

Academy

**DEVELOPMENT & BUILDING SERVICE CENTER
ONE STOP SHOP**

600 SECOND ST. N.W.

ATTENTION: Arlene
505-924-3900
82

Records Withdrawal Form

Project No. N9-D2 **Date:** 5-26-05

Project Title: El Rancho Grande USA & SB

a. File b. Mylars c. Redlines/Comments
d. Other _____

Requested by: W. Lee O'Leary **Phone No.:** 348-4173
Name and Company

Comments:

Anticipated Return Date: _____

I hereby accept full responsibility for the security of the above noted records/plans until return receipt acknowledgement is completed. Records/plans will be returned to the Development and Building Services Center on or before the indicated anticipated return date.

Delivery Picked Up By:

Name: RONALD BLADES **Organization:** ACADEMY REPRO
Print
Signed: Ronald Blades **Date:** 5-27-05

Office Use Only

Return Acknowledged:

Received By: Sandy Handley **Date:** 05/27/05
Print



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 29, 2002

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

**Re: El Rancho Grande Units 5A & 5B Subdivision, Drainage Report
Engineer's Stamp dated 5-20-02 (N9/D2)**

Dear Mr. Krenik,

Based upon the information provided in your submittal dated 5-21-02, the above referenced report is approved for Preliminary Plat action by the DRB. Once that board has approved that action, please submit mylars to this office for signature in order to obtain a Rough Grading Permit.

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

Sincerely,

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

C: file

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

N-9/D2

PROJECT TITLE: El Rancho Grande I, Units 5A & 5B

ZONE MAP/DRB FILE#: ~~M-9 & N-9~~

DRB#: 1001918 EPC# _____

WORK ORDER#: _____

LEGAL DESCRIPTION: Parcels 5A & 6, El Rancho Grande I

CITY ADDRESS: _____

ENGINEERING FIRM: Mark Goodwin & Associates, PA

CONTACT: Gregory J. Krenik, PE

ADDRESS: P.O. Box 90606 Albuquerque NM 87119

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, NM

ZIP CODE: 87110

ARCHITECT: _____

CONTACT: _____

ADDRESS: _____

PHONE: _____

CITY, STATE: _____

ZIP CODE: _____

SURVEYOR: ALS, Inc.

CONTACT: Tim Aldrich

ADDRESS: PO Box 30701

PHONE: 884-1990

CITY, STATE: Albuquerque, NM

ZIP CODE: 87190

CONTRACTOR: _____

CONTACT: _____

ADDRESS: _____

PHONE: _____

CITY, STATE: _____

ZIP CODE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☒ DRAINAGE PLAN REVISED (ADDED BASINS)
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☒ GRADING PLAN REVISED (ADDED BASINS)
- ☐ 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

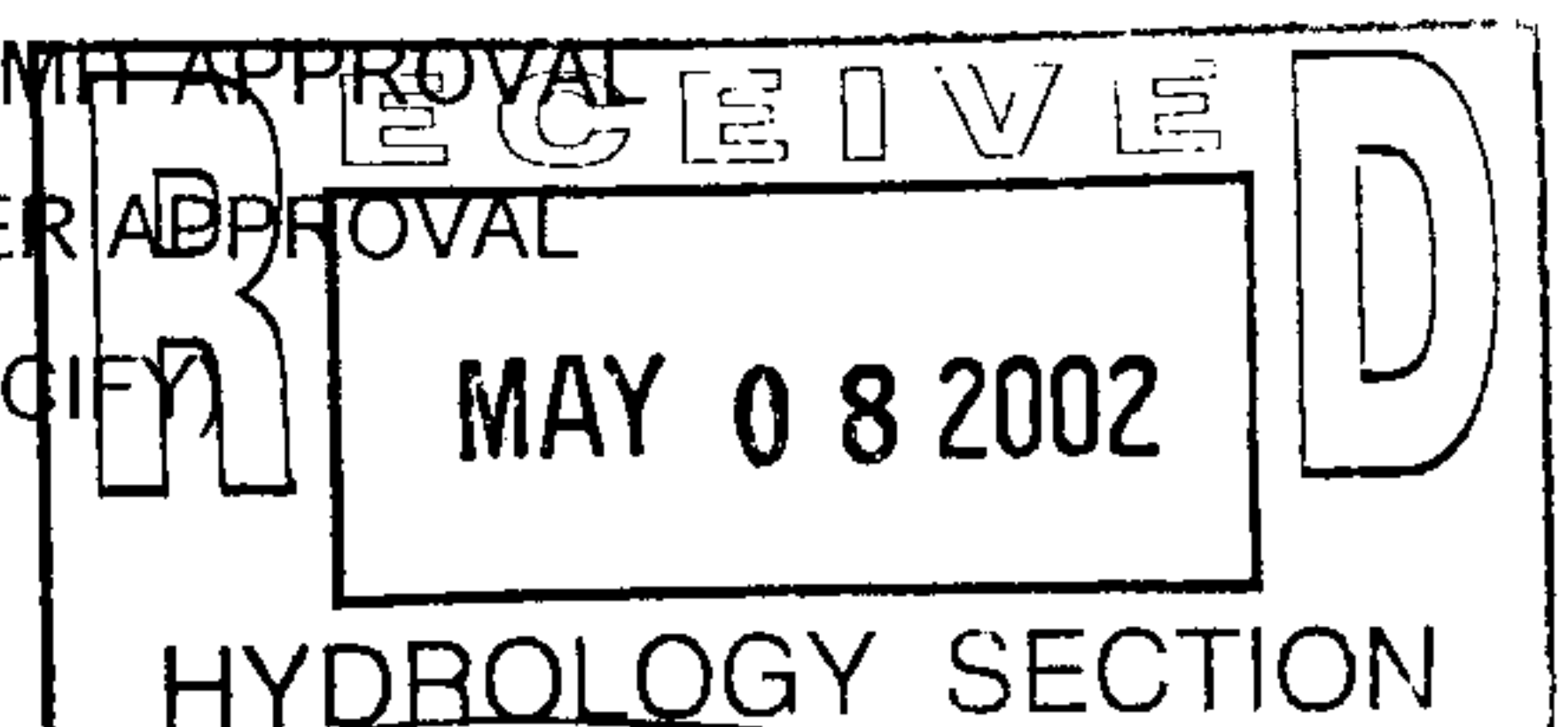
CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANCIAL GUARANTY 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: 5-8-02



BY: GREGORY J. KRENIK

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.

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

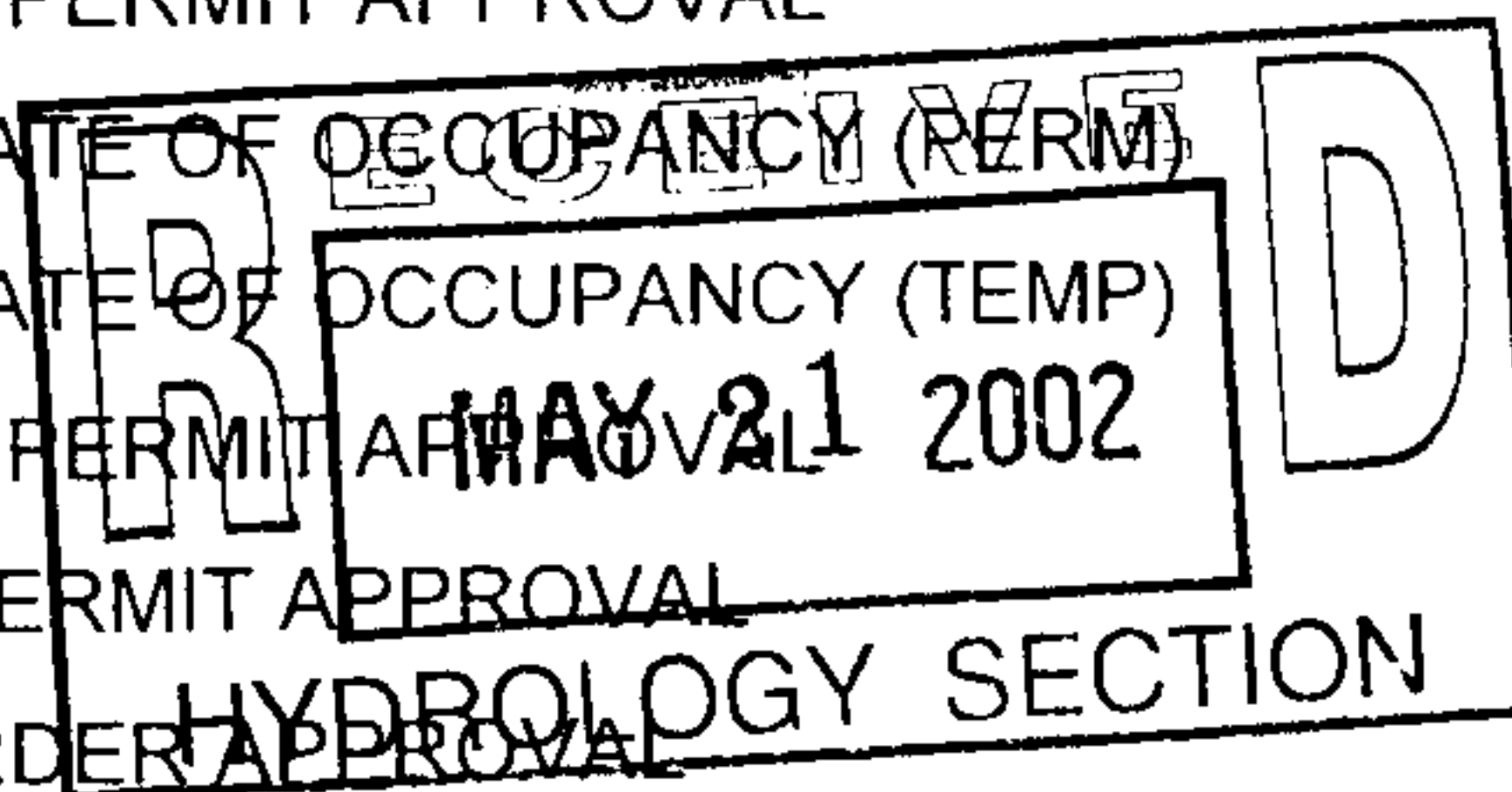
PROJECT TITLE: <u>El Rancho Grande I, Units 5A & 5B</u>		ZONE MAP/DRB FILE#: <u>M-9 & N-9</u>
DRB#: <u>1001918</u>	EPC# _____	WORK ORDER#: _____
LEGAL DESCRIPTION: <u>Parcels 5A & 6, El Rancho Grande I</u>		
CITY ADDRESS: _____		
ENGINEERING FIRM: <u>Mark Goodwin & Associates, PA</u>		CONTACT: <u>Gregory J. Krenik, PE</u>
ADDRESS: <u>P.O. Box 90606 Albuquerque NM 87119</u>		PHONE: <u>828-2200</u>
CITY, STATE: <u>Albuquerque NM</u>		ZIP CODE: <u>87199</u>
OWNER: <u>Curb, Inc.</u>		CONTACT: <u>Bo Johnson</u>
ADDRESS: <u>6301 Indian School Rd., NE</u>		PHONE: <u>450-4616</u>
CITY, STATE: <u>Albuquerque, NM</u>		ZIP CODE: <u>87110</u>
ARCHITECT: _____		CONTACT: _____
ADDRESS: _____		PHONE: _____
CITY, STATE: _____		ZIP CODE: _____
SURVEYOR: <u>ALS, Inc.</u>		CONTACT: <u>Tim Aldrich</u>
ADDRESS: <u>PO Box 30701</u>		PHONE: <u>884-1990</u>
CITY, STATE: <u>Albuquerque, NM</u>		ZIP CODE: <u>87190</u>
CONTRACTOR: _____		CONTACT: _____
ADDRESS: _____		PHONE: _____
CITY, STATE: _____		ZIP CODE: _____

TYPE OF SUBMITTAL:

CHECK TYPE OF APPROVAL SOUGHT:

- ☒ DRAINAGE REPORT *REVISED (Added sheets 9A+11A, 97, 98, 99 - revised sheets 4+11)*
- ☒ DRAINAGE PLAN *REVISED TO SHOW CHANGES PER HYDROLOGY COMMENTS*
- ☒ CONCEPTUAL GRADING & DRAINAGE PLAN *REVISED TO SHOW CHANGES PER HYDROLOGY COMMENTS*
- ☒ GRADING PLAN *REVISED TO SHOW CHANGES PER HYDROLOGY COMMENTS*
- ☐ 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

- ☐ SIA / FINANCIAL GUARANTY 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) *ROUGH GRADING APPROVAL*



WAS A PRE-DESIGN CONFERENCE ATTENDED:

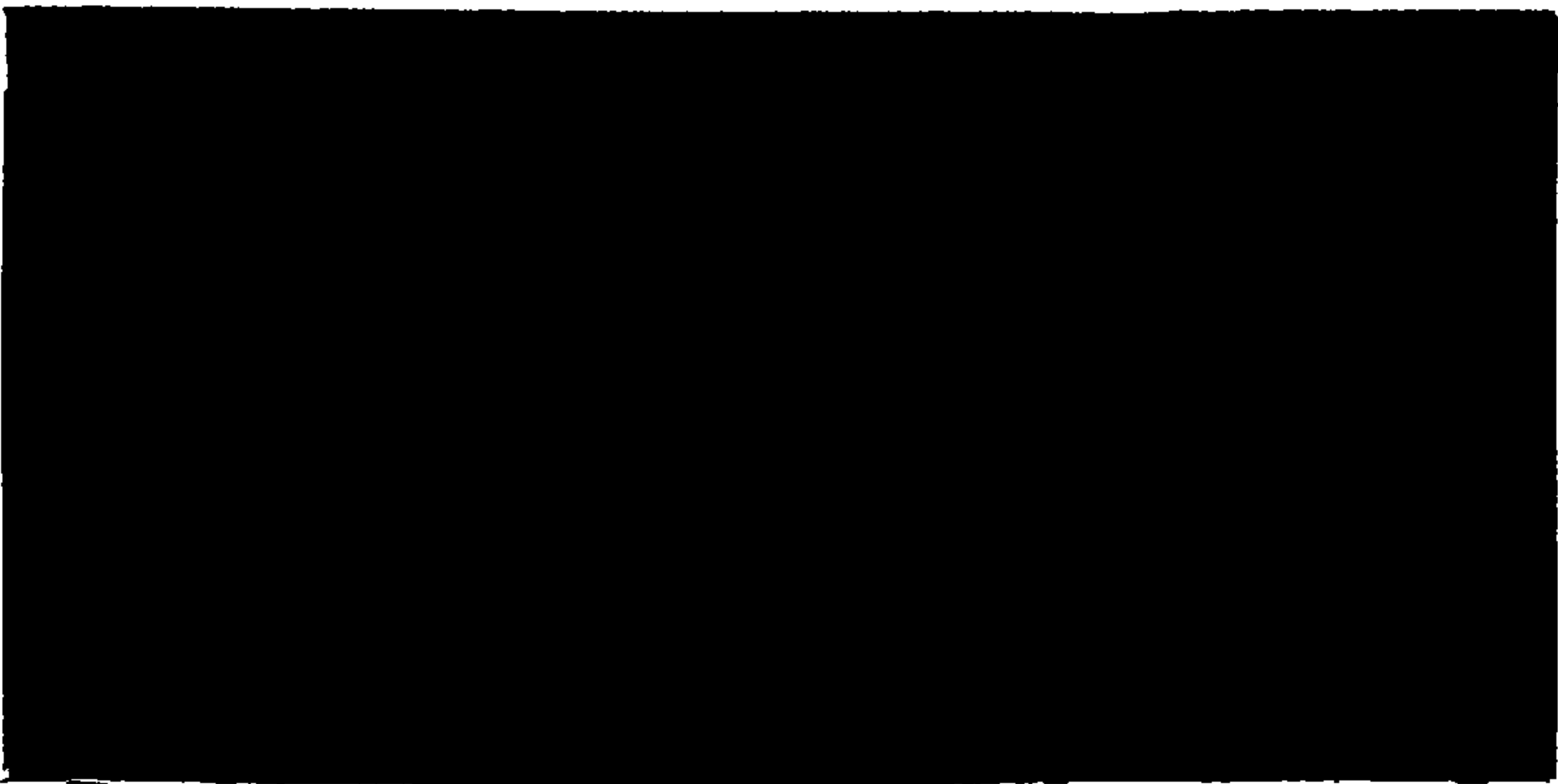
- ☐ YES
- ☐ NO
- ☐ COPY PROVIDED

DATE SUBMITTED: 5-20-02

BY: GREGORY J. KRENIK

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:

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MARK GOODWIN

& ASSOCIATES

dmg



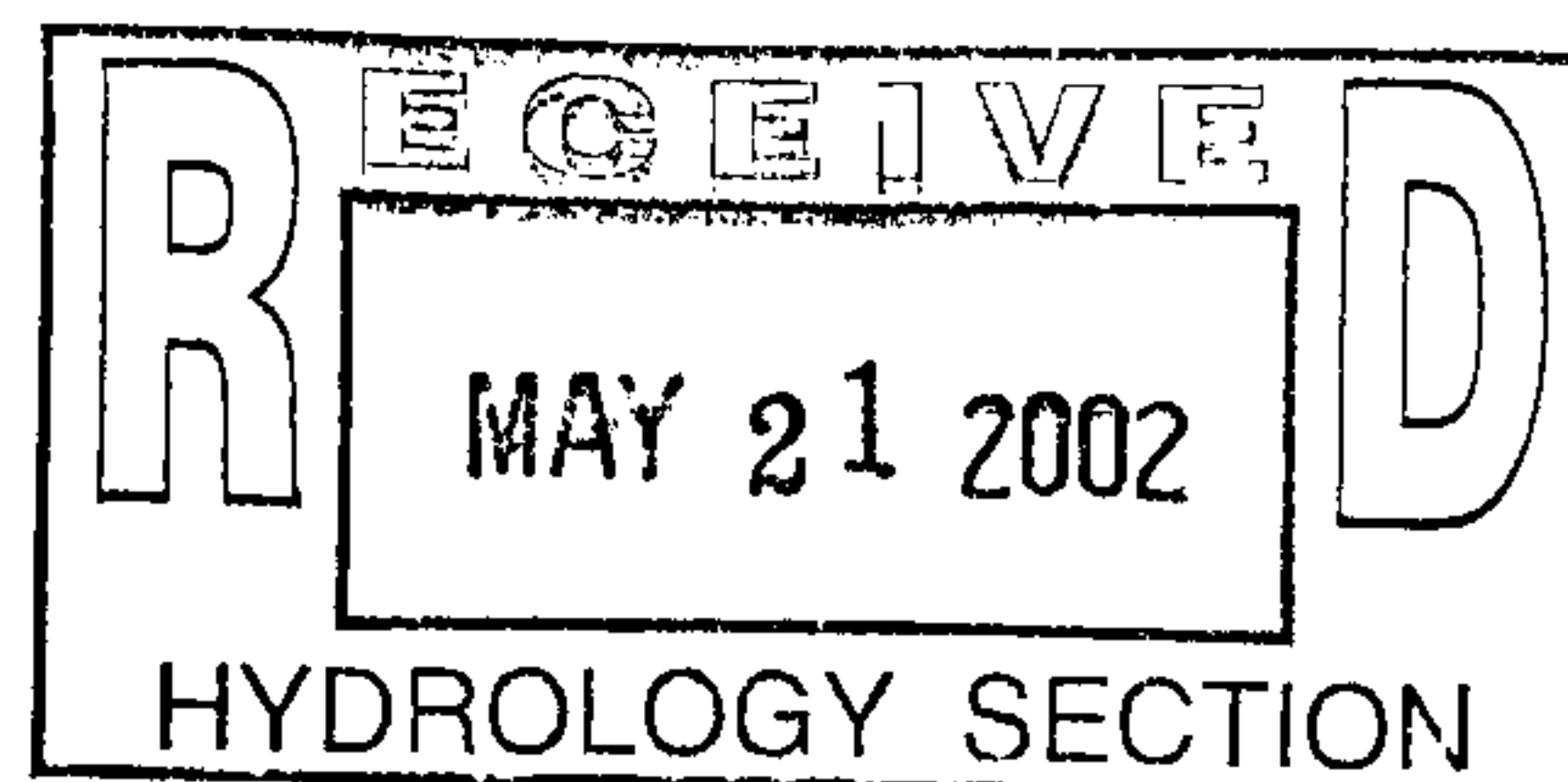
City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 3, 2002

Gregory J. Krenik, PE
Mark Goodwin & Associates, P.A.
PO Box 90606
Albuquerque, NM 87199

Re: El Rancho Grande I Grading and Drainage Plan
Engineer's Stamp Dated 4-26-02, (N9/D2)



Dear Mr. Krenik,

Based on the information contained in your submittal dated 4-26-02, the above referenced plan is not approved for Preliminary Plat or Grading Permit until the following comments are addressed:

- On Spotted Pony Ave, please consider a stub out street with no connection to Mustang Ridge Drive because of the poor visibility, and ~~reduced grading~~ ^{allow} **ADDED A KNUCKLE WITH 10' CHANNEL**
- Please provide better grades just west of Block 22 to allow a 3' maximum slope for site distance purposes. Also provide grades to where the back lots have a backyard pond, ^{consider} **THIS HAS BEEN ELIMINATED**
- Please denote for Block 20 that the lots have a backyard pond and do not appear to drain to Gibson through the wall. **THIS HAS BEEN DONE - DETAIL ADDED**
- Where does the property ^{west} east of offsite basins A & B drain to? It appears that Stampede Drive may be collecting this flow as well. If so, please quantify this offsite flow and obtain a cross lot drainage easement. **THERE IS NO PROPERTY WEST OF BASINS A+B EXCEPT THE CHANNEL. A+B DRAIN SEPARATELY OF EACH OTHER.**
- Please grade west of Silver Tree Drive near Spring Sage Ct. for site distance.
- Please show spot elevations on Mustang Ridge Drive between Trotter Road and Blake Road to show what is happening in this area. Is there a water block? **THESE HAVE BEEN ADDED**
- Please, identify all water blocks. **DONE**

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

Sincerely,

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

c: Terri Martin, Hydrology
File (2)

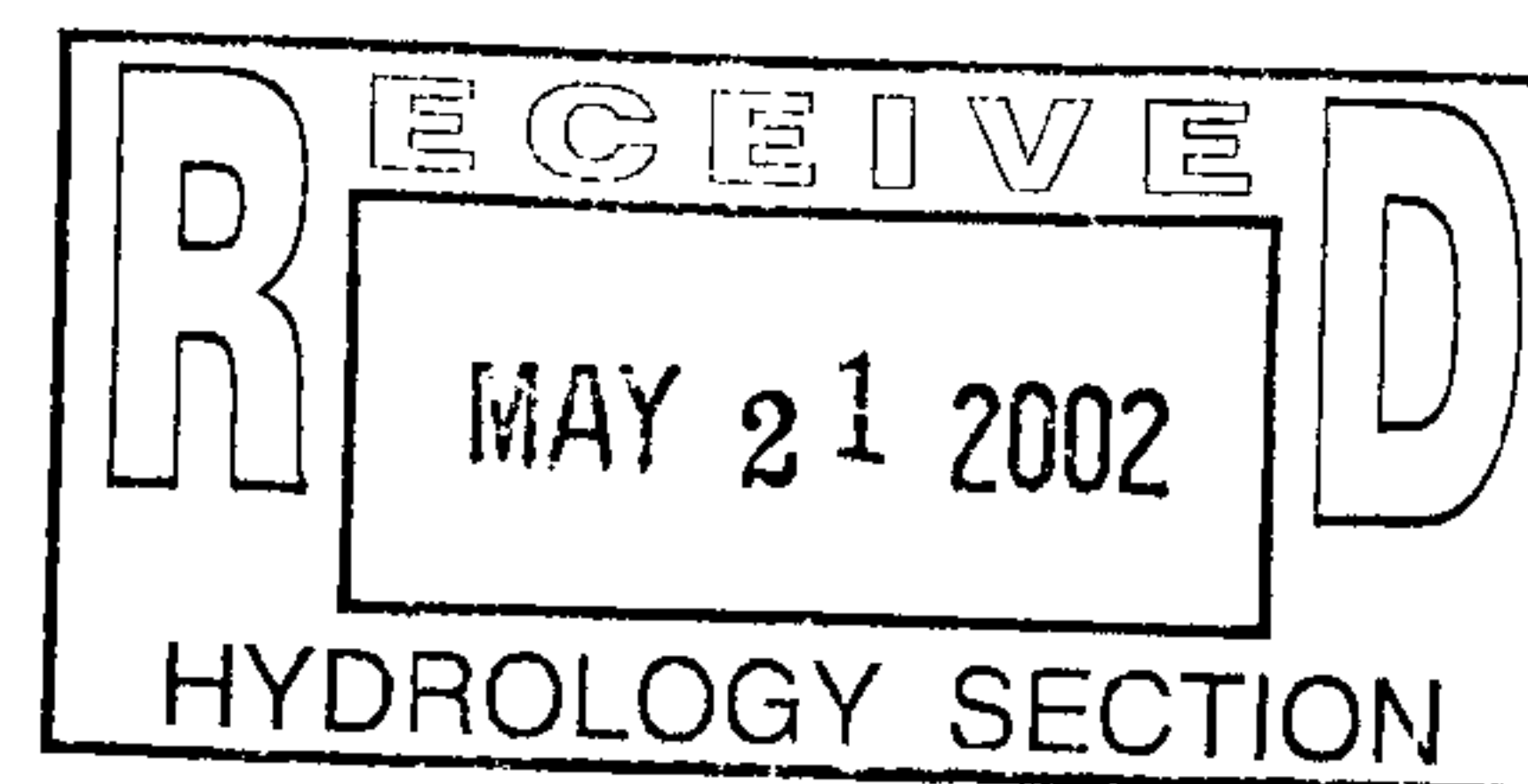


City of Albuquerque

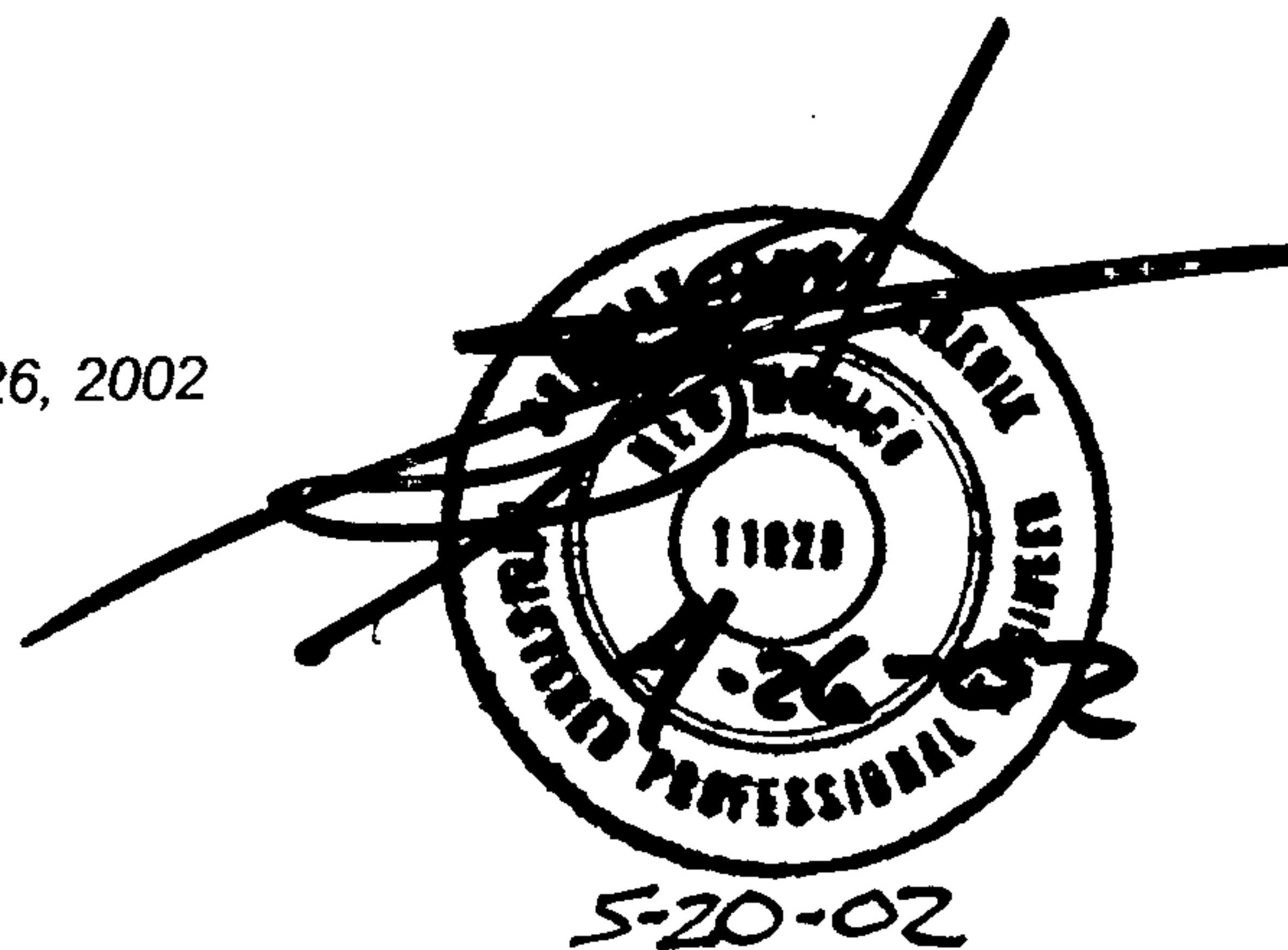
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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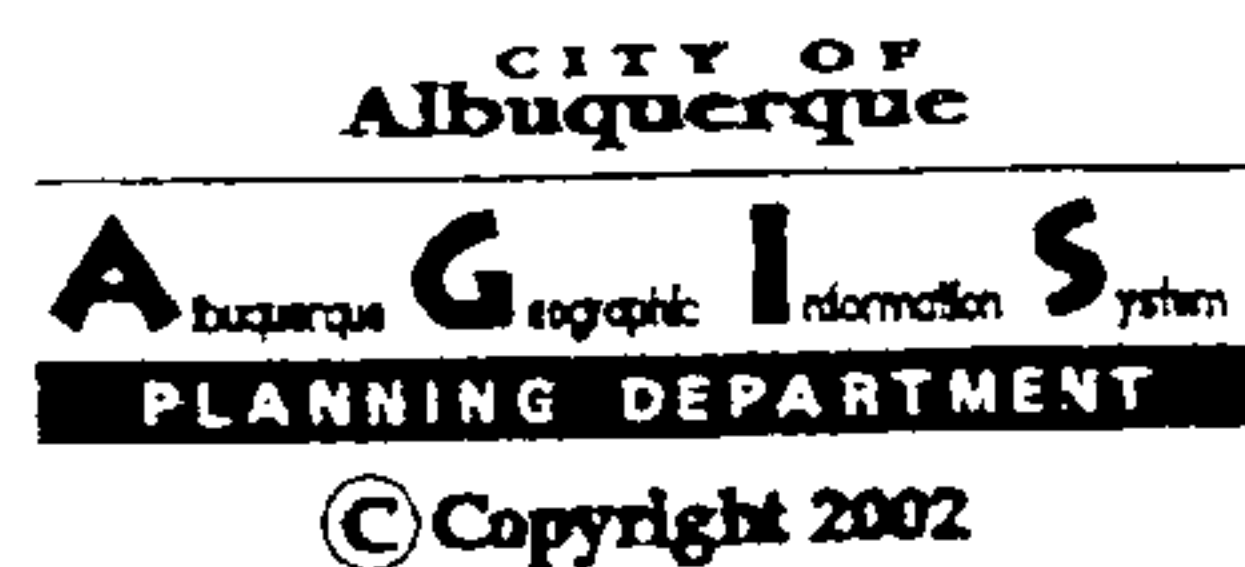
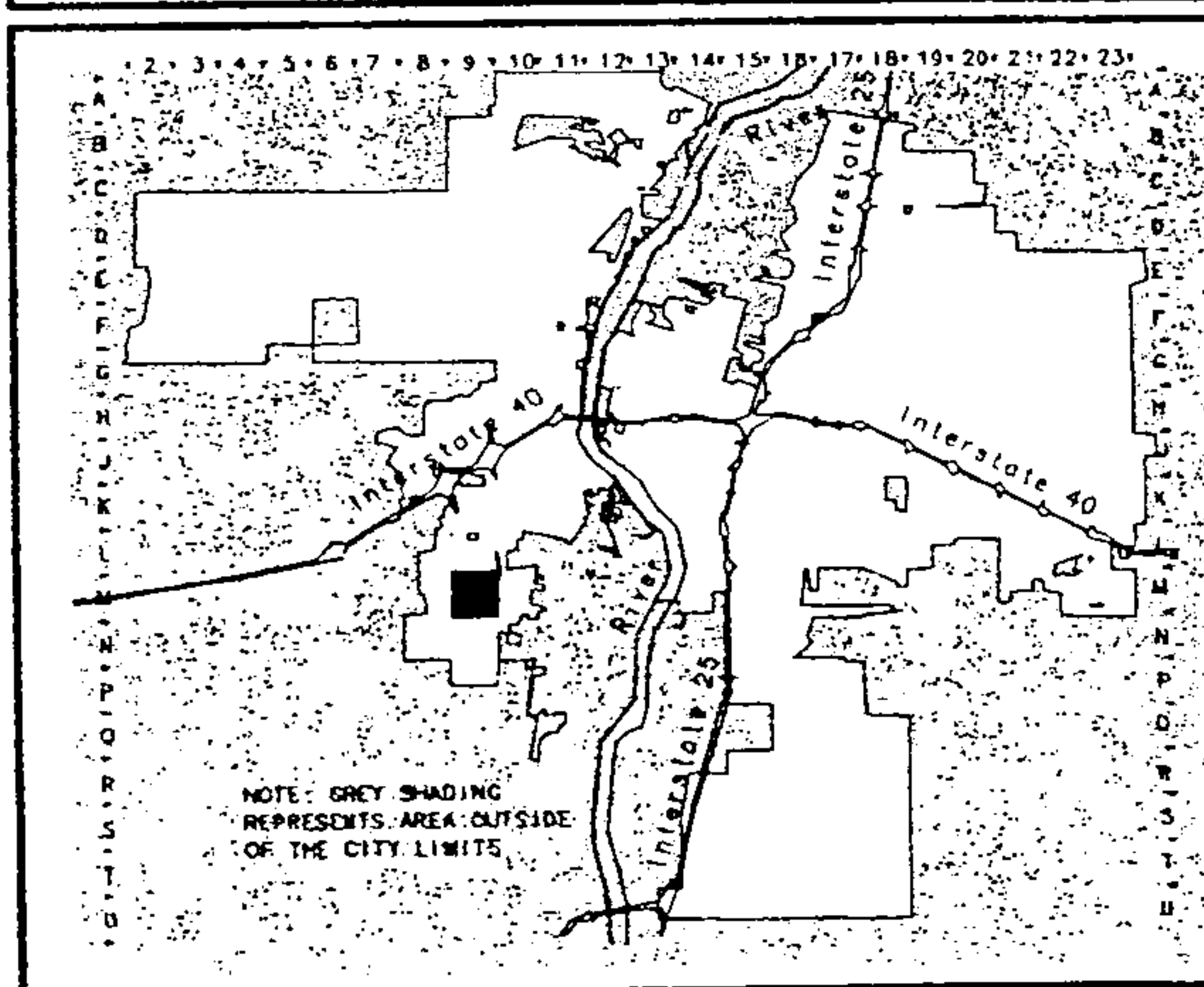
DRAINAGE REPORT
for
EL RANCHO GRANDE I
Units 5A & 5B



April 26, 2002



5-20-02



M-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: dmg@swcp.com

PROJECT ELRG I - UNITS 5A & 5B
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-23-02
CHECKED _____ DATE _____
SHEET 1 OF _____

- THE PROJECT CONSISTS OF 26.97 AC.
- SITE IS LOCATED JUST WEST OF EL RANCHO GRANDE - UNITS 4A & 4B SOUTH OF GIBSON BLVD SW, NORTH OF BLAKE ROAD SW AND EAST OF SILVER TREE AND STAMPEDE ROAD.
- THERE ARE 150 PROPOSED LOTS
- SITE IS NOT IN A 100 YEAR FLOOD ZONE.
- THE REPORT FOR EL RANCHO GRANDE I - UNITS 4A AND 4B WILL BE REFERENCED IN THIS REPORT.
- THIS PROJECT CONSISTS OF BASINS C, D, E, F, L, M, AND P OF THAT REPORT
- THERE ARE 3 OFFSITE BASINS A, B AND PARK OF THAT REPORT THAT DRAIN TO OUR SITE.
- PER THE ELRG I - UNITS 4A & 4B REPORT

BASIN NO	AREA (AC)	
A	8.47	
B	6.92	15.39 COMMERCIAL OFFSITE
C	4.13	
D	4.39	
F	4.95	13.47 UNIT 5B
E	3.68	
L	3.03	
M	3.54	
P	3.05	13.30 UNIT 5A
PARK	6.71	OFFSITE

— CALCULATE RUNOFF FOR EACH BASIN

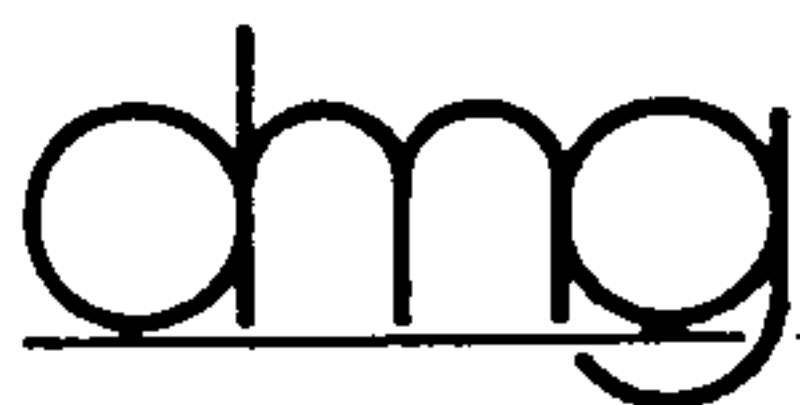
- BASIN C 4.13 AC

26 LOTS 17 - 35' x 65' PAOS = 38,675 SF = 62.30%
9 - 40' x 65' PAOS = 23,400 SF = 37.70%

TOTAL TYPE D = 2.3638 AC = 57.23%
TYPE C = 21.38%
TYPE B = 21.39%

FROM AHJMO SHEETS 19-21

$Q = 14.87$ CFS $\rightarrow$ 9.26 CFS FOR 35' x 65' PAOS
= 0.5447 CFS/LOT
5.61 CFS FOR 40' x 65' PAOS
= 0.6233 CFS/LOT



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

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(505) 828-2200 FAX 797-9539
e-mail: dmgs@swcp.com

PROJECT ERGI - UNITS 5A+5B
SUBJECT DRAINAGE CALCULATION
BY GSK DATE 4-23-02
CHECKED _____ DATE _____
SHEET 2 OF _____

• BASIN D 4.39 AC

23 LOTS 13 - 35'x65' PADS = 29,575 SF = 53.22 %
10 - 40'x65' PADS = 26,000 SF = 46.78 %

TYPE D = 2.0818 AC = 47.42 %

TYPE C = 26.29 %

TYPE B = 26.29 %

FROM AHYMO OUTPUT SHEETS 22-24

Q = 14.95 CFS

13 - 35'x65' PADS = 14.95 x 0.5322
= 7.96 CFS / 13 = 0.6120 / LOT

10 - 40'x65' PADS = 14.95 x 0.4678
= 6.99 CFS / 10 = 0.6990 / LOT

• BASIN F 4.95 AC

30 LOTS 26 - 35'x65' = 59,150 SF = 85.05 %
4 - 40'x65' = 10,400 SF = 14.95 %

TYPE D = 2.6035 AC = 52.60 %

C = 23.70 %

B = 23.70 %

FROM AHYMO OUTPUT SHEETS 25-27

Q = 17.36 CFS

26 - 35'x65' PADS = 17.36 x 0.8505
= 14.76 CFS / 26 = 0.5679 CFS / LOT

4 - 40'x65' PADS = 17.36 x 0.1495
= 2.60 CFS / 4 = 0.6500 CFS / LOT

• BASIN E 3.68 AC

19 LOTS 13 - 35'x65' = 29,575 = 65.47 %
6 - 40'x65' = 15,600 = 34.53 %

TYPE D = 1.6330 AC = 44.38 %

C = 27.81 %

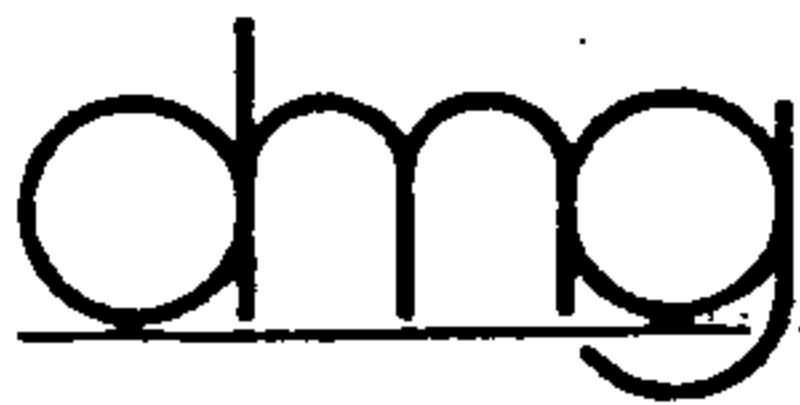
B = 27.81 %

FROM AHYMO OUTPUT SHEETS 28-30

Q = 12.32 CFS

13 - 35'x65' PADS = 12.32 x 0.6547 = 8.07 CFS / 13 = 0.6208 CFS / LOT

6 - 40'x65' PADS = 12.32 x 0.3453 = 4.25 CFS / 6 = 0.7083 CFS / LOT



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PROJECT ERGI-UNITS SA & SB

SUBJECT DRAINAGE CALCS

BY GJK DATE 4-23-02

CHECKED _____ DATE _____

SHEET 3 OF _____

• BASIN L 3.03 AC

15 LOTS 11 - 35' x 65' PADS = 25,025 SF = 70.64 %
 4 - 40' x 65' PADS = 10,400 SF = 29.36 %

TYPE D = 1.2788 AC = 42.20 %

C = 28.90 %

B = 28.90 %

FROM AHYMO OUTPUT SHEETS 31-33

Q = 10.02 CFS

11 - 35' x 65' PADS = 10.02 x 0.7064 = 7.08 CFS

7.08 / 11 = 0.6435 CFS / LOT

4 - 40' x 65' PADS = 10.02 x 0.2936

= 2.94 / 4 = 0.7350 CFS / LOT

• BASIN M 3.54 AC

19 LOTS 5 - 35' x 65' PADS = 11,375 SF = 23.81 %
 14 - 40' x 65' PADS = 36,400 SF = 76.19 %

TYPE D = 1.6771 AC = 47.38 %

C = 26.31 %

B = 26.31 %

FROM AHYMO OUTPUT SHEETS 34-36

Q = 12.06 CFS

5 - 35' x 65' PADS = 12.06 x 0.2381

= 2.87 / 5 = 0.5743 CFS / LOT

14 - 40' x 65' PADS = 12.06 x 0.7619

= 9.19 / 14 = 0.6564 CFS / LOT

• BASIN P 3.05 AC

18 LOTS 14 - 35' x 65' PADS = 31,850 SF = 75.38 %
 4 - 40' x 65' PADS = 10,400 SF = 24.62 %

TYPE D = 1.8430 AC = 60.43 %

C = 19.78

B = 19.79

FROM AHYMO OUTPUT SHEETS 37-39

Q = 11.17 CFS

14 - 35' x 65' PADS = 11.17 x 0.7538

= 8.42 / 14 = 0.6015 CFS / LOT

4 - 40' x 65' PADS = 11.17 x 0.2462

= 2.75 / 4 = 0.6875 CFS / LOT



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

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(505) 828-2200 FAX 797-9539
e-mail: dmgs@swcp.com

PROJECT ERGI - UNITS SA 35B
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-23-02
CHECKED _____ DATE _____
SHEET 4 OF _____
REVISED 5-17-02

STREET HYDRAULICS

- BAY MARE AVE - BASIN C $Q = 14.87 \text{ cfs}$ 26' F-F
 $d = 0.33$
 $WP = 26.66$
 $A = 4.91$
 $V = 3.23 \text{ F/S}$
 $Q = 15.84 \text{ cfs} > 14.87 \text{ cfs OK}$
 $d + \frac{V^2}{2g} = 0.49 < 0.33 + 0.18 = 0.51 \text{ OK}$
 $n = 0.017$
 $S = 1.3\%$
MOUNT. C+G
- WINTER SAGE ROAD - BASIN D $Q = 14.95 \text{ cfs}$ 26' F-F
 $d = 0.29$
 $WP = 26.58$
 $A = 3.87$
 $V = 3.67 \text{ F/S}$
 $Q = 14.20 \text{ cfs} < 14.95 \text{ cfs}$ STD C+G REQUIRED AT END
 $d + \frac{V^2}{2g} = 0.50 \text{ OK}$ MOUNT. C+G
FLOW AT WEST SIDE OF LOT 25-P1, BLK 21 = 14,247 cfs
STD C+G REQUIRED FROM WEST SIDE OF LOT 25-P1
BLOCK 21 TO MUSTANG RIDGE DRIVE
- SPOTTED PONY AVE - BASIN F $Q = 17.36 \text{ cfs}$ 26' F-F
 $d = 0.2825$
 $WP = 26.56$
 $A = 3.675$
 $V = 3.86 \text{ F/S}$
 $Q = 14.20 \text{ cfs} < 17.36 \text{ cfs}$
 $d + \frac{V^2}{2g} = 0.51 \text{ OK}$ STD C+G REQUIRED WHEN
 Q IS GREATER THAN 14.20 cfs
FLOW ON SPOTTED PONY
= 12.00 cfs
FLOW ON DRY GULCH AT INTERSECTION OF SPOTTED PONY
= 5.36 cfs
TOTAL = 12.00 + 5.36
= 17.36 cfs > 14.20 cfs
- STD C+G REQUIRED AT WEST SIDE OF LOT 1-P1,
BLOCK 24 TO THE SOUTH EDGE OF LOT 7-P1, BLK 22
- A CONCRETE CHANNEL WILL BE REQUIRED TO
DRAIN RUNOFF TO MUSTANG RIDGE DR. SEE SHEET 9A



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PROJECT ERGI - UNITS SA & SB
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-23-02
CHECKED _____ DATE _____
SHEET 5 OF _____

• BLACK STALLION ROAD - BASIN E $Q = 12.32$ cfs
 $d = 0.2825$
 $WP = 24.56$
 $A = 3.675$
 $V = 3.52$ F/s
 $Q = 12.95$ cfs > 12.32 cfs OK
 $d + V^2/2g = 0.47 < 0.51$ OK

$n = 0.017$
 $S = 2.27\%$
26' F-F
MOUNT. C+G

• STONY CREEK AVE - BASIN L
 $d = 0.2825$
 $WP = 24.56$
 $A = 3.675$
 $V = 3.44$ F/s
 $Q = 12.63$ cfs > 10.02 cfs OK
 $d + V^2/2g = 0.47 > 0.51$ OK

$Q = 10.02$ cfs
 $n = 0.017$
 $S = 2.16\%$
26' F-F
MOUNT C+G

• SPRING SAGECOURT - BASIN M
 $d = .29$
 $WP = 24.58$
 $A = 3.87$
 $V = 3.36$ F/s
 $Q = 13.01$ cfs > 12.06 cfs OK
 $d + V^2/2g = 0.47 < 0.51$ OK

$Q = 12.06$ cfs
 $n = 0.017$
 $S = 1.93\%$
26' F-F
MOUNT C+G

• SILVER TREE DR - BASIN PARK

AREA OF PARK BASIN = 6.71 AC

TYPE D = 30 %
C = 10 %
B = 60 %

FROM AHYMO OUTPUT SHEETS 40-42

$Q = 19.11$ cfs
 $n = 0.017$
 $S = 1.09\%$
40' F-F
STD C+G

$d = 0.485$
 $WP = 20.485$
 $A = 4.085$
 $V_{1/2} = 3.11$ F/s

STD C+G
 $S = 1.09\%$
 $n = 0.017$
40' F-F

$Q_{1/2} = 12.73$ cfs EACH SIDE OF C
AT CROWN

12.73 cfs > 19.11 cfs OK



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

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(505) 828-2200 FAX 797-9539
e-mail: dmgs@swcp.com

PROJECT ERGI-UNITS 5A & 5B
SUBJECT DRAINAGE CALCS
BY GJK DATE 1-23-02
CHECKED _____ DATE _____
SHEET 6 OF _____

• TROTTER ROAD - BASIN P

$$d = 0.41 \quad A = 3.05 \text{ AC}$$

$$wp = 26.82$$

$$A = 5.24$$

$$V = 5.35 \text{ F/S}$$

$$Q = 28.02 \text{ CFS} < 30.28 \text{ CFS} \text{ NO GOOD}$$

$$d + \frac{V^2}{2g} = 0.85 = 0.85 \text{ OK}_3$$

$$Q = 11.17 \text{ CFS} + 19.11 \text{ CFS (PARK)} = 30.28 \text{ CFS}$$

$$n = 0.017$$

$$S = 3.3\%$$

$$26' \text{ F-F}$$

$$\text{STO C+G}$$

TRANSITION FROM A 2% CROWN AT THE WEST
SIDE OF LOT 29-P1, BLOCK 26 TO A 1% CROWN

$$d = 0.375$$

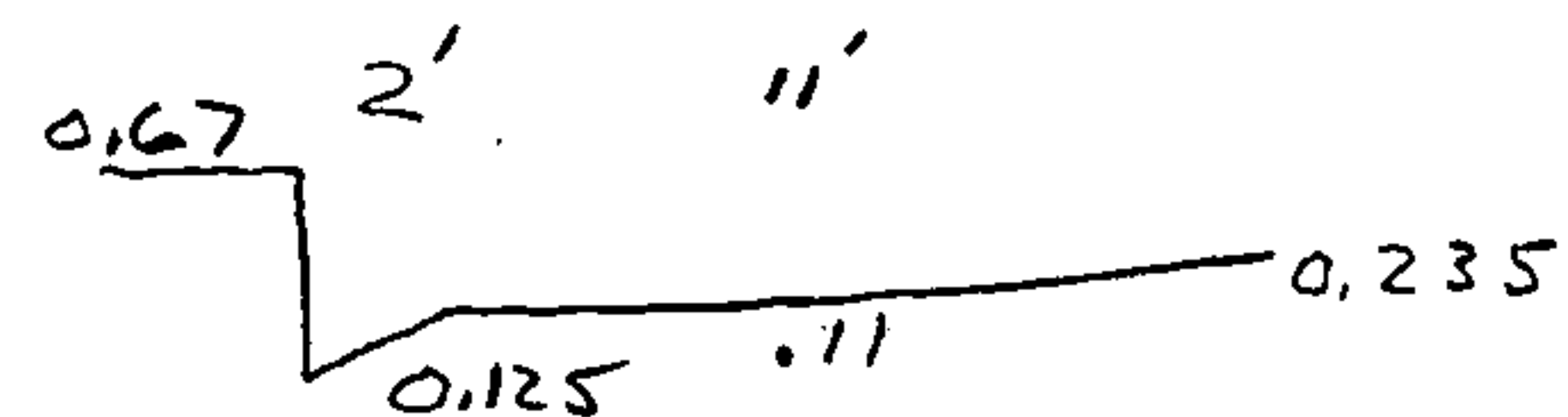
$$wp = 26.75$$

$$A = 5.54$$

$$V = 5.56 \text{ F/S}$$

$$Q = 30.79 \text{ CFS} > 30.28 \text{ CFS} \text{ OK}_2$$

$$d + \frac{V^2}{2g} = 0.85 \text{ OK}_3$$



• STAMPEDE DRIVE - BASIN B

$$A = 6.92 \text{ AC}$$

$$\text{TYPE D} = 90\%$$

$$\text{TYPE B} = 10\%$$

FROM AHYMO OUTPUT SHEETS 43-45

$$Q = 29.05 \text{ CFS}$$

- BASIN A

$$A = 8.47 \text{ AC}$$

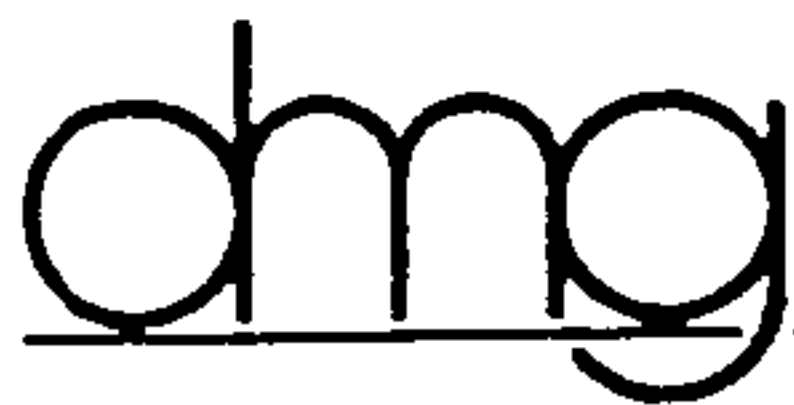
$$\text{TYPE D} = 90\%$$

$$\text{TYPE B} = 10\%$$

FROM AHYMO OUTPUT SHEETS 46-48

$$Q = 35.56 \text{ CFS}$$

- SUBTRACT ROADWAY OF STAMPEDE ONLY
THIS FLOW WILL GO DIRECTLY INTO THE STORM DRAIN.
- THE COMMERCIAL AREAS BASINS A + B WILL
HAVE A POND IMPOSED UPON THEM WHEN DEVELOPED.



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PROJECT ERGI - UNITS SA+SB
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-23-02
CHECKED _____ DATE _____
SHEET 7 OF _____

• DETERMINE STORMDRAIN IN STAMPEDE DRIVE

• FIND Q OF STAMPEDE ROW.

$$1270 \text{ LF OF ROAD} \times 60' \text{ ROW} = 1.749 \text{ AC}$$

$$\text{TYPE D} = 80\%$$

$$\text{TYPE B} = 10\%$$

$$\text{TYPE C} = 10\%$$

FROM AHYMO OUTPUT SHEETS 49-51

$$Q = 7.09 \text{ CFS}$$

• SPLIT PER BASIN BY PERCENTAGE OF FRONTAGE

$$\text{BASIN A} = 200/1270 = 15.75\% = 1.12 \text{ CFS}$$

$$\text{BASIN B} = 84.25\% = 5.97 \text{ CFS}$$

• Q IN STAMPEDE IS SPLIT ON EACH SIDE

• DETERMINE RESTRICTED FLOW FROM THE THREE PONDS

POND #1

REMAINDER OF PARCEL 12 AT NW
CORNER OF GIBSON AND BARBADOS.

$$A = 13.10 \text{ AC}$$

EL RANCHO GRANDE I - UNIT 1B
WAS 12.7 ACRES AND GENERATED
34.04 CFS. THIS FLOW RUNS
DOWN BARBADOS TO THE
TRENCH DRAIN AND ENTERS
THE EXISTING STORMDRAIN
PER THE EL RANCHO GRANDE I
- UNIT 1B REPORT PREPARED
BY MARK GOODWIN & ASSOCIATES

$$\text{FIND Q} \quad A = 13.10 \text{ AC}$$

$$\text{TYPE D} = 90\%$$

$$\text{TYPE B} = 10\%$$

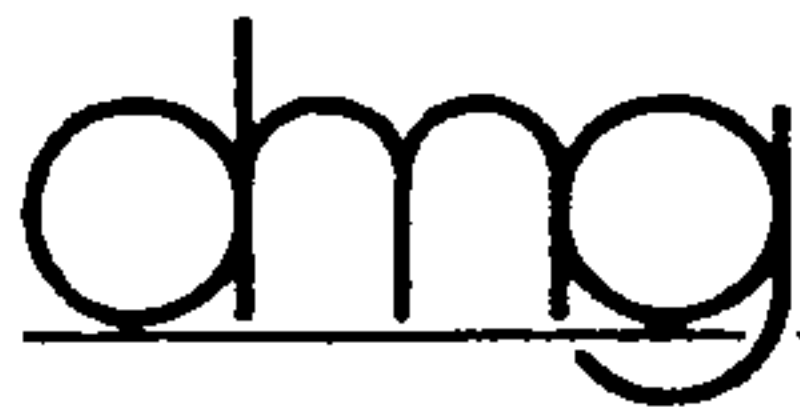
FROM AHYMO OUTPUT SHEETS 52-54

$$Q = 54.99 \text{ CFS}$$

$$\text{POND \#2 - BASIN A} \quad A = 8.47 - (1.749(0.1575)) = 8.19 \text{ AC}$$

$$Q = 35.56 - 1.12 = 34.44 \text{ CFS}$$

$$\text{POND \#3 - BASIN B} \quad A = 6.92 - (1.749(0.8425)) = 5.45 \text{ AC}$$



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PROJECT ERGI-UNITS 5A+5B
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-23-02
CHECKED _____ DATE _____
SHEET 8 OF _____

$$Q = 29.05 - 5.97 = 23.08 \text{ cfs}$$

BASIN	POND #	AREA(ac)	Q(cfs)	% OF TOTAL POND AREAS
PIZ	1	13.10	54.99	49.99
A	2	8.19	34.44	30.63
B	3	5.45	23.08	20.38

- FIND ALLOWABLE DISCHARGE FOR EACH POND

THERE IS 62.14 CFS AVAILABLE TO ENTER
THE STORM DRAIN WITHOUT EXCEEDING
THE 204.68 CFS DESIGN PER EL RANCHO
GRADE I - UNITS 1, 2 AND 3 PREPARED
BY MARK GOODWIN & ASSOCIATES.

$$\text{TOTAL ALLOWABLE } Q = 62.14 - 7.09 (\text{STAMPEDE ROAD}) - \\ 10.4 (\text{GIBSON}) = 44.25 \text{ CFS}$$

- THE POND ON PARCEL 12 WILL HOLD AND
DISCHARGE THE LEAST TO MINIMIZE
PONDS ON BASINS A+B.

$$\text{TOTAL } Q = 54.99 + 34.44 + 23.08 \\ = 112.51 \text{ CFS}$$

- Q FOR BASIN A+B
= 34.44 + 23.08
= 57.52 CFS > 44.25 CFS A SMALL
POND IN EACH BASIN
WILL BE REQUIRED.

WE WANT TO DIRECT DISCHARGE AS MUCH
AS POSSIBLE OF BASINS A+B BUT
STILL HAVE A MANAGABLE POND ON PARCEL 12.

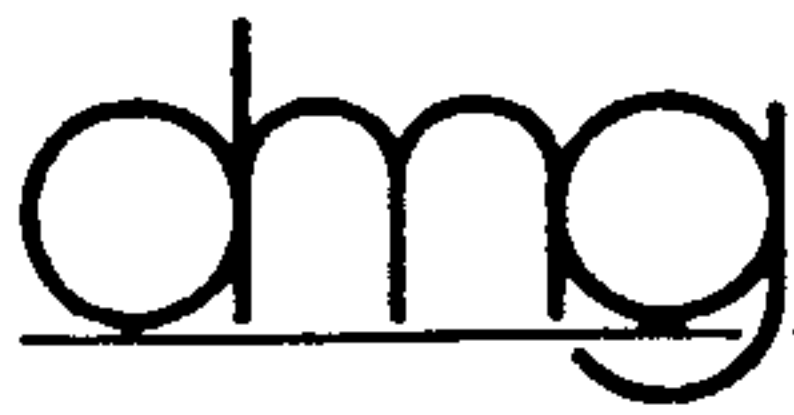
- FOR BASIN A

WE WILL DISCHARGE AT 20 CFS

- FOR BASIN B

WE WILL DISCHARGE AT 14 CFS

- THIS LEAVES 10.25 CFS DISCHARGE FOR PARCEL 12

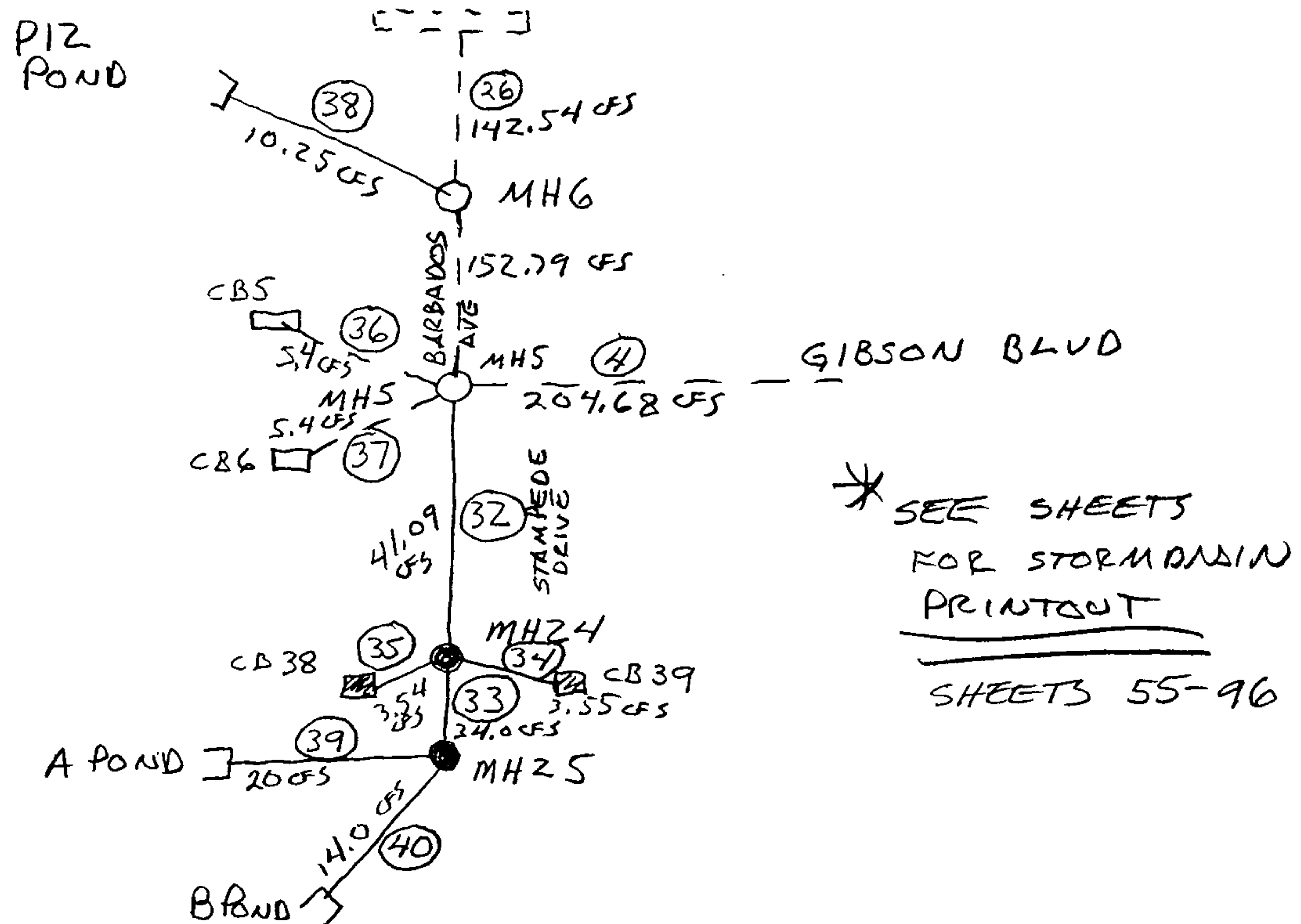


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PROJECT ERGI-UNITS 5A+5B
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-23-02
CHECKED _____ DATE _____
SHEET 9 OF _____

MODIFICATIONS TO EXISTING STORM DRAIN



STRUCTURE	RIM/GRATE	INV	PIPE SIZE LEAVING	Q CFS	SLOPE LEAVING
MH24	77.49	73.42	36"	41.1	1.8%
MH25	77.62	73.62	30"	34.0	1.0%
CB38	77.33	73.67	18"	3.5	1.0%
CB39	77.33	73.67	18"	3.5	5.0%
P12 OUTFALL	—	71.00	24"	10.3	2.05%
A OUTFALL	—	74.50	18"	20.0	2.51%
B OUTFALL	—	75.00	18"	14.0	3.94%

- VERIFY SUMP INLET CAPACITY FOR CB38 + 39

$$Q/P = 3.0H^{3/2}$$

USE 0.67 FOR H

$$P = 17'$$

$Q = 27.97$ CFS CAPACITY TO THE TOP OF CURB
FOR EACH INLET

IF BASIN A AND B DISCHARGE TO THE STREET

$$\text{THEN } 20 + 14 + 7.09 = 41.09 \text{ CFS} < 2 \times 27.97 = 55.94 \text{ CFS}$$



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PROJECT EL RUNCHO GRANDE SAHS

SUBJECT DRAINAGE CALC

BY GJK DATE 5-17-02

CHECKED _____ DATE _____

SHEET 9A OF _____

CALCULATE BACKYARD PONDS

LOTS 7-P1 TO 13-P1 BLOCK 20 WILL HAVE
BACKYARD PONDS BECAUSE DRAINING BACKYARDS
TO GIBSON BLVD IS NOT ALLOWED.

• AREA OF EACH BACKYARD = $\frac{35 \times 45}{(43560) 640} = 0.000056 \text{ SM}$

100% TYPE "B"

FROM AH4MO OUTPUT SHEETS 97-99

$Q = 0.06 \text{ CFS}$

$V = 0.0015 \text{ AC-FT}$
 $= 65.34 \text{ CF}$

- FOR RETENTION POND USE 2X VOLUME

$V = 2 \times 65.34$
 $= 131 \text{ CF}$

USE A 15' x 20' x 6" AREA

$V = 300 \text{ CF}$

— PONDS ARE TO BE IN THE NORTHEAST
CORNER OF EACH BACKYARD.

SIZE CONCRETE CHANNEL FROM SPOTTY PONY TO MUSTANG RIDGE

$Q = 17.36 \text{ CFS}$ $n = 0.013$ $S = 3.50\%$ 9' WIDE

$d = 0.25$

$WP = 9.5$

$A = 2.25$

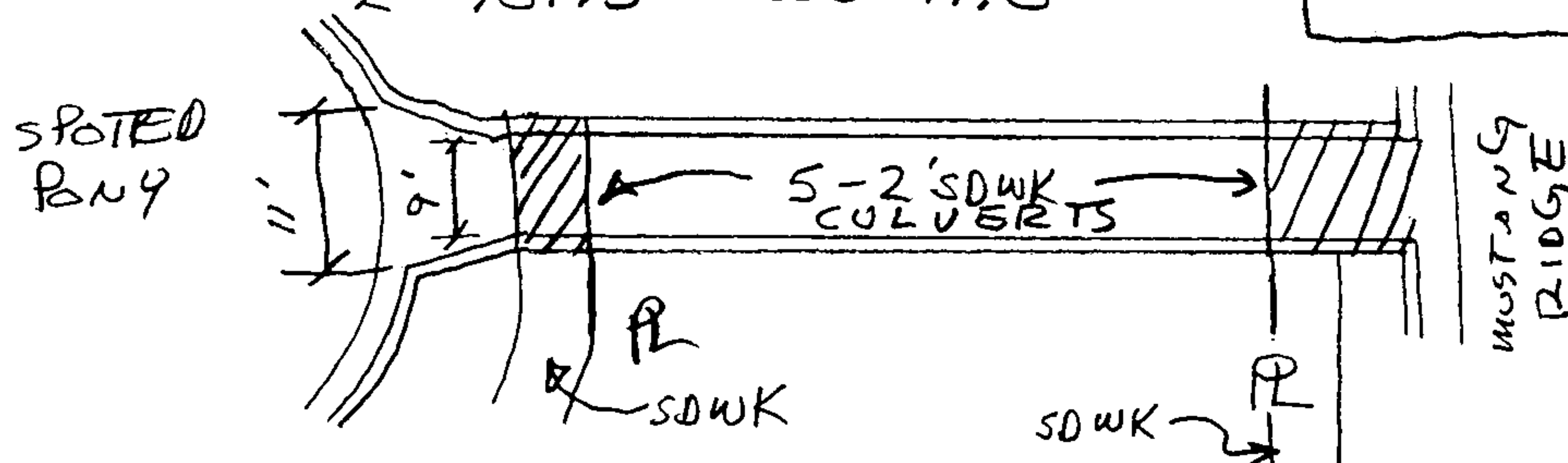
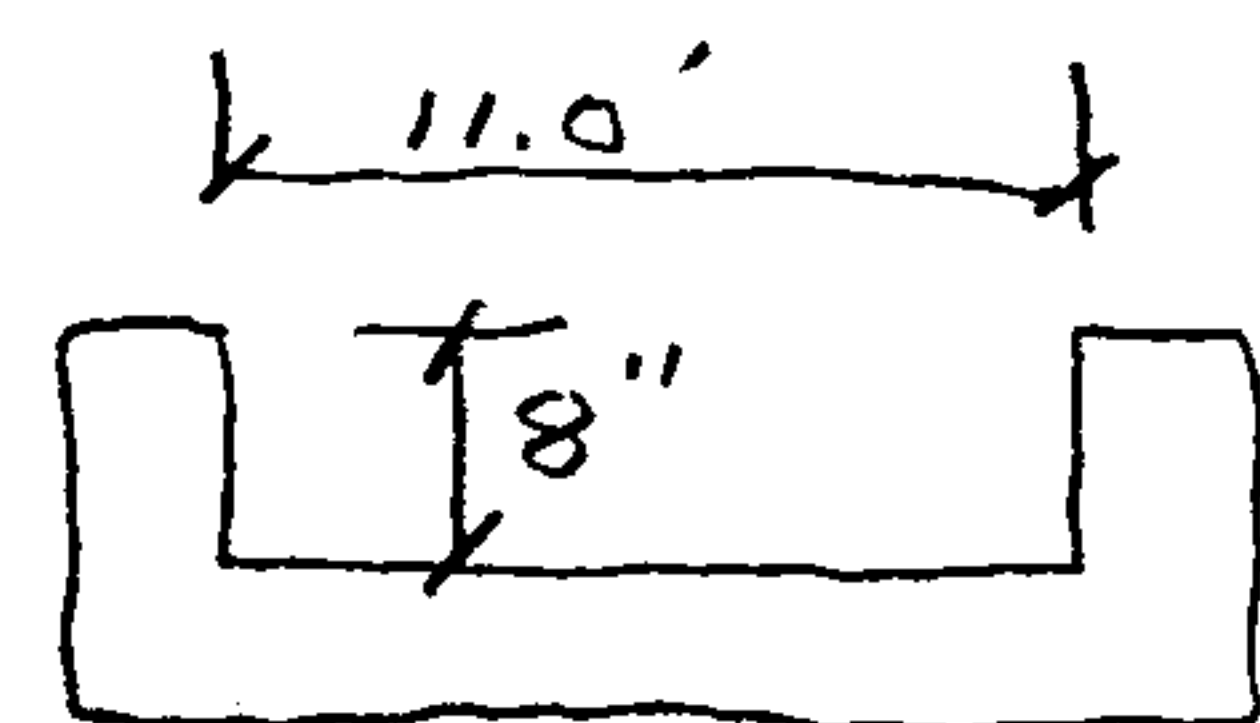
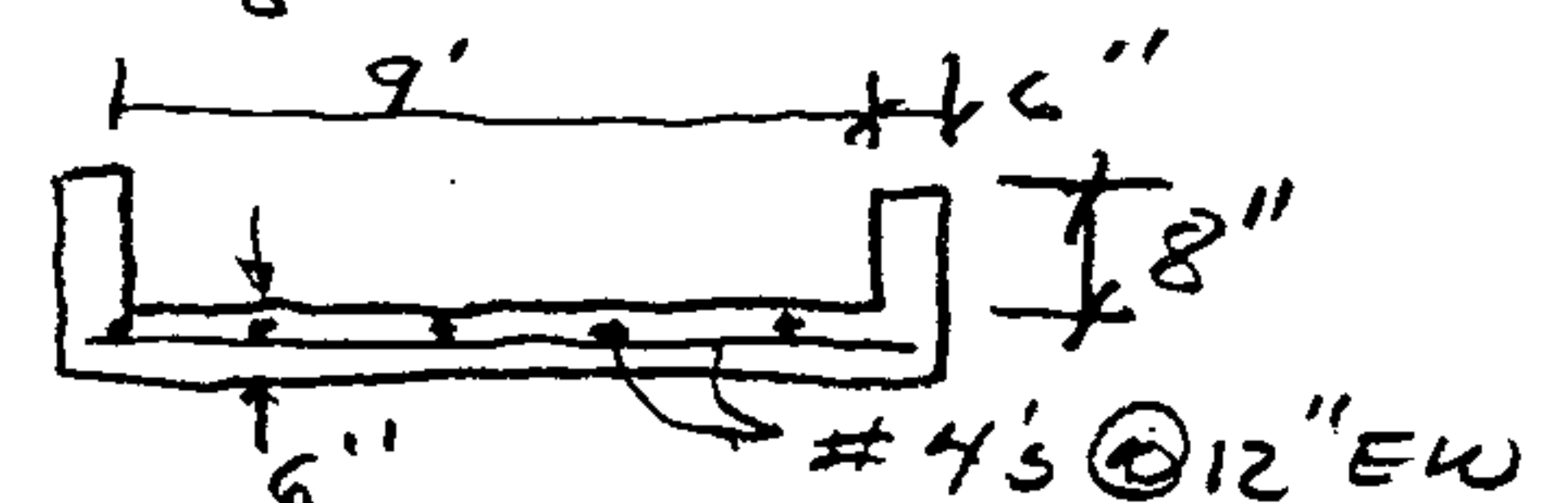
$V = 8.19 \text{ F/s}$

$Q = 18.42 \text{ CFS} > 17.36 \text{ CFS OK}$

- SIZE CHANNEL OPENING

$Q = 2.95 \text{ L H}^{1.5}$ $H = 0.67$

$L = 10.73'$ USE 11.0'





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PROJECT ERGI - UNITS 5A & 5B
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-23-02
CHECKED _____ DATE _____
SHEET 10 OF _____

SIZE POUNDS

PARCEL 12

DISCHARGE THROUGH 12" ORIFICE

ELEV	AREA (AC)	VOLUME (AC-FT)	OUTFLOW (CFS)
71	0.09 (62x62)	0	0
72	0.11 (68x68)	0.24	2.67
73	0.13 (74x74)	0.36	4.63
74	0.15 (80x80)	0.49	5.98
75	0.17 (86x86)	0.65	7.08
76	0.19 (92x92)	0.83	8.02
77	0.22 (98x98)	1.04	8.86
78	0.25 (104x104)	1.28	9.64
79	0.28 (110x110)	1.54	10.36

FROM AHYMO OUTPUT SHEETS 52-54

PEAK DISCHARGE = 9.62 CFS < 10.25 CFS OK₂

WATER SURFACE = 77.98

BASIN A

DISCHARGE THROUGH 21" ORIFICE

ELEV	AREA (AC)	VOLUME (AC-FT)	OUTFLOW (CFS)
74.5	0.11478	0.0	0.0
75.5	0.11478	0.11	4.09
76.5	0.11478	0.23	12.28
77.5	0.11478	0.34	16.88
78.5	0.11478	0.46	20.47

200'x25' VERTICAL POND - 4' DEEP

FROM AHYMO OUTPUT SHEETS 46-48

PEAK DISCHARGE = 18.79 CFS < 20 CFS OK₂

WATER SURFACE = 78.03

BASIN B

DISCHARGE THROUGH 4 21" ORIFICE

ELEV	AREA (AC)	VOLUME (AC-FT)	OUTFLOW (CFS)
74.5	0.11478	0.0	0.0
75.5	0.11478	0.11	4.09
76.5	0.11478	0.23	12.28
77.5	0.11478	0.34	16.88

200'x25' VERTICAL POND - 3' DEEP

FROM AHYMO OUTPUT SHEETS 43-45

PEAK DISCHARGE = 16.17 CFS > 14.00 CFS (SEE NEXT SHEET)

WATER SURFACE = 77.34



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PROJECT ERGI-UNITS 5A+5B

SUBJECT DRAINAGE CALCS

BY GSK DATE 4-23-02

CHECKED _____ DATE _____

SHEET 11 OF _____

REVISED 4-30-02

• TOTAL ALLOWABLE DISCHARGE

$$= 10.25 + 20.00 + 14.00$$

$$= 44.25 \text{ cfs}$$

TOTAL ACTUAL DISCHARGE

$$= 9.62 + 18.79 + 16.17$$

$$= 44.58 \text{ cfs} \approx 44.25 \text{ cfs} \quad \text{OK}$$

• VERIFY STORM DRAIN IN MUSTANG RIDGE DRIVE AT FENCE POST RD.

BASIN C, D, F AND E DRAIN TO THE INTERSECTION

$$Q \text{ FROM NORTH} = 14.87 + 14.95$$

$$= 29.82 \text{ cfs}$$

$$Q \text{ FROM SOUTH} = 17.36 + 12.32$$

$$= 29.68 \text{ cfs}$$

FROM EL PASO COUNTY GROUND I-UNITS 4A & 4B

• ADD A SGL "A" INLET ON BOTH SIDES JUST NORTH OF FENCE POST RD

$$Q = 29.82 \text{ cfs} \quad S = 1.4\% \quad d = 0.48$$

$$WP = 32.96$$

$$d + V^2/2g = 0.72 < 0.87 \text{ OK}$$

FROM NOMO SHEET 11A

$$A = 7.69$$

$$Q \text{ INB INLET} = 6.4 \text{ cfs}$$

$$V = 3.92 \text{ F/S}$$

$$Q = 30.14 > 29.82 \text{ OK}$$

$$Q \text{ PAST INLETS} = 29.82 - 2(6.4) = 17.02 \text{ cfs}$$

• THE SAME OCCURS ON THE SOUTH SIDE

$$Q \text{ PAST INLETS} = 29.68 - 2(6.4) = 16.88$$

Q PAST INLETS ON EAST HALF OF MUSTANG RIDGE

$$= \frac{17.02 + 16.88}{2} = 16.95 \text{ cfs} \quad \text{THIS FLOW WILL TURN ONTO FENCE POST.}$$

$$d = 0.41$$

$$d = 0.405 \text{ IS CROWN ELEVATION}$$

$$WP = 32.82$$

$$= 32.81$$

$$Q = 16.21 \text{ cfs} \approx 16.95 \text{ cfs} \text{ OK}$$

$$A = 5.45$$

$$= 5.29$$

$$V = 3.12 \text{ F/S}$$

$$= 3.06$$

THIS IS ONLY

$$Q = 17.03 \text{ cfs} > 16.95 \text{ cfs} \text{ OK}$$

CHANGE TO

4A + 4B

DESIGN

2 INLETS WERE CALLED OUT IN 4A + 4B

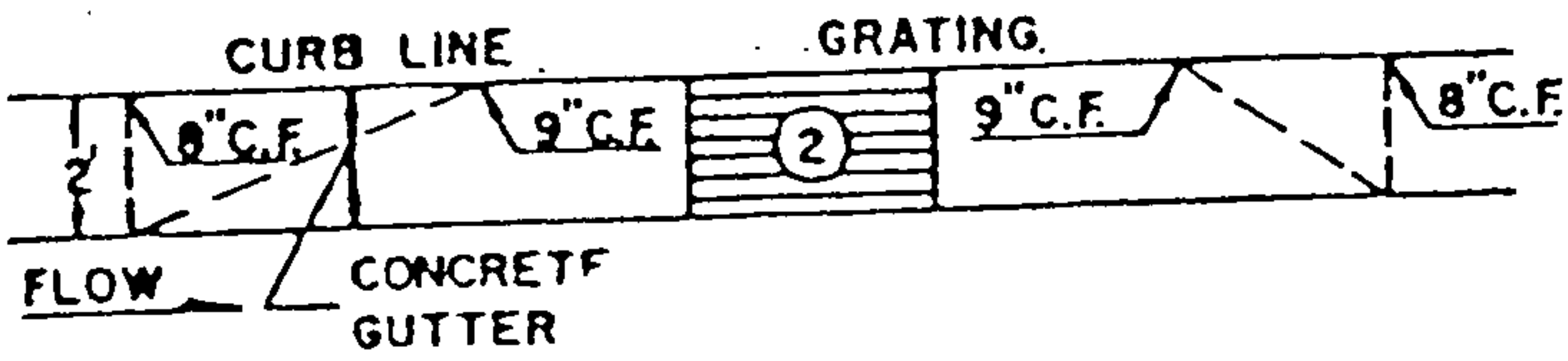
→ USE 1 DBL "A" INLET, DBL THROAT IN SUMP CONDITION

$$Q/P = 3.0 \text{ H}^{3/2}$$

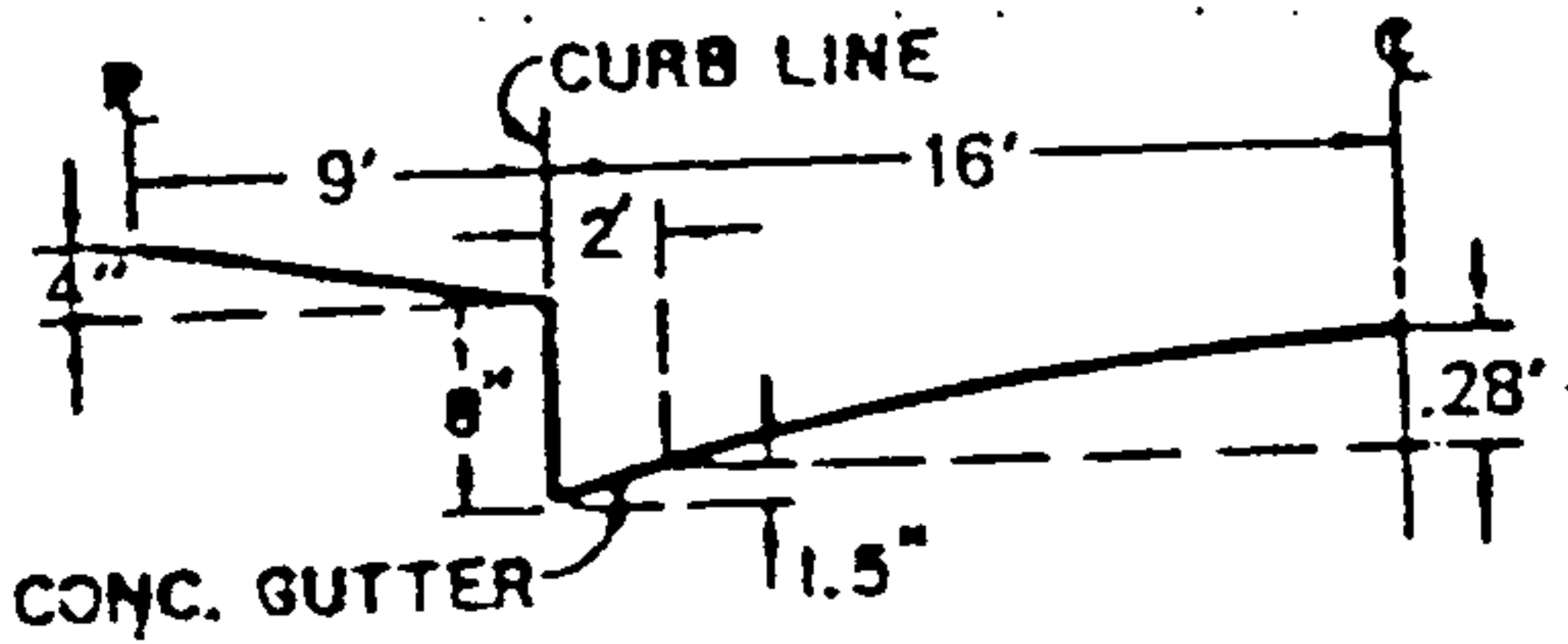
$$P = 17.0 \text{ FOR DBL "A"}$$

$$H = 0.48' < 0.67 \text{ OK} \quad \text{FOR } 2 \times Q \quad H = 0.76 < 0.87 \text{ OK}$$

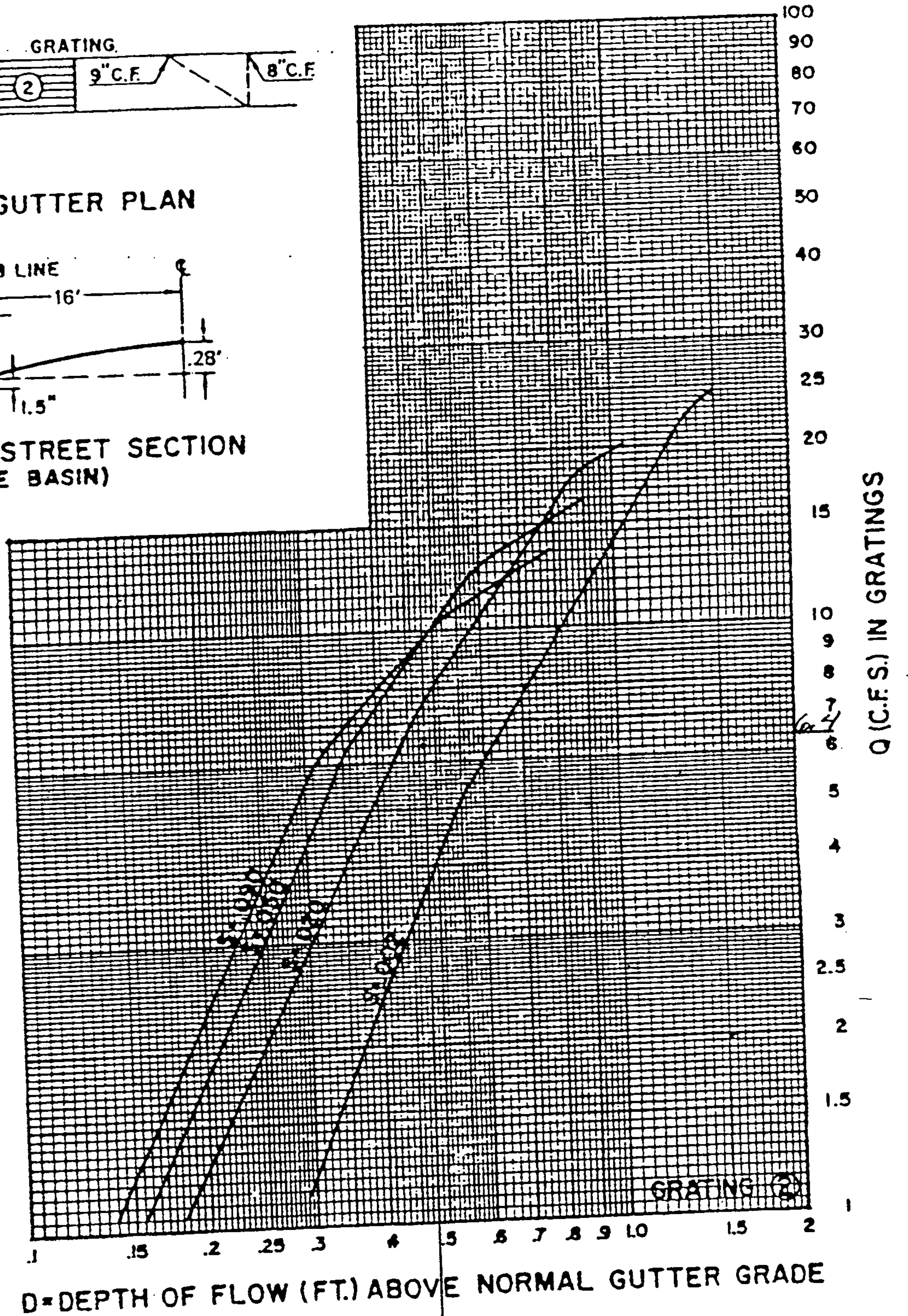
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



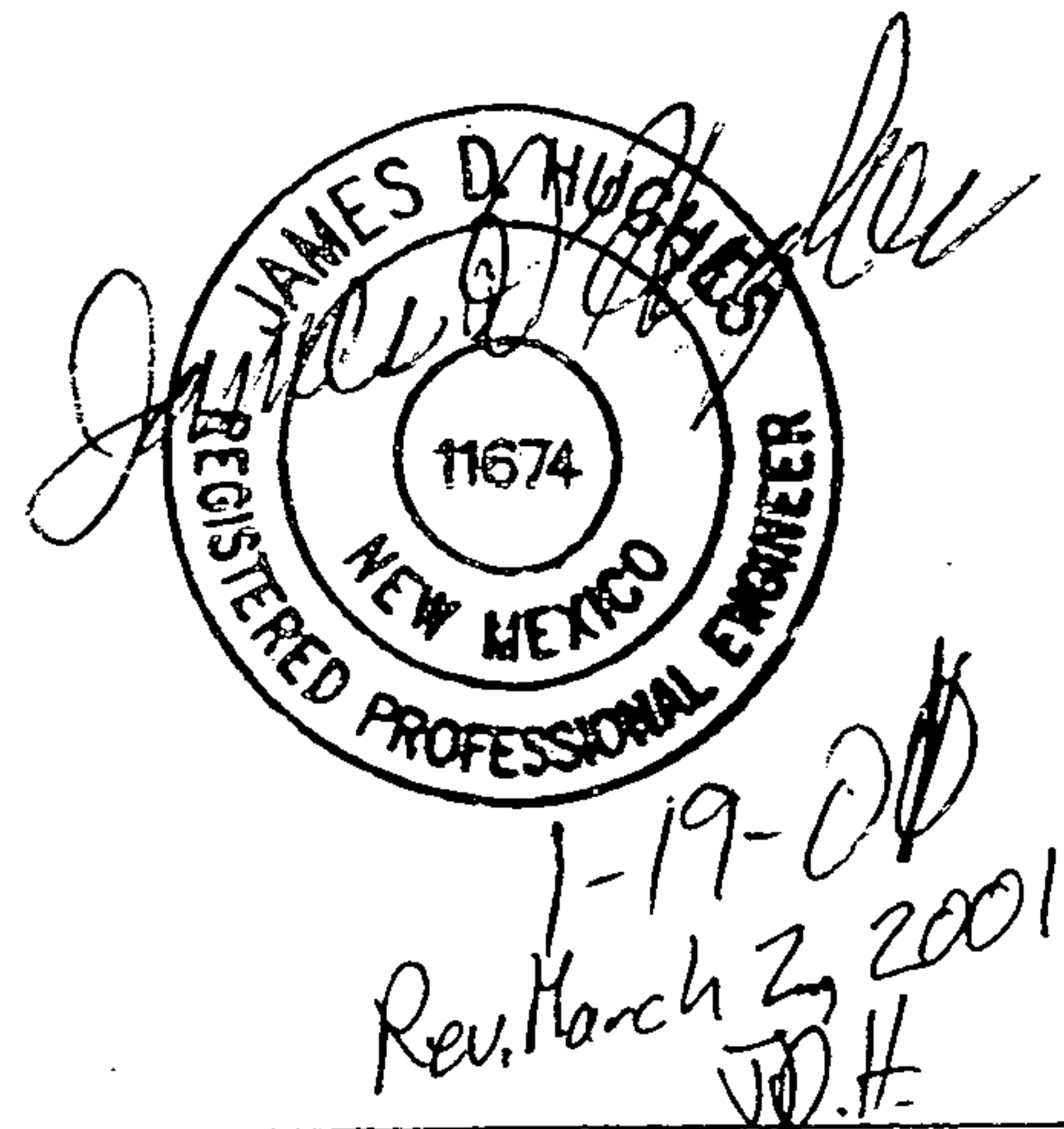
DRAINAGE REPORT
FOR
EL RANCHO GRANDE UNITS 4A & 4B

Prepared for

Curb, Inc.
6301 Indian School Rd. NE
Albuquerque, NM 87110

Prepared by

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



January 2001

Table 1 - Summary of Hydrology

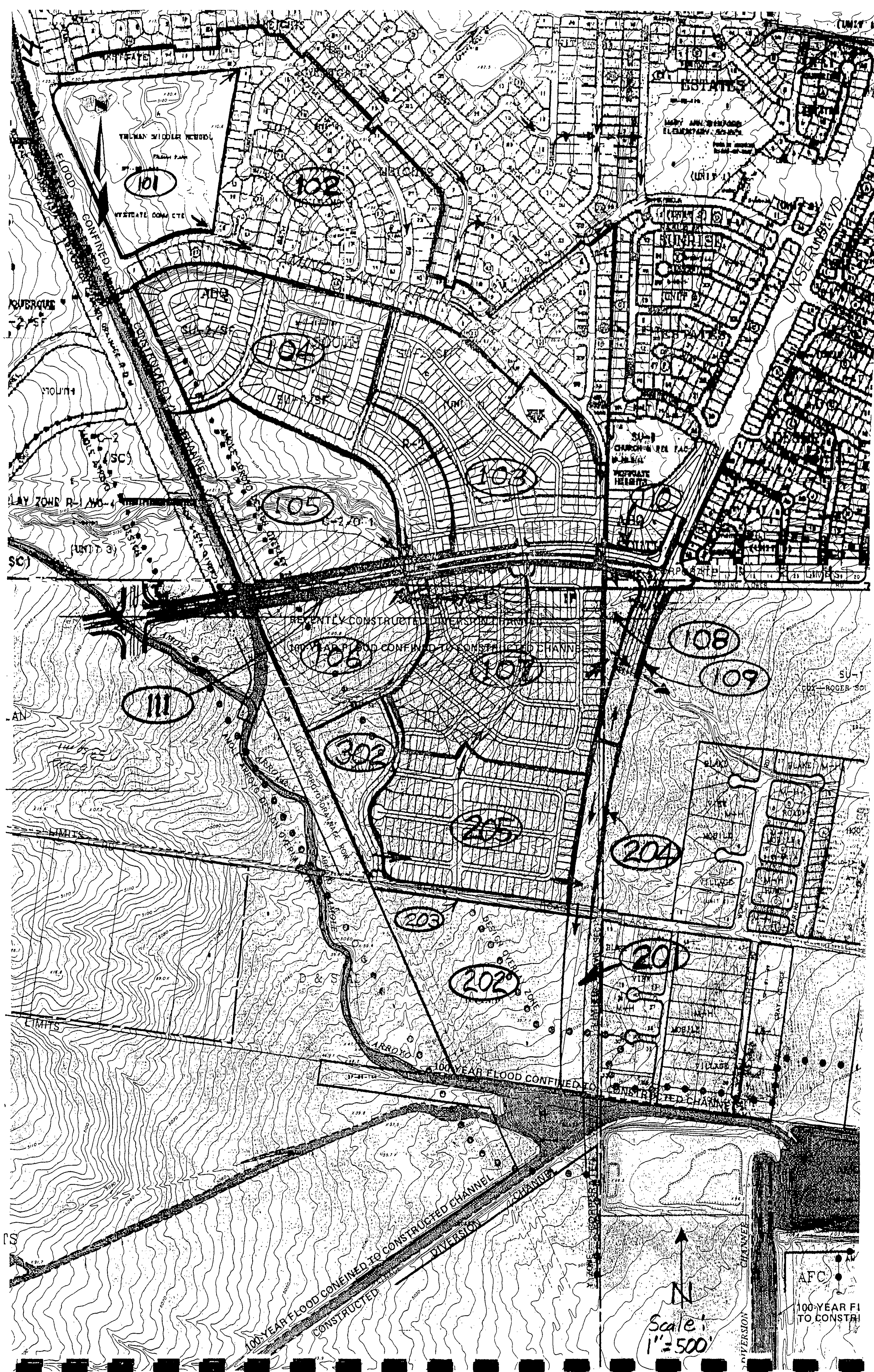
Description	Basin ID	Area	Area Sq. Mi.	Land Treatment				Hr. Tp	100YR Peak Flow		100YR Volume		10YR Peak Flow	
				A	B	C	D		Incrum.	Cumm.	6 hr	10 day	Incrum.	Cumm.
School Existing	101	20.9	0.0327	0	25	25	50	0.13	72.46	—	2.462	3.751	42.31	—
⁽¹⁾ 3.7 du/ac Existing	102 ⁽¹⁾	34.63	0.0541	0	24	20	56	0.27	82.42	122.89	4.254	6.646	48.68	68.39
⁽³⁾ 5.4 du/ac Existing	103	31.96	0.0499	0	25	20	55	0.17	99.23	208.87	3.889	6.057	58.63	118.71
⁽³⁾ 5.4 du/ac	104	34.07	0.0532	0	25	20	55	0.22	91.59	—	4.146	6.457	6.28	94.12
⁽²⁾ Commercial Existing	105	23.2	0.0363	0	0	10	90	0.14	96.87	47.06	3.658	6.233	63.10	36.51
Gibson Blvd.	111	2.87	0.0045	0	35	0	65	0.13	10.41	144.63	0.367	0.597	54.06	—
⁽³⁾ Commercial	106	15.38	0.0240	0	0	10	90	0.13	65.87	196.59 ⁽⁴⁾	2.418	4.125	42.96	127.15
⁽³⁾ 5.4 du/ac	107	32.05	0.0501	0	25	20	55	0.13	113.50	—	3.905	6.079	67.15	190.19
Pond In	108	2.9	0.0045	0	0	20	80	0.13	11.93	509.84	0.430	0.716	7.66	307.99
Pond Out	—	—	—	—	—	—	—	—	—	109.71	—	—	—	83.69
Unser @ Gibson	109	5.6	0.0088	0	35	0	65	0.13	12.95	111.82	0.457	0.906	7.81	84.74
Unser @ Gibson	110	1.1	0.0018	0	35	0	65	0.13	4.17	112.87	0.147	0.235	2.52	85.16
⁽³⁾ Park	302	6.71	0.0105	0	70	10	20	0.13	17.61	17.61	0.546	0.712	8.48	8.48
⁽³⁾ 5.4 du/ac	205	22.39	0.0350	0	25	20	55	0.13	79.30	96.91	2.728	4.247	46.91	55.39
Unser Blvd.	204	3.3	0.0052	0	35	0	65	0.13	19.18	116.09	0.678	0.943	11.57	66.96
Blake Road	203	1.9	0.0030	0	15	0	85	0.13	7.86	123.95	0.287	0.486	5.02	71.98
⁽³⁾ 5.4 du/ac Future	202	22.9	0.0358	0	25	20	55	0.13	81.11	205.06	2.790	4.343	47.99	119.97
Unser Blvd.	201	3.8	0.0059	0	35	0	65	0.13	13.64	218.70	0.482	0.787	8.23	128.20

- ⁽¹⁾ Rear yard ponding areas are subtracted from total area (61.5 ac) @ 40% impervious and weighted impervious is based on composite calculations for 17 subareas as presented in the previously approved report for El Rancho Grande Units 1, 2 and 3 (see Basin Map and Composite Calcs).
- ⁽²⁾ Area currently zoned commercial, but will have limited discharge due to downstream capacity constraints.
- ⁽³⁾ Land treatments match the "Revision to the Master Drainage Plan for the Rio Bravo Sector Development Plan" March 2000.
- ⁽⁴⁾ The pond on Tract 12 (Basin #105) is sized such that 100 YR peak flows combined do not exceed 204.7 cfs as used in the original HGL calculations for the storm sewer in Gibson east of Barbados.

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

$$P_{60} = 1.90", P_{360} = 2.22", P_{1440} = 2.67", P_{10 \text{ days}} = 10.0 - [24.9 / (2.67")^{1.4}] = 3.70"$$

13



ONSITE BASIN MAP

SCALE: 1" = 300'



- LEGEND
- (N) BASIN IDENTIFICATION
 - WB WATER BLOCK
 - DIRECTION OF FLOW
 - - - BASIN BOUDRIES

TABLE 2 — STREET DRAINAGE CAPACITIES

Basin No.	Area Ac.	% of Total	100 Year Flow (cfs)		Contributing Basins	Curb Type/Slope	Flow Depth ft ⁽¹⁾	Velocity fps	Energy Depth ft ⁽²⁾	Location
			Increment.	Cumm.						
A	8.47	55.04%	36.26							
B	6.92	44.96%	29.61	29.61	B	Std. 40'/1.29%	0.49	3.5	0.68	Stampede Rd. 15+00
Total A & B	15.38		65.87							
C	4.13	12.88%	14.61	14.61	C	Roll 26'/1.30%	0.33	2.9	0.46	Bay Mare Ave. 16 + 00
					C	Std. 32'/1.4%	0.39	3.0	0.53	Mustang Ridge Dr. 14 + 00
D	4.39	13.69%	15.54	15.54	D	Roll 26'/2.3%	0.30	3.6	0.50	Winter Sage Rd. 16 + 00
					C & D	Std. 32'/1.4%	0.48	3.9	0.72	Mustang Ridge Rd. 76+00
E	3.68	11.50%	13.05	13.05	E	Roll 26'/2.3%	0.30	3.5	0.49	Black Stallion Rd. 36+50
F	4.95	15.46%	17.54	17.54	F	Roll 26'/2.3%	0.33	3.8	0.55	Spotted Pony Ave. 46+00
					F	Std. 26'/1.1%	0.44	2.9	0.57	Spotted Pony Ave. 47+00
					E & F	Std. 32'/1.4%	0.48	3.9	0.72	Mustang Ridge Dr. 18+00
G	2.60	8.10%	9.20	34.28	A thru G	Std. 26'/2.88%	0.45	5.0	0.84	Fence Post Rd. 13+00
H	2.58	8.05%	9.14	9.14	H	Roll 26'/1.0%	0.30	2.4	0.39	North Wind Dr.

Basin No.	Area Ac.	% of Total	100 Year Flow (cfs)		Contributing Basins	Curb Type/Slope	Flow Depth ft ⁽¹⁾	Velocity fps	Energy Depth ft ⁽²⁾	Location
			Increment.	Cumm.						
I	2.52	7.86%	8.92	8.92	I	Roll 26'/2.59%	0.25	3.4	0.43	Winter Sage Rd. 19+50
				18.06	H & I	Std. 26'/1.0%	0.43	3.0	0.57	North Wind Dr. 24+50
J	3.99	12.45%	14.13	8.30	Part of J	Roll 26'/2.45%	0.25	3.3	0.42	Black Stallion Rd. 31+50
				14.13	J	Std. 26'/0.5%	0.45	2.1	0.52	North Wind Dr. 29+00
K	3.21	10.01%	11.36	6.60	Part of K	Roll 26'/1.12%	0.27	2.4	0.36	Spotted Pony Ave. 51+50
				25.49	J & K	Std. 26'/0.5%	0.54	2.7	0.65	North Wind Dr. 26+00
Total C-K	32.05		113.50							
L	3.03	13.54%	10.74	10.74	L	Roll 26'/2.16%	0.28	3.3	0.45	Stony Creek Rd. 13+50
				10.74	L	Std. 40'/2.33%	0.34	3.3	0.51	Mustang Ridge Dr. 27+00
M	3.54	15.80%	12.53	12.53	M	Roll 26'/1.93%	0.30	3.3	0.47	Spring Sage Rd. 14+50
N	4.27	19.05%	15.11	38.38	L, M & N	Std. 26'/2.27%	0.48	4.9	0.85	Spring Sage Rd. 20+50
O	4.26	19.04%	15.10	15.10	O	Roll 26'/2.8%	0.29	3.9	0.53	Stony Creek Dr. 20+00
				53.48	L, M, N & O	Std. 26'/1.00%	0.62	4.3	0.91	Summer Sage Dr. 24+50

Basin No.	Area Ac.	% of Total	100 Year Flow (cfs)		Contributing Basins	Curb Type/Slope	Flow Depth ft ⁽¹⁾	Velocity fps	Energy Depth ft ⁽²⁾	Location
			Increment.	Cumm.						
P	3.05	13.63%	10.81	28.42	P + Park	Std. 26'/3.30%	0.44	5.2	0.86	Trotter Rd. 14+00
Q	2.88	12.86%	10.20	38.62	P, Q + Park	Std. 26'/1.40%	0.55	4.5	0.86	Trotter Rd. 20+00
R	1.36	6.07%	4.81							
Total L-Q	22.39		79.30							
203	—	—	7.86	7.86	203	Std. 48'/1.91%	0.31	2.9	0.44	Blake Rd. 21+50
204	—	—	19.18	19.18	204	Std. 48'/2.8%	0.38	4.1	0.64	Unser Blvd. 99+00
10 Yr Flows ⁽³⁾										
107	—	—	11.57	5.79	Half of 107	Std. 48'/0.59%	0.35	1.8	0.40	Unser Blvd.
203	—	—	5.02	5.02	203	Std. 48'/1.91%	0.27	2.7	0.38	Blake Rd. 21+50
204	—	—	7.81	7.81	204	Std. 48'/2.8%	0.29	3.3	0.46	Unser Blvd. 99+00

* 100 year surface flow after inlet interception is accounted for (see inlet calcs).

(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 difference 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.

(3) 10 yr flow depth in Unser and Blake should be less than 0.35' to limit the spread of water to 13'.

```
START                TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN C
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=0.006453 SQ MI
                     PER A=0 B=21.39 C=21.38 D=57.23
                     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) = 04/23/2002
 START TIME (HR:MIN:SEC) = 11:28:45 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5C.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN C
 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=0.006453 SQ MI
 PER A=0 B=21.39 C=21.38 D=57.23
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 14.580 CFS UNIT VOLUME = .9985 B = 526.28
 P60 = 1.9000
 AREA = .003693 SQ MI IA = .10000 INCHES INF = .04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 .033330

K = .118486HR TP = .133300HR K/TP RATIO = .888866 SHAPE
 CONSTANT, N = 3.990444
 UNIT PEAK = 7.3405 CFS UNIT VOLUME = .9986 B = 354.53
 P60 = 1.9000
 AREA = .002760 SQ MI IA = .42502 INCHES INF = 1.04005
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 .033330

PRINT HYD ID=1 CODE=1

RUNOFF VOLUME = 1.48111 INCHES = .5097 ACRE-FEET
PEAK DISCHARGE RATE = 14.87 CFS AT 1.500 HOURS BASIN AREA =
.0065 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 11:28:45

```
START                TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN D
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=0.006859 SQ MI
                     PER A=0 B=26.29 C=26.29 D=47.42
                     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) = 04/23/2002
 START TIME (HR:MIN:SEC) = 11:32:03 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5D.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN D
 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=0.006859 SQ MI
 PER A=0 B=26.29 C=26.29 D=47.42
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 12.841 CFS UNIT VOLUME = .9985 B = 526.28
 P60 = 1.9000
 AREA = .003253 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 = 9.5921 CFS UNIT VOLUME = .9991 B = 354.54
 P60 = 1.9000
 AREA = .003606 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

RUNOFF VOLUME = 1.36983 INCHES = .5011 ACRE-FEET
PEAK DISCHARGE RATE = 14.95 CFS AT 1.500 HOURS BASIN AREA =
.0069 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 11:32:03

```
START          TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN F
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=0.007734 SQ MI
               PER A=0 B=23.70 C=23.70 D=52.60
               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) = 04/23/2002
 START TIME (HR:MIN:SEC) = 11:36:37 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5F.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN F
 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=0.007734 SQ MI
 PER A=0 B=23.70 C=23.70 D=52.60
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 16.061 CFS UNIT VOLUME = .9987 B = 526.28
 P60 = 1.9000
 AREA = .004068 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 = 9.7503 CFS UNIT VOLUME = .9991 B = 354.54
 P60 = 1.9000
 AREA = .003666 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

RUNOFF VOLUME = 1.42860 INCHES = .5893 ACRE-FEET
PEAK DISCHARGE RATE = 17.36 CFS AT 1.500 HOURS BASIN AREA =
.0077 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 11:36:37

```
START                TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN E
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=0.005750 SQ MI
                     PER A=0 B=27.81 C=27.81 D=44.38
                     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) = 04/23/2002
 START TIME (HR:MIN:SEC) = 11:38:50 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5E.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN E
 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=0.005750 SQ MI
 PER A=0 B=27.81 C=27.81 D=44.38
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 10.075 CFS UNIT VOLUME = .9982 B = 526.28
 P60 = 1.9000
 AREA = .002552 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 = 8.5061 CFS UNIT VOLUME = .9989 B = 354.54
 P60 = 1.9000
 AREA = .003198 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

RUNOFF VOLUME = 1.33533 INCHES = .4095 ACRE-FEET
PEAK DISCHARGE RATE = 12.32 CFS AT 1.500 HOURS BASIN AREA =
.0058 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 11:38:50

31

```
START          TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN L
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=0.004734 SQ MI
              PER A=0 B=28.90 C=28.90 D=42.20
              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) = 04/23/2002
START TIME (HR:MIN:SEC) = 11:41:00 USER NO.= M_GOODWN.I01
INPUT FILE = ERGI5L.DAT

START TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN L
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=0.004734 SQ MI
PER A=0 B=28.90 C=28.90 D=42.20
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = 7.8872 CFS UNIT VOLUME = .9978 B = 526.28
P60 = 1.9000
AREA = .001998 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 = 7.2776 CFS UNIT VOLUME = .9986 B = 354.54
P60 = 1.9000
AREA = .002736 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

RUNOFF VOLUME = 1.31060 INCHES = .3309 ACRE-FEET
PEAK DISCHARGE RATE = 10.02 CFS AT 1.500 HOURS BASIN AREA =
.0047 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 11:41:00

```
START                TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN M
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=0.005531 SQ MI
                     PER A=0 B=26.31 C=26.31 D=47.38
                     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) = 04/23/2002
START TIME (HR:MIN:SEC) = 11:43:16 USER NO.= M_GOODWN.I01
INPUT FILE = ERGI5M.DAT

START TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN M
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=0.005531 SQ MI
 PER A=0 B=26.31 C=26.31 D=47.38
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = 10.346 CFS UNIT VOLUME = .9982 B = 526.28
P60 = 1.9000
AREA = .002621 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 = 7.7408 CFS UNIT VOLUME = .9988 B = 354.54
P60 = 1.9000
AREA = .002910 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

RUNOFF VOLUME = 1.36937 INCHES = .4039 ACRE-FEET
PEAK DISCHARGE RATE = 12.06 CFS AT 1.500 HOURS BASIN AREA =
.0055 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 11:43:16

```
START                TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN P
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=0.004766 SQ MI
                     PER A=0 B=19.79 C=19.79 D=60.43
                     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) = 04/23/2002
 START TIME (HR:MIN:SEC) = 15:02:17 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5P.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN P
 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=0.004766 SQ MI
 PER A=0 B=19.79 C=19.79 D=60.43
 TP=0.1333 HR MASS RAINFALL=-1

*****WARNING***** SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR
 TOTAL AREA

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 11.370 CFS UNIT VOLUME = .9984 B = 526.28
 P60 = 1.9000
 AREA = .002880 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 = 5.0167 CFS UNIT VOLUME = .9978 B = 354.54
 P60 = 1.9000
 AREA = .001886 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 = 1.51736 INCHES = .3857 ACRE-Feet
 PEAK DISCHARGE RATE = 11.17 CFS AT 1.500 HOURS BASIN AREA =
 .0048 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 15:02:17

```
START                TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN PARK
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=0.010484 SQ MI
                     PER A=0 B=60 C=10 D=30
                     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) = 04/23/2002
 START TIME (HR:MIN:SEC) = 17:17:18 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5PK.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN PARK
 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=0.010484 SQ MI
 PER A=0 B=60 C=10 D=30
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 12.417 CFS UNIT VOLUME = .9984 B = 526.28
 P60 = 1.9000
 AREA = .003145 SQ MI IA = .10000 INCHES INF = .04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 .033330

K = .127253HR TP = .133300HR K/TP RATIO = .954634 SHAPE
 CONSTANT, N = 3.701902
 UNIT PEAK = 18.431 CFS UNIT VOLUME = .9995 B = 334.78
 P60 = 1.9000
 AREA = .007339 SQ MI IA = .47857 INCHES INF = 1.19000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 .033330

PRINT HYD ID=1 CODE=1

RUNOFF VOLUME = 1.09481 INCHES = .6122 ACRE-FEET
PEAK DISCHARGE RATE = 19.11 CFS AT 1.500 HOURS BASIN AREA =
.0105 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 17:17:19

```
START                TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN B
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=0.010813 SQ MI
                     PER A=0 B=10 C=0 D=90
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*****RESERVOIR ROUTE THROUGH 21" ORIFICE
ROUTE RESERVOIR     ID=2 HYD NO=101.2 INFLOW ID=1 CODE 24
                     OUTFLOW (CFS)      STORAGE (AC-FT)      ELEVATION (FT)
                     0.0                0.0                74.5
                     4.09               0.11               75.5
                     12.28              0.23               76.5
                     16.88              0.34               77.5
FINISH
```

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 04/25/2002
 START TIME (HR:MIN:SEC) = 16:52:00 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5B.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN B
 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=0.010813 SQ MI
 PER A=0 B=10 C=0 D=90
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 38.421 CFS UNIT VOLUME = .9991 B = 526.28
 P60 = 1.9000
 AREA = .009732 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 = 2.6570 CFS UNIT VOLUME = .9953 B = 327.55
 P60 = 1.9000
 AREA = .001081 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

RUNOFF VOLUME = 1.83785 INCHES = 1.0599 ACRE-FeET
PEAK DISCHARGE RATE = 29.05 CFS AT 1.500 HOURS BASIN AREA =
.0108 SQ. MI.

*****RESERVOIR ROUTE THROUGH 21" ORIFICE

ROUTE RESERVOIR ID=2 HYD NO=101.2 INFLOW ID=1 CODE 24

OUTFLOW (CFS)	STORAGE (AC-FT)	ELEVATION (FT)
0.0	0.0	74.5
4.09	0.11	75.5
12.28	0.23	76.5
16.88	0.34	77.5

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	74.50	.000	.00
.80	.00	74.50	.000	.00
1.60	20.05	77.28	.316	15.89
2.40	1.18	75.37	.096	3.56
3.20	.21	74.66	.017	.64
4.00	.13	74.55	.005	.19
4.80	.13	74.53	.004	.14
5.60	.16	74.54	.004	.15
6.40	.01	74.52	.002	.09
7.20	.00	74.50	.000	.01

PEAK DISCHARGE = 16.173 CFS - PEAK OCCURS AT HOUR 1.63

MAXIMUM WATER SURFACE ELEVATION = 77.346

MAXIMUM STORAGE = .3231 AC-FT INCREMENTAL TIME= .033330HRS

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 16:52:00

46

```

START          TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN A POND
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=0.013234 SQ MI
               PER A=0 B=10 C=0 D=90
               TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
*****RESERVOIR ROUTE THROUGH 21" ORIFICE
ROUTE RESERVOIR ID=2 HYD NO=101.2 INFLOW ID=1 CODE 24
               OUTFLOW (CFS)      STORAGE (AC-FT)      ELEVATION (FT)
                   0.0              0.0              74.5
                   4.09             0.11             75.5
                  12.28             0.23             76.5
                  16.88             0.34             77.5
                  20.47             0.46             78.5

FINISH

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AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 04/25/2002
 START TIME (HR:MIN:SEC) = 16:30:52 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5A.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN A POND
 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=0.013234 SQ MI
 PER A=0 B=10 C=0 D=90
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 47.024 CFS UNIT VOLUME = .9991 B = 526.28
 P60 = 1.9000
 AREA = .011911 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 = 3.2519 CFS UNIT VOLUME = .9961 B = 327.55
 P60 = 1.9000
 AREA = .001323 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

RUNOFF VOLUME = 1.83785 INCHES = 1.2972 ACRE-FEET
PEAK DISCHARGE RATE = 35.56 CFS AT 1.500 HOURS BASIN AREA =
.0132 SQ. MI.

*****RESERVOIR ROUTE THROUGH 21" ORIFICE

ROUTE RESERVOIR ID=2 HYD NO=101.2 INFLOW ID=1 CODE 24

OUTFLOW (CFS)	STORAGE (AC-FT)	ELEVATION (FT)
0.0	0.0	74.5
4.09	0.11	75.5
12.28	0.23	76.5
16.88	0.34	77.5
20.47	0.46	78.5

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	74.50	.000	.00
.80	.00	74.50	.000	.00
1.60	24.54	77.92	.391	18.39
2.40	1.45	75.51	.111	4.14
3.20	.26	74.69	.021	.76
4.00	.16	74.56	.006	.23
4.80	.16	74.54	.005	.17
5.60	.20	74.55	.005	.18
6.40	.02	74.53	.003	.11
7.20	.00	74.50	.000	.01

PEAK DISCHARGE = 18.785 CFS - PEAK OCCURS AT HOUR 1.67

MAXIMUM WATER SURFACE ELEVATION = 78.031

MAXIMUM STORAGE = .4037 AC-FT INCREMENTAL TIME= .033330HRS

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 16:30:52

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START          TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN STAMPEDE ROAD
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=0.002733 SQ MI
              PER A=0 B=10 C=10 D=80
              TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD     ID=1 CODE=1
FINISH
```

50

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 04/24/2002
 START TIME (HR:MIN:SEC) = 16:47:40 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5ST.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN STAMPEDE ROAD
 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=0.002733 SQ MI
 PER A=0 B=10 C=10 D=80
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 8.6320 CFS UNIT VOLUME = .9981 B = 526.28
 P60 = 1.9000
 AREA = .002186 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 = 1.4538 CFS UNIT VOLUME = .9914 B = 354.54
 P60 = 1.9000
 AREA = .000547 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

RUNOFF VOLUME = 1.73947 INCHES = .2535 ACRE-FEET
PEAK DISCHARGE RATE = 7.09 CFS AT 1.500 HOURS BASIN AREA =
.0027 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 16:47:40

START TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN PARCEL 12
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=0.020469 SQ MI
PER A=0 B=10 C=0 D=90
TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1
*****RESERVOIR ROUTE THROUGH 12" ORIFICE
ROUTE RESERVOIR ID=2 HYD NO=101.2 INFLOW ID=1 CODE 24

OUTFLOW (CFS)	STORAGE (AC-FT)	ELEVATION (FT)
0.0	0.0	71.0
2.67	0.24	72.0
4.63	0.36	73.0
5.98	0.49	74.0
7.08	0.65	75.0
8.02	0.83	76.0
8.86	1.04	77.0
9.64	1.28	78.0
10.36	1.54	79.0

FINISH

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 04/25/2002
 START TIME (HR:MIN:SEC) = 16:22:56 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5P12.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A & 5B - BASIN PARCEL 12
 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=0.020469 SQ MI
 PER A=0 B=10 C=0 D=90
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 CONSTANT, N = 7.106420
 UNIT PEAK = 72.731 CFS UNIT VOLUME = .9992 B = 526.28
 P60 = 1.9000
 AREA = .018422 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 = 5.0297 CFS UNIT VOLUME = .9975 B = 327.55
 P60 = 1.9000
 AREA = .002047 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

RUNOFF VOLUME = 1.83785 INCHES = 2.0063 ACRE-FEET
PEAK DISCHARGE RATE = 54.99 CFS AT 1.500 HOURS BASIN AREA =
.0205 SQ. MI.

*****RESERVOIR ROUTE THROUGH 12" ORIFICE

ROUTE RESERVOIR	ID=2 HYD NO=101.2	INFLOW ID=1 CODE 24	
	OUTFLOW (CFS)	STORAGE (AC-FT)	ELEVATION (FT)
	0.0	0.0	71.0
	2.67	0.24	72.0
	4.63	0.36	73.0
	5.98	0.49	74.0
	7.08	0.65	75.0
	8.02	0.83	76.0
	8.86	1.04	77.0
	9.64	1.28	78.0
	10.36	1.54	79.0

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	71.00	.000	.00
.80	.00	71.00	.000	.00
1.60	37.94	76.15	.861	8.14
2.40	2.23	77.46	1.151	9.22
3.20	.41	75.10	.668	7.17
4.00	.25	72.62	.314	3.88
4.80	.25	71.67	.160	1.78
5.60	.31	71.37	.090	1.00
6.40	.03	71.22	.053	.59
7.20	.00	71.11	.026	.29
8.00	.00	71.05	.012	.14
8.80	.00	71.02	.006	.07
9.60	.00	71.01	.003	.03
10.40	.00	71.01	.001	.02
11.20	.00	71.00	.001	.01
12.00	.00	71.00	.000	.00
PEAK DISCHARGE = 9.623 CFS - PEAK OCCURS AT HOUR 2.10				
MAXIMUM WATER SURFACE ELEVATION = 77.979				
MAXIMUM STORAGE = 1.2749 AC-FT INCREMENTAL TIME= .033330HRS				

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 16:22:57

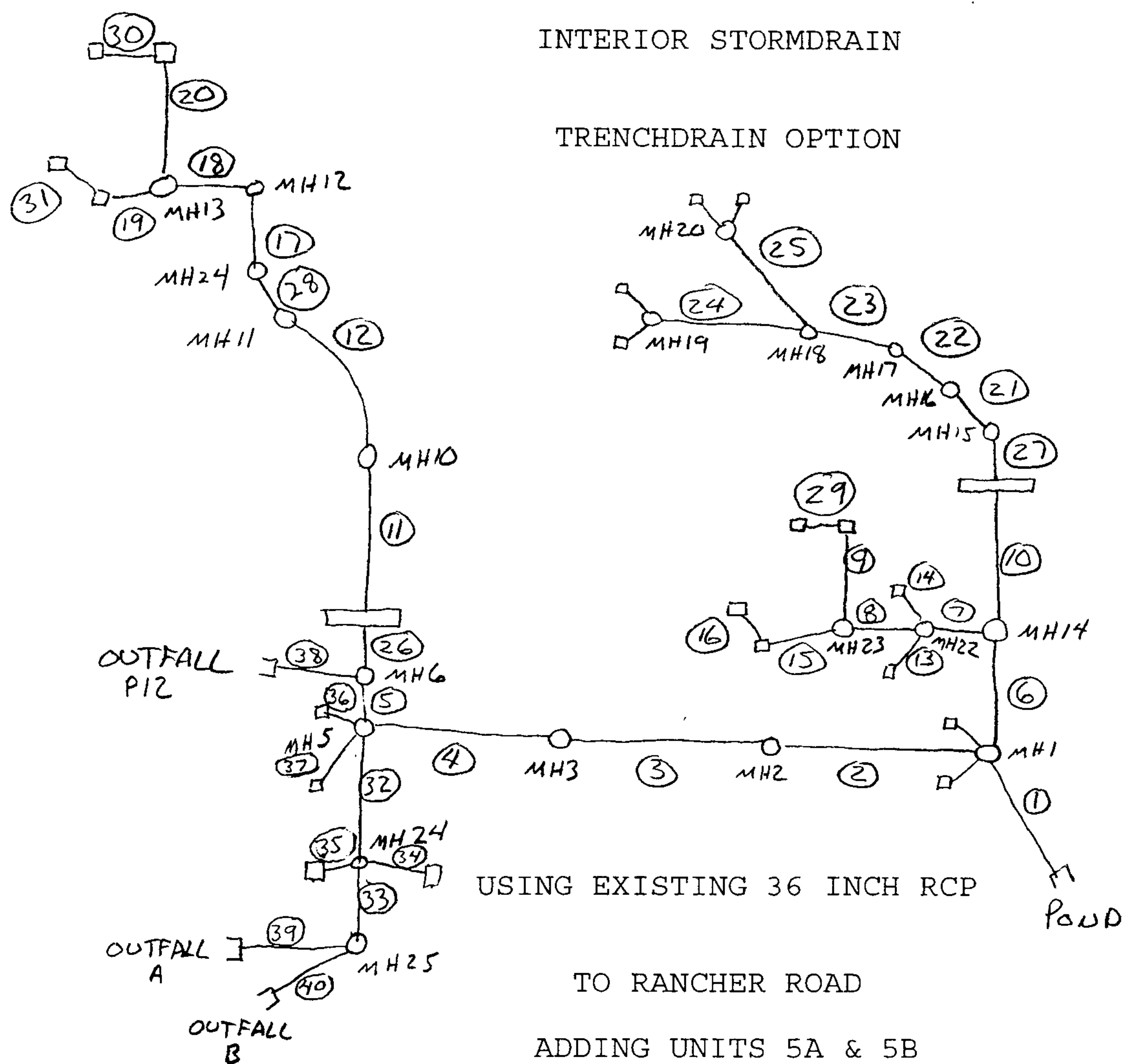
HYDRAULIC REPORT FOR

EL RANCHO GRANDE I

GIBSON BLVD STORMDRAIN

INTERIOR STORMDRAIN

TRENCHDRAIN OPTION



USING EXISTING 36 INCH RCP

TO RANCHER ROAD

ADDING UNITS 5A & 5B

AND BASINS A & B

;
)

Run date: 04-25-2002
File: C:EXIST36.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 415.0 / HT = 66 / WID = 66 / N = .013 / L = 165 / JLC = .25

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	45.29	63.50	40.00	17.62	50.11	22.11	4.5	23.56
UPSTRM	47.74	66.00	41.76	17.47	52.48	0.00	8.99	23.76

Drainage area (ac)	=	0	Slope of invert (%)	=	1.067
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.437
Time of conc (min)	=	14	Critical depth (in)	=	63.50
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	380.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	109.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	415	Confluence angle (deg)	=	45
Default Q (cfs)	=	415.05	Natural ground elev (ft)	=	56.25
Line capac. (cfs)	=	346.9	Line storage (cuft)	=	3904

LINE 2 / Q = 204.7 / HT = 48 / WID = 48 / N = .013 / L = 400 / JLC = .25

 2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	48.93	48.00	41.77	16.29	53.05	0.00	10.47	12.56
UPSTRM	57.05	48.00	51.11	16.29	61.17	0.00	12.88	12.57

Drainage area (ac)	=	0	Slope of invert (%)	=	2.335
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.031
Time of conc (min)	=	11	Critical depth (in)	=	46.61
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	187.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	53.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	204.6	Confluence angle (deg)	=	0
Default Q (cfs)	=	204.68	Natural ground elev (ft)	=	68
Line capac. (cfs)	=	219.5	Line storage (cuft)	=	5026

LINE 3 / Q = 204.7 / HT = 48 / WID = 48 / N = .013 / L = 400 / JLC = .25

 3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	58.08	48.00	51.11	16.29	62.20	0.00	12.88	12.56
UPSTRM	66.21	48.00	60.46	16.29	70.32	0.00	8.54	12.57

Drainage area (ac) =	0	Slope of invert (%) =	2.337
Runoff coefficient =	0	Slope energy grade line (%) =	2.031
Time of conc (min) =	9	Critical depth (in) =	46.61
Inlet time (min) =	0	Req'd length curb inlet (ft) =	187.5
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	53.8
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	204.6	Confluence angle (deg) =	0
Default Q (cfs) =	204.68	Natural ground elev (ft) =	73
Line capac. (cfs) =	219.6	Line storage (cuft) =	5026

LINE 4 / Q = 204.7 / HT = 48 / WID = 48 / N = .013 / L = 354 / JLC = .25

4 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	67.24	48.00	60.46	16.29	71.36	0.00	8.54	12.56
UPSTRM	74.43	48.00	68.73	16.29	78.54	0.00	4.96	12.57

Drainage area (ac)	=	0	Slope of invert (%)	=	2.336
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.031
Time of conc (min)	=	7	Critical depth (in)	=	46.61
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	187.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	53.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	204.6	Confluence angle (deg)	=	0
Default Q (cfs)	=	204.68	Natural ground elev (ft)	=	77.7
Line capac. (cfs)	=	219.6	Line storage (cuft)	=	4448

LINE 5 / Q = 152.8 / HT = 54 / WID = 54 / N = .013 / L = 78.09 / JLC = .25

5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	75.46	54.00	68.58	9.61	76.89	0.00	4.61	15.90
UPSTRM	75.93	54.00	69.36	9.61	77.36	0.00	3.79	15.90

Drainage area (ac) =	0	Slope of invert (%) =	0.999
Runoff coefficient =	0	Slope energy grade line (%) =	0.604
Time of conc (min) =	7	Critical depth (in) =	42.54
Inlet time (min) =	0	Req'd length curb inlet (ft) =	140.0
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	40.2
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	152.7	Confluence angle (deg) =	90
Default Q (cfs) =	152.79	Natural ground elev (ft) =	77.65
Line capac. (cfs) =	196.5	Line storage (cuft) =	1242

LINE 6 / Q = 199.6 / HT = 54 / WID = 54 / N = .013 / L = 208.65 / JLC = .25

6 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	48.93	54.00	41.76	12.55	51.37	0.00	9.99	15.90
UPSTRM	51.08	54.00	43.66	12.55	53.52	0.00	6.08	15.90

Drainage area (ac)	=	0	Slope of invert (%)	=	0.911
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.030
Time of conc (min)	=	5	Critical depth (in)	=	49.41
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	182.9
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	52.5
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	199.5	Confluence angle (deg)	=	-45
Default Q (cfs)	=	199.57	Natural ground elev (ft)	=	54.24
Line capac. (cfs)	=	187.7	Line storage (cuft)	=	3318

LINE 7 / Q = 57.8 / HT = 36 / WID = 36 / N = .013 / L = 193.33 / JLC = .25

7 / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	51.69	36.00	43.66	8.18	52.73	0.00	7.58	7.07
UPSTRM	53.14	36.00	47.72	8.18	54.18	0.00	8.73	7.07

Drainage area (ac) =	0	Slope of invert (%) =	2.100
Runoff coefficient =	0	Slope energy grade line (%) =	0.751
Time of conc (min) =	1	Critical depth (in) =	29.07
Inlet time (min) =	0	Req'd length curb inlet (ft) =	53.0
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	15.2
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	57.7	Confluence angle (deg) =	90
Default Q (cfs) =	57.8	Natural ground elev (ft) =	59.46
Line capac. (cfs) =	96.6	Line storage (cuft) =	1366

LINE 8 / Q = 29.8 / HT = 24 / WID = 24 / N = .013 / L = 40 / JLC = .25

 8 / DNLN = 7

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	53.40	24.00	47.72	9.49	54.80	0.00	9.73	3.14
UPSTRM	54.10	24.00	50.00	9.49	55.49	0.00	8.7	3.14

Drainage area (ac) =	0	Slope of invert (%) =	5.700
Runoff coefficient =	0	Slope energy grade line (%) =	1.736
Time of conc (min) =	1	Critical depth (in) =	22.58
Inlet time (min) =	0	Req'd length curb inlet (ft) =	27.3
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	7.8
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	29.7	Confluence angle (deg) =	0
Default Q (cfs) =	29.8	Natural ground elev (ft) =	60.71
Line capac. (cfs) =	54.0	Line storage (cuft) =	126

LINE 9 / Q = 18.4 / HT = 18 / WID = 18 / N = .013 / L = 83.76 / JLC = .25

 9 / DNLN = 8

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	54.44	18.00	50.00	10.41	56.13	0.00	9.2	1.77
UPSTRM	57.54	17.63	56.07	10.46	59.24	5.09	3.9	1.76

Drainage area (ac) = 0	Slope of invert (%) = 7.247
Runoff coefficient = 0	Slope energy grade line (%) = 3.714
Time of conc (min) = 0	Critical depth (in) = 17.62
Inlet time (min) = 0	Req'd length curb inlet (ft) = 16.9
Intensity (in/hr) = 0.00	Req'd grate area (sf) = 4.8
Cumulative C*A = 0.0	Depth at inlet opening (in) = 6
Flow contrib (cfs) = 18.3	Confluence angle (deg) = 90
Default Q (cfs) = 18.4	Natural ground elev (ft) = 61.48
Line capac. (cfs) = 28.3	Line storage (cuft) = 148

LINE 10 / Q = 141.8 / HT = 42 / WID = 42 / N = .013 / L = 52.07 / JLC = .25

10 / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	51.69	42.00	43.66	14.74	55.06	0.00	7.08	9.62
UPSTRM	52.72	42.00	44.10	14.74	56.10	0.00	8.96	9.62

Drainage area (ac) =	0	Slope of invert (%) =	0.845
Runoff coefficient =	0	Slope energy grade line (%) =	1.986
Time of conc (min) =	4	Critical depth (in) =	40.79
Inlet time (min) =	0	Req'd length curb inlet (ft) =	129.9
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	37.3
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	141.7	Confluence angle (deg) =	0
Default Q (cfs) =	141.77	Natural ground elev (ft) =	56.56
Line capac. (cfs) =	92.5	Line storage (cuft) =	501

LINE 11 / Q = 34.4 / HT = 36 / WID = 36 / N = .013 / L = 233 / JLC = .25

 11 / DNLN = 26

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	77.75	36.00	69.83	4.87	78.12	0.00	5.19	7.07
UPSTRM	78.37	36.00	72.16	4.87	78.74	0.00	6.33	7.07

Drainage area (ac) =	0	Slope of invert (%) =	1.000
Runoff coefficient =	0	Slope energy grade line (%) =	0.266
Time of conc (min) =	5	Critical depth (in) =	22.43
Inlet time (min) =	0	Req'd length curb inlet (ft) =	31.5
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	9.0
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	34.4	Confluence angle (deg) =	0
Default Q (cfs) =	34.4	Natural ground elev (ft) =	81.5
Line capac. (cfs) =	66.7	Line storage (cuft) =	1647

LINE 12 / Q = 34.4 / HT = 30 / WID = 30 / N = .013 / L = 450 / JLC = .25

12 / DNLN = 11

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	78.46	30.00	72.16	7.01	79.22	0.00	6.83	4.91
UPSTRM	81.63	30.00	77.43	7.01	82.39	0.00	5.56	4.91

Drainage area (ac)	=	0	Slope of invert (%)	=	1.171
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.704
Time of conc (min)	=	3	Critical depth (in)	=	23.52
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	31.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	9.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	34.4	Confluence angle (deg)	=	45
Default Q (cfs)	=	34.4	Natural ground elev (ft)	=	85.5
Line capac. (cfs)	=	44.4	Line storage (cuft)	=	2209

LINE 13 / Q = 14.0 / HT = 18 / WID = 18 / N = .013 / L = 16.49 / JLC = .25

13 / DNLN = 7

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	55.16	11.48	54.20	11.77	57.31	17.30	3.75	1.19
UPSTRM	56.24	11.48	54.75	11.77	58.39	17.30	3.68	1.19

Drainage area (ac) =	0	Slope of invert (%) =	3.335
Runoff coefficient =	0	Slope energy grade line (%) =	6.596
Time of conc (min) =	0	Critical depth (in) =	16.71
Inlet time (min) =	0	Req'd length curb inlet (ft) =	12.8
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	Confluence angle (deg) =	45
Default Q (cfs) =	14	Natural ground elev (ft) =	59.94
Line capac. (cfs) =	19.2	Line storage (cuft) =	20

LINE 14 / Q = 14.0 / HT = 18 / WID = 18 / N = .013 / L = 22.17 / JLC = .25

14 / DNLN = 7

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	55.59	16.71	54.20	8.18	56.63	9.28	3.75	1.71
UPSTRM	56.24	17.93	54.50	7.93	57.21	2.27	3.7	1.77

Drainage area (ac) =	0	Slope of invert (%) =	1.353
Runoff coefficient =	0	Slope energy grade line (%) =	2.621
Time of conc (min) =	0	Critical depth (in) =	16.71
Inlet time (min) =	0	Req'd length curb inlet (ft) =	12.8
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	Confluence angle (deg) =	-45
Default Q (cfs) =	14	Natural ground elev (ft) =	59.7
Line capac. (cfs) =	12.2	Line storage (cuft) =	39

LINE 15 / Q = 11.0 / HT = 18 / WID = 18 / N = .013 / L = 29.04 / JLC = .25

15 / DNLN = 8

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	55.98	10.60	55.10	10.16	57.59	17.71	4.11	1.08
UPSTRM	56.74	10.60	55.86	10.16	58.35	17.71	3.82	1.08

Drainage area (ac)	=	0	Slope of invert (%)	=	2.617
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.617
Time of conc (min)	=	0	Critical depth (in)	=	15.19
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	10.1
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	2.9
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	11	Confluence angle (deg)	=	0
Default Q (cfs)	=	11	Natural ground elev (ft)	=	61.19
Line capac. (cfs)	=	17.0	Line storage (cuft)	=	31

LINE 16 / Q = 5.5 / HT = 18 / WID = 18 / N = .013 / L = 31.48 / JLC = .25

16 / DNLN = 15

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	57.14	15.41	55.86	3.37	57.32	12.16	3.82	1.63
UPSTRM	57.22	10.87	56.22	4.93	57.60	17.61	3.93	1.12

Drainage area (ac) =	0	Slope of invert (%) =	1.144
Runoff coefficient =	0	Slope energy grade line (%) =	0.879
Time of conc (min) =	0	Critical depth (in) =	10.74
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) =	5.5	Confluence angle (deg) =	90
Default Q (cfs) =	5.5	Natural ground elev (ft) =	61.66
Line capac. (cfs) =	11.2	Line storage (cuft) =	43

LINE 17 / Q = 34.4 / HT = 30 / WID = 30 / N = .013 / L = 131.17 / JLC = .25

17 / DNLN = 28

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	82.93	30.00	78.41	7.01	83.69	0.00	5.26	4.91
UPSTRM	83.85	30.00	79.94	7.01	84.61	0.00	5.44	4.91

Drainage area (ac) =	0	Slope of invert (%) =	1.166
Runoff coefficient =	0	Slope energy grade line (%) =	0.704
Time of conc (min) =	1	Critical depth (in) =	23.52
Inlet time (min) =	0	Req'd length curb inlet (ft) =	31.5
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	9.0
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	34.4	Confluence angle (deg) =	90
Default Q (cfs) =	34.4	Natural ground elev (ft) =	87.89
Line capac. (cfs) =	44.3	Line storage (cuft) =	644

LINE 18 / Q = 34.4 / HT = 30 / WID = 30 / N = .013 / L = 145.05 / JLC = .25

18 / DNLN = 17

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	84.04	30.00	79.94	7.01	84.80	0.00	5.44	4.91
UPSTRM	85.07	23.52	83.11	8.33	86.15	24.69	3.25	4.13

Drainage area (ac) =	0	Slope of invert (%) =	2.185
Runoff coefficient =	0	Slope energy grade line (%) =	0.928
Time of conc (min) =	1	Critical depth (in) =	23.52
Inlet time (min) =	0	Req'd length curb inlet (ft) =	31.5
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	9.0
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	34.4	Confluence angle (deg) =	90
Default Q (cfs) =	34.4	Natural ground elev (ft) =	88.86
Line capac. (cfs) =	60.6	Line storage (cuft) =	655

LINE 19 / Q = 18.0 / HT = 18 / WID = 18 / N = .013 / L = 62 / JLC = .25

 19 / DNLN = 18

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	85.34	18.00	83.11	10.19	86.95	0.00	4.25	1.77
UPSTRM	87.16	18.00	85.44	10.19	88.77	0.00	2.27	1.77

Drainage area (ac) =	0	Slope of invert (%) =	3.758
Runoff coefficient =	0	Slope energy grade line (%) =	2.939
Time of conc (min) =	0	Critical depth (in) =	17.62
Inlet time (min) =	0	Req'd length curb inlet (ft) =	16.5
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	4.7
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	18	Confluence angle (deg) =	15
Default Q (cfs) =	18	Natural ground elev (ft) =	89.22
Line capac. (cfs) =	20.4	Line storage (cuft) =	110

LINE 20 / Q = 16.4 / HT = 18 / WID = 18 / N = .013 / L = 85 / JLC = .25

 20 / DNLN = 18

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	85.34	18.00	83.11	9.28	86.68	0.00	4.25	1.77
UPSTRM	87.22	17.37	85.77	9.38	88.58	6.62	2.28	1.75

Drainage area (ac) =	0	Slope of invert (%) =	3.129
Runoff coefficient =	0	Slope energy grade line (%) =	2.244
Time of conc (min) =	0	Critical depth (in) =	17.32
Inlet time (min) =	0	Req'd length curb inlet (ft) =	15.0
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	4.3
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	16.3	Confluence angle (deg) =	90
Default Q (cfs) =	16.4	Natural ground elev (ft) =	89.55
Line capac. (cfs) =	18.6	Line storage (cuft) =	149

LINE 21 / Q = 45.2 / HT = 36 / WID = 36 / N = .013 / L = 50 / JLC = .25

 21 / DNLN = 27

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	55.83	36.00	48.46	6.40	56.46	0.00	6.29	7.07
UPSTRM	56.06	36.00	48.75	6.39	56.69	0.00	6.31	7.07

Drainage area (ac) =	0	Slope of invert (%) =	0.580
Runoff coefficient =	0	Slope energy grade line (%) =	0.459
Time of conc (min) =	2	Critical depth (in) =	25.71
Inlet time (min) =	0	Req'd length curb inlet (ft) =	41.4
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	11.9
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	45.2	Confluence angle (deg) =	30
Default Q (cfs) =	45.2	Natural ground elev (ft) =	58.07
Line capac. (cfs) =	50.8	Line storage (cuft) =	353

LINE 22 / Q = 45.2 / HT = 36 / WID = 36 / N = .013 / L = 98 / JLC = .25

 22 / DNLN = 21

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	56.22	36.00	48.75	6.40	56.85	0.00	6.31	7.07
UPSTRM	56.67	36.00	49.17	6.39	57.30	0.00	6.4	7.07

Drainage area (ac) =	0	Slope of invert (%) =	0.429
Runoff coefficient =	0	Slope energy grade line (%) =	0.459
Time of conc (min) =	1	Critical depth (in) =	25.71
Inlet time (min) =	0	Req'd length curb inlet (ft) =	41.4
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	11.9
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	45.2	Confluence angle (deg) =	30
Default Q (cfs) =	45.2	Natural ground elev (ft) =	58.57
Line capac. (cfs) =	43.7	Line storage (cuft) =	693

LINE 23 / Q = 45.2 / HT = 36 / WID = 36 / N = .013 / L = 45 / JLC = .25

 23 / DNLN = 22

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	56.83	36.00	49.17	6.40	57.46	0.00	6.4	7.07
UPSTRM	57.03	36.00	49.53	6.39	57.67	0.00	6.35	7.07

Drainage area (ac) =	0	Slope of invert (%) =	0.800
Runoff coefficient =	0	Slope energy grade line (%) =	0.459
Time of conc (min) =	1	Critical depth (in) =	25.71
Inlet time (min) =	0	Req'd length curb inlet (ft) =	41.4
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	11.9
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	45.2	Confluence angle (deg) =	20
Default Q (cfs) =	45.2	Natural ground elev (ft) =	58.88
Line capac. (cfs) =	59.7	Line storage (cuft) =	318

LINE 24 / Q = 35.0 / HT = 30 / WID = 30 / N = .013 / L = 145 / JLC = .25

 24 / DNLN = 23

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	57.19	30.00	49.73	7.13	57.98	0.00	6.65	4.91
UPSTRM	58.44	30.00	52.07	7.13	59.23	0.00	5.09	4.91

Drainage area (ac)	=	0	Slope of invert (%)	=	1.614
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.865
Time of conc (min)	=	0	Critical depth (in)	=	23.72
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	32.1
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	9.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	35	Confluence angle (deg)	=	10
Default Q (cfs)	=	35	Natural ground elev (ft)	=	59.67
Line capac. (cfs)	=	52.1	Line storage (cuft)	=	712

LINE 25 / Q = 10.2 / HT = 36 / WID = 36 / N = .013 / L = 47 / JLC = .25

 25 / DNLN = 23

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	57.19	36.00	49.53	1.44	57.22	0.00	6.35	7.07
UPSTRM	57.21	36.00	49.84	1.44	57.24	0.00	6.16	7.07

Drainage area (ac)	=	0	Slope of invert (%)	=	0.660
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.041
Time of conc (min)	=	0	Critical depth (in)	=	12.21
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	9.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	2.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	10.1	Confluence angle (deg)	=	-20
Default Q (cfs)	=	10.2	Natural ground elev (ft)	=	59.01
Line capac. (cfs)	=	54.2	Line storage (cuft)	=	332

LINE 26 / Q = 142.5 / HT = 48 / WID = 48 / N = .013 / L = 47.12 / JLC = .25

27 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	76.29	48.00	69.36	11.35	78.28	0.00	4.29	12.56
UPSTRM	77.25	48.00	69.83	11.34	79.25	0.00	4.19	12.57

Drainage area (ac)	= 0	Slope of invert (%)	= 0.997
Runoff coefficient	= 0	Slope energy grade line (%)	= 2.045
Time of conc (min)	= 6	Critical depth (in)	= 43.23
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 130.6
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 37.5
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 6
Flow contrib (cfs)	= 142.5	Confluence angle (deg)	= 0
Default Q (cfs)	= 142.54	Natural ground elev (ft)	= 78.03
Line capac. (cfs)	= 143.5	Line storage (cuft)	= 592

LINE 27 / Q = 45.2 / HT = 36 / WID = 36 / N = .013 / L = 423 / JLC = .25

 33 / DNLN = 10

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	53.57	36.00	46.26	6.40	54.20	0.00	7.3	7.07
UPSTRM	55.67	36.00	46.89	6.39	56.30	0.00	7.86	7.07

Drainage area (ac)	=	0	Slope of invert (%)	=	0.149
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.497
Time of conc (min)	=	2	Critical depth (in)	=	25.71
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	41.4
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	11.9
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	45.2	Confluence angle (deg)	=	0
Default Q (cfs)	=	45.2	Natural ground elev (ft)	=	57.76
Line capac. (cfs)	=	25.7	Line storage (cuft)	=	2990

LINE 28 / Q = 34.4 / HT = 30 / WID = 30 / N = .013 / L = 83.95 / JLC = .25

28 / DNLN = 12

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	81.82	30.00	77.43	7.01	82.58	0.00	5.56	4.91
UPSTRM	82.60	30.00	78.41	7.01	83.36	0.00	5.26	4.91

Drainage area (ac)	=	0	Slope of invert (%)	=	1.167
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.931
Time of conc (min)	=	2	Critical depth (in)	=	23.52
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	31.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	9.0
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	34.4	Confluence angle (deg)	=	45
Default Q (cfs)	=	34.4	Natural ground elev (ft)	=	86.18
Line capac. (cfs)	=	44.3	Line storage (cuft)	=	412

LINE 29 / Q = 9.2 / HT = 18 / WID = 18 / N = .013 / L = 23 / JLC = .25

 29 / DNLN = 9

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	57.96	18.00	56.00	5.21	58.39	0.00	3.97	1.77
UPSTRM	58.25	18.00	56.23	5.21	58.67	0.00	3.72	1.77

Drainage area (ac) =	0	Slope of invert (%) =	1.000
Runoff coefficient =	0	Slope energy grade line (%) =	1.225
Time of conc (min) =	0	Critical depth (in) =	13.89
Inlet time (min) =	0	Req'd length curb inlet (ft) =	8.4
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	2.4
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	9.1	Confluence angle (deg) =	90
Default Q (cfs) =	9.2	Natural ground elev (ft) =	61.46
Line capac. (cfs) =	10.5	Line storage (cuft) =	41

LINE 30 / Q = 8.2 / HT = 18 / WID = 18 / N = .013 / L = 30 / JLC = .25

 30 / DNLN = 20

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	87.56	18.00	85.77	4.64	87.89	0.00	2.28	1.77
UPSTRM	87.83	18.00	86.07	4.64	88.16	0.00	1.93	1.77

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.889
Time of conc (min)	=	0	Critical depth (in)	=	13.11
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	7.5
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	2.2
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	8.1	Confluence angle (deg)	=	90
Default Q (cfs)	=	8.2	Natural ground elev (ft)	=	89.5
Line capac. (cfs)	=	10.5	Line storage (cuft)	=	53

LINE 31 / Q = 9.0 / HT = 18 / WID = 18 / N = .013 / L = 28 / JLC = .25

 31 / DNLN = 19

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	87.56	18.00	85.16	5.09	87.97	0.00	2.55	1.77
UPSTRM	87.87	18.00	85.44	5.09	88.27	0.00	2.36	1.77

Drainage area (ac)	= 0	Slope of invert (%)	= 1.000
Runoff coefficient	= 0	Slope energy grade line (%)	= 1.094
Time of conc (min)	= 0	Critical depth (in)	= 13.74
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 8.2
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 2.4
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 6
Flow contrib (cfs)	= 9	Confluence angle (deg)	= 90
Default Q (cfs)	= 9	Natural ground elev (ft)	= 89.3
Line capac. (cfs)	= 10.5	Line storage (cuft)	= 49

LINE 32 / Q = 41.1 / HT = 36 / WID = 36 / N = .013 / L = 260 / JLC = .25

32 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	75.46	36.00	68.73	5.81	75.98	0.00	5.96	7.07
UPSTRM	76.41	35.86	73.42	5.82	76.93	4.55	1.06	7.07

Drainage area (ac)	=	0	Slope of invert (%)	=	1.804
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.366
Time of conc (min)	=	0	Critical depth (in)	=	24.51
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	37.6
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	10.8
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	41	Confluence angle (deg)	=	90
Default Q (cfs)	=	41.09	Natural ground elev (ft)	=	77.49
Line capac. (cfs)	=	89.6	Line storage (cuft)	=	1837

LINE 33 / Q = 34.0 / HT = 30 / WID = 30 / N = .013 / L = 20 / JLC = .25

33 / DNLN = 32

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	76.54	30.00	73.42	6.93	77.28	0.00	1.56	4.91
UPSTRM	76.68	30.00	73.62	6.93	77.42	0.00	1.5	4.91

Drainage area (ac) =	0	Slope of invert (%) =	1.000
Runoff coefficient =	0	Slope energy grade line (%) =	0.687
Time of conc (min) =	0	Critical depth (in) =	23.38
Inlet time (min) =	0	Req'd length curb inlet (ft) =	31.2
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	8.9
Cumulative C*A =	0.0	Depth at inlet opening (in) =	6
Flow contrib (cfs) =	34	Confluence angle (deg) =	0
Default Q (cfs) =	34	Natural ground elev (ft) =	77.62
Line capac. (cfs) =	41.0	Line storage (cuft) =	98

LINE 34 / Q = 3.5 / HT = 18 / WID = 18 / N = .013 / L = 25 / JLC = .25

 34 / DNLN = 32

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	76.54	18.00	73.42	2.01	76.60	0.00	2.56	1.77
UPSTRM	76.58	18.00	73.67	2.01	76.65	0.00	2.16	1.77

Drainage area (ac)	=	0	Slope of invert (%)	=	1.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.177
Time of conc (min)	=	0	Critical depth (in)	=	8.63
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	3.3
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	0.9
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	3.5	Confluence angle (deg)	=	75
Default Q (cfs)	=	3.55	Natural ground elev (ft)	=	77.33
Line capac. (cfs)	=	10.5	Line storage (cuft)	=	44

LINE 35 / Q = 3.5 / HT = 18 / WID = 18 / N = .013 / L = 5 / JLC = .25

 35 / DNLN = 32

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	76.54	18.00	73.42	2.00	76.60	0.00	2.56	1.77
UPSTRM	76.56	18.00	73.67	2.00	76.62	0.00	2.16	1.77

Drainage area (ac) = 0	Slope of invert (%) = 5.000
Runoff coefficient = 0	Slope energy grade line (%) = 0.425
Time of conc (min) = 0	Critical depth (in) = 8.62
Inlet time (min) = 0	Req'd length curb inlet (ft) = 3.2
Intensity (in/hr) = 0.00	Req'd grate area (sf) = 0.9
Cumulative C*A = 0.0	Depth at inlet opening (in) = 6
Flow contrib (cfs) = 3.5	Confluence angle (deg) = -75
Default Q (cfs) = 3.54	Natural ground elev (ft) = 77.33
Line capac. (cfs) = 23.5	Line storage (cuft) = 9

LINE 36 / Q = 5.4 / HT = 18 / WID = 18 / N = .013 / L = 80 / JLC = .25

 36 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	75.46	18.00	68.73	3.06	75.60	0.00	7.46	1.77
UPSTRM	75.95	10.65	74.97	4.96	76.34	17.70	2.5	1.09

Drainage area (ac)	=	0	Slope of invert (%)	=	7.800
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.918
Time of conc (min)	=	0	Critical depth (in)	=	10.64
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	4.9
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)	=	30
Default Q (cfs)	=	5.4	Natural ground elev (ft)	=	78.97
Line capac. (cfs)	=	29.3	Line storage (cuft)	=	114

LINE 37 / Q = 5.4 / HT = 18 / WID = 18 / N = .013 / L = 70 / JLC = .25

 37 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	75.46	18.00	68.73	3.06	75.60	0.00	7.46	1.77
UPSTRM	75.95	10.65	74.97	4.96	76.34	17.70	2.5	1.09

Drainage area (ac) =	0	Slope of invert (%) =	8.914
Runoff coefficient =	0	Slope energy grade line (%) =	1.050
Time of conc (min) =	0	Critical depth (in) =	10.64
Inlet time (min) =	0	Req'd length curb inlet (ft) =	4.9
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) =	-30
Default Q (cfs) =	5.4	Natural ground elev (ft) =	78.97
Line capac. (cfs) =	31.4	Line storage (cuft) =	100

LINE 38 / Q = 10.3 / HT = 24 / WID = 24 / N = .013 / L = 80 / JLC = .25

38 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	76.29	24.00	69.36	3.26	76.45	0.00	6.29	3.14
UPSTRM	76.49	24.00	71.00	3.26	76.66	0.00	5	3.14

Drainage area (ac)	=	0	Slope of invert (%)	=	2.050
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.257
Time of conc (min)	=	0	Critical depth (in)	=	13.60
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	9.4
Intensity (in/hr)	=	0.00	Req'd grate area (sf)	=	2.7
Cumulative C*A	=	0.0	Depth at inlet opening (in)	=	6
Flow contrib (cfs)	=	10.2	Confluence angle (deg)	=	45
Default Q (cfs)	=	10.25	Natural ground elev (ft)	=	78
Line capac. (cfs)	=	32.4	Line storage (cuft)	=	251

LINE 39 / Q = 20.0 / HT = 18 / WID = 18 / N = .013 / L = 35 / JLC = .25

 39 / DNLN = 33

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	76.86	18.00	73.62	11.32	78.85	0.00	2.5	1.77
UPSTRM	78.63	18.00	74.50	11.32	80.62	0.00	3	1.77

Drainage area (ac) = 0	Slope of invert (%) = 2.514
Runoff coefficient = 0	Slope energy grade line (%) = 5.049
Time of conc (min) = 0	Critical depth (in) = 17.74
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) = 90
Default Q (cfs) = 20	Natural ground elev (ft) = 79
Line capac. (cfs) = 16.7	Line storage (cuft) = 62

LINE 40 / Q = 14.0 / HT = 18 / WID = 18 / N = .013 / L = 35 / JLC = .25

 40 / DNLN = 33

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	76.86	18.00	73.62	7.92	77.84	0.00	2.5	1.77
UPSTRM	77.73	18.00	75.00	7.92	78.70	0.00	2.5	1.77

Drainage area (ac)	=	0	Slope of invert (%)	=	3.943
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.778
Time of conc (min)	=	0	Critical depth (in)	=	16.71
Inlet time (min)	=	0	Req'd length curb inlet (ft)	=	12.8
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	Confluence angle (deg)	=	45
Default Q (cfs)	=	14	Natural ground elev (ft)	=	79
Line capac. (cfs)	=	20.9	Line storage (cuft)	=	62

```
START          TIME=0.0
***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A BACKYARD PONDS
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=0.000056 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
```

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 05/17/2002
 START TIME (HR:MIN:SEC) = 14:16:38 USER NO.= M_GOODWN.I01
 INPUT FILE = ERGI5APD.DAT

START TIME=0.0
 ***** HYDROGRAPH FOR EL RANDO GRANDE I UNITS 5A BACKYARD PONDS
 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=0.000040 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 = .98290E-01CFS UNIT VOLUME = .8724 B = 327.55
 P60 = 1.9000
 AREA = .000040 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 = .0015 ACRE-FEET
 PEAK DISCHARGE RATE = .06 CFS AT 1.533 HOURS BASIN AREA =
 .0000 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 14:16:38

99



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 30, 2003

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

RE: EL RANCHO GRANDE UNIT 5A & 5B (N-9/D2)
Engineers Certification – Submitted for Release of Financial Guaranty
Engineers Stamp dated 5/20/2002
Engineers Certification dated 4/28/2003

Dear Greg:

Based upon the information provided in your Engineers Certification submittal dated 4/28/2003, 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
303

c: Arlene Portillo, COA- Project # 645688= Unit 5A, # 645689= Unit 5B
✓ File

DRAINAGE INFORMATION SHEET

(REV. 1/28/2003rd)

M-9/02

PROJECT TITLE:	El Rancho Grande I, Unit 5A & 5B	ZONE MAP/DRG #:	M
DRB#:	1001918	EPC #:	
LEGAL DESCRIPTION:	Parcels 5A & 6, El Rancho Grande I		
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, NM	ZIP CODE:	87110
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	ALS, Inc.	CONTACT:	Tim Aldrich
ADDRESS:	P.O. Box 30701	PHONE:	884-1990
CITY, STATE:	Albuquerque	ZIP CODE:	87190
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL: ☐ DRAINAGE REPORT ☐ DRAINAGE PLAN 1ST 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) _____
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WAS A PRE-DESIGN CONFERENCE ATTENDED?

☐ YES

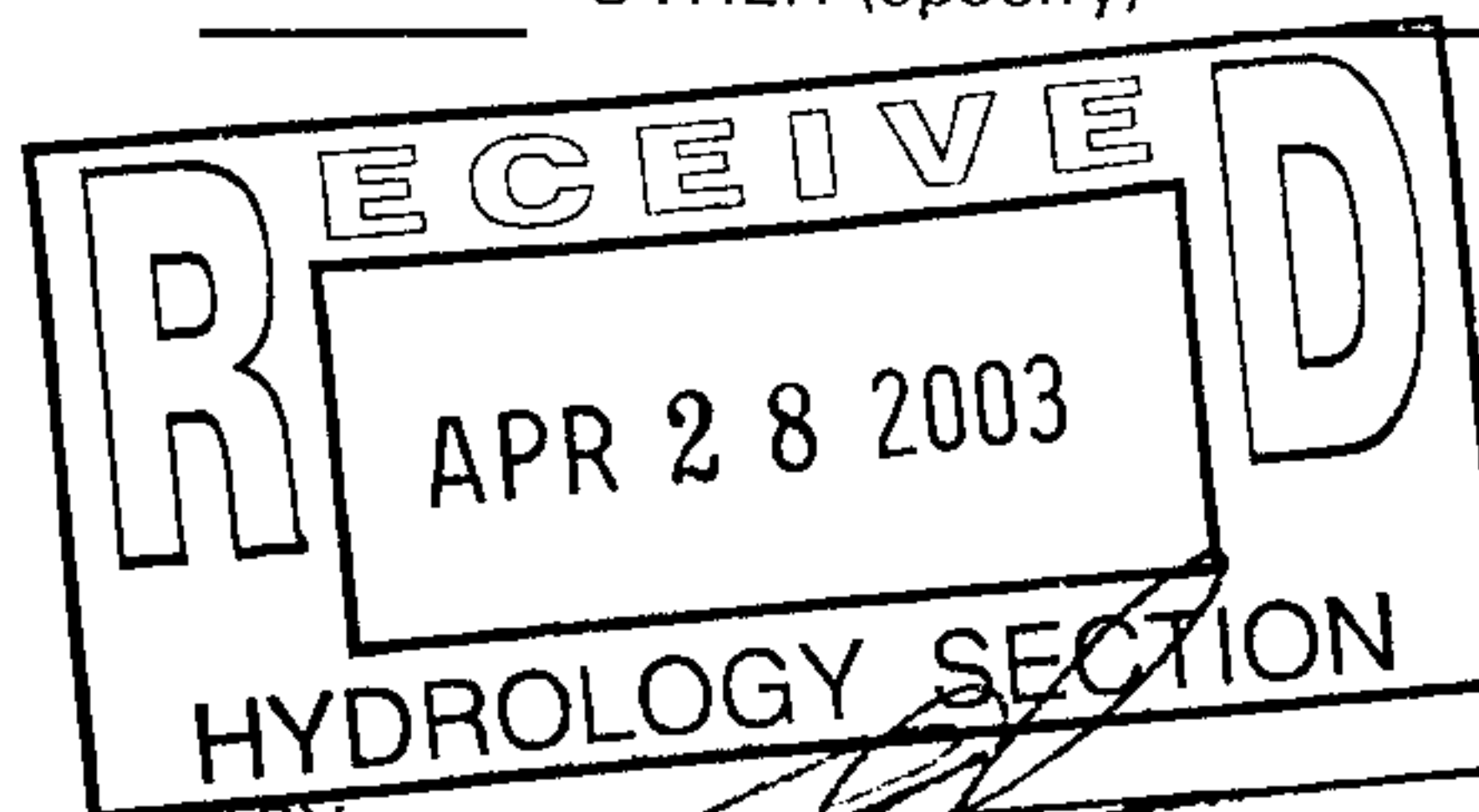
☐ NO

☐ COPY PROVIDED

DATE SUBMITTED: 4-28-03

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.