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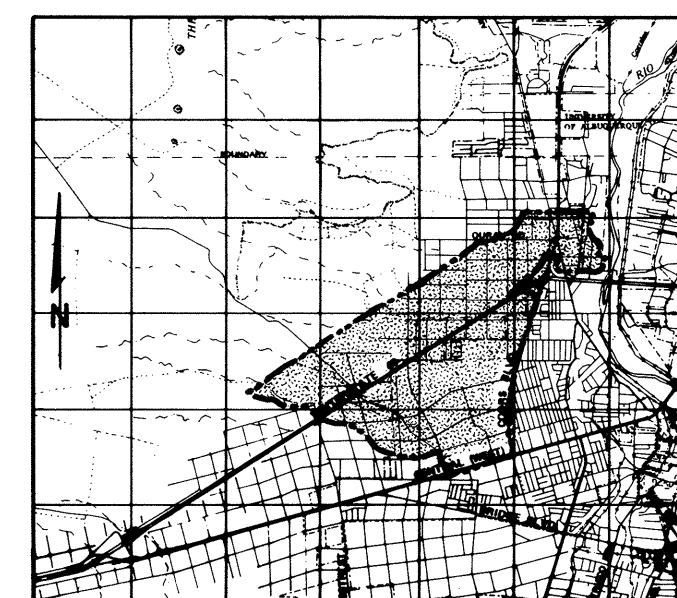


CITY OF ALBUQUERQUE
NEW MEXICO

WEST BLUFF DRAINAGE PLAN

PHASE III
FINAL
IMPROVED CONDITIONS REPORT
JANUARY, 1987

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO



VICINITY MAP

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WEST BLUFF DRAINAGE PLAN PHASE III

MICROFILMED

I. INTRODUCTION

THE CITY OF ALBUQUERQUE HAS RETAINED THE ENGINEERING FIRM OF ANDREWS, ASBURY & ROBERT, INC. TO PROVIDE A DRAINAGE PLAN OF THAT PORTION OF WESTERN METROPOLITAN ALBUQUERQUE HEREINAFTER REFERRED TO AS THE WEST BLUFF.

THE DRAINAGE PLAN IS PRESENTED IN THREE PHASES:

I. PRELIMINARY ENGINEERING REPORT

II. EXISTING CONDITIONS REPORT

III. IMPROVED CONDITIONS REPORT

THIS SUBMITTAL REPRESENTS THE THIRD PHASE OF THE PLAN, I.E., THE IMPROVED CONDITIONS REPORT. THIS IMPROVED CONDITIONS REPORT HAS BEEN COMPILED FROM DATA OBTAINED FROM THE PRELIMINARY ENGINEERING REPORT (PHASE I), AND THE EXISTING CONDITIONS REPORT (PHASE II) TOGETHER WITH ADDITIONAL INFORMATION REQUIRED TO PERFORM THIS PHASE OF THE WEST BLUFF DRAINAGE PLAN.

II. LIMITS OF STUDY AREA

THE LIMITS OF THE AREA TO BE STUDIED ARE GEOGRAPHICALLY DEFINED AS BEGINNING AT THE FAR WEST BOUNDARY POINT, A POINT ON THE SOUTHERN EDGE OF THE LADERA CHANNEL OF THE LADERA DRAINAGE SYSTEM, APPROXIMATELY ONE MILE WEST OF 98TH STREET (NOLASCO STREET), THEN FOLLOWING THE LADERA DRAINAGE SYSTEM, BEING THE AREA'S NORTHERN BOUNDARY, TO REDLANDS ROAD, THEN EAST TO THE TOPOGRAPHIC FEATURE COMMONLY KNOWN AS THE BLUFF, LOCATED DIRECTLY WEST OF THE RIO GRANDE, THEN SOUTHERLY ALONG THE BLUFF TO INTERSTATE HIGHWAY 40, THEN WESTERLY ALONG INTERSTATE HIGHWAY 40 AND AROUND THE NORTHERLY AND WESTERLY PORTION OF THE INTERSTATE HIGHWAY 40 AND COORS BOULEVARD INTERCHANGE TO COORS BOULEVARD, THEN SOUTHERLY ALONG COORS BOULEVARD TO CENTRAL AVENUE, THEN WESTERLY ALONG CENTRAL AVENUE TO AIRPORT ROAD, THEN NORTH AND WEST TO THE POINT OF BEGINNING (SEE KEY MAP SHEET 7 INCLUDED HEREINAFTER).

III. PURPOSE

THE PURPOSE OF THE WEST BLUFF DRAINAGE PLAN IS TO PROVIDE A DOCUMENT FOR USE IN MANAGEMENT OF STORM WATER WITHIN THE LIMITS OF THE STUDY AREA.

PHASE I OF THE WEST BLUFF DRAINAGE PLAN PROVIDES AN EVALUATION OF EXISTING REPORTS AND PLANS AND IMPACTS OF SAME RELATIVE TO THE WEST BLUFF.

PHASE II OF THE WEST BLUFF DRAINAGE PLAN DEFINES THE 10 YEAR AND 100 YEAR FLOOD HAZARD AREAS FOR THE EXISTING CONDITIONS.

THE GENERAL SCOPE OF PHASE III OF THE WEST BLUFF DRAINAGE PLAN PROVIDES AN EVALUATION OF THE PROPOSED DRAINAGE FACILITIES REQUIRED FOR A TOTALLY IMPROVED WATERSHED FOR THE 10 YEAR AND 100 YEAR STORM EVENTS IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE'S DRAINAGE ORDINANCES.

IV. LAND USE

CURRENT AND PROPOSED LAND USE WITHIN THE THE WEST BLUFF STUDY AREA WERE EVALUATED TO DETERMINE THE MAXIMUM IMPROVED LAND USE DENSITIES. LAND USE PLANS CURRENTLY ADOPTED BY THE CITY OF ALBUQUERQUE AND UTILIZED FOR PHASE III ARE THE FOLLOWING PLANS:

I. COORS CORRIDOR PLAN

II. EL RANCHO ATRISCO PHASE III

III. ATRISCO BUSINESS PARK PLAN

IV. EAST ATRISCO SECTOR DEVELOPMENT PLAN

PROPOSED LAND USE PLANS FOR THIS AREA ARE LIMITED TO THE EL RANCHO ATRISCO, PHASE V PLAN WHICH ADDRESSES ONLY THE AREA NORTH OF INTERSTATE HIGHWAY 40 AND WEST OF UNSER BOULEVARD.

LAND USE FOR THE REMAINING AREA WAS DETERMINED FROM CURRENT CITY ZONING MAPS. PORTIONS OF THE STUDY AREA ARE CURRENTLY WITHIN BERNALILLO COUNTY JURISDICTION, HOWEVER FOR PHASE III THESE AREAS WERE CONSIDERED TO BE RE-ZONED TO CONFORM WITH EXISTING AND PROPOSED LAND USES SURROUNDING THEM.

V. METHODS

THE 10 YEAR AND 100 YEAR FLOOD EVENTS WERE ANALYZED FOR THE WEST BLUFF STUDY AREA BY MEANS OF THE HYMO COMPUTER MODEL AS DEVELOPED FOR THE "ALBUQUERQUE MASTER DRAINAGE STUDY". THE METHODS, ASSUMPTIONS, AND MODELING TECHNIQUES OUTLINED IN THE "ALBUQUERQUE MASTER DRAINAGE STUDY" WERE UTILIZED; HOWEVER, SUCH OUTLINES ARE NOT INCLUDED IN THIS DOCUMENT, BUT ARE INCORPORATED BY REFERENCE ONLY.

VI. RESULTS

THE RESULTS OF THE COMPUTER MODELING FOR THIS IMPROVED CONDITIONS REPORT ARE PRESENTED WITHIN THE SIX APPENDICES OF THIS PHASE OF THE WEST BLUFF DRAINAGE PLAN. THE DESCRIPTION OF APPENDICES 'A' THROUGH 'F' FOLLOWS:

APPENDIX 'A' - THIS APPENDIX, TITLED "EXISTING AND PROPOSED UTILITIES AND FACILITIES", IS COMPOSED OF PHOTO BASED TOPOGRAPHICAL MAPS AT 1" = 400' SCALE. SHOWN ON THESE MAPS ARE EXISTING DRAINAGE FACILITIES AND MAJOR UTILITIES, PROPOSED DRAINAGE FACILITIES AND MASTER PLANNED UTILITIES, MASTER PLANNED MAJOR STREETS, TOGETHER WITH UPLAND ANALYSIS POINTS FOR THE COMPUTER MODEL.

APPENDIX 'B' - THIS APPENDIX, TITLED "SUMMARY OF HYDROLOGIC AND HYDRAULIC ANALYSES", CONTAINS DISCHARGE FLOW DEPTH AND FLOW VELOCITY INFORMATION AT HYDROLOGICALLY STRATEGIC LOCATIONS FOR THE 10 YEAR AND 100 YEAR IMPROVED CONDITIONS RUNOFF EVENTS.

APPENDIX 'C' - THIS APPENDIX, TITLED "SUMMARY OF EXISTING STORM DRAINS", IS A COMPILATION OF AVAILABLE EXISTING STORM DRAIN INFORMATION BASED ON AS-BUILT DRAWINGS AS PROVIDED BY THE CITY ENGINEER. HORIZONTAL AND VERTICAL LOCATION OF EXISTING STORM DRAINS MUST BE FIELD VERIFIED AT TIME OF PRELIMINARY DESIGN. THE TOTAL 10 YEAR AND 100 YEAR DISCHARGES SHOWN IN THIS APPENDIX ARE FOR THE IMPROVED CONDITIONS WITH ALL PROPOSED UPLAND DRAINAGE FACILITIES IN PLACE.

WEST BLUFF DRAINAGE PLAN

PHASE III

APPENDIX 'D' - THIS APPENDIX, TITLED "SUMMARY OF PROPOSED STORM DRAIN FACILITIES", LISTS STORM DRAINS REQUIRED TO MEET THE MINIMUM DESIGN CRITERIA FOR FLOW IN STREETS PER THE CITY OF ALBUQUERQUE DRAINAGE ORDINANCES AND POLICIES.

APPENDIX 'E' - THIS APPENDIX, TITLED "SUMMARY OF EXISTING CROSSING STRUCTURES", CONTAINS INFORMATION RELATIVE TO EXISTING CROSSING STRUCTURES WITHIN THE WEST BLUFF AREA.

APPENDIX 'F' - THIS APPENDIX, TITLED "SUMMARY OF PROPOSED CHANNELS AND BOX STRUCTURES", CONTAINS DISCHARGE, FLOW DEPTH AND FLOW VELOCITY INFORMATION FOR THE MAJOR DRAINAGE FACILITIES, I.E., WEST BLUFF OUTFALL, I-40 INTERCEPTOR, WEST MESA DIVERSION AND UNSER DIVERSION FOR THE STRUCTURES AS ASSUMED IN THE COMPUTER MODELING FOR THE 10 YEAR AND 100 YEAR STORM EVENTS. THE FLOW DEPTHS AND FLOW VELOCITIES SHOWN IN THIS APPENDIX ARE CALCULATED FOR NORMAL DEPTH, AND DO NOT REPRESENT THE ULTIMATE BACKWATER ANALYSIS.

THE PROPOSED IMPROVEMENT SIZES, ALIGNMENTS AND LOCATIONS DEPICTED IN THESE APPENDICES ARE NOT MEANT TO BE FINAL BUT EACH MUST BE DETERMINED IN THEIR PRELIMINARY DESIGN.

VII. PROPOSED FLOOD MITIGATION MEASURES

THE DRAINAGE SOLUTION PROPOSED FOR THE MANAGEMENT OF STORM WATER WITHIN THE STUDY AREA INCORPORATES BOTH STRUCTURAL AND NON-STRUCTURAL MEASURES. THE STRUCTURAL MEASURES HAVE BEEN GROUPED INTO CHANNELS AND BOX STRUCTURES AND STORM DRAIN FACILITIES. THE CHANNELS AND BOX STRUCTURES ARE THOSE FACILITIES WHICH WILL PREVENT LARGE UPLAND AREAS FROM INUNDATING DOWNSTREAM AREAS FOR A DEVELOPED WATERSHED. THE STORM DRAIN FACILITIES ARE THOSE FACILITIES WHICH WILL DISCHARGE TO A CHANNEL OR BOX STRUCTURE. THE MAJORITY OF THE STUDY AREA RELIES ON STRUCTURAL MEASURES FOR THE MITIGATION OF STORM RUNOFF. A SMALL PORTION OF THE STUDY AREA UTILIZES NON-STRUCTURAL MEASURES (I.E. DETENTION AREAS) FOR THE MITIGATION OF FLOOD WATER. THIS AREA IS THAT PORTION OF THE STUDY AREA THAT LIES EAST OF UNSER BOULEVARD AND SOUTH OF BLUEWATER ROAD.

A. STRUCTURAL FLOOD MITIGATION MEASURES

THE STRUCTURAL DRAINAGE FACILITIES, AS PROPOSED UNDER PHASE III OF THE WEST BLUFF DRAINAGE PLAN, ARE DEFINED BY THE FOLLOWING MAJOR ELEMENTS:

1. WEST BLUFF OUTFALL
2. I-40 INTERCEPTOR
3. WEST MESA DIVERSION
4. UNSER DIVERSION

THE WEST BLUFF OUTFALL IS THAT PORTION OF THE SYSTEM THAT WILL CONVEY STORM FLOWS THROUGH EXISTING CONCRETE BOX CULVERTS UNDER COORS BOULEVARD, NORTH OF INTERSTATE HIGHWAY 40 AND COORS BOULEVARD INTERCHANGE, TO THE RIO GRANDE.

THE I-40 INTERCEPTOR WILL INTERCEPT FLOWS GENERATED NORTH OF INTERSTATE HIGHWAY 40, ALONG THE NORTH RIGHT-OF-WAY OF INTERSTATE HIGHWAY 40, AND CONVEY THE STORM FLOW TO THE WEST BLUFF OUTFALL.

THE WEST MESA DIVERSION WILL INTERCEPT FLOWS GENERATED FROM A PORTION OF THE STUDY AREA LOCATED SOUTH OF INTERSTATE HIGHWAY 40 AND CONVEY THE RUNOFF UNDER INTERSTATE HIGHWAY 40, USING EXISTING CONCRETE BOX CULVERTS, TO THE I-40 INTERCEPTOR.

THE UNSER DIVERSION WILL INTERCEPT FLOWS GENERATED FROM THAT PORTION OF THE STUDY AREA LOCATED SOUTH OF INTERSTATE HIGHWAY 40 AND WEST OF THE WEST BOUNDARY OF THE ATRISCO BUSINESS PARK AND CONVEY THE RUNOFF TO UNSER BOULEVARD. THE UNSER DIVERSION AND THE EXISTING UNSER BOULEVARD STORM DRAIN, WILL DISCHARGE SOUTH INTO FACILITIES PROPOSED IN UNSER BOULEVARD TO THE AMOLE DEL NORTE DRAINAGE SYSTEM.

THE DRAINAGE FACILITIES, AT THE TIME OF PRELIMINARY DESIGN, SHALL ADDRESS AND INCORPORATE JOINT-USE ASPECTS (I.E. OPEN SPACE BUFFER STRIP, LANDSCAPING, BICYCLE PATHS, JOGGING TRAILS, ETC.) WITH THE PROPOSED FACILITIES, AS REQUIRED BY THE LAND USE PLANS CURRENTLY ADOPTED BY THE CITY OF ALBUQUERQUE FOR THIS AREA OF THE WEST MESA. THE PROPOSED CHANNELS AND BOX STRUCTURES ARE PRESENTED IN APPENDIX 'F'.

THE STORM DRAIN FACILITIES ARE DEFINED AS THOSE FACILITIES WHICH COLLECT RUNOFF AND DISCHARGE TO A CHANNEL OR BOX STRUCTURE. THE PROPOSED STORM DRAIN FACILITIES ARE LISTED IN APPENDIX 'D'.

B. NON-STRUCTURAL FLOOD MITIGATION MEASURES

NON-STRUCTURAL MEASURES, FOR THE MANAGEMENT OF STORM RUNOFF, ARE PROPOSED FOR THAT PORTION OF THE STUDY AREA WHICH LIES EAST OF UNSER BOULEVARD AND SOUTH OF BLUEWATER ROAD. THIS PORTION OF THE STUDY AREA WILL UTILIZE THE EXISTING STORM SEWER IN BLUEWATER ROAD EAST OF COORS BOULEVARD AS THE OUTFALL FOR STORM RUNOFF. HOWEVER, DUE TO THE LIMITED CAPACITY OF THE EXISTING STORM DRAIN IN BLUEWATER ROAD, NON-STRUCTURAL MEASURES WILL REQUIRE THE DETENTION OF ALL RUNOFF FOR A PERIOD OF TWO (2) HOURS FROM THE TIME THE STORM BEGINS. AFTER THE TWO HOURS OF DETENTION TIME, FLOWS FROM THIS PORTION OF THE STUDY AREA WILL BE REQUIRED TO DISCHARGE AT A RATE NOT TO EXCEED 0.20 CFS/ACRE.

WEST BLUFF DRAINAGE PLAN PHASE III

VIII. SYSTEM IMPROVEMENT IDENTIFICATION AND CONSTRUCTION PRIORITY RANKING

A. SYSTEM IMPROVEMENT IDENTIFICATION

THE PROPOSED DRAINAGE FACILITIES HAVE BEEN ASSIGNED A SYSTEM IMPROVEMENT NUMBER TO FACILITATE PRIORITY RANKING, IDENTIFICATION AND REFERENCE.

THE SYSTEM IMPROVEMENT NUMBERS FOR CHANNELS AND BOX STRUCTURES ARE A FIVE DIGIT (XXX.XX) NUMBER WHICH RELATES TO THE MAJOR DRAINAGE BASIN WHICH THE IMPROVEMENT DRAINS AND THE DISTANCE IN THOUSANDS OF FEET FROM THE BEGINNING OF THE SYSTEM TO THE END OF THE SYSTEM MEASURED CONTINUOUSLY UPSTREAM FROM THE PROPOSED OUTFALL. FOR EXAMPLE, CONSIDER SYSTEM 613.20. THE FIRST DIGIT (6) INDICATES THAT THE IMPROVEMENT DRAINS BASINS WITH UPLAND ANALYSIS POINTS NUMBERED IN THE SIX HUNDREDS. THE NEXT FOUR DIGITS (13.20) INDICATE THAT THE IMPROVEMENT BEGINS THIRTEEN THOUSAND FEET UPSTREAM FROM ITS PROPOSED OUTFALL AND ENDS TWENTY THOUSAND FEET UPSTREAM.

THE SYSTEM IMPROVEMENT NUMBERS FOR THE STORM DRAINS ARE A THREE DIGIT (XXX) NUMBER WHICH CORRESPONDS TO THE UPLAND ANALYSIS POINT WHERE THE FACILITY DISCHARGES INTO A CHANNEL OR BOX STRUCTURE.

B. CONSTRUCTION PRIORITY RANKING

THE PROPOSED STRUCTURAL MITIGATION MEASURES ARE SUMMARIZED IN APPENDICES 'D' AND 'F' AND HAVE BEEN ASSIGNED A CONSTRUCTION PRIORITY RANKING AS SHOWN IN THE FOLLOWING TABLE. THE PRIORITY RANKING IS BASED ON PROBABLE FLOOD DAMAGES ASSOCIATED WITH EACH PROJECT. SUCH FLOOD DAMAGES WERE WEIGHTED AND ANALYZED BY THE METHODS OUTLINED IN THE "ALBUQUERQUE MASTER DRAINAGE STUDY"; HOWEVER, SUCH OUTLINES ARE NOT INCLUDED IN THIS DOCUMENT AND ARE INCORPORATED BY REFERENCE ONLY. ADDITIONALLY, THE AREAS WITHIN THE STUDY AREA BOUNDARY THAT ARE PROVIDED WITH A POSITIVE DRAINAGE OUTFALL BY THE CONSTRUCTION OF THE PROPOSED FLOOD MITIGATION MEASURES WERE WEIGHTED AT ONE POINT PER ACRE.

SYSTEM IMPROVEMENT NUMBER	AREA PROVIDED WITH POSITIVE DRAINAGE OUTFALL (A.C.)	AREA FLOODED (A.C.)	WEIGHTED FLOOD TOTALS	PRIORITY RANKING
CHANNELS AND BOX STRUCTURES				
600.03	2,000	39	2,039	A
603.05	1,756	30	1,786	A
605.13	835	0	835	B
613.20	425	0	425	B
500.04	750	19	769	B
504.05	480	9	489	B
500.02	210	0	210	B
502.06	145	0	145	C
STORM DRAINS				
104	113	0	113	C
205	5	0	5	D
404	34	6	34	D
506	62	0	62	D
512	155	0	155	C
518	135	3	138	C
530	67	8	75	D
630	171	3	174	C
633	208	0	208	B

IX. AVAILABLE RIGHT-OF-WAY FOR MAJOR DRAINAGE FACILITIES

AN EVALUATION OF THE AVAILABLE RIGHTS-OF-WAY FOR THE PROPOSED DRAINAGE FACILITIES IS PRESENTED IN THE FOLLOWING TABLE:

PROPOSED DRAINAGE FACILITY	LIMITS	SUBDIVISION	REMARKS
WEST BLUFF OUTFALL SYSTEM 600.03	FROM: MUNICIPAL LIMITS (RIO GRANDE) TO: ALAMOGORDO DR.	LANDS OF E.H. SLOAN	CITY PARK, INTENDED FOR USE AS LOCATION FOR DRAINAGE STRUCTURE
WEST BLUFF OUTFALL SYSTEM 600.03	FROM: ALAMOGORDO DR. TO: SOUTHERN UNION GAS CO. EASEMENT	TRACT A-15, TOWN OF ATRISCO GRANT, NORTHEAST UNIT	NO EXISTING R/W OR EASEMENT
WEST BLUFF OUTFALL SYSTEM 600.03	FROM: SOUTHERN UNION GAS CO. EASEMENT TO: EAST R/W OF COORS BLVD.	TRACTS 330,331 & 332 TOWN OF ATRISCO GRANT NORTHEAST UNIT	NO EXISTING R/W OR EASEMENT
I-40 INTERCEPTOR SYSTEM 603.05	FROM: WEST R/W OF COORS BLVD. TO: ESTANCIA DR.	TRACTS 333, 308 THRU 331 & 286, TOWN OF ATRISCO GRANT, UNIT 8	NO EXISTING R/W OR EASEMENT
I-40 INTERCEPTOR SYSTEM 605.13	FROM: ESTANCIA DR. TO: 64TH STREET	TRACTS 286 THRU 291, TOWN OF ATRISCO GRANT UNIT 8	NO EXISTING R/W OR EASEMENT
I-40 INTERCEPTOR SYSTEM 605.13	FROM: 64TH STREET TO: 72ND STREET	TRACTS 292,267 THRU 270, 275, TOWN OF ATRISCO GRANT, AIRPORT UNIT	NO EXISTING R/W OR EASEMENT
I-40 INTERCEPTOR SYSTEM 605.13	FROM: 72ND STREET TO: LAURELWOOD PKWY.	TRACTS 226 THRU 231 TOWN OF ATRISCO GRANT, AIRPORT UNIT	NO EXISTING R/W OR EASEMENT
I-40 INTERCEPTOR SYSTEM 605.13	FROM: LAURELWOOD PKWY. TO: UNSER BLVD.	UNSER BLVD. INTERCHANGE RIGHT-OF-WAY	STATE HWY. DEPT. R/W PERMISSIVE USE FOR DRAINAGE AVAILABLE
I-40 INTERCEPTOR SYSTEM 613.20	FROM: UNSER BLVD. TO: 1500'E. OF 90TH STREET	UNSER BLVD. INTERCHANGE RIGHT-OF-WAY	STATE HWY DEPT. R/W PERMISSIVE USE FOR DRAINAGE AVAILABLE
I-40 INTERCEPTOR SYSTEM 613.20	FROM: 1500'E. of 90TH STREET TO: 900'W. of 90TH STREET	TOWN OF ATRISCO GRANT, UNIT 5	NO EXISTING R/W OR EASEMENT
I-40 INTERCEPTOR SYSTEM 613.20	FROM: 900'W. of 90TH STREET TO: 98TH STREET	98TH ST. INTERCHANGE RIGHT-OF-WAY	STATE HWY. DEPT. R/W PERMISSIVE USE FOR DRAINAGE AVAILABLE
WEST MESA DIVERSION SYSTEM 500.04	FROM: I-40 TO: 64TH STREET	KELLY INN, TRACTS 289, 290, 263 THRU 265, TOWN OF ATRISCO GRANT, AIRPORT UNIT	NO EXISTING R/W
WEST MESA DIVERSION SYSTEM 500.04	FROM: I-40 TO: FORTUNA RD.	TOWN OF ATRISCO GRANT, AIRPORT UNIT	PROPOSED STRUCTURE WITHIN 64TH ST. R/W
WEST MESA DIVERSION SYSTEM 504.05	FROM: FORTUNA RD. TO: LOS VOLCANES RD.	TRACT R, ATRISCO BUSINESS PARK	TRACT PLATTED 150' WIDE, INTENDED FOR USE AS LOCATION FOR DRAINAGE STRUCTURE, NO R/W OR EASEMENT INDICATED
UNSER DIVERSION SYSTEM 500.02	FROM: UNSER BLVD. TO: AVALON RD.	TRACT H-2 & H-1, ATRISCO BUSINESS PARK, UNIT 2	PLATTED TRACTS, INTENDED FOR USE AS LOCATION FOR DRAINAGE STRUCTURE, NO R/W OR EASEMENT DEDICATED
UNSER DIVERSION SYSTEM 502.06	FROM: AVALON RD. TO: DAYTON RD.	TRACTS B-7, B-8 & B-14, TOWN OF ATRISCO GRANT, UNIT 5, LOT 2, ATRISCO BUSINESS PARK, UNIT 2, TRACTS T & J, ATRISCO BUSINESS PARK	NO EXISTING R/W OR EASEMENT

WEST BLUFF DRAINAGE PLAN

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X. ESTIMATED CONSTRUCTION COSTS

THE ESTIMATED CONSTRUCTION COSTS FOR THE PROPOSED DRAINAGE FACILITIES ARE BASED ON THE STRUCTURE DESCRIPTIONS PRESENTED IN APPENDIX 'D' AND APPENDIX 'F' OF THIS REPORT. THE UNIT COSTS USED FOR ESTIMATING THE CONSTRUCTION ITEMS WERE TAKEN FROM THE ALBUQUERQUE CITY ENGINEER'S ESTIMATED UNIT PRICES FOR CONTRACT ITEMS DATED AUGUST 28, 1985 AND TRANSMITTED TO DEVELOPERS, CONSULTANTS AND CONTRACTORS FOR PUBLIC WORKS WITHIN THE CITY OF ALBUQUERQUE FROM THE CITY ENGINEER BY MEMO DATED AUGUST 28, 1985. THE ESTIMATED CONSTRUCTION COSTS DO NOT INCLUDE ENGINEERING, ADMINISTRATION, INSPECTION AND TESTING, OR ACQUISITION OF RIGHT-OF-WAY.

THE ESTIMATED DEPTH FOR OPEN CONCRETE CHANNELS IS ASSUMED TO BE THE 100 YEAR FLOW DEPTH SHOWN IN APPENDIX 'F' PLUS TWO FEET, UNLESS OTHERWISE NOTED.

A. STORM DRAINS

1. SYSTEM 104. CONSTRUCT STORM DRAIN ON LADERA DRIVE FROM 90TH STREET, EAST TO DAM NO. 15 OF THE LADERA DRAINAGE SYSTEM.

\$ 281,000.00

2. SYSTEM 205. CONSTRUCT STORM DRAIN FROM LADERA DRIVE, NORTHWEST TO DAM NO. 15 OF THE LADERA DRAINAGE SYSTEM.

\$ 17,000.00

3. SYSTEM 404. CONSTRUCT STORM DRAIN ON ILIFF ROAD FROM ESTANCIA DRIVE, EAST TO COORS BOULEVARD, THEN NORTH TO THE I-40 VEE DITCH.

\$ 258,000.00

4. SYSTEM 506. CONSTRUCT STORM DRAIN ON 90TH STREET FROM BLUEWATER ROAD, SOUTH TO AVALON ROAD, THEN EAST TO THE UNSER DIVERSION.

\$ 141,000.00

5. SYSTEM 512. CONSTRUCT STORM DRAIN ON LOS VOLCANES ROAD FROM 500' WEST OF AIRPORT ROAD, EAST TO THE WEST MESA DIVERSION.

\$ 1,358,000.00

6. SYSTEM 518. CONSTRUCT STORM DRAIN ON BLUEWATER ROAD, FROM AIRPORT ROAD, EAST TO WEST MESA FEEDER. CONSTRUCT WEST MESA FEEDER FROM AIRPORT ROAD, NORTH TO WEST MESA DIVERSION (LOS VOLCANES ROAD).

\$ 1,065,000.00

7. SYSTEM 530. CONSTRUCT STORM DRAIN ON HANOVER ROAD FROM 550' WEST OF 64TH STREET, EAST TO THE WEST MESA DIVERSION.

CONSTRUCT STORM DRAIN ON HANOVER ROAD FROM 650' EAST OF 64TH STREET, WEST TO THE WEST MESA DIVERSION.

\$ 166,000.00

8. SYSTEM 630. CONSTRUCT STORM DRAIN ON MIAMI ROAD FROM ESTANCIA DRIVE, EAST TO I-40 INTERCEPTOR.

\$ 207,000.00

9. SYSTEM 633. CONSTRUCT STORM DRAIN ON 57TH STREET FROM QUAIL ROAD TO OURAY ROAD.

CONSTRUCT STORM DRAIN ON OURAY ROAD FROM SOLE DE VIDA, EAST TO CORONA DRIVE.

CONSTRUCT STORM DRAIN ON CORONA DRIVE FROM PHEASANT ROAD TO WEST BLUFF OUTFALL.

\$ 1,420,000.00

TOTAL STORM DRAINS

\$ 4,913,000.00

B. CHANNELS AND BOX STRUCTURES

1. WEST BLUFF OUTFALL

SYSTEM 600.03. CONSTRUCT OUTFALL STRUCTURE FROM EXISTING CONCRETE BOX CULVERTS UNDER COORS BOULEVARD, EAST TO THE RIO GRANDE, INCLUDING TRANSITION STRUCTURES AND STILLING BASIN.

TOTAL WEST BLUFF OUTFALL

\$ 5,309,000.00

2. I-40 INTERCEPTOR

SYSTEM 603.05. CONSTRUCT CONCRETE BOX CONDUIT FROM EXISTING CONCRETE BOX CULVERTS UNDER COORS BOULEVARD, WEST TO THE EXISTING CONCRETE BOX CULVERTS UNDER INTERSTATE HIGHWAY 40 (CONFLUENCE WITH WEST MESA DIVERSION, SYSTEM 500.05).

\$ 1,972,000.00

SYSTEM 605.13. CONSTRUCT CONCRETE CHANNEL FROM CONFLUENCE WITH WEST MESA DIVERSION, WEST TO EXISTING CONCRETE BOXS CULVERTS UNDER UNSER BOULEVARD.

\$ 1,096,000.00

SYSTEM 613.20. CONSTRUCT CONCRETE CHANNEL FROM EXISTING CONCRETE BOX CULVERTS UNDER UNSER BOULEVARD, WEST TO EXISTING CONCRETE BOX CULVERTS UNDER 98TH STREET.

\$ 933,000.00

TOTAL I-40 INTERCEPTOR

\$ 4,001,000.00

WEST BLUFF DRAINAGE PLAN

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3. WEST MESA DIVERSION

SYSTEM 500.04. CONSTRUCT CONCRETE BOX CONDUIT FROM EXISTING CONCRETE BOX CULVERTS UNDER INTERSTATE 40, SOUTH TO FORTUNA ROAD.

\$ 2,208,000.00

SYSTEM 504.05. CONSTRUCT CONCRETE CHANNEL (10' DEPTH) FROM FORTUNA ROAD, SOUTH TO LOS VOLCANES ROAD INCLUDING TRANSITION STRUCTURES.

\$ 322,000.00

TOTAL WEST MESA DIVERSION \$ 2,530,000.00

4. UNSER DIVERSION

SYSTEM 500.02. CONSTRUCT CONCRETE CHANNEL FROM UNSER BOULEVARD, WEST TO THE WEST BOUNDARY OF THE ATRISCO BUSINESS PARK.

\$ 343,000.00

SYSTEM 502.06. CONSTRUCT EARTH CHANNEL FROM THE SOUTH BOUNDARY OF THE ATRISCO BUSINESS PARK, NORTH ALONG THE WEST BOUNDARY OF THE ATRISCO BUSINESS PARK TO ITS TERMINUS.

\$ 77,000.00

TOTAL UNSER DIVERSION \$ 420,000.00

TOTAL CHANNELS AND BOX STRUCTURES \$ 12,260,000.00

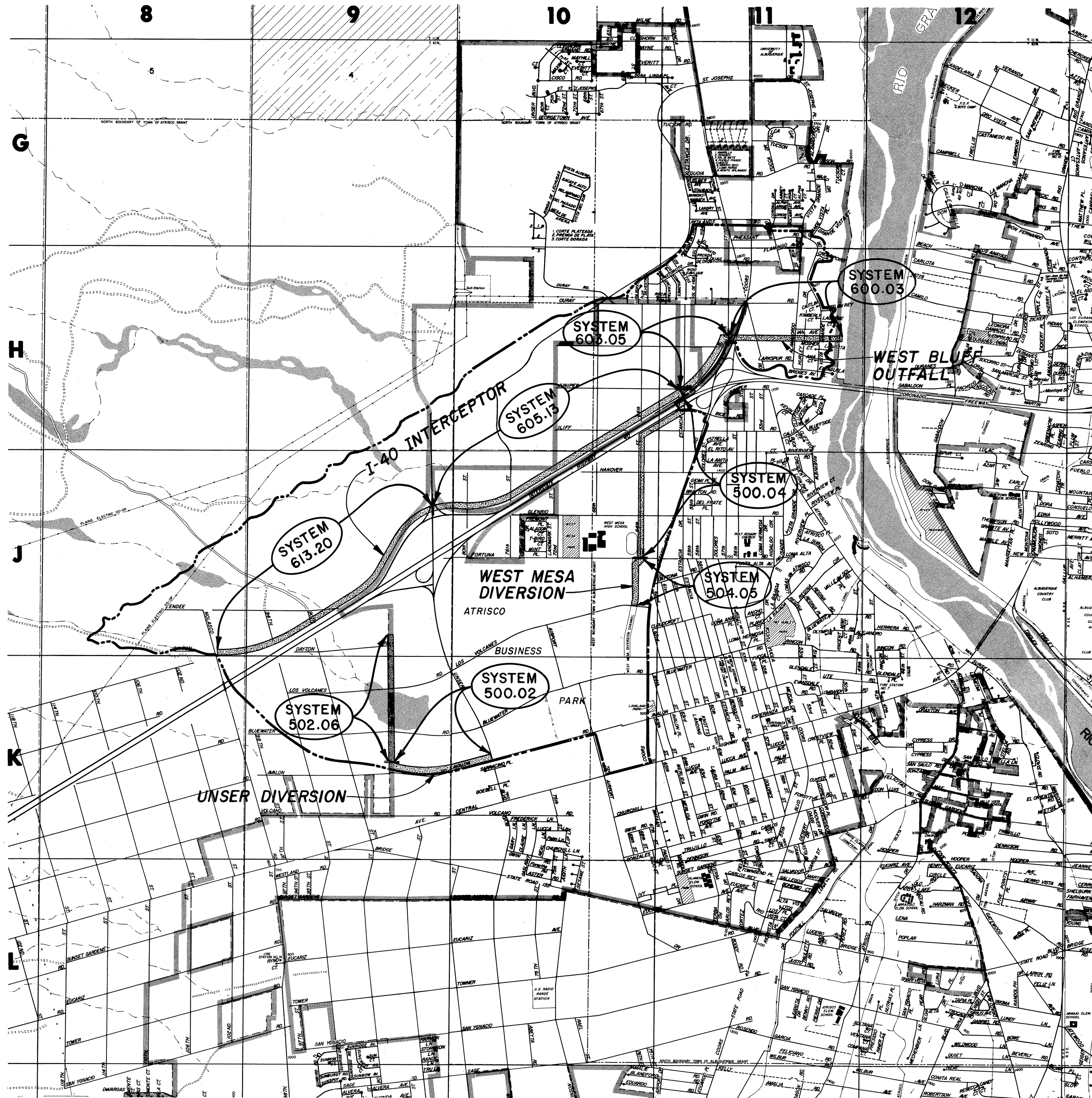
TOTAL WEST BLUFF DRAINAGE FACILITIES \$ 17,173,000.00

XI. RECOMMENDATIONS

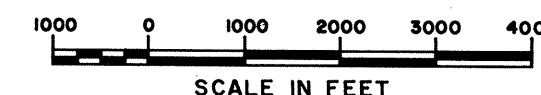
IT IS RECOMMENDED THAT THIS PHASE III PORTION OF THE WEST BLUFF DRAINAGE PLAN BE APPROVED AND THAT THE 10 YEAR AND 100 YEAR HYDROLOGY PRESENTED HEREIN BE USED IN THE PROCUREMENT OF FUNDS AND DESIGN OF THE DRAINAGE FACILITIES INCLUDED IN THE PLAN.

C. ALTERNATIVES: IT IS RECOMMENDED THAT DURING THE PRELIMINARY DESIGN PHASE OF THE PROPOSED FACILITIES, ALTERNATIVES BE CONSIDERED TO PROVIDE THE MOST COST EFFECTIVE AND ENVIRONMENTALLY ACCEPTABLE FACILITIES. SOME OPTIONS AVAILABLE FOR CERTAIN SEGMENTS OF THE FACILITIES FOLLOW:

1. CONSTRUCT THE WEST BLUFF OUTFALL (SYSTEM 600.03) BY TUNNELING AND UTILIZING A MULTI-PLATE STRUCTURE WITH LINER.
2. CONSTRUCT THE I-40 INTERCEPTOR FROM THE COORS BOULEVARD BOX CULVERTS, WEST TO THE EXISTING BOX CULVERTS UNDER INTERSTATE HIGHWAY 40 (SYSTEM 603.05) UTILIZING AN OPEN LINED CHANNEL.
3. CONSTRUCT THE WEST MESA DIVERSION FROM THE EXISTING BOX CULVERTS UNDER INTERSTATE HIGHWAY 40 TO FORTUNA ROAD (SYSTEM 505.05) UTILIZING AN OPEN LINED CHANNEL WITH STREET CROSSING STRUCTURES.



SCALE: 1" = 2000'



LEGEND

- STUDY AREA BOUNDARY
- PROPOSED MAJOR SYSTEM ALIGNMENT
- SYSTEM 500.05 SYSTEM NUMBER

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WEST BLUFF DRAINAGE PLAN

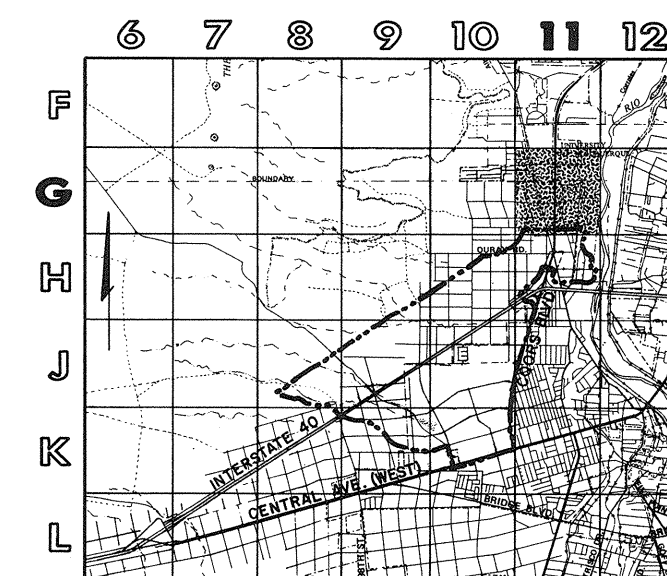
KEY MAP

APPENDIX 'A'
EXISTING AND PROPOSED
UTILITIES AND FACILITIES

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WEST BLUFF DRAINAGE PLAN

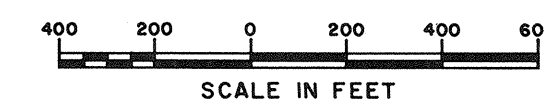
APPENDIX 'A'
A-1



MAP KEY



SCALE: 1" = 400'



LEGEND

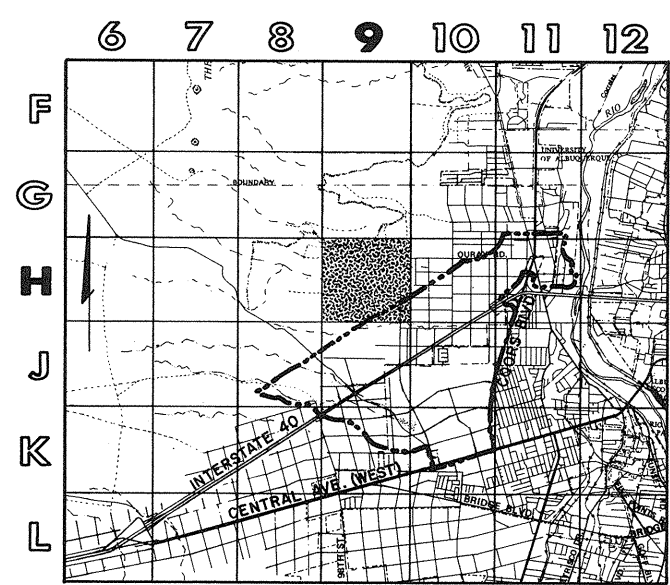
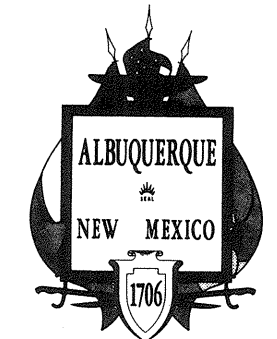
- STUDY AREA BOUNDARY
- SAS- EXISTING SANITARY SEWER LINE, 10" & LARGER
- S- MASTERPLANNED SANITARY SEWER LINE
- SD- EXISTING STORM DRAIN LINE, 12" & LARGER
- SD- PROPOSED STORM DRAIN LINE, 24" & LARGER
- W- EXISTING WATERLINE, 8" & LARGER
- W- MASTERPLANNED WATERLINE
- G- EXISTING GAS LINE
- G- MASTERPLANNED GAS LINE
- T- EXISTING TELEPHONE LINE
- E- EXISTING ELECTRIC LINE
- TV- CABLE TELEVISION
- EXISTING DEVELOPMENT
- 100 YEAR FLOOD HAZARD AREA
- 10 YEAR FLOOD HAZARD AREA
- ANALYSIS POINT
- CPC CONCRETE PIPE CULVERT
- CBC CONCRETE BOX CULVERT
- XXXXX EXISTING CHANNEL OR STRUCTURE
- XXXXX PROPOSED CHANNEL
- XXXXX PROPOSED CROSSING STRUCTURE
- XXXXX PROPOSED CONCRETE BOX STRUCTURE
- PLANNED STREET ALIGNMENT

BASE MAPPING COMPILED FROM EXISTING AERIAL PHOTOGRAMMETRIC MAPPING PREPARED FOR THE NATIONAL FLOOD INSURANCE PROGRAM, CITY OF ALBUQUERQUE. PHOTOGRAPH DATED OCTOBER 8, 1980.

ANDREWS, ASBURY & ROBERT, INC.
ALBUQUERQUE CONSULTING ENGINEERS NEW MEXICO

WEST BLUFF DRAINAGE PLAN

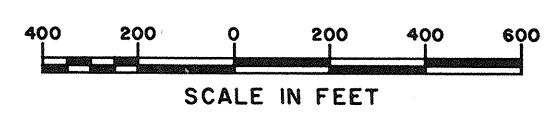
G 11



MAP KEY



SCALE: 1" = 400'



LEGEND

- STUDY AREA BOUNDARY
- SAS- EXISTING SANITARY SEWER LINE, 10" & LARGER
- S- MASTERPLANNED SANITARY SEWER LINE
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- G- EXISTING GAS LINE
- G- MASTERPLANNED GAS LINE
- T- EXISTING TELEPHONE LINE
- E- EXISTING ELECTRIC LINE
- TV- CABLE TELEVISION
- [Hatched Box] EXISTING DEVELOPMENT
- [Dotted Box] 100 YEAR FLOOD HAZARD AREA
- [Dotted Box] 10 YEAR FLOOD HAZARD AREA
- [Circle with X] ANALYSIS POINT
- [Circle] CPC CONCRETE PIPE CULVERT
- [Square] CBC CONCRETE BOX CULVERT
- [Double Line] EXISTING CHANNEL OR STRUCTURE
- [Single Line] PROPOSED CHANNEL
- [Crossed Box] PROPOSED CROSSING STRUCTURE
- [Dashed Line] PROPOSED CONCRETE BOX STRUCTURE
- [Dotted Line] PLANNED STREET ALIGNMENT

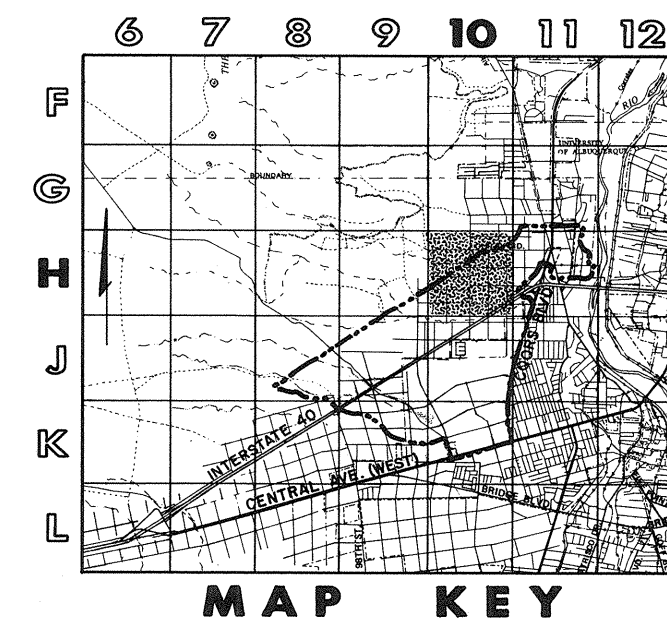
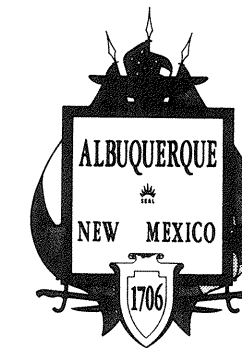
BASE MAPPING COMPILED FROM EXISTING AERIAL PHOTOGRAMMETRIC MAPPING PREPARED FOR THE NATIONAL FLOOD INSURANCE PROGRAM, CITY OF ALBUQUERQUE. PHOTOGRAPH DATED OCTOBER 8, 1980.

ANDREWS, ASBURY & ROBERT, INC.
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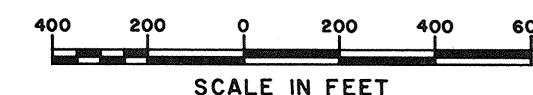


WEST BLUFF DRAINAGE PLAN

H 9



SCALE: 1" = 400'



LEGEND

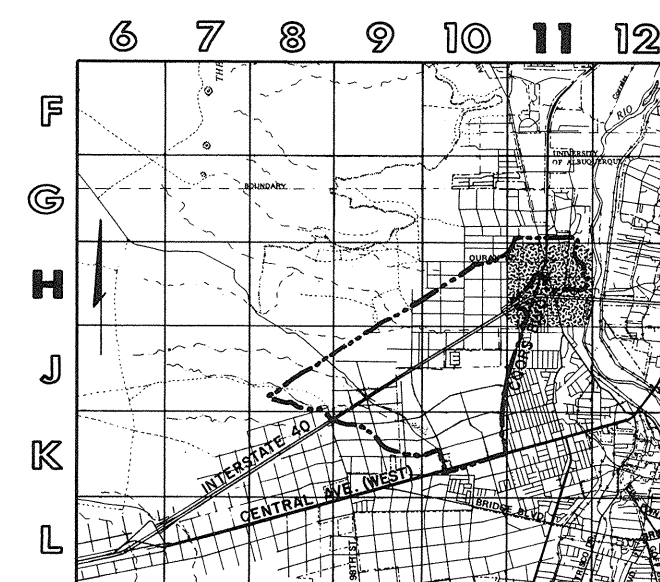
- STUDY AREA BOUNDARY
- SAS EXISTING SANITARY SEWER LINE, 10" & LARGER
- S MASTERPLANNED SANITARY SEWER LINE
- SD EXISTING STORM DRAIN LINE, 12" & LARGER
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- EXISTING DEVELOPMENT
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- ANALYSIS POINT
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- CBC CONCRETE BOX CULVERT
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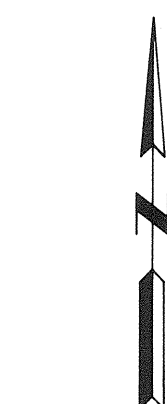
ANDREWS, ASBURY & ROBERT, INC.
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WEST BLUFF DRAINAGE PLAN

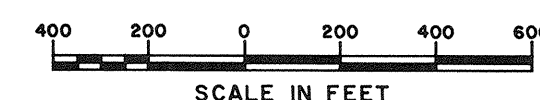
H 10



MAP KEY



SCALE: 1" = 400'



LEGEND

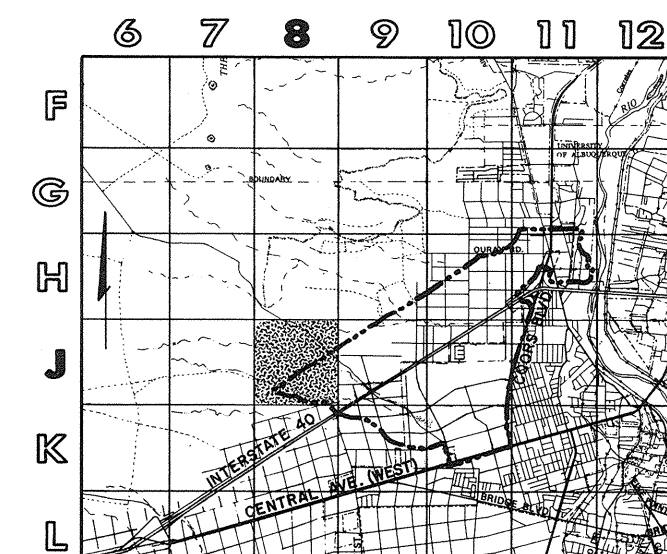
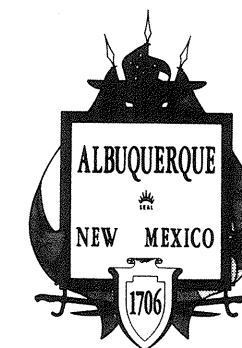
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- TV- CABLE TELEVISION
- EXISTING DEVELOPMENT
- 100 YEAR FLOOD HAZARD AREA
- 10 YEAR FLOOD HAZARD AREA
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- CPC CONCRETE PIPE CULVERT
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- EXISTING CHANNEL OR STRUCTURE
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ALBUQUERQUE NEW MEXICO

WEST BLUFF DRAINAGE PLAN

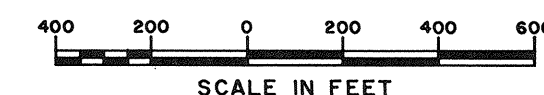
H 11



MAP KEY



SCALE: 1" = 400'



LEGEND

- STUDY AREA BOUNDARY
- SAS- EXISTING SANITARY SEWER LINE, 10" & LARGER
- S- MASTERPLANNED SANITARY SEWER LINE
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- G- EXISTING GAS LINE
- G- MASTERPLANNED GAS LINE
- T- EXISTING TELEPHONE LINE
- E- EXISTING ELECTRIC LINE
- TV- CABLE TELEVISION
- [Hatched Box] EXISTING DEVELOPMENT
- [Dotted Box] 100 YEAR FLOOD HAZARD AREA
- [Cross-hatched Box] 10 YEAR FLOOD HAZARD AREA
- [Circle with Dot] ANALYSIS POINT
- [Circle with 'C'] CPC CONCRETE PIPE CULVERT
- [Circle with 'B'] CBC CONCRETE BOX CULVERT
- [X-X-X-X] EXISTING CHANNEL OR STRUCTURE
- [X-X-X-X] PROPOSED CHANNEL
- [X-X-X-X] PROPOSED CROSSING STRUCTURE
- [X-X-X-X] PROPOSED CONCRETE BOX STRUCTURE
- [Dashed Line] PLANNED STREET ALIGNMENT

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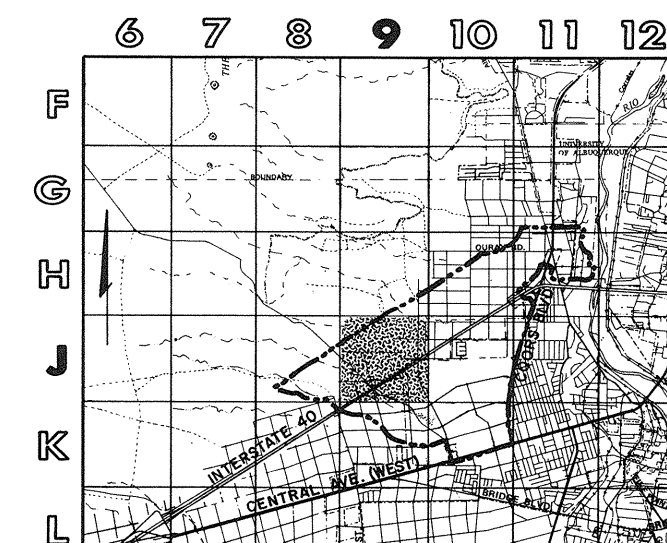
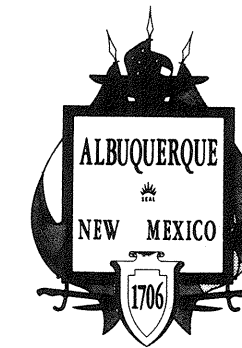
ALBUQUERQUE

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WEST BLUFF DRAINAGE PLAN

J 8

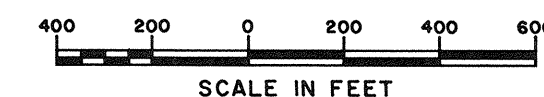
A-6



MAP KEY



SCALE: 1" = 400'



LEGEND

- STUDY AREA BOUNDARY
- SAS EXISTING SANITARY SEWER LINE, 10" & LARGER
- S MASTERPLANNED SANITARY SEWER LINE
- SD EXISTING STORM DRAIN LINE, 12" & LARGER
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- G MASTERPLANNED GAS LINE
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- E EXISTING ELECTRIC LINE
- TV CABLE TELEVISION
- EXISTING DEVELOPMENT
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- 10 YEAR FLOOD HAZARD AREA
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- CPC CONCRETE PIPE CULVERT
- CBC CONCRETE BOX CULVERT
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- PROPOSED CHANNEL
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ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS

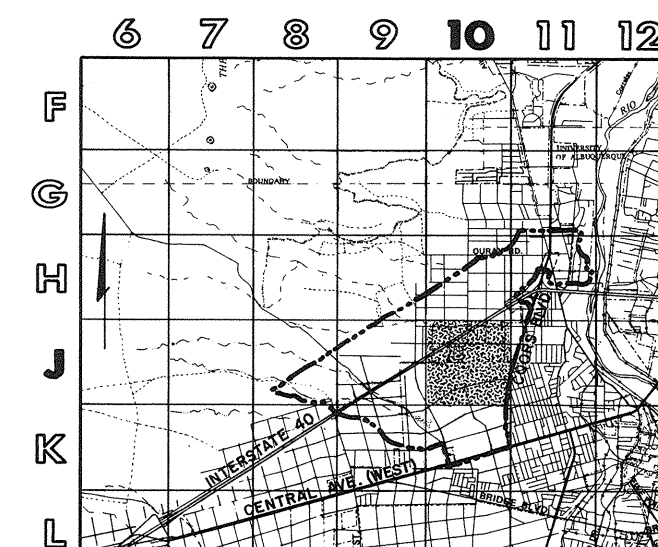
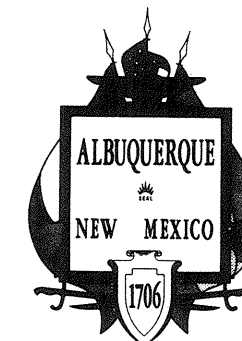
ALBUQUERQUE

NEW MEXICO

WEST BLUFF DRAINAGE PLAN

J 9

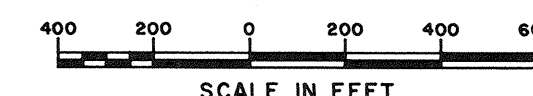
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MAP KEY



SCALE: 1" = 400'



LEGEND

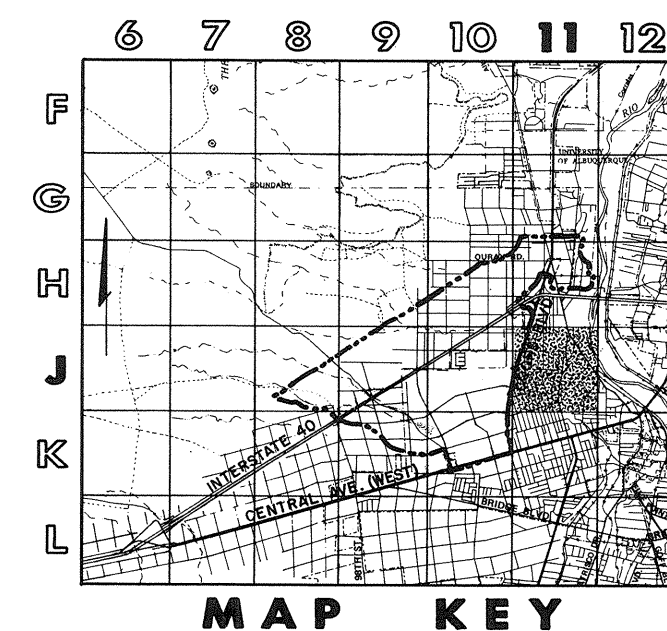
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- SAS EXISTING SANITARY SEWER LINE, 10" & LARGER
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WEST BLUFF DRAINAGE PLAN

J 10



SCALE: 1" = 400'

SCALE IN FEET

LEGEND

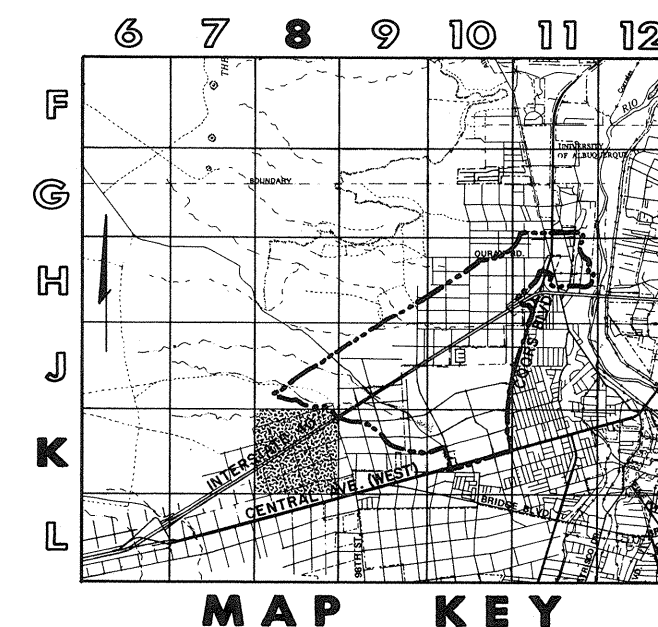
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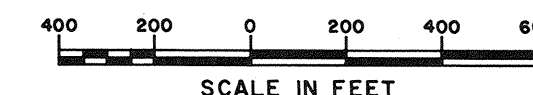
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CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO

WEST BLUFF DRAINAGE PLAN

J 11



SCALE: 1" = 400'



LEGEND

- STUDY AREA BOUNDARY
- SAS --- EXISTING SANITARY SEWER LINE, 10" & LARGER
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- SD --- EXISTING STORM DRAIN LINE, 12" & LARGER
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- PLANNED STREET ALIGNMENT

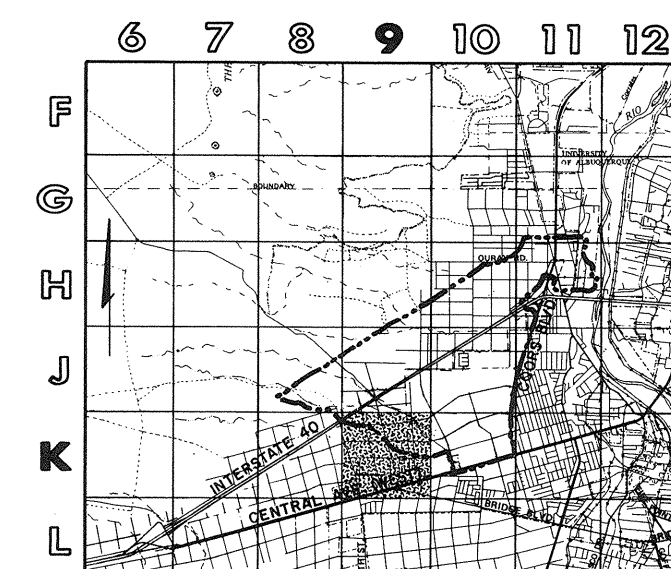
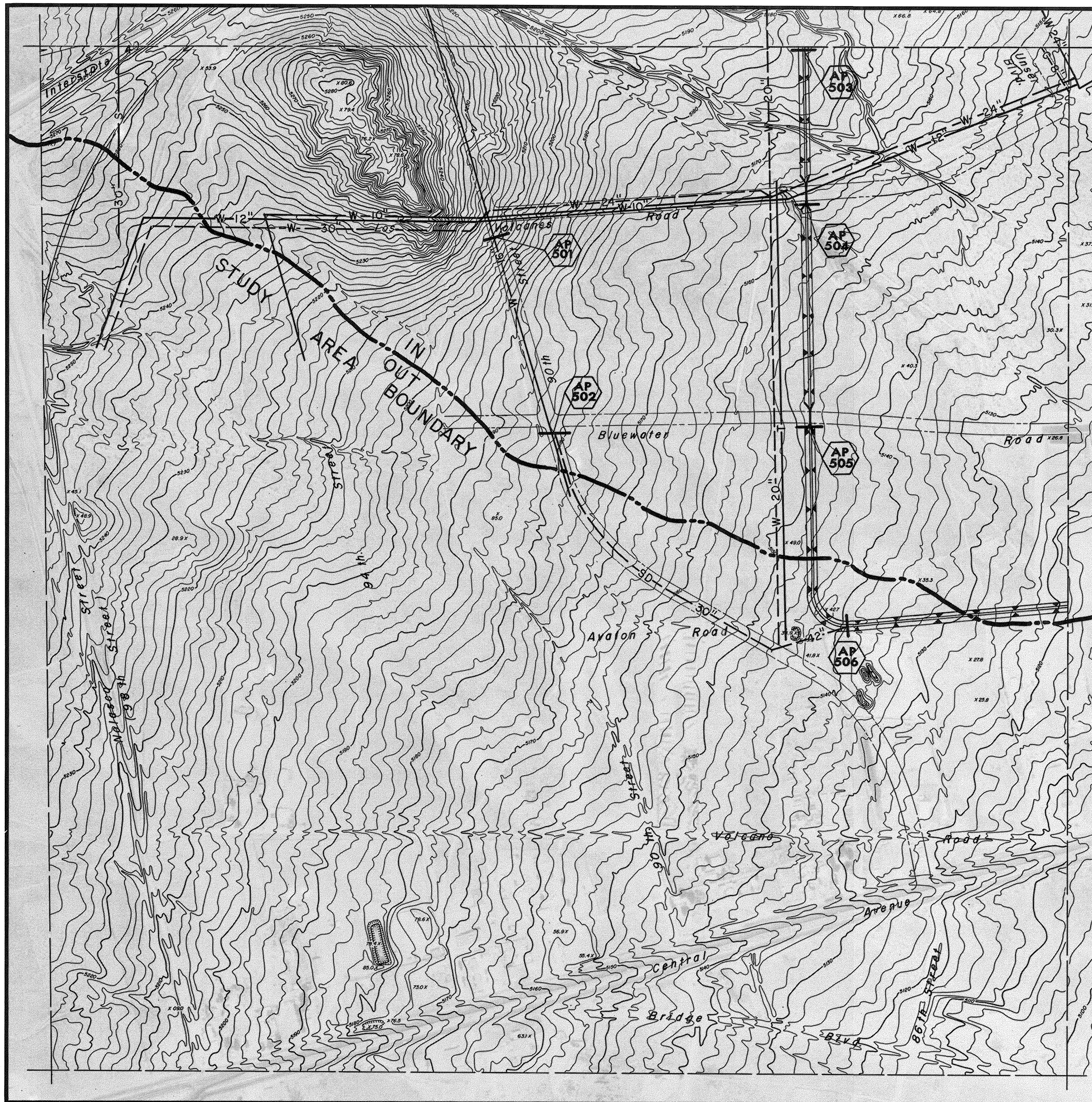
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ALBUQUERQUE CONSULTING ENGINEERS NEW MEXICO

WEST BLUFF DRAINAGE PLAN

K 8

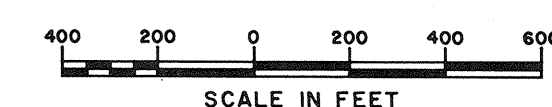
A-10



MAP KEY



SCALE: 1" = 400'



LEGEND

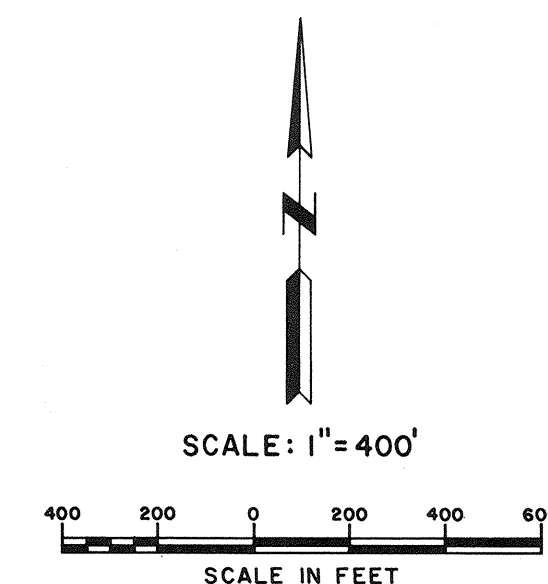
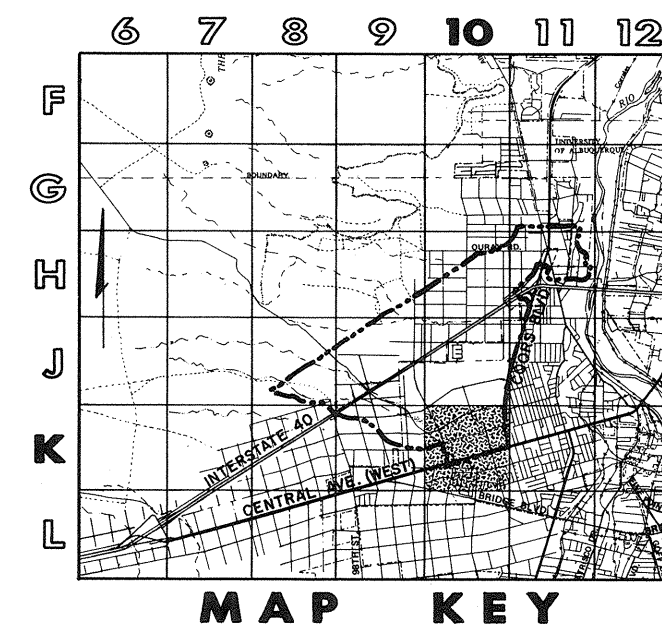
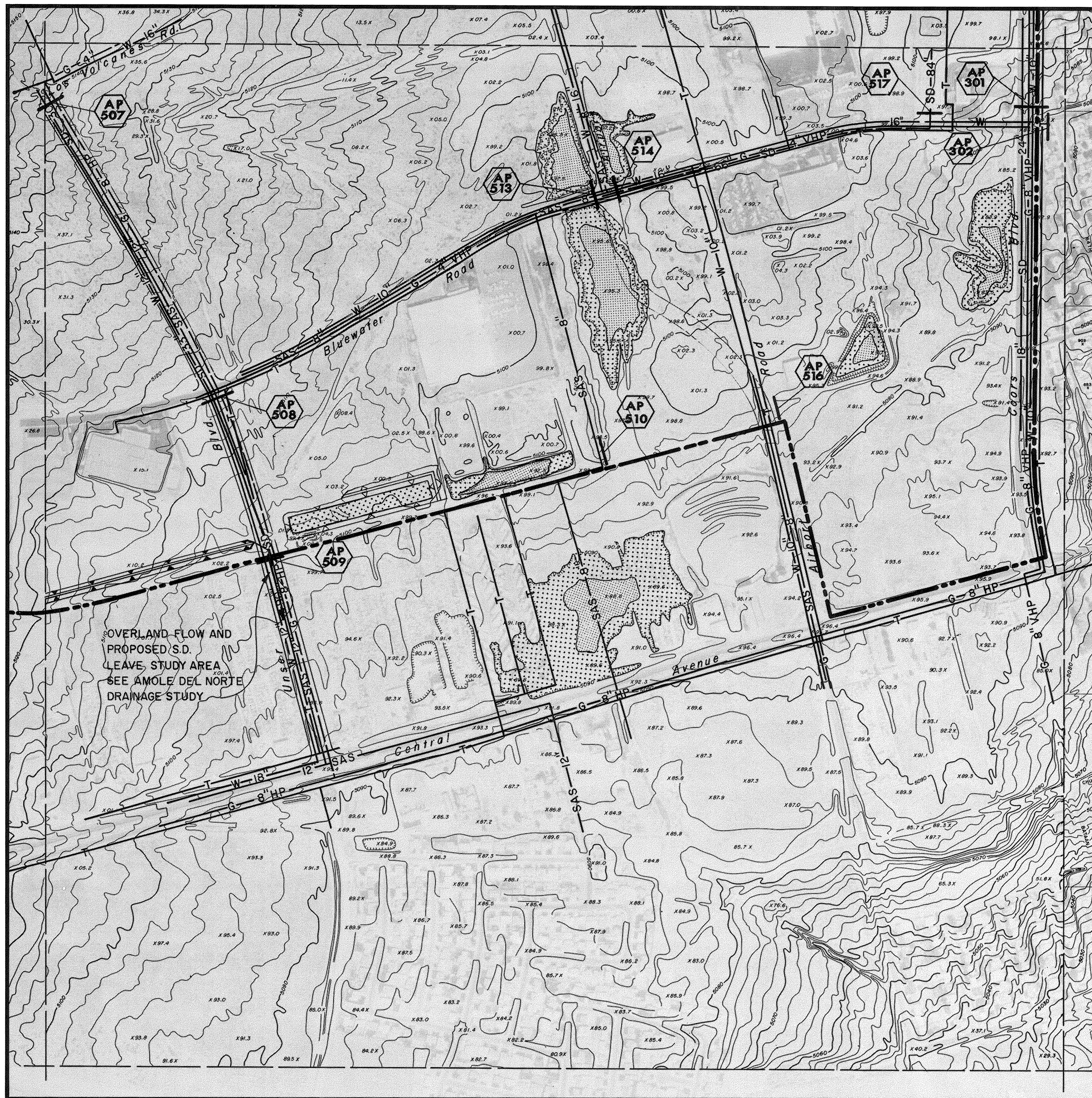
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CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO

WEST BLUFF DRAINAGE PLAN

K 9



- LEGEND**
- STUDY AREA BOUNDARY
 - SAS EXISTING SANITARY SEWER LINE, 10" & LARGER
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 - W MASTERPLANNED WATERLINE
 - G EXISTING GAS LINE
 - G MASTERPLANNED GAS LINE
 - T EXISTING TELEPHONE LINE
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 - TV CABLE TELEVISION
 - /// EXISTING DEVELOPMENT
 - /// 100 YEAR FLOOD HAZARD AREA
 - /// 10 YEAR FLOOD HAZARD AREA
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 - CPC CONCRETE PIPE CULVERT
 - CBC CONCRETE BOX CULVERT
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CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO

WEST BLUFF DRAINAGE PLAN

K 10

APPENDIX 'B'
SUMMARY OF
HYDROLOGIC AND HYDRAULIC ANALYSES

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO

WEST BLUFF DRAINAGE PLAN

APPENDIX 'B'
B-1

WEST BLUFF DRAINAGE PLAN

SUMMARY OF HYDROLOGIC AND HYDRAULIC ANALYSES

LOCATION		10 YEAR			100 YEAR			COMMENTS
		PEAK DISCHARGE (c.f.s.) OVERLAND FLOW	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)	PEAK DISCHARGE (c.f.s.) OVERLAND FLOW	FLOW DEPTH (ft.)	VELOCITY (ft. sec.)	
ON LADERA DRIVE AT 90 th STREET	(AP101)	53 / 24	0.42	5.2	118 / 89	0.68	8.3	(J-9) NORTH SIDE OF LADERA DRIVE
ON LADERA DRIVE AT 90 th STREET	(AP101)	9 / 9	0.30	4.1	16 / 16	0.37	4.7	(J-9) SOUTH SIDE OF LADERA DRIVE
ON SOUTH SIDE OF LADERA DRIVE, 1,700' EAST OF 90 th STREET	(AP102)	25 / 25	0.55	2.4	60 / 60	0.70	3.1	(J-9) 86' R/W, 66' FL TO FL
ON LADERA DRIVE, 1,800' EAST OF 90 th STREET	(AP103)	92 / 0	0	0	223 / 35	0.41	3.9	(J-9)
ON LADERA DRIVE, 2,250' EAST OF 90 th STREET	(AP104)	101 / 0	0	0	239 / 34	0.41	3.8	(J-9) PROPOSED S.D. DISCHARGES TO LADERA DRAINAGE SYSTEM DAM NO. 12
ON LADERA DRIVE, 400' WEST OF LAURELWOOD PARKWAY	(AP201)	23 / 0	0	0	49 / 23	0.44	4.7	(H-10) NORTH SIDE OF LADERA DRIVE
ON LADERA DRIVE, 400' WEST OF LAURELWOOD PARKWAY	(AP201)	8 / 8	0.30	3.6	14 / 14	0.37	4.2	(H-10) SOUTH SIDE OF LADERA DRIVE
ON LADERA DRIVE, 1,000' EAST OF LAURELWOOD PARKWAY	(AP202)	54 / 24	0.48	4.1	107 / 77	0.74	6.4	(H-10) NORTH SIDE OF LADERA DRIVE
ON LADERA DRIVE, 1,000' EAST OF LAURELWOOD PARKWAY	(AP202)	10 / 10	0.35	3.4	20 / 20	0.45	3.9	(H-10) SOUTH SIDE OF LADERA DRIVE
ON 72 nd STREET AT LADERA DRIVE	(AP203)	14 / 14	0.46	2.0	32 / 32	0.58	2.6	(H-10) ASSUME 60' R/W, 48' FL TO FL
ON LADERA DRIVE AT 72 nd STREET	(AP204)	68 / 4	0.19	1.7	149 / 85	0.65	4.3	(H-10) S.D. DISCHARGES TO LADERA DRAINAGE SYSTEM, DAM NO. 14
ON LADERA DRIVE, 200' WEST OF OURAY ROAD	(AP205)	17 / 0	0	0	65 / 0	0	0	(H-10) S.D. DISCHARGES TO LADERA DRAINAGE SYSTEM, DAM NO. 15
ON COORS BOULEVARD NORTH OF BLUEWATER ROAD	(AP301)	29 / 0	0	0	56 / 22	0.48	4.1	(K-10)
ON COORS BOULEVARD SOUTH OF BLUEWATER ROAD		13 / 0	0	0	24 / 0	0	0	(K-10)
ON BLUEWATER ROAD AT COORS BOULEVARD	(AP302)	42 / 0	0	0	80 / 0	0	0	(K-10) S.D. LEAVES STUDY AREA
WEST OF COORS BOULEVARD AND SOUTH OF AIRPORT ROAD		86 / 86	5.0 AC-FT	N/A	170 / 170	9.3 AC-FT	N/A	(K-10)* SEE NOTE SHEET B-3
ON COORS BOULEVARD AT FORTUNA ROAD	(AP401)	12 / 0	0	0	23 / 0	0	0	(J-11)
ON COORS BOULEVARD AT GLENRIO ROAD	(AP402)	34 / 0	0	0	68 / 34	0.58	3.0	(J-11)
ON COORS BOULEVARD AT HANOVER ROAD	(AP403)	68 / 0	0	0	130 / 0	0	0	(J-11) ASSUMED S.D. SURCHARGED, DISCHARGES TO I-40 VEE DITCH
ON ILIFF ROAD AT ESTANCIA DRIVE	(AP404)	58 / 0	0	0	122 / 0	0	0	(H-11) PROPOSED S.D. DISCHARGES TO I-40 VEE DITCH
								SEE APPENDIX F FOR ANALYSIS POINTS WITHIN MAJOR FACILITIES

WEST BLUFF DRAINAGE PLAN

SUMMARY OF HYDROLOGIC AND HYDRAULIC ANALYSES

LOCATION	10 YEAR			100 YEAR			COMMENTS
	PEAK DISCHARGE (c.f.s.) OVERLAND FLOW	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)	PEAK DISCHARGE (c.f.s.) OVERLAND FLOW	FLOW DEPTH (ft.)	VELOCITY (ft. sec.)	
ON 90 th STREET AT LOS VOLCANES ROAD (AP501)	17 17	0.35	5.4	44 44	0.50	7.0	(K-9) ASSUME OVERLAND FLOW IN WEST SIDE OF 90 th STREET
ON 90 th STREET AT BLUEWATER ROAD (AP502)	42 0	0	0	120 70	0.63	7.4	(K-9)
ON 90 th STREET, 1,500' SOUTH OF BLUEWATER ROAD	38 0	0	0	102 0	0	0	(K-9) ASSUME OVERLAND FLOW & S.D. DISCHARGE TO WEST MESA DIVERSION
ON UNSER BOULEVARD AT LOS VOLCANES ROAD (AP507)	63 27	0.34	4.0	145 109	0.62	5.7	(K-10)
ON UNSER BOULEVARD AT BLUEWATER ROAD (AP508)	115 28	0.51	4.2	270 183	0.79	5.8	(K-10)
ON UNSER BOULEVARD, 1,150' NORTH OF CENTRAL AVENUE	108 21	0.46	3.9	259 172	0.77	5.7	(K-10)
ON UNSER BOULEVARD, 1,140' NORTH OF CENTRAL AVENUE (AP509)	299 0	0	0	760 95	0.80	5.8	(K-10) CONFLUENCE OF UNSER DIVERSION & UNSER BLVD. STORM DRAIN, FLOW LEAVES STUDY AREA, SEE AMOLE DEL NORTE DRAINAGE STUDY
1,100' NORTH OF CENTRAL AVENUE & 900' WEST OF AIRPORT RD. (AP510)	66 66	2.3 AC·FT	N/A	151 151	4.6 AC·FT	N/A	(K-10) * SEE NOTE BELOW
ON LOS VOLCANES ROAD, WEST OF AIRPORT RD. (AP511)	150 0	0	0	301 112	0.87	4.3	(J-10)
ON LOS VOLCANES ROAD, EAST OF AIRPORT RD. (AP512)	202 0	0	0	403 0	0	0	(J-10)
ON BLUEWATER ROAD, WEST OF AIRPORT RD. (AP513)	40 40	0.62	2.8	80 80	0.80	3.5	(K-10)
ON BLUEWATER ROAD, EAST OF AIRPORT RD. (AP514)	83 0	0	0	173 0	0	0	(K-10)
ON AIRPORT RD., 1,100' NORTH OF CENTRAL AVENUE (AP516)	29 29	1.4 AC·FT	N/A	66 66	2.8 AC·FT	N/A	(K-10) * SEE NOTE BELOW
ON FORTUNA ROAD AT AIRPORT ROAD (AP519)	17 17	0.34	3.0	56 56	0.51	4.5	(J-10)
ON FORTUNA ROAD, 850' EAST OF LANDMARK ROAD (AP520)	31 31	0.51	2.5	93 93	0.81	3.7	(J-10)
							NOTE:
							AREA WEST OF UNSER BLVD. & SOUTH OF BLUEWATER RD. SHALL RETAIN ALL RUNOFF FOR 2 HOURS FROM BEGINNING OF STORM THEN RELEASED AT A RATE NOT TO EXCEED 0.20 CFS/ACRE.

WEST BLUFF DRAINAGE PLAN

SUMMARY OF HYDROLOGIC AND HYDRAULIC ANALYSES

[illegible]

WEST BLUFF DRAINAGE PLAN

SUMMARY OF HYDROLOGIC AND HYDRAULIC ANALYSES

[illegible]

APPENDIX 'C'
SUMMARY OF
EXISTING STORM DRAINS

APPENDIX
'C'

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO

WEST BLUFF DRAINAGE PLAN

APPENDIX 'C'
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WEST BLUFF DRAINAGE PLAN

SUMMARY OF EXISTING STORM DRAINS

COORS BOULEVARD STORM DRAIN			PIPE SIZE (inches)	TYPE OF PIPE	LENGTH (feet)	SLOPE (ft./ft.)	FLOW VELOCITY (ft./sec.)	EXISTING CAPACITY (c.f.s.)	TOTAL 10 YEAR DISCHARGE (c.f.s.)	TOTAL 100 YEAR DISCHARGE (c.f.s.)	MAP No.	COMMENTS
LOCATION	FROM	TO										
COORS BOULEVARD	S-400 600' N. OF CENTRAL AVENUE	S-300 AVALON ROAD	18	RCP	494	0.057	12.3	22	6	12	K-10	
COORS BOULEVARD	S-300 AVALON ROAD	S-203 814' S. OF BLUEWATER ROAD	18	RCP	256	0.0214	7.5	13	6	12	K-10	
COORS BOULEVARD	S-203 814' S. OF BLUEWATER ROAD	S-200 714' S. OF BLUEWATER ROAD	24	RCP	100	0.066	16.0	50	13	24	K-10	
COORS BOULEVARD	S-200 714' S. OF BLUEWATER ROAD	S-102 514' S. OF BLUEWATER ROAD	24	RCP	200	0.066	16.0	50	13	24	K-10	
COORS BOULEVARD	S-102 514' S. OF BLUEWATER ROAD	S-100 314' S. OF BLUEWATER ROAD	30	RCP	200	0.035	13.5	66	13	24	K-10	
COORS BOULEVARD	S-100 314' S. OF BLUEWATER ROAD	S-101 BLUEWATER ROAD	36	RCP	314	0.020	11.6	82	13	24	K-10	
BLUEWATER ROAD	S-101 COORS BOUENVARD	S-102 140' E. OF COORS BOULEVARD	48	RCP	140	0.015	12.1	152	42	80	K-10	S.S. LEAVES STUDY AREA OUTFALL DOWN BLUEWATER ROAD
COORS BOULEVARD	S-800 CLOUDCROFT ROAD	S-801 200' S. OF CLOUDCROFT ROAD	18	RCP	200	0.060	12.6	22	15	28	J-10	
COORS BOUENVARD	S-801 200' S. OF CLOUDCROFT ROAD	S-900 600' S. OF CLOUDCROFT ROAD	18	RCP	400	0.069	13.5	24	15	28	J-10	
COORS BOULEVARD	S-900 600' S. OF CLOUDCROFT ROAD	S-901 800' S. OF CLOUDCROFT ROAD	24	RCP	200	0.010	6.2	20	29	56	J-10	
COORS BOULEVARD	S-901 476' N. OF BLUEWATER ROAD	S-101 BLUEWATER ROAD	24	RCP	476	0.0303	10.9	34	29	56	K-10	OUTFALL DOWN BLUEWATER ROAD
COORS BOULEVARD	S-600 DAYTONA ROAD	S-601 220' S. OF FORTUNA ROAD	36	RCP	470	0.0015	3.2	22	8	16	J-10	
COORS BOULEVARD	S-601 220' S. OF FORTUNA ROAD	S-500 FORTUNA ROAD	36	RCP	220	0.0015	3.2	22	8	16	J-10	
COORS BOUENVARD	S-500 FORTUNA ROAD	S-401 74' N. OF FORTUNA ROAD	42	RCP	74	0.0015	3.5	34	12	23	J-10	
COORS BOULEVARD	S-401 74' N. OF FORTUNA ROAD	S-400 550' S. OF GLENRIO ROAD	42	RCP	506	0.0015	3.5	34	12	23	J-11	
COORS BOULEVARD	S-400 550' S. OF GLENRIO ROAD	S-301 304' S. OF GLENRIO ROAD	42	RCP	250	0.0015	3.5	34	12	23	J-11	
COORS BOULEVARD	S-301 304' S. OF GLENRIO ROAD	S-300 GLENRIO ROAD	42	RCP	304	0.0015	3.5	34	12	23	J-11	
COORS BOULEVARD	S-300 GLENRIO ROAD	S-200 447' N. OF GLENRIO ROAD	42	RCP	447	0.0015	3.5	34	34	68	J-11	
COORS BOULEVARD	S-200 447' N. OF GLENRIO ROAD	S-103 330' S. OF HANOVER ROAD	42	RCP	400	0.0015	3.5	34	34	68	J-11	
COORS BOULEVARD	S-103 330' S. OF HANOVER ROAD	S-102 HANOVER ROAD S.	42	RCP	330	0.0015	3.5	34	34	68	J-11	
COORS BOULEVARD	S-102 HANOVER ROAD S.	S-101 HANOVER ROAD N.	42	RCP	70	0.0015	3.5	34	65	121	J-11	
COORS BOULEVARD	S-101 HANOVER ROAD N.	S-00 400' N. OF HANOVER ROAD	48	RCP	400	0.0015	3.8	48	65	121	J-11	

WEST BLUFF DRAINAGE PLAN

SUMMARY OF EXISTING STORM DRAINS

COORS BOULEVARD STORM DRAIN (cont.)			PIPE SIZE (inches)	TYPE OF PIPE	LENGTH (feet)	SLOPE (ft./ft.)	FLOW VELOCITY (ft./sec.)	EXISTING CAPACITY (c.f.s.)	TOTAL 10 YEAR DISCHARGE (c.f.s.)	TOTAL 100 YEAR DISCHARGE (c.f.s.)	MAP No.	COMMENTS
LOCATION	FROM	TO										
COORS BOULEVARD	S-00 400' N. OF HANOVER ROAD	S-900 350' S. OF ILIFF ROAD	48	RCP	328	0.0015	3.8	48	65	121	H-11	
COORS BOULEVARD	S-900 350' S. OF ILIFF ROAD	S-801 ILIFF ROAD SOUTH	48	RCP	350	0.0015	3.8	48	65	121	H-11	
COORS BOULEVARD	S-801 ILIFF ROAD SOUTH	S-800 ILIFF ROAD NORTH	48	RCP	74	0.0015	3.8	48	65	121	H-11	
COORS BOULEVARD	S-800 ILIFF ROAD NORTH	S-701 BICE ROAD	48	RCP	435	0.0015	3.8	48	65	121	H-11	
COORS BOULEVARD	S-701 BICE ROAD	S-700 397' N. OF BICE ROAD	48	RCP	397	0.0015	3.8	48	65	121	H-11	
COORS BOULEVARD	S-700 397' N. OF BICE ROAD	I-40 VEE DITCH	48	RCP	360	0.0015	3.8	48	65	121	H-11	
VISTA GRANDE DRIVE STORM DRAIN												
VISTA GRANDE DRIVE	S-200 88' N. OF CAITLIN COURT	S-201 CAITLIN COURT	24	RCP	88	0.0052	4.5	14	15	33	H-11	
VISTA GRANDE DRIVE	S-201 CAITLIN COURT	S-202 232' E. OF VISTA GRANDE DR.	24	RCP	232	0.009	5.9	19	15	33	H-11	
VISTA GRANDE DRIVE	S-202 232' E. OF VISTA GRANDE DR.	S-203 480' E. OF VISTA GRANDE DR.	24	RCP	248	0.004	3.9	12	15	33	H-11	
VISTA GRANDE DRIVE	S-203 480' E. OF VISTA GRANDE DR.	RIO GRANDE	12	STEEL	242	0.4±	24.9	19	15	33	H-11	SLOPE APPROX. FROM TOPO MAPS. OUTFALL TO RIO GRANDE
UNSER BOULEVARD STORM DRAIN												
UNSER BOULEVARD	55' N. OF LOS VOLCANES ROAD	78' S. OF LOS VOLCANES ROAD	24	RCP	133	0.00628	4.9	16	63	145	J-9	
UNSER BOULEVARD	78' S. OF LOS VOLCANES ROAD	1,165' N. OF BLUEWATER ROAD	30	RCP	448	0.0100	7.2	36	63	145	K-10	
UNSER BOULEVARD	1,165' N. OF BLUEWATER ROAD	715' N. OF BLUEWATER ROAD	30	RCP	450	0.01742	9.6	47	63	145	K-10	
UNSER BOULEVARD	715' N. OF BLUEWATER ROAD	280' N. OF BLUEWATER ROAD	33	RCP	435	0.01745	10.2	60	63	145	K-10	
UNSER BOULEVARD	280' N. OF BLUEWATER ROAD	80' S. OF BLUEWATER ROAD	36	RCP	360	0.015	10.0	71	63	145	K-10	
UNSER BOULEVARD	80' S. OF BLUEWATER ROAD	425' S. OF BLUEWATER ROAD	42	RCP	345	0.0085	8.4	80	115	270	K-10	
UNSER BOULEVARD	425' S. OF BLUEWATER ROAD	768' S. OF BLUEWATER ROAD	42	RCP	343	0.0100	9.1	87	115	270	K-10	

WEST BLUFF DRAINAGE PLAN

SUMMARY OF EXISTING STORM DRAINS

UNSER BOULEVARD STORM DRAIN (cont.)			PIPE SIZE (inches)	TYPE OF PIPE	LENGTH (feet)	SLOPE (ft./ft.)	FLOW VELOCITY (ft./sec.)	EXISTING CAPACITY (c.f.s.)	TOTAL 10 YEAR DISCHARGE (c.f.s.)	TOTAL 100 YEAR DISCHARGE (c.f.s.)	MAP No.	COMMENTS
LOCATION	FROM	TO										
UNSER BOULEVARD	768' S. OF BLUEWATER ROAD	UNSER DIVERSION	42	RCP	150	0.010	9.1	87	108	259	K-10	DISCHARGES TO AMOLE DEL NORTE SYSTEM, SEE APPENDIX D
LOS VOLCANES ROAD	115' W. OF UNSER BOULEVARD	85' W. OF UNSER BOULEVARD	24	RCP	27	0.012	6.8	21	1	14	K-10	STUB OUT FOR FUTURE S.S.
LOS VOLCANES ROAD	85' W. OF UNSER BOULEVARD	78' S. OF LOS VOLCANES ROAD	30	RCP	99	0.012	7.9	39	1	14	K-10	
BLUEWATER ROAD	160' W. OF UNSER BOULEVARD	80' W. OF UNSER BOULEVARD	36	RCP	81	0.014	9.7	68	1	6	K-10	
BLUEWATER ROAD	80' W. OF UNSER BOULEVARD	80' S. OF BLUEWATER ROAD	36	RCP	99	0.014	9.7	68	1	6	K-10	
LADERA DRIVE STORM DRAIN												
LADERA DRIVE	555' W. OF LAURELWOOD PARKWAY	75' W. OF LAURELWOOD PARKWAY	24	RCP	480	0.0149	7.6	24	23	49	H-10	COLLECTS NORTH SIDE ONLY
LADERA DRIVE	75' W. OF LAURELWOOD PARKWAY	310' E. OF LAURELWOOD PARKWAY	24	RCP	385	0.0147	7.6	24	23	49	H-10	COLLECTS NORTH SIDE ONLY
LADERA DRIVE	310' E. OF LAURELWOOD PARKWAY	693' E. OF LAURELWOOD PARKWAY	24	RCP	383	0.0160	7.9	25	23	49	H-10	COLLECTS NORTH SIDE ONLY
LADERA DRIVE	693' E. OF LAURELWOOD PARKWAY	1003' E. OF LAURELWOOD PKWY	24	RCP	310	0.0254	9.9	31	23	49	H-10	COLLECTS NORTH SIDE ONLY
LADERA DRIVE	1003' E. OF LAURELWOOD PKWY	969' W. OF 72 nd STREET	30	RCP	200	0.0113	7.7	38	54	107	H-10	COLLECTS NORTH SIDE ONLY
LADERA DRIVE	969' W. OF 72 nd STREET	772' W. OF 72 nd STREET	30	RCP	197	0.0056	5.4	27	54	107	H-10	COLLECTS NORTH SIDE ONLY
LADERA DRIVE	772' W. OF 72 nd STREET	400' W. OF 72 nd STREET	30	RCP	372	0.0076	6.3	31	54	107	H-10	COLLECTS NORTH SIDE ONLY
LADERA DRIVE	400' W. OF 72 nd STREET	135' W. OF 72 nd STREET	30	RCP	265	0.0082	6.6	32	62	131	H-10	SOUTH SIDE IS COLLECTED BY 18" RCP
LADERA DRIVE	135' W. OF 72 nd STREET	72 nd STREET	30	RCP	135	0.0238	11.2	55	62	131	H-10	
LADERA DRIVE	72 nd STREET	LADERA DRAINAGE SYSTEM DAM NO. 14	42	RCP	190	0.0053	6.6	64	75	164	H-10	DISCHARGES TO LADERA DRAINAGE SYSTEM, DAM NO. 14
72 nd STREET	60' S. OF LADERA DRIVE	LADERA DRIVE	30	RCP	60	0.0100	7.2	35	14	32	H-10	STUB OUT SOUTH ON 72 nd ST.

WEST BLUFF DRAINAGE PLAN
SUMMARY OF EXISTING STORM DRAINS

LADERA DRIVE STORM DRAIN (cont.)			PIPE SIZE (inches)	TYPE OF PIPE	LENGTH (feet)	SLOPE (ft./ft.)	FLOW VELOCITY (ft./sec.)	EXISTING CAPACITY (c.f.s.)	TOTAL 10 YEAR DISCHARGE (c.f.s.)	TOTAL 100 YEAR DISCHARGE (c.f.s.)	MAP No.	COMMENTS
LOCATION	FROM	TO										
LADERA DRIVE	185' W. OF OURAY ROAD SOUTH SIDE	NORTH SIDE	24	RCP	88.34	0.0052	4.5	14	9	38	H-10	COLLECTS SOUTH SIDE (LOW PT)
LADERA DRIVE	NORTH SIDE	LADERA DRAINAGE SYSTEM, DAM NO. 15	24	RCP	95.33	0.0157	7.8	25	17	76	H-10	
HANOVER ROAD STORM DRAIN												
HANOVER ROAD	UNSER BOULEVARD	435' E. OF UNSER BOULEVARD	36	RCP	435	0.0274	13.5	96	50	110	J-9	
HANOVER ROAD	435' E. OF UNSER BOULEVARD	865' E. OF UNSER BOULEVARD	42	RCP	420	0.0245	14.2	136	50	110	J-9	
HANOVER ROAD	865' E. OF UNSER BOULEVARD	CHERRYWOOD AVENUE	42	RCP	450	0.0127	10.2	98	107	232	J-10	
HANOVER ROAD	CHERRYWOOD AVENUE	380' E. OF CHERRYWOOD AVENUE	42	RCP	380	0.0132	10.4	100	127	279	J-10	
HANOVER ROAD	380' E. OF CHERRYWOOD AVENUE	W. SIDE OF LAURELWOOD PKWY	48	RCP	380	0.0124	11.0	139	127	279	J-10	
HANOVER ROAD	W. SIDE OF LAURELWOOD PKWY	E. SIDE OF LAURELWOOD PKWY	48	RCP	131	0.0099	9.9	124	127	279	J-10	
HANOVER ROAD	E. SIDE OF LAURELWOOD PKWY	30' W. OF DETENTION POND	54	RCP	269	0.0080	9.6	152	132	314	J-10	
HANOVER ROAD	30' W. OF DETENTION POND	DETENTION POND CHANNEL	54	RCP	30	0.0083	9.8	155	132	152	J-10	72 nd STREET

APPENDIX 'D'
SUMMARY OF
PROPOSED STORM DRAINS

WEST BLUFF DRAINAGE PLAN

ANDREWS, ASBURY & ROBERT, INC.
ALBUQUERQUE CONSULTING ENGINEERS NEW MEXICO

APPENDIX 'D'
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APPENDIX 'D'

WEST BLUFF DRAINAGE PLAN

SUMMARY OF PROPOSED STORM DRAINS

			PIPE SIZE (inches)	LENGTH (feet)	SLOPE (ft./ft.)	DESIGN CAPACITY (c.f.s.)	MAP No.	COMMENTS	SYSTEM No.
LOCATION	FROM	TO							
LADERA DRIVE	90 th STREET	1,750' EAST OF 90 th STREET	24	1,750	0.0217	29	J-9		104
LADERA DRIVE	1,750' W. OF 90 th STREET	2,190' EAST OF 90 th STREET	48	440	0.0228	188	J-9		104
LADERA DRIVE	2,190' W. OF 90 th STREET	LADERA DRAINAGE SYSTEM, DAM NO. 12	60	650	0.0086	206	J-9		104
LADERA DRIVE	LADERA DRIVE	LADERA DRAINAGE SYSTEM, DAM NO. 15	24	95	0.0157	25	H-10		205
ILIFF ROAD	ESTANCIA DRIVE	I-40 VEE DITCH	54	1,450	0.005	121	H-11	PARALLELS EXISTING S.D. FROM ILIFF & COORS TO VEE DITCH	404
90 th STREET	BLUEWATER ROAD	AVALON ROAD	30	1,500	0.0200	50	K-9		506
90 th STREET	AVALON ROAD	UNSER DIVERSION	42	300	0.0150	107	K-9		506
UNSER BOULEVARD	UNSER DIVERSION	AMOLE DEL NORTE SYSTEM	90	UNDETERMINED	0.010	665	K-10	PROPOSED S.D. LEAVES STUDY AREA SEE AMOLE DEL NORTE DRAINAGE STUDY	
BLUEWATER ROAD	AIRPORT ROAD	WEST MESA FEEDER	66	1,800	0.0038	193	K-10		518
WEST MESA FEEDER	BLUEWATER ROAD	LOS VOLCANES ROAD (WEST MESA DIVERSION)	84	1,900	0.0012	206	K-10 J-10		518
LOS VOLCANES	500' W. OF AIRPORT ROAD	AIRPORT ROAD	60	500	0.007	189	J-10		512
LOS VOLCANES	AIRPORT ROAD	WEST MESA DIVERSION	84	2,350	0.006	461	J-10		512
HANOVER ROAD	550' W. OF 64 th STREET	WEST MESA DIVERSION	48	550	0.006	96	J-10		530
HANOVER ROAD	650' E. OF 64 th STREET	WEST MESA DIVERSION	42	650	0.004	55	J-10		530
MIAMI ROAD	ESTANCIA DRIVE	I-40 INTERCEPTOR	54	950	0.0105	175	H-11		630
OURAY ROAD	SOL DE VIDA	57 th STREET	24	900	0.004	12	H-11		633
57 th STREET	QUAIL ROAD	OURAY ROAD	36	1,100	0.004	37	H-11		633
OURAY ROAD	57 th STREET	COORS BOULEVARD	48	450	0.005	95	H-11		633
OURAY ROAD	COORS BOULEVARD	CORONA DRIVE	60	1,040	0.0068	200	H-11		633
CORONA DRIVE	PHEASANT ROAD	OURAY ROAD	54	1,600	0.0034	99	H-11		633
CORONA DRIVE	OURAY ROAD	WEST BLUFF OUTFALL	66	1,000	0.012	343	H-11		633

APPENDIX 'E'
SUMMARY OF
EXISTING CROSSING STRUCTURES

WEST BLUFF DRAINAGE PLAN

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO

APPENDIX 'E'
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APPENDIX 'E'

WEST BLUFF DRAINAGE PLAN

SUMMARY OF EXISTING CROSSING STRUCTURES

CROSS STREET	LOCATION	DESCRIPTION	HYDROLOGIC AND HYDRAULIC ANALYSIS						EXISTING CAPACITY (c.f.s.)	REQUIRED CAPACITY (c.f.s.)	COMMENTS
			10 YEAR			100 YEAR					
			PEAK DISCHARGE (c.f.s.)	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)	PEAK DISCHARGE (c.f.s.)	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)			
98 th STREET (NOLASCO STREET)	1,030 N. OF I-40 (AP601)	2 - 10' x 6' CBC	141	1.5	4.7	338	3.1	5.5	840	338	(J-8)
I-40	4,120' WEST OF UNSER BOULEVARD	2 - 10' x 8' CBC	0	0	0	0	0	0	1340	0	(J-9) ABANDON ⁽¹⁾
I-40	3,300' WEST OF UNSER BOULEVARD	30" CPC	0	0	0	0	0	0	22	0	(J-9) ABANDON ⁽¹⁾
I-40	2,880' WEST OF UNSER BOULEVARD	3 - 6' x 4' CBC	0	0	0	0	0	0	360	0	(J-9) ABANDON ⁽¹⁾
I-40	2,540' WEST OF UNSER BOULEVARD	30" CPC	0	0	0	0	0	0	22	0	(J-9) ABANDON ⁽¹⁾
UNSER BOULEVARD	1,150' NORTH OF CENTRAL AVENUE	60"x38" RCP	191	1.2	12.3	501	2.1	16.8	70	501	(K-10) REMOVE AND REPLACE SEE APPENDIX F
I-40	1,930' WEST OF UNSER BOULEVARD	24" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40	1,890' WEST OF UNSER BOULEVARD	36" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40	630' WEST OF UNSER BOULEVARD	24" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40	600' WEST OF UNSER BOULEVARD	54" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40, WEST BOUND ON RAMP	1,150' WEST OF UNSER BOULEVARD & 250' NORTH OF I-40	54" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40, WEST BOUND ON RAMP	350' WEST OF UNSER BOULEVARD & 900' NORTH OF I-40	30" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40, EAST BOUND OFF RAMP	450' W. OF UNSER BOULEVARD	24" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
UNSER BOULEVARD	1,300' NORTH OF I-40 (AP610)	4 - 6'x4' CBC	371	3.2	4.8	957	4.0	10.0	888	957	(J-9)
UNSER BOULEVARD	1,270' SOUTH OF I-40	24" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
UNSER BOULEVARD	1,070' SOUTH OF I-40	48" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
UNSER BOULEVARD	380' SOUTH OF I-40	54" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40, EAST BOUND ON RAMP	450' WEST OF UNDER BOULEVARD & 330' SOUTH OF I-40	54" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40	360' EAST OF UNSER BOULEVARD	24" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40	390' EAST OF UNSER BOULEVARD	30" CPC									(J-9) COLLECTS LOCAL DRAINAGE AREA
I-40	2,900' WEST OF 72 nd STREET	30" CPC									(J-10) COLLECTS LOCAL DRAINAGE AREA

(1) FLOW INTERCEPTED BY I-40 CHANNEL

WEST BLUFF DRAINAGE PLAN

SUMMARY OF EXISTING CROSSING STRUCTURES

CROSS STREET	LOCATION	DESCRIPTION	HYDROLOGIC AND HYDRAULIC ANALYSIS						EXISTING CAPACITY (c.f.s.)	REQUIRED CAPACITY (c.f.s.)	COMMENTS
			10 YEAR			100 YEAR					
			PEAK DISCHARGE (c.f.s.)	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)	PEAK DISCHARGE (c.f.s.)	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)			
I-40	2,000' W. OF 72 nd STREET	2 - 48" CPC	0	0	0	0	0	0	171	0	(J-10) ABANDON ⁽¹⁾
I-40	1,600' W. OF 72 nd STREET	30" CPC									(J-10) ABANDON ⁽¹⁾
UNSER BOULEVARD	2,580' N. OF I-40 (AP612)	54" CPC	50	2.9	4.5	110	4.5	6.9	115	110	(J-9) CONNECTS TO EXISTING S.D. IN HANOVER ROAD
I-40	1,000' W. OF 72 nd STREET	36" CPC	0	0	0	0	0	0	42	0	(J-10) ABANDON ⁽¹⁾
I-40	340' W. OF 72 nd STREET	30" CPC	0	0	0	0	0	0	26	0	(J-10) ABANDON ⁽¹⁾
I-40	220' E. OF 72 nd STREET	30" CPC	0	0	0	0	0	0	26	0	(J-10) ABANDON ⁽¹⁾
I-40	1,220' E. OF 72 nd STREET	8 - 6'x3' CBC	0	0	0	0	0	0	624	0	(J-10) ABANDON ⁽¹⁾
I-40	700' W. OF 64 th STREET	5 - 30" CPC	0	0	0	0	0	0	132	0	(H-10) ABANDON ⁽¹⁾
I-40	280' W. OF ESTANCIA DRIVE	4 - 4'x3' CBC	0	0	0	0	0	0	208	0	(H-11) ABANDON ⁽¹⁾
I-40	ESTANCIA DRIVE	2 - 10'x12' CBC	458	3.6	6.4	1126	5.9	9.5	2400	1126	(H-11)
COORS BOULEVARD	200' N. OF MIAMI ROAD	4 - 14'x14' CBC	876	2.7	5.8	2343	5.6	7.5	8960	2343	(H-11)

APPENDIX 'F'
SUMMARY OF
PROPOSED CHANNELS & BOX STRUCTURES

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO

WEST BLUFF DRAINAGE PLAN

APPENDIX 'F'
F-1

APPENDIX 'F'

WEST BLUFF DRAINAGE PLAN

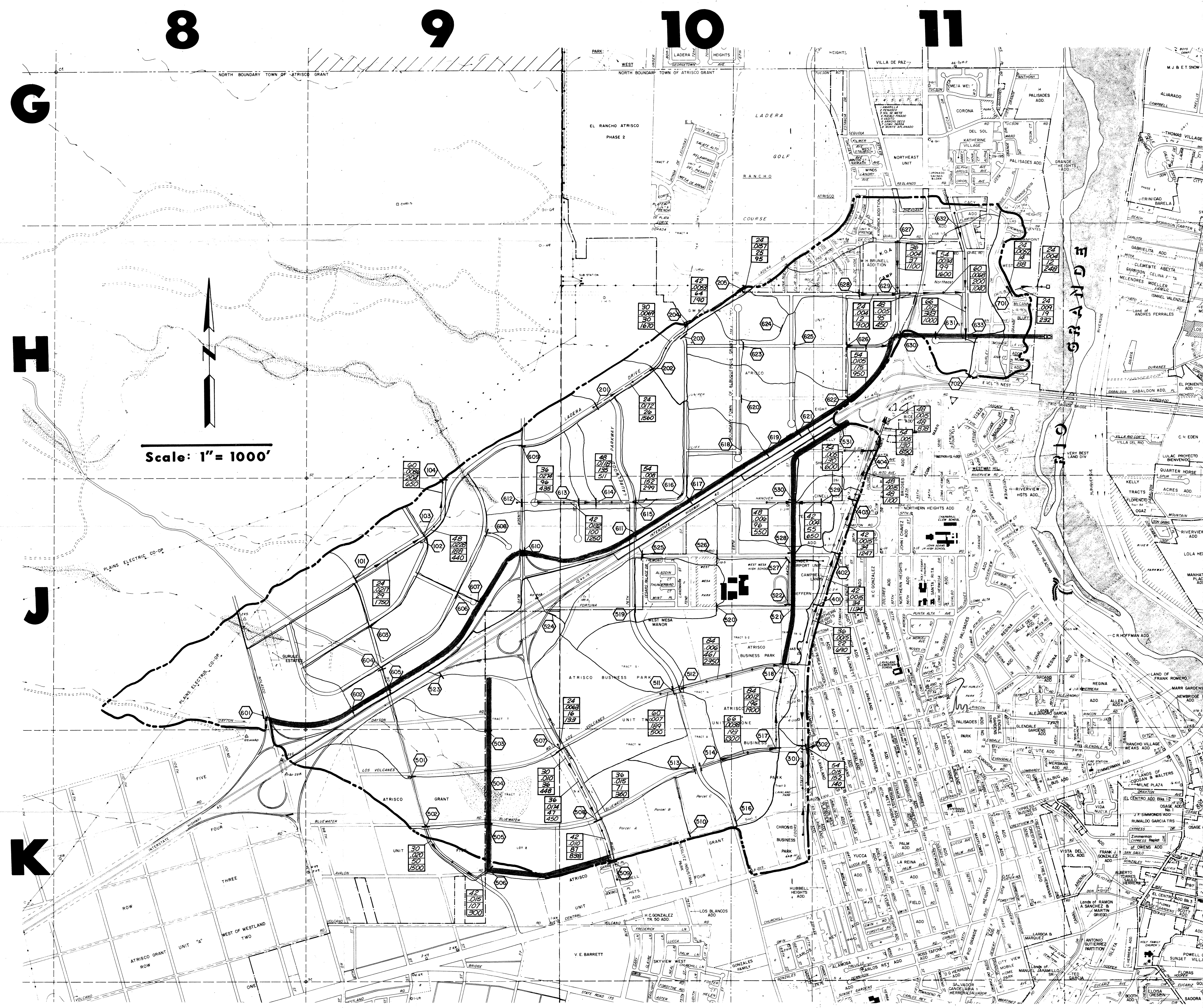
SUMMARY OF PROPOSED CHANNELS & BOX STRUCTURES

FACILITY	REACH LENGTH	LOCATION	DESCRIPTION	HYDROLOGIC AND HYDRAULIC ANALYSIS						SLOPE (ft./ft.)	DESIGN CAPACITY (c.f.s.)	COMMENTS	SYSTEM No.
				10 YEAR			100 YEAR						
				PEAK DISCHARGE (c.f.s.)	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)	PEAK DISCHARGE (c.f.s.)	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)				
UNSER DIVERSION	4000 FEET	720' N. OF LOS VOLCANES ROAD (AP503)	EARTH CHANNEL, 10' BTM. WIDTH, 3:1 SIDE SLOPES	24	0.5	4.1	64	0.9	5.6	0.0194	64	(K-9) (1)	502.06
UNSER DIVERSION		LOS VOLCANES ROAD	TRAPEZOIDAL BOX, 10' BTM. WIDTH, 2:1 SIDE SLOPES	81	1.3	4.4	208	2.2	5.8	0.0077	208	(K-9)	502.06
UNSER DIVERSION		LOS VOLCANES ROAD (AP504)	EARTH CHANNEL, 10' BTM. WIDTH 3:1 SIDE SLOPES	81	1.3	4.4	208	2.2	5.8	0.0077	208	(K-9) (1)	502.06
UNSER DIVERSION		BLUEWATER ROAD	TRAPEZOIDAL BOX, 10' BTM. WIDTH, 2:1 SIDE SLOPES	111	1.5	4.9	281	2.5	6.5	0.0084	281	(K-9)	502.06
UNSER DIVERSION		BLUEWATER ROAD (AP505)	EARTH CHANNEL, 10' BTM. WIDTH, 3:1 SIDE SLOPES	111	1.5	4.9	281	2.5	6.5	0.0084	281	(K-9) (1)	502.06
UNSER DIVERSION	2300 FEET	E. OF 90 th STREET (AP506)	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	155	1.1	11.5	408	1.9	15.6	0.0156	408	(K-9) PROPOSED S.D. FROM 90 th STREET ENTERS CHANNEL	500.02
UNSER DIVERSION		W. OF UNSER BOULEVARD	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	191	1.2	12.3	501	2.1	16.6	0.0156	501	(K-10) DISCHARGE LEAVES STUDY AREA-SEE AMOLE DEL NORTE DRAINAGE STUDY SEE SYSTEM NO. 509 APPENDIX D	500.02
WEST MESA DIVERSION	4200 FEET	LOS VOLCANES ROAD (AP518)	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	277	3.1	5.6	580	4.5	6.7	0.0012	580	(J-10)	504.05
WEST MESA DIVERSION		FORTUNA ROAD (AP522)	10' X 10' CBC	345	4.9	7.0	771	9.2	8.4	0.0015	771	(J-10)	500.04
WEST MESA DIVERSION		GLENRIO ROAD (AP528)	10' X 10' CBC	363	5.1	7.1	830	9.7	8.5	0.0015	830	(J-10)	500.04
WEST MESA DIVERSION		HANOVER ROAD (AP530)	10' X 10' CBC	377	5.2	7.2	869	10.0	8.6	0.0015	869	(J-10) (2)	500.04
WEST MESA DIVERSION		I-40 (AP531)	2 - 10' X 12' CBC	340	2.2	7.8	790	3.8	10.3	0.0028	790	(H-11) EXISTING STRUCTURE TO REMAIN	500.04
												(1) STABILITY OF PROPOSED CHANNEL TO BE INVESTIGATED AT TIME OF PRELIMINARY DESIGN.	
												(2) PROPOSED S.D. FROM HANOVER ROAD. ENTERS STRUCTURE -- SEE SYSTEM 530 APPENDIX D.	

WEST BLUFF DRAINAGE PLAN

SUMMARY OF PROPOSED CHANNELS & BOX STRUCTURES

FACILITY	REACH LENGTH	LOCATION	DESCRIPTION	HYDROLOGIC AND HYDRAULIC ANALYSIS						SLOPE (ft./ft.)	DESIGN CAPACITY (c.f.s.)	COMMENTS	SYSTEM No.
				10 YEAR			100 YEAR						
				PEAK DISCHARGE (c.f.s.)	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)	PEAK DISCHARGE (c.f.s.)	FLOW DEPTH (ft.)	VELOCITY (ft./sec.)				
I-40 INTERCEPTOR	7000 FEET	98 th STREET (AP601)	2 - 10' X 6' CBC	141	1.5	4.7	338	3.1	5.5	0.021	338	(J-8) EXISTING STRUCTURE TO REMAIN	613.20
I-40 INTERCEPTOR		CHANNEL (AP602)	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	202	1.3	12.7	484	2.1	16.6	0.0160	484	(J-9)	613.20
I-40 INTERCEPTOR		90 th STREET (AP605)	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	279	1.5	14.6	700	2.5	19.1	0.0177	700	(J-9)	613.20
I-40 INTERCEPTOR		CHANNEL (AP607)	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	318	1.8	13.0	807	3.0	17.0	0.0114	807	(J-9)	613.20
I-40 INTERCEPTOR	8000 FEET	UNSER BOULEVARD (AP610)	4 - 6' X 4' CBC	374	3.0	5.2	867	5.9	9.3	0.0167	867	(J-9) EXISTING STRUCTURE TO REMAIN	605.13
I-40 INTERCEPTOR		LAURELWOOD PARKWAY (AP611)	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	361	2.0	12.9	884	3.2	16.6	0.0100	884	(J-10)	605.13
I-40 INTERCEPTOR		CHANNEL (AP617)	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	364	2.3	11.1	1,010	3.9	14.7	0.0065	1,010	(J-10) OUTFLOW FROM LAURELWOOD DETENTION AREA ENTERS CHANNEL	605.13
I-40 INTERCEPTOR		CHANNEL (AP619)	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	363	2.3	11.1	1,035	4.4	12.7	0.0042	1,035	(H-10)	605.13
I-40 INTERCEPTOR		CHANNEL (AP621)	CONCRETE CHANNEL, 10' BTM. WIDTH, 2:1 SIDE SLOPES	393	2.6	9.7	1,124	4.5	13.0	0.0042	1,124	(H-10)	605.13
I-40 INTERCEPTOR	2000 FEET	CONFLUENCE OF WEST MESA DIVERSION	10' X 12' CBC	707	5.1	14.0	1,835	10.7	17.1	0.0058	1,835	(H-11)	603.05
I-40 INTERCEPTOR		E. OF ESTANCIA DRIVE (AP622)	10' X 12' CBC	713	5.1	14.0	1,848	10.8	17.1	0.0058	1,848	(H-11)	603.05
I-40 INTERCEPTOR		MIAMI ROAD	12' X 12' CBC	785	4.6	14.3	2,036	9.4	18.0	0.0058	2,036	(H-11)	603.05
WEST BLUFF OUTFALL	3000 FEET	COORS BOULEVARD (AP630)	1 - 14' X 14' CBC	784	3.5	15.8	2,036	7.1	20.6	0.0081	2,036	(H-11)	600.03
WEST BLUFF OUTFALL		E. OF COORS BOULEVARD	10' X 12' CBC	784	4.8	16.2	2,036	10.2	19.9	0.0080	2,036	(H-11)	600.03
WEST BLUFF OUTFALL		400' E. OF COORS BOULEVARD (AP631)	10' X 12' CBC	805	4.9	16.3	2,093	10.5	20.0	0.0080	2,093	(H-11)	600.03
WEST BLUFF OUTFALL		CORONA DRIVE (AP633)	10' X 12' CBC	904	5.4	16.7	2,349	11.5	20.4	0.0080	2,349	(H-11)	600.03



LEGEND

- ANALYSIS POINT
 - EXISTING STORM DRAIN
 - EXISTING CHANNEL
 - PROPOSED STORM DRAIN
 - PROPOSED CHANNEL
 - STUDY AREA BOUNDARY
 - DRAINAGE BASIN BOUNDARY
 - SUB BASIN BOUNDARY
- | DIAMETER OF STORM DRAIN (IN.) | SLOPE OF STORM DRAIN (FT./FT.) | CAPACITY OF STORM DRAIN FLOWING FULL (C.F.S.) | LENGTH (L.F.) |
|-------------------------------|--------------------------------|---|---------------|
| 24 | .009 | 19 | 232 |

WEST BLUFF DRAINAGE PLAN PHASE III MODELING MAP