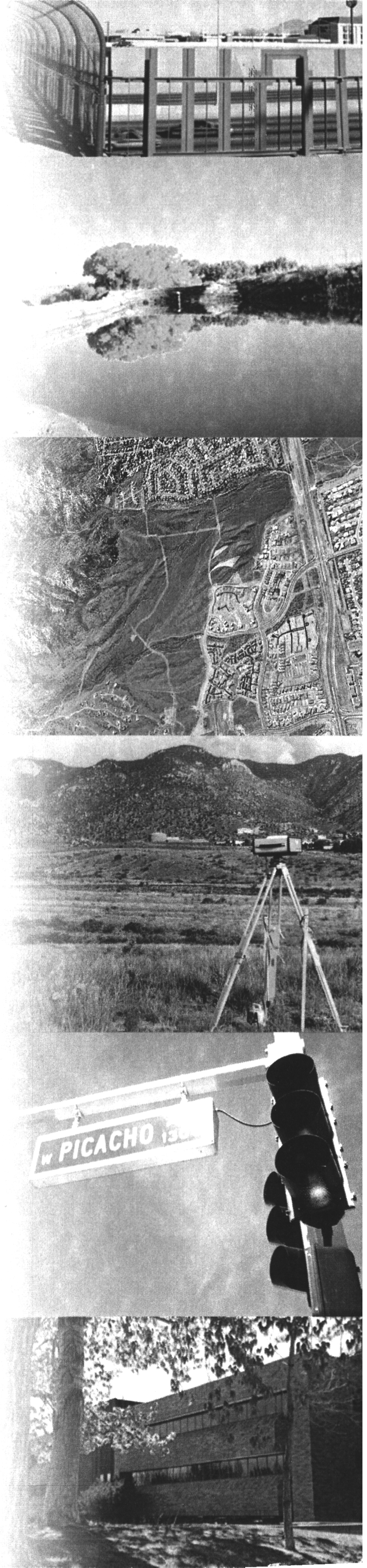
DRAINAGE STUDY FOR TERRACITA SUBDIVISION



MAY 5, 2003

Prepared for:

Centex Homes

5120 Masthead NE

Albuquerque, NM 87109

Bohannan ▲ Huston Inc.

▲ ENGINEERING

▲ ADVANCED TECHNOLOGIES

▲ SPATIAL DATA

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 6, 2003

Rick Beltramo, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Terracita Subdivision Drainage Study
Engineer's Stamp dated 5-5-03, (L21/D56)

Dear Mr. Beltramo,

Based upon the information provided in your submittal dated 5-5-03, the above referenced report is approved for Preliminary Plat action by the DRB. Upon approval by that board, please submit a mylar copy for my signature to obtain a Grading Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Public Works Hydrology section at 768-3654 (Charles Caruso) or 768-3645 (Brian Wolfe).

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

Sincerely,

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

C: Chuck Caruso, CoA
file

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/11/2002)

PROJECT TITLE: TERRACITA SUBDIVISION ZONE MAP/DRG. FILE # L-21-Z
DRB #: 1000933 EPC#: WORK ORDER#:

LEGAL DESCRIPTION: TRACT B-5 OF MANZANO MESA
CITY ADDRESS: NORTH OF SOUTHERN BLVD. AND WEST OF JUAN TABO BLVD.

ENGINEERING FIRM: Bohannan Huston, Inc. CONTACT: Rick Beltramo
ADDRESS: 7500 Jefferson NE – Courtyard I PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Centex Homes CONTACT: Norm Gregory
ADDRESS: 5120 Masthead NE PHONE: (505) 341-8505
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

ARCHITECT: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CONTRACTOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CHECK TYPE OF SUBMITTAL:
- X DRAINAGE REPORT
- ___ DRAINAGE PLAN
- X CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEERS CERTIFICATION (TCL)
- ___ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

CHECK TYPE OF APPROVAL SOUGHT:
- ___ SIA / FINANCIAL GUARANTEE RELEASE
- X PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM.)
- ___ CERTIFICATE OF OCCUPANCY (TEMP.)
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- ___ YES
- ___ NO
- ___ COPY PROVIDED

RECEIVED
MAY 05 2003
HYDROLOGY SECTION

DATE SUBMITTED: May 5, 2003 BY: Rick Beltramo

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.

TABLE OF CONTENTS

page

I. **INTRODUCTION** **1**

II. **METHODOLOGY** **1**

III. **EXISTING CONDITIONS** **2**

A. Topography 2

B. Existing Drainage Patterns 2

IV. **PROPOSED CONDITIONS** **2**

V. **CONCLUSION** **3**

APPENDICES

APPENDIX A - AHYMO INPUT, SUMMARY FILES

APPENDIX B - STREET CAPACITY ANALYSIS

APPENDIX C - INFRASTRUCTURE LIST

APPENDIX D - EXCERPTS FROM SOUTH EUBANK STUDY

PLATES

PLATE 1 - PRELIMINARY PLAT

PLATE 2 - GRADING PLAN

PLATE 3 - PROPOSED BASIN MAP

PLATE 4 - MIRAVISTA BASIN MAP AND RUNDOWN DETAIL SHEET

DRAINAGE STUDY
FOR
TERRACITA SUBDIVISION

May 5, 2003

Prepared for:

CENTEX HOMES
5120 MASTHEAD NE
ALBUQUERQUE, NM 87109

Prepared by:

BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109

RICHARD LYNN BELTRAMO
NEW MEXICO
10596
REGISTERED PROFESSIONAL ENGINEER

PREPARED BY:

RECEIVED
MAY 0 5 2003
HYDROLOGY SECTION

5/5/03

Rick Beltramo, P.E. Date

Bohannan ^ Huston INC.

I. INTRODUCTION

This drainage study establishes a drainage management plan for the planned development of Terracita Subdivision, currently Tract B-5 of Manzano Mesa. This property is approximately 12.5 acres of SU-1 land to be zoned as R-T residential land. Manzano Mesa Tract B is located in the southeast heights of Albuquerque at the northwest corner of Southern Blvd. and Juan Tabo Blvd. (See vicinity map on the preliminary plat for location, *Plate 1).* Terracita Subdivision is planned to consist of 90 single-family residential dwellings.

This study provides hydrologic and hydraulic analysis and provides a drainage management plan as necessary to support the planned 90 unit development. More specifically, this report is submitted in conjunction with the preliminary plat application. Preliminary plat approval and grading plan approval is requested. Prior to final plat and building permit approvals of this project, the City of Albuquerque (COA) must approve final grading plans and work order construction plans.

II. METHODOLOGY

Existing and proposed site hydrological conditions were analyzed for the 100-year, 6-hour storm in accordance with the revised Section 22.2, Hydrology, of the Development Process Manual (DPM) for the City of Albuquerque, dated January 1993. Street capacities were analyzed using Manning's equation, consistent with the revised DPM Section 22.2. All data and calculations supporting this study are located in Appendix B. The new rational method hydrologic procedures identified within the revised DPM Section 22.2 are utilized to determine peak flow rates for design of the storm drainage improvements within the project. The 100-year, 6-hour storm is used as the design event. The results are included in *Appendix A.* In addition, hydrologic analysis is based on the "SOUTH EUBANK AREA STORM DRAIN ANALYSIS, FINAL REPORT" dated November 1995 and "DRAINAGE STUDY FOR TRACT B, MANZANO MESA AND MIRAVISTA SUBDIVISION, UNITS 1 AND 2" dated March 2001. The basis for the analysis and specific methodology is adapted from the approved studies.

III. EXISTING CONDITIONS

A. Topography

Terracita Subdivision is currently undeveloped land. The terrain is of uniform grades sloping form east to west with slopes ranging from approximately 1% to 3%. The old Southern Boulevard roadbed crosses the site and can be seen in the existing topography contours. The land has little slope in the north to south direction. Soils are highly absorptive DG soils typical of the Albuquerque heights area located on the Sandia Mountain alluvial fan formation. Vegetation is light and consists mostly of native grasses.

B. Existing Drainage Patterns

Terracita Subdivision has no off-site runoff reaching the site. Adjacent properties and/or public roadways have been constructed which effectively intercept all potential off-site runoff. The site hydrology only addresses the subject basin. Refer to the South Eubank drainage study basin map for existing land treatment, areas and runoff rates. As discussed earlier in the report, Tract B-5 slopes from east to west. All undeveloped runoff generated by Tract B-5 currently drains to two temporary retention ponds near the west boundary. These ponds will be removed with the construction of Terracita Subdivision. Since the previous master plan study addresses existing conditions hydrology more than adequately, no further discussion of existing conditions will be provided within this report.

IV. PROPOSED CONDITIONS

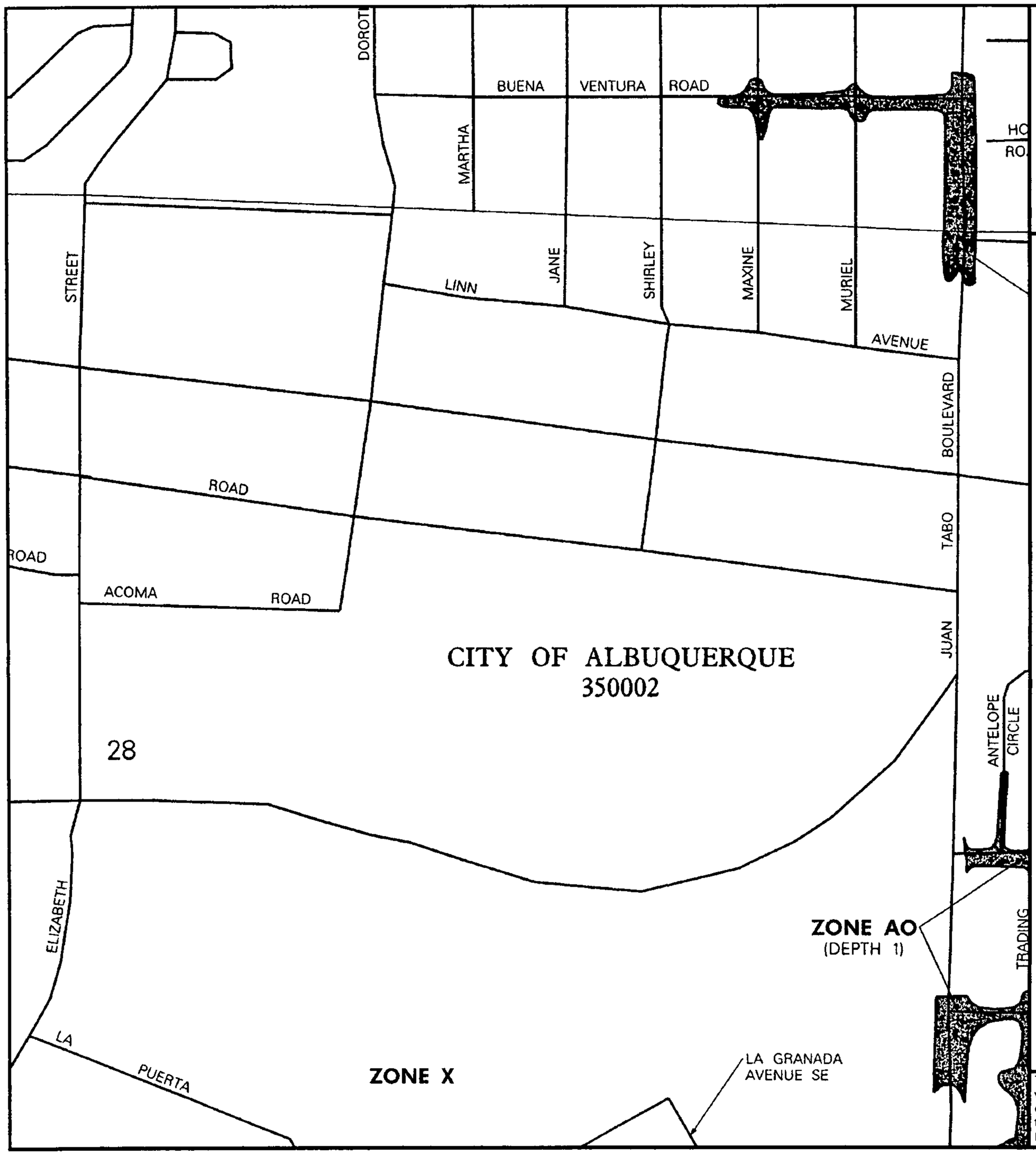
Terracita Subdivision is a proposed single-family, detached-unit residential development with 90 lots on 12.5 acres, producing a density of approximately 7.2 dwelling units per acre. This drainage report follows the approved concepts from the previously approved drainage studies. Because the downstream storm drain has been designed and constructed to accept Tract B and Miravista developed run-off, only on-site drainage analysis is necessary.

Two temporary retention ponds near the west boundary of Terracita are each designed to intercept 16 cfs and discharge through the Miravista Subdivision through existing rundown channels. The proposed grading plan for Terracita is designed to maintain these flow amounts through the existing channels. The balance of the flow developed on-site will discharge into Southern Blvd. and collected by existing storm drain inlets. (Please refer to the Basin Map).

The property does not lie within a flood hazard zone, as designated on Panel 359 of 825 of the National Flood Insurance Program, Flood Insurance Rate Map published by FEMA for Bernalillo County, New Mexico (April 2, 2002). See the FEMA Floodplain exhibit provided at the end of the report text.

V. CONCLUSION

This report provides a detailed study of the developed runoff and street capacities for the proposed Terracita Subdivision. Included are the preliminary plat, proposed conditions basin map, grading plan, infrastructure list, and all necessary hydrologic and hydraulic analyses. This drainage plan maintains the overall drainage pattern of the area and allows for safe management of storm runoff in permanent as well as interim conditions.



APPROXIMATE SCALE IN FEET

500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 359 OF 825

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	0359	E

MAP NUMBER
35001C0359 E

MAP REVISED:
APRIL 2, 2002

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map It was extracted using F-MIT On-Line This map does not reflect changes or amendments which may have been made subsequent to the date on the title block For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www msc fema gov

APPENDICES

APPENDIX A - AHYMO INPUT, SUMMARY FILES

APPENDIX B - STREET CAPACITY ANALYSIS

APPENDIX C - INFRASTRUCTURE LIST

APPENDIX D - EXCERPTS FROM SOUTH EUBANK STUDY

APPENDIX A

AHYMO INPUT, SUMMARY FILES

TERRACITA SUBDIVISION
May 5, 2003

DETERMINATION OF LAND TREATMENT PERCENTAGES FOR RESIDENTIAL AREAS
Ref: Basin Map

Lots
Minimum Lot Dimensions: 40'x100'
Total Lots = 90
Total Lot Area = 8.1 acres
Total Impervious Area = 4.7 acres
Percent A=0
Percent B=42
Percent C=0
Percent D=58

Misc. Lot Areas
(Represents Extra Large Lots)
Total Area = 1.6 acres
Percent A=0
Percent B=100
Percent C=0
Percent D=0

Right-of-Way
Total Area = 2.8 acres
Percent A=0
Percent B=10
Percent C=0
Percent D=90

Cumulative Percentages for Residential Areas
Total Area of Subdivision = 12.5 acres

$$\boxed{\frac{8.1}{12.5}(58)+\frac{1.6}{12.5}(0)+\frac{2.8}{12.5}(90) \Rightarrow\Rightarrow PercentD = 57.8}$$

Percent A = 0
Percent B = 42.2
Percent C = 0.0
Percent D = 57.8

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                        - VERSION:  1997.02c      RUN DATE (MON/DAY/YR) =05/04/2003
INPUT FILE = TERRA.HYM                                                                   USER NO.= AHYMO-S-9702c1BohanHu-AH

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

*S*                   PROJECT NAME:  TERRACITA SUBDIVISION
*S*                   DATE:  MAY, 2003
*S*                   INPUT FILE NAME:  TERRA.HYM
*S*                   OUTUPUT FILE NAME:  TERRA.OUT
*S*                   PROJECT NUMBER:  030312
*S*                       COMMENTS: 100 YEAR-6 HOUR STORM
*S
*S ////////////////////////////////////////////////////////////////////////
START                                                                                                   TIME=       .00
RAINFALL  TYPE= 1                                                                                       RAIN6=    2.600
*S*************************************************************************
*S                     BASIN A-DEVELOPED CONDITIONS
COMPUTE NM HYD       BASIN_A   -     1        .00687        17.38        .642      1.75088    1.500    3.952 PER IMP=  57.80
*S*************************************************************************
*S                     BASIN B-DEVELOPED CONDITIONS
COMPUTE NM HYD       BASIN_B   -     1        .00645        16.32        .602      1.75088    1.500    3.953 PER IMP=  57.80
*S*************************************************************************
*S                     BASIN C-DEVELOPED CONDITIONS
COMPUTE NM HYD       BASIN_C   -     1        .00640        16.19        .598      1.75088    1.500    3.953 PER IMP=  57.80
*S*************************************************************************
FINISH
```

```
*S*                    PROJECT NAME:  TERRACITA SUBDIVISION
*S*                    DATE:  MAY, 2003
*S*                    INPUT FILE NAME:  TERRA.HYM
*S*                    OUTUPUT FILE NAME:  TERRA.OUT
*S*                    PROJECT NUMBER:  030312
*S*                    COMMENTS:     100 YEAR-6 HOUR STORM
*S
*S ////////////////////////////////////////////////////////////////////////
START                 TIME=0.0 HR PUNCH CODE=0
RAINFALL              TYPE=1     RAIN QUARTER=0.0
                      RAIN ONE=2.14 IN    RAIN SIX=2.60 IN
                      RAIN DAY=3.10 IN    DT=0.05
*************************************************************************
*S************************************************************************
*S          BASIN A-DEVELOPED CONDITIONS
COMPUTE NM HYD        ID=1     HYD NO=BASIN_A    DA=0.00687 SQ MI
                      PER A=0.0   PER B=42.2   PER C=0.0    PER D=57.8
                      TP=-0.133 HR     MASSRAIN=-1
PRINT HYD             ID=1     CODE=1
*S************************************************************************
*S          BASIN B-DEVELOPED CONDITIONS
COMPUTE NM HYD        ID=1     HYD NO=BASIN_B    DA=0.00645 SQ MI
                      PER A=0.0   PER B=42.2   PER C=0.0    PER D=57.8
                      TP=-0.133 HR     MASSRAIN=-1
PRINT HYD             ID=1     CODE=1
*S************************************************************************
*S          BASIN C-DEVELOPED CONDITIONS
COMPUTE NM HYD        ID=1     HYD NO=BASIN_C    DA=0.0064 SQ MI
                      PER A=0.0   PER B=42.2   PER C=0.0    PER D=57.8
                      TP=-0.133 HR     MASSRAIN=-1
PRINT HYD             ID=1     CODE=1
*S************************************************************************
FINISH
```

APPENDIX B

STREET CAPACITY ANALYSIS

TERRACITA SUBDIVISION
Internal Street Capacity Calculations
May 5, 2003

1. Terra Bella Lane

Basin A (See Basin Map)
S = 2.2%
Q = 17.4 cfs

Total flow from Basin A is 17.4 cfs. The contributing area of Terra Bella Lane at 2.2% slope is 58% of Basin A which equals 10.2 cfs. At 2.2%, a road with standard curb can handle 33.2 cfs. Therefore, no inlets are needed. Roll curb will be placed until Lot 25. See PC stream output. Water flows west into Terra Vista Trail and into a drainage channel between lots 30 and 31.

2. Terra Vista Trail

Basin A (See Basin Map)
S = 0.5%
Q = 17.4 cfs

Total flow from Basin A is 17.4 cfs. At 0.5%, a road with standard curb can handle more than 25 cfs. Therefore, no inlets are needed. Roll curb will be placed until Lot 70. See PC stream output. Water flows west into a drainage channel between lots 30 and 31.

3. Terra Vista Trail

Basin B (See Basin Map)
S = 0.5%
Q = 16.3 cfs

Total flow from Basin B is 16.3 cfs. The contributing area of Terra Vista Trail at 0.5% slope is 33% of Basin A which equals 5.4 cfs. At 0.5%, a road with mountable curb can handle 4.4 cfs. Therefore, no inlets are needed. Roll curb will be placed until Lot 62. See PC stream output. Water flows west into a drainage channel at the stub terminus of Terra Bonita Way.

4. **Terra Bonita Way**

Basin B (See Basin Map)
S = 2.2%
Q = 16.3 cfs

Total flow from Basin B is 16.3 cfs. The contributing area of Terra Bonita Way at 2.2% slope is 57% of Basin B which equals 9.2 cfs. At 2.2%, a road with mountable curb can handle 9.2 cfs. Therefore, no inlets are needed. Roll curb will be placed until Lot 46. See PC stream output. Water flows west into a drainage channel at the stub terminus.

5. **Terra Bonita Way**

Basin B (See Basin Map)
S = 0.6%
Q = 16.3 cfs

Total flow from Basin B is 16.3 cfs. At 0.6%, a road with standard curb can handle more than 30 cfs. Therefore, no inlets are needed. See PC stream output. Water flows west into a drainage channel at the stub terminus.

6. **Terra Bonita Way**

Basin C (See Basin Map)
S = 0.5%
Q = 16.2 cfs

Total flow from Basin C is 16.2 cfs. At 0.5%, a road with mountable curb can handle 4.4 cfs and a road with standard curb has a capacity of more than 23 cfs. Therefore, no inlets are needed. However, standard curb will be placed at Lot 8. See PC stream output. Water flows south and east into Southern Blvd.

7. **Terracita Lane**

Basin C (See Basin Map)
S = 0.5%
Q = 16.2 cfs

Total flow from Basin C is 16.2 cfs. The contributing area of Terracita Lane northwest of Terra Bonita Way at 0.5% slope is 23% of Basin C which equals 3.7 cfs. At 0.5%, a road with mountable curb can handle 4.4 cfs. Therefore, no inlets are needed. Roll curb will be placed along Terracita Lane from the cul-de-sac terminus to Terra Bonita Way. See PC stream output. Water flows east into Southern Blvd.

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA BELLA LANE

MANNING'S N= .017 SLOPE= .022

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.37	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.58	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	0.76	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	0.92	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	1.07	1.56	0.02	0.07
0.06	0.06	0.06	0.1	1.97	1.21	1.88	0.02	0.08
0.07	0.07	0.08	0.1	2.30	1.34	2.19	0.03	0.10
0.08	0.08	0.10	0.1	2.63	1.47	2.50	0.03	0.11
0.09	0.09	0.13	0.2	2.96	1.59	2.81	0.04	0.13
0.10	0.10	0.16	0.3	3.29	1.70	3.13	0.04	0.14
0.11	0.11	0.19	0.3	3.62	1.81	3.44	0.05	0.16
0.12	0.12	0.23	0.4	3.95	1.92	3.75	0.06	0.18
0.13	0.13	0.26	0.5	4.28	2.03	4.07	0.06	0.19
0.14	0.14	0.31	0.6	5.15	1.99	4.93	0.06	0.20
0.15	0.15	0.36	0.7	6.03	1.99	5.79	0.06	0.21
0.16	0.16	0.43	0.9	6.91	2.02	6.65	0.06	0.22
0.17	0.17	0.50	1.0	7.79	2.07	7.51	0.07	0.24
0.18	0.18	0.58	1.2	8.67	2.13	8.38	0.07	0.25
0.19	0.19	0.66	1.5	9.54	2.19	9.24	0.07	0.26
0.20	0.20	0.76	1.7	10.42	2.26	10.10	0.08	0.28
0.21	0.21	0.87	2.0	11.30	2.34	10.96	0.08	0.29
0.22	0.22	0.98	2.4	12.18	2.42	11.83	0.09	0.31
0.23	0.23	1.10	2.7	13.06	2.49	12.69	0.10	0.33
0.24	0.24	1.23	3.2	13.93	2.57	13.55	0.10	0.34
0.25	0.25	1.37	3.6	14.81	2.66	14.41	0.11	0.36
0.26	0.26	1.52	4.2	15.69	2.74	15.27	0.12	0.38
0.27	0.27	1.68	4.7	16.57	2.82	16.14	0.12	0.39
0.28	0.28	1.84	5.3	17.45	2.90	17.00	0.13	0.41
0.29	0.29	2.02	6.0	18.32	2.98	17.86	0.14	0.43
0.30	0.30	2.20	6.7	19.20	3.06	18.72	0.15	0.45
0.31	0.31	2.39	7.5	20.08	3.14	19.59	0.15	0.46
0.32	0.32	2.59	8.3	20.96	3.22	20.45	0.16	0.48
0.33	0.33	2.80	9.2	21.84	3.30	21.31	0.17	0.50
0.34	0.34	3.02	10.2	22.71	3.38	22.17	0.18	0.52
0.35	0.35	3.25	11.2	23.59	3.45	23.03	0.19	0.54
0.36	0.36	3.48	12.3	24.47	3.53	23.90	0.19	0.55
0.37	0.37	3.72	13.4	25.35	3.61	24.76	0.20	0.57
0.38	0.38	3.98	14.7	26.23	3.69	25.62	0.21	0.59
0.39	0.39	4.24	15.9	27.10	3.76	26.48	0.22	0.61
0.40	0.40	4.50	17.3	27.98	3.84	27.35	0.23	0.63
0.41	0.41	4.78	18.7	28.86	3.91	28.21	0.24	0.65
0.42	0.42	5.06	20.6	28.88	4.06	28.21	0.26	0.68
0.43	0.43	5.35	22.5	28.90	4.21	28.22	0.28	0.71

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	26.6	28.94	4.50	28.23	0.31	0.76
0.46	0.46	6.19	28.7	28.96	4.64	28.23	0.33	0.79
0.47	0.47	6.48	30.9	28.98	4.77	28.24	0.35	0.82
0.48	0.48	6.76	33.2	29.01	4.91	28.24	0.37	0.85
0.49	0.49	7.04	35.5	29.03	5.04	28.25	0.39	0.88
0.50	0.50	7.32	37.9	29.05	5.17	28.25	0.42	0.92
0.51	0.51	7.61	40.3	29.07	5.30	28.26	0.44	0.95
0.52	0.52	7.89	42.9	29.09	5.43	28.26	0.46	0.98
0.53	0.53	8.17	45.4	29.11	5.56	28.27	0.48	1.01
0.54	0.54	8.45	48.0	29.13	5.68	28.27	0.50	1.04

21 LOTS = 58% Basin A 10.2 cfs

ROLL CURB LIMIT LOT 25

STREET CAPACITY

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA VISTA TRAIL (BASIN A)

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14
0.14	0.14	0.31	0.3	5.15	0.95	4.93	0.01	0.15
0.15	0.15	0.36	0.3	6.03	0.95	5.79	0.01	0.16
0.16	0.16	0.43	0.4	6.91	0.96	6.65	0.01	0.17
0.17	0.17	0.50	0.5	7.79	0.99	7.51	0.02	0.19
0.18	0.18	0.58	0.6	8.67	1.01	8.38	0.02	0.20
0.19	0.19	0.66	0.7	9.54	1.04	9.24	0.02	0.21
0.20	0.20	0.76	0.8	10.42	1.08	10.10	0.02	0.22
0.21	0.21	0.87	1.0	11.30	1.11	10.96	0.02	0.23
0.22	0.22	0.98	1.1	12.18	1.15	11.83	0.02	0.24
0.23	0.23	1.10	1.3	13.06	1.19	12.69	0.02	0.25
0.24	0.24	1.23	1.5	13.93	1.23	13.55	0.02	0.26
0.25	0.25	1.37	1.7	14.81	1.27	14.41	0.02	0.27
0.26	0.26	1.52	2.0	15.69	1.30	15.27	0.03	0.29
0.27	0.27	1.68	2.3	16.57	1.34	16.14	0.03	0.30
0.28	0.28	1.84	2.5	17.45	1.38	17.00	0.03	0.31
0.29	0.29	2.02	2.9	18.32	1.42	17.86	0.03	0.32
0.30	0.30	2.20	3.2	19.20	1.46	18.72	0.03	0.33
0.31	0.31	2.39	3.6	20.08	1.50	19.59	0.03	0.34
0.32	0.32	2.59	4.0	20.96	1.53	20.45	0.04	0.36
0.33	0.33	2.80	4.4	21.84	1.57	21.31	0.04	0.37
0.34	0.34	3.02	4.9	22.71	1.61	22.17	0.04	0.38
0.35	0.35	3.25	5.3	23.59	1.65	23.03	0.04	0.39
0.36	0.36	3.48	5.9	24.47	1.68	23.90	0.04	0.40
0.37	0.37	3.72	6.4	25.35	1.72	24.76	0.05	0.42
0.38	0.38	3.98	7.0	26.23	1.76	25.62	0.05	0.43
0.39	0.39	4.24	7.6	27.10	1.79	26.48	0.05	0.44
0.40	0.40	4.50	8.2	27.98	1.83	27.35	0.05	0.45
0.41	0.41	4.78	8.9	28.86	1.86	28.21	0.05	0.46
0.42	0.42	5.06	9.8	28.88	1.94	28.21	0.06	0.48
0.43	0.43	5.35	10.7	28.90	2.01	28.22	0.06	0.49

ROLL CURB LIMIT (LOT 70)

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	12.7	28.94	2.14	28.23	0.07	0.52
0.46	0.46	6.19	13.7	28.96	2.21	28.23	0.08	0.54
0.47	0.47	6.48	14.7	28.98	2.28	28.24	0.08	0.55
0.48	0.48	6.76	15.8	29.01	2.34	28.24	0.09	0.57
0.49	0.49	7.04	16.9	29.03	2.40	28.25	0.09	0.58
0.50	0.50	7.32	18.1	29.05	2.47	28.25	0.09	0.59
0.51	0.51	7.61	19.2	29.07	2.53	28.26	0.10	0.61
0.52	0.52	7.89	20.4	29.09	2.59	28.26	0.10	0.62
0.53	0.53	8.17	21.7	29.11	2.65	28.27	0.11	0.64
0.54	0.54	8.45	22.9	29.13	2.71	28.27	0.11	0.65

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA VISTA TRAIL (BASIN B)

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14
0.14	0.14	0.31	0.3	5.15	0.95	4.93	0.01	0.15
0.15	0.15	0.36	0.3	6.03	0.95	5.79	0.01	0.16
0.16	0.16	0.43	0.4	6.91	0.96	6.65	0.01	0.17
0.17	0.17	0.50	0.5	7.79	0.99	7.51	0.02	0.19
0.18	0.18	0.58	0.6	8.67	1.01	8.38	0.02	0.20
0.19	0.19	0.66	0.7	9.54	1.04	9.24	0.02	0.21
0.20	0.20	0.76	0.8	10.42	1.08	10.10	0.02	0.22
0.21	0.21	0.87	1.0	11.30	1.11	10.96	0.02	0.23
0.22	0.22	0.98	1.1	12.18	1.15	11.83	0.02	0.24
0.23	0.23	1.10	1.3	13.06	1.19	12.69	0.02	0.25
0.24	0.24	1.23	1.5	13.93	1.23	13.55	0.02	0.26
0.25	0.25	1.37	1.7	14.81	1.27	14.41	0.02	0.27
0.26	0.26	1.52	2.0	15.69	1.30	15.27	0.03	0.29
0.27	0.27	1.68	2.3	16.57	1.34	16.14	0.03	0.30
0.28	0.28	1.84	2.5	17.45	1.38	17.00	0.03	0.31
0.29	0.29	2.02	2.9	18.32	1.42	17.86	0.03	0.32
0.30	0.30	2.20	3.2	19.20	1.46	18.72	0.03	0.33
0.31	0.31	2.39	3.6	20.08	1.50	19.59	0.03	0.34
0.32	0.32	2.59	4.0	20.96	1.53	20.45	0.04	0.36
0.33	0.33	2.80	4.4	21.84	1.57	21.31	0.04	0.37
0.34	0.34	3.02	4.9	22.71	1.61	22.17	0.04	0.38
0.35	0.35	3.25	5.3	23.59	1.65	23.03	0.04	0.39
0.36	0.36	3.48	5.9	24.47	1.68	23.90	0.04	0.40
0.37	0.37	3.72	6.4	25.35	1.72	24.76	0.05	0.42
0.38	0.38	3.98	7.0	26.23	1.76	25.62	0.05	0.43
0.39	0.39	4.24	7.6	27.10	1.79	26.48	0.05	0.44
0.40	0.40	4.50	8.2	27.98	1.83	27.35	0.05	0.45
0.41	0.41	4.78	8.9	28.86	1.86	28.21	0.05	0.46
0.42	0.42	5.06	9.8	28.88	1.94	28.21	0.06	0.48
0.43	0.43	5.35	10.7	28.90	2.01	28.22	0.06	0.49

ROLL CURB LIMIT (LOT 62)

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	12.7	28.94	2.14	28.23	0.07	0.52
0.46	0.46	6.19	13.7	28.96	2.21	28.23	0.08	0.54
0.47	0.47	6.48	14.7	28.98	2.28	28.24	0.08	0.55
0.48	0.48	6.76	15.8	29.01	2.34	28.24	0.09	0.57
0.49	0.49	7.04	16.9	29.03	2.40	28.25	0.09	0.58
0.50	0.50	7.32	18.1	29.05	2.47	28.25	0.09	0.59
0.51	0.51	7.61	19.2	29.07	2.53	28.26	0.10	0.61
0.52	0.52	7.89	20.4	29.09	2.59	28.26	0.10	0.62
0.53	0.53	8.17	21.7	29.11	2.65	28.27	0.11	0.64
0.54	0.54	8.45	22.9	29.13	2.71	28.27	0.11	0.65

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA BONITA WAY

MANNING'S N= .017 SLOPE= .022

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)	
0.01	0.01	0.00	0.0	0.33	0.37	0.31	0.00	0.01	
0.02	0.02	0.01	0.0	0.66	0.58	0.63	0.01	0.03	
0.03	0.03	0.01	0.0	0.99	0.76	0.94	0.01	0.04	
0.04	0.04	0.03	0.0	1.32	0.92	1.25	0.01	0.05	
0.05	0.05	0.04	0.0	1.64	1.07	1.56	0.02	0.07	
0.06	0.06	0.06	0.1	1.97	1.21	1.88	0.02	0.08	
0.07	0.07	0.08	0.1	2.30	1.34	2.19	0.03	0.10	
0.08	0.08	0.10	0.1	2.63	1.47	2.50	0.03	0.11	
0.09	0.09	0.13	0.2	2.96	1.59	2.81	0.04	0.13	
0.10	0.10	0.16	0.3	3.29	1.70	3.13	0.04	0.14	
0.11	0.11	0.19	0.3	3.62	1.81	3.44	0.05	0.16	
0.12	0.12	0.23	0.4	3.95	1.92	3.75	0.06	0.18	
0.13	0.13	0.26	0.5	4.28	2.03	4.07	0.06	0.19	
0.14	0.14	0.31	0.6	5.15	1.99	4.93	0.06	0.20	
0.15	0.15	0.36	0.7	6.03	1.99	5.79	0.06	0.21	
0.16	0.16	0.43	0.9	6.91	2.02	6.65	0.06	0.22	
0.17	0.17	0.50	1.0	7.79	2.07	7.51	0.07	0.24	
0.18	0.18	0.58	1.2	8.67	2.13	8.38	0.07	0.25	
0.19	0.19	0.66	1.5	9.54	2.19	9.24	0.07	0.26	
0.20	0.20	0.76	1.7	10.42	2.26	10.10	0.08	0.28	
0.21	0.21	0.87	2.0	11.30	2.34	10.96	0.08	0.29	
0.22	0.22	0.98	2.4	12.18	2.42	11.83	0.09	0.31	
0.23	0.23	1.10	2.7	13.06	2.49	12.69	0.10	0.33	
0.24	0.24	1.23	3.2	13.93	2.57	13.55	0.10	0.34	
0.25	0.25	1.37	3.6	14.81	2.66	14.41	0.11	0.36	
0.26	0.26	1.52	4.2	15.69	2.74	15.27	0.12	0.38	
0.27	0.27	1.68	4.7	16.57	2.82	16.14	0.12	0.39	
0.28	0.28	1.84	5.3	17.45	2.90	17.00	0.13	0.41	
0.29	0.29	2.02	6.0	18.32	2.98	17.86	0.14	0.43	
0.30	0.30	2.20	6.7	19.20	3.06	18.72	0.15	0.45	
0.31	0.31	2.39	7.5	20.08	3.14	19.59	0.15	0.46	
0.32	0.32	2.59	8.3	20.96	3.22	20.45	0.16	0.48	
0.33	0.33	2.80	9.2	21.84	3.30	21.31	0.17	0.50	ROLL CURB LIMIT
0.34	0.34	3.02	10.2	22.71	3.38	22.17	0.18	0.52	
0.35	0.35	3.25	11.2	23.59	3.45	23.03	0.19	0.54	
0.36	0.36	3.48	12.3	24.47	3.53	23.90	0.19	0.55	
0.37	0.37	3.72	13.4	25.35	3.61	24.76	0.20	0.57	(LOT 46)
0.38	0.38	3.98	14.7	26.23	3.69	25.62	0.21	0.59	
0.39	0.39	4.24	15.9	27.10	3.76	26.48	0.22	0.61	
0.40	0.40	4.50	17.3	27.98	3.84	27.35	0.23	0.63	
0.41	0.41	4.78	18.7	28.86	3.91	28.21	0.24	0.65	
0.42	0.42	5.06	20.6	28.88	4.06	28.21	0.26	0.68	
0.43	0.43	5.35	22.5	28.90	4.21	28.22	0.28	0.71	

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)	
0.45	0.45	5.91	26.6	28.94	4.50	28.23	0.31	0.76	
0.46	0.46	6.19	28.7	28.96	4.64	28.23	0.33	0.79	
0.47	0.47	6.48	30.9	28.98	4.77	28.24	0.35	0.82	
0.48	0.48	6.76	33.2	29.01	4.91	28.24	0.37	0.85	STREET CAPACITY
0.49	0.49	7.04	35.5	29.03	5.04	28.25	0.39	0.88	
0.50	0.50	7.32	37.9	29.05	5.17	28.25	0.42	0.92	
0.51	0.51	7.61	40.3	29.07	5.30	28.26	0.44	0.95	
0.52	0.52	7.89	42.9	29.09	5.43	28.26	0.46	0.98	
0.53	0.53	8.17	45.4	29.11	5.56	28.27	0.48	1.01	
0.54	0.54	8.45	48.0	29.13	5.68	28.27	0.50	1.04	

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA BONITA WAY - STUB (BASIN B)

MANNING'S N= .017 SLOPE= .006

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	42.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.19	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.30	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.40	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.48	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.56	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.63	1.88	0.01	0.07
0.07	0.07	0.08	0.1	2.30	0.70	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.77	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.83	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.89	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.95	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	1.00	3.75	0.02	0.14
0.13	0.13	0.26	0.3	4.28	1.06	4.07	0.02	0.15
0.14	0.14	0.31	0.3	5.15	1.04	4.93	0.02	0.16
0.15	0.15	0.36	0.4	6.03	1.04	5.79	0.02	0.17
0.16	0.16	0.43	0.4	6.91	1.06	6.65	0.02	0.18
0.17	0.17	0.50	0.5	7.79	1.08	7.51	0.02	0.19
0.18	0.18	0.58	0.6	8.67	1.11	8.38	0.02	0.20
0.19	0.19	0.66	0.8	9.54	1.14	9.24	0.02	0.21
0.20	0.20	0.76	0.9	10.42	1.18	10.10	0.02	0.22
0.21	0.21	0.87	1.1	11.30	1.22	10.96	0.02	0.23
0.22	0.22	0.98	1.2	12.18	1.26	11.83	0.02	0.24
0.23	0.23	1.10	1.4	13.06	1.30	12.69	0.03	0.26
0.24	0.24	1.23	1.7	13.93	1.34	13.55	0.03	0.27
0.25	0.25	1.37	1.9	14.81	1.39	14.41	0.03	0.28
0.26	0.26	1.52	2.2	15.69	1.43	15.27	0.03	0.29
0.27	0.27	1.68	2.5	16.57	1.47	16.14	0.03	0.30
0.28	0.28	1.84	2.8	17.45	1.51	17.00	0.04	0.32
0.29	0.29	2.02	3.1	18.32	1.56	17.86	0.04	0.33
0.30	0.30	2.20	3.5	19.20	1.60	18.72	0.04	0.34
0.31	0.31	2.39	3.9	20.08	1.64	19.59	0.04	0.35
0.32	0.32	2.59	4.4	20.96	1.68	20.45	0.04	0.36
0.33	0.33	2.80	4.8	21.84	1.72	21.31	0.05	0.38
0.34	0.34	3.02	5.3	22.71	1.76	22.17	0.05	0.39
0.35	0.35	3.25	5.9	23.59	1.80	23.03	0.05	0.40
0.36	0.36	3.48	6.4	24.47	1.84	23.90	0.05	0.41
0.37	0.37	3.72	7.0	25.35	1.88	24.76	0.06	0.43
0.38	0.38	3.98	7.7	26.23	1.92	25.62	0.06	0.44
0.39	0.39	4.24	8.3	27.10	1.96	26.48	0.06	0.45
0.40	0.40	4.50	9.0	27.98	2.00	27.35	0.06	0.46
0.41	0.41	4.78	9.8	28.86	2.04	28.21	0.06	0.47
0.42	0.42	5.06	10.7	28.88	2.12	28.21	0.07	0.49
0.43	0.43	5.35	11.8	28.90	2.20	28.22	0.08	0.51

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	13.9	28.94	2.35	28.23	0.09	0.54
0.46	0.46	6.19	15.0	28.96	2.42	28.23	0.09	0.55
0.47	0.47	6.48	16.1	28.98	2.49	28.24	0.10	0.57
0.48	0.48	6.76	17.3	29.01	2.56	28.24	0.10	0.58
0.49	0.49	7.04	18.5	29.03	2.63	28.25	0.11	0.60
0.50	0.50	7.32	19.8	29.05	2.70	28.25	0.11	0.61
0.51	0.51	7.61	21.1	29.07	2.77	28.26	0.12	0.63
0.52	0.52	7.89	22.4	29.09	2.84	28.26	0.12	0.64
0.53	0.53	8.17	23.7	29.11	2.90	28.27	0.13	0.66
0.54	0.54	8.45	25.1	29.13	2.97	28.27	0.14	0.68

ACTUAL FLOW = 16.3 cfs

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA BONITA WAY (BASIN C)

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14
0.14	0.14	0.31	0.3	5.15	0.95	4.93	0.01	0.15
0.15	0.15	0.36	0.3	6.03	0.95	5.79	0.01	0.16
0.16	0.16	0.43	0.4	6.91	0.96	6.65	0.01	0.17
0.17	0.17	0.50	0.5	7.79	0.99	7.51	0.02	0.19
0.18	0.18	0.58	0.6	8.67	1.01	8.38	0.02	0.20
0.19	0.19	0.66	0.7	9.54	1.04	9.24	0.02	0.21
0.20	0.20	0.76	0.8	10.42	1.08	10.10	0.02	0.22
0.21	0.21	0.87	1.0	11.30	1.11	10.96	0.02	0.23
0.22	0.22	0.98	1.1	12.18	1.15	11.83	0.02	0.24
0.23	0.23	1.10	1.3	13.06	1.19	12.69	0.02	0.25
0.24	0.24	1.23	1.5	13.93	1.23	13.55	0.02	0.26
0.25	0.25	1.37	1.7	14.81	1.27	14.41	0.02	0.27
0.26	0.26	1.52	2.0	15.69	1.30	15.27	0.03	0.29
0.27	0.27	1.68	2.3	16.57	1.34	16.14	0.03	0.30
0.28	0.28	1.84	2.5	17.45	1.38	17.00	0.03	0.31
0.29	0.29	2.02	2.9	18.32	1.42	17.86	0.03	0.32
0.30	0.30	2.20	3.2	19.20	1.46	18.72	0.03	0.33
0.31	0.31	2.39	3.6	20.08	1.50	19.59	0.03	0.34
0.32	0.32	2.59	4.0	20.96	1.53	20.45	0.04	0.36
0.33	0.33	2.80	4.4	21.84	1.57	21.31	0.04	0.37
0.34	0.34	3.02	4.9	22.71	1.61	22.17	0.04	0.38
0.35	0.35	3.25	5.3	23.59	1.65	23.03	0.04	0.39
0.36	0.36	3.48	5.9	24.47	1.68	23.90	0.04	0.40
0.37	0.37	3.72	6.4	25.35	1.72	24.76	0.05	0.42
0.38	0.38	3.98	7.0	26.23	1.76	25.62	0.05	0.43
0.39	0.39	4.24	7.6	27.10	1.79	26.48	0.05	0.44
0.40	0.40	4.50	8.2	27.98	1.83	27.35	0.05	0.45
0.41	0.41	4.78	8.9	28.86	1.86	28.21	0.05	0.46
0.42	0.42	5.06	9.8	28.88	1.94	28.21	0.06	0.48
0.43	0.43	5.35	10.7	28.90	2.01	28.22	0.06	0.49

ROLL CURB LIMIT (LOT 8)

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	12.7	28.94	2.14	28.23	0.07	0.52
0.46	0.46	6.19	13.7	28.96	2.21	28.23	0.08	0.54
0.47	0.47	6.48	14.7	28.98	2.28	28.24	0.08	0.55
0.48	0.48	6.76	15.8	29.01	2.34	28.24	0.09	0.57
0.49	0.49	7.04	16.9	29.03	2.40	28.25	0.09	0.58
0.50	0.50	7.32	18.1	29.05	2.47	28.25	0.09	0.59
0.51	0.51	7.61	19.2	29.07	2.53	28.26	0.10	0.61
0.52	0.52	7.89	20.4	29.09	2.59	28.26	0.10	0.62
0.53	0.53	8.17	21.7	29.11	2.65	28.27	0.11	0.64
0.54	0.54	8.45	22.9	29.13	2.71	28.27	0.11	0.65

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRACITA LANE (BASIN C)

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14
0.14	0.14	0.31	0.3	5.15	0.95	4.93	0.01	0.15
0.15	0.15	0.36	0.3	6.03	0.95	5.79	0.01	0.16
0.16	0.16	0.43	0.4	6.91	0.96	6.65	0.01	0.17
0.17	0.17	0.50	0.5	7.79	0.99	7.51	0.02	0.19
0.18	0.18	0.58	0.6	8.67	1.01	8.38	0.02	0.20
0.19	0.19	0.66	0.7	9.54	1.04	9.24	0.02	0.21
0.20	0.20	0.76	0.8	10.42	1.08	10.10	0.02	0.22
0.21	0.21	0.87	1.0	11.30	1.11	10.96	0.02	0.23
0.22	0.22	0.98	1.1	12.18	1.15	11.83	0.02	0.24
0.23	0.23	1.10	1.3	13.06	1.19	12.69	0.02	0.25
0.24	0.24	1.23	1.5	13.93	1.23	13.55	0.02	0.26
0.25	0.25	1.37	1.7	14.81	1.27	14.41	0.02	0.27
0.26	0.26	1.52	2.0	15.69	1.30	15.27	0.03	0.29
0.27	0.27	1.68	2.3	16.57	1.34	16.14	0.03	0.30
0.28	0.28	1.84	2.5	17.45	1.38	17.00	0.03	0.31
0.29	0.29	2.02	2.9	18.32	1.42	17.86	0.03	0.32
0.30	0.30	2.20	3.2	19.20	1.46	18.72	0.03	0.33
0.31	0.31	2.39	3.6	20.08	1.50	19.59	0.03	0.34
0.32	0.32	2.59	4.0	20.96	1.53	20.45	0.04	0.36
0.33	0.33	2.80	4.4	21.84	1.57	21.31	0.04	0.37
0.34	0.34	3.02	4.9	22.71	1.61	22.17	0.04	0.38
0.35	0.35	3.25	5.3	23.59	1.65	23.03	0.04	0.39
0.36	0.36	3.48	5.9	24.47	1.68	23.90	0.04	0.40
0.37	0.37	3.72	6.4	25.35	1.72	24.76	0.05	0.42
0.38	0.38	3.98	7.0	26.23	1.76	25.62	0.05	0.43
0.39	0.39	4.24	7.6	27.10	1.79	26.48	0.05	0.44
0.40	0.40	4.50	8.2	27.98	1.83	27.35	0.05	0.45
0.41	0.41	4.78	8.9	28.86	1.86	28.21	0.05	0.46
0.42	0.42	5.06	9.8	28.88	1.94	28.21	0.06	0.48
0.43	0.43	5.35	10.7	28.90	2.01	28.22	0.06	0.49

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	12.7	28.94	2.14	28.23	0.07	0.52
0.46	0.46	6.19	13.7	28.96	2.21	28.23	0.08	0.54
0.47	0.47	6.48	14.7	28.98	2.28	28.24	0.08	0.55
0.48	0.48	6.76	15.8	29.01	2.34	28.24	0.09	0.57
0.49	0.49	7.04	16.9	29.03	2.40	28.25	0.09	0.58
0.50	0.50	7.32	18.1	29.05	2.47	28.25	0.09	0.59
0.51	0.51	7.61	19.2	29.07	2.53	28.26	0.10	0.61
0.52	0.52	7.89	20.4	29.09	2.59	28.26	0.10	0.62
0.53	0.53	8.17	21.7	29.11	2.65	28.27	0.11	0.64
0.54	0.54	8.45	22.9	29.13	2.71	28.27	0.11	0.65

23L BASIN C
= 3.7 cfs

ROLL CURB
LIMIT

APPENDIX C

INFRASTRUCTURE LIST

Current DRC
Project No. _____

Date Submitted: May 2, 2003

Date Site Plan Approved: N/A

Date Preliminary Plat Approved: _____

Date Preliminary Plat Expiers: _____

DRB Project No. 1000933

Application No. _____

Figure 12

INFRASTRUCTURE LIST

EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R B.) REQUIRED INFRASTRUCTURE LIST

TERRACITA SUBDIVISION
PRELIMINARY PLAT

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PRIVATE ROADWAY IMPROVEMENTS						
		50' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON NORTH SIDE ONLY 5' MEDIAN	TERRACITA LANE	SOUTHERN BLVD.	TERRA BONITA WAY	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON NORTH SIDE ONLY*	TERRACITA LANE	TERRA BONITA WAY	CUL-DE-SAC TERMINUS	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES*	TERRA BONITA WAY	TERRA BELLA LANE	TERRA VISTA TRAIL	/	/	/
		24' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES*	TERRA BONITA WAY	TERRA VISTA TRAIL	WEST STUB TERMINUS	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES*	TERRA BELLA LANE	TERRA BONITA WAY	TERRA VISTA TRAIL	/	/	/
		24' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON NORTH SIDE ONLY*	TERRA BELLA LANE	TERRA BONITA WAY	EAST STUB TERMINUS	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES*	TERRA VISTA TRAIL	TERRA BELLA LANE	TERRA BONITA WAY	/	/	/
		24' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON WEST SIDE ONLY*	TERRA VISTA TRAIL	TERRA BELLA LANE	NORTH STUB TERMINUS	/	/	/

$30,000 MODIFIED TYPE"C" CONTRIBUTION FOR TRAFFIC SIGNAL PLUS PULL BOXES AND CONDUIT AS REQUIRED BY DRC

* SIDEWALKS TO BE DEFERRED.

STREET LIGHTS AS PER COA DPM

PUBLIC ROADWAY IMPROVEMENTS

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
		34' F-F	PERMANENT PAVING W/ PCC CURB & GUTTER AND 10' ASPHALT TRAIL NORTH SIDE ONLY	SOUTHERN BLVD.	WEST BOUNDARY LINE	JUAN TABO BLVD	/	/	/

PUBLIC STORM DRAIN IMPROVEMENTS

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
		10' WIDE	SIDEWALK CULVERT	BETWEEN LOTS 30 AND 31	TERRA VISTA TRAIL	WEST BOUNDARY	/	/	/
		10' WIDE	SIDEWALK CULVERT	TERRA BONITA WAY	WEST STUB TERMINUS	WEST BOUNDARY	/	/	/
							/	/	/

NOTE: A GRADING AND DRAINAGE CERTIFICATION OF THE APPROVED GRADING PLAN IS REQUIRED PRIOR TO THE RELEASE OF FINANCIAL GUARANTEES.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PUBLIC WATERLINE IMPROVEMENTS						
		16" DIA	REMOVAL OF EXISTING 16" CCP FROM BACKYARDS OF LOTS 19-27 REPLACE WITH DUCTILE IRON INTO PROPOSED STREET	TERRA BELLA LANE	LOT 19	LOT 27	/	/	/
		10" DIA	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	TERRA BELLA LANE	JUAN TABO BLVD.	TERRA BONITA WAY	/	/	/
		10" DIA	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	TERRA BONITA WAY	TERRA BELLA LANE	WEST BOUNDARY	/	/	/
		4" DIA	WATERLINE W/ NEC VALVES FH'S, MJ'S & RJ'S	TERRACITA LANE	TERRA BONITA WAY	CUL-DE-SAC TERMINUS	/	/	/
		6" DIA	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	TERRA BELLA LANE	TERRA BONITA WAY	TERRA VISTA TRAIL	/	/	/
		6" DIA	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	TERRA VISTA TRAIL	NORTH STUB TERMINUS	TERRA BONITA WAY	/	/	/
			PUBLIC SANITARY SEWER IMPROVEMENTS						
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	TERRA BELLA LANE	EAST STUB TERMINUS	TERRA VISTA TRAIL	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	TERRA BONITA WAY	TERRA BELLA LANE	WEST BOUNDARY	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	TERRACITA LANE	TERRA BONITA WAY	CUL-DE-SAC TERMINUS	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	TERRA VISTA TRAIL	NORTH STUB TERMINUS	TERRA BONITA WAY	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	TRACT A BETWEEN LOTS 30&31	TERRA VISTA TRAIL	WEST BOUNDARY	/	/	/

NINA LEUNG
PREPARED BY:

BOHANNAN HUSTON INC.
FIRM.

Nina Leung 5-2-03
SIGNATURE DATE

MAXIMUM TIME ALLOW TO CONSTRUCT IMPROVEMENTS WITHOUT A DRB EXTENSION

DRB CHAIR DATE

TRANSPORTATION DEVELOPMENT DATE

UTILITY DEVELOPMENT DATE

N/A
NEW MEXICO UTILITIES INC. DATE

PARKS & RECREATION DEPARTMENT DATE

N/A
AMAFCA DATE

CITY ENGINEER DATE

DATE

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT/OWNER

APPENDIX D

EXCERPTS FROM SOUTH EUBANK STUDY

CITY OF ALBUQUERQUE, NEW MEXICO

SOUTH EUBANK AREA STORM DRAINAGE ANALYSIS

CITY OF Albuquerque

COA PROJECT NO. 4730-02
PUBLIC WORKS DEPARTMENT
HYDROLOGY DIVISION

Prepared by

Smith Engineering Company

A Full Service Engineering Company

FINAL REPORT: NOVEMBER, 1995

TABLE 5
SUBBASIN HYDROLOGY - DEVELOPED CONDITIONS

Basin #	% Land Use				TP (hours)	Volume (Ac.Ft.)		Flow (CFS)		Area (Acres)	CFS/Acre (100-Year Storm)
	A	B	C	D		VOL_{10}	VOL_{100}	Q_{10}	Q_{100}		
305	13	27	11	49	0.244	1.9	3.3	38	64	25.1	2.55
306	0	0	0	100	0.225	2.7	4.2	56	84	22.0	3.82
307	13	37	10	40	0.133	1.2	2.3	36	64	18.8	3.40
308	14	29	12	45	0.230	3.6	6.5	77	134	51.5	2.60
309	15	25	13	47	0.133	0.6	1.1	17	30	8.3	3.61
310	3	7	0	90	0.190	4.2	6.7	95	145	38.4	3.77
311	4	18	3	75	0.249	6.7	11.0	131	209	67.9	3.08
312	2	10	3	85	0.133	1.7	2.8	46	71	15.8	4.49
Total for Basin 300										364.3	3.07*
401	0	5	5	90	0.251	2.5	3.9	48	73	21.6	3.38
402	0	0	1	99	0.271	2.7	4.3	51	77	22.5	3.42
403	10	20	0	70	0.239	3.4	5.7	69	110	36.8	2.99
404	10	20	0	70	0.258	2.9	4.8	56	90	31.2	2.88
405	1	0	3	96	0.187	3.7	5.9	84	127	31.0	4.10
406	1	0	4	95	0.202	1.7	2.6	37	55	14.1	3.90
Total for Basin 400										157.2	3.38*
501	10	20	0	70	0.262	1.2	1.9	22	36	12.6	2.86
502	13	25	13	49	0.251	9.1	16.1	177	314	122.0	2.57
503	12	28	12	48	0.256	8.5	15.0	164	291	115.3	2.52
504	10	20	0	70	0.133	0.5	0.9	14	23	5.7	4.04
505	5	80	5	10	0.238	1.5	3.4	34	73	39.9	1.83
506	10	15	0	75	0.207	0.9	1.5	20	32	9.7	3.30
507	0	5	0	95	0.133	1.7	2.6	44	66	14.0	4.71
508	10	20	0	70	0.133	1.2	2.0	33	54	13.2	4.09
509	10	20	0	70	0.133	1.5	2.6	42	67	16.5	4.06
510	10	20	0	70	0.184	4.5	7.5	104	168	48.5	3.46
Total for Basin 500										397.4	2.83*

*Avg cfs/ac for Total Basin Note: 6-hour storm

```
AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994          RUN DATE (MON/DAY/YR) =06/08/1995
INPUT FILE = OPTIONB.DAT                                                                   USER NO.= C_ANDRSN.PS1

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

*S      INCLUDES PROPOSED 96" PIPE AND DETENTION BASIN WITH 66" OUTLET
*S    THAT PICK UP FLOWS FROM BASIN 501, 502, 503, 504, 401, 403
*S        DOES PICK UP PIPE FLOW FROM CENTRAL AND ELIZABETH
*S  INCREASE PIPE SIZE IN JANE STREET AND DIVERTS THIS FLOW NORTH WARD
*S    TAKE FLOW FROM 54" STUB-OUT AT CENTRAL AND EUBANK TO EUBANK LINE
                                                                                                   TIME=       .00
START                                                                                              RAIN6=     2.560
RAINFALL  TYPE= 1
*S  100-YEAR STORM
*S  ONE-HOUR=2.07
*S  SIX-HOUR=2.56
*S HYD 101 IS OLF THAT IS AT THE BEGINNING OF THE CENTRAL SD SYSTEM
COMPUTE NM HYD        101.00   -    11        .03319      103.12       4.092     2.31187    1.500    4.855 PER IMP= 100.00
*S ROUTING 101 THRU 102 ON CENTRAL AVENUE'S NORTH SIDE
ROUTE                 101.02   11   12        .03319       91.32       4.092     2.31188    1.533    4.299
COMPUTE NM HYD        102.00   -    11        .05253      149.46       5.978     2.13387    1.500    4.446 PER IMP=  88.00
ADD HYD               102.10 11&12  13        .08572      237.16      10.071     2.20279    1.533    4.323
*S DIVIDE BETWEEN MH# S-132 TO MH# S-262
*S****     PIPE HYD CB1 AND OLF HYD 102.13 IS AP #9     *****
DIVIDE HYD                CB1   13   11        .05140       61.00       6.039     2.20279    1.367    1.854
                      102.13  AND   12        .03432      176.16       4.032     2.20279    1.533    8.020
*S OLF HYD 102.13 THRU 103 ON CENTRAL STREET'S NORTH SIDE
ROUTE                 102.12   12   14        .03432      137.98       4.032     2.20293    1.600    6.282
COMPUTE NM HYD        103.00   -    13        .02347       49.09       2.453     1.95937    1.600    3.268 PER IMP=  77.00
ADD HYD               103.13 13&14  12        .05779      187.07       6.485     2.10399    1.600    5.058
*S DIVIDE CATCH BASINS AND CATTLE GUARD BETWEEN MH# S-102  TO  MH# S-132
*S OLF HYD 103.03 IS AT JUAN TABO AND CENTRAL ON THE NORTH SIDE
*S****     OLF HYD 103.03 IS AP #13     *****
DIVIDE HYD                CB2   12   14        .04575       99.00       5.133     2.10399    1.500    3.381
                      103.03  AND   15        .01204       88.07       1.351     2.10399    1.600   11.427
*S INCLUDES SUB-BASIN 104 AND 105
COMPUTE NM HYD        105.00   -    16        .06765      170.33       7.502     2.07926    1.533    3.934 PER IMP=  84.00
COMPUTE NM HYD        106.00   -    17        .03425       68.27       3.016     1.65135    1.567    3.115 PER IMP=  48.00
*S ROUTING 106 THRU 105/108 ON SKYLINE ROAD
ROUTE                 106.02   17   18        .03425       61.47       3.016     1.65136    1.633    2.804
*S SUB-BASIN 108 INCLUDES SUB-BASIN 107 AND 108 FROM EXIST COND MODEL
COMPUTE NM HYD        108.00   -    13        .04283      111.62       4.599     2.01333    1.533    4.072 PER IMP=  80.00
ADD HYD               106.10 16&18  17        .10190      222.24      10.518     1.93543    1.567    3.408
*S TOTAL FLOW GOING TO JUAN TABO'S CATTLE GUARD
ADD HYD               108.10 13&17  16        .14473      327.77      15.117     1.95848    1.533    3.539
*S CATTLE GUARD AND CATCH BASINS BETWEEN MH# S-993  TO  MH# S-903
*S****     OLF HYD 108.13 IS AP #12     *****
DIVIDE HYD                CB3   16   17        .14318      300.00      14.955     1.95848    1.500    3.274
                      108.13  AND   18        .00155       27.77        .162     1.95848    1.533   27.915
COMPUTE NM HYD        201.00   -    21        .02777       84.21       3.318     2.24012    1.500    4.738 PER IMP=  95.00
*S EXISTING DETENTION BASIN IN BASIN 201
*S ROUTING RESERVOIR WITH SMALL ORIFICE PIPES AND 20' WEIR
ROUTE RESERVOIR       201.RES  21   22        .02777       23.79       3.316     2.23882    1.933    1.339 AC-FT=     2.055
*S
*S       OUTFLOW(CFS)     STORAGE(AC-FT)     ELEV(FT)
*S            0                0               5620
*S            2.5              0.468           5621
*S            3.8              0.937           5622
*S            4.8              1.405           5623
*S            5.6              1.873           5624
*S           29.0              2.107           5624.5
*S           70.0              2.342           5625
*S
*S ROUTING 201.RES THRU 202
ROUTE                 201.02   22   21        .02777       20.59       3.315     2.23821    2.066    1.159
COMPUTE NM HYD        202.00   -    22        .04041      103.90       4.816     2.23453    1.567    4.017 PER IMP=  95.00
COMPUTE NM HYD        209.00   -    25        .05761      119.24       5.400     1.75764    1.567    3.234 PER IMP=  62.00
ADD HYD               202.10 21&22  24        .06818      105.99       8.131     2.23602    1.567    2.429
ADD HYD               209.10 24&25  23        .12579      225.22      13.531     2.01693    1.567    2.798
*S DIVIDE OLF HYD 209.1 BY PROPOSED TOMLINSON PIPE NETWORK
*S****     OLF HYD 209.13 IS AP #1     *****
DIVIDE HYD            DIVTOM.1  23   71        .11138      125.00      11.981     2.01693    1.467    1.754
                      209.13  AND   24        .01441      100.22       1.550     2.01693    1.567   10.869
*S ROUTE DIVTOM.1 THRU 210 IN 48" AND 54" PIPE
*S Q(CAP) = 208 CFS, AT SLOPE=0.013
```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	DIVTOM.12	71	72	.11138	125.00	11.981	2.01690	1.766	1.754	
*S ROUTING 209.13 THRU 210 ON TOMLINSON DRIVE TO OUTFALL										
ROUTE	207C.12	24	22	.01441	65.76	1.550	2.01687	1.633	7.131	
COMPUTE NM HYD	203.00	-	21	.08386	172.02	8.709	1.94717	1.600	3.205	PER IMP= 75.00
*S DIVIDE SOUTH SIDE CENTRAL AVENUE BETWEEN MH# S-132 AND MH# S-262(CHECK TO S										
*S**** OLF HYD 203.03 IS AP #10 *****										
DIVIDE HYD	CB5	21	24	.00444	1.00	.461	1.94716	.967	.352	
	203.03	AND	25	.07942	171.02	8.247	1.94716	1.600	3.365	
*S**** PIPE HYD CB5.1 IS AP #10 *****										
ADD HYD	CB5.1	24&11	21	.05584	62.00	6.500	2.18245	1.367	1.735	
*S FROM MH# S-102 TO MH# S-132										
*S Q(CAP) = 73 CFS										
ROUTE	CB5.12	21	27	.05584	62.00	6.500	2.18246	1.966	1.735	
*S ROUTING 203.03 THRU 204 ON CENTRAL AVENUE'S SOUTH SIDE										
ROUTE	203.02	25	23	.07942	152.20	8.248	1.94723	1.667	2.995	
COMPUTE NM HYD	204.00	-	21	.06581	141.97	7.399	2.10798	1.600	3.371	PER IMP= 86.00
ADD HYD	204.10	23&21	24	.14523	287.70	15.646	2.02007	1.633	3.095	
*S DIVIDE SOUTH SIDE CENTRAL AVENUE BETWEEN MH# S-102 AND MH# S-123										
*S OLF HYD 204.13 IS AT JUAN TABO AND CENTRAL ON THE SOUTH SIDE										
*S**** OLF HYD 204.13 IS AP #14 *****										
DIVIDE HYD	CB6	24	25	.10358	117.00	11.160	2.02007	1.467	1.765	
	204.13	AND	86	.04164	170.70	4.486	2.02007	1.633	6.405	
ADD HYD	CB6.1	27&25	21	.15943	179.00	17.660	2.07694	1.966	1.754	
*S TOTAL PIPE FLOW AT JUAN TABO AND CENTRAL										
*S Q(CAP) AT MH# S-102 IS 260 CFS										
*S**** PIPE HYD CB6.2 IS AP #13 AND AP #14 *****										
ADD HYD	CB6.2	14&21	99	.20518	278.00	22.793	2.08297	1.766	2.117	
COMPUTE NM HYD	205.00	-	21	.01633	43.64	1.651	1.89569	1.500	4.175	PER IMP= 71.00
*S ROUTING 205 THRU 206 ON JUAN TABO STREET										
ROUTE	205.02	21	23	.01633	36.77	1.651	1.89570	1.567	3.519	
COMPUTE NM HYD	206.00	-	24	.01425	38.20	1.550	2.03920	1.500	4.189	PER IMP= 81.00
ADD HYD	206.10	23&24	21	.03058	73.94	3.201	1.96254	1.533	3.778	
*S DIVIDE OLF HYD 206.1 AT MH# S-592										
*S**** PIPE HYD CB18 AND OLF HYD 206.13 IS AP #6 *****										
DIVIDE HYD	CB18	21	27	.02389	32.60	2.501	1.96254	1.433	2.132	
	206.13	AND	28	.00669	41.34	.700	1.96254	1.533	9.658	
*S FROM MH# S-791 TO MH# S-592										
*S Q(CAP) = 48 CFS										
ROUTE	CB18.02	27	29	.02389	32.60	2.501	1.96256	1.800	2.132	
*S**** SUB-BASIN 208 IS AP #5 *****										
COMPUTE NM HYD	208.00	-	24	.09685	190.67	9.850	1.90704	1.600	3.076	PER IMP= 72.00
*S DIVIDE SUB-BASIN 208 BETWEEN MH# S-791 AND MH# S-592										
*S**** OLF HYD 208.03 IS AP #7 *****										
DIVIDE HYD	CB19	24	27	.05724	52.20	5.822	1.90703	1.400	1.425	
	208.03	AND	21	.03961	138.47	4.028	1.90703	1.600	5.463	
*S**** PIPE HYD CB19.1 IS AP #7 *****										
ADD HYD	CB19.1	27&29	23	.08114	84.80	8.323	1.92338	1.800	1.633	
*S FROM MH# S-94(OUTFALL) TO MH# S-791										
*S Q(CAP) = 94 CFS										
ROUTE	CB19.12	23	29	.08114	84.76	8.323	1.92338	1.800	1.632	
COMPUTE NM HYD	207.00	-	23	.03038	70.01	2.857	1.76351	1.533	3.601	PER IMP= 63.00
*S ROUTE 207 THRU 210 IN PROPOSED 48" PIPE										
*S Q(CAP) = 76 CFS, AT SLOPE=0.0033										
ROUTE	207.02	23	71	.03038	66.41	2.857	1.76351	1.567	3.415	
COMPUTE NM HYD	210.00	-	24	.02613	51.48	2.153	1.54525	1.533	3.078	PER IMP= 47.00
ADD HYD	210.10	24&22	23	.04054	108.40	3.703	1.71284	1.633	4.178	
*S DIVIDE OLF HYD 210.1 BY PROPOSED TOMLINSON PIPE NETWORK										
*S**** OLF HYD 210.13 IS AP #3 *****										
DIVIDE HYD	DIVTOM.2	23	74	.03129	50.00	2.858	1.71283	1.500	2.497	
	210.13	AND	22	.00925	58.40	.845	1.71283	1.633	9.864	
*S ROUTING 210.13 THRU 211 ON TOMLINSON DRIVE TO OUTFALL										
ROUTE	210.12	22	27	.00925	48.56	.845	1.71339	1.667	8.202	
ADD HYD	DIVTOM.3	74&72	73	.14267	175.00	14.839	1.95022	1.766	1.917	
ADD HYD	207.10	73&71	72	.17305	241.10	17.697	1.91744	1.567	2.177	
*S ROUTE 207.1 THRU 211 IN 60" PIPE										
*S Q(CAP) = 263 CFS, AT SLOPE=0.0118										
ROUTE	211.12	72	73	.17305	240.14	17.696	1.91742	1.567	2.168	
COMPUTE NM HYD	211.00	-	23	.06408	110.04	5.340	1.56261	1.600	2.683	PER IMP= 48.00
*S TOTAL OLF AT TOMLINSON OUTFALL										
*S**** OLF HYD 211.1 IS AP #4 ****										
ADD HYD	211.10	23&27	22	.07333	151.89	6.186	1.58161	1.633	3.236	
*S TOTAL FLOW AT TOMLINSON OUTFALL										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ADD HYD	211.20	22&73	25	.24638	386.68	23.882	1.81748	1.633	2.452	
COMPUTE NM HYD	212.00	-	22	.05122	111.55	5.313	1.94479	1.567	3.403	PER IMP= 74.00
*S DIVIDE SUB-BASIN 212 BETWEEN MH# S-94(OUTFALL) AND MH# S-791										
*S**** OLF HYD 212.03 IS AP #8 *****										
DIVIDE HYD	CB20	22	24	.04540	69.80	4.709	1.94478	1.467	2.402	
	212.03	AND	27	.00582	41.75	.604	1.94478	1.567	11.210	
*S TOTAL FLOW IN THE "EXISTING" JUAN TABO STORM DRAIN SYSTEM										
*S**** PIPE HYD CB20.1 IS AP #8 *****										
ADD HYD	CB20.1	24&29	22	.12654	154.47	13.032	1.93106	1.733	1.907	
*S JUAN TABO ROAD, SOUTH OF CENTRAL										
COMPUTE NM HYD	213.00	-	24	.00828	18.50	1.021	2.31187	1.633	3.490	PER IMP= 100.00
COMPUTE NM HYD	301.00	-	31	.05794	99.24	5.468	1.76955	1.633	2.676	PER IMP= 62.00
*S FROM MH# S-973 TO MH# S-993 IN BEUENA VENTURA STREET										
*S Q(CAP) = 306 CFS ; 60" @ S=0.016										
ROUTE	CB3.02	17	32	.14318	300.07	14.955	1.95848	1.533	3.275	
*S OLF HYD 108.13 THRU 301 ON BEUENA VENTURA STREET										
ROUTE	108.12	18	13	.00155	10.60	.163	1.96180	1.600	10.650	
ADD HYD	301.10	13&31	33	.05949	105.85	5.631	1.77455	1.600	2.780	
*S HYD 301.13 IS TOTAL OLF AT JANE AND BEUENA VENTURA										
*S**** OLF HYD 301.13 IS AP #20 *****										
DIVIDE HYD	CB8	33	34	.05334	70.00	5.048	1.77455	1.533	2.051	
	301.13	AND	35	.00616	35.85	.583	1.77455	1.600	9.099	
ADD HYD	CB8.1	34&32	36	.19651	370.07	20.003	1.90856	1.533	2.942	
*S FROM MH# S-772 TO MH# S-973 IN JANE STREET										
*S Q(CAP) = 356 CFS ; 66" @ S=0.013										
ROUTE	CB8.12	36	31	.19651	369.48	20.003	1.90856	1.567	2.938	
*S OLF HYD 301.13 THRU 302 ON JANE STREET										
ROUTE	301.12	35	32	.00616	27.09	.583	1.77539	1.700	6.876	
COMPUTE NM HYD	302.00	-	33	.02999	51.08	2.830	1.76916	1.633	2.661	PER IMP= 63.00
*S DIVIDE BETWEEN MH# S-772 AND MH# S-973										
DIVIDE HYD	CB9	32	35	.00616	27.09	.583	1.77525	1.700	6.876	
	301.16	AND	36	.00000	.00	.000	.00000	-.033	.000	
*S DIVIDE SUB-BASIN OLF 302 BY MAXIMUM CB INFLOW AT JANE AND CHICO										
*S DIVIDE AT MH# S-772										
DIVIDE HYD	CHICO.CB	33	81	.02118	20.00	1.999	1.76915	1.467	1.475	
	302.03	AND	82	.00881	31.08	.831	1.76915	1.633	5.513	
ADD HYD	CB9.1	31&35	34	.20267	383.78	20.586	1.90451	1.633	2.959	
*S TOTAL PIPE FLOW AT CHICO AND JANE										
ADD HYD	CB9.1	34&81	83	.22385	403.78	22.585	1.89170	1.633	2.818	
*S ROUTING HYD CB9.1 FOR PROPOSED 84" IN JANE STREET NORTH OF CHICO ROAD										
*S Q(CAP) = 398 CFS ; 84" @ S=0.0045 FT/FT ; N=0.014										
ROUTE	CB9.12	83	31	.22385	401.93	22.585	1.89170	1.633	2.805	
*S ROUTING HYD CB9.12 FOR PROPOSED 66" PARALLEL TO FREEWAY										
*S Q(CAP) = 418 CFS ; 66" @ S=0.018										
ROUTE	CHICO.DIV	31	71	.22385	398.79	22.585	1.89170	1.633	2.784	
*S**** OLF HYD 302.1 IS AP #21 *****										
ADD HYD	302.10	82&36	34	.00881	31.08	.831	1.76915	1.633	5.513	
ROUTE	302.12	34	32	.00881	26.48	.831	1.76973	1.733	4.698	
COMPUTE NM HYD	303.00	-	33	.08070	128.69	7.616	1.76955	1.700	2.492	PER IMP= 62.00
ADD HYD	303.10	33&32	34	.08951	154.81	8.447	1.76955	1.700	2.702	
*S DIVIDE BETWEEN MH# S-743 AND MH# S-772 BY CB CAPACITY										
*S**** PIPE HYD CB10 IS AP #22 *****										
DIVIDE HYD	CB10	34	35	.07372	85.00	6.957	1.76955	1.533	1.802	
	303.13	AND	33	.01579	69.81	1.490	1.76955	1.700	6.907	
*S FROM MH# S-704 TO MH# S-743 IN CHICO ROAD										
*S Q(CAP) = 216 CFS										
ROUTE	CB10.12	35	36	.07372	85.00	6.957	1.76956	1.966	1.802	
COMPUTE NM HYD	304.00	-	31	.01342	39.16	1.655	2.31187	1.533	4.559	PER IMP= 100.0
ROUTE	304.03	31	32	.01342	28.02	1.655	2.31189	1.600	3.262	
COMPUTE NM HYD	305.00	-	31	.03919	64.44	3.290	1.57396	1.633	2.569	PER IMP= 49.0
ADD HYD	305.10	31&32	35	.05261	92.16	4.944	1.76216	1.600	2.737	
*S TOTAL OLF AT CHICO AND MORRIS										
*S**** OLF HYD 305.2 IS AP #22 *****										
ADD HYD	305.20	35&33	32	.06840	156.37	6.435	1.76386	1.667	3.572	
ROUTE	305.22	32	33	.06840	127.02	6.435	1.76387	1.766	2.902	
COMPUTE NM HYD	306.00	-	31	.03441	83.70	4.243	2.31187	1.600	3.801	PER IMP= 100.0
*S ROUTING SUB-BASIN 306 THRU 308 (THRU WALL BETWEEN BASIN 306 AND 308)										
ROUTE	306.03	31	32	.03441	74.97	4.243	2.31187	1.667	3.404	
*S SUB-BASIN 307 PONDS										
COMPUTE NM HYD	307.00	-	34	.02937	64.35	2.258	1.44180	1.500	3.423	PER IMP= 40.0
COMPUTE NM HYD	308.00	-	31	.08051	133.77	6.512	1.51655	1.600	2.596	PER IMP= 45.0
ADD HYD	308.10	31&32	35	.11492	205.71	10.755	1.75468	1.633	2.797	
*S EXISTING DETENTION BASIN IN BASIN 308										
*S ROUTING RESERVOIR WITH 36" ORIFICE										
*S**** PIPE FLOW 308.RES IS AP #23 *****										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE RESERVOIR *	308.RES	35	39	.11492	69.84	10.755	1.75468	2.100	.950	AC-FT= 4.468

```
*S
*S      OUTFLOW(CFS)    STORAGE(AC-FT)    ELEV(FT)
*S          0                0             5456
*S         19               0.09           5458
*S         48               1.25           5460
*S         69               4.09           5462
*S         83              10.36           5464
*S
```

COMPUTE NM HYD	309.00	-	31	.01291	29.71	1.064	1.54525	1.500	3.596	PER IMP= 47.00
ADD HYD	309.10	33&31	32	.08131	137.75	7.499	1.72914	1.766	2.647	

*S DIVIDE BY CB CAPACITY ON CHICO STREET BETWEEN MH# S-704 TO MH# S-743
*S OLF HYD 309.13 IS AT CHICO AND EUBANK
*S**** OLF HYDN309.13 IS AP #24 *****

DIVIDE HYD	CB11	32	33	.04222	30.00	3.894	1.72914	1.433	1.110	
	309.13	AND	37	.03909	107.75	3.605	1.72914	1.766	4.307	
ADD HYD	CB11.1	33&36	38	.11594	115.00	10.851	1.75483	1.966	1.550	

*S TOTAL PIPE FLOW AT CHICO AND EUBANK FROM THE CHICO SYSTEM
*S**** PIPE HYD CB11.2 IS AP #24 *****

ADD HYD	CB11.2	38&39	32	.23086	184.59	21.606	1.75475	1.966	1.249	
COMPUTE NM HYD	310.00	-	38	.05825	145.16	6.710	2.15990	1.567	3.894	PER IMP= 90.00
COMPUTE NM HYD	311.00	-	39	.10616	208.97	11.041	1.95009	1.633	3.076	PER IMP= 75.00
COMPUTE NM HYD	312.00	-	33	.02461	71.05	2.756	2.09963	1.500	4.511	PER IMP= 85.00

*S BASIN 400 IS SOUTH OF CENTRAL

COMPUTE NM HYD	401.00	-	41	.03371	73.42	3.928	2.18485	1.633	3.403	PER IMP= 90.00
COMPUTE NM HYD	402.00	-	42	.03516	76.91	4.315	2.30112	1.633	3.418	PER IMP= 99.00

*S OLF HYD 103.13 THRU 303 AND 304 ON NORTH SIDE OF CENTRAL STREET

ROUTE	103.12	15	43	.01204	49.25	1.351	2.10442	1.667	6.390	

*S OLF HYD 204.13 THRU 402 ON SOUTH SIDE CENTRAL STREET

ROUTE	204.12	86	44	.04164	115.32	4.487	2.02019	1.766	4.327	
ADD HYD	402.10	42&44	45	.07680	181.32	8.802	2.14877	1.733	3.689	

*S DIVIDE BY CB ON NORTH SIDE CENTRAL STREET BETWEEN MH# S-42 AND MH# S-102
*S OLF HYD 103.13 IS FLOW ON CENTRAL'S NORTH SIDE AT ELIZABETH AND CENTRAL
*S**** OLF HYD 103.13 IS AP #15 *****

DIVIDE HYD	CB14	43	42	.01168	42.00	1.310	2.10433	1.633	5.620	
	103.13	AND	44	.00037	7.25	.041	2.10433	1.667	30.979	

*S DIVIDE BY CB ON SOUTH SIDE CENTRAL STREET BETWEEN MH# S-42 AND MH# S-102
*S OLF HYD 402.13 IS CENTRAL'S TOTAL SOUTH SIDE FLOW AT ELIZABETH AND CENTRAL
*S**** OLF HYD 402.13 IS AP #16 *****

DIVIDE HYD	CB15	45	46	.04224	49.00	4.841	2.14877	1.500	1.812	
	402.13	AND	47	.03456	132.32	3.961	2.14877	1.733	5.982	

*S FROM MH# S-42 TO MH# S-102
*S Q(CAP) = 276 CFS

ROUTE	CB6.22	99	43	.20518	277.94	22.793	2.08298	1.766	2.117	
ADD HYD	CB14.1	42&43	45	.21685	319.72	24.104	2.08413	1.700	2.304	

*S TOTAL PIPE FLOW AT CENTRAL AND ELIZABETH
*S**** PIPE HYD CB15.1 IS AP #15 AND AP #16 *****

ADD HYD	CB15.1	45&46	42	.25909	368.72	28.945	2.09467	1.700	2.224	

*S TOTAL PIPE FLOW AT ELIZABETH AND COCHITI

ADD HYD	401.1CB	42&41	71	.29280	441.03	32.873	2.10505	1.633	2.353	

*S ROUTE PIPE HYD "401.1CB" THRU 403 IN 78" PIPE ON ELIZABETH STREET TO SOUTHERN
*S Q(CAP) = 430 CFS, AT N=0.014 AND SLOPE=0.0072

ROUTE	401.12CB	71	72	.29280	437.08	32.873	2.10505	1.667	2.332	

*S OLF HYD 103.13 THRU 304 ON NORTH SIDE CENTRAL STREET; BETWEEN EUBANK AND ELIZ

ROUTE	103.12	44	46	.00037	1.17	.041	2.10898	1.700	5.021	

*S OLF HYD 402.13 THRU 402 ON SOUTH SIDE CENTRAL STREET; BETWEEN EUBANK AND ELIZ

ROUTE	402.12	47	42	.03456	109.12	3.961	2.14892	1.833	4.933	
COMPUTE NM HYD	403.00	-	41	.05744	110.01	5.677	1.85327	1.600	2.992	PER IMP= 70.00
COMPUTE NM HYD	404.00	-	44	.04882	89.80	4.825	1.85327	1.633	2.874	PER IMP= 70.00
COMPUTE NM HYD	405.00	-	48	.04851	126.82	5.850	2.26106	1.567	4.085	PER IMP= 96.00
ADD HYD	405.10	48&44	47	.09733	208.31	10.675	2.05651	1.567	3.344	
COMPUTE NM HYD	406.00	-	44	.02202	55.38	2.643	2.25016	1.567	3.930	PER IMP= 95.00
ADD HYD	406.10	42&44	45	.05658	135.79	6.603	2.18829	1.800	3.750	

*S DIVIDE BY CB ON NORTH SIDE CENTRAL STREET BETWEEN MH# S-4 AND MH# S-42
*S**** OLF HYD 103.23 IS AP #18 *****

DIVIDE HYD	CB16	46	42	.00036	1.17	.041	2.10308	1.700	5.028	
	103.23	AND	44	.00000	.02	.000	2.10305	6.933	63.624	

*S DIVIDE BY CB ON SOUTH SIDE CENTRAL STREET BETWEEN MH# S-4 AND MH# S-42
*S**** OLF HYD 406.13 IS AP #17 *****

DIVIDE HYD	CB17	45	48	.03430	49.00	4.003	2.18829	1.533	2.232	
	406.13	AND	49	.02228	86.79	2.600	2.18829	1.800	6.087	

*S TOTAL PIPE FLOW AT CENTRAL AND EUBANK FROM EXISTING 66"
*S**** PIPE HYD CB17.1 IS AP #17 *****

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ADD HYD	CB17.1	42&48	40	.03467	50.17	4.044	2.18739	1.700	2.261	
*S DIVIDE PIPE HYD CB17.1 BY MAXIMUM PIPE CAPACITY OF 60" IN EUBANK										
DIVIDE HYD	CB17.13	40	43	.03467	50.17	4.044	2.18739	1.700	2.261	
	CB17.OLF	AND	48	.00000	.00	.000	.00000	-.033	.000	
COMPUTE NM HYD	501.00	-	51	.01967	41.55	2.275	2.16836	1.633	3.301	PER IMP= 90.00
*S ROUTING 213 THRU 501 ON SOUTHERN STREET										
ROUTE	213.02	24	52	.00828	12.54	1.021	2.31188	1.800	2.366	
ADD HYD	403.10	41&52	53	.06572	118.31	6.698	1.91102	1.633	2.813	
*S TOTAL OLF AT SOUTHERN AND ELIZABETH										
ADD HYD	501.10	51&53	52	.08539	159.86	8.973	1.97030	1.633	2.925	
*S ADD PIPE HYD 401.12CB WITH OLF HYD 501.1 FOR PROPOSED PIPE										
ADD HYD	501.20	72&52	71	.37819	592.24	41.846	2.07462	1.667	2.447	
*S ROUTING 501.2 THRU 502 ON ELIZABETH STREET WITH PROPOSED 90" PIPE										
*S Q(CAP) = 584 CFS, AT SLOPE=0.0067										
ROUTE	501.22	71	73	.37819	587.82	41.846	2.07462	1.667	2.429	
COMPUTE NM HYD	502.00	-	52	.19070	313.77	16.069	1.57996	1.633	2.571	PER IMP= 49.00
*S ROUTE 206.13 THRU 502 ON LA CARIDAD AND LA PUERTA AVE; ASSUME 40' PAVING										
ROUTE	206.12	28	53	.00669	14.60	.700	1.96330	1.667	3.410	
COMPUTE NM HYD	503.00	-	55	.18018	290.84	15.045	1.56562	1.633	2.522	PER IMP= 48.00
COMPUTE NM HYD	504.00	-	56	.00886	15.57	.482	1.02027	1.500	2.746	PER IMP= 10.00
COMPUTE NM HYD	505.00	-	59	.06230	72.84	3.390	1.02027	1.633	1.827	PER IMP= 10.00
ADD HYD	502.10	52&53	54	.19739	328.27	16.769	1.59294	1.633	2.599	
*S TOTAL PROPOSED PIPE FLOW AT END OF SUB-BASIN 502										
ADD HYD	502.20	54&73	72	.57558	907.75	58.615	1.90944	1.667	2.464	
ADD HYD	504.10	56&55	53	.18904	301.08	15.527	1.54005	1.633	2.489	
ADD HYD	505.10	53&59	52	.25134	373.91	18.917	1.41121	1.633	2.324	
*S TOTAL FLOW TO PROPOSED DETENTION BASIN										
ADD HYD	505.20	52&72	73	.82692	1279.05	77.532	1.75800	1.633	2.417	
*S ROUTING PROPOSED RESERVOIR WITH 66" OUTLET										
ROUTE RESERVOIR	504.RES	73	71	.82692	292.50	77.532	1.75800	2.333	.553	AC-FT= 43.515

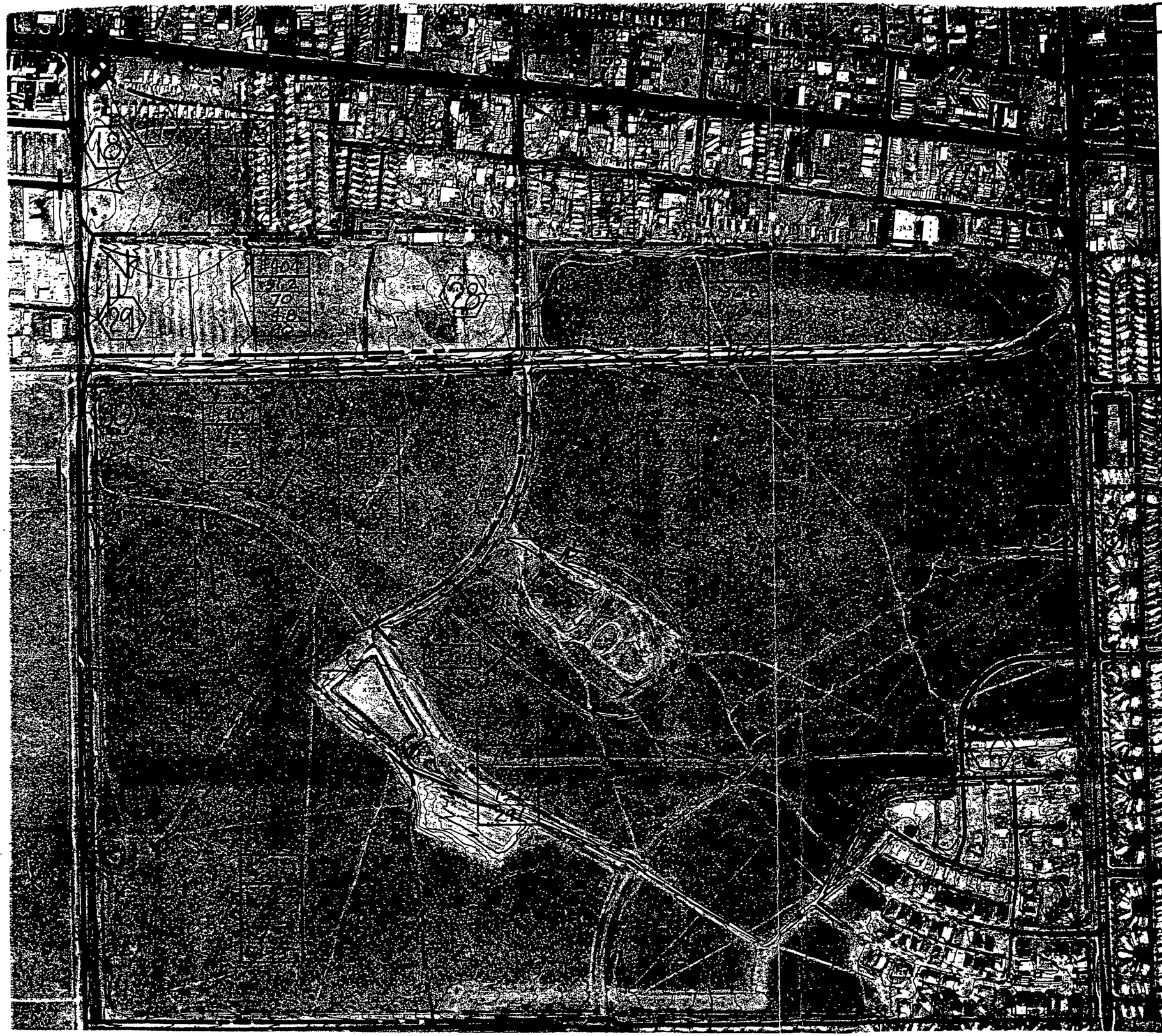
*S

*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
*S	0	0	75.5
*S	50	0.081	76
*S	88	3.575	78
*S	170	12.981	80
*S	240	27.687	82
*S	282	36.367	83
*S	295	45.216	84
*S	310	54.233	85

*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
*S ROUTING 504.RES IN PROPOSED ELIZABETH STREET'S 78" THRU BASIN 509/510										
*S Q(CAP) = 472 CFS ; SLOPE=0.0094										
ROUTE	504.R2	71	72	.82692	292.42	77.532	1.75800	2.366	.553	
COMPUTE NM HYD	506.00	-	56	.01509	32.37	1.549	1.92516	1.567	3.352	PER IMP= 75.00
*S ROUTING 506.1 THRU 404 ON EUBANK STREET										
ROUTE	506.12	56	58	.01509	27.66	1.549	1.92516	1.667	2.864	
*S TOTAL OLF AT EUBANK AND COCHITI										
ADD HYD	506.20	47&58	56	.11242	233.45	12.225	2.03887	1.600	3.245	
*S DIVIDE PIPE HYD 506.2 BY MAXIMUM PIPE CAPACITY OF 54" STUB-OUT IN EUBANK										
*S**** OLF HYD "ACOMA.OUT" IS AP #29 *****										
DIVIDE HYD	EUB.PRO	56	81	.09774	140.00	10.628	2.03887	1.467	2.238	
	ACOMA.OUT	AND	82	.01468	93.45	1.597	2.03887	1.600	9.944	
*S ROUTING PIPE HYD "EUB.PRO" NORTH ON EUBANK TO CENTRAL **										
*S Q(CAP) = 147 CFS ; SLOPE=0.0065										
ROUTE	EUB.02	81	83	.09774	140.00	10.628	2.03888	1.800	2.238	
COMPUTE NM HYD	507.00	-	51	.02184	66.23	2.609	2.24012	1.500	4.738	PER IMP= 95.00
COMPUTE NM HYD	508.00	-	52	.02059	53.72	2.035	1.85327	1.500	4.077	PER IMP= 70.00
*S TOTAL FLOW AT EUBANK AND 500' SOUTH OF SOUTHERN										
*S**** OLF HYD 508.1 IS AP #30 *****										
ADD HYD	508.10	51&52	57	.04243	119.95	4.644	2.05238	1.500	4.417	
COMPUTE NM HYD	509.00	-	51	.02582	67.36	2.552	1.85327	1.500	4.076	PER IMP= 70.00
COMPUTE NM HYD	510.00	-	52	.07573	167.53	7.485	1.85328	1.567	3.457	PER IMP= 70.00
ADD HYD	510.10	52&51	54	.10155	230.14	10.037	1.85327	1.533	3.541	
*S TOTAL PROPOSED PIPE FLOW AT ELIZABETH AND EUBANK										
ADD HYD	510.20	72&54	71	.92847	346.58	87.570	1.76842	2.000	.583	
*S ROUTING 510.1 IN PROPOSED 96" FROM ELIZABTH TO SUB-BASIN 606 ON EUBANK										
*S Q(CAP) = 465 CFS AT SLOPE=0.003										
ROUTE	510.22	71	72	.92847	344.86	87.570	1.76842	2.033	.580	
*S TOTAL PROPOSED PIPE FLOW AT EUBANK AND CENTRAL										
*S**** PIPE HYD EUB.1 IS AP #19 *****										
ADD HYD	EUB.1	83&43	81	.13240	190.17	14.672	2.07776	1.700	2.244	
*S FROM MH# S-704 TO MH# S-4										
*S Q(CAP) = 187 CFS										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	CB17.12	81	42	.13240	189.62	14.672	2.07776	1.766	2.238	
*S TOTAL PIPE FLOW AT EUBANK AND CHICO										
ADD HYD	CB17.2	32&42	43	.36326	371.11	36.277	1.87248	1.833	1.596	
*S DIVIDE PIPE HYD CB17.2 BY MAXIMUM PIPE CAPACITY OF 60" IN EUBANK										
*S OLF HYD CB17.OLF2 IS AMOUNT OF FLOW THAT COMES OUT FROM MH S-704										
*S****	PIPE HYD CB17.23 IS AP #25			*****						
DIVIDE HYD	CB17.23	43	42	.30444	235.00	30.403	1.87248	1.500	1.206	
	CB17.OLF2	AND	44	.05883	136.11	5.875	1.87248	1.833	3.615	
*S FROM MH# S-503 TO MH# S-704										
*S Q(CAP) = 235 CFS										
ROUTE	CB17.22	42	43	.30444	235.00	30.403	1.87248	1.766	1.206	
*S TOTAL OLF FLOW AT EUBANK AND CHICO										
ADD HYD	309.20	37&44	46	.09791	241.86	9.479	1.81526	1.766	3.860	
*S OLF HYD 309.13 THRU 310 ON EUBANK STREET; FROM CHICO TO COPPER										
ROUTE	309.22	46	42	.09791	237.75	9.480	1.81531	1.800	3.794	
ADD HYD	310.10	42&38	48	.15616	310.16	16.190	1.94384	1.766	3.103	
*S DIVIDE BY CB ON EUBANK STREET BETWEEN MH# S-704 AND MH# S-503, INCLUDING 48										
*S****	OLF HYD 310.13 IS AP #26			*****						
DIVIDE HYD	CB12	48	44	.11358	160.00	11.775	1.94384	1.533	2.201	
	310.13	AND	49	.04258	150.16	4.414	1.94384	1.766	5.510	
*S TOTAL PIPE FLOW AT EUBANK AND COPPER										
*S****	PIPE HYD CB17.3 IS AP #27			*****						
ADD HYD	CB17.3	44&43	48	.41802	395.00	42.178	1.89187	1.766	1.476	
COMPUTE NM HYD	601.00	-	61	.03286	75.65	3.322	1.89569	1.533	3.597	PER IMP= 71.00
*S SUB-BASIN 602 EITHER PONDS OR GOES INTO TIJERAS ARROYO										
COMPUTE NM HYD	602.00	-	62	.01436	26.02	.770	1.00588	1.500	2.832	PER IMP= .00
COMPUTE NM HYD	603.00	-	63	.01970	35.70	1.057	1.00588	1.500	2.831	PER IMP= .00
COMPUTE NM HYD	604.00	-	64	.06839	127.07	6.348	1.74050	1.600	2.903	PER IMP= 60.50
*S ROUTING 604 THRU 603 ON GRAVEL ROAD										
ROUTE	604.02	64	65	.06839	123.73	6.348	1.74050	1.633	2.827	
*S OLF HYD 604.1 EITHER PONDS OR GOES INTO TIJERAS ARROYO										
*S****	OLF HYD 604.1 IS AP #33			*****						
ADD HYD	604.10	63&65	64	.08809	147.32	7.405	1.57621	1.633	2.613	
COMPUTE NM HYD	605.00	-	65	.04536	80.92	5.286	2.18485	1.733	2.787	PER IMP= 90.00
COMPUTE NM HYD	606.00	-	66	.06633	154.15	7.729	2.18485	1.600	3.631	PER IMP= 90.00
*S OLF HYD 606.1 GOES INTO EXISTING RETENTION BASIN										
ADD HYD	606.10	65&66	67	.11169	217.95	13.015	2.18484	1.633	3.049	
ADD HYD	606.20	72&67	73	1.04016	542.39	100.584	1.81314	1.633	.815	
*S ROUTING 606.2 IN PROPOSED 96" THRU SUB-BASIN 607										
*S Q(CAP) = 600 CFS AT SLOPE=0.005										
ROUTE	606.22	73	71	1.04016	532.45	100.584	1.81313	1.700	.800	
COMPUTE NM HYD	607.00	-	65	.12156	223.97	12.545	1.93498	1.667	2.879	PER IMP= 68.00
ADD HYD	607.10	65&71	72	1.16172	753.31	113.129	1.82588	1.667	1.013	
*S ROUTING 607.1 IN PROPOSED 96" ; S=0.0082 FT/FT										
ROUTE	607.12	72	71	1.16172	746.11	113.129	1.82588	1.700	1.004	
COMPUTE NM HYD	608.00	-	65	.08609	74.20	4.330	.94295	1.700	1.347	PER IMP= 15.00
*S TOTAL FLOW TO PROPOSED OUTFALL CHANNEL										
ADD HYD	608.10	65&71	68	1.24781	820.31	117.459	1.76497	1.700	1.027	
*S****	SUB-BASIN 609 IS AP #35			*****						
COMPUTE NM HYD	609.00	-	65	.02603	25.38	1.062	.76501	1.600	1.523	PER IMP= .00
FINISH										



NOTES

LEGEND

31 — ANALYSIS POINT NUMBER WITH LOCATION BAR

STUDY BOUNDARY

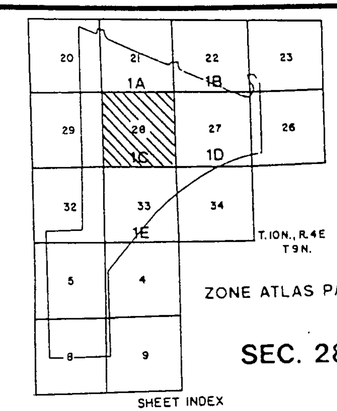
BASIN BOUNDARY

SUB-BASIN BOUNDARY

SUB-BASIN NUMBER
AREA (ACRES)
% IMPERVIOUS
100-YEAR RUNOFF VOLUME (AC-FT)
100-YEAR PEAK RUNOFF FLOW (CFS)

SUB-BASIN DATA

DRAINAGE BASIN MAP



SHEET INDEX

ZONE ATLAS PAGE L-21

SEC. 28

N

1"=500'

2' CONTOUR INTERVAL

THE AERIAL PHOTOGRAPH ON THIS SHEET HAS BEEN RECTIFIED TO SELECTED PLANIMETRIC DETAIL OBTAINED DURING MAP COMPILATION. CONSEQUENTLY, THE PHOTO IMAGES FALLING OUTSIDE OF THE MAPPING AREA ARE UNCONTROLLED

500 250 0 500 1000

DATE OF PHOTOGRAPHY: MARCH 2, 1994

PROJ. # 4790

SOUTH EUBANK AREA STORM DRAINAGE ANALYSIS

89-01-08

Smith Engineering Company

A Full Service Engineering Company

6400 Uptown Boulevard, N.E. Suite 500E Albuquerque, New Mexico 87110

MAP L-21 [redacted] 1C

PLATES

PLATE 1 - PRELIMINARY PLAT

PLATE 2 - GRADING PLAN

PLATE 3 - PROPOSED BASIN MAP

PLATE 4 - MIRAVISTA BASIN MAP AND RUNDOWN DETAIL SHEET

PLATE 1

PRELIMINARY PLAT

PLATE 2

GRADING PLAN

PLATE 3

PROPOSED BASIN MAP

PLATE 4

MIRAVISTA BASIN MAP AND RUNDOWN DETAIL SHEET

Bohannan ▲ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 29, 2004

Richard Beltramo, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE – Courtyard 1
Albuquerque, NM 87109

Re: Terracita Subdivision, North of Southern Blvd. and West of Juan Tabo Blvd., SIA/Financial Guarantee Release

Engineer's Stamp dated 5-02-03 (L21/D56)

Certification dated 1-29-04

Dear Mr. Beltramo,

Based upon the information provided in your submittal received 1-29-04, the above referenced certification is approved for release of SIA and Financial Guarantee.

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro
Engineering Associate, Planning Dept.
Development and Building Services

C: Arlene Portillo, COA# 717581
file

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

L-21/D56

PROJECT TITLE: TERRACITA SUBDIVISION ZONE MAP/DRG. FILE # L-21-Z
DRB #: 1000933 EPC#: WORK ORDER#:

LEGAL DESCRIPTION: TRACT B-5 OF MANZANO MESA
CITY ADDRESS: NORTH OF SOUTHERN BLVD. AND WEST OF JUAN TABO BLVD.

ENGINEERING FIRM: Bohannan Huston, Inc. CONTACT: Rick Beltramo
ADDRESS: 7500 Jefferson NE – Courtyard I PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Centex Homes CONTACT: Norm Gregory
ADDRESS: 5120 Masthead NE PHONE: (505) 341-8505
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

ARCHITECT: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CONTRACTOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- X OTHER: Grading and Drainage Certification

CHECK TYPE OF APPROVAL SOUGHT:

- x 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)

RECEIVED
JAN 29 2004
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

DATE SUBMITTED: January 29, 2004 BY: Rick Beltramo

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.

Bohannan Huston INC.

Courtyard I
7500 Jefferson NE
Albuquerque, NM
87109-4335
www.bhinc.com

voice: 505.823.1000
fax: 505.798.7988
toll free: 800.877.5332

January 29, 2004

Bradley Bingham, P.E.
Hydrology Division
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Grading and Drainage Certification
Terracita Subdivision, City Project No. 717581

Dear Mr. Bingham:

Enclosed for your review is the DRB approved grading plan with as-built elevations. The as-built survey was provided by Surv-Tek. After reviewing these as-built elevations, it is my belief that the site has been graded in substantial compliance with the approved grading plan. Your review and approval is requested for SIA/financial guaranty release of the project.

I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Rick Beltramo, P.E.
Vice President, Community Development
and Planning Group

Enclosure

RECEIVED
JAN 29 2004
HYDROLOGY SECTION

ENGINEERING
SPATIAL DATA
ADVANCED TECHNOLOGIES

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 28, 2003

Rick Beltramo, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Terracita Subdivision Drainage Study
Engineer's Stamp dated 3-28-03, (L21/D56)

Dear Mr. Beltramo,

Based upon the information provided in your submittal dated 3-28-03, the above referenced study cannot be approved for Preliminary Plat until the following comments are addressed.

- Please show the Miravista II lots and existing rundowns on your grading plan and include the basin map from that report to verify what runoff was anticipated. Also, include the basin map from the South Eubank study to verify runoff quantities anticipated from this project to Southern (as was done for Miravista). Is all the downstream infrastructure (curb/gutter, inlets, etc) in place?

- Please provide calculations justifying a time of concentration that produces a $t_p = 0.239$. A basin this small would normally have a $t_c = 0.2$. Also, the design rainstorm for zone 3 has slightly different values

- It appears that the drainage easement on lot 43 doesn't line up with the existing rundown in Vistazo. Looking at the grading plan for Miravista, the existing flowline elevation at Vistazo is 25.2 and the one for Maravista Place is even higher. Your grades for Basins A & B are too low to drain to this. Please provide as-builts of both rundowns with the resubmittal.

- Please recheck the street capacity calculations; not all Basin A is accounted for and should be added together. Terra Vista Trail should have standard curb.

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

Sincerely,

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

C: file

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

L-21/D56

PROJECT TITLE: TERRACITA SUBDIVISION ZONE MAP/DRG. FILE # L-21-Z
DRB #: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT B-5 OF MANZANO MESA
CITY ADDRESS: NORTH OF SOUTHERN BLVD. AND WEST OF JUAN TABO BLVD.

ENGINEERING FIRM: Bohannan Huston, Inc. CONTACT: Rick Beltramo
ADDRESS: 7500 Jefferson NE – Courtyard I PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Centex Homes CONTACT: Norm Gregory
ADDRESS: 5120 Masthead NE PHONE: (505) 341-8505
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN
- X CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEERS CERTIFICATION (TCL)
- ___ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANCIAL GUARANTEE RELEASE
- X PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM.)
- ___ CERTIFICATE OF OCCUPANCY (TEMP.)
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ___ YES
- ___ NO
- ___ COPY PROVIDED

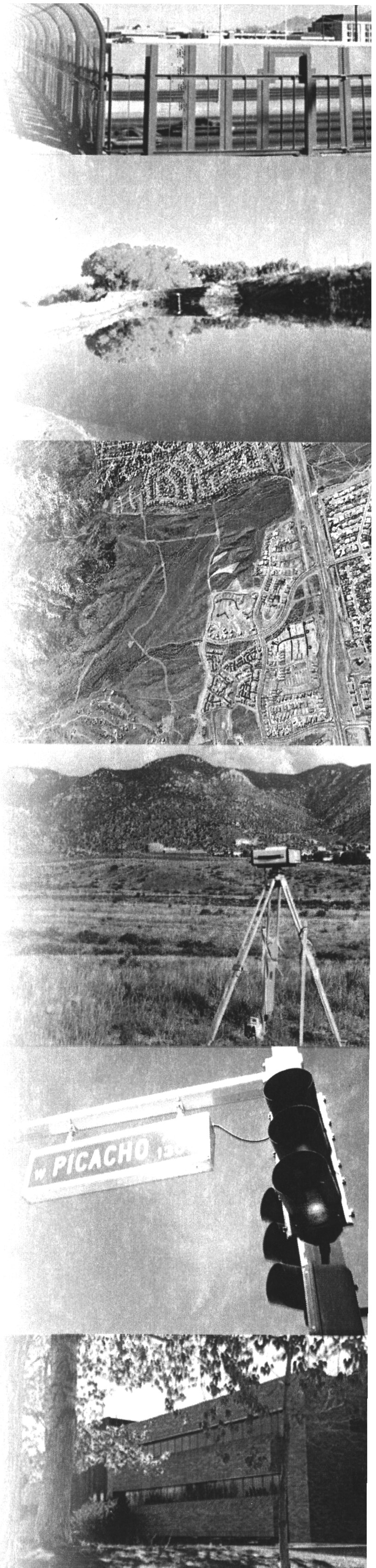
RECEIVED
MAR 28 2003
HYDROLOGY SECTION

DATE SUBMITTED: March 27, 2003 BY: Rick Beltramo

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.

DRAINAGE STUDY FOR TERRACITA SUBDIVISION



MARCH 28, 2003

Prepared for:

Centex Homes

5120 Masthead NE

Albuquerque, NM 87109

Bohannan ▲ Huston Inc.

▲ ENGINEERING

▲ ADVANCED TECHNOLOGIES

▲ SPATIAL DATA

DRAINAGE STUDY
FOR
TERRACITA SUBDIVISION

March 28, 2003

Prepared for:

CENTEX HOMES
5120 MASTHEAD NE
ALBUQUERQUE, NM 87109

Prepared by:

BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109

RECEIVED
MAR 28 2003
HYDROLOGY SECTION

RICHARD L. BELTRAMO
NEW MEXICO
10596
REGISTERED PROFESSIONAL ENGINEER

PREPARED BY:

Rick Beltramo, P.E. 3/28/03
Date

TABLE OF CONTENTS

page

I. INTRODUCTION 1

II. METHODOLOGY 1

III. EXISTING CONDITIONS 2

A. Topography 2

B. Existing Drainage Patterns 2

IV. PROPOSED CONDITIONS 2

V. CONCLUSION 3

APPENDICES

APPENDIX A - AHYMO INPUT, SUMMARY FILES

APPENDIX B - STREET CAPACITY ANALYSIS

APPENDIX C - INFRASTRUCTURE LIST

PLATES

PLATE 1 - PRELIMINARY PLAT

PLATE 2 - GRADING PLAN

PLATE 3 - PROPOSED BASIN MAP

I. INTRODUCTION

This drainage study establishes a drainage management plan for the planned development of Terracita Subdivision, currently Tract B-5 of Manzano Mesa. This property is approximately 12.5 acres of SU-1 land to be zoned as R-T residential land. Manzano Mesa Tract B is located in the southeast heights of Albuquerque at the northwest corner of Southern Blvd. and Juan Tabo Blvd. (See vicinity map on the preliminary plat for location, *Plate 1).* Terracita Subdivision is planned to consist of 88 single-family residential dwellings.

This study provides hydrologic and hydraulic analysis and provides a drainage management plan as necessary to support the planned 88 unit development. More specifically, this report is submitted in conjunction with the preliminary plat application. Preliminary plat approval and grading plan approval is requested. Prior to final plat and building permit approvals of this project, the City of Albuquerque (COA) must approve final grading plans and work order construction plans.

II. METHODOLOGY

Existing and proposed site hydrological conditions were analyzed for the 100-year, 6-hour storm in accordance with the revised Section 22.2, Hydrology, of the Development Process Manual (DPM) for the City of Albuquerque, dated January 1993. Street capacities were analyzed using Manning's equation, consistent with the revised DPM Section 22.2. All data and calculations supporting this study are located in Appendix B. The new rational method hydrologic procedures identified within the revised DPM Section 22.2 are utilized to determine peak flow rates for design of the storm drainage improvements within the project. The 100-year, 6-hour storm is used as the design event. The results are included in *Appendix A.* In addition, hydrologic analysis is based on the "SOUTH EUBANK AREA STORM DRAIN ANALYSIS, FINAL REPORT" dated November 1995 and "DRAINAGE STUDY FOR TRACT B, MANZANO MESA AND MIRAVISTA SUBDIVISION, UNITS 1 AND 2" dated March 2001. The basis for the analysis and specific methodology is adapted from the approved studies.

III. EXISTING CONDITIONS

A. Topography

Terracita Subdivision is currently undeveloped land. The terrain is of uniform grades sloping form east to west with slopes ranging from approximately 1% to 3%. The old Southern Boulevard roadbed crosses the site and can be seen in the existing topography contours. The land has little slope in the north to south direction. Soils are highly absorptive DG soils typical of the Albuquerque heights area located on the Sandia Mountain alluvial fan formation. Vegetation is light and consists mostly of native grasses.

B. Existing Drainage Patterns

Terracita Subdivision has no off-site runoff reaching the site. Adjacent properties and/or public roadways have been constructed which effectively intercept all potential off-site runoff. The site hydrology only addresses the subject basin. Refer to the South Eubank drainage study basin map for existing land treatment, areas and runoff rates. As discussed earlier in the report, Tract B-5 slopes from east to west. All undeveloped runoff generated by Tract B-5 currently drains to two temporary retention ponds near the west boundary. These ponds will be removed with the construction of Terracita Subdivision. Since the previous master plan study addresses existing conditions hydrology more than adequately, no further discussion of existing conditions will be provided within this report.

IV. PROPOSED CONDITIONS

Terracita Subdivision is a proposed single-family, detached-unit residential development with 88 lots on 12.5 acres, producing a density of approximately 7 dwelling units per acre. This drainage report follows the approved concepts from the previously approved drainage studies. Because the downstream storm drain has been designed and constructed to accept Tract B and Miravista developed run-off, only on-site drainage analysis is necessary.

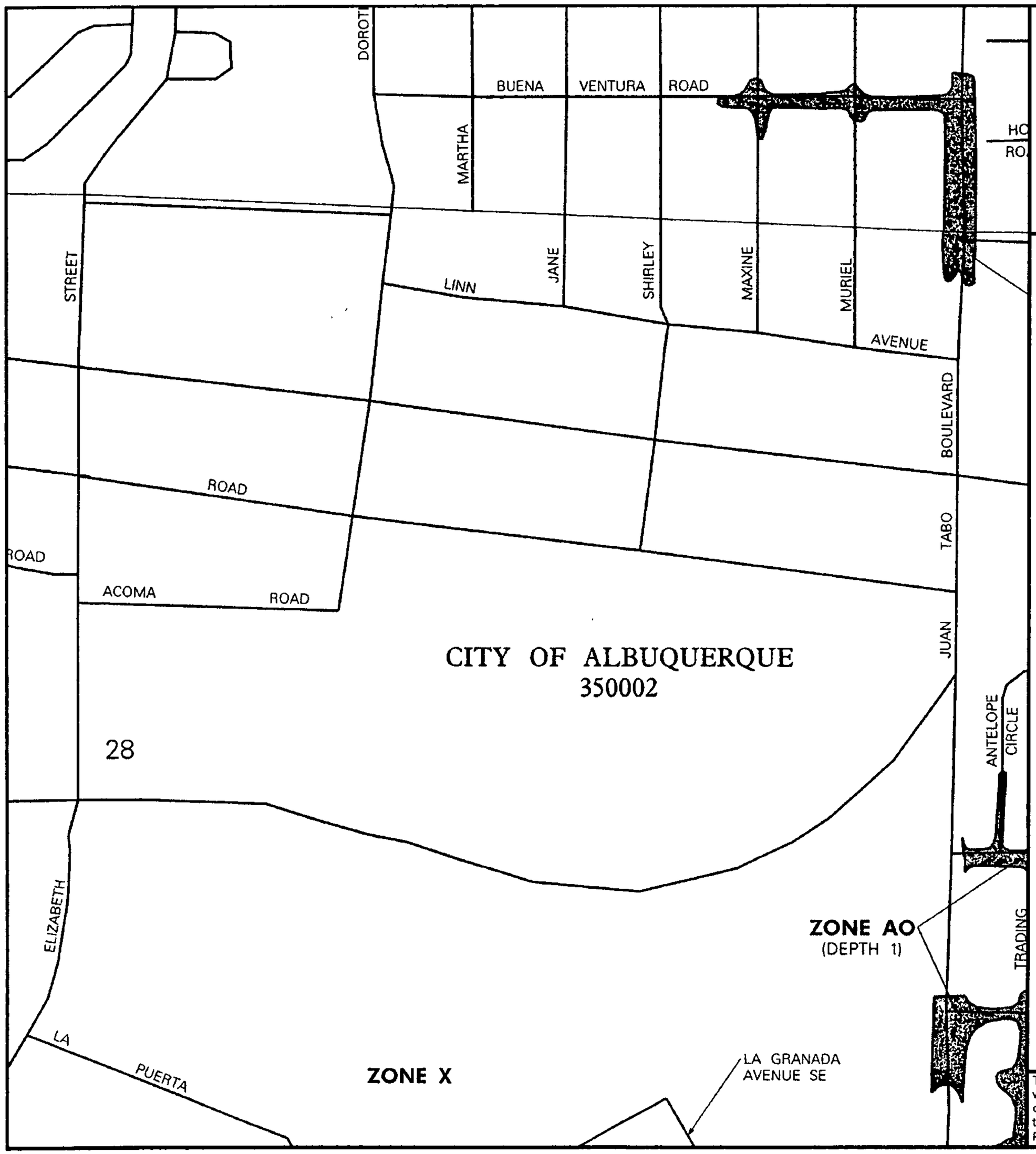
Two temporary retention ponds near the west boundary of Terracita are each designed to intercept 16 cfs and discharge through the Miravista Subdivision through existing sidewalk culverts and channels. The proposed grading plan for Terracita is designed to maintain these flow

amounts through the existing channels. The balance of the flow developed on-site will discharge into Southern Blvd. (Please refer to the Basin Map).

The property does not lie within a flood hazard zone, as designated on Panel 359 of 825 of the National Flood Insurance Program, Flood Insurance Rate Map published by FEMA for Bernalillo County, New Mexico (April 2, 2002). See the FEMA Floodplain exhibit provided at the end of the report text.

V. CONCLUSION

This report provides a detailed study of the developed runoff and street capacities for the proposed Terracita Subdivision. Included are the preliminary plat, proposed conditions basin map, grading plan, infrastructure list, and all necessary hydrologic and hydraulic analyses. This drainage plan maintains the overall drainage pattern of the area and allows for safe management of storm runoff in permanent as well as interim conditions.



APPROXIMATE SCALE IN FEET

500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 359 OF 825
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE CITY OF	350002	0359	E

MAP NUMBER
35001C0359 E

MAP REVISED:
APRIL 2, 2002

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www msc fema gov

APPENDICES

APPENDIX A - AHYMO INPUT, SUMMARY FILES

APPENDIX B - STREET CAPACITY ANALYSIS

APPENDIX C - INFRASTRUCTURE LIST

APPENDIX A

AHYMO INPUT, SUMMARY FILES

TERRACITA SUBDIVISION
March 27, 2003

DETERMINATION OF LAND TREATMENT PERCENTAGES FOR RESIDENTIAL AREAS
Ref: Basin Map

Lots
Minimum Lot Dimensions: 40'x100'
Total Lots = 88
Total Lot Area = 8.1 acres
Total Impervious Area = 4.7 acres
Percent A=0
Percent B=42
Percent C=0
Percent D=58

Misc. Lot Areas
(Represents Extra Large Lots)
Total Area = 1.6 acres
Percent A=0
Percent B=100
Percent C=0
Percent D=0

Right-of-Way
Total Area = 2.8 acres
Percent A=0
Percent B=10
Percent C=0
Percent D=90

Cumulative Percentages for Residential Areas
Total Area of Subdivision = 12.5 acres

$$\boxed{\frac{8.1}{12.5}(58)+\frac{1.6}{12.5}(0)+\frac{2.8}{12.5}(90) \Rightarrow\Rightarrow PercentD = 57.8}$$

Percent A = 0
Percent B = 42.2
Percent C = 0.0
Percent D = 57.8

```
*S*                    PROJECT NAME:  TERRACITAS SUBDIVISION
*S*                    DATE:  MARCH 27, 2003
*S*                    INPUT FILE NAME:  TERRA.HYM
*S*                    OUTUPUT FILE NAME:  TERRA.OUT
*S*                    PROJECT NUMBER:  030312
*S*                    COMMENTS:     100 YEAR-6 HOUR STORM
*S
*S ////////////////////////////////////////////////////////////////////////
START                 TIME=0.0 HR PUNCH CODE=0
RAINFALL              TYPE=1     RAIN QUARTER=0.0
                      RAIN ONE=2.08 IN    RAIN SIX=2.55 IN
                      RAIN DAY=3.05 IN    DT=0.05
*************************************************************************
*S************************************************************************
*S          BASIN A-DEVELOPED CONDITIONS
COMPUTE NM HYD        ID=1      HYD NO=BASIN A    DA=0.0067 SQ MI
                      PER A=0.0   PER B=42.2   PER C=0.0    PER D=57.8
                      TP=-0.239 HR     MASSRAIN=-1
PRINT HYD             ID=1      CODE=1
*S************************************************************************
*S          BASIN B-DEVELOPED CONDITIONS
COMPUTE NM HYD        ID=1      HYD NO=BASIN B    DA=0.0064 SQ MI
                      PER A=0.0   PER B=42.2   PER C=0.0    PER D=57.8
                      TP=-0.239 HR     MASSRAIN=-1
PRINT HYD             ID=1      CODE=1
*S************************************************************************
*S          BASIN C-DEVELOPED CONDITIONS
COMPUTE NM HYD        ID=1      HYD NO=BASIN C    DA=0.0064 SQ MI
                      PER A=0.0   PER B=42.2   PER C=0.0    PER D=57.8
                      TP=-0.239 HR     MASSRAIN=-1
PRINT HYD             ID=1      CODE=1
*S************************************************************************
FINISH
```

why.

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                          - VERSION:  1997.02c      RUN DATE (MON/DAY/YR) =03/27/2003
INPUT FILE = TERRA.HYM                                                                     USER NO.= AHYMO-S-9702c1BohanHu-AH

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

*S*                    PROJECT NAME:  TERRACITAS SUBDIVISION
*S*                    DATE:  MARCH 27, 2003
*S*                    INPUT FILE NAME:  TERRA.HYM
*S*                    OUTUPUT FILE NAME:  TERRA.OUT
*S*                    PROJECT NUMBER:  030312
*S*                         COMMENTS: 100 YEAR-6 HOUR STORM
*S
*S ////////////////////////////////////////////////////////////////////////
START                                                                                                   TIME=       .00
RAINFALL  TYPE= 1                                                                                       RAIN6=     2.550
*S**************************************************************************
*S                     BASIN A-DEVELOPED CONDITIONS
COMPUTE NM HYD       BASIN_A   -     1        .00670        12.04        .608      1.70264    1.600    2.807 PER IMP=  57.80
*S**************************************************************************
*S                     BASIN B-DEVELOPED CONDITIONS
COMPUTE NM HYD       BASIN_B   -     1        .00640        11.50        .581      1.70264    1.600    2.807 PER IMP=  57.80
*S**************************************************************************
*S                     BASIN C-DEVELOPED CONDITIONS
COMPUTE NM HYD       BASIN_C   -     1        .00640        11.50        .581      1.70264    1.600    2.807 PER IMP=  57.80
*S**************************************************************************
FINISH
```

A-3/3

APPENDIX B

STREET CAPACITY ANALYSIS

TERRACITA SUBDIVISION
Internal Street Capacity Calculations
March 27, 2003

1. **Terra Bella Lane**

Basin A (See Basin Map)
S = 2.2%
Q = 12 cfs

Total flow from Basin A is 12 cfs. The contributing area of Terra Bella Lane at 2.2% slope is 60% of Basin A which equals 7.2 cfs. At 2.2%, a road with mountable curb can handle 9.2 cfs. Therefore, no inlets are needed. Roll curb will be placed along the entire length of Terra Bella Lane. See PC stream output. Water flows west into Terra Vista Trail and into a drainage channel between lots 30 and 31.

2. **Terra Vista Trail**

7.2
3.4
10.6
where is rest

Basin A (See Basin Map)
S = 0.5%
Q = 12 cfs

Total flow from Basin A is 12 cfs. The contributing area of Terra Vista Trail at 0.5% slope is 29% of Basin A which equals 3.4 cfs. At 0.5%, a road with mountable curb can handle 4.4 cfs. Therefore, no inlets are needed. Roll curb will be placed along the entire length of Terra Vista Trail. See PC stream output. Water flows west into a drainage channel between lots 30 and 31.

need

3. **Terra Vista Trail**

No

Basin B (See Basin Map)
S = 0.5%
Q = 11.5 cfs

Total flow from Basin B is 11.5 cfs. The contributing area of Terra Vista Trail at 0.5% slope is 39% of Basin A which equals 4.5 cfs. At 0.5%, a road with mountable curb can handle 4.4 cfs. Therefore, no inlets are needed. Roll curb will be placed along the entire length of Terra Vista Trail. See PC stream output. Water flows west into a drainage channel on Lot 43.

4. **Terra Bonita Way**

Basin B (See Basin Map)
S = 2.2%
Q = 11.5 cfs

Total flow from Basin B is 11.5 cfs. The contributing area of Terra Bonita Way at 2.2% slope is 60% of Basin B which equals 6.6 cfs. At 2.2%, a road with mountable curb can handle 9.2 cfs. Therefore, no inlets are needed. Roll curb will be placed on Terra Bonita Way from Terracita Lane to Terra Vista Trail. See PC stream output. Water flows west into a drainage channel on Lot 43.

5. **Terra Bonita Way**

Basin C (See Basin Map)
S = 0.5%
Q = 11.5 cfs

Total flow from Basin C is 11.5 cfs. At 0.5%, a road with mountable curb can handle 4.4 cfs and a road with standard curb has a capacity of more than 23 cfs. Therefore, no inlets are needed. However, standard curb will be placed at Lot 6. See PC stream output. Water flows south and east into Southern Blvd. ?

6. **Terracita Lane**

Basin C (See Basin Map)
S = 0.5%
Q = 11.5 cfs

Total flow from Basin C is 11.5 cfs. The contributing area of Terra Vista Trail northwest of Terra Bonita Way at 0.5% slope is 32% of Basin C which equals 3.7 cfs. At 0.5%, a road with mountable curb can handle 4.4 cfs. Therefore, no inlets are needed. Roll curb will be placed along Terracita Lane from the cul-de-sac terminus to Terra Bonita Way. See PC stream output. Water flows east into Southern Blvd.

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA BELLA LANE

MANNING'S N= .017 SLOPE= .022

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.37	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.58	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	0.76	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	0.92	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	1.07	1.56	0.02	0.07
0.06	0.06	0.06	0.1	1.97	1.21	1.88	0.02	0.08
0.07	0.07	0.08	0.1	2.30	1.34	2.19	0.03	0.10
0.08	0.08	0.10	0.1	2.63	1.47	2.50	0.03	0.11
0.09	0.09	0.13	0.2	2.96	1.59	2.81	0.04	0.13
0.10	0.10	0.16	0.3	3.29	1.70	3.13	0.04	0.14
0.11	0.11	0.19	0.3	3.62	1.81	3.44	0.05	0.16
0.12	0.12	0.23	0.4	3.95	1.92	3.75	0.06	0.18
0.13	0.13	0.26	0.5	4.28	2.03	4.07	0.06	0.19
0.14	0.14	0.31	0.6	5.15	1.99	4.93	0.06	0.20
0.15	0.15	0.36	0.7	6.03	1.99	5.79	0.06	0.21
0.16	0.16	0.43	0.9	6.91	2.02	6.65	0.06	0.22
0.17	0.17	0.50	1.0	7.79	2.07	7.51	0.07	0.24
0.18	0.18	0.58	1.2	8.67	2.13	8.38	0.07	0.25
0.19	0.19	0.66	1.5	9.54	2.19	9.24	0.07	0.26
0.20	0.20	0.76	1.7	10.42	2.26	10.10	0.08	0.28
0.21	0.21	0.87	2.0	11.30	2.34	10.96	0.08	0.29
0.22	0.22	0.98	2.4	12.18	2.42	11.83	0.09	0.31
0.23	0.23	1.10	2.7	13.06	2.49	12.69	0.10	0.33
0.24	0.24	1.23	3.2	13.93	2.57	13.55	0.10	0.34
0.25	0.25	1.37	3.6	14.81	2.66	14.41	0.11	0.36
0.26	0.26	1.52	4.2	15.69	2.74	15.27	0.12	0.38
0.27	0.27	1.68	4.7	16.57	2.82	16.14	0.12	0.39
0.28	0.28	1.84	5.3	17.45	2.90	17.00	0.13	0.41
0.29	0.29	2.02	6.0	18.32	2.98	17.86	0.14	0.43
0.30	0.30	2.20	6.7	19.20	3.06	18.72	0.15	0.45
0.31	0.31	2.39	7.5	20.08	3.14	19.59	0.15	0.46
0.32	0.32	2.59	8.3	20.96	3.22	20.45	0.16	0.48
0.33	0.33	2.80	9.2	21.84	3.30	21.31	0.17	0.50
0.34	0.34	3.02	10.2	22.71	3.38	22.17	0.18	0.52
0.35	0.35	3.25	11.2	23.59	3.45	23.03	0.19	0.54
0.36	0.36	3.48	12.3	24.47	3.53	23.90	0.19	0.55
0.37	0.37	3.72	13.4	25.35	3.61	24.76	0.20	0.57
0.38	0.38	3.98	14.7	26.23	3.69	25.62	0.21	0.59
0.39	0.39	4.24	15.9	27.10	3.76	26.48	0.22	0.61
0.40	0.40	4.50	17.3	27.98	3.84	27.35	0.23	0.63
0.41	0.41	4.78	18.7	28.86	3.91	28.21	0.24	0.65
0.42	0.42	5.06	20.6	28.88	4.06	28.21	0.26	0.68
0.43	0.43	5.35	22.5	28.90	4.21	28.22	0.28	0.71

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	26.6	28.94	4.50	28.23	0.31	0.76
0.46	0.46	6.19	28.7	28.96	4.64	28.23	0.33	0.79
0.47	0.47	6.48	30.9	28.98	4.77	28.24	0.35	0.82
0.48	0.48	6.76	33.2	29.01	4.91	28.24	0.37	0.85
0.49	0.49	7.04	35.5	29.03	5.04	28.25	0.39	0.88
0.50	0.50	7.32	37.9	29.05	5.17	28.25	0.42	0.92
0.51	0.51	7.61	40.3	29.07	5.30	28.26	0.44	0.95
0.52	0.52	7.89	42.9	29.09	5.43	28.26	0.46	0.98
0.53	0.53	8.17	45.4	29.11	5.56	28.27	0.48	1.01
0.54	0.54	8.45	48.0	29.13	5.68	28.27	0.50	1.04

21 LOTS =
60% BASIN A
7.2 cfs

ROLL CURB LIMIT

ACTUAL Q = 12 cfs
TOTAL BASIN A

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA VISTA TRAIL (BASIN A)

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14
0.14	0.14	0.31	0.3	5.15	0.95	4.93	0.01	0.15
0.15	0.15	0.36	0.3	6.03	0.95	5.79	0.01	0.16
0.16	0.16	0.43	0.4	6.91	0.96	6.65	0.01	0.17
0.17	0.17	0.50	0.5	7.79	0.99	7.51	0.02	0.19
0.18	0.18	0.58	0.6	8.67	1.01	8.38	0.02	0.20
0.19	0.19	0.66	0.7	9.54	1.04	9.24	0.02	0.21
0.20	0.20	0.76	0.8	10.42	1.08	10.10	0.02	0.22
0.21	0.21	0.87	1.0	11.30	1.11	10.96	0.02	0.23
0.22	0.22	0.98	1.1	12.18	1.15	11.83	0.02	0.24
0.23	0.23	1.10	1.3	13.06	1.19	12.69	0.02	0.25
0.24	0.24	1.23	1.5	13.93	1.23	13.55	0.02	0.26
0.25	0.25	1.37	1.7	14.81	1.27	14.41	0.02	0.27
0.26	0.26	1.52	2.0	15.69	1.30	15.27	0.03	0.29
0.27	0.27	1.68	2.3	16.57	1.34	16.14	0.03	0.30
0.28	0.28	1.84	2.5	17.45	1.38	17.00	0.03	0.31
0.29	0.29	2.02	2.9	18.32	1.42	17.86	0.03	0.32
0.30	0.30	2.20	3.2	19.20	1.46	18.72	0.03	0.33
0.31	0.31	2.39	3.6	20.08	1.50	19.59	0.03	0.34
0.32	0.32	2.59	4.0	20.96	1.53	20.45	0.04	0.36
0.33	0.33	2.80	4.4	21.84	1.57	21.31	0.04	0.37
0.34	0.34	3.02	4.9	22.71	1.61	22.17	0.04	0.38
0.35	0.35	3.25	5.3	23.59	1.65	23.03	0.04	0.39
0.36	0.36	3.48	5.9	24.47	1.68	23.90	0.04	0.40
0.37	0.37	3.72	6.4	25.35	1.72	24.76	0.05	0.42
0.38	0.38	3.98	7.0	26.23	1.76	25.62	0.05	0.43
0.39	0.39	4.24	7.6	27.10	1.79	26.48	0.05	0.44
0.40	0.40	4.50	8.2	27.98	1.83	27.35	0.05	0.45
0.41	0.41	4.78	8.9	28.86	1.86	28.21	0.05	0.46
0.42	0.42	5.06	9.8	28.88	1.94	28.21	0.06	0.48
0.43	0.43	5.35	10.7	28.90	2.01	28.22	0.06	0.49

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	12.7	28.94	2.14	28.23	0.07	0.52
0.46	0.46	6.19	13.7	28.96	2.21	28.23	0.08	0.54
0.47	0.47	6.48	14.7	28.98	2.28	28.24	0.08	0.55
0.48	0.48	6.76	15.8	29.01	2.34	28.24	0.09	0.57
0.49	0.49	7.04	16.9	29.03	2.40	28.25	0.09	0.58
0.50	0.50	7.32	18.1	29.05	2.47	28.25	0.09	0.59
0.51	0.51	7.61	19.2	29.07	2.53	28.26	0.10	0.61
0.52	0.52	7.89	20.4	29.09	2.59	28.26	0.10	0.62
0.53	0.53	8.17	21.7	29.11	2.65	28.27	0.11	0.64
0.54	0.54	8.45	22.9	29.13	2.71	28.27	0.11	0.65

10 LOTS = 292 BASIN A 3.4 cfs

ACTUAL Q

ROLL CURB LIMIT

E-4

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA VISTA TRAIL (BASIN B)

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14
0.14	0.14	0.31	0.3	5.15	0.95	4.93	0.01	0.15
0.15	0.15	0.36	0.3	6.03	0.95	5.79	0.01	0.16
0.16	0.16	0.43	0.4	6.91	0.96	6.65	0.01	0.17
0.17	0.17	0.50	0.5	7.79	0.99	7.51	0.02	0.19
0.18	0.18	0.58	0.6	8.67	1.01	8.38	0.02	0.20
0.19	0.19	0.66	0.7	9.54	1.04	9.24	0.02	0.21
0.20	0.20	0.76	0.8	10.42	1.08	10.10	0.02	0.22
0.21	0.21	0.87	1.0	11.30	1.11	10.96	0.02	0.23
0.22	0.22	0.98	1.1	12.18	1.15	11.83	0.02	0.24
0.23	0.23	1.10	1.3	13.06	1.19	12.69	0.02	0.25
0.24	0.24	1.23	1.5	13.93	1.23	13.55	0.02	0.26
0.25	0.25	1.37	1.7	14.81	1.27	14.41	0.02	0.27
0.26	0.26	1.52	2.0	15.69	1.30	15.27	0.03	0.29
0.27	0.27	1.68	2.3	16.57	1.34	16.14	0.03	0.30
0.28	0.28	1.84	2.5	17.45	1.38	17.00	0.03	0.31
0.29	0.29	2.02	2.9	18.32	1.42	17.86	0.03	0.32
0.30	0.30	2.20	3.2	19.20	1.46	18.72	0.03	0.33
0.31	0.31	2.39	3.6	20.08	1.50	19.59	0.03	0.34
0.32	0.32	2.59	4.0	20.96	1.53	20.45	0.04	0.36
0.33	0.33	2.80	4.4	21.84	1.57	21.31	0.04	0.37
0.34	0.34	3.02	4.9	22.71	1.61	22.17	0.04	0.38
0.35	0.35	3.25	5.3	23.59	1.65	23.03	0.04	0.39
0.36	0.36	3.48	5.9	24.47	1.68	23.90	0.04	0.40
0.37	0.37	3.72	6.4	25.35	1.72	24.76	0.05	0.42
0.38	0.38	3.98	7.0	26.23	1.76	25.62	0.05	0.43
0.39	0.39	4.24	7.6	27.10	1.79	26.48	0.05	0.44
0.40	0.40	4.50	8.2	27.98	1.83	27.35	0.05	0.45
0.41	0.41	4.78	8.9	28.86	1.86	28.21	0.05	0.46
0.42	0.42	5.06	9.8	28.88	1.94	28.21	0.06	0.48
0.43	0.43	5.35	10.7	28.90	2.01	28.22	0.06	0.49

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	12.7	28.94	2.14	28.23	0.07	0.52
0.46	0.46	6.19	13.7	28.96	2.21	28.23	0.08	0.54
0.47	0.47	6.48	14.7	28.98	2.28	28.24	0.08	0.55
0.48	0.48	6.76	15.8	29.01	2.34	28.24	0.09	0.57
0.49	0.49	7.04	16.9	29.03	2.40	28.25	0.09	0.58
0.50	0.50	7.32	18.1	29.05	2.47	28.25	0.09	0.59
0.51	0.51	7.61	19.2	29.07	2.53	28.26	0.10	0.61
0.52	0.52	7.89	20.4	29.09	2.59	28.26	0.10	0.62
0.53	0.53	8.17	21.7	29.11	2.65	28.27	0.11	0.64
0.54	0.54	8.45	22.9	29.13	2.71	28.27	0.11	0.65

11 LOTS = 39% BASIN B

4.5 cfs

ACTUAL Q + ROLL CURB LIMIT

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA BONITA WAY

MANNING'S N= .017 SLOPE= .022

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.37	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.58	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	0.76	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	0.92	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	1.07	1.56	0.02	0.07
0.06	0.06	0.06	0.1	1.97	1.21	1.88	0.02	0.08
0.07	0.07	0.08	0.1	2.30	1.34	2.19	0.03	0.10
0.08	0.08	0.10	0.1	2.63	1.47	2.50	0.03	0.11
0.09	0.09	0.13	0.2	2.96	1.59	2.81	0.04	0.13
0.10	0.10	0.16	0.3	3.29	1.70	3.13	0.04	0.14
0.11	0.11	0.19	0.3	3.62	1.81	3.44	0.05	0.16
0.12	0.12	0.23	0.4	3.95	1.92	3.75	0.06	0.18
0.13	0.13	0.26	0.5	4.28	2.03	4.07	0.06	0.19
0.14	0.14	0.31	0.6	5.15	1.99	4.93	0.06	0.20
0.15	0.15	0.36	0.7	6.03	1.99	5.79	0.06	0.21
0.16	0.16	0.43	0.9	6.91	2.02	6.65	0.06	0.22
0.17	0.17	0.50	1.0	7.79	2.07	7.51	0.07	0.24
0.18	0.18	0.58	1.2	8.67	2.13	8.38	0.07	0.25
0.19	0.19	0.66	1.5	9.54	2.19	9.24	0.07	0.26
0.20	0.20	0.76	1.7	10.42	2.26	10.10	0.08	0.28
0.21	0.21	0.87	2.0	11.30	2.34	10.96	0.08	0.29
0.22	0.22	0.98	2.4	12.18	2.42	11.83	0.09	0.31
0.23	0.23	1.10	2.7	13.06	2.49	12.69	0.10	0.33
0.24	0.24	1.23	3.2	13.93	2.57	13.55	0.10	0.34
0.25	0.25	1.37	3.6	14.81	2.66	14.41	0.11	0.36
0.26	0.26	1.52	4.2	15.69	2.74	15.27	0.12	0.38
0.27	0.27	1.68	4.7	16.57	2.82	16.14	0.12	0.39
0.28	0.28	1.84	5.3	17.45	2.90	17.00	0.13	0.41
0.29	0.29	2.02	6.0	18.32	2.98	17.86	0.14	0.43
0.30	0.30	2.20	6.7	19.20	3.06	18.72	0.15	0.45
0.31	0.31	2.39	7.5	20.08	3.14	19.59	0.15	0.46
0.32	0.32	2.59	8.3	20.96	3.22	20.45	0.16	0.48
0.33	0.33	2.80	9.2	21.84	3.30	21.31	0.17	0.50
0.34	0.34	3.02	10.2	22.71	3.38	22.17	0.18	0.52
0.35	0.35	3.25	11.2	23.59	3.45	23.03	0.19	0.54
0.36	0.36	3.48	12.3	24.47	3.53	23.90	0.19	0.55
0.37	0.37	3.72	13.4	25.35	3.61	24.76	0.20	0.57
0.38	0.38	3.98	14.7	26.23	3.69	25.62	0.21	0.59
0.39	0.39	4.24	15.9	27.10	3.76	26.48	0.22	0.61
0.40	0.40	4.50	17.3	27.98	3.84	27.35	0.23	0.63
0.41	0.41	4.78	18.7	28.86	3.91	28.21	0.24	0.65
0.42	0.42	5.06	20.6	28.88	4.06	28.21	0.26	0.68
0.43	0.43	5.35	22.5	28.90	4.21	28.22	0.28	0.71

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	26.6	28.94	4.50	28.23	0.31	0.76
0.46	0.46	6.19	28.7	28.96	4.64	28.23	0.33	0.79
0.47	0.47	6.48	30.9	28.98	4.77	28.24	0.35	0.82
0.48	0.48	6.76	33.2	29.01	4.91	28.24	0.37	0.85
0.49	0.49	7.04	35.5	29.03	5.04	28.25	0.39	0.88
0.50	0.50	7.32	37.9	29.05	5.17	28.25	0.42	0.92
0.51	0.51	7.61	40.3	29.07	5.30	28.26	0.44	0.95
0.52	0.52	7.89	42.9	29.09	5.43	28.26	0.46	0.98
0.53	0.53	8.17	45.4	29.11	5.56	28.27	0.48	1.01
0.54	0.54	8.45	48.0	29.13	5.68	28.27	0.50	1.04

16 LOTS = 60% BASIN B 6.6 cfs

ACTUAL Q

ROLL CURB LIMIT

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRA BONITA WAY

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14
0.14	0.14	0.31	0.3	5.15	0.95	4.93	0.01	0.15
0.15	0.15	0.36	0.3	6.03	0.95	5.79	0.01	0.16
0.16	0.16	0.43	0.4	6.91	0.96	6.65	0.01	0.17
0.17	0.17	0.50	0.5	7.79	0.99	7.51	0.02	0.19
0.18	0.18	0.58	0.6	8.67	1.01	8.38	0.02	0.20
0.19	0.19	0.66	0.7	9.54	1.04	9.24	0.02	0.21
0.20	0.20	0.76	0.8	10.42	1.08	10.10	0.02	0.22
0.21	0.21	0.87	1.0	11.30	1.11	10.96	0.02	0.23
0.22	0.22	0.98	1.1	12.18	1.15	11.83	0.02	0.24
0.23	0.23	1.10	1.3	13.06	1.19	12.69	0.02	0.25
0.24	0.24	1.23	1.5	13.93	1.23	13.55	0.02	0.26
0.25	0.25	1.37	1.7	14.81	1.27	14.41	0.02	0.27
0.26	0.26	1.52	2.0	15.69	1.30	15.27	0.03	0.29
0.27	0.27	1.68	2.3	16.57	1.34	16.14	0.03	0.30
0.28	0.28	1.84	2.5	17.45	1.38	17.00	0.03	0.31
0.29	0.29	2.02	2.9	18.32	1.42	17.86	0.03	0.32
0.30	0.30	2.20	3.2	19.20	1.46	18.72	0.03	0.33
0.31	0.31	2.39	3.6	20.08	1.50	19.59	0.03	0.34
0.32	0.32	2.59	4.0	20.96	1.53	20.45	0.04	0.36
0.33	0.33	2.80	4.4	21.84	1.57	21.31	0.04	0.37
0.34	0.34	3.02	4.9	22.71	1.61	22.17	0.04	0.38
0.35	0.35	3.25	5.3	23.59	1.65	23.03	0.04	0.39
0.36	0.36	3.48	5.9	24.47	1.68	23.90	0.04	0.40
0.37	0.37	3.72	6.4	25.35	1.72	24.76	0.05	0.42
0.38	0.38	3.98	7.0	26.23	1.76	25.62	0.05	0.43
0.39	0.39	4.24	7.6	27.10	1.79	26.48	0.05	0.44
0.40	0.40	4.50	8.2	27.98	1.83	27.35	0.05	0.45
0.41	0.41	4.78	8.9	28.86	1.86	28.21	0.05	0.46
0.42	0.42	5.06	9.8	28.88	1.94	28.21	0.06	0.48
0.43	0.43	5.35	10.7	28.90	2.01	28.22	0.06	0.49

(LOT 6)
ROLL CURB LIMIT

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	12.7	28.94	2.14	28.23	0.07	0.52
0.46	0.46	6.19	13.7	28.96	2.21	28.23	0.08	0.54
0.47	0.47	6.48	14.7	28.98	2.28	28.24	0.08	0.55
0.48	0.48	6.76	15.8	29.01	2.34	28.24	0.09	0.57
0.49	0.49	7.04	16.9	29.03	2.40	28.25	0.09	0.58
0.50	0.50	7.32	18.1	29.05	2.47	28.25	0.09	0.59
0.51	0.51	7.61	19.2	29.07	2.53	28.26	0.10	0.61
0.52	0.52	7.89	20.4	29.09	2.59	28.26	0.10	0.62
0.53	0.53	8.17	21.7	29.11	2.65	28.27	0.11	0.64
0.54	0.54	8.45	22.9	29.13	2.71	28.27	0.11	0.65

STANDARD CURB LIMIT

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TERRACITA LANE

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14
0.14	0.14	0.31	0.3	5.15	0.95	4.93	0.01	0.15
0.15	0.15	0.36	0.3	6.03	0.95	5.79	0.01	0.16
0.16	0.16	0.43	0.4	6.91	0.96	6.65	0.01	0.17
0.17	0.17	0.50	0.5	7.79	0.99	7.51	0.02	0.19
0.18	0.18	0.58	0.6	8.67	1.01	8.38	0.02	0.20
0.19	0.19	0.66	0.7	9.54	1.04	9.24	0.02	0.21
0.20	0.20	0.76	0.8	10.42	1.08	10.10	0.02	0.22
0.21	0.21	0.87	1.0	11.30	1.11	10.96	0.02	0.23
0.22	0.22	0.98	1.1	12.18	1.15	11.83	0.02	0.24
0.23	0.23	1.10	1.3	13.06	1.19	12.69	0.02	0.25
0.24	0.24	1.23	1.5	13.93	1.23	13.55	0.02	0.26
0.25	0.25	1.37	1.7	14.81	1.27	14.41	0.02	0.27
0.26	0.26	1.52	2.0	15.69	1.30	15.27	0.03	0.29
0.27	0.27	1.68	2.3	16.57	1.34	16.14	0.03	0.30
0.28	0.28	1.84	2.5	17.45	1.38	17.00	0.03	0.31
0.29	0.29	2.02	2.9	18.32	1.42	17.86	0.03	0.32
0.30	0.30	2.20	3.2	19.20	1.46	18.72	0.03	0.33
0.31	0.31	2.39	3.6	20.08	1.50	19.59	0.03	0.34
0.32	0.32	2.59	4.0	20.96	1.53	20.45	0.04	0.36
0.33	0.33	2.80	4.4	21.84	1.57	21.31	0.04	0.37
0.34	0.34	3.02	4.9	22.71	1.61	22.17	0.04	0.38
0.35	0.35	3.25	5.3	23.59	1.65	23.03	0.04	0.39
0.36	0.36	3.48	5.9	24.47	1.68	23.90	0.04	0.40
0.37	0.37	3.72	6.4	25.35	1.72	24.76	0.05	0.42
0.38	0.38	3.98	7.0	26.23	1.76	25.62	0.05	0.43
0.39	0.39	4.24	7.6	27.10	1.79	26.48	0.05	0.44
0.40	0.40	4.50	8.2	27.98	1.83	27.35	0.05	0.45
0.41	0.41	4.78	8.9	28.86	1.86	28.21	0.05	0.46
0.42	0.42	5.06	9.8	28.88	1.94	28.21	0.06	0.48
0.43	0.43	5.35	10.7	28.90	2.01	28.22	0.06	0.49

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	12.7	28.94	2.14	28.23	0.07	0.52
0.46	0.46	6.19	13.7	28.96	2.21	28.23	0.08	0.54
0.47	0.47	6.48	14.7	28.98	2.28	28.24	0.08	0.55
0.48	0.48	6.76	15.8	29.01	2.34	28.24	0.09	0.57
0.49	0.49	7.04	16.9	29.03	2.40	28.25	0.09	0.58
0.50	0.50	7.32	18.1	29.05	2.47	28.25	0.09	0.59
0.51	0.51	7.61	19.2	29.07	2.53	28.26	0.10	0.61
0.52	0.52	7.89	20.4	29.09	2.59	28.26	0.10	0.62
0.53	0.53	8.17	21.7	29.11	2.65	28.27	0.11	0.64
0.54	0.54	8.45	22.9	29.13	2.71	28.27	0.11	0.65

8 LOTS =
322 BASIN C
3.7 cfs

ACTUAL Q

ROLL CURB LIMIT

B-8/8

APPENDIX C

INFRASTRUCTURE LIST

Current DRC
Project No _____

Date Submitted March 28, 2003

Date Site Plan Approved. N/A

Date Preliminary Plat Approved _____

Date Preliminary Plat Expiers _____

DRB Project No _____

Application No _____

Figure 12

INFRASTRUCTURE LIST

EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

TERRACITA SUBDIVISION
PRELIMINARY PLAT

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PRIVATE ROADWAY IMPROVEMENTS						
		50' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON NORTH SIDE ONLY*	TERRACITA LANE	BOUNDARY LINE	TERRA BONITA WAY	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON NORTH SIDE ONLY*	TERRACITA LANE	TERRA BONITA WAY	CUL-DE-SAC TERMINUS	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES*	TERRA BONITA WAY	TERRA BELLA LANE	TERRA VISTA TRAIL	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES*	TERRA BELLA LANE	TERRA BONITA WAY	TERRA VISTA TRAIL	/	/	/
		24' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON NORTH SIDE ONLY*	TERRA BELLA LANE	TERRA BONITA WAY	EAST STUB TERMINUS	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES*	TERRA VISTA TRAIL	TERRA BELLA LANE	TERRA BONITA WAY	/	/	/
		24' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON WEST SIDE ONLY*	TERRA VISTA TRAIL	TERRA BELLA LANE	NORTH STUB TERMINUS	/	/	/
		24' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON WEST SIDE ONLY*	TERRA VISTA TRAIL	TERRA BONITA WAY	SOUTH STUB TERMINUS	/	/	/

$25,000 MODIFIED TYPE"C" CONTRIBUTION FOR TRAFFIC SIGNAL

* SIDEWALKS TO BE DEFERRED.

STREET LIGHTS AS PER COA DPM

PUBLIC ROADWAY IMPROVEMENTS

		34' F-F	PERMANENT PAVING W/ PCC CURB & GUTTER AND 14' ASPHALT TRAIL NORTH SIDE ONLY	SOUTHERN BLVD.	WEST BOUNDARY LINE	JUAN TABO BLVD.	/	/	/

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PUBLIC STORM DRAIN IMPROVEMENTS						
		10' WIDE	SIDEWALK CULVERT	LOT 31 EASEMENT	TERRA VISTA TRAIL	WEST BOUNDARY	/	/	/
		10' WIDE	SIDEWALK CULVERT	LOT 43 EASEMENT	TERRA VISTA TRAIL	WEST BOUNDARY	/	/	/
							/	/	/

NOTE: A GRADING AND DRAINAGE CERTIFICATION OF THE APPROVED GRADING PLAN IS REQUIRED PRIOR TO THE RELEASE OF FINANCIAL GUARANTEES.

C-2

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PUBLIC WATERLINE IMPROVEMENTS						
		16" DIA	REMOVAL OF EXISTING 16" CCP FROM BACKYARDS OF LOTS 19-27 REPLACE WITH DUCTILE IRON INTO PROPOSED STREET	TERRA BELLA LANE	LOT 19	LOT 27	/	/	/
		10" DIA	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	TERRA BELLA LANE	JUAN TABO BLVD.	TERRA BONITA WAY	/	/	/
		10" DIA	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	TERRA BONITA WAY	TERRA BELLA LANE	TERRA VISTA TRAIL	/	/	/
		10" DIA	WATERLINE W/ NEC VALVES FH'S, MJ'S & RJ'S	LOT 43 EASEMENT	TERRA VISTA TRAIL	WEST BOUNDARY	/	/	/
		6" DIA	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	TERRACITA LANE	TERRA BONITA WAY	CUL-DE-SAC TERMINUS	/	/	/
		6" DIA	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	TERRA BELLA LANE	TERRA BONITA WAY	TERRA VISTA TRAIL	/	/	/
		6" DIA	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	TERRA VISTA TRAIL	NORTH STUB TERMINUS	SOUTH STUB TERMINUS	/	/	/
			PUBLIC SANITARY SEWER IMPROVEMENTS						
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	TERRA BELLA LANE	EAST STUB TERMINUS	TERRA VISTA TRAIL	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	TERRA BONITA WAY	TERRA BELLA LANE	TERRA VISTA TRAIL	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	TERRACITA LANE	TERRA BONITA WAY	CUL-DE-SAC TERMINUS	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	TERRA VISTA TRAIL	NORTH STUB TERMINUS	SOUTH STUB TERMINUS	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	LOT 43 EASEMENT	TERRA VISTA TRAIL	WEST BOUNDARY	/	/	/

NINA LEUNG
PREPARED BY:

BOHANNAN HUSTON INC.
FIRM.

3-28-03
SIGNATURE DATE

MAXIMUM TIME ALLOW TO CONSTRUCT IMPROVEMENTS WITHOUT A DRB EXTENSION

DRB CHAIR	DATE	PARKS & RECREATION DEPARTMENT	DATE
TRANSPORTATION DEVELOPMENT	DATE	N/A AMAFCA	DATE
UTILITY DEVELOPMENT	DATE	CITY ENGINEER	DATE
N/A NEW MEXICO UTILITIES INC.	DATE		DATE

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT/OWNER

C-4/4

PLATES

PLATE 1 - PRELIMINARY PLAT

PLATE 2 - GRADING PLAN

PLATE 3 - PROPOSED BASIN MAP

PLATE 1

PRELIMINARY PLAT

PLATE 2

GRADING PLAN

PLATE 3

PROPOSED BASIN MAP

Bohannan △ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332