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

Rick Beltramo, P.E.
Bohannan-Huston
7500 Jefferson St. NE
Albuquerque, NM 87109

Re: Grading and Drainage Plan/Report for Miravista Subdivision, Tract D, Manzano Mesa, L21/xxx, Engineer Stamped dated 02/01/01.

Dear Rick, L21/D037C

The referenced grading and drainage report is not approved. Please address the following comments.

1. The flood zone shown has been eliminated. See LOMR dated July 16, 1997.
2. Developed land use treatments should not have class A land treatment percentages.
3. Temporary retention ponds need to be designed per normal DPM design criteria.
4. Land treatment needs to be calculated per the standard type of lot proposed. The formula for %D in the DPM is used only if density is less than 6DU/AC.
5. Explain the "depressed area" shown on the typical double lot grading detail, sheet 3.

If you have any questions, contact me at 924-3980.

Sincerely,

Loren D. Meinz, P.E.
Hydrology Development

c. Terri Martin
file

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

DRAINAGE STUDY FOR TRACT B, MANZANO MESA AND MIRAVISTA SUBDIVISION, UNITS 1 AND 2

BOHANNAN HUSTON

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7500 JEFFERSON NE

Albuquerque

NEW MEXICO 87109

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February 1, 2001

RECEIVED
FEB 2 2001
HYDROLOGY SECTION

PREPARED FOR:

CURB INC.
AND
TRAILS MANAGEMENT INC.

PREPARED BY:

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

DRAINAGE STUDY FOR
TRACT B, MANZANO MESA
AND
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BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109

RICHARD LYNN BELTRAMO
NEW MEXICO
10596
REGISTERED PROFESSIONAL ENGINEER

PREPARED BY:

02/01/01

Rick Beltramo, P.E. Date

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I. INTRODUCTION

This drainage study establishes a drainage management plan for the planned development of Tract B, Manzano Mesa. Tract B is approximately 37 acres consisting of approximately 23 acres of residential zoned land, to be known as Miravista Subdivision, Units 1 and 2, the primary focus of this report. The remaining 14 acres of land consists of commercial zoned property, which is also addressed by this report. Manzano Mesa Tract B is located in the southeast heights of Albuquerque. Tract B is located on Southern Boulevard Between Elizabeth Street and Juan Tabo Boulevard (see vicinity map on the preliminary plat for location. (**Plate 1**).

Within Tract B is the proposed Miravista Subdivision which is planned to consists of 190 single family, attached (common wall) townhouses to be developed in 2 phases, Units 1 and 2. The single-family housing will be developed first. The remaining portions of the property, the commercial portions, will be developed at a later date. Therefore, this report provides a detailed design including grading plan for Miravista Subdivision.

This study provides hydrologic and hydraulic analysis and provides a drainage management plan as necessary to support the planned 190 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 projects. 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. The basis for the analysis and specific methodology is taken from this approved study. AMENDMENT #7

An AHYMO analysis is provided for Tract B. The basin is analyzed using a composite of the land treatments for the C-1, R-T and C-2 properties. The same basin area and time to peak parameters were used as was used in the South Eubank Study, basin #403 (see appendix D, Excerpts from South Eubank Report). This approach ensures that the 2 studies match well. This analysis shows a slightly higher flow rate, increasing from the discharge rate from 110 cfs to116 cfs. This increase represents less than a 0.9% increase in the mainline flow, which is acceptable. Changes in the land treatment types have occurred because the property has been re-zoned since the Eubank Study. What used to be I-P zoning is now a mixture of residential and commercial zoning. The new zoning generates higher run-off rates.

The storm sewer system internal to the subdivision is analyzed using current DPM methods for gravity flow conditions. Inlet capacity computations, along with all hydraulic computations, are included in **Appendix B**.

III. EXISTING CONDITIONS

A. Topography

Tract B is currently undeveloped land. The terrain is of uniform grades sloping form east to west with slopes ranging from approximately 2% 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 consisting mostly of native grasses. A FEMA floodplain and easement encumbers the property (see the FEMA Floodplain Exhibit provided). GONE

B. Existing Drainage Patterns

Tract B 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 study basin map for existing land treatment, areas and runoff rates. As discussed earlier in the report, Tract B slopes from east to west. All runoff generated by Tract B currently drains to Elizabeth Street to the west. 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. LAND TREATMENTS

The minimum lot dimensions are 35' x 100'. The percent impervious was determined using the following formula from Table A-5 of the DPM, Section 22.2.

percent "D" = 7 * √((N*N) + (5*N))

where N = units/acre.

Can't use

N ≤ 6 DU/acre

V. PROPOSED DEVELOPED CONDITIONS

The proposed development is a single-family, attached-unit residential townhouse subdivision with 190 lots on 23 acres, producing a density of approximately 8 D.U. per acre and 14 acres of commercial property. Proposed street configurations are shown on the Preliminary Plat. See **Plate 1**. The South Eubank Study established a master plan for the area including tract B and Miravista. All developed runoff generated by Tract B is collected by a storm drain located within Elizabeth Street. The storm drain is adequately sized to accept fully developed flows from all of Tract B. Included are excerpts for the South Eubank Study that show the runoff flow rates and volumes estimated and accommodated for by the Elizabeth street storm drain.

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. This report will identify how the developed run-off is to be collected and transmitted to the Elizabeth Street storm drain.

The proposed basins are illustrated on the Proposed Basin Map, **Plate 3**. Essentially, the project is divided into 4 basins. The easterly most basin is basin B3, the C-2 zoned property. Run-off from this tract, Parcel B-3, discharges through Miravista subdivision. Approximately 42 cfs is generated. The developed runoff is collected into private storm water detention ponds and released at controlled rates equal to or less than historic rates. Two ponds collect and release flows into Miravista for a combined release rate of 14 cfs. The 14 cfs is released into the subdivision via surface flows in the street system. The internal street system conveys the run-off west to Imagen Street. At Imagen street the 14 cfs of run-off generated by basin B3 and the majority of Miravista runoff (basin B2) is collected by a public storm drain and then conveyed across the C-1 parcel (basin B1) to the west. The storm drain collects the C-1 runoff and then discharges to the existing 42 " RCP storm drain stub of the Elizabeth Street storm drain. The storm drain does not collect a small portion of the run-off, approximately 20cfs. This 20 cfs is by-pass flow that could not be intercepted by the catch basins and continues to Elizabeth Street where it is collected by catch basins within Elizabeth Street.

An existing FEMA floodplain and floodplain easement currently encumber the property (see FEMA panel provided). Portions of this floodplain have been removed from other properties. Two public storm drain projects have been built which intercept and eliminate the existing floodplain. Removal of the floodplain and vacation of the floodplain easement will be pursued and processed as a part of the Miravista project.

VI. CONCLUSION

This report includes a detailed study of the existing and proposed runoff, street capacities, and pond volumes. Attached are the preliminary plat, existing conditions basin map, proposed conditions basin map, and grading plans. This drainage plan maintains the overall drainage pattern of the area and allows for safe management of storm runoff in our proposed as well as adaptable improvements for future development.

#403

BASIN

36.8 acres

70 % D

5.7 100yr Vol.

110 100yr Q.

Old Flood Zone Map. See Lower July 16, 1997

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	D

MAP NUMBER
35001C0359 D

EFFECTIVE DATE:
SEPTEMBER 20, 1996

Federal Emergency Management Agency

APPENDICES

APPENDIX A - AHYMO INPUT, OUTPUT FILES

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APPENDIX D - EXCERPTS FROM SOUTH EUBANK STUDY

APPENDIX A

AHYMO INPUT, OUTPUT FILES

TR B, MANZANO MESA & MIRAVISTA SUBDIVISION

HYDROLOGIC SUMMARY SHEET

DEVELOPED CONDITIONS BHI JN 01 273 Februray 1, 2001 file 01 273/ CDP/reports/hydro sum xls

BASIN	Acreage (acres)	Acreage (sq. mi.)	Time to Peak (Tp) (hrs.)	LAND TREATMENT A	B	C	D	Q100 (cfs)	YIELD (cfs/ac)	V100 (ac-ft)	YIELD (ac-ft/ac)	COMMENTS
501-N	6.294	0.0098	0.262	10	20	0	70	17.7	2.81	0.9664	0.154	North side of Southern Blvd , data from Eubank Report
B1	2.144	0.0034	0.133	0	15	0	85	7.4	3.45	0.3793	0.177	Proposed Tract B-1, zoned SU-1 for C-1
B2	22.577	0.0353	0.239	10	20	0	70	67.8	3.00	3.4811	0.154	Proposed Miravists Subd., Units 1 and 2
B3	12.469	0.0195	0.239	0	15	0	85	42	3.37	2.1752	0.174	Proposed Tract B-3, zoned SU-1 for C-2
COMPOSITE	37.190	0.0581	0.239	6	18	0	76	115.8	3.11	5.9675	0.160	Composite of all basins B1, B2 and B3
403	36.800	0.0575	0.239	10	20	0	70	110	2.99	5.677	0.154	Eubank report for same basins B1+B2+B3 = 403

EXSITING, UNDEVELOPED CONDITIONS

BASIN	Acreage (acres)	Acreage (sq. mi.)	Time to Peak (Tp) (hrs.)	LAND TREATMENT A	B	C	D	Q100 (cfs)	YIELD (cfs/ac)	V100 (ac-ft)	YIELD (ac-ft/ac)	COMMENTS
403	36.800	0.0575	0.262	100	0	0	0	39.5	1.07	1.8917	0.051	Eubank report
B2	12.469	0.0195	0.133	100	0	0	0	13.4	1.07	0.6415	0.051	Basin B-2, undeveloped flow

A-1

```
          AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994
               RUN DATE (MON/DAY/YR) = 02/01/2001
               START TIME (HR:MIN:SEC) = 01:44:51     USER NO.=
BOHN_HNM.STE
               INPUT FILE = MIRA.TXT


      *

      *S INPUT = MIRA.TXT

      *S Revised 12-10-00 for MIRAVISTA

      *

      START                    RAINFALL BEGINS AT 0.00 HOURS

      *                          100 YEAR RETURN PERIOD


*************************************************************************
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      *

      *
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
:::
      *       ::                          MISC. DATA

      *       ::          RAINFALL RETURN PERIOD_______________   100-YEAR
::
      *       ::          RAINFALL DURATION___________________    6-HOUR
          ::
      *       ::
   ::
      *       ::          RAINFALL DEPTHS: 1 HOUR (P60)___   2.08 INCHES
              ::
      *       ::          (UNADJUSTED)      6 HOUR (P360)__  2.55 INCHES

      *       ::                           24 HOUR (P1440)_  3.05 INCHES

      *       ::

      *       ::          RAINFALL DATA TAKEN FROM NOAA.
                     ::
      *       ::
```

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*        ::                    HYDROGRAPH METHODOLOGY
                 ::
*        ::

*        ::          CITY OF ALBQ. DPM VOL. 2, SECTION 22.2 July,
1997    ::
*        ::          INITIAL ABSTRACTION - INFILTRATION METHOD
     ::
*        ::          Tc CALCULATIONS PER C.O.A. DPM 22.2-B.4
  ::
*        ::          AMAFCA AHYMO VERSION MARCH 20,1992
    ::
*        ::

*
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
:::
*                                  MIRAVISTA HYDROLOGIC MODEL

*                     Analysis based on "SOUTH EUBANK AREA STORM
DRAIN ANALYSIS"
*                                    BHI JB Number 01 273


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*

*                                BEGIN EXISTING CONDITIONS ANALYSIS

*


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*******
*

*

RAINFALL                 TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.08

                         RAIN SIX=2.55 RAIN DAY=3.05 DT=0.05


                    COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON
NOAA ATLAS 2 - PEAK AT 1.40 HR.
                    DT =     .050000 HOURS        END TIME =
```

6.000000 HOURS

.0000	.0044	.0090	.0137	.0185	.0236
.0288					
.0342	.0398	.0457	.0518	.0581	.0648
.0718					
.0792	.0871	.0954	.1042	.1137	.1238
.1349					
.1437	.1534	.1814	.2478	.3618	.5382
.7922					
1.1396	1.4135	1.5373	1.6406	1.7311	1.8121
1.8854					
1.9522	2.0136	2.0701	2.1222	2.1703	2.2149
2.2257					
2.2358	2.2453	2.2542	2.2626	2.2706	2.2782
2.2855					
2.2925	2.2993	2.3058	2.3120	2.3181	2.3240
2.3297					
2.3352	2.3406	2.3459	2.3510	2.3560	2.3609
2.3657					
2.3704	2.3750	2.3794	2.3838	2.3881	2.3924
2.3965					
2.4006	2.4046	2.4085	2.4124	2.4162	2.4200
2.4237					
2.4273	2.4309	2.4345	2.4380	2.4414	2.4448
2.4482					
2.4515	2.4547	2.4580	2.4611	2.4643	2.4674
2.4705					
2.4735	2.4765	2.4795	2.4825	2.4854	2.4883
2.4911					
2.4939	2.4967	2.4995	2.5022	2.5050	2.5076
2.5103					
2.5130	2.5156	2.5182	2.5207	2.5233	2.5258
2.5283					
2.5308	2.5333	2.5357	2.5381	2.5406	2.5429
2.5453					
2.5477	2.5500				

```
     *

     *    TRACT B-3   C-2 PROPERTY, 12.48 ACRES
*************************
     **** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********

     COMPUTE NM HYD          ID=1 HYD=1  AREA=0.0195 PER A=100.0 PER
B=0.0
                                        PER C=0.0 PER D=0.0  TP=.239
RAINFALL=-1
```


A-4

```
        K =    .283985HR    TP =    .239000HR    K/TP RATIO =  1.188220
    SHAPE CONSTANT, N =  2.988193
        UNIT PEAK =   22.915    CFS   UNIT VOLUME =    .9993       B
=   280.86      P60 = 2.0800
        AREA =       .019500 SQ MI    IA =    .65000 INCHES    INF =
1.67000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000

     PRINT HYD                    ID=1   CODE=1


                                                OUTFLOW HYDROGRAPH REACH
  1.00

        RUNOFF VOLUME =       .61685 INCHES     =        .6415
ACRE-FEET
        PEAK DISCHARGE RATE =     13.40 CFS   AT   1.600 HOURS
BASIN AREA =    .0195 SQ. MI.

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      *

      *                        ** END EXISTING CONDITIONS ANALYSIS **

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      *                        ** BEGIN PROPOSED CONDITIONS ANALYSIS **
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A-5

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      *

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*********
      *

      *     TRACT B-3   C-2 PROPERTY, 12.48 ACRES, ONLY

      *

      **** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********

      COMPUTE NM HYD            ID=3 HYD=B3  AREA=0.0195 PER A=0.0 PER
B=15.0
                                          PER C=0.0 PER D=85.0  TP=.239
RAINFALL=-1

          K =    .130255HR    TP =    .239000HR    K/TP RATIO =    .545000
     SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   36.498    CFS   UNIT VOLUME =    .9994        B
=    526.28       P60 = 2.0800
          AREA =       .016575 SQ MI    IA =    .10000 INCHES    INF =
 .04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000


          K =    .238340HR    TP =    .239000HR    K/TP RATIO =    .997240
     SHAPE CONSTANT, N =  3.540182
          UNIT PEAK =   3.9561    CFS   UNIT VOLUME =    .9967        B
=    323.25       P60 = 2.0800
          AREA =       .002925 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000

      PRINT HYD                   ID=3   CODE=1


                                                HYDROGRAPH FROM AREA B3


          RUNOFF VOLUME =      2.09156 INCHES      =        2.1752
```

ACRE-FEET
PEAK DISCHARGE RATE = 42.03 CFS AT 1.600 HOURS
BASIN AREA = .0195 SQ. MI.

****

*

* TRACT B-2 R-T PROPERTY- MIRAVISTA SUBDIVISION, UNITS 1 AND 2, ONLY
*

**** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA **********

COMPUTE NM HYD ID=2 HYD=B2 AREA=0.0353 PER A=10.0 PER B=20.0
PER C=0.0 PER D=70.0 TP=.239 RAINFALL=-1

K = .130255HR TP = .239000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 54.411 CFS UNIT VOLUME = .9995 B = 526.28 P60 = 2.0800
AREA = .024710 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .253555HR TP = .239000HR K/TP RATIO = 1.060900
SHAPE CONSTANT, N = 3.328492
UNIT PEAK = 13.629 CFS UNIT VOLUME = .9990 B = 307.59 P60 = 2.0800
AREA = .010590 SQ MI IA = .55000 INCHES INF = 1.39000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA B2

RUNOFF VOLUME = 1.84902 INCHES = 3.4811.

A-7

ACRE-FEET
PEAK DISCHARGE RATE = 67.77 CFS AT 1.600 HOURS
BASIN AREA = .0353 SQ. MI.

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*

* TRACT B-1 C-1 PROPERTY- ONLY

*

**** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********

COMPUTE NM HYD ID=1 HYD=B1 AREA=0.0034 PER A=0.0 PER B=15.0
PER C=0.0 PER D=85.0 TP=.239 RAINFALL=-1

K = .130255HR TP = .239000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.3637 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 2.0800
AREA = .002890 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .238340HR TP = .239000HR K/TP RATIO = .997240
SHAPE CONSTANT, N = 3.540182
UNIT PEAK = .68978 CFS UNIT VOLUME = .9804 B = 323.25 P60 = 2.0800
AREA = .000510 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA B1

A-8

```
          RUNOFF VOLUME =      2.09156 INCHES      =          .3793
ACRE-FEET
          PEAK DISCHARGE RATE =        7.35 CFS   AT    1.600 HOURS
BASIN AREA =    .0034 SQ. MI.

     ****************************************
     *
**********************************************************************
*
     *
     *    TRACTS B-1, B-2(MIRAVISTA) AND B-3 COMBINED
     *    SAME AS BASIN 403 OF EUBANK STUDY, 36.8 ACRES COMBINED
     COMPUTE NM HYD            ID=4 HYD=4  AREA=0.0575 PER A=6.0 PER
B=18.0
                                          PER C=0.0 PER D=76.0  TP=.239
RAINFALL=-1

          K =    .130255HR     TP =    .239000HR     K/TP RATIO =    .545000
     SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    96.227     CFS    UNIT VOLUME =     .9995        B
=    526.28       P60 = 2.0800
          AREA =       .043700 SQ MI     IA =     .10000 INCHES     INF =
 .04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000

          K =    .249751HR     TP =    .239000HR     K/TP RATIO =  1.044985
     SHAPE CONSTANT, N =  3.378392
          UNIT PEAK =    17.977     CFS    UNIT VOLUME =     .9993        B
=    311.35       P60 = 2.0800
          AREA =       .013800 SQ MI     IA =     .53750 INCHES     INF =
1.35500 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000

     PRINT HYD                      ID=4    CODE=1
```


A-9

OUTFLOW HYDROGRAPH REACH 4.00

RUNOFF VOLUME = 1.94594 INCHES = 5.9675 ACRE-FEET
PEAK DISCHARGE RATE = 115.80 CFS AT 1.600 HOURS
BASIN AREA = .0575 SQ. MI.

*

****

* END PROPOSED CONDITIONS

FINISH

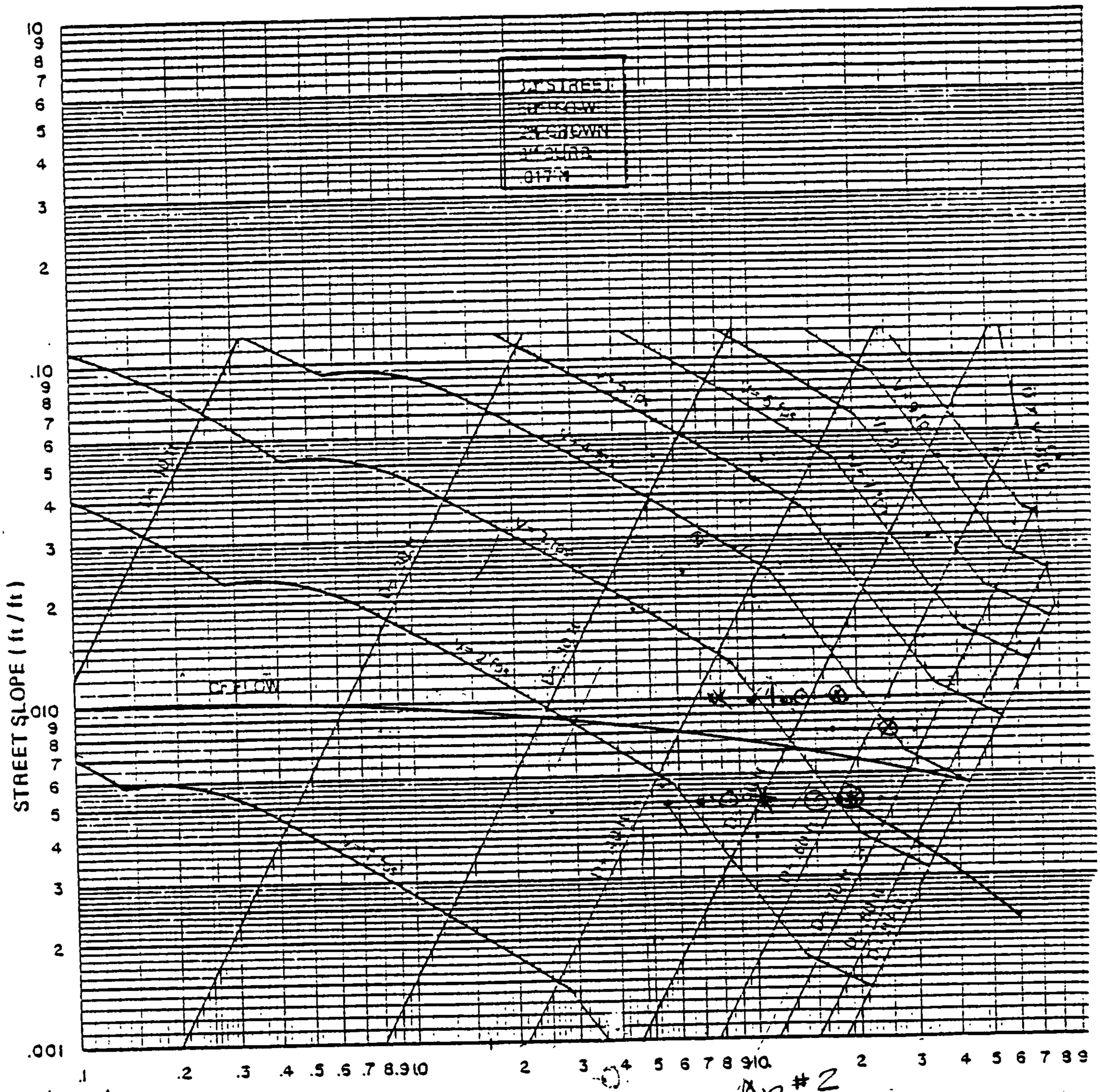
NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 01:44:51

H-10/10

APPENDIX B

STREET FLOW, INLET, AND STORM CALCULATIONS

STREET CAPACITY



Δp #1
30/2 = 19 cfs @ 0.5
d = .62' V = 3.1
E = .77 < 0.87 [ok]

38-17 intercepted by 1st (Catch Basin)
= 21 cfs/2 = 10.5 cfs/half street
d = .50 V = 2.5 E = 0.60

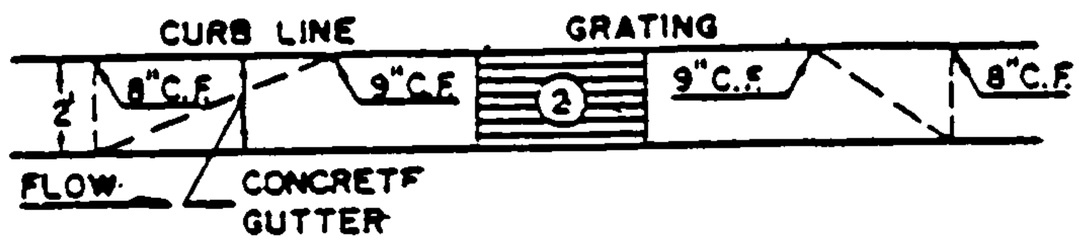
Δp #2
35/2 = 17.5 cfs half street
S = 1.0%
d = .52 V = 3.8 E = 0.74 < .87
35 - 12 cfs = 23 cfs
11.5 cfs 1/2 street
d = .46' V = 3.1 E = .61'

REV 3-83

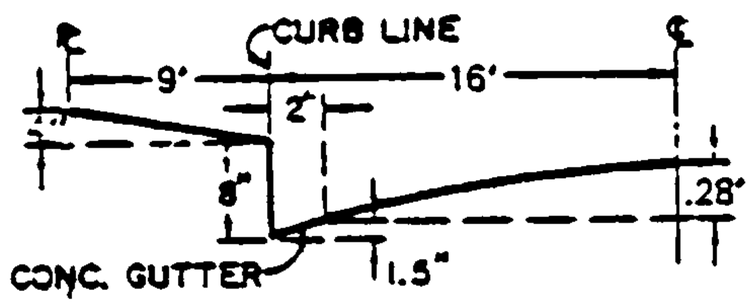
PLATE 22.3 D-1

B-1

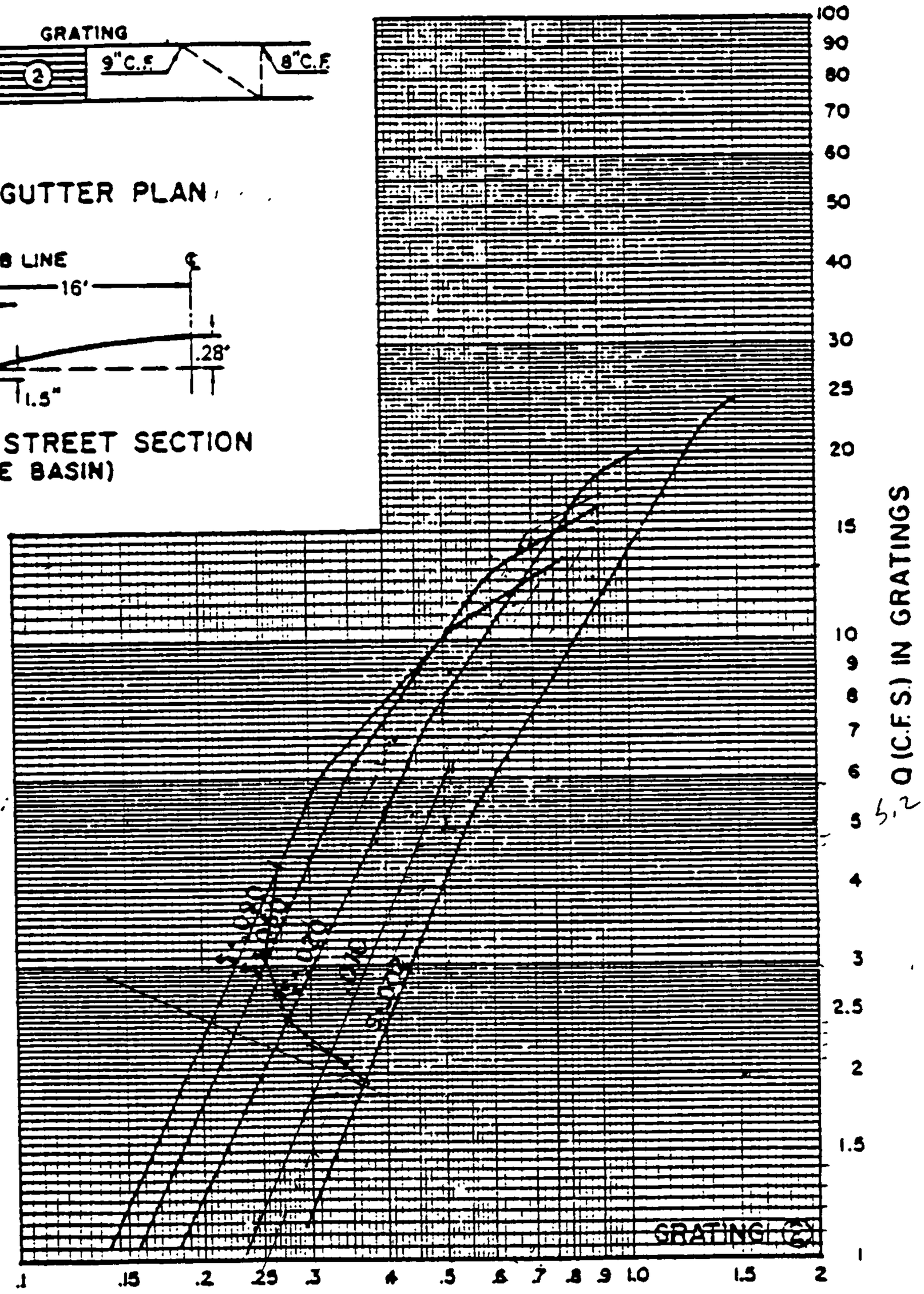
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



SOUTHERN BLVD.

70' street section (35' F-F HALF STREET)

Nomograph conservatively estimates flow depths

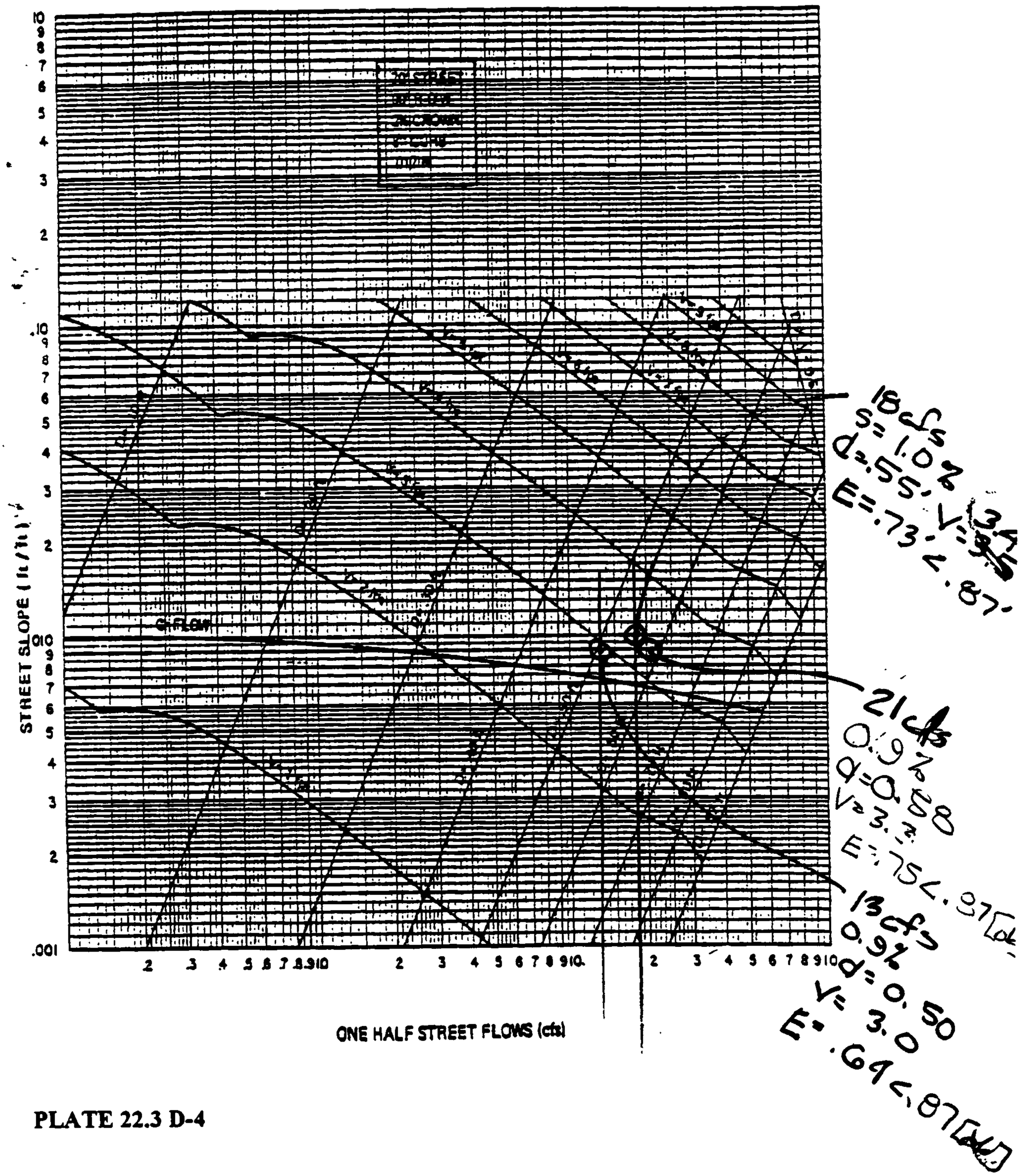


PLATE 22.3 D-4

ANALYSIS POINT 1 (AP#1)

B3 7 cfs + B2 south 31 cfs = 38 cfs

38/2 = 19 cfs @ S=0.5% d=0.62' V=3.1
half street
E=0.77 < 0.87

@ d=0.62 Single 'C' Inlet intercepts 8.5 cfs

38 - (8.5×2) = 21 cfs
17 cfs intercepted

21/2 = 10.5 cfs d=0.50 V=2.5

@ d=0.5 Single 'C' Inlet Intercepts 5 cfs

21 - (2×5) = 11 cfs 11 cfs/2 = 5.5 d=.42 V=1.9
10 cfs intercepted

@ d=0.42 Inlet Intercepts 3.3 cfs

11 - (2 × 3.3) = 4.4 by-pass
6.6 intercepted

38 - 17 = 21 by-passes inlet
21 - 10 = 11 by-passes inlet
11 - 6.6 = 4.4 resulting by-pass flow.

34 cfs intercepted

5 cfs by-pass

ANALYSIS POINT 2

28 (Basin B2-north) + 7 cfs = 35 cfs

35/2 = 17.5 cfs
half street flow

d = 0.52 V = 3.8
E = 0.74 < ?

• d = 0.52 Single 'C' = 6 cfs

35 − (2 × 6) = 23
12 cfs

23/2 = 11.5
d = 0.46
CB = 4
half the street

8 int.
23 − (4 × 2) = 15 cfs. 15/2 = 7.5

~~d = 5.6~~
d = .41

15 − (3.6 × 2) = 7.8 by pass
7.2

27.2
~~intercepted~~
Use 28

7.8 by-pass
Use 8

intercepted
35 − 12 = 23 23/2 d = 0.46
Catch Basin gets 12.
23 − 8 = 15
15 − 7.2 = ~~8~~ 7.8 by-pass
27.2

Compute Land Treatments For Composite Basin

2

Basin	Zone	Area	A	B	C	D
B1	C1	2.144 ac	0	15	0	85
B2	RT	22.577 ac	10	20		70
B3	C2	12.469 ac	0	15	0	85
		Σ 37.190 ac				

% Land Treatment × Area Matrix

A	B	C	D
0	32.16	0	182.24
0	187.03	0	1059.86
225.77	451.54	0	1580.39
Σ 225.77	670.73	0	2822.49
6%	18%	0%	76%

Composite Area Ratios

DESIGN TEMP. RETENTION PONDS

COMPUTE V_{100} for ½ Basin B2 plus ½ Basin B3

V_{100} B2 = $\frac{6.116 \text{ acres}}{22.577 \text{ ac}} \times 3.4811 = \underline{0.943 \text{ ac-ft}}$

V_{100} B3 = 0.6415/2 = $\underline{0.3208 \text{ ac ft}}$

~~w/ detention~~ exist cond.

$\Sigma = 1.264$ ac-ft

$= \underline{55{,}051.128 \text{ ft}^3}$

$V_{B3} = 2.1752$ af

USE 55,000 ft³ FOR BOTH TEMP. RETENTION PONDS

Temp Ponds need Volume 2 x 100 yr

Bohannan ▲ Huston

PROJECT NAME _____ SHEET _____ OF _____

PROJECT NO. _____ BY _____ DATE _____

SUBJECT _____ CH'D _____ DATE _____

ENGINEERS PLANNERS PHOTOGRAMMETRISTS SURVEYORS SOFTWARE DEVELOPERS

B-7/7

APPENDIX C

INFRASTRUCTURE LIST

DRB Case No.
DRC Project No.
Prelim. Plat Approved:
Prelim. Plat Expires:

Date Submitted: 2-1-01

Figure 12

INFRASTRUCTURE LIST

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

MIRAVISTA SUBDIVISION - UNITS 1 & 2

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 DRB Chair determines those 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 .he listing will be incorporated administratively. In addition, any unforeseen items that 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.

Unit 1

Size	Type Improvement	Location	From	To
	STREET			
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	MIRAVISTA PLACE	WEST BNDRY UNIT 1	VIA VISTA ST
25' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK NORTH SIDE ONLY	MIRAVISTA PLACE	VIA VISTA STREET	STUB TERMINUS
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	VISTAZO PLACE	WEST BNDRY UNIT 1	VIA VISTA ST
25' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK SOUTH SIDE ONLY	VISTAZO PLACE	VIA VISTA STREET	STUB TERMINUS
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	ESCENA STREET	MIRAVISTA PLACE	VISTAZO PLACE
34' F-F	PERMANENT PVMT W/PCC C&G AND 14' ASPHALT TRAIL NORTH SIDE ONLY	SOUTHERN BLVD	WEST BNDRY UNIT 1	EAST BNDRY UNIT 1

C-1

STREET

Size	Type Improvement	Location	From	To
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	CUADRO STREET	MIRAVISTA PLACE	VISTAZO PLACE
32' F-F	RESIDENTIAL PVMT W/PCC C&G 4' SDWK BOTH SIDES	CUADRO STREET	VISTAZO PLACE	SOUTHERN BLVD
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	VIA VISTA STREET	MIRAVISTA PLACE	VISTAZO PLACE

*SIDEWALK TO BE DEFERRED
STREET LIGHTS AS REQUIRED BY CITY OF ALBUQUERQUE DPM

SANITARY SEWER

Size	Type Improvement	Location	From	To
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	MIRAVISTA PLACE	WEST BNDRY UNIT 1	EAST BOUNDARY UNIT 1
8" DIA	SEWER LINE INCL MH'S & SERVICE LINES	VISTAZO PLACE	ELIZABETH STREET	EAST BOUNDARY UNIT 1
8" DIA	SEWER LINE INCL MH'S & SERVICE LINES	ELIZABETH STREET	VISTAZO PLACE	ACOMA ROAD
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	ESCENA STREET	MIRAVISTA PLACE	VISTAZO PLACE
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	CUADRO STREET	30' SOUTH OF MIRAVISTA PLACE	VISTAZO PLACE
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	VIA VISTA STREET	30' SOUTH OF MIRAVISTA PLACE	VISTAZO PLACE

WATER

Size	Type Improvement	Location	From	To
8" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	MIRAVISTA PLACE	WEST BNDRY UNIT.1	EAST BNDRY UNIT 1
6" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	ESCENA STREET	MIRAVISTA PLACE	VISTAZO PLACE
6" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	CUADRO STREET	MIRAVISTA PLACE	VISTAZO PLACE
8" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	VIA VISTA STREET	MIRAVISTA PLACE	VISTAZO PLACE
12" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	VISTAZO PLACE	WEST BNDRY UNIT 2	EAST BNDRY UNIT 1
12" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	SOUTHERN BLVD	ELIZABETH STREET	EAST BNDRY TRACT 1
12" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	EASEMENT ALONG EAST BNDRY TRACT 1	SOUTHERN BLVD	VISTAZO PLACE

WATERLINES INCLUDE ALL APPURTENANCES, HYDRANTS, VALVES & FITTINGS, ETC, AS REQUIRED.

DRAINAGE

TEMPORARY RETENTION POND # 3 (2 AC-FT) W/ EASEMENTS, COVENANTS & AGREEMENTS	WEST TERMINUS OF MIRAVISTA PLACE IN UNIT 1
TEMPORARY RETENTION POND # 4 (2 AC-FT) W/ EASEMENTS, COVENANTS & AGREEMENTS	WEST TERMINUS OF VISTAZO PLACE IN UNIT 1

GRADING/DRAINAGE CERTIFICATION REQUIRED FOR RELEASE OF FINANCIAL GUARANTEES

Unit 2

Size	Type Improvement	Location	From	To
	STREET			
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	MIRAVISTA PLACE	ELIZABETH ST	EAST BNDRY UNIT 2
28'F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	IMAGEN STREET	MIRAVISTA PLACE	VISTAZO PLACE
25' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK SOUTH SIDE ONLY	VISTAZO PLACE	WESTERN STUB TERMINUS	IMAGEN STREET
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	VISTAZO PLACE	IMAGEN STREET	EAST BNDRY UNIT 2
34' F-F	PERMANENT PVMT W/PCC C&G AND 14' ASPHALT TRAIL NORTH SIDE ONLY	SOUTHERN BLVD	ELIZABETH STREET	EAST BNDRY UNIT 2

SANITARY SEWER

Size	Type Improvement	Location	From	To
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	MIRAVISTA PLACE	ELIZABETH ST	EAST BOUNDARY UNIT 2
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	IMAGEN STREET	MIRAVISTA PLACE	VISTAZO PLACE
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	ELIZABETH STREET	SOUTHERN BLVD	VISTAZO PLACE

WATER

Size	Type Improvement	Location	From	To
8" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	MIRAVISTA PLACE	ELIZABETH ST	EAST BNDRY UNIT 2
6" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	IMAGEN STREET	MIRAVISTA PLACE	VISTAZO PLACE

WATERLINES INCLUDE ALL APPURTENANCES, HYDRANTS, VALVES & FITTINGS, ETC, AS REQUIRED.

DRAINAGE

18-36" RCP	STORM DRAIN SYSTEM INCL MH'S AND DROP INLETS	MIRAVISTA PLACE	IMAGEN STREET	300' EAST OF IMAGEN
18-48" RCP	STORM DRAIN SYSTEM INCL MH'S AND DROP INLETS	IMAGEN STREET	MIRAVISTA PLACE	VISTAZO PLACE
18-48" RCP	STORM DRAIN SYSTEM INCL MH'S AND DROP INLETS	VISTAZO PLACE	ELIZABETH STREET	IMAGEN STREET
18-24" RCP	STORM DRAIN SYSTEM INCL MH'S AND DROP INLETS	SOUTHERN BLVD	ELIZABETH STREET	50' EAST

GRADING/DRAINAGE CERTIFICATION REQUIRED FOR RELEASE OF FINANCIAL GUARANTEES

Prepared by:_____
Firm: Bohannan Huston, Inc.

Development Review Board Member Approval

New Mexico Utilities	Date	Utility Development	Date
Transportation Development	Date	Parks and Recreation	Date
City Engineer	Date	DRB Chair	Date

DRC REVISIONS

REVISIONS	DATE	DRC CHAIR	USER DEPT	AGENT/OWNER
1				
2				

APPENDIX D

EXCERPTS FROM SOUTH EUBANK STUDY

OFFICE

CITY OF ALBUQUERQUE, NEW MEXICO

SOUTH EUBANK AREA STORM DRAINAGE ANALYSIS

ALBUQUERQUE SEAL NEW MEXICO 1706

CITY OF Albuquerque

COA PROJECT NO. 4790-01
PUBLIC WORKS DEPARTMENT
HYDROLOGY DIVISION

Prepared by

Smith Engineering Company
A Full Service Engineering Company

FINAL REPORT: NOVEMBER, 1995

D-1

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

D-2

```
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
START
RAINFALL  TYPE= 1                                                                                          TIME=       .00
*S  100-YEAR STORM                                                                                         RAIN6=     2.560
*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
   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     *****
   IDE 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 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 *****										

```
                                FROM  TO                    PEAK        RUNOFF                 TIME TO   CFS
                   HYDROGRAPH   ID    ID        AREA     DISCHARGE     VOLUME      RUNOFF       PEAK    PER
COMMAND          IDENTIFICATION NO.   NO.      (SQ MI)     (CFS)      (AC-FT)    (INCHES)     (HOURS)  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
*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
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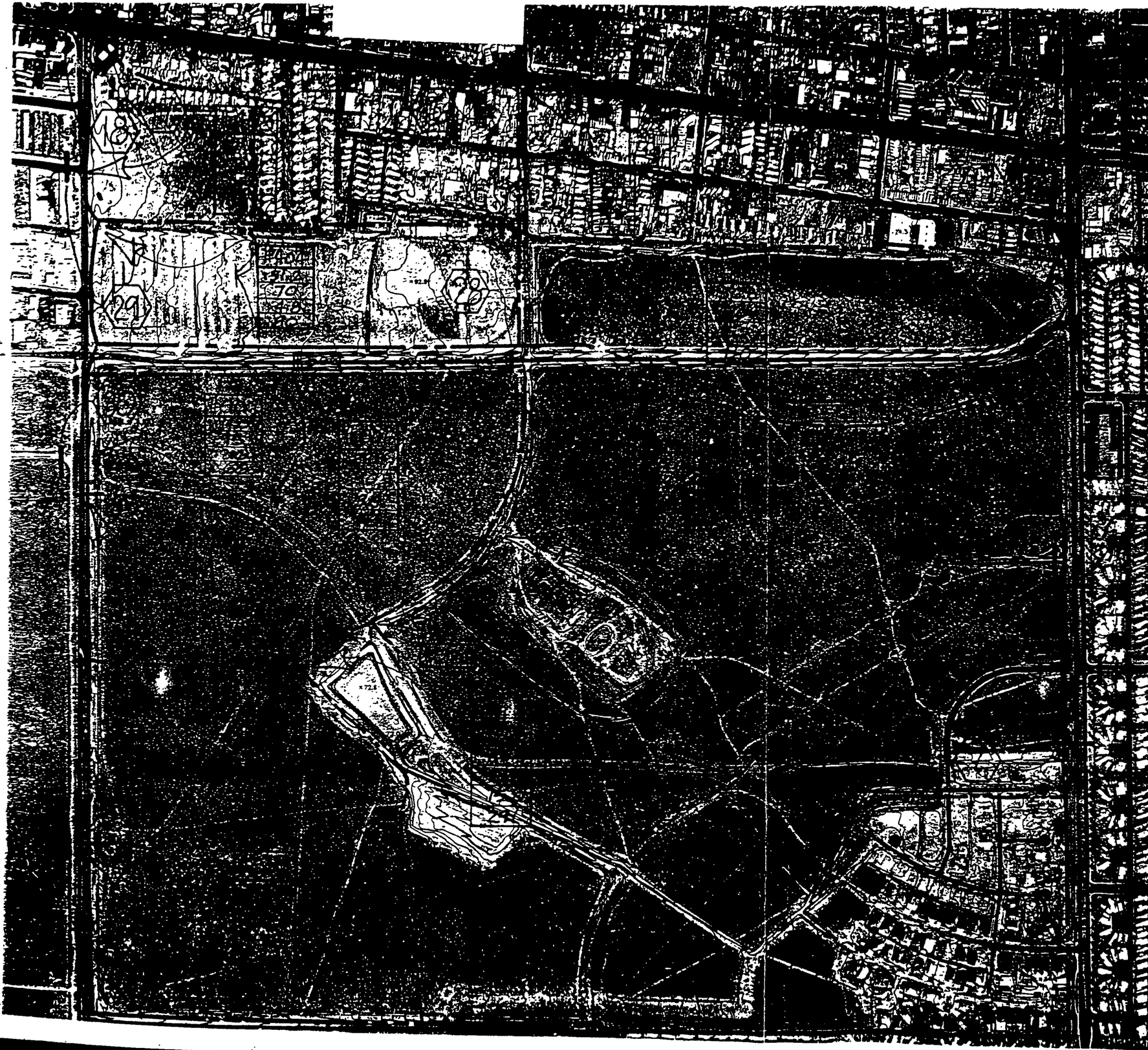


NOTES

LEGEND

(31) ANALYSIS POINT NUMBER WITH LOCATION BAR

STUDY BOUNDARY

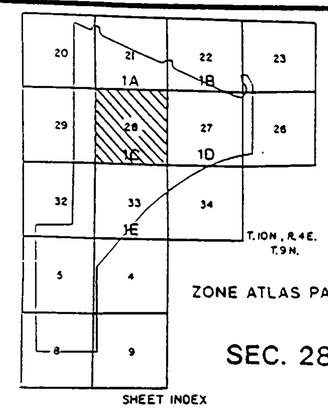
BASIN BOUNDARY

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

SOUTH EUBANK AREA STORM DRAINAGE ANALYSIS

PROJ. # 4790

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

D-6/6

PLATES

PLATE 1 - PRELIMINARY PLAT

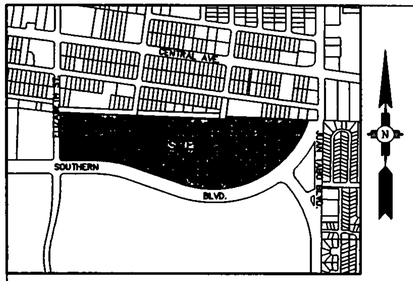
PLATE 2 - GRADING PLAN

PLATE 3 - PROPOSED BASIN MAP

PLATE 1

PRELIMINARY PLAT

PRELIMINARY PLAT FOR
MIRAVISTA SUBDIVISION UNITS 1 & 2
ALBUQUERQUE, NEW MEXICO
FEBRUARY 02, 2001
CURRENTLY TRACT B
MANZANO MESA



LOCATION MAP

ZONE ATLAS MAP NO L-21
NOT TO SCALE

GENERAL NOTES:

1 EXISTING ZONING R-T

2. GROSS ACRES AS CURRENTLY PLATTED (BULK PLAT).
   UNIT-1 12.431 ac
   UNIT-2 10.145 ac

3. NET ACREAGE AFTER SUBDIVISION & ROW DEDICATION
   UNIT-1 9.361 ac
   UNIT-2 8.145 ac

4. TOTAL NUMBER OF LOTS· 190 D.U.
   UNIT-1 104 LOTS
   UNIT-2 86 LOTS

5. PROPOSED DENSITY:
   UNIT-1 8.37 D.U./ACRE
   UNIT-2 8.47 D.U./ACRE

6. MINIMUM LOT DIMENSIONS: 100' x 35'

7. ALL STREETS, WATER, SEWER AND DRAINAGE IMPROVEMENTS ARE TO BE PUBLIC, AND DEDICATED FOR MAINTENANCE TO THE CITY OF ALBUQUERQUE.

8. NO INDIVIDUAL LOTS SHALL BE ALLOWED DIRECT ACCESS TO ELIZABETH STREE OR SOUTHERN BLVD.

9. ALL LOTS SHOWN WITH THE P1 DESIGNATION SHALL CONFORM TO INTERMITTENT PARKING DESIGN CRITERIA, ITEM #1.

10. LOTS SETBACKS SHALL CONFORM TO R-T ZONE REGULATIONS. REQUIRED SET BACKS SHALL INCLUDE:
    FRONT YARD: 15' TYP. (20' TO GARAGE)
    SIDE YARD: 5' MIN.
    BACKYARD: 15' MIN

11. STANDARD STREET WIDTHS:
    NORMAL STREET: 46' ROW, 23' F-F
    STUB STREET: 36' ROW, 23' F-F (SINGLE LOADED)

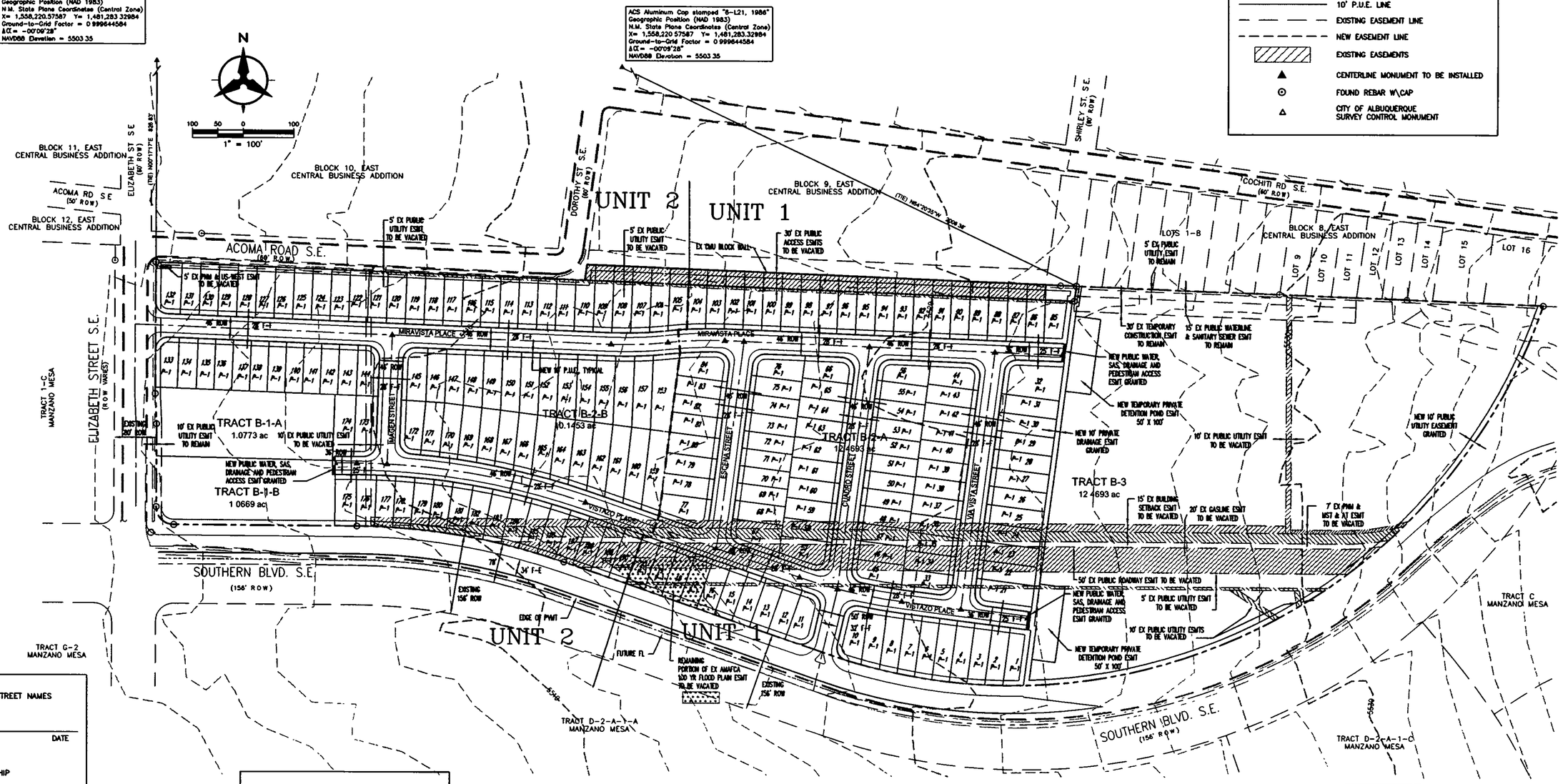
SURVEY NOTES:

1. ALL BOUNDARY CORNERS SHOWN (⊙) ARE FOUND REBAR W\CAP.
2. ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PTS, ANGLE POINTS, AND STREET INTERSECTIONS AND SHOWN THUS (▲) AND WILL BE MARKED BY (4") ALUMINUM CAP STAMPED "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION MARKED, DO NOT DISTURB PLS 6544".
3. THE SUBDIVISION BOUNDARY WILL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN.
4. BASIS OF BEARINGS WILL BE NEW MEXICO STATE PLANE BEARINGS.
5. DISTANCES SHALL BE GROUND DISTANCES.
6. MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE, TANGENCY STREET INTERSECTIONS, AND ALL OTHER ANGLE POINTS TO ALLOW USE OF CENTERLINE MONUMENTATION.

LEGEND

- SUBDIVISION BOUNDARY LINE
- NEW LOT LINE
- ADJOINING PROPERTY LINE
- 10' P.U.E. LINE
- EXISTING EASEMENT LINE
- NEW EASEMENT LINE
- EXISTING EASEMENTS
- ▲ CENTERLINE MONUMENT TO BE INSTALLED
- ⊙ FOUND REBAR W\CAP
- △ CITY OF ALBUQUERQUE SURVEY CONTROL MONUMENT

ACS Aluminum Cap stamped "6-L21, 1988"
Geographic Position (NAD 1983)
N.M. State Plane Coordinates (Central Zone)
X= 1,558,220.57587 Y= 1,481,283.32984
Ground-to-Grid Factor = 0.999644584
ΔΣ= -00°09'28"
NAVD88 Elevation = 5503.35



APPROVED FOR MONUMENTATION AND STREET NAMES

CITY SURVEYOR DATE

OWNER: MANZANO MESA LTD PARTNERSHIP

STAN STRICKMAN DATE
VICE PRSEIDENT, CURB INC, GENERAL PARTNER

HALF SIZE OF ORIGINAL
SCALE: 1"=200'

Bohannan ▲ Huston
Courtyard One 7500 JEFFERSON NE Albuquerque NEW MEXICO 87109
ENGINEERS PLANNERS PHOTOGRAMMETRISTS SURVEYORS SOFTWARE DEVELOPERS

PLATE 2

GRADING PLAN

PLATE 3

PROPOSED BASIN MAP

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

March 7, 2001

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

Re: Maravista Subdivision – Units 1 & 2 – Drainage Study
Engineer's Stamp dated 3-7-01, (L21/D37C)

Dear Mr. Beltramo,

Based upon the information provided in your resubmittal dated 3-7-01, the above referenced study is approved for Site Plan for Subdivision and Preliminary Plat action by the DRB.

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

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: file

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

DRAINAGE INFORMATION SHEET

PROJECT TITLE: MIRAVISTA SUBDIVISION ZONE ATLAS/DRNG. FILE # L-21

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tract B, Manzano Mesa

CITY ADDRESS: Northeast corner of Southern Boulevard SE and Elizabeth Street SE

ENGINEERING FIRM: BOHANNAN HUSTON, INC. CONTACT: RICK BELTRAMO

ADDRESS: 7500 JEFFERSON NE, ALB. NM 87109 PHONE: (505) 823-1000

OWNER: CURB INC. CONTACT: STAN STRICKMAN

ADDRESS: 6301 INDIAN SCHOOL NE, SUITE 208 PHONE: (505) 875-1721

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
_____ DRAINAGE PLAN
_____ FINAL GRADING & DRAINAGE PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEERS CERTIFICATION
_____ OTHER

PRE-DESIGN MEETING:

_____ YES
_____ NO
_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAT APPROVAL
X PRELIMINARY PLAT APPROVAL
X S. DEV. PLAN FOR SUBD. APPROVAL
_____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY APPROVAL
X GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ S.A.D. DRAINAGE REPORT
_____ DRAINAGE REQUIREMENTS
X OTHER (SPECIFY) Bulk Plat

DATE SUBMITTED: 3-6-01

BY: Rick Beltramo

DRAINAGE STUDY FOR TRACT B, MANZANO MESA AND MIRAVISTA SUBDIVISION, UNITS 1 AND 2

BOHANNAN HUSTON

Courtyard One

7500 JEFFERSON NE

Albuquerque

NEW MEXICO 87109

voice 505.823.1000

fax 505 821 0892

March 6, 2001

PREPARED FOR:

CURB INC.
AND
TRAILS MANAGEMENT INC.

PREPARED BY:

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

DRAINAGE STUDY FOR
TRACT B, MANZANO MESA
AND
MIRAVISTA SUBDIVISION
UNITS 1 AND 2

March 6, 2001

Prepared for:

CURB INC.
and
TRAILS MANAGEMENT INC.

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:

3/7/01

Rick Beltrame, P.E. Date

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VI. CONCLUSION **4**

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APPENDIX B - STREET FLOW, INLET, STORM DRAIN AND SWALE CAPACITY CALCULATIONS

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APPENDIX D - EXCERPTS FROM SOUTH EUBANK STUDY

PLATES

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: MIRAVISTA SUBDIVISION ZONE ATLAS/DRNG. FILE # L-21

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ENGINEERING FIRM: BOHANNAN HUSTON, INC. CONTACT: RICK BELTRAMO

ADDRESS: 7500 JEFFERSON NE, ALB. NM 87109 PHONE: (505) 823-1000

OWNER: CURB INC. CONTACT: STAN STRICKMAN

ADDRESS: 6301 INDIAN SCHOOL NE, SUITE 208 PHONE: (505) 875-1721

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

___ DRAINAGE PLAN

___ FINAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEERS CERTIFICATION

___ OTHER

PRE-DESIGN MEETING:

___ YES

___ NO

___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

X PRELIMINARY PLAT APPROVAL

X S. DEV. PLAN FOR SUBD. APPROVAL

___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

___ SECTOR PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ BUILDING PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

X GRADING PERMIT APPROVAL

___ PAVING PERMIT APPROVAL

___ S.A.D. DRAINAGE REPORT

___ DRAINAGE REQUIREMENTS

X OTHER (SPECIFY) Bulk Plat

DATE SUBMITTED: 3-6-01

BY: Rick Beltramo

I. INTRODUCTION

This drainage study establishes a drainage management plan for the planned development of Tract B, Manzano Mesa. Tract B is approximately 37 acres consisting of approximately 23 acres of residential zoned land, to be known as Miravista Subdivision, Units 1 and 2, the primary focus of this report. The remaining 14 acres of land consists of commercial zoned property, which is also addressed by this report. Manzano Mesa Tract B is located in the southeast heights of Albuquerque. Tract B is located on Southern Boulevard Between Elizabeth Street and Juan Tabo Boulevard (see vicinity map on the preliminary plat for location. (**Plate 1**).

Within Tract B is the proposed Miravista Subdivision which is planned to consists of 190 single family, attached (common wall) townhouses to be developed in 2 phases, Units 1 and 2. The single-family housing will be developed first. The remaining portions of the property, the commercial portions, will be developed at a later date. Therefore, this report provides a detailed design including grading plan for Miravista Subdivision.

This study provides hydrologic and hydraulic analysis and provides a drainage management plan as necessary to support the planned 190 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 projects. 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. The basis for the analysis and specific methodology is taken from this approved study.

An AHYMO analysis is provided for Tract B. The basin is analyzed using a composite of the land treatments for the C-1, R-T and C-2 properties. The same basin area and time to peak parameters were used as was used in the South Eubank Study, basin #403 (see appendix D, Excerpts from South Eubank Report). This approach ensures that the 2 studies match well. This analysis shows a slightly higher flow rate, increasing from the discharge rate from 110cfs to119cfs. This increase represents less than a 0.9% increase in the mainline flow, which is acceptable. Changes in the land treatment types have occurred because the property has been re-zoned since the Eubank Study. What used to be I-P zoning is now a mixture of residential and commercial zoning. The new zoning generates higher run-off rates.

The storm sewer system internal to the subdivision is analyzed using current DPM methods for gravity flow conditions. Inlet capacity computations, along with all hydraulic computations, are included in **Appendix B**.

III. EXISTING CONDITIONS

A. Topography

Tract B is currently undeveloped land. The terrain is of uniform grades sloping form east to west with slopes ranging from approximately 2% 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 consisting mostly of native grasses. A FEMA easement encumbers the property. The floodplain has been removed by LOMR dated July 16, 1997 (see Exhibit provided).

B. Existing Drainage Patterns

Tract B 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 study basin map for existing land treatment, areas and runoff rates. As discussed earlier in the report, Tract B slopes from east to west. All runoff generated by Tract B currently drains to Elizabeth Street to the west. 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. LAND TREATMENTS

The minimum lot dimensions are 35' x 100'. The percent impervious was determined using the following formula from Table A-5 of the DPM, Section 22.2.

$$\text{percent "D"} = 7 * \sqrt{((N*N) + (5*N))}$$

where N = units/acre.

V. PROPOSED CONDITIONS

The proposed development is a single-family, attached-unit residential townhouse subdivision with 190 lots on 23 acres, producing a density of approximately 8 D.U. per acre and 14 acres of commercial property. Proposed street configurations are shown on the Preliminary Plat. See **Plate 1**. The South Eubank Study established a master plan for the area including tract B and Miravista. All developed runoff generated by Tract B is collected by a storm drain located within Elizabeth Street. The storm drain is adequately sized to accept fully developed flows from all of Tract B. Included are excerpts for the South Eubank Study that show the runoff flow rates and volumes estimated and accommodated for by the Elizabeth street storm drain.

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. This report will identify how the developed run-off is to be collected and transmitted to the Elizabeth Street storm drain.

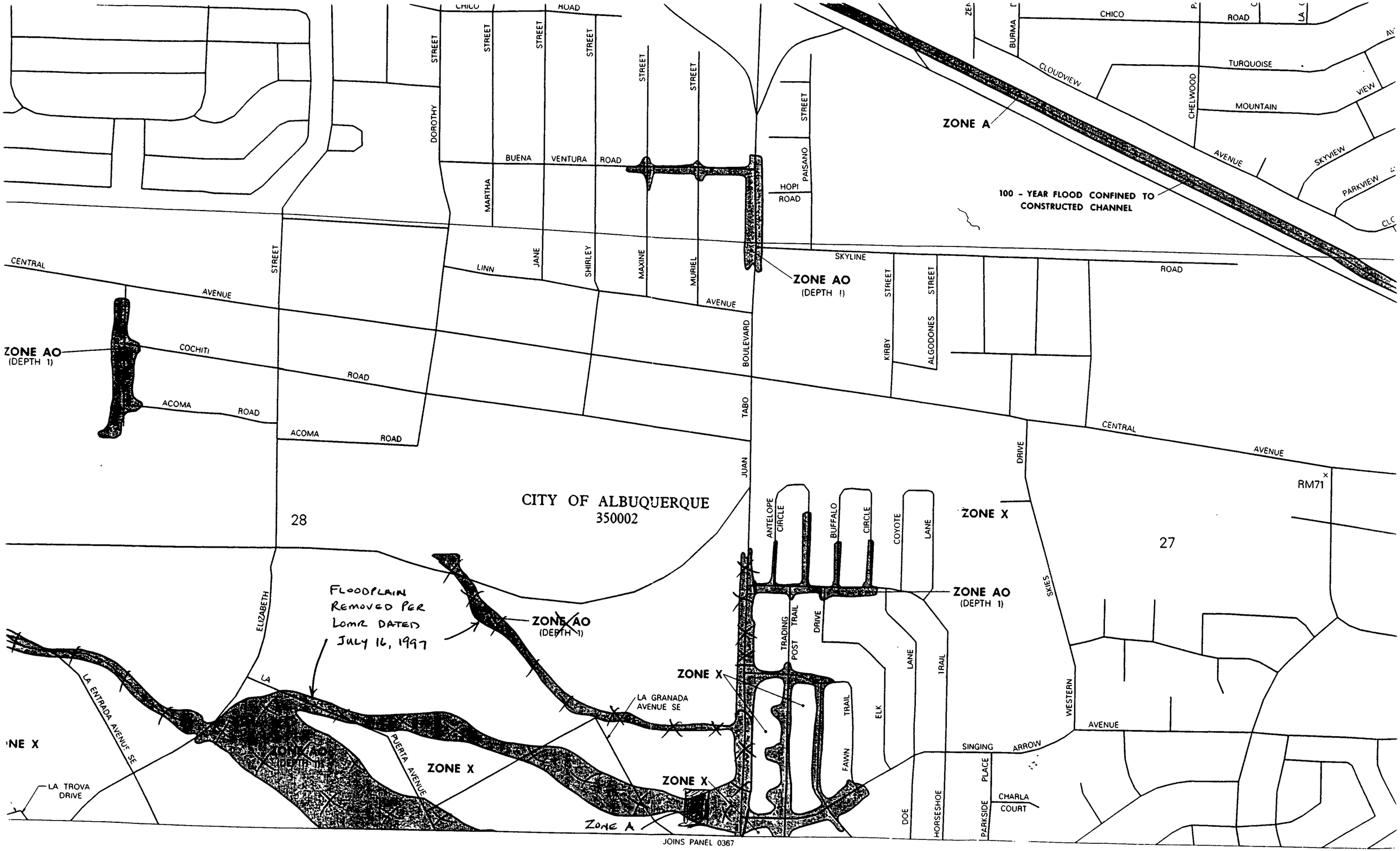
The proposed basins are illustrated on the Proposed Basin Map, **Plate 3**. Essentially, the project is divided into 4 basins. The easterly most basin is basin B3, the C-2 zoned property. Runoff from this tract, Parcel B-3, discharges through Miravista Subdivision. Approximately 42cfs is generated. The developed runoff is collected into public streets via standard City sidewalk drains and 10'-wide concrete channels. 32cfs is intercepted and flows into Miravista Subdivision. 10cfs is diverted to Southern Boulevard via a sidewalk drain. The 10cfs combines with Southern Boulevard and is collected by a storm drain at Elizabeth Street. The internal street system conveys the 32cfs of runoff west to Miravista Place and Vistazo Place. At some point, the street capacity is exceeded and the majority of Miravista runoff (basin B2) is collected by a public storm drain and then conveyed across the C-1 parcel (basin B1) to the west. The storm drain collects the C-1 runoff and then discharges to the existing 42" RCP storm drain stub of the Elizabeth Street storm drain. The storm drain does not collect a small portion of the run-off, approximately 20cfs. This 20cfs is by-pass flow that could not be intercepted by the catch basins and continues to Elizabeth Street where it is collected by catch basins within Elizabeth Street.

Interim drainage improvements are planned due to the phased development. Unit 1, the middle portion of the site, will be developed first. Temporary retention ponds are used to hold runoff generated by the upstream commercial site, basin B-3. The Unit 1 runoff is contained within a retention pond located on the Unit 2 site.

VI. CONCLUSION

This report provides a detailed study of the existing and proposed runoff, street capacities, and pond volumes. Included are preliminary plat, existing conditions basin map, proposed conditions basin map, grading plans, 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.

ENGINEERS PLANNERS PHOTOGRAMMETRISTS SURVEYORS SOFTWARE DEVELOPERS


CITY OF ALBUQUERQUE
350002
28
27
ZONE A
100 - YEAR FLOOD CONFINED TO CONSTRUCTED CHANNEL
ZONE AO
(DEPTH 1)
ZONE X
FLOODPLAIN REMOVED PER LOMR DATED JULY 16, 1997
ZONE A
JOINS PANEL 0367
RM71
CHICO ROAD
CLOUDVIEW
TURQUOISE
MOUNTAIN
CHELWOOD
AVENUE
SKYVIEW
PARKVIEW
VIEW
BURMA
DOROTHY
STREET
BUENA VENTURA ROAD
MARTHA
HOPI ROAD
PAISANO
LINN
JANE
SHIRLEY
MAXINE
MURIEL
SKYLINE
CENTRAL AVENUE
COCHITI ROAD
ACOMA ROAD
BOULEVARD
TABO
JUAN
KIRBY
ALGODONES
DRIVE
ANTELOPE CIRCLE
BUFFALO CIRCLE
COYOTE LANE
TRADING POST TRAIL
FAWN TRAIL
ELK LANE
DOE
HORSESHOE TRAIL
SKIES
WESTERN AVENUE
SINGING ARROW
PARKSIDE PLACE
CHARLA COURT
ELIZABETH
LA ENTRADA AVENUE SE
LA TROVA DRIVE
PUERTA AVENUE
LA GRANADA AVENUE SE

APPENDICES

APPENDIX A - AHYMO INPUT, OUTPUT FILES

APPENDIX B - STREET FLOW, INLET, STORM DRAIN AND SWALE CAPACITY CALCULATIONS

APPENDIX C - INFRASTRUCTURE LIST

APPENDIX D - EXCERPTS FROM SOUTH EUBANK STUDY

APPENDIX A

AHYMO INPUT, OUTPUT FILES

TR B, MANZANO MESA & MIRAVISTA SUBDIVISION

HYDROLOGIC SUMMARY SHEET

DEVELOPED CONDITIONS BHI JN 01 273 Februray 1, 2001 file:01 273/ CDP/reports/hydro sum.xls

BASIN	Acreage (acres)	Acreage (sq. mi.)	Time to Peak (Tp) (hrs.)	LAND TREATMENT A	B	C	D	Q100 (cfs)	YIELD (cfs/ac)	V100 (ac-ft)	YIELD (ac-ft/ac)	COMMENTS
501-N	6.294	0.0098	0.262	10	20	0	70	17.7	2.81	0.9664	0.154	North side of Southern Blvd., data from Eubank Report
B1	2.144	0.0034	0.133	0	15	0	85	7.4	3.45	0.3793	0.177	Proposed Tract B-1, zoned SU-1 for C-1
B2	22.577	0.0353	0.239	0	10	20	70	77.2	31.83	3.662	0.162	Proposed Miravists Subd., Units 1 and 2 (8.4du's/acre)
B3	12.469	0.0195	0.239	0	15	0	85	42	3.37	2.1752	0.174	Proposed Tract B-3, zoned SU-1 for C-2
COMPOSITE	37.190	0.0581	0.239	0	12	13	75	119	3.24	6.107	0.164	Composite of all basins B1, B2 and B3
403	36.800	0.0575	0.239	10	20	0	70	110	2.99	5.677	0.154	Eubank report for same basins B1+B2+B3 = 403

EXSITING, UNDEVELOPED CONDITIONS

BASIN	Acreage (acres)	Acreage (sq. mi.)	Time to Peak (Tp) (hrs.)	LAND TREATMENT A	B	C	D	Q100 (cfs)	YIELD (cfs/ac)	V100 (ac-ft)	YIELD (ac-ft/ac)	COMMENTS
403	36.800	0.0575	0.262	100	0	0	0	39.5	1.07	1.8917	0.051	Eubank report
B2	12.469	0.0195	0.133	100	0	0	0	13.4	1.07	0.6415	0.051	Basin B-2, undeveloped flow
501-N	6.294	0.0098	0.262	10	20	0	70	17.7	2.81	0.9664	0.154	North side of Southern Boulevard

A-1

AHYMO SUMMARY

SUM.TXT

```
    AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994          RUN
DATE (MON/DAY/YR) =03/06/2001
    INPUT FILE = mira.txt
       USER NO.= BOHN_HNM.STE

                                        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 INPUT = MIRA.TXT
    *S Revised 12-10-00 for MIRAVISTA
    START
                          TIME=        .00
    RAINFALL  TYPE= 1
                          RAIN6=     2.550
    COMPUTE NM HYD            1.00   -     1        .01950        13.40         .642
.61685    1.600    1.074 PER IMP=     .00
    COMPUTE NM HYD            1.00   -     1        .05750        39.51        1.892
.61685    1.600    1.074 PER IMP=     .00
    COMPUTE NM HYD              B3   -     3        .01950        42.03        2.175
2.09156    1.600    3.368 PER IMP=  85.00
    COMPUTE NM HYD              B2   -     2        .03530        71.92        3.662
1.94489    1.600    3.183 PER IMP=  70.00
    COMPUTE NM HYD              B1   -     1        .00340         7.35         .379
2.09156    1.600    3.377 PER IMP=  85.00
    COMPUTE NM HYD            4.00   -     4        .05750       119.23        6.107
1.99135    1.600    3.240 PER IMP=  75.00
    COMPUTE NM HYD            5.00   -     5        .00980        17.72         .966
1.84902    1.650    2.826 PER IMP=  70.00
    FINISH
```


A-2

OUT.OUT

```
          AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994
               RUN DATE (MON/DAY/YR) = 03/06/2001
               START TIME (HR:MIN:SEC) = 02:01:11      USER NO.=
BOHN_HNM.STE
               INPUT FILE = mira.txt


      *

      *S INPUT = MIRA.TXT

      *S Revised 12-10-00 for MIRAVISTA

      *

      START                    RAINFALL BEGINS AT 0.00 HOURS

      *                          100 YEAR RETURN PERIOD

*************************************************************************
*********
      *

      *
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
:::
      *       ::                          MISC. DATA

      *       ::          RAINFALL RETURN PERIOD_______________   100-YEAR
::
      *       ::          RAINFALL DURATION___________________    6-HOUR
          ::
      *       ::
   ::
      *       ::          RAINFALL DEPTHS: 1 HOUR (P60)___   2.08 INCHES
              ::
      *       ::          (UNADJUSTED)      6 HOUR (P360)__  2.55 INCHES

      *       ::                           24 HOUR (P1440)_  3.05 INCHES

      *       ::

      *       ::          RAINFALL DATA TAKEN FROM NOAA.
                     ::
      *       ::
```

```
*        ::                    HYDROGRAPH METHODOLOGY
                 ::
*        ::

*        ::          CITY OF ALBQ. DPM VOL. 2, SECTION 22.2 July,
1997     ::
*        ::          INITIAL ABSTRACTION - INFILTRATION METHOD
     ::
*        ::          Tc CALCULATIONS PER C.O.A. DPM 22.2-B.4
  ::
*        ::          AMAFCA AHYMO VERSION MARCH 20,1992
    ::
*        ::

*
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
:::
*                                  MIRAVISTA HYDROLOGIC MODEL

*                     Analysis based on "SOUTH EUBANK AREA STORM
DRAIN ANALYSIS"
*                                    BHI JB Number 01 273


*****************************************************************************
*******
*

*                                BEGIN EXISTING CONDITIONS ANALYSIS

*


*****************************************************************************
*******
*

*

RAINFALL                 TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.08

                         RAIN SIX=2.55 RAIN DAY=3.05 DT=0.05


                    COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON
NOAA ATLAS 2 - PEAK AT 1.40 HR.
                    DT =     .050000 HOURS        END TIME =
```

6.000000 HOURS

.0000	.0044	.0090	.0137	.0185	.0236
.0288					
.0342	.0398	.0457	.0518	.0581	.0648
.0718					
.0792	.0871	.0954	.1042	.1137	.1238
.1349					
.1437	.1534	.1814	.2478	.3618	.5382
.7922					
1.1396	1.4135	1.5373	1.6406	1.7311	1.8121
1.8854					
1.9522	2.0136	2.0701	2.1222	2.1703	2.2149
2.2257					
2.2358	2.2453	2.2542	2.2626	2.2706	2.2782
2.2855					
2.2925	2.2993	2.3058	2.3120	2.3181	2.3240
2.3297					
2.3352	2.3406	2.3459	2.3510	2.3560	2.3609
2.3657					
2.3704	2.3750	2.3794	2.3838	2.3881	2.3924
2.3965					
2.4006	2.4046	2.4085	2.4124	2.4162	2.4200
2.4237					
2.4273	2.4309	2.4345	2.4380	2.4414	2.4448
2.4482					
2.4515	2.4547	2.4580	2.4611	2.4643	2.4674
2.4705					
2.4735	2.4765	2.4795	2.4825	2.4854	2.4883
2.4911					
2.4939	2.4967	2.4995	2.5022	2.5050	2.5076
2.5103					
2.5130	2.5156	2.5182	2.5207	2.5233	2.5258
2.5283					
2.5308	2.5333	2.5357	2.5381	2.5406	2.5429
2.5453					
2.5477	2.5500				

```
     *

     *    TRACT B-3   C-2 PROPERTY, 12.48 ACRES
*************************
     **** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********

     COMPUTE NM HYD          ID=1 HYD=1  AREA=0.0195 PER A=100.0 PER
B=0.0
                                         PER C=0.0 PER D=0.0  TP=.239
RAINFALL=-1
```


A-5

```
        K =    .283985HR     TP =    .239000HR     K/TP RATIO =  1.188220
    SHAPE CONSTANT, N =  2.988193
        UNIT PEAK =   22.915     CFS   UNIT VOLUME =     .9993        B
=   280.86       P60 = 2.0800
        AREA =       .019500 SQ MI     IA =     .65000 INCHES     INF =
1.67000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000

     PRINT HYD                    ID=1   CODE=1


                                                OUTFLOW HYDROGRAPH REACH
  1.00

        RUNOFF VOLUME =       .61685 INCHES      =          .6415
ACRE-FEET
        PEAK DISCHARGE RATE =       13.40 CFS  AT   1.600 HOURS
BASIN AREA =    .0195 SQ. MI.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     *

     *    BASIN 403


     **** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********

     COMPUTE NM HYD            ID=1 HYD=1  AREA=0.0575 PER A=100.0 PER
B=0.0
                                          PER C=0.0 PER D=0.0  TP=.239
RAINFALL=-1

        K =    .283985HR     TP =    .239000HR     K/TP RATIO =  1.188220
    SHAPE CONSTANT, N =  2.988193
        UNIT PEAK =   67.570     CFS   UNIT VOLUME =     .9997        B
=   280.86       P60 = 2.0800
        AREA =       .057500 SQ MI     IA =     .65000 INCHES     INF =
1.67000 INCHES PER HOUR
```

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

OUTFLOW HYDROGRAPH REACH 1.00

RUNOFF VOLUME = .61685 INCHES = 1.8917 ACRE-FEET
PEAK DISCHARGE RATE = 39.51 CFS AT 1.600 HOURS BASIN AREA = .0575 SQ. MI.

□

****
* ** END EXISTING CONDITIONS ANALYSIS **
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□

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*
*
* ** BEGIN PROPOSED CONDITIONS ANALYSIS **
*
*

A-7

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     *

     *    TRACT B-3   C-2 PROPERTY, 12.48 ACRES, ONLY

     *

     **** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********

     COMPUTE NM HYD            ID=3 HYD=B3  AREA=0.0195 PER A=0.0 PER
B=15.0
                                          PER C=0.0 PER D=85.0  TP=.239
RAINFALL=-1

         K =   .130255HR    TP =   .239000HR    K/TP RATIO =   .545000
    SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   36.498    CFS   UNIT VOLUME =    .9994       B
=   526.28      P60 = 2.0800
         AREA =       .016575 SQ MI    IA =    .10000 INCHES    INF =
 .04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .050000


         K =   .238340HR    TP =   .239000HR    K/TP RATIO =   .997240
    SHAPE CONSTANT, N =  3.540182
         UNIT PEAK =   3.9561    CFS   UNIT VOLUME =    .9967       B
=   323.25      P60 = 2.0800
         AREA =       .002925 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .050000

     PRINT HYD                    ID=3   CODE=1

                                                HYDROGRAPH FROM AREA B3


         RUNOFF VOLUME =     2.09156 INCHES     =       2.1752
ACRE-FEET
         PEAK DISCHARGE RATE =      42.03 CFS  AT   1.600 HOURS
BASIN AREA =   .0195 SQ. MI.
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*     TRACT B-2  R-T PROPERTY- MIRAVISTA SUBDIVISION, UNITS 1 AND
2, ONLY
*

**** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********

COMPUTE NM HYD          ID=2 HYD=B2  AREA=0.0353 PER A=0.0 PER
B=10.0
                                     PER C=20.0 PER D=70.0  TP=.239
 RAINFALL=-1

     K =   .130255HR    TP =   .239000HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   54.411    CFS   UNIT VOLUME =    .9995       B
=   526.28      P60 = 2.0800
     AREA =       .024710 SQ MI    IA =    .10000 INCHES    INF =
 .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .050000


     K =   .208821HR    TP =   .239000HR    K/TP RATIO =   .873726
SHAPE CONSTANT, N =  4.064690
     UNIT PEAK =   15.928    CFS   UNIT VOLUME =    .9993       B
=   359.46      P60 = 2.0800
     AREA =       .010590 SQ MI    IA =    .40000 INCHES    INF =
 .97000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .050000

 PRINT HYD                    ID=2   CODE=1

                                          HYDROGRAPH FROM AREA B2


     RUNOFF VOLUME =     1.94489 INCHES     =       3.6616
ACRE-FEET
     PEAK DISCHARGE RATE =      71.92 CFS  AT   1.600 HOURS
BASIN AREA =   .0353 SQ. MI.
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*     TRACT B-1  C-1 PROPERTY-  ONLY

*

**** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********

     COMPUTE NM HYD            ID=1 HYD=B1  AREA=0.0034 PER A=0.0 PER
B=15.0
                                          PER C=0.0 PER D=85.0  TP=.239
RAINFALL=-1

          K =    .130255HR    TP =    .239000HR    K/TP RATIO =    .545000
     SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   6.3637    CFS   UNIT VOLUME =    .9978       B
=    526.28       P60 = 2.0800
          AREA =       .002890 SQ MI    IA =    .10000 INCHES    INF =
 .04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000


          K =    .238340HR    TP =    .239000HR    K/TP RATIO =    .997240
     SHAPE CONSTANT, N =  3.540182
          UNIT PEAK =   .68978    CFS   UNIT VOLUME =    .9804       B
=    323.25       P60 = 2.0800
          AREA =       .000510 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000

     PRINT HYD                 ID=1   CODE=1

                                                HYDROGRAPH FROM AREA B1


          RUNOFF VOLUME =     2.09156 INCHES     =         .3793
ACRE-FEET
          PEAK DISCHARGE RATE =       7.35 CFS  AT   1.600 HOURS
BASIN AREA =   .0034 SQ. MI.
```

```
      ****************************************
      *
****************************************************************************
*
      *
      *    TRACTS B-1, B-2(MIRAVISTA) AND B-3 COMBINED
      *    SAME AS BASIN 403 OF EUBANK STUDY, 36.8 ACRES COMBINED
     COMPUTE NM HYD            ID=4 HYD=4  AREA=0.0575 PER A=0.0 PER
B=12.0
                                          PER C=13.0 PER D=75.0  TP=.239
 RAINFALL=-1
          K =    .130255HR    TP =    .239000HR    K/TP RATIO =    .545000
    SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    94.961    CFS   UNIT VOLUME =    .9995       B
=   526.28       P60 = 2.0800
          AREA =       .043125 SQ MI    IA =    .10000 INCHES    INF =
 .04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000


          K =    .215315HR    TP =    .239000HR    K/TP RATIO =    .900899
    SHAPE CONSTANT, N =  3.933674
          UNIT PEAK =    21.095    CFS   UNIT VOLUME =    .9995       B
=   350.72       P60 = 2.0800
          AREA =       .014375 SQ MI    IA =    .42200 INCHES    INF =
1.03160 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .050000

     PRINT HYD                      ID=4   CODE=1


                                                OUTFLOW HYDROGRAPH REACH
  4.00

          RUNOFF VOLUME =      1.99135 INCHES      =        6.1068
ACRE-FEET
```

PEAK DISCHARGE RATE = 119.23 CFS AT 1.600 HOURS
BASIN AREA = .0575 SQ. MI.

*

****

*

* WESTBOUND SOUTHERN BLVD. (NORTH HALF) BASIN 501-N

*

COMPUTE NM HYD ID=5 HYD=5 AREA=0.0098 PER A=10.0 PER B=20.0
PER C=0.0 PER D=70.0 TP=.262 RAINFALL=-1

K = .142790HR TP = .262000HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 13.780 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 2.0800
AREA = .006860 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .277956HR TP = .262000HR K/TP RATIO = 1.060900
SHAPE CONSTANT, N = 3.328492
UNIT PEAK = 3.4516 CFS UNIT VOLUME = .9960 B = 307.59 P60 = 2.0800
AREA = .002940 SQ MI IA = .55000 INCHES INF = 1.39000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=5 CODE=1

OUTFLOW HYDROGRAPH REACH 5.00

RUNOFF VOLUME = 1.84902 INCHES = .9664

A-12

ACRE-FEET
PEAK DISCHARGE RATE = 17.72 CFS AT 1.650 HOURS
BASIN AREA = .0098 SQ. MI.

*

****

*

* END PROPOSED CONDITIONS

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) =
02:01:11

A-13

AHYMO INPUT

MIRA.txt

```
*
*S INPUT = MIRA.TXT
*S Revised 12-10-00 for MIRAVISTA
*
START                    RAINFALL BEGINS AT 0.00 HOURS
*                          100 YEAR RETURN PERIOD
*****************************************************************
*********
*
*
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
::::::::::::::::::::::::::::::::::
*       ::                          MISC. DATA
                                   ::
*       ::          RAINFALL RETURN PERIOD                  100-YEAR
::
*       ::          RAINFALL DURATION_____________________  6-HOUR
::
*       ::
::
*       ::          RAINFALL DEPTHS: 1 HOUR (P60)___   2.08 INCHES
        ::
*       ::          (UNADJUSTED)      6 HOUR (P360)__   2.55 INCHES
           ::
*       ::                           24 HOUR (P1440)_   3.05 INCHES
                ::
*       ::
                                   ::
*       ::          RAINFALL DATA TAKEN FROM NOAA.
          ::
*       ::
                                        ::
*       ::                HYDROGRAPH METHODOLOGY
          ::
*       ::
                                   ::
*       ::          CITY OF ALBQ. DPM VOL. 2, SECTION 22.2 July, 1997
::
*       ::          INITIAL ABSTRACTION - INFILTRATION METHOD
 ::
*       ::          Tc CALCULATIONS PER C.O.A. DPM 22.2-B.4
 ::
*       ::          AMAFCA AHYMO VERSION MARCH 20,1992
::
*       ::
                                   ::
*
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
```

```
:::::::::::::::::::::::::::::::::::
*                          MIRAVISTA HYDROLOGIC MODEL
*                 Analysis based on "SOUTH EUBANK AREA STORM DRAIN
ANALYSIS"
*                           BHI JB Number 01 273
*****************************************************************************
*******
*
*                          BEGIN EXISTING CONDITIONS ANALYSIS
*
*****************************************************************************
*******
*
*
RAINFALL                TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.08
                        RAIN SIX=2.55 RAIN DAY=3.05 DT=0.05
*
*    TRACT B-3   C-2 PROPERTY, 12.48 ACRES  ************************
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********
COMPUTE NM HYD          ID=1 HYD=1  AREA=0.0195 PER A=100.0 PER B=0.0
                        PER C=0.0 PER D=0.0  TP=.239  RAINFALL=-1
PRINT HYD               ID=1   CODE=1
*****************************************************************************
***************
*
*
*    BASIN 403

**** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********
COMPUTE NM HYD          ID=1 HYD=1  AREA=0.0575 PER A=100.0 PER B=0.0
                        PER C=0.0 PER D=0.0  TP=.239  RAINFALL=-1
PRINT HYD               ID=1   CODE=1
*****************************************************************************
***************
*                       ** END EXISTING CONDITIONS ANALYSIS **
*
*****************************************************************************
**************
*****************************************************************************
*************
*****************************************************************************
**********
*
*
*                          ** BEGIN PROPOSED CONDITIONS ANALYSIS **
*
*
*****************************************************************************
```

```
*********
*
*    TRACT B-3   C-2 PROPERTY, 12.48 ACRES, ONLY
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********
COMPUTE NM HYD          ID=3 HYD=B3  AREA=0.0195 PER A=0.0 PER B=15.0
                        PER C=0.0 PER D=85.0  TP=.239  RAINFALL=-1
PRINT HYD               ID=3   CODE=1
*****************************************
*
*    TRACT B-2  R-T PROPERTY- MIRAVISTA SUBDIVISION, UNITS 1 AND 2,
ONLY
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********
COMPUTE NM HYD          ID=2 HYD=B2  AREA=0.0353 PER A=0.0 PER B=10.0
                        PER C=20.0 PER D=70.0  TP=.239  RAINFALL=-1
PRINT HYD               ID=2   CODE=1
*****************************************
*****************************************
*
*    TRACT B-1  C-1 PROPERTY-  ONLY
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN MIRA *********
COMPUTE NM HYD          ID=1 HYD=B1  AREA=0.0034 PER A=0.0 PER B=15.0
                        PER C=0.0 PER D=85.0  TP=.239  RAINFALL=-1
PRINT HYD               ID=1   CODE=1
*****************************************
*
*****************************************************************************
*
*
*   TRACTS B-1, B-2(MIRAVISTA) AND B-3 COMBINED
*   SAME AS BASIN 403 OF EUBANK STUDY, 36.8 ACRES COMBINED
COMPUTE NM HYD          ID=4 HYD=4  AREA=0.0575 PER A=0.0 PER B=12.0
                        PER C=13.0 PER D=75.0  TP=.239  RAINFALL=-1
PRINT HYD               ID=4   CODE=1
*
*****************************************************************************
*
*               WESTBOUND SOUTHERN BLVD. (NORTH HALF) BASIN 501-N
*
COMPUTE NM HYD          ID=5 HYD=5  AREA=0.0098 PER A=10.0 PER B=20.0
                        PER C=0.0 PER D=70.0  TP=.262  RAINFALL=-1
PRINT HYD               ID=5   CODE=1
*
*****************************************************************************
*
*                  END PROPOSED CONDITIONS
```

FINISH

A-17

APPENDIX B

STREET FLOW, INLET, STORM DRAIN AND SWALE CAPACITY CALCULATIONS

SOUTHERN BLVD.

70' street section (35' F-F HALF STREET)

Nomograph conservatively estimates flow depths

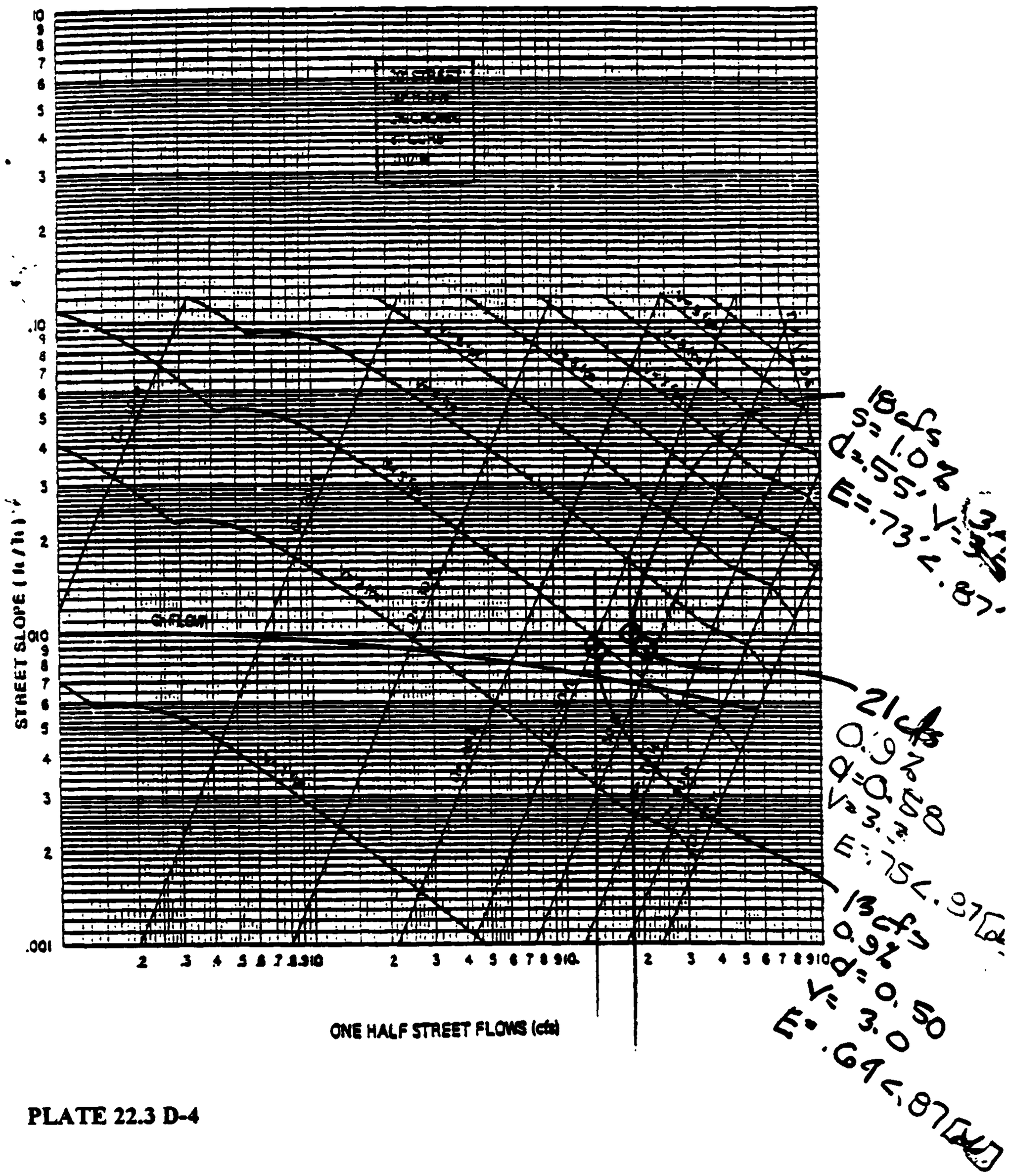


PLATE 22.3 D-4

ANALYSIS POINT 1 (AP#1)

B3 7 cfs + B2 south 31 cfs = 38 cfs

38/2 = 19 cfs @ S=0.5% d=0.62' V=3.1
half street
E=0.77 < 0.87

@ d=0.62 Single 'C' Inlet intercepts 8.5c

38 - (8.5×2) = 21 cfs
17 cfs intercepted

21/2 = 10.5 cfs d=0.50 V=2.5

@ d=0.5 Single 'C' Inlet Intercepts 5cf

21 - (2×5) = 11 cfs 11 cfs/2 = 5.5 d=.42 V=1.
10 cfs intercepted

@ d=0.42 Inlet Intercepts 33 cfs

11 - (2 × 3.3) = 4.4 by-pass
6.6 intercepted

38 - 17 = 21 by-passes inlet
21 - 10 = 11 by-passes inlet
11 - 6.6 = 4.4 resulting by-pass flow.

34 cfs intercepted

5 cfs by-pass

ANALYSIS POINT 2

28 (Basin B2-north) + 7 cfs = 35 cfs

35/2 = 17.5 cfs
half street flow

d = 0.52 V = 3.8
E = 0.74 < ?

• d = 0.52 Single 'C' = 6 cfs

35 − (2 × 6) = 23 23/2 = 11.5
12 cfs

d = 0.46
CB = 4
half the street

8 int.
23 − (4 × 2) = 15 cfs. 15/2 = 7.5

~~d = 5.6~~
d = .41

15 − (3.6 × 2) = 7.8 by pass
7.2

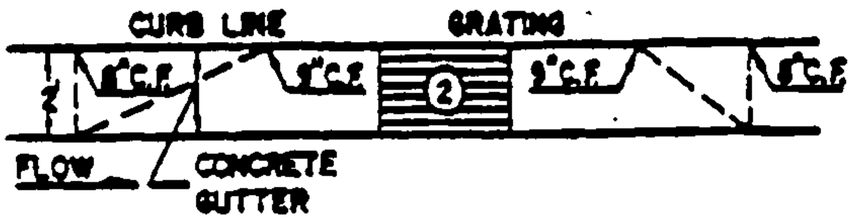
27.2
intercepted
Use 28

7.8 by-pass
Use 8

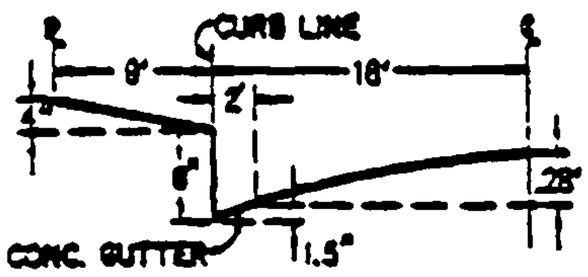
intercepted
35 − 12 = 23 23/2 d = 0.46
Catch Basin gets 12.
23 − 8 = 15
15 − 7.2 = 7.8 by-pass
27.2

MIRAVISTA PLACE

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



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

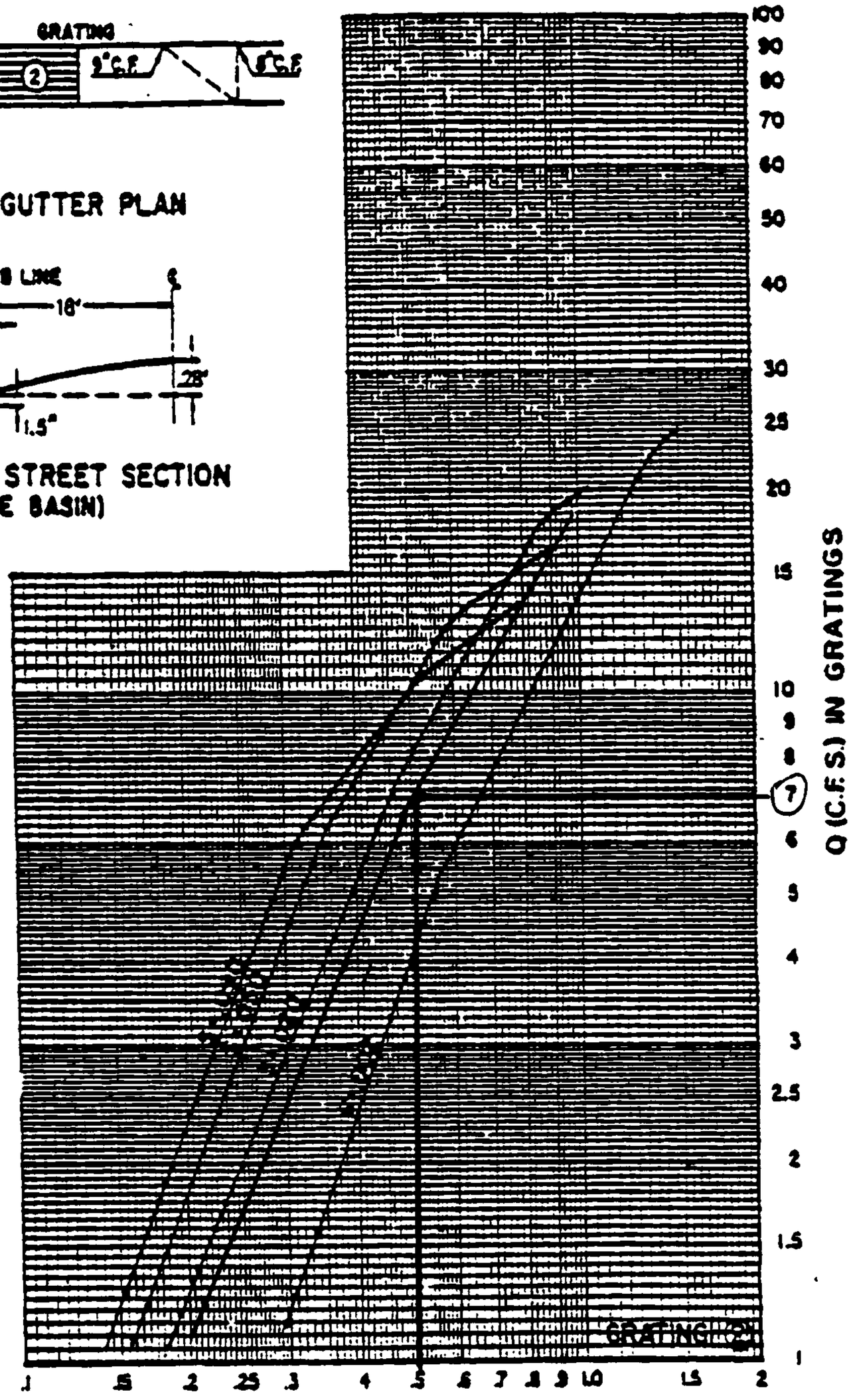


PLATE 22.3 D-5

S=1.65
D= 0.51'
Q= 7cfs/grate

MIRAVISTA PLACE

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

MANNING'S N= .017 SLOPE= .0151

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	0.30	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.48	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0 63	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	0.77	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	0.89	1.56	0.01	0.06
0.06	0.06	0.06	0.1	1.97	1.01	1.88	0.02	0.08
0.07	0.07	0.08	0.1	2.30	1 11	2.19	0.02	0.09
0.08	0.08	0.10	0.1	2.63	1.22	2.50	0.02	0.10
0.09	0.09	0.13	0.2	2.96	1.32	2.81	0.03	0.12
0.10	0.10	0.16	0.2	3.29	1.41	3.13	0.03	0.13
0.11	0.11	0.19	0.3	3.62	1.51	3.44	0.04	0.15
0.12	0.12	0.23	0.4	3.95	1.60	3.75	0.04	0.16
0.13	0.13	0.26	0.4	4.28	1.68	4.07	0.04	0.17
0.14	0.14	0.31	0.5	5.15	1.65	4.93	0.04	0.18
0.15	0.15	0.36	0.6	6.03	1.65	5.79	0.04	0.19
0.16	0.16	0.43	0.7	6.91	1.68	6.65	0.04	0.20
0.17	0.17	0.50	0.9	7.79	1.72	7.51	0.05	0.22
0.18	0.18	0.58	1.0	8.67	1.77	8.38	0.05	0.23
0.19	0.19	0.66	1.2	9.54	1.82	9.24	0.05	0.24
0.20	0.20	0.76	1.4	10.42	1.88	10.10	0.05	0.25
0.21	0.21	0.87	1.7	11.30	1.94	10.96	0.06	0.27
0.22	0.22	0.98	2.0	12.18	2.01	11.83	0.06	0.28
0.23	0.23	1.10	2.3	13.06	2.07	12.69	0.07	0.30
0.24	0.24	1.23	2.6	13.93	2 14	13.55	0.07	0.31
0.25	0.25	1.37	3.0	14.81	2.21	14.41	0.08	0.33
0.26	0.26	1.52	3.5	15.69	2.27	15.27	0.08	0.34
0.27	0.27	1.68	3.9	16.57	2.34	16.14	0.09	0.36
0.28	0.28	1.84	4.4	17.45	2.41	17.00	0.09	0.37
0.29	0.29	2.02	5 0	18.32	2.48	17.86	0.10	0.39
0.30	0.30	2.20	5.6	19.20	2.54	18.72	0.10	0.40
0.31	0.31	2.39	6.2	20.08	2.61	19.59	0.11	0.42
0.32	0.32	2.59	6.9	20.96	2.68	20.45	0.11	0.43
0.33	0.33	2.80	7.7	21.84	2.74	21.31	0.12	0.45
0.34	0.34	3.02	8.5	22.71	2.81	22.17	0.12	0.46
0.35	0.35	3.25	9.3	23.59	2.87	23.03	0.13	0.48
0.36	0.36	3.48	10.2	24.47	2.94	23.90	0.13	0.49
0.37	0.37	3.72	11.2	25 35	3.00	24.76	0.14	0.51
0.38	0.38	3.98	12.2	26.23	3.06	25.62	0.15	0.53
0.39	0.39	4.24	13.2	27.10	3.13	26.48	0.15	0.54
0.40	0.40	4.50	14.4	27.98	3.19	27.35	0.16	0.56
0.41	0.41	4.78	15.6	28.86	3.25	28.21	0.16	0.57
0.42	0.42	5.06	17.1	28.88	3.38	28.21	0.18	0.60
0.43	0.43	5.35	18.7	28.90	3.50	28.22	0.19	0.62
0.45	0.45	5.91	22.1	28.94	3.74	28.23	0.22	0.67
0.46	0.46	6.19	23.9	28.96	3.85	28.23	0.23	0.69
0.47	0.47	6.48	25.7	28.98	3.97	28.24	0.24	0.71
0.48	0.48	6.76	27.6	29.01	4.08	28.24	0.26	0.74
0.49	0.49	7.04	29.5	29.03	4.19	28.25	0.27	0.76
0.50	0.50	7.32	31.5	29.05	4.30	28.25	0.29	0.79
0.51	0.51	7.61	33.5	29.07	4.41	28.26	0.30	0.81
0.52	0.52	7.89	35.6	29.09	4.52	28.26	0.32	0.84
0.53	0.53	8.17	37.8	29.11	4.62	28.27	0.33	0.86
0.54	0.54	8.45	39.9	29.13	4.72	28.27	0.35	0.89
0.55	0.55	8.74	42.2	29.15	4.83	28.28	0.36	0.91
0.56	0.56	9.02	44.4	29.17	4.93	28.28	0.38	0.94
0.57	0.57	9.30	46.8	29.19	5.03	28.29	0.39	0.96
0.58	0.58	9.59	49.1	29 21	5.13	28.29	0.41	0.99

MAX CAPACITY WITH STD. CURB = 37.8 cfs

MIRAVISTA PLACE

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

MANNING'S N= .017 SLOPE= .0091

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	0.23	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.37	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.49	0.94	0.00	0.03
0.04	0.04	0 03	0.0	1.32	0.59	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	0.69	1.56	0.01	0.06
0.06	0.06	0.06	0.0	1.97	0.77	1.88	0.01	0.07
0.07	0.07	0.08	0.1	2.30	0.86	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.94	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	1.01	2.81	0.02	0.11
0.10	0.10	0.16	0.2	3.29	1.09	3.13	0.02	0.12
0.11	0.11	0.19	0.2	3.62	1.16	3.44	0.02	0.13
0.12	0.12	0.23	0.3	3.95	1.23	3.75	0.02	0.14
0.13	0.13	0.26	0.3	4.28	1.30	4.07	0.03	0.16
0.14	0.14	0.31	0.4	5.15	1.27	4.93	0.03	0.17
0.15	0.15	0.36	0.5	6.03	1.27	5.79	0.03	0.18
0.16	0.16	0.43	0.5	6.91	1.29	6.65	0.03	0.19
0.17	0.17	0.50	0.7	7.79	1.32	7.51	0.03	0.20
0.18	0.18	0.58	0.8	8.67	1.36	8.38	0.03	0.21
0.19	0.19	0.66	0.9	9.54	1.40	9.24	0.03	0.22
0.20	0.20	0.76	1.1	10.42	1.45	10.10	0.03	0.23
0.21	0.21	0.87	1.3	11.30	1.50	10.96	0.03	0.24
0.22	0.22	0.98	1.5	12.18	1.55	11.83	0.04	0.26
0.23	0.23	1.10	1.8	13.06	1.60	12.69	0.04	0.27
0.24	0.24	1.23	2.0	13.93	1.65	13.55	0.04	0.28
0.25	0.25	1.37	2.3	14.81	1.70	14.41	0.04	0.29
0.26	0.26	1.52	2.7	15.69	1.75	15.27	0.05	0.31
0.27	0.27	1.68	3.0	16.57	1.80	16.14	0.05	0.32
0.28	0.28	1.84	3.4	17.45	1.85	17.00	0.05	0.33
0.29	0.29	2 02	3.8	18.32	1.91	17.86	0.06	0.35
0.30	0.30	2.20	4.3	19.20	1.96	18.72	0.06	0.36
0.31	0.31	2.39	4.8	20.08	2.01	19.59	0.06	0.37
0.32	0.32	2.59	5.3	20.96	2.06	20.45	0.07	0.39
0.33	0.33	2.80	5.9	21.84	2.11	21.31	0.07	0.40
0.34	0.34	3.02	6.5	22.71	2.16	22.17	0.07	0.41
0.35	0 35	3.25	7.2	23.59	2.21	23.03	0.08	0.43
0.36	0.36	3.48	7.9	24.47	2.26	23.90	0.08	0.44
0.37	0 37	3.72	8.6	25.35	2.31	24.76	0.08	0.45
0.38	0.38	3.98	9.4	26.23	2.36	25.62	0.09	0.47
0.39	0.39	4.24	10.2	27.10	2.41	26.48	0.09	0.48
0.40	0.40	4.50	11.1	27.98	2.45	27.35	0.09	0.49
0.41	0.41	4.78	12.0	28.86	2.50	28.21	0.10	0.51
0.42	0.42	5.06	13.2	28.88	2.60	28.21	0.10	0.52
0.43	0.43	5.35	14.4	28.90	2.69	28.22	0.11	0.54
0.45	0.45	5.91	17.0	28.94	2.88	28.23	0.13	0.58
0.46	0.46	6.19	18.4	28.96	2.97	28.23	0.14	0.60
0.47	0.47	6.48	19.8	28.98	3.05	28.24	0.14	0.61
0.48	0.48	6.76	21.2	29.01	3.14	28.24	0.15	0.63
0.49	0.49	7.04	22.7	29.03	3.23	28.25	0.16	0.65
0.50	0.50	7.32	24.2	29.05	3.31	28.25	0.17	0.67
0.51	0.51	7.61	25.8	29.07	3.39	28.26	0.18	0.69
0.52	0.52	7.89	27.4	29.09	3.47	28.26	0.19	0.71
0.53	0.53	8.17	29.1	29.11	3.56	28.27	0.20	0.73
0.54	0.54	8.45	30.7	29.13	3.64	28.27	0.21	0.75
0.55	0.55	8.74	32.4	29.15	3.71	28.28	0.21	0.76
0.56	0.56	9.02	34.2	29.17	3.79	28.28	0.22	0.78
0.57	0.57	9.30	36.0	29.19	3.87	28.29	0.23	0.80
0.58	0.58	9.59	37.8	29.21	3.95	28.29	0.24	0.82

0.59	0.59	9 87	39.7	29.23	4.02	28.30	0.25	0.84
0.60	0.60	10 15	41.6	29.25	4.10	28.30	0.26	0.86
0.61	0.61	10.43	43.5	29.27	4.17	28.31	0.27	0.88
0.62	0.62	10.72	45.5	29.29	4.24	28.31	0.28	0.90
0.63	0.63	11.00	47.5	29.31	4.31	28.32	0.29	0.92
0.64	0.64	11.28	49.5	29.34	4.39	28.32	0.30	0.94
0.65	0.65	11.57	51.6	29.36	4.46	28.33	0.31	0.96
0.66	0.66	11.85	53.7	29.38	4.53	28.33	0.32	0.98
0.67	0.67	12.13	55.8	29.40	4.60	28.34	0.33	1.00
0.68	0.68	12.42	56.7	30.44	4.56	30.30	0.32	1.00
0.69	0.69	12.72	57.7	31.49	4.53	31.34	0.32	1.01
0.70	0.70	13.06	57.8	33.45	4.43	32.39	0.30	1.00
0.71	0.71	13.39	59.1	34.50	4.41	33.44	0.30	1.01
0.72	0.72	13.73	60.4	35.54	4.40	34.48	0.30	1.02
0.73	0.73	14 08	61.8	36.59	4.39	35.53	0.30	1.03
0.74	0.74	14.44	63.2	37.64	4.38	36.58	0.30	1.04
0.75	0.75	14.81	64.7	38.68	4.37	37.62	0.30	1.05
0.76	0.76	15.19	66.4	39.73	4.37	38.67	0.30	1.06
0.77	0.77	15.58	68.0	40.78	4.37	39.72	0.30	1.07
0.78	0.78	15.98	69.8	41.83	4.37	40.77	0.30	1.08
0.79	0.79	16.40	71.6	42.87	4.37	41.81	0.30	1.09
0.80	0.80	16.82	73.6	43.92	4.37	42.86	0.30	1.10
0.81	0.81	17.25	75.6	44.97	4.38	43.91	0.30	1.11
0.82	0.82	17.70	77.6	46.01	4.39	44.95	0.30	1.12
0.83	0.83	18.15	79.8	47.06	4.39	46.00	0.30	1.13

MAX CAPACITY

MIRAVISTA PLACE

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

MANNING'S N= .017 SLOPE= .0163

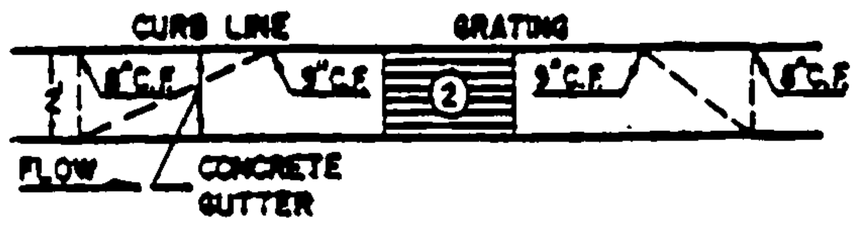
POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

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	0.32	0.31	0.00	0.01
0.02	0.02	0 01	0.0	0.66	0.50	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.66	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	0.80	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	0.92	1.56	0.01	0.06
0.06	0.06	0.06	0.1	1.97	1.04	1.88	0.02	0.08
0.07	0.07	0 08	0.1	2.30	1.15	2.19	0.02	0.09
0.08	0.08	0.10	0.1	2.63	1.26	2.50	0.02	0.10
0.09	0.09	0.13	0.2	2.96	1.37	2.81	0.03	0.12
0.10	0.10	0.16	0.2	3.29	1.46	3.13	0.03	0.13
0.11	0.11	0.19	0.3	3.62	1.56	3.44	0.04	0.15
0.12	0.12	0.23	0.4	3.95	1.65	3.75	0.04	0.16
0.13	0.13	0.26	0.5	4.28	1.74	4.07	0.05	0.18
0.14	0.14	0.31	0.5	5.15	1.71	4.93	0.05	0.19
0.15	0.15	0.36	0.6	6.03	1.71	5.79	0.05	0.20
0.16	0.16	0.43	0.7	6.91	1.74	6.65	0.05	0.21
0.17	0.17	0.50	0.9	7.79	1.78	7.51	0.05	0.22
0.18	0.18	0.58	1.1	8.67	1.83	8.38	0.05	0.23
0.19	0.19	0.66	1.3	9.54	1.89	9.24	0.06	0.25
0.20	0.20	0.76	1.5	10.42	1.95	10.10	0.06	0.26
0.21	0.21	0 87	1.7	11.30	2.01	10.96	0.06	0.27
0.22	0.22	0.98	2.0	12.18	2.08	11.83	0.07	0.29
0.23	0.23	1.10	2.4	13.06	2.15	12.69	0.07	0.30
0.24	0.24	1.23	2.7	13.93	2.22	13.55	0.08	0.32
0.25	0.25	1.37	3.1	14.81	2.29	14.41	0.08	0.33
0.26	0.26	1.52	3.6	15.69	2.36	15.27	0.09	0.35
0.27	0.27	1.68	4.1	16.57	2.43	16.14	0.09	0.36
0.28	0.28	1.84	4.6	17.45	2.49	17.00	0.10	0.38
0.29	0.29	2 02	5.2	18.32	2.56	17.86	0.10	0.39
0.30	0.30	2.20	5.8	19.20	2.63	18.72	0.11	0.41
0.31	0.31	2.39	6.5	20.08	2.70	19.59	0.11	0.42
0.32	0.32	2.59	7.2	20.96	2.77	20.45	0.12	0.44
0.33	0.33	2.80	8.0	21.84	2.84	21.31	0.13	0.46
0.34	0.34	3.02	8.8	22.71	2.91	22.17	0.13	0.47
0.35	0.35	3.25	9.7	23.59	2.97	23.03	0.14	0.49
0.36	0.36	3.48	10.6	24.47	3.04	23.90	0.14	0.50
0.37	0.37	3.72	11.6	25.35	3.11	24.76	0.15	0.52
0.38	0.38	3.98	12.6	26.23	3.17	25.62	0.16	0.54
0.39	0.39	4.24	13.7	27.10	3.24	26.48	0.16	0.55
0.40	0.40	4.50	14.9	27.98	3.30	27.35	0.17	0.57
0.41	0.41	4.78	16.1	28.86	3.37	28.21	0.18	0.59
0.42	0.42	5.06	17.7	28.88	3.50	28.21	0.19	0.61
0.43	0.43	5.35	19.4	28.90	3.62	28.22	0.20	0.63
0.45	0.45	5.91	22.9	28.94	3.87	28.23	0.23	0.68
0.46	0.46	6.19	24.7	28.96	3.99	28.23	0.25	0.71
0.47	0.47	6.48	26.6	28.98	4.11	28.24	0.26	0.73
0.48	0.48	6.76	28.6	29.01	4.23	28.24	0.28	0.76
0.49	0.49	7.04	30.6	29.03	4.34	28.25	0.29	0.78
0.50	0.50	7.32	32.6	29.05	4.45	28.25	0.31	0.81
0.51	0.51	7.61	34.7	29.07	4.57	28.26	0.32	0.83
0.52	0.52	7.89	36.9	29.09	4.68	28.26	0.34	0.86
0.53	0.53	8.17	39.1	29.11	4.78	28.27	0.36	0.89
0.54	0.54	8.45	41.4	29.13	4.89	28.27	0.37	0.91
0.55	0.55	8.74	43.7	29.15	5.00	28.28	0.39	0.94
0.56	0.56	9.02	46.0	29.17	5.10	28.28	0.40	0.96
0.57	0.57	9.30	48.4	29.19	5.21	28.29	0.42	0.99
0.58	0.58	9.59	50.9	29.21	5.31	28.29	0.44	1.02

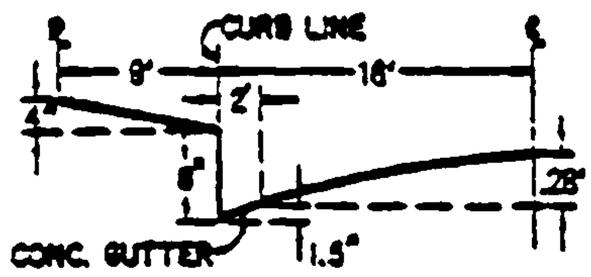
MAX CAPACITY

ON VISTALO AT ESLENA

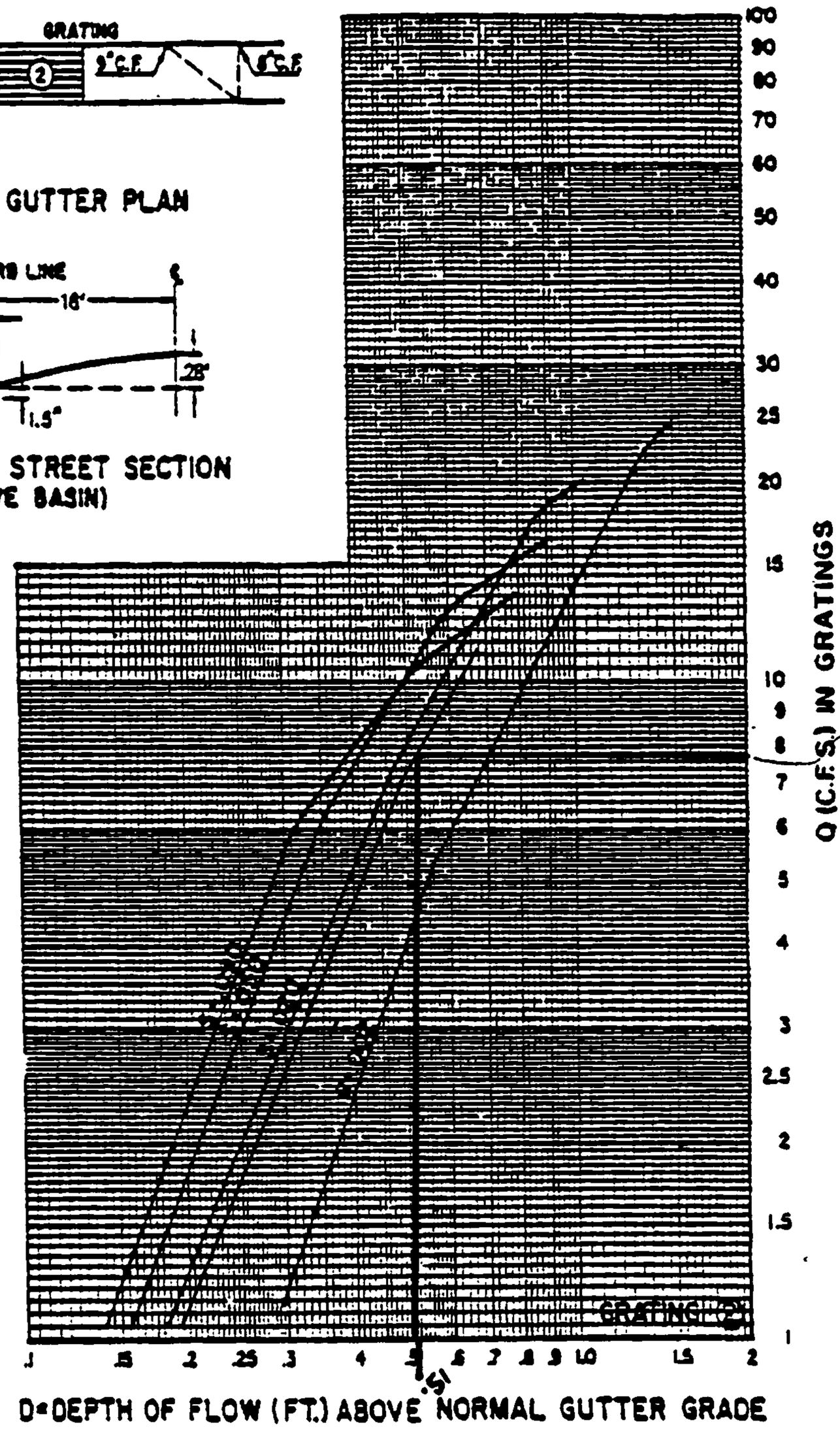
GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



S= 1.85%
D= 0.51'
Q= 7.8 cfs/grate

PLATE 22.3 D-5

VISTA20

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

MANNING'S N= 017 SLOPE= .0185

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	0.34	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.54	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.70	0.94	0 01	0.04
0.04	0.04	0.03	0.0	1.32	0.85	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	0.99	1.56	0.02	0.07
0.06	0.06	0.06	0.1	1.97	1.11	1.88	0.02	0.08
0.07	0.07	0.08	0.1	2.30	1.23	2.19	0.02	0.09
0.08	0.08	0.10	0.1	2.63	1.35	2.50	0.03	0.11
0.09	0.09	0.13	0.2	2.96	1.46	2.81	0.03	0.12
0.10	0.10	0.16	0.2	3.29	1.56	3.13	0.04	0.14
0.11	0.11	0.19	0.3	3.62	1.67	3.44	0.04	0.15
0.12	0.12	0.23	0.4	3.95	1.77	3.75	0.05	0.17
0.13	0.13	0.26	0.5	4.28	1.86	4.07	0.05	0.18
0.14	0.14	0.31	0.6	5.15	1.83	4.93	0.05	0.19
0.15	0.15	0.36	0.7	6.03	1.83	5.79	0.05	0.20
0.16	0.16	0.43	0.8	6.91	1.86	6.65	0.05	0.21
0.17	0.17	0.50	0.9	7.79	1.90	7.51	0.06	0.23
0.18	0.18	0.58	1.1	8.67	1.95	8.38	0.06	0.24
0.19	0.19	0.66	1.3	9.54	2.02	9.24	0.06	0.25
0.20	0.20	0.76	1.6	10.42	2.08	10.10	0.07	0.27
0.21	0.21	0.87	1.9	11.30	2.15	10.96	0.07	0.28
0.22	0.22	0.98	2.2	12.18	2.22	11.83	0.08	0.30
0.23	0.23	1.10	2.5	13.06	2.29	12.69	0.08	0.31
0 24	0.24	1.23	2.9	13.93	2.37	13.55	0.09	0.33
0 25	0.25	1.37	3.4	14.81	2.44	14.41	0.09	0.34
0.26	0.26	1.52	3.8	15.69	2.52	15.27	0.10	0.36
0.27	0.27	1.68	4.3	16.57	2.59	16.14	0.10	0.37
0.28	0.28	1.84	4.9	17.45	2.67	17.00	0.11	0.39
0.29	0.29	2.02	5.5	18.32	2.74	17.86	0 12	0.41
0.30	0.30	2.20	6.2	19.20	2.81	18.72	0.12	0.42
0.31	0.31	2.39	6.9	20.08	2.89	19.59	0.13	0.44
0.32	0.32	2.59	7.7	20.96	2.96	20.45	0.14	0.46
0.33	0.33	2.80	8.5	21.84	3.03	21.31	0.14	0.47
0.34	0.34	3.02	9.4	22.71	3.10	22.17	0.15	0.49
0.35	0.35	3.25	10.3	23.59	3.18	23.03	0.16	0.51
0.36	0.36	3.48	11.3	24.47	3.25	23.90	0.16	0.52
0 37	0.37	3.72	12.4	25.35	3.32	24.76	0 17	0.54
0.38	0.38	3.98	13.5	26.23	3.39	25.62	0.18	0.56
0.39	0.39	4.24	14.7	27.10	3.46	26.48	0.19	0.58
0.40	0.40	4.50	15.9	27.98	3.53	27.35	0.19	0.59
0.41	0.41	4.78	17.2	28.86	3.60	28.21	0.20	0.61
0.42	0.42	5.06	18.9	28.88	3.73	28.21	0.22	0.64
0.43	0.43	5.35	20.7	28.90	3.87	28.22	0 23	0.66
0.45	0.45	5.91	24.4	28.94	4.13	28.23	0.27	0.72
0.46	0.46	6.19	26.4	28.96	4.26	28.23	0.28	0.74
0.47	0.47	6.48	28.4	28.98	4.39	28.24	0.30	0.77
0.48	0.48	6.76	30.5	29.01	4.51	28.24	0.32	0.80
0.49	0.49	7.04	32.6	29.03	4.64	28.25	0.33	0.82
0.50	0.50	7.32	34.8	29.05	4.76	28.25	0.35	0.85
0.51	0.51	7.61	37.1	29.07	4.88	28.26	0.37	0.88
0.52	0.52	7.89	39.4	29.09	4.99	28.26	0.39	0.91
0.53	0.53	8.17	41.8	29.11	5.11	28.27	0.41	0.94
0.54	0.54	8.45	44.2	29.13	5.23	28.27	0.42	0.96
0.55	0.55	8.74	46.6	29.15	5.34	28.28	0.44	0.99
0.56	0.56	9.02	49.2	29.17	5.45	28.28	0 46	1.02
0.57	0.57	9.30	51.7	29.19	5.56	28.29	0 48	1.05
0.58	0.58	9.59	54.4	29.21	5.67	28.29	0 50	1.08

MAX CAPACITY WITH STD. CURB 37.1 cfs

VISTAZO

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

MANNING'S N= .017 SLOPE= .0121

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	0.28	0.31	0.00	0.01
0.02	0.02	0 01	0 0	0.66	0.44	0.63	0.00	0.02
0.03	0.03	0 01	0.0	0.99	0.57	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	0.70	1.25	0.01	0.05
0.05	0.05	0.04	0 0	1.64	0.81	1.56	0.01	0.06
0.06	0.06	0.06	0.1	1.97	0.91	1.88	0.01	0.07
0.07	0.07	0.08	0 1	2.30	1.01	2.19	0.02	0.09
0.08	0.08	0.10	0.1	2.63	1.11	2.50	0.02	0.10
0.09	0.09	0.13	0.2	2.96	1.20	2.81	0.02	0.11
0.10	0.10	0.16	0.2	3.29	1.28	3.13	0.03	0.13
0.11	0.11	0.19	0.3	3.62	1.37	3.44	0.03	0.14
0.12	0.12	0.23	0 3	3.95	1.45	3.75	0.03	0.15
0.13	0.13	0.26	0.4	4.28	1.53	4.07	0.04	0.17
0.14	0.14	0.31	0.5	5.15	1.50	4.93	0.03	0.17
0.15	0.15	0.36	0.5	6.03	1.50	5.79	0.03	0.18
0.16	0.16	0 43	0.6	6.91	1.52	6.65	0.04	0.20
0.17	0.17	0.50	0.8	7.79	1.56	7.51	0.04	0.21
0.18	0.18	0.58	0.9	8.67	1.60	8.38	0.04	0.22
0.19	0.19	0.66	1.1	9.54	1.65	9.24	0.04	0.23
0.20	0.20	0.76	1.3	10.42	1.71	10.10	0.05	0.25
0.21	0.21	0 87	1.5	11.30	1.76	10.96	0.05	0.26
0.22	0.22	0.98	1.8	12.18	1.82	11.83	0.05	0.27
0.23	0.23	1 10	2.1	13.06	1.88	12.69	0.05	0.28
0.24	0.24	1 23	2.4	13.93	1.94	13.55	0.06	0.30
0.25	0.25	1.37	2.7	14.81	2.00	14.41	0.06	0.31
0.26	0.26	1 52	3.1	15.69	2.06	15.27	0.07	0.33
0.27	0.27	1.68	3.6	16.57	2.12	16.14	0.07	0.34
0.28	0.28	1 84	4.0	17.45	2.18	17.00	0.07	0.35
0.29	0.29	2.02	4 5	18.32	2.25	17.86	0.08	0.37
0.30	0.30	2 20	5.1	19.20	2.31	18.72	0.08	0.38
0.31	0.31	2 39	5.7	20.08	2.37	19.59	0.09	0.40
0.32	0.32	2.59	6.3	20.96	2.43	20.45	0.09	0.41
0.33	0.33	2 80	7.0	21.84	2.49	21.31	0.10	0.43
0.34	0.34	3.02	7.7	22.71	2.55	22.17	0.10	0.44
0.35	0.35	3.25	8.5	23.59	2.60	23.03	0.11	0.46
0.36	0.36	3.48	9.3	24.47	2.66	23.90	0.11	0.47
0.37	0.37	3.72	10.1	25.35	2.72	24.76	0.11	0.48
0.38	0.38	3.98	11.0	26.23	2.78	25.62	0.12	0.50
0.39	0.39	4.24	12.0	27.10	2.84	26.48	0.12	0.51
0.40	0.40	4.50	13.0	27.98	2.89	27.35	0.13	0.53
0.41	0.41	4.78	14.1	28.86	2.95	28.21	0.13	0.54
0.42	0.42	5.06	15.5	28.88	3.06	28.21	0.15	0.57
0.43	0.43	5 35	17.0	28.90	3.17	28.22	0.16	0.59
0.45	0.45	5.91	20.0	28.94	3.39	28.23	0.18	0.63
0.46	0.46	6.19	21.6	28.96	3.49	28.23	0.19	0.65
0.47	0.47	6.48	23.3	28.98	3.60	28.24	0.20	0.67
0.48	0.48	6.76	25.0	29.01	3.70	28.24	0.21	0.69
0.49	0.49	7.04	26.8	29.03	3.80	28.25	0.22	0.71
0.50	0.50	7.32	28.6	29.05	3.90	28.25	0.24	0.74
0.51	0.51	7.61	30.4	29.07	4.00	28.26	0.25	0.76
0.52	0.52	7 89	32.3	29.09	4.09	28.26	0.26	0.78
0.53	0.53	8.17	34.2	29.11	4.19	28.27	0.27	0.80
0.54	0.54	8.45	36.2	29.13	4.28	28.27	0.28	0.82
0.55	0.55	8.74	38.2	29.15	4.38	28.28	0.30	0.85
0.56	0.56	9.02	40.3	29.17	4.47	28.28	0.31	0.87
0.57	0.57	9.30	42.4	29.19	4.56	28.29	0.32	0.89
0.58	0.58	9.59	44.6	29.21	4.65	28.29	0.34	0.92

MAX FLOW RATE WITH STD. CURB = 40.3 cfs

WEST END OF VISTAZO

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

MANNING'S N= .017 SLOPE= .0063

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	0.20	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.31	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.41	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.49	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.57	1.56	0.01	0.06
0.06	0.06	0.06	0.0	1.97	0.65	1.88	0.01	0.07
0.07	0.07	0.08	0.1	2.30	0.72	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.78	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.85	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.91	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.97	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	1.03	3.75	0.02	0.14
0.13	0.13	0.26	0.3	4.28	1.08	4.07	0.02	0.15
0.14	0.14	0.31	0.3	5.15	1.06	4.93	0.02	0.16
0.15	0.15	0.36	0.4	6.03	1.07	5.79	0.02	0.17
0.16	0.16	0.43	0.5	6.91	1.08	6.65	0.02	0.18
0.17	0.17	0.50	0.5	7.79	1.11	7.51	0.02	0.19
0.18	0.18	0.58	0.7	8.67	1.14	8.38	0.02	0.20
0.19	0.19	0.66	0.8	9.54	1.17	9.24	0.02	0.21
0.20	0.20	0.76	0.9	10.42	1.21	10.10	0.02	0.22
0.21	0.21	0.87	1.1	11.30	1.25	10.96	0.02	0.23
0.22	0.22	0.98	1.3	12.18	1.29	11.83	0.03	0.25
0.23	0.23	1.10	1.5	13.06	1.33	12.69	0.03	0.26
0.24	0.24	1.23	1.7	13.93	1.38	13.55	0.03	0.27
0.25	0.25	1.37	2.0	14.81	1.42	14.41	0.03	0.28
0.26	0.26	1.52	2.2	15.69	1.46	15.27	0.03	0.29
0.27	0.27	1.68	2.5	16.57	1.51	16.14	0.04	0.31
0.28	0.28	1 84	2.9	17.45	1.55	17.00	0.04	0.32
0.29	0.29	2.02	3.2	18.32	1.59	17.86	0.04	0.33
0.30	0.30	2.20	3.6	19.20	1.64	18.72	0.04	0.34
0.31	0.31	2.39	4.0	20.08	1.68	19.59	0.04	0.35
0.32	0.32	2.59	4.5	20.96	1.72	20.45	0.05	0.37
0.33	0.33	2.80	4.9	21.84	1.77	21.31	0.05	0.38
0.34	0.34	3.02	5.5	22.71	1.81	22.17	0.05	0.39
0.35	0.35	3.25	6.0	23.59	1.85	23.03	0.05	0.40
0.36	0.36	3.48	6.6	24.47	1.89	23.90	0.06	0.42
0.37	0.37	3.72	7.2	25.35	1.93	24.76	0.06	0.43
0.38	0.38	3.98	7.8	26.23	1.97	25.62	0.06	0.44
0.39	0.39	4.24	8.5	27.10	2.01	26.48	0.06	0.45
0.40	0.40	4.50	9.2	27.98	2.05	27.35	0.07	0.47
0.41	0.41	4.78	10.0	28.86	2.09	28.21	0.07	0.48
0.42	0.42	5.06	11.0	28.88	2.17	28.21	0.07	0.49
0.43	0.43	5.35	12.0	28.90	2.25	28.22	0.08	0.51
0.45	0.45	5.91	14.2	28.94	2.41	28.23	0.09	0.54
0.46	0.46	6.19	15.4	28.96	2.48	28.23	0.10	0.56
0.47	0.47	6.48	16.5	28.98	2.55	28.24	0.10	0.57
0.48	0.48	6 76	17.8	29.01	2.63	28.24	0.11	0.59
0.49	0.49	7.04	19.0	29.03	2.70	28.25	0.11	0.60
0.50	0.50	7.32	20.3	29.05	2.77	28.25	0.12	0.62
0.51	0.51	7 61	21.6	29.07	2.84	28.26	0.13	0.64
0.52	0.52	7.89	22.9	29.09	2.91	28.26	0.13	0.65
0.53	0.53	8.17	24.3	29.11	2.97	28.27	0.14	0.67
0.54	0.54	8.45	25.7	29.13	3.04	28.27	0.14	0.68
0.55	0.55	8.74	27.1	29.15	3.11	28.28	0.15	0.70
0.56	0.56	9.02	28.6	29.17	3.17	28.28	0.16	0.72
0.57	0.57	9.30	30.1	29.19	3.24	28.29	0.16	0.73
0.58	0.58	9.59	31.6	29.21	3.30	28.29	0.17	0.75

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)
0.59	0.59	9.87	33.2	29.23	3.36	28.30	0.18	0.77
0.60	0.60	10.15	34.8	29.25	3.43	28.30	0.18	0.78
0.61	0.61	10.43	36.4	29 27	3.49	28.31	0.19	0.80
0.62	0.62	10.72	38.0	29.29	3.55	28.31	0.20	0.82
0.63	0.63	11.00	39.7	29.31	3.61	28.32	0.20	0.83
0.64	0.64	11.28	41.4	29.34	3.67	28.32	0.21	0.85
0.65	0.65	11.57	43.1	29.36	3.73	28.33	0.22	0.87
0.66	0.66	11.85	44.9	29.38	3.79	28.33	0.22	0.88
0.67	0.67	12.13	46.7	29 40	3.85	28.34	0 23	0.90
0.68	0.68	12.42	47.4	30.44	3.82	30.30	0.23	0.91
0.69	0.69	12.72	48.2	31.49	3.79	31.34	0.22	0.91
0.70	0.70	13.06	48.4	33 45	3.71	32.39	0.21	0.91
0.71	0.71	13.39	49.4	34.50	3.69	33.44	0.21	0.92
0.72	0.72	13.73	50.5	35.54	3.68	34.48	0.21	0.93
0.73	0.73	14.08	51.7	36.59	3.67	35.53	0.21	0.94
0.74	0.74	14.44	52.9	37.64	3.66	36.58	0.21	0.95
0.75	0.75	14.81	54.2	38.68	3.66	37.62	0.21	0.96
0.76	0.76	15.19	55.5	39.73	3.65	38.67	0.21	0.97
0.77	0.77	15.58	56.9	40.78	3.65	39.72	0.21	0.98
0.78	0.78	15.98	58.4	41.83	3.65	40.77	0.21	0.99
0.79	0.79	16.40	59.9	42.87	3.66	41.81	0.21	1.00
0.80	0.80	16.82	61.5	43.92	3.66	42.86	0.21	1.01
0.81	0.81	17.25	63.2	44.97	3.66	43.91	0.21	1.02
0.82	0.82	17.70	64.9	46.01	3.67	44.95	0.21	1.03
0.83	0.83	18.15	66.7	47.06	3.68	46.00	0.21	1.04

MAX CAPACITY W/ STD. CURB

Compute Land Treatments For Composite Basin

Basin	Zone	Area	A	B	C	D
B1	C1	2.144 ac	0	15	0	85
B2	RT	22.577 ac	~~100~~ 0	~~20~~ 10	~~20~~ 0	70
B3	C2	12.469 ac	0	15	0	85
		Σ 37.190 ac				

% Land Treatment x Area Matrix

Basin	A	B	C	D
B1	0	32.16	0	182.24
B3	0	187.03	0	1059.86
B2	~~225.77~~ 0	~~451.54~~ 225.77	~~0~~ 451.54	1580.39
Σ	225.77	~~670.73~~ 444.96	0 451.54	2822.49
	6%	18%	0%	76%
	0%	12%	.13%	.75

Composite Area Ratios

Revised Land Treatments Per Hydrology Review Comments

COMPUTE SIZE OF TEMP. RETENTION PONDS

Because downstream storm drains are in place, design to the 100yr-6hr storm event.

BASIN B-3 (C-2 Property)

A = 12.5 AC. Q100 = Ex Conditions = .015 ac-ft/acre
= 12.5 acres × 0.015
= 0.188 ac-ft
= 8167 ft³
USE 10,000 ft³
(2 - 5000 ft³ Ponds)

Unit 1 (Portion of Basin B-2)

A = 12.887 ac. × .162 ac-ft/acre (developed conditions)
= 2.090 ac-ft
= 91053 ft³

USE 5' Pond Depth × 350' LENGTH × 55'
with 5:1 slopes = 400' × 100' Top of Pond

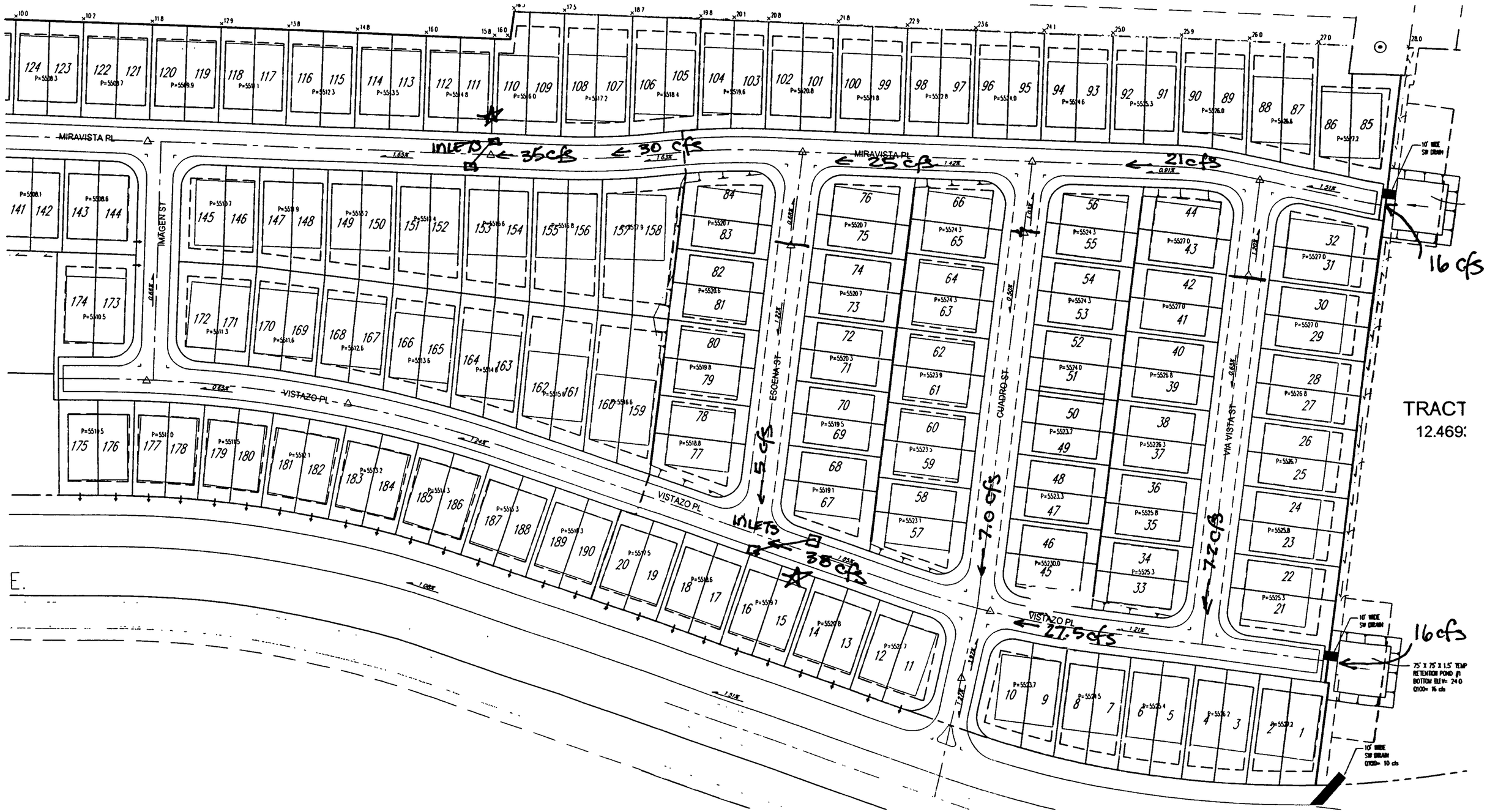
Bohannan ▲ Huston

PROJECT NAME _____ SHEET _____ OF _____
PROJECT NO. _____ BY _____ DATE _____
SUBJECT _____ CH'D _____ DATE _____

ENGINEERS PLANNERS PHOTOGRAMMETRISTS
SURVEYORS SOFTWARE DEVELOPERS

INLET LOCATION ANALYSIS

3-6-01



APPENDIX C

INFRASTRUCTURE LIST

DRB Case No. 1000933
DRC Project No.
Prelim. Plat Approved:
Prelim. Plat Expires:

Date Submitted: 3-7-01

Figure 12

INFRASTRUCTURE LIST

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

MIRAVISTA SUBDIVISION - UNITS 1 & 2

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 DRB Chair determines those 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 that 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.

Unit 1

Size	Type Improvement	Location	From	To
	STREET			
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	MIRAVISTA PLACE	WEST BNDRY UNIT 1	VIA VISTA ST
25' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK NORTH SIDE ONLY	MIRAVISTA PLACE	VIA VISTA STREET	STUB TERMINUS
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	VISTAZO PLACE	WEST BNDRY UNIT 1	VIA VISTA ST
25' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK SOUTH SIDE ONLY	VISTAZO PLACE	VIA VISTA STREET	STUB TERMINUS
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	ESCENA STREET	MIRAVISTA PLACE	VISTAZO PLACE
34' F-F	PERMANENT PVMT W/PCC C&G AND 14' ASPHALT TRAIL NORTH SIDE ONLY DEFERRED: WILL BE CONSTRUCTED WITH UNIT 2 SOUTHERN BOULEVARD IMPROVEMENTS	SOUTHERN BLVD	ELIZABETH STREET	EAST BNDRY UNIT 1

C-1

UNIT 1
STREET

Size	Type Improvement	Location	From	To
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	CUADRO STREET	MIRAVISTA PLACE	VISTAZO PLACE
32' F-F	RESIDENTIAL PVMT W/PCC C&G 4' SDWK BOTH SIDES	CUADRO STREET	VISTAZO PLACE	SOUTHERN BLVD
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	VIA VISTA STREET	MIRAVISTA PLACE	VISTAZO PLACE

*SIDEWALK TO BE DEFERRED
STREET LIGHTS AS REQUIRED BY CITY OF ALBUQUERQUE DPM

SANITARY SEWER

Size	Type Improvement	Location	From	To
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	LOT 111	EXISTING MANHOLE ACOMA ROAD	MIRAVISTA PLACE
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	MIRAVISTA PLACE	LOT 111	EAST BOUNDARY UNIT 1
8" DIA	SEWER LINE INCL MH'S & SERVICE LINES	VISTAZO PLACE	WEST BOUNDARY UNIT 1	EAST BOUNDARY UNIT 1
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	ESCENA STREET	VISTAZO PLACE	MIRAVISTA PLACE
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	CUADRO STREET	50' SOUTH OF MIRAVISTA PLACE	VISTAZO PLACE
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	VIA VISTA STREET	50' SOUTH OF MIRAVISTA PLACE	VISTAZO PLACE

UNIT 1
WATER

Size	Type Improvement	Location	From	To
8" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	MIRAVISTA PLACE	WEST BNDRY UNIT 1	EAST BNDRY UNIT 1
6" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	ESCENA STREET	MIRAVISTA PLACE	VISTAZO PLACE
6" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	CUADRO STREET	MIRAVISTA PLACE	VISTAZO PLACE
8" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	CUADRO STREET	VISTAZO PLACE	EXISTING STUB AT PIKE STREET
8" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	VIA VISTA STREET	MIRAVISTA PLACE	VISTAZO PLACE
12" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	VISTAZO PLACE	WEST BNDRY UNIT 1	EAST BNDRY UNIT 1

WATERLINES INCLUDE ALL APPURTENANCES, HYDRANTS, VALVES & FITTINGS, ETC, AS REQUIRED.

DRAINAGE

18"-24	RCP SD	MIRAVISTA	UNIT 1/2 BNDY	Lot 67
	TEMPORARY RETENTION POND # 3 (2 AC-FT) W/ EASEMENTS, COVENANTS & AGREEMENTS	WEST TERMINUS OF MIRAVISTA PLACE AND VISTAZO PLACE IN UNIT 1		

GRADING/DRAINAGE CERTIFICATION REQUIRED FOR RELEASE OF FINANCIAL GUARANTEES

Unit 2

STREET

Size	Type Improvement	Location	From	To
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	MIRAVISTA PLACE	ELIZABETH ST	EAST BNDRY UNIT 2
28'F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	IMAGEN STREET	MIRAVISTA PLACE	VISTAZO PLACE
28' F-F	RESIDENTIAL PVMT W/PCC C&G *4' SDWK BOTH SIDES	VISTAZO PLACE	WESTERN STUB TERMINUS	EAST BNDRY UNIT 2
34' F-F	PERMANENT PVMT W/PCC C&G AND 14' ASPHALT TRAIL NORTH SIDE ONLY	SOUTHERN BLVD	ELIZABETH STREET	EAST BNDRY UNIT 2

SANITARY SEWER

Size	Type Improvement	Location	From	To
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	MIRAVISTA PLACE	ELIZABETH STREET	LOT 111
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	IMAGEN STREET	MIRAVISTA PLACE	VISTAZO PLACE
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	SOUTHERN BLVD	ELIZABETH STREET	EAST BNDRY TRACT 1
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	EASEMENT ALONG EAST BNDRY TRACT 1	SOUTHERN BLVD	VISTAZO PLACE
8" DIA	SEWERLINE INCL MH'S & SERVICE LINES	VISTAZO PLACE	TRACT 1	EAST BNDRY UNIT 2
8" DIA	SEWER LINE INCL MH'S & SERVICE LINES	ELIZABETH STREET	VISTAZO PLACE	ACOMA ROAD

WATER

Size	Type Improvement	Location	From	To
12" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	MIRAVISTA PLACE	ELIZABETH ST	IMAGEN STREET
8" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	MIRAVISTA PLACE	IMAGEN STREET	EAST BNDRY UNIT 2
12" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	IMAGEN STREET	MIRAVISTA PLACE	VISTAZO PLACE
6" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	VISTAZO PLACE	WEST STUB TERMINUS	IMAGEN STREET

12" DIA	WATERLINE INCL FIRE HYDRANTS AND WATER VALVES	VISTAZO PLACE	IMAGEN STREET	EAST BNDRY UNIT 2

WATERLINES INCLUDE ALL APPURTENANCES, HYDRANTS, VALVES & FITTINGS, ETC, AS REQUIRED.

DRAINAGE

18-36" RCP	STORM DRAIN SYSTEM INCL MH'S AND DROP INLETS	MIRAVISTA PLACE	300' WEST OF IMAGEN	300' EAST OF IMAGEN
18-42" RCP	STORM DRAIN SYSTEM INCL MH'S AND DROP INLETS	IMAGEN STREET	MIRAVISTA PLACE	VISTAZO PLACE
18-42" RCP	STORM DRAIN SYSTEM INCL MH'S AND DROP INLETS	VISTAZO PLACE	TRACT 1	500' EAST
42" RCP	STORM DRAIN SYSTEM INCL MH'S AND DROP INLETS	EASEMENT ON TRACT 1	ELIZABETH STREET	WEST END VISTAZO PLACE
2	INLETS	SOUTHERN/ELIZABETH		

GRADING/DRAINAGE CERTIFICATION REQUIRED FOR RELEASE OF FINANCIAL GUARANTEES

Prepared by:_____
Firm: Bohannan Huston, Inc.

Development Review Board Member Approval

_____
Utility Development Date

_____ _____
Transportation Development Date Parks and Recreation Date

_____ _____
City Engineer Date DRB Chair Date

DRC REVISIONS

REVISIONS	DATE	DRC CHAIR	USER DEPT	AGENT/OWNER
1				
2				

APPENDIX D

EXCERPTS FROM SOUTH EUBANK STUDY

OFFICE

CITY OF ALBUQUERQUE, NEW MEXICO

SOUTH EUBANK AREA STORM DRAINAGE ANALYSIS

ALBUQUERQUE SEAL NEW MEXICO 1706

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

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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	3.36*
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

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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

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 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										
START										
RAINFALL TYPE= 1										TIME= .00
*S 100-YEAR STORM										RAIN6= 2.560
*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
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										

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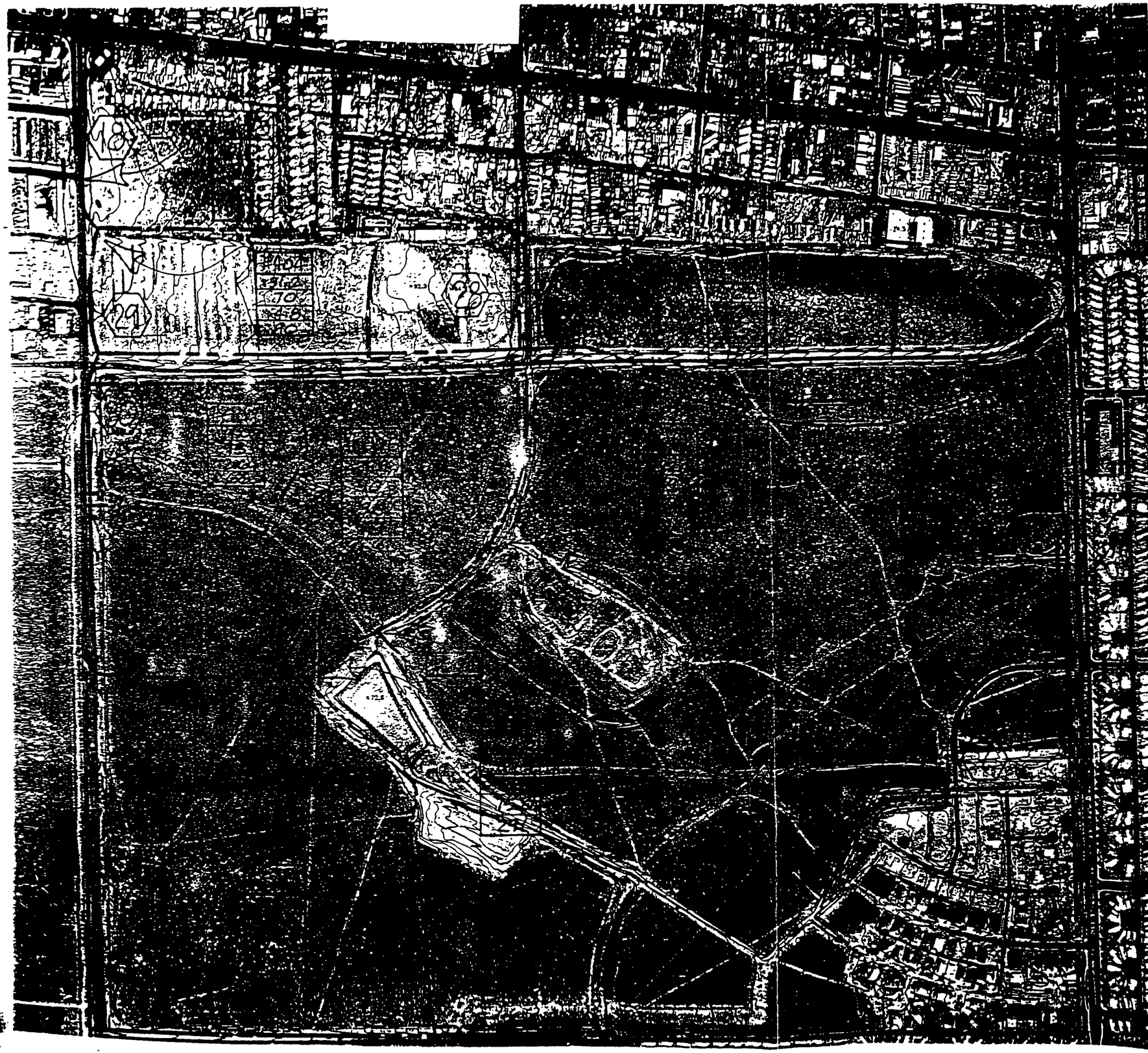


NOTES

LEGEND

(31) ANALYSIS POINT NUMBER WITH LOCATION BAR

STUDY BOUNDARY

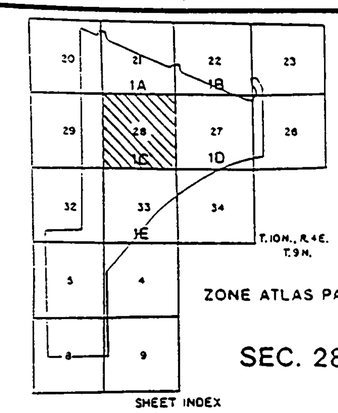
BASIN BOUNDARY

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

N

1"=500'

2 CONTOUR INTERVAL

ZONE ATLAS PAGE L-21

SEC. 28

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

SOUTH EUBANK AREA STORM DRAINAGE ANALYSIS

PROJ. # 4790

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 1C

D-6/6

PLATE 3

PROPOSED BASIN MAP

PLATES

PLATE 1 - PRELIMINARY PLAT

PLATE 2 - GRADING PLAN

PLATE 3 - PROPOSED BASIN MAP

PLATE 1

PRELIMINARY PLAT

PLATE 2

GRADING PLAN

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

February 4, 2003

Rick Beltramo, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, New Mexico 87109

RE: MIRAVISTA SUBDIVISION UNIT 2 (L-21/D37C)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 3/7/2001
Engineers Certification dated 1/28/2003

Dear Rick:

Based upon the information provided in your Engineers Certification submittal dated 1/29/2003, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

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

Sincerely,

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

c: Arlene Portillo, COA--Project # 662282
File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

L-21/D37C

PROJECT TITLE: MIRAVISTA SUBDIVISION UNIT 2 ZONE MAP/DRG. FILE # L-21-Z
DRB #: 1000933 EPC#: WORK ORDER#: 662282

LEGAL DESCRIPTION: TRACT B-3 MANZANO MESA
CITY ADDRESS: NORTHEAST CORNER OF SOUTHERN BLVD AND ELIZABETH ST.

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

OWNER: Trails Management, Inc. CONTACT: Stan Strickman
ADDRESS: 6301 Indian School NE, Suite 208 PHONE: (505) 875-1721
CITY, STATE: Albuquerque, NM ZIP CODE: 87110

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

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

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

CHECK TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN
____ CONCEPTUAL GRADING & DRAINAGE PLAN
____ GRADING PLAN
____ EROSION CONTROL PLAN
X 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:

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)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

X YES
____ NO
____ COPY PROVIDED

RECEIVED
JAN 29 2003
HYDROLOGY SECTION

DATE SUBMITTED: January 24, 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.

Bohannan ▲ Huston INC.

3:30pm

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

CLIENT/COURIER TRANSMITTAL

To: Brad Bingham, P.E.
COA Hydrology
600 2nd Street – 2nd Floor

phone: 924-3864

Requested By: Rick Beltramo / am

Date: January 28, 2003

Time Due: ~~☒ This A.M.~~ ☒ **This P.M. or**
☐ **Rush** ___ ☒ **Tomorrow morning**

Job No.: 01 0273

Job Name: Miravista Subdivision Unit 2

DELIVERY VIA

☒ **Courier** ☐ **Federal Express**
☐ **Mail** ☐ **UPS**
☐ **Other** _____

PICK UP

Item: _____
_____

ITEM NO.	QUANTITY	DESCRIPTION
1	1 copy	Grading Plan – Miravista Subdivision Unit 2.
2	1 copy	Drainage Information Sheet – Miravista Subdivision Unit 2.

COMMENTS / INSTRUCTIONS

RECEIVED
JAN 29 2003
HYDROLOGY SECTION

REC'D BY: _____ ***DATE:*** _____ ***TIME:*** _____

ENGINEERING ▲
SPATIAL DATA ▲
ADVANCED TECHNOLOGIES ▲

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

February 21, 2002

Rick Beltramo, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, New Mexico 87109

RE: **MIRAVISTA SUBDIVISION UNIT 1 (L-21/D37C)**
Engineers Certification For Release of Financial Guaranty
Engineers Stamp dated 3/7/2001
Engineer's Certification dated 2/19/2002

Dear Mr. Beltramo:

Based upon the information provided in your submittal dated 2/19/2002, the above referenced plan is adequate to satisfy the Grading and Drainage Certification requirements for release of financial guaranty for the above referenced project.

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

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Public Works Department
BMB

C: Arlene Portillo, PWD – #662281
File

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

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

L-21/D37C

PROJECT TITLE: MIRAVISTA SUBDIVISION UNIT 1 ZONE MAP/DRG. FILE # L-21
DRB #: 1000933 EPC#: WORK ORDER#: 662281

LEGAL DESCRIPTION:
CITY ADDRESS:

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: CURB INC. CONTACT: STAN STRICKMAN
ADDRESS: 6301 INDIAN SCHOOL NE, SUITE 208 PHONE: (505) 875-1721
CITY, STATE: Albuquerque, NM ZIP CODE:

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

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)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

RECEIVED
FEB 19 2002
HYDROLOGY SECTION

DATE SUBMITTED: 2-19-02 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.

CLIENT/COURIER TRANSMITTAL

BOHANNAN HUSTON
Courtyard One
7500 JEFFERSON NE
Albuquerque
NEW MEXICO 87109
voice 505.823.1000
fax 505.798.7988

To: Bradley Bingham
City Of Albuquerque
One-Stop Shop
600 2nd Street, 2nd Floor
Albuquerque, NM 87103
505-924-3986

Requested By: Elizabeth Smith

Date: **February 19, 2002**

Time Due: ☐ **This A.M.** ☒ **This P.M.**
☐ **Rush ____** ☐ **By Tomorrow**

Job No.: 01273

Job Name: Miravista Unit 1

DELIVERY VIA

☒ Courier ☐ Federal Express
☐ Mail ☐ UPS
☐ Other _____

PICK UP

Item: _____
_____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Drainage Information Sheet
2	1	Engineer's Certification for Miravista Unit 1

COMMENTS / INSTRUCTIONS

RECEIVED
FEB 19 2002
HYDROLOGY SECTION

RECEIVED
FEB 19 2002
PWD/DESIGN REVIEW

REC'D BY: _____ ***DATE:*** _____ ***TIME:*** _____

1
21.00

L21/D037C

662281

AGREEMENT AND COVENANT

5/23/2001

This Agreement and Covenant, between the City of Albuquerque, New Mexico ("City") and Manzano Mesa Limited Partnership ("User") is made in Albuquerque, New Mexico and is entered into as of the date of recording this Agreement with the Bernalillo County Clerk.

1. Recital. The User is the owner of certain real property ("User's Property") located at Southern Blvd & Elizabeth St. (see Exhibit A-1), in Albuquerque, New Mexico, and more particularly described as: (give legal description and filing information)

Tracts B-3 through B-5 Manzano Mesa
Filed April 3, 2001
Bk 2001C Page 101
Doc No. 2001036943
(see Exhibits A-2 and A-3)

The City is the owner of certain real property, easement or public right-of-way ("City's Property") in the vicinity of, contiguous to, abutting or within User's Property, and more particularly described as:

Temporary retention pond easement on
Tract B-3 Manzano Mesa

The User wishes to construct upon, improve or repair and to maintain the following "Improvement" on the City's Property (or already has done so):

Temporary storm drain retention pond.

A sketch of the proposed or existing Improvement is attached as Exhibit A and made a part of this Agreement.

The City agrees to permit the Improvement to exist on the City's Property provided the User complies with the terms of this Agreement.

2. City Use of City's Property and City Liability. The City has the right to enter upon the City's Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the User. If the Work affects the Improvement the City will not be financially or otherwise responsible for rebuilding or repairing the Improvement. The User promptly will repair the Improvement to the City's satisfaction. The cost of repairing the Improvement will be paid by User.

3. User's Responsibility for Improvement. The User will be solely responsible for constructing, maintaining, repairing and, if required, removing the Improvement, all in

Mary Herrera Bern. Co. AGRE R 21.00
2001059545
5510511
Page: 1 of 8
05/24/2001 11:00A
Bk-A19 Pg-7954

accordance with standards required by the City as per the approved Grading and Drainage Plan dated March 7, 2001 on file at the City Engineer's office. The User will be solely responsible for paying all related costs. The User will be solely responsible for paying all related costs. The User will not permit the Improvement to constitute a hazard to the health or safety of the general public or to interfere with the City's use of the City's Property. The User will conform with all applicable laws, ordinances and regulations.

4. Use of the Improvement. If the City's Property is a public right-of-way, it shall be open to the use of the general public at all times, subject to reasonable curtailment during periods of construction, maintenance or repair.

5. Demand for Repair, Modification or Removal. The City may send written notice ("Notice") to the User requiring the User to repair, modify or remove the Improvement within 30 days ("Deadline") and the User will comply promptly with the requirements of the Notice. If removal is demanded, the City also may require the User to return the City's Property to its original condition by the Deadline. The User will perform all required work by the Deadline, at User's sole expense.

6. Failure to Perform by User and Emergency Work by City. If the User fails to comply with the terms of the Notice by the Deadline stated, or, if the City determines that an emergency condition exists, the City may perform the work itself. The City then may assess the User for the cost of the work and for any other expenses or damages which result from User's failure to perform. The User agrees promptly to pay the City the amount assessed. If the User fails to pay the City within thirty (30) days after the City gives the User written notice of the amount due, the City may impose a lien against User's Property for the total resulting amount.

7. Cancellation of Agreement and Release of Covenant. This Agreement may be canceled and User's covenants released by the City at will by the City's mailing to the User notice of the City's intention to record a Cancellation and Release with the Bernalillo County Clerk. The Cancellation and Release will be effective thirty (30) days after the date of mailing the notice to the User unless a later date is stated in the notice or the Cancellation and Release. After the effective date, the City will record the Cancellation and Release with the Bernalillo County Clerk.

8. Condemnation. If any part of the User's Property is ever condemned by the City, the User will forego all claims to compensation for any portion of User's structure which encroaches on City Property and for severance damage to the remaining portion of User's structure on User's Property.

9. Assessment. Nothing in this Agreement shall be construed to relieve the User, his heirs, assigns and successors from an assessment against User's Property for improvements to the City Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Improvement will not reduce the amount assessed by the City.

Mary Herrera Bern. Co. AGRE R 21.00
2001059545
5510511
Page: 2 of 8
05/24/2001 11:00A
Bk-A19 Pg-7954

10. Notice. For purposes of giving formal written notice to the User, User's address is:

Manzano Mesa Limited Partnership
6301 Indian School Road - Suite 208
Albuquerque, NM 87110

Notice may be given to the User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the User within 3 days after the notice is mailed if there is no actual evidence of receipt. The User may change User's address by giving written notice of the change by certified mail, return receipt requested, to the City Engineer at P.O. Box 1293, Albuquerque, New Mexico 87103.

11. Indemnification. The User agrees to defend, indemnify and hold harmless the City, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties as a result of User's use of the City's Property. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

12. Term. This Agreement shall continue until revoked by the City pursuant to Section 7 above.

13. Binding on User's Property. The covenants and obligations of the User set forth herein shall be binding on User, his heirs assigns and successors and on User's Property and constitute covenants running with User's Property until released by the City.

14. Entire Agreement. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

15. Changes of Agreement. Changes to this Agreement are not binding unless made in writing, signed by both parties.

16. Construction and Severability. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement will remain valid and enforceable if the remainder is reasonably capable of completion.

Mary Herrera Bern. Co. AGRE R 21.00
2001059545
5510511
Page: 3 of 8
05/24/2001 11:00A
Bk-A19 Pg-7954

17. Captions. The captions to the sections or paragraphs of this Agreement are not part of this Agreement and will not affect the meaning or construction of any of its provisions.

CITY OF ALBUQUERQUE:

By: Richard Dourte
Title: City Engineer
Dated: May 23, 2001

USER: Manzano Mesa Limited Partnership

By:
Title: Vice President of Curb, Inc.
General Partner
Dated: April 23, 2001

5/21/01
cf 5/22/01

CITY'S ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on May 23, 2001 by Richard Dourte for, City Engineer, Public Works Department, for the City of Albuquerque, a New Mexico municipal corporation, on behalf of the corporation.

Simon Chavez
Notary Public

My Commission Expires:
3-20-2004

USER'S ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on April 23, 2001 by Stan Strickman, _____, on behalf of Manzano Mesa LP

Debra P. Rodriguez
Notary Public

My Commission Expires:
10-10-04

Mary Herrera Bern. Co. AGRE R 21.00

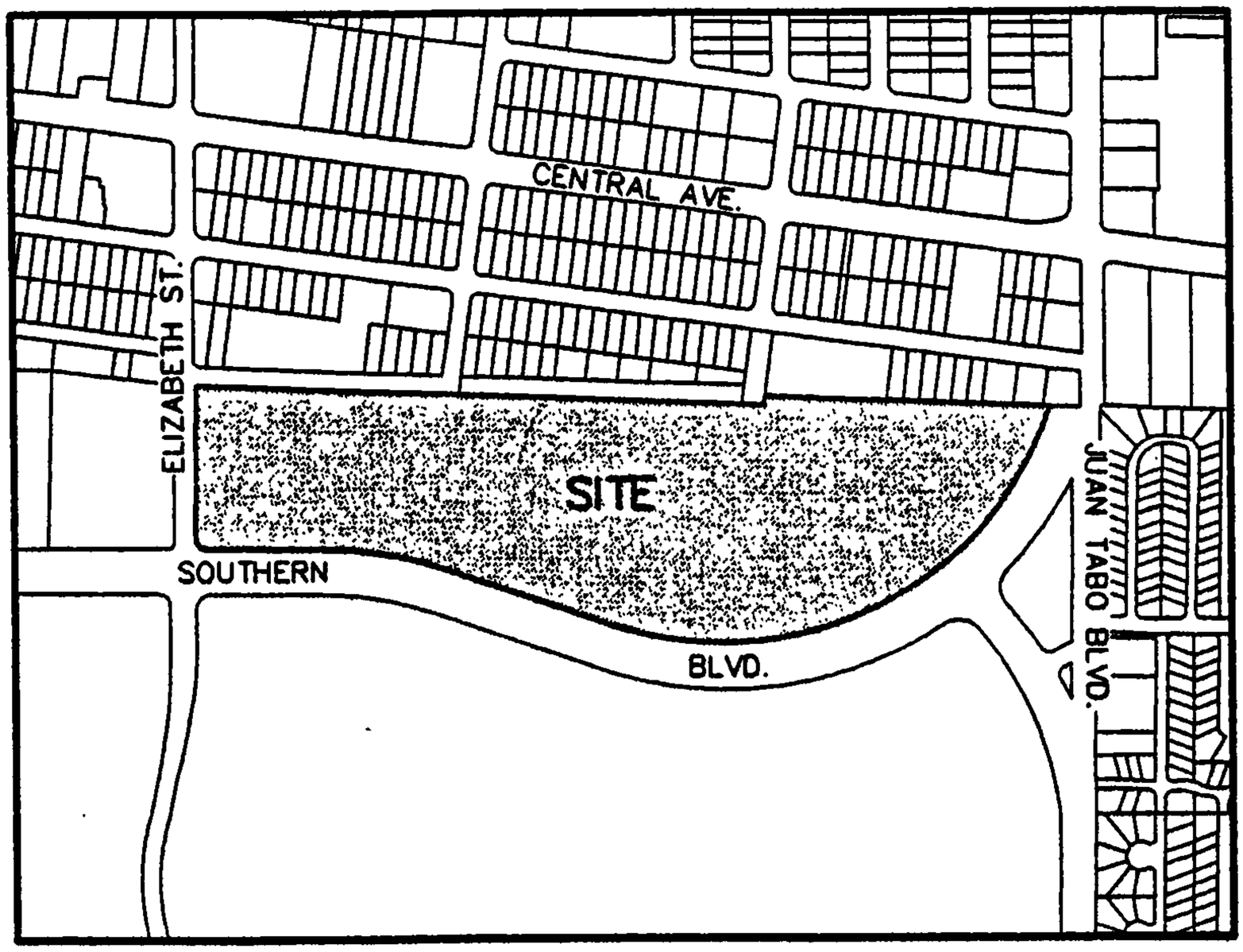
2001059545
5510511
Page: 4 of 8
05/24/2001 11:00A
Bk-A19 Pg-7954

rpd4\agmcov3.agm (Revised by Legal 1/00)

Mary Herrera Bern Co AGRE R 21.00
2001059545
5510511
Page: 5 of 8
05/24/2001 11:00A
Bk-A19 Pg-7954

EXHIBIT A-1

SP-01020708400112



LOCATION MAP

ZONE ATLAS MAP NO. L-21
NOT TO SCALE

SUBDIVISION DATA

1. DRB No. _____
2. Gross subdivision acreage: 37.1897 acres
3. Total number of tracts created: five tracts.
4. No public street mileage created with this tract.
5. Date of survey: January 2001

NOTES

1. Bearings are New Mexico State Plane Grid Bearings (Central Zone, NAD 1927).
2. Distances are ground distances.
3. All easements of record are shown.

DISCLOSURE STATEMENT

The purpose of this Replat is to subdivide Tract B into five tracts, grant easements, and vacate easements.

A certain tract c
North, Range 4 Ec
County, Albuquerc
Tract B of the RE
Albuquerque, New
the plat thereof,
of Bernalillo Cou
Folio 112 as Docu
described by New
Zone NAD 1927 Dat

BEGINNING at the
intersection of t
Street S.E. and t
S.E., whence the
1986" a 3-1/4 inc
New Mexico State
X=417,975.01 and
of 826.83 and fro
along the norther
along said southe
S87°43'40"E, a di
intersection of t
S.E. and the east
thence running al
B and also along
N08°04'23"E, a di
leaving said east
along the norther
S87°43'55"E, a di
of said Tract B,
northwesterly ri
thence running a
line of said Trac
1744.67 feet alor
radius of 1100.0
distance of 1567.
N70°54'16"W, a d
(non-tangent); t
415.82 feet alon
radius of 1270.1
distance of 413.
N89°39'57"W, a d
(non-tangent); t
55.03 feet along
radius of 35.00
distance of 49.5
westerly boundar
on the easterly
thence running a
B and also along
N00°20'35"E, a d
N02°37'18"W, a d
N00°18'58"E, a d
of beginning.

Tract B contains

Mary Herrera Bern. Co. AGRE R 21.00
01059545
5510511
Page: 6 of 8
05/24/2001 11:00A
Bk-A19 Pg-7954

EXHIBIT A-2

Mary Herrera Bern. Co. PLAT R 17.00
2001036943
5487761
Page: 1 of 3
04/03/2001 10:43A
Bk-2001C Pg-101

:DICATION

. of land situate
inge 4 East, New Mexico
lbuquerque, Bernalillo
all of Tract B of the
ESA, Albuquerque, New
ed on the plat thereof,
rk of Bernalillo
lume 91C, Folio 112
ee consent and in
signed owner(s) and/or
/or proprietor(s) do
ainage Easements shown
operate, inspect, and
lic Utility Easements
e of Gas, Electrical
ried distribution
nd Utilities where
of ingress and egress
right to trim
as the right to enter
nd perform whatever
epair, modification or
thout liability to the
ts or Encroachments
e financially or
repairing of
pinion of the City,
ld endanger the
the Improvements or
own expense, take
d to safeguard the
r(s) and/or
f the foregoing and do
their free act and

lic Schools

OFFICIAL SEAL
Charles O. Atwood
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires July 20, 2003

me on 21st day of
Vigil, Chief Financial
ls.

Notary Public

BULK LAND PLAT OF

TRACTS B-1, B-2, B-3, B-4 AND B-5 MANZANO MESA

ALBUQUERQUE, NEW MEXICO
JANUARY, 2001

APPROVALS

PLAT NUMBER 1000933/01410-00000-00169

PLANNING DIRECTOR	DATE 3/30/01
CITY ENGINEER	DATE 3/27/01 2/28/01
A. M. A. F. C. A.	DATE 3/27/01 2/28/01
TRANSPORTATION DEVELOPMENT	DATE 3-28-01
CITY SURVEYOR	DATE 2-27-01
PROPERTY MANAGEMENT	DATE N/A
UTILITY DEVELOPMENT DEPARTMENT	DATE 3/27/01 2/28/01
PARK & RECREATION	DATE 2/28/01
QWEST COMMUNICATIONS	DATE 3-6-01
COMCAST CABLE	DATE 3/6/01
PNM ELECTRIC SERVICES	DATE 3-21-01
PNM GAS SERVICES	DATE 3-21-01

EXHIBIT A-3

BLOCK 10
AL BUSINESS ADDITION
: JULY 15, 1946
(D12)

DORTHY STREET
(ROW=60')

BLOCK 9
EAST CENTRAL BUSINESS ADDITION
FILED: JULY 15, 1946
(D12)

FORMER ACOMA ROAD SE
(VACATED BY VACATION ORDINANCE NO. VO-9-1968

(S87°43'30"E 1810.03')
S87°43'40"E 1809.94'

.52'
Utility Easement
1960 (D2-108)

Existing 5' Public Utility Easement
Filed: August 17, 1960 (D2-108)
VACATED BY VACATION ACTION
NO. 0410-00000-00169

S02°16'20"W 88.90'

13'
C4
C13
C14
15'
15'
S87°43'40"E
447.37'

Public Utility Easement
st 17, 1960 (D2-108)
BY VACATION ACTION
0000-00169

CENTERLINE 30' PUBLIC
SANITARY SEWER & WATERLINE
EASEMENT TO BE GRANTED WITH
THE FILING OF THIS PLAT.

N02°15'48"E 173.56'
S07°16'20"W 158.35'

TRACT B-4
12.4308 Acres

ACT B-3
453 Acres

TEMPORARY RETENTION POND
EASEMENT GRANTED WITH THE
FILING OF THIS PLAT.

N06°32'28"E 180.81'
S07°22'42"W 167.75'

Existing 50' Public Roadwa
Filed: June 5, 1991 (91C-1
VACATED BY VACATION
NO. 0410-00000-00169

Existing 15' Building Setback
Filed: August 17, 1960 (D2-108)
VACATED BY VACATION ACTION
NO. 0410-00000-00169

PUBLIC ACCESS EASEMENT
GRANTED WITH THE FILING
OF THIS PLAT.

Existing 5' Public Ut
Filed: August 17, 19
VACATED BY VAC
NO. 0410-00000-0

N70°54'16"W 115.49'
TB
S89°39'52"E 1801.72'
T9
C2
ENT
3 OF

S19°05'44"W 102.00'
S88°43'36"W 209.75'
S89°39'52"E 1681.02'
S05°02'50"W 81.02'

Existing 20' Gasline Easement
Filed: June 5, 1991 (91C-112)
VACATED BY VACATION ACTION
NO. 0410-00000-00169

129.10'
T5

Existing 100-year Flood Plain Easement
Filed: June 5, 1991 (91C-112)
VACATED BY VACATION ACTION
NO. 0410-00000-00169

156.84'
N70°54'16"W
(N70°54'20"W 552.66')
T4
423.55'
552.65'

PUBLIC ACCESS & WATERLINE
EASEMENT GRANTED WITH
THE FILING OF THIS PLAT.

S13°11'00"W
147.65'
32'

SOUTHERN BOULEVARD SE
(ROW = 156')

TRACT D-2-A-1-A
TRACTS D-2-A-1-A, D-2-A-1-B
& D-2-A-1-C
MANZANO MESA
FILED: JUNE 25, 199
(98C-171)

2001059545
5510511
Page: 7 of 8
05/24/2001 11:00A
Bk-A19 Pg-7954
Mary Hennena Bern Co AGRE R 21.00

BRG

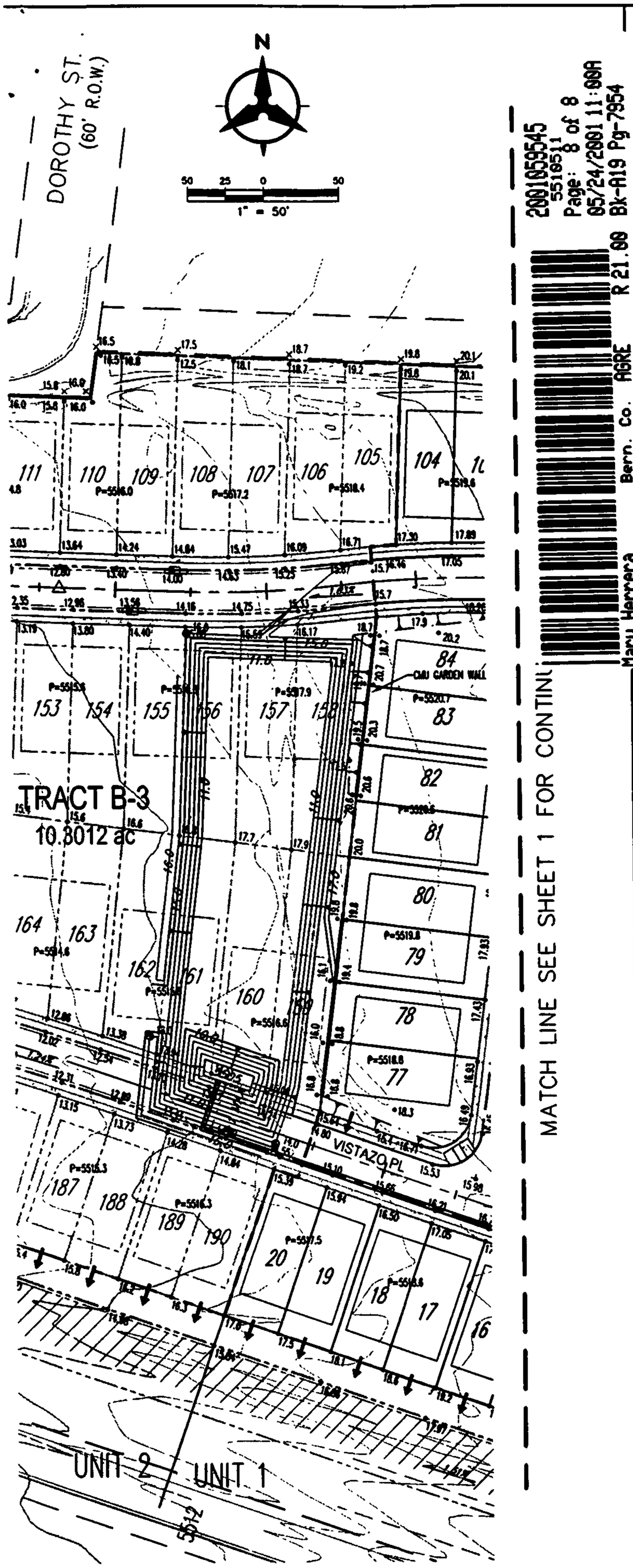


EXHIBIT A

200105954 5 of 8
Page: 8 of 8
05/24/2001 11:00A
Bk-A19 Pg-7954
R 21.00
Bern. Co. AGRE
Mary Herrera

GENERAL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL VICE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS TO REFER TO EARTHWORK SPECIFICATION AS NOTED IN THE SOILS REPORT
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES & REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AS PER DETAIL, SHEET 3, AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. ALL SPOT ELEVATIONS ARE TO FLOWLINE UNLESS OTHERWISE NOTED.
6. BOULDERS GREATER THAN 3 FEET IN DIAMETER EXCAVATED DURING GRADING ACTIVITIES SHALL BE STOCKPILED AND DISPOSED OF AT THE DISCRETION OF THE OWNER.
7. ALL WALLS SHOWN ARE TO BE PLACED ALONG PROPERTY LINE. WALLS ARE SHOWN OFFSET FOR VISUAL PURPOSE ONLY.

LEGEND

5470	EXISTING CONTOUR
	WALL DRAIN
× 50.0	EXISTING ELEVATION
• 50.0	SPOT ELEVATION
	CMU GARDEN WALL
	CMU RETAINING WALL
	SWALE
	DIRECTION OF FLOW
	WATER BLOCK
	SLOPE
	STORM DRAIN INLET
	TEMPORARY GRADING LIMIT
	UNIT BOUNDAY
	STD C & G
	ROLL TYPE C & G
	TEMPORARY PAVEMENT HATCH

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

MICRO-FILM INFORMATION

	DATE
RECORDED BY	
NO.	

BENCH MARKS

ACS Aluminum Cap stamped "6-L21, 1986"
Geographic Position (NAD 1983)
N.M. State Plane Coordinates (Central Zone)
X= 1,558,220.57587 Y= 1,481,283.32984
Ground-to-Grid Factor= 0.999644584
α4= -0010'28"
NAVD88 Elevation= 5503.35'

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

RICHARD LYNN BELTRAMO
NEW MEXICO
10596
REGISTERED PROFESSIONAL ENGINEER

No.	Date	REMARKS	By

REVISIONS

DESIGN

Designed By: EES DATE: 03/01
Drawn By: BJC DATE: 03/01
Checked By: RLB DATE: 03/01

Bohannan Huston
Courtyard One 7500 JEFFERSON NE Albuquerque NEW MEXICO 87109
ENGINEERS PLANNERS PHOTOogrammetrists SURVEYORS SOFTWARE DEVELOPERS

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MIRAVISTA SUBDIVISION UNIT 2
GRADING PLAN

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
662281	L-21-Z		

CONTRACT CONTROL FORM

PRELIMINARY REVIEW

Contact Person Kathy Jaramillo
Phone No. 924-3990

Project # 6622281
CCN# 200101187
New ~~or Ext. #~~

Type of Agreement: agreement & covenant

Description/Project Name: Muravista Subd. Unit 1
Public Works Dept./Div.: Design Review
Developer: Manzano Mesa LLC.
Contract Amount $ -0- ~~SIA~~ Contract Period: 5/23/2001 - 12/31/2021
Contract Amount $ SIA Contract Period: _____ - _____
Contract Amount $ S/W Contract Period: _____ - _____

DRAFT CONTRACT:
Rec'd by Legal: _____ Rejected/Returned to Dept.: _____/_____
Returned to Legal: _____/_____ Appproved: _____ Initials: _____

FINANCIAL GUARANTY:
Letter of Credit No.: _____ Date: _____ Attached: Yes___ No.___ Initial_____
Other: Type _____ Date: _____ Attached: Yes___ No.___ Initial_____

FINAL CONTRACT REVIEW

APPROVALS REQUIRED:

	Date Delivered	Returned to Dept.	Approved By	Approval Date
Utilitiy Div				
Hydrology Div	5/3/01	5/16/01	BZB	5/16/01
Transportation Div				
DRC Chairman	5/17/01	5/21/01		5/21/01
Legal Dept	5/22/01	5/22/01		5/22/01
City Engineer	5/22/01	5-23-01		5-23-01
PWD Director				
Finance				
City Clerk				
CAO				

DISTRIBUTION:

	Date:	By:
User Department.	5/24/01	
Vendor		
City Clerk	6-1-01	N.T.
Treasury		
Other: _____		

ADDENDUM TO COVER PAGE

5/3/01
(Date)

TO: Kevin Curran, Assistant City Attorney, Legal Department

FROM: Project Administrator, Project Review Sec., PWD

SUBJECT: PROJECT TITLE: Miravista Unit 1 PROJECT # 662281

The attached documents have been review, approved, initialed and/or signed by the DRC Chairman and are submitted for your action as noted.

5/21/01

ITEM	ACTION: Review & Approval	Reference	Comments
Procedure "A"	☐☐☐	☐☐	
Procedure "B"	☐☐☐	☐☐	
Procedure "B" Modified Non Work Order	☐☐☐	☐☐	
Procedure "C"	☐☐☐	☐☐	
Procedure "C" Modified	☐☐☐	☐☐	
Special Agreement	☐☐☐	☐☐	
Sidewalk Deferral Agreement	☐☐☐	☐☐	
Amendment	☐☐☐	☐☐	
Assignment	☐☐☐	☐☐	
Financial Guarantee	☐☐☐	☐☐	
Construction Paperwork:			
Contractors Proposal	☐☐☐	☐☐	
Performance/Warranty Bonds	☐☐☐	☐☐	
Labor/Material Bonds	☐☐☐	☐☐	
Certificate of Insurance	☐☐☐	☐☐	
Engineers Cost Estimate	☐☐☐	☐☐	
Extension	☐☐☐	☐☐	
Release/Agreement	☐☐☐	☐☐	
Release/Financial Guarantee	☐☐☐	☐☐	
Calling Notice	☐☐☐	☐☐	
Letter of Commitment	☐☐☐	☐☐	
Reduction Letter	☐☐☐	☐☐	
License Agreement	☐☐☐	☐☐	
Monitoring Well Permit	☐☐☐	☐☐	
Agreement & Covenant	☑☐☐	☐☐	
Drainage Covenant	☐☐☐	☐☐	
Revocable Permit	☐☐☐	☐☐	
Encroachment	☐☐☐	☐☐	
Permanent Easement	☐☐☐	☐☐	
Temporary Easement	☐☐☐	☐☐	

Other:

Please Call Kathy at 3996 if you have any questions regarding the above or when the documents are ready to be picked up.

No. of Attachments (1)

BOHANNAN HUSTON, INC.

Courtyard One

7500 JEFFERSON NE

Albuquerque

NEW MEXICO 87109-4335

voice 505.823.1000

fax 505.821.0892

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