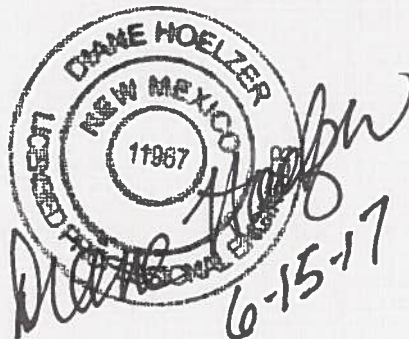


*Drainage Management Plan
for
Glendesto Subdivision
(27 lots)*



*Prepared by
Mark Goodwin & Associates, P.A.*

June 2017



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09 2015)

Project Title: Glendesto Subdivision **Building Permit #:** _____ **City Drainage #:** B18 / D020
DRB#: 1004472 **EPC#:** _____ **Work Order#:** _____
Legal Description: Lot 8-A, Block 25, Tract A, Unit B, N.A.A.
City Address: Glendale Avenue

Engineering Firm: Mark Goodwin and Associates, PA **Contact:** William Travis Barr
Address: PO Box 90606, Abq, 87199
Phone#: 505-828-2200 **Fax#:** _____ **E-mail:** Travis@goodwinengineers.com

Owner: Scott Clark (Managing member) **Contact:** Scott Clrak
Address: _____
Phone#: 883-1414 **Fax#:** _____ **E-mail:** scottbrockclark@aol.com

Architect: NA **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Other Contact: Mark Goodwin and Associates, PA **Contact:** Diane Hoelzer, PE
Address: PO Box 90606, Abq, 87199
Phone#: 505-828-2200 **Fax#:** _____ **E-mail:** Diane@goodwinengineers.com

Check all that Apply:

DEPARTMENT:

- HYDROLOGY/ DRAINAGE
- TRAFFIC/ TRANSPORTATION
- MS4/ EROSION & SEDIMENT CONTROL

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- BUILDING PERMIT APPROVAL
- CERTIFICATE OF OCCUPANCY
- PRELIMINARY PLAT APPROVAL
- SITE PLAN FOR SUB'D APPROVAL
- SITE PLAN FOR BLDG. PERMIT APPROVAL
- FINAL PLAT APPROVAL
- SIA/ RELEASE OF FINANCIAL GUARANTEE
- FOUNDATION PERMIT APPROVAL
- GRADING PERMIT APPROVAL
- SO-19 APPROVAL
- PAVING PERMIT APPROVAL
- GRADING/ PAD CERTIFICATION
- WORK ORDER APPROVAL
- CLOMR/LOMR

TYPE OF SUBMITTAL:

- ENGINEER/ ARCHITECT CERTIFICATION
- CONCEPTUAL G & D PLAN
- GRADING PLAN
- DRAINAGE MASTER PLAN
- DRAINAGE REPORT
- CLOMR/LOMR
- TRAFFIC CIRCULATION LAYOUT (TCL)
- TRAFFIC IMPACT STUDY (TIS)
- EROSION & SEDIMENT CONTROL PLAN (ESC)
- OTHER (SPECIFY) _____

- PRE-DESIGN MEETING
- OTHER (SPECIFY) Amended Preliminary Plat Approval

IS THIS A RESUBMITTAL?: Yes No

DATE SUBMITTED: June 15, 2017 By: William Travis Barr, EI

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

~ 2012 ACEC/NM Award Winner for Engineering Excellence ~
~ 2008 ACEC/NM Award Winner for Engineering Excellence ~

June 15, 2017

Mr. Doug Hughes
Hydrology Principal Engineer
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

**Re: Glendesto Subdivision – (DRB 1004472) B18-D020
Amended Preliminary Plat, Grading and Drainage Plan, and Drainage Report**

Dear Mr. Hughes,

Attached hereto is the Amended Preliminary Plat, Grading and Drainage Plan, and Drainage Report for the previously approved Glendesto Subdivision. There are a couple of small improvements to the proposed plans from the original approved plan. The most significant difference is the addition of a gated entrance to the community on Modesto Ave. NE. Additionally, the entrance on Glendale Ave NE has been removed and replaced with a Hammerhead at the end of Lansdown Place NE. The proposed changes lowered the total of available lots from 29 to 27.

The proposed drainage has not changed significantly. The subdivision has the same proposed discharge location and rate. The new proposed plans incorporate a 9' drainage channel to convey flows from the Hammerhead to Glendale Avenue NE. A 10' valley gutter is proposed to convey the flow from the drainage channel from the south side of the road to the previously approved Glendale Roadside Swale.

Should you have any questions or concerns, please don't hesitate to contact myself at travis@goodwinengineers.com or 505-828-2200.

Sincerely,
MARK GOODWIN & ASSOCIATES, PA

William Travis Barr, EI
Staff Engineer

Attachments as listed herein.

GLEDESTO SUBDIVISION

Table of Contents

I. PROJECT DESCRIPTION

II. DESIGN CRITERIA AND PREVIOUS REPORTS

III. EXISTING DRAINAGE CONDITIONS

IV. DEVELOPED DRAINAGE CONDITIONS

V. FIRST FLUSH

FIGURE 1 Vicinity Map

FIGURE 2 Existing Drainage Conditions (Google Earth)

FIGURE 3 FEMA Map

EXHIBITS:

Preliminary Plat

Infrastructure List

Master Paving Plan

Master Utility Plan

Grading and Drainage Plan

Existing Drainage Conditions & Sub basins

Proposed Drainage Conditions & Sub basins

APPENDIX A HYDROLOGY

AHYMO Summary and Input Files- Existing Conditions

AHYMO Summary and Input Files- Developed Conditions

First Flush Calculations

APPENDIX B HYDRAULICS

Glendale Avenue- Northside Swale

SanPedro- Eastside Swale

Swale Sump Inlet Calculation

Glendale Avenue Street Capacity Calculations

Glendesto Channel

APPENDIX C FINAL N.A.A. MASTER DRAINAGE PLAN

Excerpts

POCKET 1 GRADING AND DRAINAGE PLAN

POCKET 2 EXISTING DRAINAGE CONDITIONS AND SUB BASINS EXHIBIT

DEVELOPED DRAINAGE CONDITIONS AND SUB BASINS EXHIBIT

I. PROJECT DESCRIPTION

The Glendesto subdivision project site covers an area of approximately 7.46 acres. This project encompasses grading and infrastructure construction that will support the development of 27 single family residential lots within a gated community.

The project site is bounded to the south by the Eagle Rock Business Park and a parking lot with a 30 foot wide vacant strip separating the two properties; to the west by the Sandia Memorial Gardens; to the north is Glendale Avenue; to the east is Modesto Avenue and a vacant acre parcel owned by the Sandia Indian Pueblo.

The proposed subdivision will connect to Modesto Avenue to the east through a gate.

II. DESIGN CRITERIA AND PREVIOUS DEVELOPMENT

The design criteria used in this report was in accordance with Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993 edition. The 100-year 24-hour storm event was analyzed to determine street capacities and sizing of the storm drain system using $P(1\text{ hr})=2.10"$, $P(6\text{ hr})=2.50"$ and the $P(24\text{ hr})=2.85"$. The onsite Land Treatment values used were based on Table A-5, in the DPM. (Refer to Exhibit 1 Vicinity Map and Exhibit 2 Existing Drainage Conditions- google earth).

The site lies in Zone X as shown on Firm Panel 129, map number 3500120129H, revised August 16, 2012.

*This project site lies within the **North Albuquerque Acres Master Drainage Plan Report** (RTI, Inc., October 1998). Excerpts from this report can be found in Appendix C. Under existing drainage conditions, this property is split between the south third (sub basin 116.0) flowing to the west and the northern two-thirds (sub basin 115.0) flowing to the north and west as shown in Figure 3A. In Figure 4A Future Conditions, the south three acres are to flow to the west and the north two acres are to flow down Glendale. Since there isn't a conveyance system in place to intercept any of the runoff from our site, it was decided to take the entire runoff from our project site to Glendale.*

According to Figure 5A, there is a planned future storm drain in San Pedro extending from Glendale to the La Cueva arroyo channel. At this time, there is only a 6' manhole in San Pedro immediately south of the La Cueva channel that connects to an inlet on the east side of San Pedro which intercepts existing flows from the remnant natural La Cueva arroyo.

III. EXISTING DRAINAGE CONDITIONS

Under existing drainage conditions, runoff from the project site is in a general westerly direction. Refer to "Existing Drainage Conditions" Exhibit. Runoff from the north third flows to Glendale through two incised arroyos. The middle third appears to sheet flow directly to the west to the Sandia Memorial Gardens Cemetery. Runoff from the south third flows through the Cemetery through an incised arroyo where it continues across San Pedro and westward.

Runoff from a portion of Modesto Avenue continues in a westerly direction down the same southerly arroyo through the Cemetery.

IV. DEVELOPED DRAINAGE CONDITIONS

Under developed drainage conditions, runoff from the project site will discharge into Glendale Avenue and be intercepted by a hardlined swale running along the north side of Glendale. Runoff in the swale will be intercepted by a proposed Double D inlet that will connect to a new 36" RCP storm drain at the San Pedro intersection. A new 36" storm drain in San Pedro will continue north and tie into the existing storm manhole in San Pedro. Refer to the "Proposed Drainage Conditions" Exhibit. The swale is designed to convey flows from Glendale and the project site.

- 1) A portion of the runoff from "N-S" Modesto Avenue will flow through the existing apron rundown on the La Cueva channel right where Modesto turns west again and becomes Glendale Avenue.*
- 2) The south portion of the flows from "W-E" Modesto Avenue will continue westward in the existing historical flow path through the 30 foot wide easement area.*
- 3) Flows from the vacant Lot 10, immediately east of our project site will continue in the same general flow path to Glendale Avenue.*
- 4) The 30' wide vacant area immediately south of this project site will be regraded to continue runoff in the same historic flow path as before.*

V. FIRST FLUSH

First flush for the project site will be handled on each individual residential lot. The area between the back of curb and sidewalk will be depressed 6 inches and the front yards will also be depressed by 6" as shown in the standard detail on the grading and drainage plan. First flush calculations can be found in Appendix A Hydrology.



Louisiana Blvd

PROJECT SITE

Glendale Ave NE

Modesto Ave

Schist Ave NE

Gabbro Ave NE

San Pedro Street

Alameda Pl

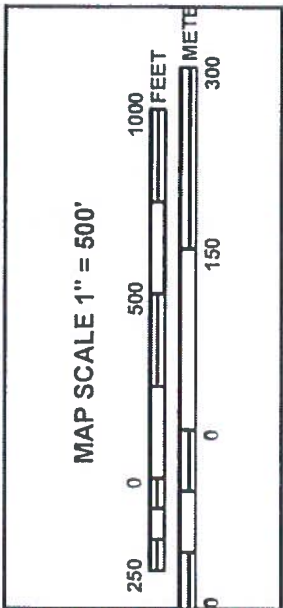
Eagle Rock Ave NE

FIGURE 1 Vicinity Map

ZONE ATLAS B-18



FIGURE 2 Existing Drainage Conditions



NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0129H

FIRM
FLOOD INSURANCE RATE MAP
BERNALILLO COUNTY,
NEW MEXICO
AND INCORPORATED AREAS

PANEL 129 OF 825
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)


CONTAINMENT	COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE CITY OF	350002	0129	H	
BERNALILLO COUNTY UNINCORPORATED AREAS	350001	0129	H	
SAN JUAN COUNTY UNINCORPORATED AREAS	350003	0129	H	

Notice to User: The Map Number shown below should be used when citing map criteria. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
35001C0129H

MAP REVISED
AUGUST 16, 2012

Federal Emergency Management Agency



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

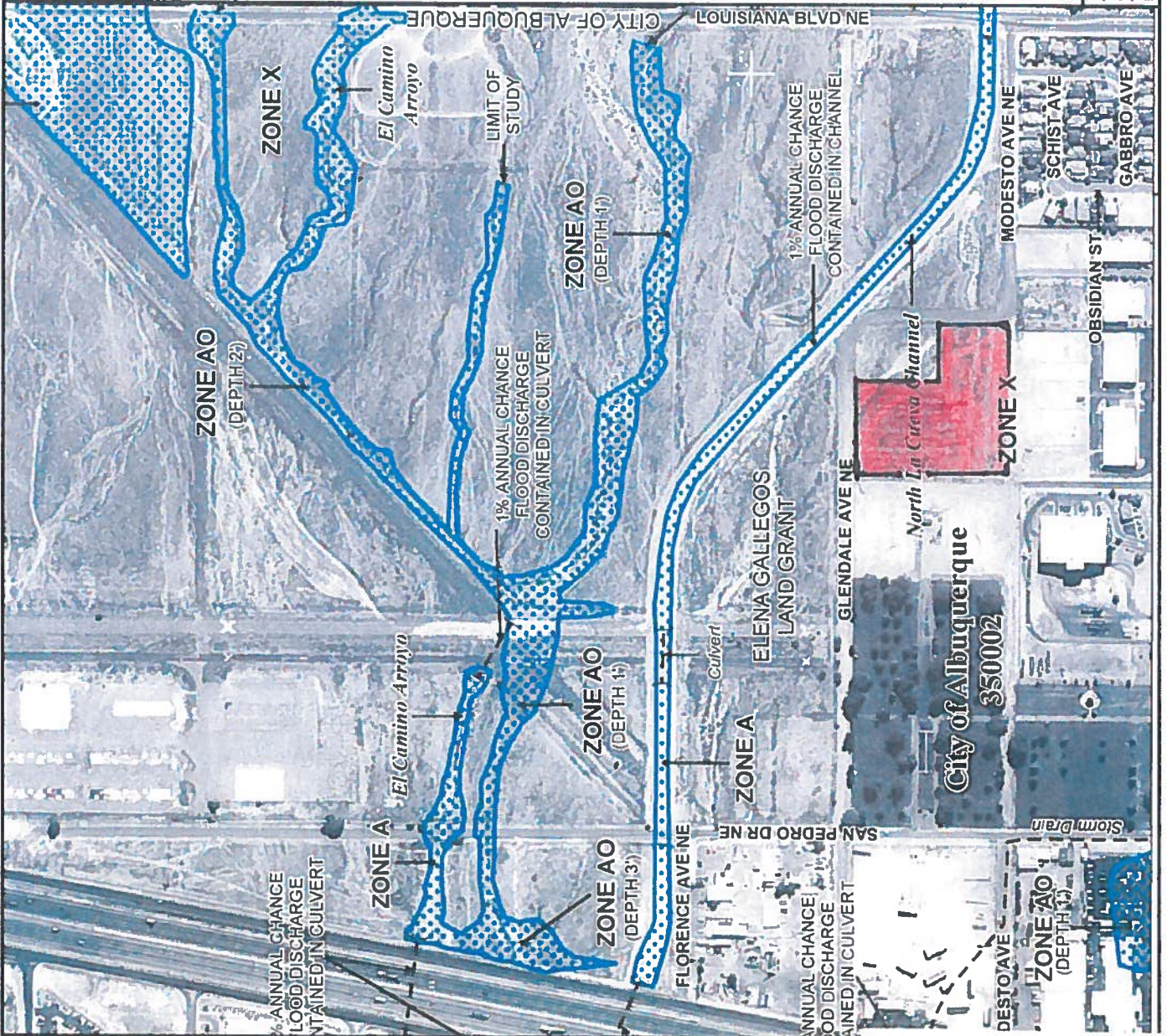
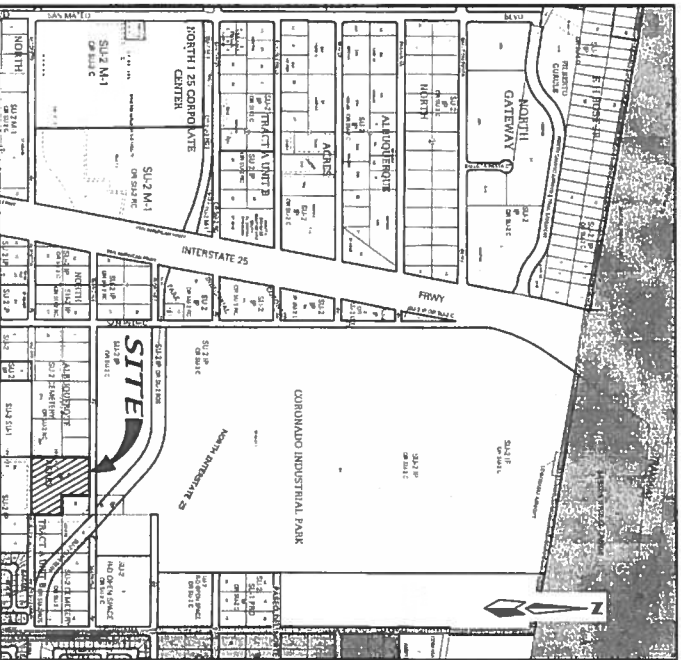


FIGURE 3 FEMA Map

LINE	BEARING	DISTANCE
L1	S 00°05'03" W	5.12'
L2	S 53°40'01" W	20.86'
L3	N 00°12'49" E	29.85'

CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	7.50'	25.00'	171°04'00"	S 45°04'41" W	7.47'
C2	11.03'	96.00'	06°34'57"	S 50°22'33" W	11.02'



PURPOSE OF PLAT

- SUBDIVIDE LOT B-A, BLOCK 25, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES, INTO 27 RESIDENTIAL LOTS AND 1 TRACT.
- GRANT NEW EASEMENTS AS SHOWN.

NOTES

- BEARINGS ARE GOOD BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM (CENTRAL ZONE).
- ALL DISTANCES ARE GROUND DISTANCES.
- BEARINGS AND DISTANCES IN PARENTS ARE RECORDED.
- BASES OF BOUNDARY ARE THE FOLLOWING PLATS OF RECORD ENITLED:
 NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B: (09-08-2015, 2015C-104)
 NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B: (04-23-2012, 2012C-045)
 NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B: (05-07-2002, 2002C-157)
 NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B: (02-12-1993, 93C-028)
 NORTH ALBUQUERQUE ACRES, TRACT A, UNIT B: (04-24-1936, D-130)
- FIELD SURVEY PERFORMED IN MAY, 2016.
- CITY OF ALBUQUERQUE, NEW MEXICO ZONE, SI-2.
- 100 YEAR FLOOD ZONE DESIGNATION: ZONE X, AS SHOWN ON PANEL 129 OF 825, FLOOD INSURANCE RATE MAP, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, DATED AUGUST 16, 2012. THIS PROPERTY DOES NOT LIE IN THE 100 YEAR FLOOD ZONE.
- TITLE REPORT: NONE PROVIDED.
- MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE, POINTS OF TANGENCY, STREET INTERSECTIONS, AND ALL OTHER ANGLE POINTS TO ALLOW USE OF CENTRIFUGAL MOVEMENT.

PROPERTY CORNERS

- FOUND 5/8" REBAR WITH 2" ALUMINUM CAP 75 11885" (TRP)

EASEMENTS

- EXISTING 20' AGRICULTURAL PUBLIC WATERLINE EASEMENT (09-08-2015, 2015C-104)
- EXISTING 15' NAGC GAS LINE EASEMENT (09-08-2015, 2015C-104)
- EXISTING 60' COA PERMANENT EASEMENT FOR GLENDESTE EXTENSION ROADWAY IMPROVEMENTS (12-21-2001, 2001I120660)

OWNERS

CCC PARTNERSHIP
 A NEW MEXICO GENERAL PARTNERSHIP
 ATTN: SCOTT B. CLARK
 P.O. BOX 14641 ADDRESS
 ALBUQUERQUE, N.M. 87191
 (505) 883-1414

ENGINEERS

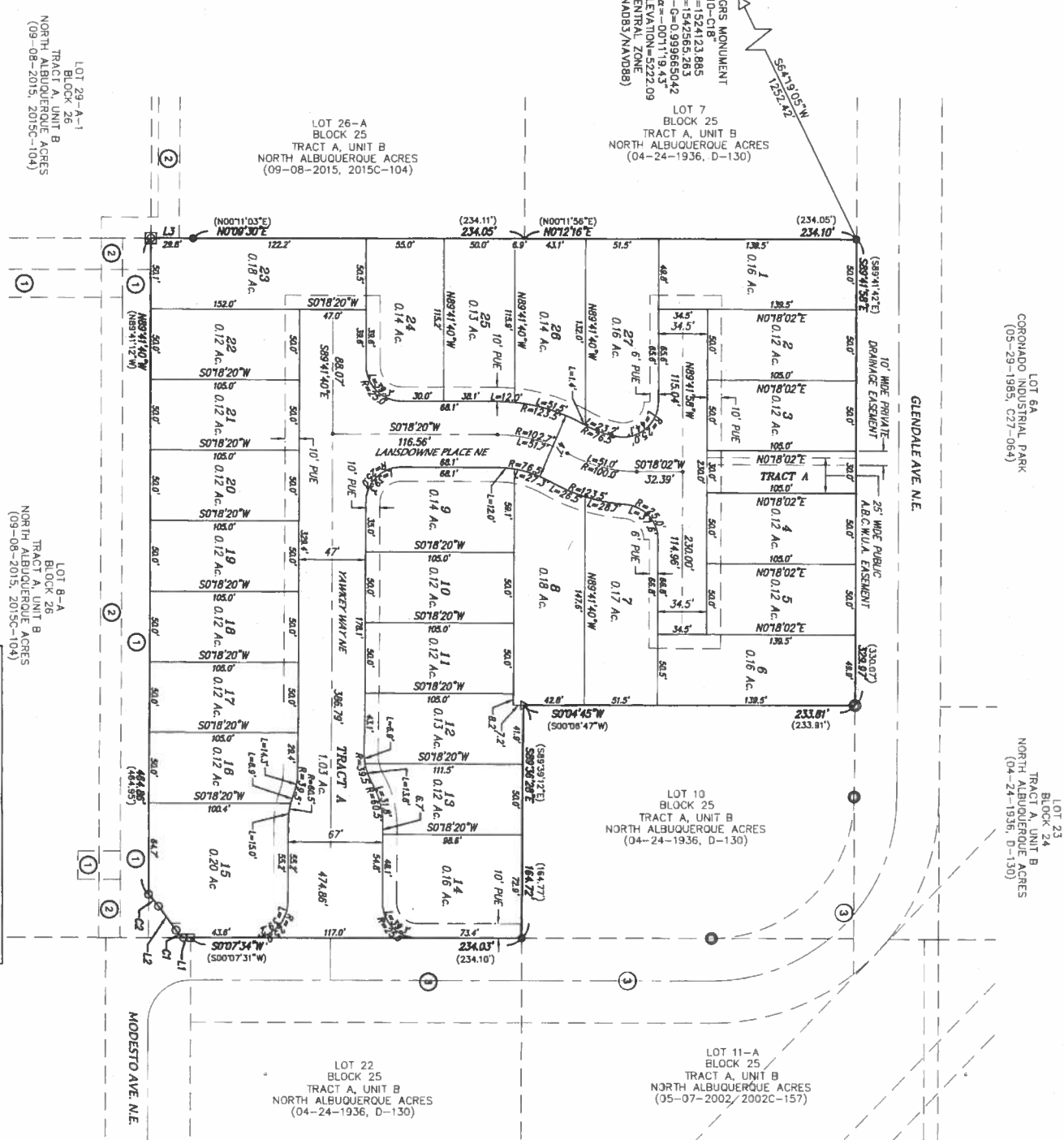
D. MARK GOODWIN & ASSOCIATES, P.A.
 CONSULTING ENGINEERS
 4000 ALBUQUERQUE BLVD. SUITE 200
 ALBUQUERQUE, NEW MEXICO 87199
 (505) 826-2200

SURVEYOR

ALDRICH LAND SURVEYING
 P.O. BOX 30201
 ALBUQUERQUE, N.M. 87190
 (505) 884-1990

SITE BENCHMARK

AGRS MONUMENT
 "1" CIRCULAR
 ELEVATION=5222.09
 (NAVD 1988)



AMENDED PRELIMINARY PLAT FOR GLENDESTE SUBDIVISION
 WITHIN THE ELENA GALEGOS GRANT
 PROJECTED SECTION 12
 TOWNSHIP 11 NORTH, RANGE 3 EAST, NMPM
 CITY OF ALBUQUERQUE
 BERNALILLO COUNTY, NEW MEXICO
 JUNE, 2017

LEGAL DESCRIPTION
 A TRACT OF LAND SITUATE WITHIN THE ELENA GALEGOS GRANT, PROJECTED SECTION 12, TOWNSHIP 11 NORTH, RANGE 3 EAST, NMPM, MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, BEING ALL OF LOT B-A, BLOCK 25, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES, AS THE SAME IS SHOWN AND DESIGNATED ON SAID PLAT, FILED FOR RECORD IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON SEPTEMBER 8, 2015, IN PLAT BOOK 2015C, PAGE 104, AND CONTAINING 4.7676 ACRES MORE OR LESS.

SUBDIVISION DATA

GROSS ACRES: 4.7676 AC
 ZONE ATLAS NO.: B-18-Z
 NO. OF EXISTING TRACTS/LOTS: 1 TRACT/0 LOTS
 NO. OF TRACTS CREATED: 1 TRACT
 NO. OF LOTS CREATED: 27 LOTS
 DATE OF SURVEY: MAY, 2016

Scott B. Clark (CCO PARTNER) DATE: 6/13/2017
Scott B. Clark (CCO PARTNER) DATE: 6/13/2017
Paulina M. Clark (HIS WIFE) DATE: 6/13/2017
Charles P. Davenport (2008 OWNER) DATE: 6/13/17
Stephan G. Rindler (2015 OWNER) DATE: 6/14/17
 DTI SURVEYOR, CITY OF ALBUQUERQUE, N.M. DATE

Copyright © 2017 D. MARK GOODWIN & ASSOCIATES, P.A. All Rights Reserved.

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval of

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification	
							Private Inspector P.E.	City Cnst Engineer
							/	/
							/	/

Approval of Creditable Items:	
Impact Fee Administrator Signature	Date

Approval of Creditable Items:	
City User Dept. Signature	Date

- 1 Sidewalks to be Deferred per Exhibit
- 2 Street Lights Per DPM
- 3 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.
- 4 Sanitary Sewer includes manholes and service connection to property line
- 5 Grading & Drainage certification per DPM for release of SIA & Financial Guaranty's. Financial Guaranty's are not required for grading.

AGENT / OWNER **DEVELOPMENT REVIEW BOARD MEMBER APPROVALS**

Diane Hoelzer, P.E.

NAME (print)
MARK GOODWIN & ASSOCIATES
 FIRM

DRB CHAIR - date

PARKS & GENERAL SERVICES - date

TRANSPORTATION DEVELOPMENT - date

AMAFCA - date

SIGNATURE - date

UTILITY DEVELOPMENT - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

CITY ENGINEER - date

- date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

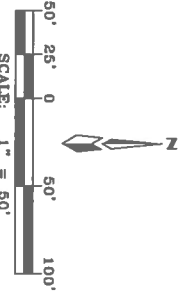
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
GLENESTO SUBDIVISION
MASTER PAVING PLAN

MARK GOODWIN & ASSOCIATES, P.A.
 P.O. BOX 50808
 ALBUQUERQUE, NEW MEXICO 87199
 OFFICE (505) 828-2200, FAX (505) 793-9339

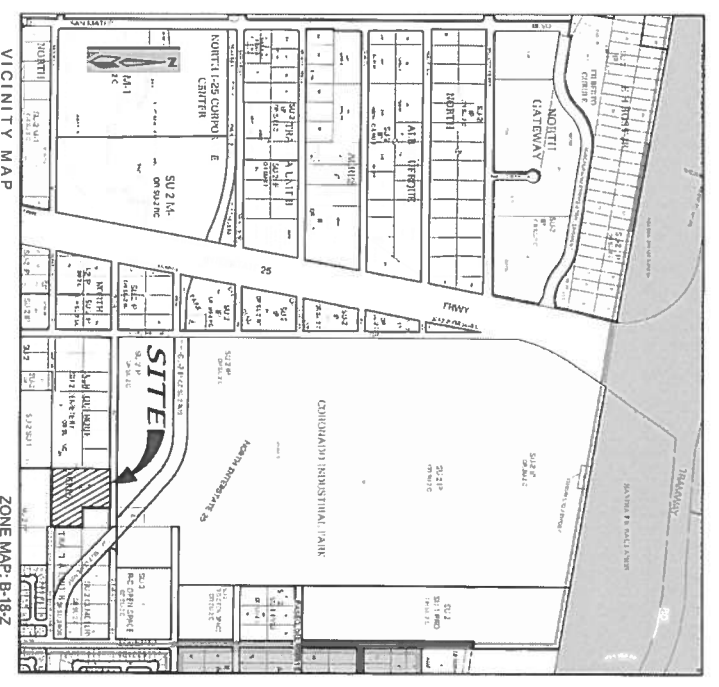
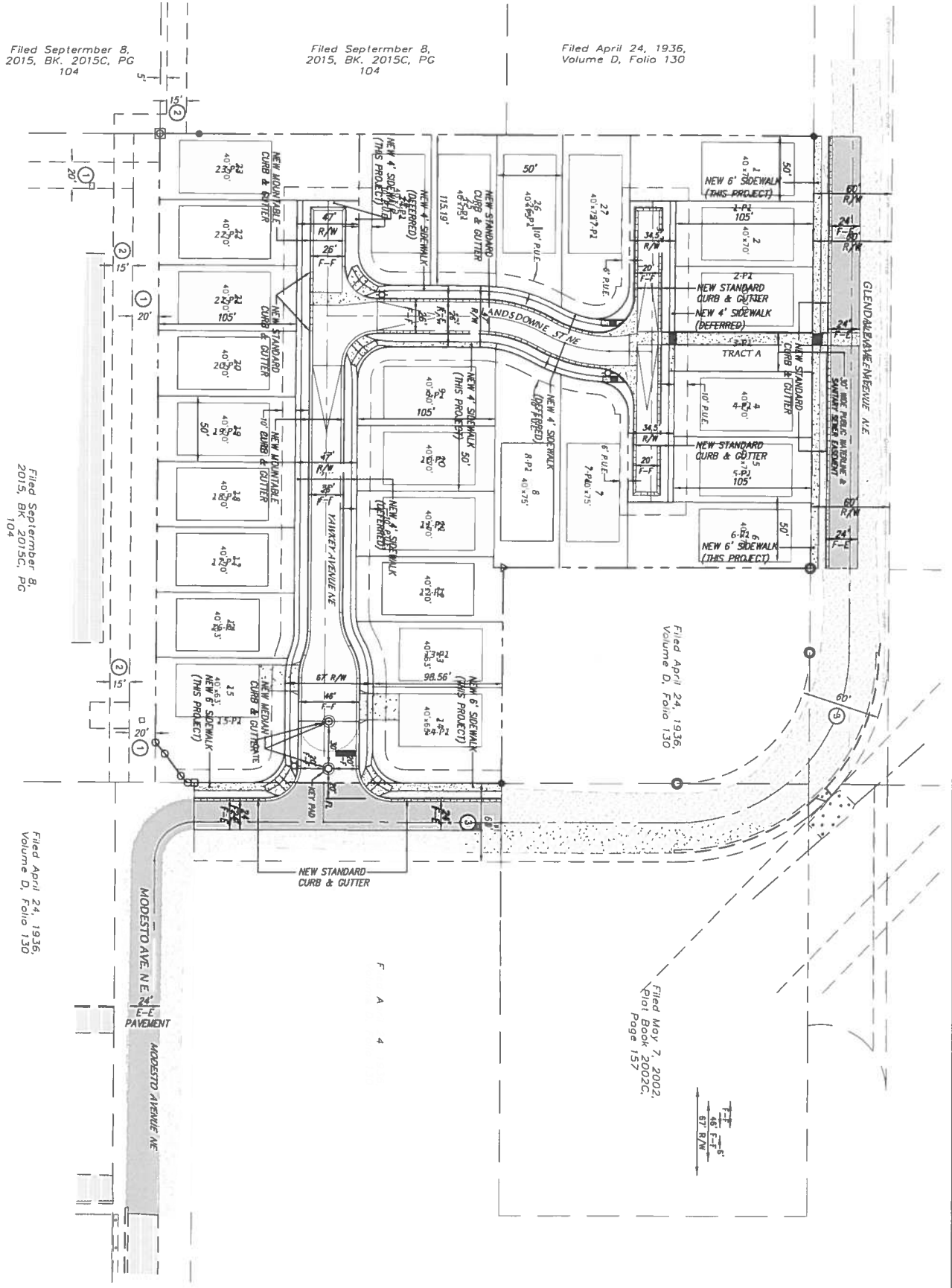
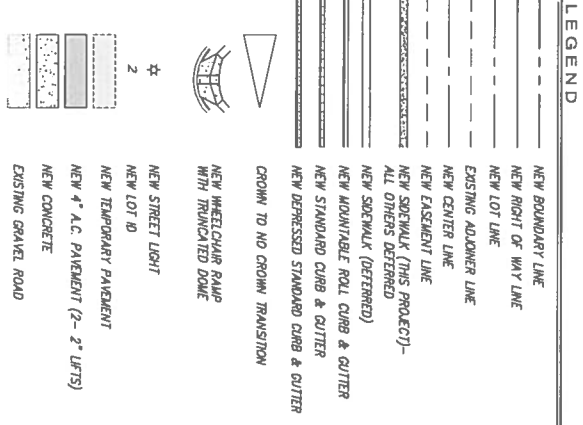
DESIGN REVIEW COMMITTEE TY EN NEER APPROVAL

LAST DESIGN UPDATE

CITY PROJECT NO. ZONE MAP NO. **B-18-Z** SHEET **X** OF **X**



- EASEMENTS**
- 1 EXISTING 20' ALBUQUERQUE PUBLIC WATERLINE EASEMENT (09-08-2015, 2015C-104)
 - 2 EXISTING 15' NADCO GAS LINE EASEMENT (09-08-2015, 2015C-104)
 - 3 EXISTING 60' COA PERMANENT EASEMENT FOR GLENESTO EXTENSION ROADWAY IMPROVEMENTS (12-21-2001, 200115288)



Filed September 8, 2015, BK. 2015C, PG 104

Filed September 8, 2015, BK. 2015C, PG 104

Filed April 24, 1936, Volume D, Folio 130

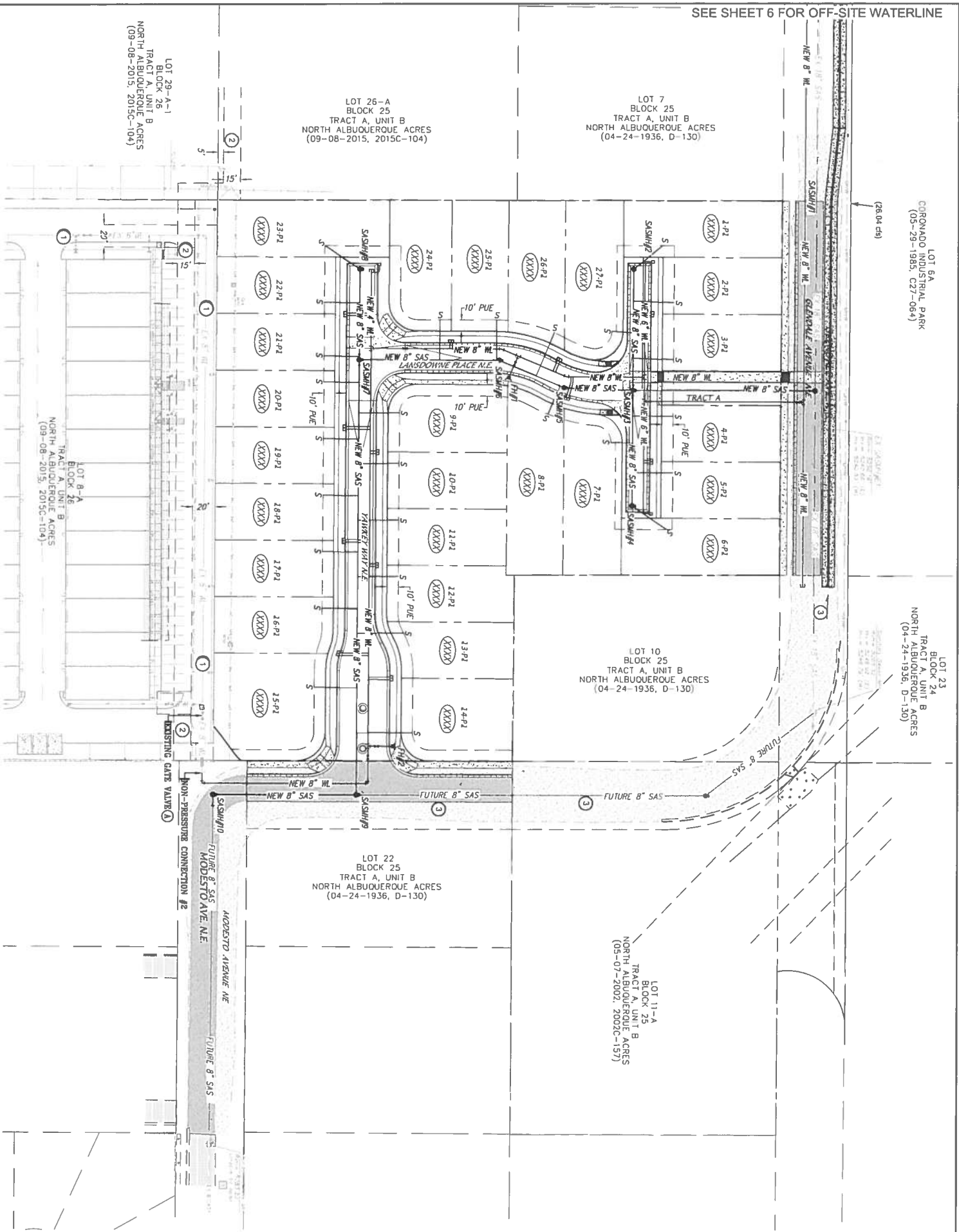
Filed September 8, 2015, BK. 2015C, PG 104

Filed April 24, 1936, Volume D, Folio 130

Filed May 7, 2002, Plat Book 2002C, Page 157

ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
		FIELD NOTES		AGRS Brass Cap stamped "10-C18"		CONTRACTOR	
		NO.	BY	DATE	Elevation, in feet (NAVD88)=55222.090	WORK STAKED BY	DATE
						INSPECTOR'S ACCEPTANCE BY	DATE
						FIELD VERIFICATION BY	DATE
						DRAWINGS CORRECTED BY	DATE
						MICRO-FILM INFORMATION	
						RECORDED BY	DATE
						NO.	

NO.	DATE	REMARKS	BY
		DESIGN	
		DESIGNED BY DLH	DATE 06/16
		DRAWN BY DER	DATE 06/16
		CHECKED BY DMG	DATE 06/16



RESTRAINED JOINT LENGTH FOR TEES (FT.)	PIPE SIZE	RUN	BRANCH
8" x 8"	13'	3'	3'
8" x 6"	7'	5'	5'

RESTRAINED JOINT LENGTH FOR BENDS, VALVES, DEAD ENDS (FT.)	PIPE SIZE	90°	45°	22.5°	11.25°	VALVE
12"	30'	12'	6'	3'	85'	
8"	22'	9'	4'	2'	60'	
6"	17'	7'	3'	2'	46'	
4"	12'	5'	2'	1'	32'	

- WATER SHUT-OFF PLAN**
- CONTRACTOR SHALL MAKE SHUT OFF REQUEST ONLINE AT <http://dca.nm.gov/online/new/463/779/>
 - VALVES SHALL ONLY BE OPERATED BY WATER AUTHORITY EMPLOYEES
 - FOR PRESSURE CONNECTION #1, ON SAN PEDRO SHUT-OFF GATE VALVES "B", "C" & "D"
 - FOR NON-PRESSURE CONNECTION #2, SHUT-OFF EXISTING GATE VALVE "A"

- NOTES**
- ALL FIRE HYDRANTS ARE 4" BURY UNLESS OTHERWISE SPECIFIED
 - ALL METER BOXES ADJACENT TO ADJUTABLE CURB SHALL HAVE DUCTILE IRON METER BOX COVER & LID PER ABOQMA STD. DMC #2366. WATER METER BOX PER ABOQMA STD. DMC #2366. WATER SERVICE PER ABOQMA STD. DMC #2362.
 - ALL FIRE HYDRANTS PER ABOQMA STD. 2340.
 - ALL FIRE HYDRANTS TO HAVE A 6" GATE VALVE & BOX PER ABOQMA STD. DMC #2366. CONTRACTOR TO USE POLY COATED CAP FOR VALVE BOXES.
 - CONTRACTOR TO NOT TO DISTURB THE STEPS IN THE SAS MANHOLES.
 - ALL SANITARY SEWER MANHOLES PER ABOQMA STD. DMC #2101, #2107 AND #2108.

LOT 29-A-1
BLOCK 25
TRACT A, UNIT B
NORTH ALBUQUERQUE ACRES
(09-08-2015, 2015C-104)

LOT 26-A
BLOCK 25
TRACT A, UNIT B
NORTH ALBUQUERQUE ACRES
(09-08-2015, 2015C-104)

LOT 7
BLOCK 25
TRACT A, UNIT B
NORTH ALBUQUERQUE ACRES
(04-24-1936, D-130)

LOT 10
BLOCK 25
TRACT A, UNIT B
NORTH ALBUQUERQUE ACRES
(04-24-1936, D-130)

LOT 23
BLOCK 24
TRACT A, UNIT B
NORTH ALBUQUERQUE ACRES
(04-24-1936, D-130)

LOT 24
BLOCK 25
TRACT A, UNIT B
NORTH ALBUQUERQUE ACRES
(04-24-1936, D-130)

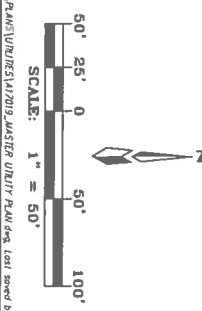
LOT 11-A
BLOCK 25
TRACT A, UNIT B
NORTH ALBUQUERQUE ACRES
(05-07-2002, 2002C-157)

LOT 22
BLOCK 25
TRACT A, UNIT B
NORTH ALBUQUERQUE ACRES
(04-24-1936, D-130)

LOT 8A
CORONADO SUBSTRAL PARK
(05-23-1983, C27-064)

LOT 25
BLOCK 25
TRACT A, UNIT B
NORTH ALBUQUERQUE ACRES
(09-08-2015, 2015C-104)

RESTRAINED JOINT LENGTHS FOR REDUCERS (FT.)	PIPE SIZE	LARGE SIZE	SMALL SIZE
12" x 8"	45'	66'	
8" x 6"	25'	33'	



CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
	B-18-Z	X	1X

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 50806
ALBUQUERQUE, NEW MEXICO 87199
OFFICE (505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
GLENDESTO SUBDIVISION
MASTER UTILITY PLAN

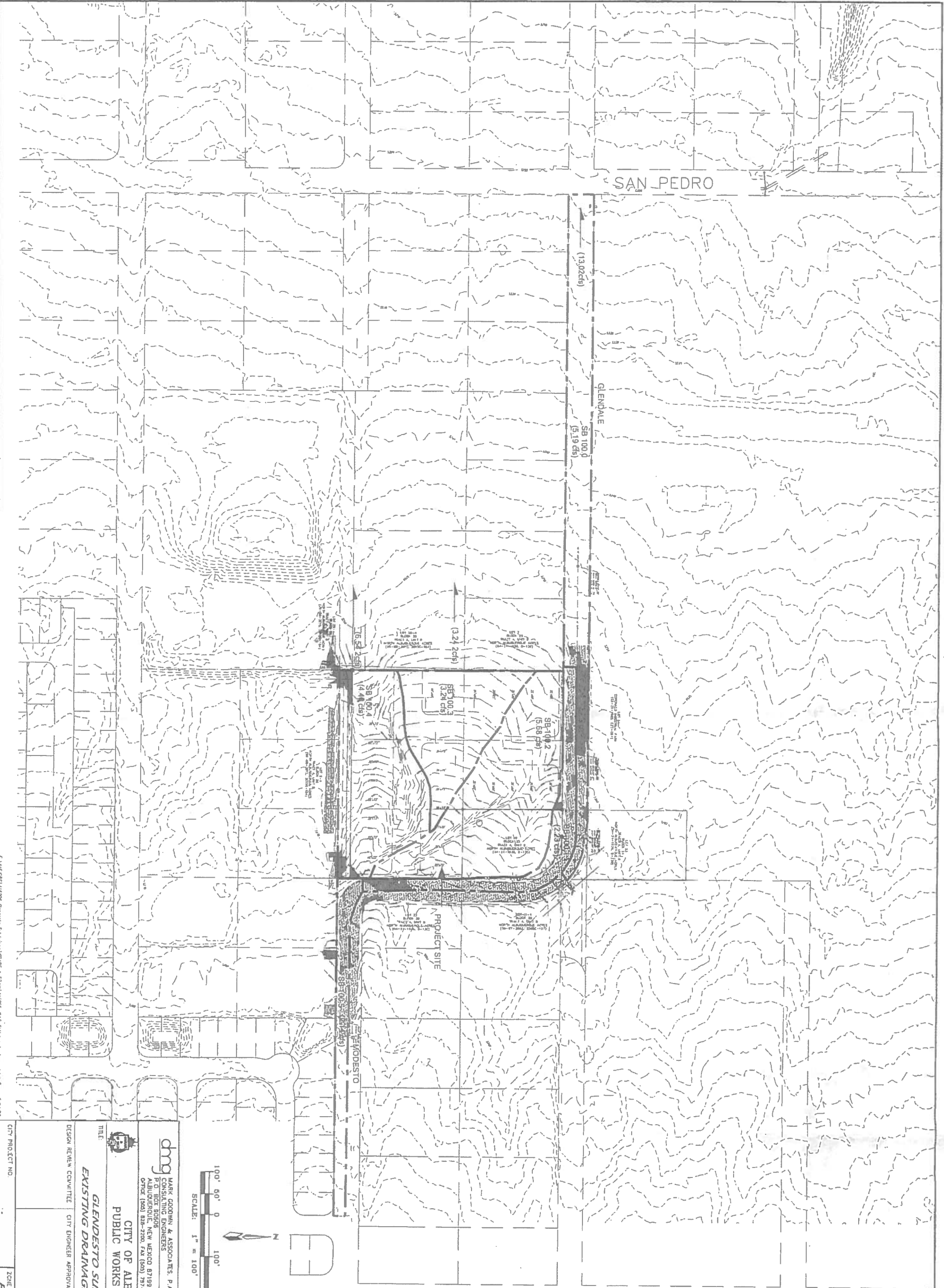
NO.	DATE	REMARKS	BY
DESIGNED BY	DLH	DATE	06/16
DRAWN BY	DER	DATE	06/16
CHECKED BY	DMG	DATE	06/16

ENGINEER'S SEAL	SURVEY INFORMATION	BENCH MARKS	AS BUILT INFORMATION
	FIELD NOTES	AGRS Brass Cap stamped "D-C18"	CONTRACTOR
	NO. BY DATE	Elevation, in feet (NAVD88)=55222.090	WORK STARTED BY
			INSPECTOR'S ACCEPTANCE BY
			FIELD VERIFICATION BY
			DRAWINGS CORRECTED BY
			RECORDED BY
			DATE
			NO.

LEGEND

- EXISTING ASPHALT PAVEMENT
- EXISTING ELECTRIC TRANSFORMER
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING POWER POLE
- EXISTING TRAFFIC SIGNAL PULBOX
- EXISTING CATV PEDestal
- EXISTING UTILITY PEDestal
- EXISTING DROP INLET
- EXISTING STORM DRAIN
- EXISTING STORM DRAIN MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING GATE VALVE & BOX
- EXISTING FIRE HYDRANT
- NEW RIGHT-OF-WAY
- NEW CENTERLINE
- NEW LOT LINES
- NEW EASEMENTS
- NEW STORM DRAIN INLET
- NEW STORM DRAIN MANHOLE
- NEW SANITARY SEWER LINE
- NEW SANITARY SEWER MANHOLE
- NEW SANITARY SEWER FLOW DIRECTION
- NEW SANITARY SEWER SERVICE LINE
- NEW WATERLINE
- NEW FIRE HYDRANT
- NEW GATE VALVE & BOX
- NEW WATERLINE TEE
- NEW WATERLINE CAP
- NEW WATERLINE BEND
- NEW WATER METER SERVICES
- NEW STREET LIGHT
- NEW LOT ADDRESS

Copyright © 2016 D. MARK GOODWIN & ASSOCIATES, P.A. All Rights Reserved.



dmg
 MARK GOODWIN & ASSOCIATES, P.A.
 CONSULTING ENGINEERS
 P.O. BOX 8008
 NEW MEXICO, NEW MEXICO 87199
 OFFICE (505) 838-2500, FAX (505) 771-9533

CITY OF ALBUQUERQUE
 PUBLIC WORKS DEPARTMENT

GLENDESTO SUBDIVISION
 EXISTING DRAINAGE CONDITIONS

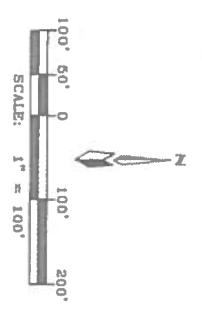
DESIGN REVIEW COMMITTEE CITY ENGINEER APPROVAL

NO. DATE

LAST DESIGN UPDATE

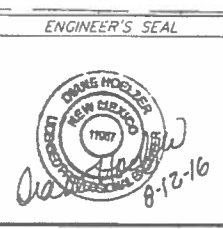
CITY PROJECT NO. **B-18-Z**

SHEET OF



NO.	DATE	REMARKS	BY
		DESIGN	
		REVISIONS	

DESIGNED BY **DLH** DATE **05/16**
 DRAWN BY **DER** DATE **05/16**
 CHECKED BY **DMG** DATE **05/16**



SURVEY INFORMATION		
FIELD NOTES		
NO.	BY	DATE

BENCH MARKS	

AGRS Brass Cap stamped "10-C18"
 Elevation, in feet (NAD83)=55222.090

AS BUILT INFORMATION	
CONTRACTOR	
WORK STAMPED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
MICRO-FILM INFORMATION	
RECORDED BY	DATE
NO.	

APPENDIX A - HYDROLOGY

EXISTING DRAINAGE CONDITIONS

```
*S*****
*S          GLENDESTO SUBDIVISION
*S          100 YEAR 24 HOUR STORM EVENT
*S
*S          FILE: GLENEX.DAT
*S          LAST REVISED: 6-15-16
*S          NOAA ATLAS 2, VOL IV ZONE B-18
START      TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION    NEW MEXICO
RAINFALL   TYPE=2 RAIN QUARTER=0.0
           RAIN ONE=2.10 IN RAIN SIX=2.50 IN
           RAIN DAY=2.85 IN DT=0.0333 HRS
*S*****
*S  EXSTING DRAINAGE CONDITIONS
*
*** SUB BASIN 100.0
*
COMPUTE NM HYD      ID=1  HYD NO=100.0 AREA= 0.002888 SQ MI
                   PER A=20 PER B=80 PER C=0 PER D=0
                   TP=-.1333 HR MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*
*** SUB BASIN 100.1
*
COMPUTE NM HYD      ID=1  HYD NO=100.1 AREA= 0.001236 SQ MI
                   PER A=20 PER B=80 PER C=0 PER D=0
                   TP=-.1333 HR MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*
*** SUB BASIN 100.2
*
COMPUTE NM HYD      ID=1  HYD NO=100.2 AREA= 0.003884 SQ MI
                   PER A=100 PER B=0 PER C=0 PER D=0
                   TP=-.1333 HR MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*
*** SUB BASIN 100.3
*
COMPUTE NM HYD      ID=1  HYD NO=100.3 AREA= 0.002210 SQ MI
                   PER A=100 PER B=0 PER C=0 PER D=0
                   TP=-.1333 HR MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*
*** SUB BASIN 100.4
*
COMPUTE NM HYD      ID=1  HYD NO=100.4 AREA= 0.003007 SQ MI
                   PER A=100 PER B=0 PER C=0 PER D=0
                   TP=-.1333 HR MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*
*** SUB BASIN 100.5
*
COMPUTE NM HYD      ID=1  HYD NO=100.5 AREA= 0.000915 SQ MI
                   PER A=25 PER B=35 PER C=0 PER D=40
                   TP=-.1333 HR MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
FINISH
```


PROPOSED CONDITIONS

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4) - Ver. S4.01a, Rel: 01a RUN DATE (MON/DAY/YR) =08/10/2016
 INPUT FILE = C:\Program Files (x86)\AHYMO-S4\glenp6.dat USER NO. = M-GoodwinMMSiteA90075759

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO ID ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
S	*****									
S	GLENDESTO SUBDIVISION									
S	PROPOSED DRAINAGE CONDITIONS									
S	100 YEAR 24 HOUR STORM EVENT									
S	FILE: GLENP6.DAT									
S	LAST REVISED: 8-8-16									
S	NOAA ATLAS 2, VOL IV ZONE B-18									
START										
LOCATION	NEW MEXICO									
RAINFALL	TYPE= 1 NOAA 14									
S	*****									
S	PROPOSED DRAINAGE CONDITIONS									
COMPUTE NM HYD	201.00	-	1	0.00244	4.39	0.129	1.532	2.807	PER IMP=	0.00
COMPUTE NM HYD	201.10	-	1	0.00071	2.05	0.073	1.532	4.505	PER IMP=	72.00
COMPUTE NM HYD	201.20	-	1	0.00744	20.48	0.707	1.532	4.299	PER IMP=	57.00
S	*****									
S	ROUTE THRU ONSISTE POND									
S	*****									
ROUTE RESERVOIR	POND.12	1	12	0.00744	10.24	0.437	1.698	2.150	AC-FT=	0.424
COMPUTE NM HYD	201.30	-	1	0.00162	2.51	0.075	1.532	2.426	PER IMP=	0.00
COMPUTE NM HYD	201.40	-	1	0.00044	0.80	0.023	1.532	2.837	PER IMP=	0.00
COMPUTE NM HYD	201.50	-	1	0.00041	1.19	0.042	1.532	4.538	PER IMP=	72.00
COMPUTE NM HYD	201.60	-	1	0.00055	0.81	0.024	1.532	2.312	PER IMP=	0.00
COMPUTE NM HYD	201.70	-	1	0.00091	2.26	0.075	1.532	3.890	PER IMP=	40.00
COMPUTE NM HYD	201.20	-	1	0.00744	10.88	0.326	1.532	2.285	PER IMP=	0.00
FINISH										

TIME= 0.00

RAIN6= 2.500

PROPOSED CONDITIONS

AHYMO PROGRAM (AHYMO-S4) - Version: S4.01a - Rel: 01a
 RUN DATE (MON/DAY/YR) = 08/10/2016
 START TIME (HR:MIN:SEC) = 14:17:12 USER NO.= M-GoodwinMMSiteA90075759
 INPUT FILE = C:\Program Files (x86)\AHYMO-S4\glenp6.dat

```

*S*****
*S      GLENDESTO SUBDIVISION
*S      PROPOSED DRAINAGE CONDITIONS
*S      100 YEAR 24 HOUR STORM EVENT
*S      FILE: GLENP6.DAT
*S      LAST REVISED: 8-8-16
*S      NOAA ATLAS 2, VOL IV ZONE B-18
START  TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION NEW MEXICO
        State of New Mexico soil infiltration values (LAND FACTORS) used for computations.
        Land Treatment  Initial Abstr. (in)  Unif. Infiltr. (in/hour)
          A            0.65             1.67
          B            0.50             1.25
          C            0.35             0.83
          D            0.10             0.04
  
```

```

RAINFALL
TYPE=1 RAIN QUARTER=0.0
RAIN ONE=2.10 IN RAIN SIX=2.50 IN
RAIN DAY=2.85 IN DT=0.0333 HRS
  
```

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1

DT = 0.033300 HOURS	END TIME = 5.994000 HOURS
0.0000	0.0018
0.0138	0.0161
0.0438	0.0499
0.0912	0.0985
0.1558	0.1760
0.3582	0.4145
1.2612	1.4697
2.0158	2.0617
2.2187	2.2364
2.2902	2.2966
2.3316	2.3345
2.3499	2.3523
2.3660	2.3681
2.3803	2.3822
2.3933	2.3950
2.4051	2.4068
2.4163	2.4178
2.4268	2.4283
2.4368	2.4381
2.4449	2.4436

```

*S*****
*S      PROPOSED DRAINAGE CONDITIONS
***
  
```


K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
 UNIT PEAK = 16.752 CFS UNIT VOLUME = 0.9986 B = 526.28 P60 = 2.1000
 AREA = 0.004243 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.120817HR TP = 0.133300HR K/TP RATIO = 0.906356 SHAPE CONSTANT, N = 3.908407
 UNIT PEAK = 8.3810 CFS UNIT VOLUME = 0.9989 B = 349.02 P60 = 2.1000
 AREA = 0.003201 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.20

RUNOFF VOLUME = 1.78078 INCHES = 0.7070 ACRE-FEET
 PEAK DISCHARGE RATE = 20.48 CFS AT 1.532 HOURS BASIN AREA = 0.0074 SQ. MI.

S ROUTE THRU ONSISTE POND
 S ROUTE THRU ONSISTE POND
 ROUTE RESERVOIR ID=12 HYD=POND.12 INFLOW=1 CODE=24
 OUTFLOW(CFS) STORAGE(ACFT) ELEV(FT)
 0.00 0.0000 49.0
 0.01 0.36049 54.5
 10.88 0.4279 55.0

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	49.00	0.000	0.00
0.80	0.03	49.00	0.000	0.00
1.60	16.81	54.67	0.383	3.60
2.40	0.74	54.54	0.366	0.94
3.20	0.08	54.50	0.361	0.09
4.00	0.05	54.50	0.361	0.05
4.80	0.05	54.50	0.361	0.05
5.59	0.07	54.50	0.361	0.07
6.39	0.01	54.50	0.361	0.01

PEAK DISCHARGE = 10.245 CFS - PEAK OCCURS AT HOUR 1.70
 MAXIMUM WATER SURFACE ELEVATION = 54.971
 MAXIMUM STORAGE = 0.4240 AC-FT INCREMENTAL TIME= 0.033300HRS

PRINT HYD ID=12 CODE=50

HYDROGRAPH FROM AREA POND.12

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.0	0.0	52.614	0.0	0.0
25.974	0.0	52.614	0.0	0.0
		79.254	0.0	105.894
		132.534	0.0	132.534
				0.0

RUNOFF VOLUME = 1.10157 INCHES = 0.4373 ACRE-FEET
PEAK DISCHARGE RATE = 10.24 CFS AT 1.698 HOURS BASIN AREA = 0.0074 SQ. MI.

*** SUB BASINS 201.3

COMPUTE NM HYD

ID=1 HYD NO=201.3 AREA= 0.001617 SQ MI
PER A=78 PER B=22 PER C=0 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.152449HR TP = 0.133300HR K/TP RATIO = 1.143653 SHAPE CONSTANT, N = 3.096457
UNIT PEAK = 3.5130 CFS UNIT VOLUME = 0.9958 B = 289.60 P60 = 2.1000
AREA = 0.001617 SQ MI IA = 0.61700 INCHES INF = 1.57760 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.30

RUNOFF VOLUME = 0.86460 INCHES = 0.0746 ACRE-FEET
PEAK DISCHARGE RATE = 2.51 CFS AT 1.532 HOURS BASIN AREA = 0.0016 SQ. MI.

*** SUB BASINS 201.4

COMPUTE NM HYD

ID=1 HYD NO=201.4 AREA= 0.000439 SQ MI
PER A=20 PER B=80 PER C=0 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.138116HR TP = 0.133300HR K/TP RATIO = 1.036128 SHAPE CONSTANT, N = 3.406848
UNIT PEAK = 1.0324 CFS UNIT VOLUME = 0.9869 B = 313.47 P60 = 2.1000
AREA = 0.000439 SQ MI IA = 0.53000 INCHES INF = 1.33400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.40

RUNOFF VOLUME = 0.98842 INCHES = 0.0231 ACRE-FEET
PEAK DISCHARGE RATE = 0.80 CFS AT 1.532 HOURS BASIN AREA = 0.0004 SQ. MI.

*** SUB BASINS 201.5

COMPUTE NM HYD

ID=1 HYD NO=201.5 AREA= 0.000409 SQ MI
PER A=0 PER B=28 PER C=0 PER D=72
TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 1.1626 CFS UNIT VOLUME = 0.9896 B = 526.28 P60 = 2.1000
AREA = 0.000294 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.133173HR TP = 0.133300HR K/TP RATIO = 0.999050 SHAPE CONSTANT, N = 3.533543
UNIT PEAK = 0.27730 CFS UNIT VOLUME = 0.9522 B = 322.78 P60 = 2.1000
AREA = 0.000115 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.50

RUNOFF VOLUME = 1.91043 INCHES = 0.0417 ACRE-FEET
PEAK DISCHARGE RATE = 1.19 CFS AT 1.532 HOURS BASIN AREA = 0.0004 SQ. MI.

*** *****
*** SUB BASINS 201.6
*** *****

COMPUTE NM HYD ID=1 HYD NO=201.6 AREA=0.000545 SQ MI
PER A=100 PER B=0 PER C=0 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.157886HR TP = 0.133300HR K/TP RATIO = 1.184438 SHAPE CONSTANT, N = 2.996859
UNIT PEAK = 1.1512 CFS UNIT VOLUME = 0.9873 B = 281.57 P60 = 2.1000
AREA = 0.000545 SQ MI IA = 0.65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.60

RUNOFF VOLUME = 0.82168 INCHES = 0.0239 ACRE-FEET
PEAK DISCHARGE RATE = 0.81 CFS AT 1.532 HOURS BASIN AREA = 0.0005 SQ. MI.

*** *****
*** SUB BASINS 201.7
*** *****

COMPUTE NM HYD ID=1 HYD NO=201.7 AREA=0.000909 SQ MI
PER A=25 PER B=0 PER C=35 PER D=40
TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 1.4355 CFS UNIT VOLUME = 0.9910 B = 526.28 P60 = 2.1000
AREA = 0.000364 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.129055HR TP = 0.133300HR K/TP RATIO = 0.968152 SHAPE CONSTANT, N = 3.648501

UNIT PEAK = 1.3544 CFS UNIT VOLUME = 0.9899 B = 331.02 P60 = 2.1000
AREA = 0.000545 SQ MI IA = 0.47500 INCHES INF = 1.18000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.70

RUNOFF VOLUME = 1.54680 INCHES = 0.0750 ACRE-FEET
PEAK DISCHARGE RATE = 2.26 CFS AT 1.532 HOURS BASIN AREA = 0.0009 SQ. MI.

*** EXISTING CONDITIONS FOR THE ONSITE PROJECT AREA

*** SUB BASINS 100.2
*** ONSITE SUB BASIN

COMPUTE NM HYD ID=1 HYD NO=201.2 AREA= 0.007444 SQ MI
PER A=100 PER B=0 PER C=0 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.157886HR TP = 0.133300HR K/TP RATIO = 1.184438 SHAPE CONSTANT, N = 2.996859
UNIT PEAK = 15.724 CFS UNIT VOLUME = 0.9989 B = 281.57 P60 = 2.1000
AREA = 0.007444 SQ MI IA = 0.65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 201.20

RUNOFF VOLUME = 0.82168 INCHES = 0.3262 ACRE-FEET
PEAK DISCHARGE RATE = 10.88 CFS AT 1.532 HOURS BASIN AREA = 0.0074 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:17:12

APPENDIX B - HYDRAULICS

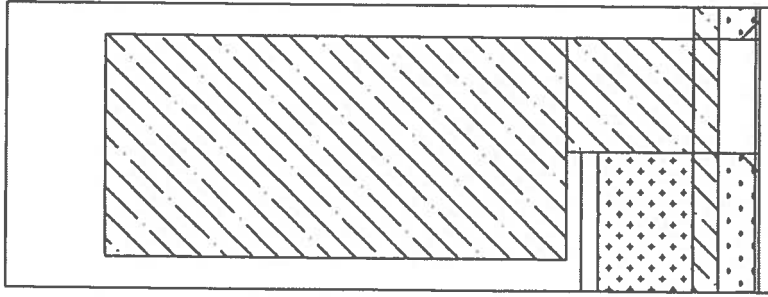
IMPERVIOUS AREA

PAD AREA
2555 SF
FF=72 CF

DRIVEWAY
360 SF
FF=10.2 CF

SIDEWALK
180 SF
FF=5.1 CF

(first flush = SF x 0.34 / 12")



DEPRESSED AREA PROVIDED

Concept: Depressed areas are provided to capture the first flush from impervious areas on each individual lot. These depressed areas will be landscaped with rock or grass which will allow drainage to pass through retaining some volume but in some cases will not retain all the flow in the volume provided in this calculation because varying street slopes will effectively reduce the amount of runoff that can be intercepted and retained on any given individual lot.

front yard volume=
(19' x 15' x 0.5')/2=
71.25 CF

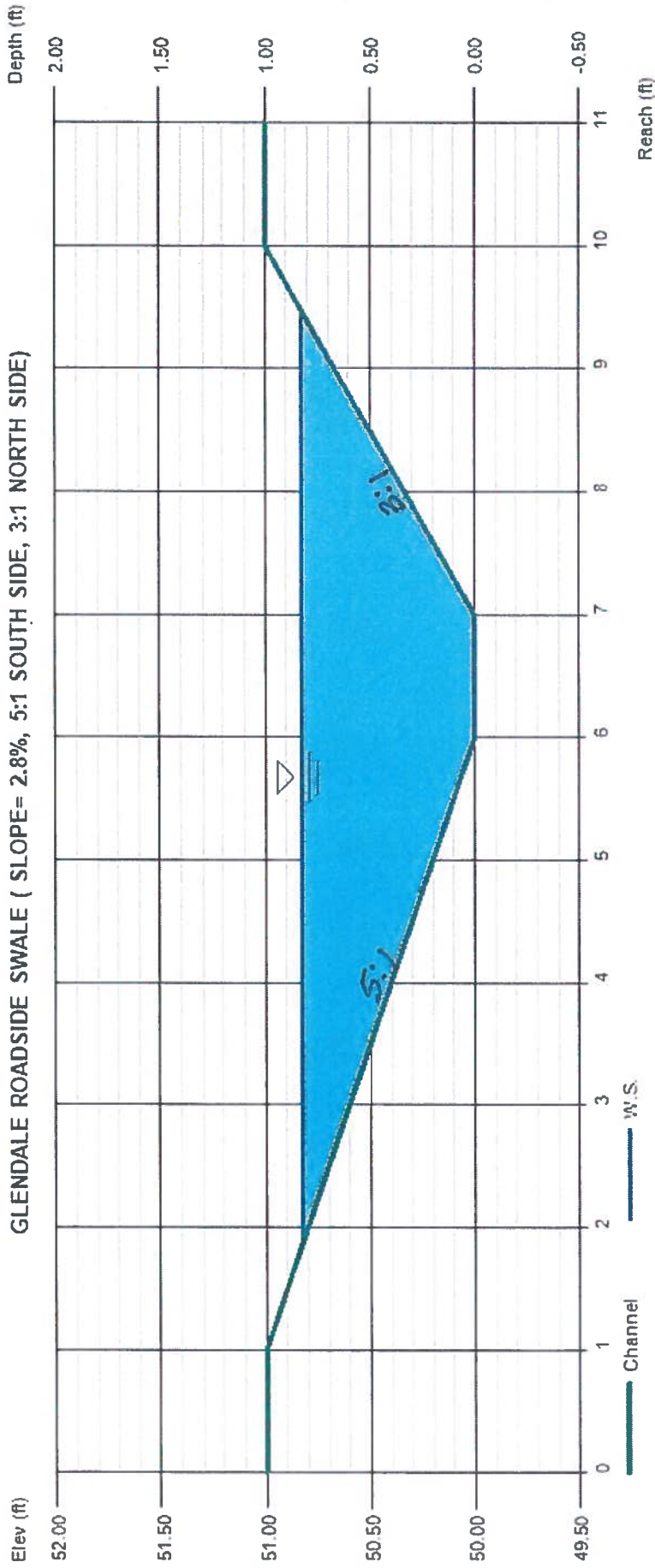
Curb-sdwk volume=
(19' x 5.88' x 0.5')/2=
27.9 CF

GLENDISTO SUBDIVISION

FIRST FLUSH CALCULATIONS FOR TYPICAL LOT

(scale 1 inch=30 feet)

GLENDALE ROADSIDE SWALE (SLOPE = 2.8%, 5:1 SOUTH SIDE, 3:1 NORTH SIDE)



Depth (ft)	Q (cfs)	Area (sqft)	Veloc (ft/s)	Wp (ft)	Yc (ft)	TopWidth (ft)	Energy (ft)
0.83	30.43	3.586	8.49	7.86	1.00	7.64	1.95

GLENDISTO SUBDIVISION

**CALCULATIONS FOR INLET AT END OF SWALE
(SAN PEDRO)**

Capacity is measured using the orifice equation: $Q = c \times a \times ((2 \times g \times H)^{.5})$

FOR SINGLE TYPE D INLET

Assume 2 feet of head: $Q = (0.6) \times (4.56 \text{ sq.ft.}) \times ((2 \times 32.4 \times 2 \text{ ft})^{.5}) = 31.15 \text{ cfs}$

FOR DOUBLE TYPE D INLET

Assume 2 feet of head $Q = (0.6) \times (9.12 \text{ sq.ft.}) \times ((2 \times 32.4 \times 2 \text{ ft})^{.5}) = 62.30 \text{ cfs}$

The 100 year flow to the sump in San Pedro is 30.43 cfs.

Assume a 50% clogging factor ~ Use a double D Inlet.

Note: Refer to Standard drawing 2220 DRAINAGE STORM INLET ALBUQUERQUE GRATE

GENERAL NOTES:

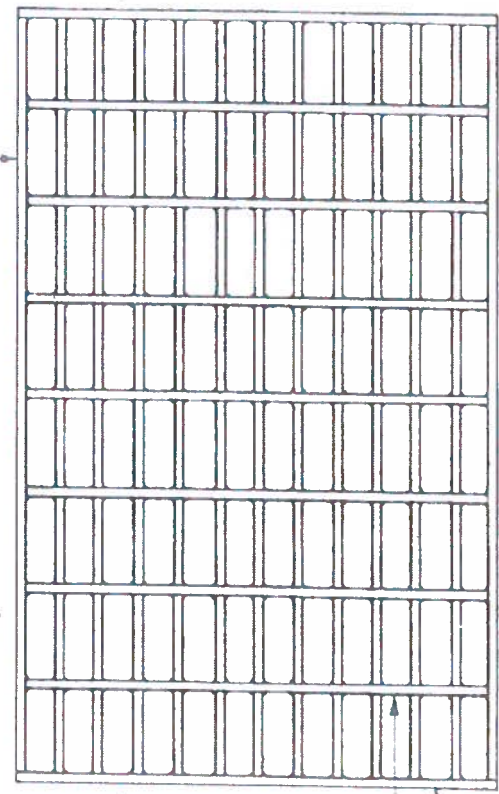
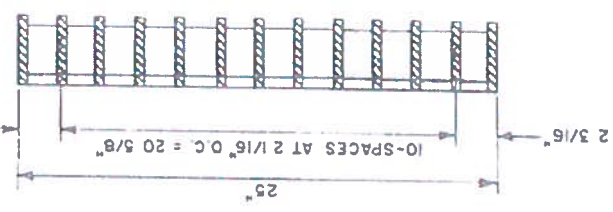
1. ALL BARS SHALL BE STRUCTURAL GRADE STEEL, GRADE A36.
2. THE GRATE SHALL BE WELDED WITH 1/8" FILLET WELD AROUND BOTH SIDES OF CROSS BARS, 1/4" FILLET WELD BOTH SIDES OF BEARING BARS TO END BARS.
3. AFTER CLEANING SURFACE OF SCALE, RUST, OILS, ETC., PAINT GRATE WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS ALUMINIUM PAINT (AASHTO M 69).
4. TOP OF CROSS BARS SHALL BE FLUSH WITH TOP OF GRATE.
5. GRIND WELDS FLUSH WITH BEARING BARS.
6. WHEN INSTALLED IN FRAME, PUSH TIGHT TO ONE SIDE, OTHER SIDE SHALL HAVE 1/2" MAX. OPENING. SPACERS WELDED TO FRAME MAY BE USED IF REQUIRED TO KEEP 1/2" SPACE OR LESS.

CONSTRUCTION NOTES:

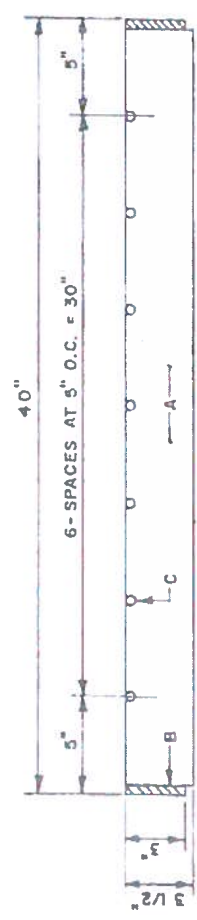
- A. BEARING BARS, (13) 1/2" X 3 1/2" X 39"
- B. END BARS, (2) 1/2" X 3" X 25"
- C. CROSS BARS, (7) 1/2" DIA. X 24"

$10'' - 4.5'' = 35.5''$
 $25'' - 6.5'' = 18.5''$
 $656.75 \text{ sq in (OPENING)}$
 $= 4.56 \text{ sq ft (OPENING)}$
 $= 1EA.$
 $ZEA = 9.125 \text{ sq ft.}$

SECTION B-B



PLAN



SECTION A-A

REVISIONS

CITY OF ALBUQUERQUE

DRAINAGE
STORM INLET
ALBUQUERQUE GRATE
 DWG. 2220
 AUG. 1986

APPENDIX C – FINAL N.A.A. MASTER DRAINAGE PLAN

FINAL
NORTH ALBUQUERQUE ACRES
MASTER DRAINAGE PLAN

Prepared For:



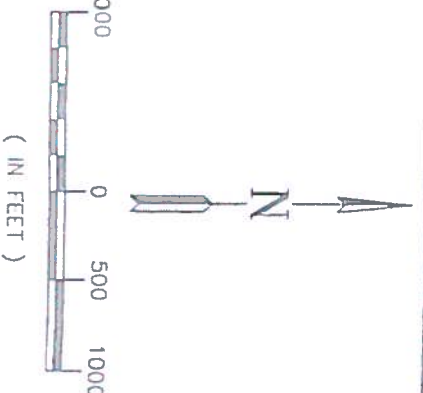
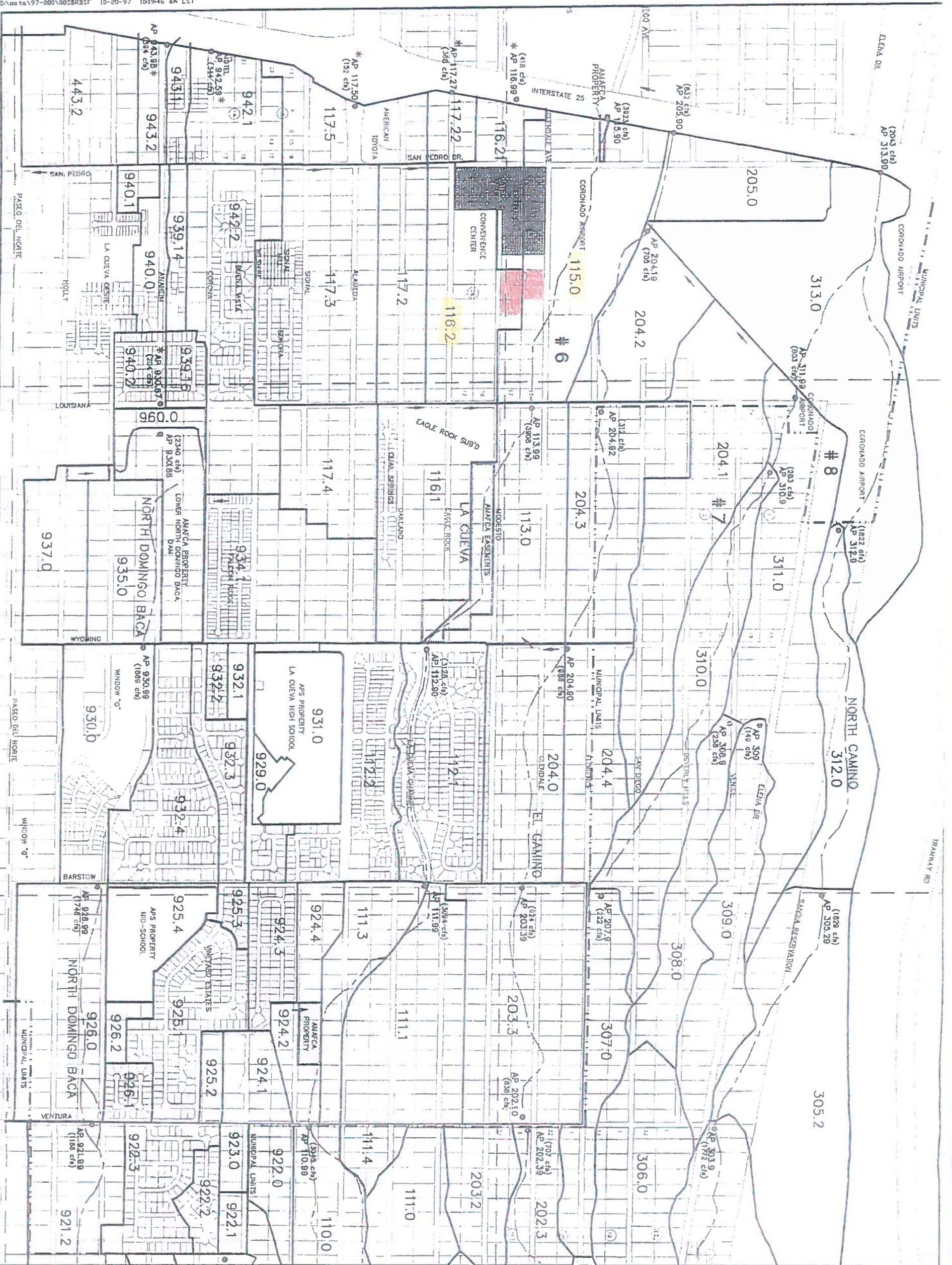
City of Albuquerque

Prepared By:



ENGINEERS AND ENVIRONMENTAL SCIENTISTS
1720-B Randolph Road SE, Albuquerque, NM 87106
Telephone (505) 243-7300
Fax (505) 243-7400
rti@nmia.com

October 1998



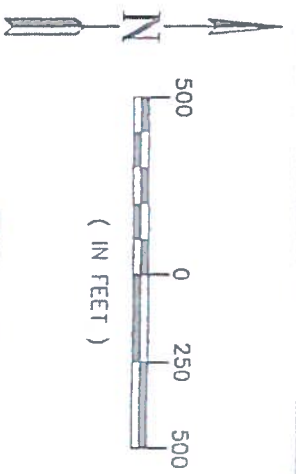
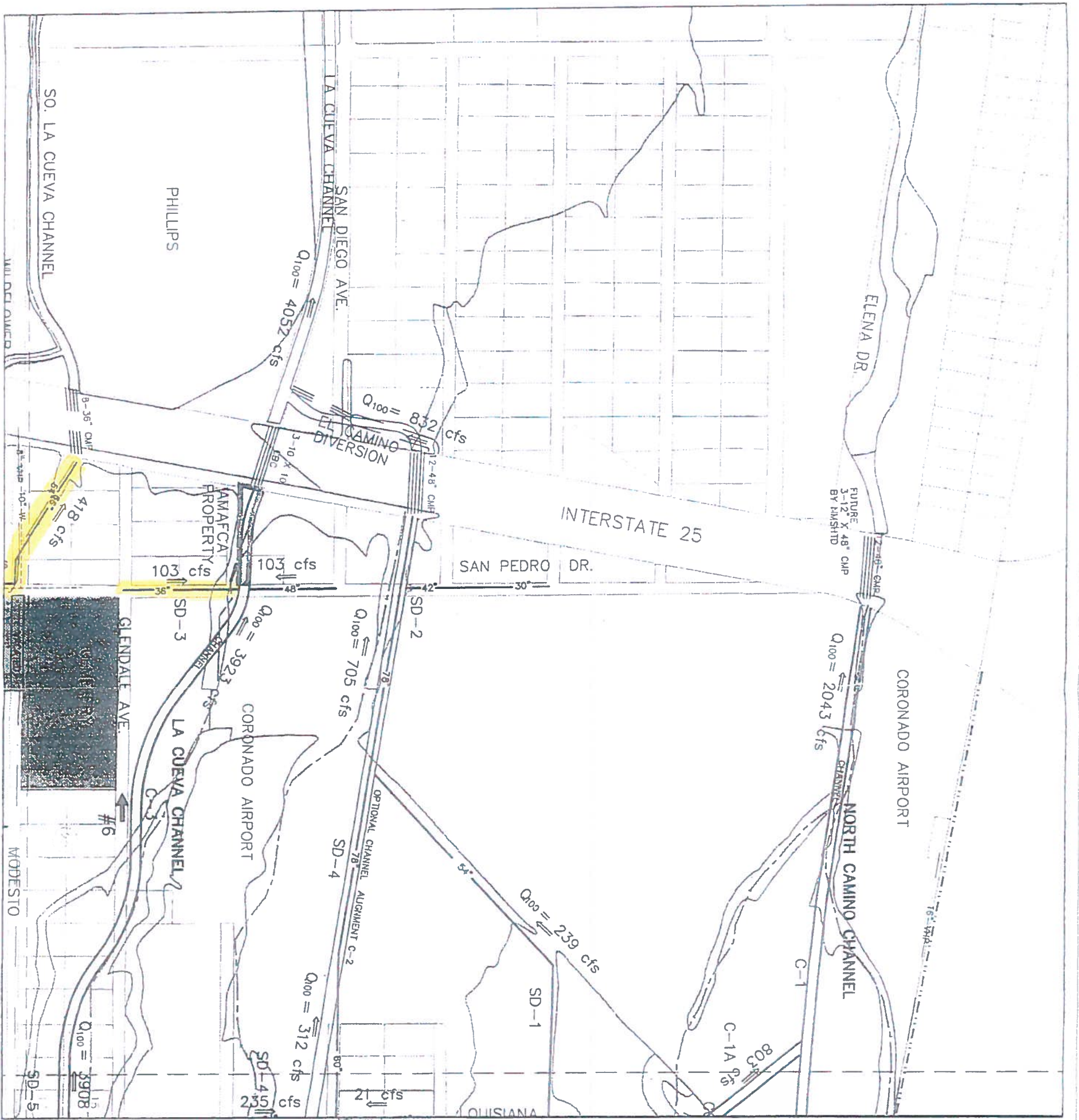
LEGEND

- 107.1 SUBBASIN DESIGNATION
- SUBBASIN BOUNDARY
- EXISTING PLATTING
- EXISTING ARROYO
- FLOW PATH
- ANALYSIS POINT AND FUTURE CONDITION
- AP 107.28 FUTURE CONDITION FLOW RATE
- * FLOW RATE NOT BULKED FOR SEDIMENT
- # 2 POTENTIAL AVULSION LOCATION
- MUNICIPAL LIMITS

**NORTH ALBUQUERQUE ACRES
MASTER DRAINAGE PLAN
FUTURE CONDITION**
FIGURE 4A
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT



Resource Technology, Inc.
Civil Engineering 770 - B Randolph Road SE
Environmental Sciences Albuquerque, New Mexico 87106
Water Resources 800-451-7200
Landscape Architecture 505-725-1400
Fax: 505-725-1400



LEGEND

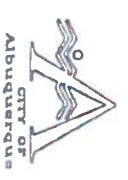
- MUNICIPAL LIMITS
- EXISTING PLATTING
- EXISTING ARROYO FLOW PATH
- EXISTING WATER LINE
- EXISTING SANITARY SEWER
- EXISTING GAS LINE
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED CHANNEL
- PROPOSED STRUCTURE OR ROAD
- PROPOSED DIKE
- #5 POTENTIAL AVULSION

NOTE:
All flow rates shown are future condition 100-year.

**NORTH ALBUQUERQUE ACRES
MASTER DRAINAGE PLAN**

**STORM DRAIN FACILITIES
B-18**

FIGURE 5A
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT



Resource Technology, Inc.
Civil Engineering
Environmental Sciences
Water Resources
Landscape Architecture
7120 - B Randolph Road SE
Albuquerque, New Mexico 87106
E-mail: rti@rtc.com
Telephone: (505) 243-7300
Facsimile: (505) 243-7400

TABLE A-9

LA CUEVA ARROYO FUTURE CONDITIONS

Sub-basin	Area (sq. mi.)	10-yr Vol (ac-ft)	10-yr Qp (cfs)	100-yr Vol (ac-ft)	100-yr Qp (cfs)
110.0	.1634	5.774	138.24	11.738	275.61
111.0	.0533	1.823	57.02	3.739	108.83
111.1	.0500	2.054	57.41	7.699	195.97
111.3	.0420	2.498	64.56	4.348	107.90
111.4	.0141	0.482	15.09	0.989	28.80
112.1	.0894	5.152	129.98	8.942	219.11
112.2	.0826	4.760	120.22	8.262	202.31
113.0	.1000	6.393	159.65	10.797	262.65
115.0	.1202	7.581	189.15	12.750	312.21
116.1	.1028	6.570	164.05	11.100	270.05
116.2	.0719	4.529	113.32	7.629	185.54
116.21	.0344	1.682	45.58	3.024	79.13
117.2	.0500	2.788	72.23	4.836	121.61
117.22	.0156	1.108	27.22	1.820	43.06
117.3	.1172	6.536	167.85	11.336	286.33
117.4	.0512	3.225	80.83	5.432	132.07
117.5	.0550	3.907	95.92	6.417	151.76

TABLE A-2 (cont.)

LA CUEVA ARROYO SUB-BASIN CHARACTERISTICS

Basin ID	Hydrologic Condition	Basin Area (mi ²)	Land Treatment (%)				TP (hrs)
			A	B	C	D	
113*	Existing	.1136	80	0	15	5	.133
	Future	.1000	0	25	15	60	.133
115*	Existing	.1337	80	0	15	5	.133
	Future	.1202	0	26	12	62	.133
116*	Existing	.1309	80	0	5	15	.133
116.1	Future	.1000	0	25	15	50	.133
116.2	Future	.0719	0	25	15	50	.133
116.21	Future	.0344	0	40	20	40	.133
117.2*	Existing	.1391	73	0	7	20	.22
	Future	.0500	0	34	16	50	.133
117.21*	Existing	.0234	0	34	16	50	.133
117.22*	Future	.0156	0	20	10	70	.133
117.3*	Existing	.0863	65	5	15	15	.133
	Future	.1172	0	34	16	50	.133
117.31*	Existing	.0250	0	34	16	50	.133
117.32*	Existing	.0090	0	34	16	50	.133
117.4*	Existing	.0750	85	0	5	10	.133
	Future	.0512	0	25	15	60	.133
117.5*	Existing	.0550	0	10	20	70	.133
	Future	.0550	0	10	20	70	.133
118	Existing	.0649	0	20	10	70	.133
	Future	.0649	0	20	10	70	.133
118.1	Existing	.0306	75	5	10	10	.133
	Future	.0306	0	20	30	50	.133
119	Existing	.0549	0	20	10	70	.133
	Future	.0549	0	20	10	70	.133
120	Existing	.0268	50	0	0	50	.133
	Future	.0268	0	20	10	70	.133
121	Existing	.0489	80	0	15	5	.133
	Future	.0489	0	20	10	70	.133

*Modified for COA NAA MDP 9/97