRAPH FROM AREA

A60108.5

RUNOFF VOLUME = 1.28421 INCHES = 6.3285 ACRE-FEET
 PEAK DISCHARGE RATE = 155.98 CFS AT 1.500 HOURS BASIN
 AREA = .0924 SQ. MI.

*S
 *S CALCULATE THE FLOW FROM SUB-BASIN A60109
 COMPUTE NM HYD ID=2 HYD=A60109 AREA=0.0414 SQ MI

A=0 B=28 C=23 D=49
TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 80.271 CFS UNIT VOLUME = .9990 B =
526.28 P60 = 1.6400
AREA = .020286 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .120824HR TP = .133000HR K/TP RATIO = .908450
SHAPE CONSTANT, N = 3.899004
UNIT PEAK = 55.306 CFS UNIT VOLUME = 1.001 B =
348.38 P60 = 1.6400
AREA = .021114 SQ MI IA = .43235 INCHES INF =
1.06059 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA

A60109

RUNOFF VOLUME = 1.56878 INCHES = 3.4639 ACRE-FEET
PEAK DISCHARGE RATE = 79.35 CFS AT 1.500 HOURS BASIN
AREA = .0414 SQ. MI.

*S
*S ADD THE ROUTED FLOW FROM SUB-BASIN POND2.A1 TO THE FLOW FROM
SUB-BASIN A60108
ADD HYD ID=11 HYD=POND2.A2 I=12 II=10
PRINT HYD ID=11 CODE=1

HYDROGRAPH FROM AREA

POND2.A2

RUNOFF VOLUME = 1.41748 INCHES = 13.1391 ACRE-FEET
PEAK DISCHARGE RATE = 309.53 CFS AT 1.500 HOURS BASIN
AREA = .1738 SQ. MI.

*S
*S ADD THE ROUTED FLOW FROM SUB-BASIN POND2.A2 TO THE FLOW FROM
SUB-BASIN A60109
*S HYD=POND2.IN IS THE TOTAL INFLOW INTO POND 2.
ADD HYD ID=11 HYD=POND2.IN I=11 II=2
PRINT HYD ID=11 CODE=1

HYDROGRAPH FROM AREA

POND2.IN

RUNOFF VOLUME = 1.44659 INCHES = 16.6029 ACRE-FEET
 PEAK DISCHARGE RATE = 388.88 CFS AT 1.500 HOURS BASIN
 AREA = .2152 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 2.

ROUTE RESERVOIR ID=20 HYD=POND2.OUT I=11 CODE=10

Q OUT	STORE	ELEV
0		10
22.2		11
49.4		11.5
89.2		12
143.5		12.5

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	10.00	.000	.00
.50	.00	10.00	.000	.00
1.00	8.82	10.04	.080	.89
1.50	388.88	11.35	3.408	41.35
2.00	73.02	12.07	7.408	96.59
2.50	12.79	11.73	5.386	67.79
3.00	5.01	11.37	3.475	42.25
3.50	3.08	11.06	2.257	25.70
4.00	2.54	10.76	1.515	16.82
4.50	2.42	10.52	1.039	11.53
5.00	2.45	10.37	.737	8.18
5.50	2.59	10.27	.550	6.10
6.00	2.77	10.22	.437	4.85
6.50	2.79	10.18	.369	4.09
7.00	2.71	10.16	.324	3.59
7.50	2.63	10.15	.293	3.25
8.00	2.54	10.14	.270	3.00
8.50	2.47	10.13	.254	2.81
9.00	2.39	10.12	.241	2.67
9.50	2.34	10.12	.230	2.56
10.00	2.27	10.11	.222	2.46
10.50	2.22	10.11	.214	2.38
11.00	2.15	10.10	.208	2.30
11.50	2.10	10.10	.202	2.24
12.00	2.05	10.10	.196	2.18
12.50	2.00	10.10	.191	2.12
13.00	1.94	10.09	.187	2.07
13.50	1.92	10.09	.182	2.02
14.00	1.88	10.09	.178	1.98
14.50	1.85	10.09	.174	1.93
15.00	1.80	10.09	.170	1.89
15.50	1.77	10.08	.167	1.85
16.00	1.73	10.08	.163	1.81
16.50	1.70	10.08	.160	1.78
17.00	1.67	10.08	.157	1.74
17.50	1.63	10.08	.154	1.71
18.00	1.61	10.08	.151	1.68

18.50	1.57	10.07	.148	1.65
19.00	1.56	10.07	.146	1.62
19.50	1.53	10.07	.143	1.59
20.00	1.50	10.07	.141	1.56
20.50	1.48	10.07	.138	1.54
21.00	1.45	10.07	.136	1.51
21.50	1.44	10.07	.134	1.49
22.00	1.40	10.07	.132	1.46
22.50	1.39	10.06	.130	1.44
23.00	1.37	10.06	.128	1.42
23.50	1.35	10.06	.126	1.40
24.00	1.33	10.06	.124	1.38
24.50	.09	10.05	.096	1.07
25.00	.01	10.03	.062	.69
25.50	.00	10.02	.039	.43
26.00	.00	10.01	.025	.27
26.50	.00	10.01	.016	.17
27.00	.00	10.00	.010	.11
27.50	.00	10.00	.006	.07

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

28.00	.00	10.00	.004	.04
28.50	.00	10.00	.002	.03
29.00	.00	10.00	.002	.02
29.50	.00	10.00	.001	.01

PEAK DISCHARGE = 99.324 CFS - PEAK OCCURS AT HOUR 1.85
 MAXIMUM WATER SURFACE ELEVATION = 12.093
 MAXIMUM STORAGE = 7.5593 AC-FT INCREMENTAL TIME=
 .050000HRS

PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA

POND2.OUT

RUNOFF VOLUME = 1.44653 INCHES = 16.6022 ACRE-FEET
 PEAK DISCHARGE RATE = 99.32 CFS AT 1.850 HOURS BASIN
 AREA = .2152 SQ. MI.

*S

*S ROUTE FLOWS TO POND 3

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.005 FS=0.005 N=0.03 DIST=29

DIST	EL	DIST	EL
0	104	12	100
17	100	29	104

RATING CURVE VALLEY SECTION

1.0				
		WATER	FLOW	
FLOW	TOP			
		SURFACE	AREA	
RATE	WIDTH			
		ELEV	SQ FT	CFS
FT				
		100.00	.00	

.00	.00		
1.36	6.26	100.21	1.19
4.54	7.53	100.42	2.64
9.40	8.79	100.63	4.35
16.03	10.05	100.84	6.34
24.53	11.32	101.05	8.59
35.02	12.58	101.26	11.10
47.63	13.84	101.47	13.88
62.49	15.11	101.68	16.93
79.71	16.37	101.89	20.24
99.43	17.63	102.11	23.82
121.75	18.89	102.32	27.67
146.81	20.16	102.53	31.78
174.72	21.42	102.74	36.15
205.59	22.68	102.95	40.80
239.53	23.95	103.16	45.71
276.67	25.21	103.37	50.88
317.10	26.47	103.58	56.32
360.93	27.74	103.79	62.03
408.27	29.00	104.00	68.00

COMPUTE TRAVEL TIME ID=11 RN=1 NVS=1 L=800 S=0.005

TRAVEL TIME TABLE
REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
.1938	.211	1.186	1.36
.1292	.421	2.637	4.54
.1029	.632	4.355	9.40
.0878	.842	6.338	16.03
.0778	1.053	8.587	24.53
	1.263	11.102	35.02

.0704	1.474	13.884	47.63
.0648	1.684	16.931	62.49
.0602	1.895	20.244	79.71
.0564	2.105	23.823	99.43
.0532	2.316	27.667	121.75
.0505	2.526	31.778	146.81
.0481	2.737	36.155	174.72
.0460	2.947	40.798	205.59
.0441	3.158	45.706	239.53
.0424	3.368	50.881	276.67
.0409	3.579	56.321	317.10
.0395	3.789	62.027	360.93
.0382	4.000	68.000	408.27
.0370			

ROUTE ID=11 HYD=POND2.ROUTE INFLOW ID=20 DT=0.0
 PRINT HYD ID=11 CODE=1

HYDROGRAPH FROM AREA

POND2.ROUTE

RUNOFF VOLUME = 1.44652 INCHES = 16.6021 ACRE-FEET
 PEAK DISCHARGE RATE = 98.86 CFS AT 1.900 HOURS BASIN
 AREA = .2152 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASIN A60110

COMPUTE NM HYD ID=1 HYD=A60110 AREA=0.1046 SQ MI

A=0 B=40 C=19 D=41

TP=0.133 MASSRAIN=-1

K = .073669HR TP = .133000HR K/TP RATIO = .553905
 SHAPE CONSTANT, N = 6.960692
 UNIT PEAK = 167.48 CFS UNIT VOLUME = .9990 B = 519.39
 P60 = 1.6400
 AREA = .042886 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .124119HR TP = .133000HR K/TP RATIO = .933227
 SHAPE CONSTANT, N = 3.790214
 UNIT PEAK = 158.20 CFS UNIT VOLUME = 1.001 B = 340.93
 P60 = 1.6400

AREA = .061714 SQ MI IA = .45169 INCHES INF =
 1.11475 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA

A60110

RUNOFF VOLUME = 1.40450 INCHES = 7.8352 ACRE-FEET
 PEAK DISCHARGE RATE = 186.73 CFS AT 1.500 HOURS BASIN
 AREA = .1046 SQ. MI.

*S
 *S ROUTE FLOW FROM SUB-BASIN A60110 THROUGH SUB-BASIN A60111 TO
 POND 3
 COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.053 FS=0.053 N=0.03 DIST=18
 DIST EL DIST EL
 0 104 4 100
 14 100 18 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
RATE	WIDTH		SURFACE	AREA
FT			ELEV	SQ FT CFS
.00	.00		100.00	.00
8.46	10.42		100.21	2.15
26.80	10.84		100.42	4.39
52.62	11.26		100.63	6.71
84.98	11.68		100.84	9.13
123.35	12.11		101.05	11.63
167.41	12.53		101.26	14.23
216.94	12.95		101.47	16.91
271.79	13.37		101.68	19.68
331.87	13.79		101.89	22.54
397.11	14.21		102.11	25.48
467.49	14.63		102.32	28.52

542.98	15.05	102.53	31.65
623.59	15.47	102.74	34.86
709.33	15.89	102.95	38.16
800.22	16.32	103.16	41.55
896.29	16.74	103.37	45.03
997.57	17.16	103.58	48.60
1104.10	17.58	103.79	52.25
1215.93	18.00	104.00	56.00
COMPUTE TRAVEL TIME		ID=10	RN=1 NVS=1 L=1700 S=0.053

TRAVEL TIME TABLE
REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
.1199	.211	2.150	8.46
.0773	.421	4.388	26.80
.0603	.632	6.715	52.62
.0507	.842	9.130	84.98
.0445	1.053	11.634	123.35
.0401	1.263	14.227	167.41
.0368	1.474	16.909	216.94
.0342	1.684	19.679	271.79
.0321	1.895	22.537	331.87
.0303	2.105	25.485	397.11
.0288	2.316	28.521	467.49
.0275	2.526	31.645	542.98
.0264	2.737	34.859	623.59
.0254	2.947	38.160	709.33
.0245	3.158	41.551	800.22
.0237	3.368	45.030	896.29
.0230	3.579	48.598	997.57

		3.789	52.255	1104.10
.0223				
		4.000	56.000	1215.93
.0217				
ROUTE	ID=10	HYD=A60110.5	INFLOW ID=1	DT=0.0
PRINT HYD	ID=10	CODE=1		

HYDROGRAPH FROM AREA

A60110.5

RUNOFF VOLUME = 1.40451 INCHES = 7.8352 ACRE-FEET
 PEAK DISCHARGE RATE = 179.57 CFS AT 1.550 HOURS BASIN
 AREA = .1046 SQ. MI.

*S
 *S CALCULATE THE FLOW FROM SUB-BASIN A60111
 COMPUTE NM HYD ID=1 HYD=A60111 AREA=0.0384 SQ MI
 A=0 B=28 C=23 D=49
 TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 74.454 CFS UNIT VOLUME = .9990 B =
 526.28 P60 = 1.6400
 AREA = .018816 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .120824HR TP = .133000HR K/TP RATIO = .908450
 SHAPE CONSTANT, N = 3.899004
 UNIT PEAK = 51.298 CFS UNIT VOLUME = 1.001 B =
 348.38 P60 = 1.6400
 AREA = .019584 SQ MI IA = .43235 INCHES INF =
 1.06059 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA

A60111

RUNOFF VOLUME = 1.56878 INCHES = 3.2128 ACRE-FEET
 PEAK DISCHARGE RATE = 73.60 CFS AT 1.500 HOURS BASIN
 AREA = .0384 SQ. MI.

*S
 *S ADD THE ROUTED FLOW FROM SUB-BASIN A60110.5 TO THE FLOW FROM
 SUB-BASIN A60111
 ADD HYD ID=11 HYD=POND3.A1 I=11 II=10

PRINT HYD

ID=11 CODE=1

HYDROGRAPH FROM AREA

POND3.A1

RUNOFF VOLUME = 1.43278 INCHES = 24.4373 ACRE-Feet
PEAK DISCHARGE RATE = 221.23 CFS AT 1.550 HOURS BASIN
AREA = .3198 SQ. MI.

*S

*S ADD THE ROUTED FLOW FROM POND2.ROUTE TO THE FLOW FROM SUB-BASIN
A60111.

*S HYD=POND3.IN IS THE TOTAL INFLOW INTO POND 3.

ADD HYD ID=10 HYD=POND3.IN I=11 II=1

PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA

POND3.IN

RUNOFF VOLUME = 1.44736 INCHES = 27.6501 ACRE-Feet
PEAK DISCHARGE RATE = 286.34 CFS AT 1.550 HOURS BASIN
AREA = .3582 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 3

ROUTE RESERVOIR ID=30 HYD=POND3.OUT I=10 CODE=10

Q OUT	STORE	ELEV
0	0	10
39.1	1	11
82.0	3	11.5
141.1	5	12
217.8	8	12.5

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	10.00	.000	.00
.50	.00	10.00	.000	.00
1.00	5.33	10.04	.040	1.58
1.50	272.16	11.22	1.899	58.38
2.00	147.31	12.04	5.265	147.87
2.50	80.15	11.79	4.155	116.12
3.00	47.95	11.45	2.799	77.69
3.50	29.30	11.17	1.668	53.42
4.00	19.41	10.85	.847	33.11
4.50	13.74	10.49	.488	19.08
5.00	10.17	10.33	.331	12.93
5.50	8.11	10.25	.246	9.61
6.00	6.89	10.20	.198	7.75
6.50	6.02	10.17	.169	6.62
7.00	5.46	10.15	.149	5.84
7.50	5.06	10.14	.136	5.32
8.00	4.74	10.13	.126	4.94

8.50	4.50	10.12	.119	4.65
9.00	4.30	10.11	.113	4.43
9.50	4.14	10.11	.108	4.24
10.00	4.00	10.10	.105	4.09
10.50	3.88	10.10	.101	3.95
11.00	3.76	10.10	.098	3.83
11.50	3.66	10.10	.095	3.72
12.00	3.56	10.09	.093	3.62
12.50	3.47	10.09	.090	3.53
13.00	3.39	10.09	.088	3.45
13.50	3.31	10.09	.086	3.36
14.00	3.24	10.08	.084	3.29
14.50	3.17	10.08	.082	3.21
15.00	3.10	10.08	.080	3.15
15.50	3.04	10.08	.079	3.08
16.00	2.98	10.08	.077	3.02
16.50	2.92	10.08	.076	2.96
17.00	2.87	10.07	.074	2.90
17.50	2.81	10.07	.073	2.85
18.00	2.76	10.07	.071	2.79
18.50	2.71	10.07	.070	2.74
19.00	2.67	10.07	.069	2.69
19.50	2.62	10.07	.068	2.65
20.00	2.57	10.07	.067	2.60
20.50	2.53	10.07	.065	2.56
21.00	2.49	10.06	.064	2.52
21.50	2.45	10.06	.063	2.48
22.00	2.41	10.06	.062	2.44
22.50	2.38	10.06	.061	2.40
23.00	2.34	10.06	.061	2.37
23.50	2.31	10.06	.060	2.33
24.00	2.27	10.06	.059	2.30
24.50	1.30	10.05	.045	1.76
25.00	.83	10.03	.029	1.14
25.50	.53	10.02	.019	.73
26.00	.33	10.01	.012	.47
26.50	.21	10.01	.008	.29
27.00	.13	10.00	.005	.19
27.50	.08	10.00	.003	.12

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

28.00	.05	10.00	.002	.07
28.50	.03	10.00	.001	.05
29.00	.02	10.00	.001	.03
29.50	.01	10.00	.000	.02

PEAK DISCHARGE = 147.870 CFS - PEAK OCCURS AT HOUR 2.00

MAXIMUM WATER SURFACE ELEVATION = 12.044

MAXIMUM STORAGE = 5.2648 AC-FT INCREMENTAL TIME=

.050000HRS

PRINT HYD

ID=30 CODE=1

HYDROGRAPH FROM AREA

POND3.OUT

RUNOFF VOLUME = 1.44734 INCHES = 27.6498 ACRE-FEET
 PEAK DISCHARGE RATE = 147.87 CFS AT 2.000 HOURS BASIN

AREA = .3582 SQ. MI.

*S
 *S ROUTE FLOWS TO POND 4
 COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.005 FS=0.005 N=0.03 DIST=34
 DIST EL DIST EL
 0 104 12 100
 22 100 34 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
RATE	WIDTH		SURFACE	AREA
FT			ELEV	SQ FT
				CFS
			100.00	.00
.00	.00		100.21	2.24
2.66	11.26		100.42	4.74
8.63	12.53		100.63	7.51
17.38	13.79		100.84	10.55
28.80	15.05		101.05	13.85
42.90	16.32		101.26	17.42
59.71	17.58		101.47	21.25
79.32	18.84		101.68	25.35
101.80	20.11		101.89	29.72
127.25	21.37		102.11	34.35
155.77	22.63		102.32	39.25
187.45	23.89		102.53	44.41
222.39	25.16		102.74	49.84
260.69	26.42		102.95	55.53
302.46	27.68		103.16	61.50
347.78	28.95		103.37	67.72
396.77	30.21		103.58	74.22
449.52	31.47		103.79	80.97
506.13	32.74		104.00	88.00
566.70	34.00			

COMPUTE TRAVEL TIME ID=10 RN=1 NVS=1 L=500 S=0.005

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
	.211	2.238	2.66
.1169	.421	4.742	8.63
.0763	.632	7.512	17.38
.0600	.842	10.548	28.80
.0509	1.053	13.850	42.90
.0448	1.263	17.418	59.71
.0405	1.474	21.252	79.32
.0372	1.684	25.352	101.80
.0346	1.895	29.717	127.25
.0324	2.105	34.349	155.77
.0306	2.316	39.246	187.45
.0291	2.526	44.410	222.39
.0277	2.737	49.839	260.69
.0266	2.947	55.534	302.46
.0255	3.158	61.495	347.78
.0246	3.368	67.723	396.77
.0237	3.579	74.216	449.52
.0229	3.789	80.975	506.13
.0222	4.000	87.999	566.70
.0216			
ROUTE	ID=10	HYD=POND3.ROUTE	INFLOW ID=30 DT=
0.0			
PRINT HYD	ID=10	CODE=1	

HYDROGRAPH FROM AREA

POND3.ROUTE

RUNOFF VOLUME = 1.44733 INCHES = 27.6497 ACRE-FEET
 PEAK DISCHARGE RATE = 147.76 CFS AT 2.000 HOURS BASIN
 AREA = .3582 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASIN A60113

COMPUTE NM HYD ID=1 HYD=A60113 AREA=0.0580 SQ MI
A=0 B=29 C=23 D=48
TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 110.16 CFS UNIT VOLUME = .9990 B =
526.28 P60 = 1.6400
AREA = .027840 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .121091HR TP = .133000HR K/TP RATIO = .910461
SHAPE CONSTANT, N = 3.889896
UNIT PEAK = 78.861 CFS UNIT VOLUME = 1.001 B =
347.76 P60 = 1.6400
AREA = .030160 SQ MI IA = .43365 INCHES INF =
1.06423 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA

A60113

RUNOFF VOLUME = 1.54960 INCHES = 4.7934 ACRE-FEET
PEAK DISCHARGE RATE = 110.37 CFS AT 1.500 HOURS BASIN
AREA = .0580 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASIN A60116N

COMPUTE NM HYD ID=2 HYD=A60116N AREA=0.0381 SQ MI
A=0 B=28 C=23 D=49
TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 73.872 CFS UNIT VOLUME = .9990 B =
526.28 P60 = 1.6400
AREA = .018669 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .120824HR TP = .133000HR K/TP RATIO = .908450
SHAPE CONSTANT, N = 3.899004
UNIT PEAK = 50.897 CFS UNIT VOLUME = 1.001 B =
348.38 P60 = 1.6400
AREA = .019431 SQ MI IA = .43235 INCHES INF =

1.06059 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA

A60116N

RUNOFF VOLUME = 1.56878 INCHES = 3.1877 ACRE-FEET
PEAK DISCHARGE RATE = 73.03 CFS AT 1.500 HOURS BASIN
AREA = .0381 SQ. MI.

*S
*S ADD THE ROUTED FLOW FROM POND 3.ROUTE TO THE FLOW FROM SUB-BASIN
A60113.

ADD HYD ID=10 HYD=POND4.A1 I=10 II=1
PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA

POND4.A1

RUNOFF VOLUME = 1.46158 INCHES = 32.4431 ACRE-FEET
PEAK DISCHARGE RATE = 171.46 CFS AT 1.850 HOURS BASIN
AREA = .4162 SQ. MI.

*S
*S ADD THE ROUTED FLOW FROM SUB-BASIN POND3.A1 TO THE FLOW FROM
SUB-BASIN A60116

*S HYD=POND2.IN IS THE TOTAL INFLOW INTO POND 2.
ADD HYD ID=10 HYD=POND4.IN I=10 II=2
PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA

POND4.IN

RUNOFF VOLUME = 1.47057 INCHES = 35.6308 ACRE-FEET
PEAK DISCHARGE RATE = 231.32 CFS AT 1.500 HOURS BASIN
AREA = .4543 SQ. MI.

*S
*S ROUTE FLOW THROUGH POND 4
ROUTE RESERVOIR ID=40 HYD=POND4.OUT I=10 CODE=10

Q OUT	STORE	ELEV
0	0	10
39.1	1	11
82.0	3	11.5
141.1	5	12
217.8	8	12.5

313.4

10

13

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	10.00	.000	.00
.50	.00	10.00	.000	.00
1.00	5.81	10.05	.049	1.93
1.50	231.32	11.21	1.850	57.33
2.00	181.83	12.06	5.382	150.86
2.50	123.68	12.05	5.277	148.18
3.00	81.36	11.76	4.025	112.28
3.50	56.08	11.48	2.913	80.13
4.00	35.88	11.24	1.942	59.31
4.50	21.04	11.01	1.035	39.86
5.00	14.55	10.55	.545	21.33
5.50	11.21	10.36	.360	14.09
6.00	9.23	10.27	.274	10.72
6.50	8.10	10.23	.229	8.94
7.00	7.27	10.20	.200	7.82
7.50	6.70	10.18	.181	7.08
8.00	6.26	10.17	.167	6.54
8.50	5.93	10.16	.157	6.14
9.00	5.66	10.15	.149	5.83
9.50	5.44	10.14	.143	5.58
10.00	5.25	10.14	.137	5.37
10.50	5.08	10.13	.133	5.18
11.00	4.93	10.13	.129	5.02
11.50	4.79	10.12	.125	4.88
12.00	4.67	10.12	.121	4.75
12.50	4.55	10.12	.118	4.63
13.00	4.43	10.12	.115	4.51
13.50	4.34	10.11	.113	4.40
14.00	4.24	10.11	.110	4.30
14.50	4.15	10.11	.108	4.21
15.00	4.06	10.11	.105	4.12
15.50	3.98	10.10	.103	4.03
16.00	3.90	10.10	.101	3.95
16.50	3.82	10.10	.099	3.87
17.00	3.75	10.10	.097	3.80
17.50	3.68	10.10	.095	3.72
18.00	3.61	10.09	.093	3.65
18.50	3.55	10.09	.092	3.59
19.00	3.48	10.09	.090	3.52
19.50	3.43	10.09	.089	3.46
20.00	3.36	10.09	.087	3.40
20.50	3.31	10.09	.086	3.35
21.00	3.26	10.08	.084	3.29
21.50	3.21	10.08	.083	3.24
22.00	3.15	10.08	.082	3.19
22.50	3.11	10.08	.080	3.14
23.00	3.06	10.08	.079	3.09
23.50	3.02	10.08	.078	3.04
24.00	2.97	10.08	.077	3.00
24.50	1.96	10.06	.062	2.43
25.00	1.28	10.04	.043	1.69
25.50	.82	10.03	.029	1.12
26.00	.52	10.02	.018	.72
26.50	.33	10.01	.012	.46

27.00	.21	10.01	.007	.29
27.50	.13	10.00	.005	.18

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

28.00	.08	10.00	.003	.12
28.50	.05	10.00	.002	.07
29.00	.03	10.00	.001	.05
29.50	.02	10.00	.001	.03

PEAK DISCHARGE = 157.234 CFS - PEAK OCCURS AT HOUR 2.20
 MAXIMUM WATER SURFACE ELEVATION = 12.105
 MAXIMUM STORAGE = 5.6310 AC-FT INCREMENTAL TIME=.050000HRS

PRINT HYD ID=40 CODE=1

HYDROGRAPH FROM AREA

POND4.OUT

RUNOFF VOLUME = 1.47056 INCHES = 35.6303 ACRE-FEET
 PEAK DISCHARGE RATE = 157.23 CFS AT 2.200 HOURS BASIN
 AREA = .4543 SQ. MI.

*S

*S ROUTE FLOWS TO POND 5

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.005 FS=0.005 N=0.03 DIST=34

DIST	EL	DIST	EL
0	104	12	100
22	100	34	104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
			SURFACE	AREA
RATE	WIDTH		ELEV	SQ FT
FT				CFS
.00	.00		100.00	.00
2.66	11.26		100.21	2.24
8.63	12.53		100.42	4.74
17.38	13.79		100.63	7.51
28.80	15.05		100.84	10.55
42.90	16.32		101.05	13.85
59.71	17.58		101.26	17.42
79.32	18.84		101.47	21.25
101.80	20.11		101.68	25.35

		101.89	29.72
127.25	21.37	102.11	34.35
155.77	22.63	102.32	39.25
187.45	23.89	102.53	44.41
222.39	25.16	102.74	49.84
260.69	26.42	102.95	55.53
302.46	27.68	103.16	61.50
347.78	28.95	103.37	67.72
396.77	30.21	103.58	74.22
449.52	31.47	103.79	80.97
506.13	32.74	104.00	88.00
566.70	34.00		
COMPUTE TRAVEL TIME	ID=10 RN=1 NVS=1 L=450 S=0.005		

TRAVEL TIME TABLE
REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
	.211	2.238	2.66
.1052	.421	4.742	8.63
.0687	.632	7.512	17.38
.0540	.842	10.548	28.80
.0458	1.053	13.850	42.90
.0404	1.263	17.418	59.71
.0365	1.474	21.252	79.32
.0335	1.684	25.352	101.80
.0311	1.895	29.717	127.25
.0292	2.105	34.349	155.77
.0276	2.316	39.246	187.45
.0262	2.526	44.410	222.39
.0250	2.737	49.839	260.69
.0239	2.947	55.534	302.46
.0230			

		3.158	61.495	347.78
.0221				
		3.368	67.723	396.77
.0213				
		3.579	74.216	449.52
.0206				
		3.789	80.975	506.13
.0200				
		4.000	87.999	566.70
.0194				
ROUTE	ID=10	HYD=POND4.ROUTE	INFLOW ID=40	DT=
0.0				
PRINT HYD	ID=10	CODE=1		

HYDROGRAPH FROM AREA

POND4.ROUTE

RUNOFF VOLUME = 1.47055 INCHES = 35.6302 ACRE-FEET
 PEAK DISCHARGE RATE = 157.15 CFS AT 2.200 HOURS BASIN
 AREA = .4543 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASIN A60114

COMPUTE NM HYD ID=1 HYD=A60114 AREA=0.2162 SQ MI

A=0 B=46 C=17 D=37

TP=0.133 MASSRAIN=-1

K = .076809HR TP = .133000HR K/TP RATIO = .577511
 SHAPE CONSTANT, N = 6.602117
 UNIT PEAK = 301.98 CFS UNIT VOLUME = .9988 B =
 502.09 P60 = 1.6400
 AREA = .079994 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .123448HR TP = .133000HR K/TP RATIO = .928181
 SHAPE CONSTANT, N = 3.811774
 UNIT PEAK = 350.67 CFS UNIT VOLUME = 1.001 B =
 342.42 P60 = 1.6400
 AREA = .136206 SQ MI IA = .45952 INCHES INF =
 1.13667 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD

ID=1 CODE=1

HYDROGRAPH FROM AREA

A60114

RUNOFF VOLUME = 1.32250 INCHES = 15.2492 ACRE-FEET
 PEAK DISCHARGE RATE = 371.51 CFS AT 1.500 HOURS BASIN
 AREA = .2162 SQ. MI.

*S
 *S ROUTE FLOW FROM SUB-BASIN A60114 THROUGH SUB-BASIN A60116S TO
 POND 5.

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.046 FS=0.046 N=0.03 DIST=18
 DIST EL DIST EL
 0 104 4 100
 14 100 18 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
RATE	WIDTH		SURFACE	AREA
FT			ELEV	SQ FT
				CFS
.00	.00		100.00	.00
7.88	10.42		100.21	2.15
24.97	10.84		100.42	4.39
49.02	11.26		100.63	6.71
79.17	11.68		100.84	9.13
114.92	12.11		101.05	11.63
155.96	12.53		101.26	14.23
202.10	12.95		101.47	16.91
253.20	13.37		101.68	19.68
309.17	13.79		101.89	22.54
369.96	14.21		102.11	25.48
435.52	14.63		102.32	28.52
505.85	15.05		102.53	31.65
580.95	15.47		102.74	34.86
660.83	15.89		102.95	38.16
745.51	16.32		103.16	41.55
835.01	16.74		103.37	45.03
929.36	17.16		103.58	48.60
1028.61	17.58		103.79	52.25
1132.79	18.00		104.00	56.00

COMPUTE TRAVEL TIME ID=11 RN=1 NVS=1 L=700 S=0.046

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.0530	.211	2.150	7.88
.0342	.421	4.388	24.97
.0266	.632	6.715	49.02
.0224	.842	9.130	79.17
.0197	1.053	11.634	114.92
.0177	1.263	14.227	155.96
.0163	1.474	16.909	202.10
.0151	1.684	19.679	253.20
.0142	1.895	22.537	309.17
.0134	2.105	25.485	369.96
.0127	2.316	28.521	435.52
.0122	2.526	31.645	505.85
.0117	2.737	34.859	580.95
.0112	2.947	38.160	660.83
.0108	3.158	41.551	745.51
.0105	3.368	45.030	835.01
.0102	3.579	48.598	929.36
.0099	3.789	52.255	1028.61
.0096	4.000	56.000	1132.79
ROUTE	ID=11	HYD=A60114.5	INFLOW ID=1 DT=0.0
PRINT HYD	ID=11	CODE=1	

HYDROGRAPH FROM AREA

A60114.5

RUNOFF VOLUME = 1.32250 INCHES = 15.2492 ACRE-FEET
 PEAK DISCHARGE RATE = 372.08 CFS AT 1.500 HOURS BASIN
 AREA = .2162 SQ. MI.

*S
 *S CALCULATE THE FLOW FROM SUB-BASIN A60115
 COMPUTE NM HYD ID=2 HYD=A60115 AREA=0.0764 SQ MI
 A=0 B=32 C=21 D=47
 TP=0.133 MASSRAIN=-1

K = .072876HR TP = .133000HR K/TP RATIO = .547940
 SHAPE CONSTANT, N = 7.057642
 UNIT PEAK = 141.47 CFS UNIT VOLUME = .9990 B =
 523.98 P60 = 1.6400
 AREA = .035908 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .122348HR TP = .133000HR K/TP RATIO = .919912
 SHAPE CONSTANT, N = 3.847755
 UNIT PEAK = 105.00 CFS UNIT VOLUME = 1.001 B =
 344.89 P60 = 1.6400
 AREA = .040492 SQ MI IA = .44057 INCHES INF =
 1.08358 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA

A60115

RUNOFF VOLUME = 1.52492 INCHES = 6.2135 ACRE-FEET
 PEAK DISCHARGE RATE = 143.45 CFS AT 1.500 HOURS BASIN
 AREA = .0764 SQ. MI.

*S
 *S ROUTE FLOW FROM SUB-BASIN A60115 THROUGH SUB-BASIN A60116S TO
 POND 5.
 COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.044 FS=0.044 N=0.03 DIST=18

DIST	EL	DIST	EL
0	104	4	100
14	100	18	104

RATING CURVE VALLEY SECTION

1.0		WATER	FLOW
FLOW	TOP	SURFACE	AREA
RATE	WIDTH	ELEV	SQ FT
FT			CFS
.00	.00	100.00	.00
7.71	10.42	100.21	2.15

		100.42	4.39
24.42	10.84	100.63	6.71
47.94	11.26	100.84	9.13
77.43	11.68	101.05	11.63
112.39	12.11	101.26	14.23
152.54	12.53	101.47	16.91
197.66	12.95	101.68	19.68
247.64	13.37	101.89	22.54
302.38	13.79	102.11	25.48
361.83	14.21	102.32	28.52
425.95	14.63	102.53	31.65
494.74	15.05	102.74	34.86
568.19	15.47	102.95	38.16
646.31	15.89	103.16	41.55
729.12	16.32	103.37	45.03
816.65	16.74	103.58	48.60
908.93	17.16	103.79	52.25
1006.00	17.58	104.00	56.00
1107.89	18.00		

COMPUTE TRAVEL TIME ID=12 RN=1 NVS=1 L=900 S=0.044

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
	.211	2.150	7.71
.0697	.421	4.388	24.42
.0449	.632	6.715	47.94
.0350	.842	9.130	77.43
.0295	1.053	11.634	112.39
.0259	1.263	14.227	152.54
.0233	1.474	16.909	197.66
.0214			

	1.684	19.679	247.64
.0199			
	1.895	22.537	302.38
.0186			
	2.105	25.485	361.83
.0176			
	2.316	28.521	425.95
.0167			
	2.526	31.645	494.74
.0160			
	2.737	34.859	568.19
.0153			
	2.947	38.160	646.31
.0148			
	3.158	41.551	729.12
.0142			
	3.368	45.030	816.65
.0138			
	3.579	48.598	908.93
.0134			
	3.789	52.255	1006.00
.0130			
	4.000	56.000	1107.89
.0126			

ROUTE ID=12 HYD=A60115.5 INFLOW ID=2 DT=0.0
PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA

A60115.5

RUNOFF VOLUME = 1.52493 INCHES = 6.2136 ACRE-FEET
PEAK DISCHARGE RATE = 141.32 CFS AT 1.500 HOURS BASIN
AREA = .0764 SQ. MI.

*S

*S CALCULATE THE FLOW FROM SUB-BASIN A60116S

COMPUTE NM HYD ID=1 HYD=A60116S AREA=0.0244 SQ MI

A=0 B=28 C=23 D=49

TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 47.309 CFS UNIT VOLUME = .9989 B =
526.28 P60 = 1.6400
AREA = .011956 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .120824HR TP = .133000HR K/TP RATIO = .908450
SHAPE CONSTANT, N = 3.899004
UNIT PEAK = 32.596 CFS UNIT VOLUME = 1.001 B =
348.38 P60 = 1.6400
AREA = .012444 SQ MI IA = .43235 INCHES INF =
1.06059 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA

A60116S

RUNOFF VOLUME = 1.56878 INCHES = 2.0415 ACRE-Feet
PEAK DISCHARGE RATE = 46.77 CFS AT 1.500 HOURS BASIN
AREA = .0244 SQ. MI.

*S

*S ADD THE ROUTED FLOW FROM POND4.ROUTE TO THE FLOW FROM SUB-BASIN
A60114.5

ADD HYD ID=10 HYD=POND5.A1 I=10 II=11
PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA

POND5.A1

RUNOFF VOLUME = 1.42281 INCHES = 50.8794 ACRE-Feet
PEAK DISCHARGE RATE = 421.50 CFS AT 1.500 HOURS BASIN
AREA = .6705 SQ. MI.

*S

*S ADD THE ROUTED FLOW FROM SUB-BASIN POND5.A1 TO THE FLOW FROM
SUB-BASIN A60115

ADD HYD ID=10 HYD=POND5.A2 I=10 II=12
PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA

POND5.A2

RUNOFF VOLUME = 1.43325 INCHES = 57.0928 ACRE-Feet
PEAK DISCHARGE RATE = 562.82 CFS AT 1.500 HOURS BASIN
AREA = .7469 SQ. MI.

*S

*S ADD THE ROUTED FLOW FROM SUB-BASIN POND5.A2 TO THE FLOW SUB-
BASIN A60116S.5

*S HYD=POND5.IN IS THE TOTAL INFLOW INTO POND 5.
ADD HYD ID=10 HYD=POND5.IN I=10 II=1
PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA

POND5.IN

RUNOFF VOLUME = 1.43754 INCHES = 59.1344 ACRE-Feet
PEAK DISCHARGE RATE = 609.59 CFS AT 1.500 HOURS BASIN

AREA = .7713 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 5

ROUTE RESERVOIR ID=50 HYD=POND5.OUT I=10 CODE=10

Q OUT	STORE	ELEV
0	0	10
39.1	1	11
82.0	3	11.5
141.1	5	12
217.8	7	12.5
313.4	9	13
429.3	11	13.5

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	10.00	.000	.00
.50	.00	10.00	.000	.00
1.00	12.77	10.09	.095	3.70
1.50	609.59	11.91	4.648	130.69
2.00	251.63	12.87	8.463	287.73
2.50	167.88	12.42	6.670	205.14
3.00	121.10	12.07	5.286	152.08
3.50	85.54	11.77	4.065	113.47
4.00	63.92	11.52	3.084	84.47
4.50	44.12	11.30	2.218	65.23
5.00	25.49	11.08	1.317	45.90
5.50	17.99	10.69	.688	26.92
6.00	14.79	10.46	.461	18.01
6.50	12.94	10.37	.370	14.45
7.00	11.61	10.32	.320	12.52
7.50	10.75	10.29	.290	11.33
8.00	10.10	10.27	.269	10.52
8.50	9.58	10.25	.253	9.91
9.00	9.17	10.24	.241	9.44
9.50	8.83	10.23	.231	9.04
10.00	8.52	10.22	.223	8.71
10.50	8.27	10.22	.215	8.42
11.00	8.01	10.21	.209	8.17
11.50	7.79	10.20	.203	7.93
12.00	7.60	10.20	.198	7.73
12.50	7.41	10.19	.193	7.53
13.00	7.22	10.19	.188	7.35
13.50	7.07	10.18	.183	7.17
14.00	6.92	10.18	.179	7.01
14.50	6.77	10.18	.175	6.85
15.00	6.62	10.17	.172	6.71
15.50	6.49	10.17	.168	6.57
16.00	6.35	10.16	.165	6.43
16.50	6.22	10.16	.161	6.31
17.00	6.12	10.16	.158	6.19
17.50	5.99	10.16	.155	6.07
18.00	5.88	10.15	.152	5.96
18.50	5.77	10.15	.150	5.85
19.00	5.68	10.15	.147	5.75
19.50	5.59	10.14	.144	5.64

20.00	5.48	10.14	.142	5.55
20.50	5.40	10.14	.140	5.46
21.00	5.30	10.14	.137	5.37
21.50	5.24	10.14	.135	5.29
22.00	5.14	10.13	.133	5.20
22.50	5.07	10.13	.131	5.13
23.00	5.00	10.13	.129	5.05
23.50	4.92	10.13	.127	4.96
24.00	4.84	10.13	.125	4.90
24.50	2.70	10.09	.094	3.66
25.00	1.85	10.06	.063	2.45
25.50	1.23	10.04	.042	1.64
26.00	.79	10.03	.028	1.08
26.50	.51	10.02	.018	.70
27.00	.32	10.01	.011	.45
27.50	.20	10.01	.007	.28

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

28.00	.13	10.00	.005	.18
28.50	.08	10.00	.003	.11
29.00	.05	10.00	.002	.07
29.50	.03	10.00	.001	.05

PEAK DISCHARGE = 313.930 CFS - PEAK OCCURS AT HOUR 1.75
 MAXIMUM WATER SURFACE ELEVATION = 13.002
 MAXIMUM STORAGE = 9.0091 AC-FT INCREMENTAL TIME=
 .050000HRS

PRINT HYD

ID=50 CODE=1

HYDROGRAPH FROM AREA

POND5.OUT

RUNOFF VOLUME = 1.43752 INCHES = 59.1336 ACRE-FEET
 PEAK DISCHARGE RATE = 313.93 CFS AT 1.750 HOURS BASIN
 AREA = .7713 SQ. MI.

*S

*S ROUTE FLOWS TO POND 6

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.005 FS=0.005 N=0.03 DIST=34

DIST	EL	DIST	EL
0	104	12	100
22	100	34	104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP	WATER	FLOW	
		SURFACE	AREA	
RATE	WIDTH	ELEV	SQ FT	CFS
FT				
.00	.00	100.00	.00	
2.66	11.26	100.21	2.24	

8.63	12.53	100.42	4.74
17.38	13.79	100.63	7.51
28.80	15.05	100.84	10.55
42.90	16.32	101.05	13.85
59.71	17.58	101.26	17.42
79.32	18.84	101.47	21.25
101.80	20.11	101.68	25.35
127.25	21.37	101.89	29.72
155.77	22.63	102.11	34.35
187.45	23.89	102.32	39.25
222.39	25.16	102.53	44.41
260.69	26.42	102.74	49.84
302.46	27.68	102.95	55.53
347.78	28.95	103.16	61.50
396.77	30.21	103.37	67.72
449.52	31.47	103.58	74.22
506.13	32.74	103.79	80.97
566.70	34.00	104.00	88.00

COMPUTE TRAVEL TIME ID=10 RN=1 NVS=1 L=900 S=0.005

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL	WATER	AVERAGE	FLOW
TIME	DEPTH	AREA	RATE
HRS	FEET	SQ. FT.	CFS
.2105	.211	2.238	2.66
.1374	.421	4.742	8.63
.1081	.632	7.512	17.38
.0916	.842	10.548	28.80
.0807	1.053	13.850	42.90
.0729	1.263	17.418	59.71
.0670	1.474	21.252	79.32

.0623	1.684	25.352	101.80
.0584	1.895	29.717	127.25
.0551	2.105	34.349	155.77
.0523	2.316	39.246	187.45
.0499	2.526	44.410	222.39
.0478	2.737	49.839	260.69
.0459	2.947	55.534	302.46
.0442	3.158	61.495	347.78
.0427	3.368	67.723	396.77
.0413	3.579	74.216	449.52
.0400	3.789	80.975	506.13
.0388	4.000	87.999	566.70

ROUTE ID=10 HYD=POND5.ROUTE INFLOW ID=50 DT=0.0
 PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA

POND5.ROUTE

RUNOFF VOLUME = 1.43751 INCHES = 59.1330 ACRE-FEET
 PEAK DISCHARGE RATE = 311.97 CFS AT 1.800 HOURS BASIN
 AREA = .7713 SQ. MI.

*S
 *S*****
 *S COMPUTE HYDROGRAPH FOR 201 OF RIO BRAVO
 COMPUTE NM HYD ID=11 HYD NO=201.0 DA=0.0969 SQ MI
 %A=0 %B=27 %C=27 %D=46
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .073618HR TP = .133300HR K/TP RATIO = .552276
 SHAPE CONSTANT, N = 6.986901
 UNIT PEAK = 174.09 CFS UNIT VOLUME = .9990 B =
 520.63 P60 = 1.6400
 AREA = .044574 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .119384HR TP = .133300HR K/TP RATIO = .895602
 SHAPE CONSTANT, N = 3.958420
 UNIT PEAK = 138.33 CFS UNIT VOLUME = 1.001 B =
 352.39 P60 = 1.6400
 AREA = .052326 SQ MI IA = .42500 INCHES INF =

1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 201.00

RUNOFF VOLUME = 1.52279 INCHES = 7.8697 ACRE-FEET
 PEAK DISCHARGE RATE = 183.13 CFS AT 1.500 HOURS BASIN
 AREA = .0969 SQ. MI.

*S ADD THE ROUTED FLOW FROM POND 5.ROUTE TO THE FLOW FROM SUB-BASIN

201

ADD HYD ID= 11 HYD=POND6.IN I=10 II=11
 PRINT HYD ID=11 CODE=1

HYDROGRAPH FROM AREA

POND6.IN

RUNOFF VOLUME = 1.44702 INCHES = 67.0026 ACRE-FEET
 PEAK DISCHARGE RATE = 372.23 CFS AT 1.750 HOURS BASIN
 AREA = .8682 SQ. MI.

*S

*S ROUTE FLOW THROUGH POND 6

ROUTE RESERVOIR ID=60 HYD=POND6.OUT I=11 CODE=10

Q OUT	STORE	ELEV
0	0	10
39.1	1	11
82.0	3	11.5
141.1	5	12
217.8	7	12.5
313.4	9	13
429.3	11	13.5

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	10.00	.000	.00
.50	.00	10.00	.000	.00
1.00	5.99	10.05	.049	1.91
1.50	270.25	11.28	2.106	62.83
2.00	325.78	12.88	8.521	290.52
2.50	215.12	12.69	7.756	253.95
3.00	158.24	12.33	6.316	191.59
3.50	117.78	12.02	5.073	143.91
4.00	88.04	11.76	4.021	112.18
4.50	68.24	11.54	3.152	86.50
5.00	49.11	11.35	2.383	68.76

5.50	30.27	11.14	1.551	50.93
6.00	20.28	10.82	.823	32.17
6.50	16.13	10.52	.520	20.32
7.00	14.08	10.41	.406	15.87
7.50	12.78	10.35	.351	13.74
8.00	11.88	10.32	.320	12.50
8.50	11.20	10.30	.298	11.65
9.00	10.68	10.28	.282	11.02
9.50	10.24	10.27	.269	10.52
10.00	9.87	10.26	.258	10.10
10.50	9.51	10.25	.249	9.73
11.00	9.23	10.24	.241	9.41
11.50	8.97	10.23	.233	9.13
12.00	8.74	10.23	.227	8.88
12.50	8.51	10.22	.221	8.65
13.00	8.30	10.22	.216	8.44
13.50	8.12	10.21	.211	8.24
14.00	7.93	10.21	.206	8.05
14.50	7.76	10.20	.201	7.87
15.00	7.60	10.20	.197	7.70
15.50	7.44	10.19	.193	7.54
16.00	7.29	10.19	.189	7.38
16.50	7.15	10.19	.185	7.24
17.00	7.01	10.18	.182	7.10
17.50	6.88	10.18	.178	6.96
18.00	6.75	10.17	.175	6.83
18.50	6.63	10.17	.172	6.71
19.00	6.51	10.17	.168	6.59
19.50	6.41	10.17	.166	6.47
20.00	6.29	10.16	.163	6.36
20.50	6.19	10.16	.160	6.26
21.00	6.09	10.16	.157	6.15
21.50	6.00	10.15	.155	6.06
22.00	5.89	10.15	.152	5.96
22.50	5.81	10.15	.150	5.87
23.00	5.72	10.15	.148	5.78
23.50	5.63	10.15	.145	5.69
24.00	5.55	10.14	.143	5.61
24.50	4.11	10.12	.124	4.86
25.00	2.83	10.09	.092	3.58
25.50	1.97	10.06	.065	2.53
26.00	1.31	10.04	.044	1.73
26.50	.85	10.03	.030	1.15
27.00	.55	10.02	.019	.75
27.50	.35	10.01	.012	.48

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
28.00	.22	10.01	.008	.31
28.50	.14	10.01	.005	.20
29.00	.09	10.00	.003	.12
29.50	.06	10.00	.002	.08

PEAK DISCHARGE = 298.149 CFS - PEAK OCCURS AT HOUR 2.10
 MAXIMUM WATER SURFACE ELEVATION = 12.920
 MAXIMUM STORAGE = 8.6810 AC-FT INCREMENTAL TIME=
 .050000HRS

PRINT HYD

ID=60 CODE=1

HYDROGRAPH FROM AREA

POND6.OUT

RUNOFF VOLUME = 1.44700 INCHES = 67.0014 ACRE-FEET
PEAK DISCHARGE RATE = 298.15 CFS AT 2.100 HOURS BASIN
AREA = .8682 SQ. MI.

*S

*S ROUTE FLOWS TO POND 6

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
CS=0.005 FS=0.005 N=0.03 DIST=34
DIST EL DIST EL
0 104 12 100
22 100 34 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP	WATER	FLOW	
RATE	WIDTH	SURFACE	AREA	
FT		ELEV	SQ FT	CFS
.00	.00	100.00	.00	
2.66	11.26	100.21	2.24	
8.63	12.53	100.42	4.74	
17.38	13.79	100.63	7.51	
28.80	15.05	100.84	10.55	
42.90	16.32	101.05	13.85	
59.71	17.58	101.26	17.42	
79.32	18.84	101.47	21.25	
101.80	20.11	101.68	25.35	
127.25	21.37	101.89	29.72	
155.77	22.63	102.11	34.35	
187.45	23.89	102.32	39.25	
222.39	25.16	102.53	44.41	
260.69	26.42	102.74	49.84	
302.46	27.68	102.95	55.53	
347.78	28.95	103.16	61.50	
396.77	30.21	103.37	67.72	
449.52	31.47	103.58	74.22	

506.13	32.74		103.79	80.97
			104.00	88.00
566.70	34.00			
COMPUTE TRAVEL TIME		ID=10	RN=1	NVS=1 L=600 S=0.005

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL	WATER	AVERAGE	FLOW
TIME	DEPTH	AREA	RATE
HRS	FEET	SQ.FT.	CFS
	.211	2.238	2.66
.1403	.421	4.742	8.63
.0916	.632	7.512	17.38
.0720	.842	10.548	28.80
.0610	1.053	13.850	42.90
.0538	1.263	17.418	59.71
.0486	1.474	21.252	79.32
.0447	1.684	25.352	101.80
.0415	1.895	29.717	127.25
.0389	2.105	34.349	155.77
.0368	2.316	39.246	187.45
.0349	2.526	44.410	222.39
.0333	2.737	49.839	260.69
.0319	2.947	55.534	302.46
.0306	3.158	61.495	347.78
.0295	3.368	67.723	396.77
.0284	3.579	74.216	449.52
.0275	3.789	80.975	506.13
.0267	4.000	87.999	566.70
.0259			

ROUTE	ID=10	HYD=POND6.ROUTE	INFLOW	ID=60	DT=
0.0					
PRINT HYD	ID=10	CODE=1			

HYDROGRAPH FROM AREA

POND6.ROUTE

RUNOFF VOLUME = 1.44698 INCHES = 67.0006 ACRE-FEET
 PEAK DISCHARGE RATE = 297.82 CFS AT 2.150 HOURS BASIN
 AREA = .8682 SQ. MI.

*S
 *S*****
 *S
 *S COMPUTE FLOWS FROM SUB-BASIN 202 OF RIO BRAVO
 COMPUTE NM HYD ID=1 HYD NO=202.0 DA=0.0826 SQ MI
 %A=0 %B=27 %C=27 %D=46
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .073215HR TP = .133300HR K/TP RATIO = .549252
 SHAPE CONSTANT, N = 7.036088
 UNIT PEAK = 149.07 CFS UNIT VOLUME = .9990 B =
 522.96 P60 = 1.6400
 AREA = .037996 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .119466HR TP = .133300HR K/TP RATIO = .896217
 SHAPE CONSTANT, N = 3.955535
 UNIT PEAK = 117.85 CFS UNIT VOLUME = 1.001 B =
 352.19 P60 = 1.6400
 AREA = .044604 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 202.00

RUNOFF VOLUME = 1.52279 INCHES = 6.7083 ACRE-FEET
 PEAK DISCHARGE RATE = 156.26 CFS AT 1.500 HOURS BASIN
 AREA = .0826 SQ. MI.

*S ROUTE FLOWS THROUGH POND 8
 ROUTE RESERVOIR ID=80 HYD=POND8.OUT I=1 CODE=10
 Q OUT STORE ELEV
 0 0 10
 39.7 3 11
 48.6 6 11.5
 56.2 9 12
 62.8 12 12.5
 68.8 15 13

* * * * *

TIME INFLOW ELEV VOLUME OUTFLOW

(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
.00	.00	10.00	.000	.00
.50	.00	10.00	.000	.00
1.00	4.15	10.01	.044	.59
1.50	156.26	10.52	1.554	20.57
2.00	28.47	10.98	2.950	39.04
2.50	4.68	10.69	2.068	27.37
3.00	1.86	10.43	1.286	17.02
3.50	1.21	10.26	.790	10.46
4.00	1.03	10.16	.492	6.51
4.50	.99	10.11	.317	4.19
5.00	1.01	10.07	.215	2.85
5.50	1.07	10.05	.158	2.09
6.00	1.15	10.04	.127	1.68
6.50	1.14	10.04	.110	1.46
7.00	1.11	10.03	.099	1.31
7.50	1.08	10.03	.092	1.22
8.00	1.04	10.03	.087	1.15
8.50	1.01	10.03	.083	1.10
9.00	.98	10.03	.080	1.05
9.50	.96	10.03	.077	1.02
10.00	.93	10.02	.074	.98
10.50	.91	10.02	.072	.95
11.00	.88	10.02	.070	.93
11.50	.86	10.02	.068	.90
12.00	.84	10.02	.067	.88
12.50	.82	10.02	.065	.86
13.00	.79	10.02	.063	.84
13.50	.79	10.02	.062	.82
14.00	.77	10.02	.061	.80
14.50	.76	10.02	.059	.78
15.00	.74	10.02	.058	.77
15.50	.73	10.02	.057	.75
16.00	.71	10.02	.056	.74
16.50	.70	10.02	.055	.72
17.00	.68	10.02	.054	.71
17.50	.67	10.02	.053	.70
18.00	.66	10.02	.052	.68
18.50	.65	10.02	.051	.67
19.00	.64	10.02	.050	.66
19.50	.63	10.02	.049	.65
20.00	.61	10.02	.048	.64
20.50	.61	10.02	.047	.63
21.00	.60	10.02	.047	.62
21.50	.59	10.02	.046	.61
22.00	.57	10.02	.045	.60
22.50	.57	10.01	.044	.59
23.00	.56	10.01	.044	.58
23.50	.56	10.01	.043	.57
24.00	.54	10.01	.042	.56
24.50	.03	10.01	.030	.39
25.00	.00	10.01	.018	.23
25.50	.00	10.00	.010	.13
26.00	.00	10.00	.006	.08
26.50	.00	10.00	.003	.05
27.00	.00	10.00	.002	.03
27.50	.00	10.00	.001	.02
TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

28.00	.00	10.00	.001	.01
28.50	.00	10.00	.000	.01
29.00	.00	10.00	.000	.00

PEAK DISCHARGE = 39.766 CFS - PEAK OCCURS AT HOUR 1.85
 MAXIMUM WATER SURFACE ELEVATION = 11.004
 MAXIMUM STORAGE = 3.0224 AC-FT INCREMENTAL TIME=
 .050000HRS

PRINT HYD ID=80 CODE=1

HYDROGRAPH FROM AREA

POND8.OUT

RUNOFF VOLUME = 1.52276 INCHES = 6.7082 ACRE-FEET
 PEAK DISCHARGE RATE = 39.77 CFS AT 1.850 HOURS BASIN
 AREA = .0826 SQ. MI.

*S
 *S ROUTE FLOWS TO JUNCTION
 COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
 SLP=0.01 D=3.0 N=0.013

		RATING CURVE PIPE SECTION 1.0	
		WATER	FLOW
FLOW	MAX	SURFACE	AREA
RATE	WIDTH	ELEV	SQ FT
FT			CFS
.00	.00	.00	.00
.35	1.33	.16	.14
1.52	1.83	.31	.39
3.53	2.18	.47	.71
6.35	2.44	.63	1.07
9.92	2.63	.78	1.46
14.15	2.78	.94	1.89
18.95	2.89	1.09	2.33
24.23	2.96	1.25	2.79
29.87	2.99	1.41	3.26
35.75	3.00	1.56	3.72
41.74	3.00	1.72	4.19
47.69	3.00	1.88	4.65
53.45	3.00	2.03	5.10

58.85	3.00	2.19	5.53
63.68	3.00	2.35	5.93
67.69	3.00	2.50	6.30
70.57	3.00	2.66	6.62
71.75	3.00	2.81	6.89
71.75	3.00	3.00	7.07

COMPUTE TRAVEL TIME ID=11 REACH NO=1 NO VS=1 L=600 FT
 SLP=0.01

TRAVEL TIME TABLE			
REACH= 1.0			
TRAVEL	WATER	AVERAGE	FLOW
TIME	DEPTH	AREA	RATE
HRS	FEET	SQ.FT.	CFS
.0669	.156	.140	.35
.0429	.313	.391	1.52
.0333	.469	.706	3.53
.0280	.625	1.068	6.35
.0246	.782	1.465	9.92
.0223	.938	1.889	14.15
.0205	1.094	2.332	18.95
.0192	1.251	2.790	24.23
.0182	1.407	3.255	29.87
.0174	1.563	3.724	35.75
.0167	1.720	4.191	41.74
.0163	1.876	4.650	47.69
.0159	2.032	5.097	53.45
.0156	2.189	5.525	58.85
.0155	2.345	5.928	63.68
.0155	2.501	6.297	67.69
.0156	2.658	6.622	70.57
.0160	2.814	6.887	71.75
	3.000	7.069	71.75

.0164

ROUTE

OUTFLOW ID=11 OUTFLOW HYD=POND8.ROUTE

INFLOW ID=80 DT=0.0

PRINT HYD

ID=11 CODE=1

OUTFLOW HYDROGRAPH REACH

8.00

RUNOFF VOLUME = 1.52277 INCHES = 6.7082 ACRE-FEET

PEAK DISCHARGE RATE = 39.80 CFS AT 1.850 HOURS BASIN

AREA = .0826 SQ. MI.

*S

*S ADD THE FLOWS FROM POND6.ROUTE TO THE FLOWS FROM POND8.ROUTE

*S AT THE JUNCTION POINT

ADD HYD

ID=11 HYD=JUNCTION I=11 II=10

PRINT HYD

ID=11 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS			HRS	CFS	HRS
	.000	.0		6.000	35.5		12.000
9.8	18.000	7.5		24.000	6.2		
	.500	.0		6.500	22.5		12.500
9.5	18.500	7.4		24.500	5.4		
	1.000	1.2		7.000	17.4		13.000
9.3	19.000	7.3		25.000	4.1		
	1.500	68.9		7.500	15.1		13.500
9.1	19.500	7.1		25.500	2.9		
	2.000	325.6		8.000	13.8		14.000
8.9	20.000	7.0		26.000	2.0		
	2.500	285.2		8.500	12.8		14.500
8.7	20.500	6.9		26.500	1.4		
	3.000	211.5		9.000	12.1		15.000
8.5	21.000	6.8		27.000	.9		
	3.500	156.7		9.500	11.6		15.500
8.3	21.500	6.7		27.500	.6		
	4.000	120.5		10.000	11.1		16.000
8.1	22.000	6.6		28.000	.4		
	4.500	92.2		10.500	10.7		16.500
8.0	22.500	6.5		28.500	.2		
	5.000	72.8		11.000	10.4		17.000
7.8	23.000	6.4		29.000	.1		
	5.500	54.3		11.500	10.1		17.500
7.7	23.500	6.3		29.500	.1		

RUNOFF VOLUME = 1.45357 INCHES = 73.7090 ACRE-FEET

PEAK DISCHARGE RATE = 334.98 CFS AT 2.100 HOURS BASIN

AREA = .9508 SQ. MI.

COMPUTE NM HYD

ID=1 HYD NO=203.0 DA=0.0772 SQ MI

%A, B, C, & D 0 30 30 40

TP=0.1333 HR
MASS RAINFALL=-1

K = .073063HR TP = .133300HR K/TP RATIO = .548109
SHAPE CONSTANT, N = 7.054863
UNIT PEAK = 121.35 CFS UNIT VOLUME = .9990 B =
523.85 P60 = 1.6400
AREA = .030880 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .119497HR TP = .133300HR K/TP RATIO = .896449
SHAPE CONSTANT, N = 3.954445
UNIT PEAK = 122.36 CFS UNIT VOLUME = 1.001 B =
352.12 P60 = 1.6400
AREA = .046320 SQ MI IA = .42500 INCHES INF =
1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 203.00

RUNOFF VOLUME = 1.41606 INCHES = 5.8304 ACRE-FEET
PEAK DISCHARGE RATE = 141.01 CFS AT 1.500 HOURS BASIN
AREA = .0772 SQ. MI.

ADD HYD
PRINT HYD

ID=2 HYD=JUNCTION I=11 II=1
ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS
	.000	.0		6.000	36.4		12.000
10.5	18.000	8.1		24.000	6.6		
	.500	.0		6.500	23.4		12.500
10.2	18.500	7.9		24.500	5.5		
	1.000	4.6		7.000	18.3		13.000
9.9	19.000	7.8		25.000	4.1		
	1.500	209.9		7.500	16.0		13.500
9.7	19.500	7.6		25.500	2.9		
	2.000	349.9		8.000	14.6		14.000
9.5	20.000	7.5		26.000	2.0		
	2.500	289.3		8.500	13.7		14.500
9.3	20.500	7.4		26.500	1.4		
	3.000	213.1		9.000	12.9		15.000
9.1	21.000	7.3		27.000	.9		
	3.500	157.7		9.500	12.4		15.500

8.9	21.500	7.2	27.500	.6	
	4.000	121.3	10.000	11.9	16.000
8.7	22.000	7.0	28.000	.4	
	4.500	93.0	10.500	11.5	16.500
8.5	22.500	6.9	28.500	.2	
	5.000	73.6	11.000	11.1	17.000
8.4	23.000	6.8	29.000	.1	
	5.500	55.2	11.500	10.8	17.500
8.2	23.500	6.7	29.500	.1	

RUNOFF VOLUME = 1.45075 INCHES = 79.5393 ACRE-FEET
 PEAK DISCHARGE RATE = 353.64 CFS AT 2.050 HOURS BASIN
 AREA = 1.0280 SQ. MI.

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.029 FS=0.029 N=0.013 DIST=26
 DIST EL DIST EL
 0 104 08 100
 18 100 26 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
RATE	WIDTH		SURFACE	AREA
FT			ELEV	SQ FT CFS
.00	.00		100.00	.00
14.63	10.84		100.21	2.19
46.96	11.68		100.42	4.57
93.48	12.53		100.63	7.11
153.11	13.37		100.84	9.84
225.42	14.21		101.05	12.74
310.28	15.05		101.26	15.82
407.70	15.89		101.47	19.08
517.82	16.74		101.68	22.52
640.82	17.58		101.89	26.13
776.92	18.42		102.11	29.92
926.37	19.26		102.32	33.88
1089.46	20.11		102.53	38.03
1266.47	20.95		102.74	42.35
1457.68	21.79		102.95	46.85
			103.16	51.52

1663.41 22.63

1883.96 23.47

2119.63 24.32

2370.74 25.16

2637.60 26.00

COMPUTE TRAVEL TIME

ID=3 RN=1 NVS=1 L=2400 S=0.029

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL

TIME

HRS

WATER

AVERAGE

FLOW

DEPTH

AREA

RATE

FEET

SQ. FT.

CFS

.211

2.194

14.63

.1000

.421

4.565

46.96

.0648

.632

7.114

93.48

.0507

.842

9.839

153.11

.0428

1.053

12.742

225.42

.0377

1.263

15.823

310.28

.0340

1.474

19.080

407.70

.0312

1.684

22.515

517.82

.0290

1.895

26.127

640.82

.0272

2.105

29.917

776.92

.0257

2.316

33.883

926.37

.0244

2.526

38.028

1089.46

.0233

2.737

42.349

1266.47

.0223

2.947

46.847

1457.68

.0214

3.158

51.523

1663.41

.0206

3.368

56.376

1883.96

.0199

3.579

61.407

2119.63

.0193

3.789

66.615

2370.74

.0187

4.000

72.000

2637.60

.0182

ROUTE

PRINT HYD

ID=3 HYD=204.1 INFLOW ID=2 DT=0.0

ID=3 CODE=1

PARTIAL HYDROGRAPH 204.10

RUNOFF VOLUME = 1.45074 INCHES = 79.5387 ACRE-FEET
 PEAK DISCHARGE RATE = 353.20 CFS AT 2.100 HOURS BASIN
 AREA = 1.0280 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=204.0 DA=0.1093 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.21 HR
 MASS RAINFALL=-1

K = .116529HR TP = .210000HR K/TP RATIO = .554899
 SHAPE CONSTANT, N = 6.944811
 UNIT PEAK = 153.86 CFS UNIT VOLUME = 1.000 B =
 518.63 P60 = 1.6400
 AREA = .062301 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .180229HR TP = .210000HR K/TP RATIO = .858234
 SHAPE CONSTANT, N = 4.144114
 UNIT PEAK = 81.614 CFS UNIT VOLUME = 1.000 B =
 364.67 P60 = 1.6400
 AREA = .046999 SQ MI IA = .39884 INCHES INF =
 .96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 204.00

RUNOFF VOLUME = 1.74130 INCHES = 10.1506 ACRE-FEET
 PEAK DISCHARGE RATE = 173.86 CFS AT 1.600 HOURS BASIN
 AREA = .1093 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=3 II=1
 PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
HRS	CFS	HRS	CFS	HRS	CFS	HRS
.000	.0	6.000	39.5	12.000		
11.9	9.2	24.000	7.5			
.500	.0	6.500	26.3	12.500		
11.6	9.0	24.500	5.8			

	1.000	7.7		7.000	20.7	13.000
11.3	19.000	8.9		25.000	4.4	
	1.500	333.9		7.500	18.1	13.500
11.0	19.500	8.7		25.500	3.1	
	2.000	401.5		8.000	16.5	14.000
10.8	20.000	8.5		26.000	2.2	
	2.500	305.7		8.500	15.5	14.500
10.6	20.500	8.4		26.500	1.5	
	3.000	221.1		9.000	14.7	15.000
10.3	21.000	8.3		27.000	1.0	
	3.500	163.4		9.500	14.1	15.500
10.1	21.500	8.1		27.500	.6	
	4.000	125.2		10.000	13.5	16.000
9.9	22.000	8.0		28.000	.4	
	4.500	96.5		10.500	13.1	16.500
9.7	22.500	7.9		28.500	.3	
	5.000	76.4		11.000	12.6	17.000
9.5	23.000	7.8		29.000	.2	
	5.500	58.5		11.500	12.2	17.500
9.3	23.500	7.7		29.500	.1	

RUNOFF VOLUME = 1.47866 INCHES = 89.6892 ACRE-FEET
 PEAK DISCHARGE RATE = 401.69 CFS AT 2.050 HOURS BASIN
 AREA = 1.1373 SQ. MI.

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.027 FS=0.027 N=0.013 DIST=26
 DIST EL DIST EL
 0 104 08 100
 18 100 26 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
RATE	WIDTH		SURFACE	AREA
FT			ELEV	SQ FT CFS
.00	.00		100.00	.00
14.12	10.84		100.21	2.19
45.31	11.68		100.42	4.57
90.20	12.53		100.63	7.11
147.74	13.37		100.84	9.84
217.51	14.21		101.05	12.74
299.39	15.05		101.26	15.82
393.39	15.89		101.47	19.08
499.64	16.74		101.68	22.52
618.32	17.58		101.89	26.13

749.65	18.42	102.11	29.92
893.86	19.26	102.32	33.88
1051.22	20.11	102.53	38.03
1222.02	20.95	102.74	42.35
1406.52	21.79	102.95	46.85
1605.03	22.63	103.16	51.52
1817.83	23.47	103.37	56.38
2045.24	24.32	103.58	61.41
2287.53	25.16	103.79	66.61
2545.03	26.00	104.00	72.00

COMPUTE TRAVEL TIME ID=3 RN=1 NVS=1 L=2150 S=0.027

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.0928	.211	2.194	14.12
.0602	.421	4.565	45.31
.0471	.632	7.114	90.20
.0398	.842	9.839	147.74
.0350	1.053	12.742	217.51
.0316	1.263	15.823	299.39
.0290	1.474	19.080	393.39
.0269	1.684	22.515	499.64
.0252	1.895	26.127	618.32
.0238	2.105	29.917	749.65
.0226	2.316	33.883	893.86
.0216	2.526	38.028	1051.22
.0207	2.737	42.349	1222.02
.0199	2.947	46.847	1406.52
.0192	3.158	51.523	1605.03

.0185	3.368	56.376	1817.83
.0179	3.579	61.407	2045.24
.0174	3.789	66.615	2287.53
.0169	4.000	72.000	2545.03

ROUTE ID=3 HYD=210.1 INFLOW ID=2 DT=0.0
 PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 210.10

RUNOFF VOLUME = 1.47865 INCHES = 89.6887 ACRE-FEET
 PEAK DISCHARGE RATE = 401.84 CFS AT 2.050 HOURS BASIN
 AREA = 1.1373 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=205.0 DA=0.1776 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.20 HR
 MASS RAINFALL=-1

K = .113869HR TP = .200000HR K/TP RATIO = .569346
 SHAPE CONSTANT, N = 6.721824
 UNIT PEAK = 257.09 CFS UNIT VOLUME = .9997 B =
 507.92 P60 = 1.6400
 AREA = .101232 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .172115HR TP = .200000HR K/TP RATIO = .860577
 SHAPE CONSTANT, N = 4.131859
 UNIT PEAK = 138.94 CFS UNIT VOLUME = 1.000 B =
 363.87 P60 = 1.6400
 AREA = .076368 SQ MI IA = .39884 INCHES INF =
 .96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 205.00

RUNOFF VOLUME = 1.74130 INCHES = 16.4935 ACRE-FEET
 PEAK DISCHARGE RATE = 290.74 CFS AT 1.550 HOURS BASIN
 AREA = .1776 SQ. MI.

ROUTE RESERVOIR ID=2 HYD=POND10.OUT I=1 CODE=10
 Q OUT STORE ELEV
 0 0.00 0

19.7	2.14	2
27.9	4.53	4
34.2	7.18	6
39.5	10.09	8
44.2	13.29	10
48.4	16.79	12

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.50	.00	.00	.000	.00
1.00	8.19	.06	.068	.63
1.50	254.11	2.09	2.250	20.08
2.00	86.89	7.00	8.628	36.84
2.50	19.19	7.21	8.944	37.41
3.00	7.75	6.53	7.945	35.59
3.50	4.23	5.68	6.754	33.19
4.00	3.10	4.80	5.588	30.41
4.50	2.75	3.98	4.505	27.81
5.00	2.72	3.17	3.538	24.50
5.50	2.84	2.47	2.701	21.63
6.00	3.01	1.86	1.985	18.27
6.50	3.05	1.37	1.462	13.46
7.00	2.97	1.03	1.102	10.15
7.50	2.88	.80	.854	7.86
8.00	2.79	.64	.681	6.27
8.50	2.70	.52	.560	5.15
9.00	2.63	.44	.474	4.37
9.50	2.56	.39	.413	3.80
10.00	2.49	.34	.369	3.40
10.50	2.43	.31	.336	3.10
11.00	2.36	.29	.312	2.88
11.50	2.30	.27	.294	2.70
12.00	2.25	.26	.279	2.57
12.50	2.20	.25	.267	2.46
13.00	2.14	.24	.257	2.37
13.50	2.10	.23	.249	2.29
14.00	2.07	.23	.242	2.23
14.50	2.02	.22	.235	2.16
15.00	1.98	.21	.229	2.11
15.50	1.94	.21	.224	2.06
16.00	1.89	.20	.219	2.02
16.50	1.86	.20	.214	1.97
17.00	1.83	.20	.210	1.93
17.50	1.79	.19	.206	1.89
18.00	1.76	.19	.202	1.86
18.50	1.72	.19	.198	1.82
19.00	1.71	.18	.194	1.79
19.50	1.68	.18	.191	1.76
20.00	1.64	.18	.188	1.73
20.50	1.62	.17	.185	1.70
21.00	1.59	.17	.182	1.67
21.50	1.58	.17	.179	1.64
22.00	1.54	.16	.176	1.62
22.50	1.53	.16	.173	1.59
23.00	1.51	.16	.170	1.57
23.50	1.48	.16	.168	1.54
24.00	1.46	.15	.165	1.52

24.50	.17	.13	.137	1.26
25.00	.04	.09	.096	.89
25.50	.01	.06	.067	.61
26.00	.00	.04	.046	.42
26.50	.00	.03	.031	.29
27.00	.00	.02	.021	.20
27.50	.00	.01	.015	.13

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
28.00	.00	.01	.010	.09
28.50	.00	.01	.007	.06
29.00	.00	.00	.005	.04
29.50	.00	.00	.003	.03
PEAK DISCHARGE = 37.820 CFS - PEAK OCCURS AT HOUR 2.25				
MAXIMUM WATER SURFACE ELEVATION = 7.366				
MAXIMUM STORAGE = 9.1677 AC-FT INCREMENTAL TIME=				
.050000HRS				

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA

POND10.OUT

RUNOFF VOLUME = 1.74107 INCHES = 16.4913 ACRE-FEET
 PEAK DISCHARGE RATE = 37.82 CFS AT 2.250 HOURS BASIN
 AREA = .1776 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
 SLP=0.025 D=2.5 N=0.013

		RATING CURVE PIPE SECTION 1.0	
FLOW	MAX	WATER	FLOW
RATE	WIDTH	SURFACE	AREA
FT		ELEV	SQ FT CFS
.00	.00	.00	.00
.34	1.11	.13	.10
1.48	1.53	.26	.27
3.43	1.82	.39	.49
6.17	2.03	.52	.74
9.64	2.19	.65	1.02
13.76	2.32	.78	1.31
18.43	2.41	.91	1.62
23.56	2.47	1.04	1.94
		1.17	2.26

29.05	2.50	1.30	2.59
34.76	2.50	1.43	2.91
40.58	2.50	1.56	3.23
46.37	2.50	1.69	3.54
51.97	2.50	1.82	3.84
57.22	2.50	1.95	4.12
61.91	2.50	2.08	4.37
65.82	2.50	2.21	4.60
68.62	2.50	2.35	4.78
69.76	2.50	2.50	4.91
69.76	2.50		

COMPUTE TRAVEL TIME

ID=4 REACH NO=1 NO VS=1 L=900 FT
SLP=0.025

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
.0717	.130	.098	.34
.0460	.261	.271	1.48
.0357	.391	.490	3.43
.0300	.521	.741	6.17
.0264	.651	1.017	9.64
.0238	.782	1.312	13.76
.0220	.912	1.620	18.43
.0206	1.042	1.937	23.56
.0195	1.173	2.261	29.05
.0186	1.303	2.586	34.76
.0179	1.433	2.910	40.58
.0174	1.563	3.229	46.37
.0170	1.694	3.540	51.97
.0168	1.824	3.837	57.22

.0166	1.954	4.117	61.91
.0166	2.084	4.373	65.82
.0168	2.215	4.599	68.62
.0171	2.345	4.783	69.76
.0176	2.500	4.909	69.76

ROUTE OUTFLOW ID=4 OUTFLOW HYD=206.1
 PRINT HYD INFLOW ID=2 DT=0.0
 ID=4 CODE=1

PARTIAL HYDROGRAPH 206.10

RUNOFF VOLUME = 1.74105 INCHES = 16.4911 ACRE-FEET
 PEAK DISCHARGE RATE = 37.82 CFS AT 2.250 HOURS BASIN
 AREA = .1776 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=206.0 DA=0.0210 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.13 HR
 MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 48.458 CFS UNIT VOLUME = .9991 B =
 526.28 P60 = 1.6400
 AREA = .011970 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .111362HR TP = .130000HR K/TP RATIO = .856628
 SHAPE CONSTANT, N = 4.152552
 UNIT PEAK = 25.368 CFS UNIT VOLUME = 1.001 B =
 365.22 P60 = 1.6400
 AREA = .009030 SQ MI IA = .39884 INCHES INF =
 .96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 206.00

RUNOFF VOLUME = 1.74130 INCHES = 1.9502 ACRE-FEET
 PEAK DISCHARGE RATE = 43.61 CFS AT 1.500 HOURS BASIN
 AREA = .0210 SQ. MI.

ADD HYD
PRINT HYD

ID=2 HYD=JUNCTION I=4 II=1
ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS
2.8	.000	.0	6.000	18.8	12.000		
	18.000	2.1	24.000	1.7			
	.500	.0	6.500	14.0	12.500		
2.7	18.500	2.0	24.500	1.3			
	1.000	1.7	7.000	10.6	13.000		
2.6	19.000	2.0	25.000	.9			
	1.500	61.1	7.500	8.3	13.500		
2.5	19.500	2.0	25.500	.6			
	2.000	45.1	8.000	6.7	14.000		
2.5	20.000	1.9	26.000	.4			
	2.500	38.7	8.500	5.5	14.500		
2.4	20.500	1.9	26.500	.3			
	3.000	36.2	9.000	4.7	15.000		
2.3	21.000	1.9	27.000	.2			
	3.500	33.6	9.500	4.1	15.500		
2.3	21.500	1.8	27.500	.1			
	4.000	30.8	10.000	3.7	16.000		
2.2	22.000	1.8	28.000	.1			
	4.500	28.2	10.500	3.4	16.500		
2.2	22.500	1.8	28.500	.1			
	5.000	24.9	11.000	3.2	17.000		
2.2	23.000	1.7	29.000	.0			
	5.500	22.0	11.500	3.0	17.500		
2.1	23.500	1.7	29.500	.0			

RUNOFF VOLUME = 1.74108 INCHES = 18.4414 ACRE-FEET
 PEAK DISCHARGE RATE = 61.14 CFS AT 1.500 HOURS BASIN
 AREA = .1986 SQ. MI.

COMPUTE RATING CURVE

CID=1 VS NO=1 CODE=-1
 SLP=0.024 D=3.0 N=0.013

RATING CURVE PIPE SECTION 1.0
 WATER FLOW

FLOW	MAX	SURFACE	AREA	
RATE	WIDTH	ELEV	SQ FT	CFS
FT				
.00	.00	.00	.00	
.54	1.33	.16	.14	
2.35	1.83	.31	.39	
5.47	2.18	.47	.71	
9.84	2.44	.63	1.07	

		.78	1.46
15.36	2.63		
		.94	1.89
21.92	2.78		
		1.09	2.33
29.36	2.89		
		1.25	2.79
37.54	2.96		
		1.41	3.26
46.28	2.99		
		1.56	3.72
55.39	3.00		
		1.72	4.19
64.66	3.00		
		1.88	4.65
73.88	3.00		
		2.03	5.10
82.81	3.00		
		2.19	5.53
91.16	3.00		
		2.35	5.93
98.65	3.00		
		2.50	6.30
104.87	3.00		
		2.66	6.62
109.32	3.00		
		2.81	6.89
111.15	3.00		
		3.00	7.07
111.15	3.00		

COMPUTE TRAVEL TIME

ID=4 REACH NO=1 NO VS=1 L=1900 FT
SLP=0.024

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
.1368	.156	.140	.54
.0877	.313	.391	2.35
.0681	.469	.706	5.47
.0573	.625	1.068	9.84
.0503	.782	1.465	15.36
.0455	.938	1.889	21.92
.0419	1.094	2.332	29.36
.0392	1.251	2.790	37.54
.0371	1.407	3.255	46.28
	1.563	3.724	55.39

.0355	1.720	4.191	64.66
.0342	1.876	4.650	73.88
.0332	2.032	5.097	82.81
.0325	2.189	5.525	91.16
.0320	2.345	5.928	98.65
.0317	2.501	6.297	104.87
.0317	2.658	6.622	109.32
.0320	2.814	6.887	111.15
.0327	3.000	7.069	111.15

.0336
 ROUTE OUTFLOW ID=4 OUTFLOW HYD=209.1
 INFLOW ID=2 DT=0.0
 PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 209.10

RUNOFF VOLUME = 1.74105 INCHES = 18.4411 ACRE-FEET
 PEAK DISCHARGE RATE = 61.27 CFS AT 1.550 HOURS BASIN
 AREA = .1986 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=207.0 DA=0.03023 SQ MI
 %A, B, C, & D 0 27 27 46
 TP=0.18 HR
 MASS RAINFALL=-1

K = .098100HR TP = .180000HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 40.657 CFS UNIT VOLUME = .9993 B =
 526.28 P60 = 1.6400
 AREA = .013906 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .161475HR TP = .180000HR K/TP RATIO = .897081
 SHAPE CONSTANT, N = 3.951476
 UNIT PEAK = 31.916 CFS UNIT VOLUME = .9999 B =
 351.92 P60 = 1.6400
 AREA = .016324 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 207.00

RUNOFF VOLUME = 1.52279 INCHES = 2.4551 ACRE-FEET
PEAK DISCHARGE RATE = 48.84 CFS AT 1.550 HOURS BASIN
AREA = .0302 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=4 II=1
PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW		TIME	FLOW		TIME	FLOW		TIME
		HRS			HRS			HRS
CFS		HRS	CFS		HRS	CFS		HRS
		.000	.0		6.000	19.6		12.000
3.2		18.000	2.3		24.000	1.9		
		.500	.0		6.500	14.7		12.500
3.0		18.500	2.3		24.500	1.4		
		1.000	2.3		7.000	11.3		13.000
2.9		19.000	2.2		25.000	1.0		
		1.500	100.0		7.500	8.8		13.500
2.8		19.500	2.2		25.500	.7		
		2.000	57.3		8.000	7.2		14.000
2.8		20.000	2.2		26.000	.5		
		2.500	41.4		8.500	6.0		14.500
2.7		20.500	2.1		26.500	.3		
		3.000	37.3		9.000	5.1		15.000
2.6		21.000	2.1		27.000	.2		
		3.500	34.4		9.500	4.5		15.500
2.6		21.500	2.1		27.500	.2		
		4.000	31.4		10.000	4.1		16.000
2.5		22.000	2.0		28.000	.1		
		4.500	28.7		10.500	3.8		16.500
2.5		22.500	2.0		28.500	.1		
		5.000	25.5		11.000	3.5		17.000
2.4		23.000	2.0		29.000	.1		
		5.500	22.6		11.500	3.3		17.500
2.4		23.500	1.9		29.500	.0		

RUNOFF VOLUME = 1.71222 INCHES = 20.8962 ACRE-FEET
PEAK DISCHARGE RATE = 110.10 CFS AT 1.550 HOURS BASIN
AREA = .2288 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
SLP=0.007 D=4.0 N=0.013

		RATING CURVE PIPE SECTION 1.0	
		WATER	FLOW
FLOW	MAX		
		SURFACE	AREA
RATE	WIDTH		
		ELEV	SQ FT CFS
FT		.00	.00

.00	.00		
.63	1.78	.21	.25
2.74	2.44	.42	.69
6.36	2.91	.63	1.25
11.44	3.25	.83	1.90
17.87	3.51	1.04	2.60
25.49	3.71	1.25	3.36
34.15	3.85	1.46	4.15
43.66	3.94	1.67	4.96
53.83	3.99	1.88	5.79
64.42	4.00	2.08	6.62
75.21	4.00	2.29	7.45
85.93	4.00	2.50	8.27
96.31	4.00	2.71	9.06
106.03	4.00	2.92	9.82
114.73	4.00	3.13	10.54
121.97	4.00	3.34	11.20
127.15	4.00	3.54	11.77
129.28	4.00	3.75	12.24
129.28	4.00	4.00	12.57

COMPUTE TRAVEL TIME

ID=4 REACH NO=1 NO VS=1 L=560 FT
SLP=0.007

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
.0616	.208	.250	.63
.0395	.417	.695	2.74
.0307	.625	1.255	6.36
.0258	.834	1.898	11.44
.0227	1.042	2.604	17.87

.0205	1.251	3.358	25.49
.0189	1.459	4.146	34.15
.0177	1.668	4.960	43.66
.0167	1.876	5.788	53.83
.0160	2.084	6.621	64.42
.0154	2.293	7.451	75.21
.0150	2.501	8.267	85.93
.0146	2.710	9.062	96.31
.0144	2.918	9.823	106.03
.0143	3.127	10.539	114.73
.0143	3.335	11.195	121.97
.0144	3.544	11.773	127.15
.0147	3.752	12.243	129.28
.0151	4.000	12.566	129.28

ROUTE OUTFLOW ID=4 OUTFLOW HYD=208.1
 INFLOW ID=2 DT=0.0
 PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 208.10

RUNOFF VOLUME = 1.71221 INCHES = 20.8961 ACRE-FEET
 PEAK DISCHARGE RATE = 109.21 CFS AT 1.550 HOURS BASIN
 AREA = .2288 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=208.A DA=0.03201 SQ MI
 %A, B, C, & D 0 29.5 29.5 41
 TP=0.15 HR
 MASS RAINFALL=-1

K = .081750HR TP = .150000HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 46.046 CFS UNIT VOLUME = 1.000 B =
 526.28 P60 = 1.6400
 AREA = .013124 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .134562HR TP = .150000HR K/TP RATIO = .897081
 SHAPE CONSTANT, N = 3.951474
 UNIT PEAK = 44.309 CFS UNIT VOLUME = 1.000 B =
 351.92 P60 = 1.6400
 AREA = .018886 SQ MI IA = .42500 INCHES INF =

1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 208.A

RUNOFF VOLUME = 1.43385 INCHES = 2.4479 ACRE-FEET
 PEAK DISCHARGE RATE = 54.71 CFS AT 1.500 HOURS BASIN
 AREA = .0320 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=4 II=1
 PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS			HRS	CFS	HRS
	.000	.0		6.000	20.2		12.000
3.5	18.000	2.5		24.000	2.1		
	.500	.0		6.500	15.2		12.500
3.3	18.500	2.5		24.500	1.4		
	1.000	3.2		7.000	11.7		13.000
3.2	19.000	2.5		25.000	1.0		
	1.500	149.2		7.500	9.3		13.500
3.1	19.500	2.4		25.500	.7		
	2.000	68.6		8.000	7.6		14.000
3.0	20.000	2.4		26.000	.5		
	2.500	43.6		8.500	6.4		14.500
3.0	20.500	2.3		26.500	.4		
	3.000	38.2		9.000	5.5		15.000
2.9	21.000	2.3		27.000	.2		
	3.500	34.9		9.500	4.9		15.500
2.8	21.500	2.3		27.500	.2		
	4.000	31.8		10.000	4.4		16.000
2.8	22.000	2.2		28.000	.1		
	4.500	29.1		10.500	4.1		16.500
2.7	22.500	2.2		28.500	.1		
	5.000	25.9		11.000	3.8		17.000
2.6	23.000	2.2		29.000	.1		
	5.500	23.1		11.500	3.6		17.500
2.6	23.500	2.1		29.500	.0		

RUNOFF VOLUME = 1.67804 INCHES = 23.3439 ACRE-FEET
 PEAK DISCHARGE RATE = 161.94 CFS AT 1.550 HOURS BASIN
 AREA = .2608 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1
 SLP=0.010 D=4.0 N=0.013

		RATING CURVE PIPE SECTION 1.0		
		WATER	FLOW	
FLOW	MAX			
RATE	WIDTH	SURFACE	AREA	
FT		ELEV	SQ FT	CFS
		.00	.00	
.00	.00	.21	.25	
.75	1.78	.42	.69	
3.27	2.44	.63	1.25	
7.60	2.91	.83	1.90	
13.68	3.25	1.04	2.60	
21.35	3.51	1.25	3.36	
30.47	3.71	1.46	4.15	
40.82	3.85	1.67	4.96	
52.19	3.94	1.88	5.79	
64.33	3.99	2.08	6.62	
77.00	4.00	2.29	7.45	
89.89	4.00	2.50	8.27	
102.71	4.00	2.71	9.06	
115.11	4.00	2.92	9.82	
126.73	4.00	3.13	10.54	
137.13	4.00	3.34	11.20	
145.78	4.00	3.54	11.77	
151.97	4.00	3.75	12.24	
154.52	4.00	4.00	12.57	
154.52	4.00			
COMPUTE TRAVEL TIME		ID=4	REACH NO=1	NO VS=1 L=600 FT
		SLP=0.010		

TRAVEL TIME TABLE			
REACH= 1.0			
WATER	AVERAGE	FLOW	
DEPTH	AREA	RATE	
FEET	SQ.FT.	CFS	
	.208	.250	.75

.0553			
	.417	.695	3.27
.0354			
	.625	1.255	7.60
.0275			
	.834	1.898	13.68
.0231			
	1.042	2.604	21.35
.0203			
	1.251	3.358	30.47
.0184			
	1.459	4.146	40.82
.0169			
	1.668	4.960	52.19
.0158			
	1.876	5.788	64.33
.0150			
	2.084	6.621	77.00
.0143			
	2.293	7.451	89.89
.0138			
	2.501	8.267	102.71
.0134			
	2.710	9.062	115.11
.0131			
	2.918	9.823	126.73
.0129			
	3.127	10.539	137.13
.0128			
	3.335	11.195	145.78
.0128			
	3.544	11.773	151.97
.0129			
	3.752	12.243	154.52
.0132			
	4.000	12.566	154.52
.0136			

ROUTE OUTFLOW ID=4 OUTFLOW HYD=209.1
 INFLOW ID=2 DT=0.0
 TRAVEL TIME TABLE EXCEEDED
 PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 209.10

RUNOFF VOLUME = 1.67803 INCHES = 23.3438 ACRE-FEET
 PEAK DISCHARGE RATE = 159.86 CFS AT 1.550 HOURS BASIN
 AREA = .2608 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=208.B DA=0.02696 SQ MI
 %A, B, C, & D 0 26.5 26.5 47
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 50.027 CFS UNIT VOLUME = .9989 B =
 526.28 P60 = 1.6400
 AREA = .012671 SQ MI IA = .10000 INCHES INF =

.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .119581HR TP = .133300HR K/TP RATIO = .897081
 SHAPE CONSTANT, N = 3.951476
 UNIT PEAK = 37.723 CFS UNIT VOLUME = 1.001 B =
 351.92 P60 = 1.6400
 AREA = .014289 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 208.B

RUNOFF VOLUME = 1.54057 INCHES = 2.2151 ACRE-FEET
 PEAK DISCHARGE RATE = 51.38 CFS AT 1.500 HOURS BASIN
 AREA = .0270 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=4 II=1
 PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS	HRS	CFS	HRS
	.000	.0	6.000	20.8	12.000
3.8	18.000	2.8	24.000	2.3	
	.500	.0	6.500	15.7	12.500
3.6	18.500	2.7	24.500	1.5	
	1.000	4.0	7.000	12.2	13.000
3.5	19.000	2.7	25.000	1.0	
	1.500	193.6	7.500	9.7	13.500
3.4	19.500	2.6	25.500	.7	
	2.000	78.7	8.000	8.0	14.000
3.3	20.000	2.6	26.000	.5	
	2.500	45.3	8.500	6.7	14.500
3.2	20.500	2.5	26.500	.4	
	3.000	38.9	9.000	5.8	15.000
3.1	21.000	2.5	27.000	.3	
	3.500	35.4	9.500	5.2	15.500
3.1	21.500	2.5	27.500	.2	
	4.000	32.2	10.000	4.8	16.000
3.0	22.000	2.4	28.000	.1	
	4.500	29.5	10.500	4.4	16.500
2.9	22.500	2.4	28.500	.1	
	5.000	26.3	11.000	4.1	17.000
2.9	23.000	2.3	29.000	.1	
	5.500	23.5	11.500	3.9	17.500

2.8 23.500 2.3 29.500 .0

RUNOFF VOLUME = 1.66516 INCHES = 25.5589 ACRE-FEET
PEAK DISCHARGE RATE = 205.40 CFS AT 1.550 HOURS BASIN
AREA = .2878 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=209.0 DA=0.0111 SQ MI
 %A, B, C, & D 0 11 24 65
 TP=0.27 HR
 MASS RAINFALL=-1

 K = .147150HR TP = .270000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 14.063 CFS UNIT VOLUME = .9992 B =
526.28 P60 = 1.6400
 AREA = .007215 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

 K = .230582HR TP = .270000HR K/TP RATIO = .854009
SHAPE CONSTANT, N = 4.166404
 UNIT PEAK = 5.2680 CFS UNIT VOLUME = .9976 B =
366.12 P60 = 1.6400
 AREA = .003885 SQ MI IA = .39714 INCHES INF =
.96200 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

 BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 209.00

RUNOFF VOLUME = 1.88065 INCHES = 1.1133 ACRE-FEET
PEAK DISCHARGE RATE = 16.34 CFS AT 1.650 HOURS BASIN
AREA = .0111 SQ. MI.

ADD HYD ID=4 HYD=JUNCTION I=2 II=1
PRINT HYD ID=4 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS	HRS	CFS	HRS
	.000	.0	6.000	21.0	12.000
3.9	18.000	2.9	24.000	2.4	
	.500	.0	6.500	15.9	12.500
3.8	18.500	2.8	24.500	1.5	
	1.000	4.4	7.000	12.4	13.000

3.6	19.000	2.8	25.000	1.0	
	1.500	204.0	7.500	9.9	13.500
3.5	19.500	2.7	25.500	.7	
	2.000	85.7	8.000	8.2	14.000
3.4	20.000	2.7	26.000	.5	
	2.500	47.0	8.500	6.9	14.500
3.4	20.500	2.6	26.500	.4	
	3.000	39.6	9.000	6.0	15.000
3.3	21.000	2.6	27.000	.3	
	3.500	35.8	9.500	5.4	15.500
3.2	21.500	2.6	27.500	.2	
	4.000	32.5	10.000	4.9	16.000
3.1	22.000	2.5	28.000	.1	
	4.500	29.7	10.500	4.6	16.500
3.1	22.500	2.5	28.500	.1	
	5.000	26.5	11.000	4.3	17.000
3.0	23.000	2.5	29.000	.1	
	5.500	23.7	11.500	4.1	17.500
2.9	23.500	2.4	29.500	.0	

RUNOFF VOLUME = 1.67316 INCHES = 26.6722 ACRE-FEET
 PEAK DISCHARGE RATE = 219.23 CFS AT 1.550 HOURS BASIN
 AREA = .2989 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=210.0 DA=0.0391 SQ MI
 %A, B, C, & D 0 30 30 40
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 61.748 CFS UNIT VOLUME = .9989 B =
 526.28 P60 = 1.6400
 AREA = .015640 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .119581HR TP = .133300HR K/TP RATIO = .897081
 SHAPE CONSTANT, N = 3.951476
 UNIT PEAK = 61.936 CFS UNIT VOLUME = 1.001 B =
 351.92 P60 = 1.6400
 AREA = .023460 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 210.00

RUNOFF VOLUME = 1.41606 INCHES = 2.9529 ACRE-FEET
 PEAK DISCHARGE RATE = 71.49 CFS AT 1.500 HOURS BASIN
 AREA = .0391 SQ. MI.

ADD HYD
PRINT HYD

ID=2 HYD=JUNCTION I=3 II=1
ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS	HRS		HRS	CFS	HRS
CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS
	.000	.0		6.000	40.9		12.000
12.3	18.000	9.5		24.000	7.8		
	.500	.0		6.500	27.6		12.500
12.0	18.500	9.3		24.500	6.1		
	1.000	6.2		7.000	21.7		13.000
11.7	19.000	9.1		25.000	4.6		
	1.500	358.3		7.500	18.8		13.500
11.4	19.500	9.0		25.500	3.3		
	2.000	412.7		8.000	17.1		14.000
11.2	20.000	8.8		26.000	2.4		
	2.500	312.8		8.500	16.0		14.500
10.9	20.500	8.7		26.500	1.6		
	3.000	225.3		9.000	15.2		15.000
10.7	21.000	8.5		27.000	1.1		
	3.500	166.5		9.500	14.5		15.500
10.5	21.500	8.4		27.500	.7		
	4.000	127.4		10.000	14.0		16.000
10.2	22.000	8.3		28.000	.4		
	4.500	98.5		10.500	13.5		16.500
10.0	22.500	8.2		28.500	.3		
	5.000	77.8		11.000	13.1		17.000
9.9	23.000	8.0		29.000	.2		
	5.500	60.3		11.500	12.7		17.500
9.7	23.500	7.9		29.500	.1		

RUNOFF VOLUME = 1.47657 INCHES = 92.6417 ACRE-FEET
 PEAK DISCHARGE RATE = 450.83 CFS AT 1.600 HOURS BASIN
 AREA = 1.1764 SQ. MI.

ADD HYD
PRINT HYD

ID=3 HYD=JUNCTION I=4 II=2
ID=3 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS	HRS		HRS	CFS	HRS
CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS
	.000	.0		6.000	61.9		12.000
16.2	18.000	12.4		24.000	10.2		
	.500	.0		6.500	43.5		12.500
15.8	18.500	12.1		24.500	7.6		
	1.000	10.6		7.000	34.1		13.000
15.3	19.000	11.9		25.000	5.7		
	1.500	562.3		7.500	28.7		13.500

15.0	19.500	11.7	25.500	4.1	
	2.000	498.5	8.000	25.3	14.000
14.6	20.000	11.5	26.000	2.9	
	2.500	359.8	8.500	23.0	14.500
14.3	20.500	11.3	26.500	2.0	
	3.000	264.9	9.000	21.2	15.000
14.0	21.000	11.1	27.000	1.3	
	3.500	202.3	9.500	20.0	15.500
13.7	21.500	11.0	27.500	.9	
	4.000	159.9	10.000	18.9	16.000
13.4	22.000	10.8	28.000	.6	
	4.500	128.3	10.500	18.1	16.500
13.1	22.500	10.6	28.500	.4	
	5.000	104.4	11.000	17.4	17.000
12.9	23.000	10.5	29.000	.2	
	5.500	84.0	11.500	16.8	17.500
12.6	23.500	10.3	29.500	.1	

RUNOFF VOLUME = 1.51640 INCHES = 119.3138 ACRE-FEET
 PEAK DISCHARGE RATE = 656.40 CFS AT 1.600 HOURS BASIN
 AREA = 1.4753 SQ. MI.

COMPUTE RATING CURVE CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
 CS=0.028 FS=0.028 N=0.013 DIST=26
 DIST EL DIST EL
 0 104 08 100
 18 100 26 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP		WATER	FLOW
RATE	WIDTH		SURFACE	AREA
FT			ELEV	SQ FT CFS
.00	.00		100.00	.00
14.38	10.84		100.21	2.19
46.14	11.68		100.42	4.57
91.86	12.53		100.63	7.11
150.45	13.37		100.84	9.84
221.50	14.21		101.05	12.74
304.88	15.05		101.26	15.82
400.61	15.89		101.47	19.08
508.81	16.74		101.68	22.52
629.67	17.58		101.89	26.13
763.40	18.42		102.11	29.92
			102.32	33.88

910.26	19.26	102.53	38.03
1070.51	20.11	102.74	42.35
1244.44	20.95	102.95	46.85
1432.33	21.79	103.16	51.52
1634.48	22.63	103.37	56.38
1851.19	23.47	103.58	61.41
2082.77	24.32	103.79	66.61
2329.51	25.16	104.00	72.00
2591.73	26.00		

COMPUTE TRAVEL TIME

ID=4 RN=1 NVS=1 L=2750 S=0.028

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
.1166	.211	2.194	14.38
.0756	.421	4.565	46.14
.0592	.632	7.114	91.86
.0500	.842	9.839	150.45
.0439	1.053	12.742	221.50
.0396	1.263	15.823	304.88
.0364	1.474	19.080	400.61
.0338	1.684	22.515	508.81
.0317	1.895	26.127	629.67
.0299	2.105	29.917	763.40
.0284	2.316	33.883	910.26
.0271	2.526	38.028	1070.51
.0260	2.737	42.349	1244.44
.0250	2.947	46.847	1432.33
.0241	3.158	51.523	1634.48
.0233	3.368	56.376	1851.19
	3.579	61.407	2082.77

.0225		3.789	66.615	2329.51
.0218		4.000	72.000	2591.73
.0212	ROUTE	ID=4	HYD=210.1	INFLOW ID=3 DT=0.0
	PRINT HYD	ID=4	CODE=1	

PARTIAL HYDROGRAPH 210.10

RUNOFF VOLUME = 1.51639 INCHES = 119.3128 ACRE-FEET
 PEAK DISCHARGE RATE = 665.72 CFS AT 1.600 HOURS BASIN
 AREA = 1.4753 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=211.0 DA=0.1530 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.21 HR
 MASS RAINFALL=-1

K = .118470HR TP = .210000HR K/TP RATIO = .564143
 SHAPE CONSTANT, N = 6.800429
 UNIT PEAK = 212.51 CFS UNIT VOLUME = 1.000 B =
 511.72 P60 = 1.6400
 AREA = .087210 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .180544HR TP = .210000HR K/TP RATIO = .859733
 SHAPE CONSTANT, N = 4.136265
 UNIT PEAK = 114.08 CFS UNIT VOLUME = 1.000 B =
 364.15 P60 = 1.6400
 AREA = .065790 SQ MI IA = .39884 INCHES INF =
 .96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 211.00

RUNOFF VOLUME = 1.74130 INCHES = 14.2090 ACRE-FEET
 PEAK DISCHARGE RATE = 242.18 CFS AT 1.600 HOURS BASIN
 AREA = .1530 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=212.0 DA=0.0095 SQ MI
 %A, B, C, & D 0 11 24 65
 TP=0.19 HR
 MASS RAINFALL=-1

K = .103550HR TP = .190000HR K/TP RATIO = .545000

SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 17.104 CFS UNIT VOLUME = .9996 B =
 526.28 P60 = 1.6400
 AREA = .006175 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .162262HR TP = .190000HR K/TP RATIO = .854009
 SHAPE CONSTANT, N = 4.166404
 UNIT PEAK = 6.4070 CFS UNIT VOLUME = .9985 B =
 366.12 P60 = 1.6400
 AREA = .003325 SQ MI IA = .39714 INCHES INF =
 .96200 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 212.00

RUNOFF VOLUME = 1.88065 INCHES = .9529 ACRE-FEET
 PEAK DISCHARGE RATE = 17.11 CFS AT 1.550 HOURS BASIN
 AREA = .0095 SQ. MI.

ADD HYD ID=3 HYD=JUNCTION I=1 II=2
 PRINT HYD ID=3 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS
	.000	.0	5.500	2.6	11.000
2.2	16.500	1.7	22.000	1.4	
	.500	.0	6.000	2.8	11.500
2.1	17.000	1.7	22.500	1.4	
	1.000	7.2	6.500	2.8	12.000
2.1	17.500	1.7	23.000	1.4	
	1.500	220.9	7.000	2.7	12.500
2.0	18.000	1.6	23.500	1.4	
	2.000	81.9	7.500	2.7	13.000
2.0	18.500	1.6	24.000	1.3	
	2.500	18.3	8.000	2.6	13.500
1.9	19.000	1.6	24.500	.2	
	3.000	7.5	8.500	2.5	14.000
1.9	19.500	1.5	25.000	.0	
	3.500	4.0	9.000	2.4	14.500
1.9	20.000	1.5	25.500	.0	
	4.000	2.9	9.500	2.4	15.000
1.8	20.500	1.5	26.000	.0	
	4.500	2.6	10.000	2.3	15.500

1.8	21.000	1.5			
	5.000	2.5	10.500	2.2	16.000
1.7	21.500	1.5			

RUNOFF VOLUME = 1.74945 INCHES = 15.1618 ACRE-FEET
 PEAK DISCHARGE RATE = 258.60 CFS AT 1.550 HOURS BASIN
 AREA = .1625 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=213.0 DA=0.0297 SQ MI
 %A, B, C, & D 0 30 30 40
 TP=0.1333 HR
 MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 46.903 CFS UNIT VOLUME = .9989 B =
 526.28 P60 = 1.6400
 AREA = .011880 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .119581HR TP = .133300HR K/TP RATIO = .897081
 SHAPE CONSTANT, N = 3.951476
 UNIT PEAK = 47.046 CFS UNIT VOLUME = 1.001 B =
 351.92 P60 = 1.6400
 AREA = .017820 SQ MI IA = .42500 INCHES INF =
 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 213.00

RUNOFF VOLUME = 1.41606 INCHES = 2.2430 ACRE-FEET
 PEAK DISCHARGE RATE = 54.30 CFS AT 1.500 HOURS BASIN
 AREA = .0297 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=4 II=1
 PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

TIME	TIME	FLOW	TIME	TIME	FLOW	TIME
FLOW	TIME	FLOW	TIME	FLOW	TIME	TIME
	HRS	CFS		HRS	CFS	HRS
CFS	HRS	CFS		HRS	CFS	
	.000	.0		6.000	64.7	12.000
16.6	18.000	12.6		24.000	10.4	
	.500	.0		6.500	45.0	12.500

16.1	18.500	12.4	24.500	8.2	
	1.000	6.6	7.000	35.1	13.000
15.7	19.000	12.2	25.000	6.1	
	1.500	525.6	7.500	29.5	13.500
15.3	19.500	12.0	25.500	4.4	
	2.000	509.0	8.000	26.1	14.000
14.9	20.000	11.8	26.000	3.1	
	2.500	367.6	8.500	23.6	14.500
14.6	20.500	11.6	26.500	2.2	
	3.000	269.6	9.000	21.8	15.000
14.3	21.000	11.4	27.000	1.4	
	3.500	205.6	9.500	20.4	15.500
14.0	21.500	11.2	27.500	.9	
	4.000	162.7	10.000	19.4	16.000
13.7	22.000	11.0	28.000	.6	
	4.500	130.3	10.500	18.5	16.500
13.4	22.500	10.9	28.500	.4	
	5.000	106.3	11.000	17.8	17.000
13.1	23.000	10.7	29.000	.3	
	5.500	85.6	11.500	17.1	17.500
12.9	23.500	10.5	29.500	.2	

RUNOFF VOLUME = 1.51441 INCHES = 121.5558 ACRE-FEET
 PEAK DISCHARGE RATE = 703.49 CFS AT 1.600 HOURS BASIN
 AREA = 1.5050 SQ. MI.

ADD HYD
 PRINT HYD

ID=4 HYD=JUNCTION I=3 II=2
 ID=4 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME
	HRS	CFS		HRS	CFS
18.7	.000	.0	6.000	67.4	12.000
	18.000	14.3	24.000	11.7	
	.500	.0	6.500	47.8	12.500
18.2	18.500	14.0	24.500	8.4	
	1.000	13.8	7.000	37.8	13.000
17.6	19.000	13.8	25.000	6.2	
	1.500	746.5	7.500	32.2	13.500
17.2	19.500	13.5	25.500	4.4	
	2.000	590.8	8.000	28.6	14.000
16.8	20.000	13.3	26.000	3.1	
	2.500	385.9	8.500	26.1	14.500
16.4	20.500	13.1	26.500	2.2	
	3.000	277.1	9.000	24.2	15.000
16.1	21.000	12.9	27.000	1.4	
	3.500	209.6	9.500	22.8	15.500
15.7	21.500	12.7	27.500	.9	
	4.000	165.6	10.000	21.7	16.000
15.4	22.000	12.5	28.000	.6	
	4.500	132.9	10.500	20.7	16.500
15.1	22.500	12.3	28.500	.4	
	5.000	108.8	11.000	19.9	17.000
14.8	23.000	12.1	29.000	.3	
	5.500	88.2	11.500	19.3	17.500

14.5 23.500 11.9 29.500 .2

RUNOFF VOLUME = 1.53731 INCHES = 136.7175 ACRE-FEET
PEAK DISCHARGE RATE = 961.75 CFS AT 1.600 HOURS BASIN
AREA = 1.6675 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=214.0 DA=0.0593 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.21 HR
 MASS RAINFALL=-1

 K = .114450HR TP = .210000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 84.708 CFS UNIT VOLUME = 1.000 B =
526.28 P60 = 1.6400
 AREA = .033801 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

 K = .179892HR TP = .210000HR K/TP RATIO = .856628
SHAPE CONSTANT, N = 4.152552
 UNIT PEAK = 44.346 CFS UNIT VOLUME = .9999 B =
365.22 P60 = 1.6400
 AREA = .025499 SQ MI IA = .39884 INCHES INF =
.96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

 BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 214.00

RUNOFF VOLUME = 1.74131 INCHES = 5.5071 ACRE-FEET
PEAK DISCHARGE RATE = 94.84 CFS AT 1.600 HOURS BASIN
AREA = .0593 SQ. MI.

ADD HYD ID=3 HYD=JUNCTION I=4 II=1
PRINT HYD ID=3 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	TIME	FLOW	TIME	FLOW	TIME
	HRS	HRS	CFS	HRS	CFS	HRS
	.000		.0	6.000	68.4	12.000
19.4	18.000		14.9	24.000	12.2	
	.500		.0	6.500	48.8	12.500
18.9	18.500		14.6	24.500	8.4	
	1.000		16.5	7.000	38.8	13.000

18.4	19.000	14.3	25.000	6.2	
	1.500	826.8	7.500	33.2	13.500
17.9	19.500	14.1	25.500	4.4	
	2.000	620.6	8.000	29.6	14.000
17.5	20.000	13.8	26.000	3.1	
	2.500	392.5	8.500	27.0	14.500
17.1	20.500	13.6	26.500	2.2	
	3.000	279.7	9.000	25.1	15.000
16.7	21.000	13.4	27.000	1.4	
	3.500	211.1	9.500	23.7	15.500
16.4	21.500	13.2	27.500	.9	
	4.000	166.7	10.000	22.5	16.000
16.0	22.000	13.0	28.000	.6	
	4.500	133.8	10.500	21.6	16.500
15.7	22.500	12.8	28.500	.4	
	5.000	109.7	11.000	20.7	17.000
15.4	23.000	12.6	29.000	.3	
	5.500	89.2	11.500	20.0	17.500
15.1	23.500	12.4	29.500	.2	

RUNOFF VOLUME = 1.54432 INCHES = 142.2247 ACRE-FEET
 PEAK DISCHARGE RATE = 1056.59 CFS AT 1.600 HOURS BASIN
 AREA = 1.7268 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=215.0 DA=0.0310 SQ MI
 %A, B, C, & D 0 14 29 57
 TP=0.21 HR
 MASS RAINFALL=-1

K = .114450HR TP = .210000HR K/TP RATIO = .545000
 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 44.282 CFS UNIT VOLUME = .9998 B =
 526.28 P60 = 1.6400
 AREA = .017670 SQ MI IA = .10000 INCHES INF =
 .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

K = .179892HR TP = .210000HR K/TP RATIO = .856628
 SHAPE CONSTANT, N = 4.152552
 UNIT PEAK = 23.182 CFS UNIT VOLUME = .9996 B =
 365.22 P60 = 1.6400
 AREA = .013330 SQ MI IA = .39884 INCHES INF =
 .96674 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
 PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 215.00

RUNOFF VOLUME = 1.74130 INCHES = 2.8789 ACRE-FEET
 PEAK DISCHARGE RATE = 49.59 CFS AT 1.600 HOURS BASIN
 AREA = .0310 SQ. MI.

ADD HYD
PRINT HYD

ID=2 HYD=JUNCTION I=1 II=3
ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS
19.8	.000	.0	18.000	15.2	6.000	69.0	12.000
19.3	.500	.0	18.500	14.9	24.000	12.5	12.500
18.7	1.000	17.8	19.000	14.6	6.500	49.4	12.500
18.3	1.500	868.9	19.500	14.4	24.500	8.5	13.000
17.9	2.000	636.2	20.000	14.1	7.000	39.3	13.000
17.5	2.500	395.9	20.500	13.9	25.000	6.2	13.500
17.1	3.000	281.1	21.000	13.7	7.500	33.7	13.500
16.7	3.500	211.8	21.500	13.5	25.500	4.4	14.000
16.4	4.000	167.2	22.000	13.2	8.000	30.1	14.000
16.1	4.500	134.3	22.500	13.0	26.000	3.1	14.500
15.8	5.000	110.2	23.000	12.9	8.500	27.5	14.500
15.4	5.500	89.6	23.500	12.6	26.500	2.2	15.000
					9.000	25.6	15.000
					27.000	1.4	15.500
					9.500	24.1	15.500
					27.500	.9	16.000
					10.000	22.9	16.000
					28.000	.6	16.500
					10.500	22.0	16.500
					28.500	.4	17.000
					11.000	21.1	17.000
					29.000	.3	17.500
					11.500	20.4	17.500
					29.500	.2	

RUNOFF VOLUME = 1.54779 INCHES = 145.1035 ACRE-FEET
PEAK DISCHARGE RATE = 1106.18 CFS AT 1.600 HOURS BASIN
AREA = 1.7578 SQ. MI.

COMPUTE RATING CURVE

CID=1 VN=1 NS=1 MIN EL=100 MAX EL=104
CS=0.014 FS=0.014 N=0.013 DIST=26
DIST EL DIST EL
0 104 08 100
18 100 26 104

RATING CURVE VALLEY SECTION

1.0				
FLOW	TOP	WATER	FLOW	
RATE	WIDTH	SURFACE	AREA	
FT		ELEV	SQ FT	CFS
.00	.00	100.00	.00	
		100.21	2.19	

10.17	10.84		
32.63	11.68	100.42	4.57
64.95	12.53	100.63	7.11
106.38	13.37	100.84	9.84
156.63	14.21	101.05	12.74
215.58	15.05	101.26	15.82
283.27	15.89	101.47	19.08
359.79	16.74	101.68	22.52
445.24	17.58	101.89	26.13
539.81	18.42	102.11	29.92
643.65	19.26	102.32	33.88
756.97	20.11	102.53	38.03
879.95	20.95	102.74	42.35
1012.81	21.79	102.95	46.85
1155.75	22.63	103.16	51.52
1308.99	23.47	103.37	56.38
1472.74	24.32	103.58	61.41
1647.21	25.16	103.79	66.61
1832.63	26.00	104.00	72.00

COMPUTE TRAVEL TIME ID=4 RN=1 NVS=1 L=1400 S=0.014

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS
	.211	2.194	10.17
.0839	.421	4.565	32.63
.0544	.632	7.114	64.95
.0426	.842	9.839	106.38
.0360	1.053	12.742	156.63
.0316	1.263	15.823	215.58
.0285	1.474	19.080	283.27

.0262			
	1.684	22.515	359.79
.0243			
	1.895	26.127	445.24
.0228			
	2.105	29.917	539.81
.0216			
	2.316	33.883	643.65
.0205			
	2.526	38.028	756.97
.0195			
	2.737	42.349	879.95
.0187			
	2.947	46.847	1012.81
.0180			
	3.158	51.523	1155.75
.0173			
	3.368	56.376	1308.99
.0167			
	3.579	61.407	1472.74
.0162			
	3.789	66.615	1647.21
.0157			
	4.000	72.000	1832.63
.0153			

ROUTE ID=4 HYD=216.1 INFLOW ID=2 DT=0.0
PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 216.10

RUNOFF VOLUME = 1.54778 INCHES = 145.1029 ACRE-FEET
PEAK DISCHARGE RATE = 1116.03 CFS AT 1.600 HOURS BASIN
AREA = 1.7578 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=216.0 DA=0.0269 MI
%A, B, C, & D 0 30 30 40
TP=0.14 HR
MASS RAINFALL=-1

K = .076300HR TP = .140000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 40.448 CFS UNIT VOLUME = .9981 B =
526.28 P60 = 1.6400
AREA = .010760 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

K = .125591HR TP = .140000HR K/TP RATIO = .897081
SHAPE CONSTANT, N = 3.951476
UNIT PEAK = 40.571 CFS UNIT VOLUME = 1.001 B =
351.92 P60 = 1.6400
AREA = .016140 SQ MI IA = .42500 INCHES INF =
1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT = .050000

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.03000 AT
PEAK FLOW.

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 216.00

RUNOFF VOLUME = 1.41606 INCHES = 2.0316 ACRE-FEET
PEAK DISCHARGE RATE = 47.88 CFS AT 1.500 HOURS BASIN
AREA = .0269 SQ. MI.

ADD HYD ID=2 HYD=JUNCTION I=1 II=4
PRINT HYD ID=2 CODE=10

HYDROGRAPH FROM AREA

JUNCTION

FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME
CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS
20.1	.000	.0	18.000	15.4	6.000	70.8	12.000
19.6	.500	.0	18.500	15.1	6.500	50.7	12.500
19.0	1.000	12.3	19.000	14.8	7.000	40.2	13.000
18.6	1.500	830.8	19.500	14.6	7.500	34.3	13.500
18.1	2.000	649.9	20.000	14.3	8.000	30.5	14.000
17.7	2.500	402.5	20.500	14.1	8.500	27.9	14.500
17.3	3.000	284.8	21.000	13.9	9.000	25.9	15.000
17.0	3.500	214.5	21.500	13.7	9.500	24.5	15.500
16.6	4.000	169.1	22.000	13.4	10.000	23.3	16.000
16.3	4.500	135.8	22.500	13.2	10.500	22.3	16.500
16.0	5.000	111.5	23.000	13.0	11.000	21.5	17.000
15.7	5.500	90.9	23.500	12.8	11.500	20.7	17.500
					29.500	.2	

RUNOFF VOLUME = 1.54580 INCHES = 147.1345 ACRE-FEET
PEAK DISCHARGE RATE = 1151.22 CFS AT 1.600 HOURS BASIN
AREA = 1.7847 SQ. MI.

FINISH

NORMAL PROGRAM FINISH
□(s10H□□□□□□□□□□□□□□□□

END TIME (HR:MIN:SEC) = 13:53:43

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File
P8/D3

PERMANENT EASEMENT

Grant of Permanent Easement, between Albuquerque Rio Bravo Partners LLC and Peoria Car Wash Partners LLC and Tempe Car Wash Partners LLC and Tamarish, LLC ("Grantor"), whose addresses are 805 Aerovista Place #202, San Luis Obispo, CA 93401 and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P.O. Box 1293, Albuquerque, New Mexico, 87103.

Grantor grants to the City an exclusive, permanent easement ("Easement") in, over, upon and across the real property described on Exhibit "A" attached hereto ("Property") for the construction, installation, maintenance, repair, modification, replacement and operation of drainage ponds and appurtenances, together with the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if the City determines they interfere with the appropriate use of this Easement.

In the event Grantor constructs any improvements ("Improvements") within the Easement, the City has the right to enter upon Grantors property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the City. If the Work effects any Improvements or encroachments made by the Grantor, the City will not be financially or otherwise responsible for rebuilding or repairing the Improvements or encroachments. If in the opinion of the City, the Work to be performed by the City could endanger the structural integrity or otherwise damage the Improvements or encroachments, the Grantor shall, at its own expense, take whatever protective measures are required to safeguard the Improvements or encroachments.

Grantor covenants and warrants that Grantor is the owner in fee simple of the Property, that Grantor has a good lawful right to convey the Property or any part thereof and that Grantor will forever warrant and defend the title to the Property against all claims from all persons or entities.

The grant and other provisions of this Easement constitute covenants running with the Property for the benefit of the City and its successors and assigns until terminated.

This Easement shall not be effective until approved by the City Engineer in the signature block below.

WITNESS my hand and seal this _____ day of _____, 20_____.

APPROVED:


City Engineer

Dated

5-22-07

5-18-07

GRANTORS:

Albuquerque Rio Bravo Partners, LLC
a Delaware limited liability company


By: Patrick N. Smith, Manager

Peoria Car Wash Partners, LLC
an Arizona limited liability company
By: SBP, LLC
an Arizona limited liability company
Its: Manager


By: Patrick N. Smith, Manager

-1-



Tempe Car Wash Partners, LLC
an Arizona limited liability company

By: SBP, LLC
an Arizona limited liability company
Its: Manager

By: Patrick N. Smith, Manager

Tamarisk, LLC
an Arizona limited liability company

By: Patrick N. Smith, Manager

GRANTOR'S NOTARY

STATE OF _____)
COUNTY OF _____) ss

This instrument was acknowledged before me on _____ day of _____, 20____, by
Patrick N. Smith, manager, on behalf of Albuquerque Rio Bravo Partners LLC and Peoria Car Wash
Partners LLC and Tempe Car Wash Partners LLC and Tamarisk, LLC.,

Notary Public

My Commission Expires:

See attached acknowledgement certificate 5/4/07 mag

(EXHIBIT "A" ATTACHED)



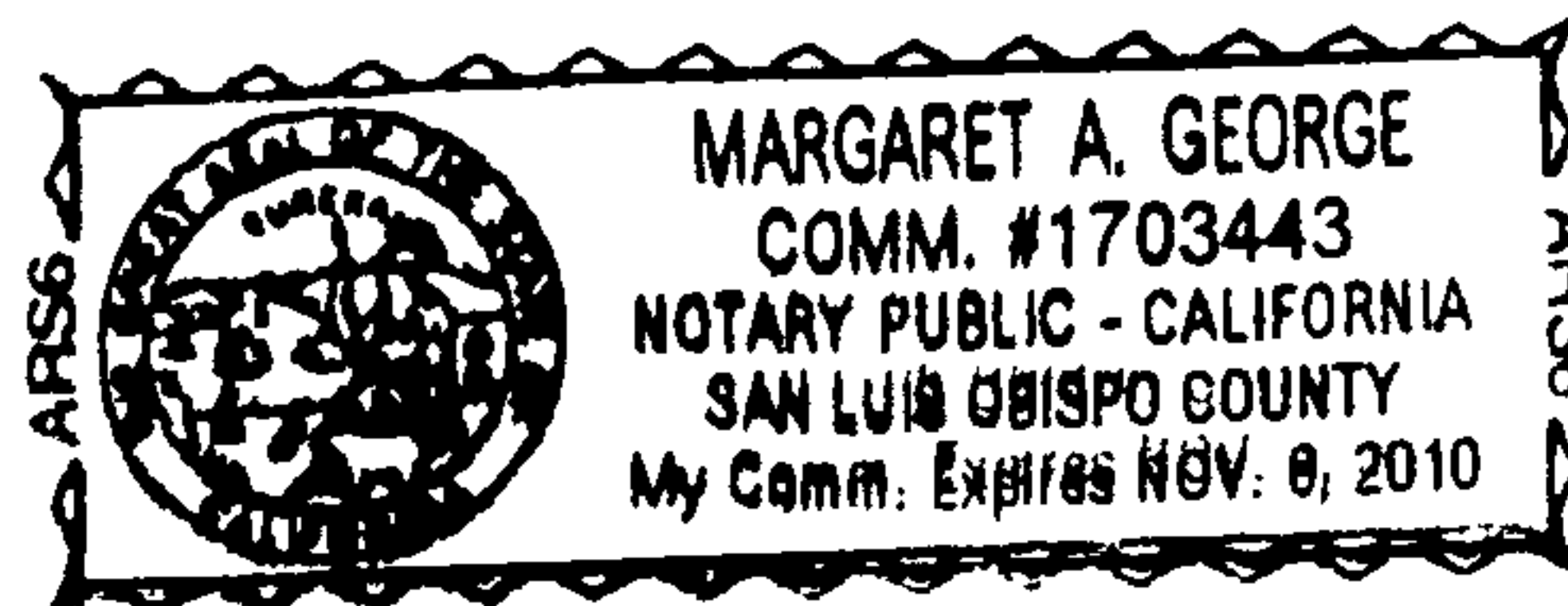
State of California

County of San Luis Obispo

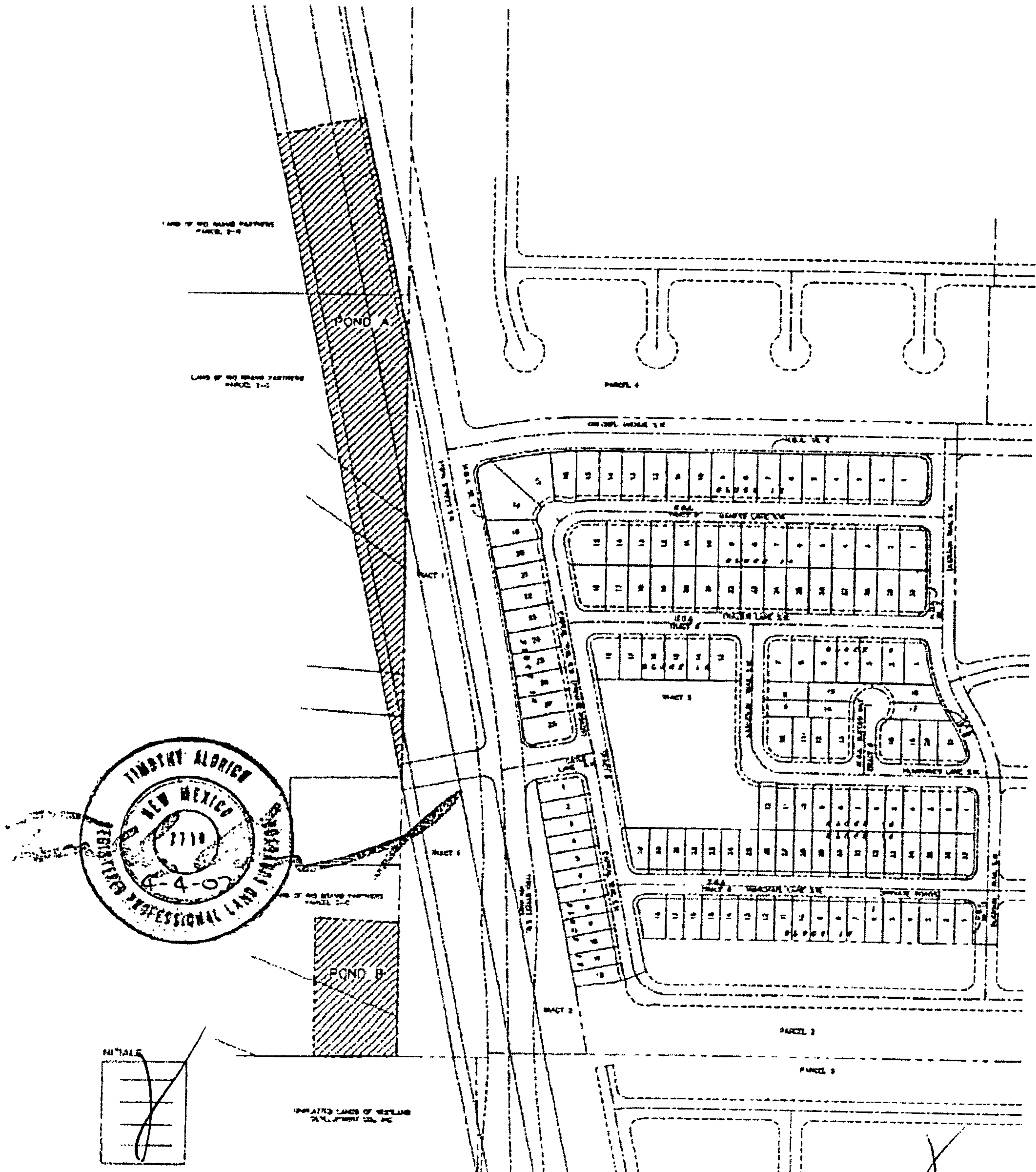
On May 4, 2007 before me, Margaret A George, Notary Public, personally appeared Patrick R Smith personally known to me ~~(or proved to me on the basis of satisfactory evidence)~~ to be the person ~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she~~/they executed the same in his/~~her~~/their authorized capacity~~(ies)~~, and that by his/~~her~~/their signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

WITNESS my hand and official seal.

Margaret A George



"EXHIBIT "A"
CITY OF ALBUQUERQUE PUBLIC DRAINAGE EASEMENT



SHEET 1



Maggie Toulouse

Bern. Co

FRSF

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DL-0127 DL-5000

"EXHIBIT "A"
CITY OF ALBUQUERQUE PUBLIC DRAINAGE EASEMENT

DESCRIPTION

A City of Albuquerque Public Drainage Easement within the Town of Atrisco Grant, projected Section 5, Township 9 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being within PARCELS 2-B AND 2-C, LANDS OF RIO BRAVO PARTNERS, as the same is shown and designated on said plat filed for record in the office of the County Clerk of Bernalillo County, New Mexico on April 17, 1996 in Volume 96C, Folio 160 and being more particularly described as follows:

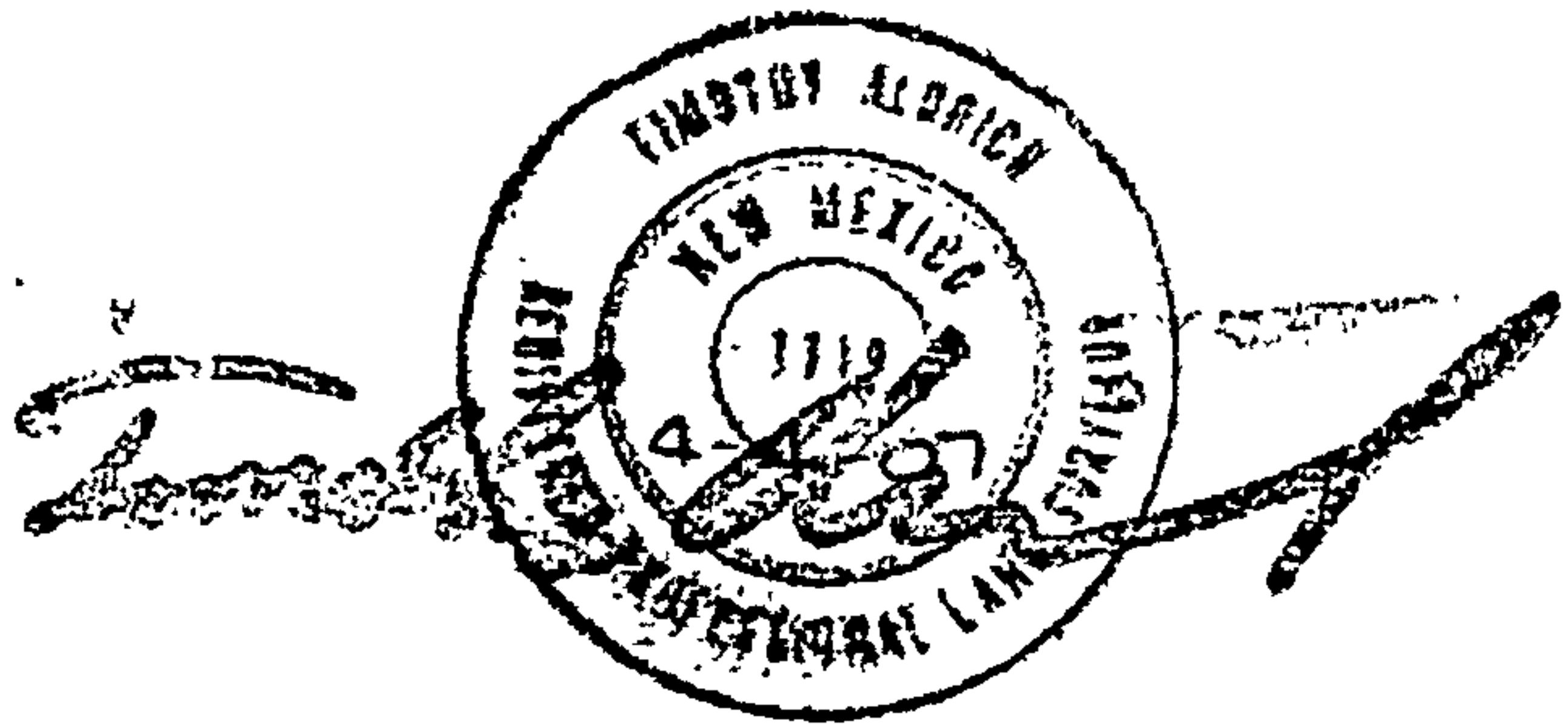
BEGINNING at the northwest corner of the herein described Easement from whence the Albuquerque Control Survey Monument "1-N8" bears N 09°22'57" W, 2242.97 feet;

THENCE N 78°44'25" E, 200.00 feet to the northeast corner;

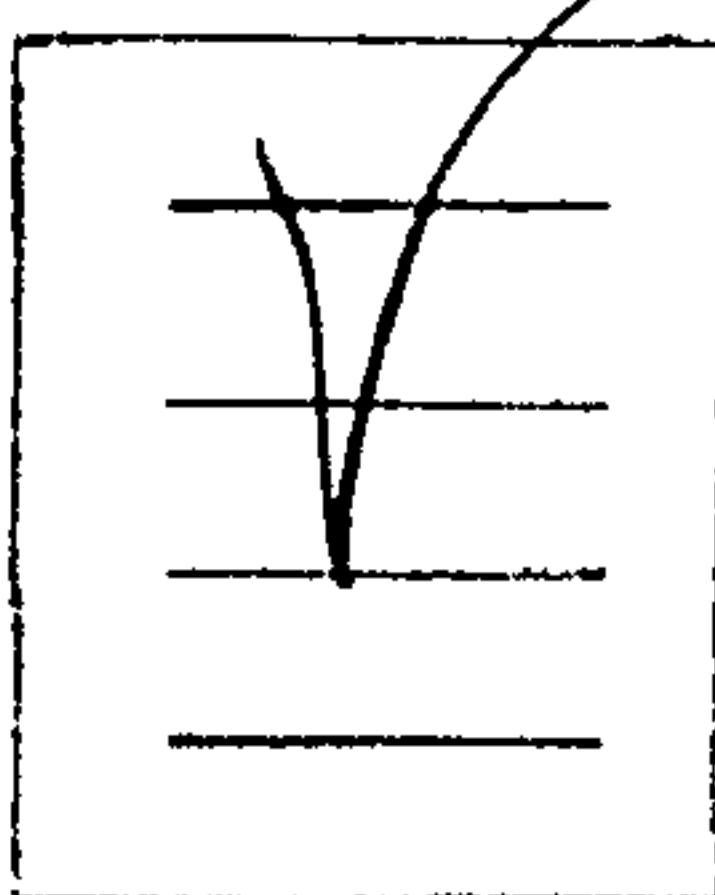
THENCE S 11°15'35" E, 513.90 feet to a point;

THENCE S 00°01'24" W, 1022.21 feet to a point;

THENCE N 11°15'35" W, 1516.36 feet to the point of beginning
and containing 4.6608 acres more or less.

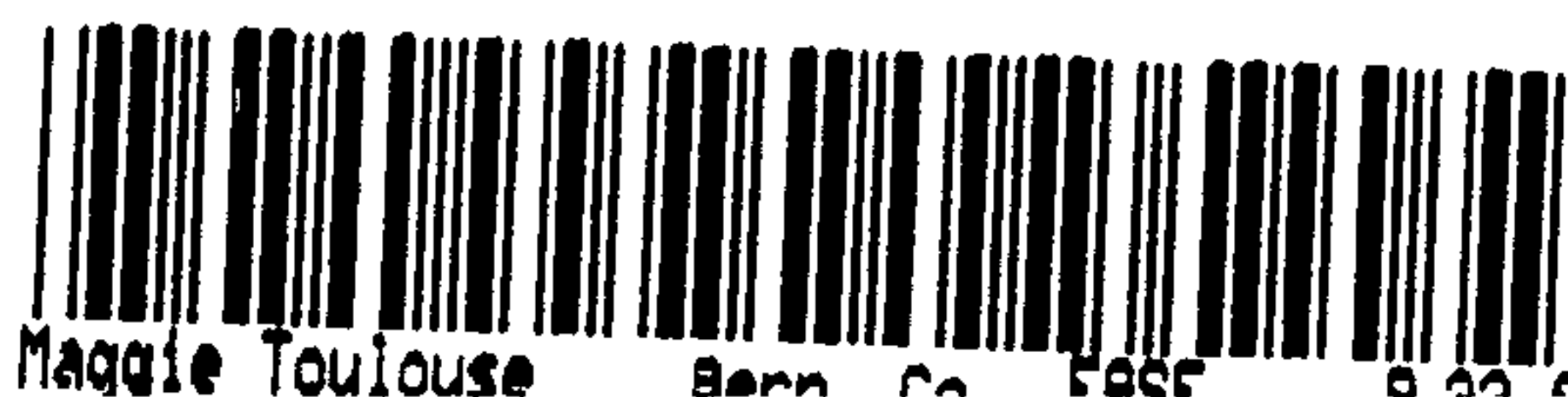


INITIALS



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SHEET



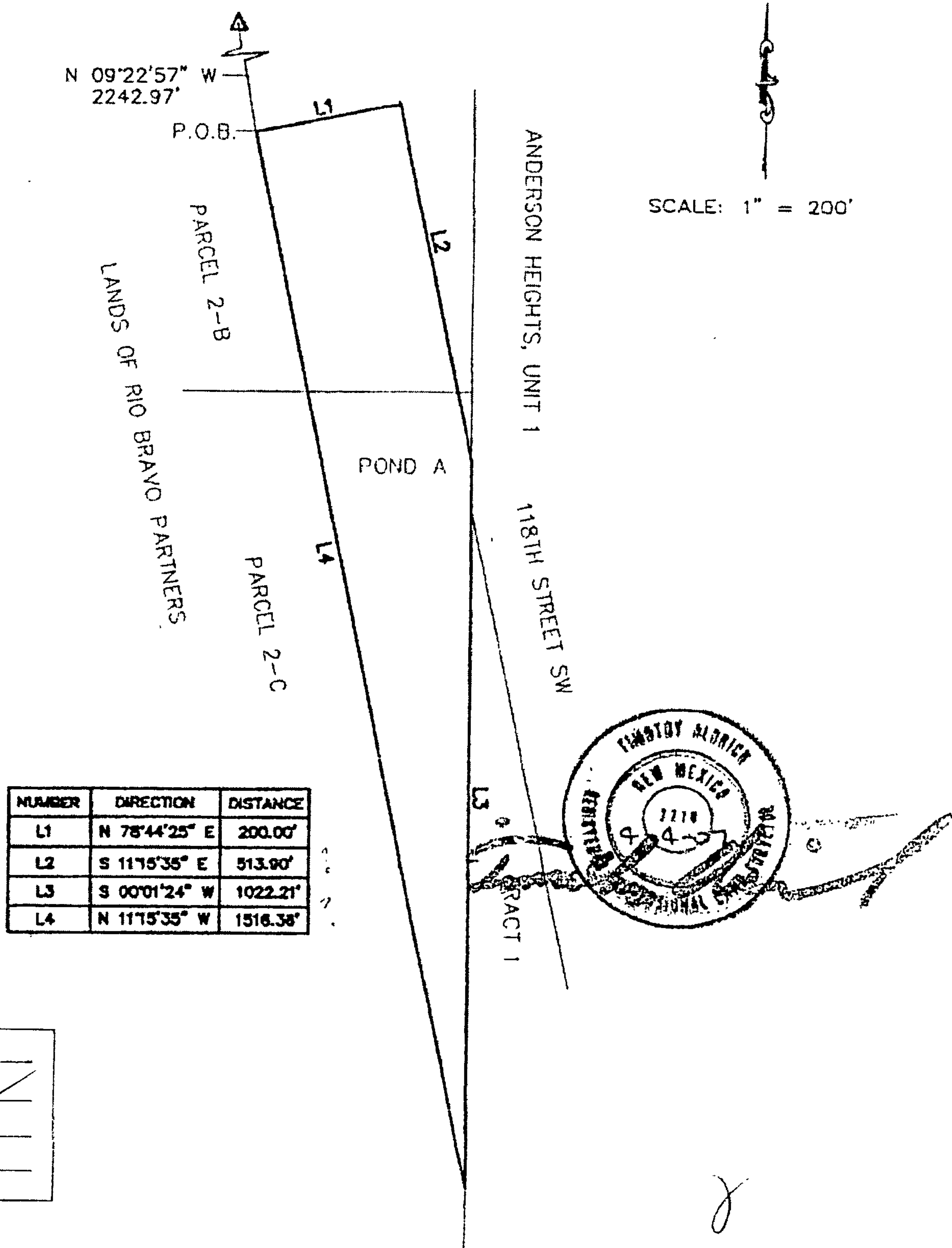
Maggie Toulouse

Bern Co Recd

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Page: 5 of 8
05/23/2007 03:43P

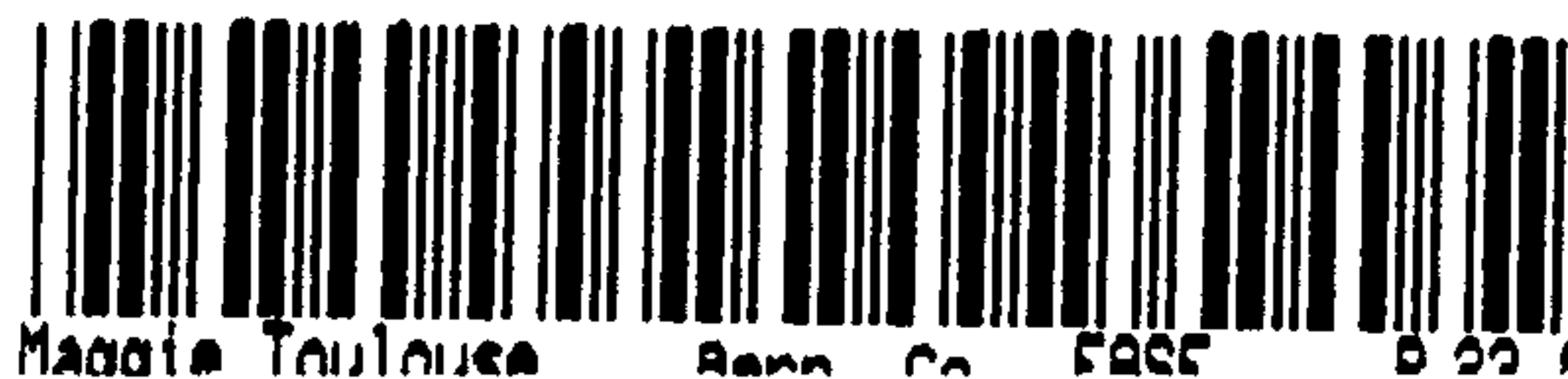
"EXHIBIT "A"
CITY OF ALBUQUERQUE PUBLIC DRAINAGE EASEMENT



INITIALS

[Handwritten signature/initials]

SHEET



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Page: 8 of 8
05/23/2007 03:43P
DL-0127 DL-5000

"EXHIBIT "A"
CITY OF ALBUQUERQUE PUBLIC DRAINAGE EASEMENT

DESCRIPTION

A City of Albuquerque Public Drainage Easement within the Town of Atrisco Grant, projected Section 5, Township 9 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being within PARCEL 2-C, LANDS OF RIO BRAVO PARTNERS, as the same is shown and designated on said plat filed for record in the office of the County Clerk of Bernalillo County, New Mexico on April 17, 1996 in Volume 96C, Folio 160 and being more particularly described as follows:

BEGINNING at the northwest corner of the herein described Easement from whence the Albuquerque Control Survey Monument "1-N8" bears N 09°45'26" W, 4045.33 feet;

THENCE S 86°38'37" E, 185.94 feet to the northeast corner;

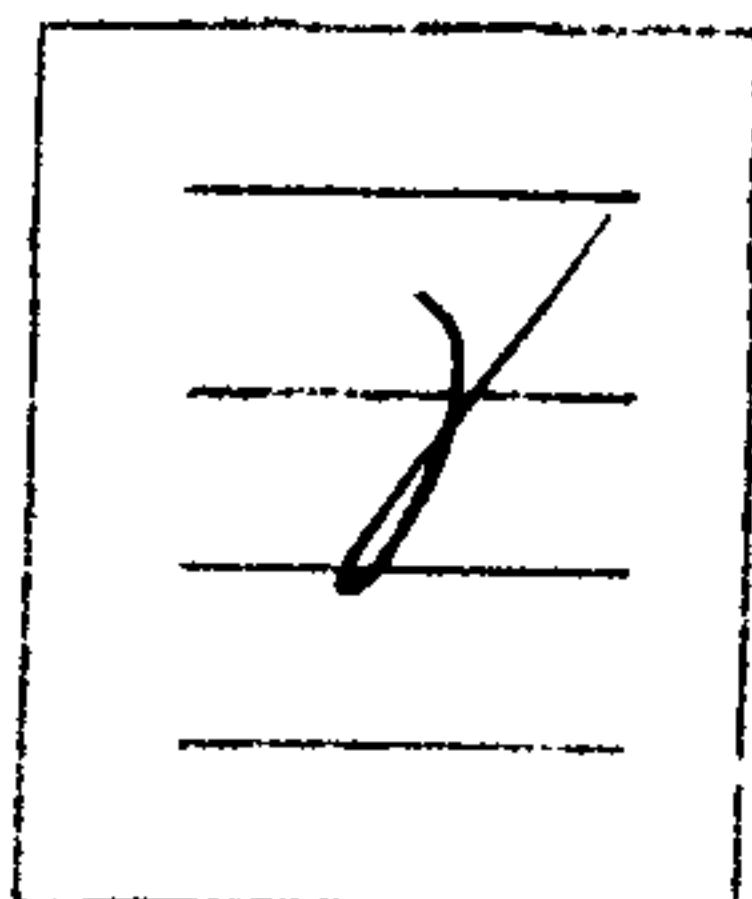
THENCE S 00°01'24" W, 300.08 feet to the southeast corner;

THENCE S 89°47'35" W, 184.37 feet to the southwest corner;

THENCE N 00°12'25" W, 311.64 feet to the point of beginning and containing 1.2989 acres more or less.



INITIALS



SHEET



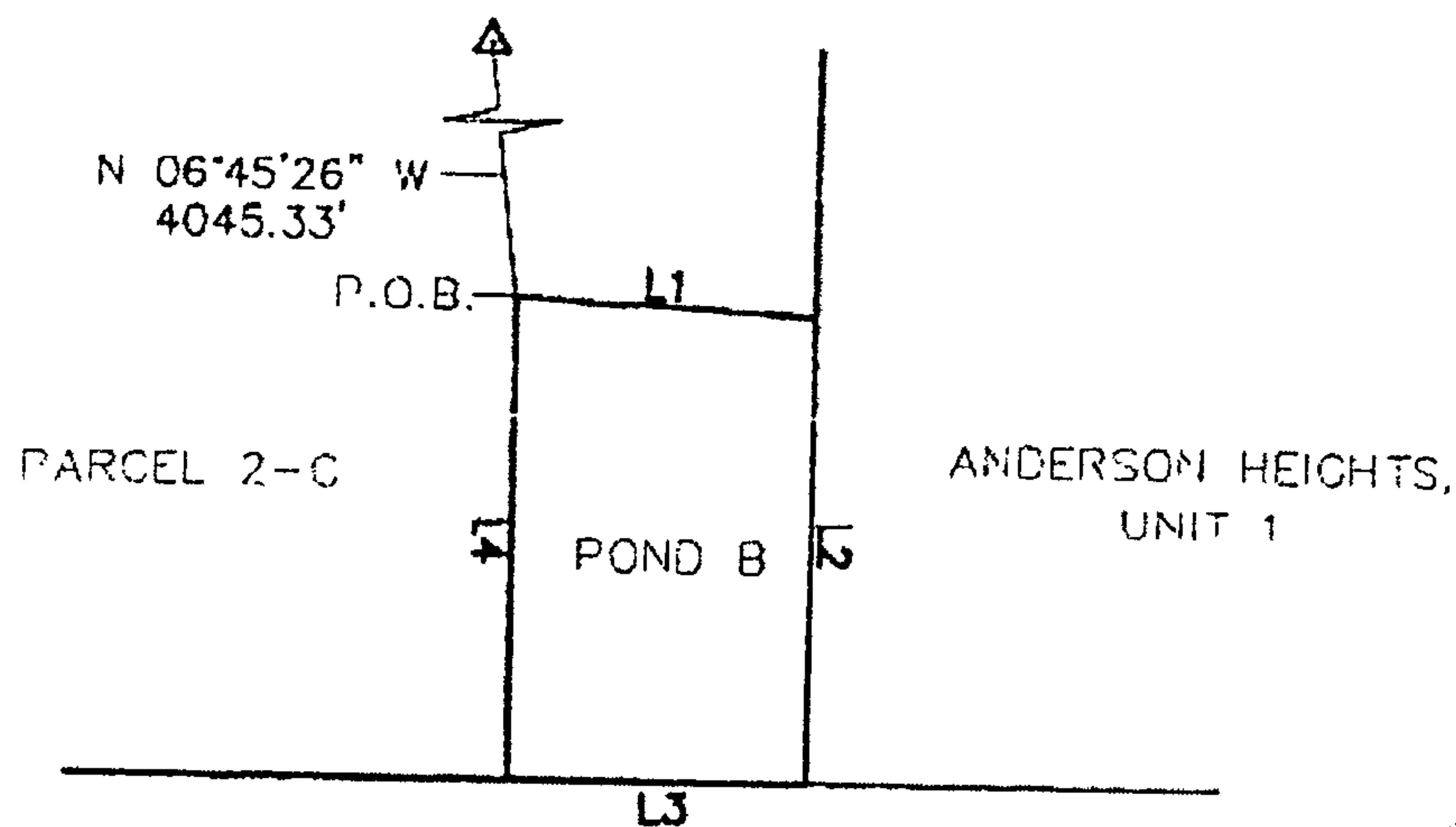
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Page: 7 of 8
05/23/2007 03:43P
01. 0127 01. 5000

"EXHIBIT "A" CITY OF ALBUQUERQUE PUBLIC DRAINAGE EASEMENT



SCALE: 1" = 200'

LANDS OF RIO BRAVO PARTNERS

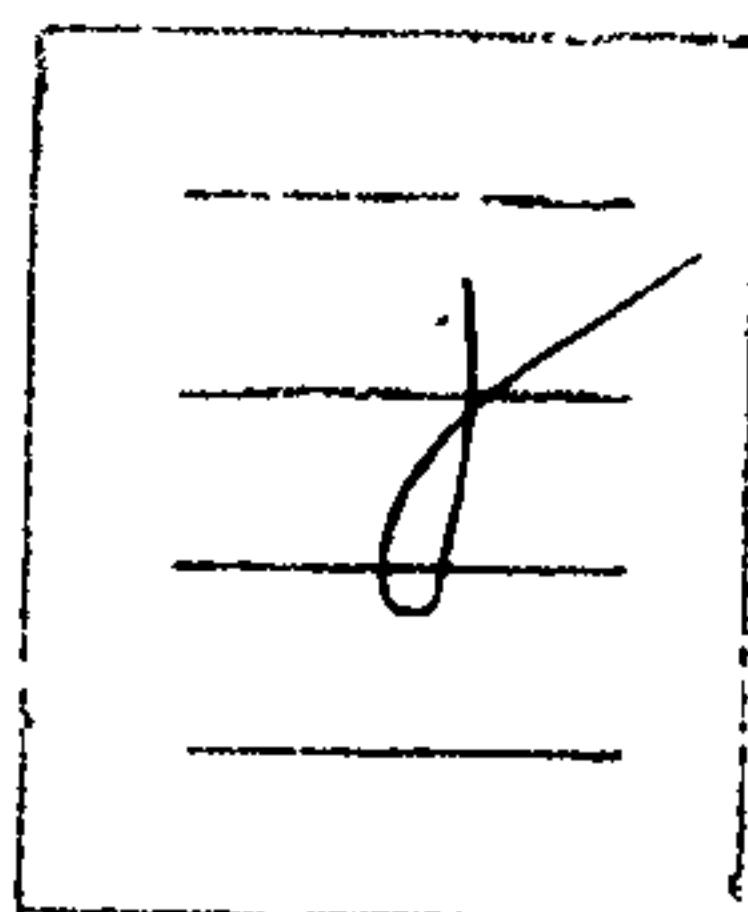


WESTLAND DEVELOPMENT COMPANY
"SOUTH TRACT"
(SURVEY DATED 08-19-74)
(PREPARED BY J. ROBERT MARTINEZ)

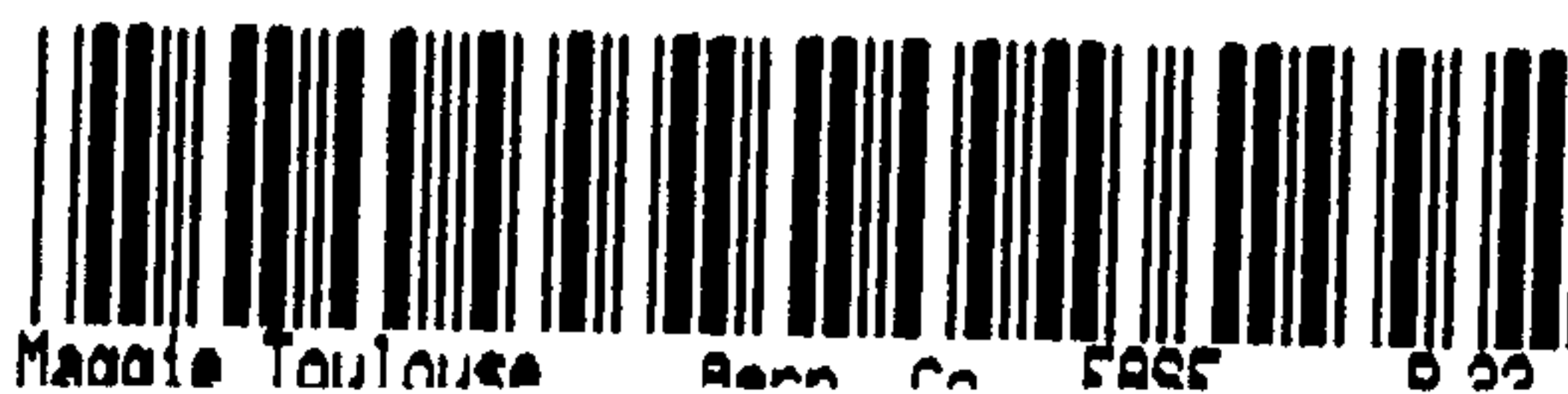


NUMBER	DIRECTION	DISTANCE
L1	S 86°38'37" E	183.94'
L2	S 00°01'24" W	300.08'
L3	S 89°47'35" W	184.37'
L4	N 00°12'25" W	311.64'

INITIALS



SHEET



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Page: 8 of 8
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01-0107 01-5000

AGREEMENT AND COVENANT

This Agreement and Covenant, between the City of Albuquerque, New Mexico ("City") and **KB Home New Mexico Inc.**, ("User") is made in Albuquerque, New Mexico and is entered into as of the date of recording this Agreement with the Bernalillo County Clerk.

1. Recital. The User is the owner of certain real property ("User's Property") located at **west of and adjacent to the 118th Street right of way, north of Rio Bravo Blvd.**, in Albuquerque, New Mexico, and more particularly described as: (give legal description and filing information)

*Tract 1, Anderson Heights Unit 1 Correction Plat,
recorded in Bernalillo County Clerk's office
on 5/4/05, Book 2005C, Page 138,*

and

*Tract O, Anderson Heights Unit 5,
recorded in Bernalillo County Clerk's office
on 12/21/05, Book 2005C, Page 403.*

The City is the owner of certain real property ("City's Property") located **within 118th Street, just north of Rio Bravo Blvd.**, in Albuquerque, New Mexico, and more particularly described as: (give legal description and filing information)

*156' Public Access, Sanitary sewer, water and drainage easement,
recorded in the Bernalillo County Clerk's office
on 12/3/03, Book 2003C, Page 361,*

and

*118th street right-of-way,
Anderson Heights Unit 5
recorded in Bernalillo County Clerk's office,
on 12/21/05, Book 2005C, Page 403,*

and

*118th street right-of-way,
Anderson Heights Unit 1,
recorded in Bernalillo County Clerk's office,
On 5/4/05, Book 2005C, Page 138.*

The City is the owner of certain real property, easement or public right-of-way ("City's Property") in the vicinity of, contiguous to, abutting or within User's Property, and more particularly described as:

Temporary Diversion Berm and Temporary Retention Ponds 2, 3A, 3B, 4A, 4B, 4C



The User wishes to construct upon, improve or repair and to maintain the following "Improvement" on the City's Property (or already has done so):

A sketch of the proposed or existing Improvement is attached as Exhibit A (4 pages) and made a part of this Agreement. Exhibit B (5 pages) is a copy of the recorded plats granting the right of way, easements and tracts.

The City agrees to permit the Improvement to exist on the City's Property provided the User complies with the terms of this Agreement.

2. City Use of City's Property and City Liability. The City has the right to enter upon the City's Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the User. If the Work affects the Improvement the City will not be financially or otherwise responsible for rebuilding or repairing the Improvement. The User promptly will repair the Improvement to the City's satisfaction. The cost of repairing the Improvement will be paid by User.

3. User's Responsibility for Improvement. The User will be solely responsible for constructing, maintaining, repairing and, if required, removing the Improvement, all in accordance with standards required by the City as per the approved Grading and Drainage Plan P8 / D3 on file at the City Engineer's office. The User will be solely responsible for paying all related costs. The User will be solely responsible for paying all related costs. The User will not permit the Improvement to constitute a hazard to the health or safety of the general public or to interfere with the City's use of the City's Property. The User will conform with all applicable laws, ordinances and regulations.

4. Use of the Improvement. If the City's Property is a public right-of-way, it shall be open to the use of the general public at all times, subject to reasonable curtailment during periods of construction, maintenance or repair.

5. Demand for Repair, Modification or Removal. The City may send written notice ("Notice") to the User requiring the User to repair, modify or remove the Improvement within 30 days ("Deadline") and the User will comply promptly with the requirements of the Notice. If removal is demanded, the City also may require the User to return the City's Property to its original condition by the Deadline. The User will perform all required work by the Deadline, at User's sole expense.

6. Failure to Perform by User and Emergency Work by City. If the User fails to comply with the terms of the Notice by the Deadline stated, or, if the City determines that an emergency condition exists, the City may perform the work itself. The City then may assess the User for the cost of the work and for any other expenses or damages which result from User's failure to perform. The User agrees promptly to pay the City the amount assessed. If the User fails to pay the City within thirty (30) days after the City gives the User written notice of the amount due, the City may

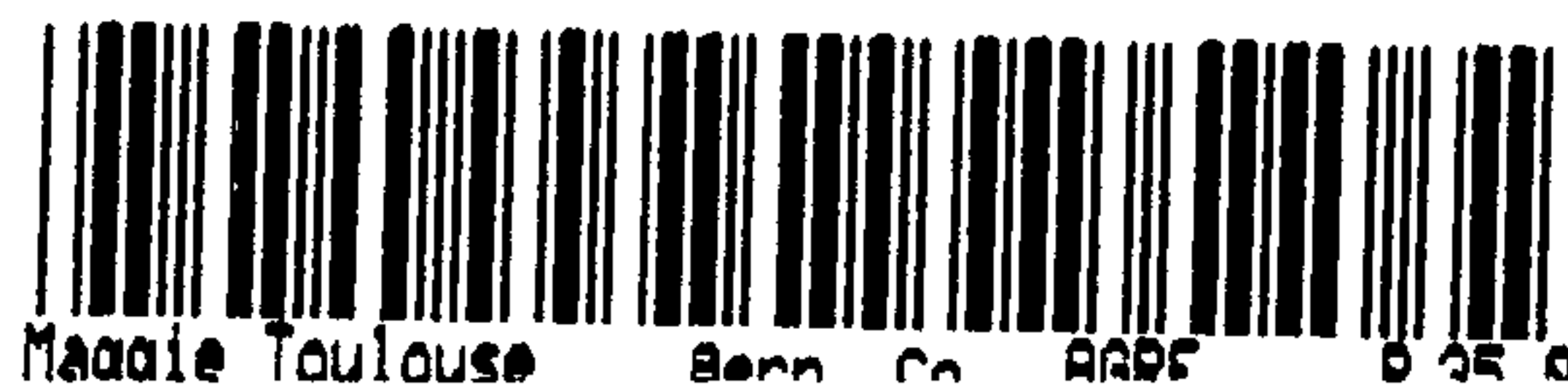


impose a lien against User's Property for the total resulting amount.

7. Cancellation of Agreement and Release of Covenant. This Agreement may be canceled and User's covenants released by the City at will by the City's mailing to the User notice of the City's intention to record a Cancellation and Release with the Bernalillo County Clerk. The Cancellation and Release will be effective thirty (30) days after the date of mailing the notice to the User unless a later date is stated in the notice or the Cancellation and Release. After the effective date, the City will record the Cancellation and Release with the Bernalillo County Clerk.

8. Condemnation. If any part of the User's Property is ever condemned by the City, the User will forego all claims to compensation for any portion of User's structure which encroaches on City Property and for severance damage to the remaining portion of User's structure on User's Property.

9. Assessment. Nothing in this Agreement shall be construed to relieve the User, his heirs, assigns and successors from an assessment against User's Property for improvements to the City Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Improvement will not reduce the amount assessed by the City.



10. Notice. For purposes of giving formal written notice to the User, User's address is:

***KB Home New Mexico Inc.
6330 Riverside Plaza Lane NW, Suite 200
Albuquerque, NM 87120***

Notice may be given to the User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the User within 3 days after the notice is mailed if there is no actual evidence of receipt. The User may change User's address by giving written notice of the change by certified mail, return receipt requested, to the City Engineer at P.O. Box 1293, Albuquerque, New Mexico 87103.

11. Indemnification. The User agrees to defend, indemnify and hold harmless the City, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties as a result of User's use of the City's Property. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

12. Term. This Agreement shall continue until revoked by the City pursuant to Section 7 above.

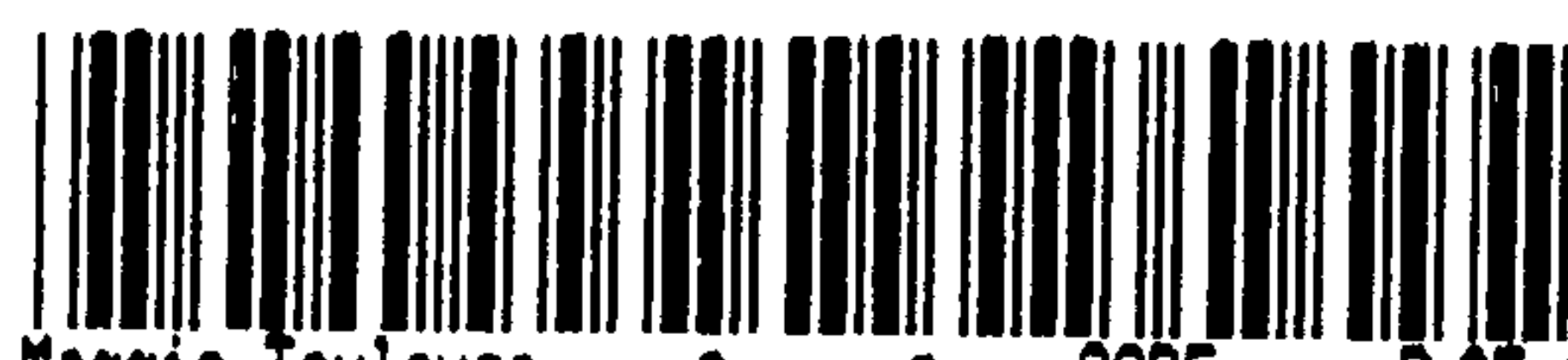
13. Binding on User's Property. The covenants and obligations of the User set forth herein shall be binding on User, his heirs assigns and successors and on User's Property and constitute covenants running with User's Property until released by the City.

14. Entire Agreement. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

15. Changes of Agreement. Changes to this Agreement are not binding unless made in writing, signed by both parties.

16. Construction and Severability. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement will remain valid and enforceable if the remainder is reasonably capable of completion.

17. Captions. The captions to the sections or paragraphs of this Agreement are not part of this Agreement and will not affect the meaning or construction of any of its provisions.



By: Richard Dourte
Richard Dourte
City Engineer.
Dated: 5-22-07

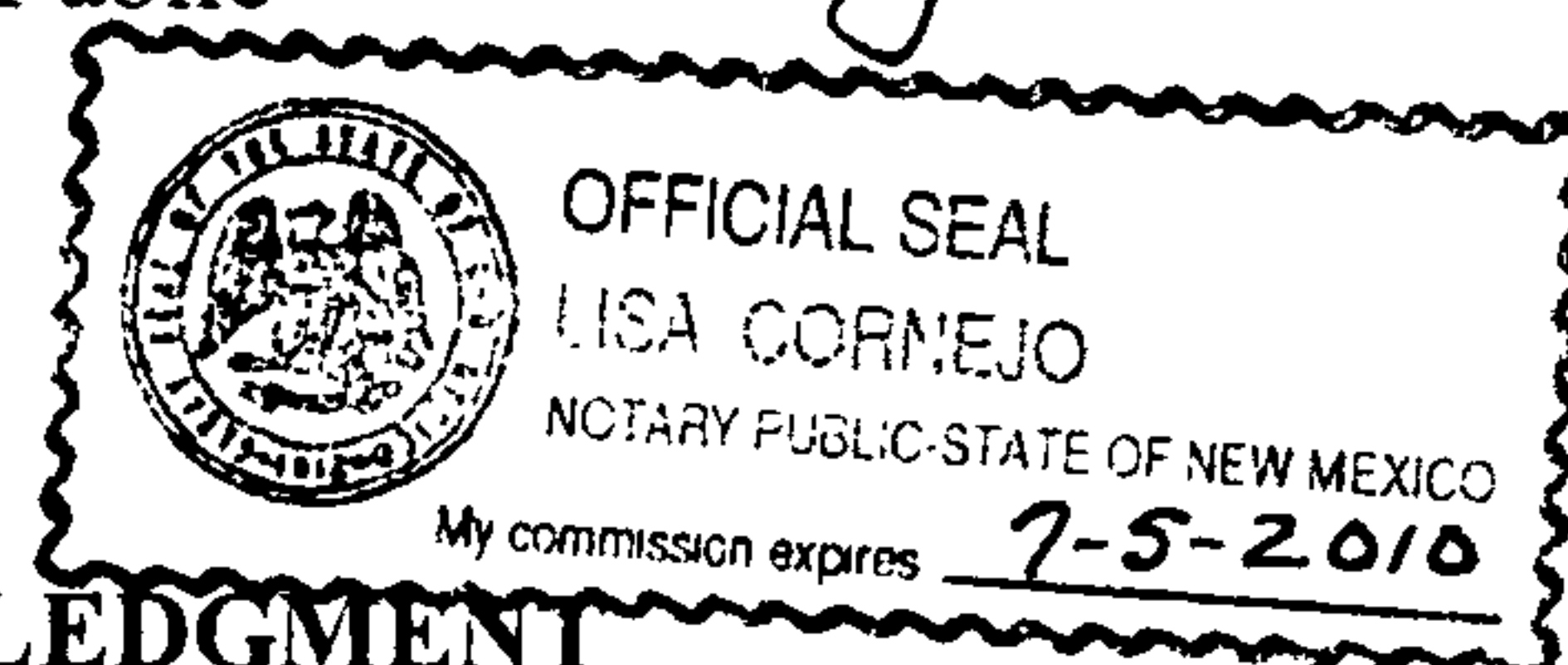
By: _____
Name: Gary Jenkins
Title: Vice President Director of Land Development
Dated: May-03-2007

5-18-07

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

Luis Cornejo
Notary Public

My Commission Expires:
July 5, 2010



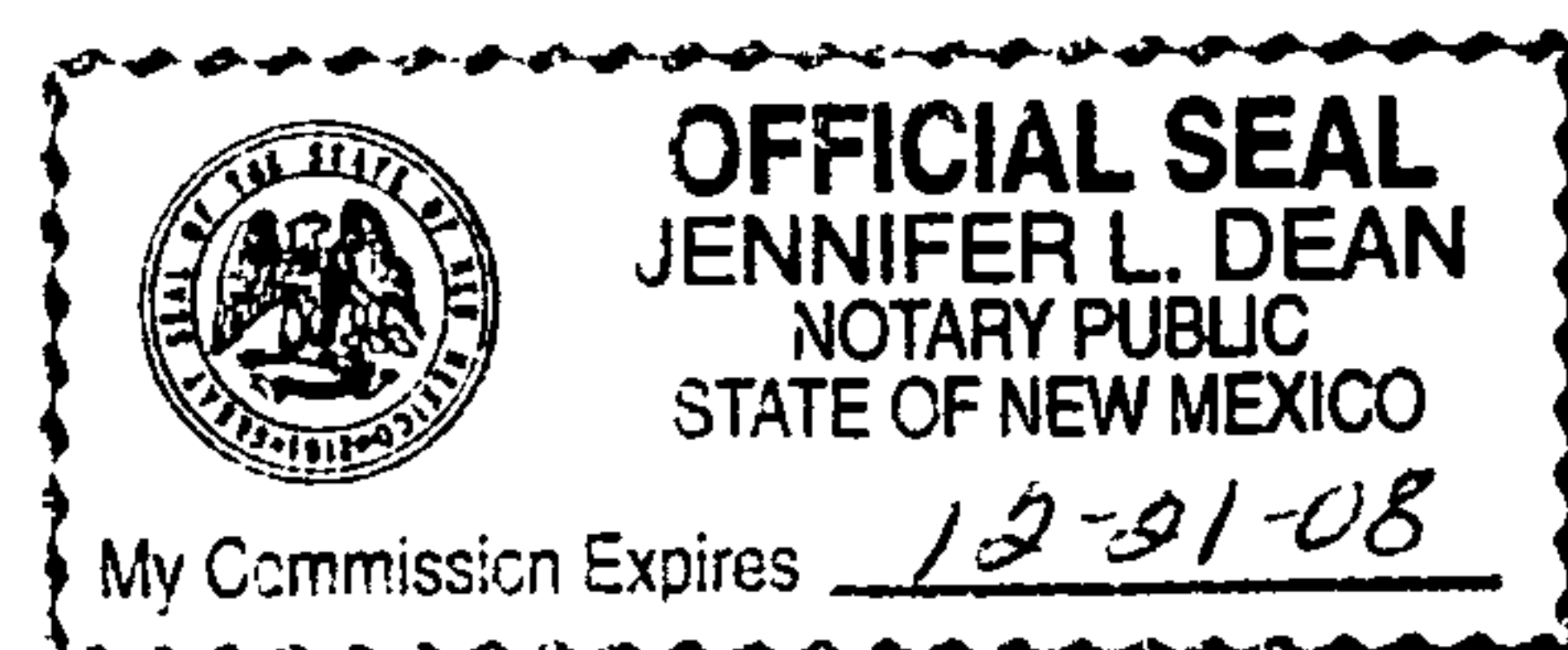
STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on May 3, 2007 by Gary C. Jenkins, ~~Director~~ of Land Development, on behalf of KB Home New Mexico Inc.

Vice President
J.L.D.

Jennifer L. Lelan
Notary Public

My Commission Expires:
12-21-08



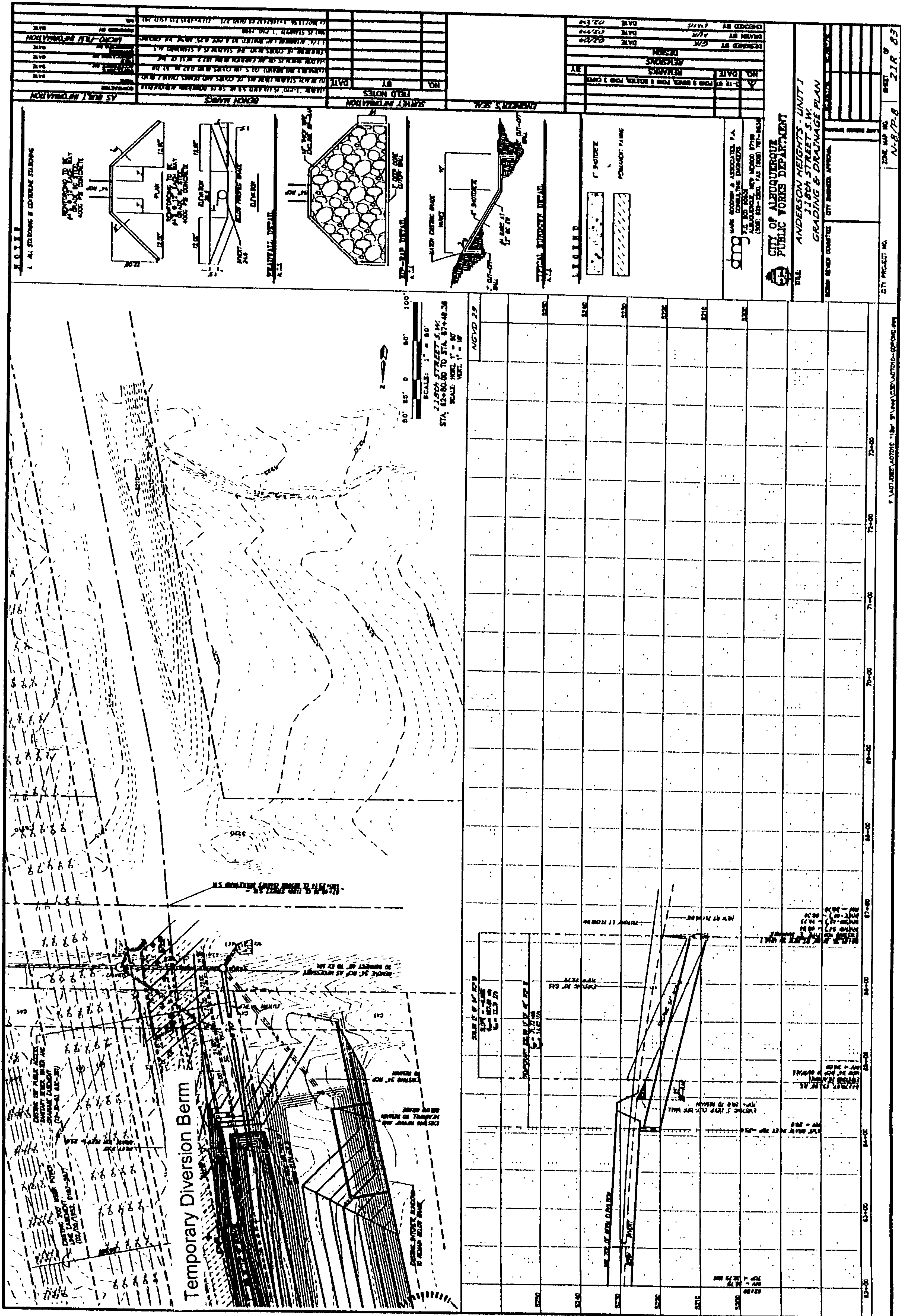


Exhibit A (4 of 4)

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カ

COLOBEL AVENUE S.W.
SHOWN HEREON IS
HEREBY DEDICATED IN
FULL SIMPLE AS PUBLIC
RIGHT-OF-WAY

SEE NOTE 5 IN PURPOSE OF
PLAT, SHEET 1 OF 14 ABOUT
HOMEOWNERS ASSOCIATION
TRACTS 5, 6, 7, 8, 9 AND 10

CORRECTION PLATFOR
ANDERSON HEIGHTS UNIT I
WITHIN THE
TOWN OF ATRISCO GRANT
PROJECTED SECTIONS 5 AND 8
TOWNSHIP 9 NORTH, RANGE 2 EAST, NMPM
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
FEBRUARY, 2005

ABBREVIATIONS

10' PUE = PUBLIC UTILITY EASEMENTS
GRANTED WITH THIS PLAT

ROW = RIGHT-OF-WAY

H.O.A. = HOME OWNERS ASSOCIATION

COA = CITY OF ALBUQUERQUE
ABCWUA = ALBUQUERQUE BUREAU OF CIVIL WORKERS UNION

WATER UTILITY AUTHORITY

PUBLIC UTILITY EASEMENTS:

PUBLIC UTILITY EASEMENTS shown on this plat are granted for the common and joint use of

- 1 The PNM Electric Services Division for the installation, maintenance and service of overhead and underground electrical lines, transformers, poles and any other equipment, fixtures, structures and related facilities reasonably necessary to provide electrical services
- 2 The PNM Gas Services Division for installation, maintenance and services of natural gas lines, valves and other equipment and facilities reasonably necessary to provide natural gas
- 3 Qwest for installation, maintenance and service of all buried and aerial communication lines and other related equipment and facilities reasonably necessary to provide communication services, including but not limited to above ground pedestals and closures
- 4 Comcast cable for installation, maintenance and service of such lines, cable and other related equipment and facilities reasonably necessary to provide Cable TV service

Included, is the right to build, rebuild, reconstruct, relocate, relocate, change, remove, modify, renew, operate and maintain facilities for the purposes described above together with free access to, from and over said easement, including sufficient working area space for electric transformers, with the right and privilege to trim and remove trees, shrubs or bushes which interfere with the purposes set forth herein. No building, sign pool (above ground or subsurface) hot tub, concrete or wood pool decking or other structure shall be erected or constructed on said easements, nor shall any well be drilled or operated thereon. Property owners shall be solely responsible for correcting any violations of National Electrical Safety Code caused by construction of pools, decking or any structures adjacent to within or near easements shown on this plat.

in approving this plat the utility companies did not conduct a Title Search of the properties shown hereon. Consequently the utility companies do not waive or release any easement or easement rights which may have been granted by prior plat or other document and which are not shown on this plat. Easements for electric transformers/switchgears, as installed shall extend ten feet (10') in front of transformer/switchgear doors and five feet (5') on each side.

SEE SHEET 14 OF 14 FOR CURVE TABLE
SEE SHEET 13 OF 14 FOR KEY MAP

04-14-05

ALDRICH LAND SURVEYING

P.O. BOX 30701, ALBQ., N.M. 87190
505-884-1990

DWG	base 50 dwg	Drawn	STEPHEN	Checked	ALS	Sheet 5 of 5 14
Scale	AS SHOWN	Date	09/12/05	Job	A03080	

SEE SHEET 3 OF 14

SEE SHEET 10 OF 14

1

Exhibit B (2 of 5)

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Page 12 of 14
05/23/2007 03:43P

SEE SHEET 8 OF 14

CORRECTION PLAT FOR
ANDERSON HEIGHTS UNIT 1
WITHIN THE
TOWN OF ATRISCO GRANT
PROJECTED SECTIONS 5 AND 8
TOWNSHIP 9 NORTH, RANGE 2 EAST, NMMP
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
FEBRUARY, 2005

SEE SHEET 11 OF 14

Exhibit B (3 of 5)

FEET 14 OF 14 FOR CURVE TABLE
FEET 13 OF 14 FOR KEY MAP

PUBLIC ACCESS EASEMENT (FUTURE 118th STREET) AND STORM DRAIN EASEMENT GRANTED WITH THIS PLAT TO THE C.O.A. PUBLIC SANITARY SEWER AND WATER LINE EASEMENT GRANTED TO ABCWUA WITH THIS PLAT

UNPLATTED LANDS OF WESTLAND DEVELOPMENT CO., INC. (04-17-96, 96C-160)

SCALE: 1" = 100'

ALDRICH LAND SURVEYING
P.O. BOX 30701, ALBQ., N.M. 87190
505-884-1990

PROPERTY CORNERS

- FOUND 5/8" REBAR WITH CAP "LS 7924" (TYP)
- FOUND 1" IRON PIPE WITH TAG "LS 11993"
- FOUND BRASS CAP "WST-3"
- FOUND 5/8" REBAR WITH CAP "ALS LS 7719" (TYP)
- FOUND REBAR WITH CAP "PS 11993" (TYP)
- SET REBAR WITH CAP "ALS LS 7719" (TYP)

ABBREVIATIONS
CD=NO221'00"W
LC=68.98"

10' PUE = PUBLIC UTILITY EASEMENTS GRANTED WITH THIS PLAT

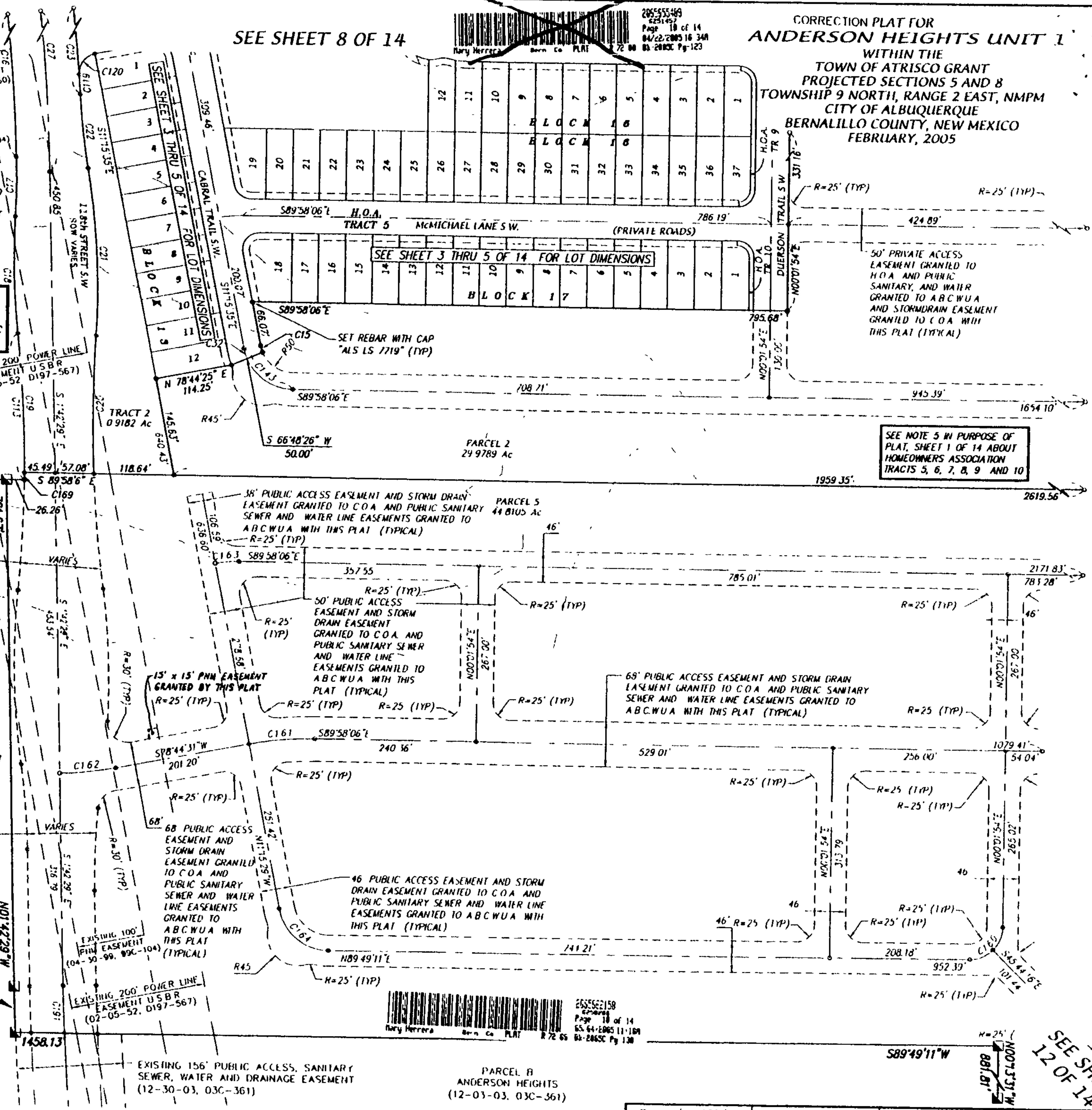
ROW = RIGHT-OF-WAY

H.O.A. = HOME OWNERS ASSOCIATION

C.O.A. = CITY OF ALBUQUERQUE

ABCWUA = ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY

118th STREET S.W. SHOWN HEREON IS HEREBY DEDICATED IN FEE SIMPLE AS PUBLIC RIGHT-OF-WAY



SEE SHEET 11 OF 14

SEE SHEET 12 OF 14

F:\AD3\005\A3080AH\FinalPlat\Unit1\base100 dwg-Layout2 (04-12-05) SPS

Dwg	base100.dwg	Drawn	STEPHEN	Checked	ALS	Sheet	10	of	14
Scale	1"=100'	Date	04/12/05	Job	A03080				

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Page 13 of 14

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Bern. Co. AGRE

Maggie Toulouse

OF PLAT
TABLES

ALL STREETS AND ROADS SHOWN
HEREON IS HEREBY DEDICATED IN FEE
SIMPLE WITH WARRANTY COVENANTS
AS PUBLIC RIGHT-OF-WAY

PLAT FOR
ANDERSON HEIGHTS UNIT

WITHIN THE
TOWN OF ATRISCO GRANT
PROJECTED SECTIONS 5 AND 8
TOWNSHIP 9 NORTH, RANGE 2 EAST, NN1PM
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
AUGUST, 2005



NOTE

CENTERLINE (IN LIEU OF R/W) MONUMENTATION IS TO BE
INSTALLED AT ALL CENTERLINE PC'S, PT'S, ANGLE
POINTS AND SIRET INTERSECTIONS AS SHOWN HEREON
AND WILL CONSIST OF A FOUR INCH (4") ALUMINUM
ALLOY CAP STAMPED "CITY OF ALBUQUERQUE"
"CENTERLINE MONUMENT", "DO NOT DISTURB", "PLS #
7719".

ABBREVIATIONS

10' PUE = PUBLIC UTILITY EASEMENTS
GRANTED WITH THIS PLAT

ROW = RIGHT-OF-WAY

C.O.A. = CITY OF ALBUQUERQUE

LEGEND

1-P1 LOT NUMBER

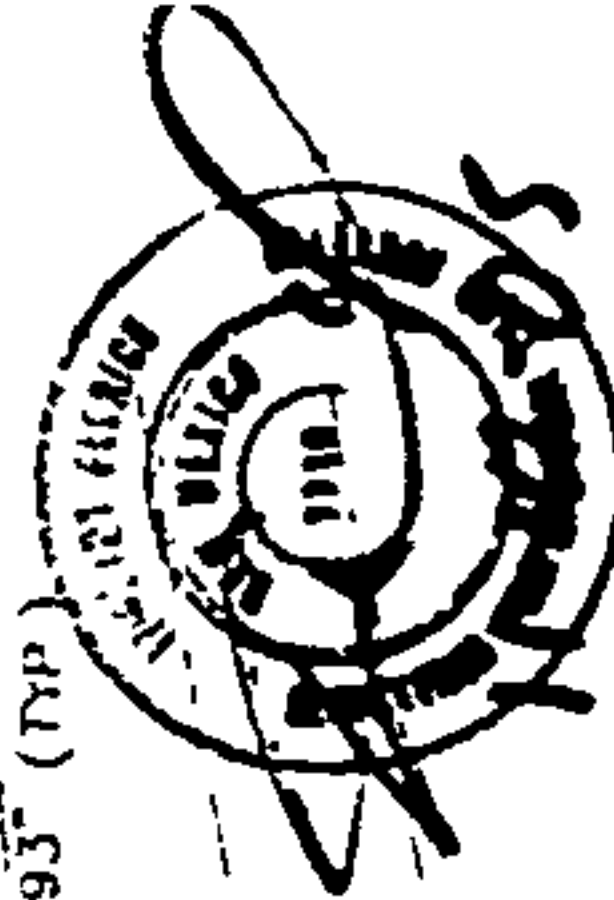
B L O C K 2 BLOCK NUMBER

▲ CENTER LINE MONUMENT

FEMA FLOODPLAIN
SEE FEMA FLOODPLAIN
AND LOWR NOTES ON
COVER SHEET

PROPERTY CORNERS

- FOUND 5/8" REBAR WITH
CAP "LS 7924" (TYP)
- FOUND 1" IRON PIPE WITH
TAG "LS 11993"
- FOUND BRASS CAP
"WST-3"
- FOUND SET 5/8" REBAR WITH
CAP "ALS 15 7719" (TYP)
- FOUND REBAR WITH CAP
"PS 11993" (TYP)



ALDRICH LAND
SURVEYING

P.O. BOX 30701, ALBQ., N.M. 87190
505-884-1990

TRACT "O" IS COVERED WITH A
BLANKET DRAINAGE EASEMENT
GRANTED TO THE CITY OF
ALBUQUERQUE BY THIS PLAT

ALL STREETS AND ROADS SHOWN
HEREON IS HEREBY DEDICATED IN FEE
SIMPLE WITH WARRANTY COVENANTS
AS PUBLIC RIGHT-OF-WAY

UNPLATTED LOTS OF WESTLAND
DEVELOPMENT CO., INC.
(04-17-90, 96C-160)

TRACT 1
ANDERSON HEIGHTS UNIT 1
(05/04/2005, BK-2005C, PG-136)

F:\403\085\1\30804H\FinalPlat\Units\base50.dwg-Layout1 (11-09-05) SPS

Dwg: BASE50.dwg
Scale: 1"=50'
Drawn: STEPHEN
Date: 11/09/05
Checked: ALS
Job: 403040

Sheet 3 of 8

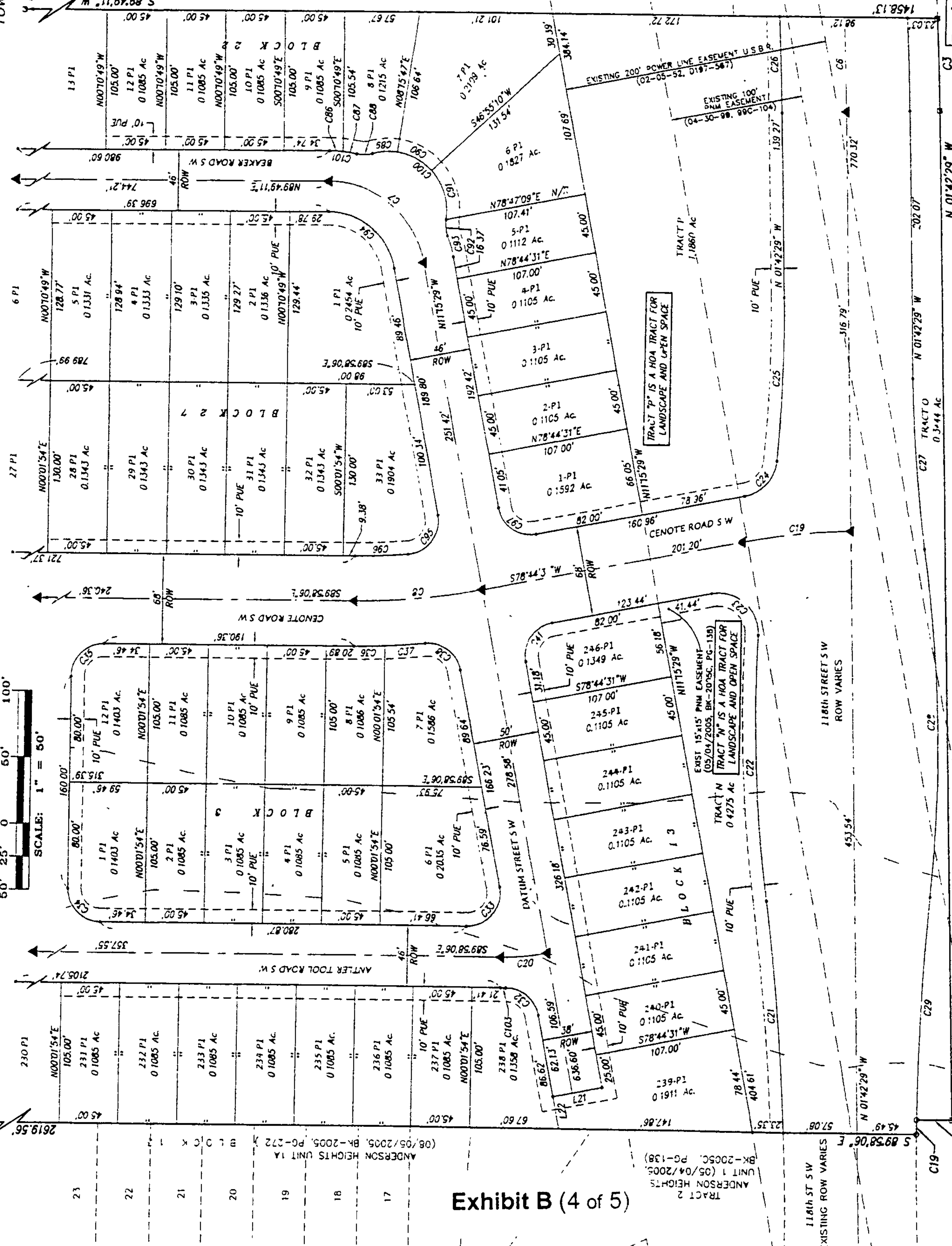


Exhibit B (4 of 5)

EXISTING 86' PUBLIC ROADWAY
EASEMENT-SUBJECT TO MODIFICATION
WITH CITY OF ALBUQUERQUE APPROVAL
(4/17/1996, 96C-160)

(2543.53')

N 89°47'29" E

(S 89°47'32" W)

(1869.68')

156' PUBLIC ACCESS, SANITARY SEWER, WATER AND
DRAINAGE EASEMENT GRANTED BY THIS PLAT.

86' PUBLIC ACCESS EASEMENT GRANTED BY THIS
PLAT. LOCATION OF THE FUTURE R.O.W. THAT IS
TO BE DEDICATED MAY BE MODIFIED WITH THE
APPROVAL OF THE CITY OF ALBUQUERQUE. FINAL
WIDTH OF EASEMENT MAY BE 156' WIDE TO MATCH
EXISTING EASEMENT. FINAL ROADWAY ALIGNMENT
TO AVOID EXISTING POWER POLES WHILE MEETING
DPM DESIGN STANDARDS.

R=3078.00'
L=68.98'
Δ=01°17'03"
TAN=34.49
CH=N 02°21'06" W
68.98'

N 89°49'05" E

R=3078.00'
L=445.71'
Δ=08°17'48"
TAN=223.24
CH=N 07°08'32" W
445.32'

R=3078.00'
L=514.69'
Δ=09°34'51"
TAN=257.95
CH=N 06°30'00" W
514.09'

78' 78'

25'

447.82'

N 111°17'26" W

EXISTING 200' USBR POWER
LINE EASEMENT 0197-567
(02/05/1952)

EXISTING 100' PNM EASEMENT
(04/20/1978, MISC. 602, 558-561)

N 111°15'35" W

122.41'

203.81'

1,318.57'

2,284.12'

Exhibit B (5 of 5)

Dennis Chavez B
State Road

(ROW VARIATION)

New Mexico Project N

UN-PLATTED LANDS OF
STLAND DEVELOPMENT CO., INC.
(4/17/1996, 96C-160)

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Page: 14 of 14
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Barcode
Bern. Co. AGRE
R 35.00
Maggie Toulouse

ASCG

INCORPORATED

ENGINEERS • ARCHITECTS • SURVEYORS • INSPECTION SERVICES

MEMORANDUM AMOLE HUBBELL DMP REVISIONS REVIEW ANDERSON HILLS DEVELOPMENT HEC-RAS REVIEW

998705

DATE: December 8, 2003

TO: Loren Meinz, PE, AMFACA

FR: Clint Dodge/Richard Stockton

RE: ANDERSON HILLS HEC-RAS REVIEW

Prepared by Mark Goodwin & Associates dated Nov. 14, 2003

This review was limited to the examination of the HEC-RAS hydraulic analysis of the Rio Bravo Channel at the lower end transition to the Condeshire Drive box culvert. This review is based on the HEC-RAS data submitted by Mark Goodwin & Associates.

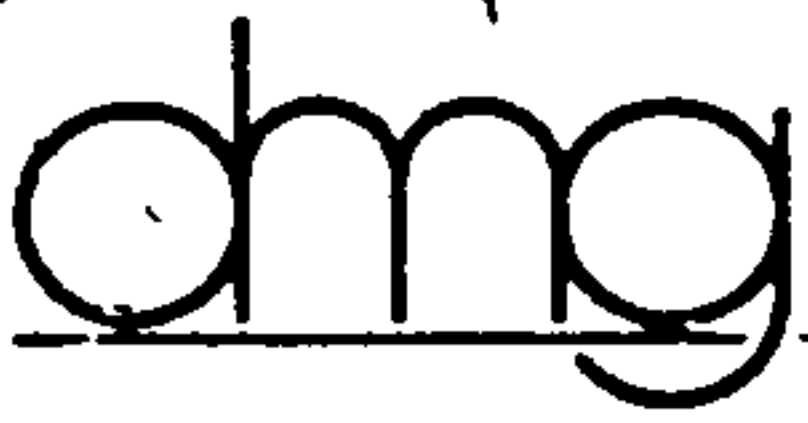
- I. Understanding.
 - A. The trapezoidal concrete Rio Bravo Channel enters two CBC on a steep grade at the transition from the Rio Bravo Channel to the Amole-Hubbell Channel.
 - B. The purpose of the HEC-RAS submittal is to demonstrate that the channel to CBC transition functions safely at the design flow rate of 1151 cfs.
- II. Review Comments.
 - A. The purpose of the review was to evaluate the HEC-RAS model data to determine if the data submitted adequately demonstrates that the system functions safely.
 - B. It is our opinion that the HEC-RAS model submitted does not demonstrate that the system functions safely. This opinion is based on the following:
 1. Warning Statements. The HEC-RAS model has numerous (about 50) warning messages. These need to be rectified or justified prior to acceptance of this model. The most worrisome is at the entrance to the CBC – "momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded." It is our interpretation that momentum balance cannot be obtained with the water surface below the top of the CBC. (i.e. the water surface is above the roof of the CBC).
 - a) Recommendation. Revise the model to eliminate the warning statements or justify that the warning statements are of no

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- significance for this situation. Specifically address the failure of the momentum equation at the entry to the CBC.
2. Bridge Routine/Divided Flow. It appears the bridge routine may be incorrectly applied by treating the CBC as two separate 6' wide channels. Treating the channel as a rectangular channel with the center bridge pier may more accurately model the effect of the center pier.
 - a) Recommendation. Provide an analysis with the center pier treated as a pier. Document the pier coefficients used.
 3. Ineffective Flow Area. It appears the center wall of the CBC does not account for debris. See comment 6.b.
 4. Transition Coefficients. The coefficients for the transition appear incorrect.
 - a) Recommendation. Explain and justify the contraction losses used for the transition from the trapezoidal channel to the rectangular CBC.
 5. Standing Waves. The standing waves generated in the transition and at the CBC pier are not addressed.
 - a) Recommendation. Provide analysis of the impact of standing waves in the transition and at the CBC pier.
 6. Previous Review Comments. Some comments from our previous review in memo dated Sept. 8, 2003 were not addressed. These include:
 - a) The required freeboard should conform to the DMP criteria, or the wave height, whichever is greater. The wave height is not provided in the report. The DPM required freeboard is approximately 2'. Provide analysis and justify the projected freeboard.
 - b) Accommodation of debris at the pier and along the pier wall in the CBC. The guideline, is to account for 1' of additional width on each side of the pier for the entire length to account for eddies and irregular flow along the inner wall. This would result in 2- 5'w x 6'h channels. The CBC is modeled as 2-6x6 channels, implying the actual CBC is 2 - 7'w x 6'h. Provide explanation, analysis and justification of the debris ineffective flow area.

DRAFT

92



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmgs@swcp.com

5
RECEIVED

NOV 17 2003

November 14, 2003

Mr. Loren Meinz
AMAFCA
2600 Prospect Avenue NE
Albuquerque, NM 87107

Re: Anderson Hills

Dear Mr. Meinz:

The purpose of this letter is to transmit the revised HEC-RAS Model of the existing box culverts at Condeshire Drive. Please note that the existing structure already has a gradual transition 50' long at the entrance and class 'C' low flow is maintained throughout even for developed flows. (1151.22 cfs)

Please feel free to call me if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, PA

James D. Hughes, PE
Senior Engineer

JDH/bg

cc: Brian Kent ~ Bernalillo County Public Works
Brad Bingham ~ City of Albuquerque, Hydrology

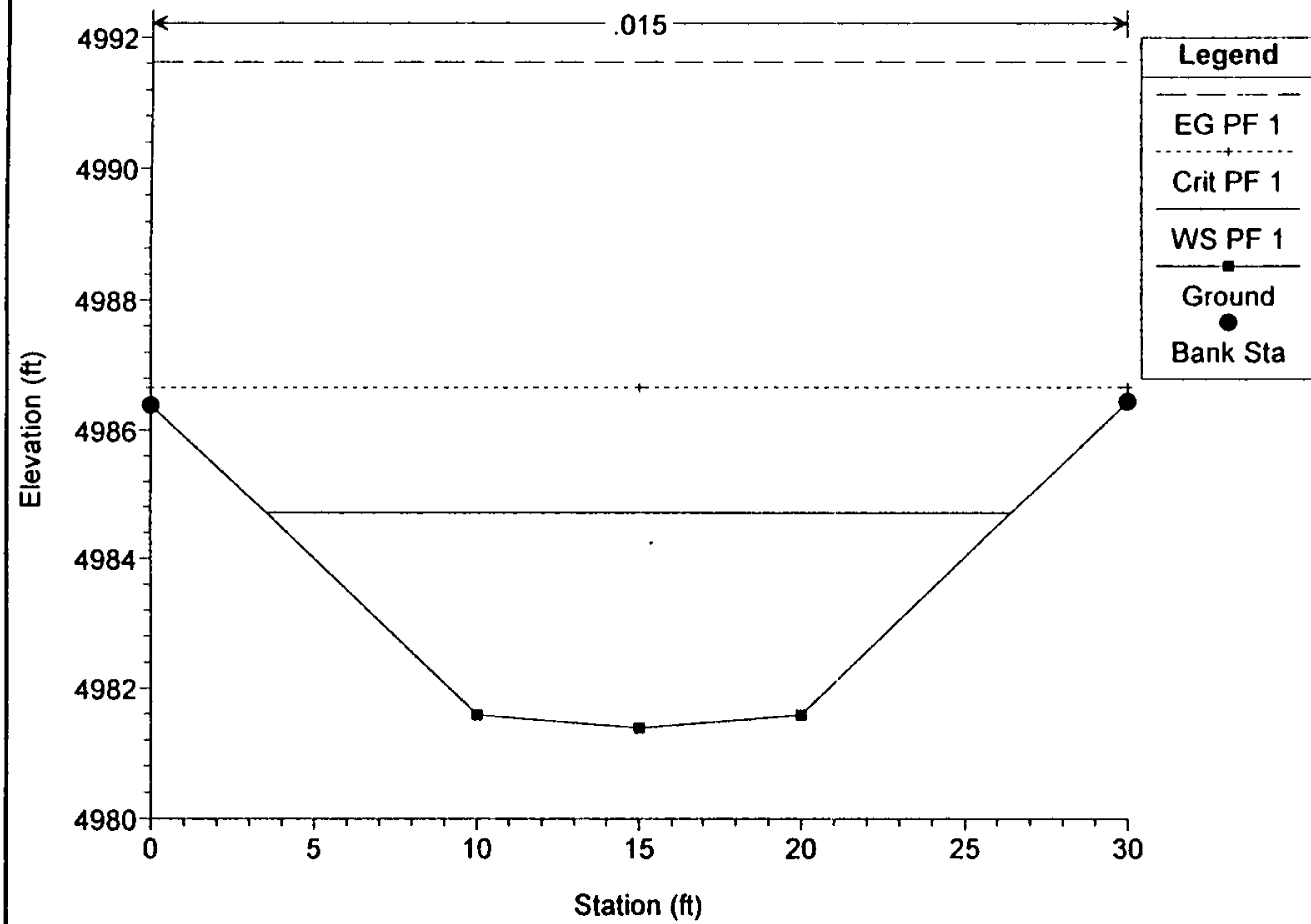
HEC-RAS Plan Plan 01

River	Reach	River Sta	E.G Elev	W.S. Elev	Crit W.S.	Frctn Loss	C & E Loss	Top Width	Q Left	Q Channel	Q Right	Vel Chnl	Max Chl Dpth
			(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft/s)	(ft)
RIO BRAVO	REACH #1	10.26776	4980.93	4972.69	4974.87	1.58	0.08	22.41		1151.22		23.03	3.22
RIO BRAVO	REACH #1	9.26826	4979.33	4973.40	4975.86	0.92	0.70	12.00		1151.22		19.56	4.91
RIO BRAVO	REACH #1	8.56925 BR U	4979.29	4973.42	4974.49	0.03	0.03	12.00		1151.22		19.44	4.93
RIO BRAVO	REACH #1	8.56925 BR D	4977.59	4971.28	4972.52	1.67	0.04	12.00		1151.22		20.16	4.76
RIO BRAVO	REACH #1	8.26925	4977.55	4971.30	4973.89	0.04	0.03	12.00		1151.22		20.05	4.78
RIO BRAVO	REACH #1	7.27150	4969.13	4950.93	4955.50	7.26	1.19	12.00		1151.22		34.24	2.80

50
99
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0
225

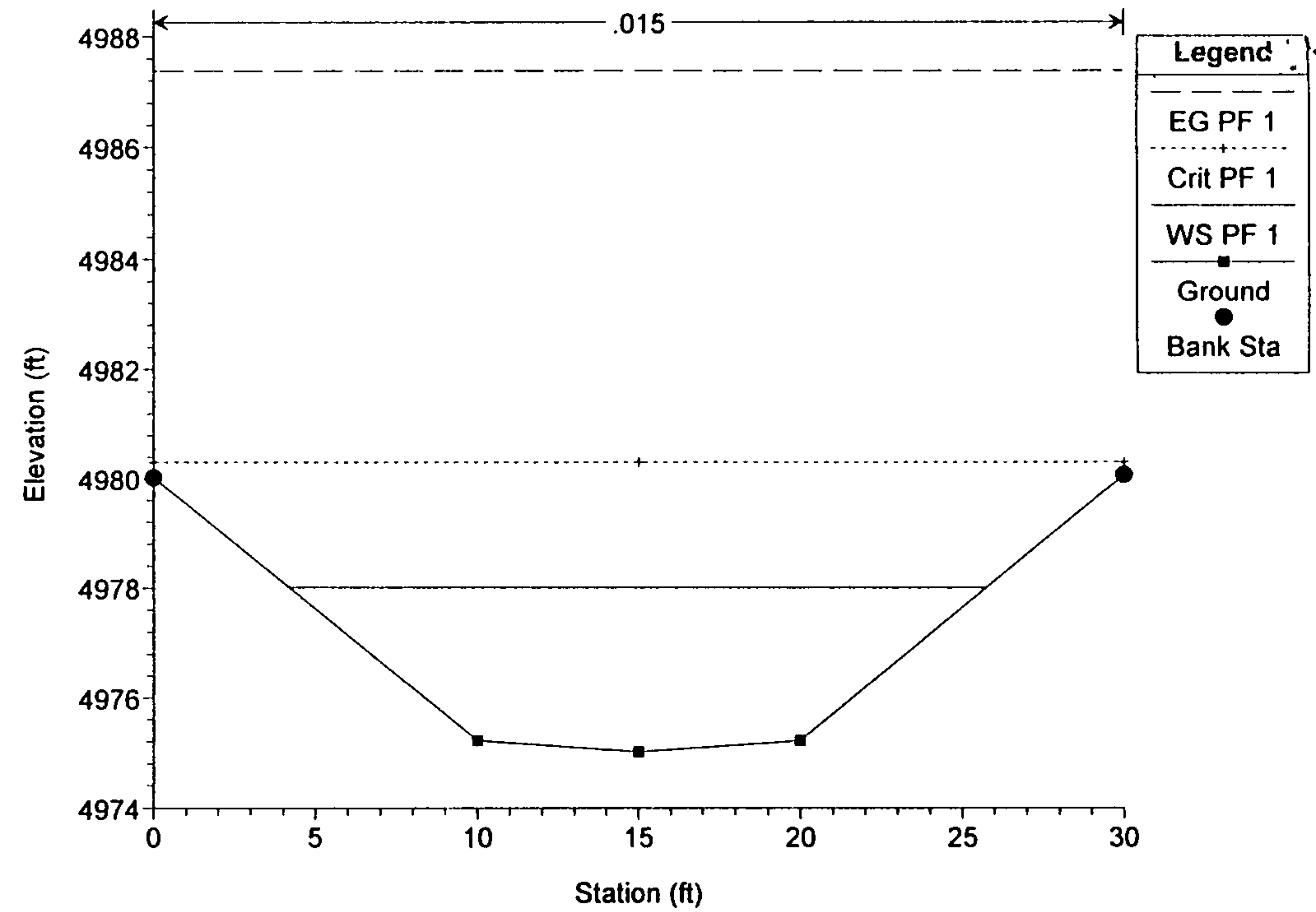
anderson w/junctions Plan 09 11/14/2003

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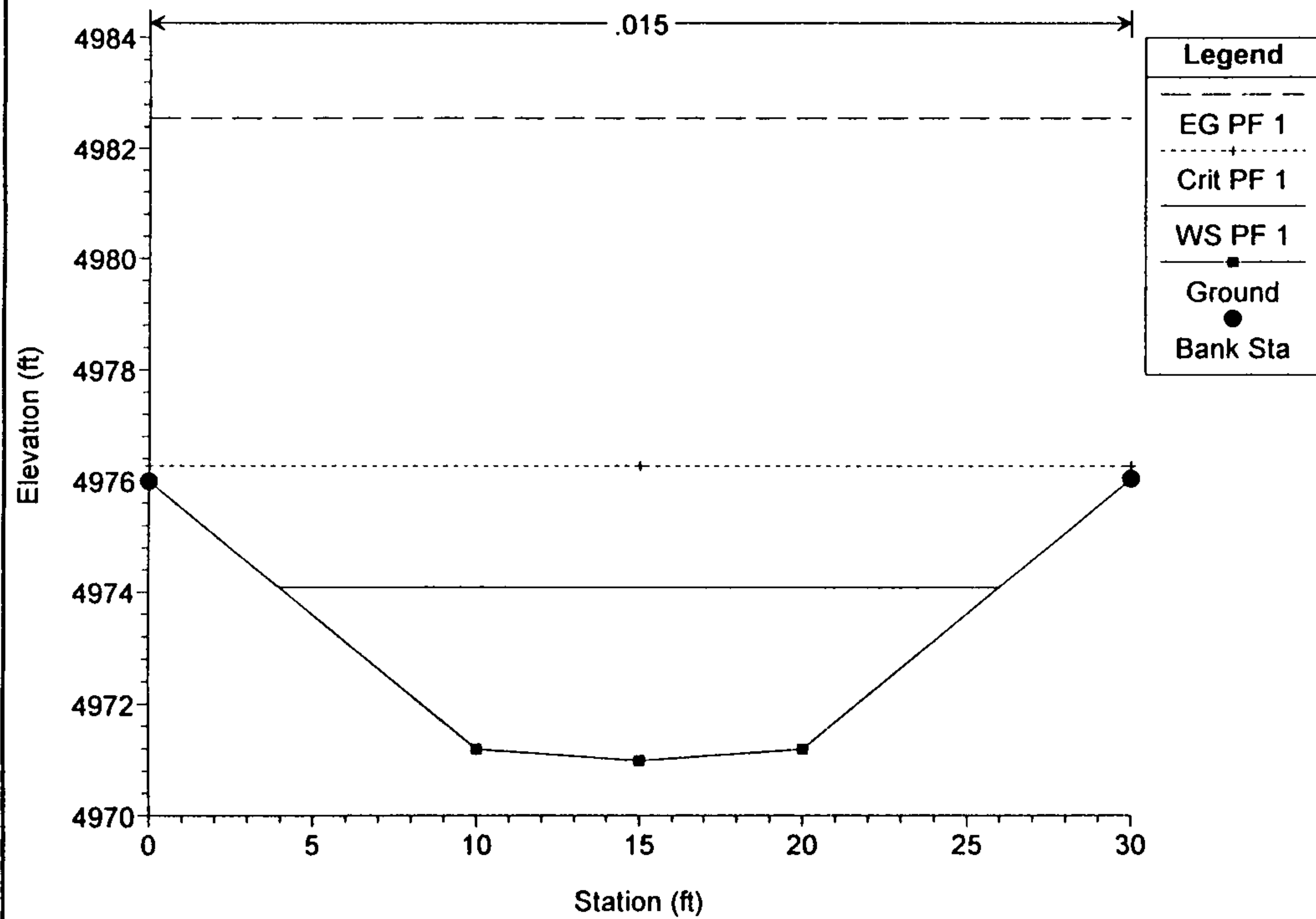
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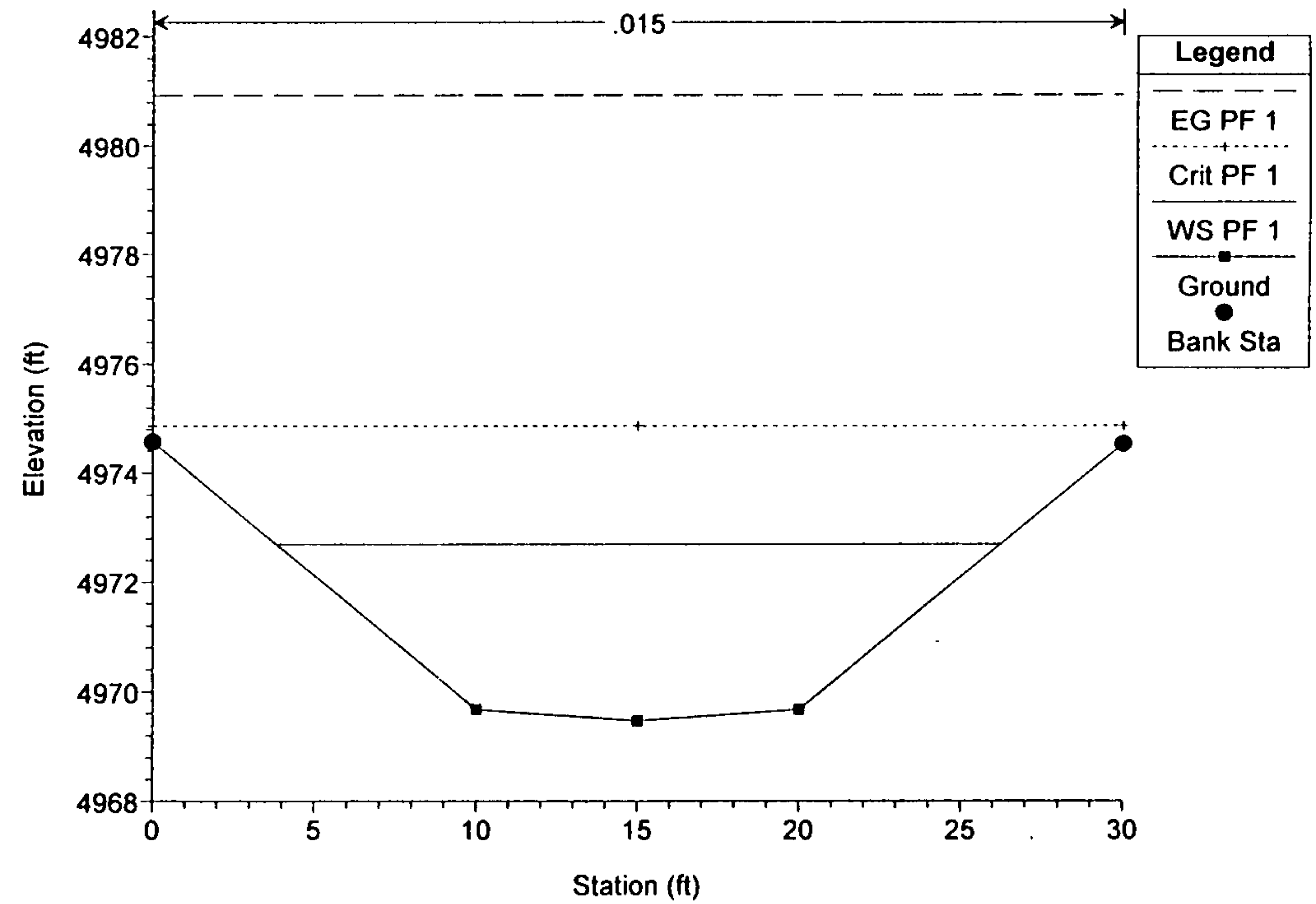
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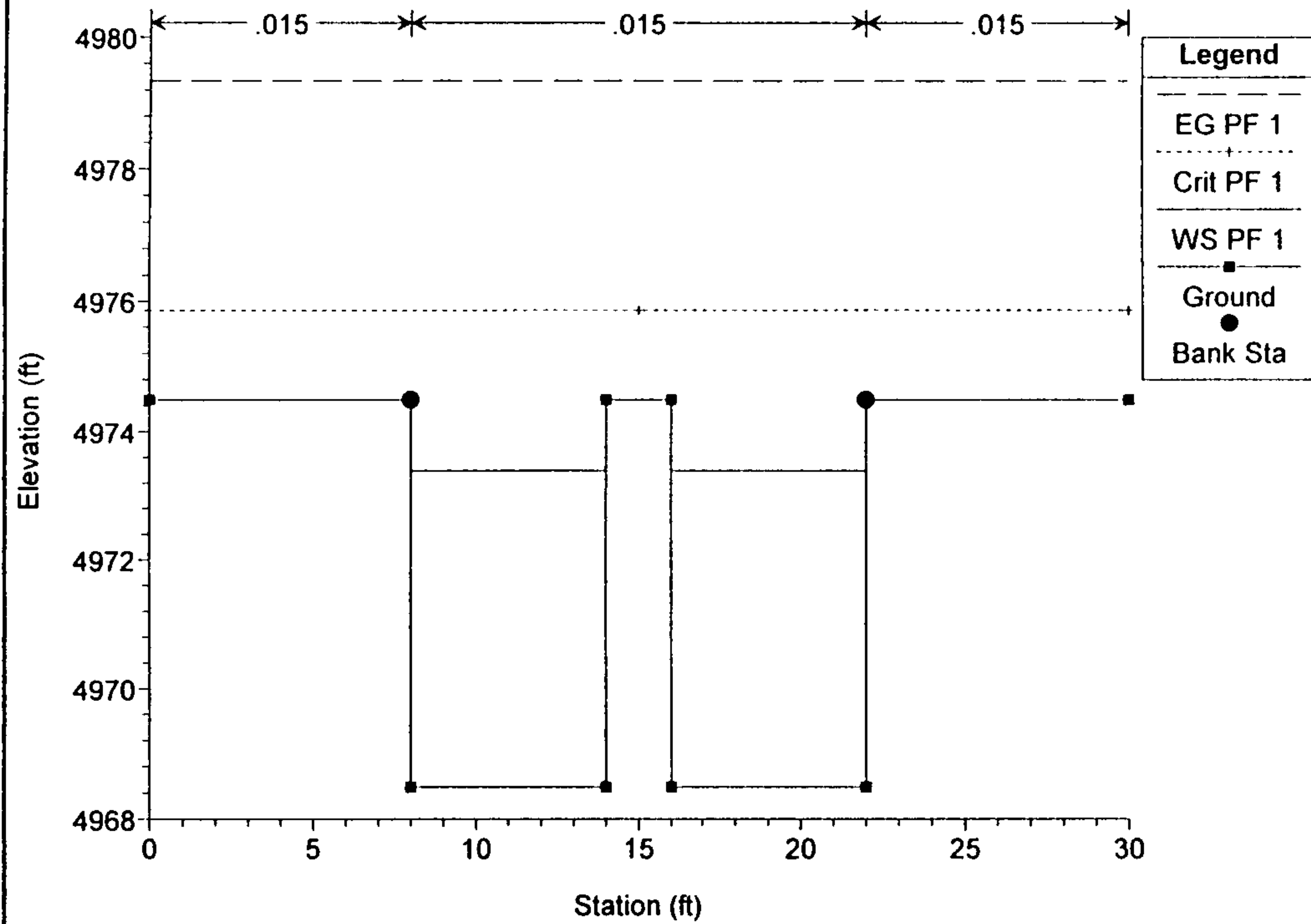
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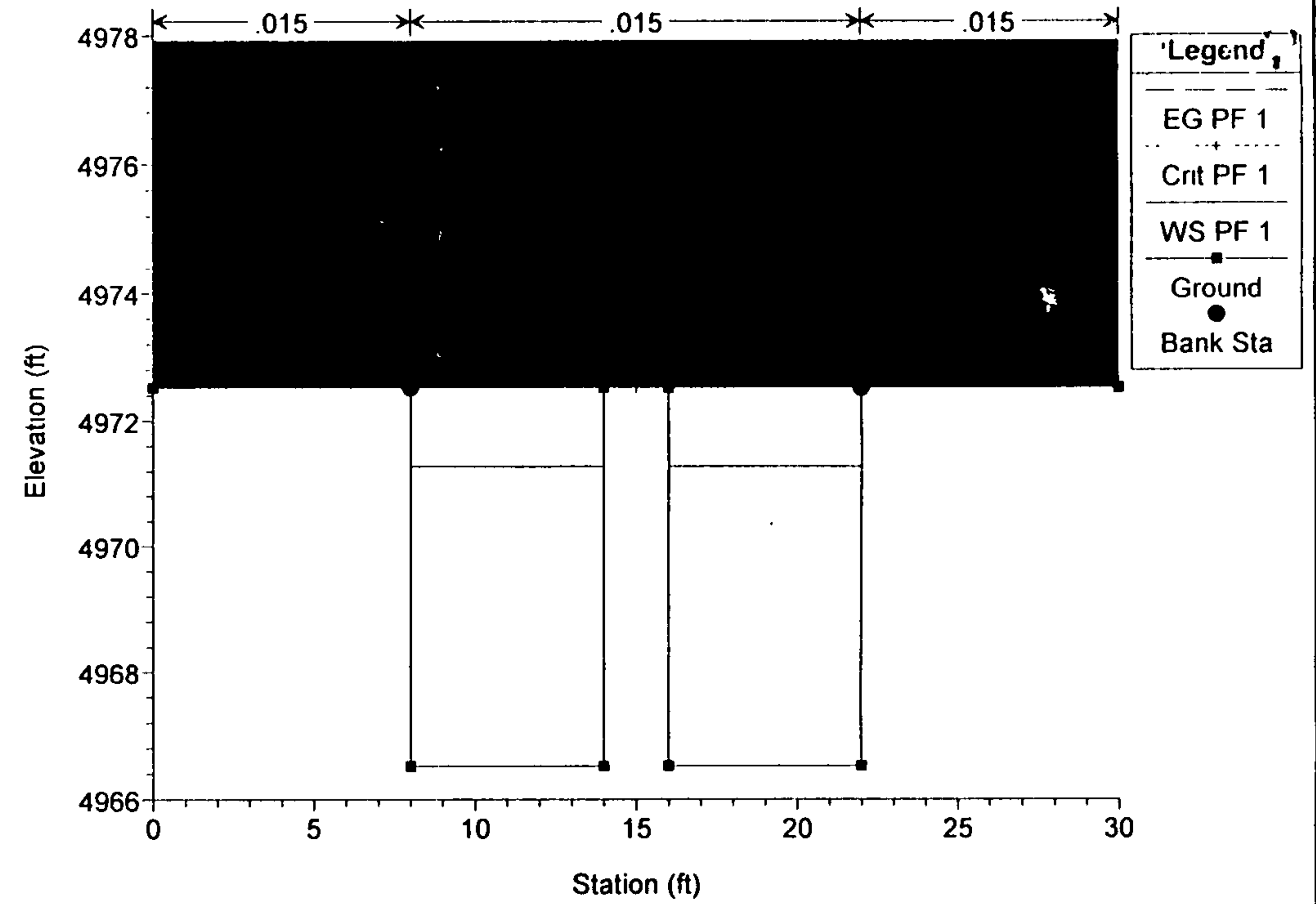
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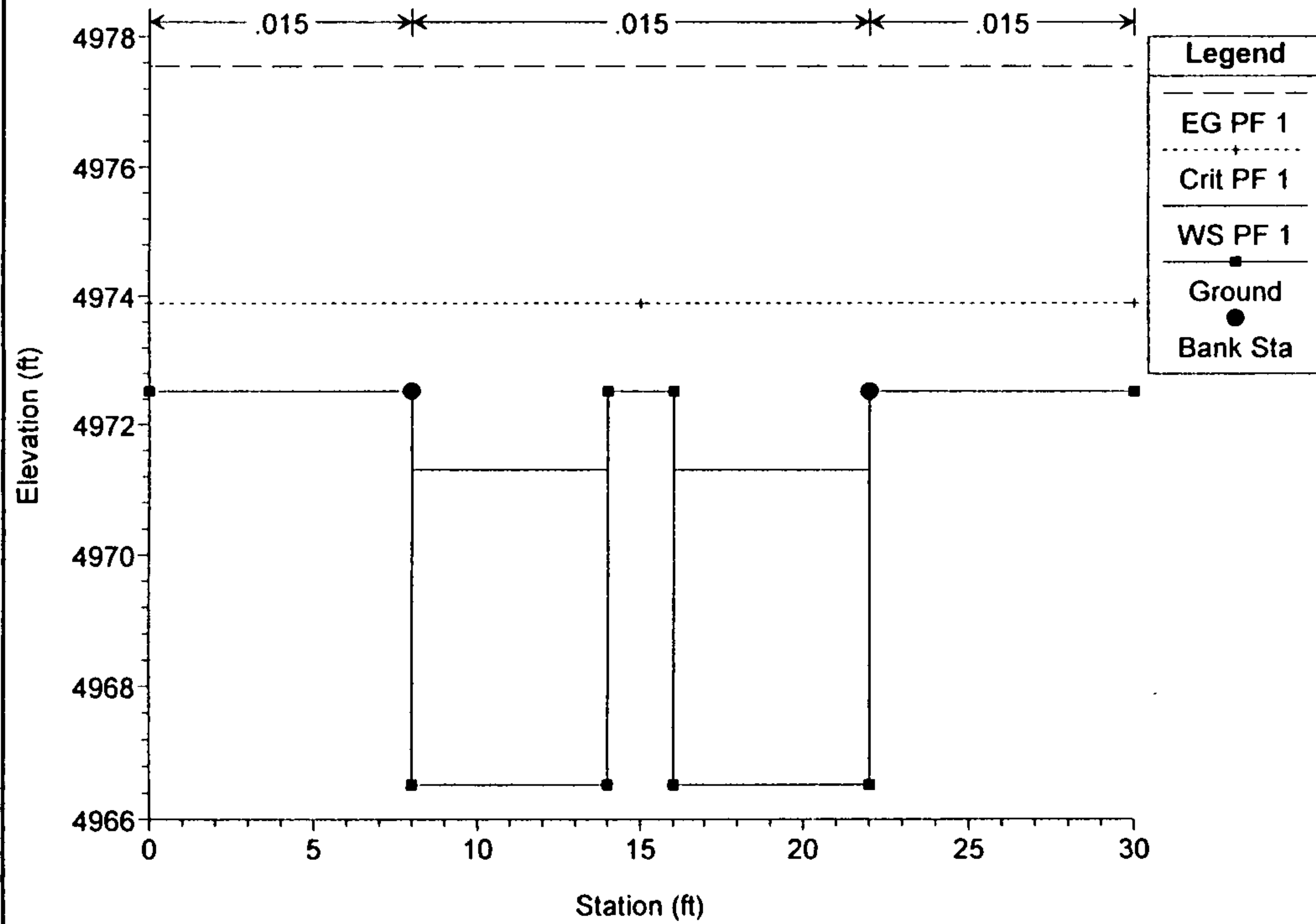
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EXISTING BOXES RS = 8.56925



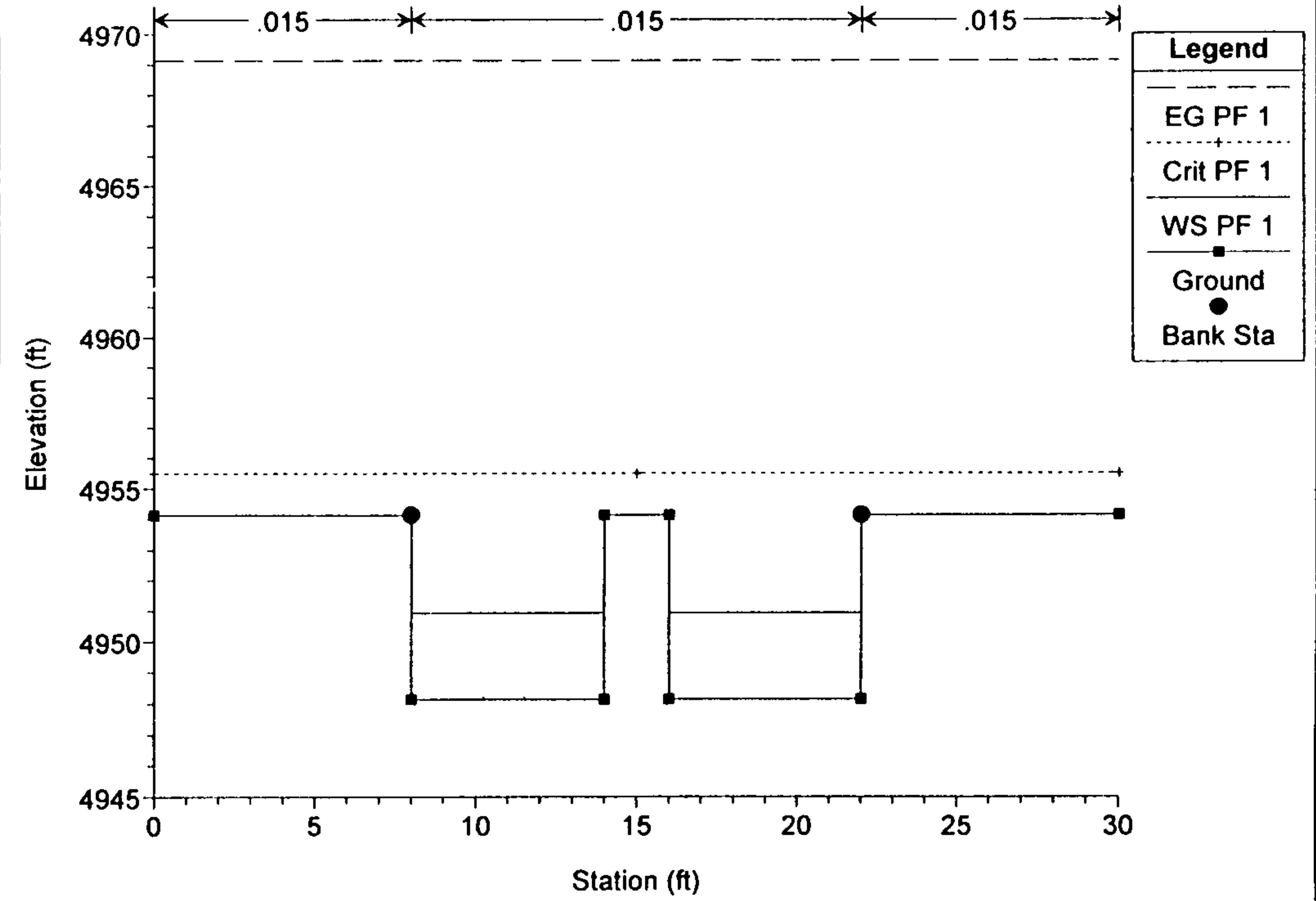
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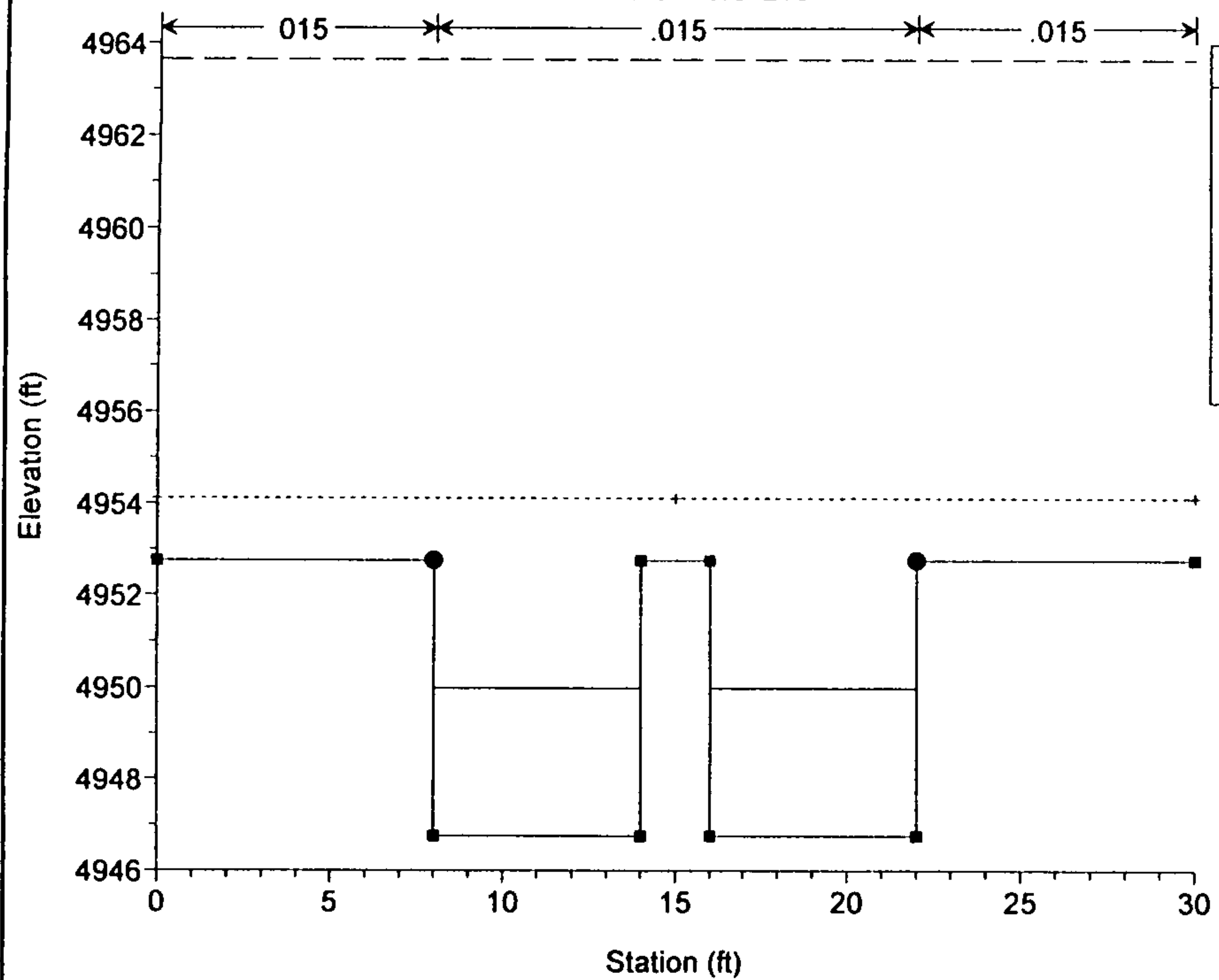


anderson w/junctions Plan 09 11/14/2003

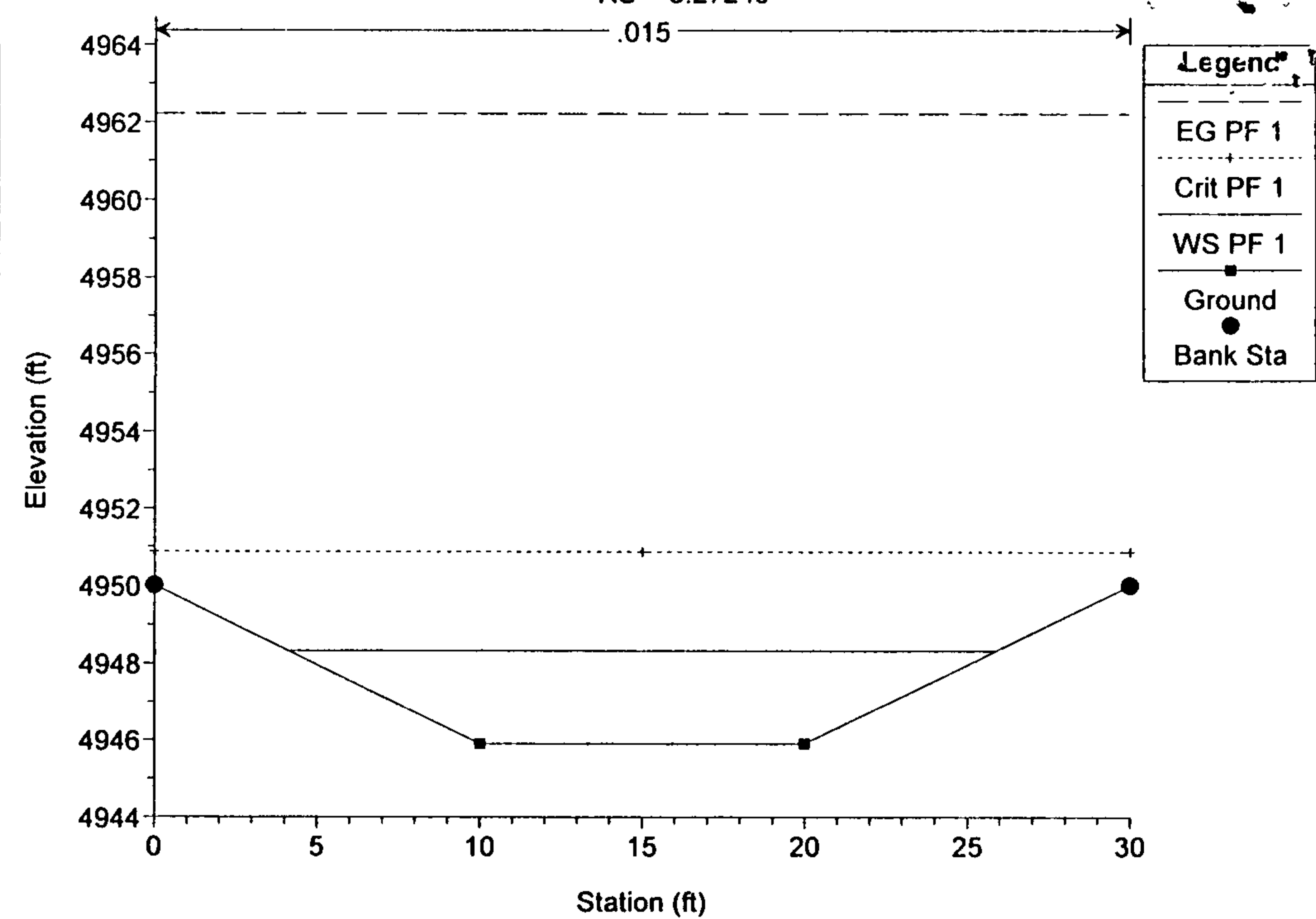
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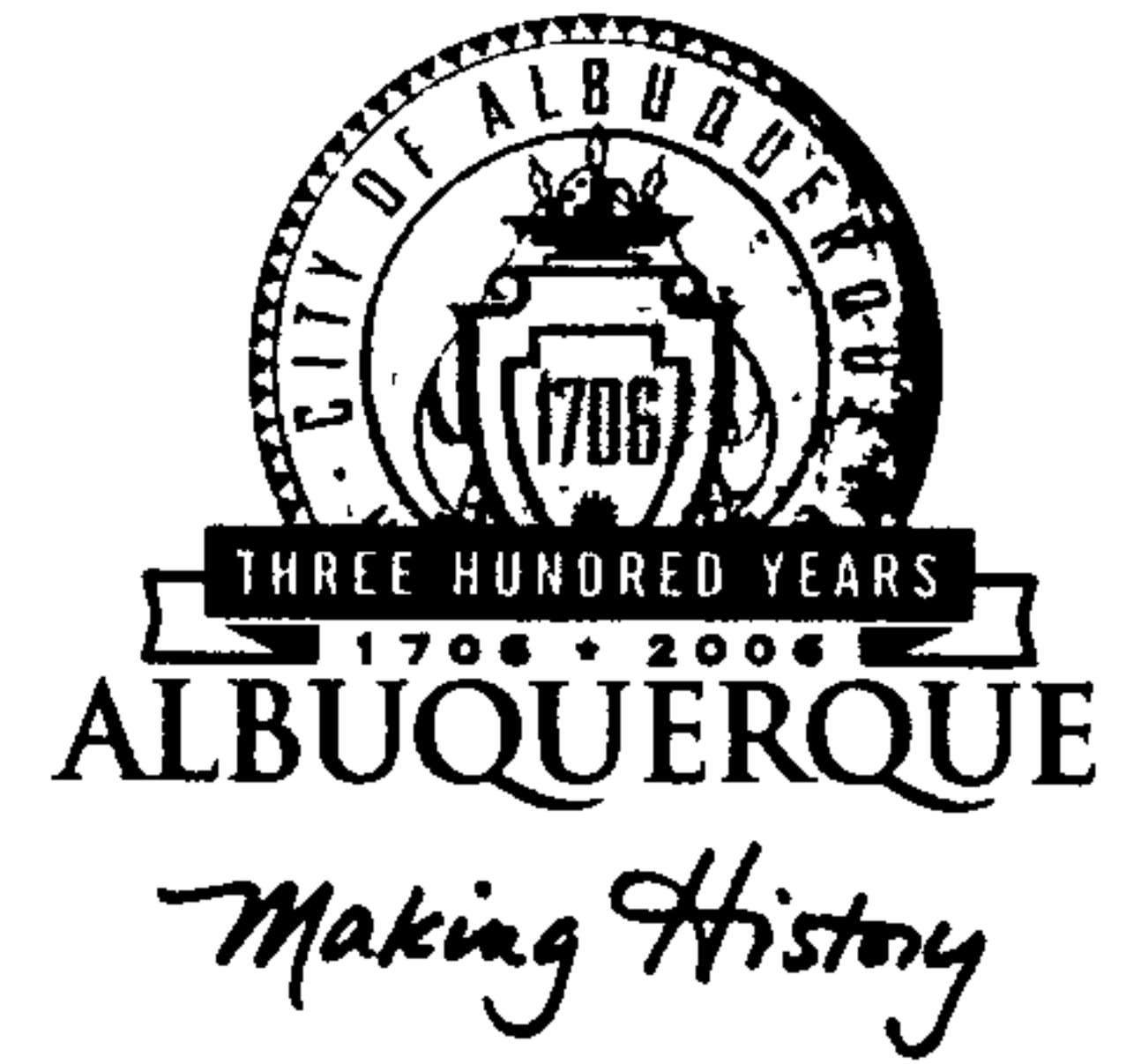
RS = 6.27219



RS = 5.27249



CITY OF ALBUQUERQUE



May 26, 2005

Greg Krenik, PE
Mark Goodwin & Associates
P.O. Box 90606,
Albuquerque, NM 87199

Re: Anderson Heights Subdivision Revised Grading Plan
Engineer's Stamp dated 4-27-05, (P8/D3)

Dear Mr. Krenik,

Based upon the information provided in your submittal dated 4-29-05, the above referenced plan is approved as amended. This is now the plan that must be certified for Release of SIA and Financial Guarantee.

If you have any questions, please contact me at 924-3986.

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Principal Engineer, Planning Dept
Development and Building Services

C: file

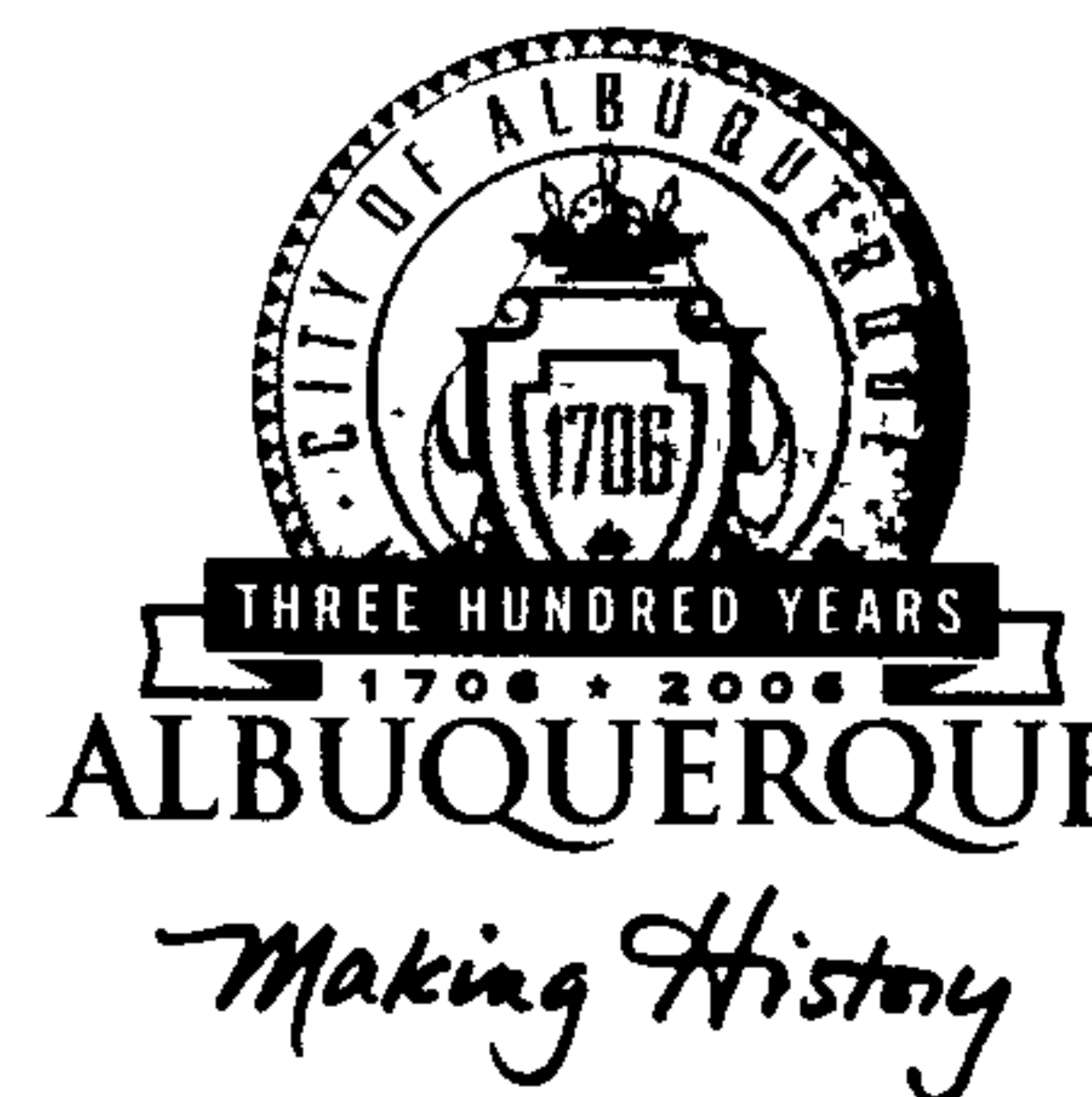
P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

CITY OF ALBUQUERQUE



May 25, 2005

Greg Krenik, PE
Mark Goodwin & Associates
P.O. Box 90606,
Albuquerque, NM 87199

Re: Anderson Heights Subdivision Drainage Report
Engineer's Stamp dated 4-14-05, (P8/D3)

Dear Mr. Krenik,

P.O. Box 1293

Based upon the information provided in your submittal dated 4-15-05, the above referenced report is approved for Preliminary Plat action by the DRB. Once that board approves the plan, please submit a mylar copy for my signature in order to obtain a Rough Grading Permit.

Albuquerque

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Municipal Development Department, Hydrology section at 768-3654 (Charles Caruso).

New Mexico 87103

If you have any questions, please contact me at 924-3986.

www.cabq.gov

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept
Development and Building Services

C: Chuck Caruso, DMD
file



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

December 21, 2005

Federal Emergency Management Agency
Fee-Charge System Administrator
PO Box 22787
Alexandria, VA 22304

Re: Case No. 06-06-2100650R

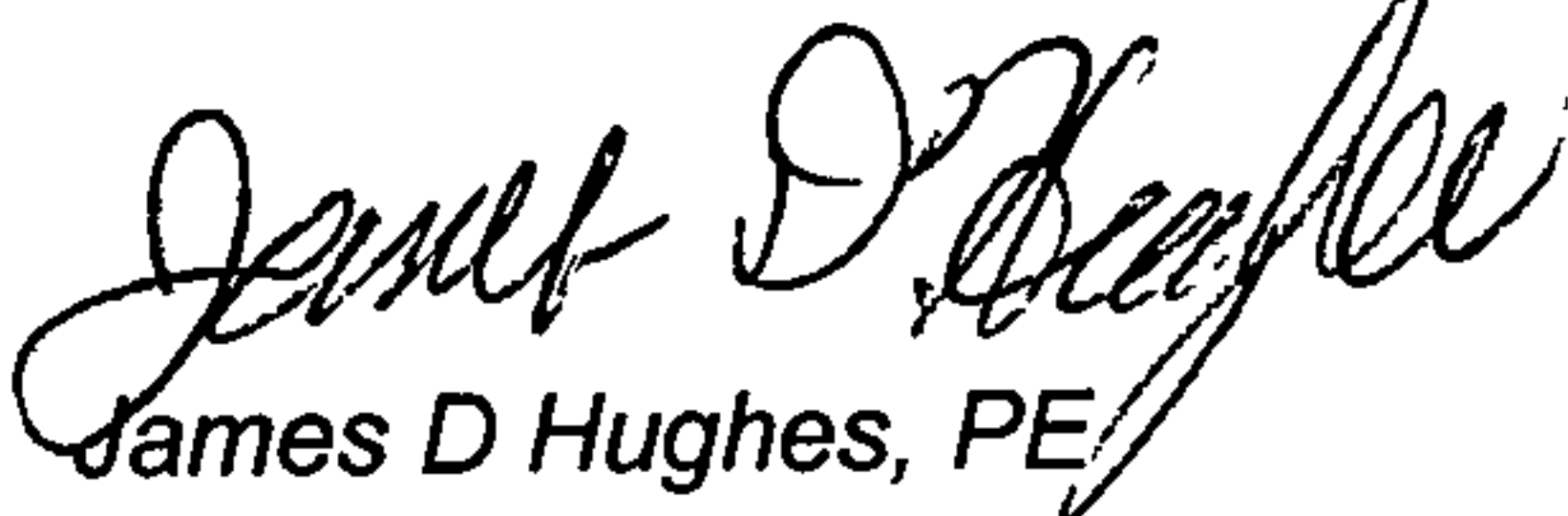
Dear Sirs:

As requested in your most recent letter, we are forwarding a check in the amount of \$2,000.00 made out to NFIP for the balance due on the review of the referenced case. It is our understanding that a detailed technical review of our request will be performed with receipt of this payment. It is our hope that this review will be completed within the next 60 days.

Please contact our office if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, PA


James D Hughes, PE
Senior Engineer

JDH/sr

Enclosure

xc: Bob Coleman – KB HOME New Mexico, Inc.
[Brad Bingham – City of Albuquerque Flood Plan Administrator }
Dan Power – Michael Baker Jr., Inc.

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

P-8/03

PROJECT TITLE: Anderson Heights

DRB #: 1002793

EPC#: _____

ZONE MAP/DRG. FILE #: N-8 & P-8

WORK ORDER#:

LEGAL DESCRIPTION: Parcel 2-D, Lands of Rio Bravo Partners; Tract B-1, Rosner Tracts; Parcel A, ANDERSON HEIGHTS
CITY ADDRESS:

ENGINEERING FIRM: Mark Goodwin & Associates, PA

ADDRESS: PO Box 90606

CITY, STATE: Albuquerque, NM

CONTACT: Gregory J. Krenik, PE

PHONE: 828-2200

ZIP CODE: 87199

OWNER: KB HOME New Mexico Inc

ADDRESS: 6330 RIVERSIDE PLAZA LANE NW SUITE 200

CITY, STATE: Albuquerque, NM

CONTACT: BOB COLEMAN

PHONE: 353-5300

ZIP CODE: 87120

ARCHITECT: _____

ADDRESS: _____

CITY, STATE: _____

CONTACT:

PHONE:

ZIP CODE:

SURVEYOR: ALS, Inc

ADDRESS: PO Box 30701

CITY, STATE: Albuquerque, NM

CONTACT: Tim Aldrich

PHONE: 884-1990

ZIP CODE: 87190-0701

CONTRACTOR: _____

ADDRESS: _____

CITY, STATE: _____

CONTACT:

PHONE:

ZIP CODE:

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, **REQUIRES TCL or equal**
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)

☒ OTHER **REVISED STD SHEETS
PER DRC COMMENTS**

CHECK TYPE OF APPROVAL SOUGHT:

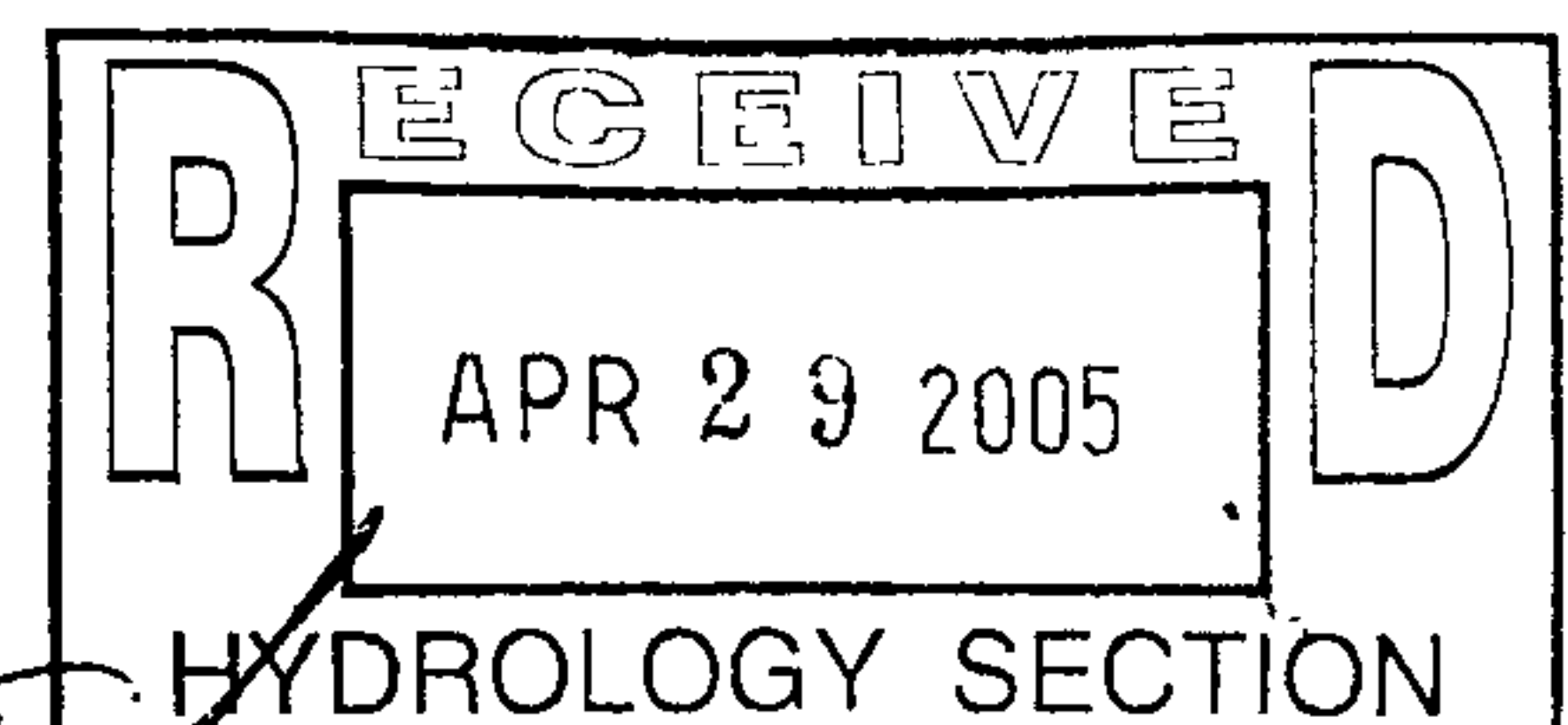
- ☐ SIA / FINANCIAL GUARANTEE RELEASE
- ☒ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☒ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

DATE SUBMITTED: 4-27-05

BY: _____



Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

3 double sided

City of Albuquerque



DEVELOPMENT/ PLAN REVIEW APPLICATION

Supplemental form		Supplemental form	
SUBDIVISION	S	ZONING & PLANNING	Z
☒ Major Subdivision action		☐ Annexation	
☐ Minor Subdivision action		☐ County Submittal	
☐ Vacation	V	☐ EPC Submittal	
☐ Variance (Non-Zoning)		☐ Zone Map Amendment (Establish or Change Zoning)	
SITE DEVELOPMENT PLAN	P	☐ Sector Plan (Phase I, II, III)	
☒ ...for Subdivision Purposes		☐ Amendment to Sector, Area, Facility or Comprehensive Plan	
☐ ...for Building Permit		☐ Text Amendment (Zoning Code/Sub Regs)	
☐ IP Master Development Plan			
☐ Cert. of Appropriateness (LUCC)	L		
		APPEAL / PROTEST of...	A
		☐ Decision by: DRB, EPC, LUCC, Planning Director or Staff, ZHE, Zoning Board of Appeals	

PRINT OR TYPE IN BLACK INK ONLY. The applicant or agent must submit the completed application in person to the Planning Department Development Services Center, 600 2nd Street NW, Albuquerque, NM 87102. Fees must be paid at the time of application. Refer to supplemental forms for submittal requirements.

APPLICANT INFORMATION:

NAME: KB HOME New Mexico, Inc. PHONE: 883-0414
ADDRESS: 6330 Riverside Plaza Lane, NW, Suite 200 FAX:
CITY: Albuquerque STATE NM ZIP 87120 E-MAIL:
Proprietary interest in site: Owner List all owners:
AGENT (if any): Mark Goodwin & Associates, PA PHONE: 828-2200
ADDRESS: PO Box 90606 FAX: 797-9539
CITY: Albuquerque STATE NM ZIP 87199 E-MAIL: greg@goodwinengineers.com

DESCRIPTION OF REQUEST: Anderson Heights, Amended Site Development Plan

Is the applicant seeking incentives pursuant to the Family Housing Development Program? ☐ Yes. ☒ No.

SITE INFORMATION: ACCURACY OF THE LEGAL DESCRIPTION IS CRUCIAL! ATTACH A SEPARATE SHEET IF NECESSARY.

Lot or Tract No. Parcel 2-D Block: Unit:
Subdiv. / Addn. Lands of Rio Bravo Partners
Current Zoning: RD Proposed zoning: Same
Zone Atlas page(s): N-8 & P-8 No. of existing lots: 1 No. of proposed lots: 615 & 13 Tracts
Total area of site (acres): 118.6195 Density if applicable: dwellings per gross acre: _____ dwellings per net acre: _____
Within city limits? ☒ Yes. No ☐, but site is within 5 miles of the city limits.) Within 1000FT of a landfill? ☐ No
UPC No. 100805433214030142 MRGCD Map No. _____
LOCATION OF PROPERTY BY STREETS: On or Near: 118th Street SW
Between: Dennis Chavez Blvd and Gibson Boulevard

CASE HISTORY:

List any current or prior case number that may be relevant to your application (Proj., App., DRB-, AX_, Z_, V_, S_, etc.). 1002739

Check-off if project was previously reviewed by Sketch Plat/Plan ☒, or Pre-application Review Team ☐. Date of review: 4-18-04

SIGNATURE [Signature] DATE 4-18-05
(Print) Gregory J. Krenik, PE ☐ Applicant ☒ Agent

FOR OFFICIAL USE ONLY

Form revised 9/01, 3/03, 7/03, 10/03, 3/04

	Application case numbers	Action	S.F.	Fees
☐ INTERNAL ROUTING				
☒ All checklists are complete	<u>65 DRB - 00693</u>	<u>ASPS</u>	<u>P (3)</u>	<u>\$ 50.00</u>
☒ All fees have been collected		<u>CMF</u>		<u>\$ 20.00</u>
☒ All case #s are assigned				\$
☐ AGIS copy has been sent				\$
☒ Case history #s are listed				\$
☐ Site is within 1000ft of a landfill				\$
☐ F.H.D.P. density bonus				\$
☐ F.H.D.P. fee rebate				\$
	Hearing date <u>May 18, 2005</u>			Total <u>\$ 70.00</u>
<u>Andrew Garcia</u>	<u>4-22-05</u>	Project # <u>100 2739</u>		
Planner signature / date				

FORM P(3): SITE PLAN REVIEW - D.R.B. MEETING (UNADVERTISED)

☐ **SKETCH PLAN REVIEW AND COMMENT**

- ☐ Scaled site sketch and related drawings showing proposed land use including structures, parking, Bldg. setbacks, adjacent rights-of-way and street improvements, etc. (folded to fit into an 8.5" by 14" pocket) 6 copies.
- ☐ Zone Atlas map with the entire property(ies) precisely and clearly outlined and crosshatched (to be photocopied)
- ☐ Letter briefly describing, explaining, and justifying the request
- ☐ Any original and/or related file numbers are listed on the cover application

Meetings are approximately 8 DAYS after the Tuesday noon filing deadline. **Your attendance is required.**

☐ **SITE DEVELOPMENT PLAN FOR SUBDIVISION**

- ☐ Scaled site plan and related drawings (folded to fit into an 8.5" by 14" pocket) 6 copies.
- ☐ Zone Atlas map with the entire property(ies) precisely and clearly outlined and crosshatched (to be photocopied)
- ☐ Letter briefly describing, explaining, and justifying the request
- ☐ Letter of authorization from the property owner if application is submitted by an agent
- ☐ Copy of the document delegating approval authority to the DRB
- ☐ Infrastructure List, if relevant to the site plan
- ☐ 2 copies of the Conceptual Utility Layout Plan (mark one for Planning, one for Utility Development)
- ☐ Fee (see schedule)
- ☐ Any original and/or related file numbers are listed on the cover application

Meetings are approximately 8 DAYS after the Tuesday noon filing deadline. **Bring the original Mylar to the meeting for sign-off. Your attendance is required.**

☐ **SITE DEVELOPMENT PLAN FOR BUILDING PERMIT**

- ☐ Site plan and related drawings (folded to fit into an 8.5" by 14" pocket) 6 copies.
- ☐ Site Plan for Subdivision, if applicable, previously approved or simultaneously submitted. 6 copies.
- ☐ Solid Waste Management Department signature on Site Plan
- ☐ Zone Atlas map with the entire property(ies) precisely and clearly outlined and crosshatched (to be photocopied)
- ☐ Letter briefly describing, explaining, and justifying the request
- ☐ Letter of authorization from the property owner if application is submitted by an agent
- ☐ Copy of the document delegating approval authority to the DRB
- ☐ Infrastructure List, if relevant to the site plan
- ☐ Completed Site Plan for Building Permit Checklist
- ☐ 2 copies of the Conceptual Utility Layout Plan (mark one for Planning, one for Utility Development)
- ☐ Blue-line copy of Site Plan with Fire Marshal's stamp
- ☐ Fee (see schedule)
- ☐ Any original and/or related file numbers are listed on the cover application

Meetings are approximately 8 DAYS after the Tuesday noon filing deadline. **Bring the original Mylar to the meeting for sign-off. Your attendance is required.**

☒ **AMENDED SITE DEVELOPMENT PLAN FOR SUBDIVISION**

☐ **AMENDED SITE DEVELOPMENT PLAN FOR BUILDING PERMIT**

- ☒ Proposed amended Site Plan (folded to fit into an 8.5" by 14" pocket) 6 copies.
- ☒ DRB signed Site Plan being amended (folded to fit into an 8.5" by 14" pocket) Copies as needed above
- ☒ Zone Atlas map with the entire property(ies) precisely and clearly outlined and crosshatched (to be photocopied)
- ☒ Letter briefly describing, explaining, and justifying the request
- ☒ Letter of authorization from the property owner if application is submitted by an agent
- ☐ Infrastructure List, if relevant to the site plan
- ☐ Completed Site Plan for Building Permit Checklist (not required for amendment of SDP for Subdivision)
- ☒ Fee (see schedule)
- ☒ Any original and/or related file numbers are listed on the cover application

Meetings are approximately 8 DAYS after the Tuesday noon filing deadline. **Bring the original Mylar to the meeting for sign-off. Your attendance is required.**

☐ **D.R.B. FINAL SIGN-OFF FOR E.P.C. APPROVED S.D.P. for SUBDIVISION**

☐ **D.R.B. FINAL SIGN-OFF FOR E.P.C. APPROVED S.D.P. for BUILDING PERMIT**

- ☐ Site plan and related drawings (folded to fit into an 8.5" by 14" pocket) 6 copies
- ☐ Approved Grading and Drainage Plan (folded to fit into an 8.5" by 14" pocket) 6 copies.
- ☐ Solid Waste Management Department signature on Site Plan (not required for SDP for Subdivision)
- ☐ Zone Atlas map with the entire property(ies) precisely and clearly outlined and crosshatched (to be photocopied)
- ☐ Letter carefully explaining how each EPC condition has been met and a copy of the EPC Notification of Decision
- ☐ Infrastructure List, if relevant to the site plan
- ☐ 2 copies of the Conceptual Utility Layout Plan (mark one for Planning, one for Utility Development)
- ☐ Blue-line copy of Site Plan with Fire Marshal's stamp (not required for SDP for Subdivision)
- ☐ Any original and/or related file numbers are listed on the cover application

Meetings are approximately 8 DAYS after the Tuesday noon filing deadline. **Bring the original Mylar to the meeting for sign-off. Your attendance is required.**

I, the applicant, acknowledge that any information required but not submitted with this application will likely result in deferral of actions.

GREGORY J. KRENK

Applicant name (print)

4-18-05

Applicant signature / date

Form revised September 2001



☒ Checklists complete

Application case numbers

☒ Fees collected

05 DRB - 00693

☒ Case #s assigned

- -

☒ Related #s listed

- -

Andrew S. Garcia

4-22-05

Planner signature / date

Project # 1002739



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

April 18, 2005

*Ms. Sheran Matson
DRB Chair
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103*

Re: Anderson Heights, Units 2 – 9 (DRB 1002739)

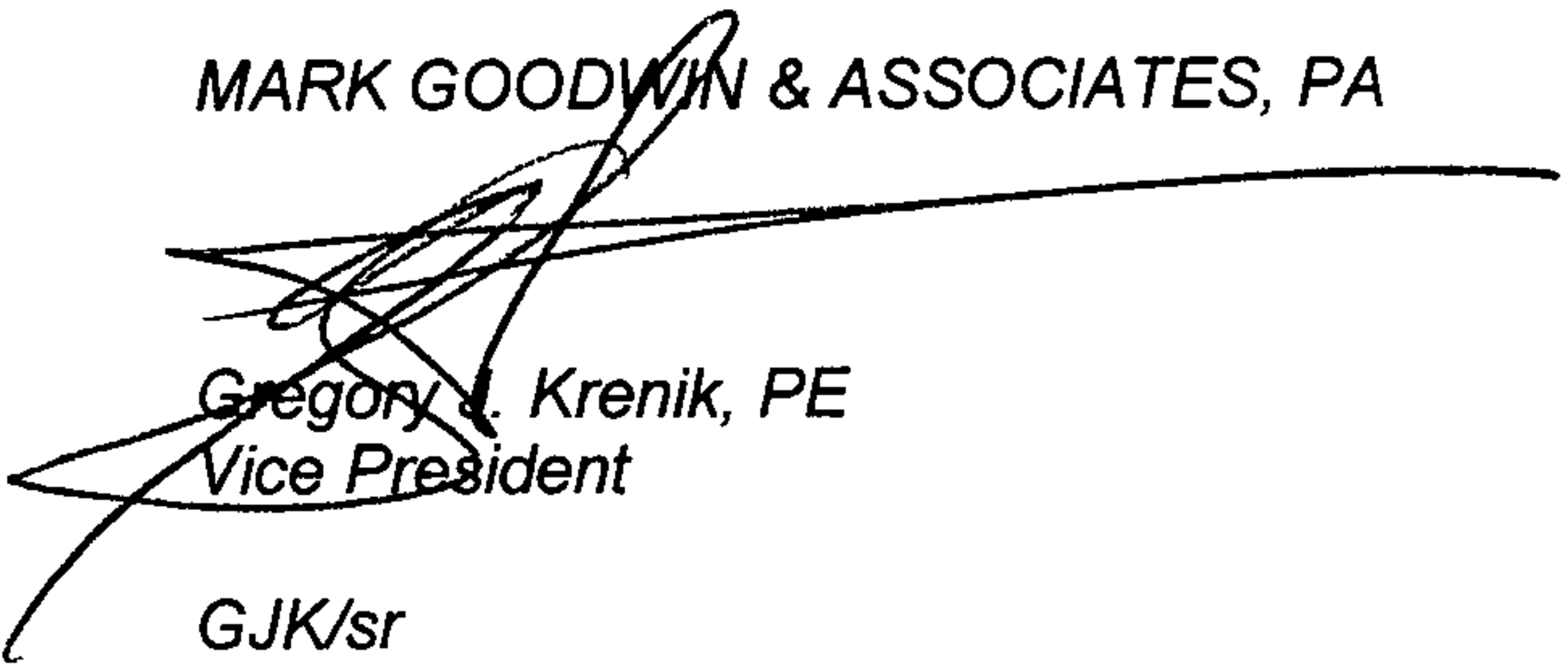
Dear Ms. Matson:

Our client is in the process of obtaining preliminary plat approval for the referenced project. A site plan was required when we completed the Unit 1 preliminary plat. Since that time some changes have occurred. Unit lines have changed as well as lot layout at the south end. The existing site plan shows the entire subdivision but only Parcel 2-D was required to be site planned. The lot layout changes occur south of the required site plan area but the unit line changes occur within the site plan area.

Please contact our office if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, PA



*Gregory J. Krenik, PE
Vice President*

GJK/sr

Attachment



April 14, 2005

City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

RE: LETTER OF AGENCY – ANDERSON HEIGHTS

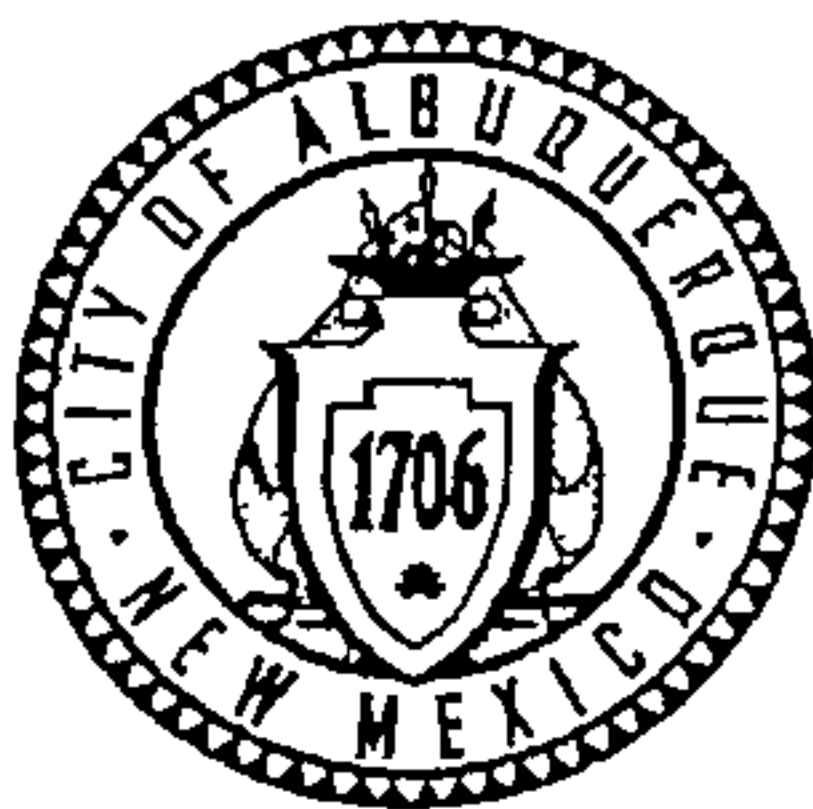
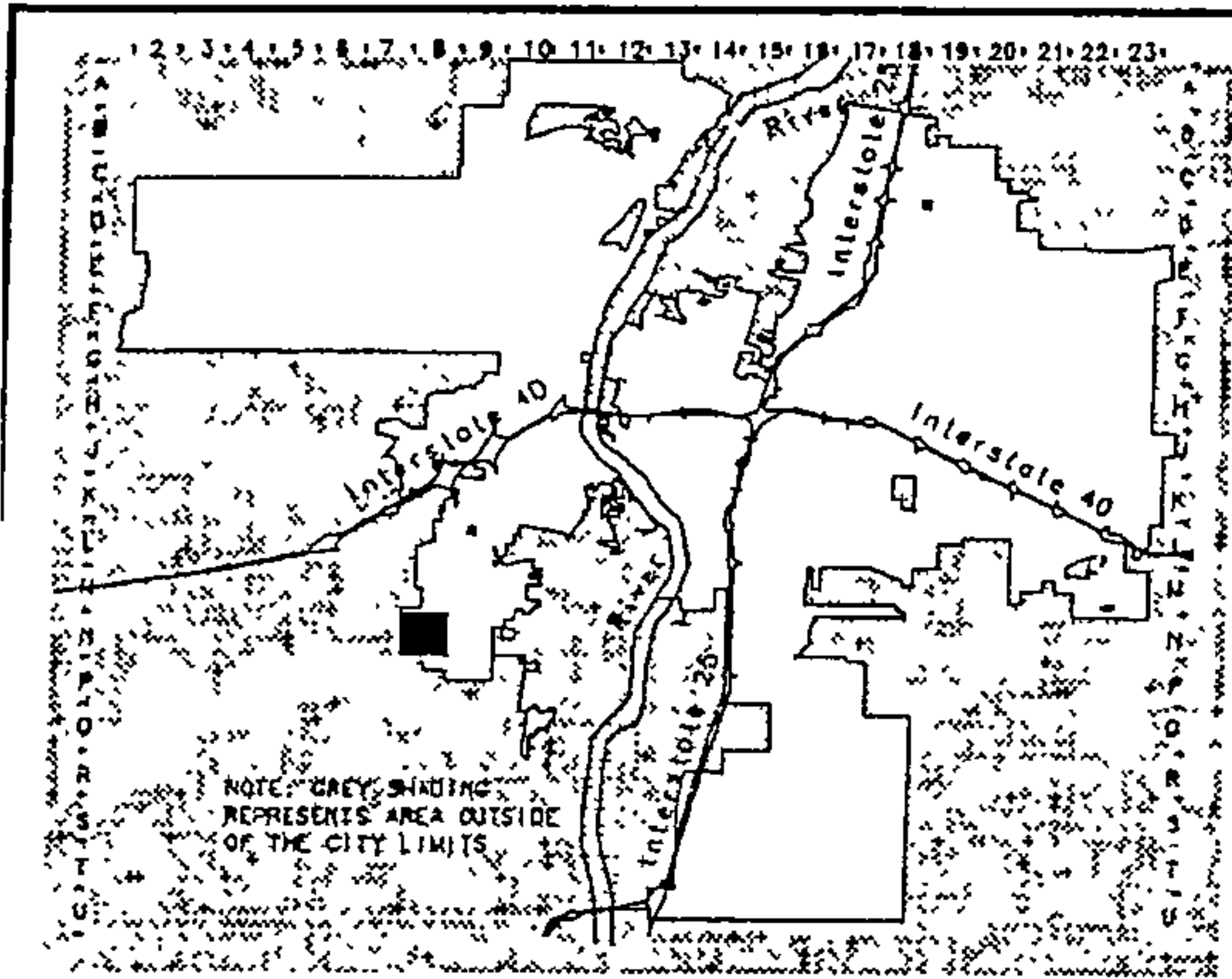
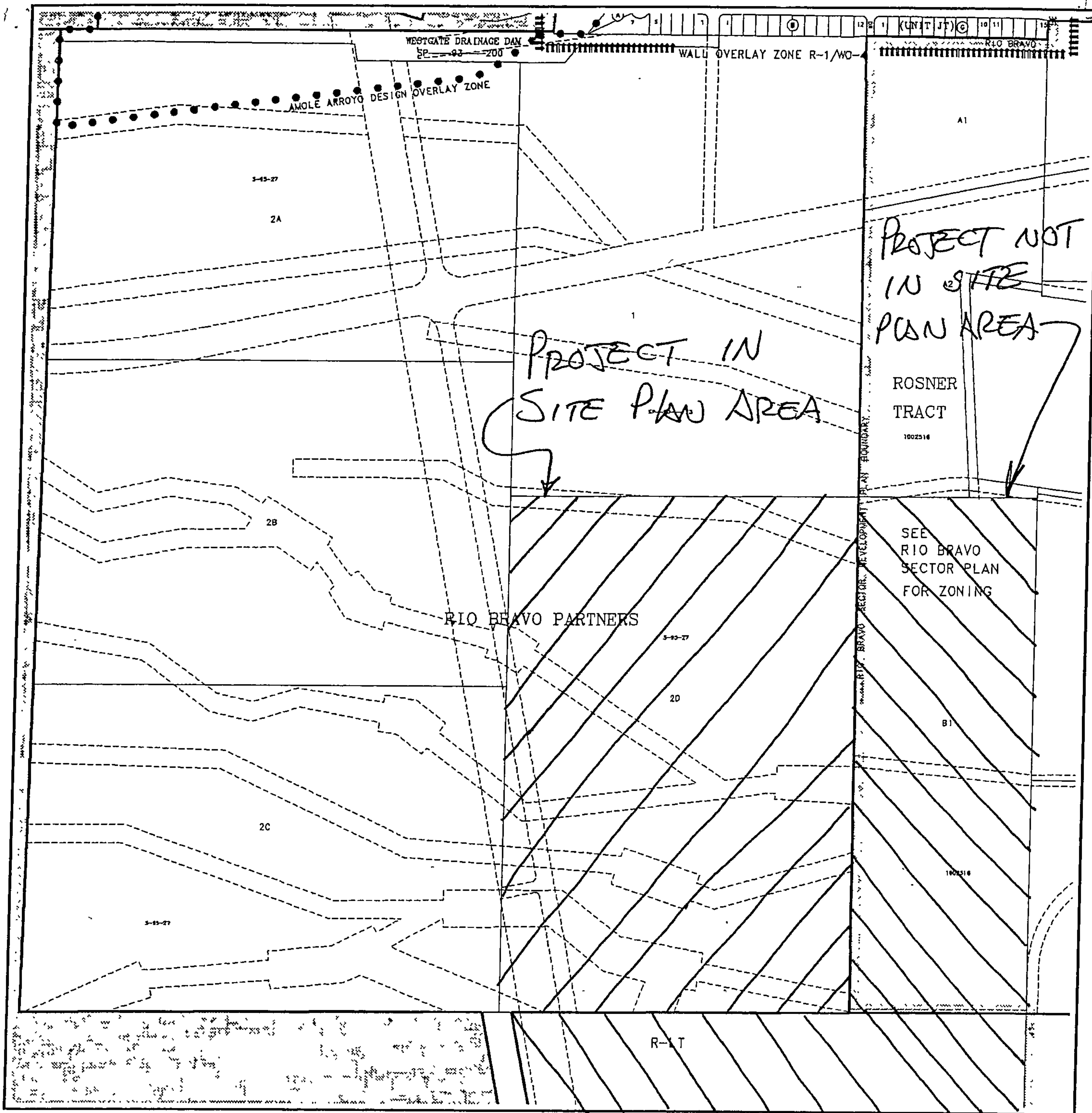
To Whom It May Concern:

Please be advised that representatives from D. Mark Goodwin and Associates are hereby authorized to act on behalf KB Home New Mexico Inc., for site submittal and other related land planning and civil engineering work associated therewith. Please feel free to contact this office if you have any questions.

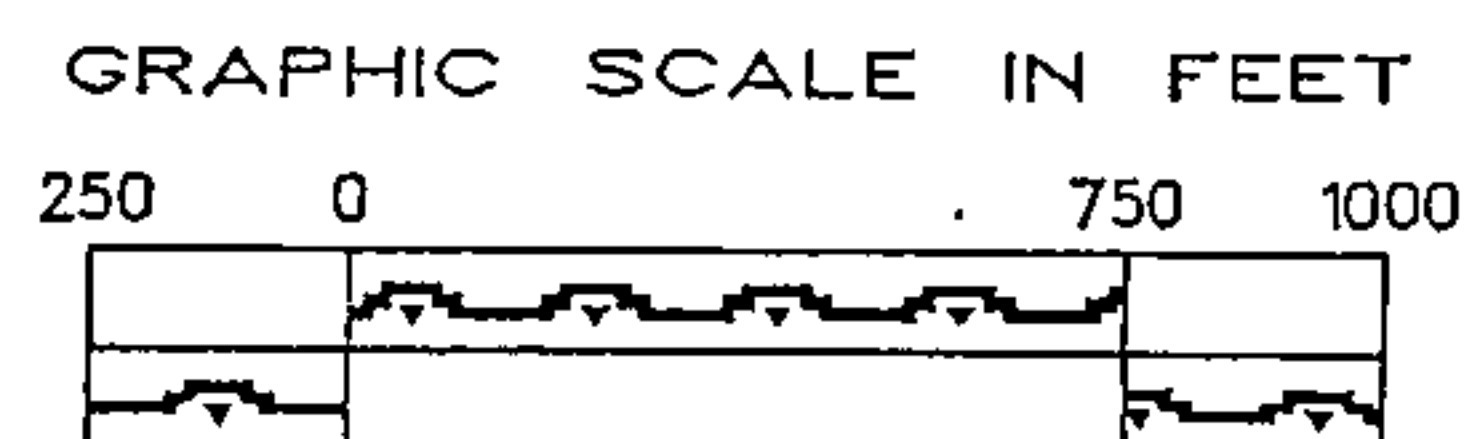
Best regards,

A handwritten signature in black ink, appearing to read "Robert H. Coleman", written over the typed name.

ROBERT H. COLEMAN, Ph.D.
Director, Land



Albuquerque **G**eographic **I**nformation **S**ystem
PLANNING DEPARTMENT
 © Copyright 2003



Zone Atlas Page

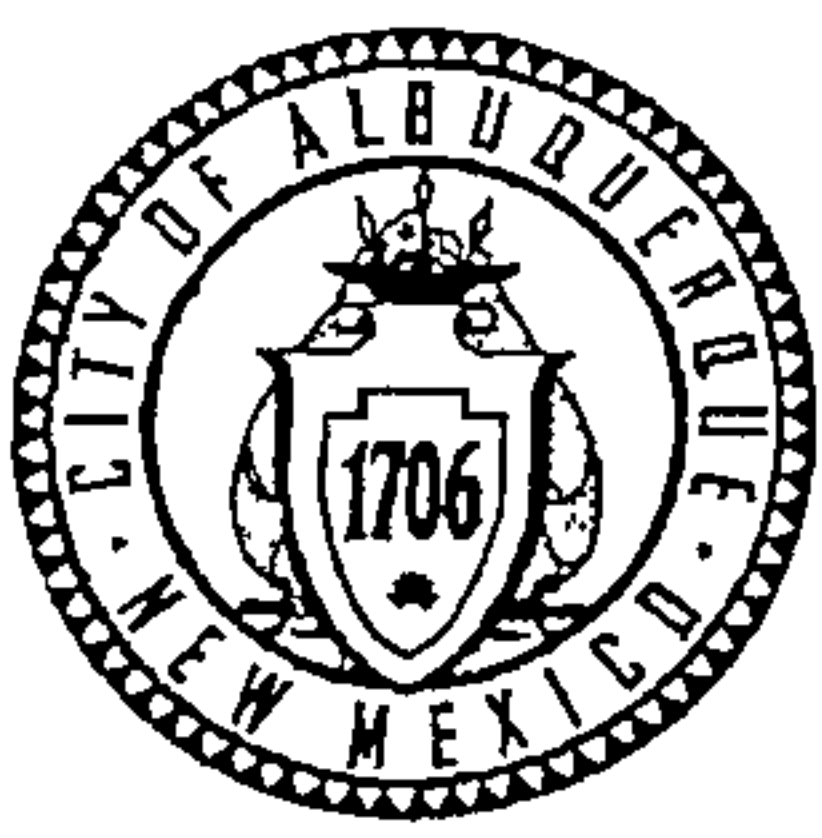
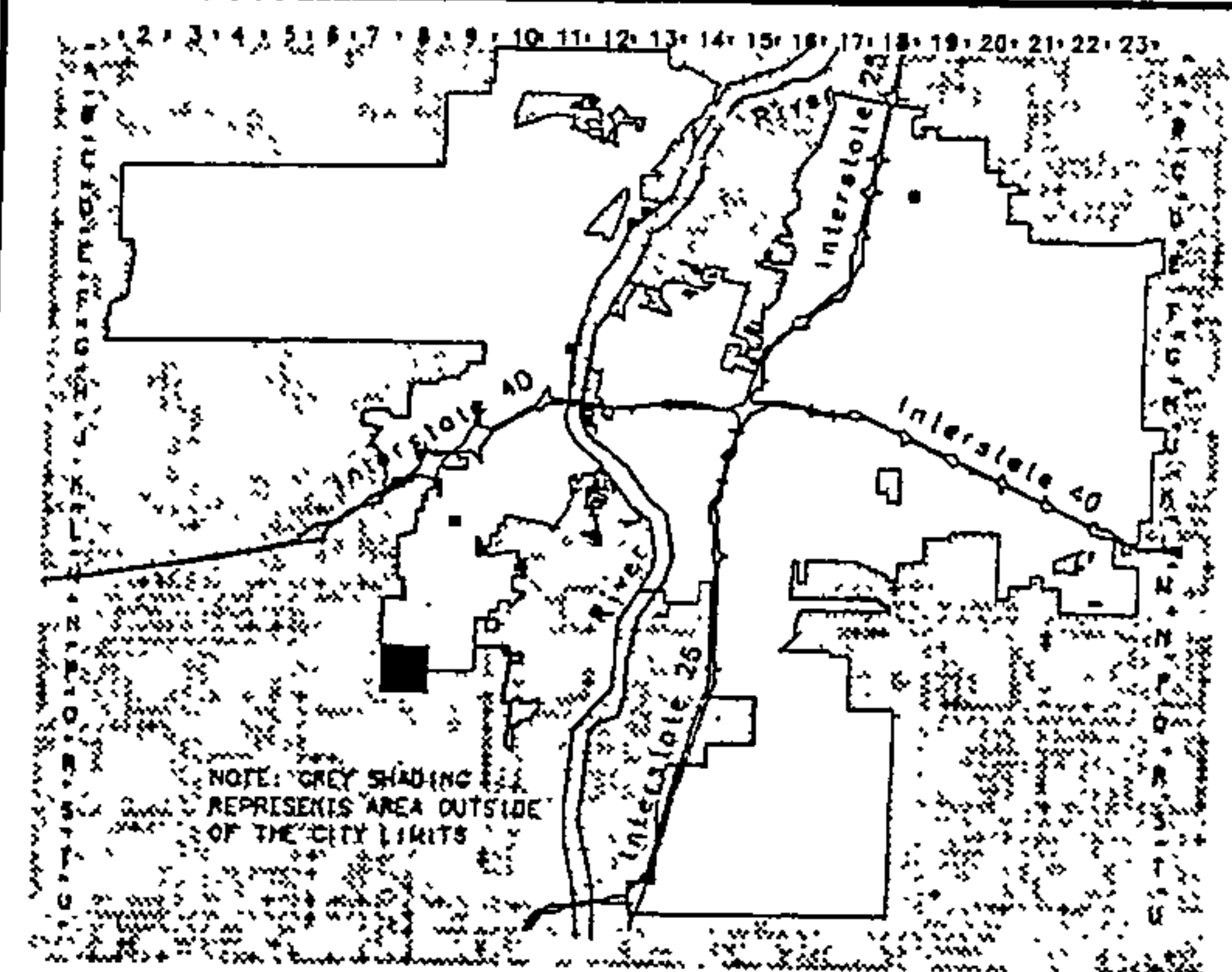
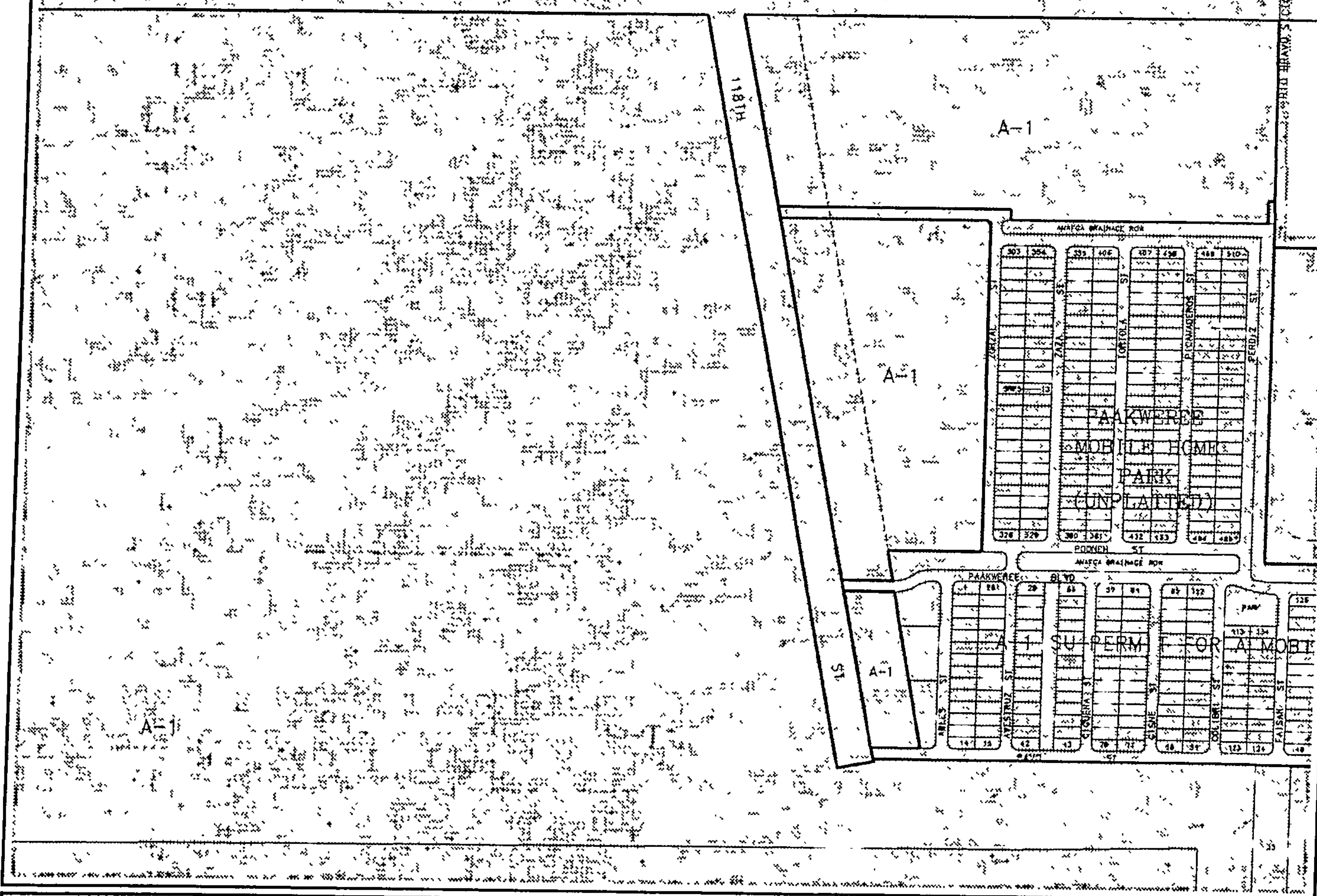
N-8-Z

Map Amended through November 01, 2003

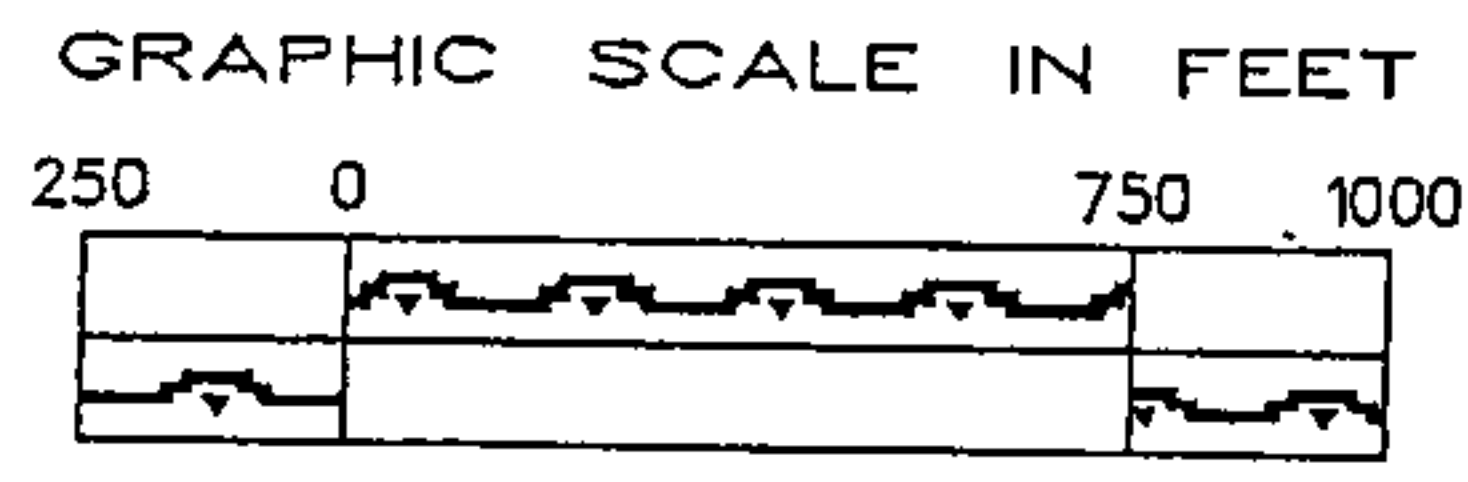
PROJECT IN
SITE PLAN AREA

PROJECT NOT IN
SITE PLAN AREA

DENNIS CHAVEZ BLVD



Albuquerque Geographic Information System
PLANNING DEPARTMENT
© Copyright 2003



Zone Atlas Page
P-8-Z
Map Amended through November 01, 2003