



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 16, 2003

Gregory J. Krenik, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

**Re: El Rancho Grande Subdivision, Unit 9A Revised Drainage Report
Engineer's Stamp dated 12-5-02 (N9/D3)**

Dear Mr. Krenik,

Based upon the information provided in your submittal dated 12-6-02, the above referenced plan is approved for Work Order. This plan is now the plan that must be certified for SIA release; the previous plan is now void. .

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept
Development and Building Services

C: file

(REV.1/11/2002)

N-9/D3

ZONE MAP/DRB.FILE#:

EPC#

WORK ORDER#:

CITY ADDRESS:

CONTACT:

PHONE: 828-2200

ZIP CODE: 87119

CONTACT: Bo Johnson

PHONE: 450-4616

ZIP CODE: 87110

CONTACT:

PHONE:

ZIP CODE:

CONTACT:

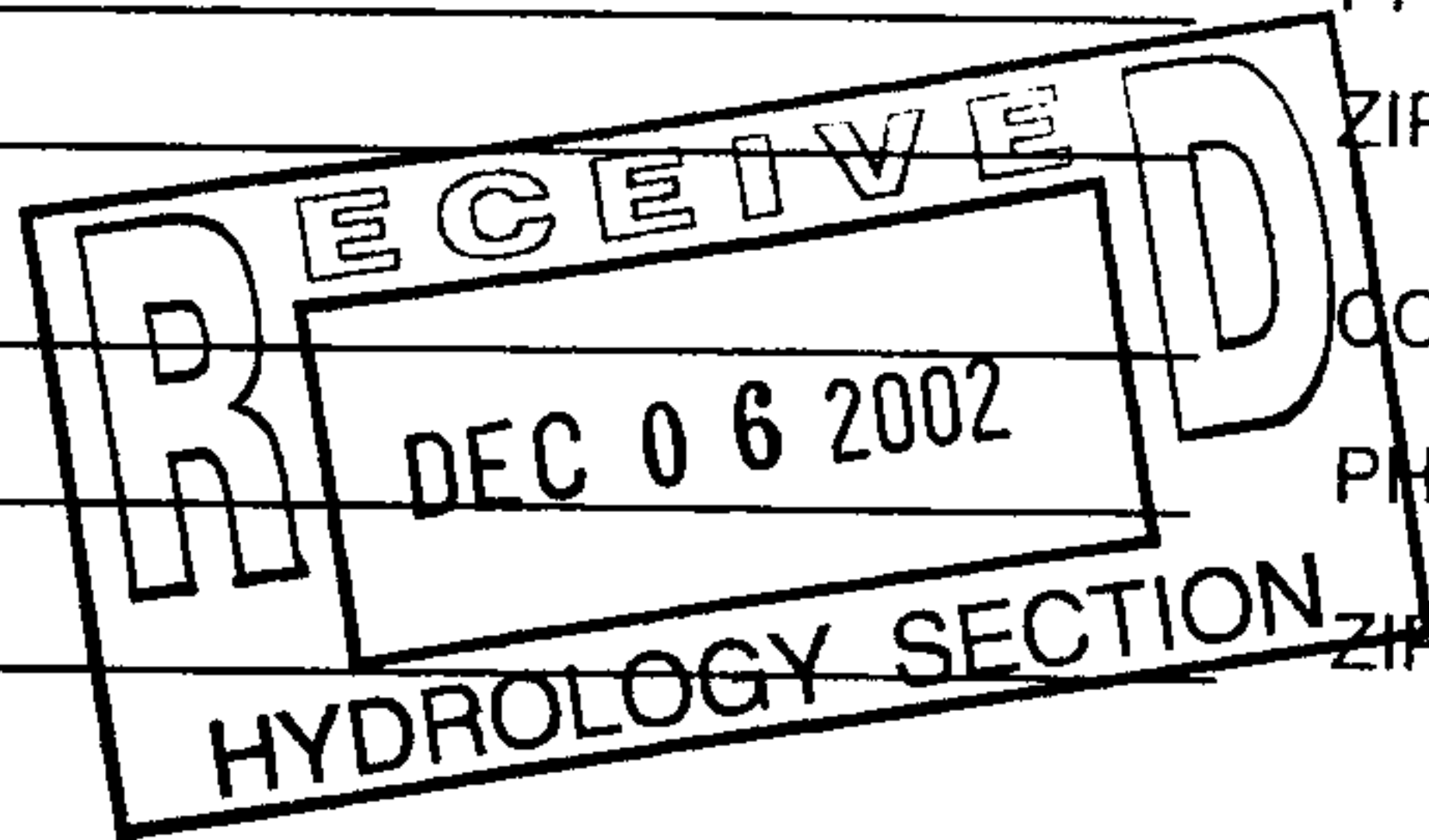
PHONE:

ZIP CODE:

CONTACT:

PHONE:

~~ZIP~~ CODE:



CHECK TYPE OF APPROVAL SOUGHT:

	SIA / FINANCIAL GUARANTY RELEASE
X	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)
X	GRADING PERMIT APPROVAL
	PAVING PERMIT APPROVAL
	WORK ORDER APPROVAL
	OTHER (SPECIFY)

YES

NO

COPY PROVIDED

DATE SUBMITTED: 12-6-02

BY:

~~Gregory J. Kreniuk, PE~~

Requests for approvals of Site Development Plans and/or Subdivision Plans 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).
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5).
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

城
城
城
城



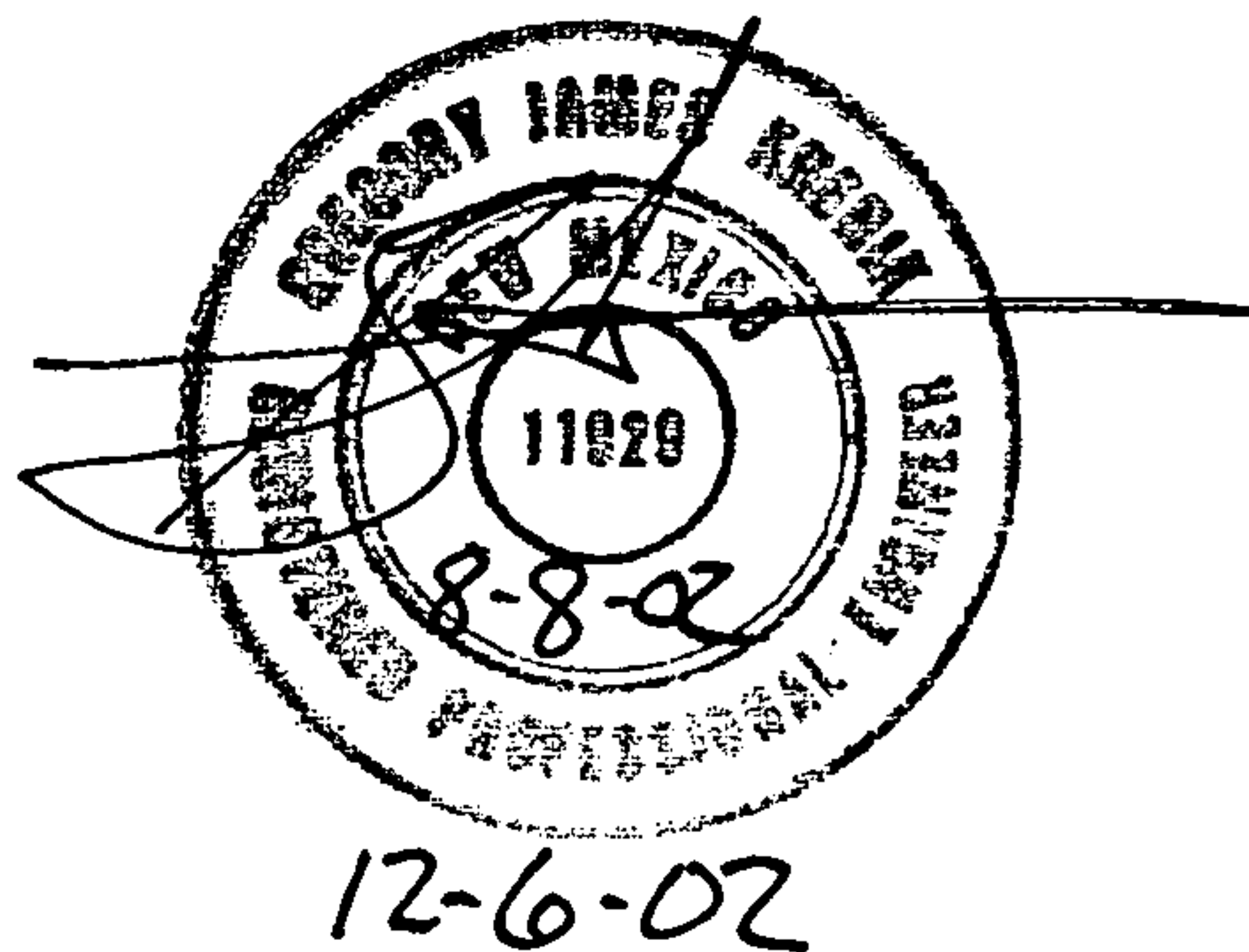
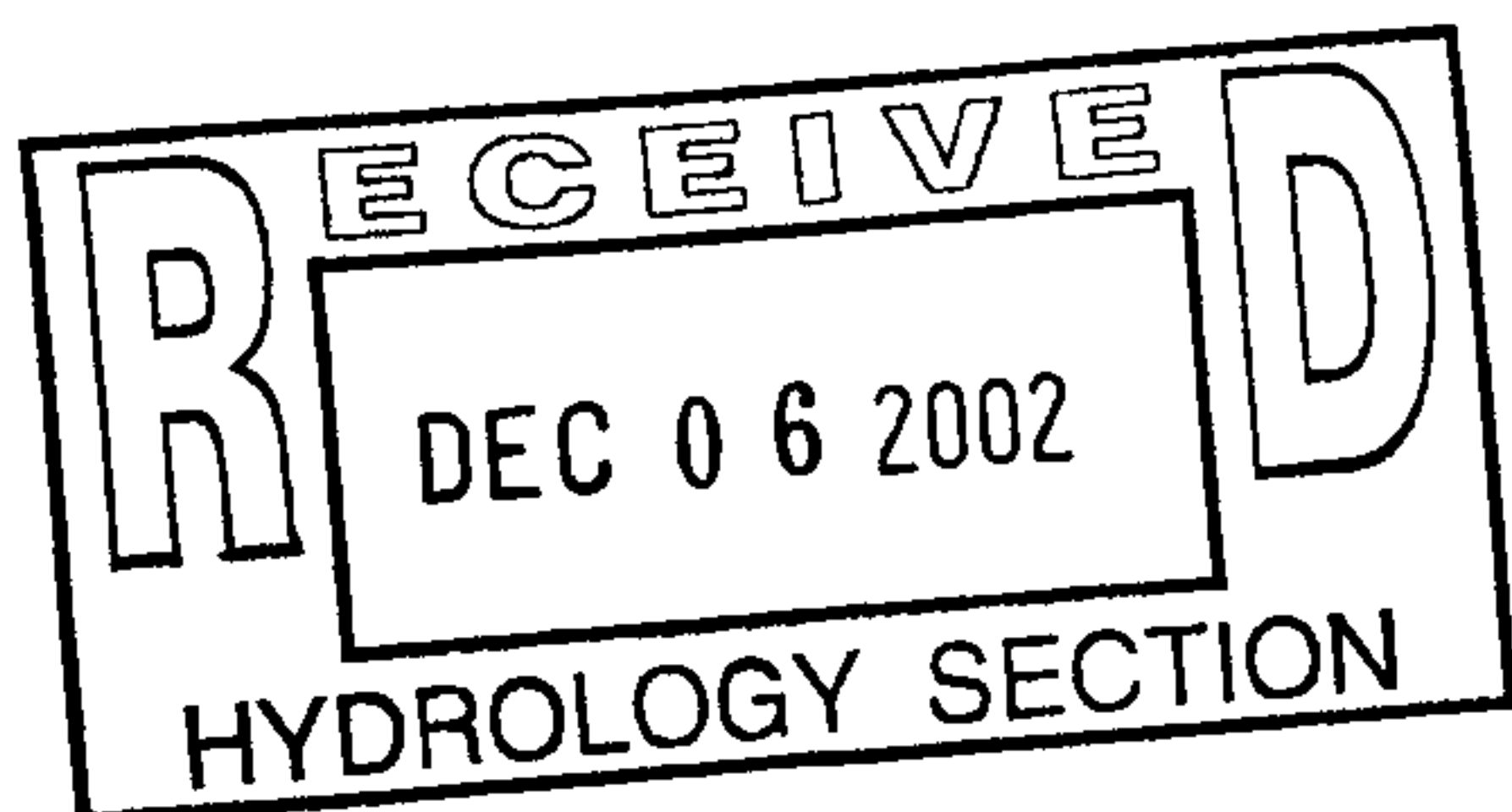
解題

MARK GOODWIN

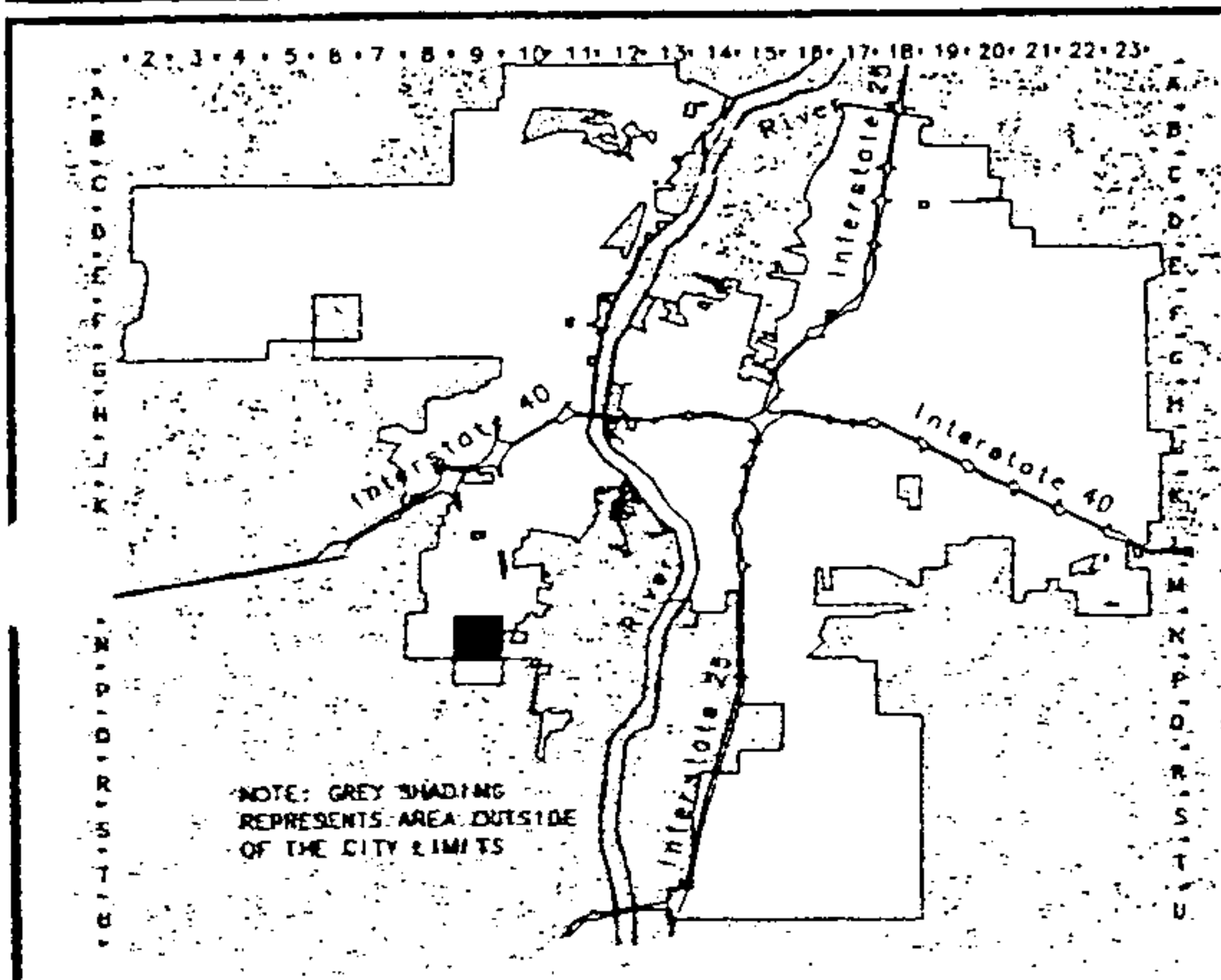
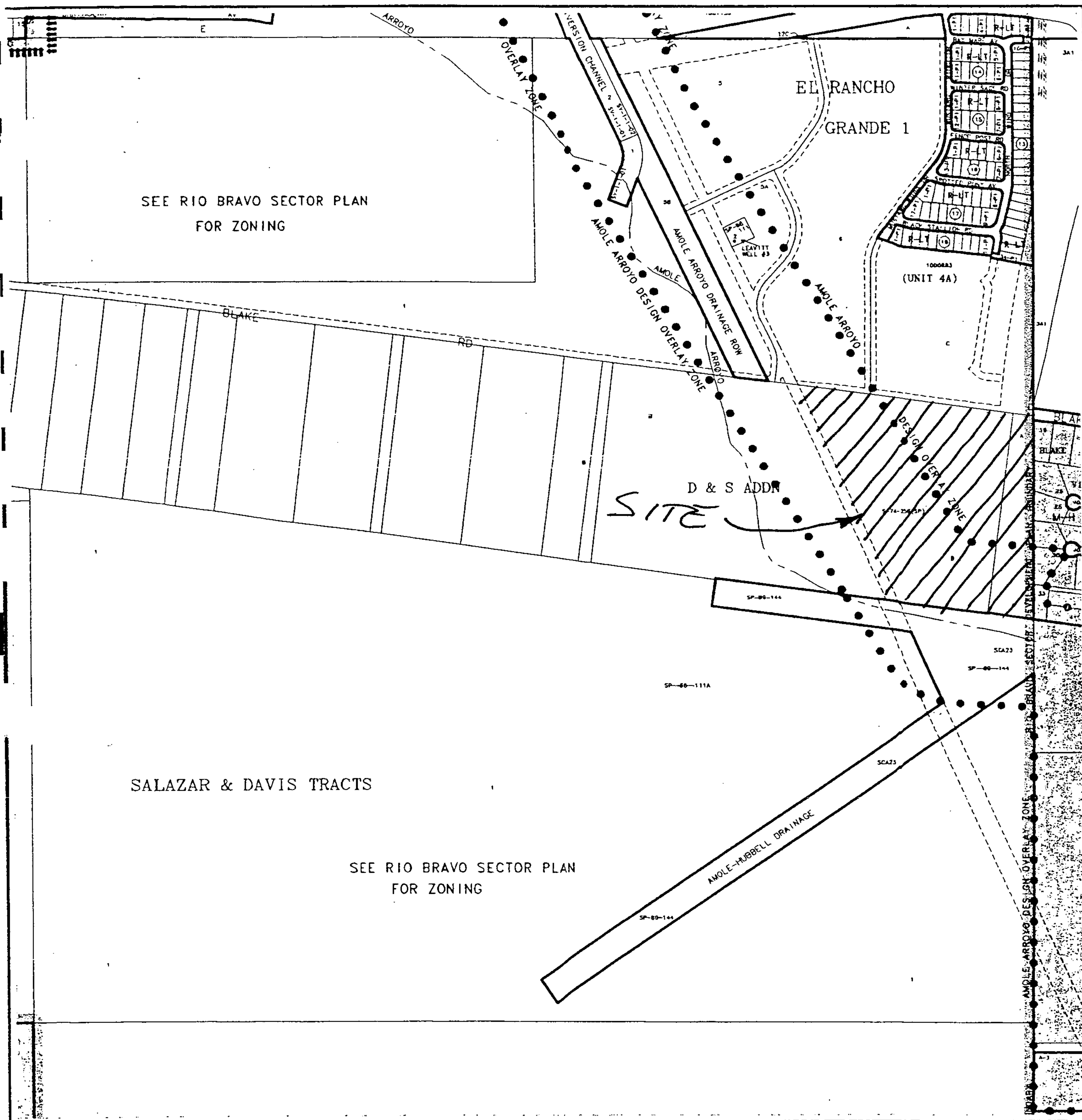
& ASSOCIATES

dmg

DRAINAGE REPORT
for
EL RANCHO GRANDE I
UNIT 9A & 9B



August 2002

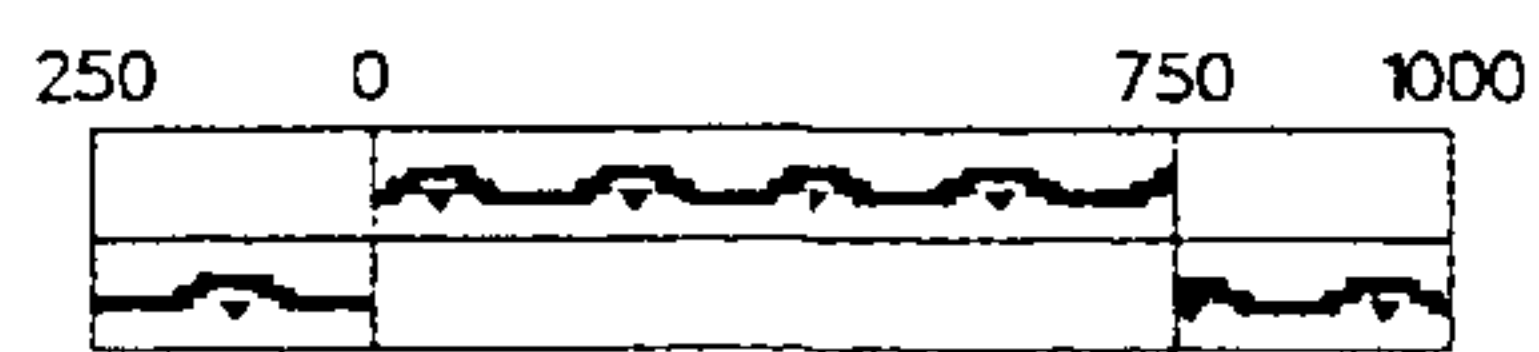


CITY OF
Albuquerque

Albuquerque Geographic Information System
PLANNING DEPARTMENT

© Copyright 2002

GRAPHIC SCALE IN FEET



Zone Atlas Page

N-9-Z

Map Amended through April 02, 2002



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

PROJECT EL RANCHO GRANDE I-9A

SUBJECT DRAINAGE CALCS

BY GJK DATE 8-1-02

CHECKED _____ DATE _____

SHEET 1 OF _____

- THIS PROJECT WAS PART OF THE EL RANCHO GRANDE I-UNIT 4 MASTER PLAN PREPARED BY MARK GOODWIN & ASSOCIATES
- SITE IS BORDED BY BLAKE ROAD SW ON THE NORTH, UNSER BLVD TO THE EAST, THE AMOLE-HUBBELL-BORREGA DRAINAGE RIGHT OF WAY TO THE SOUTH AND THE 150' AMAFLA SNOW VISTA ARROYO DRAINAGE EASEMENT TO THE WEST.
- THE PROJECT IS TO HAVE FREE DISCHARGE TO THE 42" RCP STUBOUT THAT WAS PROVIDED TO THE PROPERTY WHEN THE UNSER BLVD STORMDRAIN WAS INSTALLED WITH EL RANCHO GRANDE UNIT 4B. THE STORMDRAIN WILL OUTFALL WHERE THE FUTURE SNOW VISTA CHANNEL IS TO BE CONSTRUCTED.
- TOTAL PROJECT CONSISTS OF 28.0223 AC
AREA OF UNSER = 4.5106 AC
AREA OF UNSER OUTSIDE OF 156' ROW = $4.5106 - 3.8398$
 $= 0.6708$ AC
AREA OF BLAKE ROAD = 0.9545 AC
AREA OF INTERIOR ROW = 4.1326 AC
- PER THE UNIT 4 REPORT

	BASIN	Q	D	C	B	A	AREA
UNSER	201	13.64	65	0	35	0	3.8
SITE	202	81.11	55	20	25	0	22.9
BLAKE	203	7.86	85	0	15	0	1.9

- THIS REPORT

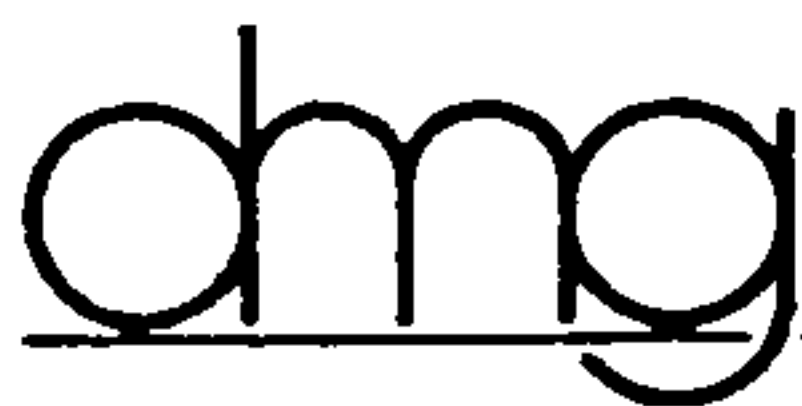
BASIN	AREA
UNSER ROW	4.5106
SITE	19.4317
1/2 BLAKE	0.9545
TRACT A	2.9255

- THE SITE HAS 74 - 50' LOTS AND 50 - 44' LOTS AND WILL BE SPLIT INTO 5 DRAINAGE SUB-BASINS. TOTAL LOTS = 123.

BASIN

1	DRAINS TO BASIN 4
2	DRAINS TO BASIN 3
3	DRAINS TO BASIN 4
4	DRAINS TO EXISTING STORMDRAIN IN UNSER
5	DRAINS TO BLAKE

TRACT A WILL DRAIN TO THE FUTURE AMOLE CHANNEL



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

PROJECT EL RANCHO GRANDE I - 9A
SUBJECT DRAINAGE CALCS
BY GJK DATE 8-1-02
CHECKED _____ DATE _____
SHEET 2 OF _____

CALCULATE RUNOFF FOR EACH BASIN

SITE 19.6317 AC

123 LOTS 49 x 34' x 65' PADS = 108,290 SF 36.55%

49 x 20' x 20' DRIVES = 19,600 SF

127,890 SF

74 x 40' x 65' PAD = 192,400 SF

74 x 20' x 20' DRIVES = 29,600 SF 63.45%

222,000 SF

= 8.0324 AC TYPE "D"

ROW 4.1326 AC

3.3061 AC TYPE "D" 80%

0.8265 AC TYPE "B" 20%

TOTAL TYPE "D" = 8.0324 + 3.3061 = 11.3385 AC = 57.76%

TYPE "B" = 21.12 %

TYPE "C" = 21.12 %

FROM AHYMO OUTPUT SHEETS 9-11

Q = 70.81 CFS

• FOR 50' LOTS - Q PER LOT

$Q_L = 70.81 (0.6345) / 74 = 0.6071$ CFS

• FOR 44' LOTS - Q PER LOT

$Q_L = 70.81 (0.3655) / 49 = 0.5282$ CFS

BASIN	50' LOTS	44' LOTS	Q CFS
1	38	12	29.41
2	9	16	13.92
3	24	21	25.66
4	3	0	1.82
			70.81

REVISE BASIN 3 AND ADD BASIN 5

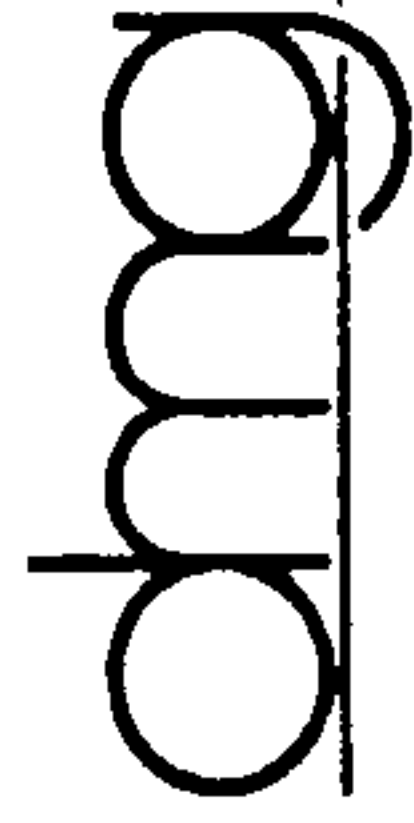
AREA OF BASIN 5 = 13 LOTS x 50' x 25' = 16,250 SF
50% "B" 50% "C" = 0.3730 AC

FROM AHYMO OUTPUT SHEETS 12-14

Q = 0.93 CFS (THIS WILL BE ADDED TO BUKE RD)

Q per LOT = 0.93 / 13 = 0.0715 CFS

BASIN 3 WILL HAVE THIS SUBTRACTED FROM IT. Q = 24.73 CFS



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

PROJECT EL BUREHO GRAVITY - 9A
SUBJECT DRAINAGE CALCS
BY GSK DATE 8-1-02
CHECKED _____ DATE _____
SHEET 3 OF _____

STREET HYDRAULICS

- FIND CAPACITY OF 28' F-F STD C+G AT 1st $n=0.017$

$$\begin{aligned}d &= 0.57 \\ WP &= 29.14 \\ A &= 9.83 \\ V &= 4.24 \text{ F/S} \\ Q &= 41.64 \text{ CFS} \\ d + V^2/2g &= 0.85 = 0.85 \text{ OK}\end{aligned}$$

- FIND CAPACITY OF 28' F-F MTBL CURB AT 2nd $n=0.017$

$$\begin{aligned}d &= 0.31 \\ WP &= 28.62 \\ A &= 4.175 \\ V &= 3.43 \text{ F/S} \\ Q &= 14.30 \text{ CFS} \\ d + V^2/2g &= 0.47 < 0.51 \text{ OK}\end{aligned}$$

- FIND CAPACITY OF 28' F-F MTBL CURB AT 1st $n=0.017$

$$\begin{aligned}d &= 0.33 \\ WP &= 28.66 \\ A &= 4.735 \\ V &= 2.63 \text{ F/S} \\ Q &= 12.46 \text{ CFS} \\ d + V^2/2g &= 0.44 < 0.51 \text{ OK}\end{aligned}$$

- FIND CAPACITY OF 28' F-F MTBL CURB AT 2.78² $n=0.017$

$$\begin{aligned}d &= 0.29 \\ WP &= 13.665 \\ A &= 1.81 \\ V &= 3.79 \text{ F/S} \\ Q &= 6.86 \text{ CFS} \\ d + V^2/2g &= 0.51 = 0.51 \text{ OK}\end{aligned}$$



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

PROJECT EL RUCHE GRANDE I-9A
SUBJECT RAINAGE CALCS
BY GJK DATE 8-14-02
CHECKED _____ DATE _____
SHEET 4 OF _____

- MOUNTABE TO STD CURB TRANSITIONS WILL OCCUR ON BUTCH CASSIDY BETWEEN LOTS 51+52 BLOCK 1 AND LOTS 31+32 BLOCK 2 $\frac{1}{2}$ JESSE JAMES BETWEEN LOTS 8+9 BLOCK 3 AND LOTS 16+17 BLOCK 1.

- DETERMINE STORM DRAIN

FLOW ON BUTCH CASSIDY AT JESSE JAMES = 29.41 CFS

FLOW ON SUNDANCE KID AT JESSE JAMES = 13.92 CFS

FLOW ON JESSE JAMES AT BUTCH CASSIDY = 38.65 CFS

- INLETS WILL BE REQUIRED ON BOTH JESSE JAMES AND BUTCH CASSIDY WHERE THEY MEET.

INSTALL 2 "8" A" INLETS ON EACH STREET

- FIND d FOR BOTH STREETS

BUTCH CASSIDY

$$d = 0.50$$

$$WP = 29.00$$

$$A = 7.87$$

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

$$Q = 28.84 \text{ CFS} \approx 29.41 \text{ OK}$$

FROM NOMO SHEET 21

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

$$Q_{\text{PAST INLETS}} = 29.41 - 2(6.8) \\ = 15.81 \text{ CFS}$$

JESSE JAMES

$$d = 0.50$$

$$WP = 29.12$$

$$A = 9.55$$

$$V = 4.16 \text{ F/S}$$

$$Q = 39.70 \text{ CFS} \approx 38.65 \text{ OK}$$

FROM NOMO SHEET 21

$$Q_{\text{INLET}} = 8.2 \text{ CFS}$$

$$Q_{\text{PAST INLETS}} = 38.65 - 2(8.2) \\ = 22.25 \text{ CFS}$$

- TOTAL FLOW TO BUTCH CASSIDY STUB

$$Q = 15.81 + 22.25$$

$$= 38.06 \text{ CFS} \quad \text{TOO MUCH FLOW FOR 25' F-F TRY AGAIN}$$

ADD 2 "8" A" INLETS ON SUNDANCE KID

$$d = 0.40$$

$$WP = 28.80$$

$$A = 5.07$$

$$V = 2.75 \text{ F/S}$$

$$Q = 13.92 \text{ CFS} \approx 13.92 \text{ OK}$$

$$d + V^2/2g = 0.52$$

FROM NOMO SHEET 22

$$Q_{\text{INLET}} = 3.7$$



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

PROJECT EL PASO COUNTY MODEL-9A
SUBJECT DRAINAGE CALCS
BY GM DATE 8-1-02
CHECKED _____ DATE _____
SHEET 5 OF _____

REVISED 12-4-02

- TOTAL FLOW PAST GATES INTO JESSE JAMES

$$Q = 13.92 - 2(3.7) \\ = 6.52 \text{ cfs}$$

- REVISED FLOW IN JESSE JAMES AT BUTCH CASSIDY

$$Q = 24.73 + 6.52 \\ = 31.25 \text{ cfs}$$

$$d = 0.51$$

$$WP = 29.02$$

$$A = 8.43$$

$$V = 3.83 \text{ F/s}$$

$$Q = 32.32 \approx 31.25 \text{ OK}$$

ADD 2 - "DBL A" INLETS

FROM NOMO SHEET 21

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

$$Q_{\text{PAST INLETS}} = 31.25 - 2(7.0) \\ = 17.25 \text{ cfs}$$

- REVISED TOTAL FLOW TO BUTCH CASSIDY STUB

$$Q = 15.81 \text{ cfs} + 17.25 \text{ cfs} + 0.6017 \\ = 33.66 \text{ cfs}$$

25' F-F NO CROWN

$$d = 0.27$$

$$WP = 25.54$$

$$A = 6.75$$

$$V = 5.09 \text{ F/s}$$

$$Q = 34.36 \text{ cfs} \approx 33.66$$

$$d + V^2/2g = 0.67 < 0.67 + 0.08 \text{ OK}$$

- SIZE TRENCH DRAIN / CATZLE GUARD INLET

$$Q = 33.66 \text{ cfs}$$

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

$$\text{INLET PERIMETER} = (25 + 2)2 = 54'$$

$$H = 0.35' < 0.67' \text{ OK}$$

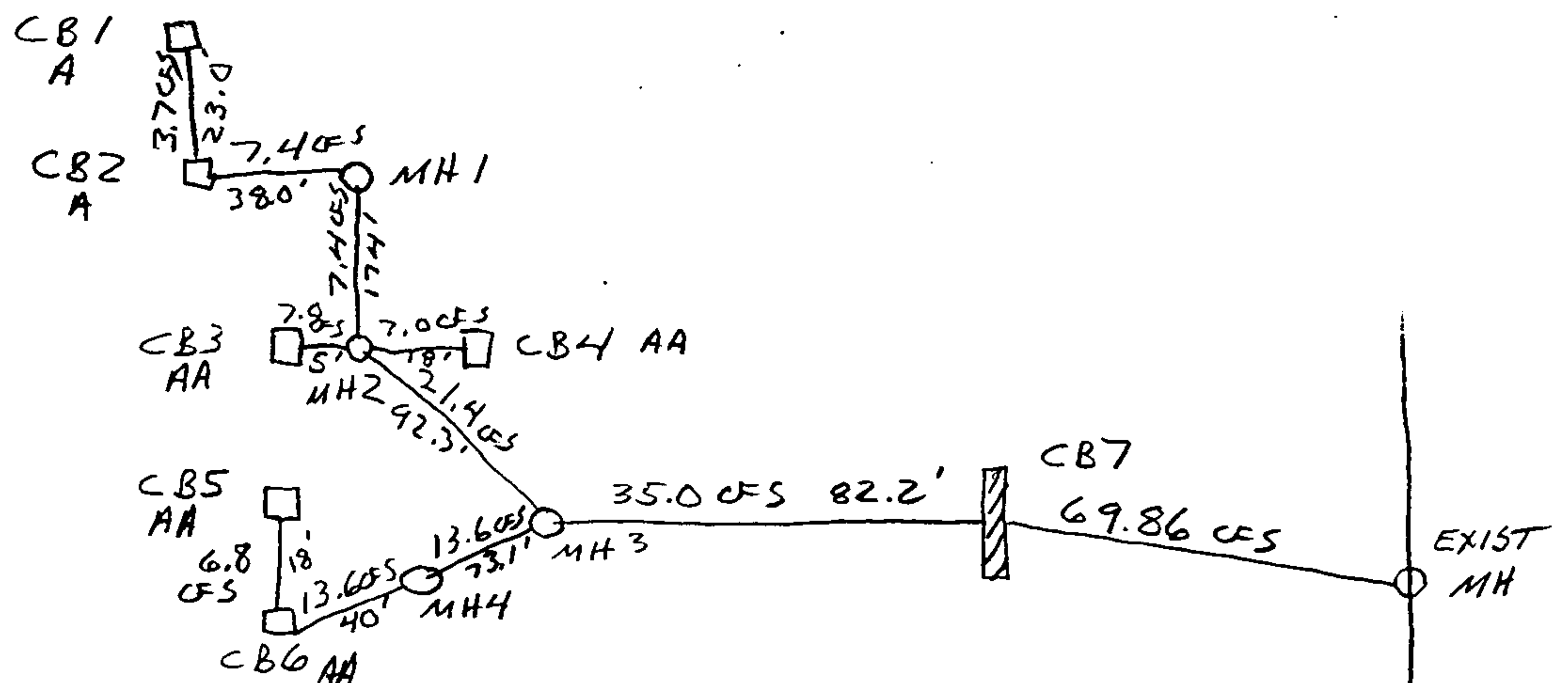
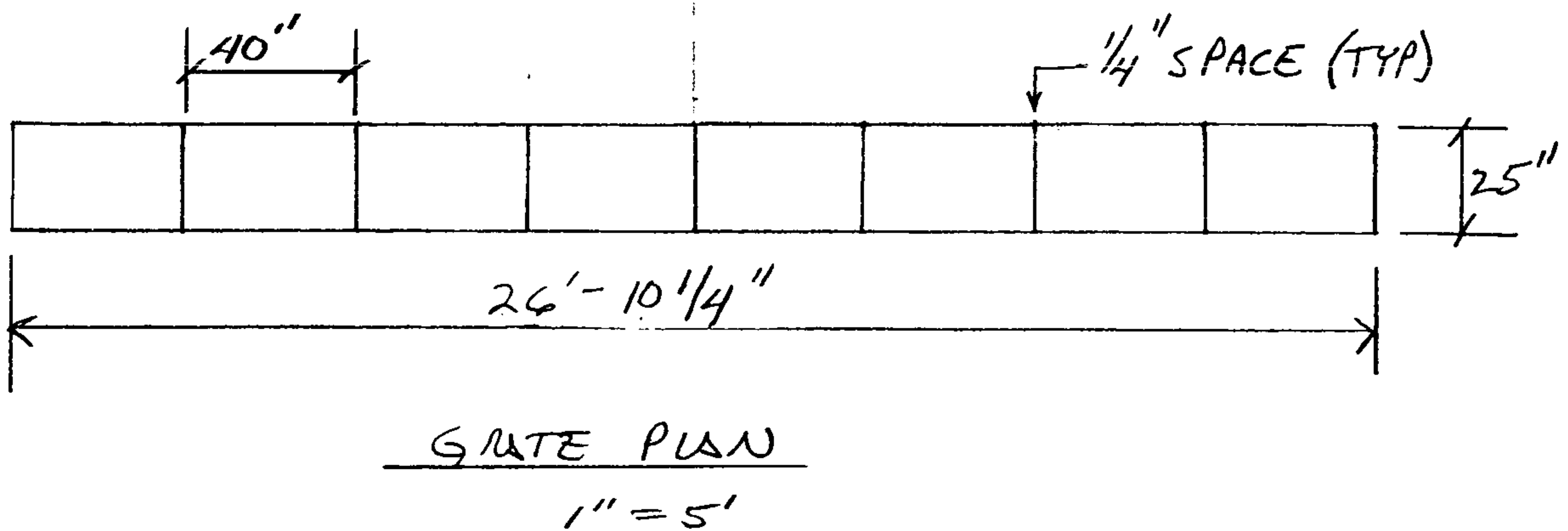
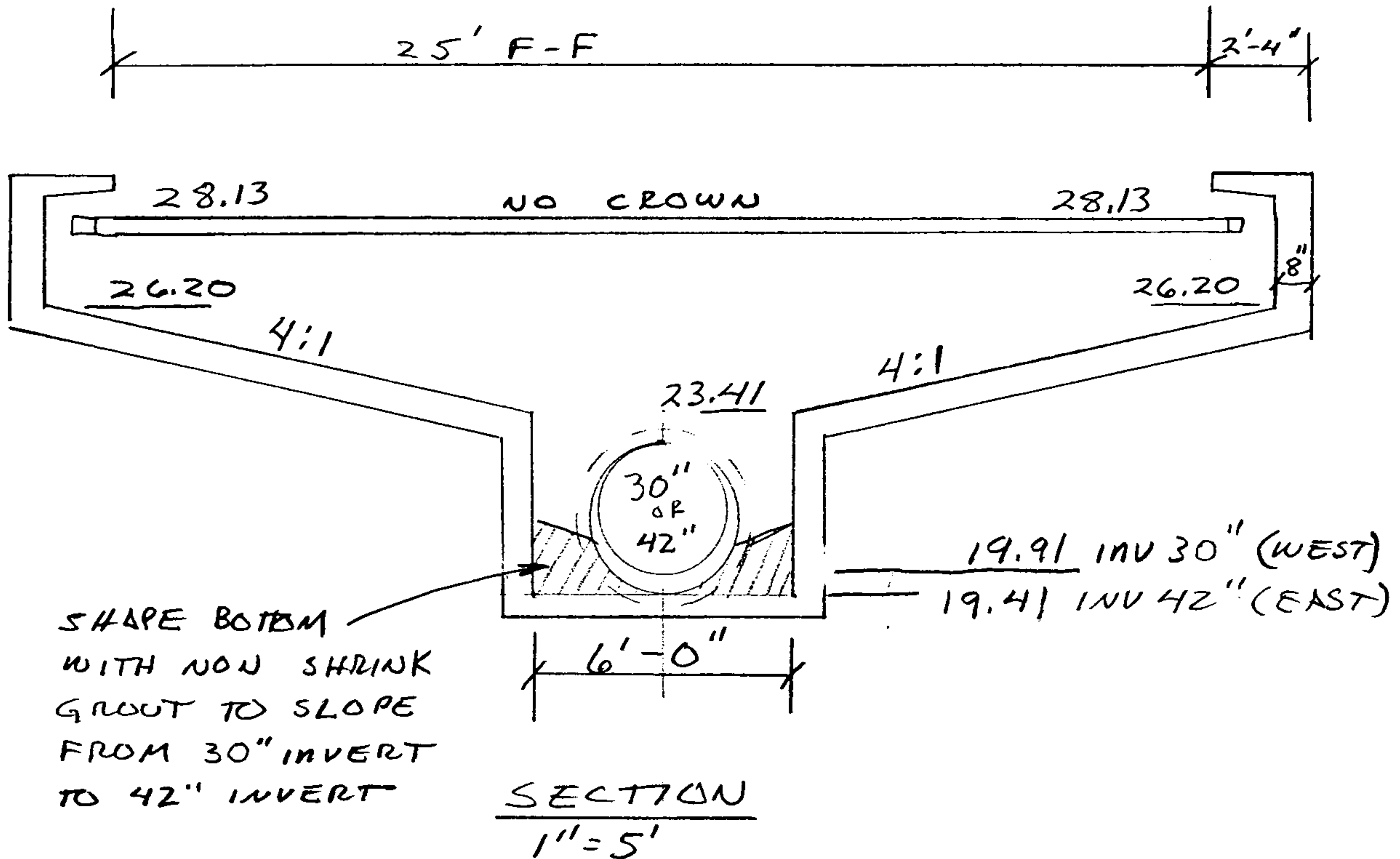


D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmgs@swcp.com

PROJECT EL RANCHO GRANDE I-9A
SUBJECT DRAINAGE CALCS
BY GJK DATE 8-1-02
CHECKED _____ DATE _____
SHEET 6 OF _____

REVISED 12-4-02





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

PROJECT EL RINCHON GRANDE I-94
SUBJECT DRAINAGE CALCS
BY GSK DATE 8-1-02
CHECKED _____ DATE _____
SHEET 7 OF _____

STRUCTURE	GRATE/RIM	INV	PIPE SIZE LEAVING	SLOPE LEAVING	Q CFS LEAVING
CB1	35.10	25.21	18"	1%	3.7
CB2	35.10	24.98	18"	1%	7.4
CB3	32.50	22.04	18"	1%	7.0
CB4	32.50	22.17	18"	1%	7.0
CB5	33.30	23.05	18"	1%	6.8
CB6	33.00	22.87	18"	2.0%	13.6
CB7	32.40	20.26	18"	1%	6.8
CB8	32.40	20.26	18"	1%	6.8
CB9	30.30	20.03	18"	1.5%	11.2
CB10	30.30	20.03	18"	1.5%	11.2
CB11	30.00	19.71	24"	1.5%	17.43
CB12	30.00	19.71	24"	1.5%	17.43
MH1	34.46	24.60	18"	1.5%	7.4
MH2	32.66	21.99	24"	1.5%	21.4
MH3	32.58	20.61	30"	1.5%	35.00
MH4	32.53	22.07	18"	2.0%	13.6
MH5	30.60	19.36	42"	1.0%	69.86
EXIST MH	30.39	18.39	54"	1.1%	209.3

FROM NOMO SHEET 24

18" AT 1% CARRIES 10.25 CFS
18" AT 1.5% CARRIES 13.0 CFS
24" AT 1.5% CARRIES 28.0 CFS
30" AT 1.5% CARRIES 50.0 CFS
42" AT 1.0% CARRIES 93.0 CFS
18" AT 2.0% CARRIES 14.5 CFS

- SIZE INLETS IN UNSER JUST NORTH OF THE FUTURE SNOW VISTA CHANNEL

$$A = 4.5106 \text{ AC}$$

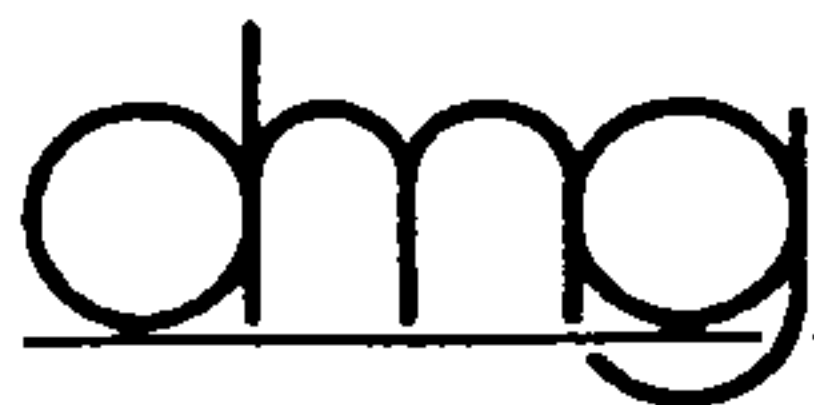
$$\text{AREA OF 156' ROW} = 3.8707 \text{ AC} \quad 62.82\% \text{ "D"} \quad 37.18\% \text{ "B"}$$

$$A_D = 3.8707 (0.6282) = 2.4316 \text{ AC}$$

$$A_C = 3.8707 - 2.4316 = 1.4391 \text{ AC}$$

FROM HYMO OUTPUT SHEETS 15-17

$$Q = 13.75 \text{ CFS}$$



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

PROJECT EL RANCHO GRANDE I-94
SUBJECT DRAINAGE CALCS
BY GSX DATE 8-1-02
CHECKED _____ DATE _____
SHEET 8 OF _____

- WE WILL SPLIT ROW IN HALF

$$Q_w = 13.75 / 2 \\ = 6.875 \text{ cfs}$$

- FIND RUNOFF FOR ADDITIONAL ROW ON EAST SIDE OF UNSER

$$A = 4,5106 - 3,8707 \\ = 0.6399 \text{ AC} \\ 100\% \text{ "B"}$$

FROM 444MO OUTPUT SHEETS 18-20
 $Q = 1.33 \text{ cfs}$

- FROM THE UNSER PROFILES 26.49% OF UNSER DRAINS TO BLAKE ROAD AND 41.09% OF ADDITIONAL UNSER ROW DRAINS TO BLAKE RD.

- FIND Q IN UNSER EAST SIDE AT CHANNEL

$$Q_E = 6.875 - 6.875(0.2649) + 1.33 - 1.33(0.4109) \\ = 5.84 \text{ cfs}$$

- FIND Q IN UNSER WESTSIDE AT CHANNEL

$$Q_w = 6.875 - 6.875(0.2649) \\ = 5.05 \text{ cfs}$$

USE A "DBL A" INLET ON EACH SIDE

WEST SIDE

EAST SIDE

$$d = 0.37 \\ wP = 14.375 \\ A = 2.1156 \\ V = 2.437 \text{ F/S} \\ Q = 5.16 \text{ cfs} \approx 5.05 \text{ cfs}$$

$$d = 0.39 \\ wP = 15.64 \\ A = 2.41 \\ V = 2.51 \text{ F/S} \\ Q = 6.06 \text{ cfs} \approx 5.84 \text{ cfs}$$

FROM NOMO SHEET 21

$$Q_{GATE} = 3.6 \text{ cfs}$$

$$Q_{GATE} = 3.9 \text{ cfs}$$

- Q PAST INLETS CONTINUING SOUTH ON UNSER

$$Q = 5.05 - 3.6 \\ = 1.45 \text{ cfs}$$

$$Q = 5.84 - 3.9 \\ = 1.94 \text{ cfs}$$

18" CONNECTOR PIPES WILL BE USED
TO TIE TO EXIST. STORM DRAIN

START TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNIT 9A
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.90 IN RAIN SIX=2.20 IN
RAIN DAY=2.70 IN DT=0.03333 HR
COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.030675 SQ MI
PER A=0 B=21.12 C=21.12 D=57.76
TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1
FINISH

9
坡
坡
坡
坡

10

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 08/02/2002
 START TIME, (HR:MIN:SEC) = 10:19:47 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI9A.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNIT 9A
 RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=1.90 IN RAIN SIX=2.20 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	.0013	.0027	.0041	.0055	.0069	.0084
.0099	.0115	.0131	.0147	.0164	.0181	.0199
.0217	.0236	.0256	.0276	.0296	.0318	.0340
.0363	.0387	.0412	.0438	.0465	.0493	.0523
.0554	.0587	.0622	.0675	.0731	.0791	.0920
.1208	.1651	.2289	.3159	.4302	.5759	.7574
.9790	1.1846	1.2704	1.3429	1.4074	1.4661	1.5201
1.5702	1.6171	1.6610	1.7023	1.7413	1.7781	1.8130
1.8460	1.8774	1.9071	1.9353	1.9621	1.9681	1.9736
1.9789	1.9839	1.9887	1.9932	1.9976	2.0018	2.0059
2.0098	2.0136	2.0172	2.0208	2.0242	2.0275	2.0308
2.0339	2.0370	2.0400	2.0430	2.0458	2.0486	2.0514
2.0540	2.0567	2.0592	2.0617	2.0642	2.0666	2.0690
2.0714	2.0737	2.0759	2.0781	2.0803	2.0825	2.0846
2.0867	2.0887	2.0907	2.0927	2.0947	2.0966	2.0985
2.1004	2.1023	2.1041	2.1059	2.1077	2.1095	2.1112
2.1130	2.1147	2.1164	2.1180	2.1197	2.1213	2.1229
2.1245	2.1261	2.1277	2.1292	2.1307	2.1322	2.1337
2.1352	2.1367	2.1382	2.1396	2.1410	2.1425	2.1439
2.1452	2.1466	2.1480	2.1494	2.1507	2.1520	2.1533
2.1547	2.1560	2.1572	2.1585	2.1598	2.1611	2.1623
2.1635	2.1648	2.1660	2.1672	2.1684	2.1696	2.1708
2.1720	2.1731	2.1743	2.1754	2.1766	2.1777	2.1789
2.1800	2.1811	2.1822	2.1833	2.1844	2.1855	2.1866
2.1876	2.1887	2.1897	2.1908	2.1918	2.1929	2.1939
2.1949	2.1960	2.1970	2.1980	2.1990	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.030675 SQ MI
 PER A=0 B=21.12 C=21.12 D=57.76
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 69.951 CFS UNIT VOLUME = .9992 B = 526.28
 P60 = 1.9000
 AREA = .017718 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 = 34.462 CFS UNIT VOLUME = 1.000 B = 354.54
 P60 = 1.9000
 AREA = .012957 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 = 1.48714 INCHES = 2.4329 ACRE-FeET
PEAK DISCHARGE RATE = 70.81 CFS AT 1.500 HOURS BASIN AREA =
.0307 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 10:19:47

START TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNIT 9A - BASIN 5
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.90 IN RAIN SIX=2.20 IN
RAIN DAY=2.70 IN DT=0.03333 HR
COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.000583 SQ MI
PER A=0 B=50 C=50 D=0
TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1
FINISH

12

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 08/02/2002
START TIME (HR:MIN:SEC) = 10:31:58 USER NO.= M_GOODWN.I01
INPUT FILE = ERGI9A5.DAT

13
13

START TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNIT 9A - BASIN 5
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.90 IN RAIN SIX=2.20 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	.0013	.0027	.0041	.0055	.0069	.0084
.0099	.0115	.0131	.0147	.0164	.0181	.0199
.0217	.0236	.0256	.0276	.0296	.0318	.0340
.0363	.0387	.0412	.0438	.0465	.0493	.0523
.0554	.0587	.0622	.0675	.0731	.0791	.0920
.1208	.1651	.2289	.3159	.4302	.5759	.7574
.9790	1.1846	1.2704	1.3429	1.4074	1.4661	1.5201
1.5702	1.6171	1.6610	1.7023	1.7413	1.7781	1.8130
1.8460	1.8774	1.9071	1.9353	1.9621	1.9681	1.9736
1.9789	1.9839	1.9887	1.9932	1.9976	2.0018	2.0059
2.0098	2.0136	2.0172	2.0208	2.0242	2.0275	2.0308
2.0339	2.0370	2.0400	2.0430	2.0458	2.0486	2.0514
2.0540	2.0567	2.0592	2.0617	2.0642	2.0666	2.0690
2.0714	2.0737	2.0759	2.0781	2.0803	2.0825	2.0846
2.0867	2.0887	2.0907	2.0927	2.0947	2.0966	2.0985
2.1004	2.1023	2.1041	2.1059	2.1077	2.1095	2.1112
2.1130	2.1147	2.1164	2.1180	2.1197	2.1213	2.1229
2.1245	2.1261	2.1277	2.1292	2.1307	2.1322	2.1337
2.1352	2.1367	2.1382	2.1396	2.1410	2.1425	2.1439
2.1452	2.1466	2.1480	2.1494	2.1507	2.1520	2.1533
2.1547	2.1560	2.1572	2.1585	2.1598	2.1611	2.1623
2.1635	2.1648	2.1660	2.1672	2.1684	2.1696	2.1708
2.1720	2.1731	2.1743	2.1754	2.1766	2.1777	2.1789
2.1800	2.1811	2.1822	2.1833	2.1844	2.1855	2.1866
2.1876	2.1887	2.1897	2.1908	2.1918	2.1929	2.1939
2.1949	2.1960	2.1970	2.1980	2.1990	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.000583 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 = 1.5506 CFS UNIT VOLUME = .9914 B = 354.54
P60 = 1.9000
AREA = .000583 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 = .83181 INCHES = .0259 ACRE-FEET
PEAK DISCHARGE RATE = .93 CFS AT 1.500 HOURS BASIN AREA =
.0006 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 10:31:58

14

最
短
最
短

START TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNIT 9A - UNSER ROW
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.90 IN RAIN SIX=2.20 IN
RAIN DAY=2.70 IN DT=0.03333 HR
COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.006048 SQ MI
PER A=0 B=37.18 C=0 D=62.82
TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1
FINISH

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 08/08/2002
 START TIME (HR:MIN:SEC) = 15:46:21 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI9AU.DAT

16
 16
 16
 16

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNIT 9A - UNSER ROW
 RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=1.90 IN RAIN SIX=2.20 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	.0013	.0027	.0041	.0055	.0069	.0084
.0099	.0115	.0131	.0147	.0164	.0181	.0199
.0217	.0236	.0256	.0276	.0296	.0318	.0340
.0363	.0387	.0412	.0438	.0465	.0493	.0523
.0554	.0587	.0622	.0675	.0731	.0791	.0920
.1208	.1651	.2289	.3159	.4302	.5759	.7574
.9790	1.1846	1.2704	1.3429	1.4074	1.4661	1.5201
1.5702	1.6171	1.6610	1.7023	1.7413	1.7781	1.8130
1.8460	1.8774	1.9071	1.9353	1.9621	1.9681	1.9736
1.9789	1.9839	1.9887	1.9932	1.9976	2.0018	2.0059
2.0098	2.0136	2.0172	2.0208	2.0242	2.0275	2.0308
2.0339	2.0370	2.0400	2.0430	2.0458	2.0486	2.0514
2.0540	2.0567	2.0592	2.0617	2.0642	2.0666	2.0690
2.0714	2.0737	2.0759	2.0781	2.0803	2.0825	2.0846
2.0867	2.0887	2.0907	2.0927	2.0947	2.0966	2.0985
2.1004	2.1023	2.1041	2.1059	2.1077	2.1095	2.1112
2.1130	2.1147	2.1164	2.1180	2.1197	2.1213	2.1229
2.1245	2.1261	2.1277	2.1292	2.1307	2.1322	2.1337
2.1352	2.1367	2.1382	2.1396	2.1410	2.1425	2.1439
2.1452	2.1466	2.1480	2.1494	2.1507	2.1520	2.1533
2.1547	2.1560	2.1572	2.1585	2.1598	2.1611	2.1623
2.1635	2.1648	2.1660	2.1672	2.1684	2.1696	2.1708
2.1720	2.1731	2.1743	2.1754	2.1766	2.1777	2.1789
2.1800	2.1811	2.1822	2.1833	2.1844	2.1855	2.1866
2.1876	2.1887	2.1897	2.1908	2.1918	2.1929	2.1939
2.1949	2.1960	2.1970	2.1980	2.1990	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.006048 SQ MI
 PER A=0 B=37.18 C=0 D=62.82
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 15.000 CFS UNIT VOLUME = .9987 B = 526.28
 P60 = 1.9000
 AREA = .003799 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 = 5.5255 CFS UNIT VOLUME = .9978 B = 327.55
 P60 = 1.9000
 AREA = .002249 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

17
地
地
地
地
地

RUNOFF VOLUME = 1.48848 INCHES = .4801 ACRE-FEET
PEAK DISCHARGE RATE = 13.75 CFS AT 1.500 HOURS BASIN AREA =
.0060 SQ. MI.

.FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 15:46:22

18

最
最
最
最

```
START                TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNIT 9A - ADDITIONAL UNSER ROW
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.90 IN RAIN SIX=2.20 IN
                     RAIN DAY=2.70 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.001000 SQ MI
                     PER A=0 B=100 C=0 D=0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
FINISH
```

19
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 08/08/2002
START TIME (HR:MIN:SEC) = 15:48:29 USER NO.= M_GOODWN.I01
INPUT FILE = ERGI9AUR.DAT

START TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNIT 9A - ADDITIONAL UNSER ROW
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.90 IN RAIN SIX=2.20 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	.0013	.0027	.0041	.0055	.0069	.0084
.0099	.0115	.0131	.0147	.0164	.0181	.0199
.0217	.0236	.0256	.0276	.0296	.0318	.0340
.0363	.0387	.0412	.0438	.0465	.0493	.0523
.0554	.0587	.0622	.0675	.0731	.0791	.0920
.1208	.1651	.2289	.3159	.4302	.5759	.7574
.9790	1.1846	1.2704	1.3429	1.4074	1.4661	1.5201
1.5702	1.6171	1.6610	1.7023	1.7413	1.7781	1.8130
1.8460	1.8774	1.9071	1.9353	1.9621	1.9681	1.9736
1.9789	1.9839	1.9887	1.9932	1.9976	2.0018	2.0059
2.0098	2.0136	2.0172	2.0208	2.0242	2.0275	2.0308
2.0339	2.0370	2.0400	2.0430	2.0458	2.0486	2.0514
2.0540	2.0567	2.0592	2.0617	2.0642	2.0666	2.0690
2.0714	2.0737	2.0759	2.0781	2.0803	2.0825	2.0846
2.0867	2.0887	2.0907	2.0927	2.0947	2.0966	2.0985
2.1004	2.1023	2.1041	2.1059	2.1077	2.1095	2.1112
2.1130	2.1147	2.1164	2.1180	2.1197	2.1213	2.1229
2.1245	2.1261	2.1277	2.1292	2.1307	2.1322	2.1337
2.1352	2.1367	2.1382	2.1396	2.1410	2.1425	2.1439
2.1452	2.1466	2.1480	2.1494	2.1507	2.1520	2.1533
2.1547	2.1560	2.1572	2.1585	2.1598	2.1611	2.1623
2.1635	2.1648	2.1660	2.1672	2.1684	2.1696	2.1708
2.1720	2.1731	2.1743	2.1754	2.1766	2.1777	2.1789
2.1800	2.1811	2.1822	2.1833	2.1844	2.1855	2.1866
2.1876	2.1887	2.1897	2.1908	2.1918	2.1929	2.1939
2.1949	2.1960	2.1970	2.1980	2.1990	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.001000 SQ MI
PER A=0 B=100 C=0 D=0
TP=0.1333 HR MASS RAINFALL=-1

K = .130761HR TP = .133300HR K/TP RATIO = .980950 SHAPE
CONSTANT, N = 3.599930
UNIT PEAK = 2.4572 CFS UNIT VOLUME = .9948 B = 327.55
P60 = 1.9000
AREA = .001000 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 = .68101 INCHES = .0363 ACRE-FEET
PEAK DISCHARGE RATE = 1.33 CFS AT 1.533 HOURS BASIN AREA =
.0010 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

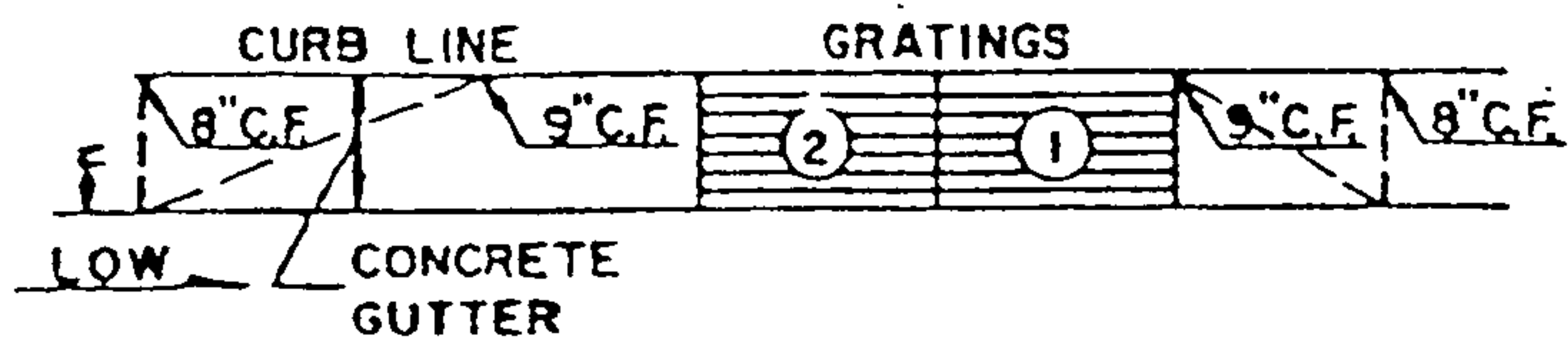
END TIME (HR:MIN:SEC) = 15:~

20

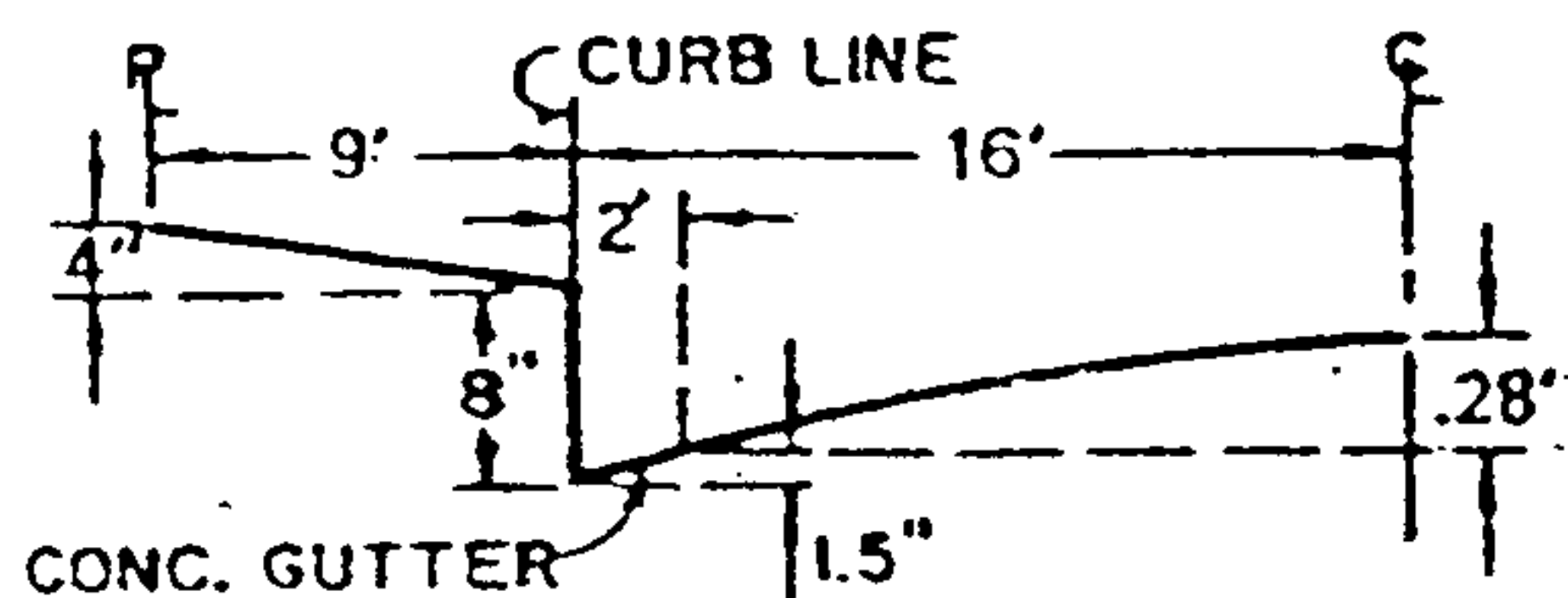
時
分
秒

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

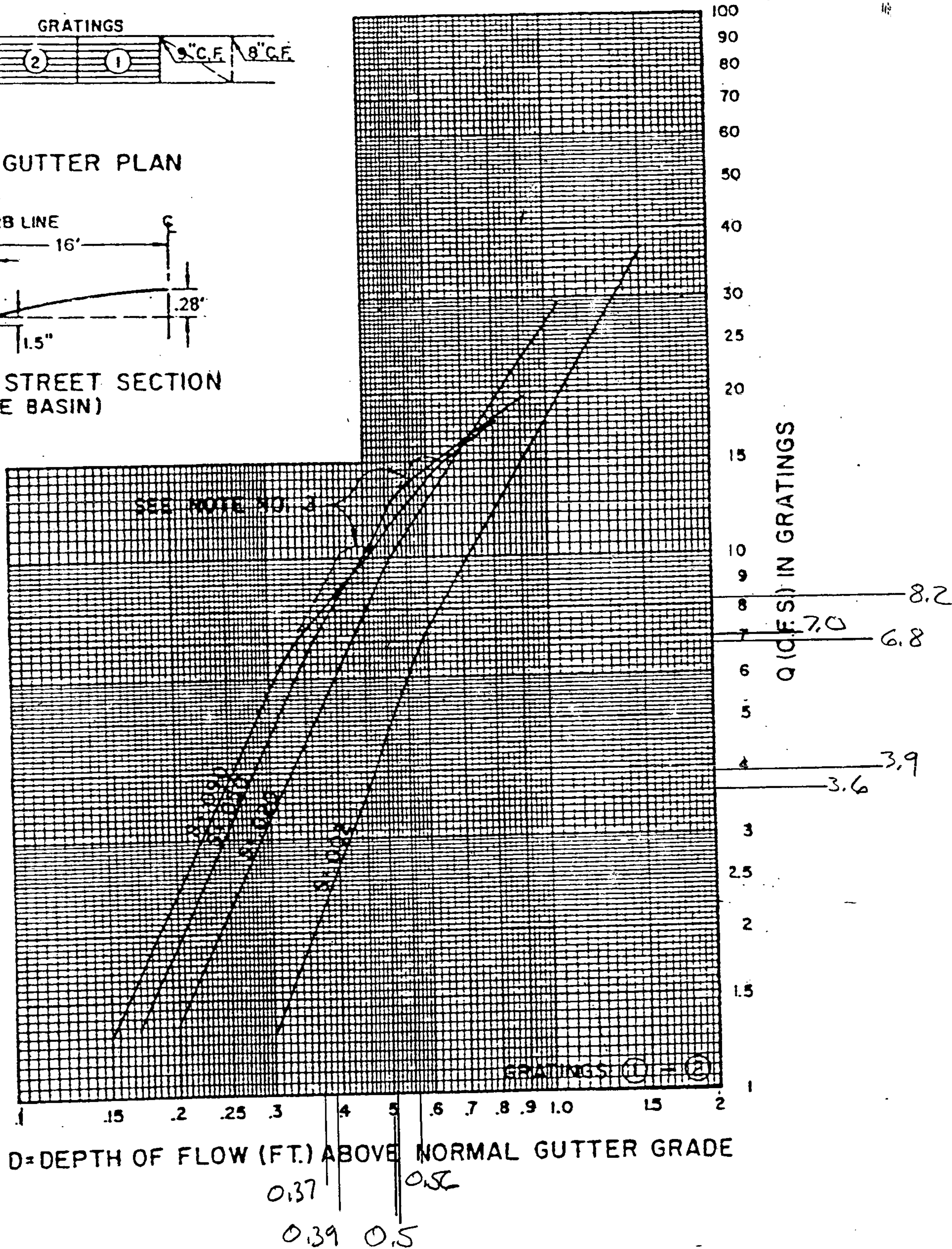
21



GRATING & GUTTER PLAN

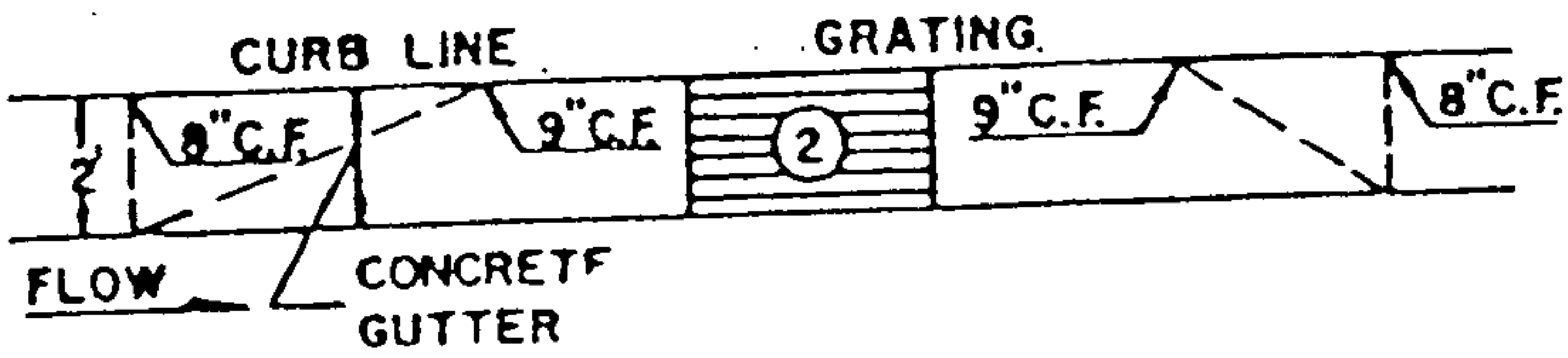


TYPICAL HALF STREET SECTION (ABOVE BASIN)

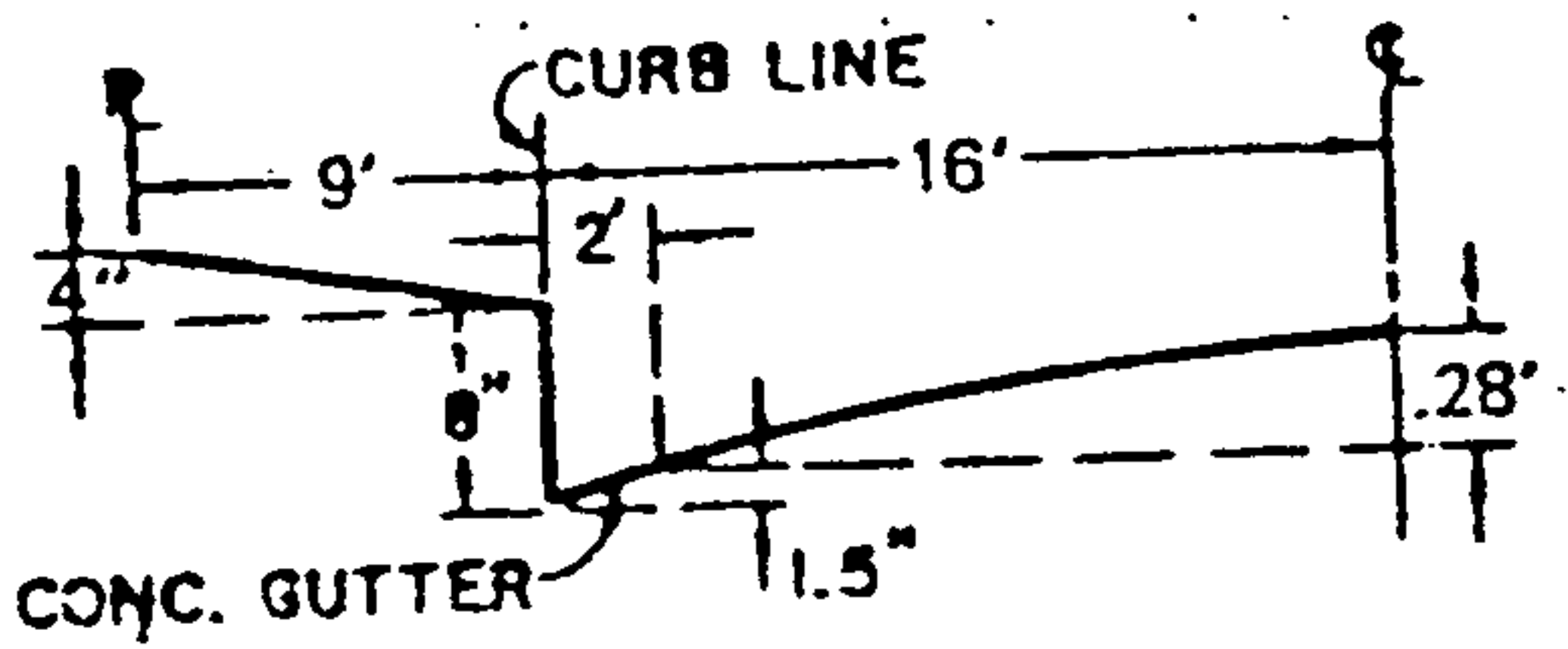


GRATING CAPACITIES FOR TYPE "A", "C" and "D"

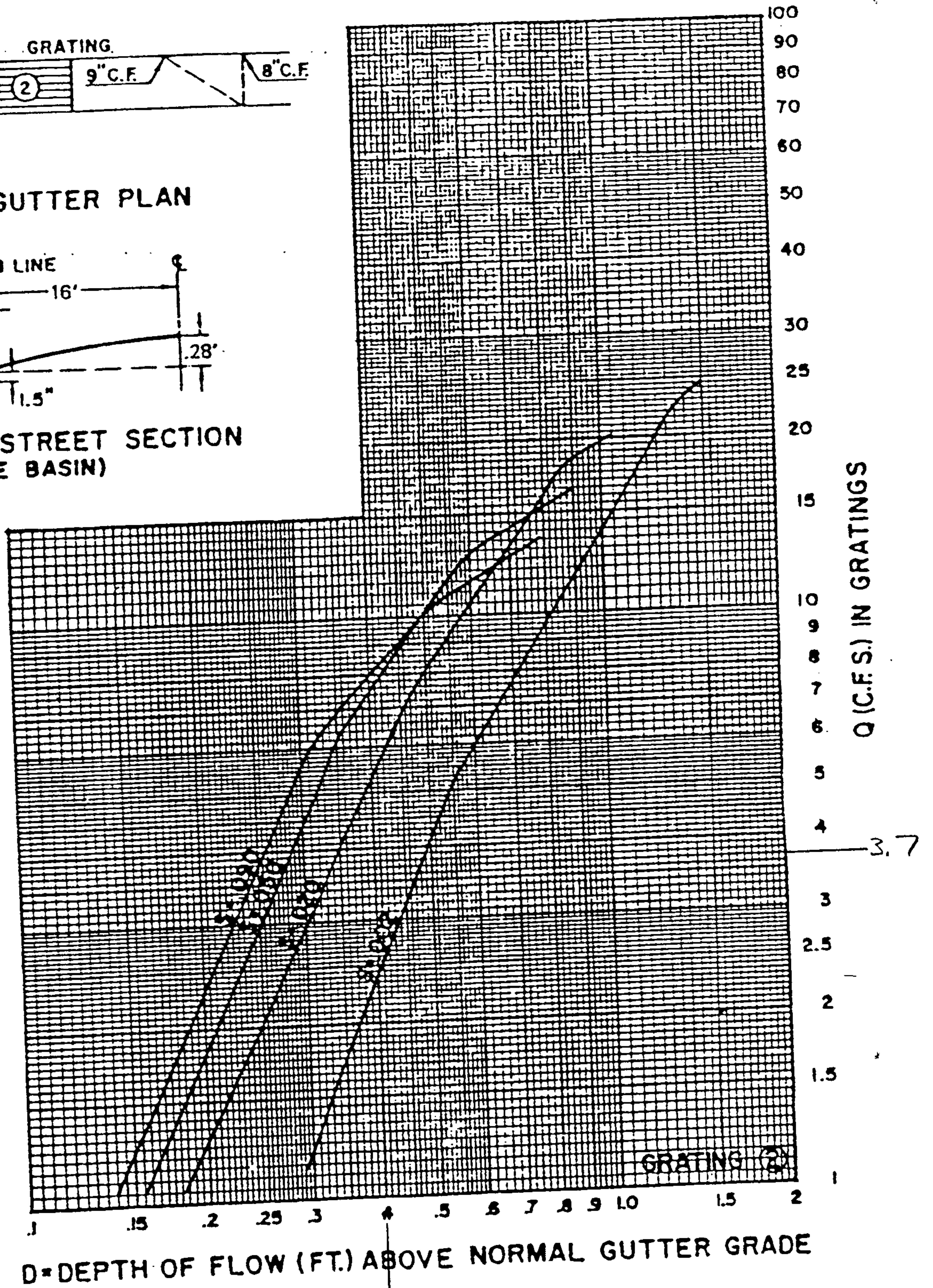
22



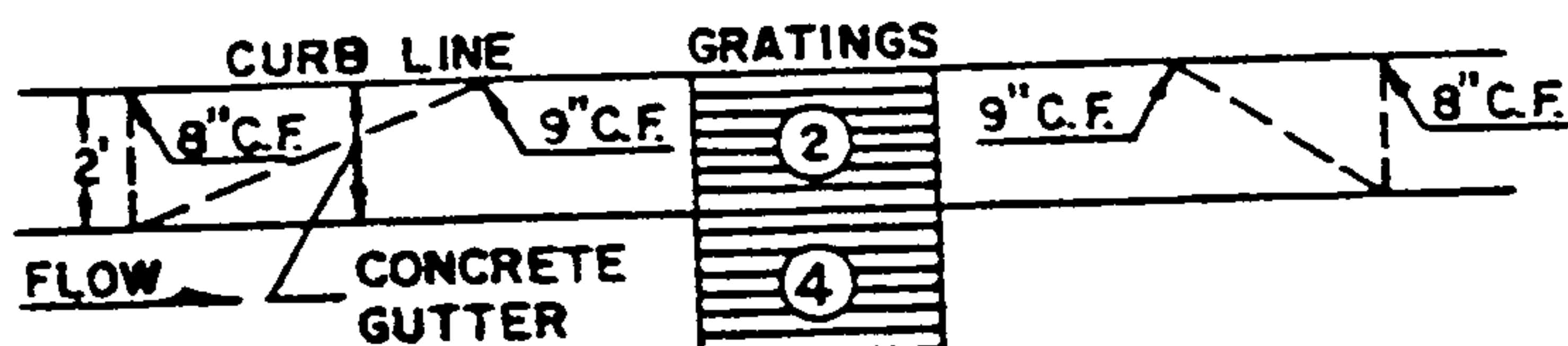
GRATING & GUTTER PLAN



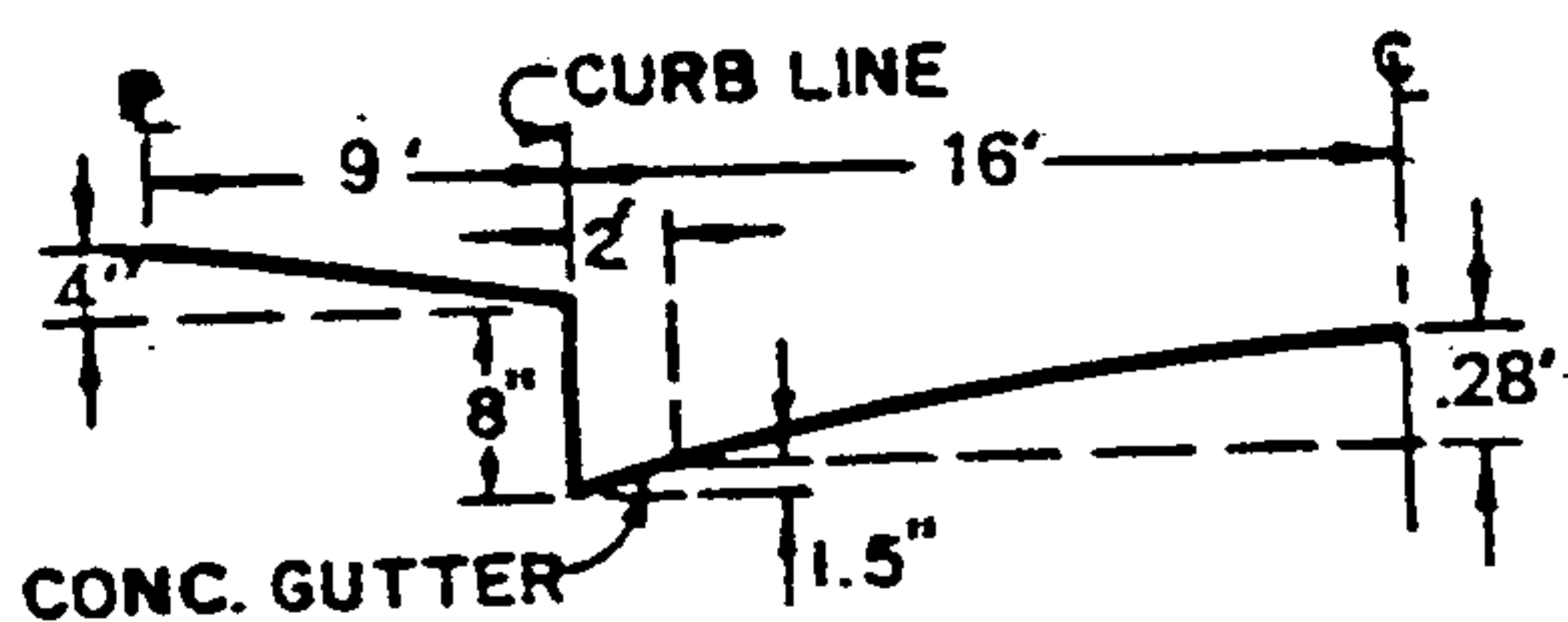
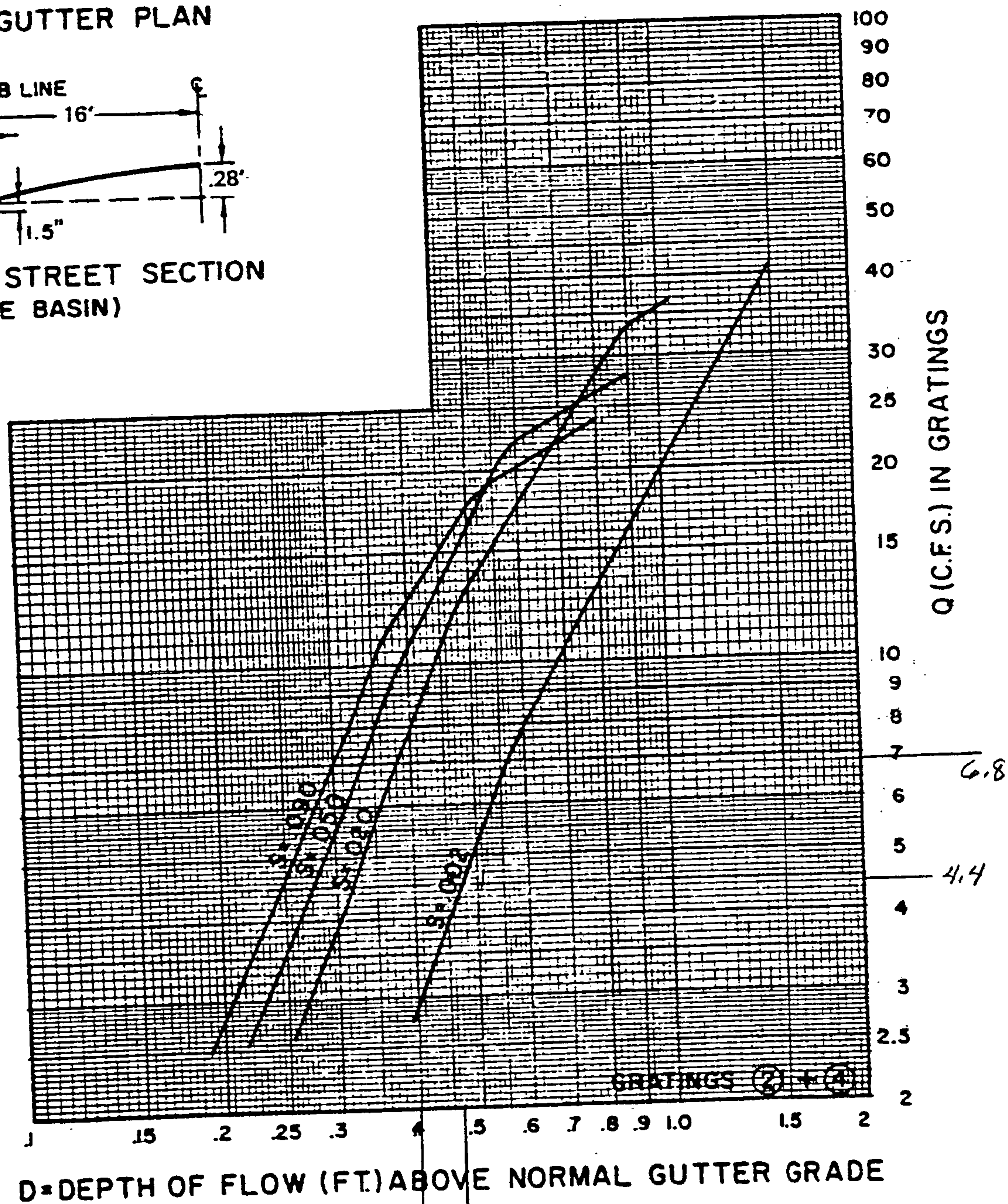
TYPICAL HALF STREET SECTION
(ABOVE BASIN)

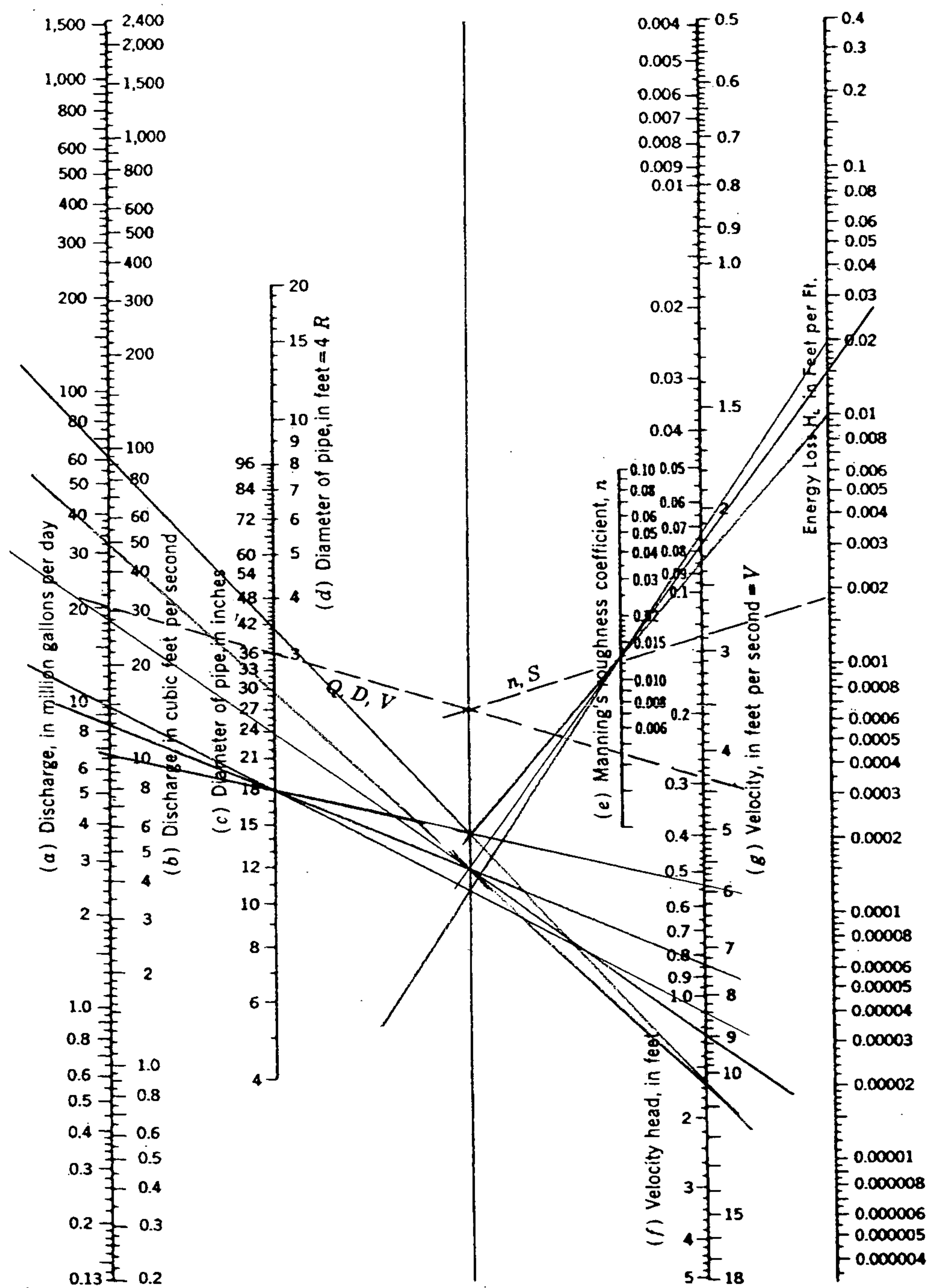


GRATING CAPACITIES FOR TYPE "B"



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.

CITY OF ALBUQUERQUE



November 29, 2006

Mr. James D. Hughes, PE
MARK GOODWIN & ASSOCIATES
P.O. Box 90606
Albuquerque, NM 87199

RE: EL RANCHO GRANDE, UNIT 9B (N-9/D3)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 12/02/2004
Engineers Certification dated 06/09/2006

Dear James:

P.O. Box 1293

Based upon the information provided in your Engineer's Certification submittal dated 11/27/2006, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

Albuquerque

If you have any questions, you can contact me at 924-3982

New Mexico 87103

Sincerely,

Arlene V. Portillo

Plan Checker, Planning Dept.- Hydrology
Development and Building Services

www.cabq.gov

C: Marilyn Maldonado, COA# 679481
File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: El Rancho Grande, Unit 9B
DRB #: 1003571 EPC#: _____

ZONE MAP/DRG. FILE #: N-9/D3
WORK ORDER#: 679481

LEGAL DESCRIPTION: Tracts 9-B-1, 9-B-2 and 12-A-2, El Rancho Grande 1
CITY ADDRESS: Blake Rd, West of Amole Channel

ENGINEERING FIRM: Mark Goodwin & Associates, PA
ADDRESS: PO Box 90606
CITY, STATE: Albuquerque, NM

CONTACT: James D. Hughes
PHONE: 828-2200
ZIP CODE: 87199

OWNER: Curb Inc.
ADDRESS: 5160 San Francisco NE
CITY, STATE: Albuquerque, NM

CONTACT: Bo Johnson
PHONE: 881-9190
ZIP CODE: 87109

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

SURVEYOR: Aldrich Land Surveying
ADDRESS: PO Box 30701
CITY, STATE: Albuquerque, NM

CONTACT: Tim Aldrich
PHONE: 884-1990
ZIP CODE: 87190

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

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:

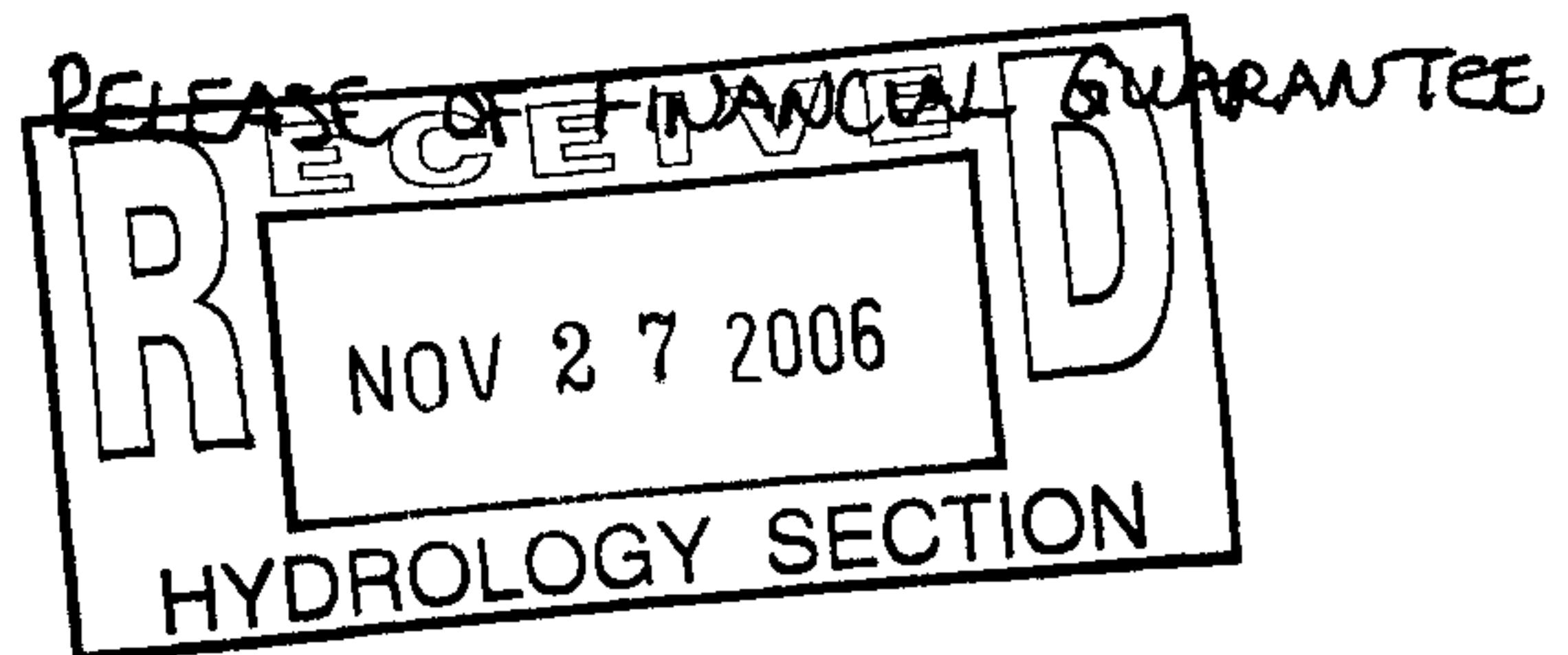
- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

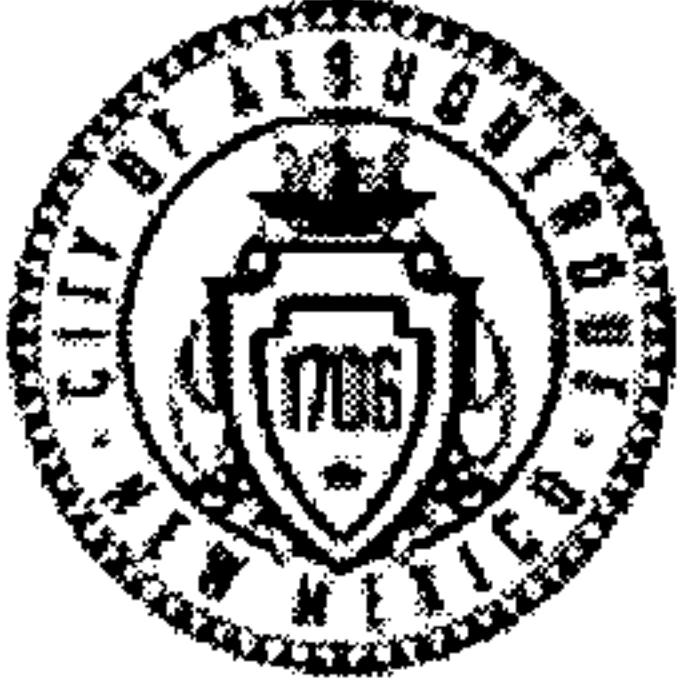
DATE SUBMITTED: November 27, 2006

BY: LOA AUGLAA for JAMES D. HUGHES

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.



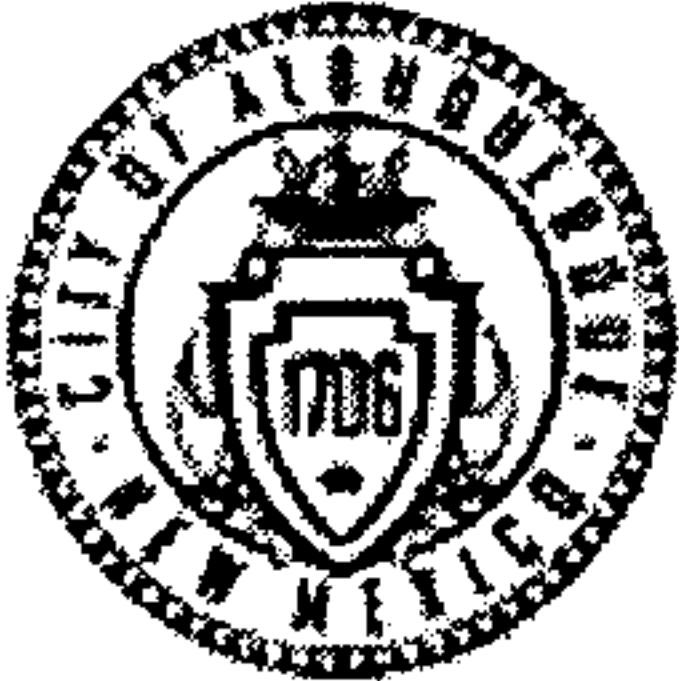


Brad L.
Bingham/PWD/CABQ
12/05/2006 03:02 PM

To Arlene V. Portillo/PWD/CABQ@COA
cc
bcc
Subject Re: El Rancho Grande Unit 9B 

Yes, the SIA can be released because of The AMAFCA agreement.
Arlene V. Portillo/PWD/CABQ

N-9/D3



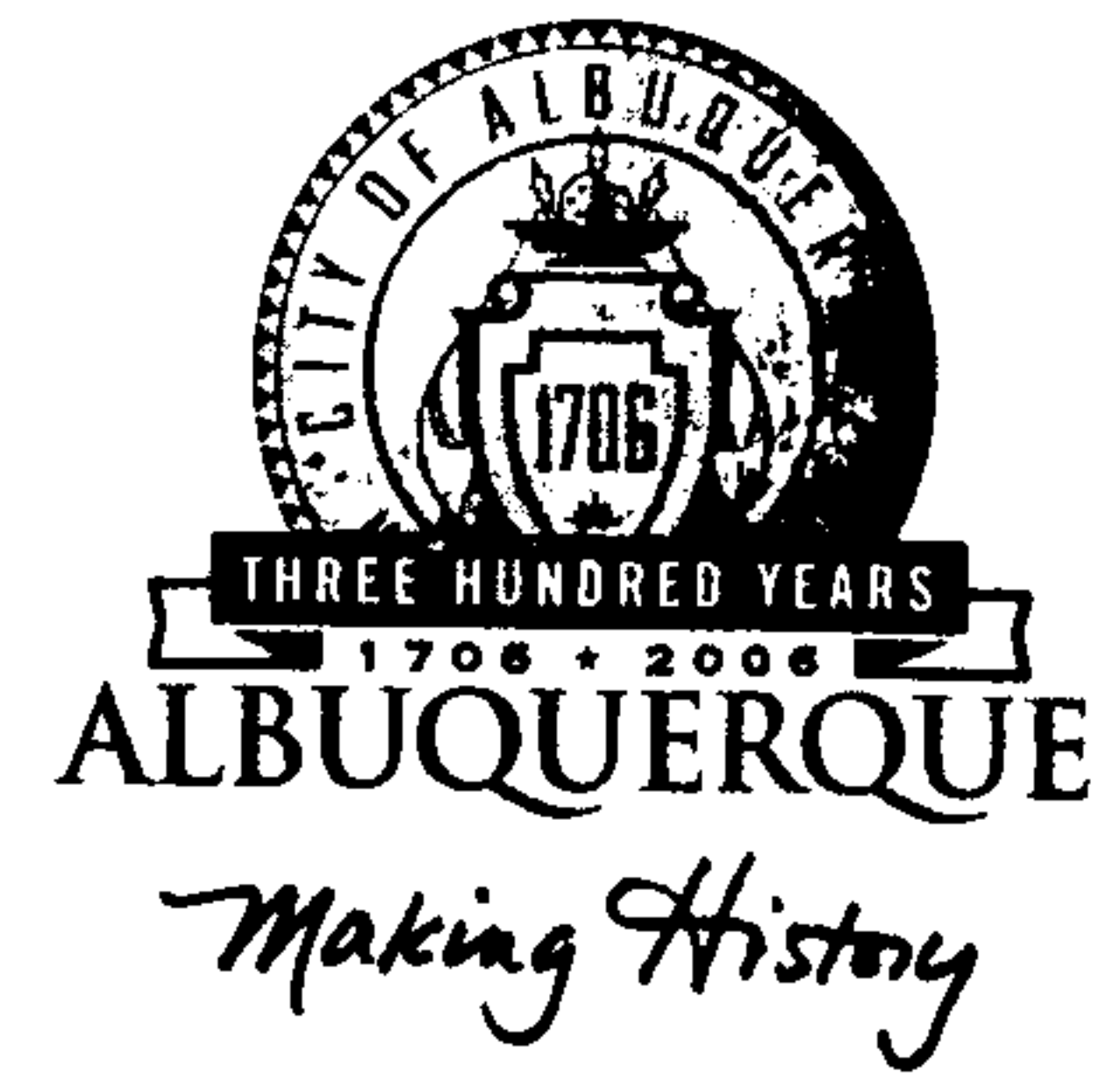
Arlene V.
Portillo/PWD/CABQ
12/05/2006 02:14 PM

To Brad L. Bingham/PWD/CABQ@COA
cc
Subject El Rancho Grande Unit 9B

Brad: Just to confirm.....El Rancho Grande Unit 9B is okay to release SIA/FG. The LOMR is being taken care of by ???
Can't remember. Refresh my memory. Like my kids used to say, "My rememberer doesn't work".

Arlene V. Portillo, Plan Checker
Planning Department, Hydrology Section
e-mail - aportillo@cabq.gov
Office Phone 505-924-3982; Fax 505-924-3864

CITY OF ALBUQUERQUE



February 7, 2005

James D. Hughes, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

**Re: El Rancho Grande Subdivision, Unit 9B Revised Grading Plan
Engineer's Stamp dated 12-2-04 (N9/D3)**

Dear Mr. Hughes,

Based upon the information provided in your submittal dated 12-2-04, the above referenced report is approved as amended. This is now the plan that must be certified for Release of SIA and Financial Guarantee and all others are void.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept
Development and Building Services

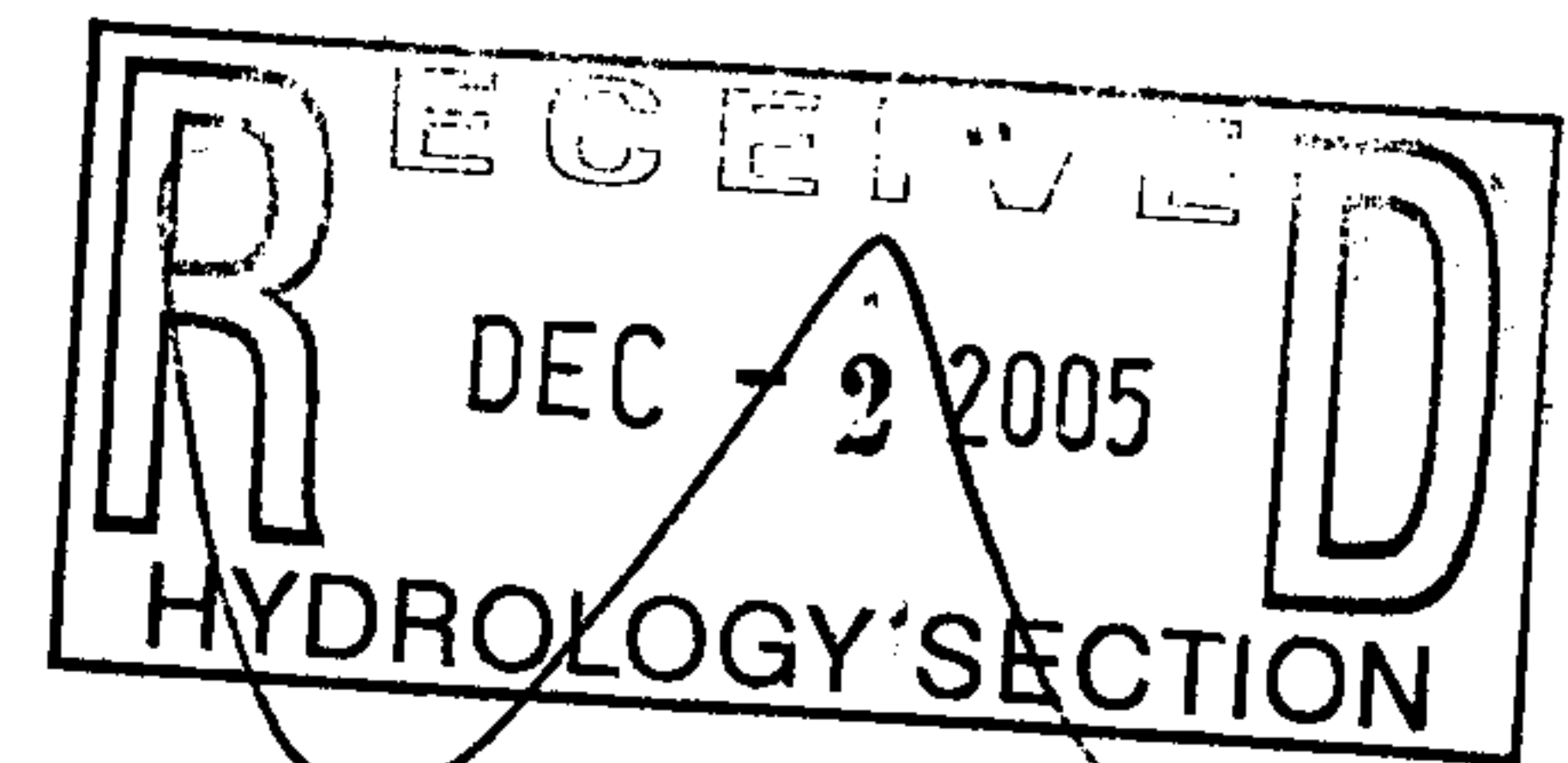
P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

C: file



DRAINAGE INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE:	El Rancho Grande Unit 9B	ZONE MAP/DRG #:	N9/D3
DRB#:	1003571	EPC #:	
LEGAL DESCRIPTION:	Tracts 9-B-1, 9-B-2, and 12-A-2 El Rancho Grande 1		
CITY ADDRESS:	Blake Rd. West of Amole Channel		
ENGINEERING FIRM:	Mark Goodwin & Associates, PA	CONTACT:	James D. Hughes, PE
ADDRESS:	PO Box 90606	PHONE:	828-2200
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87199
OWNER:	Curb Inc	CONTACT:	Bo Johnson
ADDRESS:		PHONE:	899-9656
CITY, STATE:		ZIP CODE:	
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Aldrich Land Surveying	CONTACT:	Tim Aldrich
ADDRESS:	P.O. Box 30701	PHONE:	884-1990
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87190-0701
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

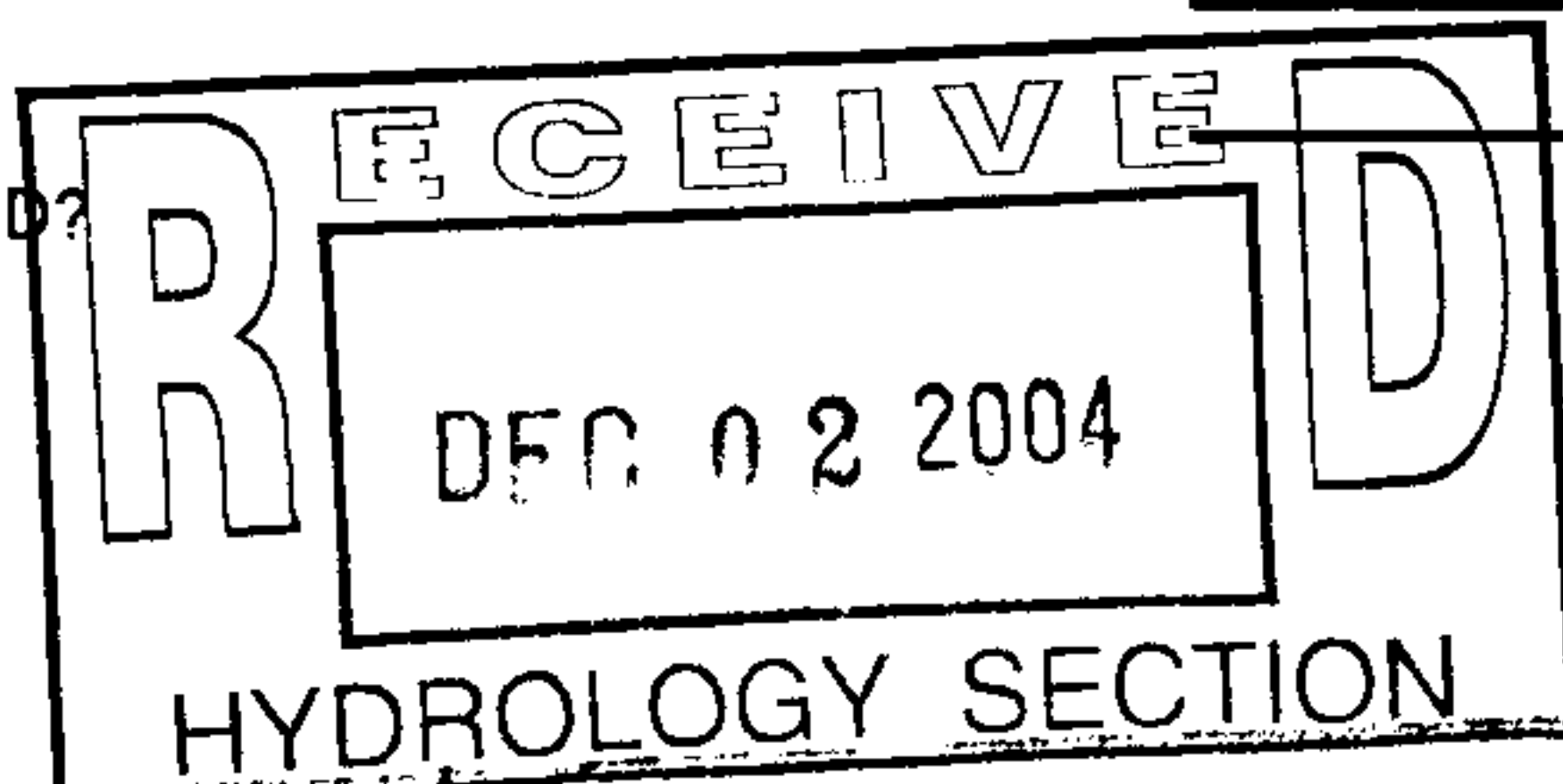
☒	DRAINAGE REPORT
☐	DRAINAGE PLAN 1 ST SUBMITTAL, req. TCL or equal
☐	DRAINAGE PLAN RESUBMITTAL
☐	CONCEPTUAL GRADING & DRAINAGE PLAN
☒	GRADING PLAN
☐	EROSION CONTROL PLAN
☐	ENGINEER'S CERTIFICATION (HYDROLOGY)
☐	CLOMR/LOMR
☐	TRAFFIC CIRCULATION LAYOUT (TCL)
☐	ENGINEER'S CERTIFICATION (TCL)
☐	ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
☐	OTHER

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

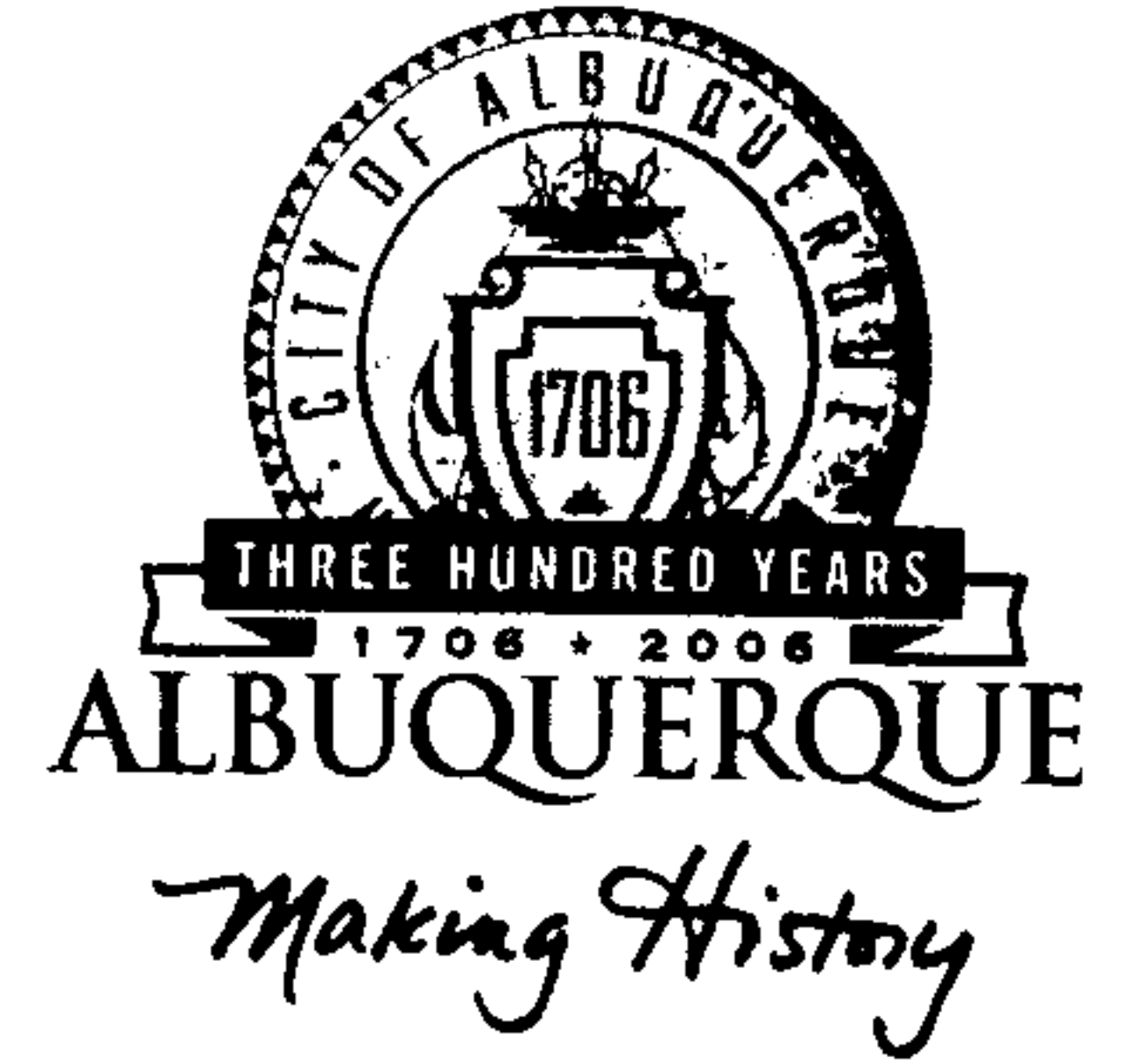


DATE SUBMITTED: 12-2-04 BY: James D. Hughes

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.

CITY OF ALBUQUERQUE



November 19, 2004

James D. Hughes, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: El Rancho Grande Subdivision, Unit 9B Drainage Report
Engineer's Stamp dated 11-16-04 (N9/D3)

Dear Mr. Hughes,

Based upon the information provided in your submittal dated 11-17-04, 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.

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).

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept
Development and Building Services

C: Chuck Caruso, DMD
file

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

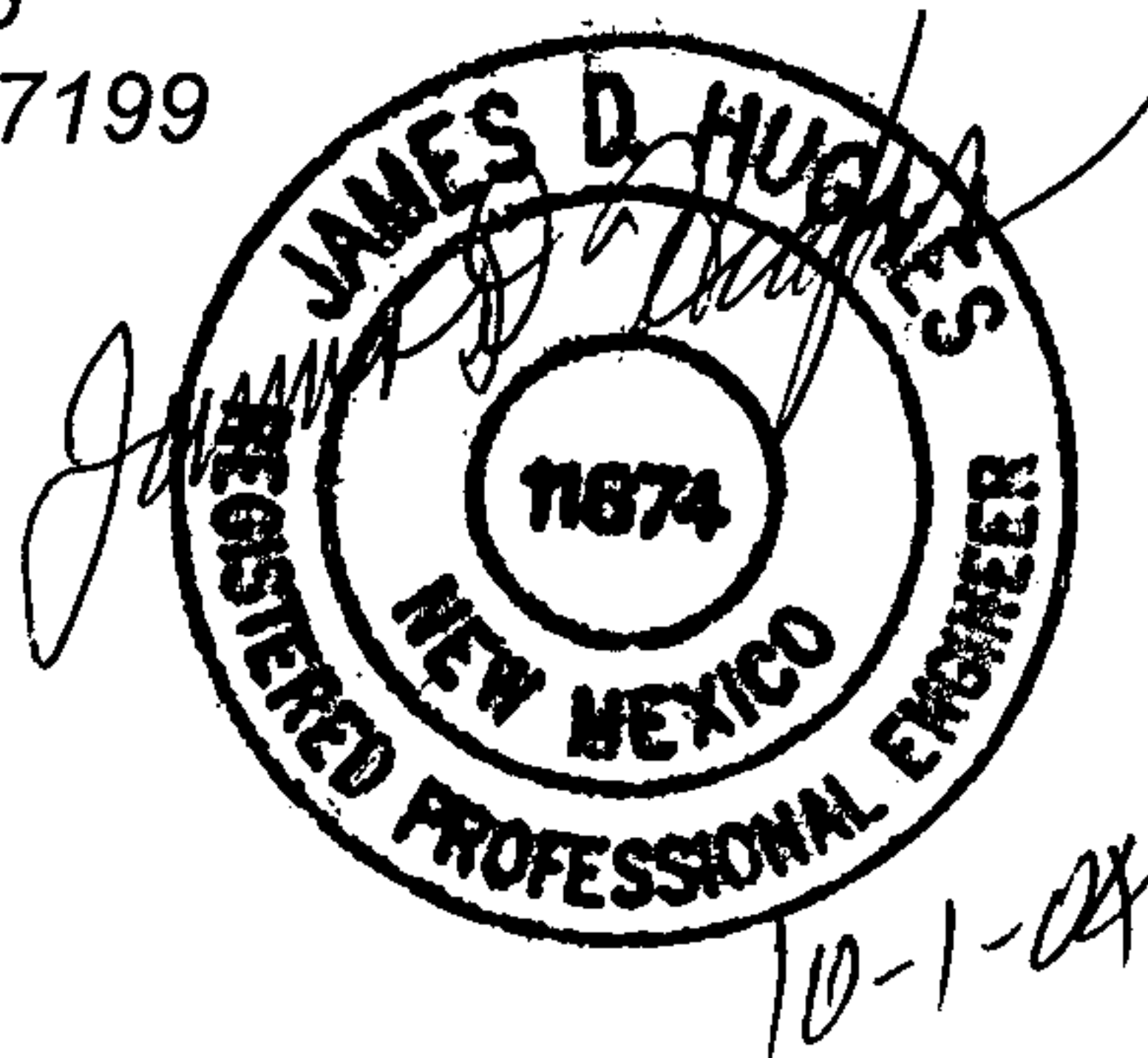
DRAINAGE REPORT
FOR
EL RANCHO GRANDE UNIT 9B

Prepared for

Curb Inc.
5160 San Francisco NE
Albuquerque, NM 87109

Prepared by

Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199



September 2004

TABLE OF CONTENTS

Report

- Cover Page
- Drainage Information Sheet
- Vicinity Map (M-9)
- Purpose
- Existing Conditions
- Proposed Management Plan
- Analysis Procedure

Calculations and Data

- Table 1 — Summary of Hydrology
- Drainage Map (foldout)
- Table 3 — Street Drainage Capacities
- Sub-Basin Map
- Pond Volumes Calculations
- AHYMO, 100-Yr Summary
- AHYMO, 100-Yr Detailed Output
- Street Capacity Plates 22.3 D-1

Pockets

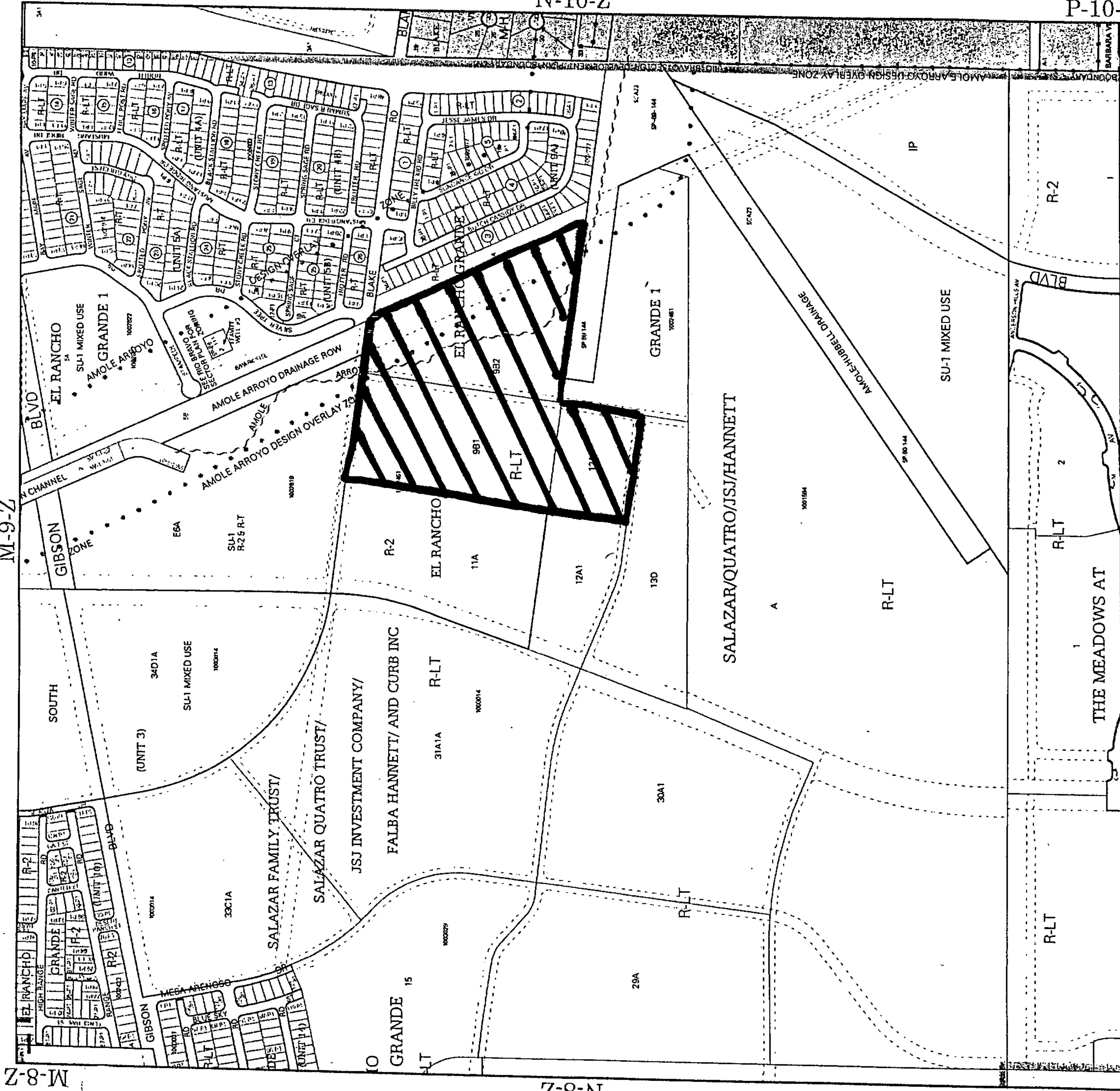
- Grading and Drainage Plan

M-10-Z

N-10-Z

P-10-Z

M-9-Z



M-8-Z

N-8-Z

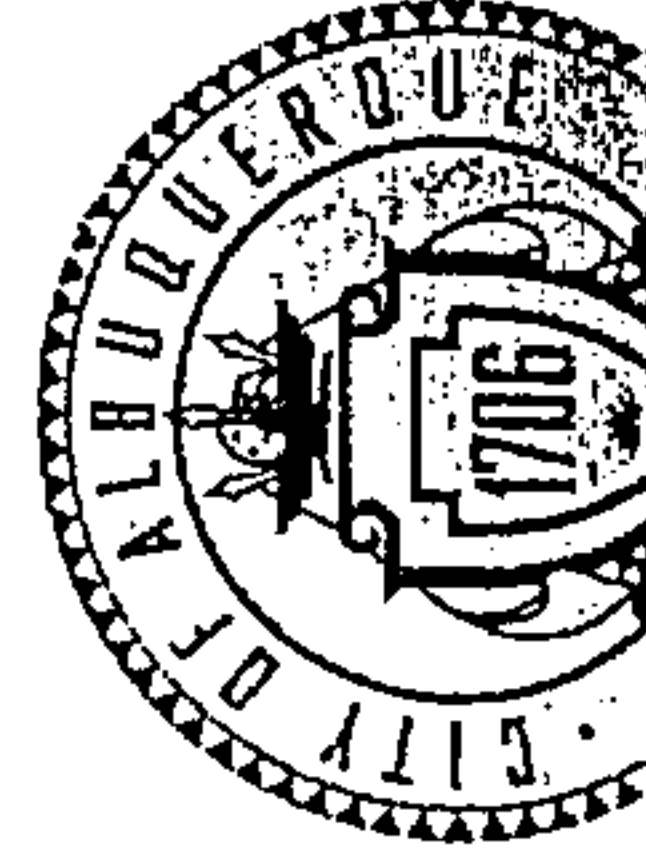
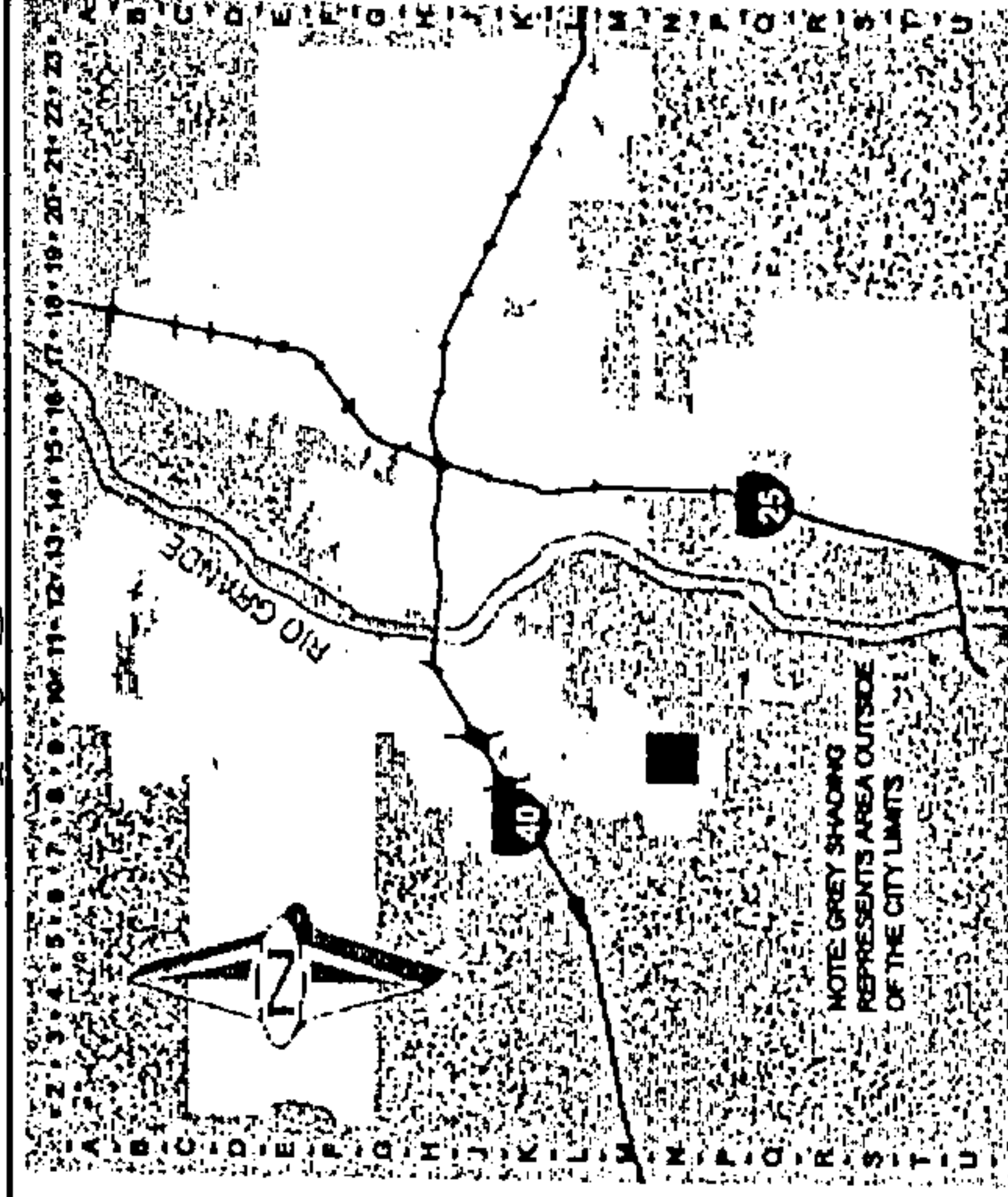
P-8-Z

Zone Atlas Page: N-9-Z

Map amended through: Aug 06, 2004

Selected Symbols

- Unincorporated Areas X — Grant Boundaries
- Sector Plan Boundaries — Petroglyph
- Parcel Boundaries — H-1 Buffer Zone
- Easement Lines — Arroyos
- Freeway Lanes — LDN Noise Level
- Jurisdictional Boundaries + Airport Clearance Zone
- Westgate Wall . . . Design Overlay Zones
- Escarpment



THREE HUNDRED YEARS
1706 - 2006
ALBUQUERQUE

Hacienda Historia

A G I S
Albuquerque Geographic Information System

PLANNING DEPARTMENT

© Copyright 2004

PURPOSE

The primary purpose of this report is to demonstrate the adequacy of the proposed drainage to allow this 35.1 acre site to be subdivided into about 198 single-family, detached, residential lots, and so associated public drainage infrastructure can be constructed and turned over to the City of Albuquerque for maintenance.

EXISTING CONDITIONS

This property is surrounded on all four sides by undeveloped property. The natural amole arroyo runs thru this property from north to south where FEMA has mapped a 35' wide flood plain and AMAFCA has a 100' wide drainage easement therein addition to a blanket drainage easement on the whole site and a seperate 250' drainage easement for the amole channel on the east side of this property (150' onsite, 100' offsite) as previously planned by the Amole/Hubble Drainage Master Plan and the Rio Bravo Sector Development Plan. Roadway easements have been reserved on the north side of this property for Blake Rd., and on the south side for Amole Mesa Ave.

REFERENCES

1. *"CLOMR" request for the Amole Channel by MARK GOODWIN & ASSOCIATES PA, 2004.*
2. *Drainage report for Arrowood by Wilson & Company 2004.*
3. *Drainage report for Gibson Blvd by Bohannon Houston Inc 2003.*
4. *Construstion Plans For El Rancho Grande - Blake Road by Bohannon Houston Inc 2004.*

PROPOSED MANAGEMENT PLAN

This 35 acre residential development will have free discharge via surface drainage to the AMAFCA drainage easement on the east side of this site where Bio-retention cells will be constructed as replacement for Waters of the U.S. and to improve storm water quality. The streets in this development and the pipes in the bio-retention cells will also accomodate free discharge from offsite property between this site and 98th St. The flood plain will be filled and a new concrete channel will be constructed to contain the Amole Arroyo in the 250' AMAFCA drainage easement on the east side of the site. Blake Road has its own seperate storm sewer on the north side of the site that will drain into the new channel on the east. Arrowood estates is building storm sewer across the south side of this site, and the south west corner of this property (5.3 ac) will free discharge into it. The private property west of this site will also drain into it.

ANALYSIS PROCEDURES

Developed drainage is estimated by Ahymo for the entire site, then flows for sub-basins are determined by proration. Street flow depths are estimated using Plates 22.3, D-1 and D-2. Storm sewer is designed to prevent excessive surface drainage depths.

It is assumed that 98th St. will be constructed soon and will cut off upstream offsite flows west of 98th Street.

TABLE 1 - SUMMARY OF HYDROLOGY

Description	Basin ID	Area Acres	Area Sq. Mi.	Land Treatment				Tp (hr)	100-YR Peak Flow
				A	B	C	D		Inc. (cfs)
Developed w/o Blake RD & AMAFCA RW	101	49.9	0.0780	0	16	32	52	0.13	182.29
Offsite Developed Blake Rd	102	2.1	0.0033	0	0	10	90	0.13	9.01

100 YEAR PRECIPITATION (From Figures D, E and F, and Eq. 28 of DPM 22.2)

$$P_{60} = 1.90", P_{360} = 2.20", P_{1440} = 2.70", P_{10 \text{ days}} = 10.0 - [24.9 / (2.70")^{1.4}] = 3.70"$$

TABLE 3 — STREET DRAINAGE CAPACITIES

<i>Basin No.</i>	<i>Area Ac.</i>	<i>% of Total</i>	<i>Flow (cfs)</i>	<i>Curb Type/Slope</i>	<i>Flow Depth ft⁽¹⁾</i>	<i>Velocity fps</i>	<i>Energy Depth ft⁽²⁾</i>	<i>Location</i>
100YR CAPACITY IN ARTERIAL STREETS								
G	2.1	100.00	9.01	std 48' 2.74%	0.31'	3.4	0.49	Ladera Drive
100YR CAPACITY IN LOCAL STREETS								
A	7.5	15.03	27.40	std 26' 1.00%	0.49	3.3	0.66	Chase Ranch
B	8.9	17.84	32.51	std 26' 1.00%	0.52	3.6	0.72	Valle Grande.
C	10.1	20.24	36.90	std 26' 1.78%	0.49	4.5	0.80	Hondo Valley
D	9.9	19.84	36.17	std 26' 1.56%	0.50	4.2	0.77	Valle Vidal
E	6.4	12.83	23.38	std 26' 2.67%	0.41	4.2	0.68	Humphries
F	7.1	14.23	25.94	std 26' 2.67%	0.42	4.2	0.69	Valle Caldera
TOTAL	49.9		182.29					

- ⁽¹⁾ Flow depths are taken from Plate 22.3 D-1 and 22.3 D-2 of the DPM and reduced by 3/4" for roll curb types to account for the differences in gutter depression. Allowable depths may not exceed curb heights which are 0.33' for roll curb and gutter and 0.67' for standard curb and gutter.
- ⁽²⁾ Energy depth is calculated as flow depth plus energy head. Allowable depths are 0.20' above top of curb.

98th Street S.W.

BLAKE ROAD S.W.

Basin G
Area = 2.1 ac
Q₁₀₀ =

Basin A
Area = 7.5 ac
Q₁₀₀ =

Basin B
Area = 8.9 ac
Q₁₀₀ =

Basin C
Area = 10.1 ac
Q₁₀₀ =

Basin D
Area = 9.9 ac
Q₁₀₀ =

Basin E
Area = 6.4 ac
Q₁₀₀ =

Basin F
Area = 7.1 ac
Q₁₀₀ =

CHASE RANCH ROAD S.E.

NOON RANCH DR. S.E.

VALLE GRANDE ROAD S.E.

HONDO VALLEY ROAD S.E.

VALLE VIDAL ROAD S.E.

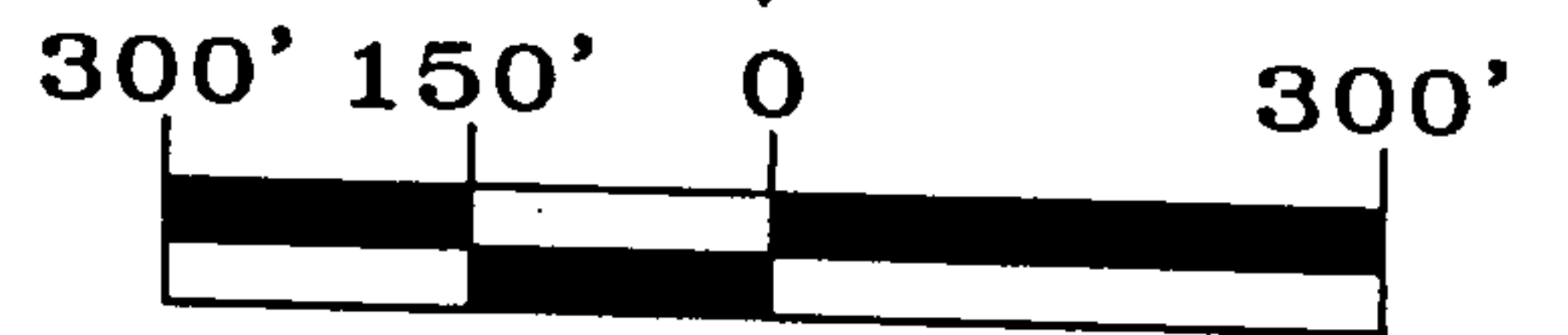
HUMPHRIES RD S.E.

VALLE CALDERA RD S.E.

AMOLE MESA AVE. S.E.

VERMILION PARK DR S.E.

BUTCH CASSIDY DRIVE S.W.



SCALE: 1" = 300'

TRACT 11-A

TRACT A

TRACT 12-A-1

TRACT 13-D
12.4872 AC.

TRACT 8-A
13.4161 AC.

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = ERG9B.TXT

RUN DATE (MON/DAY/YR) =09/29/2004
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										TIME= .00	
RAINFALL TYPE= 1										RAIN6= 2.200	
COMPUTE NM HYD	101.00	-	1	.07797	182.29	6.253	1.50378	1.500	3.653	PER IMP= 57.00	
COMPUTE NM HYD	102.00	-	1	.00328	9.01	.327	1.87101	1.500	4.290	PER IMP= 90.00	
FINISH											

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 09/29/2004
START TIME (HR:MIN:SEC) = 14:02:49 USER NO.= M_GOODWN.I01
INPUT FILE = ERG9B.TXT

START TIME=0.0

***** EL RANCHO GRANDE UNIT 9 B

***** 100-YR DEVELOPED ON & OFF-SITE

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=1.90 IN RAIN SIX=2.20 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	.0013	.0027	.0041	.0055	.0069	.0084
.0099	.0115	.0131	.0147	.0164	.0181	.0199
.0217	.0236	.0256	.0276	.0296	.0318	.0340
.0363	.0387	.0412	.0438	.0465	.0493	.0523
.0554	.0587	.0622	.0675	.0731	.0791	.0920
.1208	.1651	.2289	.3159	.4302	.5759	.7574
.9790	1.1846	1.2704	1.3429	1.4074	1.4661	1.5201
1.5702	1.6171	1.6610	1.7023	1.7413	1.7781	1.8130
1.8460	1.8774	1.9071	1.9353	1.9621	1.9681	1.9736
1.9789	1.9839	1.9887	1.9932	1.9976	2.0018	2.0059
2.0098	2.0136	2.0172	2.0208	2.0242	2.0275	2.0308
2.0339	2.0370	2.0400	2.0430	2.0458	2.0486	2.0514
2.0540	2.0567	2.0592	2.0617	2.0642	2.0666	2.0690
2.0714	2.0737	2.0759	2.0781	2.0803	2.0825	2.0846
2.0867	2.0887	2.0907	2.0927	2.0947	2.0966	2.0985
2.1004	2.1023	2.1041	2.1059	2.1077	2.1095	2.1112
2.1130	2.1147	2.1164	2.1180	2.1197	2.1213	2.1229
2.1245	2.1261	2.1277	2.1292	2.1307	2.1322	2.1337
2.1352	2.1367	2.1382	2.1396	2.1410	2.1425	2.1439
2.1452	2.1466	2.1480	2.1494	2.1507	2.1520	2.1533
2.1547	2.1560	2.1572	2.1585	2.1598	2.1611	2.1623
2.1635	2.1648	2.1660	2.1672	2.1684	2.1696	2.1708
2.1720	2.1731	2.1743	2.1754	2.1766	2.1777	2.1789
2.1800	2.1811	2.1822	2.1833	2.1844	2.1855	2.1866
2.1876	2.1887	2.1897	2.1908	2.1918	2.1929	2.1939
2.1949	2.1960	2.1970	2.1980	2.1990	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101 AREA=0.07797 SQ MI

PER A=0 PER B=14 PER C=29 PER D=57
TP=0.1333 HR MASS RAINFALL=-1

K = .072893HR TP = .133300HR K/TP RATIO = .546831 SHAPE CONSTANT, N = 7.075965
UNIT PEAK = 174.99 CFS UNIT VOLUME = .9993 B = 524.84 P60 = 1.9000
AREA = .044443 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .113852HR TP = .133300HR K/TP RATIO = .854107 SHAPE CONSTANT, N = 4.165873
UNIT PEAK = 92.076 CFS UNIT VOLUME = 1.000 B = 366.08 P60 = 1.9000
AREA = .033527 SQ MI IA = .39884 INCHES INF = .96674 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = 1.50378 INCHES = 6.2533 ACRE-FEET
PEAK DISCHARGE RATE = 182.29 CFS AT 1.500 HOURS BASIN AREA = .0780 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=102 AREA=0.00328 SQ MI
PER A=0 PER B=0 PER C=10 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 11.655 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.9000
AREA = .002952 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .106205HR TP = .133300HR K/TP RATIO = .796738 SHAPE CONSTANT, N = 4.498737
UNIT PEAK = .95262 CFS UNIT VOLUME = .9870 B = 387.15 P60 = 1.9000
AREA = .000328 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 102.00

RUNOFF VOLUME = 1.87101 INCHES = .3273 ACRE-FEET
PEAK DISCHARGE RATE = 9.01 CFS AT 1.500 HOURS BASIN AREA = .0033 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:02:49

```

START                TIME=0.0
*****
*****    EL RANCHO GRANDE UNIT 9 B
*****    100-YR DEVELOPED ON & OFF-SITE
RAINFALL            TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=1.90 IN RAIN SIX=2.20 IN
                    RAIN DAY=2.70 IN DT=0.03333 HR
COMPUTE NM HYD      ID=1 HYD NO=101 AREA=0.07797 SQ MI
                    PER A=0 PER B=14 PER C=29 PER D=57
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
COMPUTE NM HYD      ID=1 HYD NO=102 AREA=0.00328 SQ MI
                    PER A=0 PER B=0 PER C=10 PER D=90
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
FINISH

```

STREET CAPACITY

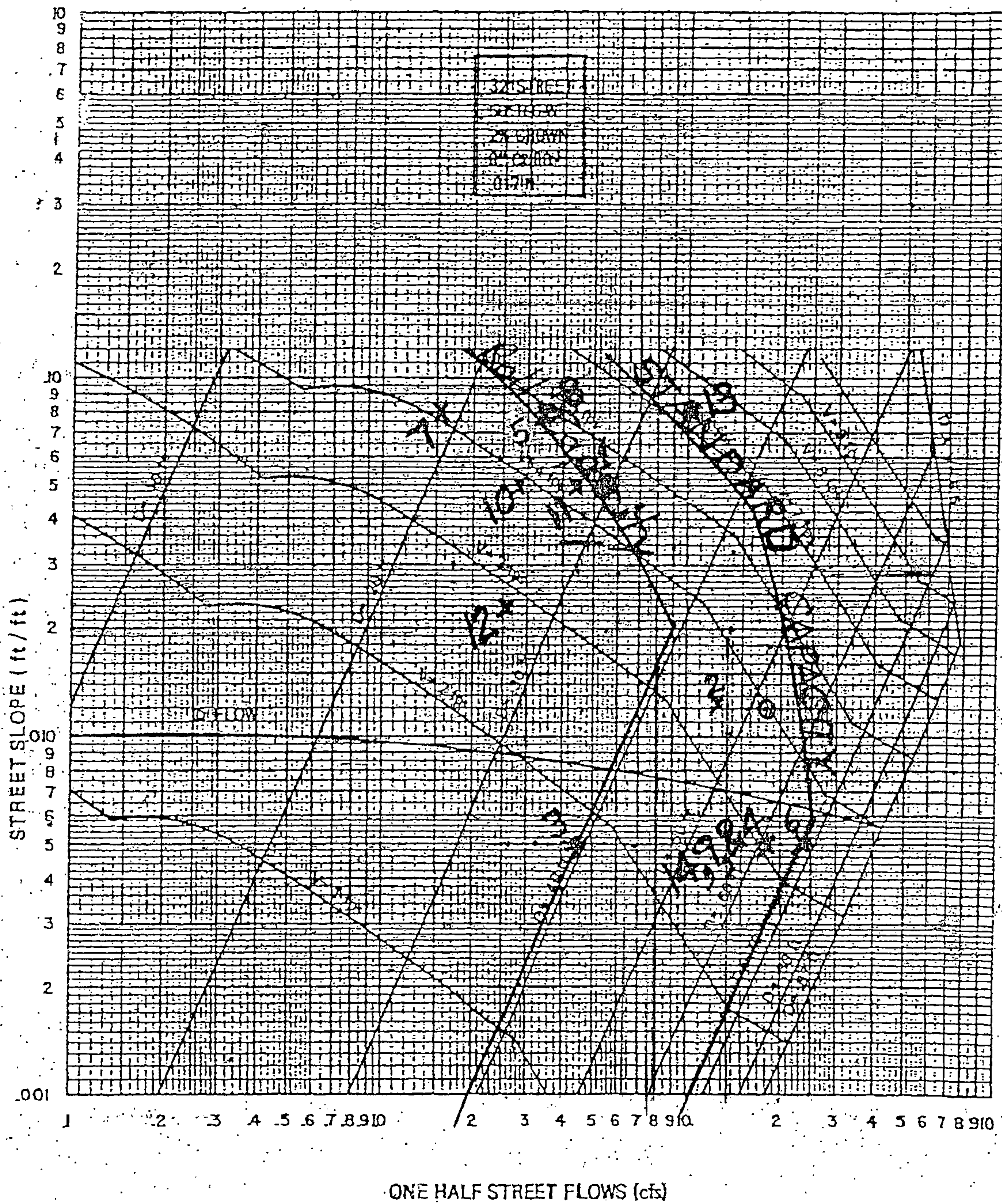


PLATE 22.3 D-1

Depths shown here are reduced by $\frac{3}{4}$ " for Roll Curb to account for different gutter Depression.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 20, 2003

Greg Krenik, P.E.
Mark Goodwin & Assoc.
P.O. Box 90606
Albuquerque, New Mexico 87199

RE: EL RANCHO GRANDE UNIT 9A (N-9/D3)
Engineers Certification – Submitted for Release of Financial Guaranty
Engineers Stamp dated 1/30/2003
Engineers Certification dated 5/1/2003

Dear Greg:

Based upon the information provided in your Engineers Certification submittal dated 5/1/2003, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, please call me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Development & Bldg. Ser. Division
Bub

c: Arlene Portillo, COA- Project # 699381
File

DRAINAGE INFORMATION SHEET
(REV. 1/28/2003rd)

N-9/D3

PROJECT TITLE:	El Ranc ho Grande Unit 9A	ZONE MAP/DRG #:	N-9
DRB#:	1002077	EPC #:	
LEGAL DESCRIPTION:	Tract 9A		
CITY ADDRESS:			
ENGINEERING FIRM:	Mark Goodwin & Associates, PA	CONTACT:	Gregory J. Krenik, PE
ADDRESS:	PO Box 90606	PHONE:	828-2200
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87199
OWNER:	Curb Inc.	CONTACT:	Bo Johnson
ADDRESS:	6301 Indian School Rd. NE	PHONE:	450-4616
CITY, STATE:	Albuquerque	ZIP CODE:	87110
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- | | |
|-------------------------------------|--|
| ☐ | DRAINAGE REPORT |
| ☐ | DRAINAGE PLAN 1 ST SUBMITTAL, req. 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) |
| ☐ | ENGINEER'S CERTIFICATION (TCL) |
| ☐ | ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN) |
| ☐ | OTHER |

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:

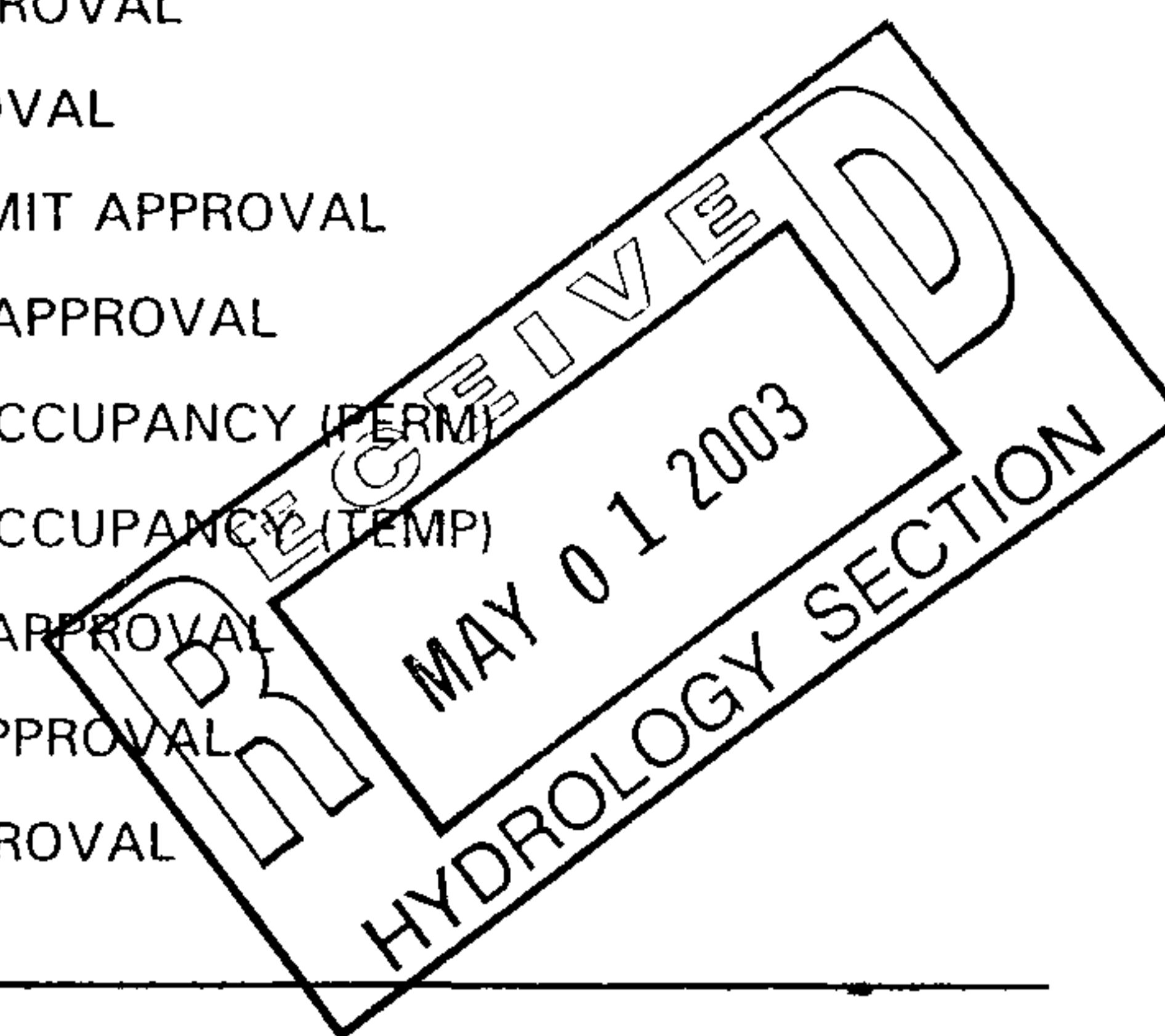
5-1-03

BY:

Gregory J. Krenik, PE

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.





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 16, 2003

Gregory J. Krenik, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

**Re: El Rancho Grande Subdivision, Unit 9A-Revised Grading Plan
Engineer's Stamp dated 1-30-03 (N9/D3)**

Dear Mr. Krenik,

Based upon the information provided in your submittal dated 4-28-03, the above referenced plan is approved for Grading Permit. This plan is now the plan that must be certified for SIA release; the previous plan is now void. .

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept
Development and Building Services

C: file

N-9/D3

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) _____

DATE SUBMITTED: 4-28-03 BY: 
Gregory J. Krenik, PE

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.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 27, 2002

Gregory J. Krenik, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

**Re: El Rancho Grande Subdivision, Unit 9A Revised Grading Plan
Engineer's Stamp dated 9-11-02 (N9/D3)**

Dear Mr. Krenik,

Based upon the information provided in your submittal dated 9-12-02, the above referenced plan is approved as amended. This plan is now the plan that must be certified for SIA release; the previous plan is now void. .

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept
Development and Building Services

C: file



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 4, 2002

Gregory J. Krenik, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

**Re: El Rancho Grande Subdivision, Unit 9A Drainage Report
Engineer's Stamp dated 8-8-02 (N9/D3)**

Dear Mr. Krenik,

Based upon the information provided in your submittal dated 8-8-02, the above referenced report is approved for Preliminary Plat action by the DRB. Prior to Work Order, please revisit the storm drain design in order to keep the curb at 8" maximum. The use of 10" curb (as stated in the report) will require additional R/W in order to maintain accessible driveways.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept
Development and Building Services

C: file

2003-10
Part
copy

N-09/1003

AGREEMENT FOR IMPROVEMENT OF A PORTION OF THE
AMOLE ARROYO DRAINAGE FACILITY
FOR EL RANCHO GRANDE 1, UNIT 9, RESIDENTIAL SUBDIVISION

This Agreement is entered into this 21st day of March, 2003 by and between the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), a political subdivision of the State of New Mexico, and Curb, Inc., a New Mexico corporation.

RECITALS:

WHEREAS, AMAFCA's Amole-Hubbell Drainage Management Plan (DMP), adopted by AMAFCA July 22, 1999, recommended improvement of the Amole Arroyo from the Amole Basin TO the Snow Vista Channel; and

WHEREAS, Curb, Inc. is constructing El Rancho Grande 1, Unit 9, and is constructing drainage improvements for the residential subdivision to connect to a portion of the Amole Arroyo shown on attached Map "A" (the PROJECT) near the Unser Blvd. crossing; and

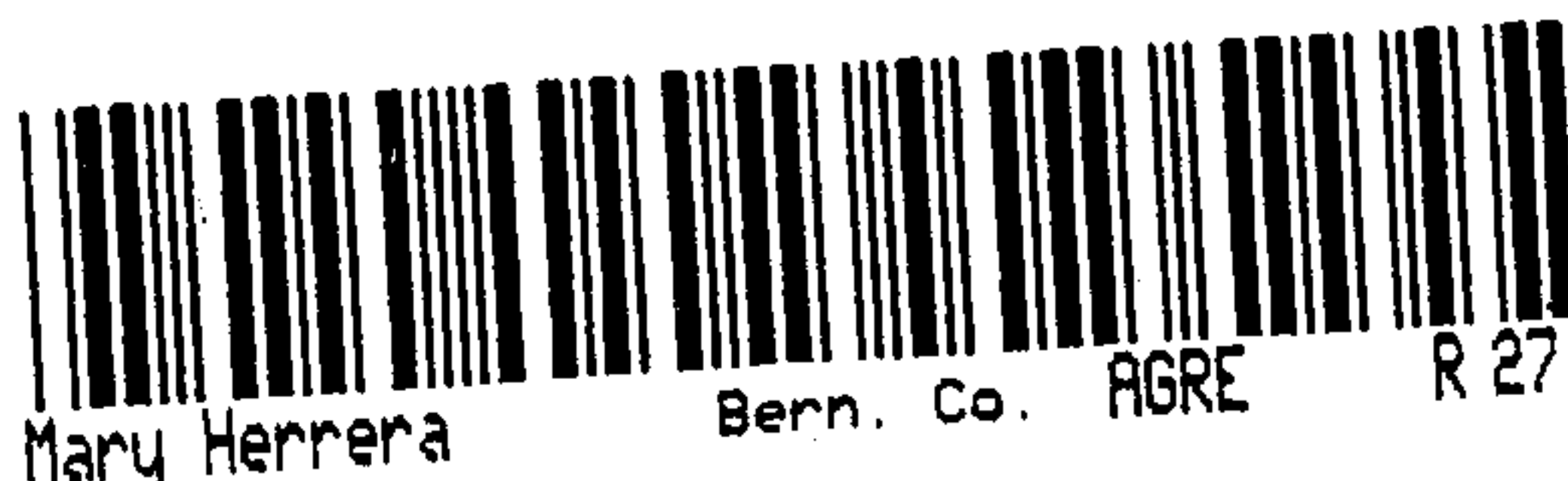
WHEREAS, AMAFCA desires to provide drainage improvements to planned arroyo systems as development proceeds in order to protect adjacent developed properties from erosion and flooding damage; and

WHEREAS, Curb, Inc. has indicated a willingness to participate in the funding of proposed improvements to the Amole Arroyo; and

WHEREAS, Curb, Inc., and AMAFCA wish to cooperate on the improvement of the Amole Arroyo; and

WHEREAS, the cost of the proposed improvements for the Amole Arroyo have been previously discussed and agreed to by the Curb, Inc., and AMAFCA, as shown on the attached Amole Arroyo Improvements Plan (Table A), and as further described for Amole Arroyo, Reach 1,2, and 3 in the Cost Summary Table, Exhibit 1; and

WHEREAS, AMAFCA Resolution 1982-4 Cost-Sharing with Land Owners, provides for the private sector to share in the cost of flood control facilities; and



2003087981
5878997
Page: 1 of 18
05/27/2003 12:58P
Bk-A56 Pg-7793

**AGREEMENT FOR IMPROVEMENT OF A PORTION OF THE
AMOLE ARROYO DRAINAGE FACILITY
FOR EL RANCHO GRANDE 1, UNIT 9, RESIDENTIAL SUBDIVISION**

WHEREAS, the PROJECT is appropriate for AMAFCA and Curb, Inc. in that it:

- a. Is consistent with AMAFCA's mission
- b. Provides a major arroyo which was addressed in AMAFCA's DMP
- c. Continues channelization of the Amole Arroyo for eventual delivery of drainage to the Amole Dam
- d. Will provide flood protection for the proposed El Rancho Grande 1, Unit 9
- e. Provides a flood-control facility capable of accepting future developed flows as described in the Amole-Hubbell DMP for Amole Arroyo, Alternative #2

WHEREAS, AMAFCA has the capability to maintain the PROJECT after construction;
and

WHEREAS, the City of Albuquerque and AMAFCA will jointly monitor the status of development in the upstream contributing basin for the need to construct improvements to the Amole Arroyo system, as identified in the Amole-Hubbell Drainage Management Plan; and

WHEREAS, the City of Albuquerque has prepared the Trails and Bikeways Facility Plan, which was endorsed by the AMAFCA Board of Directors via Resolution 1994-2, which identifies a multi use trail along the flood control facility in this reach; and

WHEREAS, said PROJECT also offers opportunities for other purposes, such as open space, parks, trails, and other appropriate public uses, subject to the primacy of the drainage function; and

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. Curb, Inc. will construct temporary improvements to the Amole Arroyo as required by the approved construction plans by the City of Albuquerque and AMAFCA, for the drainage improvements for El Rancho Grande 1, Unit 9.

2. Curb, Inc. agrees to provide funding for the future improvement of the Amole Arroyo, in lieu of constructing partial channel improvements, equal to one-half the private share



Mary Herrera

Bern. Co. AGRE

R 27.00

2003087981
5878997

Page: 2 of 10
05/27/2003 12:58P
Bk-A56 Pg-7793

**AGREEMENT FOR IMPROVEMENT OF A PORTION OF THE
AMOLE ARROYO DRAINAGE FACILITY
FOR EL RANCHO GRANDE 1, UNIT 9, RESIDENTIAL SUBDIVISION**

for improvements to the Amole Arroyo (the Project) in accordance with the cost sharing shown in the attached Table A.

3. This cost sharing by Curb, Inc. will represent the full responsibility of Curb, Inc. cost participation for El Rancho Grande 1, Unit 9 for this section of the Amole Arroyo Improvements.

4. Curb, Inc. agrees to pay to AMAFCA one-half of the private share for the project, in the amount of \$296,765.00 , no later than June 1, 2004. Curb, Inc. agrees to pay to AMAFCA, within 30 days of receipt of invoice from AMAFCA, the Curb, Inc. share of the Project.

5. Curb, Inc. shall provide AMAFCA financial guarantees in the amount of \$296,765.00 in the form of a certified bank letter of credit, or bond satisfactory to AMAFCA.

6. AMAFCA agrees to construct the drainage improvements when determined necessary and/or desirable by AMAFCA, subject to availability of funds. The decision on the sufficiency of funds shall be at the discretion of the AMAFCA Board of Directors. In the event that subsequent analysis by AMAFCA indicates that the drainage improvements need not be constructed or that different drainage improvements shall be constructed, then AMAFCA shall have the right to elect not to build the drainage improvements or to build different drainage improvements.

AMAFCA and Curb, Inc. further agree as follows:

- a. That they are sharing the project costs as provided herein in accordance with the cost sharing percentages contained herein and as shown on Table A.
- b. The facilities and right of way described herein have the primary purpose of conveying and managing storm water flows, and other interests granted by any party shall be subservient to that purpose.

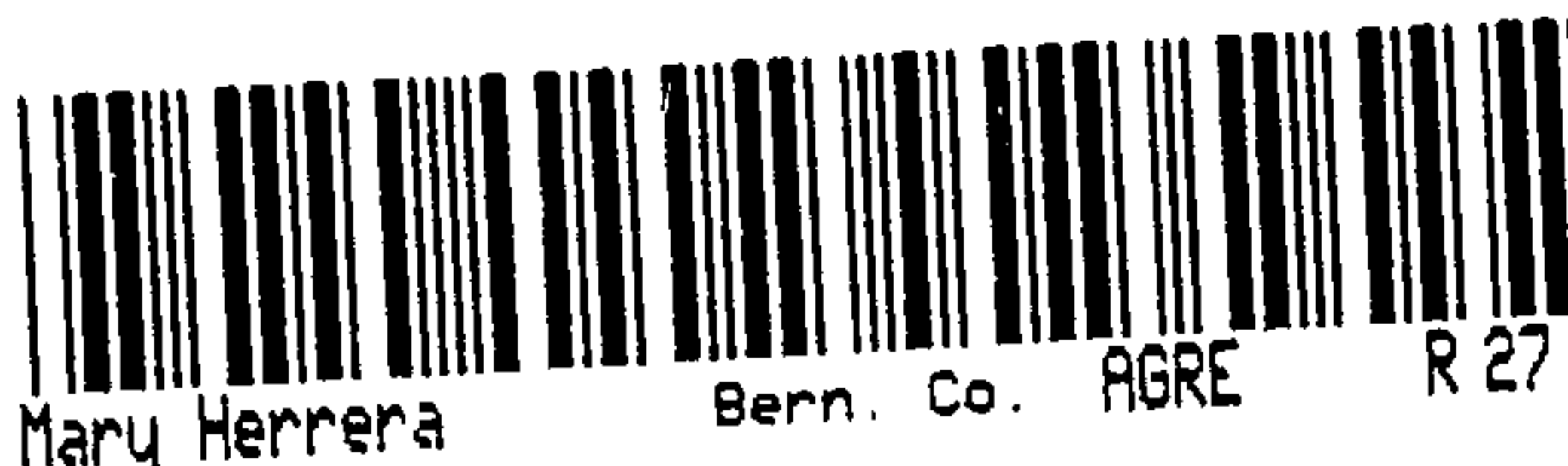
**AGREEMENT FOR IMPROVEMENT OF A PORTION OF THE
AMOLE ARROYO DRAINAGE FACILITY
FOR EL RANCHO GRANDE 1, UNIT 9, RESIDENTIAL SUBDIVISION**

- c. This Agreement does not relieve Curb, Inc. of the requirement to construct (or financially guarantee construction of) such facilities that AMAFCA and COA may deem necessary.
- d. Disputes under this Agreement shall be referred to binding arbitration under the provisions of the New Mexico Uniform Arbitration Act.
- e. This Agreement may not be assigned by any of the parties without the written consent of the other parties, which consent shall not be unreasonably withheld.
- f. Except as otherwise specifically provided herein, this Agreement shall be in writing and shall be delivered personally, sent via confirmed telefax, or sent postage prepaid by United States certified mail, return receipt requested, to the addresses set forth below or such other addresses as hereinafter specified in writing by one party to the other:

Albuquerque Metropolitan Arroyo
Flood Control Authority
2600 Prospect NE
Albuquerque, NM 87107
FAX: 884-0214

Curb, Inc.
6301 Indian School Rd. NE
Albuquerque, NM 87110
FAX: 899-2851

- g. This Agreement contains the entire Agreement between the parties hereto and all prior understandings, oral or in writing, by the parties hereto with respect to this Agreement are hereby null and void. No variations, modifications, supplements, waivers or changes herein or hereof shall be binding upon any party hereto unless set forth in a document duly executed by or on behalf of such party.
- h. If any provision of this Agreement or the application thereof to any person or circumstance shall be invalid or unenforceable to any extent, the remainder of this Agreement and the application of such provisions to other persons or circumstance shall not be affected thereby and such provisions shall be enforced to the greatest extent permitted by law. In the event any action is instituted by any party for the purpose of enforcing or interpreting any provision of this Agreement, the prevailing party in such action shall be entitled to its reasonable attorney's fees and costs.
- i. This Agreement shall inure to the benefit of and be binding upon the undersigned parties and their respective successors and assigns. Whenever in this Agreement a reference to Curb, Inc. is made, such references shall be deemed to include a reference to successor owners of the Curb, Inc. property.
- j. Each individual signing for each of the parties hereunder warrants and represents that he/she is an authorized agent of such party, on whose behalf he/she is executing this Agreement, and is authorized to execute the same.



**AGREEMENT FOR IMPROVEMENT OF A PORTION OF THE
AMOLE ARROYO DRAINAGE FACILITY
FOR EL RANCHO GRANDE 1, UNIT 9, RESIDENTIAL SUBDIVISION**

- k. Each party agrees to execute such other and further instruments and documents as may be necessary or proper in order to complete the transactions contemplated by this Agreement.
- l. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, and said counterparts shall constitute but one and the same instrument which may sufficiently be evidenced by one counterpart.
- m. Funds for this project may be contingent upon AMAFCA's successful sale of General Obligation Bonds.
- n. It is specifically agreed between the parties that this Agreement does not, and is not intended to, create in the public, or any member thereof, any rights whatsoever, such as but not limited to, the rights of a third party beneficiary, nor to authorize anyone not a party to this Agreement to maintain a suit for wrongful death or any other claim, whatsoever.
- o. As between the parties, each shall be solely responsible for any and all liability from personal injury, including death or damage to property, arising from any negligent or intentional act or failure to act of the respective party, its officials, agents, contractors or employees pursuant to this Agreement. The liabilities of each applicable party shall be subject to the immunities and limitations of the Tort Claims Act, §§41-4-1, et seq., NMSA, 1978, and any amendments thereto. AMAFCA and its "public employees" as defined in the New Mexico Tort Claims Act, do not waive sovereign immunity, and do not waive any defense and/or do not waive any limitation of liability pursuant to law. No provision in this Agreement modifies or waives any provision of the New Mexico Tort Claims Act.



EXHIBIT 1

February 14, 2003

AMOLE ARROYO – SNOW VISTA CHANNEL to AMOLE DETENTION BASIN

COST SUMMARY TABLE

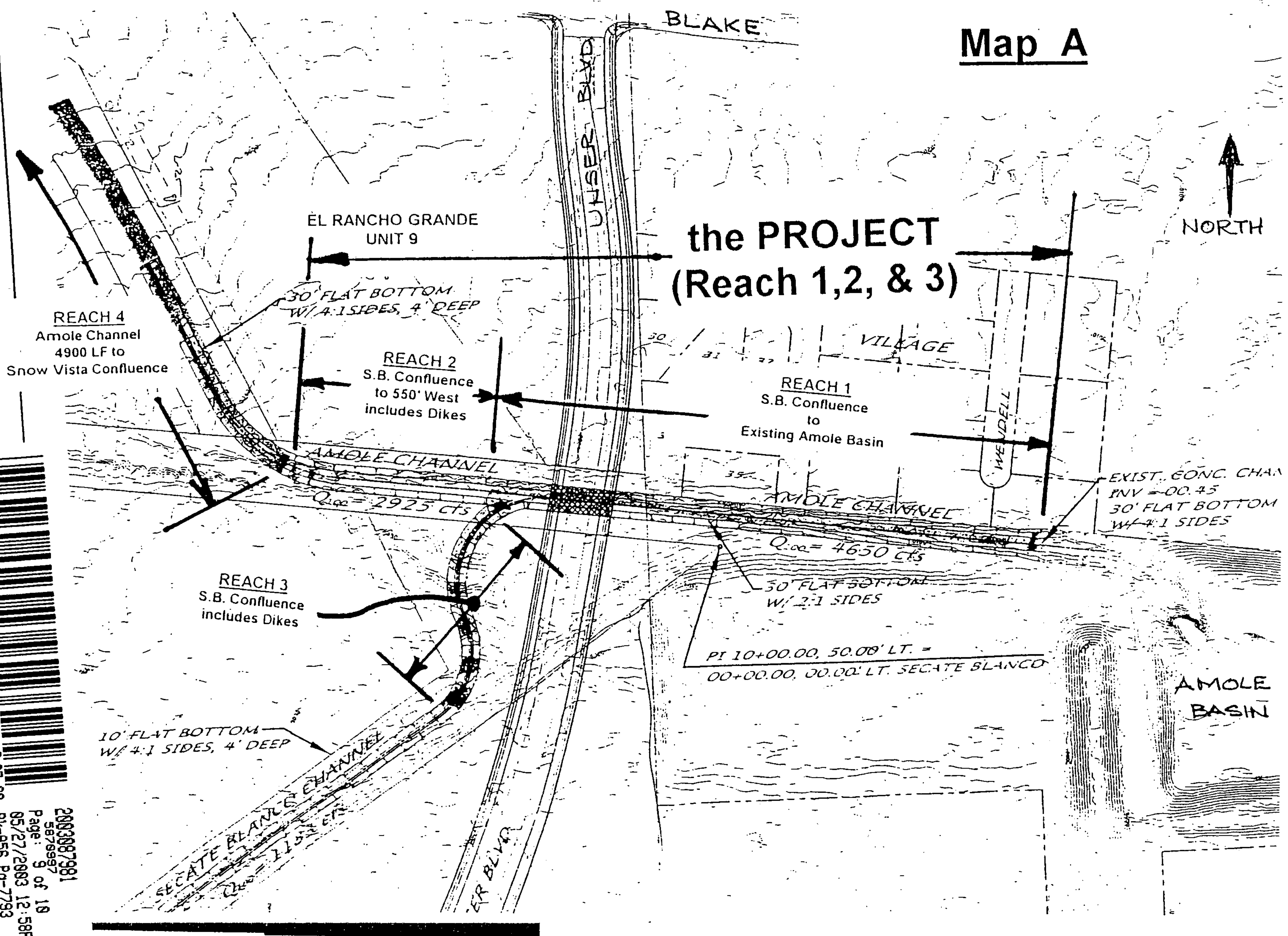
Reach	Description	Cost
1	Amole Channel, Amole Det. Basin to Sacate Blanco Confluence 30' bottom, 8' depth, 2:1 sides, with Trail 1260 l.f. concrete channel w/150' enter dikes	\$621,400
2	Amole Channel, Sacate Blanco Confluence to Amole Channel north 30' bottom, 5' depth, 2:1 sides, with Trail 400 l.f. concrete channel	\$159,800
3	Sacate Blanco Channel, Amole Channel to Main Sacate Blanco Channel 10' bottom, 5' depth, 4:1 sides 50 l.f. concrete channel w/350' enter dikes	\$66,700
4	Amole Channel north, Amole Channel to Snow Vista Confluence 30' bottom, 5' depth, 4:1 sides, with Trail 4900 l.f. concrete channel	\$2,373,000



2003087981
5870997
Page: 8 of 10
05/27/2003 12:58P
Bk-A56 Pg-7793

Map A

the PROJECT (Reach 1, 2, & 3)



MAP A

Mary Herrera



Bern. Co. AGRE

R 27.00

2003087981
5878997
Page: 9 of 10
05/27/2003 12:58P
BK-R56 Pg-7793

TABLE A : AMOLE ARROYO IMPROVEMENT PLAN - COSTS

March 4, 2003

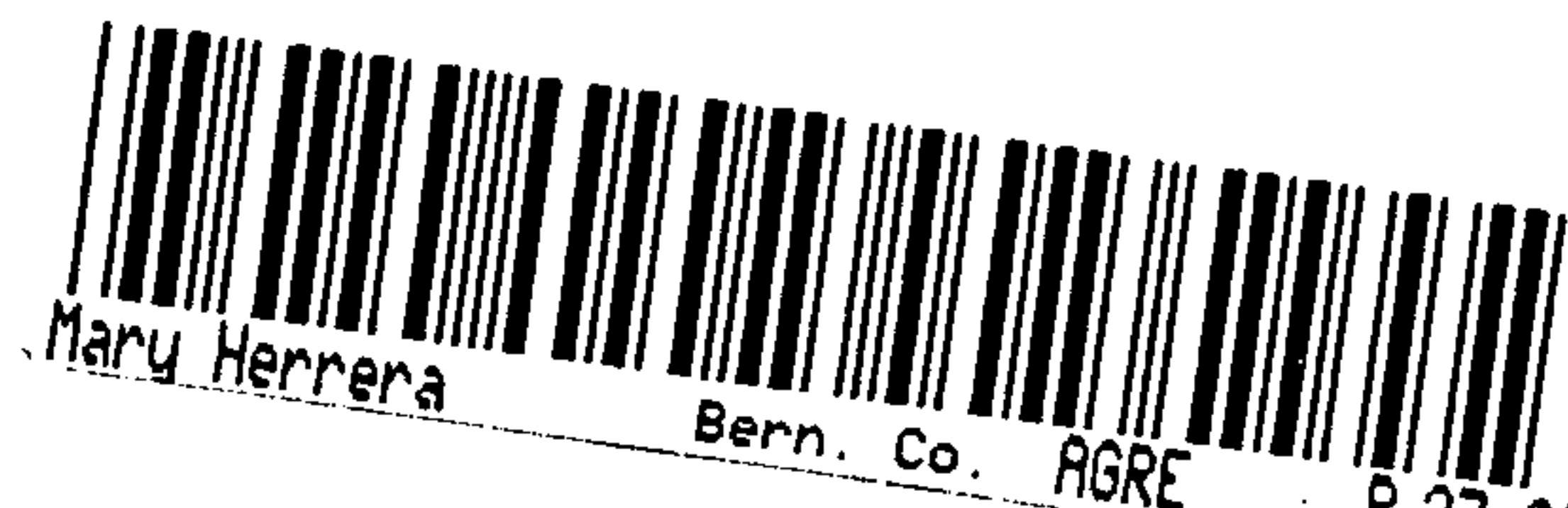
Amole Arroyo, from the SW corner of El Rancho Grande I, Unit 9 to Amole Detention Basin

Improvements identified in Amole-Hubbell Drainage Management Plan, adopted July 22, 1999

Project Elements			Total Cost	AMAFCA 30%	Private 70%
Includes Reach 1,2, and 3					
	30%	70% AMAFCA / Private			
Open Channel	1810	LF	743,800	223,140	520,660
Design, 8%			59,500	17,850	41,650
Construction Management, 6%			44,600	13,380	31,220
Right of Way			0		
Subtotal			847,900	254,370	593,530

Private Cost Share Summary

El Rancho Grande I, Unit 9	296,765
Other Private Share	296,765



2003087981
5870997
Page: 10 of 10
05/27/2003 12:58P
Bk-A5C