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

November 27, 2001

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

Re: Unser/McMahon Area Master Drainage Study
Engineer's Stamp dated 11-13-01, (A11/D5A)

Dear Mr. Beltramo,

Based upon the information provided in your submittal dated 11-13-01, the above referenced Study is conditionally approved as a Master Study for the subject area to support the Storm Drain Installation project in Black Arroyo and Unser Blvds. Conditions of approval include:

- All reference to the "City Section" should be removed and combined with the East Section. The agreement, once it is signed by your client and the City, denotes what the City contribution will be and nowhere is it noted that any particular reach is the responsibility of the City.

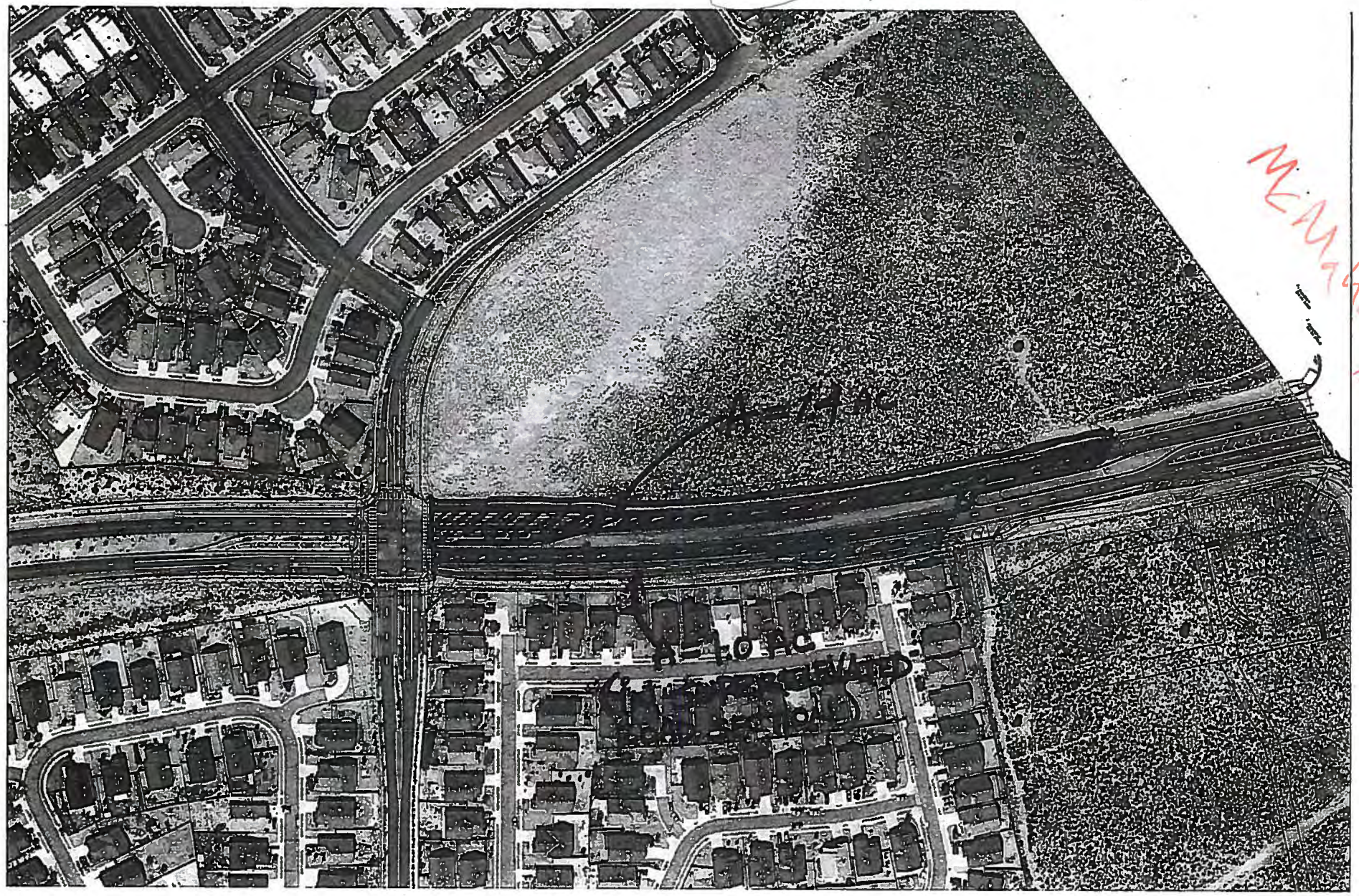
- This approval does not necessarily approve the plan and profile sheets provided; they are a guide (albeit a well-designed guide) and coordination with other departments and as-built conditions will be necessary.

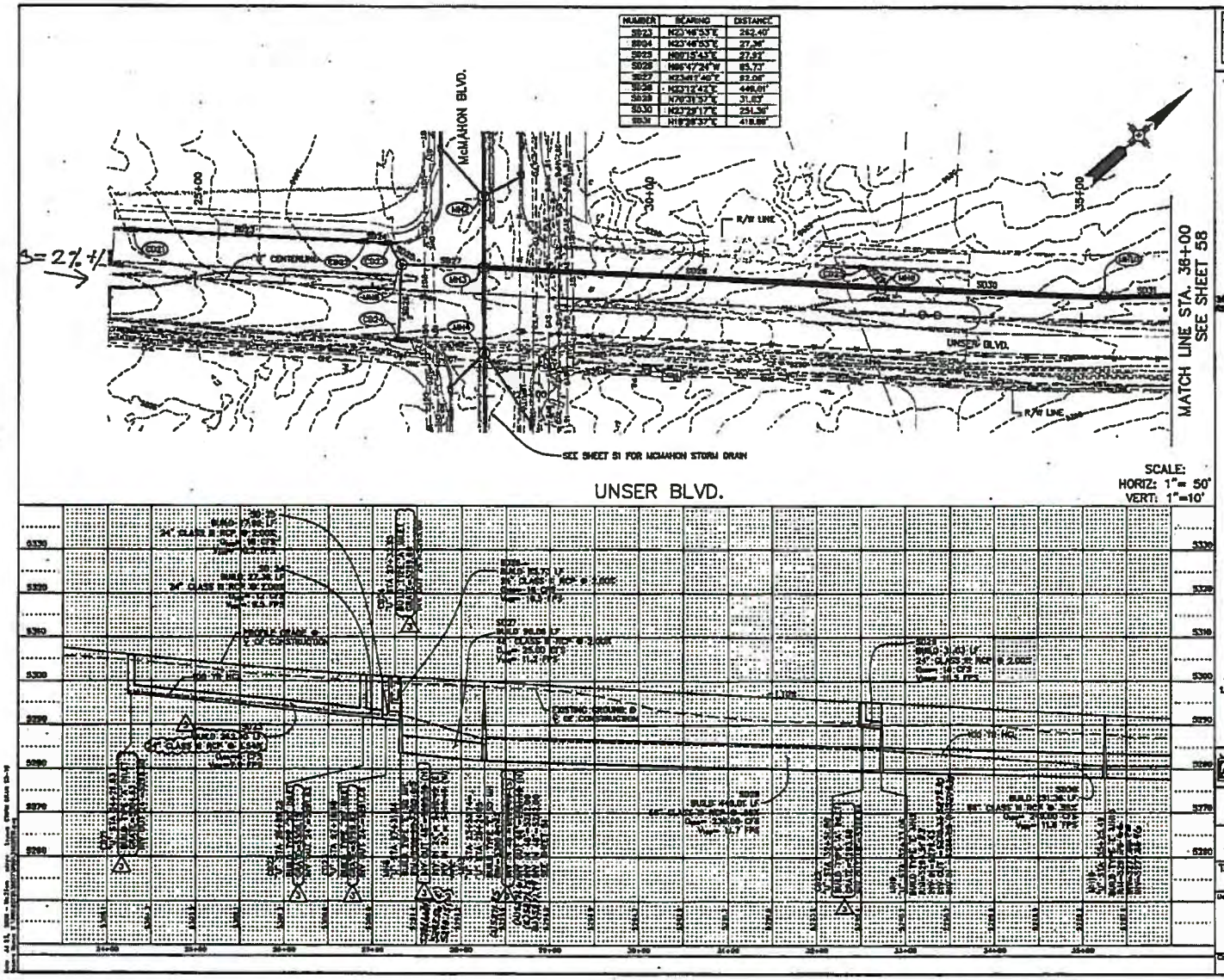
If you have any questions, you can contact me at 924-3986.

Sincerely,

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

C: file


A-11
MEMORIAL BLVD



NUMBER	BEARING	DISTANCE
5023	N23°46'53"E	262.40'
5024	N23°46'53"E	27.36'
5025	N66°15'43"E	27.97'
5026	N66°17'24"W	85.73'
5027	N23°46'46"E	83.06'
5028	N23°21'42"E	449.61'
5029	N76°31'37"E	31.63'
5030	N23°28'17"E	251.36'
5031	N18°28'37"E	418.88'

P.N.M. PROJECT NO.	SHEET NO.
NEW MEXICO PROJECT NO.	
TPU-7801(7) CN 9823	57

CONSTRUCTION FIELD NOTES:

CONCRETE DROP INLET:

(2021) "A" STA 24+28.83, 31.50' LT. CONSTRUCT TYPE 'A' INLET.

(2022) "A" STA 26+88.22, 31.50' LT. CONSTRUCT TYPE 'B' INLET.

(2023) "A" STA 27+15.58, 31.50' LT. CONSTRUCT TYPE 'B' INLET.

(2024) "A" STA 27+15.58, 57.50' RT. CONSTRUCT TYPE 'A' INLET.

(2025) "A" STA 27+31.84, 31.50' LT. CONSTRUCT TYPE 'A' INLET.

CONSTRUCT TYPE 'B' INLET AS PER COA STANDARD DWG 2235

CONSTRUCT TYPE 'A' INLET AS PER COA STANDARD DWG 2201 & 2292

OFFSETS MEASURED FROM CONSTR. CL. TO CURB & GUTTER FLOWLINE.

MANHOLE:

(MH6) "A" STA 31+34.84, 28.50' LT. CONSTRUCT S TYPE 'A' SD MH

(MH9) "A" STA 33+73.08, 28.50' LT. CONSTRUCT S TYPE 'A' SD MH

(MH10) "A" STA 35+25.49, 27.12' LT. CONSTRUCT S TYPE 'A' SD MH

CONSTRUCT TYPE 'A' SD MH AS PER COA STANDARD DWG 2102

STORM DRAIN PIPE:

5023 "A" STA 24+28.83, 31.50' LT TO "A" STA 26+88.22, 31.50' LT, CONSTRUCT 24" CLASS III RCP.

5024 "A" STA 26+88.22, 31.50' LT TO "A" STA 27+15.58, 31.50' LT, CONSTRUCT 24" CLASS III RCP.

5025 "A" STA 27+15.58, 31.50' LT TO "A" STA 27+31.84, 28.50' LT, CONSTRUCT 24" CLASS III RCP.

5026 "A" STA 27+32.83, 57.50' RT TO "A" STA 27+31.84, 28.50' LT, CONSTRUCT 24" CLASS III RCP.

5027 "A" STA 27+31.84, 28.50' LT TO "A" STA 28+16.05, 23.14' LT, CONSTRUCT 48" CLASS III RCP.

5028 "A" STA 28+16.05, 23.14' LT TO "A" STA 33+73.08, 28.50' LT, CONSTRUCT 66" CLASS III RCP.

5029 "A" STA 32+81.89, 31.50' LT TO "A" STA 33+73.08, 28.50' LT, CONSTRUCT 24" CLASS III RCP.

5030 "A" STA 33+73.08, 28.50' LT TO "A" STA 35+25.49, 27.12' LT, CONSTRUCT 66" CLASS III RCP.

5031 "A" STA 35+25.49, 27.12' LT TO "A" STA 35+00.00, 29.75' LT, CONSTRUCT 66" CLASS III RCP.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STORM DRAINAGE STRUCTURES AND UTILITY LOCATIONS. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER IMMEDIATELY OF ANY DISCREPANCIES.

AS BUILT INFORMATION

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES BY DATE

ENGINEER'S SEAL

NO. DATE BY

Connell Fleming West, Inc.
ENGINEERS AND PLANNERS

WILSON & COMPANY

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
TRANSPORTATION DESIGN DIVISION

TITLE: McMAHON BOULEVARD TRANSPORTATION IMPROVEMENTS
GRADING & DRAINAGE PLAN & PROFILE

Design Review Committee | City Engineer Approval

City Project No. 618591

Sheet 57 of 123

A-11/D005A

MASTER DRAINAGE STUDY FOR THE UNSER / MCMAHON AREA

BOHANNAN HUSTON
Courtyard One
7500 JEFFERSON NE
Albuquerque
NEW MEXICO 87109
voice 505.823.1000
fax 505.821.0892

July 17, 2001
AMENDED NOVEMBER 13, 2001

PREPARED FOR:

CURB, INC.
6301 INDIAN SCHOOL NE, SUITE 208
ALBUQUERQUE, NM 87109

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MASTER DRAINAGE STUDY
FOR THE
UNSER / MCMAHON AREA

July 17, 2001
November 13, 2001

Prepared for:

CURB INC.
6301 INDIAN SCHOOL NE, SUITE 208
ALBUQUERQUE, NM 87110

By:

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

PREPARED BY:

Elizabeth Smith, P.E. Date

Rick Beltramo, P.E. 11/13/01 Date

I. INTRODUCTION

This drainage study is a Master plan for the McMahon Boulevard and Unser Boulevard drainage area. A regional master plan is required due to the geopolitical boundaries of Rio Rancho and Albuquerque, the drainage impacts of McMahon Boulevard and Unser Boulevard, and the interrelated drainage impacts of several developments. This Master plan will address the developed storm runoff and the necessary facilities to adequately convey the flow from the Unser/McMahon Area to the Black Arroyo Detention Facility. The drainage area addressed in this report includes the land bounded by the Albuquerque/Rio Rancho city boundary to the north, McMahon Boulevard to the south, the Stonebridge Subdivision to the east, and the natural ridgeline to the west. In addition, two commercial tracts south of McMahon are included. See vicinity map for location. (**Figure 1**) The runoff from this area will be conveyed through a storm drain system in McMahon Boulevard, Unser Boulevard, and Black Arroyo Boulevard to the Lands of AMAFCA and the Black Arroyo Detention Facility. The Detention Facility was built with the capacity to handle all of the developed runoff from this region.

II. PURPOSE

The drainage problems associated with this area involve the interests of several public entities and several private developers. Since the Albuquerque/Rio Rancho boundary splits the drainage basins, AMAFCA, SSCAFCA, the City of Albuquerque, and the City of Rio Rancho are all interested in this drainage solution. In addition, the City of Albuquerque is in the process of designing McMahon Boulevard and the drainage in the road must be accommodated. On the private side, four subdivisions are in the process of developing and require a drainage solution. These subdivisions are the Ridgeview Subdivision, Ridgeview Village, Los Suenos, and Park Hill. Finally, several commercial tracts in the Village Center along Unser are involved.

These regional drainage issues are too complex for any one development or public agency to solve alone. Therefore, the private developers and the public agencies involved must cooperate. Approval of this Master plan and the associated storm drains provides a basis for determining shared storm drain infrastructure between public and private entities and allows for the phased implementation of the storm drain system. This Master plan will propose a plan to provide a

suitable public storm drain outfall for the following portions of the McMahon/Unser Region:

- Portions of McMahon Boulevard.
- Portions of Unser Boulevard.
- All contributing areas that cross McMahon Boulevard and Unser Boulevard under developed conditions.
- Proposed developments within Albuquerque that historically drain into Rio Rancho.
- Units 1 and 2 of the Ridgeview Subdivision and adjacent land located east of Unser Boulevard and north of McMahon Boulevard.

This Master plan does not address the historic drainage patterns or the interim plans for the individual developments. Refer to the Drainage Studies for the Ridgeview Subdivision, the Los Suenos Subdivision, or the Park Hill Subdivision for historic and interim conditions.

III. 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 Arid-lands Hydrologic Model (AHYMO) was 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.**

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

IV. LAND TREATMENTS

The land treatments in this analysis are divided into two sections. The land east of Unser and south of McMahon drains through the Ridgeview Subdivision. Therefore, the lands treatment values used to design the existing storm drain within the Ridgeview Subdivision were generally maintained in this analysis. The residential lands within the Ridgeview analysis were analyzed

using 25% type 'B', 25% type 'C', and 50% type 'D'. The commercial tracts were restricted to historic discharge of 95% type 'A' and 5% type 'B'. The only commercial tracts allowed developed discharge in the Ridgeview report were the Village Center North Tracts because Mr. Smith paid to upsize the Ridgeview storm drain. One amendment was made to the drainage plan proposed by the Ridgeview Subdivision. The runoff from the Fein Residential property that was originally conveyed through the Ridgeview Subdivision and discharged into Black Arroyo Boulevard is now directed through the Stonebridge Subdivision. This change was made due to a subsequent analysis of the Fein property performed by Community Sciences. This analysis determined that there is sufficient capacity in the Stonebridge storm drain to accommodate the 36.3 cfs from the Fein Residential property. Therefore, the contribution from this basin was removed from the Ridgeview storm drain.

The tracts of land west of Unser or south of McMahon do not drain through the Ridgeview Subdivision. The commercial tracts in this area are permitted developed discharge and were analyzed using 90% type 'D' and 10% type 'B'. The residential tracts were analyzed using 20% type 'B', 20% type 'C', and 60% type 'D'. See **Figure 3**, the Developed Conditions Land Treatment Exhibit for an illustration of land treatment values.

V. PROPOSED DEVELOPED CONDITIONS

There are four major storm drain reaches included in this analysis. First, the southern reach of the analysis consists of basins that contribute flow to McMahon Boulevard and Unser Boulevard south of Black Arroyo Boulevard. Secondly, the West section of the analysis consists of the basins that contribute flow to Black Arroyo Boulevard west of Unser. Thirdly, the east portion of the analysis consists of basins that contribute flow to Black Arroyo Boulevard adjacent to the Ridgeview Subdivision. Finally, the Lower Reach of the analysis includes the section of storm drain that conveys the flow from the other reaches east to the Lands of A.M.A.F.C.A. At the top of the southern reach, the runoff from basins DB6 and DC2 south of McMahon combine with the street flow from McMahon Boulevard and the commercial tract DB4-C and is conveyed to the intersection of McMahon and Unser Boulevards. The flow then combines with the Unser street flow and 180 cfs is diverted north in Unser Boulevard. Basin DB5A discharges into the Unser storm drain and is conveyed to the south boundary of the Ridgeview Subdivision. At this point, basin DB5B

discharges into the storm drain and the street flow from Unser is captured. In addition, the southern half of Ridgeview Village, Basin DB4-B, discharges into the main line at this intersection. Then the flow, 288 cfs, continues north to the intersection with Black Arroyo Boulevard. At the intersection, the flow from the West Section of the analysis is added to the flow from the South Section. A discharge of 675 cfs from the residential developments to the west, Basins DB1, DB2, DB3, and DB4-A, is diverted east on Black Arroyo Boulevard. The storm drain system in the Eastern portion of Black Arroyo Boulevard then accepts flow from the land that discharges through Ridgeview Unit 1. A 42" storm drain has been stubbed through the Ridgeview Subdivision to the south to convey this flow to Black Arroyo Boulevard. The storm drain containing 823 cfs continues east to the lands of A.M.A.F.C.A. The remaining street flow is captured just west of the lands of A.M.A.F.C.A., then the storm drain crosses an existing water line and discharges 841 cfs through an energy dissipater into an earthen channel. The earthen channel discharges into the Black Arroyo utilizing a grade control structure. See the Developed Conditions Basin Map, **Plate 1**, for basin locations and **Appendix B** for the calculations for the hydraulic grade line, street capacity, inlet design, and the channel analysis. **Appendix A** contains the AHYMO analysis that was performed to determine the flows created by these basins.

VI. CONCLUSION

The improvements proposed in this Master plan solve regional drainage issues. The plan provides a public storm drain outfall for planned developments including those that currently drain into Rio Rancho. This Master Plan proposes redirecting these flows to the Black Arroyo Detention Facility due to the geopolitical boundaries and the difficulties in obtaining approvals for discharging developed runoff originating in Albuquerque but outfalling in Rio Rancho. Drainage solutions for McMahon Boulevard and Unser Boulevard are identified and an outfall to the Black Arroyo Detention Facility is provided. Approval of this plan provides a basis for requiring storm drains to be funded and constructed by both private and public entities. Approval also allows planning and construction of phased improvements of the ultimate system. Significant work is already in progress that will manifest itself in several drainage reports associated with the proposed subdivisions and construction plans for the storm drain in Black Arroyo Boulevard and Unser Boulevard.

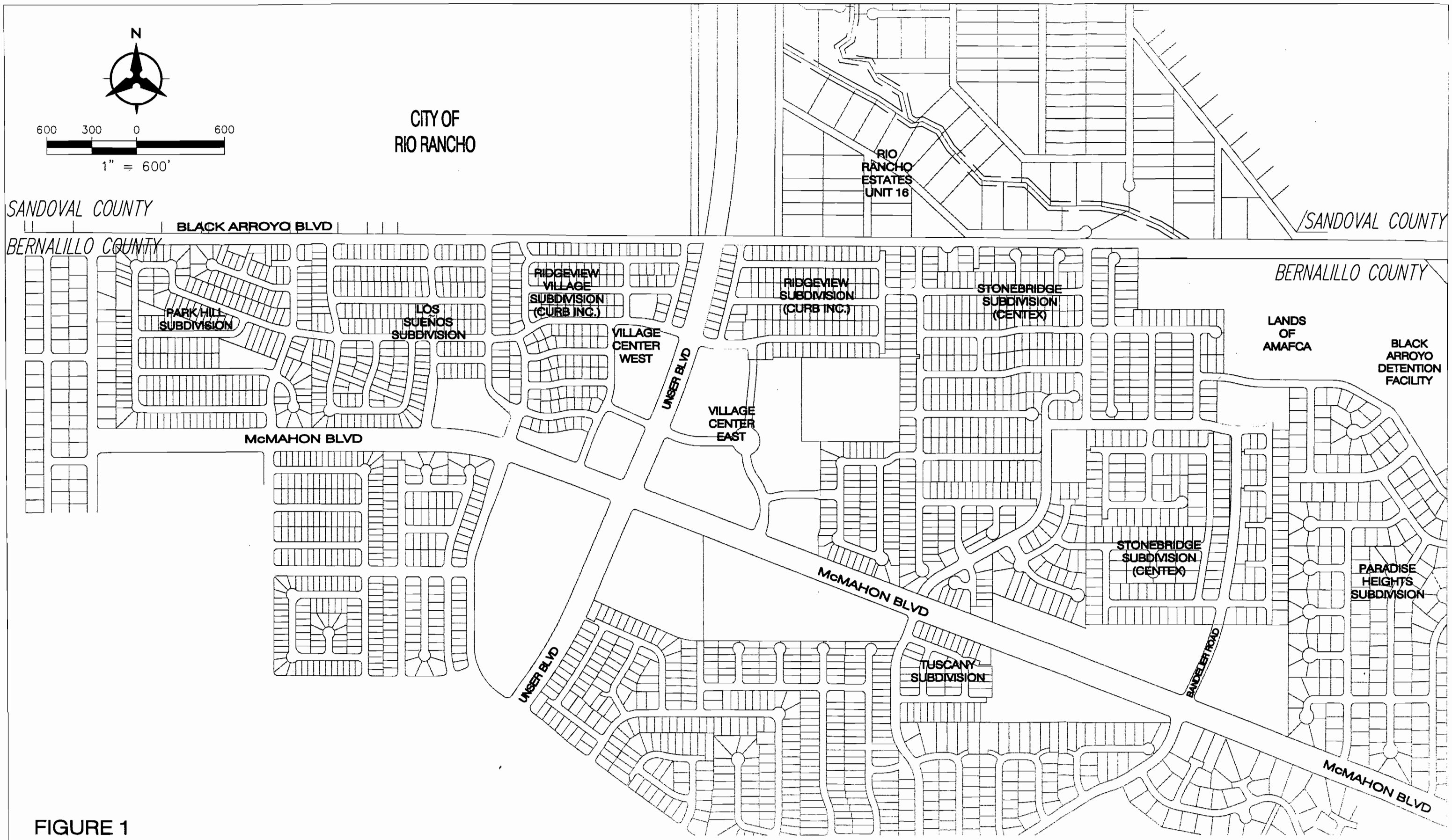

FIGURE 1
UNSER / MCMAHON AREA
VICINITY MAP

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

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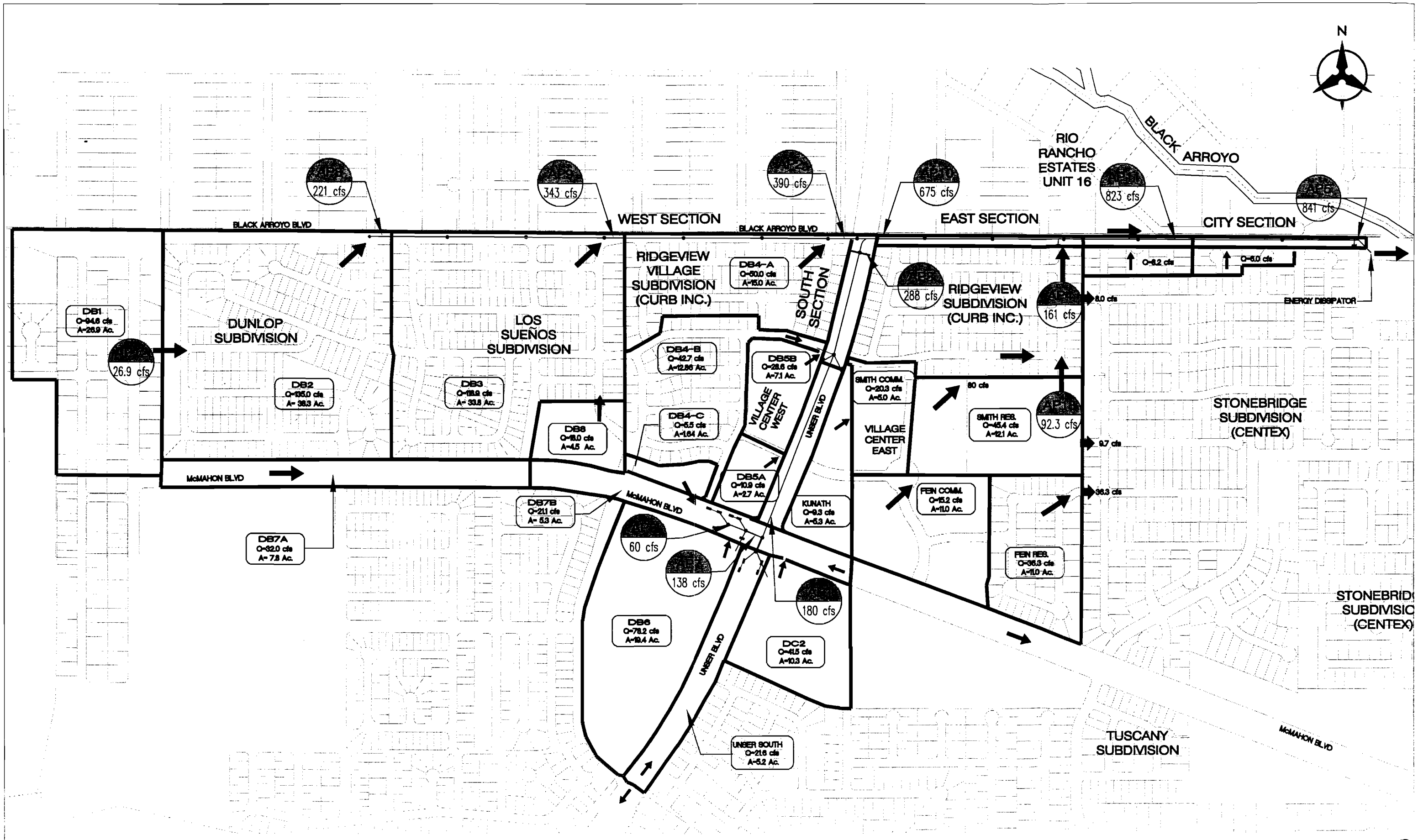

FIGURE 2
DEVELOPED CONDITIONS
BASIN MAP

500 250 0 500
1" = 500'

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

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BOHANNAN HUSTON

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APPENDICES

APPENDIX A - AHYMO INPUT AND SUMMARY FILES FOR HISTORIC AND DEVELOPED CONDITIONS

APPENDIX B - STREET FLOW IN UNSER, MCMAHON, AND BLACK ARROYO BLVDS, INLET AND SWALE CAPACITY, AND HYDRAULIC GRADE LINE CALCULATIONS

```
* UNSER/MCMAHON MASTER PLAN
* EXISTING CONDITIONS HYDROLOGIC ANALYSIS

*s HISTORIC DRAINAGE FROM THE UNSER/MCMAHON BASIN
*S Revised 7-20-00
START              RAINFALL BEGINS AT 0.00 HOURS
*                   100 YEAR RETURN PERIOD
*************************************************************************
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
*      ::                    MISC. DATA
*      ::         RAINFALL RETURN PERIOD_____________  100-YEAR
*      ::         RAINFALL DURATION__________________  6-HOUR
*      ::        ZONE 1
*      ::         RAINFALL DEPTHS: 1 HOUR (P60)___   1.87 INCHES
*      ::         (UNADJUSTED)      6 HOUR (P360)__  2.20 INCHES
*      ::                          24 HOUR (P1440)_  2.66 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
*      ::
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
*                          BEGIN  ANALYSIS
*************************************************************************
*
RAINFALL                TYPE=1 RAIN QUARTER=0.0 RAIN ONE=1.87
                        RAIN SIX=2.20 RAIN DAY=2.66 DT=0.05
************************************
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN OFF1 *********
COMPUTE NM HYD           ID=1 HYD=OFF1  AREA=0.157 PER A=50.0 PER B=50.0
                        PER C=0.0 PER D=0.0  TP=.133  RAINFALL=-1
PRINT HYD               ID=1   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN 2 *********
COMPUTE NM HYD           ID=2 HYD=OFF2  AREA=0.086 PER A=50.0 PER B=50.0
                        PER C=0.0 PER D=0.0  TP=.133  RAINFALL=-1
PRINT HYD               ID=2   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN OFFSITE BASIN 3 *********
COMPUTE NM HYD           ID=3 HYD=OFF3  AREA=0.137 PER A=50.0 PER B=50.0
                        PER C=0.0 PER D=0.0  TP=.133  RAINFALL=-1
PRINT HYD               ID=3   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN OFFSITE BASIN 4 *********
COMPUTE NM HYD           ID=4 HYD=OFF4  AREA=0.065 PER A=50.0 PER B=50.0
                        PER C=0.0 PER D=0.0  TP=.133  RAINFALL=-1
PRINT HYD               ID=4   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN OFFSITE BASIN 5 *********
COMPUTE NM HYD           ID=5 HYD=OFF5  AREA=0.061 PER A=50.0 PER B=50.0
                        PER C=0.0 PER D=0.0  TP=.133  RAINFALL=-1
PRINT HYD               ID=5   CODE=1
*
ADD HYD                  ID=10 HYD=12 ID I=1 ID II=2
PRINT HYD               ID=10   CODE=1
*
ADD HYD                  ID=12 HYD=34 ID I=4 ID II=3
PRINT HYD               ID=12   CODE=1
*
ADD HYD                  ID=14 HYD=1234 ID I=10 ID II=12
PRINT HYD               ID=14   CODE=1
*
**********************************************************************
FINISH
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =06/14/2001
INPUT FILE = ex.txt USER NO.= BOHN_HNM.STE

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 UNDEVELOPED PROPERTY ORIGINALLY DRAINING TO ARROYO											
*S Revised 6-14-01 for Unser/McMahon Master Drainage Study											
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.200
COMPUTE NM HYD	OFF1	-	1	.15700	168.87	4.535	.54156	1.500	1.681	PER IMP=	.00
COMPUTE NM HYD	OFF2	-	2	.08600	89.96	2.484	.54156	1.500	1.635	PER IMP=	.00
COMPUTE NM HYD	OFF3	-	3	.13700	146.21	3.957	.54156	1.500	1.668	PER IMP=	.00
COMPUTE NM HYD	OFF4	-	4	.06500	67.45	1.877	.54156	1.500	1.621	PER IMP=	.00
COMPUTE NM HYD	OFF5	-	5	.06100	63.24	1.762	.54156	1.500	1.620	PER IMP=	.00
ADD HYD	12.00	1& 2	10	.24300	258.83	7.019	.54156	1.500	1.664		
ADD HYD	34.00	4& 3	12	.20200	213.66	5.834	.54156	1.500	1.653		
ADD HYD	1234.00	10&12	14	.44500	472.49	12.853	.54156	1.500	1.659		
FINISH											

UNSER/MCMAHON ANALYSIS POINTS 01177
11/8/2001

ANALYSIS POINT #	Q (CFS)	AREA (MI^2)	LOCATION
1	180	0.069	Unser just north of McMahon
2	390	0.185	Black Arroyo Blvd. just west of Unser
3	288	0.121	Unser just south of Black Arroyo Blvd
4	161	0.0664	Ridgeview discharge to Black Arroyo Blvd
5	841	0.3809	Total Discharge to Black Arroyo Dam
6	60	0.0227	McMahon Blvd at first inlets
7	138	0.053	McMahon Blvd just west of Unser
8	221	0.1019	East Boundary of Park Hill
9	343	0.1617	East Boundary of Los Suenos
10	675	0.306	Black Arroyo Blvd. just east of Unser
11	823	0.3725	Black Arroyo Blvd. Adjacent to Stonebridge
12	94.6	0.042	West Boundary of Park Hill
13	92.3	0.048	Smith Discharge to Ridgeview Subdivision

UNSER/MCMAHON BASINS 01177
11/8/2001

BASIN	A	B	C	D	Q (CFS)	AREA (MI^2)	COMMENTS
IN		10		90	21.43	0.0083	Kunath Commercial Outfalls to Unser Blvd.
J1		10		90	20.14	0.0078	Smith Commercial Outfalls to Ridgeview
J2		10		90	16.53	0.0064	Smith Residential Outfalls to Ridgeview
*K		15	20	65	7.45	0.0032	Smith Residential Outfalls to Ridgeview
*L		15	20	65	10.24	0.0044	Smith Residential Outfalls to Ridgeview
*M		15	20	65	11.17	0.0048	Smith Residential Outfalls to Ridgeview
O	95	5			6	0.0072	Fein Commercial - Restricted
P	95	5			4.75	0.0057	Fein Commercial - Restricted
Q	95	5			4.25	0.0051	Fein Commercial - Restricted to
							Historic Flow per Ridgeview Drainage Plan
*R		25	25	50	12.82	0.006	Fein Residential Outfalls to Stonebridge
*S		25	25	50	23.49	0.011	Fein Residential Outfalls to Stonebridge
A-H		25	25	50	70.76	0.0331	Ridgeview Subdivision
WS				100	5.73	0.0021	Black Arroyo Blvd.
DB1		20	20	60	94.6	0.042	Offsite platted residential lots west of Park Hill
DB2		20	20	60	134.9	0.0599	Park Hill Subdivision
DB3		20	20	60	118.9	0.0528	Los Suenos Subdivision
DB4A		20	20	60	52.72	0.0234	Ridgeview Villiage-Discharge to Black Arroyo
DB4B		20	20	60	45.06	0.02	Ridgeview Villiage-Discharge to Unser
DB4C		10		90	6.62	0.00256	Ridgeview Villiage-office
DB5A		10		90	10.85	0.0042	Village Center West Commercial
DB5B		10		90	28.39	0.011	Village Center West Commercial
DB6		10		90	78.18	0.0303	Comm. Tract south-west of Unser/McMahon
DB7A			10	90	32.03	0.01216	McMahon Blvd West Street Flow
DB7B			10	90	21.08	0.008	McMahon Blvd East Street Flow
DB8		10		90	18.07	0.007	Los Suenos Commercial Tract
N-UNSER			10	90	9.23	0.0035	North portion of Unser Blvd.
MID-UNSER			10	90	13.18	0.005	Middle portion of Unser Blvd.
S-UNSER			10	90	21.61	0.0082	South portion of Unser Blvd.
DC2		10		90	41.55	0.016	Comm. tract south-east of Unser/McMahon
2	25	25	50		2.15	0.001	Ridgeview Subdivision Unit 2
3	25	25	50		3.09	0.00144	Ridgeview Subdivision Unit 2
W2			10	90	2.91	0.0011	Black Arroyo Blvd. W
ROAD			10	90	5.54	0.0021	Black Arroyo Blvd. E
CULSACS		25	25	50	5.97	0.00279	Stonebridge Unit 4 into Black Arroyo Blvd
				TOTAL		0.420	
SUBTRACT FLOW TO STONEBRIDGE						0.040	
				TOTAL		0.380	

Note: Flow is not directly additive due to routing

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 FLOW ADDED TO UNSER AT BLACK ARROYO BLVD FROM WEST										
*S AP 2										
ADD HYD	AP2	25& 4	26	.18510	389.72	14.952	1.51459	1.550	3.290	
*S**********										
*S ADD FLOWS TO MCMAHON AND UNSER INTERSECTION										
ADD HYD	F712	7&12	29	.02016	53.11	2.008	1.86799	1.500	4.116	
*S AP 6										
ADD HYD	F715	29&15	30	.02272	59.73	2.259	1.86433	1.500	4.108	
*S AP 7										
ADD HYD	F7615	30& 6	31	.05302	137.91	5.225	1.84794	1.500	4.064	
*S AP 1										
ADD HYD	AP1	31&11	32	.06912	179.46	6.802	1.84507	1.500	4.057	
*S ROUTE UNSER/MCMAHON FLOW TO UNSER/BLACK ARROYO										
ROUTE	UMC	32	33	.06912	168.73	6.802	1.84508	1.500	3.814	
ADD HYD	5A	33& 5	38	.07332	179.58	7.213	1.84453	1.500	3.827	
ADD HYD	UNSER	10&16	39	.01320	34.79	1.315	1.86797	1.500	4.118	
ADD HYD	SR	38&39	40	.08652	214.37	8.528	1.84811	1.500	3.871	
ADD HYD	U5B	40&13	41	.09752	242.76	9.605	1.84670	1.500	3.890	
ADD HYD	UNSER	41&14	42	.11752	287.82	11.207	1.78803	1.500	3.827	
ROUTE	UMC	42	43	.11752	278.09	11.207	1.78804	1.500	3.697	
*S AP 3										
ADD HYD	AP3	43& 9	44	.12102	287.32	11.556	1.79034	1.500	3.710	
*S TOTAL FLOW AT UNSER AND BLACK ARROYO										
*S AP 10										
ADD HYD	UBL	44&26	46	.30612	674.89	26.508	1.62360	1.550	3.445	
*S ROUTE UNSER/BLACK ARROYO FLOW TO EAST OF RIDGEVIEW 1										
ROUTE	RV1	46	47	.30612	682.28	26.508	1.62361	1.550	3.482	
*S ADD RIDGEVIEW 1 AND FINELAND VILLAGE CENTER FLOWS TO PIPE										
*S AP 11										
ADD HYD	RV	47&52	48	.37247	823.15	31.231	1.57218	1.550	3.453	
*S**********										
*S COMPUTE RIDGEVIEW 2 AND BLACK ARROYO BLVD FLOWS										
COMPUTE NM HYD	2.00	-	2	.00100	2.15	.074	1.38584	1.500	3.357	PER IMP= 50.00
COMPUTE NM HYD	3.00	-	3	.00144	3.09	.106	1.38584	1.500	3.351	PER IMP= 50.00
COMPUTE NM HYD	WEST	-	4	.00110	2.91	.110	1.86802	1.500	4.134	PER IMP= 90.00
ADD HYD	WEST2	4& 2	12	.00210	5.06	.183	1.63816	1.500	3.764	
*S TOTAL STREET FLOW IN BLACK ARROYO BLVD EAST OF RIDGEVIEW UNIT 2										
ADD HYD	WEST23	12& 3	14	.00354	8.15	.290	1.53544	1.500	3.596	
*S STONEBRIDGE CONTRIBUTION										
COMPUTE NM HYD	ROAD	-	5	.00210	5.54	.209	1.86802	1.500	4.126	PER IMP= 90.00
COMPUTE NM HYD	CULSACS	-	6	.00279	5.97	.206	1.38584	1.500	3.343	PER IMP= 50.00
ADD HYD	SBROAD	5& 6	7	.00489	11.51	.415	1.59279	1.500	3.679	
*S STREET FLOW IN BLACK ARROYO BLVD EAST OF STONEBRIDGE										
ADD HYD	ESB	7&14	16	.00843	19.66	.705	1.56871	1.500	3.644	
*S TOTAL PIPE FLOW IN BLACK ARROYO BLVD										
*S AP 5										
ADD HYD	AP5	16&48	18	.38090	840.49	31.937	1.57211	1.550	3.448	
FINISH										

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =11/05/2001
INPUT FILE = Master.TXT USER NO.= BOHN_HNM.STE

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 INPUT = 01177\cdp\hydro\master\commercial developed\Master.TXT										
*S Revised 10-17-01 for Master Storm Drain in Unser/McMahon										
*S This analysis assumes that McMahon flow is diverted down Unser Blvd										
*S and Black Arroyo Blvd without ponding.										
*S Ridgeview Villiage(DB4), Los Suenos(DB3), and the Park Hill(DB2)										
*S Subdivisions have free developed discharge based on R-1, 5 du/acre density.										
*S Flow from some commercial sites east of Unser between Mcmahon and										
*S Black Arroyo Blvd.is restricted to historic as per Ridgeview Unit 1 Plan.										
*S Developed flow is accommodated from the residential tracts and										
*S other commercial tracts. See Land Treatment Exhibit for specific tracts.										
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.200
*S****FINELAND VILLAGE CENTER BASINS										
COMPUTE NM HYD	J1	-	3	.00780	20.14	.764	1.83565	1.500	4.034	PER IMP= 90.00
COMPUTE NM HYD	J2	-	4	.00640	16.53	.627	1.83565	1.500	4.035	PER IMP= 90.00
COMPUTE NM HYD	K	-	5	.00320	7.45	.268	1.56790	1.500	3.638	PER IMP= 65.00
COMPUTE NM HYD	L	-	7	.00440	10.24	.368	1.56790	1.500	3.636	PER IMP= 65.00
COMPUTE NM HYD	M	-	9	.00480	11.17	.401	1.56790	1.500	3.635	PER IMP= 65.00
COMPUTE NM HYD	IN	-	11	.00830	21.43	.813	1.83565	1.500	4.034	PER IMP= 90.00
COMPUTE NM HYD	O	-	13	.00720	6.00	.170	.44245	1.500	1.303	PER IMP= .00
COMPUTE NM HYD	P	-	15	.00570	4.75	.135	.44245	1.500	1.303	PER IMP= .00
COMPUTE NM HYD	Q	-	17	.00510	4.25	.120	.44245	1.500	1.303	PER IMP= .00
COMPUTE NM HYD	R	-	19	.00600	12.82	.443	1.38584	1.500	3.338	PER IMP= 50.00
COMPUTE NM HYD	S	-	21	.01100	23.49	.813	1.38584	1.500	3.337	PER IMP= 50.00
*S****RIDGEVIEW UNIT 1 BASINS										
COMPUTE NM HYD	A1	-	23	.00230	4.92	.170	1.38584	1.500	3.345	PER IMP= 50.00
COMPUTE NM HYD	A2	-	24	.00120	2.57	.089	1.38584	1.500	3.352	PER IMP= 50.00
COMPUTE NM HYD	B	-	25	.00780	16.66	.577	1.38584	1.500	3.337	PER IMP= 50.00
COMPUTE NM HYD	C	-	27	.00190	4.07	.140	1.38584	1.500	3.346	PER IMP= 50.00
COMPUTE NM HYD	D	-	29	.00790	16.87	.584	1.38584	1.500	3.337	PER IMP= 50.00
COMPUTE NM HYD	E	-	31	.00200	4.28	.148	1.38584	1.500	3.346	PER IMP= 50.00
COMPUTE NM HYD	F	-	33	.00510	10.90	.377	1.38584	1.500	3.339	PER IMP= 50.00
COMPUTE NM HYD	G	-	35	.00360	7.70	.266	1.38584	1.500	3.341	PER IMP= 50.00
COMPUTE NM HYD	H	-	37	.00130	2.79	.096	1.38584	1.500	3.352	PER IMP= 50.00
COMPUTE NM HYD	WEST	-	39	.00210	5.73	.220	1.96651	1.500	4.262	PER IMP= 100.00
*S ADD SOUTH-WESTERN BASINS										
ADD HYD	OP	13&15	40	.01290	10.76	.304	.44245	1.500	1.303	
ADD HYD	OPIN	40&11	41	.02120	32.18	1.117	.98789	1.500	2.372	
ADD HYD	OPINJ1	41& 3	45	.02900	52.32	1.881	1.21590	1.500	2.819	
ADD HYD	RVAP3	45& 4	46	.03540	68.85	2.507	1.32793	1.500	3.039	
ADD HYD	RVAP4	33&35	50	.00870	18.60	.643	1.38578	1.500	3.340	
*S************************************										
*S ADD SOUTH-EASTERN BASINS										
*S STONEBRIDGE WILL ACCEPT 9.69 CFS AT FEATHER ROCK										
DIVIDE HYD	SB2	9	80	.00472	9.69	.394	1.56785	1.450	3.210	
	M2	AND	81	.00008	1.48	.007	1.56785	1.500	27.530	
*S FEIN SUBDIVISION DISCHARGES INTO STONEBRIDGE PER CSC										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ADD HYD	SR	21&19	54	.01700	36.31	1.256	1.38581	1.500	3.337	
ADD HYD	ML	81& 7	55	.00448	11.72	.375	1.56784	1.500	4.083	
ADD HYD	QK	17& 5	58	.00830	11.70	.388	.87632	1.500	2.203	
ADD HYD	QK3	58&46	59	.04370	80.55	2.895	1.24216	1.500	2.880	
*S AP 13										
ADD HYD	RVAP5	59&55	60	.04818	92.27	3.270	1.27247	1.500	2.992	
ADD HYD	5H	60&37	62	.04948	95.05	3.366	1.27544	1.500	3.001	
*S ADD WESTERN TO EASTERN BASINS										
ADD HYD	RVAP6	62&50	63	.05818	113.65	4.009	1.29194	1.500	3.052	
ADD HYD	DE	29&31	66	.00990	21.16	.732	1.38579	1.500	3.339	
ADD HYD	DE6	66&63	67	.06808	134.81	4.741	1.30558	1.500	3.094	
ADD HYD	A1A2	23&24	64	.00350	7.50	.259	1.38566	1.500	3.348	
ADD HYD	A1A2B	64&25	68	.01130	24.16	.835	1.38576	1.500	3.340	
ADD HYD	A12BC	68&27	70	.01320	28.23	.976	1.38575	1.500	3.341	
ADD HYD	RVAP7	70&67	71	.08128	163.03	5.716	1.31860	1.500	3.134	
ADD HYD	PONDIN	71&39	73	.08338	168.76	5.937	1.33492	1.500	3.162	
*S DIVIDE BASIN S: STONEBRIDGE WILL ACCEPT 8 CFS										
*S AP 4										
DIVIDE HYD	SB	73	51	.01704	8.00	1.213	1.33492	1.250	.734	
	TOBLACK	AND	52	.06635	160.76	4.724	1.33492	1.500	3.786	
*S BASINS FROM WEST OF UNSER										
*S WEST OF DUNLOP										
*S AP 12										
COMPUTE NM HYD	DB1	-	1	.04200	94.60	3.364	1.50198	1.500	3.520	PER IMP= 60.00
COMPUTE NM HYD	DB2	-	2	.05990	134.92	4.798	1.50198	1.500	3.519	PER IMP= 60.00
COMPUTE NM HYD	DB3	-	3	.05280	118.93	4.230	1.50198	1.500	3.519	PER IMP= 60.00
COMPUTE NM HYD	DB4A	-	4	.02340	52.72	1.874	1.50198	1.500	3.520	PER IMP= 60.00
COMPUTE NM HYD	DB4B	-	14	.02000	45.06	1.602	1.50198	1.500	3.520	PER IMP= 60.00
COMPUTE NM HYD	DB4C	-	15	.00256	6.62	.251	1.83565	1.500	4.040	PER IMP= 90.00
COMPUTE NM HYD	DB5A	-	5	.00420	10.85	.411	1.83565	1.500	4.036	PER IMP= 90.00
COMPUTE NM HYD	DB5B	-	13	.01100	28.39	1.077	1.83565	1.500	4.033	PER IMP= 90.00
COMPUTE NM HYD	DB6	-	6	.03030	78.18	2.966	1.83565	1.500	4.032	PER IMP= 90.00
COMPUTE NM HYD	DB7A	-	7	.01216	32.03	1.211	1.86802	1.500	4.116	PER IMP= 90.00
COMPUTE NM HYD	DB7B	-	12	.00800	21.08	.797	1.86802	1.500	4.117	PER IMP= 90.00
COMPUTE NM HYD	DB8	-	8	.00700	18.07	.685	1.83565	1.500	4.034	PER IMP= 90.00
COMPUTE NM HYD	NUNSER	-	9	.00350	9.23	.349	1.86802	1.500	4.120	PER IMP= 90.00
COMPUTE NM HYD	MUNSER	-	10	.00500	13.18	.498	1.86802	1.500	4.119	PER IMP= 90.00
COMPUTE NM HYD	SUNSER	-	16	.00820	21.61	.817	1.86802	1.500	4.117	PER IMP= 90.00
*S COMMERCIAL TRACT ON SE CORNER OF MCMAHON AND UNSER										
COMPUTE NM HYD	DC2	-	11	.01610	41.55	1.576	1.83565	1.500	4.032	PER IMP= 90.00
ADD HYD	LOS	8& 3	17	.05980	137.00	4.915	1.54103	1.500	3.580	
*S ROUTE AND ADD RESIDENTIAL FLOWS ALONG BLACK ARROYO										
*S WEST OF UNSER BLVD.										
ROUTE	DB1R	1	20	.04200	88.80	3.364	1.50199	1.550	3.304	
*S AP 8										
ADD HYD	1R2	20& 2	22	.10190	220.96	8.163	1.50197	1.500	3.388	
ROUTE	DB2R	22	23	.10190	214.91	8.163	1.50198	1.550	3.295	
ADD HYD	123.00	23&17	24	.16170	340.57	13.078	1.51642	1.500	3.291	
*S AP 9										
ROUTE	DB3R	24	25	.16170	343.10	13.078	1.51642	1.550	3.315	

```
*
*S INPUT = 01177\cdp\hydro\master\commercial developed\Master.TXT
*S Revised 10-17-01 for Master Storm Drain in Unser/McMahon
*S This analysis assumes that McMahon flow is diverted down Unser Blvd
*S and Black Arroyo Blvd without ponding.
*S Ridgeview Villiage(DB4), Los Suenos(DB3), and the Park Hill(DB2)
*S Subdivisions have free developed discharge based on R-1, 5 du/acre density.
*S Flow from some commercial sites east of Unser between Mcmahon and
*S Black Arroyo Blvd.is restricted to historic as per Ridgeview Unit 1 Plan.
*S Developed flow is accommodated from the residential tracts and
*S other commercial tracts. See Land Treatment Exhibit for specific tracts.
*
START                RAINFALL BEGINS AT 0.00 HOURS
*                      100-YEAR RETURN PERIOD
*****************************************************************************
*
*
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
::::::::
*       ::                          MISC. DATA                                                    ::
*       ::         RAINFALL RETURN PERIOD_____ _____ _____  100-YEAR     ::
*       ::         RAINFALL DURATION_____ _____ _____ _____  6-HOUR       ::
*       ::        ZONE 1                                                        ::
*       ::         RAINFALL DEPTHS: 1 HOUR (P60)___  1.85 INCHES                  ::
*       ::         (UNADJUSTED)     6 HOUR (P360)__  2.20 INCHES                     ::
*       ::                          24 HOUR (P1440)_  2.75 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                        ::
*       ::
          ::
*
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
::::::
*                             BEGIN  ANALYSIS
*****************************************************************************
*
RAINFALL               TYPE=1 RAIN QUARTER=0.0 RAIN ONE=1.85
                       RAIN SIX=2.20 RAIN DAY=2.75 DT=0.05
************************************
*S****FINELAND VILLAGE CENTER BASINS
************************************
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN J1 *********
COMPUTE NM HYD          ID=3 HYD=J1  AREA=0.0078 PER A=0.0 PER B=10.0
                       PER C=0.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=3   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN J2 *********
COMPUTE NM HYD          ID=4 HYD=J2  AREA=0.0064 PER A=0.0 PER B=10.0
                       PER C=0.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=4   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN K *********
COMPUTE NM HYD          ID=5 HYD=K  AREA=0.0032 PER A=0.0 PER B=15.0
                       PER C=20.0 PER D=65.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=5   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN L *********
COMPUTE NM HYD          ID=7 HYD=L  AREA=0.0044 PER A=0.0 PER B=15.0
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                        PER C=20.0 PER D=65.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=7   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN M *********
COMPUTE NM HYD          ID=9 HYD=M  AREA=0.0048 PER A=0.0 PER B=15.0
                        PER C=20.0 PER D=65.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=9   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN IN (KUNATH) *********
COMPUTE NM HYD          ID=11 HYD=IN  AREA=0.0083 PER A=0.0 PER B=10.0
                        PER C=0.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=11   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN O *********
COMPUTE NM HYD          ID=13 HYD=O  AREA=0.0072 PER A=95.0 PER B=5.0
                        PER C=0.0 PER D=0.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=13   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN P *********
COMPUTE NM HYD          ID=15 HYD=P  AREA=0.0057 PER A=95.0 PER B=5.0
                        PER C=0.0 PER D=0.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=15   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN Q *********
COMPUTE NM HYD          ID=17 HYD=Q  AREA=0.0051 PER A=95.0 PER B=5.0
                        PER C=0.0 PER D=0.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=17   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN R *********
COMPUTE NM HYD          ID=19 HYD=R  AREA=0.006 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=19   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN S *********
COMPUTE NM HYD          ID=21 HYD=S  AREA=0.011 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=21   CODE=1
*
***********************************
*S****RIDGEVIEW UNIT 1 BASINS
***********************************
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN A1 *********
COMPUTE NM HYD          ID=23 HYD=A1  AREA=0.0023 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=23   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN A2 *********
COMPUTE NM HYD          ID=24 HYD=A2  AREA=0.0012 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=24   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN B *********
COMPUTE NM HYD          ID=25 HYD=B  AREA=0.0078 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=25   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN C *********
COMPUTE NM HYD          ID=27 HYD=C  AREA=0.0019 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=27   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN D *********
COMPUTE NM HYD          ID=29 HYD=D  AREA=0.0079 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=29   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN E *********
COMPUTE NM HYD          ID=31 HYD=E  AREA=0.002 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=31   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN F *********
COMPUTE NM HYD          ID=33 HYD=F  AREA=0.0051 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=33   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN G *********
COMPUTE NM HYD          ID=35 HYD=G  AREA=0.0036 PER A=0.0 PER B=25.0
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                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=35   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN H *********
COMPUTE NM HYD          ID=37 HYD=H  AREA=0.0013 PER A=0.0 PER B=25.0
                        PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=37   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN WESTSIDE *********
COMPUTE NM HYD          ID=39 HYD=WEST  AREA=0.0021 PER A=0.0 PER B=0.0
                        PER C=0.0 PER D=100.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=39   CODE=1
*S ADD SOUTH-WESTERN BASINS
ADD HYD                 ID=40 HYD=OP ID I=13 ID II=15
PRINT HYD              ID=40   CODE=1
*
ADD HYD                 ID=41 HYD=OPIN I=40 ID II=11
PRINT HYD              ID=41   CODE=1
*
* ADD BASIN J
*
ADD HYD                 ID=45 HYD=OPINJ1 ID I=41 ID II=3
PRINT HYD              ID=45   CODE=1
*
*S AP #3
ADD HYD                 ID=46 HYD=RVAP3 ID I=45 ID II=4
PRINT HYD              ID=46   CODE=1
*
*S AP#4
* ADD BASIN G
ADD HYD                 ID=50 HYD=RVAP4 ID I=33 ID II=35
PRINT HYD              ID=50   CODE=1
*
*S**************************************
*S ADD SOUTH-EASTERN BASINS
*S STONEBRIDGE WILL ACCEPT 9.69 CFS AT FEATHER ROCK
DIVIDE HYD             ID=9   Q=9.69   IDI=80 HYD=SB2
                                      IDII=81  HYD=M2
*
*S FEIN SUBDIVISION DISCHARGES INTO STONEBRIDGE PER CSC
ADD HYD                 ID=54 HYD=SR  ID I=21 ID II=19
PRINT HYD              ID=54   CODE=1
*
ADD HYD                 ID=55 HYD=ML ID I=81 ID II=7
PRINT HYD              ID=55   CODE=1
*
ADD HYD                 ID=58 HYD=QK ID I=17 ID II=5
PRINT HYD              ID=58   CODE=1
*
ADD HYD                 ID=59 HYD=QK3 ID I=58 ID II=46
PRINT HYD              ID=59   CODE=1
*
ADD HYD                 ID=60 HYD=RVAP5 ID I=59 ID II=55
PRINT HYD              ID=60   CODE=1
*
ADD HYD                 ID=62 HYD=5H ID I=60 ID II=37
PRINT HYD              ID=62   CODE=1
*
*S ADD WESTERN TO EASTERN BASINS
*S AP#6
ADD HYD                 ID=63 HYD=RVAP6 ID I=62 ID II=50
PRINT HYD              ID=63   CODE=1
*
ADD HYD                 ID=66 HYD=DE ID I=29 ID II=31
PRINT HYD              ID=66   CODE=1
*
```

```
ADD HYD                 ID=67 HYD=DE6 ID I=66 ID II=63
PRINT HYD              ID=67   CODE=1
*
ADD HYD                 ID=64 HYD=A1A2 ID I=23 ID II=24
PRINT HYD              ID=64   CODE=1
*
ADD HYD                 ID=68 HYD=A1A2B ID I=64 ID II=25
PRINT HYD              ID=68   CODE=1
*
ADD HYD                 ID=70 HYD=A12BC ID I=68 ID II=27
PRINT HYD              ID=70   CODE=1
*S AP#7
ADD HYD                 ID=71 HYD=RVAP7 ID I=70 ID II=67
PRINT HYD              ID=71   CODE=1
*
ADD HYD                 ID=73 HYD=PONDIN ID I=71 ID II=39
PRINT HYD              ID=73   CODE=1
*S DIVIDE BASIN S: STONEBRIDGE WILL ACCEPT 8 CFS
DIVIDE HYD             ID=73  Q=8.0   IDI=51 HYD=SB
                                      IDII=52  HYD=TOBLACK
*************************************************************
*S BASINS FROM WEST OF UNSER
*S WEST OF DUNLOP
COMPUTE NM HYD          ID=1 HYD=DB1  AREA=0.042 PER A=0.0 PER B=20.0
                       PER C=20.0 PER D=60.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=1   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN 2 DUNLOP*********
COMPUTE NM HYD          ID=2 HYD=DB2  AREA=0.0599 PER A=0.0 PER B=20.0
                       PER C=20.0 PER D=60.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=2   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN OFFSITE BASIN 3 LOS SUENOS *********
COMPUTE NM HYD          ID=3 HYD=DB3  AREA=0.0528 PER A=0.0 PER B=20.0
                       PER C=20.0 PER D=60.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=3   CODE=1
*
*
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN 4A RIDGEVIEW VILLAGE-BL ARROYO*********
COMPUTE NM HYD          ID=4 HYD=DB4A  AREA=0.0234 PER A=0.0 PER B=20.0
                       PER C=20.0 PER D=60.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=4   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN 4B RIDGEVIEW VILLAGE-UNSER*********
COMPUTE NM HYD          ID=14 HYD=DB4B  AREA=0.02 PER A=0.0 PER B=20.0
                       PER C=20.0 PER D=60.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=14   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN 4C RIDGEVIEW VILLAGE OFFICE*********
COMPUTE NM HYD          ID=15 HYD=DB4C  AREA=0.00256 PER A=0.0 PER B=10.0
                       PER C=0.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=15   CODE=1
*
* PINON HEIGHTS COMMERCIAL TRACT
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN 5A *********
COMPUTE NM HYD          ID=5 HYD=DB5A  AREA=0.0042 PER A=0.0 PER B=10.0
                       PER C=0.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=5   CODE=1
*
* PINON HEIGHTS COMMERCIAL TRACT
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN 5B *********
COMPUTE NM HYD          ID=13 HYD=DB5B  AREA=0.011 PER A=0.0 PER B=10.0
                       PER C=0.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=13   CODE=1
*
```

```
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN 6 TRES ESQUINAS COMMERCIAL *********
COMPUTE NM HYD          ID=6 HYD=DB6  AREA=0.0303 PER A=0.0 PER B=10.0
                       PER C=0.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=6   CODE=1
* (NOT INCL UNSER)
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE MCMAHON WEST *********
COMPUTE NM HYD          ID=7 HYD=DB7A  AREA=0.01216 PER A=0.0 PER B=0.0
                       PER C=10.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=7   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN MCMAHON EAST *********
COMPUTE NM HYD          ID=12 HYD=DB7B  AREA=0.008 PER A=0.0 PER B=0.0
                       PER C=10.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=12   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR OFFSITE BASIN 8 LOS SUENOS COMMERCIAL*********
COMPUTE NM HYD          ID=8 HYD=DB8  AREA=0.007 PER A=0.0 PER B=10.0
                       PER C=0.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=8   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN OFFSITE BASIN 9 - NORTH UNSER *********
COMPUTE NM HYD          ID=9 HYD=NUNSER  AREA=0.0035 PER A=0.0 PER B=0.0
                       PER C=10.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=9   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN OFFSITE BASIN 10 - MID UNSER *********
COMPUTE NM HYD          ID=10 HYD=MUNSER  AREA=0.005 PER A=0.0 PER B=0.0
                       PER C=10.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=10   CODE=1
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN OFFSITE BASIN 16 - SOUTH UNSER *********
COMPUTE NM HYD          ID=16 HYD=SUNSER  AREA=0.0082 PER A=0.0 PER B=0.0
                       PER C=10.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=16   CODE=1
*
*S COMMERCIAL TRACT ON SE CORNER OF MCMAHON AND UNSER
COMPUTE NM HYD          ID=11 HYD=DC2  AREA=0.0161 PER A=0.0 PER B=10.0
                       PER C=0.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD              ID=11   CODE=1
*
* ADD LOS SUENOS COMMERCIAL TO RESIDENTIAL
ADD HYD                 ID=17 HYD=LOS ID I=8 ID II=3
PRINT HYD              ID=17   CODE=1
*S*****************************************************************
*S ROUTE AND ADD RESIDENTIAL FLOWS ALONG BLACK ARROYO
*S WEST OF UNSER BLVD.
* ROUTE DB1 ACROSS DUNLOP PROPERTY ON BLACK ARROYO BLVD
COMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1 SLP=0.02
                      DIAM=2.5 FT   N=0.014
COMPUTE TRAVEL TIME   ID=20   REACH NO=1 NO VS=1 L=1305  FT
                              SLOPE=0.02
ROUTE                 ID=20  HYD NO=DB1R  INFLOW ID=1
*
* ADD ROUTED DB1 TO DUNLOP DB2
ADD HYD                 ID=22 HYD=1R2 ID I=20 ID II=2
PRINT HYD              ID=22   CODE=1
*
* ROUTE DB1 + DUNLOP ON BLACK ARROYO ACROSS LOS SUENOS
COMPUTE RATING CURVE  CID=1 VS NO=2 CODE=-1 SLP=0.02
                      DIAM=4 FT   N=0.014
COMPUTE TRAVEL TIME   ID=23   REACH NO=2 NO VS=1 L=1374  FT
                              SLOPE=0.02
ROUTE                 ID=23  HYD NO=DB2R  INFLOW ID=22
*
* ADD LOS SUENOS TO DUNLOP
ADD HYD                 ID=24 HYD=123 ID I=23 ID II=17
```

```
PRINT HYD              ID=24   CODE=1
*
* ROUTE OLF DB1 + DUNLOP + LOS SUENOS ON BLACK ARROYO BLVD
*
COMPUTE RATING CURVE  CID=1 VS NO=3 CODE=-1 SLP=0.02
                      DIAM=5.5 FT   N=0.014
COMPUTE TRAVEL TIME   ID=25   REACH NO=3 NO VS=1 L=1314  FT
                              SLOPE=0.02
ROUTE                 ID=25  HYD NO=DB3R  INFLOW ID=24
*
* ADD PINON HEIGHTS TO LOS SUENOS
*S FLOW ADDED TO UNSER AT BLACK ARROYO BLVD FROM WEST
ADD HYD                ID=26 HYD=AP2 ID I=25 ID II=4
PRINT HYD              ID=26   CODE=1
*
*S*****************************************************
*S ADD FLOWS TO MCMAHON AND UNSER INTERSECTION
*
ADD HYD                ID=29 HYD=F712 ID I=7 ID II=12
PRINT HYD              ID=29   CODE=1
*
ADD HYD                ID=30 HYD=F715 ID I=29 ID II=15
PRINT HYD              ID=30   CODE=1
*
ADD HYD                ID=31 HYD=F7615 ID I=30 ID II=6
PRINT HYD              ID=31   CODE=1
*
ADD HYD                ID=32 HYD=AP1 ID I=31 ID II=11
PRINT HYD              ID=32   CODE=1
*
*S ROUTE UNSER/MCMAHON FLOW TO UNSER/BLACK ARROYO
*
COMPUTE RATING CURVE  CID=1 VS NO=4 CODE=-1 SLP=0.005
                      DIAM=5 FT   N=0.014
COMPUTE TRAVEL TIME   ID=33   REACH NO=4 NO VS=1 L=1140  FT
                              SLOPE=0.005
ROUTE                 ID=33  HYD NO=UMC  INFLOW ID=32
*
ADD HYD                ID=38 HYD=5A ID I=33 ID II=5
PRINT HYD              ID=38   CODE=1
*
ADD HYD                ID=39 HYD=UNSER ID I=10 ID II=16
PRINT HYD              ID=39   CODE=1
*
ADD HYD                ID=40 HYD=SR ID I=38 ID II=39
PRINT HYD              ID=40   CODE=1
*
ADD HYD                ID=41 HYD=U5B ID I=40 ID II=13
PRINT HYD              ID=41   CODE=1
*
ADD HYD                ID=42 HYD=UNSER ID I=41 ID II=14
PRINT HYD              ID=42   CODE=1
*
COMPUTE RATING CURVE  CID=1 VS NO=5 CODE=-1 SLP=0.005
                      DIAM=6 FT   N=0.014
COMPUTE TRAVEL TIME   ID=43   REACH NO=5 NO VS=1 L=670  FT
                              SLOPE=0.005
ROUTE                 ID=43  HYD NO=UMC  INFLOW ID=42
*
ADD HYD                ID=44 HYD=AP3 ID I=43 ID II=9
PRINT HYD              ID=44   CODE=1
*
*S TOTAL FLOW AT UNSER AND BLACK ARROYO
ADD HYD                ID=46 HYD=UBL ID I=44 ID II=26
PRINT HYD              ID=46   CODE=1
```

```
*
*S ROUTE UNSER/BLACK ARROYO FLOW TO EAST OF RIDGEVIEW 1
*
COMPUTE RATING CURVE  CID=1 VS NO=5 CODE=-1 SLP=0.02
                      DIAM=6.5 FT   N=0.014
COMPUTE TRAVEL TIME   ID=47   REACH NO=5 NO VS=1 L=1226  FT
                              SLOPE=0.005
ROUTE                 ID=47  HYD NO=RV1  INFLOW ID=46
*
*S ADD RIDGEVIEW 1 AND FINELAND VILLAGE CENTER FLOWS TO PIPE
ADD HYD                ID=48 HYD=RV ID I=47 ID II=52
PRINT HYD             ID=48   CODE=1
*S*********************************************************************
*S COMPUTE RIDGEVIEW 2 AND BLACK ARROYO BLVD FLOWS
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN 2 *********
COMPUTE NM HYD         ID=2 HYD=2  AREA=0.001 PER A=0.0 PER B=25.0
                      PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD             ID=2   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN 3 *********
COMPUTE NM HYD         ID=3 HYD=3  AREA=0.00144 PER A=0.0 PER B=25.0
                      PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD             ID=3   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR BLACK ARROYO BLVD ADJ TO RIDGEVIEW 2 *********
COMPUTE NM HYD         ID=4 HYD=WEST  AREA=0.0011 PER A=0.0 PER B=0.0
                      PER C=10.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD             ID=4   CODE=1
* ADD BASIN 2 INTO BLACK ARROYO BLVD
ADD HYD                ID=12 HYD=WEST2 ID I=4 ID II=2
PRINT HYD             ID=12   CODE=1
* ADD BASIN 3 INTO BLACK ARROYO BLVD
*S TOTAL STREET FLOW IN BLACK ARROYO BLVD EAST OF RIDGEVIEW UNIT 2
ADD HYD                ID=14 HYD=WEST23 ID I=12 ID II=3
PRINT HYD             ID=14   CODE=1
*
*S STONEBRIDGE CONTRIBUTION
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN BLACK ARROYO ADJ TO STONEBRIDGE *********
COMPUTE NM HYD         ID=5 HYD=ROAD  AREA=0.0021 PER A=0.0 PER B=0.0
                      PER C=10.0 PER D=90.0  TP=.133  RAINFALL=-1
PRINT HYD             ID=5   CODE=1
**** COMPUTE AND PRINT NM HYD DATA FOR STONEBRIDGE CUL-DE-SACS *********
COMPUTE NM HYD         ID=6 HYD=CULSACS  AREA=0.00279 PER A=0.0 PER B=25.0
                      PER C=25.0 PER D=50.0  TP=.133  RAINFALL=-1
PRINT HYD             ID=6   CODE=1
*
ADD HYD                ID=7 HYD=SBROAD ID I=5 ID II=6
PRINT HYD             ID=7   CODE=1
*
*S STREET FLOW IN BLACK ARROYO BLVD EAST OF STONEBRIDGE
ADD HYD                ID=16 HYD=ESB ID I=7 ID II=14
PRINT HYD             ID=16   CODE=1
*
*S TOTAL PIPE FLOW IN BLACK ARROYO BLVD
ADD HYD                ID=18 HYD=AP5 ID I=16 ID II=48
PRINT HYD             ID=18   CODE=1
*
FINISH
```

EES.

UNSER STREET FLOW

6-14-01

- UNSER SOUTH OF McMahon

  Q= 21.9 cfs

  S= 0.96%

  half street capacity = 30.1 per PC Stream output.

  See attached cross section for input

  Install inlets instead of valley gutters.

  half street flow = 10.95 cfs.

  depth = 0.48'

  flow in each grate = 5.5 cfs / grate.

  use 2 inlets on each side.

- Unser North of McMahon at Southern Boundary of Ridgeview Subdivision

  Q= 13.18 cfs. S= 0.5%

  half street capacity = 37.6 cfs.

  Install inlets instead of valley gutters

  half Street flow = 6.6 cfs.

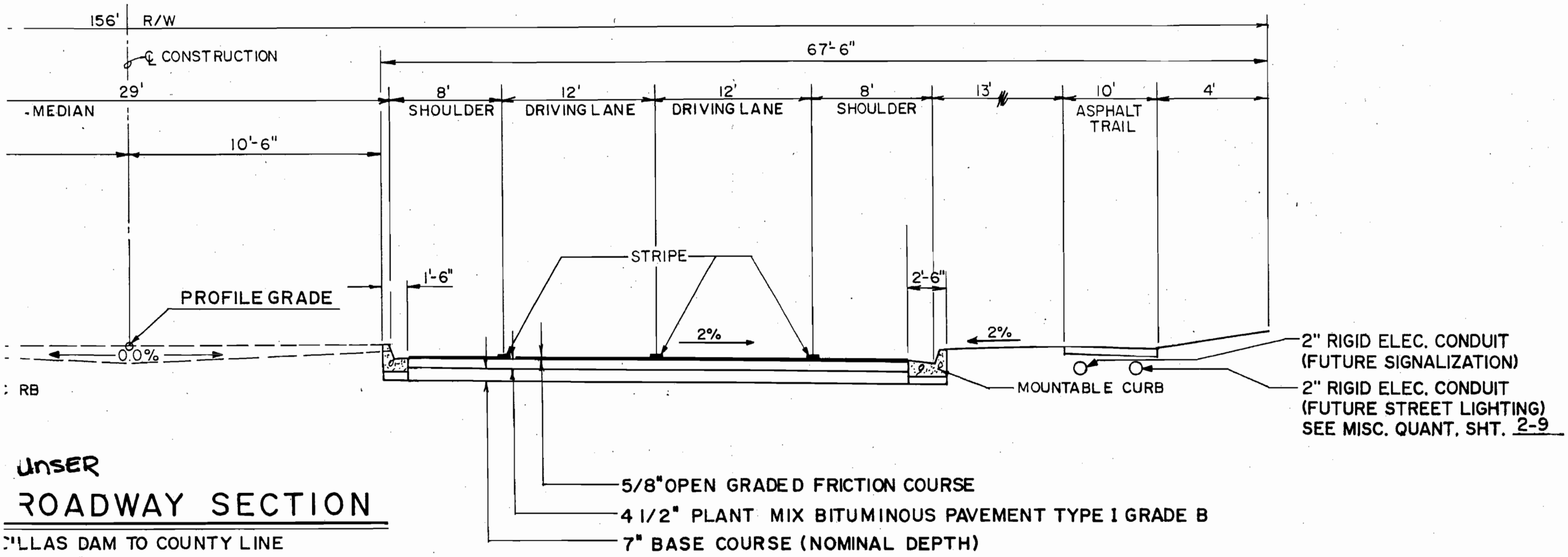
  depth = 0.44' see PC stream output.

  Q in each grate = 3.4 cfs.

  Install two grates on each side of Unser.

WAY TYPICAL SECTION

E 3 (CALABACILLAS DAM)



: RB

Unser

ROADWAY SECTION

'LLAS DAM TO COUNTY LINE
; A. 91+57.34

No.	DESCRIPTION	DATE
6		
5		
4		
3		
2	B-9	
1		

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

UNSER SOUTH

MANNING'S N= .017 SLOPE= .0096

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.93	4	15.00	0.13	7	0.00	0.00
2	13.00	0.67	5	53.00	0.89	8	0.00	0.00
3	13.10	0.00	6	53.10	1.22	9	0.00	0.00

WSEL	DEPTH INC	FLOW AREA	FLOW RATE	WETTED PER	FLOW VEL	TOPWID	VEL HEAD	ENERGY HEAD
(FT)	(FT)	SQ.FT.	(CFS)	(FT)	(FPS)	(FT)	(FT)	(FT)
0.01	0.01	0.00	0.0	0.16	0.24	0.15	0.00	0.01
0.02	0.02	0.00	0.0	0.31	0.38	0.30	0.00	0.02
0.03	0.03	0.01	0.0	0.47	0.50	0.44	0.00	0.03
0.04	0.04	0.01	0.0	0.63	0.61	0.59	0.01	0.05
0.05	0.05	0.02	0.0	0.78	0.70	0.74	0.01	0.06
0.06	0.06	0.03	0.0	0.94	0.80	0.89	0.01	0.07
0.07	0.07	0.04	0.0	1.10	0.88	1.03	0.01	0.08
0.08	0.08	0.05	0.0	1.25	0.96	1.18	0.01	0.09
0.09	0.09	0.06	0.1	1.41	1.04	1.33	0.02	0.11
0.10	0.10	0.07	0.1	1.57	1.12	1.48	0.02	0.12
0.11	0.11	0.09	0.1	1.72	1.19	1.62	0.02	0.13
0.12	0.12	0.11	0.1	1.88	1.26	1.77	0.02	0.14
0.13	0.13	0.12	0.2	2.04	1.33	1.92	0.03	0.16
0.14	0.14	0.15	0.2	2.55	1.28	2.42	0.03	0.17
0.15	0.15	0.17	0.2	3.06	1.26	2.92	0.02	0.17
0.16	0.16	0.20	0.3	3.57	1.28	3.42	0.03	0.19
0.17	0.17	0.24	0.3	4.08	1.30	3.93	0.03	0.20
0.18	0.18	0.28	0.4	4.59	1.34	4.43	0.03	0.21
0.19	0.19	0.33	0.5	5.10	1.38	4.93	0.03	0.22
0.20	0.20	0.38	0.5	5.61	1.43	5.43	0.03	0.23
0.21	0.21	0.44	0.6	6.12	1.48	5.93	0.03	0.24
0.22	0.22	0.50	0.8	6.63	1.53	6.43	0.04	0.26
0.23	0.23	0.57	0.9	7.14	1.58	6.93	0.04	0.27
0.24	0.24	0.64	1.0	7.65	1.64	7.44	0.04	0.28
0.25	0.25	0.72	1.2	8.16	1.69	7.94	0.04	0.29
0.26	0.26	0.80	1.4	8.67	1.75	8.44	0.05	0.31
0.27	0.27	0.88	1.6	9.18	1.80	8.94	0.05	0.32
0.28	0.28	0.98	1.8	9.69	1.86	9.44	0.05	0.33
0.29	0.29	1.07	2.1	10.20	1.91	9.94	0.06	0.35
0.30	0.30	1.18	2.3	10.71	1.96	10.44	0.06	0.36
0.31	0.31	1.28	2.6	11.22	2.02	10.95	0.06	0.37
0.32	0.32	1.39	2.9	11.73	2.07	11.45	0.07	0.39
0.33	0.33	1.51	3.2	12.24	2.12	11.95	0.07	0.40
0.34	0.34	1.63	3.6	12.75	2.18	12.45	0.07	0.41
0.35	0.35	1.76	3.9	13.26	2.23	12.95	0.08	0.43
0.36	0.36	1.89	4.3	13.77	2.28	13.45	0.08	0.44
0.37	0.37	2.03	4.7	14.28	2.33	13.96	0.08	0.45
0.38	0.38	2.17	5.2	14.79	2.38	14.46	0.09	0.47
0.39	0.39	2.32	5.6	15.30	2.43	14.96	0.09	0.48
0.40	0.40	2.47	6.1	15.81	2.48	15.46	0.10	0.50
0.41	0.41	2.63	6.7	16.32	2.53	15.96	0.10	0.51
0.42	0.42	2.79	7.2	16.83	2.58	16.46	0.10	0.52
0.43	0.43	2.96	7.8	17.34	2.63	16.96	0.11	0.54
0.44	0.44	3.13	8.4	17.85	2.68	17.47	0.11	0.55
0.46	0.46	3.49	9.7	18.87	2.78	18.47	0.12	0.58
0.47	0.47	3.68	10.4	19.38	2.83	18.97	0.12	0.59
0.48	0.48	3.87	11.1	19.89	2.87	19.47	0.13	0.61
0.49	0.49	4.07	11.9	20.40	2.92	19.97	0.13	0.62
0.50	0.50	4.27	12.7	20.91	2.97	20.47	0.14	0.64
0.51	0.51	4.47	13.5	21.42	3.02	20.98	0.14	0.65
0.52	0.52	4.69	14.3	21.93	3.06	21.48	0.15	0.67
0.53	0.53	4.90	15.2	22.44	3.11	21.98	0.15	0.68

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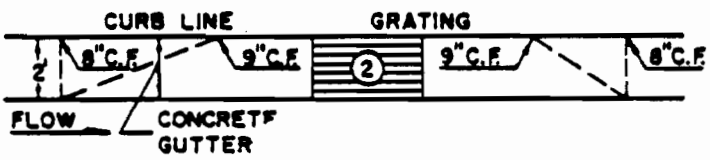
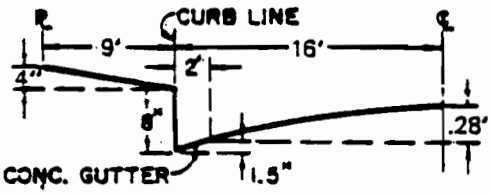
WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.54	0.54	5.13	16.2	22.95	3.15	22.48	0.15	0.69
0.55	0.55	5.35	17.1	23.46	3.20	22.98	0.16	0.71
0.56	0.56	5.59	18.1	23.97	3.24	23.48	0.16	0.72
0.57	0.57	5.82	19.1	24.49	3.29	23.99	0.17	0.74
0.58	0.58	6.07	20.2	25.00	3.33	24.49	0.17	0.75
0.59	0.59	6.31	21.3	25.51	3.38	24.99	0.18	0.77
0.60	0.60	6.57	22.5	26.02	3.42	25.49	0.18	0.78
0.61	0.61	6.82	23.6	26.53	3.46	25.99	0.19	0.80
0.62	0.62	7.09	24.9	27.04	3.51	26.49	0.19	0.81
0.63	0.63	7.35	26.1	27.55	3.55	26.99	0.20	0.83
0.64	0.64	7.63	27.4	28.06	3.59	27.50	0.20	0.84
0.65	0.65	7.90	28.7	28.57	3.64	28.00	0.21	0.86
0.66	0.66	8.19	30.1	29.08	3.68	28.50	0.21	0.87
0.67	0.67	8.47	31.5	29.59	3.72	29.00	0.21	0.88
0.68	0.68	8.77	32.6	30.59	3.72	30.00	0.22	0.90
0.69	0.69	9.07	33.8	31.59	3.73	31.00	0.22	0.91
0.70	0.70	9.39	35.1	32.59	3.74	32.00	0.22	0.92
0.71	0.71	9.71	36.4	33.59	3.75	33.00	0.22	0.93
0.72	0.72	10.05	37.7	34.59	3.76	34.00	0.22	0.94
0.73	0.73	10.39	39.2	35.59	3.77	35.00	0.22	0.95
0.74	0.74	10.75	40.7	36.59	3.78	36.00	0.22	0.96
0.75	0.75	11.11	42.2	37.59	3.80	37.00	0.22	0.97
0.76	0.76	11.49	43.9	38.59	3.82	38.00	0.23	0.99
0.77	0.77	11.87	45.6	39.59	3.84	39.00	0.23	1.00
0.78	0.78	12.27	47.3	40.59	3.86	40.00	0.23	1.01
0.79	0.79	12.67	49.1	41.59	3.88	41.00	0.23	1.02
0.80	0.80	13.09	51.0	42.59	3.90	42.00	0.24	1.04
0.81	0.81	13.51	53.0	43.59	3.92	43.00	0.24	1.05
0.82	0.82	13.95	55.0	44.59	3.95	44.00	0.24	1.06
0.83	0.83	14.39	57.2	45.59	3.97	45.00	0.24	1.07
0.84	0.84	14.85	59.3	46.59	4.00	46.00	0.25	1.09
0.85	0.85	15.31	61.6	47.59	4.02	47.00	0.25	1.10
0.86	0.86	15.79	63.9	48.59	4.05	48.00	0.25	1.11
0.87	0.87	16.27	66.3	49.59	4.07	49.00	0.26	1.13
0.88	0.88	16.77	68.8	50.59	4.10	50.00	0.26	1.14
0.89	0.89	17.27	71.3	51.59	4.13	51.00	0.26	1.15
0.90	0.90	17.79	74.4	52.10	4.18	51.50	0.27	1.17
0.91	0.91	18.30	77.5	52.61	4.24	52.01	0.28	1.19
0.92	0.92	18.83	80.7	53.12	4.29	52.51	0.29	1.21
0.93	0.93	19.35	84.0	53.63	4.34	53.01	0.29	1.22
0.94	0.94	19.88	87.9	53.64	4.42	53.02	0.30	1.24
0.95	0.95	20.41	91.8	53.65	4.50	53.02	0.31	1.26
0.96	0.96	20.94	95.8	53.67	4.57	53.02	0.32	1.28
0.97	0.97	21.47	99.9	53.68	4.65	53.02	0.34	1.31
0.98	0.98	22.00	104.0	53.69	4.73	53.03	0.35	1.33
0.99	0.99	22.53	108.2	53.70	4.80	53.03	0.36	1.35
1.01	1.01	23.60	116.8	53.72	4.95	53.04	0.38	1.39
1.02	1.02	24.13	121.2	53.73	5.02	53.04	0.39	1.41
1.03	1.03	24.66	125.6	53.74	5.09	53.04	0.40	1.43
1.04	1.04	25.19	130.1	53.75	5.17	53.05	0.41	1.45
1.05	1.05	25.72	134.7	53.76	5.24	53.05	0.43	1.48
1.06	1.06	26.25	139.4	53.77	5.31	53.05	0.44	1.50
1.07	1.07	26.78	144.1	53.78	5.38	53.05	0.45	1.52
1.08	1.08	27.31	148.8	53.79	5.45	53.06	0.46	1.54
1.09	1.09	27.84	153.7	53.80	5.52	53.06	0.47	1.56
1.10	1.10	28.37	158.6	53.81	5.59	53.06	0.49	1.59
1.11	1.11	28.90	163.5	53.82	5.66	53.07	0.50	1.61
1.12	1.12	29.43	168.5	53.83	5.73	53.07	0.51	1.63
1.13	1.13	29.96	173.6	53.84	5.79	53.07	0.52	1.65
1.14	1.14	30.49	178.7	53.85	5.86	53.08	0.53	1.67
1.15	1.15	31.02	183.9	53.86	5.93	53.08	0.55	1.70

Unser South of McMahon

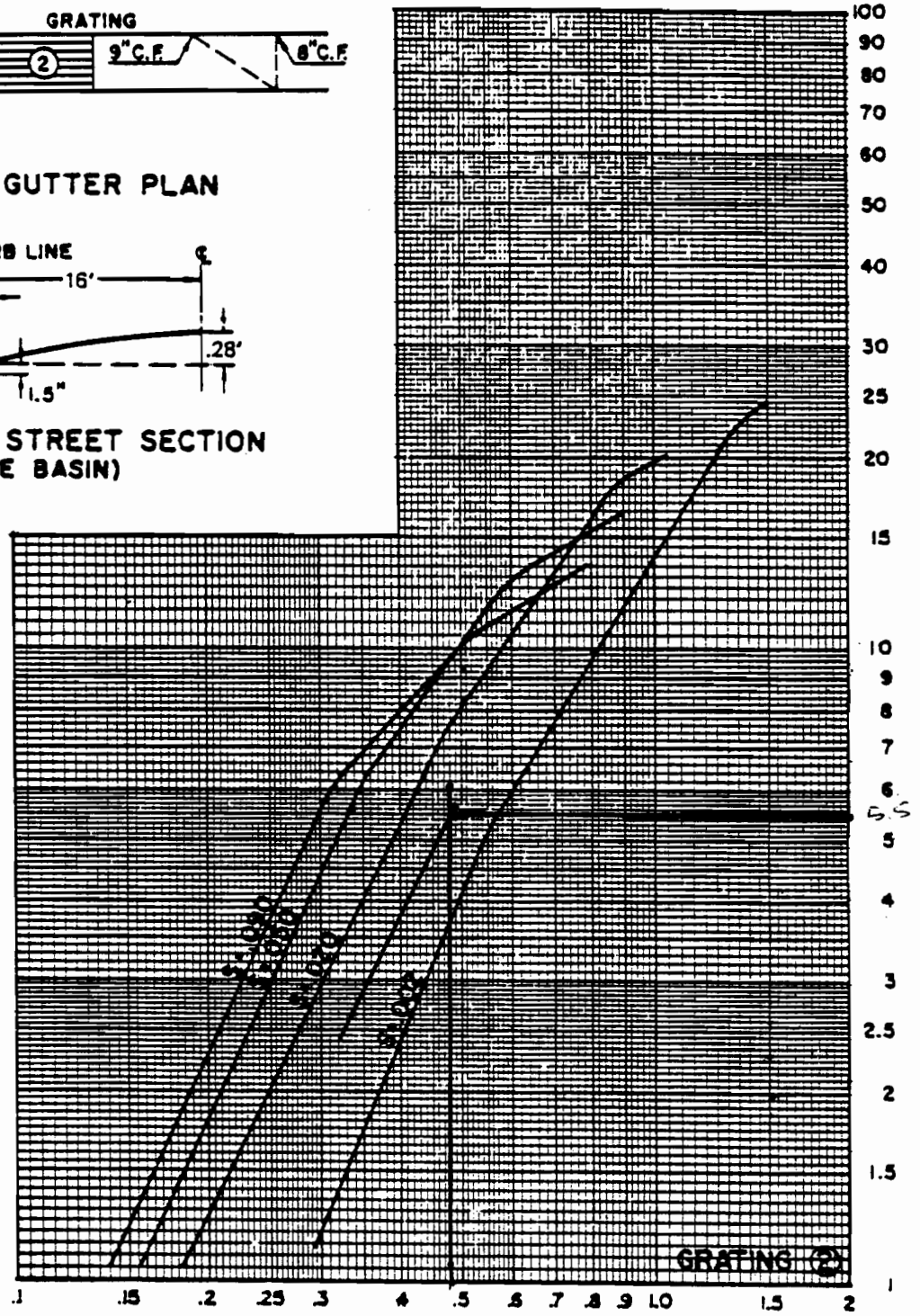
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



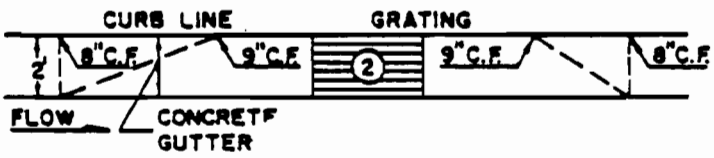
TYPICAL HALF STREET SECTION
(ABOVE BASIN)



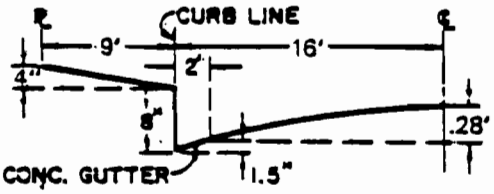
d = 0.48
S = 0.96%
Q = 5.5 cfs/grate

USER BWD. at Ridgeview

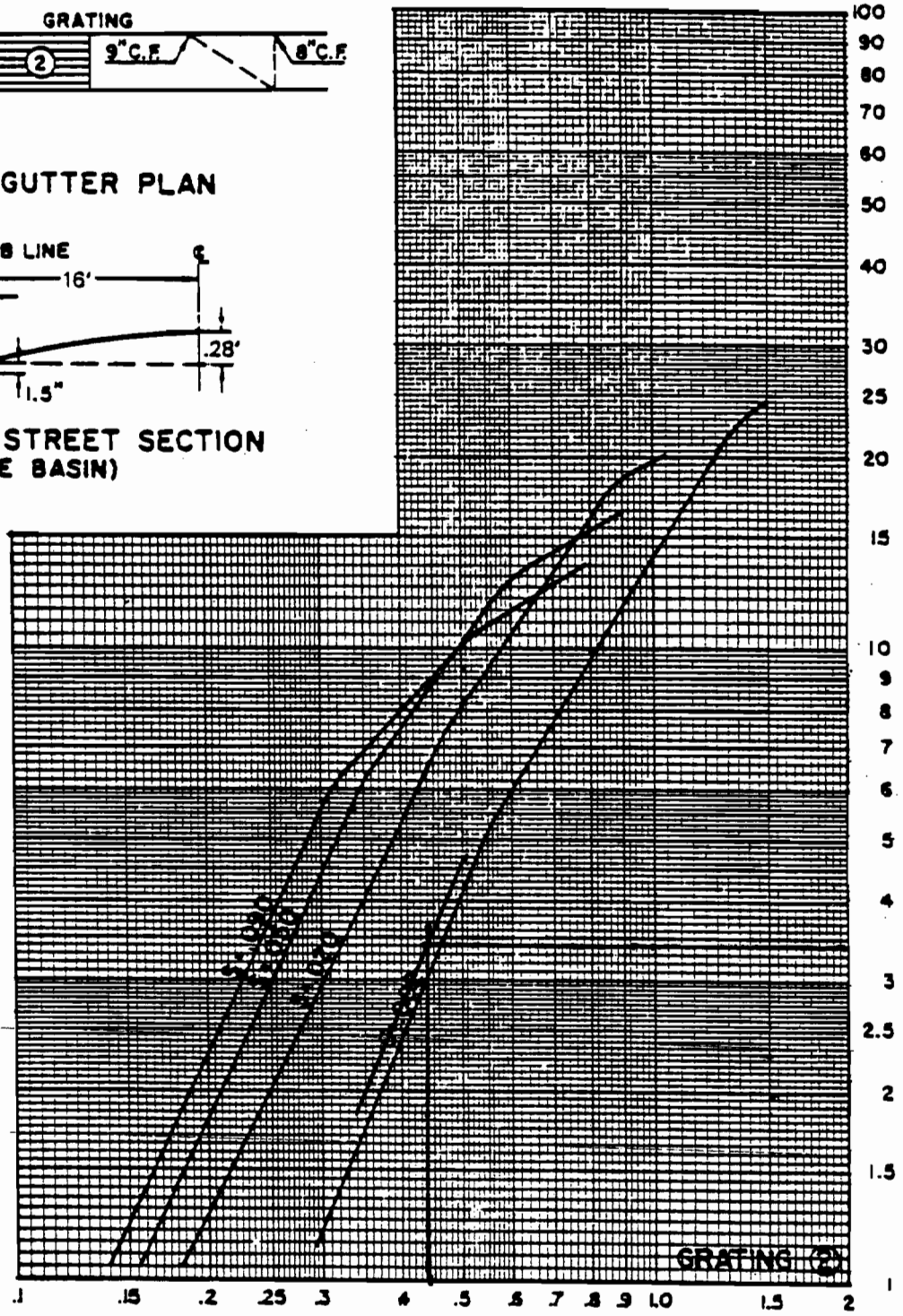
GRATING CAPACITIES FOR TYPE "A" , "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



S = 0.5%

d = 0.44'

Q = 3.4 cfs.

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

MIDDLE UNSER BLVD.

MANNING'S N= .017 **SLOPE=** .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.93	4	15.00	0.13	7	0.00	0.00
2	13.00	0.67	5	53.00	0.89	8	0.00	0.00
3	13.10	0.00	6	53.10	1.22	9	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	0.16	0.17	0.15	0.00	0.01
0.02	0.02	0.00	0.0	0.31	0.28	0.30	0.00	0.02
0.03	0.03	0.01	0.0	0.47	0.36	0.44	0.00	0.03
0.04	0.04	0.01	0.0	0.63	0.44	0.59	0.00	0.04
0.05	0.05	0.02	0.0	0.78	0.51	0.74	0.00	0.05
0.06	0.06	0.03	0.0	0.94	0.57	0.89	0.01	0.07
0.07	0.07	0.04	0.0	1.10	0.64	1.03	0.01	0.08
0.08	0.08	0.05	0.0	1.25	0.70	1.18	0.01	0.09
0.09	0.09	0.06	0.0	1.41	0.75	1.33	0.01	0.10
0.10	0.10	0.07	0.1	1.57	0.81	1.48	0.01	0.11
0.11	0.11	0.09	0.1	1.72	0.86	1.62	0.01	0.12
0.12	0.12	0.11	0.1	1.88	0.91	1.77	0.01	0.13
0.13	0.13	0.12	0.1	2.04	0.96	1.92	0.01	0.14
0.14	0.14	0.15	0.1	2.55	0.92	2.42	0.01	0.15
0.15	0.15	0.17	0.2	3.06	0.91	2.92	0.01	0.16
0.16	0.16	0.20	0.2	3.57	0.92	3.42	0.01	0.17
0.17	0.17	0.24	0.2	4.08	0.94	3.93	0.01	0.18
0.18	0.18	0.28	0.3	4.59	0.97	4.43	0.01	0.19
0.19	0.19	0.33	0.3	5.10	1.00	4.93	0.02	0.21
0.20	0.20	0.38	0.4	5.61	1.03	5.43	0.02	0.22
0.21	0.21	0.44	0.5	6.12	1.07	5.93	0.02	0.23
0.22	0.22	0.50	0.6	6.63	1.10	6.43	0.02	0.24
0.23	0.23	0.57	0.6	7.14	1.14	6.93	0.02	0.25
0.24	0.24	0.64	0.8	7.65	1.18	7.44	0.02	0.26
0.25	0.25	0.72	0.9	8.16	1.22	7.94	0.02	0.27
0.26	0.26	0.80	1.0	8.67	1.26	8.44	0.02	0.28
0.27	0.27	0.88	1.2	9.18	1.30	8.94	0.03	0.30
0.28	0.28	0.98	1.3	9.69	1.34	9.44	0.03	0.31
0.29	0.29	1.07	1.5	10.20	1.38	9.94	0.03	0.32
0.30	0.30	1.18	1.7	10.71	1.42	10.44	0.03	0.33
0.31	0.31	1.28	1.9	11.22	1.46	10.95	0.03	0.34
0.32	0.32	1.39	2.1	11.73	1.49	11.45	0.03	0.35
0.33	0.33	1.51	2.3	12.24	1.53	11.95	0.04	0.37
0.34	0.34	1.63	2.6	12.75	1.57	12.45	0.04	0.38
0.35	0.35	1.76	2.8	13.26	1.61	12.95	0.04	0.39
0.36	0.36	1.89	3.1	13.77	1.65	13.45	0.04	0.40
0.37	0.37	2.03	3.4	14.28	1.68	13.96	0.04	0.41
0.38	0.38	2.17	3.7	14.79	1.72	14.46	0.05	0.43
0.39	0.39	2.32	4.1	15.30	1.76	14.96	0.05	0.44
0.40	0.40	2.47	4.4	15.81	1.79	15.46	0.05	0.45
0.41	0.41	2.63	4.8	16.32	1.83	15.96	0.05	0.46
0.42	0.42	2.79	5.2	16.83	1.87	16.46	0.05	0.47
0.43	0.43	2.96	5.6	17.34	1.90	16.96	0.06	0.49
0.44	0.44	3.13	6.1	17.85	1.94	17.47	0.06	0.50
0.46	0.46	3.49	7.0	18.87	2.01	18.47	0.06	0.52
0.47	0.47	3.68	7.5	19.38	2.04	18.97	0.06	0.53
0.48	0.48	3.87	8.0	19.89	2.07	19.47	0.07	0.55
0.49	0.49	4.07	8.6	20.40	2.11	19.97	0.07	0.56
0.50	0.50	4.27	9.1	20.91	2.14	20.47	0.07	0.57
0.51	0.51	4.47	9.7	21.42	2.18	20.98	0.07	0.58
0.52	0.52	4.69	10.4	21.93	2.21	21.48	0.08	0.60
0.53	0.53	4.90	11.1	22.44	2.24	21.98	0.08	0.61

Unser Blvd at the County line

Q= 9.23 cfs. half Street flow = 4.6 cfs.

S= 3.5%

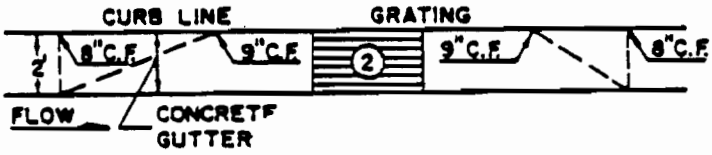
d= 0.3'

Q on inlet = 3.7 cfs.

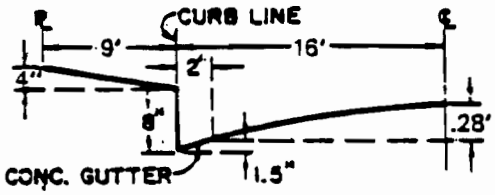
Install one inlet on each side.

Unser at the County Line

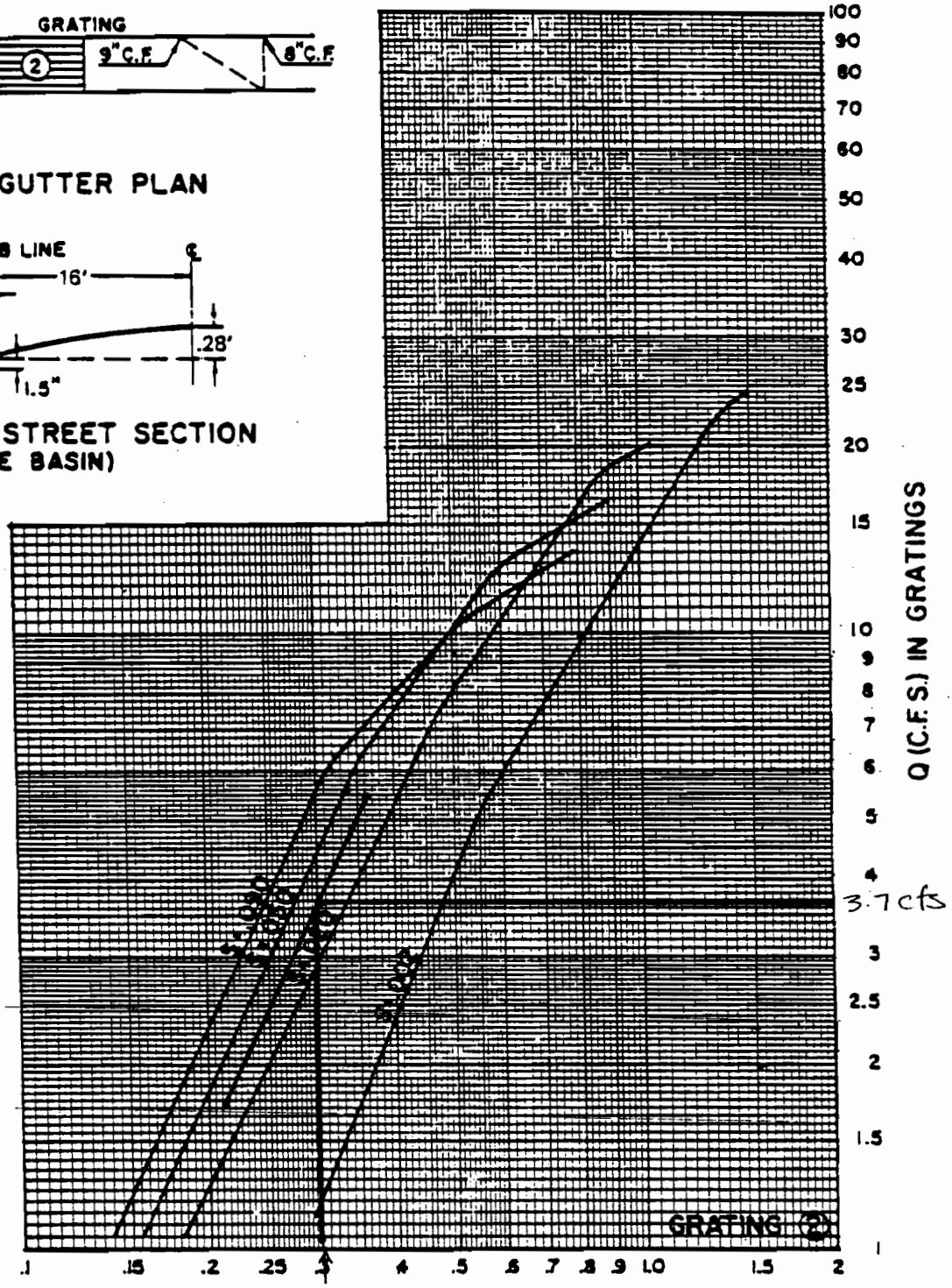
GRATING CAPACITIES FOR TYPE "A" , "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



d = 0.3'
S = 3.5%
Q = 3.7 cfs / grate

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

UNSER NORTH

MANNING'S N= .017 **SLOPE=** .035

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.93	4	15.00	0.13	7	0.00	0.00
2	13.00	0.67	5	53.00	0.89	8	0.00	0.00
3	13.10	0.00	6	53.10	1.22	9	0.00	0.00

WSEL	DEPTH INC	FLOW AREA	FLOW RATE	WETTED PER	FLOW VEL	TOPWID	VEL HEAD	ENERGY HEAD
(FT)	(FT)	SQ.FT.	(CFS)	(FT)	(FPS)	(FT)	(FT)	(FT)
0.01	0.01	0.00	0.0	0.16	0.46	0.15	0.00	0.01
0.02	0.02	0.00	0.0	0.31	0.73	0.30	0.01	0.03
0.03	0.03	0.01	0.0	0.47	0.96	0.44	0.01	0.04
0.04	0.04	0.01	0.0	0.63	1.16	0.59	0.02	0.06
0.05	0.05	0.02	0.0	0.78	1.34	0.74	0.03	0.08
0.06	0.06	0.03	0.0	0.94	1.52	0.89	0.04	0.10
0.07	0.07	0.04	0.1	1.10	1.68	1.03	0.04	0.11
0.08	0.08	0.05	0.1	1.25	1.84	1.18	0.05	0.13
0.09	0.09	0.06	0.1	1.41	1.99	1.33	0.06	0.15
0.10	0.10	0.07	0.2	1.57	2.13	1.48	0.07	0.17
0.11	0.11	0.09	0.2	1.72	2.27	1.62	0.08	0.19
0.12	0.12	0.11	0.3	1.88	2.41	1.77	0.09	0.21
0.13	0.13	0.12	0.3	2.04	2.54	1.92	0.10	0.23
0.14	0.14	0.15	0.4	2.55	2.44	2.42	0.09	0.23
0.15	0.15	0.17	0.4	3.06	2.41	2.92	0.09	0.24
0.16	0.16	0.20	0.5	3.57	2.43	3.42	0.09	0.25
0.17	0.17	0.24	0.6	4.08	2.49	3.93	0.10	0.27
0.18	0.18	0.28	0.7	4.59	2.56	4.43	0.10	0.28
0.19	0.19	0.33	0.9	5.10	2.64	4.93	0.11	0.30
0.20	0.20	0.38	1.0	5.61	2.73	5.43	0.12	0.32
0.21	0.21	0.44	1.2	6.12	2.82	5.93	0.12	0.33
0.22	0.22	0.50	1.5	6.63	2.92	6.43	0.13	0.35
0.23	0.23	0.57	1.7	7.14	3.02	6.93	0.14	0.37
0.24	0.24	0.64	2.0	7.65	3.13	7.44	0.15	0.39
0.25	0.25	0.72	2.3	8.16	3.23	7.94	0.16	0.41
0.26	0.26	0.80	2.7	8.67	3.33	8.44	0.17	0.43
0.27	0.27	0.88	3.0	9.18	3.44	8.94	0.18	0.45
0.28	0.28	0.98	3.5	9.69	3.54	9.44	0.19	0.47
0.29	0.29	1.07	3.9	10.20	3.65	9.94	0.21	0.50
0.30	0.30	1.18	4.4	10.71	3.75	10.44	0.22	0.52
0.31	0.31	1.28	4.9	11.22	3.85	10.95	0.23	0.54
0.32	0.32	1.39	5.5	11.73	3.95	11.45	0.24	0.56
0.33	0.33	1.51	6.1	12.24	4.06	11.95	0.26	0.59
0.34	0.34	1.63	6.8	12.75	4.16	12.45	0.27	0.61
0.35	0.35	1.76	7.5	13.26	4.26	12.95	0.28	0.63
0.36	0.36	1.89	8.2	13.77	4.36	13.45	0.29	0.65
0.37	0.37	2.03	9.0	14.28	4.45	13.96	0.31	0.68
0.38	0.38	2.17	9.9	14.79	4.55	14.46	0.32	0.70
0.39	0.39	2.32	10.8	15.30	4.65	14.96	0.34	0.73
0.40	0.40	2.47	11.7	15.81	4.74	15.46	0.35	0.75
0.41	0.41	2.63	12.7	16.32	4.84	15.96	0.36	0.77
0.42	0.42	2.79	13.8	16.83	4.93	16.46	0.38	0.80
0.43	0.43	2.96	14.9	17.34	5.03	16.96	0.39	0.82
0.44	0.44	3.13	16.0	17.85	5.12	17.47	0.41	0.85
0.46	0.46	3.49	18.5	18.87	5.31	18.47	0.44	0.90
0.47	0.47	3.68	19.8	19.38	5.40	18.97	0.45	0.92
0.48	0.48	3.87	21.2	19.89	5.49	19.47	0.47	0.95
0.49	0.49	4.07	22.7	20.40	5.58	19.97	0.48	0.97
0.50	0.50	4.27	24.2	20.91	5.67	20.47	0.50	1.00
0.51	0.51	4.47	25.8	21.42	5.76	20.98	0.51	1.02
0.52	0.52	4.69	27.4	21.93	5.85	21.43	0.53	1.05
0.53	0.53	4.90	29.1	22.44	5.93	21.98	0.55	1.08

depth

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)
0.54	0.54	5.13	30.9	22.95	6.02	22.48	0.56	1.10
0.55	0.55	5.35	32.7	23.46	6.11	22.98	0.58	1.13
0.56	0.56	5.59	34.6	23.97	6.19	23.48	0.60	1.16
0.57	0.57	5.82	36.6	24.49	6.28	23.99	0.61	1.18
0.58	0.58	6.07	38.6	25.00	6.36	24.49	0.63	1.21
0.59	0.59	6.31	40.7	25.51	6.45	24.99	0.65	1.24
0.60	0.60	6.57	42.9	26.02	6.53	25.49	0.66	1.26
0.61	0.61	6.82	45.1	26.53	6.61	25.99	0.68	1.29
0.62	0.62	7.09	47.5	27.04	6.70	26.49	0.70	1.32
0.63	0.63	7.35	49.9	27.55	6.78	26.99	0.71	1.34
0.64	0.64	7.63	52.3	28.06	6.86	27.50	0.73	1.37
0.65	0.65	7.90	54.9	28.57	6.94	28.00	0.75	1.40
0.66	0.66	8.19	57.5	29.08	7.02	28.50	0.77	1.43
0.67	0.67	8.47	60.2	29.59	7.10	29.00	0.78	1.45
0.68	0.68	8.77	62.3	30.59	7.11	30.00	0.78	1.46
0.69	0.69	9.07	64.6	31.59	7.12	31.00	0.79	1.48
0.70	0.70	9.39	67.0	32.59	7.13	32.00	0.79	1.49
0.71	0.71	9.71	69.5	33.59	7.15	33.00	0.79	1.50
0.72	0.72	10.05	72.1	34.59	7.17	34.00	0.80	1.52
0.73	0.73	10.39	74.8	35.59	7.20	35.00	0.80	1.53
0.74	0.74	10.75	77.7	36.59	7.23	36.00	0.81	1.55
0.75	0.75	11.11	80.7	37.59	7.26	37.00	0.82	1.57
0.76	0.76	11.49	83.8	38.59	7.29	38.00	0.83	1.59
0.77	0.77	11.87	87.0	39.59	7.33	39.00	0.83	1.60
0.78	0.78	12.27	90.4	40.59	7.37	40.00	0.84	1.62
0.79	0.79	12.67	93.8	41.59	7.41	41.00	0.85	1.64
0.80	0.80	13.09	97.5	42.59	7.45	42.00	0.86	1.66
0.81	0.81	13.51	101.2	43.59	7.49	43.00	0.87	1.68
0.82	0.82	13.95	105.1	44.59	7.54	44.00	0.88	1.70
0.83	0.83	14.39	109.1	45.59	7.58	45.00	0.89	1.72
0.84	0.84	14.85	113.3	46.59	7.63	46.00	0.90	1.74
0.85	0.85	15.31	117.6	47.59	7.68	47.00	0.92	1.77
0.86	0.86	15.79	122.0	48.59	7.73	48.00	0.93	1.79
0.87	0.87	16.27	126.6	49.59	7.78	49.00	0.94	1.81
0.88	0.88	16.77	131.3	50.59	7.83	50.00	0.95	1.83
0.89	0.89	17.27	136.2	51.59	7.88	51.00	0.97	1.86
0.90	0.90	17.79	142.1	52.10	7.99	51.50	0.99	1.89
0.91	0.91	18.30	148.1	52.61	8.09	52.01	1.02	1.93
0.92	0.92	18.83	154.2	53.12	8.19	52.51	1.04	1.96
0.93	0.93	19.35	160.4	53.63	8.29	53.01	1.07	2.00
0.94	0.94	19.88	167.8	53.64	8.44	53.02	1.11	2.05
0.95	0.95	20.41	175.3	53.65	8.59	53.02	1.14	2.09
0.96	0.96	20.94	182.9	53.67	8.73	53.02	1.18	2.14
0.97	0.97	21.47	190.7	53.68	8.88	53.02	1.22	2.19
0.98	0.98	22.00	198.6	53.69	9.02	53.03	1.26	2.24
0.99	0.99	22.53	206.6	53.70	9.17	53.03	1.30	2.29

Black Arroyo Street Capacity

6-14-01
EES.

- Black Arroyo at east boundary of Ridgeview Unit 1

  Q= 5.73 cfs
  S= 6.15%
  d = 0.24' < curb height see PC Stream output
  no inlets required

- Black Arroyo at east boundary of Ridgeview Unit 2.

  Q= 5.73 RV1
  + 8.15 RV2
  13.88 cfs

  S= 1.63%.
  depth= 0.36' < curb height
  no inlets required

- Black Arroyo at east boundary of Stonebridge 4.

  13.88 cfs Ridgeview 1+2
  + 11.51 cfs Stonebridge 4
  25.39 cfs.

  S= 0.5% depth = 0.51'
  and
  S= 5.88%. depth = 0.36'
  and
  S= 1.73% at outfall depth= 0.43'

  Install inlets
  Q in each inlet = 5.5 cfs/grate
  Install 5 inlets

Black Arroyo Blvd. east of Ridgeview 1

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

MANNING'S N= .017 SLOPE= .0615

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.87	5	12.00	0.13	9	50.17	0.67
2	9.38	0.67	6	30.00	0.41	10	50.63	0.67
3	9.83	0.67	7	48.00	0.13	11	60.00	0.83
4	10.00	0.00	8	50.00	0.00	12	0.00	0.00

WSEL	DEPTH INC	FLOW AREA	FLOW RATE	WETTED PER	FLOW VEL	TOPWID	VEL HEAD	ENERGY HEAD
(FT)	(FT)	SQ.FT.	(CFS)	(FT)	(FPS)	(FT)	(FT)	(FT)
0.01	0.01	0.00	0.0	0.33	0.61	0.31	0.01	0.02
0.02	0.02	0.01	0.0	0.66	0.97	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.27	0.94	0.03	0.06
0.04	0.04	0.03	0.0	1.32	1.54	1.25	0.04	0.08
0.05	0.05	0.04	0.1	1.64	1.79	1.56	0.05	0.10
0.06	0.06	0.06	0.1	1.97	2.02	1.88	0.06	0.12
0.07	0.07	0.08	0.2	2.30	2.24	2.19	0.08	0.15
0.08	0.08	0.10	0.2	2.63	2.45	2.50	0.09	0.17
0.09	0.09	0.13	0.3	2.96	2.65	2.81	0.11	0.20
0.10	0.10	0.16	0.4	3.29	2.84	3.13	0.13	0.23
0.11	0.11	0.19	0.6	3.62	3.03	3.44	0.14	0.25
0.12	0.12	0.23	0.7	3.95	3.21	3.75	0.16	0.28
0.13	0.13	0.26	0.9	4.28	3.39	4.07	0.18	0.31
0.14	0.14	0.31	1.0	5.58	3.16	5.36	0.16	0.30
0.15	0.15	0.37	1.1	6.89	3.09	6.65	0.15	0.30
0.16	0.16	0.44	1.4	8.20	3.11	7.94	0.15	0.31
0.17	0.17	0.53	1.7	9.50	3.17	9.23	0.16	0.33
0.18	0.18	0.63	2.0	10.81	3.25	10.52	0.16	0.34
0.19	0.19	0.74	2.5	12.12	3.36	11.81	0.18	0.37
0.20	0.20	0.87	3.0	13.42	3.48	13.10	0.19	0.39
0.21	0.21	1.00	3.6	14.73	3.61	14.39	0.20	0.41
0.22	0.22	1.15	4.3	16.04	3.75	15.68	0.22	0.44
0.23	0.23	1.32	5.1	17.34	3.89	16.97	0.23	0.46
0.24	0.24	1.49	6.0	18.65	4.03	18.26	0.25	0.49
0.25	0.25	1.68	7.0	19.95	4.17	19.56	0.27	0.52
0.26	0.26	1.88	8.1	21.26	4.31	20.85	0.29	0.55
0.27	0.27	2.10	9.3	22.57	4.45	22.14	0.31	0.58
0.28	0.28	2.33	10.7	23.87	4.59	23.43	0.33	0.61
0.29	0.29	2.57	12.1	25.18	4.73	24.72	0.35	0.64
0.30	0.30	2.82	13.7	26.49	4.87	26.01	0.37	0.67
0.31	0.31	3.09	15.5	27.79	5.01	27.30	0.39	0.70
0.32	0.32	3.37	17.3	29.10	5.15	28.59	0.41	0.73
0.33	0.33	3.66	19.3	30.41	5.28	29.88	0.43	0.76
0.34	0.34	3.96	21.5	31.71	5.42	31.17	0.46	0.80
0.35	0.35	4.28	23.8	33.02	5.55	32.46	0.48	0.83
0.36	0.36	4.61	26.2	34.33	5.69	33.75	0.50	0.86
0.37	0.37	4.96	28.9	35.63	5.82	35.04	0.53	0.90
0.38	0.38	5.31	31.6	36.94	5.95	36.34	0.55	0.93
0.39	0.39	5.68	34.6	38.25	6.08	37.63	0.57	0.96
0.40	0.40	6.07	37.7	39.55	6.21	38.92	0.60	1.00
0.41	0.41	6.46	41.0	40.86	6.34	40.21	0.62	1.03
0.42	0.42	6.86	45.3	40.88	6.60	40.21	0.68	1.10
0.43	0.43	7.27	49.8	40.90	6.85	40.22	0.73	1.16
0.45	0.45	8.07	59.3	40.94	7.34	40.23	0.84	1.29
0.46	0.46	8.47	64.3	40.96	7.58	40.23	0.89	1.35
0.47	0.47	8.88	69.4	40.98	7.82	40.24	0.95	1.42
0.48	0.48	9.23	74.7	41.00	8.05	40.24	1.01	1.49
0.49	0.49	9.68	30.1	41.02	8.28	40.25	1.06	1.55
0.50	0.50	10.08	85.7	41.04	8.50	40.25	1.12	1.62

Black Arroyo Blvd at Ridgeview 2

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

MANNING'S N= .017 SLOPE= .0163

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.87	5	12.00	0.13	9	50.17	0.67
2	9.38	0.67	6	30.00	0.41	10	50.63	0.67
3	9.83	0.67	7	48.00	0.13	11	60.00	0.83
4	10.00	0.00	8	50.00	0.00	12	0.00	0.00

WSEL	DEPTH INC	FLOW AREA	FLOW RATE	WETTED PER	FLOW VEL	TOPWID	VEL HEAD	ENERGY HEAD
(FT)	(FT)	SQ.FT.	(CFS)	(FT)	(FPS)	(FT)	(FT)	(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	5.58	1.63	5.36	0.04	0.18
0.15	0.15	0.37	0.6	6.89	1.59	6.65	0.04	0.19
0.16	0.16	0.44	0.7	8.20	1.60	7.94	0.04	0.20
0.17	0.17	0.53	0.9	9.50	1.63	9.23	0.04	0.21
0.18	0.18	0.63	1.1	10.81	1.68	10.52	0.04	0.22
0.19	0.19	0.74	1.3	12.12	1.73	11.81	0.05	0.24
0.20	0.20	0.87	1.6	13.42	1.79	13.10	0.05	0.25
0.21	0.21	1.00	1.9	14.73	1.86	14.39	0.05	0.26
0.22	0.22	1.15	2.2	16.04	1.93	15.68	0.06	0.28
0.23	0.23	1.32	2.6	17.34	2.00	16.97	0.06	0.29
0.24	0.24	1.49	3.1	18.65	2.07	18.26	0.07	0.31
0.25	0.25	1.68	3.6	19.95	2.15	19.56	0.07	0.32
0.26	0.26	1.88	4.2	21.26	2.22	20.85	0.08	0.34
0.27	0.27	2.10	4.8	22.57	2.29	22.14	0.08	0.35
0.28	0.28	2.33	5.5	23.87	2.36	23.43	0.09	0.37
0.29	0.29	2.57	6.3	25.18	2.44	24.72	0.09	0.38
0.30	0.30	2.82	7.1	26.49	2.51	26.01	0.10	0.40
0.31	0.31	3.09	8.0	27.79	2.58	27.30	0.10	0.41
0.32	0.32	3.37	8.9	29.10	2.65	28.59	0.11	0.43
0.33	0.33	3.66	10.0	30.41	2.72	29.88	0.11	0.44
0.34	0.34	3.96	11.1	31.71	2.79	31.17	0.12	0.46
0.35	0.35	4.28	12.2	33.02	2.86	32.46	0.13	0.48
0.36	0.36	4.61	13.5	34.33	2.93	33.75	0.13	0.49
0.37	0.37	4.96	14.9	35.63	3.00	35.04	0.14	0.51
0.38	0.38	5.31	16.3	36.94	3.06	36.34	0.15	0.53
0.39	0.39	5.68	17.8	38.25	3.13	37.63	0.15	0.54
0.40	0.40	6.07	19.4	39.55	3.20	38.92	0.16	0.56
0.41	0.41	6.46	21.1	40.86	3.26	40.21	0.17	0.58
0.42	0.42	6.86	23.3	40.88	3.40	40.21	0.18	0.60
0.43	0.43	7.27	25.6	40.90	3.53	40.22	0.19	0.62
0.45	0.45	8.07	30.5	40.94	3.78	40.23	0.22	0.67
0.46	0.46	8.47	33.1	40.96	3.90	40.23	0.24	0.70
0.47	0.47	8.88	35.7	40.98	4.02	40.24	0.25	0.72
0.48	0.48	9.28	38.5	41.00	4.14	40.24	0.27	0.75
0.49	0.49	9.68	41.3	41.02	4.26	40.25	0.28	0.77
0.50	0.50	10.08	44.1	41.04	4.38	40.25	0.30	0.80
0.51	0.51	10.49	47.1	41.07	4.49	40.26	0.31	0.82
0.52	0.52	10.89	50.1	41.09	4.60	40.26	0.33	0.85
0.53	0.53	11.29	53.2	41.11	4.72	40.27	0.35	0.88
0.54	0.54	11.69	56.4	41.13	4.83	40.27	0.36	0.90

Black Arroyo Blvd. Adjacent to Stonebridge 4

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

MANNING'S N= .017 SLOPE= .05875

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.87	5	12.00	0.13	9	50.17	0.67
2	9.38	0.67	6	30.00	0.41	10	50.63	0.67
3	9.83	0.67	7	48.00	0.13	11	60.00	0.83
4	10.00	0.00	8	50.00	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	0.60	0.31	0.01	0.02
0.02	0.02	0.01	0.0	0.66	0.95	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.25	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.51	1.25	0.04	0.08
0.05	0.05	0.04	0.1	1.64	1.75	1.56	0.05	0.10
0.06	0.06	0.06	0.1	1.97	1.98	1.88	0.06	0.12
0.07	0.07	0.08	0.2	2.30	2.19	2.19	0.07	0.14
0.08	0.08	0.10	0.2	2.63	2.40	2.50	0.09	0.17
0.09	0.09	0.13	0.3	2.96	2.59	2.81	0.10	0.19
0.10	0.10	0.16	0.4	3.29	2.78	3.13	0.12	0.22
0.11	0.11	0.19	0.6	3.62	2.96	3.44	0.14	0.25
0.12	0.12	0.23	0.7	3.95	3.14	3.75	0.15	0.27
0.13	0.13	0.26	0.9	4.28	3.31	4.07	0.17	0.30
0.14	0.14	0.31	1.0	5.58	3.09	5.36	0.15	0.29
0.15	0.15	0.37	1.1	6.89	3.02	6.65	0.14	0.29
0.16	0.16	0.44	1.3	8.20	3.03	7.94	0.14	0.30
0.17	0.17	0.53	1.6	9.50	3.09	9.23	0.15	0.32
0.18	0.18	0.63	2.0	10.81	3.18	10.52	0.16	0.34
0.19	0.19	0.74	2.4	12.12	3.29	11.81	0.17	0.36
0.20	0.20	0.87	2.9	13.42	3.41	13.10	0.18	0.38
0.21	0.21	1.00	3.5	14.73	3.53	14.39	0.19	0.40
0.22	0.22	1.15	4.2	16.04	3.66	15.68	0.21	0.43
0.23	0.23	1.32	5.0	17.34	3.80	16.97	0.22	0.45
0.24	0.24	1.49	5.9	18.65	3.93	18.26	0.24	0.48
0.25	0.25	1.68	6.8	19.95	4.07	19.56	0.26	0.51
0.26	0.26	1.88	7.9	21.26	4.21	20.85	0.28	0.54
0.27	0.27	2.10	9.1	22.57	4.35	22.14	0.29	0.56
0.28	0.28	2.33	10.4	23.87	4.49	23.43	0.31	0.59
0.29	0.29	2.57	11.9	25.18	4.62	24.72	0.33	0.62
0.30	0.30	2.82	13.4	26.49	4.76	26.01	0.35	0.65
0.31	0.31	3.09	15.1	27.79	4.90	27.30	0.37	0.68
0.32	0.32	3.37	16.9	29.10	5.03	28.59	0.39	0.71
0.33	0.33	3.66	18.9	30.41	5.16	29.88	0.41	0.74
0.34	0.34	3.96	21.0	31.71	5.30	31.17	0.44	0.78
0.35	0.35	4.28	23.2	33.02	5.43	32.46	0.46	0.81
0.36	0.36	4.61	25.6	34.33	5.56	33.75	0.48	0.84
0.37	0.37	4.96	28.2	35.63	5.69	35.04	0.50	0.87
0.38	0.38	5.31	30.9	36.94	5.82	36.34	0.53	0.91
0.39	0.39	5.68	33.8	38.25	5.94	37.63	0.55	0.94
0.40	0.40	6.07	36.8	39.55	6.07	38.92	0.57	0.97
0.41	0.41	6.46	40.0	40.86	6.20	40.21	0.60	1.01
0.42	0.42	6.86	44.3	40.88	6.45	40.21	0.65	1.07
0.43	0.43	7.27	48.7	40.90	6.70	40.22	0.70	1.13
0.45	0.45	8.07	57.9	40.94	7.18	40.23	0.80	1.25
0.46	0.46	8.47	62.8	40.96	7.41	40.23	0.85	1.31
0.47	0.47	8.88	67.8	40.98	7.64	40.24	0.91	1.38
0.48	0.48	9.28	73.0	41.00	7.87	40.24	0.96	1.44
0.49	0.49	9.68	78.3	41.02	8.09	40.25	1.02	1.51
0.50	0.50	10.08	83.8	41.04	8.31	40.25	1.07	1.57
0.51	0.51	10.49	89.4	41.07	8.53	40.26	1.13	1.64

Black Arroyo Blvd Adjacent to Stonebridge 4

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

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.87	5	12.00	0.13	9	50.17	0.67
2	9.38	0.67	6	30.00	0.41	10	50.63	0.67
3	9.83	0.67	7	48.00	0.13	11	60.00	0.83
4	10.00	0.00	8	50.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14
0.14	0.14	0.31	0.3	5.58	0.90	5.36	0.01	0.15
0.15	0.15	0.37	0.3	6.89	0.88	6.65	0.01	0.16
0.16	0.16	0.44	0.4	8.20	0.89	7.94	0.01	0.17
0.17	0.17	0.53	0.5	9.50	0.90	9.23	0.01	0.18
0.18	0.18	0.63	0.6	10.81	0.93	10.52	0.01	0.19
0.19	0.19	0.74	0.7	12.12	0.96	11.81	0.01	0.20
0.20	0.20	0.87	0.9	13.42	0.99	13.10	0.02	0.22
0.21	0.21	1.00	1.0	14.73	1.03	14.39	0.02	0.23
0.22	0.22	1.15	1.2	16.04	1.07	15.68	0.02	0.24
0.23	0.23	1.32	1.5	17.34	1.11	16.97	0.02	0.25
0.24	0.24	1.49	1.7	18.65	1.15	18.26	0.02	0.26
0.25	0.25	1.68	2.0	19.95	1.19	19.56	0.02	0.27
0.26	0.26	1.88	2.3	21.26	1.23	20.85	0.02	0.28
0.27	0.27	2.10	2.7	22.57	1.27	22.14	0.02	0.29
0.28	0.28	2.33	3.0	23.87	1.31	23.43	0.03	0.31
0.29	0.29	2.57	3.5	25.18	1.35	24.72	0.03	0.32
0.30	0.30	2.82	3.9	26.49	1.39	26.01	0.03	0.33
0.31	0.31	3.09	4.4	27.79	1.43	27.30	0.03	0.34
0.32	0.32	3.37	4.9	29.10	1.47	28.59	0.03	0.35
0.33	0.33	3.66	5.5	30.41	1.51	29.88	0.04	0.37
0.34	0.34	3.96	6.1	31.71	1.55	31.17	0.04	0.38
0.35	0.35	4.28	6.8	33.02	1.58	32.46	0.04	0.39
0.36	0.36	4.61	7.5	34.33	1.62	33.75	0.04	0.40
0.37	0.37	4.96	8.2	35.63	1.66	35.04	0.04	0.41
0.38	0.38	5.31	9.0	36.94	1.70	36.34	0.04	0.42
0.39	0.39	5.68	9.9	38.25	1.73	37.63	0.05	0.44
0.40	0.40	6.07	10.7	39.55	1.77	38.92	0.05	0.45
0.41	0.41	6.46	11.7	40.86	1.81	40.21	0.05	0.46
0.42	0.42	6.86	12.9	40.88	1.88	40.21	0.05	0.47
0.43	0.43	7.27	14.2	40.90	1.95	40.22	0.06	0.49
0.45	0.45	8.07	16.9	40.94	2.09	40.23	0.07	0.52
0.46	0.46	8.47	18.3	40.96	2.16	40.23	0.07	0.53
0.47	0.47	8.88	19.8	40.98	2.23	40.24	0.08	0.55
0.48	0.48	9.28	21.3	41.00	2.30	40.24	0.08	0.56
0.49	0.49	9.68	22.9	41.02	2.36	40.25	0.09	0.58
0.50	0.50	10.08	24.4	41.04	2.42	40.25	0.09	0.59
0.51	0.51	10.49	26.1	41.07	2.49	40.26	0.10	0.61
0.52	0.52	10.89	27.8	41.09	2.55	40.26	0.10	0.62

Black Arroyo Bud east of Stonebridge

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

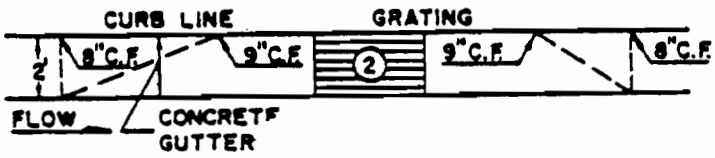
MANNING'S N= .017 SLOPE= .0173

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.87	5	12.00	0.13	9	50.17	0.67
2	9.38	0.67	6	30.00	0.41	10	50.63	0.67
3	9.83	0.67	7	48.00	0.13	11	60.00	0.83
4	10.00	0.00	8	50.00	0.00	12	0.00	0.00

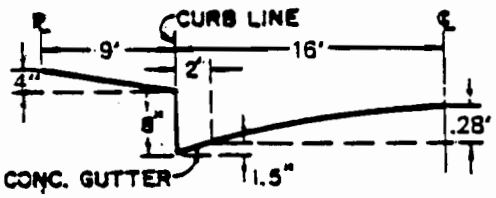
WSEL	DEPTH INC	FLOW AREA	FLOW RATE	WETTED PER	FLOW VEL	TOPWID	VEL HEAD	ENERGY HEAD
(FT)	(FT)	SQ.FT.	(CFS)	(FT)	(FPS)	(FT)	(FT)	(FT)
0.01	0.01	0.00	0.0	0.33	0.33	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.52	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.68	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	0.82	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	0.95	1.56	0.01	0.06
0.06	0.06	0.06	0.1	1.97	1.07	1.88	0.02	0.08
0.07	0.07	0.08	0.1	2.30	1.19	2.19	0.02	0.09
0.08	0.08	0.10	0.1	2.63	1.30	2.50	0.03	0.11
0.09	0.09	0.13	0.2	2.96	1.41	2.81	0.03	0.12
0.10	0.10	0.16	0.2	3.29	1.51	3.13	0.04	0.14
0.11	0.11	0.19	0.3	3.62	1.61	3.44	0.04	0.15
0.12	0.12	0.23	0.4	3.95	1.70	3.75	0.05	0.17
0.13	0.13	0.26	0.5	4.28	1.80	4.07	0.05	0.18
0.14	0.14	0.31	0.5	5.58	1.68	5.36	0.04	0.18
0.15	0.15	0.37	0.6	6.89	1.64	6.65	0.04	0.19
0.16	0.16	0.44	0.7	8.20	1.65	7.94	0.04	0.20
0.17	0.17	0.53	0.9	9.50	1.68	9.23	0.04	0.21
0.18	0.18	0.63	1.1	10.81	1.73	10.52	0.05	0.23
0.19	0.19	0.74	1.3	12.12	1.78	11.81	0.05	0.24
0.20	0.20	0.87	1.6	13.42	1.85	13.10	0.05	0.25
0.21	0.21	1.00	1.9	14.73	1.92	14.39	0.06	0.27
0.22	0.22	1.15	2.3	16.04	1.99	15.68	0.06	0.28
0.23	0.23	1.32	2.7	17.34	2.06	16.97	0.07	0.30
0.24	0.24	1.49	3.2	18.65	2.14	18.26	0.07	0.31
0.25	0.25	1.68	3.7	19.95	2.21	19.56	0.08	0.33
0.26	0.26	1.88	4.3	21.26	2.28	20.85	0.08	0.34
0.27	0.27	2.10	5.0	22.57	2.36	22.14	0.09	0.36
0.28	0.28	2.33	5.7	23.87	2.43	23.43	0.09	0.37
0.29	0.29	2.57	6.4	25.18	2.51	24.72	0.10	0.39
0.30	0.30	2.82	7.3	26.49	2.58	26.01	0.10	0.40
0.31	0.31	3.09	8.2	27.79	2.66	27.30	0.11	0.42
0.32	0.32	3.37	9.2	29.10	2.73	28.59	0.12	0.44
0.33	0.33	3.66	10.3	30.41	2.80	29.88	0.12	0.45
0.34	0.34	3.96	11.4	31.71	2.87	31.17	0.13	0.47
0.35	0.35	4.28	12.6	33.02	2.95	32.46	0.13	0.48
0.36	0.36	4.61	13.9	34.33	3.02	33.75	0.14	0.50
0.37	0.37	4.96	15.3	35.63	3.09	35.04	0.15	0.52
0.38	0.38	5.31	16.8	36.94	3.16	36.34	0.15	0.53
0.39	0.39	5.68	18.3	38.25	3.23	37.63	0.16	0.55
0.40	0.40	6.07	20.0	39.55	3.29	38.92	0.17	0.57
0.41	0.41	6.46	21.7	40.86	3.36	40.21	0.18	0.59
0.42	0.42	6.86	24.0	40.88	3.50	40.21	0.19	0.61
0.43	0.43	7.27	26.4	40.90	3.63	40.22	0.21	0.64
0.45	0.45	8.07	31.4	40.94	3.89	40.23	0.24	0.69
0.46	0.46	8.47	34.1	40.96	4.02	40.23	0.25	0.71
0.47	0.47	8.88	36.8	40.98	4.15	40.24	0.27	0.74
0.48	0.48	9.28	39.5	41.00	4.27	40.24	0.28	0.76
0.49	0.49	9.68	42.5	41.02	4.39	40.25	0.30	0.79
0.50	0.50	10.08	45.5	41.04	4.51	40.25	0.32	0.82

Black Arroyo at east end of Stonebridge

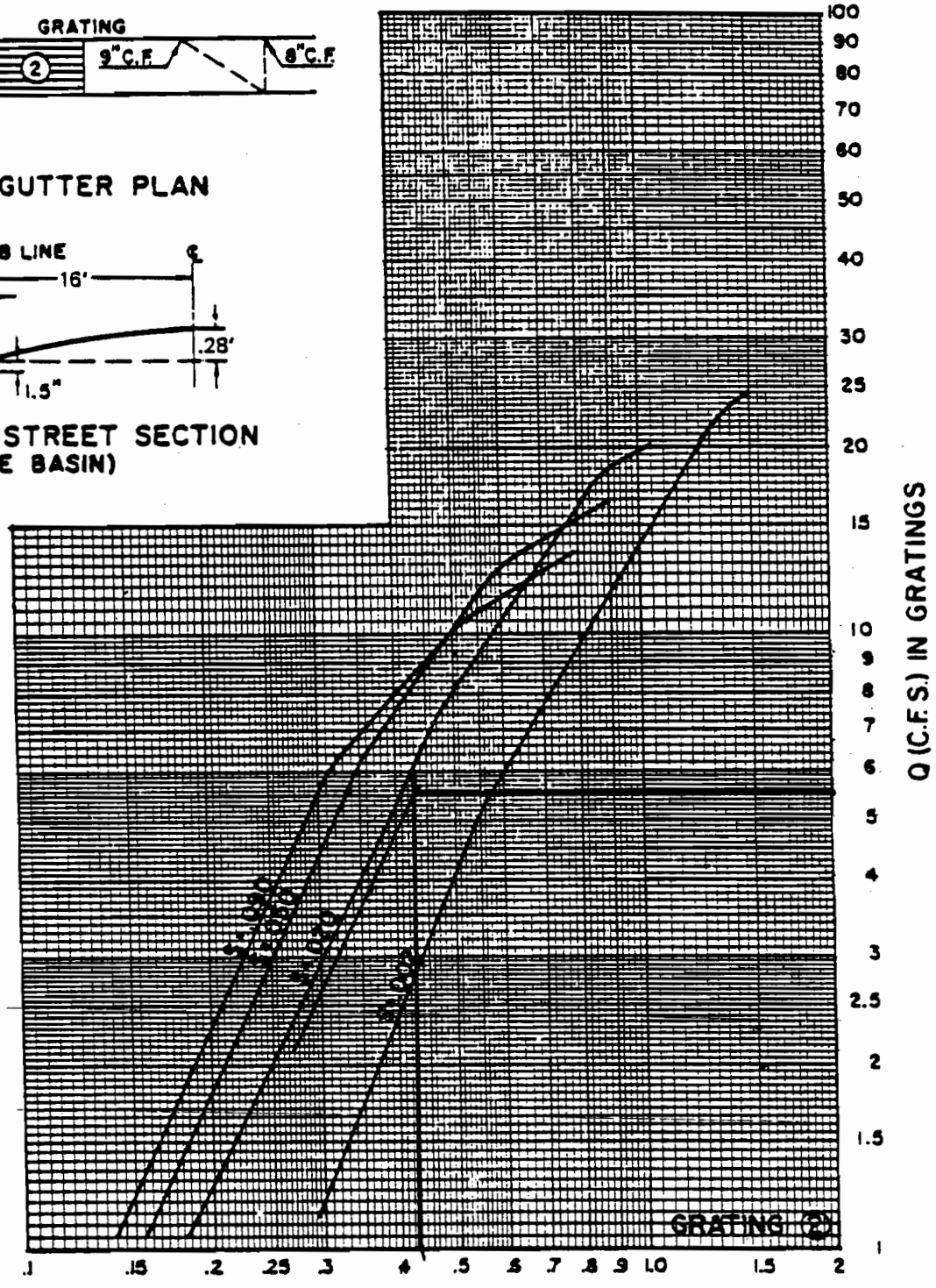
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



d = 0.43'
S = 1.73%
Q = 5.5 cfs.

B-25

lyzer Report

ainage Structure Analyzer

Hydraulic Analysis

ate: Tuesday, November 06, 2001 02:03:58 PM

put Data

pe	Circular	
erial	RC C76-A	
oughness	0.013000	
ethod	Manning	
w Rate	675.0	cfs
pe	2.600%	
ize (W x T):	72.00 x 6.0000	

put Results

low Rate	675.0	cfs
pe	2.600%	
/	0.81	
apacity	682.9	cfs
elocity	27.53	ft/s
th	4.86	ft
tical Depth	5.89	ft
ize (W x T):	72.00 x 6.0000	

ı-lyzer Report

:ainage Structure Analyzer

. ɜ Hydraulic Analysis

ıte: Tuesday, November 06, 2001 02:05:41 PM

ıput Data

ı ɔe	Circular	
ı ɜrial	RC C76-A	
ɔughness	0.013000	
ɜthod	Manning	
l ɴ Rate	675.0	cfs
l ɔe	3.840%	
ize (W x T):	72.00 x 6.0000	

ı ɔut Results

low Rate	675.0	cfs
l ɔe	3.840%	
/	0.68	
ɑɒacity	829.9	cfs
ɜlocity	32.71	ft/s
ɜ th	4.11	ft
r tical Depth	5.89	ft
ize (W x T):	72.00 x 6.0000	

ı lyzer Report

:ainage Structure Analyzer

. ɜ Hydraulic Analysis

ıte: Tuesday, November 06, 2001 02:06:06 PM

ıput Data

ı ɔe	Circular	
ı ɜrial	RC C76-A	
ɔughness	0.013000	
ɜthod	Manning	
l w Rate	675.0	cfs
l_ɔe	2.810%	
ize (W x T):	72.00 x 6.0000	

ı ɔut Results

low Rate	675.0	cfs
l ɔe	2.810%	
/	0.78	
apacity	709.9	cfs
elocity	28.57	ft/s
ɜ th	4.67	ft
r tical Depth	5.89	ft
ize (W x T):	72.00 x 6.0000	

lyzer Report

ainage Structure Analyzer

e Hydraulic Analysis

ite: Tuesday, November 06, 2001 02:09:56 PM

put Data

pe	Circular	
erial	RC C76-A	
ughness	0.013000	
thod	Manning	
w Rate	830.0	cfs
pe	4.910%	
ize (W x T):	84.00 x 7.0000	

put Results

low Rate	830.0	cfs
pe	4.910%	
/	0.55	
apacity	1415.6	cfs
elocity	38.25	ft/s
th	3.85	ft
tical Depth	6.75	ft
ize (W x T):	84.00 x 7.0000	

alyzer Report

==========

rainage Structure Analyzer

a nel Hydraulic Analysis

ate: Tuesday, November 06, 2001 02:11:47 PM

==========

nput Data

---

a pe Trapezoidal

a erial Bare Soil

oughness 0.020000

ottom Width 10.00 ft

e : Slope 33.000%

_ at Slope 33.000%

ed Slope 0.500%

low Rate 841.0 cfs

u_put Results

---

l-w Rate 841.0 cfs

e th 3.97 ft

elocity 9.61 ft/s

op Width 34.07 ft

: tical Depth 4.09 ft

uper Critica

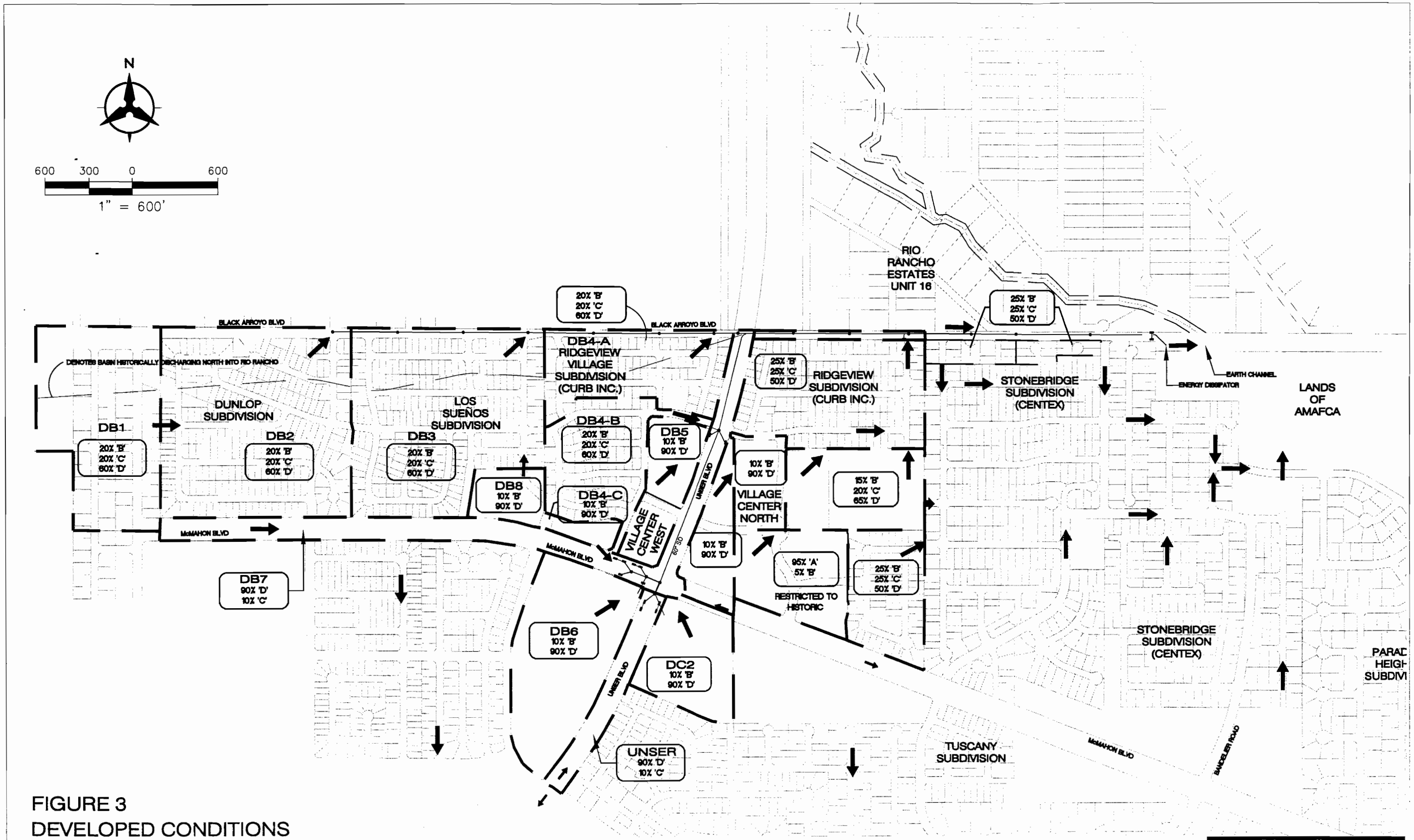


FIGURE 3
DEVELOPED CONDITIONS
LAND TREATMENT EXHIBIT

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

P:\01177\CDP\GENERAL\EXHIBITS\MSTR-LANDTREAT.DWG

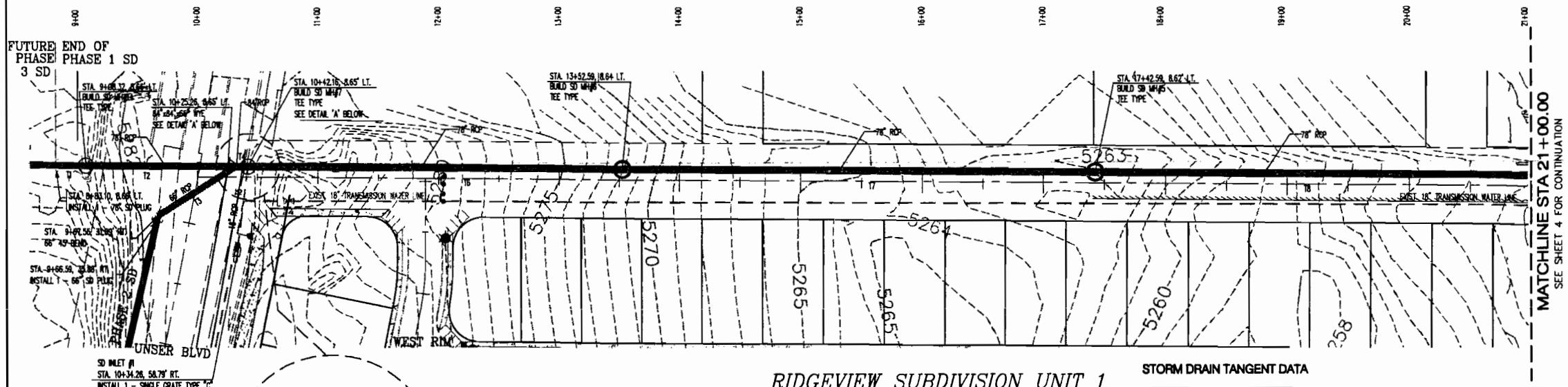
'...aded cells require user input. Non-shaded cells cannot be edited.****

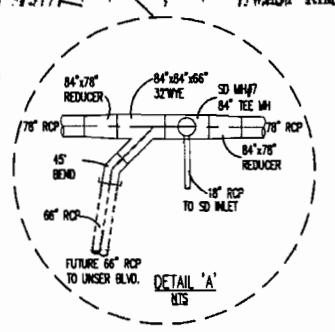
...CK ARROYO STORM DRAIN with FREE DISCHARGE FROM COMMERCIAL TRACTS

***** HYDRAULIC GRADE LINE CALCULATIONS *****

Manning's n = [redacted] for pipe

Station	Structure	Diam. (in.)	Q (cfs)	Area	Vel.	K	Sf	Length (ft.)	MH Dia. (ft.)	JNCT Angle	Hf	Hb	Hj	Hmh	Ht	Total Losses	HGL(dn)	HGL(up)	Low Point	HV	EGL(dn)	EGL(up)	JUNCTION LOSSES Dia. 3 (in.)	Junct. Angle	<delta>y	Ht(inc.)	Ht(dec.)
[redacted]	END SECTION	[redacted]		33.18	25.34	5243	0.0257	[redacted]	[redacted]		4.58	0.00	0.00	0.00	0.00	0.00				9.97	5204.07	5204.07			0.0000	0.9974	0.0000
[redacted]		[redacted]		33.18	25.01	5243	0.0251	[redacted]	[redacted]	[redacted]	7.63	1.39	0.21	0.00	0.00	4.58 1.61	5198.68	5200.55	[redacted]	9.71	5208.65	5210.26	[redacted]		0.4731	0.0000	0.0000
[redacted]		[redacted]		38.48	21.57	6388	0.0169	[redacted]	[redacted]		2.46	0.00	0.00	0.00	0.02	7.63 0.02	5208.18	[redacted]	[redacted]	7.22	5217.89	5218.83			0.0000	0.0184	0.0000
[redacted]		[redacted]		38.48	21.39	6388	0.0166	[redacted]	[redacted]	[redacted]	8.59	0.00	0.11	0.00	0.02	2.46 0.13	5214.07	5214.32	[redacted]	7.10	5221.29	5221.42	[redacted]		2.7221	0.02	0.00
[redacted]		[redacted]		38.48	21.39	6388	0.0166	[redacted]	[redacted]		5.17	0.00	0.00	0.36	0.00	8.59 0.36	5222.91	5223.27	[redacted]	7.10	5230.01	5230.37			0.0000	0.00	0.00
[redacted]		[redacted]		38.48	21.39	6388	0.0166	[redacted]	[redacted]		7.27	0.00	0.00	0.36	0.00	5.17 0.36	5228.43	5228.79	[redacted]	7.10	5235.54	5235.89			0.0000	0.00	0.00
[redacted]		[redacted]		38.48	21.39	6388	0.0166	[redacted]	[redacted]	[redacted]	0.20	0.00	0.00	0.36	0.00	7.27 0.36	5236.06	5236.41	[redacted]	7.10	5243.16	5243.51	[redacted]		0.0000	0.00	0.00
[redacted]		[redacted]		28.27	23.87	4235	0.0254	[redacted]	[redacted]		10.21	0.00	2.22	0.00	0.02	0.20 2.24	5236.61	5237.11	[redacted]	8.85	5243.71	5245.96			0.4761	0.00	0.02
[redacted]		[redacted]		28.27	23.87	4235	0.0254	[redacted]	[redacted]	[redacted]	9.91	0.00	0.00	0.44	0.00	10.21 0.44	5247.32	5247.76	[redacted]	8.85	5256.17	5256.61	[redacted]		0.0000	0.00	0.00
[redacted]		[redacted]		28.27	23.87	4235	0.0254	[redacted]	[redacted]	[redacted]	7.89	0.00	0.00	0.44	0.00	9.91 0.44	5257.67	5258.11	[redacted]	8.85	5266.52	5266.96	[redacted]		0.0000	0.00	0.00
[redacted]		[redacted]		33.18	20.34	5243	0.0166	[redacted]	[redacted]	[redacted]	0.28	0.00	0.00	0.00	0.02	7.89 0.02	5266.00	[redacted]	[redacted]	6.43	5274.85	5275.38	[redacted]		0.0000	0.02	0.00
[redacted]		[redacted]		28.27	13.79	4235	0.0085	[redacted]	[redacted]	[redacted]	0.99	0.00	2.01	0.00	0.13	0.28 2.15	5269.23	5274.85	[redacted]	2.95	5275.66	5277.80	[redacted]		5.4839	0.00	0.13
[redacted]	PINON AVE	[redacted]		28.27	13.79	4235	0.0085	[redacted]	[redacted]	[redacted]	3.82	0.00	0.00	0.15	0.00	0.99 0.15	5275.84	5275.99	[redacted]	2.95	5278.79	5278.94	[redacted]		0.0000	0.00	0.00
																3.82											

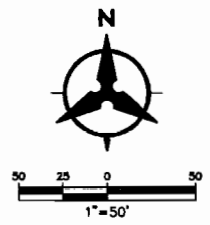




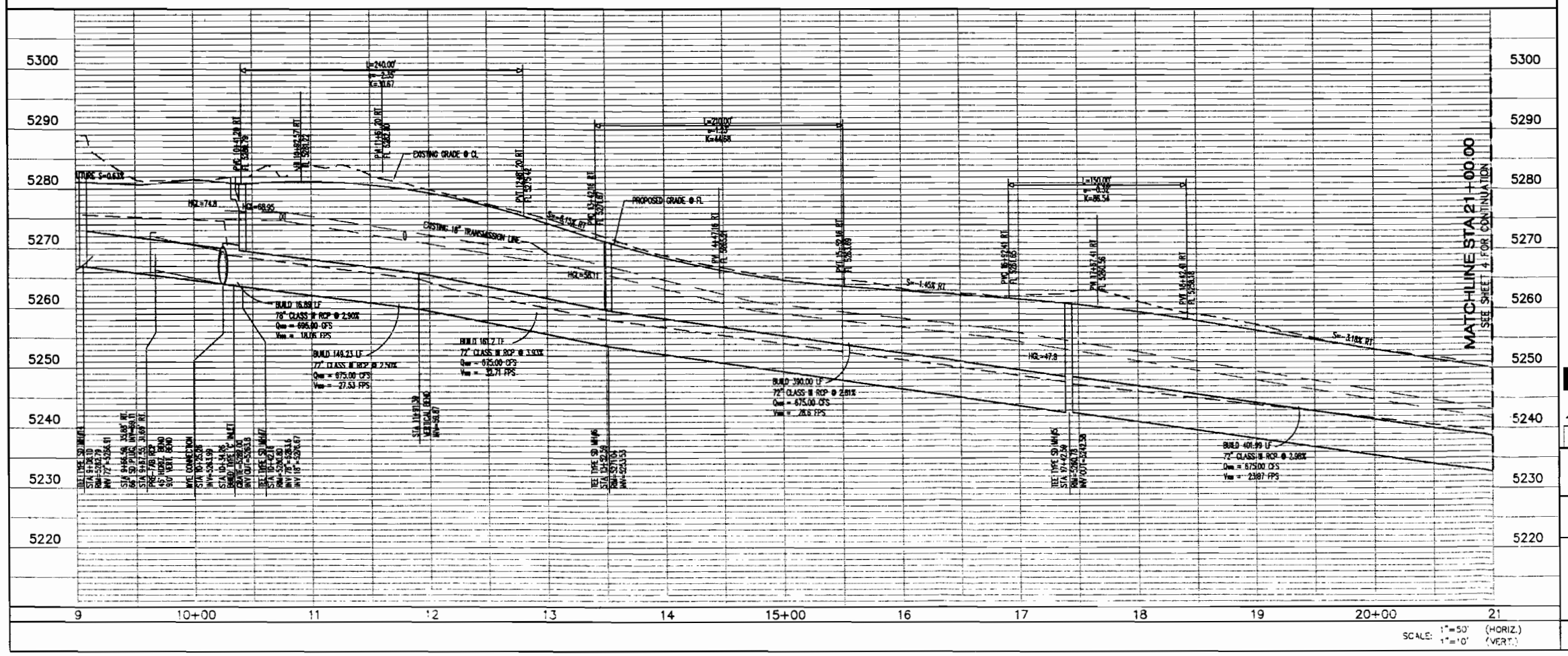
RIDGEVIEW SUBDIVISION UNIT 1
COA #657981

STORM DRAIN TANGENT DATA

NUMBER	BEARING	DISTANCE
T1	N89°37'07"W	25.00'
T2	N89°37'07"W	134.06'
T3	S58°17'24"W	75.94'
T4	N89°37'07"W	10.27'
T5	N07°37'54"E	68.09'
T6	N89°37'07"W	310.43'
T7	N89°37'07"W	390.00'
T8	S89°37'48"E	401.99'



BLACK ARROYO BLVD



SCALE: 1"=50' (HORIZ.) 1"=10' (VERT.)

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- SINGLE WATER METER
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- WATER LINE SHUTOFF VALVE
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- SAS LATERAL
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- STORM DRAIN MANHOLE
- STORM DRAIN INLET
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- PROPOSED STREET LIGHT

AS-BUILT INFORMATION
CONTRACTOR — DATE
REVIEWED BY — DATE
INSPECTOR'S — DATE
FIELD — DATE
DRAWINGS — DATE
CORRECTIONS BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
NGS BRASS TABLET "BLACK-2 1977"
GEOGRAPHIC POSITION (NAD 1927)
N.M. State Plane Coordinates (Central Zone)
X= 372,920.43 Y= 1,530,241.52
Ground-to-Grid factor= 0.9996784
αß = -0°01'43"
SLD 1929 Elevation= 5213.926

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: 07/01
		Drawn By: LSM	DATE: 12/2000
		Checked By: RLB	DATE: 07/01

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

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

BLACK ARROYO BOULEVARD
MASTER STORM DRAIN PHASE IA
BLACK ARROYO BLVD 10+00.00 TO 21+00.00

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

City Project No.

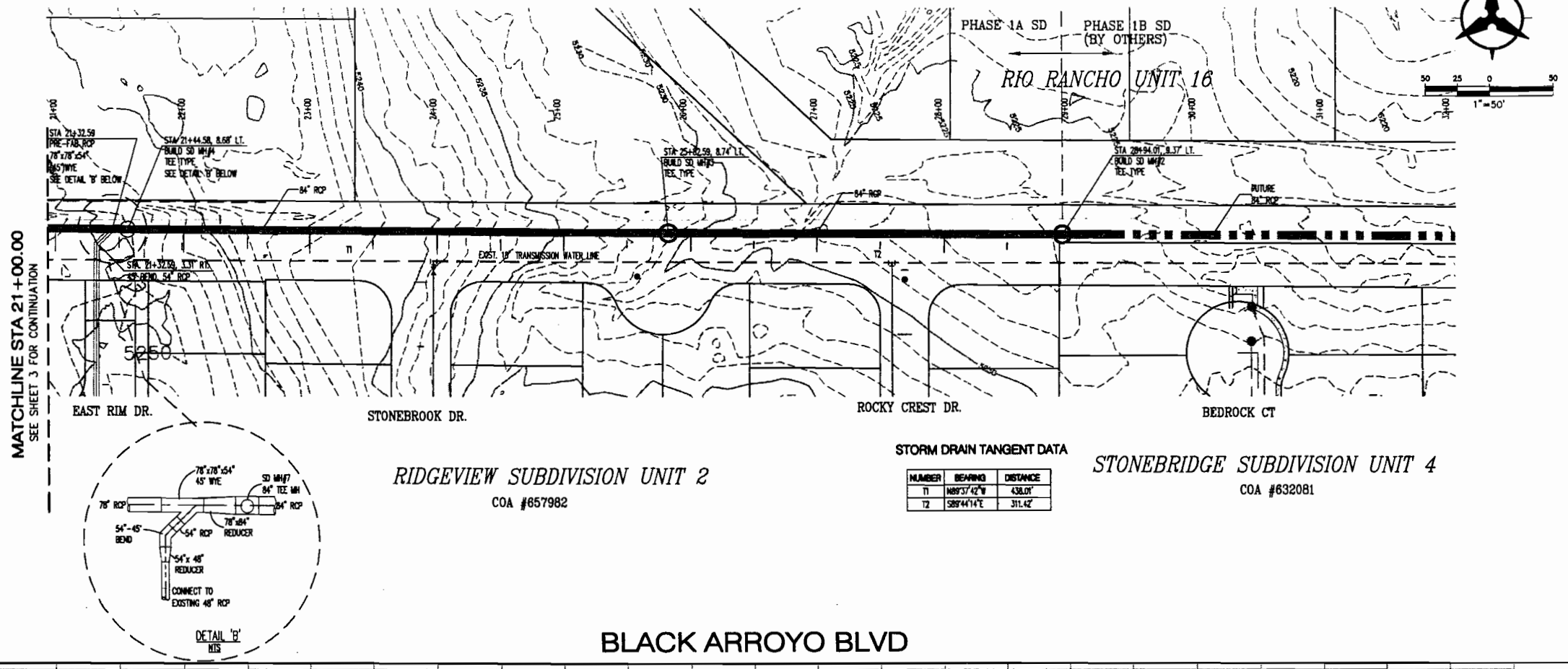
Zone Map No. A-12-Z

Sheet 3 Of 8

JULY 2001

P:\...\PNP1 BLACK ARROYO BLVDXsheet.DWG

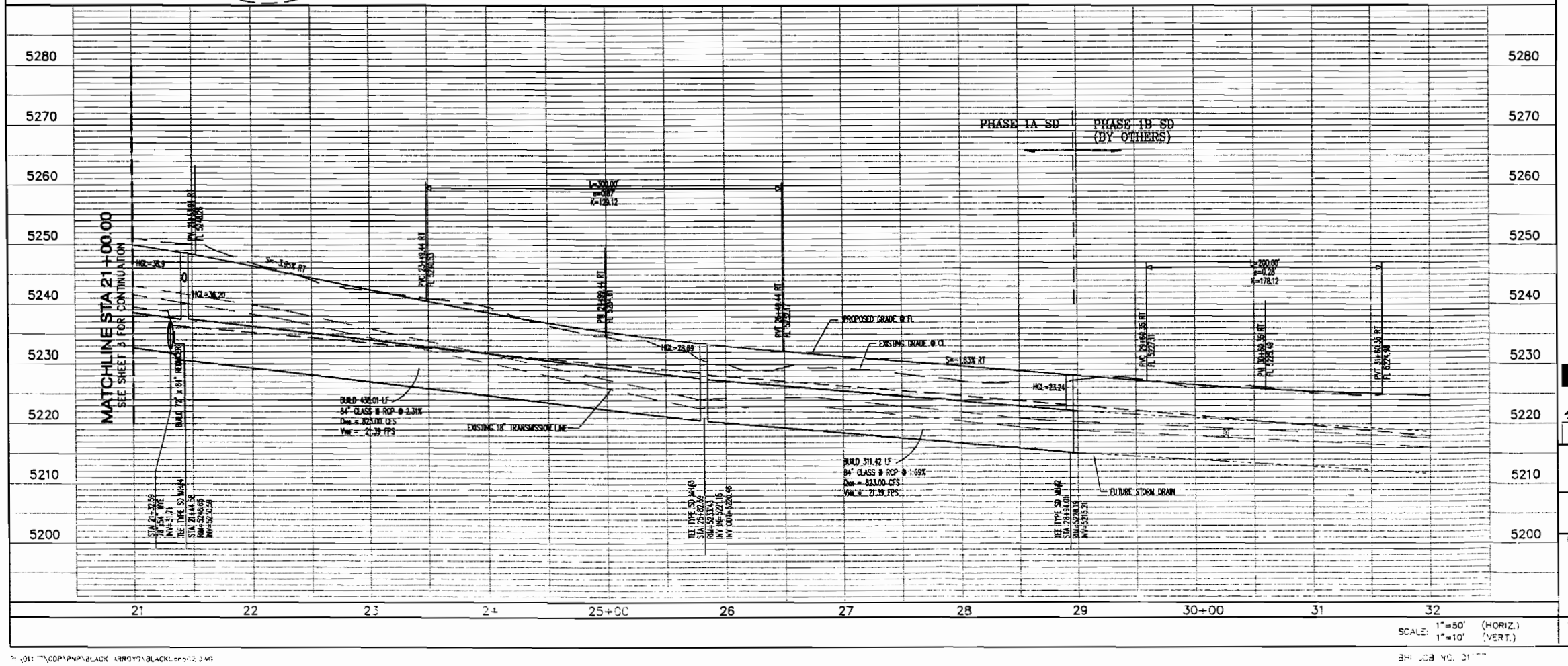
BH JOB NO. ...



STORM DRAIN TANGENT DATA

NUMBER	BEARING	DISTANCE
T1	N89°37'42"W	438.01'
T2	S89°44'14"E	311.42'

BLACK ARROYO BLVD



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- EXISTING WATER VALVE
- PROPOSED STREET LIGHT

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
DRAWN BY	DATE
INSPECTOR'S	
FIELD VERIFICATIONS BY	DATE
AS-BUILTED BY	
CORRECTED BY	DATE
RECORDED BY	DATE

BENCH MARKS

NGS BRASS TABLET "BLACK-2 1977"
GEOGRAPHIC POSITION (NAD 1927)
N.M. State Plane Coordinates (Central Zone)
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Ground-to-Grid Factor= 0.9996784
ω1 = -00°14'43"
SLD 1929 Elevation= 5213.926

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

RICHARD LYNN BELTRAMO
NEW MEXICO
10596
REGISTERED PROFESSIONAL ENGINEER

MICRO-FILM INFORMATION

No.	Date	By	REMARKS
			REVISIONS
			DESIGN
			Designed By: EES DATE: 07/01
			Drawn By: LSM DATE: 07/01
			Checked By: RLB DATE: 07/01

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

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

BLACK ARROYO BOULEVARD
MASTER STORM DRAIN PHASE I
BLACK ARROYO BLVD STA 21+00.00 TO STA 32+00.00

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

City Project No. | Zone Map No. A-12-Z | Sheet 4 Of 8

JULY 2001

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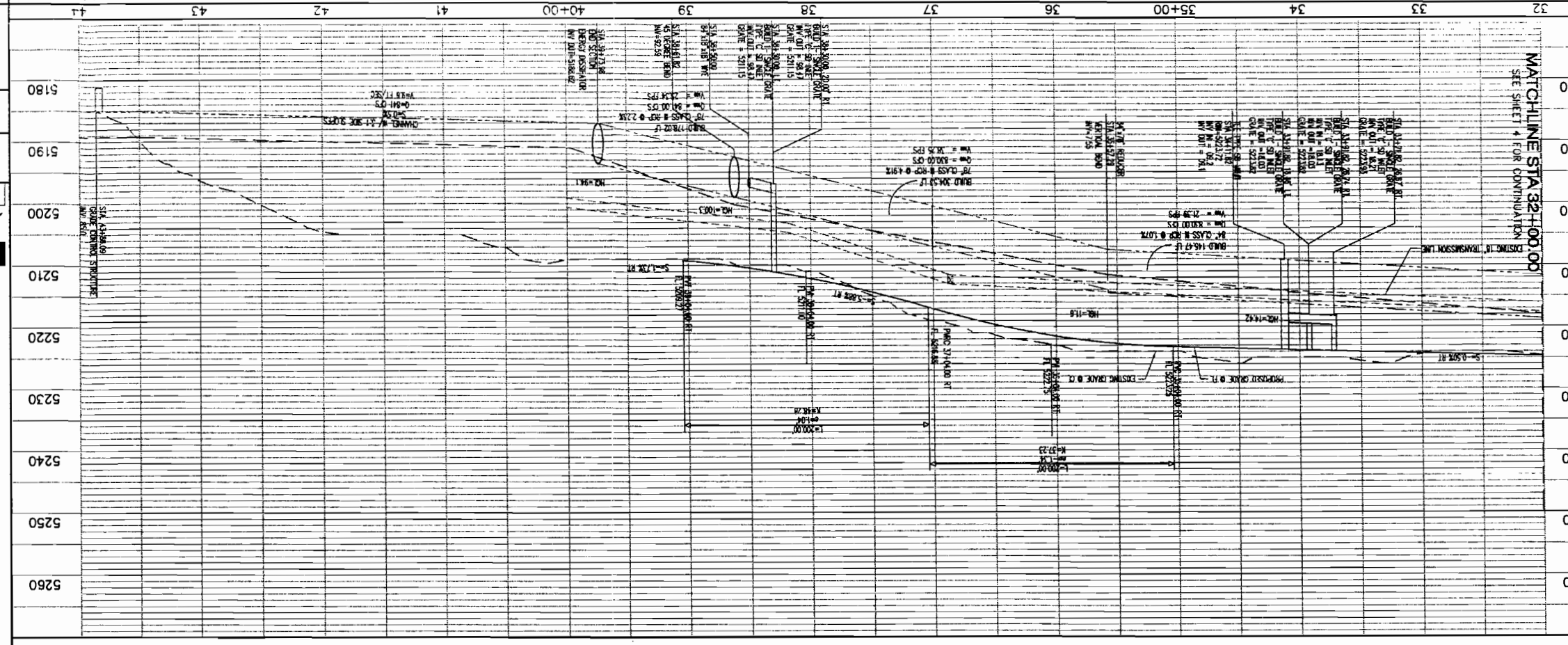
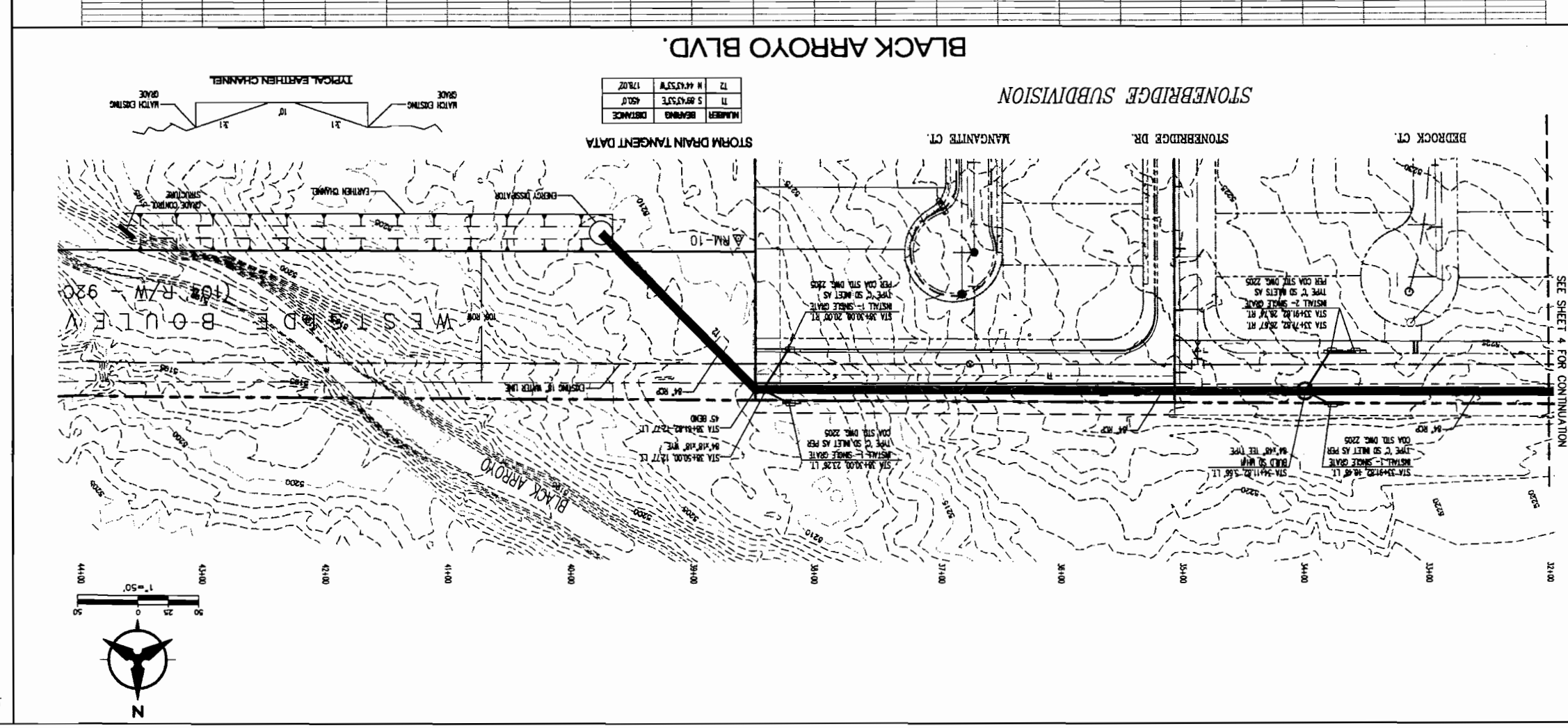
JULY 2001

BLACK ARROYO BLVD.





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- PROPOSED STREET LIGHT

ENGINEER'S SEAL

RICHARD LYNN BELTRAMO
NEW MEXICO
10596
REGISTERED PROFESSIONAL ENGINEER

SURVEY INFORMATION	BENCH MARKS	AS-BUILT INFORMATION
FIELD NOTES BY	DATE	CONTRACTOR DATE
	MCS BRASS TABLET "BLACK-2 1977"	SURVEYED BY DATE
	GEOGRAPHIC POSITION (NAD 1927)	INSPECTED BY DATE
	N.M. State Plane Coordinates (Central Zone)	ACCEPTANCE BY DATE
	X= 377,920.43 Y= 1,530,241.52	APPROVED BY DATE
	Ground-to-Grid Factor= 0.9996784	CONNECTED BY DATE
	ab = -001°43"	MICRO-FILM INFORMATION
	S.D. 1929 ElevMonr= 5213.976	RECORDED BY DATE
		NO.

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
	DATE: 07/01		
	DATE: 07/01		
	DATE: 07/01		

Designed By: EES
Drawn By: LSM
Checked By: RLB

Bohannan ▲ Huston

Courtyard One 7500 JEFFERSON NE Albuquerque NEW MEXICO 87109

ENGINEERS PLANNERS PHOTOGRAMMETRISTS SURVEYORS SOUTHWEST PIPELINERS

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

BLACK ARROYO BOULEVARD
MASTER STORM DRAIN PHASE
BLACK ARROYO BLVD STA 32+00 TO STA 43+86

Design Review Committee	City Engineer Approval	Last Design Update	No./Day/Yr.	No./Day/Yr.

City Project No. | Zone Map No. A-12-Z | Sheet 5 of 8

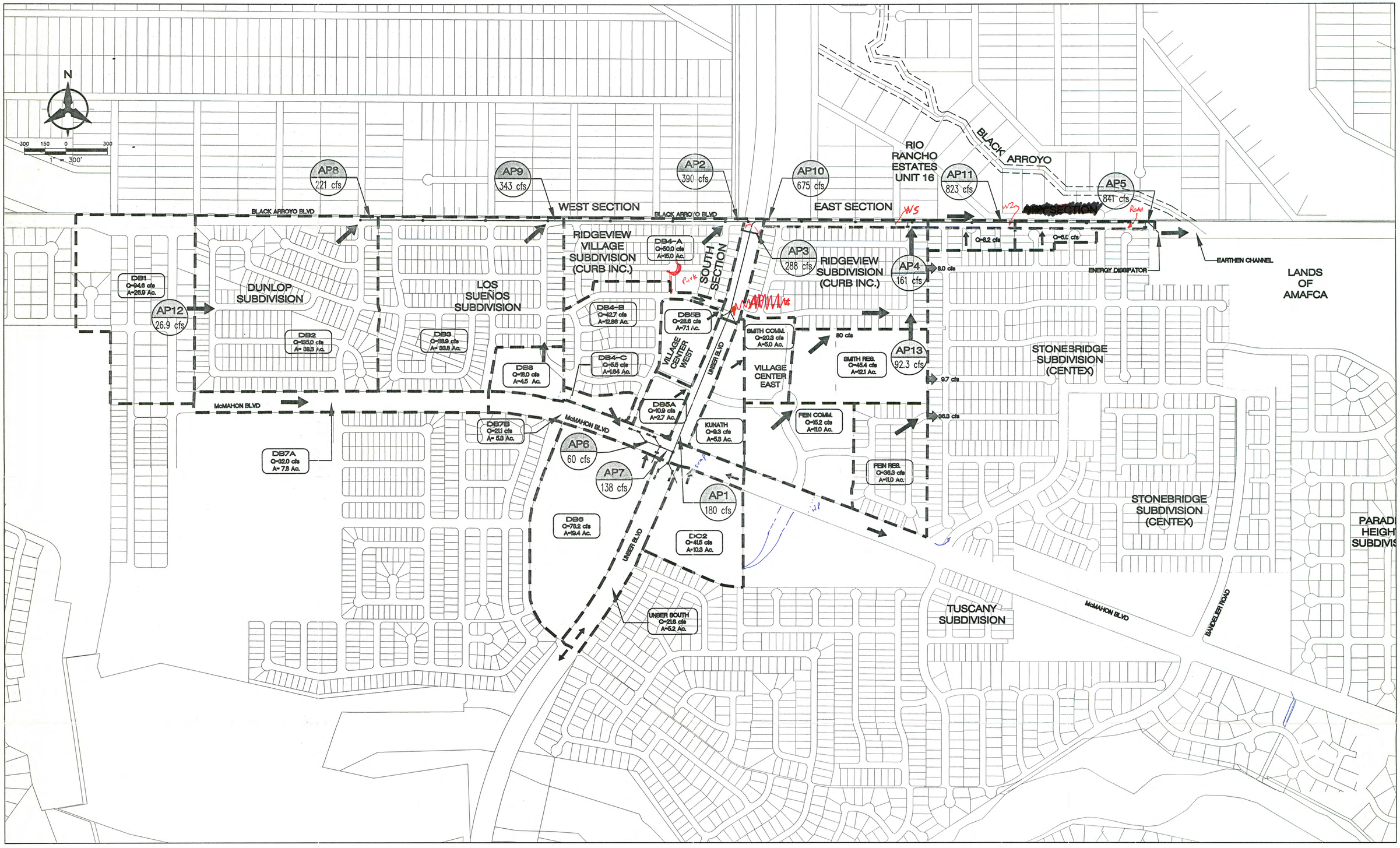


EXHIBIT 1

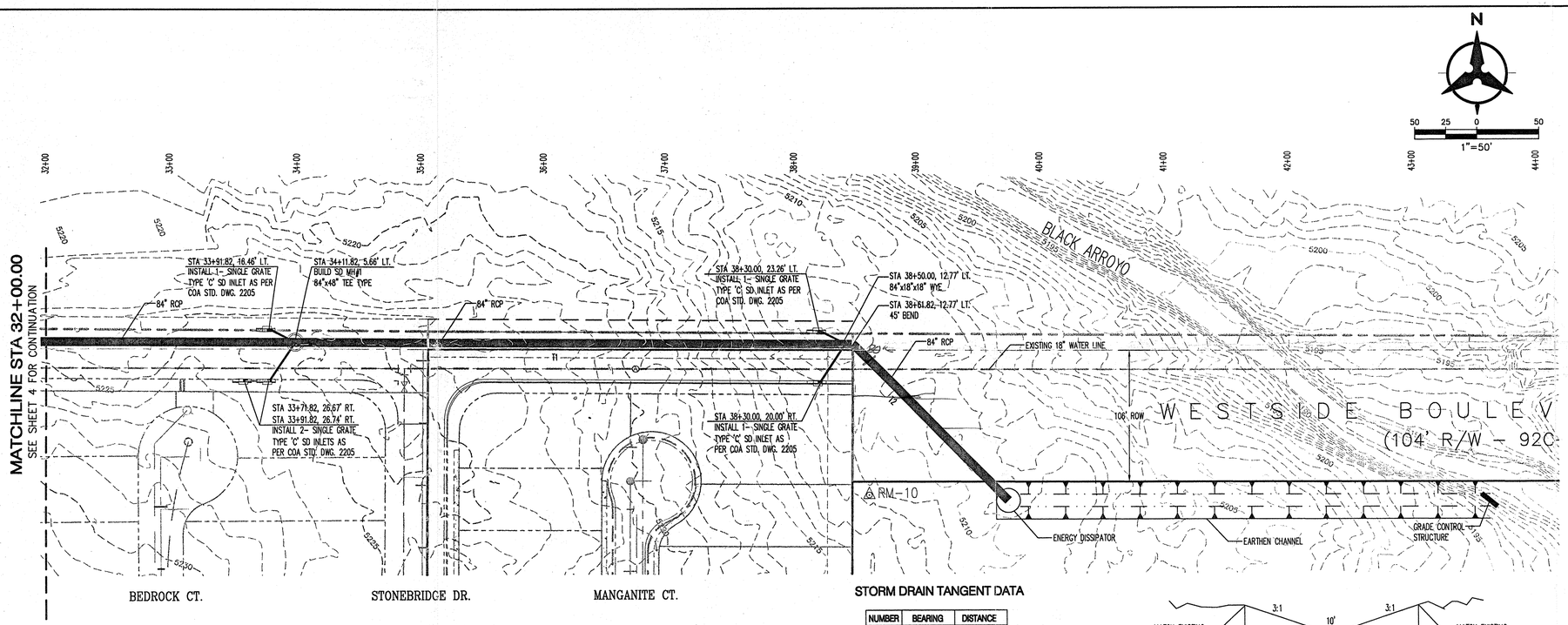
DEVELOPED CONDITIONS BASIN MAP

P: \01177\CDP\GENERAL\EXHIBITS\MSTR-BASIN.DWG

Bohannan ▲ Huston

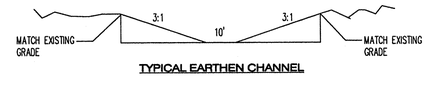
Courtyard One 7500 JEFFERSON NE Albuquerque NEW MEXICO 87109

ENGINEERS PLANNERS PHOTOGRAMMETRISTS SURVEYORS SOFTWARE DEVELOPERS



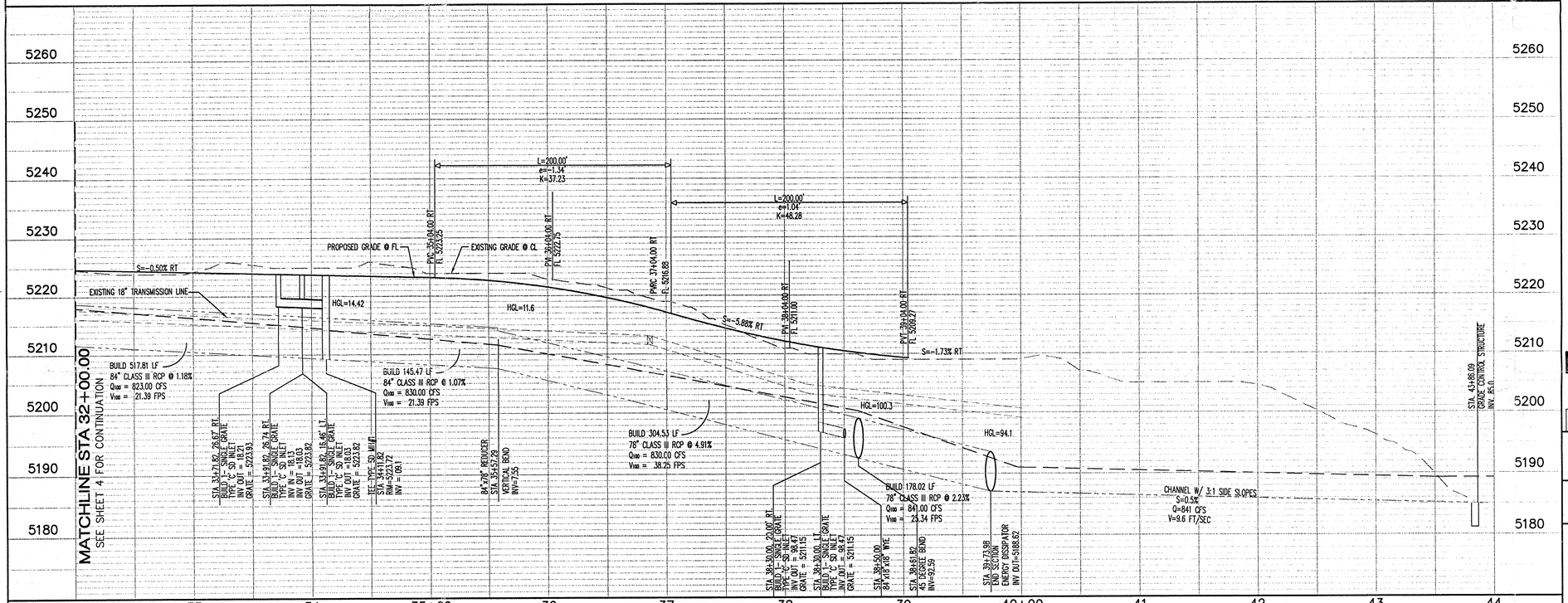
STORM DRAIN TANGENT DATA

NUMBER	BEARING	DISTANCE
T1	S 89°43'53"E	450.0'
T2	N 44°43'53"W	178.02'



TYPICAL EARTHEN CHANNEL

BLACK ARROYO BLVD.



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AS-BUILT INFORMATION

	DATE
CONTRACTOR	
STAKED BY	
INSPECTOR'S LEGITIMATES BY	
FIELD VERIFICATION BY	
MARKED BY CORRECTED BY	

MICRO-FILM INFORMATION

	DATE
RECORDED BY	
NO.	

BENCH MARKS

NGS BRASS TABLET "BLACK-2 1977"
GEOGRAPHIC POSITION (NAD 1927)
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X= 372,920.43 Y= 1,530,241.52
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SLD 1929 Elevation= 5213.926

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL
RICHARD LYNN BOHANNAN NEW MEXICO 10090 REGISTERED PROFESSIONAL ENGINEER

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	
		Designed By: EES	DATE: 07/01
		Drawn By: LSM	DATE: 07/01
		Checked By: RLB	DATE: 07/01

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

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

BLACK ARROYO BOULEVARD
MASTER STORM DRAIN PHASEI
BLACK ARROYO BLVD STA 32+00 TO STA 43+86

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

City Project No.	Zone Map No.	Sheet	Of
	A-12-Z	5	8

BHI JOB NO. 01177

JULY 2001

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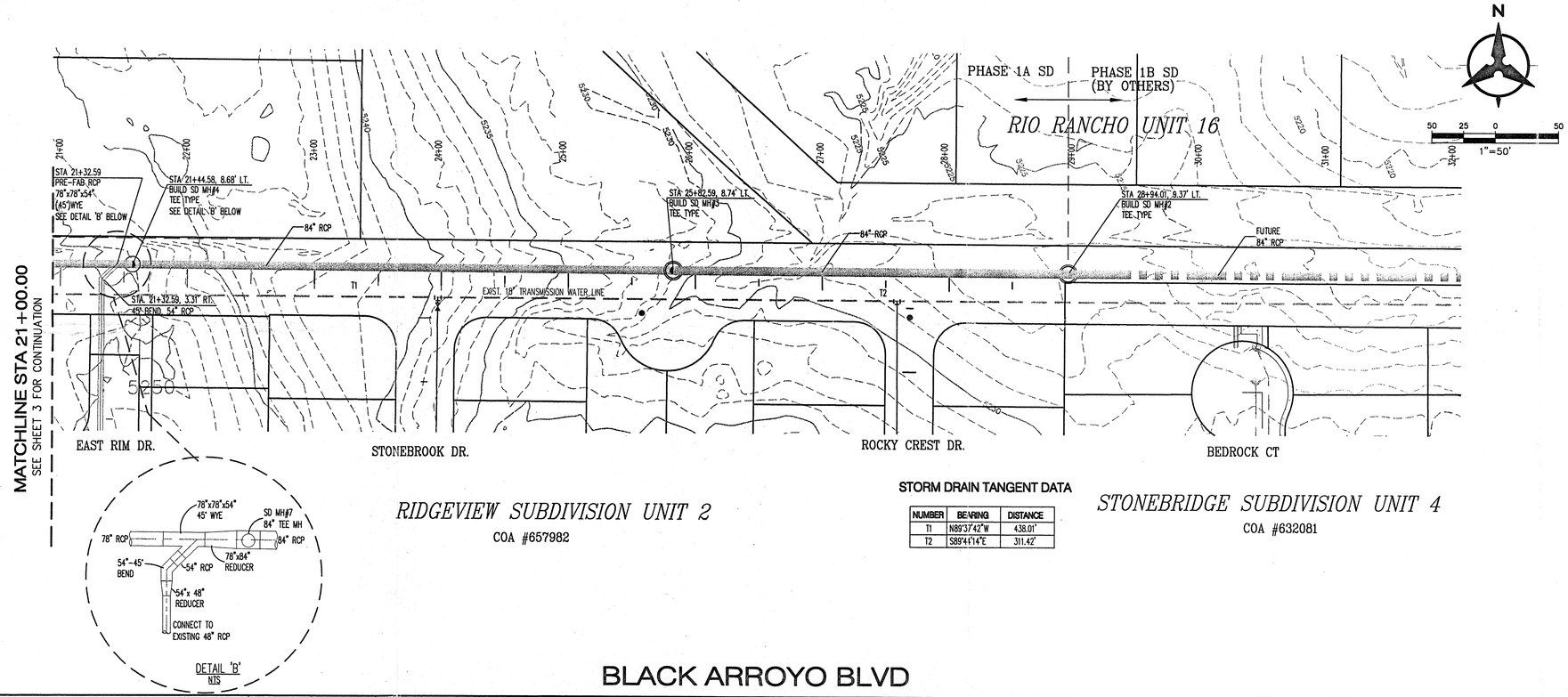

DETAIL 'B'
NTS

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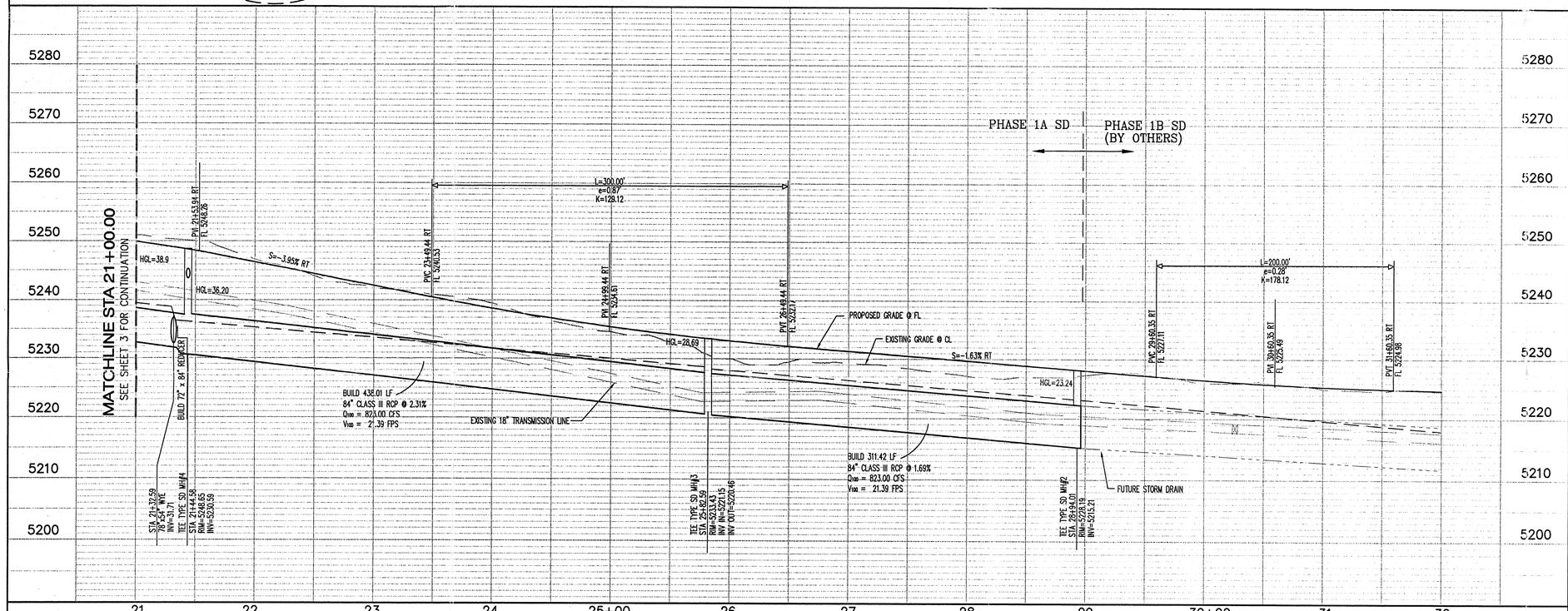

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AS-BUILT INFORMATION

	DATE
CONTRACTOR WORK PERFORMED BY	
INSPECTOR'S ACCEPTANCE BY	
SURVEY VERIFICATION BY	
AS-BUILTS COMPILED BY	
MICRO-FILM INFORMATION RECORDED BY	

BENCH MARKS

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SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

REVISIONS

No.	Date	By	REMARKS
	DATE: 07/01	Designed By: EES	DESIGN
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Bohannan ▲ Huston
Courtyard One 7500 JEFFERSON NE Albuquerque NEW MEXICO 87109
ENGINEERS PLANNERS PHOTOGRAMMETRISTS SURVEYORS SOFTWARE DEVELOPERS

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

BLACK ARROYO BOULEVARD
MASTER STORM DRAIN PHASE I
BLACK ARROYO BLVD STA 21+00.00 TO STA 32+00.00

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

City Project No.

Zone Map No. A-12-Z

Sheet 4 Of 8

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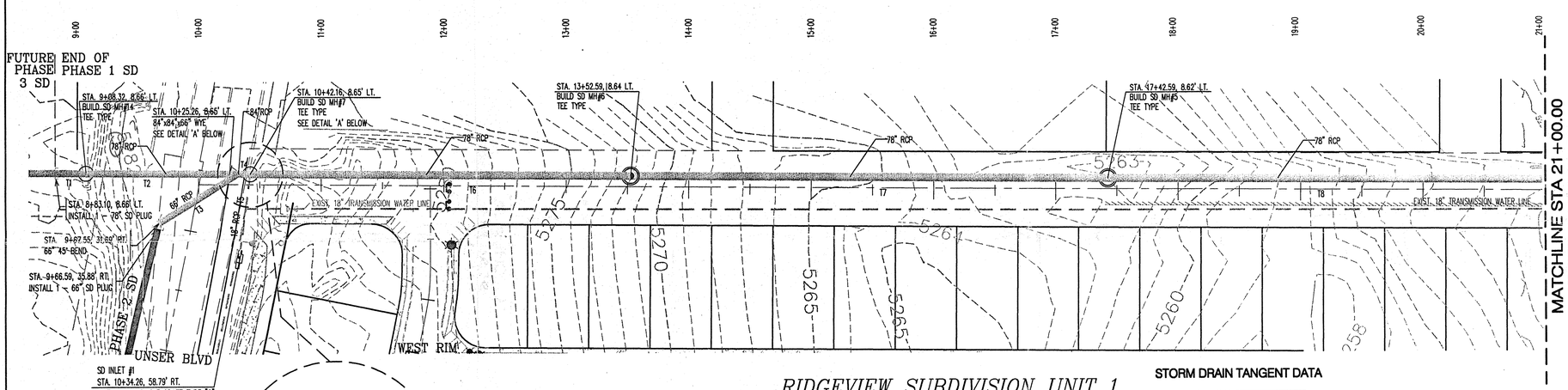
BHI JOB NO. 01177

JULY 2001



RIDGEVIEW SUBDIVISION UNIT 1
COA #657981

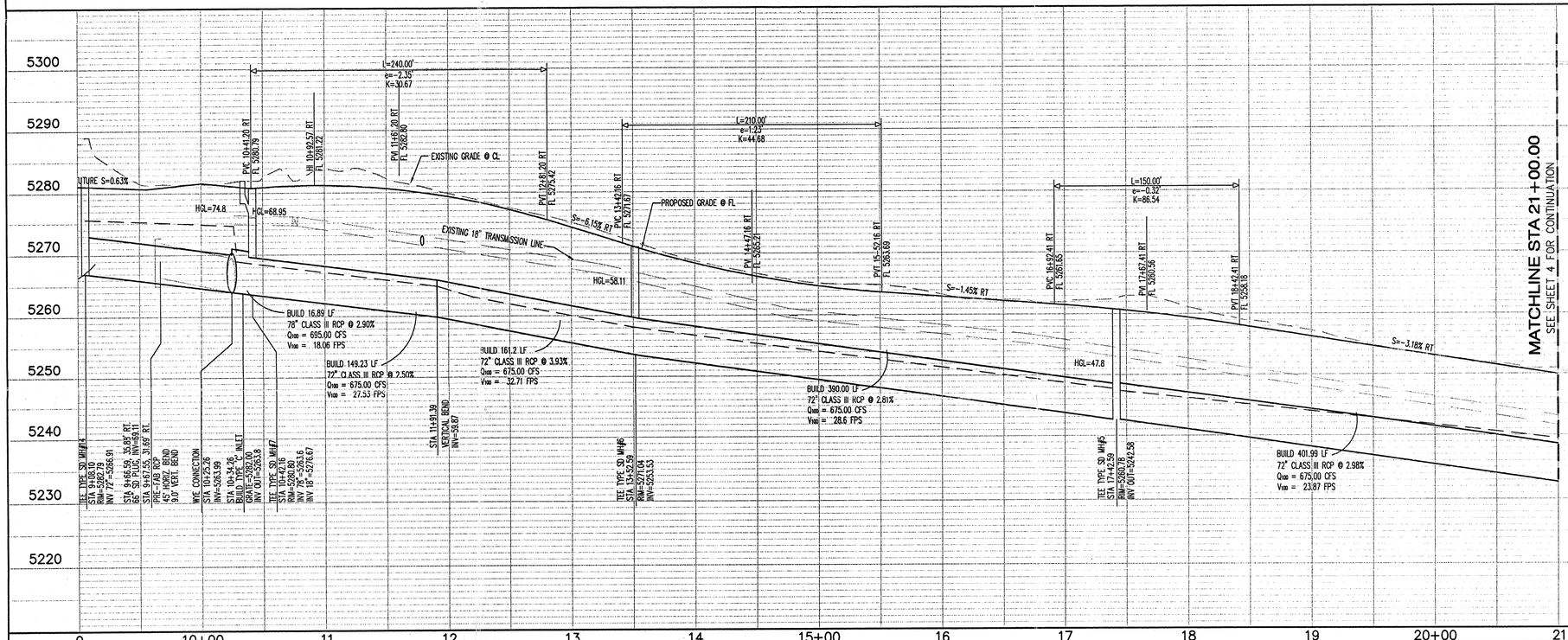
STORM DRAIN TANGENT DATA

NUMBER	BEARING	DISTANCE
T1	N89°37'07"W	25.00'
T2	N89°37'07"W	134.06'
T3	S58°17'24"W	75.94'
T4	N89°37'07"W	10.27'
T5	N07°37'54"E	68.09'
T6	N89°37'07"W	310.43'
T7	N89°37'07"W	390.00'
T8	S89°37'48"E	401.99'

N

50 25 0 50
1"=50'

BLACK ARROYO BLVD



SCALE: 1"=50' (HORIZ.)
1"=10' (VERT.)

GENERAL NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. ALL CURVE DATA AND DIMENSIONS ARE CALCULATED FROM CENTERLINE OF PIPE OR MANHOLE. ALL SAS & SD SLOPES ARE CALCULATED TO TRUE PIPE DIMENSIONS FROM INVERT TO INVERT. (PAY ITEMS ARE SHOWN IN PARENTHESES)
3. GRADE ELEVATIONS, WHERE NOTED, ARE FOR FLOWLINE OF CURB UNLESS OTHERWISE SPECIFIED.
4. CONTRACTOR IS TO INSTALL A 4" X 4" X 5' POST AND END AT THE END OF EACH SANITARY SEWER SERVICE.
5. CONTRACTOR IS RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ALL UTILITY CONDUITS AND EXISTING LINES.
6. CONTRACTOR SHALL PROVIDE THE INSPECTORS WITH THE PROPOSED TESTING PLAN. THE PLAN MUST BE APPROVED BEFORE TESTING OPERATIONS BEGIN.
7. CONTRACTOR SHALL PARK EQUIPMENT AND VEHICLES AS NOT TO INTERFERE WITH NORMAL ACTIVITIES OF RESIDENTS OR OTHER CONTRACTORS ON SITE.
8. ANY DAMAGE TO THE EXISTING FACILITIES (CURB & GUTTER, PAVEMENT, CONDUITS, LANDSCAPING, UTILITY LINES, ETC.) DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS' EXPENSE.
9. MH RIMS & CATCH BASIN INLET ELEVATIONS, VALVE BOXES, ARV, FIRE HYDRANT & FLANGE ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY AND ADJUST TO FINAL PAVEMENT GRADES.
10. SAS STATIONING FOLLOWS CL OF ROAD UNLESS OTHERWISE NOTED.
11. STATIONING OF DROP INLET IS TO MIDDLE OF DOWN HILL GRATE AT FACE OF CURB.
12. FOR STORM DRAIN CONSTRUCTION: ALL RCP JOINTS SHALL NOT BE GROUTED PRIOR TO FINAL INSPECTION. FINAL INSPECTION SHALL DETERMINE WHICH JOINTS ARE TO BE GROUTED FOR FINAL ACCEPTANCE OF THE CONSTRUCTION.

LEGEND

- DOUBLE WATER METER
- SINGLE WATER METER
- ARV — WL AIR RELEASE VALVE
- WATER LINE SHUTOFF VALVE
- WATER LINE TEE
- SAS LATERAL
- SAS MANHOLE
- STORM DRAIN MANHOLE
- STORM DRAIN INLET
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- PROPOSED STREET LIGHT

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
AS-BUILTS CORRECTED BY	DATE

BENCH MARKS

NGS BRASS TABLET "BLACK-2, 1977"
GEOGRAPHIC POSITION (NAD 1927)
N.M. State Plane Coordinates (Central Zone)
X= 372,920.43 Y= 1,530,241.52
Ground-to-Grid Factor= 0.99956784
ω1 = -00°14'43"
SLD 1929 Elevation= 5213.926

MICRO-FILM INFORMATION

RECORDED BY DATE
NO.

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

RICHARD LYNN BELTRAMO
10501
REGISTERED PROFESSIONAL ENGINEER
11/15/01

No.	Date	By	REMARKS
			REVISIONS
			DESIGN
			DATE: 07/01
			DATE: 12/2000
			DATE: 07/01

Designed By: EES
Drawn By: LSM
Checked By: RLB

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

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

BLACK ARROYO BOULEVARD
MASTER STORM DRAIN PHASE IA
BLACK ARROYO BLVD 10+00.00 TO 21+00.00

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

City Project No.
Zone Map No. A-12-Z
Sheet 3 Of 8

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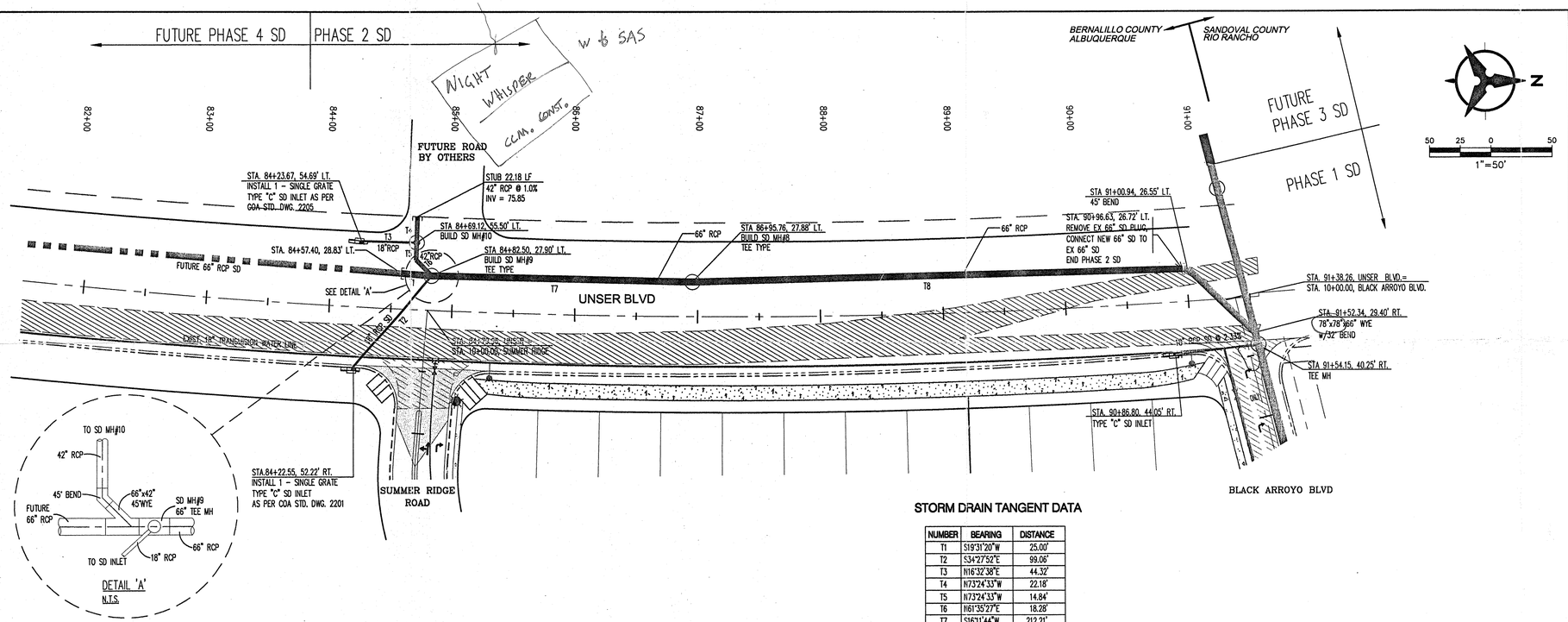
BHI JOB NO. 01177

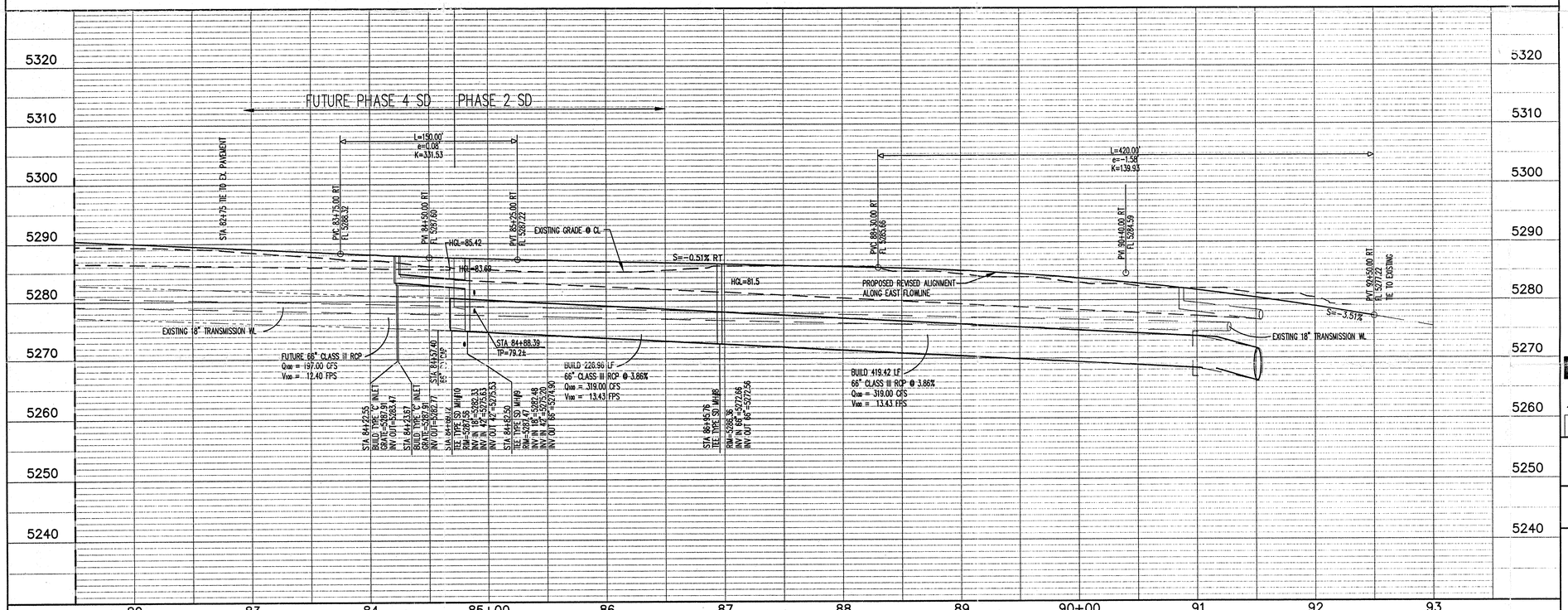
JULY 2001



STORM DRAIN TANGENT DATA

NUMBER	BEARING	DISTANCE
T1	S19°31'20"W	25.00'
T2	S34°27'52"E	99.06'
T3	N16°32'38"E	44.32'
T4	N73°24'33"W	22.18'
T5	N73°24'33"W	14.84'
T6	N61°35'27"E	18.28'
T7	S16°11'44"W	212.21'
T8	S13°17'16"W	403.18'

UNSER BLVD



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AS-BUILT INFORMATION

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CONTRACTOR STAKED BY	
INSPECTOR'S FIELD CHANGES BY	
VERIFICATION BY	
AS-BUILTS CORRECTED BY	

BENCH MARKS

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RECORDED BY	
NO.	

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

RICHARD LYNN BELTRAMO NEW MEXICO 10596 REGISTERED PROFESSIONAL ENGINEER

No.	Date	By	REMARKS
			REVISIONS
			DESIGN
			DATE: 07/01
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Designed By: EES
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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

UNSER BOULEVARD
MASTER STORM DRAIN PHASE II
UNSER BLVD STA 81+50.00 TO 91+50.00

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

City Project No.	Zone Map No.	Sheet	Of
COA #	A-12-Z	3	6

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BHI JOB NO. 01177

JULY 2001