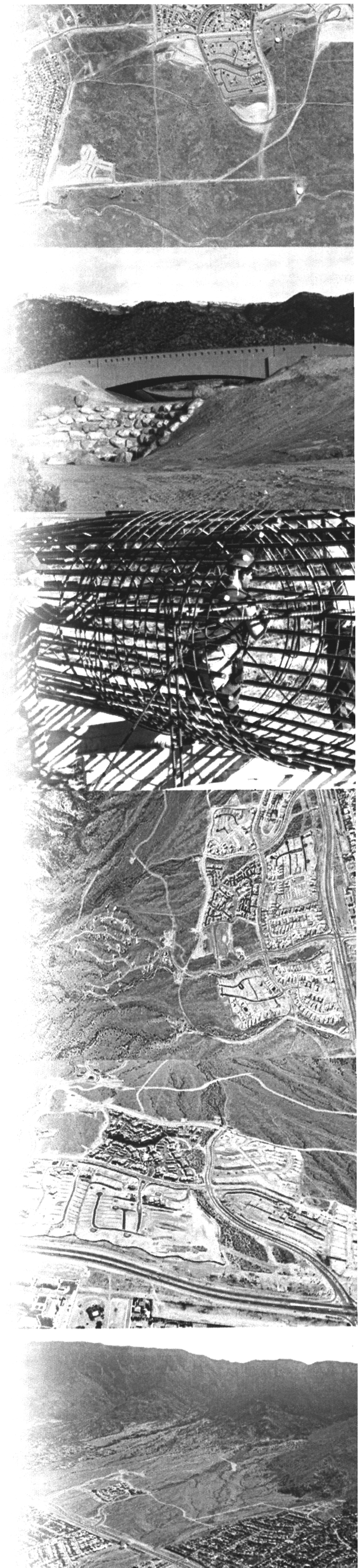
MESA DEL SOL PHASE 1A UNIVERSITY BOULEVARD DRAINAGE DESIGN ANALYSIS REPORT



OCTOBER 13, 2006

Prepared for:

Mesa del Sol

801 University Blvd. SE

Suite 200

Albuquerque, NM 87106

Bohannan ▲ Huston INC.

URS

ENGINEERING ▲

SPATIAL DATA ▲

ADVANCED TECHNOLOGIES ▲

MESA DEL SOL PHASE 1A UNIVERSITY BOULEVARD DRAINAGE DESIGN ANALYSIS REPORT

RECEIVED
1 6 2006
HYDROLOGY SECTION

OCTOBER 13, 2006

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Jeffrey L. Mulbery, PE. Date
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TABLE OF CONTENTS

I. PURPOSE 1
- A. Overall Drainage Area A 1
- B. Overall Drainage Area B 1
- C. Overall Drainage Area C 1

II. HYDROLOGY 2
- A. Precipitation 2
- B. Time to Peak 2
- C. Land Treatments 3
- D. Sediment Bulking Factors 3
- E. Routing 3

III. HYDRAULICS 3

IV. DRAINAGE AREAS 3
- A. Overall Drainage Area A 4
- B. Overall Drainage Area B 5
- C. Overall Drainage Area C 5

V. RESULTS AND RECOMMENDATIONS 6

FIGURES

Figure 1A – Overall Drainage Area A
Figure 1B – Overall Drainage Area B
Figure 1C – Overall Drainage Area C
Figure 2 – Proposed Roadway Drainage Basin Map
Figure 3 – Roadway Drainage Calculations

APPENDICES

APPENDIX A – AHYMO Output (Drainage Area A)
APPENDIX B – HGL Calculations

I. PURPOSE

This design report presents an analysis of the drainage concepts for the full construction of University Blvd.; starting at the terminus of the existing University Blvd. Extension (COA Project # 732502) heading south (approximately 2,400 LF) and then southeast (approximately 3,900 LF) along the new University Blvd. alignment (Station 1385+00 to 1322+00). The concepts described in this report consist of three overall drainage areas, which will address University Blvd. street drainage as well as offsite flow mitigation. These three drainage areas include:

A. Overall Drainage Area A

Drainage Area A consists of runoff from University Blvd. (approximately 1,670 LF) along with the eastern portion of the Bernalillo County Recreation Complex adjacent to the extension of University Blvd. This drainage will outfall to an existing retention pond that will become a detention pond with the proposed construction. This pond will outfall to the existing University Blvd. Extension storm drainage system, which drains into the Tierras Arroyo.

B. Overall Drainage Area B

Drainage Area B consists of runoff from University Blvd. (approximately 2,400 LF) along with offsite drainage from a portion of proposed development to the west (approximately 8.0acres). This drainage will outfall to a proposed onsite regional retention pond to be constructed with this project north of Bobby Foster Rd. via storm drain.

C. Overall Drainage Area C

Drainage Area B consists of a small portion of drainage for University Blvd. that will front the new Albuquerque Studios Project (approximately 1,260 LF-Phase 1A) along with offsite drainage from the proposed development to the west (approximately 5acres). This drainage will ultimately outfall to an existing regional retention pond located northeast of the Albuquerque Studios site. This storm system will not be fully constructed to the regional pond with the Phase 1A construction plan set. It will be completed with future phases of University Blvd. construction and an additional DAR will be issued at that time.

This analysis consists of a hydrologic model to determine the flows generated from each area in order to properly size the storm drainage facilities. Refer to Overall Drainage Area Basin Maps (Figures 1A – 1C) for drainage area delineation.

This report is written in support of COA Hydrology approval for Phase 1A construction (University Blvd. northbound lanes) under COA project number 732502 (#775482).

II. HYDROLOGY

The methodology selected for hydrological analysis of project area is the City of Albuquerque's 1997 Development Process Manual (DPM), Chapter 22. Section 2 of this chapter details the use of a hydrologic computer program (HYMO) for the determination of storm runoff volumes and flow rates as modified for the AMAFCA/Albuquerque region (AHYMO). The model is particularly useful for routing hydrographs through a detention pond. This method was implemented for Overall Drainage Area A. In Overall Drainage Areas B & C, Q's were calculated using the rational method, per DPM requirements.

A. Precipitation

Historically, the majority of rainfall occurring in Albuquerque is the result of local thunderstorms that occur during the summer months. This can result in flash flooding downstream. Rainfall values for the Recreation Complex were determined from the City of Albuquerque DPM for Zone 2. The total rainfall depths used in the AHYMO computer runoff models are:

Rain One (I hour – 100 year) 2.01 inches

Rain Six (6 hour – 100 year) 2.35 inches

Rain Day (24 hour – 100 year) 2.75 inches

B. Time to Peak

The AHYMO program utilizes a time of concentration method in order to determine the time to peak for each contributing drainage basin. The time of concentration is defined as the time it takes for runoff to travel from the farthest upstream point in a basin to the basin outfall. The time to peak is defined as the time it takes for the runoff hydrograph at

the outlet of a basin to reach its peak and is estimated as two-thirds of the time of concentration. This report utilizes the SCS Upland Method to calculate time of concentration for basins with reach lengths less than 4,000 ft as presented in the DPM Section 22.2.

C. Land Treatments

Land treatment types describe land usage. Table A-4 in Section 22.2 of the DPM describes the land conditions associated with each treatment type. There are four treatment types: A, B, C, and D. Type A is the most pervious, and Type D is the most impervious.

D. Sediment Bulking Factors

Sediment bulking accounts for increases in flow rates and volumes due to sediment in the runoff. For this study, a bulking factor was not used because under developed conditions the majority of the area will be covered with either irrigated grass or asphalt.

E. Routing

The Muskingum-Cunge method was used to route runoff flows through arroyo reaches. The geometry of the arroyo cross sections and the arroyo reach lengths were estimated using Bernalillo County Mapping. The Manning's coefficient (N) value used for routing was 0.03 for a natural arroyo channel and 0.013 for a concrete storm drain.

III. HYDRAULICS

The hydraulic calculations were performed using InRoads Storm & Sanitary for Drainage Area A. For Drainage Areas B & C StormCAD V 5.5 by Haestead Methods was utilized as well as the DPM Section 22 Standard Roadway Drainage Criteria.

IV. DRAINAGE AREAS

This report covers three (3) drainage areas located within the Employment Center for the Mesa del Sol development along University Blvd. Each Drainage Area is described in detail below.

A. Overall Drainage Area A

Overall Drainage Area A consists of approximately 195 acres of the Bernalillo County Recreational Complex and 2.99 acres of University Blvd., which will outfall into an existing pond that will be converted to a detention pond with this Phase 1A construction.

The Bernalillo County Recreational Complex is located west of the Employment Center and University Blvd. in the Mesa Del Sol development. Currently the site outfalls into two existing retention ponds located on the west side of University Blvd. Under existing conditions, Basins 2A, 2B, 2C, and 2D (See Figure 1A) outfall into the large pond located west of University Blvd. (here after referred as West University Pond). The parking area for the Journal Pavilion amphitheater (Basin 1 – Figure 1A) outfalls to an existing detention pond (here after referred as Journal Pavilion Pond) which previously drained into an existing retention pond located east of University Blvd. The West University Pond will become the new outfall for the Journal Pavilion Pond. Upon completion of this Phase 1A construction, this pond system will be a detention pond.

The existing West University Pond was sized to fully retain the 100yr, 10day storm event from Basins 2A-2D. With the construction of the storm system of Phase 1A, this pond will become a detention pond requiring storage of the 100-year, 6-hr storm event. In addition, Basins 3A, 3B and 3C were added to the AHYMO analysis of this pond to help mitigate offsite drainage that would affect University Blvd. as well as drainage from Basins 2E (DA5 – Figure 2). All of these basins, with the exception of 2E were analyzed using existing land treatments. The AHYMO analysis considered existing conditions of each of the basins within this drainage area for the 100yr, 6hr storm event with an outfall of a 20" orifice plate to help regulate the flow. The initial run proved that the existing West University Pond needed to be enlarged to account for the additional drainage basins contributing to it. The volume of the pond was increased and reanalyzed. Currently, there is an existing retention pond south of the west University pond. By combining these ponds, adequate detention capacity can be achieved with minor affect to the existing conditions. The results are located in Appendix A.

Basin 2E2 (DA 6 - Figure 2, AHYMO ID=21) is approximately 1.79 acres of University Blvd. which was added directly to the storm drain outfall of the detention pond.

The hydrograph for the pond outfall (ID=15) was added the hydrograph of this basin (ID=20) and determined that the peak discharge of Basin 2E2 reaches its peak before the pond outfall allowing this basin to drain directly to the storm drainage system.

At full build out of the Journal Pavilions recreation complex, sports fields, parking lots, and various other amenities will be introduced. The pond system that is currently being proposed will not support the additional runoff created by the expansion of the recreation complex. However, by including artfully and strategically located detention ponds throughout the Master Planned area, this issue can be controlled in a very efficient manner.

B. Overall Drainage Area B

Overall Drainage Area B (see Figure 1C) consists of approximately 8.3acres of University Blvd., 3.5 acres of Bobby Foster Right-of-Way East, 3.35acres of Bobby Foster Right-of-Way West, and 8acres proposed development to the west. Runoff will be carried via storm drains, to a proposed onsite regional retention pond located west of University Blvd. and north of Bobby Foster Road. Standard roadway drainage criteria and procedures have been utilized with a minimum of one driving lane clear during Q_{10}, and with Q_{100} Ultimate being contained in the ROW. Inlets and pipe design is per StormCAD, see Appendix B for results. Approximately five inlets will be built during interim and 10 inlets at ultimate build.

C. Overall Drainage Area C

Overall Drainage Area C (see Figure 1C) consists of approximately 4.17acres of University Blvd. and approximately 5 acres from offsite to the west (future community center and park). Runoff will be carried via storm drains to an interim pond system during Phase 1A. In the future phases of University Blvd., an additional DAR will be issued, and will include an additional drainage area of University Blvd., the Collector Road South of Albuquerque Studios. All runoff will be routed to an existing regional retention pond located east of Albuquerque Studios via storm drains. Standard roadway drainage criteria and procedures has been utilized with a minimum of one driving lane clear during Q_{10} and with Q_{100} Ultimate being contained in the ROW. Inlets and pipe design is per StormCAD, see

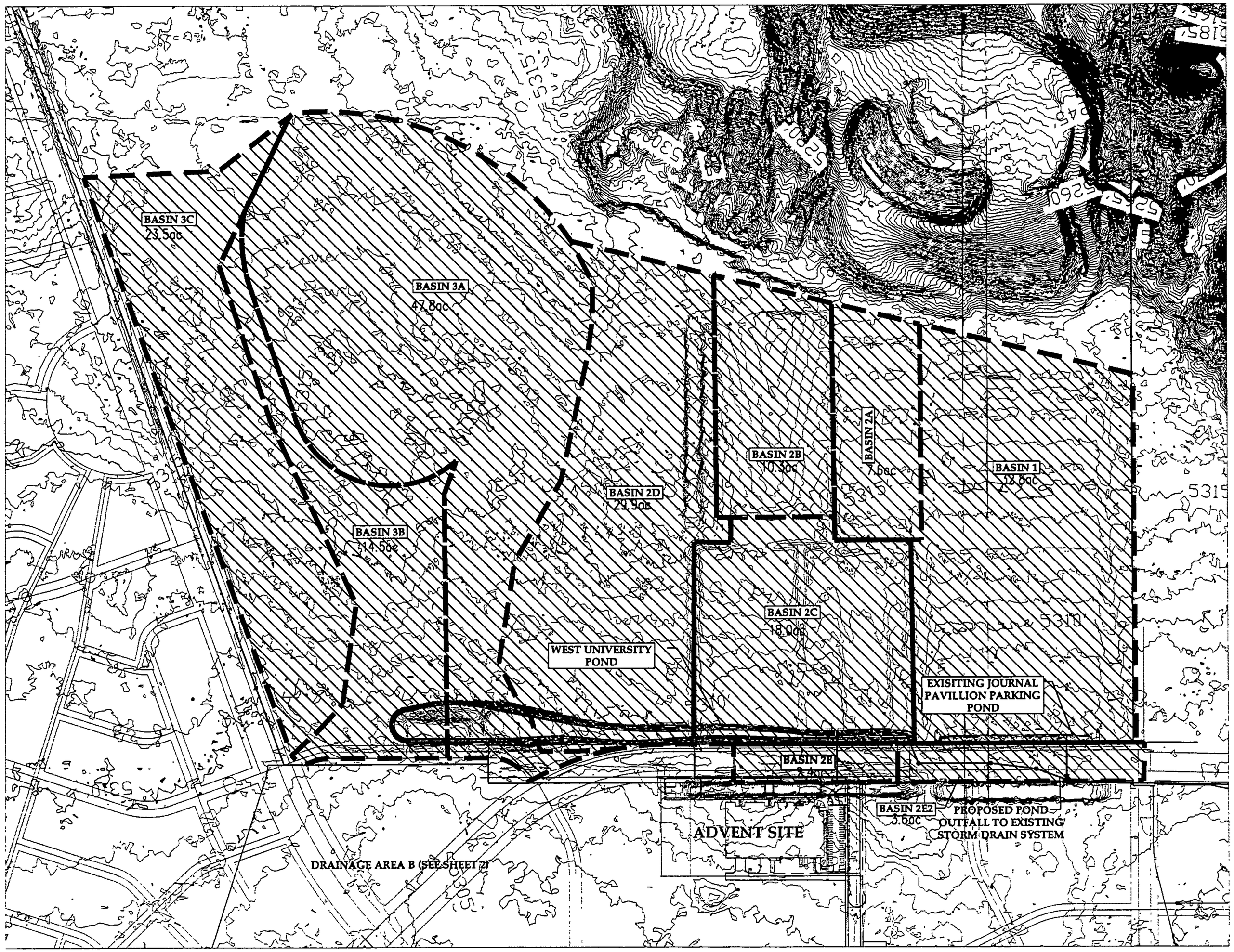
Appendix B for results. Approximately three inlets will be built during interim and six inlets at ultimate build.

Offsite flows from the west, which currently affect Drainage Areas B and C shall be mitigated with strategically placed interim retention ponds. This plan has been submitted to COA Hydrology Department, and shall be constructed under a separate contract prior to University Blvd. construction.

V. RESULTS AND RECOMMENDATIONS

This report demonstrates that 100-yr, 6-hr storm event can safely converge to the appropriate retention/detention ponds, and these ponds were sized accordingly.

Figures



N

1" = 200'

AS-BUILT INFORMATION

CONTRACTOR DATE

TECHNICIAN DATE

INSPECTOR'S ACCEPTANCE BY DATE

FIELD VERIFICATION BY DATE

DRAWINGS CORRECTED BY DATE

MICROFILM INFORMATION

RECORDED BY DATE

NO

BENCH MARKS

2" ALUMINUM CAP, STAMPED BM D05-1

NAD 83, NAVD 88

NORTHING: 1,451,105.025, EASTING: 1,532,413.518

ELEVATION: 5256.020

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

No.	Date	REMARKS	By

REVISIONS

DESIGN

Designed By: DATE:

Drawn By: DATE:

Checked By: DATE:

Bohannan ▲ Huston

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

ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

FIGURE 1A

MESA DEL SOL EMPLOYEMENT CENTER

OVERALL DRAINAGE AREA A

Last Design Update Mo /Day/Yr Mo /Day/Yr

Zone Map No. R-13

Sheet 1 Of

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MESA DEL SOL OVERALL DRAINAGE AREA B

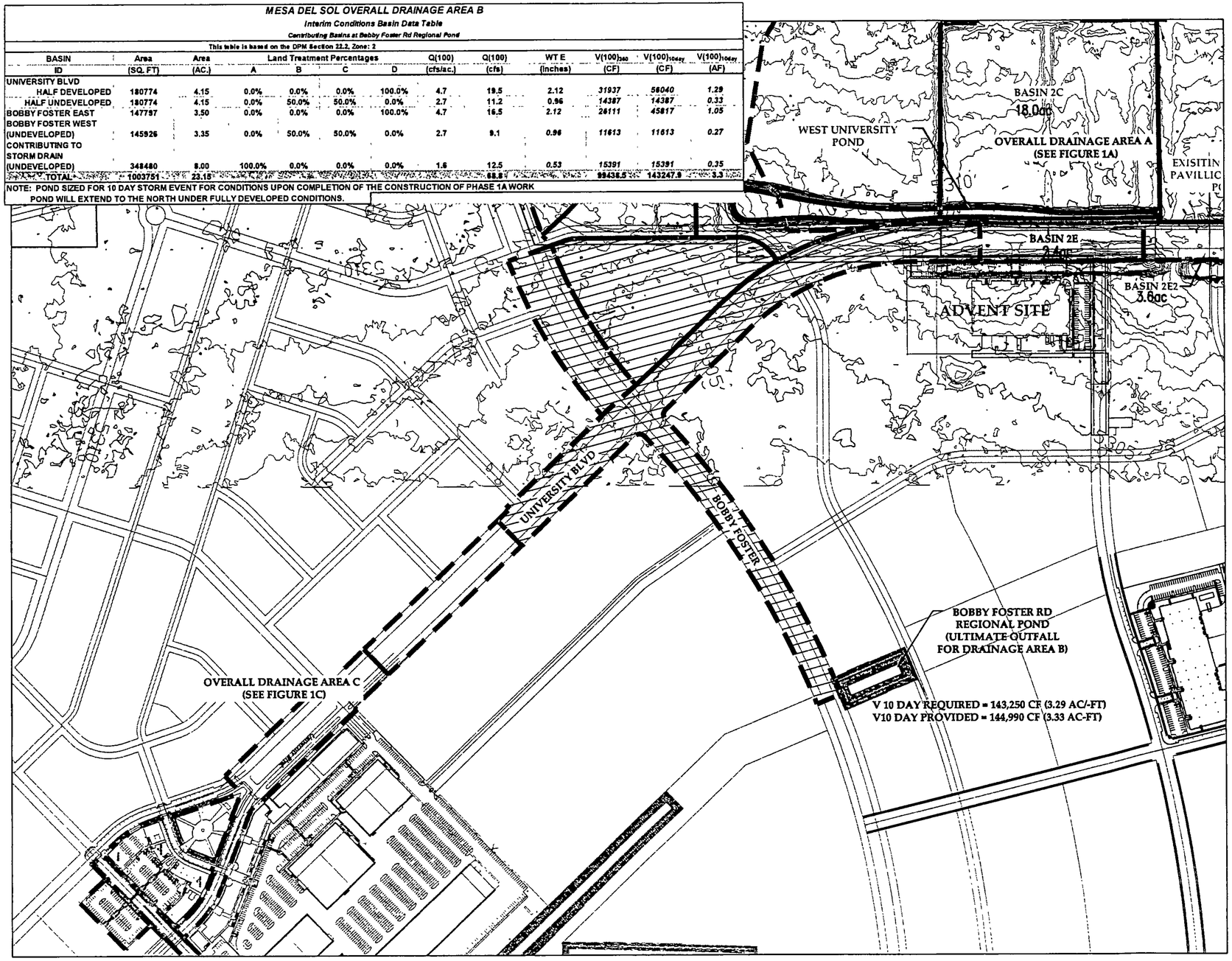
Interim Conditions Basin Data Table

Contributing Basins at Bobby Foster Rd Regional Pond

This table is based on the DPM Section 22.2, Zone: 2

BASIN ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (cfs)	WT E (inches)	$V(100)_{360}$ (CF)	$V(100)_{10day}$ (CF)	$V(100)_{10day}$ (AF)
UNIVERSITY BLVD												
HALF DEVELOPED	180774	4.15	0.0%	0.0%	0.0%	100.0%	4.7	19.5	2.12	31937	56040	1.29
HALF UNDEVELOPED	180774	4.15	0.0%	50.0%	50.0%	0.0%	2.7	11.2	0.96	14387	14387	0.33
BOBBY FOSTER EAST	147797	3.50	0.0%	0.0%	0.0%	100.0%	4.7	16.5	2.12	26111	45817	1.05
BOBBY FOSTER WEST (UNDEVELOPED)	145926	3.35	0.0%	50.0%	50.0%	0.0%	2.7	9.1	0.96	11613	11613	0.27
CONTRIBUTING TO STORM DRAIN (UNDEVELOPED)	348480	8.00	100.0%	0.0%	0.0%	0.0%	1.6	12.5	0.53	15391	15391	0.35
TOTAL	1003751	23.15						68.8		99436.5	143247.9	3.3

NOTE: POND SIZED FOR 10 DAY STORM EVENT FOR CONDITIONS UPON COMPLETION OF THE CONSTRUCTION OF PHASE 1A WORK
POND WILL EXTEND TO THE NORTH UNDER FULLY DEVELOPED CONDITIONS.



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AS-BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS
2" ALUMINUM CAP, STAMPED BM 09N-1
NAD 83, NAVD 88
NORTHING: 1,451,105.025, EASTING: 1,532,411.519
ELEVATION: 5296.000

MICROFILM INFORMATION
RECORDED BY DATE
NO

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	

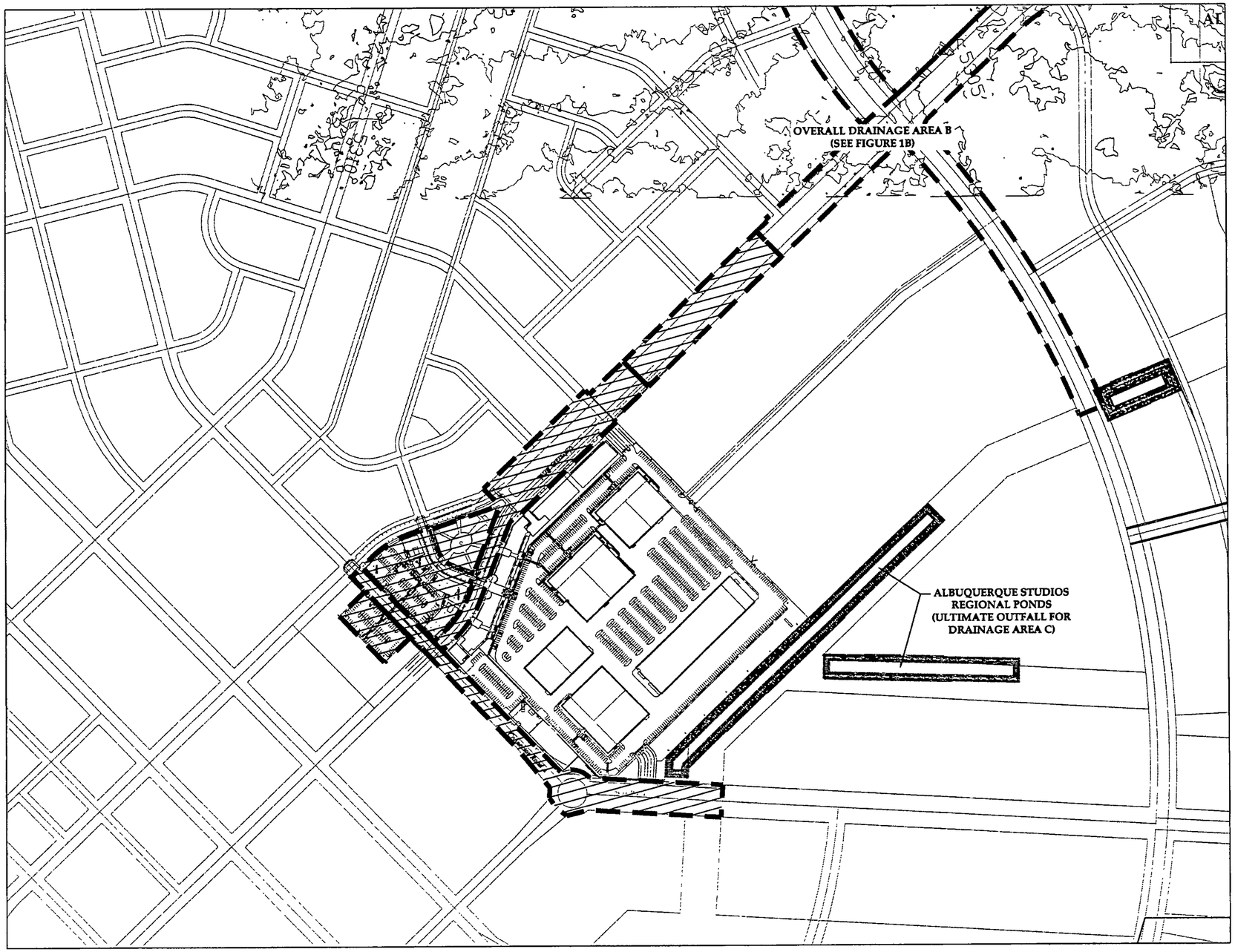
Designed By: DATE:
Drawn By: DATE:
Checked By: DATE:

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

FIGURE 1B
MESA DEL SOL EMPLOYEMENT CENTER
OVERALL DRAINAGE AREA B

Last Design Update: Mo./Day/Yr. Mo./Day/Yr.

Zone Map No. R-13
Sheet 2 Of



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1" = 200'

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

ENGINEER'S SEAL

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

BENCH MARKS
2" ALUMINUM CAP, STAMPED BM 108-1
NAD 83, NAVD 88
NORTHING: 1,451,105.025, EASTING: 1,532,413.519
ELEVATION: 5296.020

AS-BUILT INFORMATION
CONTRACTOR — DATE
STAKED BY — DATE
INSPECTED BY — DATE
ACCEPTANCE BY — DATE
FIELD — DATE
DRAFTING BY — DATE
MICROFILM INFORMATION
RECORDED BY — DATE
NO.

No.	Date	REMARKS	By

REVISIONS
DESIGN
Designed By: DATE:
Drawn By: DATE:
Checked By: DATE:

FIGURE 1C
MESA DEL SOL EMPLOYEMENT CENTER
OVERALL DRAINAGE AREA C

Last Design Update — Mo /Day/Yr — Mo /Day/Yr

Zone Map No R-13
Sheet 3 Of

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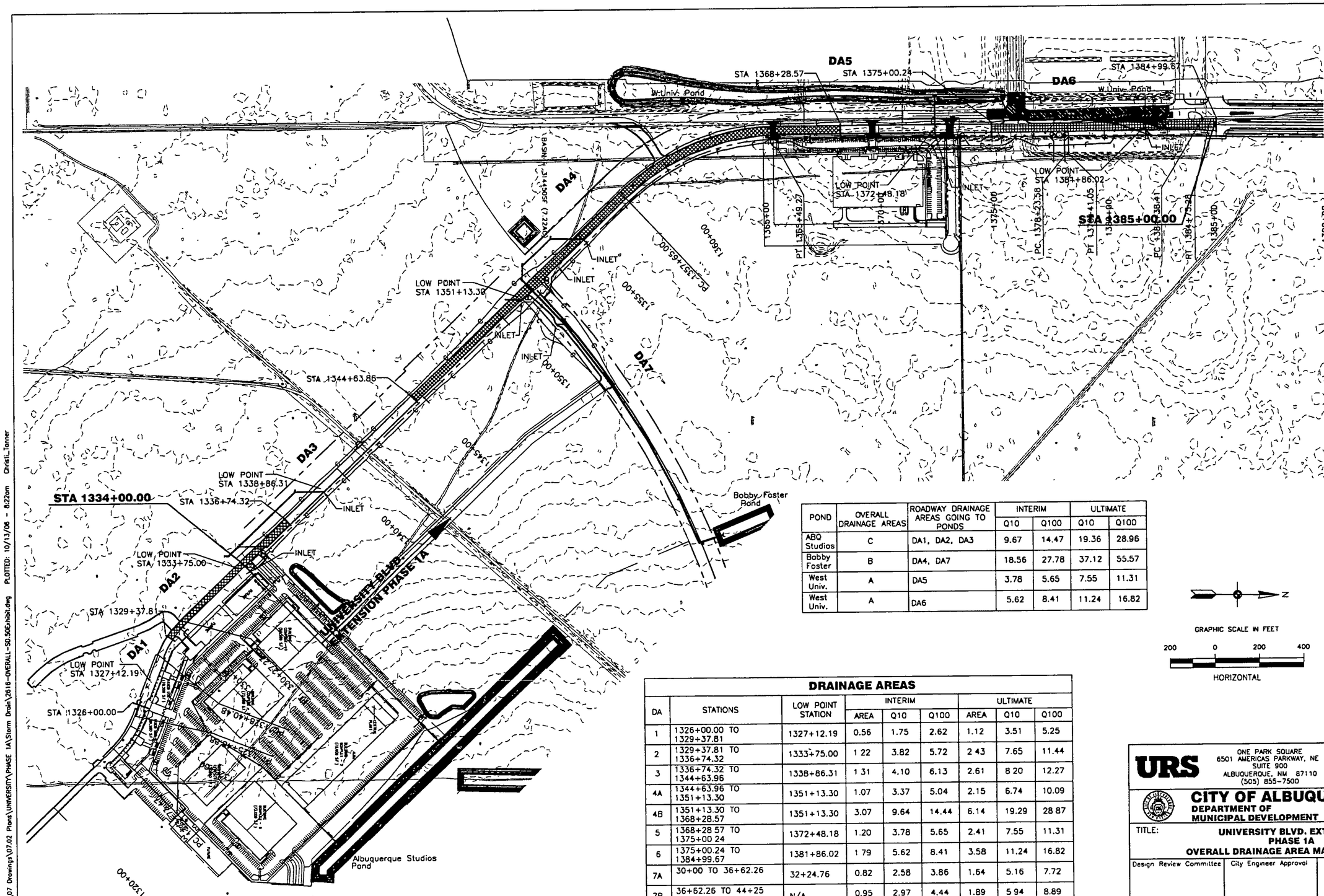

POND	OVERALL DRAINAGE AREAS	ROADWAY DRAINAGE AREAS GOING TO PONDS	INTERIM		ULTIMATE	
			Q10	Q100	Q10	Q100
ABQ Studios	C	DA1, DA2, DA3	9.67	14.47	19.36	28.96
Bobby Foster	B	DA4, DA7	18.56	27.78	37.12	55.57
West Univ.	A	DA5	3.78	5.65	7.55	11.31
West Univ.	A	DA6	5.62	8.41	11.24	16.82

DRAINAGE AREAS

DA	STATIONS	LOW POINT STATION	INTERIM			ULTIMATE		
			AREA	Q10	Q100	AREA	Q10	Q100
1	1326+00.00 TO 1329+37.81	1327+12.19	0.56	1.75	2.62	1.12	3.51	5.25
2	1329+37.81 TO 1336+74.32	1333+75.00	1 22	3.82	5.72	2 43	7.65	11.44
3	1336+74.32 TO 1344+63.96	1338+86.31	1 31	4.10	6.13	2.61	8 20	12.27
4A	1344+63.96 TO 1351+13.30	1351+13.30	1.07	3.37	5.04	2.15	6.74	10.09
4B	1351+13.30 TO 1368+28.57	1351+13.30	3.07	9.64	14.44	6.14	19.29	28 87
5	1368+28 57 TO 1375+00 24	1372+48.18	1.20	3.78	5.65	2.41	7.55	11.31
6	1375+00.24 TO 1384+99.67	1381+86.02	1 79	5.62	8.41	3.58	11.24	16.82
7A	30+00 TO 36+62.26	32+24.76	0.82	2.58	3.86	1.64	5.16	7.72
7B	36+62.26 TO 44+25	N/A	0.95	2.97	4.44	1.89	5 94	8.89

GRAPHIC SCALE IN FEET

200 0 200 400

HORIZONTAL

AS BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
No. By Date

ENGINEER'S SEAL

No	Remarks	By

REVISIONS

DESIGN
Designed By Date
Drawn By Date
Checked By Date

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ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
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(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION PHASE 1A**
OVERALL DRAINAGE AREA MAP - Preliminary

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

City Project No. **775482** | Zone Map No **Q-15** | Sheet | Of | **Figure 2**

24342616 P:\07 Drawings\07.02 Plans\UNIVERSITY\PHASE 1A\Storm Drain\2616-OVERALL-50.50Exhibit.dwg PLOTTED: 10/13/06 - 8:22am Christi_Tanner

ainage Area Numbers	Stations (Obtained From AutoCAD Roadway)	Low Point Stations	Length (feet)	Roadway Width (1/2 Ultimate Build-Out)	Area (Acres) Length x Width	Peak Discharge (cfs/acre) Zone 2, Treatment D, From DPM Table A-9		10 Year Flows (cfs)	100 Yr Flows (cfs)	Width of Pvmt/ Width Allowed To Flood/ Allowable Depth (feet)	COA DPM Table Used For Street Capacities (Plate 22.3)	Street Slope (ft/ft)	Street Capacities (cfs) Q_{10} with One Lane Open	No. of Type "A" Inlets
	Interim Build					**10 Year**	**100 Year**			**East Side of University**				
DA 1	1326+00.00 to 1329+37.81	1327+12.19	337.81	72	0.56	3.14	4.70	1.75	2.62	24/12/.325	D-1	0.005*	2.3	1
DA 2	1329+37.81 to 1336+74.32	1333+75.00	736.51	72	1.22	3.14	4.70	3.82	5.72	30/18/.445	D-1	0.0050	7	1
DA 3	1336+74.32 to 1344+63.96	1338+86.31	789.64	72	1.31	3.14	4.70	4.10	6.13	36/24/.565	D-4	0.0074	16	1
DA 4	1344+63.96 to 1368+28.57	1351+13.30	2364.61		4.14	3.14	4.70	13.01	19.48					
DA4 (a)	1344+63.96 to 1351+13.30		649.34	**72**	1.07	3.14	4.70	3.37	5.04	36/24/.565	D-4	0.0051	13	1
DA4 (b)	1351+13.30 to 1368+28.57		1715.27	**78**	3.07	3.14	4.70	9.64	14.44	39/27/.625	D-4	0.0066	22	2 **
DA 5	1368+28.57 to 1375+00.24	1372+48.18	671.67	78	1.20	3.14	4.70	3.78	5.65	39/27/.625	D-4	0.0090	25	1
DA 6	1375+00.24 to 1384+99.67	1381+86.02	999.43	78	1.79	3.14	4.70	5.62	8.41	39/27/.625	D-4	0.0053	20	1
DA 7	Bobby Foster				1.77	3.14	4.70	5.55	8.30					
DA 7(a)	30+00 to 36+62.26	32+24.76	662.26	54	0.82	3.14	4.70	2.58	3.86	28/14/.365	D-1	0.0200	6.5	1
DA 7(b)	36+62.26 to 44+25	n/a	762.74	54	0.95	3.14	4.70	2.97	4.44	28/14/.365	D-1	0.0074	4	1
ssumption	**** Additional Inlet For Bobby Foster Intersection**													
	Ultimate Build ***									**West Side of University**				
DA 1	1326+00.00 to 1329+37.81	1327+12.19	337.81	144	1.12	3.14	4.70	3.51	5.25	24/12/.325	D-1	0.005*	2.3	1
DA 2	1329+37.81 to 1336+74.32	1333+75.00	736.51	144	2.43	3.14	4.70	7.65	11.44	30/18/.445	D-1	0.0050	7	1
DA 3	1336+74.32 to 1344+63.96	1338+86.31	789.64	144	2.61	3.14	4.70	8.20	12.27	36/24/.565	D-4	0.0074	16	1
DA 4	1344+63.96 to 1368+28.57	1351+13.30	2364.61		8.29	3.14	4.70	26.03	38.96					
DA4 (a)	1344+63.96 to 1351+13.30		649.34	**144**	2.15	3.14	4.70	6.74	10.09	36/24/.565	D-4	0.0051	13	1
DA4 (b)	1351+13.30 to 1368+28.57		1715.27	**156**	6.14	3.14	4.70	19.29	28.87	39/27/.625	D-4	0.0066	22	2 **
DA 5	1368+28.57 to 1375+00.24	1372+48.18	671.67	156	2.41	3.14	4.70	7.55	11.31	39/27/.625	D-4	0.0090	25	1
DA 6	1375+00.24 to 1384+99.67	1381+86.02	999.43	156	3.58	3.14	4.70	11.24	16.82	39/27/.625	D-4	0.0053	20	1
DA 7	Bobby Foster				3.53	3.14	4.70	11.09	16.61					
DA 7(a)	30+00 to 36+62.26	32+24.76	662.26	108	1.64	3.14	4.70	5.16	7.72	28/14/.365	D-1	0.0200	6.5	1
DA 7(b)	36+62.26 to 44+25	n/a	762.74	108	1.89	3.14	4.70	5.94	8.89	28/14/.365	D-1	0.0074	4	1

***** Ultimate design information shown is accurate to date, but subject to change.**

FIGURE 3

Appendix

Appendix A

AHYMO Output/Summary

(Drainage Area A)

```
AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 10/13/2006
     START TIME (HR:MIN:SEC) = 09:39:37     USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = MESAEC1.TXT


*S  AHYMO FILE FOR MESA DEL SOL OVERALL DRAINAGE AREA A
*S   EXISITNG CONDITIONS, 24HR, 100YR.
*S
*S  FILE: MESAEC.txt
*S  REVISED: 9/28/06
*S                 ECT EXISTING CONDITIONS FOR BASINS 1 (PREVIOUSLY 2F) 2A, 2C,
*S                 TO MATCH CDP DESIGN AND CURRENT POND DESIGN. AQC
*
*S                 9/12/06 MODIFIED TO :
*S      BASIN 1 MODELED IN AN AVID HYDROLOGY REPORT.
*S
*  ASSUMPTIONS:
*  1. USED LAND TREATMENTS USED IN GRADING AND DRAINAGE PLAN
*  2. ALL ROUTING DONE WITH MUSKINGUM-CUNGE ROUTING.
*  3. PRECIPITATION CALCULATED PER DPM FOR ZONE 2
*S_____________________________________________________________________
* RAINFALL FOR MESA DEL SOL BASINS PER DPM TABLE A-2 AND A-3
* 100YR
RAINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=2.01
                       RAIN SIX=2.35  RAIN DAY=2.75 DT=.05

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT =    .050000 HOURS        END TIME =    24.000000 HOURS
   .0000   .0024   .0049   .0075   .0102   .0130   .0158
   .0188   .0219   .0252   .0286   .0321   .0358   .0397
   .0439   .0482   .0529   .0578   .0631   .0689   .0751
   .0836   .0930   .1201   .1842   .2944   .4649   .7103
  1.0460  1.3107  1.4303  1.5302  1.6176  1.6959  1.7667
  1.8313  1.8906  1.9452  1.9955  2.0421  2.0851  2.0946
  2.1034  2.1115  2.1191  2.1262  2.1330  2.1394  2.1455
  2.1513  2.1569  2.1622  2.1673  2.1723  2.1771  2.1817
  2.1862  2.1905  2.1948  2.1989  2.2028  2.2067  2.2105
  2.2142  2.2178  2.2213  2.2248  2.2282  2.2315  2.2347
  2.2379  2.2410  2.2440  2.2470  2.2500  2.2529  2.2557
  2.2585  2.2613  2.2640  2.2666  2.2693  2.2719  2.2744
  2.2769  2.2794  2.2818  2.2842  2.2866  2.2889  2.2913
  2.2935  2.2958  2.2980  2.3002  2.3024  2.3046  2.3067
  2.3088  2.3109  2.3129  2.3150  2.3170  2.3190  2.3209
  2.3229  2.3248  2.3267  2.3286  2.3305  2.3323  2.3342
  2.3360  2.3378  2.3396  2.3414  2.3431  2.3449  2.3466
  2.3483  2.3500  2.3517  2.3534  2.3551  2.3569  2.3586
  2.3602  2.3619  2.3636  2.3653  2.3669  2.3686  2.3703
  2.3719  2.3736  2.3752  2.3768  2.3785  2.3801  2.3817
  2.3833  2.3849  2.3865  2.3881  2.3897  2.3913  2.3929
  2.3944  2.3960  2.3976  2.3991  2.4007  2.4022  2.4038
  2.4053  2.4068  2.4084  2.4099  2.4114  2.4129  2.4144
  2.4159  2.4174  2.4189  2.4204  2.4219  2.4234  2.4248
  2.4263  2.4278  2.4292  2.4307  2.4322  2.4336  2.4350
  2.4365  2.4379  2.4394  2.4408  2.4422  2.4436  2.4450
  2.4464  2.4478  2.4493  2.4506  2.4520  2.4534  2.4548
  2.4562  2.4576  2.4589  2.4603  2.4617  2.4630  2.4644
  2.4658  2.4671  2.4685  2.4698  2.4711  2.4725  2.4738
  2.4751  2.4765  2.4778  2.4791  2.4804  2.4817  2.4830
  2.4843  2.4856  2.4869  2.4882  2.4895  2.4908  2.4921
  2.4934  2.4946  2.4959  2.4972  2.4984  2.4997  2.5010
  2.5022  2.5035  2.5047  2.5060  2.5072  2.5085  2.5097
  2.5109  2.5122  2.5134  2.5146  2.5158  2.5170  2.5183
  2.5195  2.5207  2.5219  2.5231  2.5243  2.5255  2.5267
  2.5279  2.5291  2.5303  2.5314  2.5326  2.5338  2.5350
  2.5361  2.5373  2.5385  2.5396  2.5408  2.5420  2.5431
  2.5443  2.5454  2.5466  2.5477  2.5488  2.5500  2.5511
  2.5523  2.5534  2.5545  2.5556  2.5568  2.5579  2.5590
  2.5601  2.5612  2.5623  2.5635  2.5646  2.5657  2.5668
  2.5679  2.5690  2.5701  2.5711  2.5722  2.5733  2.5744
  2.5755  2.5766  2.5776  2.5787  2.5798  2.5809  2.5819
  2.5830  2.5841  2.5851  2.5862  2.5872  2.5883  2.5893
  2.5904  2.5914  2.5925  2.5935  2.5946  2.5956  2.5966
  2.5977  2.5987  2.5997  2.6008  2.6018  2.6028  2.6038
  2.6049  2.6059  2.6069  2.6079  2.6089  2.6099  2.6109
  2.6119  2.6129  2.6139  2.6149  2.6159  2.6169  2.6179
  2.6189  2.6199  2.6209  2.6219  2.6229  2.6238  2.6248
  2.6258  2.6268  2.6278  2.6287  2.6297  2.6307  2.6316
  2.6326  2.6336  2.6345  2.6355  2.6364  2.6374  2.6384
  2.6393  2.6403  2.6412  2.6421  2.6431  2.6440  2.6450
  2.6459  2.6469  2.6478  2.6487  2.6497  2.6506  2.6515
  2.6524  2.6534  2.6543  2.6552  2.6561  2.6571  2.6580
  2.6589  2.6598  2.6607  2.6616  2.6625  2.6634  2.6644
  2.6653  2.6662  2.6671  2.6680  2.6689  2.6698  2.6707
  2.6715  2.6724  2.6733  2.6742  2.6751  2.6760  2.6769
  2.6778  2.6786  2.6795  2.6804  2.6813  2.6821  2.6830
  2.6839  2.6848  2.6856  2.6865  2.6874  2.6882  2.6891
  2.6900  2.6908  2.6917  2.6925  2.6934  2.6942  2.6951
  2.6959  2.6968  2.6976  2.6985  2.6993  2.7002  2.7010
  2.7019  2.7027  2.7035  2.7044  2.7052  2.7061  2.7069
  2.7077  2.7085  2.7094  2.7102  2.7110  2.7119  2.7127
  2.7135  2.7143  2.7151  2.7160  2.7168  2.7176  2.7184
  2.7192  2.7200  2.7209  2.7217  2.7225  2.7233  2.7241
  2.7249  2.7257  2.7265  2.7273  2.7281  2.7289  2.7297
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                2.7305  2.7313  2.7321  2.7329  2.7337  2.7344  2.7352
                2.7360  2.7368  2.7376  2.7384  2.7392  2.7399  2.7407
                2.7415  2.7423  2.7431  2.7438  2.7446  2.7454  2.7462
                2.7469  2.7477  2.7485  2.7492  2.7500

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

*S      CALCULATE BASIN 2A
*
COMPUTE NM HYD        ID=1  HYD NO=2A  AREA=0.0119 SQ MI
                      PER A=0  PER B=0  PER C=13  PER D=87
                      TP=0.336 HR  MASS RAIN=-1

     K =   .183120HR    TP =   .336000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   16.216    CFS   UNIT VOLUME =    .9993       B =   526.28      P60 = 2.0100
     AREA =      .010353 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .270832HR    TP =   .336000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440409
     UNIT PEAK =   1.7659    CFS   UNIT VOLUME =    .9923       B =   383.54      P60 = 2.0100
     AREA =      .001547 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=1     CODE=1

                                        HYDROGRAPH FROM AREA 2A

    RUNOFF VOLUME =     2.33632 INCHES     =       1.4828 ACRE-FEET
    PEAK DISCHARGE RATE =      20.95 CFS  AT   1.700 HOURS   BASIN AREA =   .0119 SQ. MI.


*S
*S      CALCULATE BASIN 2B
*
COMPUTE NM HYD        ID=2  HYD NO=2B  AREA=0.0161 SQ MI
                      PER A=0  PER B=63  PER C=37  PER D=0
                      TP=0.234 HR  MASS RAIN=-1

     K =   .215867HR    TP =   .234000HR    K/TP RATIO =   .922507     SHAPE CONSTANT, N =  3.836381
     UNIT PEAK =   23.676    CFS   UNIT VOLUME =    .9996       B =   344.11      P60 = 2.0100
     AREA =      .016100 SQ MI    IA =    .44450 INCHES    INF =   1.09460 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=2     CODE=1

                                        HYDROGRAPH FROM AREA 2B


    RUNOFF VOLUME =      .89225 INCHES     =        .7661 ACRE-FEET
    PEAK DISCHARGE RATE =      17.56 CFS  AT   1.600 HOURS   BASIN AREA =   .0161 SQ. MI.


*
*
*S* ROUTE BASIN 2B THROUGH BASIN 2C
*
*S      ROUTE COMBINED FLOWS THRU SUB-BASIN WA.7
*S                  ROUTE THROUGH DIRT CHANNEL
*
COMPUTE RATING CURVE  RC=1 VS NO=1   NSEGS=1  ELMIN=95    MAX ELEV=100
                      CH SLP=.0068     FP SLOPE=.0068  N =0.03   DIST=40
                      DIST    ELEV
                      0.      100.0
                      15      95
                      25      95
                      40      100

                         RATING CURVE VALLEY SECTION  1.0
                            WATER        FLOW        FLOW        TOP
                           SURFACE       AREA        RATE       WIDTH
                            ELEV         SQ FT       CFS        FT
                            95.00          .00         .00      10.00
                            95.26         2.84        4.52      11.58
                            95.53         6.09       14.77      13.16
                            95.79         9.76       29.97      14.74
                            96.05        13.85       50.03      16.32
                            96.32        18.35       75.04      17.89
                            96.58        23.27      105.19      19.47
                            96.84        28.60      140.65      21.05
                            97.11        34.35      181.66      22.63
                            97.37        40.51      228.43      24.21
                            97.63        47.09      281.19      25.79
                            97.89        54.09      340.17      27.37
                            98.16        61.50      405.59      28.95
                            98.42        69.32      477.69      30.53
                            98.68        77.56      556.68      32.11
                            98.95        86.22      642.80      33.68
                            99.21        95.29      736.25      35.26
                            99.47       104.78      837.26      36.84
                            99.74       114.68      946.05      38.42
                           100.00       125.00     1062.83      40.00
ROUTE MCUNGE          ID=3   HYD NO=RT2B  INFLOW ID=2   DT=0HR  L=860
```

NS=0 SLOPE=0.0068 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 118 TABLE PTS= 20
DT= .050000 QMED= 8.78 CKMED= 3.1498
WIDTH MED= 12.24 NREACH= 3 DX= 286.67

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.201	10.0	1.59	.78	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.26	2.8	4.5	.150	11.6	2.52	1.59	1.585	.079	.940	.249	-.190	1.4	.961	.040	-.002
.53	6.1	14.8	.099	13.2	3.72	2.42	2.335	.155	.911	.427	-.338	9.0	.923	.354	-.277
.79	9.8	30.0	.078	14.7	4.57	3.07	2.871	.228	.889	.512	-.401	21.8	.898	.472	-.370
1.05	13.9	50.0	.066	16.3	5.27	3.61	3.308	.299	.870	.566	-.436	39.5	.878	.540	-.417
1.32	18.4	75.0	.058	17.9	5.87	4.09	3.687	.366	.855	.604	-.459	62.0	.861	.585	-.446
1.58	23.3	105.2	.053	19.5	6.41	4.52	4.027	.432	.842	.634	-.475	89.6	.847	.619	-.466
1.84	28.6	140.7	.049	21.1	6.91	4.92	4.340	.496	.830	.657	-.487	122.4	.835	.645	-.480
2.11	34.3	181.7	.045	22.6	7.38	5.29	4.633	.558	.820	.677	-.497	160.7	.824	.667	-.491
2.37	40.5	228.4	.042	24.2	7.82	5.64	4.910	.619	.810	.694	-.504	204.6	.814	.685	-.499
2.63	47.1	281.2	.040	25.8	8.24	5.97	5.174	.679	.802	.708	-.510	254.3	.805	.701	-.506
2.89	54.1	340.2	.038	27.4	8.64	6.29	5.427	.738	.794	.721	-.515	310.2	.797	.714	-.511
3.16	61.5	405.6	.036	28.9	9.03	6.60	5.671	.796	.787	.732	-.519	372.4	.790	.726	-.516
3.42	69.3	477.7	.035	30.5	9.41	6.89	5.908	.853	.780	.742	-.522	441.1	.783	.737	-.520
3.68	77.6	556.7	.033	32.1	9.78	7.18	6.139	.910	.774	.752	-.525	516.7	.776	.747	-.523
3.95	86.2	642.8	.032	33.7	10.13	7.46	6.363	.966	.768	.760	-.528	599.2	.770	.756	-.526
4.21	95.3	736.3	.031	35.3	10.48	7.73	6.582	1.022	.762	.768	-.530	689.0	.765	.764	-.528
4.47	104.8	837.3	.030	36.8	10.82	7.99	6.796	1.077	.757	.775	-.532	786.2	.759	.771	-.530
4.74	114.7	946.0	.029	38.4	11.16	8.25	7.006	1.132	.752	.781	-.533	891.1	.754	.778	-.532
5.00	125.0	1062.8	.028	40.0	11.31	8.50	7.100	1.206	.741	.785	-.526	1003.9	.749	.784	-.534

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 10 TIMES. AVERAGE NUMBER ITERATIONS = 1.0476

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.201	10.0	1.59	.78	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.26	2.8	4.5	.150	11.6	1.77	1.59	1.113	.113	.898	.102	.000	1.4	.961	.039	.000
.53	6.1	14.8	.099	13.2	2.04	2.42	1.282	.282	.780	.220	.000	9.0	.836	.164	.000
.79	9.8	30.0	.078	14.7	2.31	3.07	1.451	.451	.689	.311	.000	21.8	.731	.269	.000
1.05	13.9	50.0	.066	16.3	2.57	3.61	1.612	.612	.620	.380	.000	39.5	.652	.348	.000
1.32	18.4	75.0	.058	17.9	2.81	4.09	1.765	.765	.566	.434	.000	62.0	.591	.409	.000
1.58	23.3	105.2	.053	19.5	3.04	4.52	1.911	.911	.523	.477	.000	89.6	.544	.456	.000
1.84	28.6	140.7	.049	21.1	3.26	4.92	2.050	1.050	.488	.512	.000	122.4	.505	.495	.000
2.11	34.3	181.7	.045	22.6	3.48	5.29	2.184	1.184	.458	.542	.000	160.7	.472	.528	.000
2.37	40.5	228.4	.042	24.2	3.68	5.64	2.314	1.314	.432	.568	.000	204.6	.444	.556	.000
2.63	47.1	281.2	.040	25.8	3.89	5.97	2.440	1.440	.410	.590	.000	254.3	.421	.579	.000
2.89	54.1	340.2	.038	27.4	4.08	6.29	2.562	1.562	.390	.610	.000	310.2	.400	.600	.000
3.16	61.5	405.6	.036	28.9	4.27	6.60	2.682	1.682	.373	.627	.000	372.4	.381	.619	.000
3.42	69.3	477.7	.035	30.5	4.46	6.89	2.800	1.800	.357	.643	.000	441.1	.365	.635	.000
3.68	77.6	556.7	.033	32.1	4.64	7.18	2.916	1.916	.343	.657	.000	516.7	.350	.650	.000
3.95	86.2	642.8	.032	33.7	4.82	7.46	3.029	2.029	.330	.670	.000	599.2	.336	.664	.000
4.21	95.3	736.3	.031	35.3	5.00	7.73	3.141	2.141	.318	.682	.000	689.0	.324	.676	.000
4.47	104.8	837.3	.030	36.8	5.18	7.99	3.251	2.251	.308	.692	.000	786.2	.313	.687	.000
4.74	114.7	946.0	.029	38.4	5.35	8.25	3.360	2.360	.298	.702	.000	891.1	.302	.698	.000
5.00	125.0	1062.8	.028	40.0	5.52	8.50	3.468	2.468	.288	.712	.000	1003.9	.293	.707	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 2 TIMES. AVERAGE NUMBER ITERATIONS = 1.0430

```
     Equations solved with two passes: first using the Ponce correction to C1, second using the Fread
correction to C1, C2 and C3
     *
     *
     *
     *S      CALCULATE BASIN 2D
     *
     COMPUTE NM HYD          ID=8  HYD NO=2D  AREA=0.0467 SQ MI
                             PER A=100  PER B=0  PER C=0  PER D=0
                             TP=0.352 HR  MASS RAIN=-1

          K =   .422913HR    TP =   .352000HR    K/TP RATIO =  1.201459     SHAPE CONSTANT, N =  2.957910
          UNIT PEAK =   36.932    CFS   UNIT VOLUME =    .9995       B =   278.37      P60 = 2.0100
          AREA =      .046700 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

     PRINT HYD               ID=8     CODE=1

                                          HYDROGRAPH FROM AREA 2D


         RUNOFF VOLUME =      .52958 INCHES     =       1.3190 ACRE-FEET
         PEAK DISCHARGE RATE =      19.20 CFS  AT   1.750 HOURS   BASIN AREA =   .0467 SQ. MI.



     *S      CALCULATE BASIN 2C
     *
     COMPUTE NM HYD          ID=9  HYD NO=2C  AREA=0.0282 SQ MI
                             PER A=0  PER B=0  PER C=15  PE R D=85
                             TP=0.133 HR  MASS RAIN=-1

          K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   94.848    CFS   UNIT VOLUME =    .9990       B =   526.28      P60 = 2.0100
          AREA =      .023970 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


          K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
          UNIT PEAK =   12.199    CFS   UNIT VOLUME =   1.001       B =   383.55      P60 = 2.0100
          AREA =      .004230 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

     PRINT HYD               ID=9     CODE=1

                                          HYDROGRAPH FROM AREA 2C


         RUNOFF VOLUME =     2.30850 INCHES     =       3.4720 ACRE-FEET
         PEAK DISCHARGE RATE =      79.40 CFS  AT   1.500 HOURS   BASIN AREA =   .0282 SQ. MI.



     *S      ADD BASINS 2C TO BASIN 2B
     *S      FLOW ENTERING POND
     *
     ADD HYD                 ID=10  HYD=2BC   ID I=9  ID II=3
     PRINT HYD               ID=10  CODE=1

                                          HYDROGRAPH FROM AREA 2BC


         RUNOFF VOLUME =     1.79142 INCHES     =       4.2325 ACRE-FEET
         PEAK DISCHARGE RATE =      80.37 CFS  AT   1.500 HOURS   BASIN AREA =   .0443 SQ. MI.


     *S      ADD BASINS 2BC TO BASIN 2D
     *S      FLOW ENTERING POND
     *
     ADD HYD                 ID=11  HYD=2ABCD   ID I=10  ID II=8
     PRINT HYD               ID=11  CODE=1

                                          HYDROGRAPH FROM AREA 2ABCD


         RUNOFF VOLUME =     1.14386 INCHES     =       5.5515 ACRE-FEET
         PEAK DISCHARGE RATE =      89.37 CFS  AT   1.500 HOURS   BASIN AREA =   .0910 SQ. MI.


     *
     *S* ROUTE BASIN 2B THROUGH BASIN 2C
     *
     *S      ROUTE COMBINED FLOWS THRU SUB-BASIN WA.7
     *S                  ROUTE THROUGH DIRT CHANNEL
     *
     **COMPUTE RATING CURVE  RC=1 VS NO=1   NSEGS=1  ELMIN=95    MAX ELEV=100
     *                      CH SLP=.0068     FP SLOPE=.0068  N =0.03   DIST=40
     *                      DIST    ELEV
     *                      0.      100.0
     *                               15        95
     *                               25        95
```

```
*                                   40          100
*ROUTE MCUNGE          ID=3   HYD NO=RT2B  INFLOW ID=2   DT=0HR  L=860
                      NS=0  SLOPE=0.0068   MATCODE=0  REGCODE=0  CCODE=0
*
*      CALCULATE BASIN 1
*      BASIN 1 INCLUDES THE PARKING LOT NORTH OF BASIN 2A
*  BASIN 1 AREA WAS MODIFIED TO INCLUDE AREA FROM 2A
*  AREA CHANGED FROM 0.0473 TO 0.0485 SQ MI
*
*COMPUTE NM HYD        ID=5  HYD NO=1  AREA=0.0485 SQ MI
                      PER A=0  PER B=0  PER C=13  PER D=87
                      TP=0.1333 HR  MASS RAIN=-1
*S      RECALL HYDROGRAPH FROM AVID DRAINAGE REPORT
*S      BASIN 1
*
RECALL HYD           ID=5  HYD NO=AVID1 DT=0.25 HRS
                     DA=0.0458 SQ MI PEAK = 33.49 CFS
                     RO=2.34007 IN NO PTS=120 FLOWRATES=
                                    0
                                    0
                                    0
                                    0
                                    0
                                    0.13
                                    11.13
                                    29.04
                                    33.05
                                    33.29
                                    32.68
                                    31.61
                                    25.2
                                    15.19
                                    7.96
                                    4.14
                                    2.28
                                    1.42
                                    1.03
                                    0.85
                                    0.77
                                    0.73
                                    0.73
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PRINT HYD              ID=5     CODE=1

                                          HYDROGRAPH FROM AREA AVID1


    RUNOFF VOLUME =     2.34138 INCHES     =       5.7192 ACRE-FEET
    PEAK DISCHARGE RATE =      33.29 CFS  AT   2.250 HOURS   BASIN AREA =   .0458 SQ. MI.


*S      CALCULATE BASIN 2E
*S                  IN 2E PART OF UNIVERSITY RD THAT DRAINS TO SMALL POND (DA 5)

COMPUTE NM HYD         ID=13  HYD NO=2E  AREA=0.00376 SQ MI
                       PER A=0  PER B=0  PER C=10  PER D=90
                       TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   13.390    CFS   UNIT VOLUME =    .9983       B =   526.28      P60 = 2.0100
     AREA =      .003384 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   1.0843    CFS   UNIT VOLUME =    .9909       B =   383.55      P60 = 2.0100
     AREA =      .000376 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD              ID=13     CODE=1

                                          HYDROGRAPH FROM AREA 2E


    RUNOFF VOLUME =     2.37805 INCHES     =        .4769 ACRE-FEET
    PEAK DISCHARGE RATE =      10.78 CFS  AT   1.500 HOURS   BASIN AREA =   .0038 SQ. MI.


*S
*S      ADD BASIN 1 FLOW TO BASIN 2E
*S      TOTAL FLOW INTO THE POND
*
ADD HYD                ID=14  HYD=PONDIN   ID I=13  ID II=5
PRINT HYD              ID=14  CODE=1

                                          HYDROGRAPH FROM AREA PONDIN


    RUNOFF VOLUME =     2.34412 INCHES     =       6.1959 ACRE-FEET
    PEAK DISCHARGE RATE =      35.66 CFS  AT   2.000 HOURS   BASIN AREA =   .0496 SQ. MI.
```

```
*S     ROUTE FLOW THROUGH EX 0.7 AC-FT POND (JOURNAL PAVILION POND)
*S     FOR AHYMO PURPOSE, ASSUME NO PONDING
*S     AS THE TAILWATER IN THE LARGER POND WILL
*S     ESSENTIALLY CREATE ONE LARGE POND
   OUTLET WORKS = 2-24" SD
ROUTE RESERVOIR     ID=15  HYD=-POND
                    INFLOW ID=14   CODE=1
                    OUTFLOW           STORAGE          ELEV
                    (CFS)             (AC-FT)          (FT)
                                 0                0.000            5301.0

                                 0.1              0.001            5301.5

                                 0.2              0.003            5302.0

                                 0.3              0.007            5302.5

                                 0.4              0.156            5303.0

                                 0.5              0.266            5303.43
                                 0.6              0.270            5303.44
                                 0.7              0.284            5303.5

                                 2.43             0.461            5304.0

                                 8.59             0.700            5304.5

                                 16.85            0.800            5305.0

                                 25.73            0.900            5305.5

                                 32.47            1.0              5306

     RESERVOIR ROUTING BYPASSED
    PRINT HYD           ID=15
```

HYDROGRAPH FROM AREA -POND

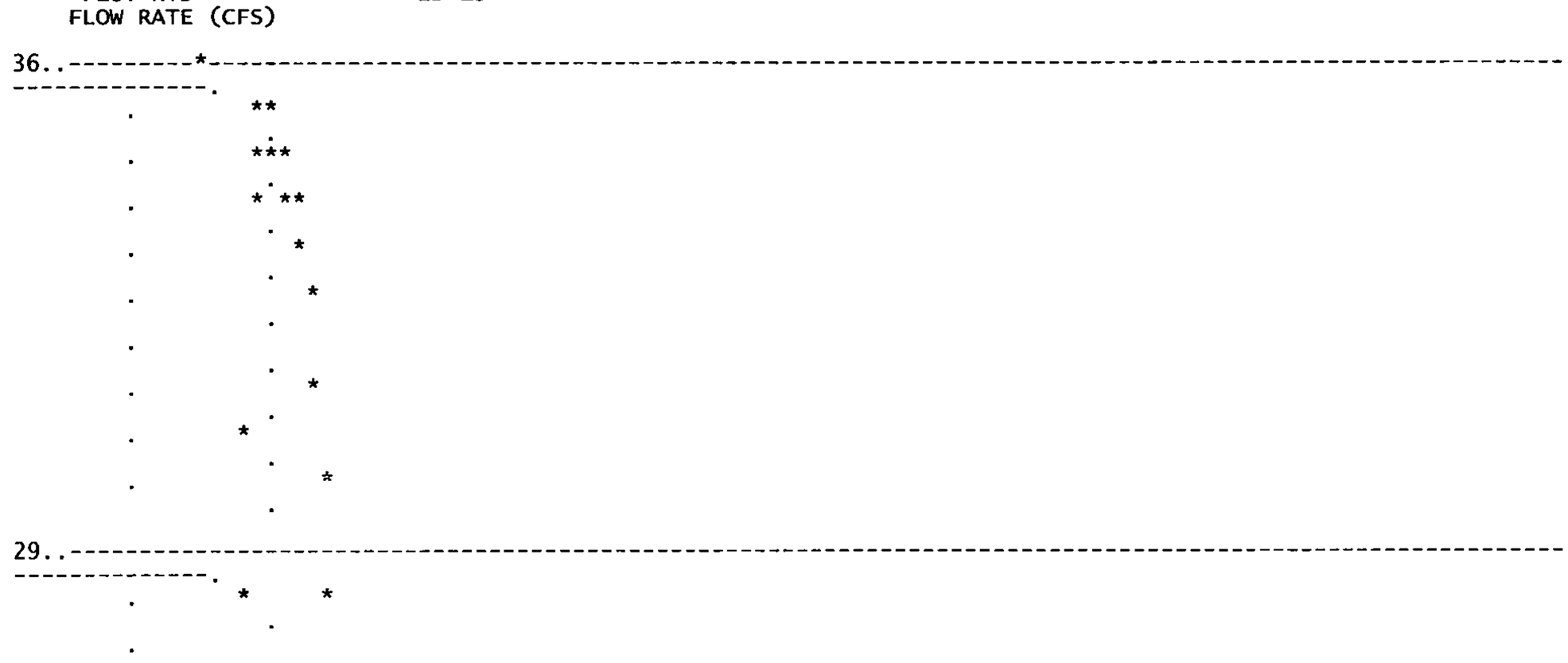
TIME FLOW HRS	CFS	TIME FLOW HRS	CFS	TIME FLOW HRS	CFS	TIME FLOW HRS	CFS
.000	.0	5.250	.8	10.500	.8	15.750	.6
.050	.0	5.300	.8	10.550	.8	15.800	.6
.100	.0	5.350	.8	10.600	.8	15.850	.6
.150	.0	5.400	.8	10.650	.8	15.900	.6
.200	.0	5.450	.8	10.700	.8	15.950	.6
.250	.0	5.500	.8	10.750	.8	16.000	.6
.300	.0	5.550	.8	10.800	.8	16.050	.6
.350	.0	5.600	.8	10.850	.8	16.100	.6
.400	.0	5.650	.8	10.900	.8	16.150	.6
.450	.0	5.700	.8	10.950	.7	16.200	.6
.500	.0	5.750	.8	11.000	.7	16.250	.6
.550	.0	5.800	.8	11.050	.7	16.300	.6
.600	.0	5.850	.8	11.100	.7	16.350	.6
.650	.0	5.900	.8	11.150	.7	16.400	.6
.700	.0	5.950	.8	11.200	.7	16.450	.6
.750	.0	6.000	.8	11.250	.7	16.500	.6
.800	.0	6.050	.8	11.300	.7	16.550	.6
.850	.0	6.100	.8	11.350	.7	16.600	.6
.900	.0	6.150	.9	11.400	.7	16.650	.6
.950	.0	6.200	.9	11.450	.7	16.700	.6
1.000	.0	6.250	.9	11.500	.7	16.750	.6
1.050	.0	6.300	.9	11.550	.7	16.800	.6
1.100	.1	6.350	.9	11.600	.7	16.850	.6
1.150	.1	6.400	.9	11.650	.7	16.900	.6
1.200	.4	6.450	.9	11.700	.7	16.950	.6
1.250	1.2	6.500	.9	11.750	.7	17.000	.6
1.300	4.7	6.550	.9	11.800	.7	17.050	.6

22.300	.5							
	1.350	8.8	6.600	.9	11.850	.7	17.100	.6
22.350	.5							
	1.400	13.5	6.650	.9	11.900	.7	17.150	.6
22.400	.5							
	1.450	18.5	6.700	.9	11.950	.7	17.200	.6
22.450	.5							
	1.500	21.9	6.750	.9	12.000	.7	17.250	.6
22.500	.5							
	1.550	24.1	6.800	.9	12.050	.7	17.300	.6
22.550	.5							
	1.600	25.6	6.850	.9	12.100	.7	17.350	.6
22.600	.5							
	1.650	27.6	6.900	.9	12.150	.7	17.400	.6
22.650	.5							
	1.700	30.3	6.950	.9	12.200	.7	17.450	.6
22.700	.5							
	1.750	33.3	7.000	.9	12.250	.7	17.500	.6
22.750	.5							
	1.800	33.7	7.050	.9	12.300	.7	17.550	.5
22.800	.5							
	1.850	34.1	7.100	.9	12.350	.7	17.600	.5
22.850	.5							
	1.900	34.6	7.150	.9	12.400	.7	17.650	.5
22.900	.5							
	1.950	35.1	7.200	.9	12.450	.7	17.700	.5
22.950	.5							
	2.000	35.7	7.250	.9	12.500	.7	17.750	.5
23.000	.5							
	2.050	35.4	7.300	.9	12.550	.7	17.800	.5
23.050	.5							
	2.100	35.0	7.350	.9	12.600	.7	17.850	.5
23.100	.5							
	2.150	34.5	7.400	.9	12.650	.7	17.900	.5
23.150	.5							
	2.200	34.2	7.450	.9	12.700	.7	17.950	.5
23.200	.5							
	2.250	34.0	7.500	.9	12.750	.7	18.000	.5
23.250	.5							
	2.300	33.8	7.550	.9	12.800	.7	18.050	.5
23.300	.5							
	2.350	33.6	7.600	.9	12.850	.7	18.100	.5
23.350	.5							
	2.400	33.4	7.650	.9	12.900	.7	18.150	.5
23.400	.4							
	2.450	33.2	7.700	.9	12.950	.7	18.200	.5
23.450	.4							
	2.500	33.0	7.750	.9	13.000	.7	18.250	.5
23.500	.4							
	2.550	32.8	7.800	.9	13.050	.7	18.300	.5
23.550	.4							
	2.600	32.5	7.850	.9	13.100	.7	18.350	.5
23.600	.4							
	2.650	32.3	7.900	.9	13.150	.7	18.400	.5
23.650	.4							
	2.700	32.0	7.950	.9	13.200	.7	18.450	.5
23.700	.4							
	2.750	31.8	8.000	.9	13.250	.7	18.500	.5
23.750	.4							
	2.800	30.5	8.050	.9	13.300	.7	18.550	.5
23.800	.4							
	2.850	29.2	8.100	.9	13.350	.7	18.600	.5
23.850	.4							
	2.900	27.9	8.150	.9	13.400	.7	18.650	.5
23.900	.4							
	2.950	26.6	8.200	.9	13.450	.7	18.700	.5
23.950	.4							
	3.000	25.3	8.250	.9	13.500	.7	18.750	.5
24.000	.4							
	3.050	23.3	8.300	.9	13.550	.7	18.800	.5
24.050	.4							
	3.100	21.3	8.350	.9	13.600	.7	18.850	.5
24.100	.4							
	3.150	19.3	8.400	.9	13.650	.7	18.900	.5
24.150	.4							
	3.200	17.3	8.450	.9	13.700	.7	18.950	.5
24.200	.4							
	3.250	15.3	8.500	.9	13.750	.6	19.000	.5
24.250	.4							
	3.300	13.8	8.550	.9	13.800	.6	19.050	.5
24.300	.4							
	3.350	12.4	8.600	.9	13.850	.6	19.100	.5
24.350	.4							
	3.400	10.9	8.650	.9	13.900	.6	19.150	.5
24.400	.3							
	3.450	9.5	8.700	.9	13.950	.6	19.200	.5
24.450	.3							
	3.500	8.0	8.750	.9	14.000	.6	19.250	.5
24.500	.3							
	3.550	7.3	8.800	.9	14.050	.6	19.300	.5
24.550	.3							
	3.600	6.5	8.850	.8	14.100	.6	19.350	.5
24.600	.3							
	3.650	5.7	8.900	.8	14.150	.6	19.400	.5
24.650	.3							
	3.700	5.0	8.950	.8	14.200	.6	19.450	.5

24.700	.3							
	3.750	4.2	9.000	.8	14.250	.6	19.500	.5
24.750	.3							
	3.800	3.8	9.050	.8	14.300	.6	19.550	.5
24.800	.2							
	3.850	3.5	9.100	.8	14.350	.6	19.600	.5
24.850	.2							
	3.900	3.1	9.150	.8	14.400	.6	19.650	.5
24.900	.2							
	3.950	2.7	9.200	.8	14.450	.6	19.700	.5
24.950	.2							
	4.000	2.3	9.250	.8	14.500	.6	19.750	.5
25.000	.2							
	4.050	2.2	9.300	.8	14.550	.6	19.800	.5
25.050	.2							
	4.100	2.0	9.350	.8	14.600	.6	19.850	.5
25.100	.2							
	4.150	1.8	9.400	.8	14.650	.6	19.900	.5
25.150	.2							
	4.200	1.7	9.450	.8	14.700	.6	19.950	.5
25.200	.2							
	4.250	1.5	9.500	.8	14.750	.6	20.000	.5
25.250	.1							
	4.300	1.4	9.550	.8	14.800	.6	20.050	.5
25.300	.1							
	4.350	1.3	9.600	.8	14.850	.6	20.100	.5
25.350	.1							
	4.400	1.2	9.650	.8	14.900	.6	20.150	.5
25.400	.1							
	4.450	1.2	9.700	.8	14.950	.6	20.200	.5
25.450	.1							
	4.500	1.1	9.750	.8	15.000	.6	20.250	.5
25.500	.1							
	4.550	1.1	9.800	.8	15.050	.6	20.300	.5
25.550	.1							
	4.600	1.0	9.850	.8	15.100	.6	20.350	.5
25.600	.1							
	4.650	1.0	9.900	.8	15.150	.6	20.400	.5
25.650	.1							
	4.700	.9	9.950	.8	15.200	.6	20.450	.5
25.700	.1							
	4.750	.9	10.000	.8	15.250	.6	20.500	.5
25.750	.1							
	4.800	.9	10.050	.8	15.300	.6	20.550	.5
25.800	.0							
	4.850	.9	10.100	.8	15.350	.6	20.600	.5
25.850	.0							
	4.900	.9	10.150	.8	15.400	.6	20.650	.5
25.900	.0							
	4.950	.8	10.200	.8	15.450	.6	20.700	.5
25.950	.0							
	5.000	.8	10.250	.8	15.500	.6	20.750	.5
26.000	.0							
	5.050	.8	10.300	.8	15.550	.6	20.800	.5
26.050	.0							
	5.100	.8	10.350	.8	15.600	.6	20.850	.5
26.100	.0							
	5.150	.8	10.400	.8	15.650	.6	20.900	.5
26.150	.0							
	5.200	.8	10.450	.8	15.700	.6	20.950	.5
26.200	.0							

RUNOFF VOLUME = 2.34412 INCHES = 6.1959 ACRE-FEET
PEAK DISCHARGE RATE = 35.66 CFS AT 2.000 HOURS BASIN AREA = .0496 SQ. MI.

PLOT HYD ID=15
FLOW RATE (CFS)



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         .00      2.18      4.37      6.55      8.73     10.92     13.10     15.28     17.47     19.65
21.83     24.02     26.20
                                                TIME HOURS


     *S      ADD BASIN 2A AND 1 FLOW
     *
     ADD HYD                ID=6  HYD=2AF  ID I=15  ID II=1
     PRINT HYD              ID=6  CODE=1

                                          HYDROGRAPH FROM AREA 2AF

         RUNOFF VOLUME =     2.34260 INCHES     =       7.6787 ACRE-FEET
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    PEAK DISCHARGE RATE =      53.89 CFS  AT   1.750 HOURS   BASIN AREA =   .0615 SQ. MI.


*S      ADD COMBINED FLOW TO RT 2AF FLOW

*
ADD HYD                ID=12  HYD=2ABDE   ID I=11  ID II=6
PRINT HYD              ID=12  CODE=1

                                          HYDROGRAPH FROM AREA 2ABDE


    RUNOFF VOLUME =     1.62710 INCHES     =      13.2302 ACRE-FEET
    PEAK DISCHARGE RATE =     124.18 CFS  AT   1.550 HOURS   BASIN AREA =   .1525 SQ. MI.


*S

*S      CALCULATE BASIN 3A
*
COMPUTE NM HYD         ID=1  HYD NO=3A  AREA=0.0747 SQ MI
                       PER A=0  PER B=100  PER C=0  PER D=0
                       TP=0.503 HR  MASS RAIN=-1

     K =   .495441HR    TP =   .503000HR    K/TP RATIO =   .984973     SHAPE CONSTANT, N =  3.584945
     UNIT PEAK =   48.485    CFS   UNIT VOLUME =    .9997       B =   326.48      P60 = 2.0100
     AREA =      .074700 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD              ID=1     CODE=1

                                          HYDROGRAPH FROM AREA 3A


    RUNOFF VOLUME =      .77774 INCHES     =       3.0985 ACRE-FEET
    PEAK DISCHARGE RATE =      36.53 CFS  AT   1.900 HOURS   BASIN AREA =   .0747 SQ. MI.


*S      CALCULATE BASIN 3B
*
COMPUTE NM HYD         ID=2  HYD NO=3B  AREA=0.0226 SQ MI
                       PER A=0  PER B=100  PER C=0  PE R D=0
                       TP=0.397 HR  MASS RAIN=-1

     K =   .393389HR    TP =   .397000HR    K/TP RATIO =   .990905     SHAPE CONSTANT, N =  3.563124
     UNIT PEAK =   18.496    CFS   UNIT VOLUME =    .9993       B =   324.91      P60 = 2.0100
     AREA =      .022600 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD              ID=2     CODE=1

                                          HYDROGRAPH FROM AREA 3B


    RUNOFF VOLUME =      .77774 INCHES     =        .9374 ACRE-FEET
    PEAK DISCHARGE RATE =      13.67 CFS  AT   1.800 HOURS   BASIN AREA =   .0226 SQ. MI.


*S      CALCULATE BASIN 3C
*
COMPUTE NM HYD         ID=3  HYD NO=3C  AREA=0.0368 SQ MI
                       PER A=0  PER B=100  PER C=0  PER D=0
                       TP=0.460 HR  MASS RAIN=-1

     K =   .455816HR    TP =   .460000HR    K/TP RATIO =   .990905     SHAPE CONSTANT, N =  3.563124
     UNIT PEAK =   25.993    CFS   UNIT VOLUME =    .9995       B =   324.91      P60 = 2.0100
     AREA =      .036800 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD              ID=3     CODE=1

                                          HYDROGRAPH FROM AREA 3C


    RUNOFF VOLUME =      .77774 INCHES     =       1.5264 ACRE-FEET
    PEAK DISCHARGE RATE =      19.47 CFS  AT   1.850 HOURS   BASIN AREA =   .0368 SQ. MI.


*S      ADD BASINS 3A TO BASIN 3B
*
ADD HYD                ID=5  HYD=3AB   ID I=1  ID II=2
PRINT HYD              ID=5  CODE=1

                                          HYDROGRAPH FROM AREA 3AB


    RUNOFF VOLUME =      .77774 INCHES     =       4.0359 ACRE-FEET
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    PEAK DISCHARGE RATE =      49.50 CFS  AT   1.850 HOURS   BASIN AREA =   .0973 SQ. MI.


*S      ADD BASINS 3A, B, AND C
*
ADD HYD                ID=2  HYD=3ABCD   ID I=3  ID II=5
PRINT HYD              ID=2  CODE=1

                                        HYDROGRAPH FROM AREA 3ABCD


    RUNOFF VOLUME =      .77774 INCHES     =       5.5623 ACRE-FEET
    PEAK DISCHARGE RATE =      68.97 CFS  AT   1.850 HOURS   BASIN AREA =   .1341 SQ. MI.


*S      ADD BASINS 1,2, AND 3 (OVERALL DRAINAGE AREA A)
*S      FLOW ENTERING POND
*
ADD HYD                ID=1  HYD=2BC   ID I=2  ID II=12
PRINT HYD              ID=1  CODE=1

                                        HYDROGRAPH FROM AREA 2BC


    RUNOFF VOLUME =     1.22963 INCHES     =      18.7925 ACRE-FEET
    PEAK DISCHARGE RATE =     185.53 CFS  AT   1.750 HOURS   BASIN AREA =   .2866 SQ. MI.


*S     ROUTE FLOW THROUGH WEST UNIVERSITY POND (INCREASED TO ACCOUNT FOR ADDITIO
   OUTLET WORKS = 24" PIPE W/ 18" DIA. ORIFICE PLATE
ROUTE RESERVOIR     ID=15  HYD=POND
                    INFLOW ID=1   CODE=1
                    OUTFLOW          STOAGE          ELEV
                    (CFS)            (AC-FT)          (FT)
                                 0                0.0000          5301

                                 0.018            1.2529          5301.5

                                 4.431            2.6042          5302

                                 8.863            4.0541          5302.5

                                 11.724           5.6030          5303

                                 14.013           7.2512          5303.5

                                 15.977           8.9989          5304

                                 17.725           10.8464         5304.5

                                 19.316           12.7940         5305

                                 20.785           14.8420         5305.5

                                 22.157           16.9908         5306


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

   TIME       INFLOW     ELEV       VOLUME     OUTFLOW
   (HRS)      (CFS)      (FEET)     (AC-FT)    (CFS)

     .00        .00    5301.00       .000        .00
     .05        .00    5301.00       .000        .00
     .10        .00    5301.00       .000        .00
     .15        .00    5301.00       .000        .00
     .20        .00    5301.00       .000        .00
     .25        .00    5301.00       .000        .00
     .30        .00    5301.00       .000        .00
     .35        .00    5301.00       .000        .00
     .40        .00    5301.00       .000        .00
     .45        .00    5301.00       .000        .00
     .50        .00    5301.00       .000        .00
     .55        .00    5301.00       .000        .00
     .60        .00    5301.00       .000        .00
     .65        .00    5301.00       .000        .00
     .70        .00    5301.00       .000        .00
     .75        .00    5301.00       .000        .00
     .80        .00    5301.00       .000        .00
     .85        .00    5301.00       .000        .00
     .90        .00    5301.00       .000        .00
     .95        .00    5301.00       .000        .00
    1.00        .00    5301.00       .000        .00
    1.05        .03    5301.00       .000        .00
```

1.10	.05	5301.00	.000	.00
1.15	.31	5301.00	.001	.00
1.20	2.50	5301.00	.007	.00
1.25	8.88	5301.01	.030	.00
1.30	22.13	5301.04	.094	.00
1.35	41.40	5301.09	.226	.00
1.40	70.17	5301.18	.456	.01
1.45	107.85	5301.33	.824	.01
1.50	138.32	5301.53	1.332	.28
1.55	153.00	5301.75	1.929	2.22
1.60	162.21	5301.99	2.566	4.31
1.65	172.39	5302.22	3.236	6.36
1.70	180.78	5302.46	3.935	8.50
1.75	185.53	5302.69	4.653	9.97
1.80	183.50	5302.93	5.372	11.30
1.85	178.20	5303.14	6.070	12.37
1.90	170.76	5303.34	6.738	13.30
1.95	162.06	5303.53	7.369	14.15
2.00	152.73	5303.70	7.960	14.81
2.05	142.12	5303.86	8.506	15.42
2.10	129.52	5304.00	9.003	15.98
2.15	117.03	5304.12	9.445	16.40
2.20	106.62	5304.23	9.839	16.77
2.25	97.95	5304.32	10.191	17.11
2.30	90.39	5304.41	10.509	17.41
2.35	83.82	5304.49	10.797	17.68
2.40	78.06	5304.55	11.058	17.90
2.45	72.99	5304.62	11.295	18.09
2.50	68.55	5304.67	11.513	18.27
2.55	64.56	5304.72	11.712	18.43
2.60	61.02	5304.77	11.895	18.58
2.65	57.87	5304.81	12.064	18.72
2.70	55.07	5304.85	12.219	18.85
2.75	52.56	5304.89	12.364	18.96

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
2.80	49.27	5304.92	12.495	19.07
2.85	46.28	5304.95	12.614	19.17
2.90	43.54	5304.98	12.720	19.26
2.95	40.95	5305.00	12.815	19.33
3.00	38.51	5305.03	12.899	19.39
3.05	35.50	5305.04	12.972	19.44
3.10	32.62	5305.06	13.032	19.49
3.15	29.88	5305.07	13.080	19.52
3.20	27.28	5305.08	13.118	19.55
3.25	24.78	5305.09	13.145	19.57
3.30	22.90	5305.09	13.162	19.58
3.35	21.06	5305.09	13.172	19.59
3.40	19.25	5305.09	13.174	19.59
3.45	17.46	5305.09	13.169	19.59
3.50	15.70	5305.09	13.157	19.58
3.55	14.63	5305.08	13.139	19.56
3.60	13.58	5305.08	13.116	19.55
3.65	12.54	5305.07	13.089	19.53
3.70	11.52	5305.06	13.058	19.51
3.75	10.51	5305.06	13.023	19.48
3.80	9.91	5305.05	12.985	19.45
3.85	9.31	5305.04	12.945	19.42
3.90	8.72	5305.03	12.902	19.39
3.95	8.15	5305.02	12.856	19.36
4.00	7.58	5305.00	12.809	19.33
4.05	7.22	5304.99	12.760	19.29
4.10	6.88	5304.98	12.709	19.25
4.15	6.54	5304.96	12.658	19.20
4.20	6.20	5304.95	12.605	19.16
4.25	5.87	5304.94	12.550	19.12
4.30	5.65	5304.92	12.495	19.07
4.35	5.43	5304.91	12.440	19.03
4.40	5.21	5304.89	12.383	18.98
4.45	5.01	5304.88	12.326	18.93
4.50	4.81	5304.86	12.268	18.89
4.55	4.66	5304.85	12.210	18.84
4.60	4.51	5304.83	12.151	18.79
4.65	4.36	5304.82	12.091	18.74
4.70	4.22	5304.80	12.032	18.69
4.75	4.08	5304.79	11.972	18.64
4.80	3.97	5304.77	11.912	18.60
4.85	3.87	5304.76	11.851	18.55
4.90	3.77	5304.74	11.790	18.50
4.95	3.66	5304.73	11.729	18.45
5.00	3.57	5304.71	11.668	18.40
5.05	3.48	5304.70	11.607	18.35
5.10	3.40	5304.68	11.545	18.30
5.15	3.33	5304.66	11.484	18.25
5.20	3.26	5304.65	11.422	18.20
5.25	3.18	5304.63	11.360	18.14
5.30	3.12	5304.62	11.298	18.09
5.35	3.07	5304.60	11.237	18.04
5.40	3.01	5304.58	11.175	17.99
5.45	2.96	5304.57	11.113	17.94
5.50	2.92	5304.55	11.051	17.89
5.55	2.87	5304.54	10.989	17.84

TIME INFLOW ELEV VOLUME OUTFLOW

(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
5.60	2.83	5304.52	10.927	17.79
5.65	2.79	5304.50	10.865	17.74
5.70	2.75	5304.49	10.804	17.68
5.75	2.72	5304.47	10.742	17.63
5.80	2.69	5304.46	10.680	17.57
5.85	2.65	5304.44	10.619	17.51
5.90	2.62	5304.42	10.558	17.45
5.95	2.60	5304.41	10.496	17.39
6.00	2.57	5304.39	10.435	17.34
6.05	2.54	5304.37	10.374	17.28
6.10	2.52	5304.36	10.314	17.22
6.15	2.50	5304.34	10.253	17.16
6.20	2.47	5304.32	10.192	17.11
6.25	2.46	5304.31	10.132	17.05
6.30	2.43	5304.29	10.072	16.99
6.35	2.40	5304.27	10.012	16.94
6.40	2.37	5304.26	9.952	16.88
6.45	2.35	5304.24	9.892	16.82
6.50	2.33	5304.23	9.832	16.77
6.55	2.31	5304.21	9.772	16.71
6.60	2.28	5304.19	9.713	16.65
6.65	2.27	5304.18	9.654	16.60
6.70	2.25	5304.16	9.595	16.54
6.75	2.23	5304.15	9.536	16.48
6.80	2.20	5304.13	9.477	16.43
6.85	2.18	5304.11	9.418	16.37
6.90	2.16	5304.10	9.359	16.32
6.95	2.15	5304.08	9.301	16.26
7.00	2.12	5304.07	9.243	16.21
7.05	2.11	5304.05	9.185	16.15
7.10	2.09	5304.03	9.127	16.10
7.15	2.07	5304.02	9.069	16.04
7.20	2.06	5304.00	9.011	15.99
7.25	2.04	5303.99	8.954	15.93
7.30	2.03	5303.97	8.897	15.86
7.35	2.01	5303.95	8.839	15.80
7.40	1.99	5303.94	8.783	15.73
7.45	1.98	5303.92	8.726	15.67
7.50	1.97	5303.91	8.669	15.61
7.55	1.95	5303.89	8.613	15.54
7.60	1.93	5303.87	8.557	15.48
7.65	1.91	5303.86	8.501	15.42
7.70	1.90	5303.84	8.445	15.36
7.75	1.88	5303.83	8.390	15.29
7.80	1.87	5303.81	8.335	15.23
7.85	1.86	5303.79	8.279	15.17
7.90	1.84	5303.78	8.225	15.11
7.95	1.83	5303.76	8.170	15.05
8.00	1.81	5303.75	8.115	14.98
8.05	1.80	5303.73	8.061	14.92
8.10	1.78	5303.72	8.007	14.86
8.15	1.77	5303.70	7.953	14.80
8.20	1.76	5303.69	7.899	14.74
8.25	1.75	5303.67	7.846	14.68
8.30	1.74	5303.65	7.792	14.62
8.35	1.72	5303.64	7.739	14.56

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
8.40	1.71	5303.62	7.686	14.50
8.45	1.70	5303.61	7.633	14.44
8.50	1.69	5303.59	7.581	14.38
8.55	1.68	5303.58	7.529	14.32
8.60	1.67	5303.56	7.476	14.27
8.65	1.67	5303.55	7.424	14.21
8.70	1.65	5303.53	7.373	14.15
8.75	1.64	5303.52	7.321	14.09
8.80	1.63	5303.51	7.270	14.03
8.85	1.62	5303.49	7.219	13.97
8.90	1.62	5303.47	7.168	13.90
8.95	1.61	5303.46	7.117	13.83
9.00	1.59	5303.44	7.067	13.76
9.05	1.58	5303.43	7.017	13.69
9.10	1.57	5303.41	6.967	13.62
9.15	1.56	5303.40	6.917	13.55
9.20	1.55	5303.38	6.868	13.48
9.25	1.55	5303.37	6.818	13.41
9.30	1.54	5303.35	6.770	13.34
9.35	1.52	5303.34	6.721	13.28
9.40	1.52	5303.32	6.672	13.21
9.45	1.52	5303.31	6.624	13.14
9.50	1.51	5303.30	6.576	13.08
9.55	1.50	5303.28	6.529	13.01
9.60	1.49	5303.27	6.481	12.94
9.65	1.49	5303.25	6.434	12.88
9.70	1.48	5303.24	6.387	12.81
9.75	1.47	5303.22	6.340	12.75
9.80	1.47	5303.21	6.294	12.68
9.85	1.47	5303.20	6.248	12.62
9.90	1.46	5303.18	6.202	12.56
9.95	1.45	5303.17	6.156	12.49
10.00	1.45	5303.15	6.111	12.43
10.05	1.44	5303.14	6.065	12.37

10.10	1.43	5303.13	6.020	12.30
10.15	1.43	5303.11	5.975	12.24
10.20	1.42	5303.10	5.931	12.18
10.25	1.42	5303.09	5.886	12.12
10.30	1.41	5303.07	5.842	12.06
10.35	1.40	5303.06	5.799	12.00
10.40	1.39	5303.05	5.755	11.93
10.45	1.39	5303.03	5.711	11.87
10.50	1.38	5303.02	5.668	11.81
10.55	1.38	5303.01	5.625	11.75
10.60	1.37	5302.99	5.582	11.69
10.65	1.37	5302.98	5.540	11.61
10.70	1.36	5302.97	5.498	11.53
10.75	1.36	5302.95	5.456	11.45
10.80	1.35	5302.94	5.414	11.38
10.85	1.35	5302.93	5.373	11.30
10.90	1.35	5302.91	5.332	11.22
10.95	1.34	5302.90	5.291	11.15
11.00	1.33	5302.89	5.251	11.07
11.05	1.33	5302.87	5.211	11.00
11.10	1.32	5302.86	5.171	10.93
11.15	1.32	5302.85	5.132	10.85

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
11.20	1.32	5302.83	5.092	10.78
11.25	1.31	5302.82	5.053	10.71
11.30	1.31	5302.81	5.015	10.64
11.35	1.30	5302.80	4.976	10.57
11.40	1.30	5302.79	4.938	10.50
11.45	1.30	5302.77	4.900	10.43
11.50	1.30	5302.76	4.863	10.36
11.55	1.29	5302.75	4.825	10.29
11.60	1.28	5302.74	4.788	10.22
11.65	1.28	5302.73	4.752	10.15
11.70	1.28	5302.71	4.715	10.08
11.75	1.27	5302.70	4.679	10.02
11.80	1.26	5302.69	4.643	9.95
11.85	1.26	5302.68	4.607	9.88
11.90	1.26	5302.67	4.572	9.82
11.95	1.26	5302.66	4.536	9.75
12.00	1.26	5302.64	4.501	9.69
12.05	1.25	5302.63	4.467	9.62
12.10	1.24	5302.62	4.432	9.56
12.15	1.24	5302.61	4.398	9.50
12.20	1.24	5302.60	4.364	9.44
12.25	1.24	5302.59	4.330	9.37
12.30	1.23	5302.58	4.297	9.31
12.35	1.23	5302.57	4.263	9.25
12.40	1.23	5302.56	4.230	9.19
12.45	1.22	5302.55	4.198	9.13
12.50	1.21	5302.54	4.165	9.07
12.55	1.22	5302.53	4.133	9.01
12.60	1.22	5302.52	4.101	8.95
12.65	1.21	5302.50	4.069	8.89
12.70	1.20	5302.49	4.037	8.81
12.75	1.20	5302.48	4.006	8.72
12.80	1.20	5302.47	3.975	8.62
12.85	1.19	5302.46	3.945	8.53
12.90	1.20	5302.45	3.914	8.44
12.95	1.19	5302.44	3.885	8.35
13.00	1.19	5302.43	3.855	8.26
13.05	1.18	5302.42	3.826	8.17
13.10	1.18	5302.41	3.798	8.08
13.15	1.17	5302.40	3.769	7.99
13.20	1.17	5302.39	3.741	7.91
13.25	1.17	5302.38	3.714	7.82
13.30	1.17	5302.37	3.686	7.74
13.35	1.17	5302.36	3.659	7.66
13.40	1.17	5302.35	3.633	7.57
13.45	1.16	5302.35	3.606	7.49
13.50	1.16	5302.34	3.580	7.41
13.55	1.16	5302.33	3.555	7.34
13.60	1.16	5302.32	3.529	7.26
13.65	1.15	5302.31	3.504	7.18
13.70	1.15	5302.30	3.479	7.11
13.75	1.14	5302.29	3.455	7.03
13.80	1.14	5302.29	3.431	6.96
13.85	1.14	5302.28	3.407	6.88
13.90	1.14	5302.27	3.383	6.81
13.95	1.14	5302.26	3.360	6.74

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
14.00	1.13	5302.25	3.337	6.67
14.05	1.13	5302.24	3.314	6.60
14.10	1.13	5302.24	3.292	6.53
14.15	1.13	5302.23	3.270	6.46
14.20	1.12	5302.22	3.248	6.40
14.25	1.12	5302.21	3.226	6.33
14.30	1.12	5302.21	3.205	6.27
14.35	1.12	5302.20	3.183	6.20
14.40	1.12	5302.19	3.163	6.14
14.45	1.11	5302.19	3.142	6.07

14.50	1.11	5302.18	3.122	6.01
14.55	1.10	5302.17	3.101	5.95
14.60	1.10	5302.16	3.081	5.89
14.65	1.10	5302.16	3.062	5.83
14.70	1.09	5302.15	3.042	5.77
14.75	1.09	5302.14	3.023	5.71
14.80	1.09	5302.14	3.004	5.65
14.85	1.09	5302.13	2.985	5.60
14.90	1.09	5302.13	2.967	5.54
14.95	1.09	5302.12	2.949	5.48
15.00	1.09	5302.11	2.931	5.43
15.05	1.08	5302.11	2.913	5.37
15.10	1.08	5302.10	2.895	5.32
15.15	1.08	5302.09	2.878	5.27
15.20	1.08	5302.09	2.861	5.21
15.25	1.07	5302.08	2.844	5.16
15.30	1.07	5302.08	2.827	5.11
15.35	1.07	5302.07	2.810	5.06
15.40	1.06	5302.07	2.794	5.01
15.45	1.06	5302.06	2.777	4.96
15.50	1.06	5302.05	2.761	4.91
15.55	1.05	5302.05	2.746	4.86
15.60	1.06	5302.04	2.730	4.82
15.65	1.06	5302.04	2.715	4.77
15.70	1.05	5302.03	2.699	4.72
15.75	1.05	5302.03	2.684	4.68
15.80	1.05	5302.02	2.669	4.63
15.85	1.05	5302.02	2.655	4.59
15.90	1.04	5302.01	2.640	4.54
15.95	1.04	5302.01	2.626	4.50
16.00	1.03	5302.00	2.611	4.45
16.05	1.03	5302.00	2.597	4.41
16.10	1.03	5301.99	2.584	4.36
16.15	1.03	5301.99	2.570	4.32
16.20	1.03	5301.98	2.556	4.27
16.25	1.03	5301.98	2.543	4.23
16.30	1.03	5301.97	2.530	4.19
16.35	1.02	5301.97	2.517	4.15
16.40	1.02	5301.96	2.504	4.10
16.45	1.02	5301.96	2.491	4.06
16.50	1.02	5301.95	2.479	4.02
16.55	1.02	5301.95	2.467	3.98
16.60	1.02	5301.94	2.454	3.94
16.65	1.02	5301.94	2.442	3.90
16.70	1.02	5301.94	2.431	3.86
16.75	1.01	5301.93	2.419	3.83

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
16.80	1.00	5301.93	2.407	3.79
16.85	1.01	5301.92	2.396	3.75
16.90	1.01	5301.92	2.385	3.71
16.95	1.00	5301.91	2.374	3.68
17.00	1.00	5301.91	2.363	3.64
17.05	.99	5301.91	2.352	3.61
17.10	.99	5301.90	2.341	3.57
17.15	.99	5301.90	2.330	3.54
17.20	.98	5301.90	2.320	3.50
17.25	.98	5301.89	2.310	3.47
17.30	.98	5301.89	2.299	3.44
17.35	.98	5301.88	2.289	3.40
17.40	.98	5301.88	2.279	3.37
17.45	.98	5301.88	2.269	3.34
17.50	.98	5301.87	2.260	3.31
17.55	.98	5301.87	2.250	3.28
17.60	.97	5301.87	2.241	3.24
17.65	.97	5301.86	2.231	3.21
17.70	.96	5301.86	2.222	3.18
17.75	.96	5301.86	2.213	3.15
17.80	.96	5301.85	2.204	3.12
17.85	.96	5301.85	2.195	3.10
17.90	.96	5301.85	2.186	3.07
17.95	.96	5301.84	2.178	3.04
18.00	.96	5301.84	2.169	3.01
18.05	.96	5301.84	2.161	2.98
18.10	.96	5301.83	2.153	2.96
18.15	.96	5301.83	2.144	2.93
18.20	.95	5301.83	2.136	2.90
18.25	.95	5301.82	2.128	2.88
18.30	.95	5301.82	2.120	2.85
18.35	.95	5301.82	2.113	2.83
18.40	.94	5301.82	2.105	2.80
18.45	.94	5301.81	2.097	2.78
18.50	.94	5301.81	2.090	2.75
18.55	.94	5301.81	2.082	2.73
18.60	.94	5301.80	2.075	2.70
18.65	.94	5301.80	2.068	2.68
18.70	.93	5301.80	2.061	2.66
18.75	.93	5301.80	2.053	2.63
18.80	.93	5301.79	2.046	2.61
18.85	.93	5301.79	2.040	2.59
18.90	.93	5301.79	2.033	2.56
18.95	.93	5301.79	2.026	2.54
19.00	.93	5301.78	2.019	2.52
19.05	.92	5301.78	2.013	2.50

19.10	.92	5301.78	2.006	2.48
19.15	.92	5301.78	2.000	2.46
19.20	.92	5301.77	1.994	2.44
19.25	.92	5301.77	1.987	2.42
19.30	.91	5301.77	1.981	2.40
19.35	.90	5301.77	1.975	2.38
19.40	.91	5301.77	1.969	2.36
19.45	.91	5301.76	1.963	2.34
19.50	.91	5301.76	1.957	2.32
19.55	.91	5301.76	1.952	2.30

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
19.60	.91	5301.76	1.946	2.28
19.65	.91	5301.75	1.940	2.26
19.70	.90	5301.75	1.935	2.24
19.75	.90	5301.75	1.929	2.23
19.80	.90	5301.75	1.924	2.21
19.85	.90	5301.75	1.918	2.19
19.90	.89	5301.74	1.913	2.17
19.95	.89	5301.74	1.908	2.16
20.00	.89	5301.74	1.902	2.14
20.05	.89	5301.74	1.897	2.12
20.10	.88	5301.74	1.892	2.11
20.15	.88	5301.73	1.887	2.09
20.20	.89	5301.73	1.882	2.07
20.25	.88	5301.73	1.877	2.06
20.30	.88	5301.73	1.873	2.04
20.35	.89	5301.73	1.868	2.03
20.40	.88	5301.73	1.863	2.01
20.45	.88	5301.72	1.858	2.00
20.50	.88	5301.72	1.854	1.98
20.55	.88	5301.72	1.849	1.97
20.60	.87	5301.72	1.845	1.95
20.65	.87	5301.72	1.840	1.94
20.70	.87	5301.72	1.836	1.92
20.75	.87	5301.71	1.832	1.91
20.80	.86	5301.71	1.827	1.89
20.85	.86	5301.71	1.823	1.88
20.90	.86	5301.71	1.819	1.87
20.95	.86	5301.71	1.815	1.85
21.00	.86	5301.71	1.811	1.84
21.05	.86	5301.71	1.807	1.83
21.10	.86	5301.70	1.803	1.81
21.15	.85	5301.70	1.799	1.80
21.20	.85	5301.70	1.795	1.79
21.25	.85	5301.70	1.791	1.78
21.30	.85	5301.70	1.787	1.76
21.35	.85	5301.70	1.784	1.75
21.40	.84	5301.69	1.780	1.74
21.45	.84	5301.69	1.776	1.73
21.50	.85	5301.69	1.773	1.72
21.55	.85	5301.69	1.769	1.70
21.60	.84	5301.69	1.766	1.69
21.65	.85	5301.69	1.762	1.68
21.70	.85	5301.69	1.759	1.67
21.75	.84	5301.69	1.755	1.66
21.80	.84	5301.68	1.752	1.65
21.85	.83	5301.68	1.749	1.64
21.90	.84	5301.68	1.745	1.63
21.95	.84	5301.68	1.742	1.62
22.00	.83	5301.68	1.739	1.60
22.05	.83	5301.68	1.736	1.59
22.10	.82	5301.68	1.732	1.58
22.15	.82	5301.68	1.729	1.57
22.20	.83	5301.68	1.726	1.56
22.25	.83	5301.67	1.723	1.55
22.30	.83	5301.67	1.720	1.54
22.35	.83	5301.67	1.717	1.53

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
22.40	.82	5301.67	1.714	1.53
22.45	.82	5301.67	1.712	1.52
22.50	.82	5301.67	1.709	1.51
22.55	.82	5301.67	1.706	1.50
22.60	.82	5301.67	1.703	1.49
22.65	.81	5301.67	1.700	1.48
22.70	.81	5301.66	1.698	1.47
22.75	.81	5301.66	1.695	1.46
22.80	.81	5301.66	1.692	1.45
22.85	.81	5301.66	1.690	1.44
22.90	.81	5301.66	1.687	1.44
22.95	.81	5301.66	1.684	1.43
23.00	.81	5301.66	1.682	1.42
23.05	.80	5301.66	1.679	1.41
23.10	.80	5301.66	1.677	1.40
23.15	.80	5301.66	1.674	1.39
23.20	.80	5301.66	1.672	1.39
23.25	.81	5301.65	1.670	1.38
23.30	.80	5301.65	1.667	1.37
23.35	.80	5301.65	1.665	1.36
23.40	.79	5301.65	1.663	1.36
23.45	.79	5301.65	1.660	1.35

23.50	.79	5301.65	1.658	1.34
23.55	.79	5301.65	1.656	1.33
23.60	.79	5301.65	1.653	1.33
23.65	.79	5301.65	1.651	1.32
23.70	.79	5301.65	1.649	1.31
23.75	.79	5301.65	1.647	1.30
23.80	.79	5301.65	1.645	1.30
23.85	.79	5301.64	1.643	1.29
23.90	.78	5301.64	1.641	1.28
23.95	.79	5301.64	1.639	1.28
24.00	.78	5301.64	1.637	1.27
24.05	.77	5301.64	1.635	1.26
24.10	.70	5301.64	1.632	1.26
24.15	.61	5301.64	1.630	1.25
24.20	.55	5301.64	1.627	1.24
24.25	.51	5301.64	1.624	1.23
24.30	.47	5301.64	1.621	1.22
24.35	.44	5301.64	1.618	1.21
24.40	.41	5301.63	1.615	1.20
24.45	.39	5301.63	1.612	1.19
24.50	.36	5301.63	1.608	1.18
24.55	.34	5301.63	1.605	1.17
24.60	.32	5301.63	1.601	1.16
24.65	.30	5301.63	1.598	1.14
24.70	.29	5301.63	1.594	1.13
24.75	.27	5301.63	1.591	1.12
24.80	.25	5301.62	1.587	1.11
24.85	.24	5301.62	1.584	1.10
24.90	.23	5301.62	1.580	1.09
24.95	.21	5301.62	1.577	1.08
25.00	.20	5301.62	1.573	1.06
25.05	.19	5301.62	1.570	1.05
25.10	.18	5301.62	1.566	1.04
25.15	.17	5301.61	1.563	1.03

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
25.20	.16	5301.61	1.559	1.02
25.25	.15	5301.61	1.555	1.01
25.30	.14	5301.61	1.552	.99
25.35	.12	5301.61	1.548	.98
25.40	.11	5301.61	1.545	.97
25.45	.10	5301.61	1.541	.96
25.50	.09	5301.61	1.538	.95
25.55	.09	5301.60	1.534	.94
25.60	.08	5301.60	1.531	.93
25.65	.07	5301.60	1.527	.91
25.70	.06	5301.60	1.524	.90
25.75	.05	5301.60	1.520	.89
25.80	.05	5301.60	1.517	.88
25.85	.04	5301.60	1.513	.87
25.90	.03	5301.60	1.510	.86
25.95	.03	5301.59	1.506	.85
26.00	.02	5301.59	1.503	.84
26.05	.02	5301.59	1.500	.82
26.10	.02	5301.59	1.496	.81
26.15	.02	5301.59	1.493	.80
26.20	.01	5301.59	1.490	.79
26.25	.00	5301.59	1.487	.78
26.30	.00	5301.59	1.484	.77
26.35	.00	5301.58	1.480	.76
26.40	.00	5301.58	1.477	.75
26.45	.00	5301.58	1.474	.74
26.50	.00	5301.58	1.471	.73
26.55	.00	5301.58	1.468	.72
26.60	.00	5301.58	1.465	.71
26.65	.00	5301.58	1.462	.70
26.70	.00	5301.58	1.459	.69
26.75	.00	5301.58	1.457	.68
26.80	.00	5301.57	1.454	.67
26.85	.00	5301.57	1.451	.66
26.90	.00	5301.57	1.448	.66
26.95	.00	5301.57	1.446	.65
27.00	.00	5301.57	1.443	.64
27.05	.00	5301.57	1.440	.63
27.10	.00	5301.57	1.438	.62
27.15	.00	5301.57	1.435	.61
27.20	.00	5301.57	1.433	.60
27.25	.00	5301.57	1.430	.60
27.30	.00	5301.56	1.428	.59
27.35	.00	5301.56	1.425	.58
27.40	.00	5301.56	1.423	.57
27.45	.00	5301.56	1.421	.57
27.50	.00	5301.56	1.418	.56
27.55	.00	5301.56	1.416	.55
27.60	.00	5301.56	1.414	.54
27.65	.00	5301.56	1.411	.54
27.70	.00	5301.56	1.409	.53
27.75	.00	5301.56	1.407	.52
27.80	.00	5301.56	1.405	.51
27.85	.00	5301.56	1.403	.51
27.90	.00	5301.55	1.401	.50
27.95	.00	5301.55	1.399	.49

TIME INFLOW ELEV VOLUME OUTFLOW

(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
28.00	.00	5301.55	1.397	.49
28.05	.00	5301.55	1.395	.48
28.10	.00	5301.55	1.393	.47
28.15	.00	5301.55	1.391	.47
28.20	.00	5301.55	1.389	.46
28.25	.00	5301.55	1.387	.46
28.30	.00	5301.55	1.385	.45
28.35	.00	5301.55	1.383	.44
28.40	.00	5301.55	1.381	.44
28.45	.00	5301.55	1.380	.43
28.50	.00	5301.55	1.378	.43
28.55	.00	5301.55	1.376	.42
28.60	.00	5301.54	1.374	.41
28.65	.00	5301.54	1.373	.41
28.70	.00	5301.54	1.371	.40
28.75	.00	5301.54	1.369	.40
28.80	.00	5301.54	1.368	.39
28.85	.00	5301.54	1.366	.39
28.90	.00	5301.54	1.364	.38
28.95	.00	5301.54	1.363	.38
29.00	.00	5301.54	1.361	.37
29.05	.00	5301.54	1.360	.37
29.10	.00	5301.54	1.358	.36
29.15	.00	5301.54	1.357	.36
29.20	.00	5301.54	1.355	.35
29.25	.00	5301.54	1.354	.35
29.30	.00	5301.54	1.352	.34
29.35	.00	5301.54	1.351	.34
29.40	.00	5301.54	1.350	.33
29.45	.00	5301.54	1.348	.33
29.50	.00	5301.53	1.347	.33
29.55	.00	5301.53	1.346	.32
29.60	.00	5301.53	1.344	.32
29.65	.00	5301.53	1.343	.31
29.70	.00	5301.53	1.342	.31
29.75	.00	5301.53	1.340	.30
29.80	.00	5301.53	1.339	.30
29.85	.00	5301.53	1.338	.30
29.90	.00	5301.53	1.337	.29
29.95	.00	5301.53	1.336	.29

PEAK DISCHARGE = 19.589 CFS - PEAK OCCURS AT HOUR 3.40
MAXIMUM WATER SURFACE ELEVATION = 5305.093
MAXIMUM STORAGE = 13.1744 AC-FT INCREMENTAL TIME= .050000HRS

PRINT HYD ID=15

HYDROGRAPH FROM AREA POND

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	17.3	12.000	9.7	18.000	3.0
.050	.0	6.050	17.3	12.050	9.6	18.050	3.0
.100	.0	6.100	17.2	12.100	9.6	18.100	3.0
.150	.0	6.150	17.2	12.150	9.5	18.150	2.9
.200	.0	6.200	17.1	12.200	9.4	18.200	2.9
.250	.0	6.250	17.0	12.250	9.4	18.250	2.9
.300	.0	6.300	17.0	12.300	9.3	18.300	2.9
.350	.0	6.350	16.9	12.350	9.2	18.350	2.8
.400	.0	6.400	16.9	12.400	9.2	18.400	2.8
.450	.0	6.450	16.8	12.450	9.1	18.450	2.8
.500	.0	6.500	16.8	12.500	9.1	18.500	2.8
.550	.0	6.550	16.7	12.550	9.0	18.550	2.7
.600	.0	6.600	16.7	12.600	8.9	18.600	2.7
.650	.0	6.650	16.6	12.650	8.9	18.650	2.7
.700	.0	6.700	16.5	12.700	8.8	18.700	2.7
.750	.0	6.750	16.5	12.750	8.7	18.750	2.6
.800	.0	6.800	16.4	12.800	8.6	18.800	2.6
.850	.0	6.850	16.4	12.850	8.5	18.850	2.6
.900	.0	6.900	16.3	12.900	8.4	18.900	2.6
.950	.0	6.950	16.3	12.950	8.3	18.950	2.5
1.000	.0	7.000	16.2	13.000	8.3	19.000	2.5

1.050	.0	7.050	16.2	13.050	8.2	19.050	2.5	25.050
1.100	.0	7.100	16.1	13.100	8.1	19.100	2.5	25.100
1.150	.0	7.150	16.0	13.150	8.0	19.150	2.5	25.150
1.200	.0	7.200	16.0	13.200	7.9	19.200	2.4	25.200
1.250	.0	7.250	15.9	13.250	7.8	19.250	2.4	25.250
1.300	.0	7.300	15.9	13.300	7.7	19.300	2.4	25.300
1.350	.0	7.350	15.8	13.350	7.7	19.350	2.4	25.350
1.400	.0	7.400	15.7	13.400	7.6	19.400	2.4	25.400
1.450	.0	7.450	15.7	13.450	7.5	19.450	2.3	25.450
1.500	.3	7.500	15.6	13.500	7.4	19.500	2.3	25.500
1.550	2.2	7.550	15.5	13.550	7.3	19.550	2.3	25.550
1.600	4.3	7.600	15.5	13.600	7.3	19.600	2.3	25.600
1.650	6.4	7.650	15.4	13.650	7.2	19.650	2.3	25.650
1.700	8.5	7.700	15.4	13.700	7.1	19.700	2.2	25.700
1.750	10.0	7.750	15.3	13.750	7.0	19.750	2.2	25.750
1.800	11.3	7.800	15.2	13.800	7.0	19.800	2.2	25.800
1.850	12.4	7.850	15.2	13.850	6.9	19.850	2.2	25.850
1.900	13.3	7.900	15.1	13.900	6.8	19.900	2.2	25.900
1.950	14.1	7.950	15.0	13.950	6.7	19.950	2.2	25.950
2.000	14.8	8.000	15.0	14.000	6.7	20.000	2.1	26.000
2.050	15.4	8.050	14.9	14.050	6.6	20.050	2.1	26.050
2.100	16.0	8.100	14.9	14.100	6.5	20.100	2.1	26.100
2.150	16.4	8.150	14.8	14.150	6.5	20.150	2.1	26.150
2.200	16.8	8.200	14.7	14.200	6.4	20.200	2.1	26.200
2.250	17.1	8.250	14.7	14.250	6.3	20.250	2.1	26.250
2.300	17.4	8.300	14.6	14.300	6.3	20.300	2.0	26.300
2.350	17.7	8.350	14.6	14.350	6.2	20.350	2.0	26.350
2.400	17.9	8.400	14.5	14.400	6.1	20.400	2.0	26.400
2.450	18.1	8.450	14.4	14.450	6.1	20.450	2.0	26.450
2.500	18.3	8.500	14.4	14.500	6.0	20.500	2.0	26.500
2.550	18.4	8.550	14.3	14.550	6.0	20.550	2.0	26.550
2.600	18.6	8.600	14.3	14.600	5.9	20.600	2.0	26.600
2.650	18.7	8.650	14.2	14.650	5.8	20.650	1.9	26.650
2.700	18.8	8.700	14.1	14.700	5.8	20.700	1.9	26.700
2.750	19.0	8.750	14.1	14.750	5.7	20.750	1.9	26.750
2.800	19.1	8.800	14.0	14.800	5.7	20.800	1.9	26.800
2.850	19.2	8.850	14.0	14.850	5.6	20.850	1.9	26.850
2.900	19.3	8.900	13.9	14.900	5.5	20.900	1.9	26.900
2.950	19.3	8.950	13.8	14.950	5.5	20.950	1.9	26.950
3.000	19.4	9.000	13.8	15.000	5.4	21.000	1.8	27.000
3.050	19.4	9.050	13.7	15.050	5.4	21.050	1.8	27.050
3.100	19.5	9.100	13.6	15.100	5.3	21.100	1.8	27.100
3.150	19.5	9.150	13.5	15.150	5.3	21.150	1.8	27.150
3.200	19.5	9.200	13.5	15.200	5.2	21.200	1.8	27.200
3.250	19.6	9.250	13.4	15.250	5.2	21.250	1.8	27.250
3.300	19.6	9.300	13.3	15.300	5.1	21.300	1.8	27.300
3.350	19.6	9.350	13.3	15.350	5.1	21.350	1.8	27.350
3.400	19.6	9.400	13.2	15.400	5.0	21.400	1.7	27.400

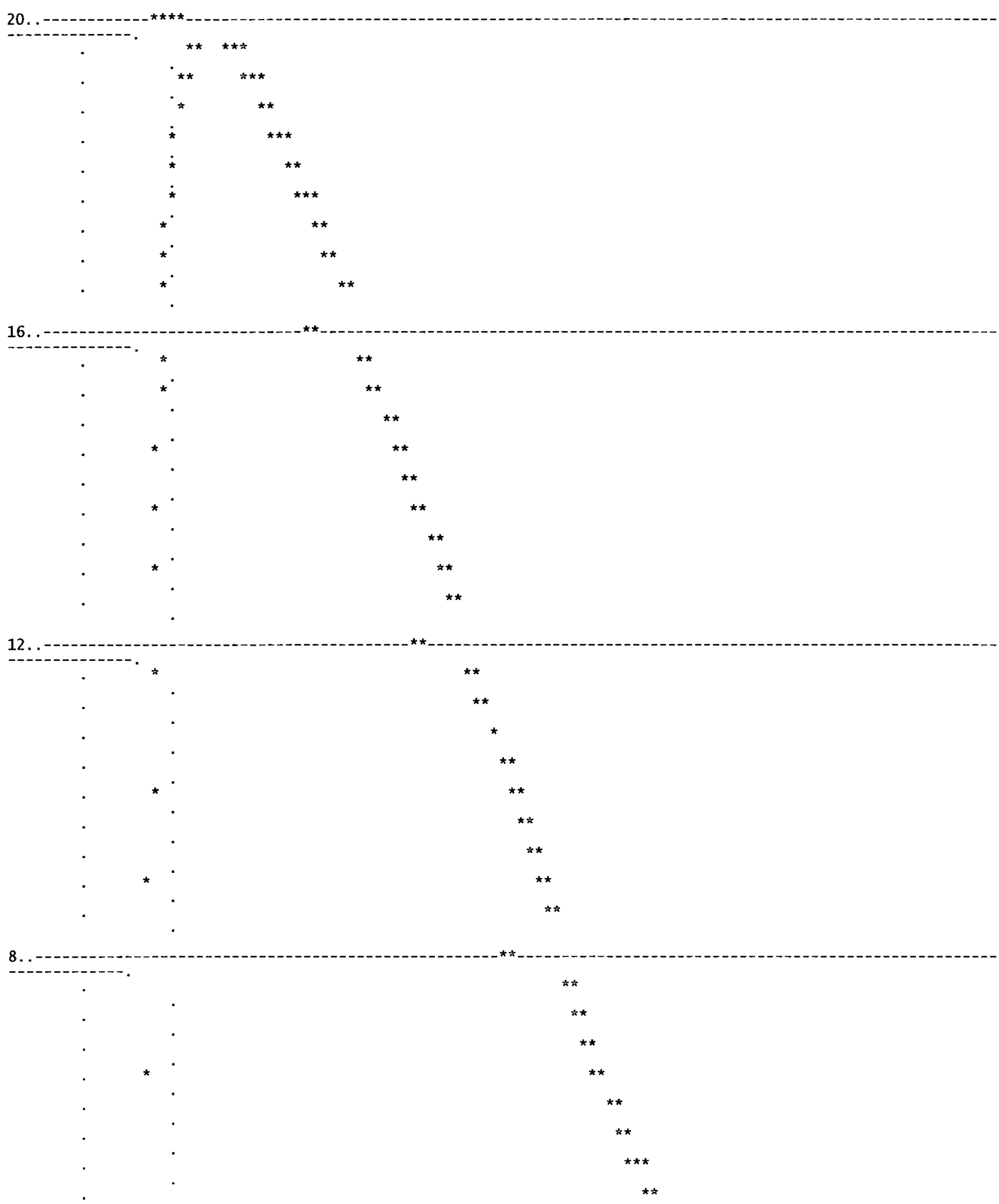
27.450	3.450	19.6	9.450	13.1	15.450	5.0	21.450	1.7
27.500	.6 3.500	19.6	9.500	13.1	15.500	4.9	21.500	1.7
27.550	.6 3.550	19.6	9.550	13.0	15.550	4.9	21.550	1.7
27.600	.6 3.600	19.5	9.600	12.9	15.600	4.8	21.600	1.7
27.650	.5 3.650	19.5	9.650	12.9	15.650	4.8	21.650	1.7
27.700	.5 3.700	19.5	9.700	12.8	15.700	4.7	21.700	1.7
27.750	.5 3.750	19.5	9.750	12.7	15.750	4.7	21.750	1.7
27.800	.5 3.800	19.5	9.800	12.7	15.800	4.6	21.800	1.6
27.850	.5 3.850	19.4	9.850	12.6	15.850	4.6	21.850	1.6
27.900	.5 3.900	19.4	9.900	12.6	15.900	4.5	21.900	1.6
27.950	.5 3.950	19.4	9.950	12.5	15.950	4.5	21.950	1.6
28.000	.5 4.000	19.3	10.000	12.4	16.000	4.5	22.000	1.6
28.050	.5 4.050	19.3	10.050	12.4	16.050	4.4	22.050	1.6
28.100	.5 4.100	19.2	10.100	12.3	16.100	4.4	22.100	1.6
28.150	.5 4.150	19.2	10.150	12.2	16.150	4.3	22.150	1.6
28.200	.5 4.200	19.2	10.200	12.2	16.200	4.3	22.200	1.6
28.250	.5 4.250	19.1	10.250	12.1	16.250	4.2	22.250	1.6
28.300	.5 4.300	19.1	10.300	12.1	16.300	4.2	22.300	1.5
28.350	.4 4.350	19.0	10.350	12.0	16.350	4.1	22.350	1.5
28.400	.4 4.400	19.0	10.400	11.9	16.400	4.1	22.400	1.5
28.450	.4 4.450	18.9	10.450	11.9	16.450	4.1	22.450	1.5
28.500	.4 4.500	18.9	10.500	11.8	16.500	4.0	22.500	1.5
28.550	.4 4.550	18.8	10.550	11.8	16.550	4.0	22.550	1.5
28.600	.4 4.600	18.8	10.600	11.7	16.600	3.9	22.600	1.5
28.650	.4 4.650	18.7	10.650	11.6	16.650	3.9	22.650	1.5
28.700	.4 4.700	18.7	10.700	11.5	16.700	3.9	22.700	1.5
28.750	.4 4.750	18.6	10.750	11.5	16.750	3.8	22.750	1.5
28.800	.4 4.800	18.6	10.800	11.4	16.800	3.8	22.800	1.5
28.850	.4 4.850	18.5	10.850	11.3	16.850	3.8	22.850	1.4
28.900	.4 4.900	18.5	10.900	11.2	16.900	3.7	22.900	1.4
28.950	.4 4.950	18.4	10.950	11.1	16.950	3.7	22.950	1.4
29.000	.4 5.000	18.4	11.000	11.1	17.000	3.6	23.000	1.4
29.050	.4 5.050	18.3	11.050	11.0	17.050	3.6	23.050	1.4
29.100	.4 5.100	18.3	11.100	10.9	17.100	3.6	23.100	1.4
29.150	.4 5.150	18.2	11.150	10.9	17.150	3.5	23.150	1.4
29.200	.4 5.200	18.2	11.200	10.8	17.200	3.5	23.200	1.4
29.250	.4 5.250	18.1	11.250	10.7	17.250	3.5	23.250	1.4
29.300	.3 5.300	18.1	11.300	10.6	17.300	3.4	23.300	1.4
29.350	.3 5.350	18.0	11.350	10.6	17.350	3.4	23.350	1.4
29.400	.3 5.400	18.0	11.400	10.5	17.400	3.4	23.400	1.4
29.450	.3 5.450	17.9	11.450	10.4	17.450	3.3	23.450	1.3
29.500	.3 5.500	17.9	11.500	10.4	17.500	3.3	23.500	1.3
29.550	.3 5.550	17.8	11.550	10.3	17.550	3.3	23.550	1.3
29.600	.3 5.600	17.8	11.600	10.2	17.600	3.2	23.600	1.3
29.650	.3 5.650	17.7	11.650	10.2	17.650	3.2	23.650	1.3
29.700	.3 5.700	17.7	11.700	10.1	17.700	3.2	23.700	1.3
29.750	.3 5.750	17.6	11.750	10.0	17.750	3.2	23.750	1.3
29.800	.3 5.800	17.6	11.800	10.0	17.800	3.1	23.800	1.3

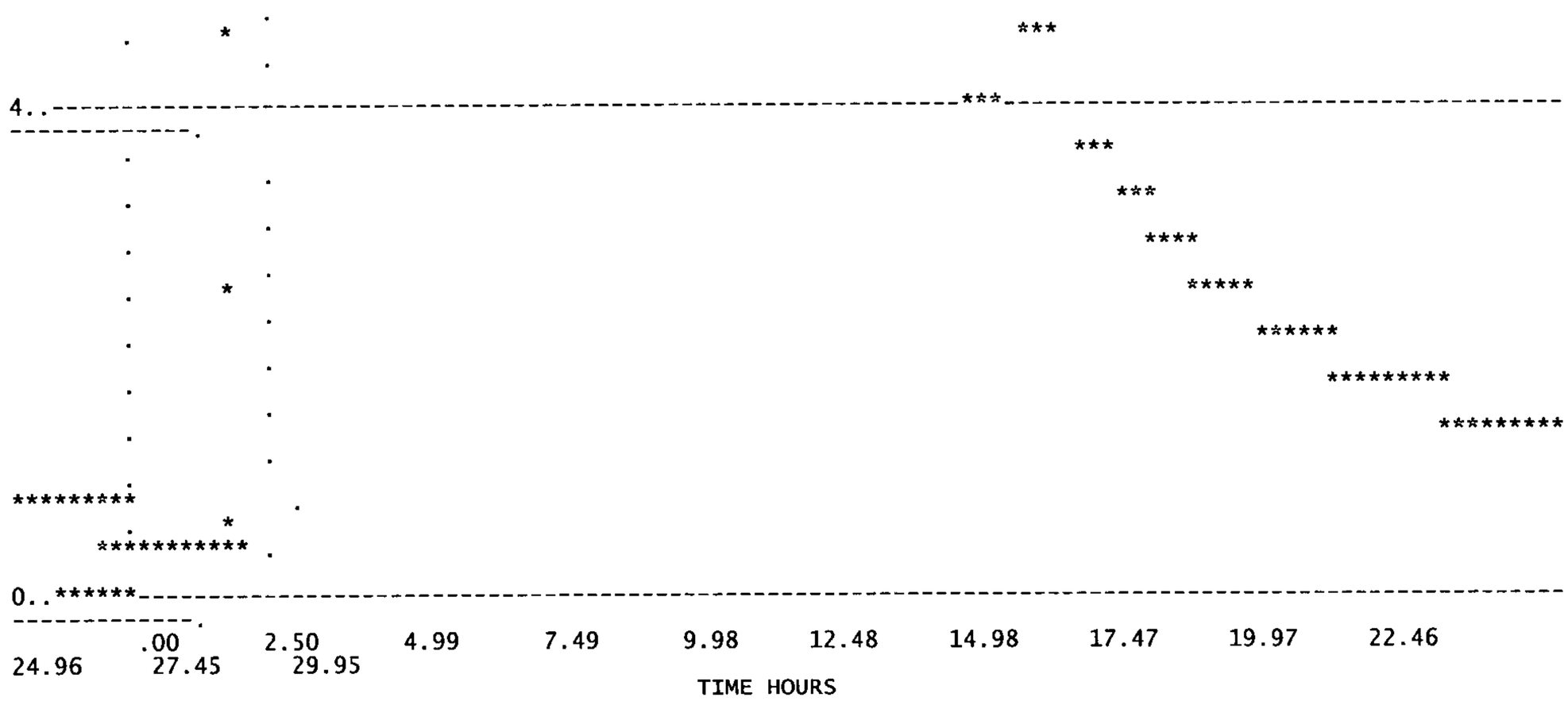
29.850	5.850	17.5	11.850	9.9	17.850	3.1	23.850	1.3	.3
29.900	5.900	17.5	11.900	9.8	17.900	3.1	23.900	1.3	.3
29.950	5.950	17.4	11.950	9.8	17.950	3.0	23.950	1.3	.3

RUNOFF VOLUME = 1.14228 INCHES = 17.4576 ACRE-FEET
PEAK DISCHARGE RATE = 19.59 CFS AT 3.400 HOURS BASIN AREA = .2866 SQ. MI.

PLOT HYD ID=15

FLOW RATE (CFS)






```
*S      CALCULATE BASIN 2E2 WHICH WILL CONTRIBUTE DIRECTLY TO STORM DRAIN
*S                  NOTE: THIS BASIN WILL NOT BE ROUTED THROUGH POND.
*
COMPUTE NM HYD        ID=21  HYD NO=2E2  AREA=0.00562 SQ MI
                      PER A=0  PER B=0  PER C=10  PE R D=90
                      TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   20.014    CFS   UNIT VOLUME =    .9986       B =   526.28      P60 = 2.0100
     AREA =      .005058 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   1.6207    CFS   UNIT VOLUME =    .9938       B =   383.55      P60 = 2.0100
     AREA =      .000562 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=21     CODE=1

                                   HYDROGRAPH FROM AREA 2E2

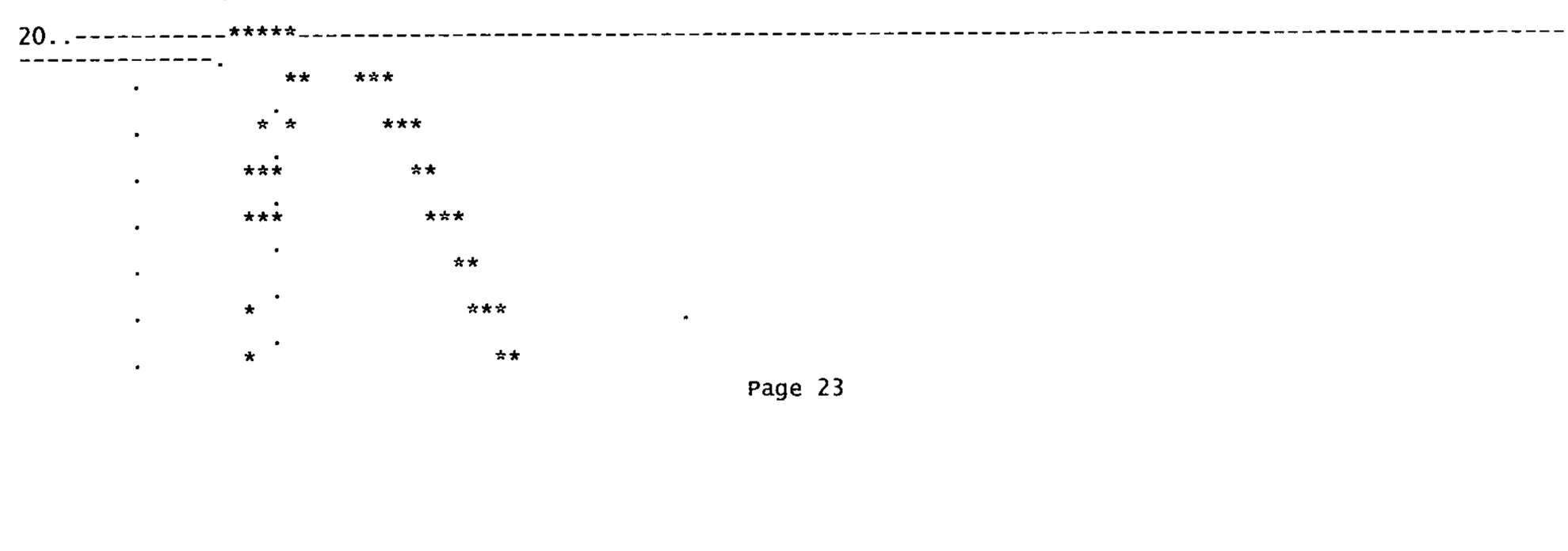

    RUNOFF VOLUME =     2.37805 INCHES     =        .7128 ACRE-FEET
    PEAK DISCHARGE RATE =      16.11 CFS  AT   1.500 HOURS   BASIN AREA =   .0056 SQ. MI.

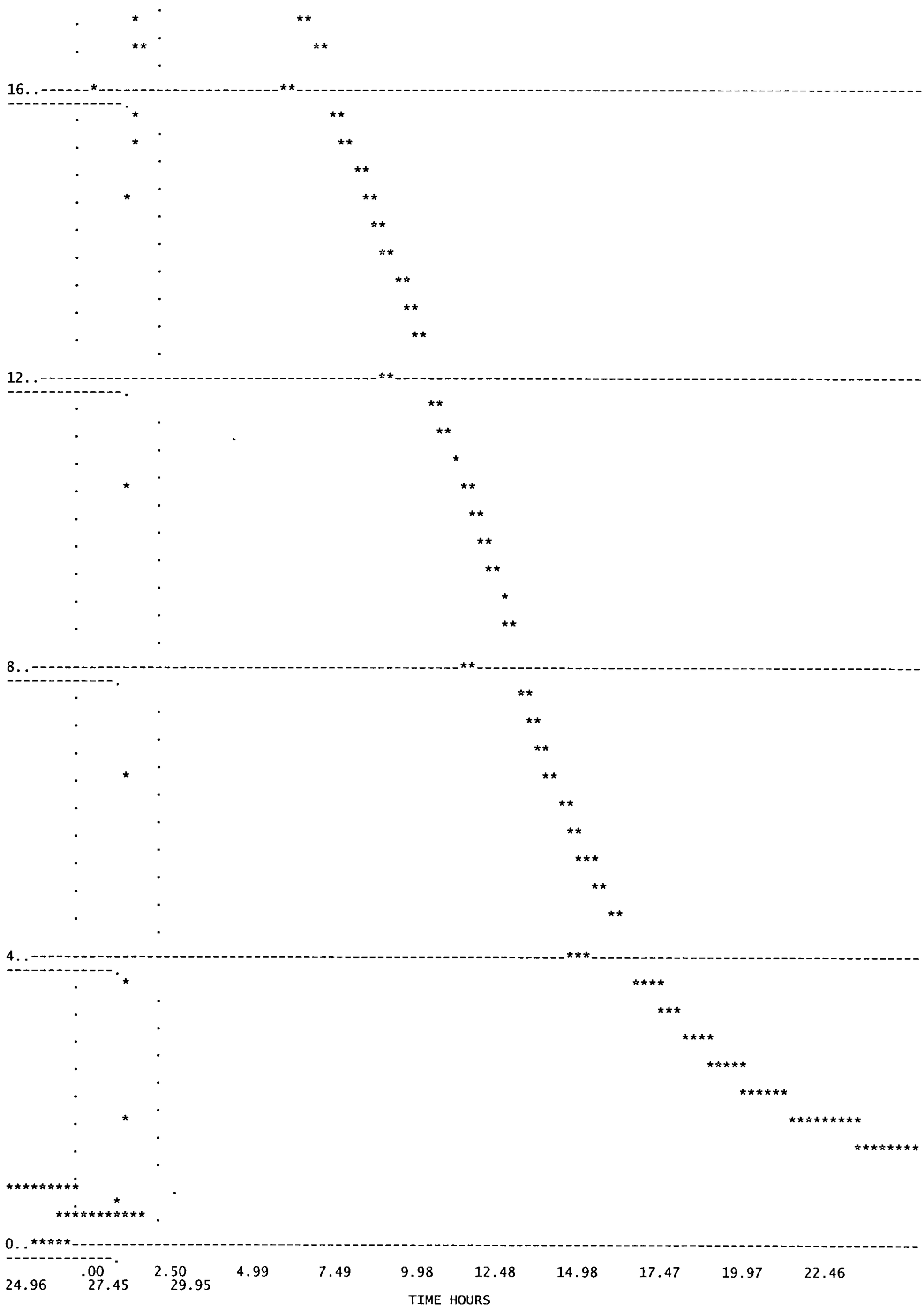

*S
*
*S                  Add pond to basin 2E2
ADD HYD               ID=20  HYD=2BC   ID I=15  ID II=21
PRINT HYD             ID=20  CODE=1

                                   HYDROGRAPH FROM AREA 2BC

    RUNOFF VOLUME =     1.16605 INCHES     =      18.1703 ACRE-FEET
    PEAK DISCHARGE RATE =      19.71 CFS  AT   3.350 HOURS   BASIN AREA =   .2922 SQ. MI.


PLOT HYD                ID=20
```




16.
12.
8.
4.
0.
.00
2.50
4.99
7.49
9.98
12.48
14.98
17.47
19.97
22.46
24.96
27.45
29.95
TIME HOURS

```
*S*****************************************************************************
*S*                                START SD DOWN UNIVERSITY
*S*                                SD DIVIDED INTO NORTH, SOUTH AND MEDIAN SECTIONS
*S*                                OUTFALL AT TIJERAS ARROYO
*S*****************************************************************************


*S* ROUTE BASIN 2E TO DROP INLET AT ST. 19+14
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.07
                      DIA=24   N=0.013

                                    RATING CURVE PIPE SECTION  1.0
                                       WATER       FLOW        FLOW        MAX
                                      SURFACE      AREA        RATE        WIDTH
                                       ELEV        SQ FT       CFS         FT
                                        .00         .00         .00         .00
                                        .10         .06         .31         .89
                                        .21         .17        1.36        1.22
                                        .31         .31        3.17        1.45
                                        .42         .47        5.70        1.62
                                        .52         .65        8.90        1.76
                                        .63         .84       12.69        1.85
                                        .73        1.04       17.01        1.93
                                        .83        1.24       21.75        1.97
                                        .94        1.45       26.81        2.00
                                       1.04        1.66       32.08        2.00
                                       1.15        1.86       37.45        2.00
                                       1.25        2.07       42.80        2.00
                                       1.35        2.27       47.97        2.00
                                       1.46        2.46       52.81        2.00
                                       1.56        2.63       57.14        2.00
                                       1.67        2.80       60.75        2.00
                                       1.77        2.94       63.32        2.00
                                       1.88        3.06       64.38        2.00
                                       2.00        3.14       64.38        2.00
     ROUTE MCUNGE          ID=16   HYD=RT2E  INFLOW ID=15   DT=0HR  L=933
                           NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0

         INFLOW END= 600            TABLE PTS= 19
         DT=  .050000               QMED=        9.79  CKMED=     20.1577
         WIDTH MED=        1.78     NREACH=  1         DX=      933.00

       DEPTH   AREA      Q    TRAVEL  WIDTH     ck      VEL      C       D      C1      C2      C3      Q-M
C1-M   C2-M   C3-M
        (FT)  (SQ FT)  (CFS)  TIME(HR) (FT)     (FPS)   (FPS)                                          (CFS)
         .00      .0      .0    .070     .0     5.18   2.37   1.000   .000  1.000   .000   .000       .0
1.000   .000   .000
         .10      .1      .3    .052     .9     8.27   5.03   1.596   .009   .993   .232  -.225       .0
.996   .050  -.046
         .21      .2     1.4    .033    1.2    11.42   7.85   2.203   .021   .987   .380  -.367       .8
.989   .296  -.285
         .31      .3     3.2    .026    1.5    14.45  10.10   2.789   .032   .983   .477  -.460      2.2
.985   .432  -.417
         .42      .5     5.7    .022    1.6    17.02  12.01   3.283   .044   .980   .538  -.517      4.4
.981   .510  -.491
         .52      .7     8.9    .019    1.8    19.20  13.67   3.703   .057   .976   .580  -.556      7.2
.978   .561  -.539
         .63      .8    12.7    .017    1.9    21.05  15.12   4.061   .070   .973   .610  -.583     10.7
.975   .597  -.571
         .73     1.0    17.0    .016    1.9    22.61  16.41   4.362   .084   .969   .633  -.602     14.8
.971   .623  -.594
         .83     1.2    21.7    .015    2.0    23.89  17.54   4.608   .099   .965   .650  -.615     19.3
.967   .642  -.610
         .94     1.4    26.8    .014    2.0    24.89  18.53   4.802   .116   .961   .662  -.623     24.2
.963   .657  -.620
        1.04     1.7    32.1    .013    2.0    25.59  19.38   4.936   .134   .956   .671  -.626     29.4
.959   .667  -.626
        1.15     1.9    37.5    .013    2.0    25.75  20.11   4.968   .156   .949   .673  -.622     34.7
.953   .673  -.626
        1.25     2.1    42.8    .013    2.0    25.27  20.71   4.875   .182   .940   .670  -.610     40.1
.945   .673  -.618
        1.35     2.3    48.0    .012    2.0    24.07  21.17   4.644   .214   .927   .659  -.586     45.4
.934   .666  -.600
        1.46     2.5    52.8    .012    2.0    22.06  21.50   4.257   .257   .907   .637  -.544     50.4
.919   .650  -.569
        1.56     2.6    57.1    .012    2.0    19.09  21.69   3.683   .321   .872   .600  -.472     55.0
.893   .622  -.515
        1.67     2.8    60.7    .012    2.0    14.86  21.70   2.868   .438   .797   .535  -.332     58.9
.845   .575  -.419
        1.77     2.9    63.3    .012    2.0     8.71  21.52   1.680   .780   .549   .422   .029     62.0
.726   .490  -.217
        1.88     3.1    64.4    .012    2.0     4.96  21.04    .957  1.391   .169   .403   .428     63.9
.191   .399   .410
     MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =   3 OCCURRED       3 TIMES.  AVERAGE NUMBER ITERATIONS =
1.5828
     Equations solved using the Ponce correction to C2
     PRINT HYD             ID=16  CODE=1

                                    HYDROGRAPH FROM AREA RT2E


         RUNOFF VOLUME =     1.14223 INCHES     =      17.4567 ACRE-FEET
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    PEAK DISCHARGE RATE =      19.59 CFS  AT   3.400 HOURS   BASIN AREA =   .2866 SQ. MI.


*S      CALCULATE BASIN N.1
*
COMPUTE NM HYD        ID=17  HYD NO=N.1  AREA=0.00248 SQ MI
                      PER A=0  PER B=0  PER C=31.7  PE R D=68.3
                      TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   6.7025    CFS   UNIT VOLUME =    .9976       B =   526.28      P60 = 2.0100
     AREA =      .001694 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   2.2671    CFS   UNIT VOLUME =    .9968       B =   383.55      P60 = 2.0100
     AREA =      .000786 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=17     CODE=1

                                        HYDROGRAPH FROM AREA N.1


    RUNOFF VOLUME =     2.07620 INCHES     =        .2746 ACRE-FEET
    PEAK DISCHARGE RATE =       6.60 CFS  AT   1.500 HOURS   BASIN AREA =   .0025 SQ. MI.


*S      ADD ROUTED 2E TO BASIN N.1 AT ST. 19+14
*S      DROP INLET ON NORTH SIDE OF STREET
*S      THREE INLETS STARTING AT ST. 18+70 TO 19+14
*S      ASSUME FLOW ENTERS AT LAST INLET AT ST.19+14
*
ADD HYD               ID=18  HYD=19.14   ID I=17  ID II=16
PRINT HYD             ID=18  CODE=1

                                     OUTFLOW HYDROGRAPH REACH    19.14


    RUNOFF VOLUME =     1.15024 INCHES     =      17.7313 ACRE-FEET
    PEAK DISCHARGE RATE =      19.63 CFS  AT   3.400 HOURS   BASIN AREA =   .2890 SQ. MI.


*S* ROUTE FLOW TO DROP INLET AT ST. 22+51
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.07
                      DIA=24   N=0.013

                                   RATING CURVE PIPE SECTION  1.0
                                       WATER       FLOW        FLOW        MAX
                                      SURFACE      AREA        RATE        WIDTH
                                       ELEV        SQ FT       CFS         FT
                                        .00         .00         .00         .00
                                        .10         .06         .31         .89
                                        .21         .17        1.36        1.22
                                        .31         .31        3.17        1.45
                                        .42         .47        5.70        1.62
                                        .52         .65        8.90        1.76
                                        .63         .84       12.69        1.85
                                        .73        1.04       17.01        1.93
                                        .83        1.24       21.75        1.97
                                        .94        1.45       26.81        2.00
                                       1.04        1.66       32.08        2.00
                                       1.15        1.86       37.45        2.00
                                       1.25        2.07       42.80        2.00
                                       1.35        2.27       47.97        2.00
                                       1.46        2.46       52.81        2.00
                                       1.56        2.63       57.14        2.00
                                       1.67        2.80       60.75        2.00
                                       1.77        2.94       63.32        2.00
                                       1.88        3.06       64.38        2.00
                                       2.00        3.14       64.38        2.00
ROUTE MCUNGE          ID=19   HYD=RTN.1  INFLOW ID=18   DT=0HR  L=337
                      NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD             ID=19  CODE=1

                                        HYDROGRAPH FROM AREA RTN.1


    RUNOFF VOLUME =     1.15024 INCHES     =      17.7313 ACRE-FEET
    PEAK DISCHARGE RATE =      19.63 CFS  AT   3.400 HOURS   BASIN AREA =   .2890 SQ. MI.


*S      CALCULATE BASIN M.1
*
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COMPUTE NM HYD          ID=20  HYD NO=M.1  AREA=0.00152 SQ MI
                        PER A=0  PER B=0  PER C=100  PE R D=0
                        TP=0.133 HR  MASS RAIN=-1

     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   4.3834    CFS   UNIT VOLUME =    .9991       B =   383.55      P60 = 2.0100
     AREA =      .001520 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD               ID=20     CODE=1

                                        HYDROGRAPH FROM AREA M.1


    RUNOFF VOLUME =     1.12613 INCHES     =        .0913 ACRE-FEET
    PEAK DISCHARGE RATE =       3.04 CFS  AT   1.500 HOURS   BASIN AREA =   .0015 SQ. MI.



*S      ADD ROUTED 2E TO BASIN N.1 AT ST. 20+51
*S      DROP INLET IN MEDIAN OF STREET
*
ADD HYD                 ID=21  HYD=20.51   ID I=19  ID II=20
PRINT HYD               ID=21  CODE=1

                                     OUTFLOW HYDROGRAPH REACH    20.51

    RUNOFF VOLUME =     1.15011 INCHES     =      17.8226 ACRE-FEET
    PEAK DISCHARGE RATE =      19.63 CFS  AT   3.400 HOURS   BASIN AREA =   .2906 SQ. MI.



*S* ROUTE FLOW TO DROP INLETS AT ST. 30+15
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.07
                      DIA=24   N=0.013

                                   RATING CURVE PIPE SECTION  1.0
                                      WATER       FLOW        FLOW        MAX
                                     SURFACE      AREA        RATE        WIDTH
                                      ELEV        SQ FT       CFS         FT
                                       .00         .00         .00         .00
                                       .10         .06         .31         .89
                                       .21         .17        1.36        1.22
                                       .31         .31        3.17        1.45
                                       .42         .47        5.70        1.62
                                       .52         .65        8.90        1.76
                                       .63         .84       12.69        1.85
                                       .73        1.04       17.01        1.93
                                       .83        1.24       21.75        1.97
                                       .94        1.45       26.81        2.00
                                      1.04        1.66       32.08        2.00
                                      1.15        1.86       37.45        2.00
                                      1.25        2.07       42.80        2.00
                                      1.35        2.27       47.97        2.00
                                      1.46        2.46       52.81        2.00
                                      1.56        2.63       57.14        2.00
                                      1.67        2.80       60.75        2.00
                                      1.77        2.94       63.32        2.00
                                      1.88        3.06       64.38        2.00
                                      2.00        3.14       64.38        2.00
ROUTE MCUNGE            ID=22   HYD=RTM.1  INFLOW ID=21   DT=0HR  L=964
                        NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0

          INFLOW END= 600              TABLE PTS= 19
          DT=  .050000                 QMED=        9.81  CKMED=     20.1577
          WIDTH MED=        1.78       NREACH=  1         DX=      964.00

        DEPTH   AREA      Q    TRAVEL  WIDTH     ck      VEL      C       D      C1      C2      C3     Q-M
C1-M    C2-M   C3-M
         (FT)  (SQ FT)  (CFS)  TIME(HR) (FT)     (FPS)   (FPS)                                          (CFS)
          .00      .0      .0     .072     .0     5.36    2.37    1.000    .000   1.000    .000    .000      .0
1.000   .000    .000
          .10      .1      .3     .053     .9     8.27    5.03    1.545    .009    .993    .217   -.210      .0
.996    .033   -.029
          .21      .2     1.4     .034    1.2    11.42    7.85    2.132    .020    .987    .365   -.353      .8
.989    .281   -.270
          .31      .3     3.2     .027    1.5    14.45   10.10    2.699    .031    .983    .464   -.447     2.2
.985    .419   -.403
          .42      .5     5.7     .022    1.6    17.02   12.01    3.177    .043    .980    .526   -.506     4.4
.981    .498   -.479
          .52      .7     8.9     .020    1.8    19.20   13.67    3.584    .055    .976    .569   -.545     7.2
.978    .549   -.527
          .63      .8    12.7     .018    1.9    21.05   15.12    3.930    .067    .973    .600   -.573    10.7
.975    .586   -.561
          .73     1.0    17.0     .016    1.9    22.61   16.41    4.221    .081    .969    .623   -.592    14.8
.971    .613   -.584
          .83     1.2    21.7     .015    2.0    23.89   17.54    4.460    .096    .966    .640   -.606    19.3
.968    .633   -.600
          .94     1.4    26.8     .014    2.0    24.89   18.53    4.647    .112    .961    .653   -.614    24.2
.964    .648   -.611
         1.04     1.7    32.1     .014    2.0    25.59   19.38    4.778    .130    .956    .661   -.617    29.4
.959    .658   -.617
         1.15     1.9    37.5     .013    2.0    25.75   20.11    4.808    .151    .949    .664   -.614    34.7
```

```
.953   .664  -.617
         1.25    2.1     42.8    .013    2.0    25.27  20.71    4.718   .176   .940   .661  -.601     40.1
.945   .664  -.609
         1.35    2.3     48.0    .013    2.0    24.07  21.17    4.495   .207   .927   .649  -.577     45.4
.935   .656  -.591
         1.46    2.5     52.8    .012    2.0    22.06  21.50    4.120   .248   .908   .627  -.535     50.4
.919   .640  -.560
         1.56    2.6     57.1    .012    2.0    19.09  21.69    3.565   .310   .873   .590  -.462     55.0
.894   .612  -.506
         1.67    2.8     60.7    .012    2.0    14.86  21.70    2.775   .424   .798   .524  -.322     58.9
.846   .564  -.409
         1.77    2.9     63.3    .012    2.0     8.71  21.52    1.626   .755   .554   .408   .038     62.0
.728   .478  -.206
         1.88    3.1     64.4    .013    2.0     4.96  21.04     .926  1.346   .177   .389   .434     63.9
.199   .385   .416
     MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =   3 OCCURRED       3 TIMES.  AVERAGE NUMBER ITERATIONS =
1.5879
     Equations solved using the Ponce correction to C2
     PRINT HYD             ID=22  CODE=1

                                        HYDROGRAPH FROM AREA RTM.1

         RUNOFF VOLUME =     1.15005 INCHES     =      17.8217 ACRE-FEET
         PEAK DISCHARGE RATE =      19.63 CFS  AT   3.400 HOURS   BASIN AREA =   .2906 SQ. MI.


*S      CALCULATE BASIN N.2
*
COMPUTE NM HYD        ID=23  HYD NO=N.2  AREA=0.0006147 SQ MI
                      PER A=0  PER B=0  PER C=45.1  PE R D=54.9
                      TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   1.3354    CFS   UNIT VOLUME =    .9912       B =   526.28      P60 = 2.0100
     AREA =      .000337 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   .79948    CFS   UNIT VOLUME =    .9869       B =   383.55      P60 = 2.0100
     AREA =      .000277 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=23     CODE=1

                                        HYDROGRAPH FROM AREA N.2

    RUNOFF VOLUME =     1.88980 INCHES     =        .0620 ACRE-FEET
    PEAK DISCHARGE RATE =       1.57 CFS  AT   1.500 HOURS   BASIN AREA =   .0006 SQ. MI.



*S      CALCULATE BASIN M.2
*
COMPUTE NM HYD        ID=24  HYD NO=M.2  AREA=0.001206 SQ MI
                      PER A=0  PER B=0  PER C=100  PE R D=0
                      TP=0.133 HR  MASS RAIN=-1

     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   3.4779    CFS   UNIT VOLUME =    .9981       B =   383.55      P60 = 2.0100
     AREA =      .001206 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=24     CODE=1

                                        HYDROGRAPH FROM AREA M.2

    RUNOFF VOLUME =     1.12613 INCHES     =        .0724 ACRE-FEET
    PEAK DISCHARGE RATE =       2.41 CFS  AT   1.500 HOURS   BASIN AREA =   .0012 SQ. MI.



*S      ADD ROUTED M.1 TO BASIN N.2 AT ST. 30+15
*S      3 DROP INLETS ON NORTH SIDE OF STREET FROM ST. 29+80 TO ST. 30+24
*
ADD HYD               ID=25  HYD=N30.15   ID I=23  ID II=22
PRINT HYD             ID=25  CODE=1

                                        HYDROGRAPH FROM AREA N30.15

    RUNOFF VOLUME =     1.15161 INCHES     =      17.8836 ACRE-FEET
    PEAK DISCHARGE RATE =      19.64 CFS  AT   3.400 HOURS   BASIN AREA =   .2912 SQ. MI.
```

```
*S      ADD N.2 TO BASIN M.2 AT ST. 30+15
*S      1 DROP INLET IN MEDIAN AT ST. 30+15
*
ADD HYD                ID=26  HYD=M30.15   ID I=24  ID II=25
PRINT HYD              ID=26  CODE=1

                                   HYDROGRAPH FROM AREA M30.15


    RUNOFF VOLUME =     1.15151 INCHES     =      17.9561 ACRE-FEET
    PEAK DISCHARGE RATE =      19.64 CFS  AT   3.400 HOURS   BASIN AREA =   .2924 SQ. MI.



*S* ROUTE FLOW TO DROP INLETS AT ST. 35+79
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.07
                      DIA=24   N=0.013

                                   RATING CURVE PIPE SECTION  1.0
                                      WATER       FLOW        FLOW        MAX
                                     SURFACE      AREA        RATE        WIDTH
                                      ELEV        SQ FT       CFS         FT
                                        .00         .00         .00         .00
                                        .10         .06         .31         .89
                                        .21         .17        1.36        1.22
                                        .31         .31        3.17        1.45
                                        .42         .47        5.70        1.62
                                        .52         .65        8.90        1.76
                                        .63         .84       12.69        1.85
                                        .73        1.04       17.01        1.93
                                        .83        1.24       21.75        1.97
                                        .94        1.45       26.81        2.00
                                       1.04        1.66       32.08        2.00
                                       1.15        1.86       37.45        2.00
                                       1.25        2.07       42.80        2.00
                                       1.35        2.27       47.97        2.00
                                       1.46        2.46       52.81        2.00
                                       1.56        2.63       57.14        2.00
                                       1.67        2.80       60.75        2.00
                                       1.77        2.94       63.32        2.00
                                       1.88        3.06       64.38        2.00
                                       2.00        3.14       64.38        2.00
ROUTE MCUNGE           ID=27   HYD=RTM.2N2  INFLOW ID=26   DT=0HR  L=564
                       NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD              ID=27  CODE=1

                                   HYDROGRAPH FROM AREA RTM.2N2


    RUNOFF VOLUME =     1.15151 INCHES     =      17.9561 ACRE-FEET
    PEAK DISCHARGE RATE =      19.64 CFS  AT   3.400 HOURS   BASIN AREA =   .2924 SQ. MI.



*S      CALCULATE BASIN S.1
*
COMPUTE NM HYD         ID=28  HYD NO=S.1  AREA=0.007975 SQ MI
                       PER A=0  PER B=0  PER C=37  PE R D=63
                       TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   19.881    CFS   UNIT VOLUME =    .9986       B =   526.28      P60 = 2.0100
     AREA =      .005024 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   8.5094    CFS   UNIT VOLUME =    1.000       B =   383.55      P60 = 2.0100
     AREA =      .002951 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD              ID=28     CODE=1

                                   HYDROGRAPH FROM AREA S.1


    RUNOFF VOLUME =     2.00248 INCHES     =        .8517 ACRE-FEET
    PEAK DISCHARGE RATE =      20.77 CFS  AT   1.500 HOURS   BASIN AREA =   .0080 SQ. MI.



*S

*S      ADD ROUTED N.2 TO BASIN S.1 AT ST. 35+79
*S      DROP INLETS ON SOUTH SIDE OF STREET
*S      FOUR INLETS STARTING AT ST. 35+11 TO 35+79
*S      ASSUME FLOW ENTERS AT LAST INLET AT ST.35+79
*
ADD HYD                ID=29  HYD=35+79   ID I=28  ID II=27
```

```
PRINT HYD              ID=29  CODE=1

                                    HYDROGRAPH FROM AREA 35+79


    RUNOFF VOLUME =     1.17410 INCHES     =      18.8077 ACRE-FEET
    PEAK DISCHARGE RATE =      34.30 CFS  AT   1.500 HOURS   BASIN AREA =   .3004 SQ. MI.



*S* ROUTE FLOW TO DROP INLETS AT ST. 42+99
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.07
                      DIA=24   N=0.013

                                    RATING CURVE PIPE SECTION  1.0
                                       WATER       FLOW        FLOW        MAX
                                      SURFACE      AREA        RATE        WIDTH
                                       ELEV        SQ FT       CFS         FT
                                        .00         .00         .00         .00
                                        .10         .06         .31         .89
                                        .21         .17        1.36        1.22
                                        .31         .31        3.17        1.45
                                        .42         .47        5.70        1.62
                                        .52         .65        8.90        1.76
                                        .63         .84       12.69        1.85
                                        .73        1.04       17.01        1.93
                                        .83        1.24       21.75        1.97
                                        .94        1.45       26.81        2.00
                                       1.04        1.66       32.08        2.00
                                       1.15        1.86       37.45        2.00
                                       1.25        2.07       42.80        2.00
                                       1.35        2.27       47.97        2.00
                                       1.46        2.46       52.81        2.00
                                       1.56        2.63       57.14        2.00
                                       1.67        2.80       60.75        2.00
                                       1.77        2.94       63.32        2.00
                                       1.88        3.06       64.38        2.00
                                       2.00        3.14       64.38        2.00
ROUTE MCUNGE           ID=30   HYD=RTS.1  INFLOW ID=29   DT=0HR  L=720
                       NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD              ID=30  CODE=1

                                    HYDROGRAPH FROM AREA RTS.1


    RUNOFF VOLUME =     1.17410 INCHES     =      18.8077 ACRE-FEET
    PEAK DISCHARGE RATE =      34.30 CFS  AT   1.500 HOURS   BASIN AREA =   .3004 SQ. MI.



*S      CALCULATE BASIN S.2
*
COMPUTE NM HYD         ID=31  HYD NO=S.2  AREA=0.001445 SQ MI
                       PER A=0  PER B=0  PER C=14.3  PE R D=85.7
                       TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   4.9002    CFS   UNIT VOLUME =    .9971       B =   526.28      P60 = 2.0100
     AREA =      .001238 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   .59590    CFS   UNIT VOLUME =    .9814       B =   383.55      P60 = 2.0100
     AREA =      .000207 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD              ID=31     CODE=1

                                    HYDROGRAPH FROM AREA S.2


    RUNOFF VOLUME =     2.31824 INCHES     =        .1787 ACRE-FEET
    PEAK DISCHARGE RATE =       4.09 CFS  AT   1.500 HOURS   BASIN AREA =   .0014 SQ. MI.



*S
*S      ADD ROUTED S.1 TO BASIN S.2 AT ST. 42+99
*S      DROP INLETS ON SOUTH SIDE OF STREET
*S      TWO INLETS STARTING AT ST. 42+76 TO 42+99
*S      ASSUME FLOW ENTERS AT LAST INLET AT ST.42+99
*
ADD HYD                ID=32  HYD=42+99   ID I=31  ID II=30
PRINT HYD              ID=32  CODE=1

                                    HYDROGRAPH FROM AREA 42+99


    RUNOFF VOLUME =     1.17958 INCHES     =      18.9864 ACRE-FEET
```

```
    PEAK DISCHARGE RATE =      38.39 CFS  AT   1.500 HOURS   BASIN AREA =   .3018 SQ. MI.


*S* ROUTE FLOW TO DROP INLETS AT ST. 43+50
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.07
                      DIA=24   N=0.013

                                    RATING CURVE PIPE SECTION  1.0
                                       WATER       FLOW        FLOW        MAX
                                      SURFACE      AREA        RATE        WIDTH
                                       ELEV        SQ FT       CFS         FT
                                        .00         .00         .00         .00
                                        .10         .06         .31         .89
                                        .21         .17        1.36        1.22
                                        .31         .31        3.17        1.45
                                        .42         .47        5.70        1.62
                                        .52         .65        8.90        1.76
                                        .63         .84       12.69        1.85
                                        .73        1.04       17.01        1.93
                                        .83        1.24       21.75        1.97
                                        .94        1.45       26.81        2.00
                                       1.04        1.66       32.08        2.00
                                       1.15        1.86       37.45        2.00
                                       1.25        2.07       42.80        2.00
                                       1.35        2.27       47.97        2.00
                                       1.46        2.46       52.81        2.00
                                       1.56        2.63       57.14        2.00
                                       1.67        2.80       60.75        2.00
                                       1.77        2.94       63.32        2.00
                                       1.88        3.06       64.38        2.00
                                       2.00        3.14       64.38        2.00
ROUTE MCUNGE          ID=33   HYD=RTS.1  INFLOW ID=32   DT=0HR  L=51
                      NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD             ID=33  CODE=1

                                       HYDROGRAPH FROM AREA RTS.1


    RUNOFF VOLUME =     1.17958 INCHES     =      18.9864 ACRE-FEET
    PEAK DISCHARGE RATE =      38.39 CFS  AT   1.500 HOURS   BASIN AREA =   .3018 SQ. MI.



*S
*S      CALCULATE BASIN M.3
*
COMPUTE NM HYD        ID=34  HYD NO=M.3  AREA=0.002033 SQ MI
                      PER A=0  PER B=0  PER C=100  PE R D=0
                      TP=0.133 HR  MASS RAIN=-1

     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   5.8628    CFS   UNIT VOLUME =    .9998       B =   383.55      P60 = 2.0100
     AREA =      .002033 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=34     CODE=1

                                       HYDROGRAPH FROM AREA M.3


    RUNOFF VOLUME =     1.12613 INCHES     =        .1221 ACRE-FEET
    PEAK DISCHARGE RATE =       4.06 CFS  AT   1.500 HOURS   BASIN AREA =   .0020 SQ. MI.



*S      ADD ROUTED S.2 TO BASIN M.3 AT ST. 43+50
*S      DROP INLET IN MEDIAN

ADD HYD               ID=35  HYD=43.50   ID I=34  ID II=33
PRINT HYD             ID=35  CODE=1

                                    OUTFLOW HYDROGRAPH REACH    43.50


    RUNOFF VOLUME =     1.17922 INCHES     =      19.1085 ACRE-FEET
    PEAK DISCHARGE RATE =      42.45 CFS  AT   1.500 HOURS   BASIN AREA =   .3038 SQ. MI.


*S

*S* ROUTE FLOW TO DROP INLETS AT ST. 46+00
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.036
                      DIA=24   N=0.013

                                    RATING CURVE PIPE SECTION  1.0
                                       WATER       FLOW        FLOW        MAX
                                      SURFACE      AREA        RATE        WIDTH
                                       ELEV        SQ FT       CFS         FT
                                        .00         .00         .00         .00
```

.10	.06	.23	.89
.21	.17	.98	1.22
.31	.31	2.27	1.45
.42	.47	4.09	1.62
.52	.65	6.38	1.76
.63	.84	9.10	1.85
.73	1.04	12.20	1.93
.83	1.24	15.59	1.97
.94	1.45	19.22	2.00
1.04	1.66	23.01	2.00
1.15	1.86	26.86	2.00
1.25	2.07	30.69	2.00
1.35	2.27	34.40	2.00
1.46	2.46	37.87	2.00
1.56	2.63	40.98	2.00
1.67	2.80	43.56	2.00
1.77	2.94	45.41	2.00
1.88	3.06	46.17	2.00
2.00	3.14	46.17	2.00

```
ROUTE MCUNGE          ID=36   HYD=RTM.3  INFLOW ID=35   DT=0HR  L=250
                      NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD             ID=36  CODE=1

                                   HYDROGRAPH FROM AREA RTM.3

    RUNOFF VOLUME =      1.17922 INCHES     =      19.1085 ACRE-FEET
    PEAK DISCHARGE RATE =      42.45 CFS  AT   1.500 HOURS   BASIN AREA =   .3038 SQ. MI.


*S      CALCULATE BASIN N.3
*
COMPUTE NM HYD        ID=37  HYD NO=N.3  AREA=0.002709 SQ MI
                      PER A=0  PER B=0  PER C=41  PE R D=59
                      TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   6.3244    CFS   UNIT VOLUME =    .9976       B =   526.28      P60 = 2.0100
     AREA =      .001598 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   3.2030    CFS   UNIT VOLUME =    .9981       B =   383.55      P60 = 2.0100
     AREA =      .001111 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=37     CODE=1

                                   HYDROGRAPH FROM AREA N.3

    RUNOFF VOLUME =      1.94684 INCHES     =        .2813 ACRE-FEET
    PEAK DISCHARGE RATE =       6.96 CFS  AT   1.500 HOURS   BASIN AREA =   .0027 SQ. MI.


*S

*S      ADD ROUTED M.3 TO BASIN N.3 AT ST. 46+00
*S      DROP INLETS ON NORTH SIDE OF STREET
*S      FOUR INLETS STARTING AT ST. 45+34 TO 46+00
*S      ASSUME FLOW ENTERS AT LAST INLET AT ST.46+00
*
ADD HYD               ID=38  HYD=46.00   ID I=37  ID II=36
PRINT HYD             ID=38  CODE=1

                                   OUTFLOW HYDROGRAPH REACH    46.00

    RUNOFF VOLUME =      1.18600 INCHES     =      19.3897 ACRE-FEET
    PEAK DISCHARGE RATE =      49.41 CFS  AT   1.500 HOURS   BASIN AREA =   .3065 SQ. MI.


*S* ROUTE FLOW TO DROP INLETS AT ST. 46+35
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0267
                      DIA=30   N=0.013
```

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.13	.10	.35	1.11
.26	.27	1.53	1.53
.39	.49	3.55	1.82
.52	.74	6.38	2.03
.65	1.02	9.96	2.19

.78	1.31	14.22	2.32
.91	1.62	19.05	2.41
1.04	1.94	24.35	2.47
1.17	2.26	30.02	2.50
1.30	2.59	35.93	2.50
1.43	2.91	41.94	2.50
1.56	3.23	47.92	2.50
1.69	3.54	53.71	2.50
1.82	3.84	59.13	2.50
1.95	4.12	63.98	2.50
2.08	4.37	68.02	2.50
2.21	4.60	70.91	2.50
2.35	4.78	72.10	2.50
2.50	4.91	72.10	2.50

```
ROUTE MCUNGE          ID=39   HYD=RTN.3  INFLOW ID=38   DT=0HR  L=35
                      NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD             ID=39  CODE=1

                                         HYDROGRAPH FROM AREA RTN.3


    RUNOFF VOLUME =     1.18600 INCHES     =      19.3897 ACRE-FEET
    PEAK DISCHARGE RATE =      49.41 CFS  AT   1.500 HOURS   BASIN AREA =   .3065 SQ. MI.


*S      CALCULATE BASIN S.3
*
COMPUTE NM HYD        ID=40  HYD NO=S.3  AREA=0.000916 SQ MI
                      PER A=0  PER B=0  PER C=33.2  PE R D=66.8
                      TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   2.4212    CFS   UNIT VOLUME =    .9952       B =   526.28      P60 = 2.0100
     AREA =      .000612 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   .87700    CFS   UNIT VOLUME =    .9869       B =   383.55      P60 = 2.0100
     AREA =      .000304 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=40     CODE=1

                                         HYDROGRAPH FROM AREA S.3


    RUNOFF VOLUME =     2.05533 INCHES     =        .1004 ACRE-FEET
    PEAK DISCHARGE RATE =       2.43 CFS  AT   1.500 HOURS   BASIN AREA =   .0009 SQ. MI.



*S      ADD ROUTED M.3 TO BASIN N.3 AT ST. 46+35
*S      DROP INLET ON SOUTH SIDE OF STREET
*
ADD HYD               ID=41  HYD=46.35   ID I=40  ID II=39
PRINT HYD             ID=41  CODE=1

                                       OUTFLOW HYDROGRAPH REACH    46.35


    RUNOFF VOLUME =     1.18859 INCHES     =      19.4901 ACRE-FEET
    PEAK DISCHARGE RATE =      51.84 CFS  AT   1.500 HOURS   BASIN AREA =   .3075 SQ. MI.


*S* ROUTE FLOW TO DROP INLETS AT ST. 53+20
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0267
                      DIA=30   N=0.013
```

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.13	.10	.35	1.11
.26	.27	1.53	1.53
.39	.49	3.55	1.82
.52	.74	6.38	2.03
.65	1.02	9.96	2.19
.78	1.31	14.22	2.32
.91	1.62	19.05	2.41
1.04	1.94	24.35	2.47
1.17	2.26	30.02	2.50
1.30	2.59	35.93	2.50
1.43	2.91	41.94	2.50
1.56	3.23	47.92	2.50
1.69	3.54	53.71	2.50

```
                                                  1.82        3.84        59.13        2.50
                                                  1.95        4.12        63.98        2.50
                                                  2.08        4.37        68.02        2.50
                                                  2.21        4.60        70.91        2.50
                                                  2.35        4.78        72.10        2.50
                                                  2.50        4.91        72.10        2.50
     ROUTE MCUNGE          ID=42   HYD=RTS.3  INFLOW ID=41   DT=0HR  L=685
                           NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0

          INFLOW END= 600            TABLE PTS= 19
          DT=  .050000               QMED=       25.92  CKMED=     17.5232
          WIDTH MED=        2.47     NREACH=  1         DX=      685.00

        DEPTH   AREA      Q    TRAVEL  WIDTH     ck      VEL      C       D      C1     C2     C3     Q-M
C1-M   C2-M   C3-M
         (FT)  (SQ FT)  (CFS)  TIME(HR) (FT)     (FPS)   (FPS)                                        (CFS)
          .00     .0       .0    .072     .0     3.81   1.70    1.000   .000  1.000   .000   .000       .0
1.000   .000   .000
          .13     .1       .4    .053    1.1     5.93   3.60    1.558   .016   .988   .223  -.211       .1
.993   .039  -.032
          .26     .3      1.5    .034    1.5     8.18   5.62    2.150   .036   .978   .372  -.350       .8
.980   .288  -.269
          .39     .5      3.5    .026    1.8    10.36   7.24    2.722   .055   .971   .470  -.441      2.4
.973   .425  -.399
          .52     .7      6.4    .022    2.0    12.19   8.61    3.204   .075   .965   .533  -.498      4.9
.967   .504  -.472
          .65    1.0     10.0    .019    2.2    13.76   9.79    3.615   .096   .959   .575  -.535      8.1
.962   .556  -.518
          .78    1.3     14.2    .018    2.3    15.09  10.84    3.964   .119   .953   .607  -.560     12.0
.956   .593  -.549
          .91    1.6     19.0    .016    2.4    16.20  11.76    4.257   .143   .947   .630  -.577     16.6
.950   .619  -.570
         1.04    1.9     24.4    .015    2.5    17.12  12.57    4.498   .168   .941   .647  -.588     21.7
.944   .640  -.584
         1.17    2.3     30.0    .014    2.5    17.84  13.28    4.687   .197   .933   .660  -.593     27.1
.937   .655  -.592
         1.30    2.6     35.9    .014    2.5    18.34  13.89    4.818   .229   .924   .669  -.594     32.9
.929   .666  -.595
         1.43    2.9     41.9    .013    2.5    18.45  14.41    4.849   .265   .913   .673  -.586     38.9
.919   .672  -.592
         1.56    3.2     47.9    .013    2.5    18.11  14.84    4.759   .309   .898   .670  -.569     44.9
.907   .673  -.579
         1.69    3.5     53.7    .013    2.5    17.25  15.17    4.533   .364   .877   .661  -.538     50.8
.889   .667  -.556
         1.82    3.8     59.1    .012    2.5    15.81  15.41    4.155   .437   .844   .642  -.486     56.4
.863   .653  -.516
         1.95    4.1     64.0    .012    2.5    13.68  15.54    3.595   .546   .788   .611  -.399     61.6
.821   .629  -.451
         2.08    4.4     68.0    .012    2.5    10.65  15.55    2.799   .746   .672   .560  -.232     66.0
.745   .590  -.335
         2.21    4.6     70.9    .012    2.5     6.24  15.42    1.640  1.327   .331   .496   .173     69.5
.569   .529  -.098
         2.35    4.8     72.1    .013    2.5     3.56  15.08     .934  2.368  -.101   .535   .566     71.5
.112   .516   .372
     MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =   3 OCCURRED       6 TIMES.  AVERAGE NUMBER ITERATIONS =
1.5889
     Equations solved using the Ponce correction to C2
     PRINT HYD             ID=42  CODE=1

                                        HYDROGRAPH FROM AREA RTS.3

          RUNOFF VOLUME =     1.18854 INCHES     =      19.4893 ACRE-FEET
          PEAK DISCHARGE RATE =      51.16 CFS  AT   1.500 HOURS   BASIN AREA =   .3075 SQ. MI.


*S      CALCULATE BASIN N.4
*
COMPUTE NM HYD        ID=43  HYD NO=N.4  AREA=0.00077335 SQ MI
                      PER A=0  PER B=0  PER C=32  PE R D=49.6
                      TP=0.133 HR  MASS RAIN=-1
     *****WARNING*****  SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR TOTAL AREA


     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   1.8601    CFS   UNIT VOLUME =    .9928       B =   526.28      P60 = 2.0100
     AREA =      .000470 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   .87459    CFS   UNIT VOLUME =    .9869       B =   383.55      P60 = 2.0100
     AREA =      .000303 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD             ID=43     CODE=1

                                        HYDROGRAPH FROM AREA N.4


    RUNOFF VOLUME =     1.97166 INCHES     =        .0813 ACRE-FEET
    PEAK DISCHARGE RATE =       2.01 CFS  AT   1.500 HOURS   BASIN AREA =   .0008 SQ. MI.
```

```
*S      ADD ROUTED S.3 TO BASIN N.4 AT ST. 53+20
*S      DROP INLET ON NORTH SIDE OF STREET
*
ADD HYD                ID=44  HYD=53.20   ID I=43  ID II=42
PRINT HYD              ID=44  CODE=1

                                    OUTFLOW HYDROGRAPH REACH    53.20

    RUNOFF VOLUME =     1.19050 INCHES     =      19.5706 ACRE-FEET
    PEAK DISCHARGE RATE =      53.18 CFS  AT   1.500 HOURS   BASIN AREA =   .3082 SQ. MI.


*S* ROUTE FLOW TO TIJERAS ARROYO AT ST. 53+90
*S* INLETS FOR NORTH, SOUTH, AND MEDIAN FLOWS OCCUR
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.078
                      DIA=30   N=0.013

                                  RATING CURVE PIPE SECTION  1.0
                                     WATER       FLOW        FLOW        MAX
                                    SURFACE      AREA        RATE        WIDTH
                                    ELEV        SQ FT       CFS          FT
                                      .00         .00         .00         .00
                                      .13         .10         .60        1.11
                                      .26         .27        2.61        1.53
                                      .39         .49        6.06        1.82
                                      .52         .74       10.91        2.03
                                      .65        1.02       17.03        2.19
                                      .78        1.31       24.30        2.32
                                      .91        1.62       32.55        2.41
                                     1.04        1.94       41.62        2.47
                                     1.17        2.26       51.31        2.50
                                     1.30        2.59       61.40        2.50
                                     1.43        2.91       71.69        2.50
                                     1.56        3.23       81.91        2.50
                                     1.69        3.54       91.80        2.50
                                     1.82        3.84      101.07        2.50
                                     1.95        4.12      109.36        2.50
                                     2.08        4.37      116.26        2.50
                                     2.21        4.60      121.20        2.50
                                     2.35        4.78      123.23        2.50
                                     2.50        4.91      123.23        2.50
ROUTE MCUNGE           ID=45   HYD=RTS.3  INFLOW ID=44   DT=0HR  L=70
                       NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD              ID=45  CODE=1

                                    HYDROGRAPH FROM AREA RTS.3

    RUNOFF VOLUME =     1.19050 INCHES     =      19.5706 ACRE-FEET
    PEAK DISCHARGE RATE =      53.18 CFS  AT   1.500 HOURS   BASIN AREA =   .3082 SQ. MI.


*S      CALCULATE BASIN N.5
*
COMPUTE NM HYD         ID=46  HYD NO=N.5  AREA=0.0000959 SQ MI
                       PER A=0  PER B=0  PER C=28.7  PE R D=71.3
                       TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   .27056    CFS   UNIT VOLUME =    .9595       B =   526.28      P60 = 2.0100
     AREA =      .000068 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   .79372E-01CFS   UNIT VOLUME =    .8892       B =   383.55      P60 = 2.0100
     AREA =      .000028 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD              ID=46     CODE=1

                                    HYDROGRAPH FROM AREA N.5

    RUNOFF VOLUME =     2.11793 INCHES     =        .0108 ACRE-FEET
    PEAK DISCHARGE RATE =        .27 CFS  AT   1.500 HOURS   BASIN AREA =   .0001 SQ. MI.


*S
*S      ADD ROUTED N.4 TO BASIN N.5 AT ST. 53+90
*S      DROP INLET ON NORTH SIDE OF STREET
*
ADD HYD                ID=47  HYD=53.90   ID I=46  ID II=45
```

```
PRINT HYD              ID=47  CODE=1

                                        OUTFLOW HYDROGRAPH REACH    53.90

    RUNOFF VOLUME =     1.19075 INCHES     =      19.5807 ACRE-FEET
    PEAK DISCHARGE RATE =      53.45 CFS  AT   1.500 HOURS   BASIN AREA =   .3083 SQ. MI.


*S      CALCULATE BASIN M.4
*
COMPUTE NM HYD         ID=48  HYD NO=M.4  AREA=0.0008908 SQ MI
                       PER A=0  PER B=0  PER C=100  PE R D=0
                       TP=0.133 HR  MASS RAIN=-1

     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   2.5689    CFS   UNIT VOLUME =    .9968       B =   383.55      P60 = 2.0100
     AREA =      .000891 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD              ID=48     CODE=1

                                        HYDROGRAPH FROM AREA M.4

    RUNOFF VOLUME =     1.12613 INCHES     =        .0535 ACRE-FEET
    PEAK DISCHARGE RATE =       1.78 CFS  AT   1.500 HOURS   BASIN AREA =   .0009 SQ. MI.


*S
*S      ADD N.5 TO BASIN M.4 AT ST. 53+90
*S      DROP INLET IN MEDIAN OF STREET
*
ADD HYD                ID=49  HYD=53.90   ID I=48  ID II=47
PRINT HYD              ID=49  CODE=1

                                        OUTFLOW HYDROGRAPH REACH    53.90

    RUNOFF VOLUME =     1.19056 INCHES     =      19.6342 ACRE-FEET
    PEAK DISCHARGE RATE =      55.23 CFS  AT   1.500 HOURS   BASIN AREA =   .3092 SQ. MI.


*S
*S      CALCULATE BASIN S.4
*
COMPUTE NM HYD         ID=50  HYD NO=S.4  AREA=0.00286 SQ MI
                       PER A=0  PER B=0  PER C=40.2  PE R D=59.8
                       TP=0.133 HR  MASS RAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   6.7675    CFS   UNIT VOLUME =    .9976       B =   526.28      P60 = 2.0100
     AREA =      .001710 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

     K =   .107204HR    TP =   .133000HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
     UNIT PEAK =   3.3156    CFS   UNIT VOLUME =    .9981       B =   383.55      P60 = 2.0100
     AREA =      .001150 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD              ID=50     CODE=1

                                        HYDROGRAPH FROM AREA S.4

    RUNOFF VOLUME =     1.95796 INCHES     =        .2987 ACRE-FEET
    PEAK DISCHARGE RATE =       7.37 CFS  AT   1.500 HOURS   BASIN AREA =   .0029 SQ. MI.


*S      ADD M.4 TO BASIN S.4 AT ST. 53+90
*S      DROP INLET ON SOUTH SIDE OF STREET
*
ADD HYD                ID=51  HYD=53.90   ID I=50  ID II=49
*S                    FLOW GOING INTO TIJERAS ARROYO FROM UNIVERSITY AT ST. 53+90
PRINT HYD              ID=51  CODE=1

                                        OUTFLOW HYDROGRAPH REACH    53.90

    RUNOFF VOLUME =     1.19759 INCHES     =      19.9328 ACRE-FEET
    PEAK DISCHARGE RATE =      62.60 CFS  AT   1.500 HOURS   BASIN AREA =   .3121 SQ. MI.


*S* ROUTE TOTAL FLOW THROUGH PIPE INTO TIJERAS ARROYO
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.4235
```

```
DIA=30    N=0.013

                    RATING CURVE PIPE SECTION  1.0
                       WATER        FLOW        FLOW        MAX
                      SURFACE       AREA        RATE        WIDTH
                       ELEV        SQ FT       CFS          FT
                        .00          .00         .00         .00
                        .13          .10        1.40        1.11
                        .26          .27        6.08        1.53
                        .39          .49       14.13        1.82
                        .52          .74       25.41        2.03
                        .65         1.02       39.68        2.19
                        .78         1.31       56.62        2.32
                        .91         1.62       75.85        2.41
                       1.04         1.94       96.98        2.47
                       1.17         2.26      119.55        2.50
                       1.30         2.59      143.08        2.50
                       1.43         2.91      167.04        2.50
                       1.56         3.23      190.86        2.50
                       1.69         3.54      213.91        2.50
                       1.82         3.84      235.50        2.50
                       1.95         4.12      254.83        2.50
                       2.08         4.37      270.90        2.50
                       2.21         4.60      282.41        2.50
                       2.35         4.78      287.13        2.50
                       2.50         4.91      287.13        2.50
ROUTE MCUNGE          ID=52   HYD=TIJERAS  INFLOW ID=51   DT=0HR  L=54.66
                      NS=0  SLOPE=.4235   MATCODE=0  REGCODE=0  CCODE=0
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD             ID=52  CODE=1

                                    HYDROGRAPH FROM AREA TIJERAS


    RUNOFF VOLUME =     1.19759 INCHES     =      19.9328 ACRE-FEET
    PEAK DISCHARGE RATE =      62.60 CFS  AT   1.500 HOURS   BASIN AREA =   .3121 SQ. MI.



FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 09:39:37
```

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                    - VERSION:  1997.02c      RUN DATE (MON/DAY/YR) =10/13/2006
INPUT FILE = MESAEC1.TXT                                                            USER NO.= AHYMO-S-9702c1BohanHu-AH

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

*S  AHYMO FILE FOR MESA DEL SOL OVERALL DRAINAGE AREA A
*S   EXISITNG CONDITIONS, 24HR, 100YR.
*S
*S  FILE: MESAEC.txt
*S  REVISED: 9/28/06
*S                 ECT EXISTING CONDITIONS FOR BASINS 1 (PREVIOUSLY 2F) 2A, 2C,
*S                 TO MATCH CDP DESIGN AND CURRENT POND DESIGN. AQC
*S                 9/12/06 MODIFIED TO :
*S      BASIN 1 MODELED IN AN AVID HYDROLOGY REPORT.
*S
*S_____________________________________________________________________
RAINFALL  TYPE= 2                                                                                   RAIN24=   2.750
*S      CALCULATE BASIN 2A
COMPUTE NM HYD            2A   -     1        .01190        20.95       1.483      2.33632    1.700    2.750 PER IMP=  87.00
*S
*S      CALCULATE BASIN 2B
COMPUTE NM HYD            2B   -     2        .01610        17.56        .766       .89225    1.600    1.705 PER IMP=    .00
*S* ROUTE BASIN 2B THROUGH BASIN 2C
*S      ROUTE COMBINED FLOWS THRU SUB-BASIN WA.7
*S                 ROUTE THROUGH DIRT CHANNEL
ROUTE MCUNGE            RT2B    2    3        .01610        17.26        .761       .88580    1.750    1.675 CCODE =      .1
*S      CALCULATE BASIN 2D
COMPUTE NM HYD            2D   -     8        .04670        19.20       1.319       .52958    1.750     .642 PER IMP=    .00
*S      CALCULATE BASIN 2C
COMPUTE NM HYD            2C   -     9        .02820        79.40       3.472      2.30850    1.500    4.399 PER IMP=  85.00
*S      ADD BASINS 2C TO BASIN 2B
*S      FLOW ENTERING POND
ADD HYD                  2BC  9& 3  10        .04430        80.37       4.233      1.79142    1.500    2.835
*S      ADD BASINS 2BC TO BASIN 2D
*S      FLOW ENTERING POND
ADD HYD                2ABCD 10& 8  11        .09100        89.37       5.552      1.14386    1.500    1.535
*S* ROUTE BASIN 2B THROUGH BASIN 2C
*S      ROUTE COMBINED FLOWS THRU SUB-BASIN WA.7
*S                 ROUTE THROUGH DIRT CHANNEL
*S      RECALL HYDROGRAPH FROM AVID DRAINAGE REPORT
*S      BASIN 1
RECALL HYD             AVID1   -     5        .04580        33.29       5.719      2.34138    2.250    1.136
*S      CALCULATE BASIN 2E
*S                 IN 2E PART OF UNIVERSITY RD THAT DRAINS TO SMALL POND (DA 5)
COMPUTE NM HYD            2E   -    13        .00376        10.78        .477      2.37805    1.500    4.481 PER IMP=  90.00
*S
*S      ADD BASIN 1 FLOW TO BASIN 2E
*S      TOTAL FLOW INTO THE POND
ADD HYD                PONDIN 13& 5  14        .04956        35.66       6.196      2.34412    2.000    1.124
*S     ROUTE FLOW THROUGH EX 0.7 AC-FT POND (JOURNAL PAVILION POND)
*S     FOR AHYMO PURPOSE, ASSUME NO PONDING
*S     AS THE TAILWATER IN THE LARGER POND WILL
*S     ESSENTIALLY CREATE ONE LARGE POND
ROUTE RESERVOIR        -POND   14   15        .04956        35.66       6.196      2.34412    2.000    1.124
*S      ADD BASIN 2A AND 1 FLOW

                              FROM  TO                    PEAK        RUNOFF                TIME TO    CFS      PAGE =   2
                  HYDROGRAPH   ID   ID        AREA     DISCHARGE     VOLUME      RUNOFF      PEAK     PER
COMMAND        IDENTIFICATION  NO.  NO.     (SQ MI)      (CFS)       (AC-FT)    (INCHES)   (HOURS)   ACRE     NOTATION

ADD HYD                  2AF 15& 1   6        .06146        53.89       7.679      2.34260    1.750    1.370
*S      ADD COMBINED FLOW TO RT 2AF FLOW
ADD HYD                 2ABDE 11& 6  12        .15246       124.18      13.230      1.62710    1.550    1.273
*S
*S      CALCULATE BASIN 3A
COMPUTE NM HYD            3A   -     1        .07470        36.53       3.099       .77774    1.900     .764 PER IMP=    .00
*S      CALCULATE BASIN 3B
COMPUTE NM HYD            3B   -     2        .02260        13.67        .937       .77774    1.800     .945 PER IMP=    .00
*S      CALCULATE BASIN 3C
COMPUTE NM HYD            3C   -     3        .03680        19.47       1.526       .77774    1.850     .827 PER IMP=    .00
*S      ADD BASINS 3A TO BASIN 3B
```

```
ADD HYD                  3AB  1& 2   5        .09730        49.50       4.036       .77774    1.850     .795
*S      ADD BASINS 3A, B, AND C
ADD HYD                 3ABCD  3& 5   2        .13410        68.97       5.562       .77774    1.850     .804
*S      ADD BASINS 1,2, AND 3 (OVERALL DRAINAGE AREA A)
*S      FLOW ENTERING POND
ADD HYD                  2BC  2&12   1        .28656       185.53      18.793      1.22963    1.750    1.012
*S     ROUTE FLOW THROUGH WEST UNIVERSITY POND (INCREASED TO ACCOUNT FOR ADDITIO
ROUTE RESERVOIR         POND    1   15        .28656        19.59      17.458      1.14228    3.400     .107 AC-FT=   13.174
*S      CALCULATE BASIN 2E2 WHICH WILL CONTRIBUTE DIRECTLY TO STORM DRAIN
*S                  NOTE: THIS BASIN WILL NOT BE ROUTED THROUGH POND.
COMPUTE NM HYD           2E2   -    21        .00562        16.11        .713      2.37805    1.500    4.479 PER IMP=  90.00
*S
*S                  Add pond to basin 2E2
ADD HYD                  2BC 15&21  20        .29218        19.71      18.170      1.16605    3.350     .105
*S*************************************************************************
*S*                                START SD DOWN UNIVERSITY
*S*                                SD DIVIDED INTO NORTH, SOUTH AND MEDIAN SECTIONS
*S*                                OUTFALL AT TIJERAS ARROYO
*S*************************************************************************
*S* ROUTE BASIN 2E TO DROP INLET AT ST. 19+14
ROUTE MCUNGE            RT2E   15   16        .28656        19.59      17.457      1.14223    3.400     .107 CCODE =      .2
*S      CALCULATE BASIN N.1
COMPUTE NM HYD           N.1   -    17        .00248         6.60        .275      2.07620    1.500    4.156 PER IMP=  68.30
*S      ADD ROUTED 2E TO BASIN N.1 AT ST. 19+14
*S      DROP INLET ON NORTH SIDE OF STREET
*S      THREE INLETS STARTING AT ST. 18+70 TO 19+14
*S      ASSUME FLOW ENTERS AT LAST INLET AT ST.19+14
ADD HYD                19.14 17&16  18        .28904        19.63      17.731      1.15024    3.400     .106
*S* ROUTE FLOW TO DROP INLET AT ST. 22+51
ROUTE MCUNGE           RTN.1   18   19        .28904        19.63      17.731      1.15024    3.400     .106 CCODE =      .0
*S      CALCULATE BASIN M.1
COMPUTE NM HYD           M.1   -    20        .00152         3.04        .091      1.12613    1.500    3.122 PER IMP=    .00
*S      ADD ROUTED 2E TO BASIN N.1 AT ST. 20+51
*S      DROP INLET IN MEDIAN OF STREET
ADD HYD                20.51 19&20  21        .29056        19.63      17.823      1.15011    3.400     .106
*S* ROUTE FLOW TO DROP INLETS AT ST. 30+15
ROUTE MCUNGE           RTM.1   21   22        .29056        19.63      17.822      1.15005    3.400     .106 CCODE =      .2
*S      CALCULATE BASIN N.2
COMPUTE NM HYD           N.2   -    23        .00061         1.57        .062      1.88980    1.500    3.985 PER IMP=  54.90
*S      CALCULATE BASIN M.2
```



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

COMPUTE NM HYD           M.2   -    24        .00121         2.41        .072      1.12613    1.500    3.125 PER IMP=    .00
*S      ADD ROUTED M.1 TO BASIN N.2 AT ST. 30+15
*S      3 DROP INLETS ON NORTH SIDE OF STREET FROM ST. 29+80 TO ST. 30+24
ADD HYD               N30.15 23&22  25        .29117        19.64      17.884      1.15161    3.400     .105
*S      ADD N.2 TO BASIN M.2 AT ST. 30+15
*S      1 DROP INLET IN MEDIAN AT ST. 30+15
ADD HYD               M30.15 24&25  26        .29238        19.64      17.956      1.15151    3.400     .105
*S* ROUTE FLOW TO DROP INLETS AT ST. 35+79
ROUTE MCUNGE         RTM.2N2   26   27        .29238        19.64      17.956      1.15151    3.400     .105 CCODE =      .0
*S      CALCULATE BASIN S.1
COMPUTE NM HYD           S.1   -    28        .00798        20.77        .852      2.00248    1.500    4.069 PER IMP=  63.00
*S
*S      ADD ROUTED N.2 TO BASIN S.1 AT ST. 35+79
*S      DROP INLETS ON SOUTH SIDE OF STREET
*S      FOUR INLETS STARTING AT ST. 35+11 TO 35+79
*S      ASSUME FLOW ENTERS AT LAST INLET AT ST.35+79
ADD HYD                35+79 28&27  29        .30036        34.30      18.808      1.17410    1.500     .178
*S* ROUTE FLOW TO DROP INLETS AT ST. 42+99
ROUTE MCUNGE           RTS.1   29   30        .30036        34.30      18.808      1.17410    1.500     .178 CCODE =      .0
*S      CALCULATE BASIN S.2
COMPUTE NM HYD           S.2   -    31        .00145         4.09        .179      2.31824    1.500    4.426 PER IMP=  85.70
*S
*S      ADD ROUTED S.1 TO BASIN S.2 AT ST. 42+99
*S      DROP INLETS ON SOUTH SIDE OF STREET
*S      TWO INLETS STARTING AT ST. 42+76 TO 42+99
*S      ASSUME FLOW ENTERS AT LAST INLET AT ST.42+99
ADD HYD                42+99 31&30  32        .30180        38.39      18.987      1.17958    1.500     .199
*S* ROUTE FLOW TO DROP INLETS AT ST. 43+50
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ROUTE MCUNGE          RTS.1   32   33        .30180        38.39      18.987      1.17958    1.500     .199 CCODE =      .0
*S
*S      CALCULATE BASIN M.3
COMPUTE NM HYD          M.3   -    34        .00203         4.06        .122      1.12613    1.500    3.119 PER IMP=    .00
*S      ADD ROUTED S.2 TO BASIN M.3 AT ST. 43+50
*S      DROP INLET IN MEDIAN
ADD HYD               43.50 34&33  35        .30383        42.45      19.109      1.17922    1.500     .218
*S
*S* ROUTE FLOW TO DROP INLETS AT ST. 46+00
ROUTE MCUNGE          RTM.3   35   36        .30383        42.45      19.109      1.17922    1.500     .218 CCODE =      .0
*S      CALCULATE BASIN N.3
COMPUTE NM HYD          N.3   -    37        .00271         6.96        .281      1.94684    1.500    4.014 PER IMP=  59.00
*S
*S      ADD ROUTED M.3 TO BASIN N.3 AT ST. 46+00
*S      DROP INLETS ON NORTH SIDE OF STREET
*S      FOUR INLETS STARTING AT ST. 45+34 TO 46+00
*S      ASSUME FLOW ENTERS AT LAST INLET AT ST.46+00
ADD HYD               46.00 37&36  38        .30654        49.41      19.390      1.18600    1.500     .252
*S* ROUTE FLOW TO DROP INLETS AT ST. 46+35
ROUTE MCUNGE          RTN.3   38   39        .30654        49.41      19.390      1.18600    1.500     .252 CCODE =      .0
*S      CALCULATE BASIN S.3
COMPUTE NM HYD          S.3   -    40        .00092         2.43        .100      2.05533    1.500    4.151 PER IMP=  66.80
*S      ADD ROUTED M.3 TO BASIN N.3 AT ST. 46+35
*S      DROP INLET ON SOUTH SIDE OF STREET
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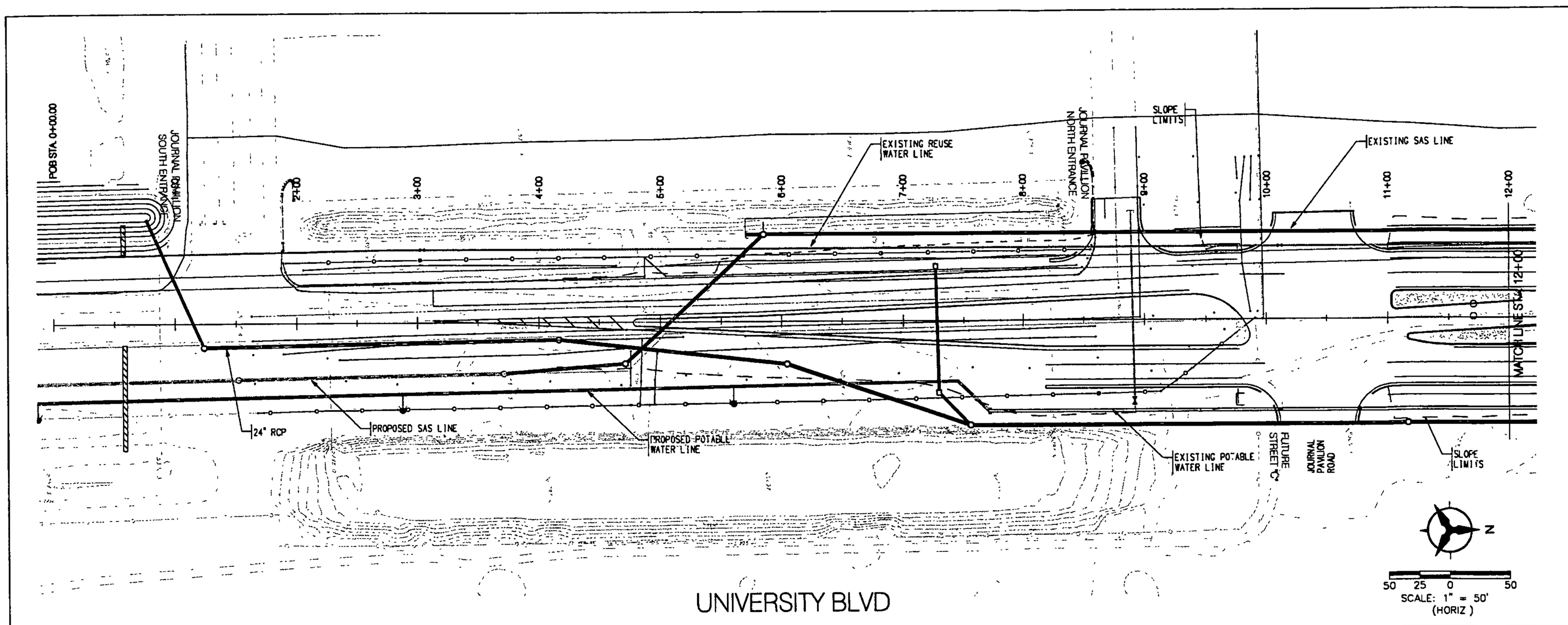
                                FROM  TO                  PEAK        RUNOFF                TIME TO    CFS      PAGE =   4
                     HYDROGRAPH  ID   ID        AREA    DISCHARGE     VOLUME     RUNOFF      PEAK     PER
COMMAND        IDENTIFICATION   NO.  NO.      (SQ MI)     (CFS)      (AC-FT)   (INCHES)   (HOURS)   ACRE      NOTATION

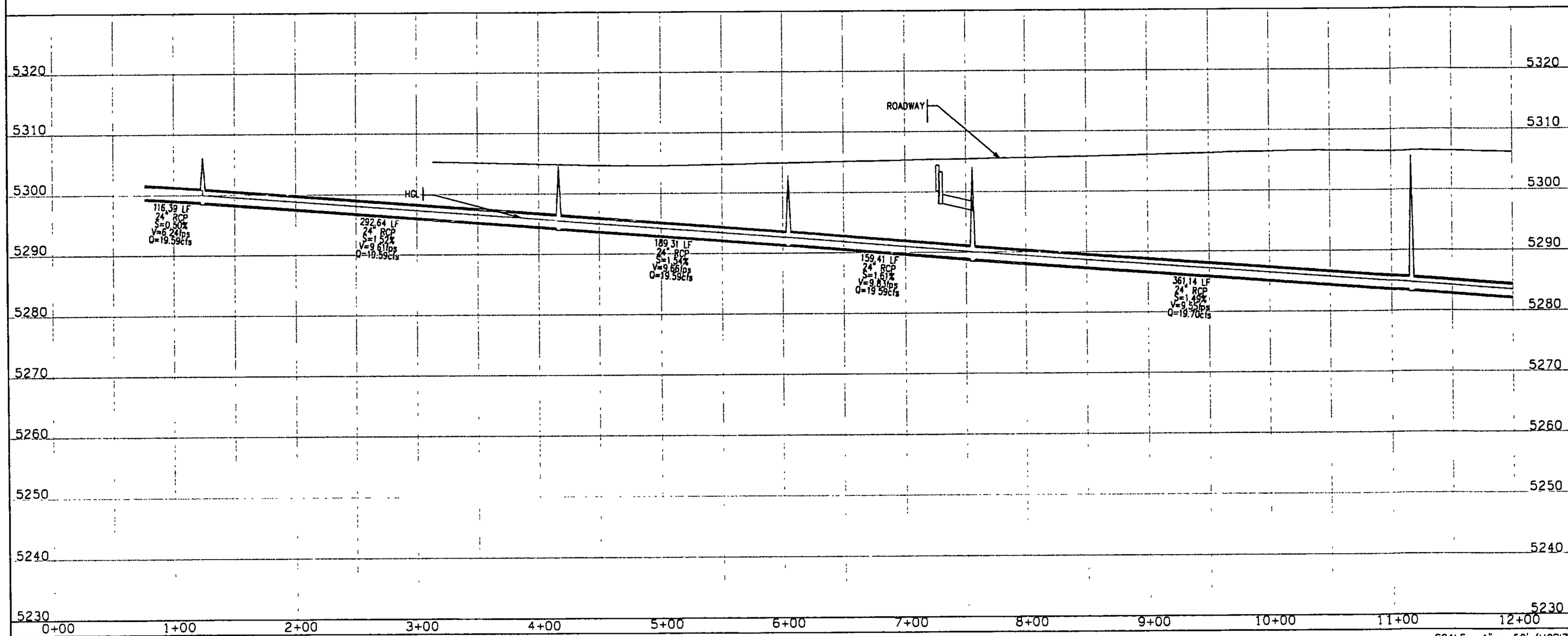
ADD HYD               46.35 40&39  41        .30746        51.84      19.490      1.18859    1.500     .263
*S* ROUTE FLOW TO DROP INLETS AT ST. 53+20
ROUTE MCUNGE          RTS.3   41   42        .30746        51.16      19.489      1.18854    1.500     .260 CCODE =      .2
*S      CALCULATE BASIN N.4
COMPUTE NM HYD          N.4   -    43        .00077         2.01        .081      1.97166    1.500    4.069 PER IMP=  60.78
*S      ADD ROUTED S.3 TO BASIN N.4 AT ST. 53+20
*S      DROP INLET ON NORTH SIDE OF STREET
ADD HYD               53.20 43&42  44        .30823        53.18      19.571      1.19050    1.500     .270
*S* ROUTE FLOW TO TIJERAS ARROYO AT ST. 53+90
*S* INLETS FOR NORTH, SOUTH, AND MEDIAN FLOWS OCCUR
ROUTE MCUNGE          RTS.3   44   45        .30823        53.18      19.571      1.19050    1.500     .270 CCODE =      .0
*S      CALCULATE BASIN N.5
COMPUTE NM HYD          N.5   -    46        .00010          .27        .011      2.11793    1.500    4.441 PER IMP=  71.30
*S
*S      ADD ROUTED N.4 TO BASIN N.5 AT ST. 53+90
*S      DROP INLET ON NORTH SIDE OF STREET
ADD HYD               53.90 46&45  47        .30833        53.45      19.581      1.19075    1.500     .271
*S      CALCULATE BASIN M.4
COMPUTE NM HYD          M.4   -    48        .00089         1.78        .054      1.12613    1.500    3.129 PER IMP=    .00
*S
*S      ADD N.5 TO BASIN M.4 AT ST. 53+90
*S      DROP INLET IN MEDIAN OF STREET
ADD HYD               53.90 48&47  49        .30922        55.23      19.634      1.19056    1.500     .279
*S
*S      CALCULATE BASIN S.4
COMPUTE NM HYD          S.4   -    50        .00286         7.37        .299      1.95796    1.500    4.026 PER IMP=  59.80
*S      ADD M.4 TO BASIN S.4 AT ST. 53+90
*S      DROP INLET ON SOUTH SIDE OF STREET
ADD HYD               53.90 50&49  51        .31208        62.60      19.933      1.19759    1.500     .313
*S                   FLOW GOING INTO TIJERAS ARROYO FROM UNIVERSITY AT ST. 53+90
*S* ROUTE TOTAL FLOW THROUGH PIPE INTO TIJERAS ARROYO
ROUTE MCUNGE         TIJERAS   51   52        .31208        62.60      19.933      1.19759    1.500     .313 CCODE =      .0
FINISH
```

APPENDIX B

Hydraulic Calculations



UNIVERSITY BLVD



NOTES:

1.

AS-BUILT INFORMATION

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

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

ACS 3-1/4" ALUMINUM CAP RIVETTED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-014, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY BLVD INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE. STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88)
N=1460471.432, E=1521388.180 (GROUND)
ELEVATION=4981.17

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY SKS/AOC	DATE 6/2005
DRAWN BY TONYM	DATE 6/2005
CHECKED BY SMA/CWH	DATE 6/2005

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4336
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

UNIVERSITY BLVD / RIO BRAVO BLVD EXTENSION
UNIVERSITY BLVD. STORM DRAIN PLAN & PROFILE
BOP TO STA. 12+00

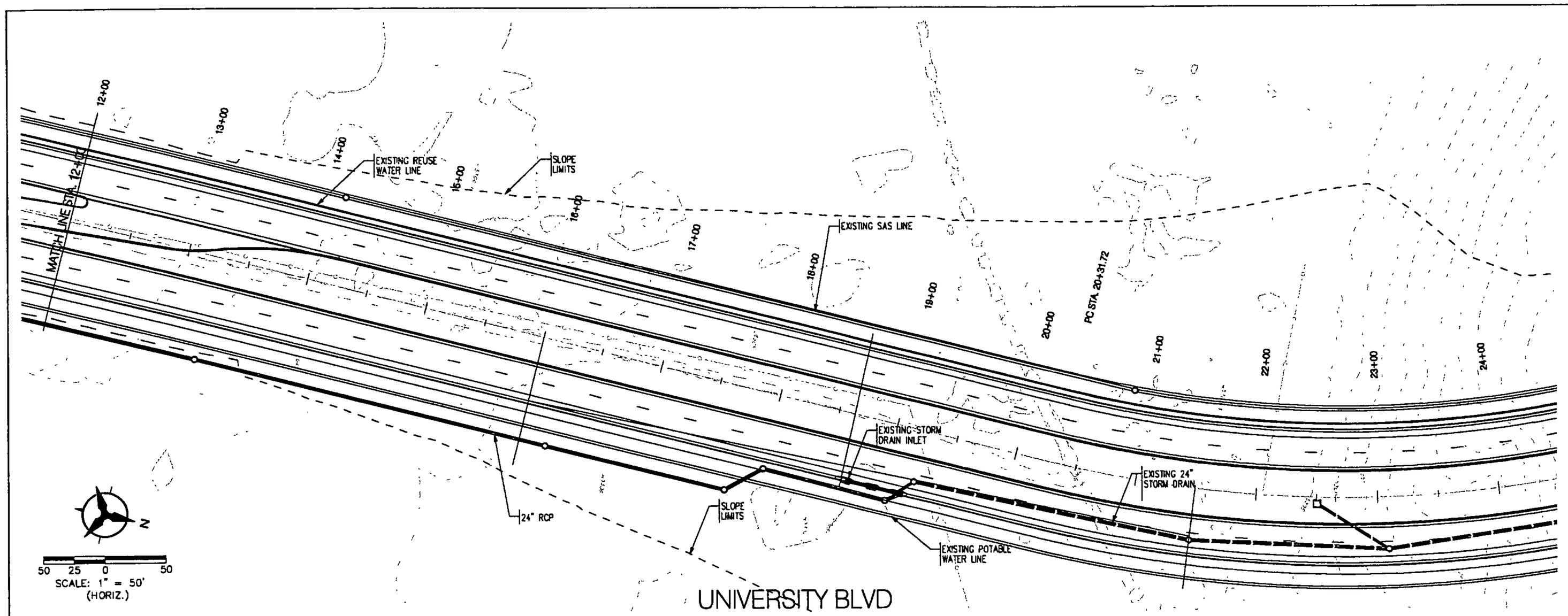
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO /DAY/YR	MO /DAY/YR

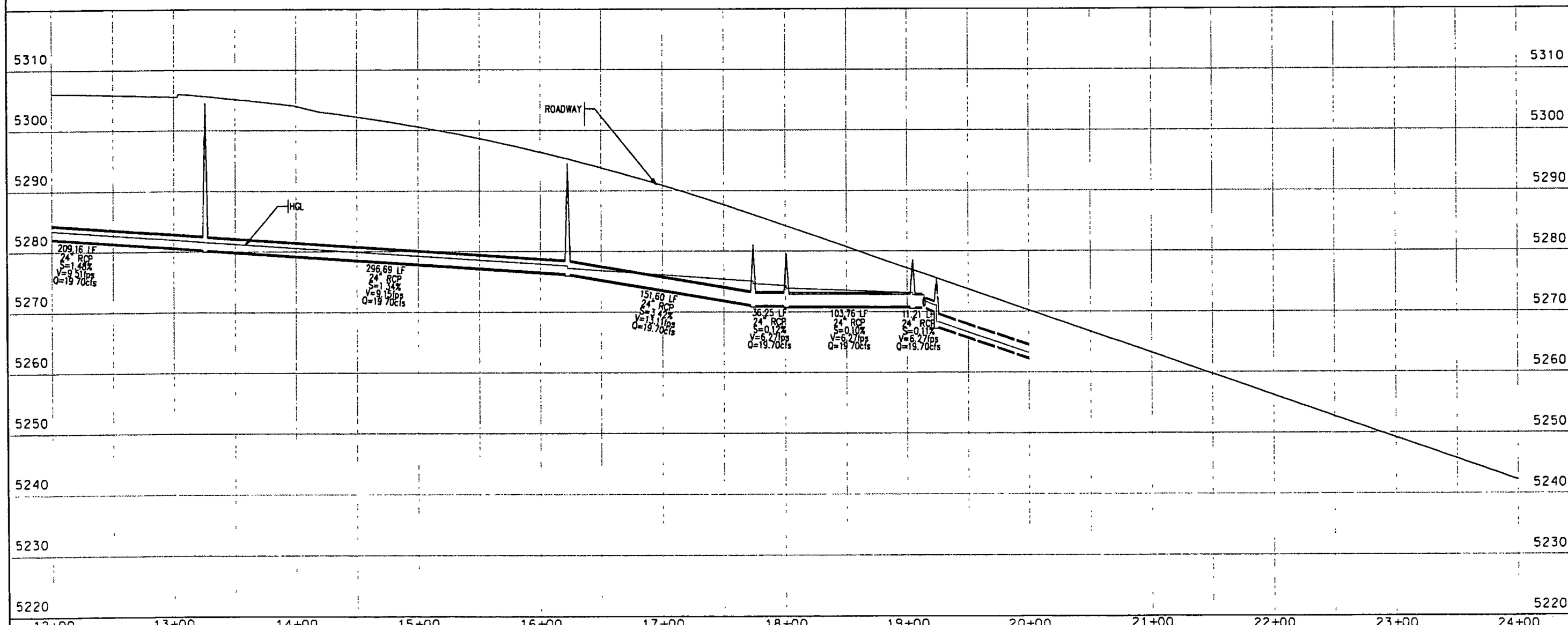
CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF 348
732502	P-15, O-15, O-16	DRAWING NO	

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

BHI JOB NO 050019

MMDDYY
DGN_NAME





NOTES:

1.

Bohannan ▲ Huston

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

ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

UNIVERSITY BLVD / RIO BRAVO BLVD EXTENSION
UNIVERSITY BLVD. STORM DRAIN PLAN & PROFILE
STA. 12+00 TO STA. 24+00

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR	MO./DAY/YR

NO.	DATE	REMARKS	BY

REVISIONS

		DATE
DESIGN		
DESIGNED BY	SKS/AQC	6/2005
DRAWN BY	TONYM	6/2005
CHECKED BY	SMA/CWH	6/2005

AS-BUILT INFORMATION

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

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-014, 1997", FROM THE RIO BRAVO BLVD AND BROADWAY BLVD INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE. STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88)
N=1450471.432, E=1521388.180 (GROUND)
ELEVATION=4981.17

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

MMDDYY
DGN_NAME

BHI JOB NO 050019

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

CITY PROJECT NO 732502

ZONE MAP NO. P-15, O-15, O-16

SHEET OF 348

DRAWING NO

Scenario: Ultimate 100yr Drainage Areas 4 & 7 For University and Bobby Foster

>>>> Info: Subsurface Network Rooted by: O-BF1
>>>> Info: Subsurface Analysis iterations: 1
>>>> Info: Convergence was achieved.

CALCULATION SUMMARY FOR SURFACE NETWORKS

Label	Inlet Type	Inlet	Total Intercepted Flow (cfs)	Total Bypassed Flow (cfs)	Capture Efficiency (%)	Gutter Spread (ft)	Gutter Depth (ft)
I-22	Combination Inlet	Combination COA_Type A	5.05	0.00	100.0	7.75	0.24
I-BF3	Combination Inlet	Combination COA_Type A	5.25	0.45	92.2	17.35	0.43
I-BF4	Combination Inlet	Combination COA_Type A	8.75	5.69	60.6	15.49	0.40
I-BF1	Combination Inlet	Combination COA_Type A	7.72	0.00	100.0	11.20	0.31
I-BF2	Combination Inlet	Combination COA_Type A	5.05	0.00	100.0	7.75	0.24
I-19	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-20	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-21	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-23	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00

CALCULATION SUMMARY FOR SUBSURFACE NETWORK WITH ROOT: O-BF1

Label	Number of Sections	Section Size	Section Shape	Length (ft)	Total System Flow (cfs)	Average Velocity (ft/s)	Hydraulic Grade Upstream (ft)	Hydraulic Grade Downstream (ft)
P-BF1	1	48 inch	Circular	120.00	107.89	8.59	5,286.20	5,285.14
P-BF2	1	48 inch	Circular	210.00	99.00	7.88	5,287.23	5,286.21
P-509	1	30 inch	Circular	18.00	8.89	8.55	5,296.49	5,295.89
P-BF3	1	48 inch	Circular	301.00	99.00	7.88	5,288.67	5,287.24
P-BF4	1	48 inch	Circular	302.00	99.00	7.88	5,290.13	5,288.70
P-BF5	1	48 inch	Circular	350.00	99.00	7.88	5,291.84	5,290.17
P-BF7	1	48 inch	Circular	210.00	91.28	7.26	5,292.74	5,291.90
P-BF6	1	24 inch	Circular	36.00	7.72	8.38	5,294.65	5,293.65
P-BF8	1	24 inch	Circular	60.00	10.10	7.96	5,296.44	5,295.31
P-BF9	1	36 inch	Circular	65.00	81.18	11.49	5,293.77	5,292.80
P-508	1	18 inch	Circular	120.00	5.05	4.82	5,296.97	5,296.45
P-505	1	30 inch	Circular	16.00	15.75	3.21	5,295.19	5,295.16
P-BF10	1	36 inch	Circular	64.00	65.43	9.26	5,294.91	5,294.30
P-BF11	1	30 inch	Circular	175.00	28.43	5.79	5,296.51	5,295.67
P-506	1	36 inch	Circular	17.00	37.00	5.23	5,295.41	5,295.36
P-bf12	1	24 inch	Circular	151.00	13.99	9.82	5,299.22	5,297.49
P-507	1	30 inch	Circular	23.00	14.44	2.94	5,296.95	5,296.92
P-bf14	1	24 inch	Circular	34.00	8.75	5.92	5,299.16	5,299.22

Label	Total System Flow (cfs)	Ground Elevation (ft)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)
O-BF1	107.89	5,290.00	5,280.00	5,280.00
J-60	107.89	5,296.97	5,286.21	5,286.20
J-BF2	99.00	5,298.95	5,287.24	5,287.23
I-23	8.89	5,296.97	5,296.49	5,296.49
J-BF3	99.00	5,301.18	5,288.70	5,288.67
J-BF4	99.00	5,303.13	5,290.17	5,290.13
J-BF5	99.00	5,297.70	5,291.90	5,291.84
J-BF6	91.28	5,298.75	5,292.80	5,292.74
I-BF1	7.72	5,297.70	5,294.65	5,294.65
I-BF2	10.10	5,300.11	5,296.45	5,296.44
J-BF7	81.18	5,300.49	5,294.30	5,293.77
I-22	5.05	5,300.11	5,296.97	5,296.97
I-19	15.75	5,300.49	5,295.19	5,295.19
J-BF8	65.43	5,300.34	5,295.36	5,294.91
j-bf9	28.43	5,301.49	5,296.92	5,296.51
I-20	37.00	5,300.34	5,295.41	5,295.41
I-BF3	13.99	5,301.91	5,299.22	5,299.22
I-21	14.44	5,301.49	5,296.95	5,296.95
I-BF4	8.75	5,302.15	5,299.16	5,299.16

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Scenario: Base DA5

>>>> Info: Subsurface Network Rooted by: O-1
>>>> Info: Subsurface Analysis iterations: 1
>>>> Info: Convergence was achieved.

CALCULATION SUMMARY FOR SURFACE NETWORKS

Label	Inlet Type	Inlet	Total Intercepted Flow (cfs)	Total Bypassed Flow (cfs)	Capture Efficiency (%)	Gutter Spread (ft)	Gutter Depth (ft)
I-1	Combination Inlet	Combination COA_Type A	5.65	0.00	100.0	8.09	0.25

CALCULATION SUMMARY FOR SUBSURFACE NETWORK WITH ROOT: O-1

Label	Number of Sections	Section Size	Section Shape	Length (ft)	Total System Flow (cfs)	Average Velocity (ft/s)	Hydraulic Grade Upstream (ft)	Hydraulic Grade Downstream (ft)
P-1	1	18 inch	Circular	160.00	5.65	7.89	5,303.85	5,301.64

Label	Total System Flow (cfs)	Ground Elevation (ft)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)
O-1	5.65	5,301.00	5,301.00	5,301.00
I-1	5.65	5,306.97	5,303.85	5,303.85

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Scenario: Ultimate 100yr Albuquerque Studios

>>>> Info: Subsurface Network Rooted by: O-S1
>>>> Info: Subsurface Analysis iterations: 1
>>>> Info: Convergence was achieved.

CALCULATION SUMMARY FOR SURFACE NETWORKS

Label	Inlet Type	Inlet	Total Intercepted Flow (cfs)	Total Bypassed Flow (cfs)	Capture Efficiency (%)	Gutter Spread (ft)	Gutter Depth (ft)
I-S10	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-17	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-S14	Combination Inlet	Combination COA_Type A	3.72	0.00	100.0	6.36	0.21
I-S16	Combination Inlet	Combination COA_Type A	6.13	0.00	100.0	9.22	0.27
I-20	Combination Inlet	Combination COA_Type A	1.43	0.00	100.0	2.46	0.12
I-21	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-18	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-19	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-22	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00

CALCULATION SUMMARY FOR SUBSURFACE NETWORK WITH ROOT: O-S1

Label	Number of Sections	Section Size	Section Shape	Length (ft)	Total System Flow (cfs)	Average Velocity (ft/s)	Hydraulic Grade Upstream (ft)	Hydraulic Grade Downstream (ft)
P-S1	1	48 inch	Circular	105.00	81.37	14.54	5,282.57	5,279.96
P-S2	1	48 inch	Circular	380.00	68.37	7.05	5,283.95	5,282.61
P-508	1	24 inch	Circular	30.00	13.00	4.14	5,282.69	5,282.59
P-S3	1	48 inch	Circular	412.00	68.37	7.06	5,285.30	5,283.98
P-S4	1	48 inch	Circular	365.00	68.37	7.09	5,286.49	5,285.30
P-S5	1	48 inch	Circular	26.00	28.37	5.81	5,286.53	5,286.52
P-507	1	30 inch	Circular	20.00	40.00	9.52	5,294.20	5,293.90
P-S6	1	36 inch	Circular	129.00	28.37	5.73	5,286.71	5,286.53
P-S7	1	36 inch	Circular	130.00	28.37	5.71	5,286.95	5,286.72
P-506	1	36 inch	Circular	130.00	28.37	5.71	5,287.29	5,286.95
P-S10B	1	24 inch	Circular	38.00	2.62	10.36	5,289.20	5,287.31
P-510	1	24 inch	Circular	38.00	2.62	6.14	5,293.28	5,292.35
P-505	1	30 inch	Circular	295.00	23.13	5.19	5,288.34	5,287.30
P-S12	1	30 inch	Circular	155.00	23.13	5.17	5,288.88	5,288.35
P-S13	1	30 inch	Circular	140.00	23.13	5.21	5,289.51	5,289.12
P-S14	1	30 inch	Circular	176.00	13.69	4.81	5,289.68	5,289.52
P-509	1	24 inch	Circular	26.00	5.72	6.00	5,295.10	5,294.71
P-S14B	1	18 inch	Circular	148.00	3.72	5.50	5,290.97	5,289.53
P-S15	1	30 inch	Circular	345.00	12.26	4.67	5,290.42	5,289.68
P-513	1	18 inch	Circular	128.00	1.43	4.80	5,296.16	5,294.13
P-514	1	24 inch	Circular	17.00	6.13	16.68	5,296.52	5,293.21
P-S16	1	24 inch	Circular	131.00	6.13	7.83	5,296.31	5,293.42

Label	Total System Flow (cfs)	Ground Elevation (ft)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)
O-S1	81.37	5,290.00	5,278.00	5,278.00
J-S1	81.37	5,289.80	5,282.59	5,282.57
J-S2	68.37	5,292.60	5,283.98	5,283.95
I-19	13.00	5,289.80	5,282.69	5,282.69
J-S3	68.37	5,294.35	5,285.30	5,285.30
J-S4	68.37	5,295.98	5,286.51	5,286.49
J-S5	28.37	5,296.11	5,286.53	5,286.53
I-18	40.00	5,296.11	5,294.20	5,294.20
J-S6	28.37	5,296.76	5,286.72	5,286.71
J-S7	28.37	5,296.11	5,286.95	5,286.95
J-S9	28.37	5,296.76	5,287.30	5,287.29
I-S10	2.62	5,298.20	5,289.20	5,289.20
I-17	2.62	5,296.76	5,293.28	5,293.28
J-S11	23.13	5,298.23	5,288.35	5,288.34
J-S12	23.13	5,299.00	5,289.12	5,288.88
J-S13	23.13	5,298.30	5,289.52	5,289.51
J-S14	13.69	5,299.20	5,289.68	5,289.68
I-22	5.72	5,298.30	5,295.10	5,295.10
I-S14	3.72	5,297.23	5,290.97	5,290.97
J-S15	12.26	5,299.68	5,290.43	5,290.42
I-20	1.43	5,299.18	5,296.16	5,296.16
I-21	6.13	5,299.68	5,296.52	5,296.52
I-S16	6.13	5,299.47	5,296.31	5,296.31

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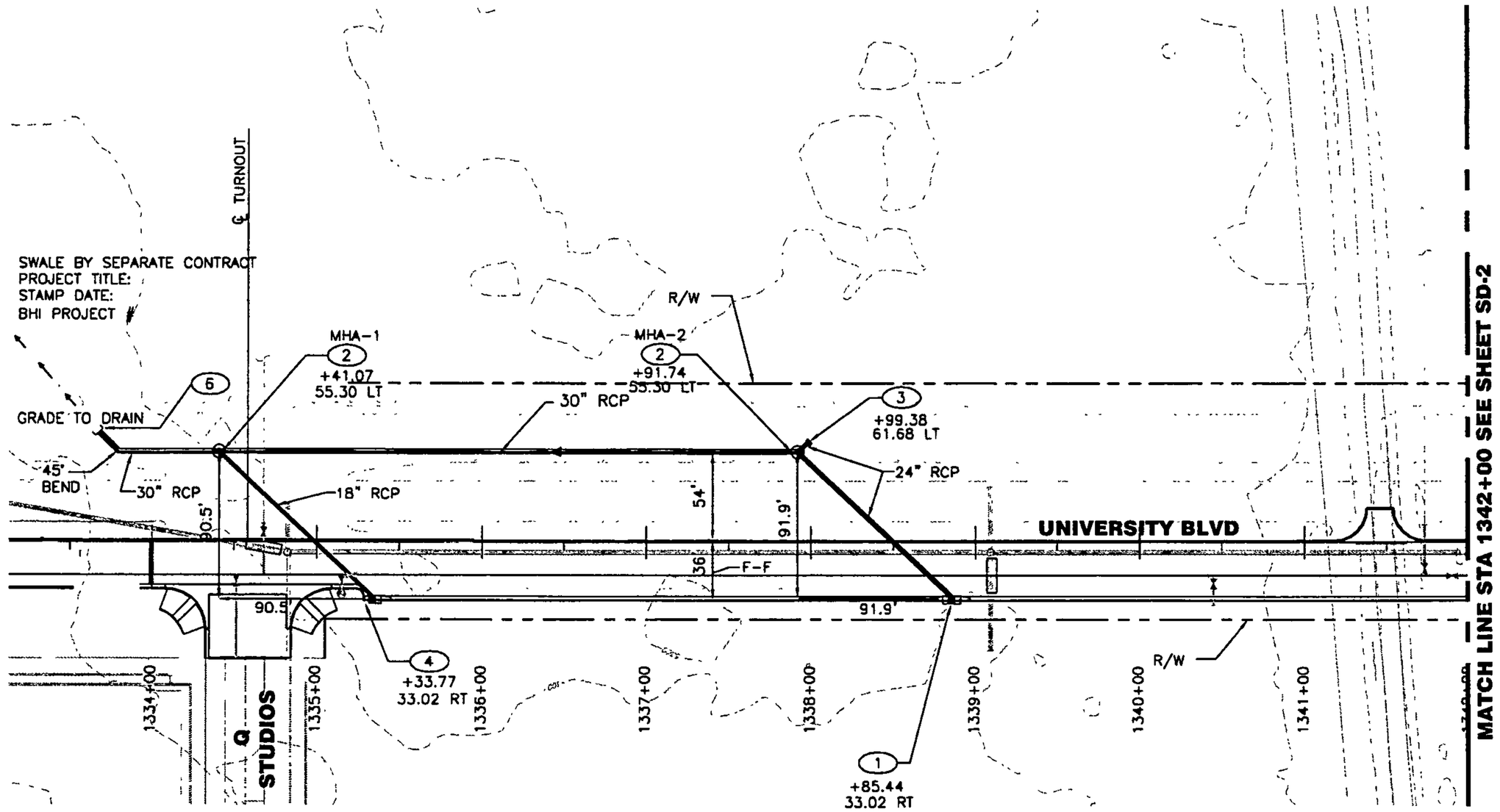
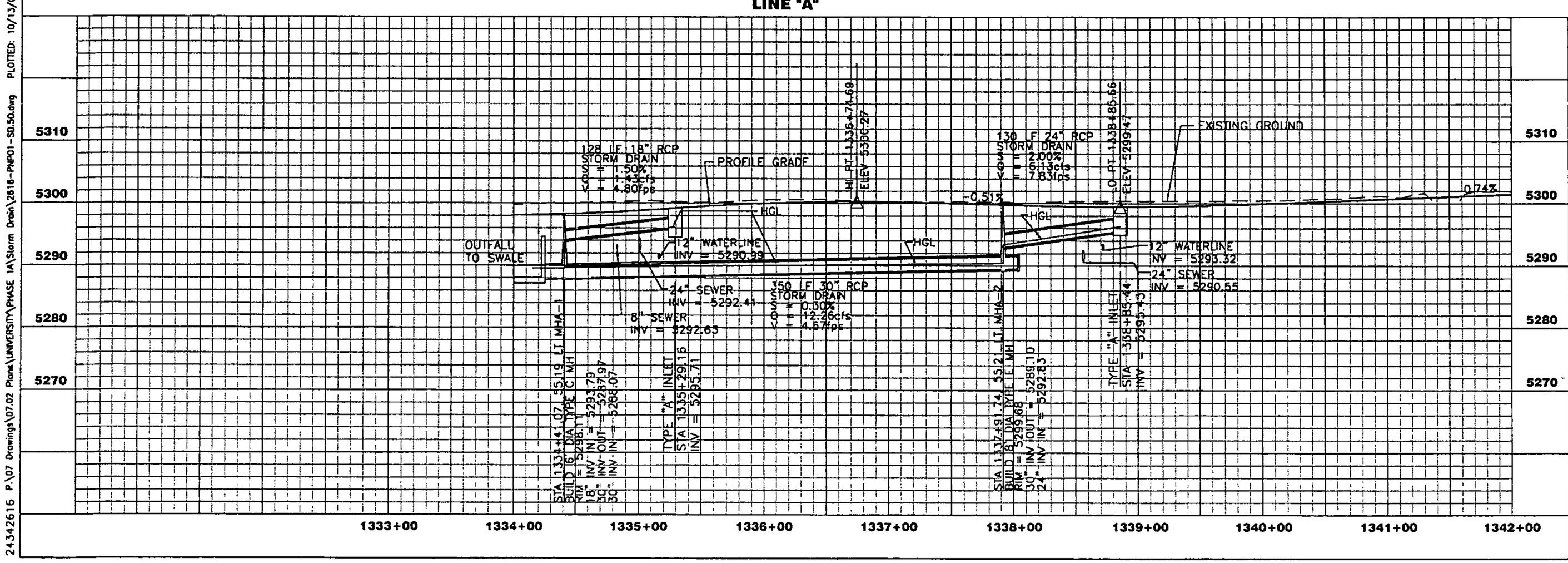


KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-11
2. TYPE "C" MANHOLE PER COA STD DWG No. 2101
3. STUB-OUT FOR FUTURE CONNECTION
4. TYPE "A" INLET PER COA STD DWG No. 2201
5. PROTECT AND SUPORT EXISTING 24" WATERLINE
6. OUTFALL WITH EROSION CONTROL SEE SHEET SD-10, DETAIL 2
7. NORTH POND OUTLET SEE SHEET SD-10, DETAIL 1

LINE "A"



GRAPHIC SCALE IN FEET
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HORIZONTAL
GRAPHIC SCALE IN FEET
10 0 10 20
VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION**
STORM DRAIN - PLAN AND PROFILE - PHASE 1A
STA 1333+00 TO STA 1342+00

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

City Project No.	Zone Map No.	Sheet	Of	
775482	Q-15			SD-1

AS BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
ACCEPTANCE BY DATE
VERIFICATION BY DATE
DRAWINGS CHECKED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
No. By Date

ENGINEER'S SEAL

PRELIMINARY DESIGN SUBMITTAL

NOT FOR CONSTRUCTION

No.	Remarks	By
	REVISIONS	

DESIGN
Designed By Date
Drawn By Date
Checked By Date

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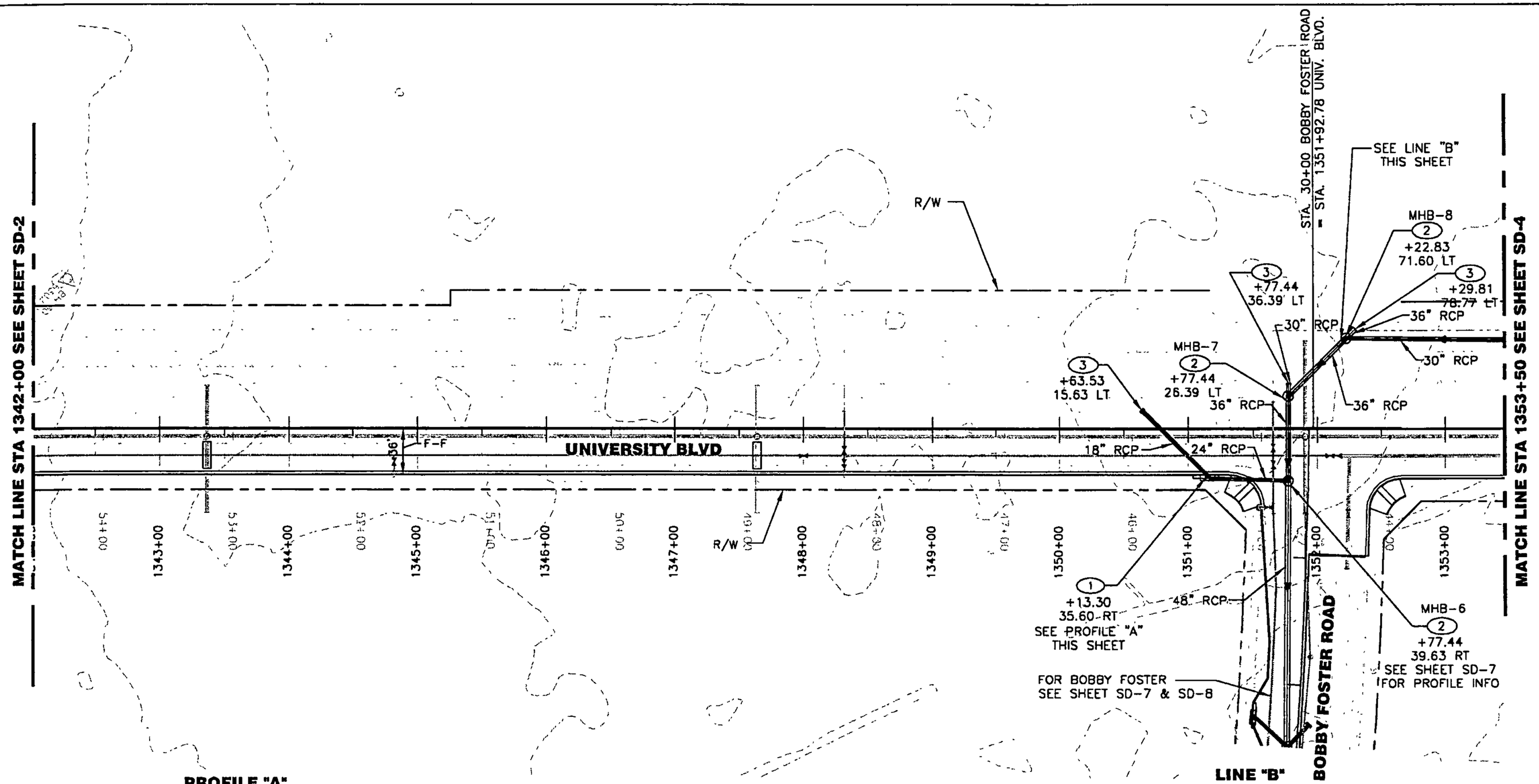
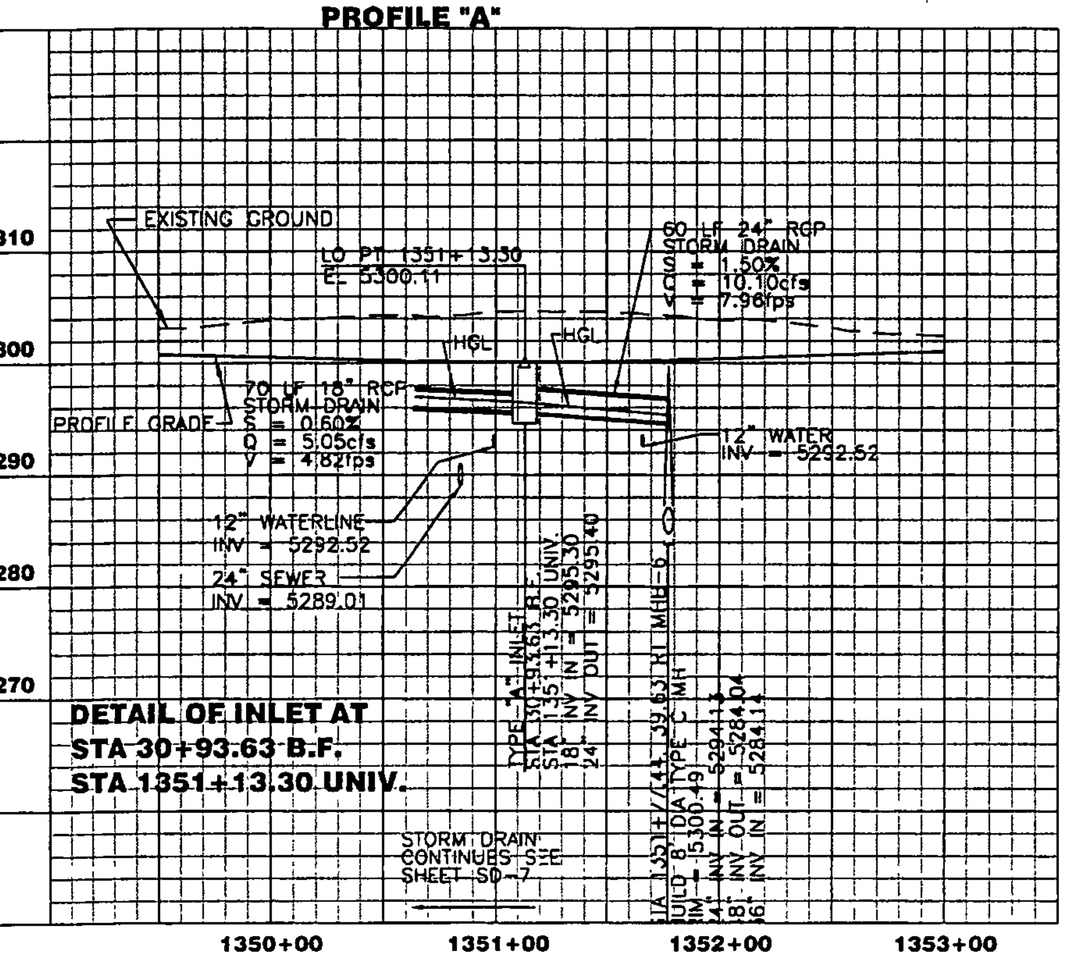
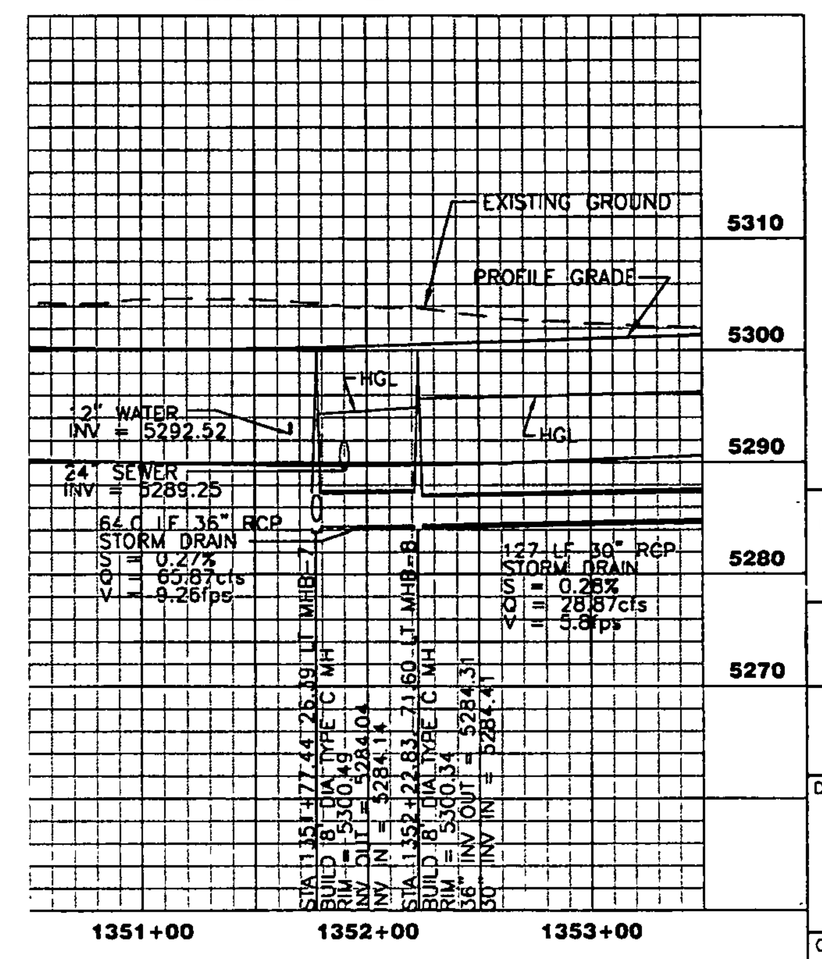


KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-10
2. TYPE "C" MANHOLE PER COA STD DWG No. 2101
3. STUB-OUT FOR FUTURE CONNECTION
4. TYPE "A" INLET PER COA STD DWG No. 2201
5. PROTECT AND SUPORT EXISTING 24" WATERLINE
6. OUTFALL WITH EROSION CONTROL SEE SHEET SD-10, DETAIL 2
7. NORTH POND OUTLET SEE SHEET SD-10, DETAIL 1



DETAIL OF INLET AT
STA 30+93.63 B.F.
STA 1351+13.30 UNIV.



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HORIZONTAL
GRAPHIC SCALE IN FEET
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VERTICAL

AS BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
No. By Date

ENGINEER'S SEAL

PRELIMINARY DESIGN SUBMITTAL

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No.	Remarks	By
	REVISIONS	

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Checked By Date

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION**
STORM DRAIN - PLAN AND PROFILE - PHASE 1A
STA 1342+00 TO STA 1353+50

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

City Project No. **775482** | Zone Map No. **Q-15** | Sheet | Of | **SD-2**

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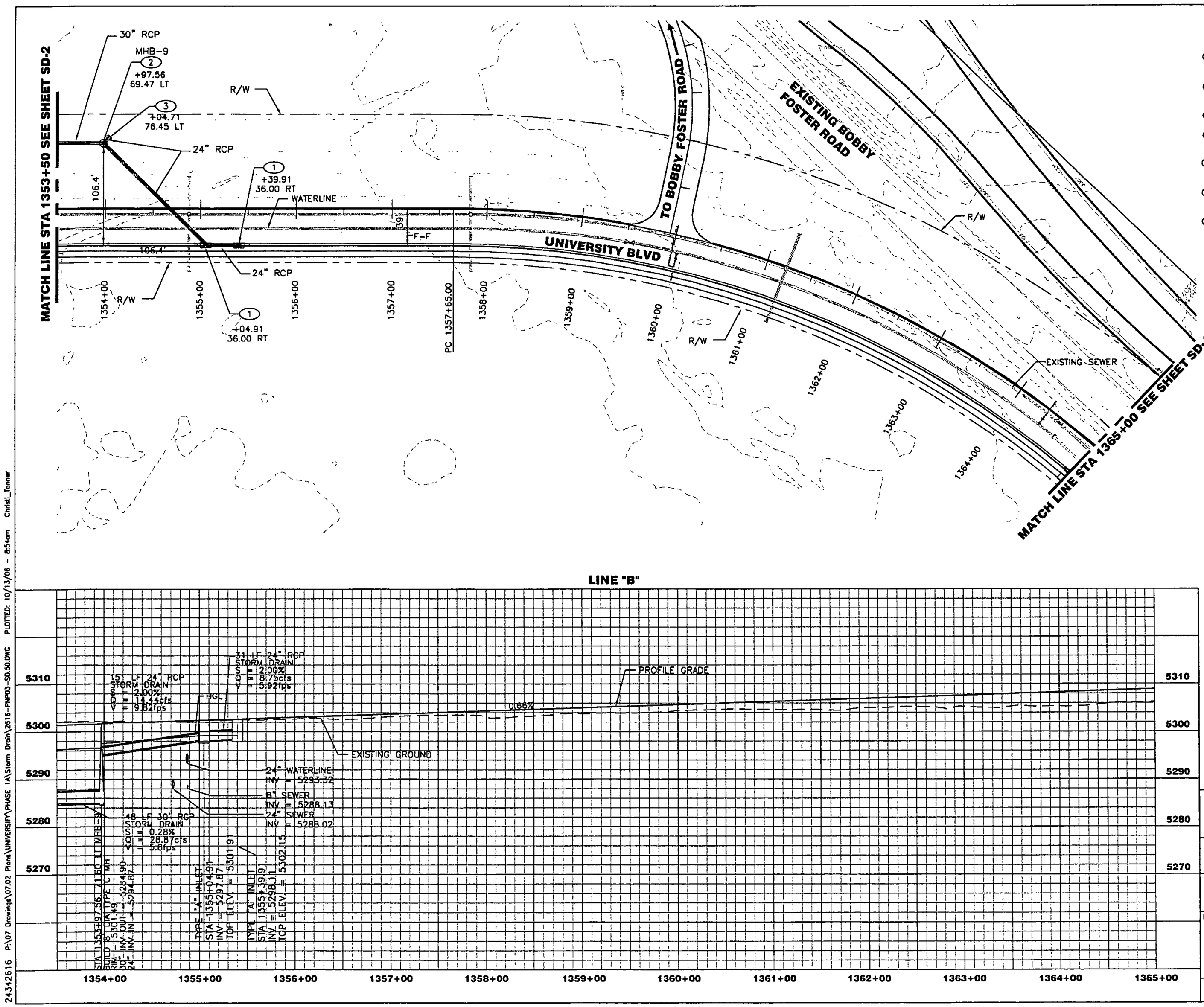

KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-11
2. TYPE "C" MANHOLE PER COA STD DWG No. 2101
3. STUB-OUT FOR FUTURE CONNECTION
4. TYPE "A" INLET PER COA STD DWG No. 2201
5. PROTECT AND SUPORT EXISTING 24" WATERLINE
6. OUTFALL WITH EROSION CONTROL SEE SHEET SD-10, DETAIL 2
7. NORTH POND OUTLET SEE SHEET SD-10, DETAIL 1

GRAPHIC SCALE IN FEET
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HORIZONTAL
GRAPHIC SCALE IN FEET
10 0 10 20
VERTICAL

AS BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S FIELD VERIFICATION BY DATE
VERIFICATION DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
No. By Date

ENGINEER'S SEAL

PRELIMINARY DESIGN SUBMITTAL

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REVISIONS
No. Remarks By
DESIGN
Designed By Date
Drawn By Date
Checked By Date

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE:
UNIVERSITY BLVD. EXTENSION
STORM DRAIN - PLAN AND PROFILE - PHASE 1A
STA 1353+50 TO STA 1365+00

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

City Project No. 775482 | Zone Map No Q-15 | Sheet | Of | SD-3

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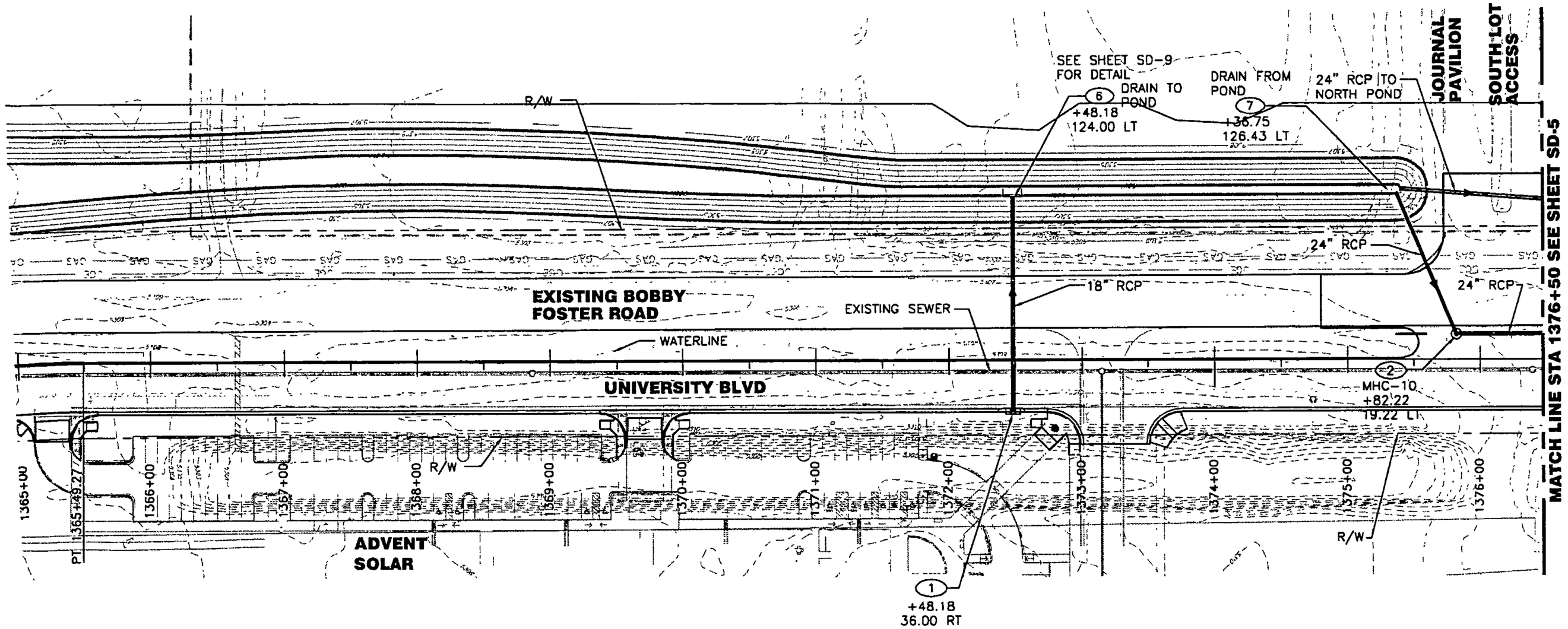

KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-11
2. TYPE "C" MANHOLE PER COA STD DWG No. 2101
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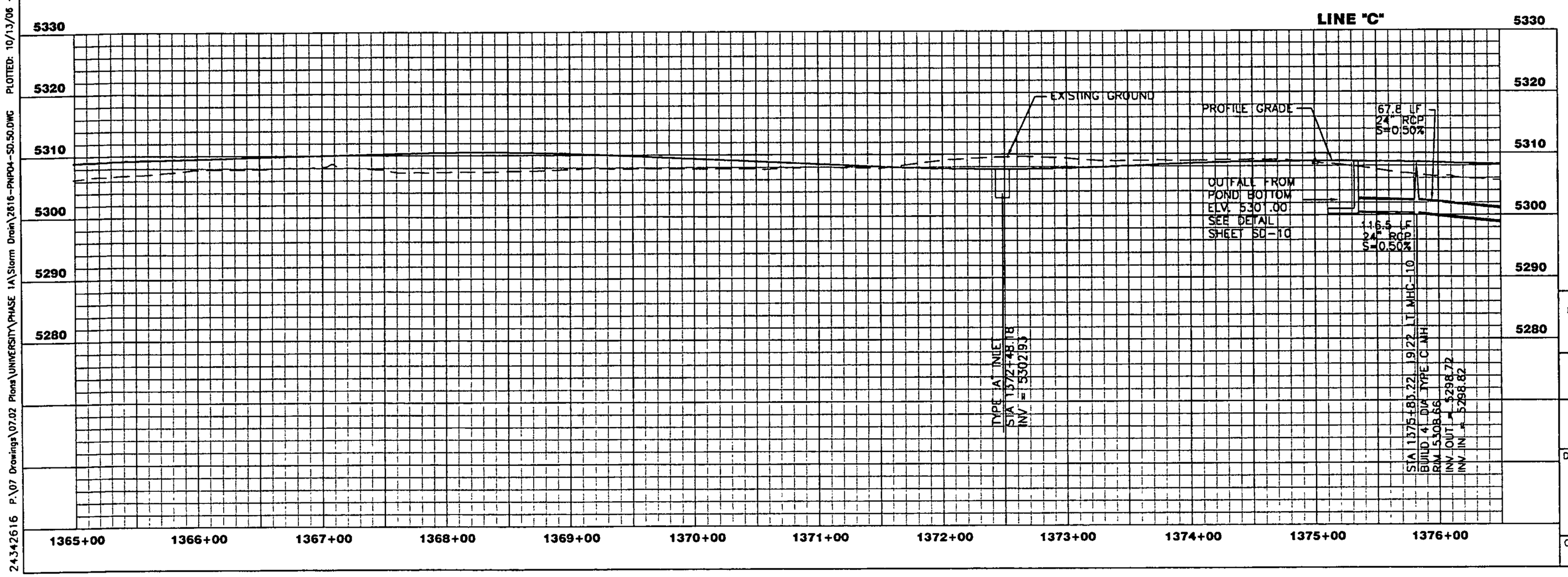
6. OUTFALL WITH EROSION CONTROL SEE SHEET SD-10, DETAIL 2
7. NORTH POND OUTLET SEE SHEET SD-10, DETAIL 1



GRAPHIC SCALE IN FEET
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HORIZONTAL
GRAPHIC SCALE IN FEET
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VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
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CITY OF ALBUQUERQUE
DEPARTMENT OF
MUNICIPAL DEVELOPMENT

TITLE: UNIVERSITY BLVD. EXTENSION
STORM DRAIN - PLAN AND PROFILE - PHASE 1A
STA 1365+00 TO STA 1376+50

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

City Project No.	Zone Map No	Sheet	Of	
775482	Q-15			SD-4

AS BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
No. By Date

ENGINEER'S SEAL

PRELIMINARY DESIGN SUBMITTAL

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No.	Remarks	By

REVISIONS

DESIGN
Designed By Date
Drawn By Date
Checked By Date

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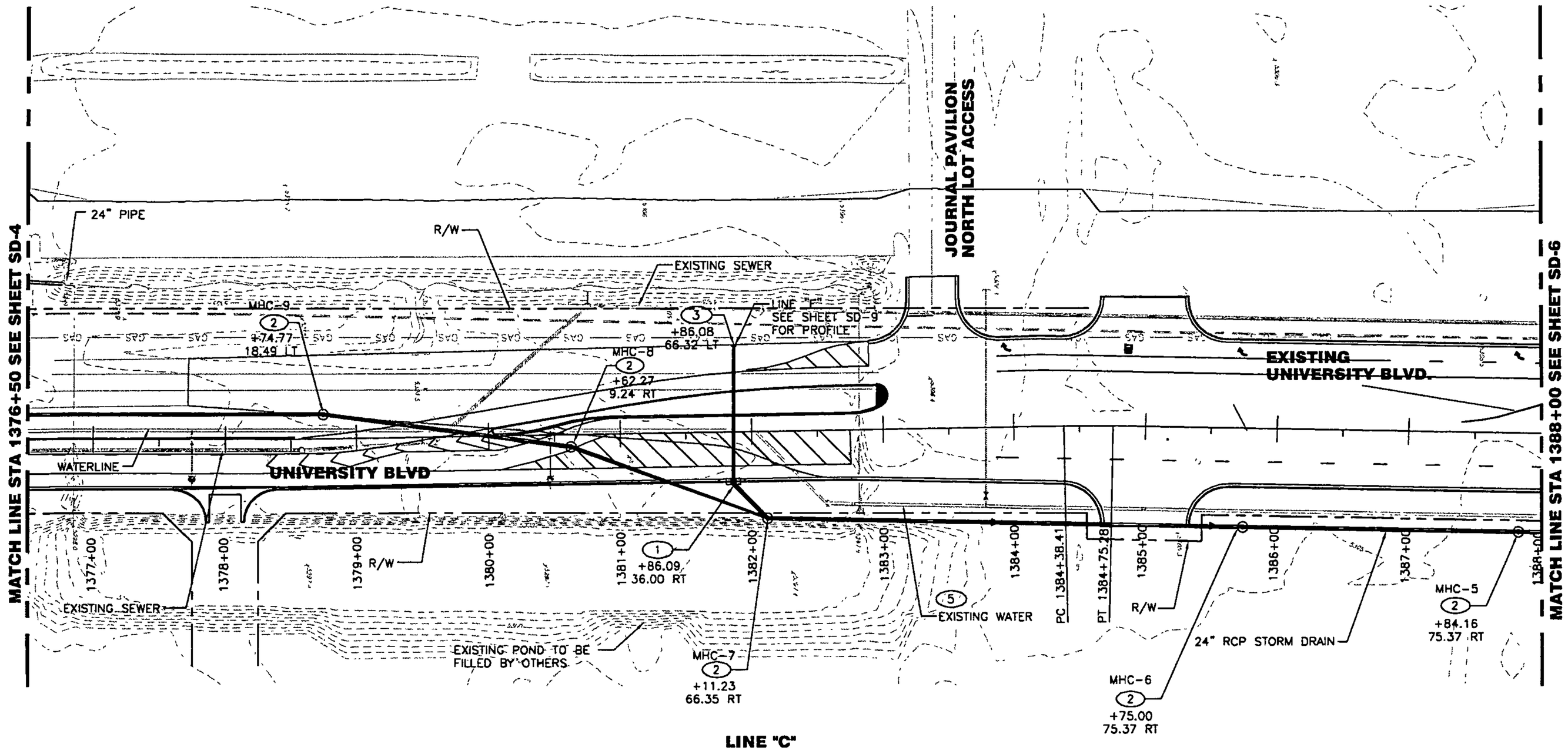

KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-11
2. TYPE "C" MANHOLE PER COA STD DWG No. 2101
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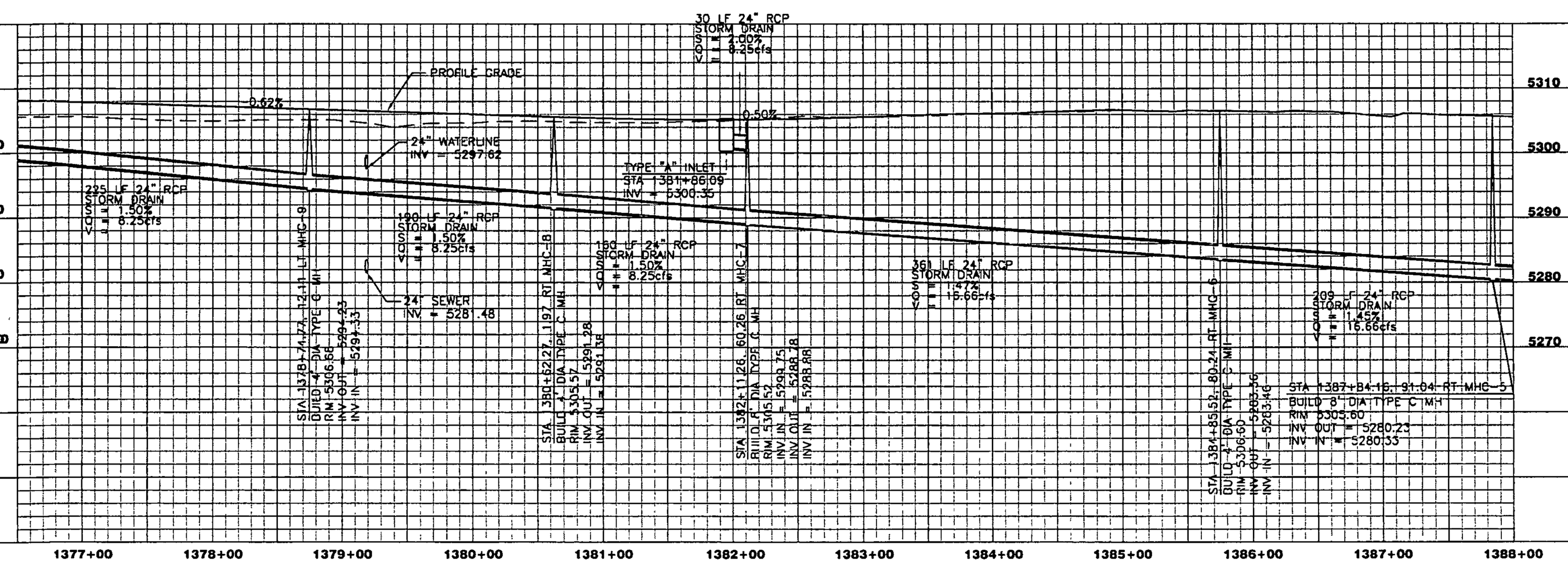
6. OUTFALL WITH EROSION CONTROL SEE SHEET SD-10, DETAIL 2
7. NORTH POND OUTLET SEE SHEET SD-10, DETAIL 1

LINE "C"



GRAPHIC SCALE IN FEET
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HORIZONTAL
GRAPHIC SCALE IN FEET
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VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: UNIVERSITY BLVD. EXTENSION
STORM DRAIN - PLAN AND PROFILE - PHASE 1A
STA 1376+50 TO STA 1388+00

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

City Project No.	Zone Map No.	Sheet	Of	
775482	Q-15			SD-5

AS BUILT INFORMATION
CONTRACTOR | DATE
WORK STAKED BY
INSPECTOR'S ACCEPTANCE BY | DATE
FIELD VERIFICATION BY | DATE
DRAWINGS CORRECTED BY | DATE
MICRO-FILM INFORMATION
RECORDED BY | DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES

No.	By	Date

ENGINEER'S SEAL

PRELIMINARY DESIGN SUBMITTAL

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No.	Remarks	By	Date
	REVISIONS		

Designed By | Date
Drawn By | Date
Checked By | Date

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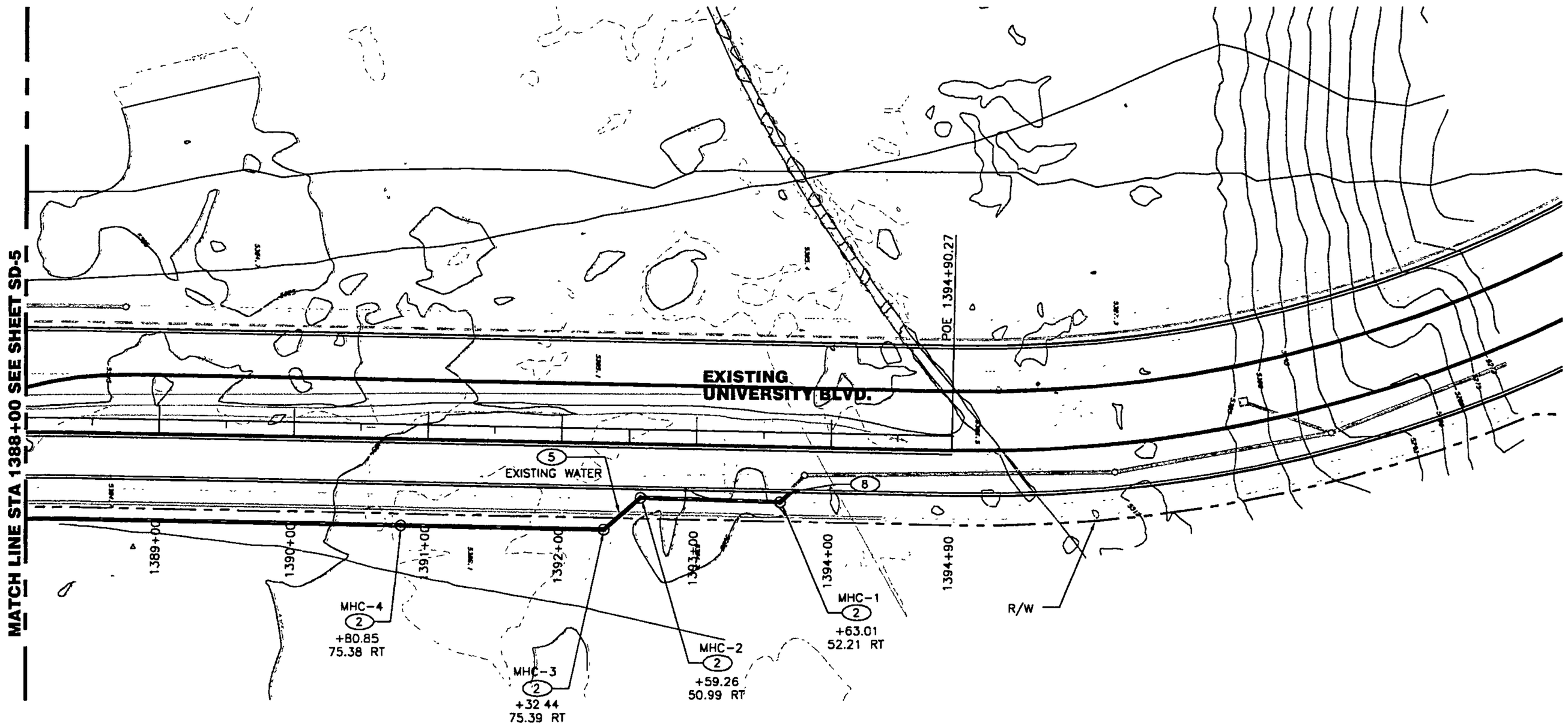
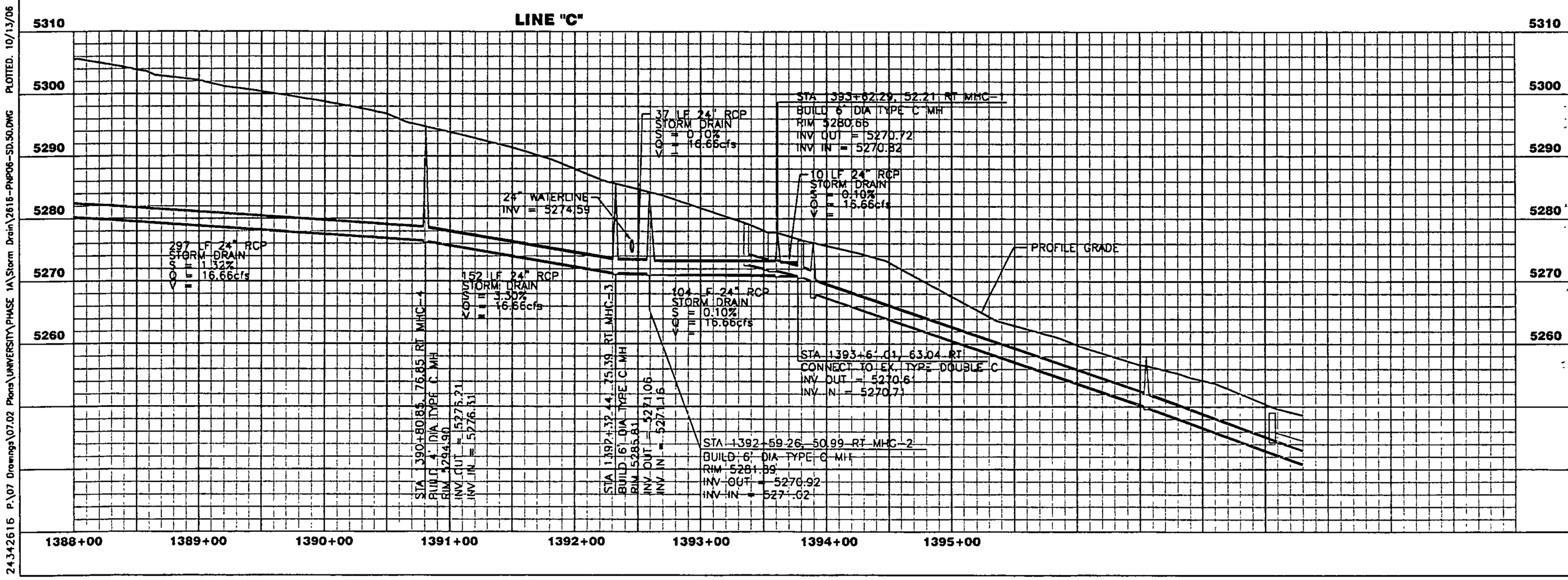


KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-10
2. TYPE "C" MANHOLE PER COA STD DWG No. 2101
3. STUB-OUT FOR FUTURE CONNECTION
4. TYPE "A" INLET PER COA STD DWG No. 2201
5. PROTECT AND SUPORT EXISTING 24" WATERLINE
6. OUTFALL WITH EROSION CONTROL SEE SHEET SD-10, DETAIL 2
7. NORTH POND OUTLET SEE SHEET SD-10, DETAIL 1
8. TIE TO EXISTING INLET PER COA STD DWG No. 2237



GRAPHIC SCALE IN FEET
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HORIZONTAL
GRAPHIC SCALE IN FEET
10 0 10 20

VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION STORM DRAIN - PLAN AND PROFILE - PHASE 1A STA 1388+00 TO STA 1394+90**

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

City Project No.	Zone Map No	Sheet	Of	
775482	Q-15			SD-6

AS BUILT INFORMATION
CONTRACTOR | DATE
WORK STAKED BY
INSPECTOR'S FIELD VERIFICATION BY | DATE
FIELD VERIFICATION BY | DATE
DRAWING CORRECTED BY | DATE
MICRO-FILM INFORMATION
RECORDED BY | DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
No. | By | Date

ENGINEER'S SEAL

PRELIMINARY DESIGN SUBMITTAL

NOT FOR CONSTRUCTION

No.	Remarks	By
	REVISIONS	

DESIGN
Designed By | Date
Drawn By | Date
Checked By | Date

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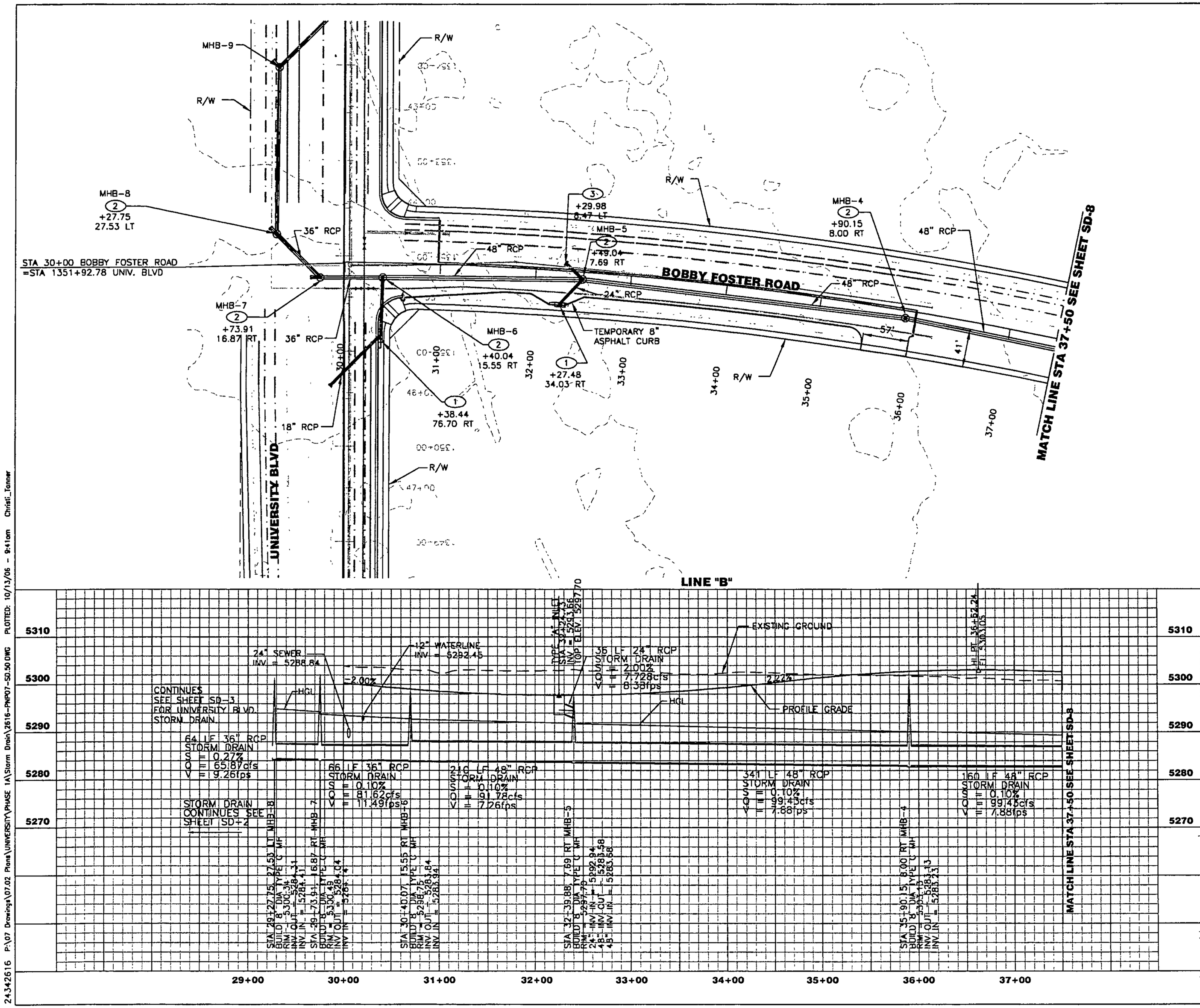


KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-11
2. TYPE "C" MANHOLE PER COA STD DWG No. 2101
3. STUB-OUT FOR FUTURE CONNECTION
4. TYPE "A" INLET PER COA STD DWG No. 2201
5. PROTECT AND SUPORT EXISTING 24" WATERLINE
6. OUTFALL WITH EROSION CONTROL SEE SHEET SD-10, DETAIL 2
7. NORTH POND OUTLET SEE SHEET SD-10, DETAIL 1

GRAPHIC SCALE IN FEET
50 0 50 100
HORIZONTAL
GRAPHIC SCALE IN FEET
10 0 10 20
VERTICAL

AS BUILT INFORMATION
CONTRACTOR | DATE
WORK STAKED BY | DATE
INSPECTOR'S INITIALS | DATE
FIELD VERIFICATION BY | DATE
DRAWINGS CORRECTED BY | DATE
MICRO-FILM INFORMATION
RECORDED BY | DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
No. | By | Date

ENGINEER'S SEAL

PRELIMINARY DESIGN SUBMITTAL

NOT FOR CONSTRUCTION

REVISIONS
No. | Remarks | By
DESIGN
Designed By | Date
Drawn By | Date
Checked By | Date

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

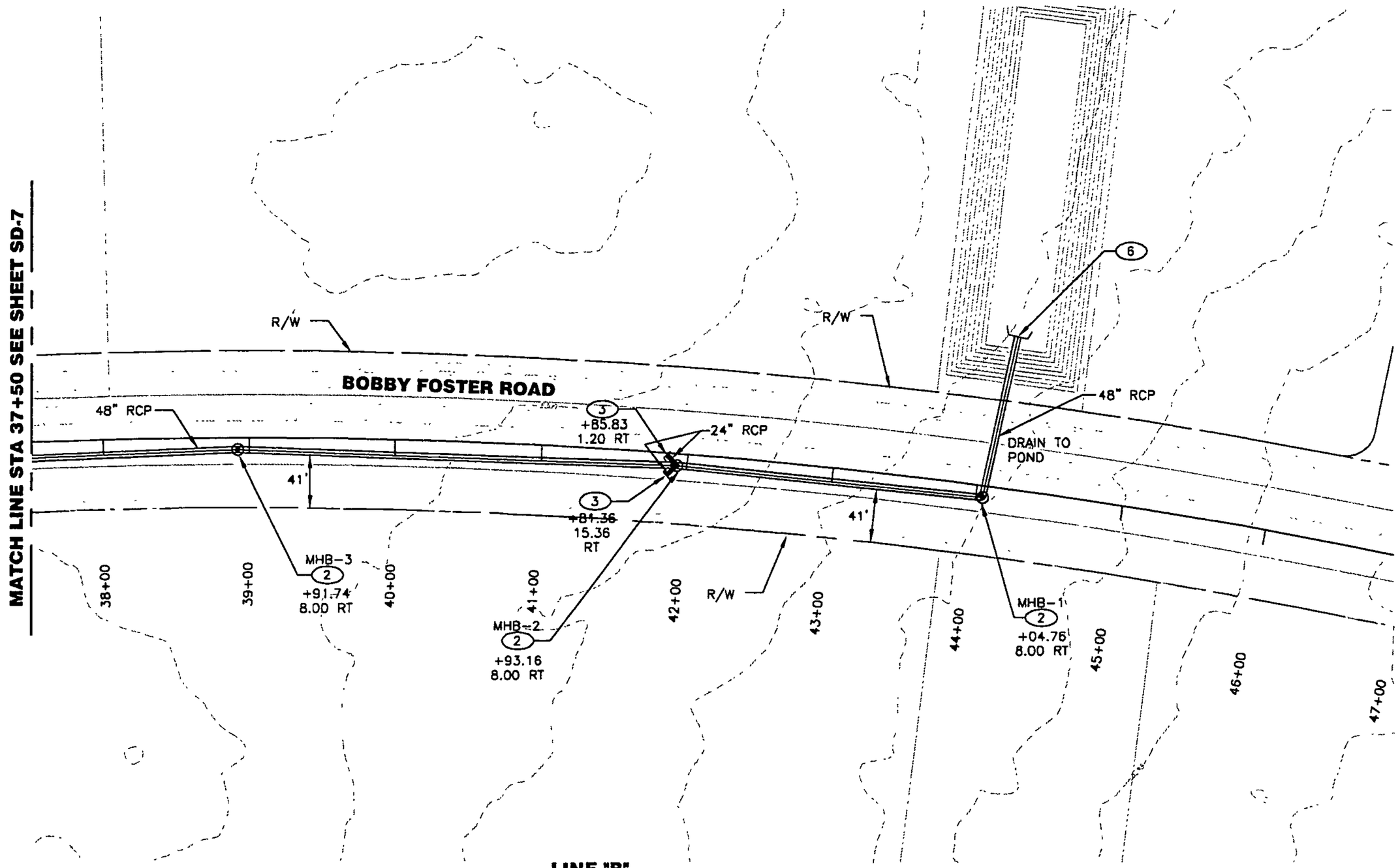
CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE:
UNIVERSITY BLVD. EXTENSION
STORM DRAIN - PLAN AND PROFILE - PHASE 1A
FUTURE BOBBY FOSTER ROAD

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

City Project No.	Zone Map No	Sheet	Of	
775482	Q-15			SD-7

24342616 P:\07 Drawings\07.02 Plans\UNIVERSITY\PHASE 1A\Storm Drain\2616-PNP07-SD.50.DWG PLOTTED: 10/13/06 - 9:41am Christi_Tanner



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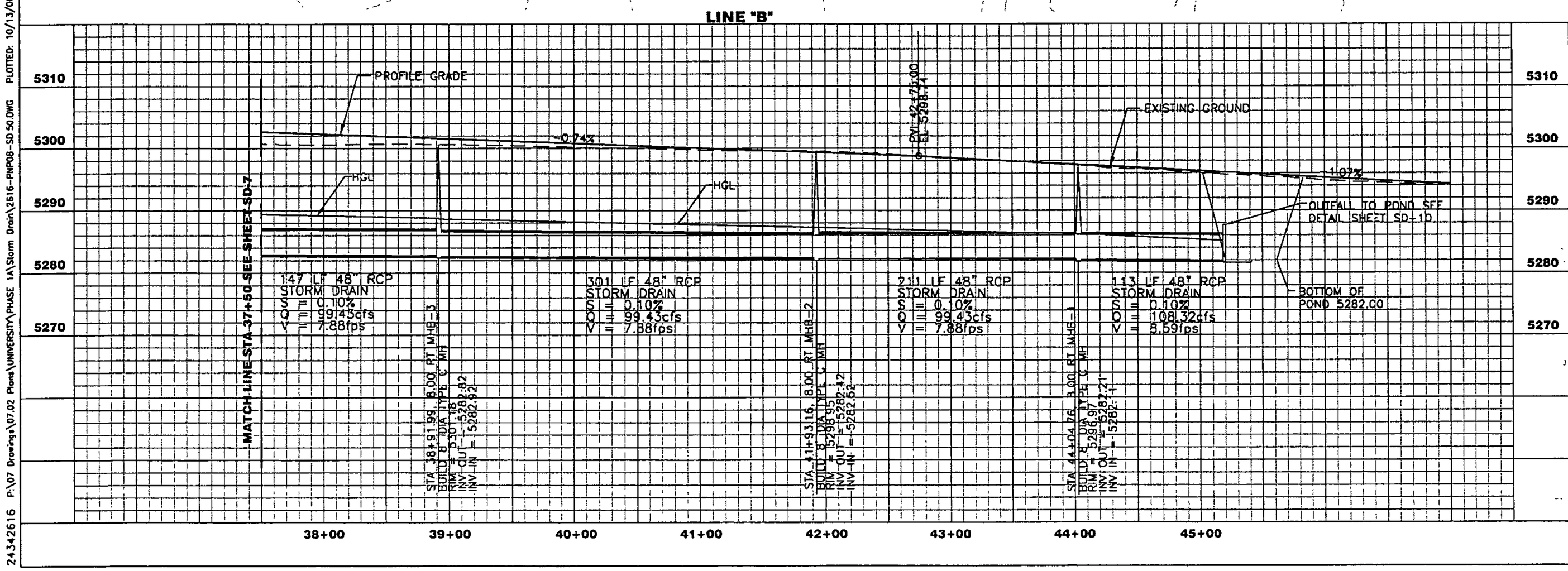

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GRAPHIC SCALE IN FEET
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VERTICAL

AS BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
MISCELLANEOUS CHANGES BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
No. By Date

ENGINEER'S SEAL

PRELIMINARY DESIGN SUBMITTAL

NOT FOR CONSTRUCTION

No.	Remarks	By
	REVISIONS	

Designed By Date
Drawn By Date
Checked By Date

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: UNIVERSITY BLVD. EXTENSION
STORM DRAIN - PLAN AND PROFILE - PHASE 1A
FUTURE BOBBY FOSTER ROAD

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

City Project No.	Zone Map No	Sheet	Of	
775482	Q-15			SD-8

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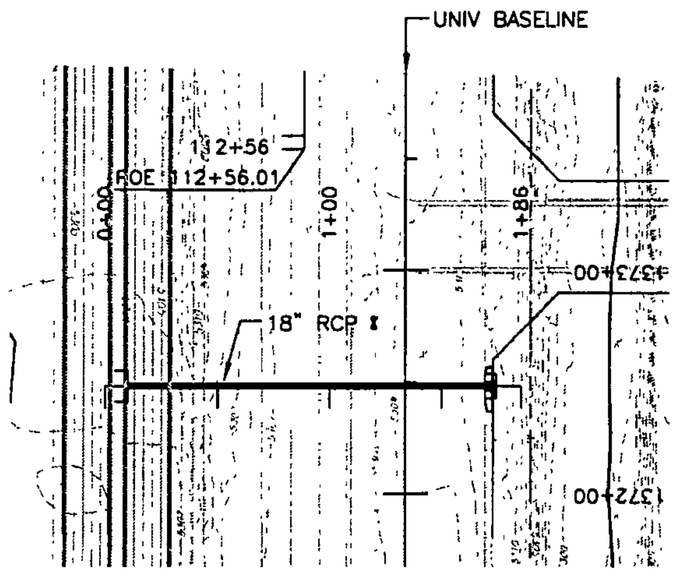
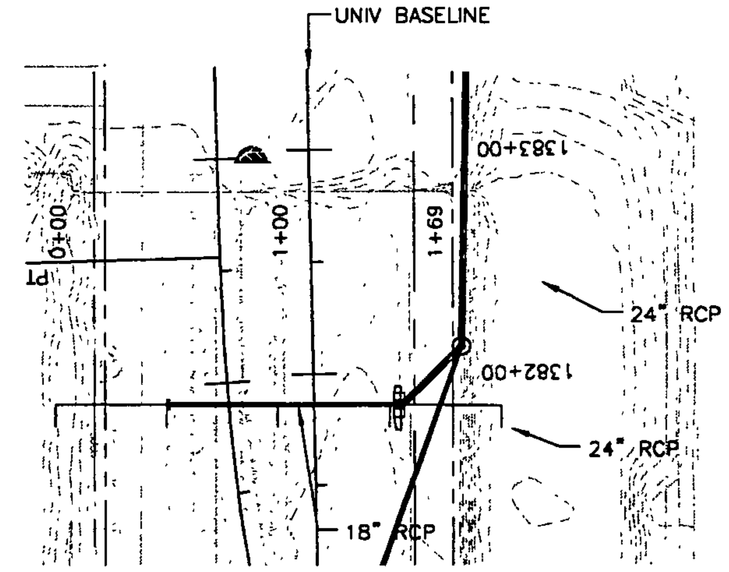


ADVENT SD TO POND UNDER ROAD
℄ UNIVERSITY BLVD. STA 1372+48.17



INLET CROSSING LINE "E" FROM
SHEET SD-5 @ STA 1381+86.09

KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-10
2. TYPE "C" MANHOLE PER COA STD DWG No. 2101
3. STUB-OUT FOR FUTURE CONNECTION
4. TYPE "A" INLET PER COA STD DWG No. 2201
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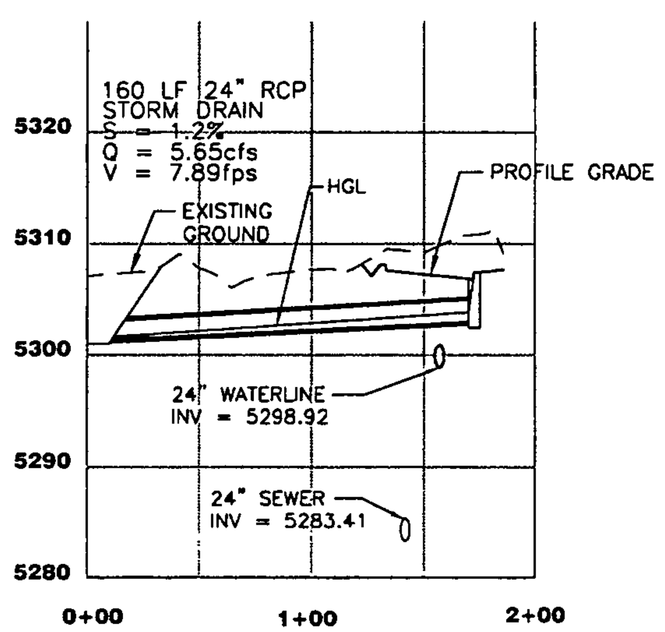
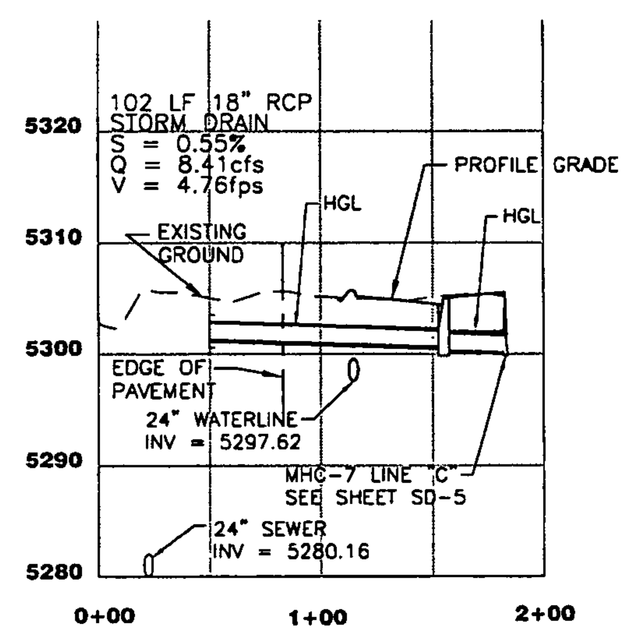
6. OUTFALL WITH EROSION CONTROL SEE SHEET SD-10, DETAIL 2
7. NORTH POND OUTLET SEE SHEET SD-10, DETAIL 1

LINE "D"



LINE "E"



N

GRAPHIC SCALE IN FEET
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HORIZONTAL
GRAPHIC SCALE IN FEET
10 0 10 20

VERTICAL

AS BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
No. By Date

ENGINEER'S SEAL

PRELIMINARY DESIGN SUBMITTAL

NOT FOR CONSTRUCTION

REVISIONS
No. Remarks By
DESIGN
Designed By Date
Drawn By Date
Checked By Date

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION**
STORM DRAIN - PLAN AND PROFILE - PHASE 1A
JOURNAL PAVILION / ADVENT

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

City Project No.	Zone Map No.	Sheet	Of	
775482	Q-15			SD-9

24342616 P:\07 Drawings\07.02 Plans\UNIVERSITY\PHASE 1A\Storm Drain\2616-PNP09-SD.50.DWG PLOTTED: 10/13/06 - 9:45am Christi_Tanner

Bohannan △ Huston INC.

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

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

Las Cruces
425 S. Telshor Blvd.
Suite C-103
Las Cruces, NM
88011-8237

voice: 505.532.8670
facsimile: 505.532.8680

Dallas
310 East I-30
Suite 100
Garland, TX
75043

voice: 972.226.8181
facsimile: 972.226.8184
toll free: 866.791.8100

Denver
Meridian One
9785 Maroon Circle
Suite 140
Englewood, CO
80112-5928

voice: 303.799.5103
facsimile: 303.799.5104
toll free: 877.799.5103

www.bhinc.com

September 1, 2009

Christian J. Sholtis, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, NM 87109

Re: Phase 1B 1 Supplement to Drainage Report for Mesa del Sol Residential Plat No. 1 and Grading Plan

Engineer's Stamp dated 3-12-09 (R16/D003A)

Dear Mr. Sholtis,

Based on the information provided in your submittal received 3-13-09, the above referenced Drainage Report and Grading Plan cannot be approved for Preliminary Plat action by the DRB or Grading Permit until the following comments are addressed:

- Basins are not provided for Phases. Ponding volumes are provided with WSE's, but the corresponding basin is not provided.
- It appears the temporary ponding areas will not be contained and will drain to University Blvd.
- There are three sumps in University Blvd in this area without storm drain inlets. Provide a Drainage Analysis Report for southbound University south of Bobby Foster.
- Provide an Infrastructure List.
- Label Strand Loop.

If you have any questions, you can contact me at 924-3695.

Attach CG-3 to grades on profiles to show Strand Loop.

Is an easement required, will cable be buried

Sincerely,

Curtis A. Cherne, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: file
Brad Bingham

Comments on Misu Rd Sol ph 1A Dap

1. Plans submitted (stamp date 10-10-06) are <u>not</u> in agreement with this report. They do not show the Bobby Foster Rd Regional Pond.

2. Where is the pond and what size is it that is "South of the west University pond".

3. Concerning the "artfully and strategically" located detention ponds. It seems they could be located and sized NOW

set of plans similar to "Work in this area completed by Site Package "A"" for the work done on the Grading Permit submittal. Details for pond construction should be removed from this set

- Each plan set should have the same stamp date so that there is a plan set to certify.

This guidance is provided so that this project can be completed and a CO can be approved as soon as possible with confidence that all work was completed.

I would be more than happy to meet with you to discuss this or you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne, E.I.
Engineering Associate, Planning Dept.
Development and Building Services

C: file

Bohannan ▲ Huston INC.

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

CLIENT/COURIER TRANSMITTAL

To: Arlene Portillo
Plaza Del Sol

Requested by: Michael Balaskovits/ SW

Date: 10/16/2006

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

Phone: 924-3982

Job No.:

Job Name: Mesa Del Sol

DELIVERY VIA

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

PICK UP

Item: _____

ITEM NO.	QUANTITY	DESCRIPTION
1	2	Mesa Del Sol Phase 1A University Blvd. Drainage Design Analysis Report

COMMENTS / INSTRUCTIONS

RECEIVED
OCT 16 2006
HYDROLOGY SECTION

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

ENGINEERING ▲
SPATIAL DATA ▲
ADVANCED TECHNOLOGIES ▲

CITY OF ALBUQUERQUE

August 20, 2007

Jeffrey L. Mulbery, P.E.
Bohannan Huston, Inc.
7500 Jefferson St NE- Courtyard I
Albuquerque, NM 87109

Re: Mesa Del Sol Phase 1B University Blvd Drainage Analysis Report

Engineer's Stamp dated 8-15-07 (R16/D098)

Dear Mr. Mulberry,

Based upon the information provided in your submittal dated 8-17-07, the above referenced report is approved for Change Order to Work Order 7754.82. If you have any questions, you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne, P.E.
Engineering Associate, Planning Dept.
Development and Building Services

C: file

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

PROJECT TITLE: Mesa del Sol Phase 1~~A~~B University Blvd - DAR ZONE MAP/DRG. FILE # ~~R15-R18~~ R-16/D098

DRB #: _____ EPC#: _____ WORK ORDER#: 775482

LEGAL DESCRIPTION: _____

CITY ADDRESS: _____

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

OWNER: Forest City Covington, N.M., LLC CONTACT: Mike Castillo
ADDRESS: 801 University Blvd. SE, Suite 200 PHONE: 505-400-3021
CITY, STATE: Albuquerque, NM ZIP CODE: 87106

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

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

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

CHECK TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN
____ CONCEPTUAL GRADING & DRAINAGE PLAN
____ GRADING PLAN
____ EROSION CONTROL PLAN
____ ENGINEER'S CERTIFICATION (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEERS CERTIFICATION (TCL)
____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
__X__ OTHER (DRAINAGE DESIGN ANALYSIS REPORT)
REVISION TO PHASE 1B

CHECK TYPE OF APPROVAL SOUGHT:

____ SIA / FINANCIAL GUARANTEE RELEASE
____ PRELIMINARY PLAT APPROVAL
____ S. DEV. PLAN FOR SUB'D. APPROVAL
____ S. DEV. PLAN FOR DRB APPROVAL
____ SECTOR PLAN APPROVAL
____ FINAL PLAT APPROVAL
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM.)
____ CERTIFICATE OF OCCUPANCY (TEMP.)
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
__X__ WORK ORDER (*CHANGE ORDER*) APPROVAL
__X__ OTHER (DRC HYDROLOGY APPROVAL)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

____ YES
____ NO
____ COPY PROVIDED

RECEIVED
AUG 17 2007
HYDROLOGY SECTION

DATE SUBMITTED: 08-17-07 BY: Jeff Mulbery/mb

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

Bohannan ▲ Huston INC.

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

CLIENT/COURIER TRANSMITTAL

To: Brad Bingham
City of Albuquerque
Planning Department
600 Second Street NW, 2nd Floor West

Requested by: Mike Balaskovits

Date: August 17, 2007

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

Phone: 924-3986

Job No.: 070039

Job Name: Mesa Del Sol University Blvd Extension

DELIVERY VIA

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

PICK UP

Item: _____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Drainage Information Sheet
2	1	DAR revision to Phase 1B
3	1	Copy of Signed Field Change Order letter dated 8-14-07

COMMENTS / INSTRUCTIONS

Brad, Attached is the revision to the Mesa del Sol Phase 1A & 1B DAR. This revision addresses changes in basin size to Phase 1B as discussed Tuesday August 14th. If you have any questions or comments feel free to contact myself or Jeff Mulbery. Thank you.

RECEIVED
AUG 17 2007
HYDROLOGY SECTION

REC'D BY: _____ ***DATE:*** 8-17-07 ***TIME:*** 12:10

ENGINEERING ▲
SPATIAL DATA ▲
ADVANCED TECHNOLOGIES ▲

URS

August 14, 2007

Steven Woodall
Design Review Committee Chair
City of Albuquerque Planning Department
Plaza Del Sol Building
600 2nd Street NW
Albuquerque, New Mexico 87102

Re: **University Boulevard Extension, Phase 1B**
Mesa Del Sol Planned Community
Field Change Order Approval

Dear Steven:

URS is respectively requesting approval of a field change order. Due to further investigation of future development plans the following will change: a) an 8" sewer line will be redirected down E. University Blvd. instead of Stryker Crossing (eliminating 700-lf of 8" SAS), b) five additional water stub outs have been provided for the Albuquerque Studios Lot along E. University Blvd and Stryker Crossing, and c) the original 41-lf of 8" force main in W. University Blvd., has been changed to 41-lf of 10" and 41-lf of 12" force mains to accommodate different stages of development.

In addition, an increase of 17.5cfs was found and a new hydraulic model was run. All storm drains along W. University and Stryker have increased by one pipe size. The roadway was changed per City Transportation's comments; therefore inlets have been shifted to new low points.

The costs of the project changes are roughly equivalent to original cost estimate. The enclosed exhibits reflect the changes being made. Thank you for your attention to this matter.

Sincerely,

Christi L. Tanner

URS Corporation
Christi L. Tanner, PE
Project Engineer

APPROVAL

William J. Balch
Bill Balch, Utility Development

Bradley L. Bingham
Brad Bingham, Hydrology Development

Stephen Woodall
Steven Woodall, DRC Chair

URS Corporation
One Park Square
6501 Americas Parkway, NE
Suite 900
Albuquerque, NM 87110-5311
Tel: 505.855.7500
Fax: 505.855.7555

MESA DEL SOL (REVISED) PHASE 1B UNIVERSITY BOULEVARD DRAINAGE DESIGN ANALYSIS REPORT

MESA DEL SOL PHASE 1A UNIVERSITY BLVD DAR ENGINEER'S STAMP DATE 10-13-06
MESA DEL SOL PHASE 1B UNIVERSTITY BLVD DAR ENGINEER'S STAMP DATE 2-22-07
COA HYDRO FILE # R16/D3

PREPARED BY:
BOHANNAN HUSTON INC.
COURTYARD ONE
7500 JEFFERSON NE
ALBUQUERQUE, NM 87109

WITH COLLABORATION FROM:
URS CORPORATION
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110-5311

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AUG 17 2007
HYDROLOGY SECTION

Prepared by:

8.15.07
Jeffrey L. Mulbery, PE. Date
Bohannan Huston Inc.

8-15-07
Philip Fischer, P.E. Date
URS Corporation

Bohannan ▲ Huston INC.

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

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voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

August 16, 2007

Brad Bingham, P.E.
Hydrology Development Division
City of Albuquerque Planning Department
P. O. Box 1293
Albuquerque, NM 87103

Re: Mesa del Sol Phase 1B (Revised) University Blvd DAR
Mesa del Sol Phase 1A University Blvd DAR (Engineer's stamp date 10-13-06)
Mesa del Sol Phase 1B University Blvd DAR (Engineer's stamp date 2-22-07)
COA Work Order 7754.82; COA Drainage File # H16/D3)

Dear Brad:

The purpose of this letter is to provide you with revisions to the approved DAR (original stamp date 10-13-06, Phase 1B revision stamp date 2-22-07). This DAR was submitted in support of the COA Work Order 7754.82 hydrology approval. Additional offsite basins have been added to Basin C which will contribute to the new storm drain constructed with Phase 1B. This change to the basin will result in additional storm drain infrastructure as well as an increase in pipe size diameter of the current approved storm drain design. In addition, the basin previously referred to as DA-1F (approx. 3.2acres) will now drain south within the future Town Center. A separate submittal will address this drainage at a later date.

This field change will add two storm drain stub-outs that will enter the storm drain within the southbound couplet. The stub outs have been sized to accept developed flows from these basins (see Figure 6R). Upon development, a separate submittal will be provided detailing the location of drainage structures to properly drain these basins.

In addition, this change has resulted in an increase in pipe diameter for the storm drain within the southbound couplet, Stryker Rd. (Previously Simms Dr.), and Hawking Dr. heading to the outfall into the regional retention pond.

This letter, along with the attachments, will be a supplement to the DAR to address this basin revision. A summary of the figures and appendices included with this revision are as follows;

FIGURE 4R – OVERALL DRAINAGE AREA C (Revised 8-14-07)

FIGURE 5R – REGIONAL RETENTION POND VOLUME CALCULATIONS (Revised 8-15-07)

FIGURE 6R – PHASE 1B OVERALL DRAINAGE AREA MAP (Showing Stationing and Q's)

APPENDIX C-R – ADDITIONAL HYDRAULIC CALCULATIONS

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SPATIAL DATA ▲
ADVANCED TECHNOLOGIES ▲

With this revision we are requesting COA hydrology approval in support of DRC field change approval for the revision to Phase 1B (COA Project 7754.82).

If you have any questions or require further information, please feel free to contact me at 823-1000.

Sincerely,

Jeffery L. Mulbery, P.E.
Project Engineer
Community Development and Planning

JLM/cc
Enclosures

cc: Philip Fischer, URS (w/ encls.)

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AUG 17 2007
HYDROLOGY SECTION

FIGURES

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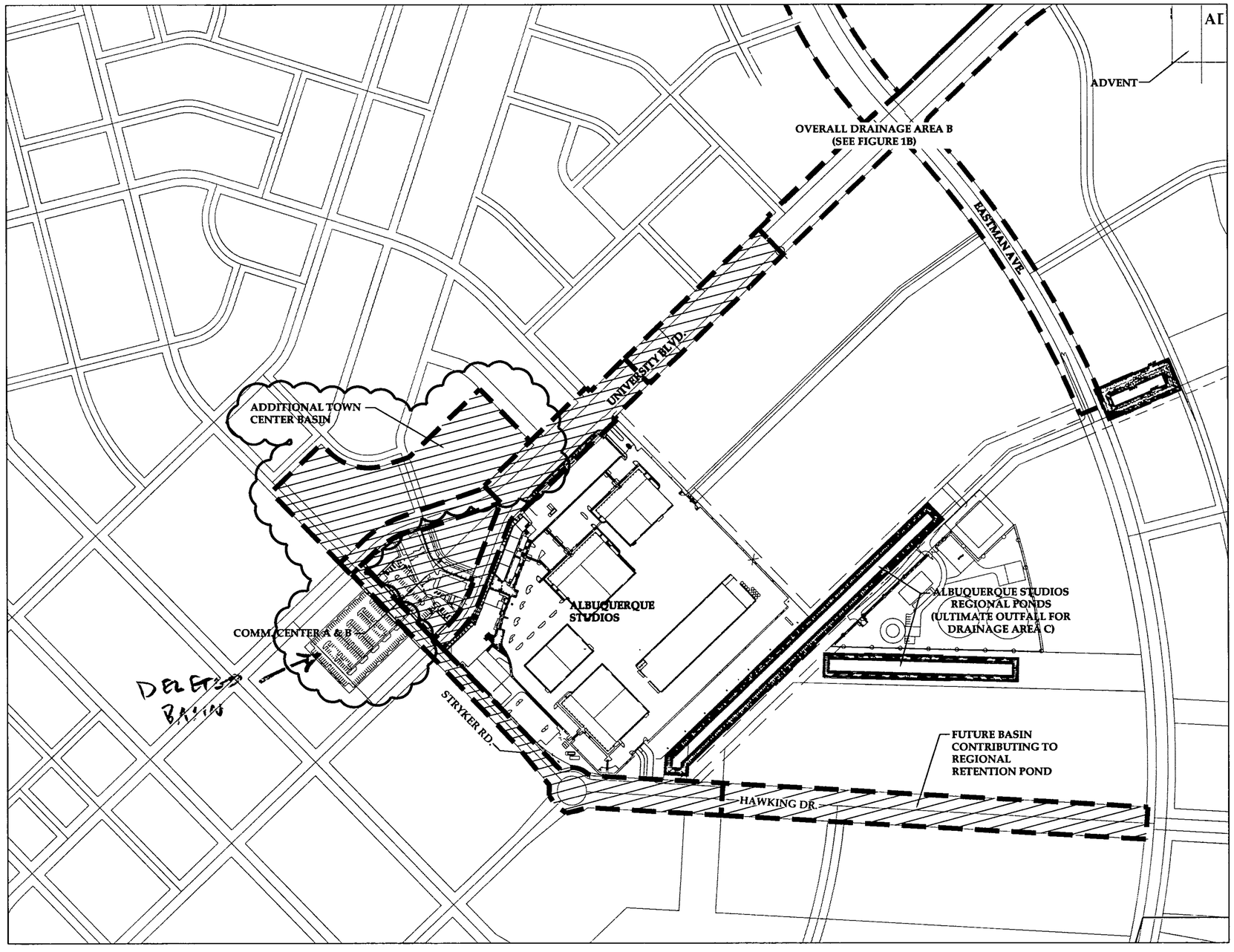
AUG 17 2007
HYDROLOGY SECTION



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1" = 200'

P:\070039\cdp\general\070039DRAINAGE AREA-C.dwg
August 15, 2007 - 4:38pm

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AUG 17 2007
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Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	

Designed By: DATE:
Drawn By: DATE:
Checked By: DATE

AS-BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FINAL INSPECTION BY DATE
CONNECTED BY DATE

MICROFILM INFORMATION
RECORDED BY DATE
NO

BENCH MARKS
2" ALUMINUM CAP, STAMPED BM 096-1
NAD 83, NAVD 88
NORTHING: 1,451,106.025, EASTING: 1,532,413.319
ELEVATION: 5,298.020

SURVEY INFORMATION
FIELD NOTES

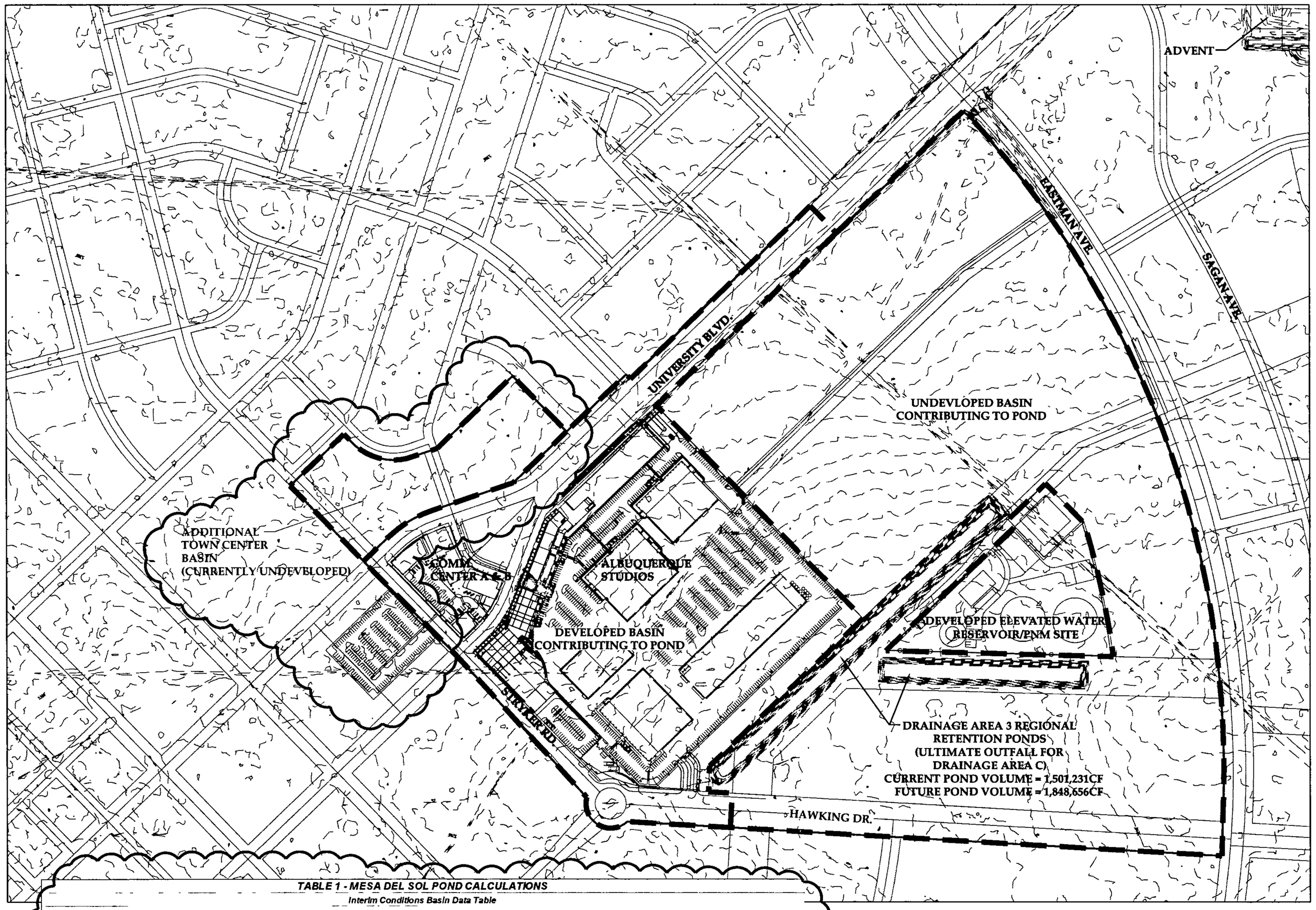
NO	BY	DATE

ENGINEER'S SEAL

FIGURE 4 (Revised 8-14-07)
OVERALL DRAINAGE AREA C

Last Design Update: Mo./Day/Yr. Mo./Day/Yr.

Zone Map No. R-15&16
Sheet 4R Of



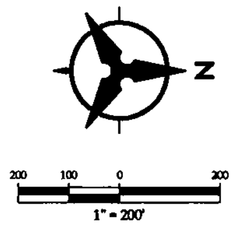


TABLE 1 - MESA DEL SOL POND CALCULATIONS

Interim Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 2

BASIN ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (cfs)	WT E (inches)	$V(100)_{360}$ (CF)	$V(100)_{10day}$ (CF)
Developed	2312202	53.08	0.0%	10.0%	0.0%	90.0%	4.5	236.6	*1.99*	*382669*	*660134*
Undeveloped	3826774	87.85	90.0%	10.0%	0.0%	0.0%	1.6	143.4	*0.56*	*176988*	*176988*
TOTAL	6138976	140.93						380.0		559658	837122
CURRENT POND VOLUME =	1,501,231CF	>	837,122	CF							

P:\070039\cdp\general\070039POND CALC.dwg
August 15, 2007 - 4:34pm

RECEIVED
AUG 17 2007
HYDROLOGY SECTION

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

AS-BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTED BY ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICROFILM INFORMATION
RECORDED BY DATE
NO

BENCH MARKS
2" ALUMINUM CAP STAMPED BM 096-1
NAD 83, NAVD 88
NORTHING, 1,451,106.025, EASTING, 1,532,413.519
ELEVATION: 5298.020

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL

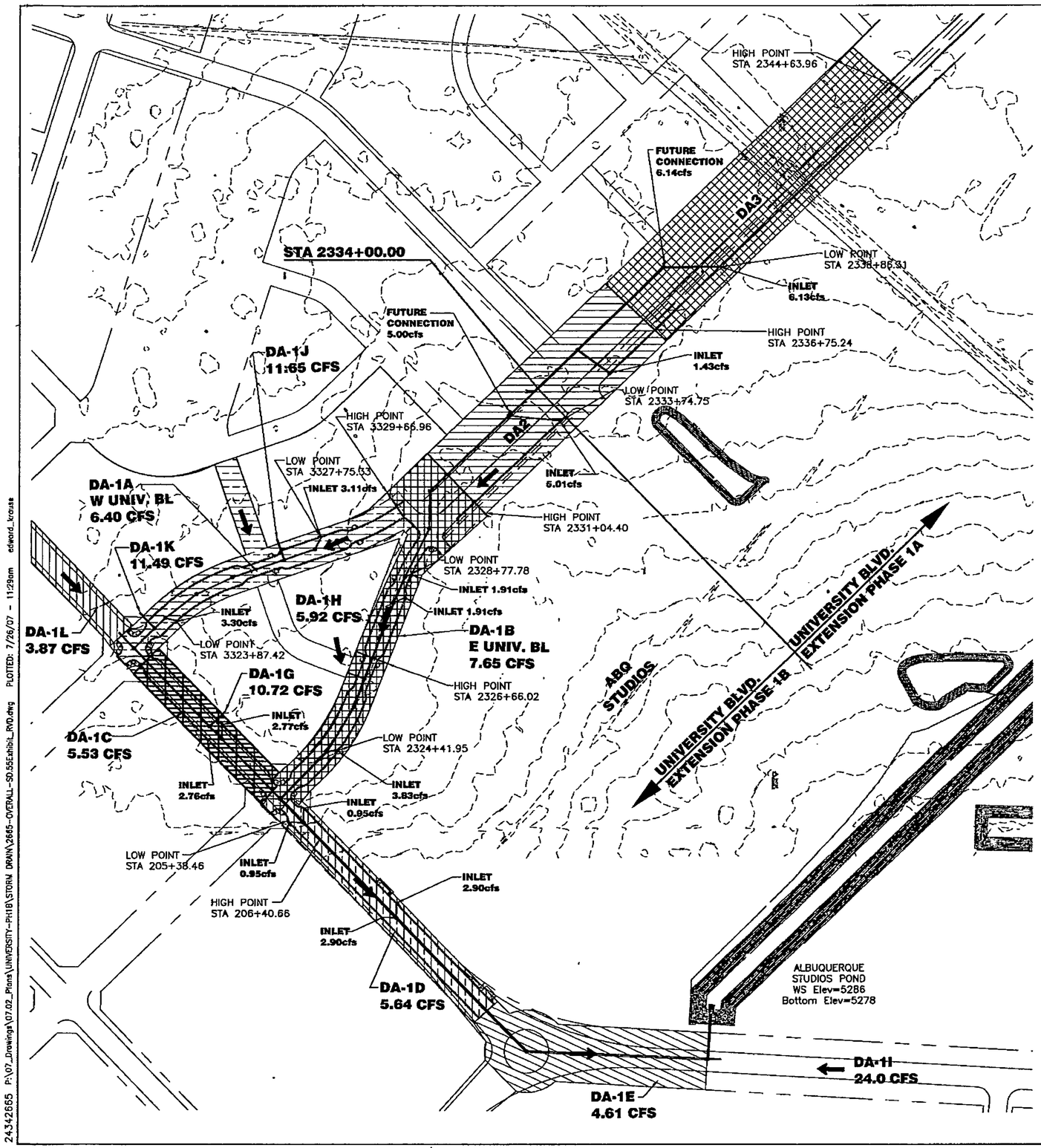
No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	

Designed By: DATE
Drawn By: DATE
Checked By: DATE

FIGURE 5 (Revised 08-15-07)
REGIONAL RETENTION POND VOLUME CALCULATIONS

Last Design Update: Mo./Day/Yr Mo./Day/Yr

Zone Map No. R-15&16 Sheet 5R Of



DRAINAGE AREAS

DA	STATIONS	LOW POINT STATION	INTERIM AREA (ACRES)	INTERIM Q10 (CFS)	INTERIM Q100 (CFS)	ULTIMATE AREA (ACRES)	ULTIMATE Q10 (CFS)	ULTIMATE Q100 (CFS)
1A	3321+37.25 TO 3329+66.96	3323+87.42	--	--	--	1.40	4.26	6.40
		3327+75.33						
1B	2321+95.00 TO 2331+04.40	2328+77.78	--	--	--	1.6	5.11	7.65
		2324+41.95						
1C	200+00.00 TO 206+40.66	202+68.81	--	--	--	1.18	3.69	5.53
		205+38.46						
1D	206+40.66 TO 212+98 33	211+98.33	--	--	--	1.20	3.77	5.64
1E	212+98.33 to 218+00	--------	--	--	--	0.98	3.08	4.61
1G	Buildings A&B of Community Center	--------	--	--	--	2.28	7.16	10.72
1H	Community Center Park And Plaza Road	--------	--	--	--	1.26	3.96	5.92
1I	North of Hawking Drive Future Phase	--------	--	--	--	5.10	16.03	24.00
1J	Drainage Area West	--------	--	--	--	2.89	9.07	11.65
1K	Drainage Area West	--------	--	--	--	2.85	8.94	11.49
1L	Section of Stryker West of Intersection	--------	--	--	--	0.96	3.01	3.87
2	2331+04.40 TO 2336+75.24	2333+75.42	1.22	3.82	5.72	2.43	7.65	11.44
3	2336+74.32 TO 2344+63.96	2338+86.31	1.31	4.10	6.13	2.61	8.20	12.27

NOT TO SCALE

AS BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
INSPECTOR ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-Q-14, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEVATION=4981.17

SURVEY INFORMATION
FIELD NOTES

No.	By	Date

ENGINEER'S SEAL

No.	Remarks	By	Date

REVISIONS

DESIGN

		Date
Designed By	CR	10/06
Drawn By	URS	10/06
Checked By	BFB	10/06

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION PHASE 1B OVERALL DRAINAGE AREA MAP**

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

City Project No.	Zone Map No.	Sheet	Of	
775482	R-16, S-16	00	6R	Figure-R

24342665 P:\07_Drawings\07.02_Plans\UNIVERSITY-PH1B\STORM DRAIN\2665-OVERALL-S0.55Exhibit_RVD.dwg PLOTTED: 7/26/07 - 11:29am edward_krauss

APPENDIX C-R

University Blvd. Extension Phase 1B - Drainage Area (C)

Drainage Area Numbers	Stations (Obtained From AutoCAD Roadway)	Low Point Stations	Area (Acres)	Peak Discharge (cfs/acre) Zone 2, Treatment D, From DPM Table A-9		10 Year Flows (cfs)	100 Yr Flows (cfs)
				10 Year	100 Year		
SB Couplet DA-1A	3321+37.25 to 3329+66.96	3323+87.42	1.40	3.14	4.70	4.26	6.40
		3327+75.33					
NB Couplet DA-1B	2321+95.00 to 2331+04.40	2328+77.78	1.60	3.14	4.70	5.11	7.65
		2324+41.95					
Stryker Crossing DA-1C	200+00.00 to 206+40.66	202+68.81	1.18	3.14	4.70	3.69	5.53
		205+38.46					
Stryker Crossing DA-1D	206+40.66 to 212+98.33	211+98.33	1.20	3.14	4.70	3.77	5.64
Stryker Crossing DA-1E	212+98.33 to 218+00.00	----------	0.98	3.14	4.70	3.08	4.61
Buildings A&B of Community CenterDA-1G	----------	----------	2.28	3.14	4.70	7.16	10.72
Community Center Park & Plaza RoadDA-1H	----------	----------	1.26	3.14	4.70	3.96	5.92
North of Hawking Drive Future Phase DA-1I	----------	----------	5.10	3.14	4.70	16.01	24.00
Drainage Area West DA-1J	----------	----------	2.89	3.14	4.03	9.07	11.65
Drainage Area West DA-1K	----------	----------	2.85	3.14	4.03	8.94	11.49
DA 2	2331+04.40 to 2336+75.24	2333+75.42	2.43	3.14	4.70	7.65	11.44
DA 3	2336+74.32 to 2344+63.96	23338+86.31	2.61	3.14	4.70	8.20	12.27
Total Flow Contributing to Regional Retention Pond							**121.82**

==========
Scenario: Mesa Del Sol - Revised: Additional Flows & Revised Pipe Sizes

>>>> Info: Subsurface Network Rooted by: Pond
>>>> Info: Subsurface Analysis iterations: 1
>>>> Info: Convergence was achieved.

CALCULATION SUMMARY FOR SURFACE NETWORKS

Label	Inlet Type	Inlet	Total Intercepted Flow (cfs)	Total Bypassed Flow (cfs)	Capture Efficiency (%)	Gutter Spread (ft)	Gutter Depth (ft)
I-C7a	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-C3	Combination Inlet	Combination COA_Type A	2.51	0.39	86.5	10.32	0.29
I-C3a	Combination Inlet	Combination COA_Type A	2.51	0.39	86.5	10.32	0.29
I-C6a	Combination Inlet	Combination COA_Type A	2.45	0.32	88.5	7.41	0.20
I-C6b	Combination Inlet	Combination COA_Type A	2.44	0.32	88.5	7.40	0.20
I-HAWK	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-C4a	Combination Inlet	Combination COA_Type A	0.95	0.00	100.0	2.24	0.09
I-C4b	Combination Inlet	Combination COA_Type A	0.95	0.00	100.0	2.24	0.09
I-A6	Combination Inlet	Combination COA_Type A	1.91	0.00	100.0	2.63	0.14
I-A3	Combination Inlet	Combination COA_Type A	5.01	0.00	100.0	7.70	0.24
I-A1	Combination Inlet	Combination COA_Type A	6.13	0.00	100.0	9.22	0.27
I-A2	Combination Inlet	Combination COA_Type A	1.43	0.00	100.0	2.46	0.12
I-A1a	Combination Inlet	Combination COA_Type A	6.14	0.00	100.0	9.23	0.27
I-A3a	Combination Inlet	Combination COA_Type A	5.00	0.00	100.0	7.69	0.24
I-A7	Combination Inlet	Combination COA_Type A	1.91	0.00	100.0	2.63	0.14
I-A10	Combination Inlet	Combination COA_Type A	3.83	0.00	100.0	5.97	0.21
I-C2	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-PARK	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-B2	Combination Inlet	Combination COA_Type A	3.30	0.00	100.0	5.13	0.19
I-DA1K	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-strykr	Combination Inlet	Combination COA_Type A	3.87	0.00	100.0	6.62	0.22
I-DA1J	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-B5	Combination Inlet	Combination COA_Type A	3.11	0.00	100.0	2.92	0.18

CALCULATION SUMMARY FOR SUBSURFACE NETWORK WITH ROOT: Pond

Label	Number of Sections	Section Size	Section Shape	Length (ft)	Total System Flow (cfs)	Average Velocity (ft/s)	Hydraulic Grade Upstream (ft)	Hydraulic Grade Downstream (ft)
P-C1	1	54 inch	Circular	107.26	121.82	7.66	5,286.41	5,286.00
P-C2	1	54 inch	Circular	435.00	97.82	6.15	5,287.74	5,286.66
P-HAWK	1	30 inch	Circular	30.00	24.00	4.89	5,286.57	5,286.47
P-C3	1	54 inch	Circular	427.50	93.23	5.86	5,288.80	5,287.84
P-C2a	1	24 inch	Circular	51.00	4.59	1.46	5,287.84	5,287.82
P-HAWKN	1	30 inch	Circular	111.00	24.00	6.82	5,287.49	5,286.87
P-C4	1	54 inch	Circular	312.50	88.21	5.55	5,289.45	5,288.82
P-C3b	1	18 inch	Circular	32.00	2.51	5.85	5,292.58	5,291.89
P-C3a	1	18 inch	Circular	32.00	2.51	5.85	5,292.58	5,291.89
P-C4b	1	24 inch	Circular	30.00	0.95	0.30	5,294.53	5,294.39
P-C5	1	54 inch	Circular	67.00	86.31	5.43	5,289.59	5,289.46
P-C4a	1	24 inch	Circular	30.00	0.95	0.30	5,294.53	5,294.39
P-C6	1	36 inch	Circular	192.51	49.03	6.94	5,290.64	5,289.60
P-A10	1	36 inch	Circular	151.30	37.28	5.27	5,290.08	5,289.60
P-C7	1	36 inch	Circular	40.50	44.14	6.24	5,291.04	5,290.87
P-C6a	1	24 inch	Circular	30.00	2.45	1.78	5,294.87	5,294.70
P-C6b	1	24 inch	Circular	30.00	2.44	1.78	5,294.87	5,294.70
P-A10a	1	24 inch	Circular	25.00	3.83	6.86	5,293.74	5,293.04
P-A9	1	36 inch	Circular	119.88	33.45	4.73	5,290.42	5,290.12
P-C7a	1	24 inch	Circular	50.00	10.72	3.41	5,291.53	5,291.42
P-C8	1	36 inch	Circular	250.00	33.42	4.73	5,291.73	5,291.10
P-A8	1	36 inch	Circular	69.21	33.45	4.73	5,290.62	5,290.45
P-B1	1	30 inch	Circular	66.00	29.55	6.02	5,292.12	5,291.77
P-strykr	1	24 inch	Circular	87.00	3.87	1.23	5,291.82	5,291.80
P-Park	1	24 inch	Circular	38.80	5.92	1.88	5,290.67	5,290.64
P-A7	1	36 inch	Circular	187.57	27.53	3.89	5,290.97	5,290.65
P-DA1K	1	24 inch	Circular	50.00	11.49	3.66	5,292.39	5,292.27
P-B2	1	30 inch	Circular	33.70	18.06	3.68	5,292.25	5,292.19
P-A7a	1	24 inch	Circular	28.90	1.91	4.78	5,293.71	5,293.23
P-A6	1	36 inch	Circular	65.40	25.62	3.62	5,291.09	5,290.99
P-B2a	1	24 inch	Circular	25.00	3.30	5.14	5,294.57	5,294.22
P-B3	1	30 inch	Circular	88.80	14.76	3.01	5,292.41	5,292.29
P-A6a	1	24 inch	Circular	14.20	1.91	5.50	5,293.78	5,293.38
P-A5	1	30 inch	Circular	122.31	23.71	4.83	5,291.51	5,291.10
P-B4	1	30 inch	Circular	92.30	14.76	3.01	5,292.54	5,292.42
P-A4	1	30 inch	Circular	86.60	23.71	4.83	5,291.91	5,291.62
P-B4A	1	30 inch	Circular	125.23	14.76	3.01	5,292.71	5,292.55
P-A3	1	30 inch	Circular	250.00	23.71	4.83	5,293.11	5,292.28
P-DA1J	1	24 inch	Circular	50.00	11.65	3.71	5,292.90	5,292.77
P-B5	1	30 inch	Circular	74.26	3.11	0.63	5,292.73	5,292.73
P-A2	1	30 inch	Circular	220.00	13.70	2.79	5,293.41	5,293.16
P-A3a	1	18 inch	Circular	30.00	5.00	4.13	5,295.58	5,295.37
P-A3b	1	18 inch	Circular	120.00	5.01	2.84	5,295.91	5,295.37
P-B5a	1	18 inch	Circular	29.60	3.11	14.68	5,295.04	5,292.73
P-A1	1	30 inch	Circular	274.00	12.27	2.50	5,293.67	5,293.42
P-A2a	1	18 inch	Circular	90.00	1.43	1.81	5,296.34	5,296.07
P-A1a	1	18 inch	Circular	50.00	6.14	8.82	5,296.89	5,295.27
P-A1b	1	18 inch	Circular	130.00	6.13	6.17	5,296.89	5,295.45

Label	Total System Flow (cfs)	Ground Elevation (ft)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)
Pond	121.82	5,290.00	5,286.00	5,286.00
JC1	121.82	5,291.00	5,286.47	5,286.41
JC2	97.82	5,294.54	5,287.82	5,287.74
J-HAWK	24.00	5,291.20	5,286.64	5,286.57
J-C3	93.23	5,296.68	5,288.82	5,288.80
I-C2	4.59	5,294.52	5,287.84	5,287.84
I-HAWK	24.00	5,291.50	5,287.49	5,287.49
J-C4	88.21	5,298.11	5,289.46	5,289.45
I-C3	2.51	5,295.48	5,292.58	5,292.58
I-C3a	2.51	5,295.48	5,292.58	5,292.58
I-C4b	0.95	5,297.47	5,294.53	5,294.53
J-C5	86.31	5,298.97	5,289.60	5,289.59
I-C4a	0.95	5,297.47	5,294.53	5,294.53
J-C6	49.03	5,298.84	5,290.87	5,290.64
J-A10	37.28	5,298.29	5,290.12	5,290.08
J-C7	44.14	5,299.61	5,291.10	5,291.04
I-C6a	2.45	5,298.38	5,294.87	5,294.87
I-C6b	2.44	5,298.38	5,294.87	5,294.87
I-A10	3.83	5,297.71	5,293.74	5,293.74
J-A9	33.45	5,298.69	5,290.45	5,290.42
I-C7a	10.72	5,298.86	5,291.53	5,291.53
J-C8	33.42	5,299.31	5,291.77	5,291.73
J-A8	33.45	5,299.09	5,290.64	5,290.62
J-DA1K	29.55	5,298.60	5,292.19	5,292.12
I-strykr	3.87	5,298.10	5,291.82	5,291.82
I-PARK	5.92	5,298.30	5,290.67	5,290.67
J-A7	27.53	5,298.24	5,290.99	5,290.97
I-DA1K	11.49	5,300.00	5,292.39	5,292.39
J-B2	18.06	5,298.49	5,292.29	5,292.25
I-A7	1.91	5,297.43	5,293.71	5,293.71
J-A6	25.62	5,298.38	5,291.10	5,291.09
I-B2	3.30	5,298.14	5,294.57	5,294.57
J-B3	14.76	5,298.90	5,292.42	5,292.41
I-A6	1.91	5,297.50	5,293.78	5,293.78
J-A5	23.71	5,298.85	5,291.62	5,291.51
J-B4	14.76	5,299.35	5,292.55	5,292.54
J-A4	23.71	5,299.26	5,292.28	5,291.91
J-DA1J	14.76	5,299.20	5,292.73	5,292.71
J-A3	23.71	5,298.91	5,293.16	5,293.11
I-DA1J	11.65	5,300.00	5,292.90	5,292.90
J-B5	3.11	5,299.16	5,292.73	5,292.73
J-A2	13.70	5,298.11	5,293.42	5,293.41
I-A3a	5.00	5,298.20	5,295.58	5,295.58
I-A3	5.01	5,298.20	5,295.91	5,295.91
I-B5	3.11	5,298.37	5,295.04	5,295.04
J-A1	12.27	5,299.68	5,293.70	5,293.67
I-A2	1.43	5,299.47	5,296.34	5,296.34
I-A1a	6.14	5,299.47	5,296.89	5,296.89
I-A1	6.13	5,299.47	5,296.89	5,296.89

==========
Completed: 07/13/2007 12:45:25 PM

CITY OF ALBUQUERQUE

March 23, 2007

Jeff Mulberry, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Phil Fischer, PE
URS Corporation
6501 Americas Pkwy, Ste 900
Albuquerque, NM 87110

Re: Mesa del Sol Phase 1B University Blvd DAR
Engineer's Stamp dated 2-22-07, (R16/D3)

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Dear Mr. Mulberry and Mr. Fischer,

Based upon the information provided in your submittal dated 2-23-07, the above referenced report is approved for the phase of the Work Order. If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham

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

C: file

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

PROJECT TITLE: Mesa del Sol Phase 1A University Blvd - DAR ZONE MAP/DRG. FILE # R15-R16
DRB #: _____ EPC#: _____ WORK ORDER#: 775482

LEGAL DESCRIPTION: _____
CITY ADDRESS: _____

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

OWNER: Forest City Covington, N.M., LLC CONTACT: Mike Castillo
ADDRESS: 801 University Blvd. SE, Suite 200 PHONE: 505-400-3021
CITY, STATE: Albuquerque, NM ZIP CODE: 87106

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

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

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

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

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

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

RECEIVED
FEB 23 2007
HYDROLOGY SECTION

DATE SUBMITTED: 02-23-07 BY: Jeff Mulbery/mb

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

MESA DEL SOL PHASE 1B UNIVERSITY BOULEVARD DRAINAGE DESIGN ANALYSIS REPORT

(REVISION TO MESA DEL SOL PHASE 1A/1B UNIVERSITY BOULEVARD DRAINAGE DESIGN ANALYSIS REPORT)
MESA DEL SOL PHASE 1A UNIVERSITY BLVD DAR
ENGINEER'S STAMP DATED 10-13-06, COA HYDRO FILE # R16/D3

PREPARED BY:
BOHANNAN HUSTON INC.
COURTYARD ONE
7500 JEFFERSON NE
ALBUQUERQUE, NM 87109

WITH COLLABORATION FROM:
URS CORPORATION
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110-5311

RECEIVED
FEB 23 2007
HYDROLOGY SECTION

Prepared by:

2.22.07
Jeffrey L. Mulbery, PE. Date
Bohannan Huston Inc.

2-20-07
Philip Fischer, P.E. Date
URS Corporation

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

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

February 22, 2007

Brad Bingham, P.E.
Hydrology Development Division
City of Albuquerque Planning Department
P. O. Box 1293
Albuquerque, NM 87103

Re: Mesa del Sol Phase 1B University Blvd – DAR
(*Revision* to Mesa del Sol Phase 1A University Blvd – DAR
COA Work Order 7754.82; COA Drainage File # H16/D3)

Dear Brad:

The purpose of this letter is to provide you with revisions to the approved DAR (stamp date 10-13-06). This DAR was submitted in support of the COA Work Order 7754.82 hydrology approval. There will be additional storm drainage constructed with this project as a change order (currently known as Phase 1B), which was not previously addressed in the approved DAR. This letter, along with the attachments, will be a supplement to the DAR to address this change order.

The change order will extend infrastructure south along University Blvd. through the couplet to the first intersecting road (Simms Dr). The storm drain constructed with this change order will extend the 30" RCP as shown on approved Phase 1A drawing (SD-1) to the south within University Blvd. extending to Simms Dr., and then northeast to the Albuquerque Studios regional retention pond (Also attached is Figure 5 showing calculations). This storm drain will also serve the tract created by the couplet (Towne Center) and the parking area south of Simms Dr.

The approved DAR addresses three drainage areas (Drainage Areas A, B & C) associated with the construction of the University Blvd Phase 1A. The work associated with the change order lies within Drainage Area C. A revised Figure 1C is attached as Figure 4, showing the updated basin boundary.

Overall Drainage Area C consists of approximately 7.4 acres of University Blvd., 6.7 acres from the Towne Center A and B site and the parking south of Simms Dr., and 3.4 acres of Simms Dr. Runoff will be carried via storm drain to the existing regional retention pond located east of Albuquerque Studios (See Figure 5). Standard roadway drainage criteria procedures have been utilized with a minimum of one driving lane clear during Q_{10} and the Q_{100} event being contained in the ROW. Inlets and pipe design is per Storm CAD (Refer to Appendix C). Approximately 14 inlets will be constructed at ultimate build out for Phase 1B (Refer to Appendix D for construction plans and HGL locations).

Offsite flows from the west, which currently affect Drainage Area C, shall be mitigated with strategically placed interim retention ponds constructed under Mesa del Sol – University Blvd., Offsite Interim Grading and Drainage Plan (Engineer Stamp Date 10-10-06 – COA Hydrology File R16/D3). This plan has been approved by the city and will be constructed under a separate contract.

A summary of the figures and appendices included with this revision are as follows;

FIGURE 4 – (UPDATED) OVERALL DRAINAGE AREA C
FIGURE 5 – REGIONAL RETENTION POND VOLUME CALCULATIONS
FIGURE 6 – PHASE 1B OVERALL DRAINAGE AREA MAP (Showing Stationing and Q's)

APPENDIX C – ADDITIONAL HYDRAULIC CALCULATIONS
APPENDIX D – CONSTRUCTION PLANS SHOWING HGL

With this revision we are requesting COA hydrology approval in support of DRC change order approval for Phase 1B (COA Project 7754.82).

If you have any questions or require further information, please feel free to contact me at 823-1000.

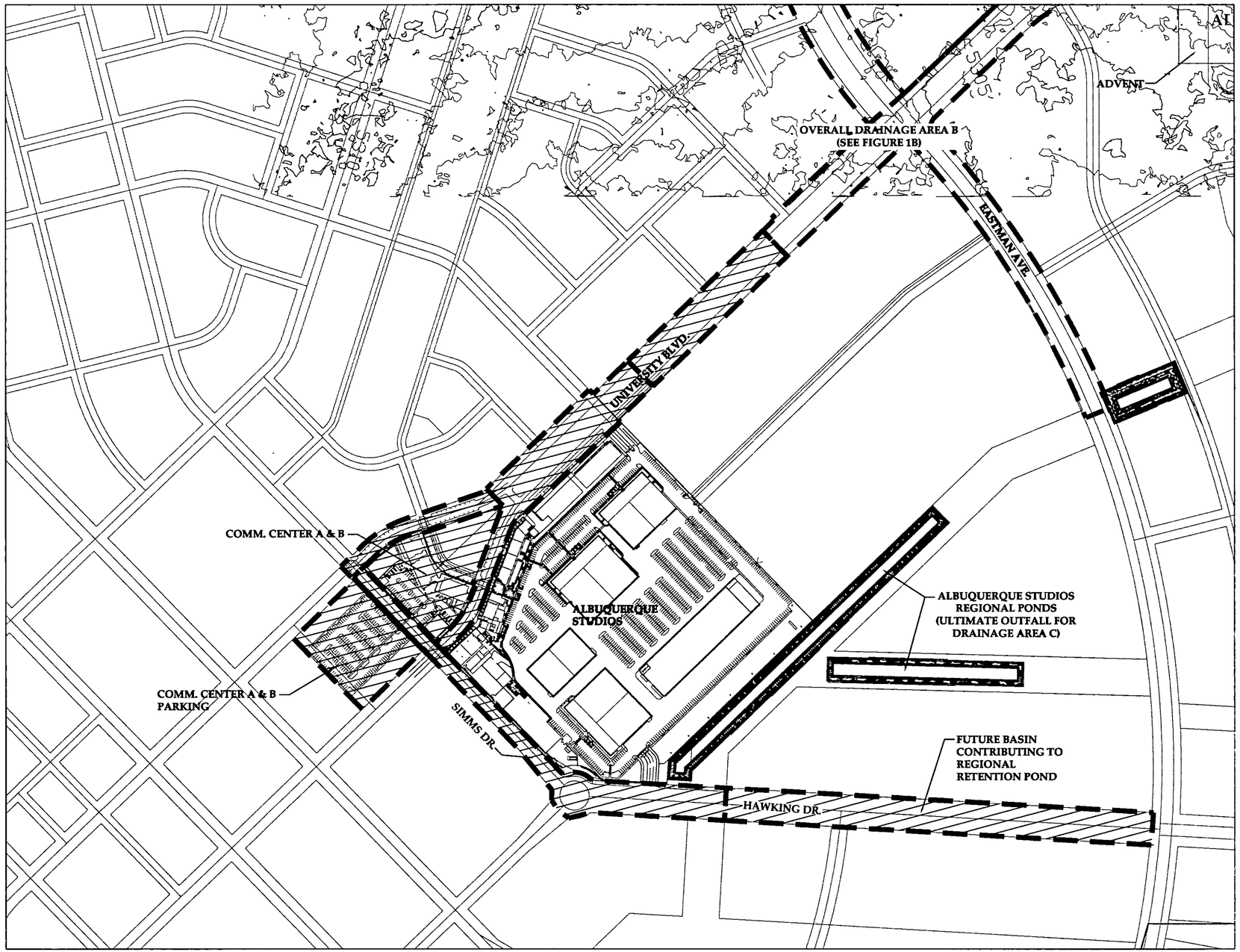
Sincerely,

Jeffery L. Mulbery, P.E.
Project Engineer
Community Development and Planning

JLM/cc
Enclosures

cc: Philip Fischer, URS (w/ encls.)

FIGURES



P:\070039\cdp\general\070039DRAINAGE AREA-C.dwg
February 21, 2007 - 4:53pm

SURVEY INFORMATION		
FIELD NOTES		
NO.	BY	DATE

BENCH MARKS

2" ALUMINUM CAP, STAMPED B14 096-1
NAD 83, NAVD 88
NORTHING: 1,451,106.026, EASTING: 1,532,413.519
ELEVATION: 5298.020

AS-BUILT INFORMATION

CONTRACTOR	DATE
SURVEY STAKED BY	DATE
INSPECTOR'S REPORT BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICROFILM INFORMATION

RECORDED BY	DATE
NO	

ENGINEER'S SEAL

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	

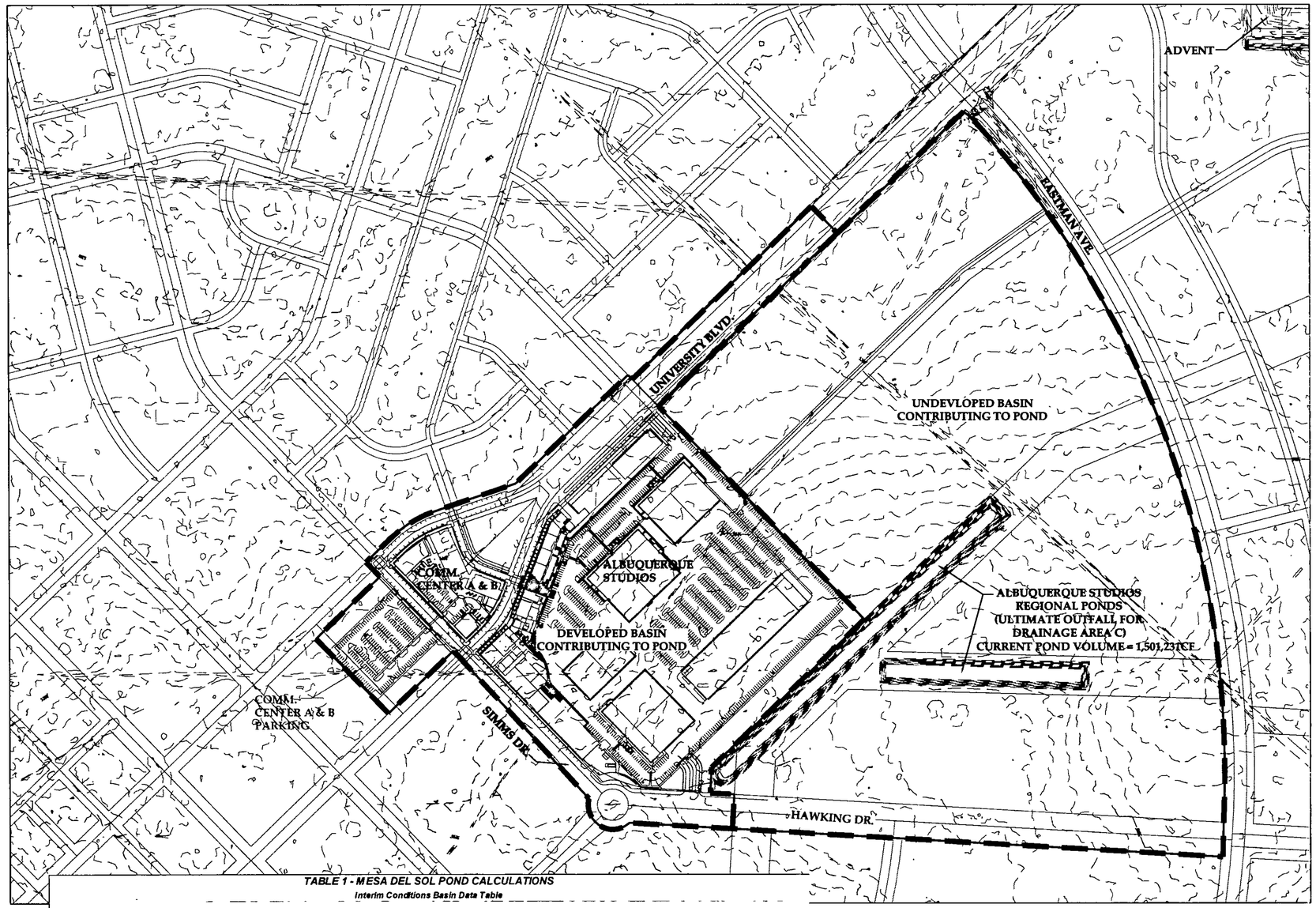
Designed By: DATE
Drawn By: DATE
Checked By: DATE

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

FIGURE 4
(UPDATED) OVERALL DRAINAGE AREA C

Last Design Update — Mo./Day/Yr — Mo./Day/Yr

Zone Map No. R-13 | Sheet 4 | Of



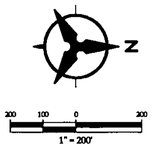


TABLE 1 - MESA DEL SOL POND CALCULATIONS

Interim Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone 2

BASIN ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (cfs)	WT E (inches)	$V(100)_{360}$ (CF)	$V(100)_{10day}$ (CF)
Developed	2000588	45.93	0.0%	10.0%	0.0%	90.0%	4.5	204.7	1.99	331097	571168
Undeveloped	3986172	91.51	90.0%	10.0%	0.0%	0.0%	1.6	149.3	0.56	184360	184360
TOTAL	5986760	137.44						354.1		515458	755528
CURRENT POND VOLUME =	1,501,231CF	>	755,528CF								

P:\070039\cdp\general\070039POND CALC.dwg
February 21, 2007 - 4:25pm

SURVEY INFORMATION		
FIELD NOTES		
NO.	BY	DATE

BENCH MARKS	
2" ALUMINUM CAP, STAMPED BM 096-1	
NAD 83, NAVD 88	
NORTHING: 1,451,106.025, EASTING: 1,532,413.519	
ELEVATION: 5298.020	

AS-BUILT INFORMATION	
CONTRACTOR	DATE
WORK STAKED BY	DATE
INSPECTOR ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICROFILM INFORMATION
RECORDED BY: DATE:
NO.

ENGINEER'S SEAL

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	

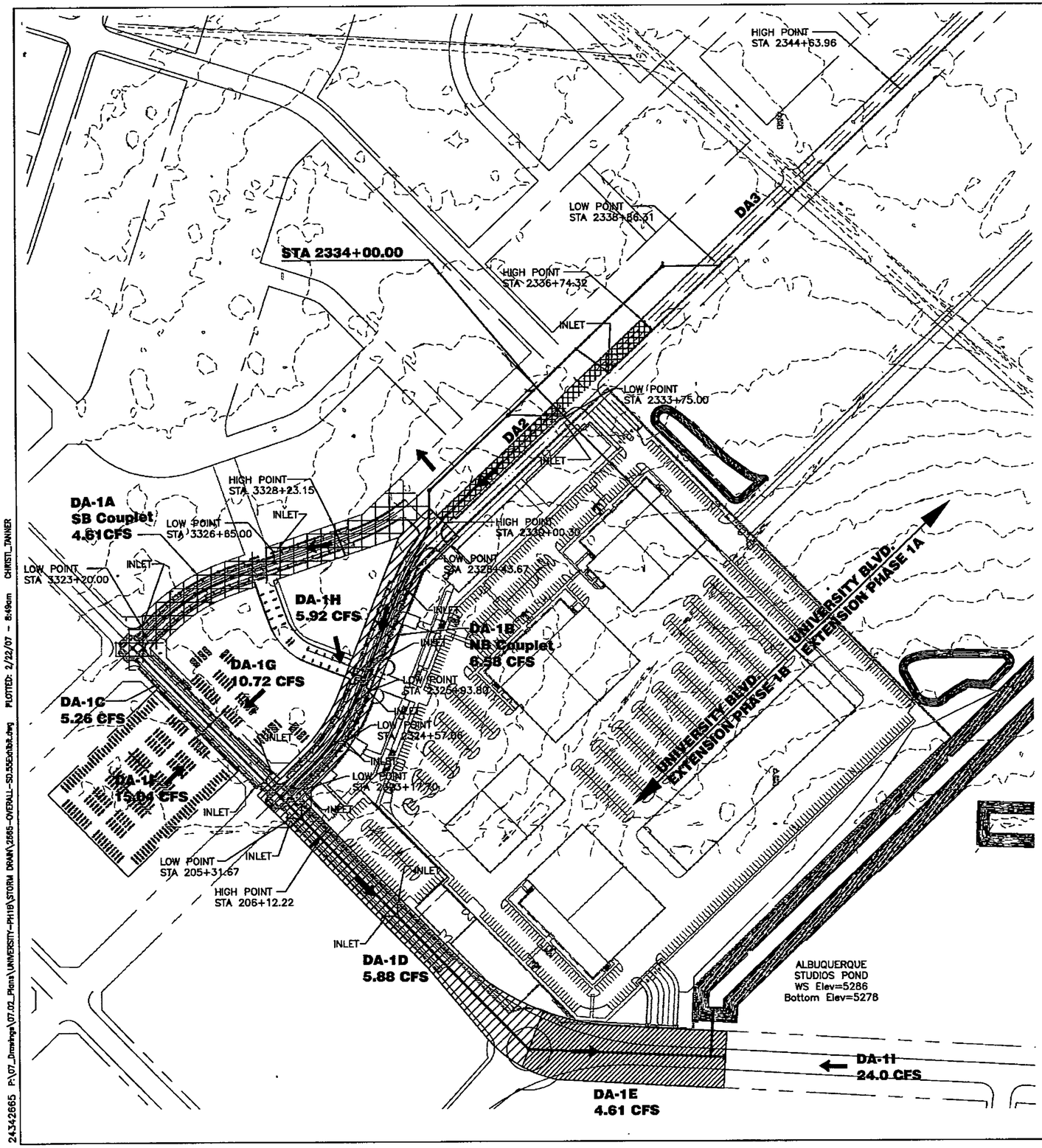
Designed By: DATE:
Drawn By: DATE:
Checked By: DATE:

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

FIGURE 5
REGIONAL RETENTION POND VOLUME CALCULATIONS

Last Design Update: Mo./Day/Yr Mo./Day/Yr

Zone Map No. R-13 Sheet 5 Of



DRAINAGE AREAS

DA	STATIONS	LOW POINT STATION	INTERIM AREA (ACRES)	INTERIM Q10 (CFS)	INTERIM Q100 (CFS)	ULTIMATE AREA (ACRES)	ULTIMATE Q10 (CFS)	ULTIMATE Q100 (CFS)
1A	3322+74.00 TO 3328+23.15	3323+20.00	--	--	--	0.98	3.08	4.61
		3326+65.00						
		3333+74.91						
1B	2322+50.00 TO 2330+00.30	2323+17.70	--	--	--	1.40	4.40	6.58
		2324+57.06						
		2325+93.80						
		2328+43.67						
1C	200+00.00 TO 206+12.22	205+31.67	--	--	--	1.12	3.52	5.26
1D	206+12.22 TO 212+93.00	--------	--	--	--	1.25	3.93	5.88
1E	212+93.00 to 218+00	--------	--	--	--	0.98	3.08	4.61
1F	Parking Lot South of Simms Drive	--------	--	--	--	3.20	10.05	15.04
1G	Buildings A&B of Community Center	--------	--	--	--	2.28	7.16	10.72
1H	Community Center Park And Plaza Road	--------	--	--	--	1.26	3.96	5.92
1I	North of Hawking Drive Future Phase	--------	--	--	--	5.10	16.03	24.00
2	2330+00.30 TO 2336+74.32	2333+75.00	1.22	3.82	5.72	2.43	7.65	11.44
3	2336+74.32 TO 2344+63.96	2338+86.31	1.31	4.10	6.13	2.61	8.20	12.27

NOT TO SCALE

AS BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
CORRECTIONS BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-Q-14, 1987" FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEVATION=4981.17

SURVEY INFORMATION
FIELD NOTES

No.	By	Date

ENGINEER'S SEAL

No.	Remarks	By

REVISIONS

DESIGN

		Date
Designed By	CR	10/06
Drawn By	URS	10/06
Checked By	BPB	10/06

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION PHASE 1B OVERALL DRAINAGE AREA MAP**

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

City Project No. **775482** | Zone Map No **R-16, S-16** | Sheet | Of | **Figure 6**

24342665 P:\07_Drawings\07.02_Plans\UNIVERSITY-PH1B\STORM DRAIN\2665-OVERALL-SD.555ch3b8.dwg PLOTTED: 2/22/07 - 8:49am CHRISTI_TANNER

APPENDIX C

University Blvd. Extension Phase 1B - Drainage Area (C)

Drainage Area Numbers	Stations (Obtained From AutoCAD Roadway)	Low Point Stations	Area (Acres)	Peak Discharge (cfs/acre) Zone 2, Treatment D, From DPM Table A-9		10 Year Flows (cfs)	100 Yr Flows (cfs)
				10 Year	100 Year		
SB Couplet DA-1A	3322+74.00 to 3328+23.15	3323+20.00	0.98	3.14	4.70	3.08	4.61
		3326+65.00					
NB Couplet DA-1B	2322+18.94 to 2330+00.30	2323+17.70	1.40	3.14	4.70	4.40	6.58
		2324+57.06					
		2325+93.80					
		2328+43.67					
Simms Drive DA-1C	200+00.00 to 206+12.22	205+31.67	1.12	3.14	4.70	3.52	5.26
Simms Drive DA-1D	206+12.22 to 212+93.00	----------	1.25	3.14	4.70	3.93	5.88
Simms Drive DA-1E	212+93.00 to 218+25.00	----------	0.98	3.14	4.70	3.08	4.61
DA-1F	Parking Lot South of Simms Drive	----------	3.20	3.14	4.70	10.05	15.04
DA-1G	Buildings A&B of Community Center	----------	2.28	3.14	4.70	7.16	10.72
DA-1H	Community Center Park and Plaza Road	----------	1.26	3.14	4.70	3.96	5.92
DA-1I	Future Flows From North Section of Hawking Drive- Future Phase	----------	5.10	3.14	4.70	16.01	24.00
DA 2	2330+00.30 to 2336+74.32	2333+75.00	2.43	3.14	4.70	7.65	11.44
DA 3	2336+74.32 to 2344+63.96	2338+86.31	2.61	3.14	4.70	8.20	12.27
Total Flow Contributing to Regional Retention Pond							**106.16**

Scenario: Scenario 6

>>>> Info: Subsurface Network Rooted by: Pond
>>>> Info: Subsurface Analysis iterations: 1
>>>> Info: Convergence was achieved.

CALCULATION SUMMARY FOR SURFACE NETWORKS

Label	Inlet Type	Inlet	Total Intercepted Flow (cfs)	Total Bypassed Flow (cfs)	Capture Efficiency (%)	Gutter Spread (ft)	Gutter Depth (ft)
I-C7a	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-C7b	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-B2	Combination Inlet	Combination COA_Type A	3.29	0.00	100.0	5.11	0.19
I-B6	Combination Inlet	Combination COA_Type A	1.33	0.00	100.0	2.42	0.11
I-C3	Combination Inlet	Combination COA_Type A	2.84	0.06	98.1	10.32	0.29
I-C3a	Combination Inlet	Combination COA_Type A	2.84	0.06	98.1	10.32	0.29
I-HAWK	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-C6a	Combination Inlet	Combination COA_Type A	1.83	0.00	100.0	2.60	0.14
I-C6b	Combination Inlet	Combination COA_Type A	1.84	0.00	100.0	2.61	0.14
I-JC4a	Combination Inlet	Combination COA_Type A	0.81	0.00	100.0	2.13	0.07
I-JC4b	Combination Inlet	Combination COA_Type A	0.81	0.00	100.0	2.13	0.07
I-A6	Combination Inlet	Combination COA_Type A	1.31	0.00	100.0	2.41	0.11
I-A3	Combination Inlet	Combination COA_Type A	5.01	0.00	100.0	7.70	0.24
I-A1	Combination Inlet	Combination COA_Type A	6.13	0.00	100.0	9.22	0.27
I-A2	Combination Inlet	Combination COA_Type A	1.43	0.00	100.0	2.46	0.12
I-A1a	Combination Inlet	Combination COA_Type A	6.14	0.00	100.0	9.23	0.27
I-A3a	Combination Inlet	Combination COA_Type A	5.00	0.00	100.0	7.69	0.24
I-A7	Combination Inlet	Combination COA_Type A	1.31	0.00	100.0	2.41	0.11
I-A8	Combination Inlet	Combination COA_Type A	1.31	0.00	100.0	2.41	0.11
I-A9	Combination Inlet	Combination COA_Type A	1.31	0.00	100.0	2.41	0.11
I-A10	Combination Inlet	Combination COA_Type A	1.34	0.00	100.0	2.42	0.11
I-C2	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-PARK	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00

CALCULATION SUMMARY FOR SUBSURFACE NETWORK WITH ROOT: Pond

Label	Number of Sections	Section Size	Section Shape	Length (ft)	Total System Flow (cfs)	Average Velocity (ft/s)	Hydraulic Grade Upstream (ft)	Hydraulic Grade Downstream (ft)
P-C1	1	48 inch	Circular	109.48	106.16	8.45	5,286.60	5,286.00
P-C2	1	48 inch	Circular	400.00	82.16	6.54	5,288.17	5,286.86
P-HAWK	1	30 inch	Circular	31.00	24.00	4.89	5,286.79	5,286.68
P-C3	1	48 inch	Circular	427.50	77.57	6.17	5,289.60	5,288.35
P-C2a	1	24 inch	Circular	51.00	4.59	1.46	5,288.34	5,288.32
P-HAWKN	1	30 inch	Circular	111.00	24.00	6.82	5,287.49	5,286.87
P-C4	1	48 inch	Circular	312.50	71.88	5.72	5,290.42	5,289.64
P-C3b	1	18 inch	Circular	30.00	2.84	2.11	5,293.82	5,293.62
P-C3a	1	18 inch	Circular	30.00	2.84	2.11	5,293.82	5,293.62
P-C4b	1	24 inch	Circular	30.00	0.81	2.66	5,294.51	5,294.36
P-C5	1	48 inch	Circular	67.00	70.26	5.59	5,290.61	5,290.45
P-C4a	1	24 inch	Circular	30.00	0.81	2.66	5,294.51	5,294.36
P-C6	1	30 inch	Circular	52.00	34.05	6.94	5,291.00	5,290.64
P-A10	1	36 inch	Circular	36.00	36.21	5.12	5,290.75	5,290.64
P-C7	1	30 inch	Circular	181.00	30.38	6.19	5,292.37	5,291.38
P-C6a	1	24 inch	Circular	30.00	1.83	4.33	5,295.20	5,294.81
P-C6b	1	24 inch	Circular	30.00	1.84	4.33	5,295.20	5,294.82
P-A10a	1	24 inch	Circular	17.00	1.34	5.03	5,295.30	5,294.85
P-A9	1	36 inch	Circular	138.00	34.87	4.93	5,291.20	5,290.82
P-C7a	1	24 inch	Circular	50.00	10.72	3.41	5,293.94	5,293.83
P-C8	1	30 inch	Circular	250.00	4.62	0.94	5,292.67	5,292.64
P-C7b	1	24 inch	Circular	50.00	15.04	4.79	5,294.05	5,293.83
P-A9a	1	24 inch	Circular	17.00	1.31	5.00	5,294.20	5,293.74
P-A8	1	36 inch	Circular	128.00	33.56	4.75	5,291.57	5,291.25
P-B2	1	24 inch	Circular	43.00	4.62	1.47	5,292.71	5,292.69
P-A8b	1	24 inch	Circular	40.00	5.92	1.88	5,291.63	5,291.61
P-A8a	1	24 inch	Circular	17.00	1.31	5.00	5,294.35	5,293.89
P-A7	1	36 inch	Circular	80.00	26.33	3.72	5,291.75	5,291.63
P-B2a	1	18 inch	Circular	19.00	3.29	2.20	5,297.02	5,296.85
P-B3	1	24 inch	Circular	56.00	1.33	0.42	5,292.73	5,292.72
P-A7a	1	24 inch	Circular	17.00	1.31	5.00	5,294.45	5,293.99
P-A6	1	30 inch	Circular	173.00	25.02	5.10	5,292.42	5,291.77
P-B4	1	24 inch	Circular	89.10	1.33	0.42	5,292.73	5,292.73
P-A6a	1	24 inch	Circular	17.00	1.31	4.90	5,294.52	5,294.09
P-A5	1	30 inch	Circular	161.00	23.71	4.83	5,293.08	5,292.55
P-B5	1	24 inch	Circular	92.30	1.33	0.42	5,292.73	5,292.73
P-A4	1	30 inch	Circular	87.00	23.71	4.83	5,293.56	5,293.27
P-B6	1	24 inch	Circular	86.20	1.33	0.42	5,292.74	5,292.73
P-A3	1	30 inch	Circular	250.00	23.71	4.83	5,294.83	5,293.99
P-B6a	1	24 inch	Circular	22.00	1.33	2.16	5,295.87	5,295.76
P-A2	1	30 inch	Circular	220.00	13.70	2.79	5,295.15	5,294.91
P-A3a	1	18 inch	Circular	50.00	5.00	3.32	5,295.69	5,295.37
P-A3b	1	18 inch	Circular	120.00	5.01	2.84	5,295.91	5,295.37

P-A1	1	30 inch	Circular	274.00	12.27	2.50	5,295.42	5,295.18
P-A2a	1	18 inch	Circular	90.00	1.43	1.81	5,296.34	5,296.07
P-A1a	1	18 inch	Circular	50.00	6.14	8.82	5,296.89	5,295.27
P-A1b	1	18 inch	Circular	130.00	6.13	6.17	5,296.89	5,295.45

Label	Total System Flow (cfs)	Ground Elevation (ft)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)
Pond	106.16	5,290.00	5,286.00	5,286.00
JC1	106.16	5,291.00	5,286.68	5,286.60
JC2	82.16	5,294.54	5,288.32	5,288.17
J-HAWK	24.00	5,291.20	5,286.86	5,286.79
J-C3	77.57	5,296.68	5,289.64	5,289.60
I-C2	4.59	5,294.52	5,288.34	5,288.34
I-HAWK	24.00	5,291.50	5,287.49	5,287.49
J-C4	71.88	5,298.00	5,290.45	5,290.42
I-C3	2.84	5,296.21	5,293.82	5,293.82
I-C3a	2.84	5,296.21	5,293.82	5,293.82
I-JC4b	0.81	5,298.20	5,294.51	5,294.51
J-C5	70.26	5,298.35	5,290.64	5,290.61
I-JC4a	0.81	5,298.20	5,294.51	5,294.51
J-C6	34.05	5,298.87	5,291.38	5,291.00
J-A10	36.21	5,299.13	5,290.82	5,290.75
J-C7	30.38	5,299.61	5,292.64	5,292.37
I-C6a	1.83	5,298.93	5,295.20	5,295.20
I-C6b	1.84	5,298.93	5,295.20	5,295.20
I-A10	1.34	5,299.10	5,295.30	5,295.30
J-A9	34.87	5,298.11	5,291.25	5,291.20
I-C7a	10.72	5,298.86	5,293.94	5,293.94
J-C8	4.62	5,300.15	5,292.69	5,292.67
I-C7b	15.04	5,300.28	5,294.05	5,294.05
I-A9	1.31	5,298.00	5,294.20	5,294.20
J-A8	33.56	5,298.34	5,291.61	5,291.57
J-B2	4.62	5,299.06	5,292.72	5,292.71
I-PARK	5.92	5,298.30	5,291.63	5,291.63
I-A8	1.31	5,298.15	5,294.35	5,294.35
J-A7	26.33	5,298.24	5,291.77	5,291.75
I-B2	3.29	5,299.06	5,297.02	5,297.02
J-B3	1.33	5,299.58	5,292.73	5,292.73
I-A7	1.31	5,298.25	5,294.45	5,294.45
J-A6	25.02	5,298.84	5,292.55	5,292.42
J-B4	1.33	5,299.86	5,292.73	5,292.73
I-A6	1.31	5,298.32	5,294.52	5,294.52
J-A5	23.71	5,298.96	5,293.27	5,293.08
J-B5	1.33	5,300.31	5,292.73	5,292.73
J-A4	23.71	5,299.02	5,293.99	5,293.56
J-B6	1.33	5,300.43	5,292.74	5,292.74
J-A3	23.71	5,298.91	5,294.91	5,294.83
I-B6	1.33	5,299.60	5,295.87	5,295.87
J-A2	13.70	5,298.11	5,295.18	5,295.15
I-A3a	5.00	5,298.20	5,295.69	5,295.69
I-A3	5.01	5,298.20	5,295.91	5,295.91
J-A1	12.27	5,299.68	5,295.48	5,295.42
I-A2	1.43	5,299.47	5,296.34	5,296.34
I-A1a	6.14	5,299.47	5,296.89	5,296.89
I-A1	6.13	5,299.47	5,296.89	5,296.89

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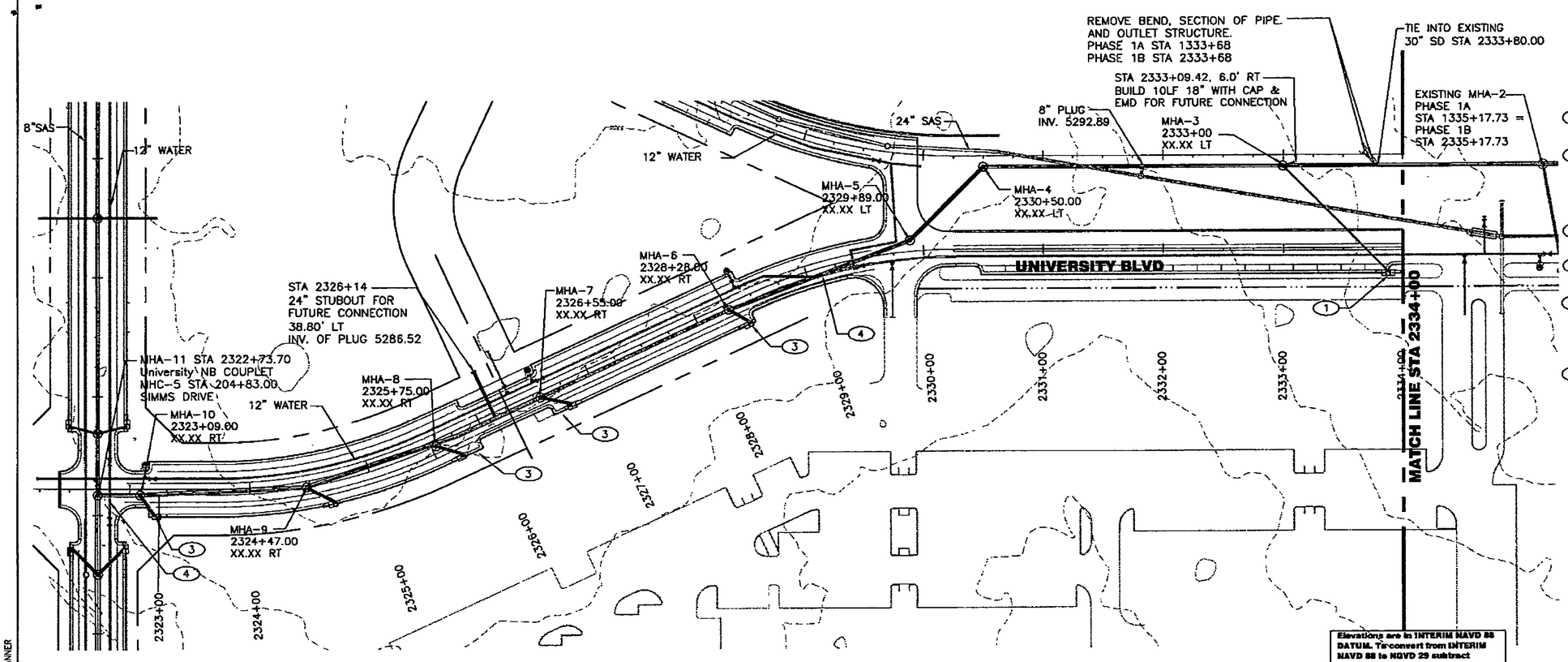
APPENDIX D

GENERAL NOTES

1. ALL DIMENSIONS ARE TO FOC UNLESS OTHERWISE NOTED
2. ALL STORM DRAIN PIPE WILL BE CLASS IV RCP PIPE

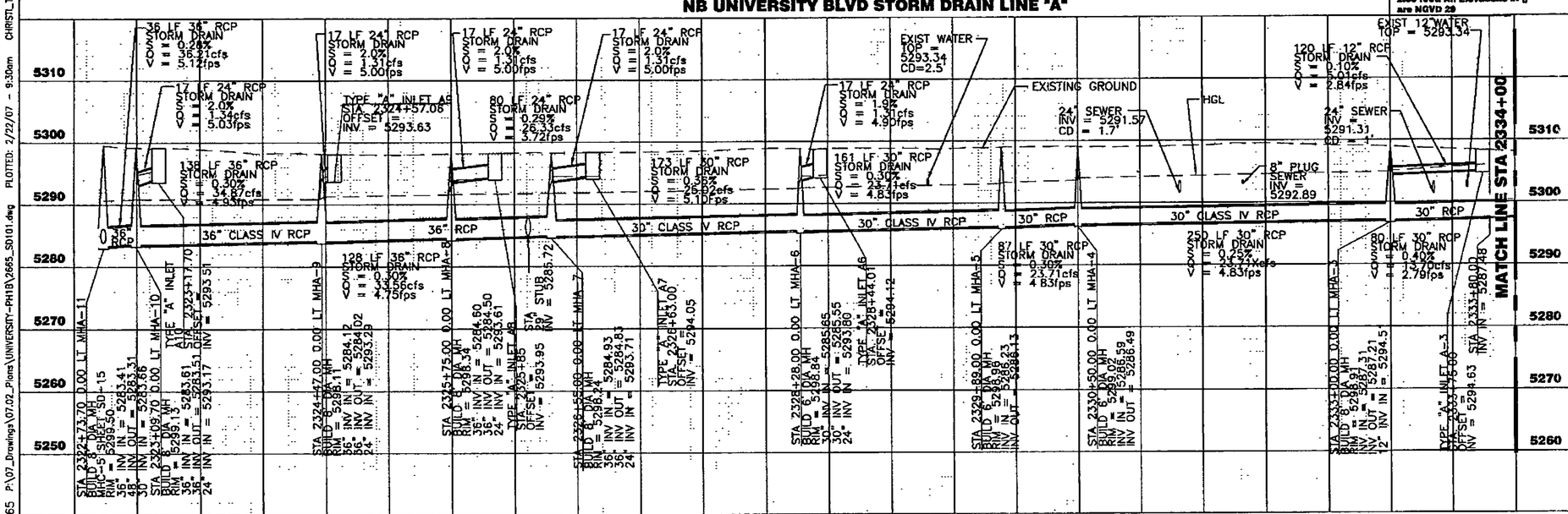
KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-_
2. TYPE "C" MANHOLE PER COA STD DWG 2101 FOR DEPTHS < 6'. TYPE "E" MANHOLE PER COA STD DWG 2102 FOR DEPTHS > 6'
3. TYPE "A" INLET PER COA STD DWG 2201
4. PROTECT AND SUPPORT EXISTING 24" WATERLINE
5. DRAINAGE EASEMENT REF NO. 2006173798 RECORDED 17 NOV 2006 BOOK: A127 PAGE: 3321
6. EXISTING EASEMENT REF NO:2006092610 RECORDED 06 JUN 2006 BOOK: 2006C PAGE: 197



Elevations are in INTERIM NAVD 88 DATUM. To convert from INTERIM NAVD 88 to NGVD 29 subtract 2.63 feet. All Elevations in () are NGVD 29

NB UNIVERSITY BLVD STORM DRAIN LINE "A"



GRAPHIC SCALE IN FEET
50 0 50 100
HORIZONTAL
GRAPHIC SCALE IN FEET
10 0 10 20
VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

AS BUILT INFORMATION
CONTRACTOR | DATE
WORK STAKED BY | INSPECTOR'S ACCEPTANCE BY | DATE
FIELD VERIFICATION BY | DATE
DRAWINGS CORRECTED BY | DATE
MICRO-FILM INFORMATION
RECORDED BY | DATE

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-Q-14, 1987". FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E= 1521388.180 (GROUND) ELEVATION=4981.17

SURVEY INFORMATION
FIELD NOTES

No.	By	Date

ENGINEER'S SEAL

No.	Remarks	By	Date

REVISIONS

DESIGN

		Date
Designed By		10/06
Drawn By	URS	10/06
Checked By		10/06

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: UNIVERSITY BLVD. EXTENSION - PHASE 1B
STORM DRAIN PLAN AND PROFILE
STA 2322+73.70 TO STA 2334+00

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

City Project No.	Zone Map No.	Sheet	Of	
775482	R-16, S-16	0		SD-13

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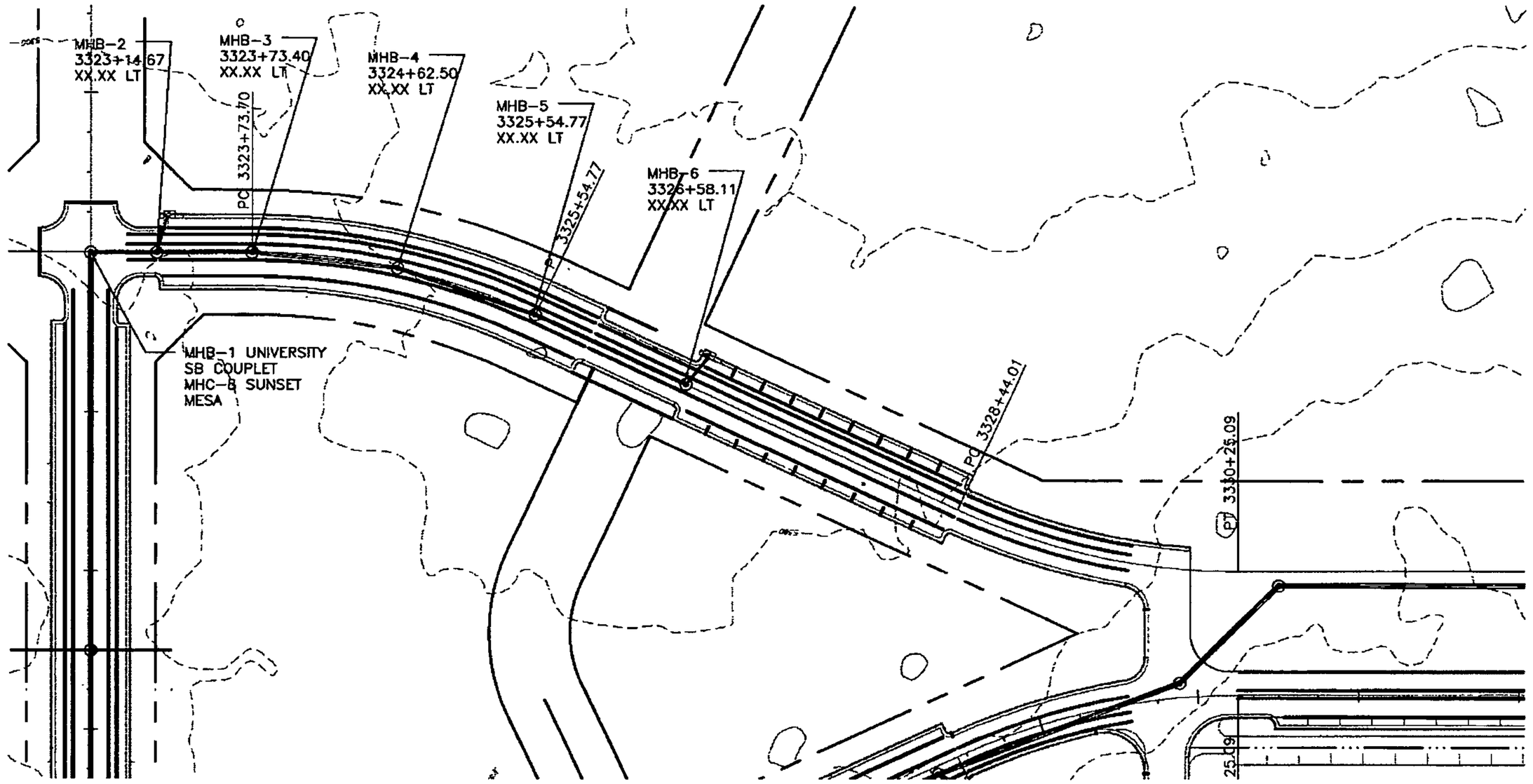


GENERAL NOTES

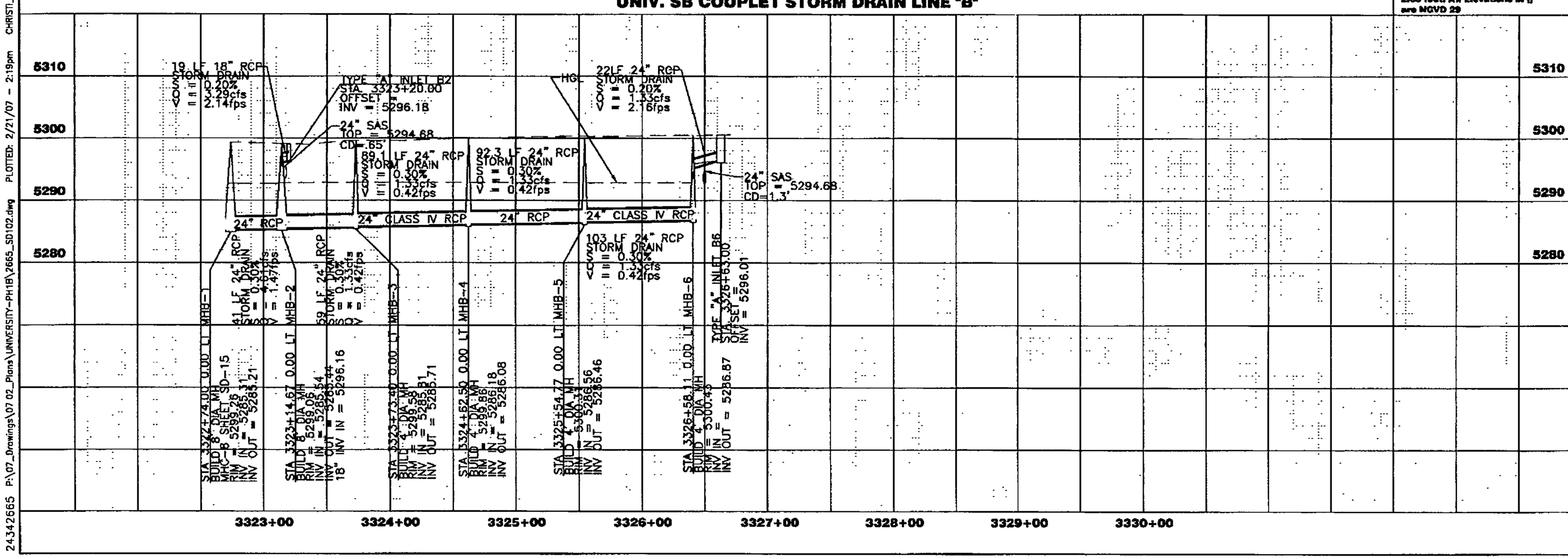
1. ALL DIMENSIONS ARE TO FOC UNLESS OTHERWISE NOTED
2. ALL STORM DRAIN PIPE WILL BE CLASS IV RCP PIPE

KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-_
2. TYPE "C" MANHOLE PER COA STD DWG 2101 FOR DEPTHS < 6'. TYPE "E" MANHOLE PER COA STD DWG 2102 FOR DEPTHS > 6'
3. TYPE "A" INLET PER COA STD DWG 2201
4. PROTECT AND SUPPORT EXISTING 24" WATERLINE
5. OUTFALL WITH EROSION CONTROL SEE SHEET __-__
6. WEST POND OUTLET SEE SHEET SD-_
7. POND OUTLET STRUCTURE, SEE _____
8. DRAINAGE EASEMENT REF NO. 2006173798 RECORDED 17 NOV 2006 BOOK: A127 PAGE: 3321
9. EXISTING EASEMENT REF NO:2006092610 RECORDED 06 JUN 2006 BOOK: 2006C PAGE: 197

UNIV. SB COUPLET STORM DRAIN LINE "B"

Elevations are in INTERIM NAVD 88 DATUM. To convert from INTERIM NAVD 88 to NGVD 29 subtract 2.63 feet. All Elevations in () are NGVD 29



GRAPHIC SCALE IN FEET

50 0 50 100

HORIZONTAL
GRAPHIC SCALE IN FEET

10 0 10 20

VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

AS BUILT INFORMATION

CONTRACTOR — DATE
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEVATION=4981.17

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-Q-14, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123 WEST OF THE CENTERLINE.

SURVEY INFORMATION
FIELD NOTES

No.	By	Date

ENGINEER'S SEAL

No.	Remarks	By	Date
	REVISIONS		

Designed By — Date 10/06
Drawn By — URS — Date 10/06
Checked By — Date 10/06

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: UNIVERSITY BLVD. EXTENSION - PHASE 1B
STORM DRAIN PLAN AND PROFILE
STA 0000+00 TO STA 0000+00

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

City Project No	Zone Map No.	Sheet	Of	
775482	R-16, S-16	0		SD-14

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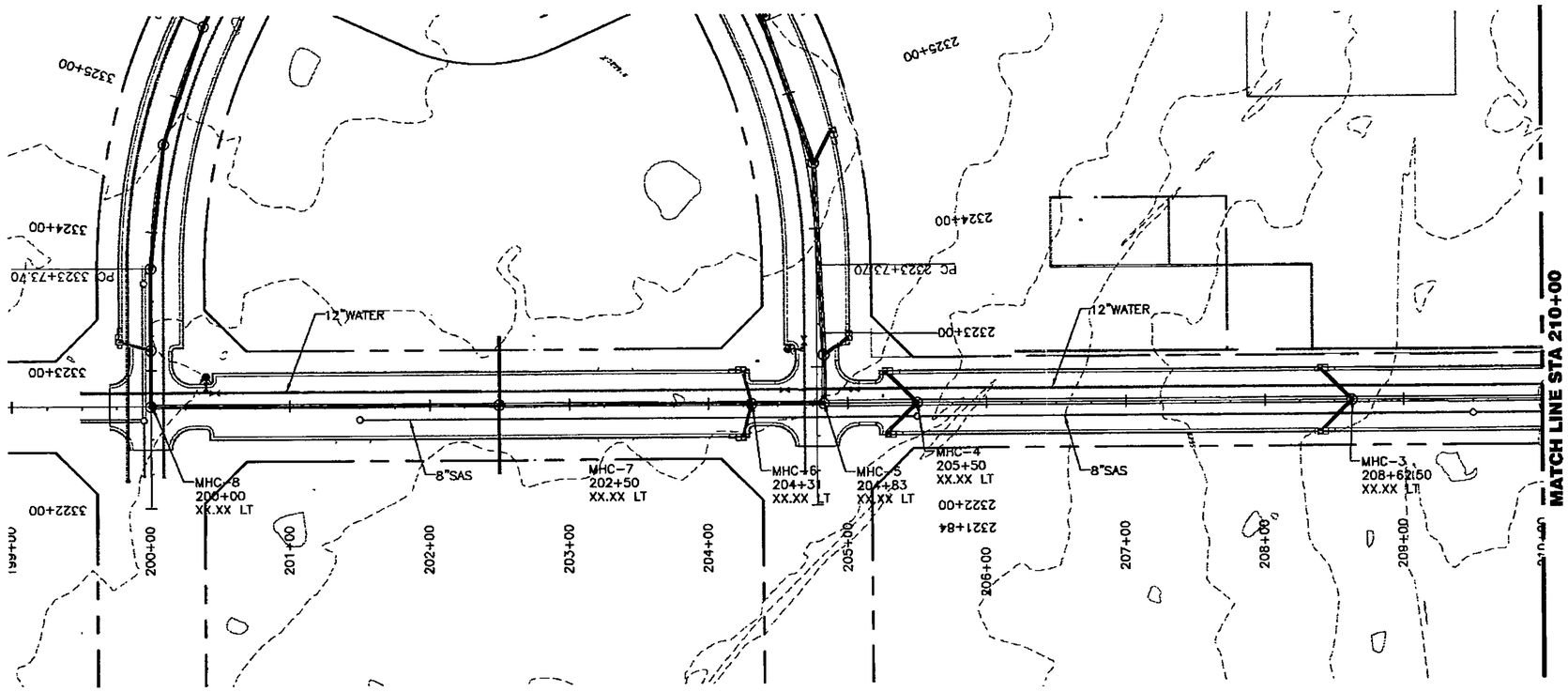

GENERAL NOTES

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KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-_
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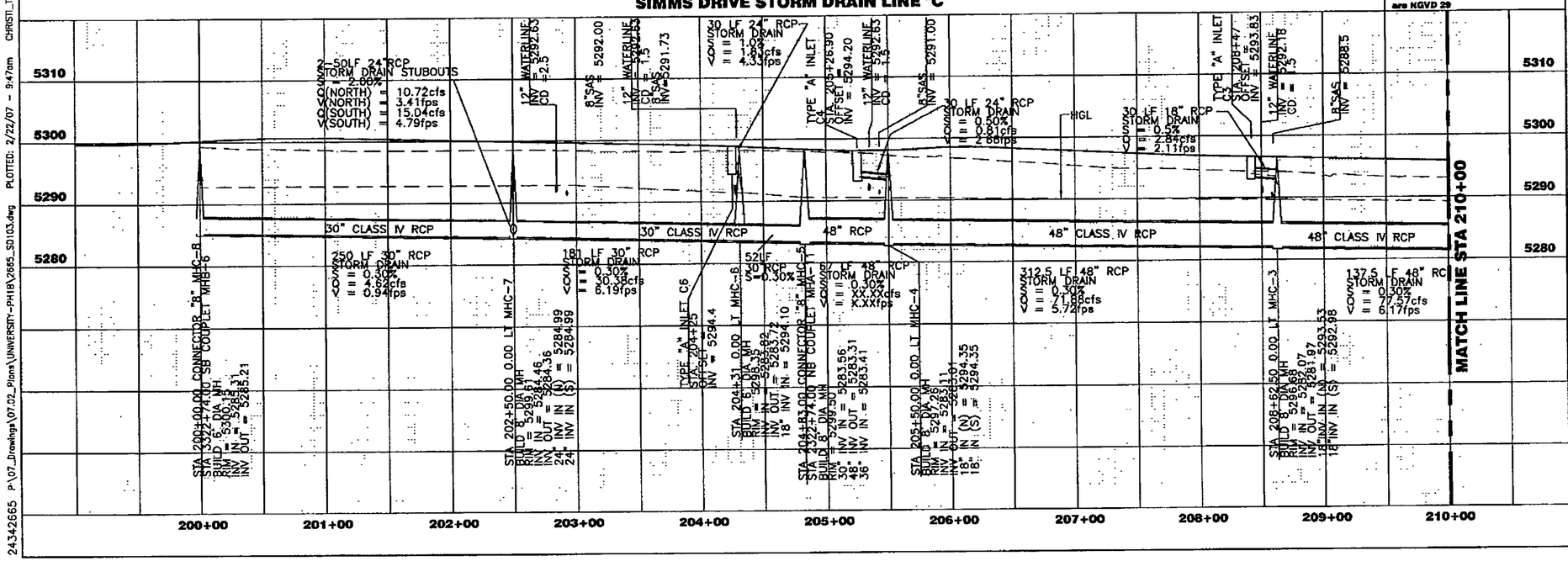
5. OUTFALL WITH EROSION CONTROL SEE SHEET __-__
6. WEST POND OUTLET SEE SHEET SD-_
7. POND OUTLET STRUCTURE, SEE _____
8. DRAINAGE EASEMENT REF NO. 2006173798 RECORDED 17 NOV 2006 BOOK: A127 PAGE: 3321
9. EXISTING EASEMENT REF NO:2006092610 RECORDED 06 JUN 2006 BOOK: 2006C PAGE: 197

Elevations are in INTERIM NAVD 88 DATUM. To convert from INTERIM NAVD 88 to NGVD 29 subtract 2.83 feet. All Elevations in () are NGVD 29

SIMMS DRIVE STORM DRAIN LINE "C"



GRAPHIC SCALE IN FEET
50 0 50 100
HORIZONTAL
GRAPHIC SCALE IN FEET
10 0 10 20
VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION - PHASE 1B STORM DRAIN PLAN AND PROFILE STA 200+00 TO STA 210+00**

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

City Project No.	Zone Map No	Sheet	Of	
775482	R-16, S-16	0		SD-15

AS BUILT INFORMATION
CONTRACTOR | DATE
WORK STAKED BY | DATE
INSPECTOR ACCEPTANCE BY | DATE
FIELD VERIFICATION BY | DATE
DRAWINGS CORRECTED BY | DATE
MICRO-FILM INFORMATION
RECORDED BY | DATE

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-Q-14, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E= 1527388.180 (GROUND) ELEVATION=4981.17

SURVEY INFORMATION
FIELD NOTES

No.	By	Date

ENGINEER'S SEAL

REVISIONS

No.	Remarks	By	Date

DESIGN

		Date
Designed By		10/06
Drawn By	URS	10/06
Checked By		10/06

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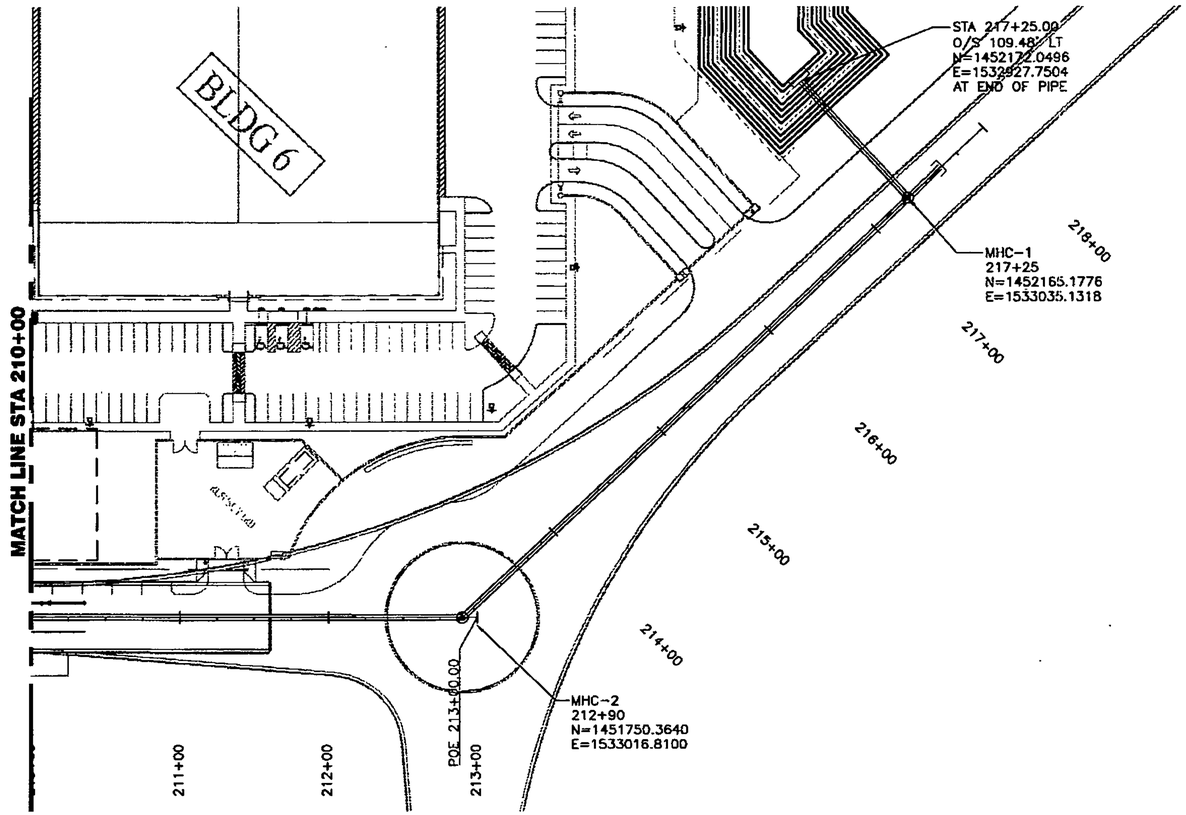

GENERAL NOTES

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2. ALL STORM DRAIN PIPE WILL BE CLASS IV RCP PIPE

KEYED NOTES

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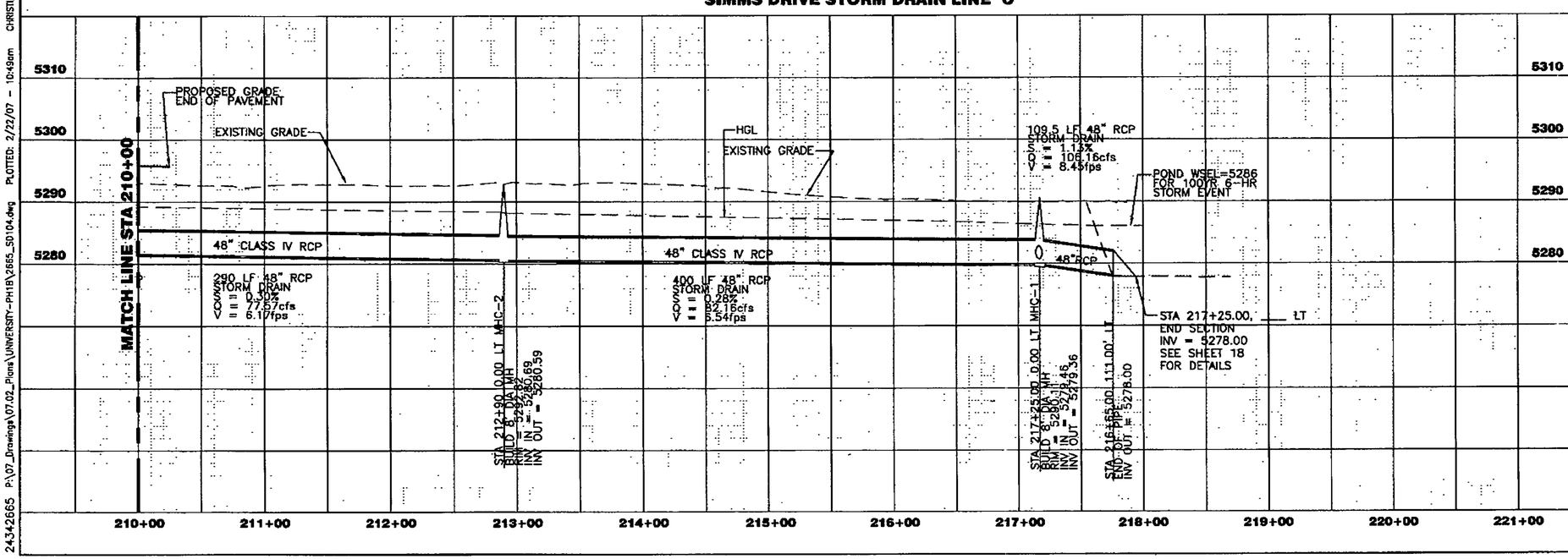
7. POND OUTLET STRUCTURE, SEE _____
8. DRAINAGE EASEMENT REF NO. 2006173798 RECORDED 17 NOV 2006 BOOK: A127 PAGE: 3321
9. EXISTING EASEMENT REF NO:2006092610 RECORDED 06 JUN 2006 BOOK: 2006C PAGE: 197

SIMMS DRIVE STORM DRAIN LINE "C"



GRAPHIC SCALE IN FEET
50 0 50 100
HORIZONTAL
GRAPHIC SCALE IN FEET
10 0 10 20
VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

AS BUILT INFORMATION
CONTRACTOR / DATE
CONTRACTOR'S SURVEYOR STAMP / DATE
INSPECTOR'S ACCEPTANCE BY / DATE
FIELD VERIFICATION BY / DATE
CORRECTED BY / DATE
MICRO-FILM INFORMATION
RECORDED BY / DATE

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-0-14, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE. STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEVATION=4981.17

SURVEY INFORMATION
FIELD NOTES

No.	By	Date

ENGINEER'S SEAL

No.	Remarks	By

REVISIONS

		Date
DESIGN	Designed By	10/06
	Drawn By URS	10/06
	Checked By	10/06

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION - PHASE 1B**
PLAN AND PROFILE
STA 210+00 TO STA 218+00

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

City Project No	Zone Map No.	Sheet	Of	
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