CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

December 18, 2015

Genevieve L. Donart, P.E.
Isaacson & Arfman, P.A.
128 Monroe St NE
Albuquerque, NM 87108

RE: **North I-25 Corporate Center (File: B18D001)**
Amended Drainage Master Plan
Engineer's Stamp Date: 11-4-2015

Dear Ms. Donart:

Based upon the information provided in your submittal received 11-5-15, the above referenced plan cannot be approved until the following comments are addressed:

1. This submittal should not be seeking approval for DRB actions. After approval of this Amended DMP is had, submittals for each individual lot should be seeking approval for DRB actions. Approval sought should be for "OTHER(specify-Amended DMP).
2. References (provide excerpts as needed):
   a. The report references the NAA DMP to determine flows from the other side of I-25. The San Pedro Storm Drain Project report should also be referenced as this project ultimately modified the infrastructure that discharged into the 8-36" culverts.

   b. <u>The Drainage Letter Report for Alameda Boulevard San Pedro to Wyoming Project, CPN 7663.91"</u> prepared by Thompson Engineering Consultants, dated January 2012 revised some sub-basins in the NAA DMP and shows new flows. This report should also be referenced. Reconcile any differences from the NAA DMP.

   c. Research any upstream projects that have modified the NAA DMP. Highlight boundaries of the Basin Map from NAA DMP that discharge into the South La Cueva Arroyo. Determine if any developments from this basin deviate from the NAA DMP or the San Pedro Storm Drain Project. One such known deviation is the diversion Storm Drain along Lochside, between Oakland and Eagle Rock designed by Mark Goodwin and Associates.
3. Report states that allowable discharge is 4.78cfs/acre. Where is this value from? Did it come from the previous report? If so, provide excerpt. Do arroyo's have capacity?
4. Proposal is to discharge to 30 cfs to the Storm Drain in San Mateo. Our GIS database does not show storm drain in San Mateo. The only inlet shown is at Modesto, above the culvert. If there is not storm drain to collect this flow, provide street and inlet capacity calculations. Include the flows from the street itself.

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Albuquerque

New Mexico 87103

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5. Reports states that Storm Drain replacing the South La Cueva Channel is to built in phases. There is some verbiage but it is vague. Who will install the junction boxes? Who will install any transition structures from the channel to the storm drain? Since there is already a project along the western side coming to EPC, there must already be some ideas of how this site will develop. Please provide a conceptual plan.
6. Landfill Remediation:
    a. Page 2 states that there was a parking lot that was later removed for remediation purposes. Why was that remediation done after the parking lots were built? Once the existing building is demolished, will remediation be required underneath the building footprint?
    b. Approval from Environmental Health will be required before Hydrology can approve this.
    c. Show on an exhibit the location of landfill strips left in place along the south edge of the North La Cueva Arroyo and eastern edge of San Mateo. Note the NM Environments Department restrictions.
7. Provide a current plat with the re-submittal in order to review jurisdictional responsibilities and easements.
8. Page 4 states that Offsite Basin Boundaries were determined by 2008 aerial topography and field observation. Why isn't more current data used? Do flows from this basin enter the north arroyo thru a pipe penetration or a rundown? Show and indicate on the Existing Basin map. Show invert elevations. What is proposed in the future?
9. Our GIS data base shows stubs along both Arroyos. Report on last paragraph of Page 4 states flows enter at several existing surface side inlets. It is not clear if there are already penetrations or rundowns into the arroyo. How will future development on the north side discharge into the north arroyo?
10. Similar to the above comment, pg. 5 states that there are surface collection points that discharge to the south arroyo. Please identify the type of collection and how it discharges into the arroyo. Will these be used in the phased plan? If so, how much flow discharges through these points?
11. Page 5 (1st paragraph): How did the San Pedro Storm Drain Report account for the existing culvert being under capacity? It only carries 248 cfs, and the flow is 368 cfs. Is DMD aware of the deficiency? Are there already plans to improve this condition? To what degree have you coordinated with DMD?
12. Basin boundaries should be based on expected development to the degree possible. There a preliminary plan going before EPC (Northpoint Townhomes), and should be consistent with this DMP. The Northpoint Townhomes plan shows it is discharging 16 cfs, but it does not include the western edge of the development. This needs to be addressed in this report or the basin boundaries for Northpoint Townhomes modified.
13. Existing Condition peak flows shown on excel sheet do not match those shown on the basin map.
14. Junctions:
    a. Show analysis of manifold and junction box, and provide preliminary details
    b. How is HGL affected by these junctions
    c. What is the HGL at the upstream end of the 8-36" culverts
    d. What is the HGL at the upstream end of the arch culverts
    e. Hydraflow analysis does not appear to use the correct culvert size in the analysis, and therefore may not be accurate. It also shows the HGL to be above grade at Line 4.

f. HGL at south arroyo should account for incoming flow from street inlet.

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

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf: via Email: Recipient

CITY OF ALBUQUERQUE

PO Box 1293

Albuquerque

New Mexico 87103

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Albuquerque - Making History 1706-2006

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: North I-25 Corpoate Center (aka Northpoint 25) Building Permit #: _____ City Drainage #: B18/D01

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: Tracts 1 & 3, North I-25 Corporate Center

City Address: _____

Engineering Firm: Isaacson & Arfman, P.A. Contact: Genny Donart

Address: 128 Monroe Street NE - Albuquerque, NM 87108

Phone#: (505) 268-8828 Fax#: _____ E-mail: GennyD@iacivil.com

Owner: North I25, LLC c/o Titan Development Contact: Brian Patterson

Address: 6300 Riverside Planaza Lane NW, Albuquerque, NM 87120

Phone#: 505-998-0163 Fax#: _____ E-mail: bpatterson@titan-development.com

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: Surv-Tek, Inc. Contact: Russ Hugg

Address: _____

Phone#: 505-897-3366 Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT (AMENDED DMP)
- ___ DRAINAGE PLAN 1st SUBMITTAL
- ___ DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL G & D PLAN
- ___ GRADING PLAN
- ___ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ___ ENGINEER'S CERT (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERT (TCL)
- ___ ENGINEER'S CERT (DRB SITE PLAN)
- ___ ENGINEER'S CERT (ESC)
- ___ SO-19
- ___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ___ SIA/FINANCIAL GUARANTEE RELEASE
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D APPROVAL
- X S. DEV. FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- X FINAL PLAT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM)
- ___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ GRADING CERTIFICATION
- ___ SO-19 APPROVAL
- ___ ESC PERMIT APPROVAL
- ___ ESC CERT. ACCEPTANCE
- ___ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes X No ___ Copy Provided

DATE SUBMITTED: 11/05/15 By: Genevieve Donart
Isaacson & Afrman, P.A.

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

AMENDED DRAINAGE MASTER PLAN

FOR

NORTH I-25 CORPORATE CENTER
(aka Northpoint 25)

ALBUQUERQUE, NEW MEXICO

NOVEMBER 2015

PREPARED FOR:
NORTH I25, LLC
c/o TITAN DEVELOPMENT

BY

GENEVIEVE L. DONART
NEW MEXICO
15088
LICENSED PROFESSIONAL ENGINEER

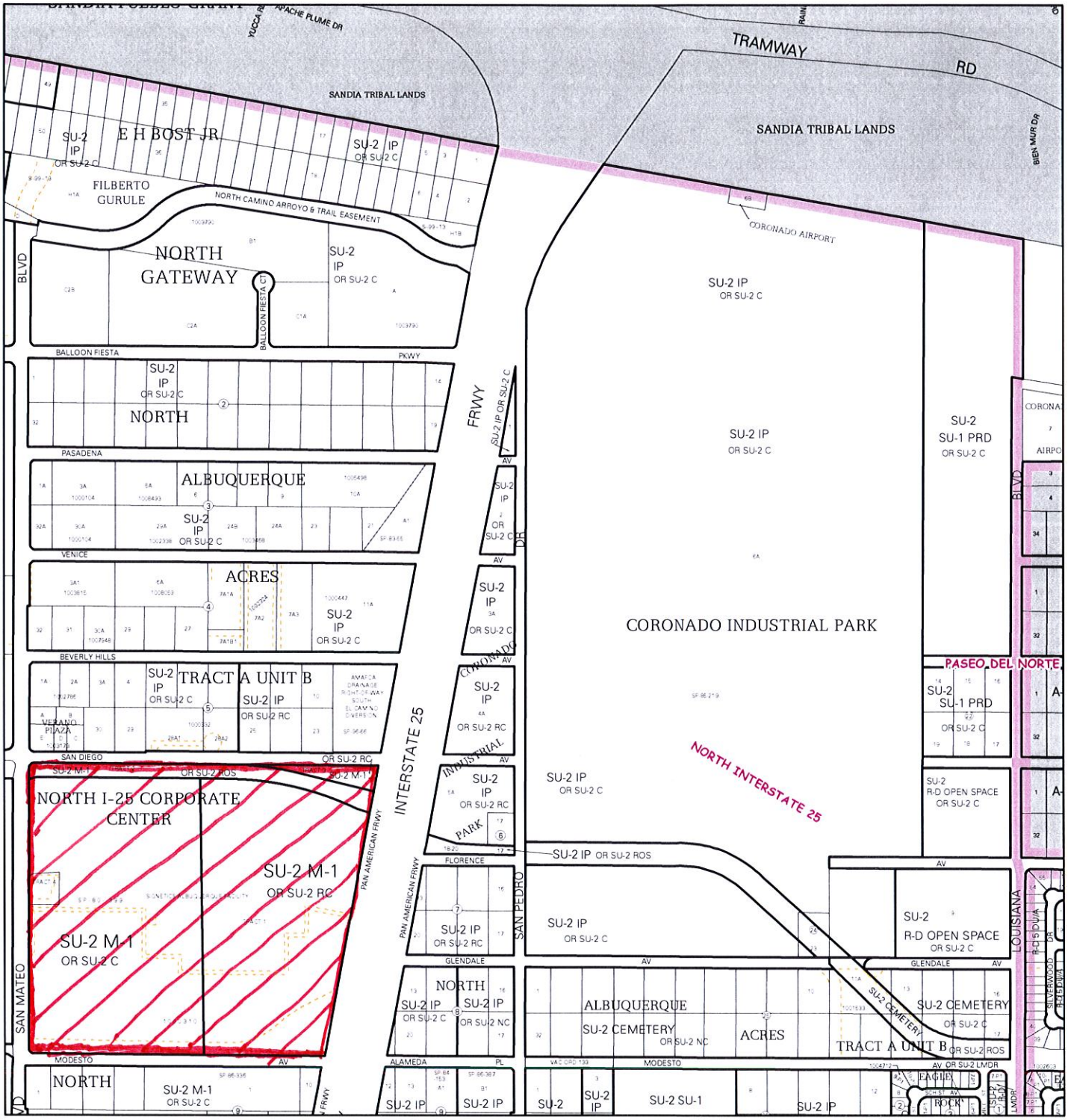
11/04/15

Genevieve L. Donart, PE **Date**

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

Thomas O. Isaacson, PE(RET.) & LS(RET.)
Fred C. Arfman, PE
Åsa Nilsson-Weber, PE

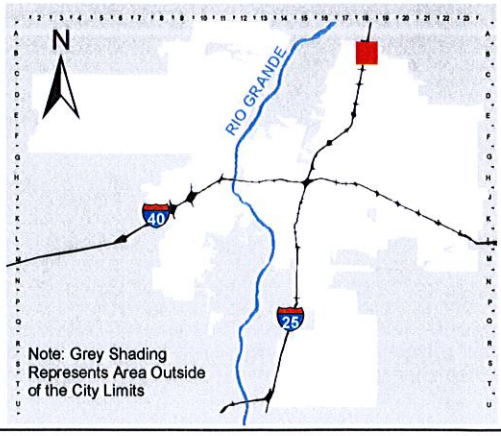
I&A Project No. 1686
M:\PROJECT DOCUMENTS\1600-1699\1686\REPORTS & EXHIBITS



For more current information and details visit: http://www.cabq.gov/gis

Albuquerque Geographic Information System

Map amended through: 9/2/2014



Zone Atlas Page:

B-18-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 750 1,500 Feet

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FEMA Firmette
Existing Basin Map
Offsite Basin Map
Existing Basins 100-year, 6-hour Storm Calculations
Culvert Calculations for Existing 88”x54” Arch RCP Pipe
Excerpts from the “Final North Albuquerque Acres Master Drainage Plan”

APPENDIX B: Proposed Conditions

Proposed Basin Map
South La Cueva Arroyo Conceptual First Phase
Proposed Basins 100-year, 6-hour Storm Calculations AHYMO Calculations
Hydraflow Storm Sewer Calculations
South La Cueva Arroyo Conceptual Plan & Profiles
South La Cueva Arroyo Storm Drain Capacity Calculations

I. PROJECT INFORMATION

EXISTING LEGAL DESCRIPTION:
Tracts 1, & 3, North I-25 Corporate Center

ENGINEER: Isaacson & Arfman, P.A.
128 Monroe Street NE
Albuquerque, NM 87108
(505) 268-8828
Attn: Genevieve Donart

SURVEYOR: Surv-Tek, Inc.
(505) 897-3366
Attn: Russ P. Hugg, NMPLS No. 9750

DEVELOPER: North I25, LLC
c/oTitan Development
6300 Riverside Plaza Lane NW
Albuquerque, NM 87120
(505) 998-0163
Attn: Brian Patterson/Kurt Browning

TOTAL AREA: 59.6618 Acres

FLOODPLAIN: Zones A & X
Portions of North I-25 Corporate Center lie within the 100-year flood zone based on Firm Map #35001C0129H dated August 16, 2012

II. INTRODUCTION

The North I-25 Corporate Center site is a proposed multi-use development on the existing Philip's Semi-Conductor site in the North Albuquerque Acres area. It is also known as Northpoint 25. This Drainage Master Plan (DMP) amends the previously approved North I-25 Corporate Center DMP dated 09/02/2009 while using the same drainage concepts for the backbone systems (i.e. the North and South La Cueva Arroyos) as the previous plan. The amended DMP simplifies the onsite sub-basins, removes improvements that related only to the previous site development plan, allows phasing for the South La Cueva Arroyo improvements, and establishes general drainage requirements for future projects within the site.

Prior to development of future projects, the developer must provide an approved individual Grading & Drainage Plan meeting the requirements of this DMP and all governing agencies.

The site falls within the "Final North Albuquerque Acres Master Drainage Plan" prepared by Resource Technology Inc. in October 1998 (NAA DMP), and is subject to its requirements. The NAA DMP establishes fully-developed flows within the North and South La Cueva Arroyos, both of which cross this project. Zone A floodplains contained within channels cover both arroyos.

This DMP defines maximum flows per acre as a method of determining each project's responsibility. (First flush storm water retention is not covered by the maximum flows per acre.) Similar to the previously approved DMP, the fully-developed plan redirects the South La Cueva Arroyo underground in a new alignment via a storm drain system in phases. A conceptual design for that storm drain is included in Appendix B, which should be used by each project within the site that drains to the South La Cueva Arroyo for design of its drainage outfall.

The old Philips Semi-Conductor site included a large manufacturing plant with support facilities and parking. The building is currently being used as a film studio. The entire building will be demolished in phases as part of this re-development, but until such time that the existing building is demolished, it will continue to function as a studio. Until 2008, a substantial percentage of the site was covered with asphalt parking lots. At that time the owners of the property removed landfill material from the property, which required removal of most of the parking lots. When calculating

Existing Conditions in this DMP, it is assumed that the parking lots are in place per the site topographic survey.

During landfill removal operations, small strips of landfill were left in place along the south edge of the North La Cueva Arroyo and the east edge of San Mateo Blvd where removal would have required demolition and replacement of permanent infrastructure such as curb, paving, and concrete channel-lining. **Water is not permitted to pond over the landfill areas, and any irrigation must meet the requirements of the "Waste Excavation Plan for Waste Excavation of the Former Coronado Landfill – Middle and South Cells" prepared by Lawrence Earth Engineering in October, 2007 and be approved by the New Mexico Environment Department.**

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III. EXISTING CONDITIONS

For existing basin maps, calculations, and summary of contributing basins and flows at Analysis Points (AP's) see APPENDIX A.

North I-25 Corporate Center consists of 59.66 acres of previously developed land west of the I-25 Frontage Road, in the North Albuquerque Acres area. The project is bounded to the east by the I-25 Frontage Road, to the west by San Mateo Blvd, The North La Cueva Arroyo and San Diego Ave to the north, and Modesto Ave to the south.

There is an existing manufacturing plant with corresponding structures and parking lots on the property. Approximately 40% of the property is covered with impervious materials. The remaining is covered in native grasses, trees, and shrubs. The site slopes from east to west at about a 3% slope, but the majority of storm water is directed north or south to existing drainage ways situated on the property.

NORTH LA CUEVA ARROYO

The North La Cueva Arroyo is a large concrete lined channel along the north edge of the site. It lies within an AMAFCA tract (Tract 2). According to the NAA DMP, existing box culverts under I-25 and San Diego Ave junction at the northeast corner (AP11), and route a total of 4,052 cfs of storm water into the channel. (See Excerpts from the NAA DMP in Appendix A.)

An existing 24" RCP culvert under I-25 discharges storm water at about the mid-point of the east property line of the site. (AP10) The culvert captures storm water from portions of Glendale Ave and an industrial lot on the east side of I-25. Offsite Basin boundaries were determined by 2008 aerial topography and field observation. (See Existing Basin Calculations and the Offsite Basin Exhibit in Appendix A.) Once on the North I-25 Corporate Center property, these flows are directed north via a small vegetation-lined ditch to the North La Cueva Arroyo.

Offsite surface flows from the I-25 Frontage Rd (Basins EX1 & EX7) also enter the site from the east. These flows cross the site, and discharge to the North La Cueva Arroyo.

Most of the north half of the site (Basins EX5 & EX6) drains towards the North La Cueva Arroyo, entering the channel at several existing surface side inlets. Another box culvert under San Mateo Blvd (AP12) conveys the combined onsite storm water with the offsite flows and existing flows in the North La Cueva Arroyo, directing them to the west and off the site.

SOUTH LA CUEVA ARROYO

The South La Cueva Arroyo runs along the southerly edge of the project in an existing public drainage easement. It is owned, operated, and maintained by the City of Albuquerque. The NAA DMP shows that 418 cfs discharges onto the property from under I-25 via 8-36" CMP culverts. These flows enter the heavily-eroded, riprap-lined dirt channel. The NAA DMP calls for an additional 368 cfs to join these flows via culverts under Modesto Ave in the future, fully-developed condition. An 88" wide by 54" high arch RCP pipe (72" circular pipe equivalent) under Modesto Ave only carries a maximum of 248 cfs when there is 1' of freeboard on the upstream side. (See Culvert Calculations in Appendix A.) In a 100-year storm this existing culvert is under-capacity by about 120 cfs.

Offsite surface flows from the I-25 Frontage Rd (Basin EX2) enters the south half of the site from the east. These flows cross the site, and discharge to the South La Cueva Arroyo.

Approximately 390 ft downstream of this junction, the South La Cueva Arroyo becomes a channel with a concrete-lined bottom and dirt embankments. The concrete-lined portion is under-designed and insufficient to carry 100-yr flows, so larger storms rise to the earthen portion of the channel. The section of the South La Cueva Arroyo on the North I-25 Corporate Center property is in a public easement and is maintained by the City of Albuquerque.

Most of the south half of the site (Basin EX3) drains towards the South La Cueva Arroyo, either through sheet flows, or one of a few surface collection points.

Another box culvert under San Mateo Blvd (AP14) conveys the combined onsite storm water with the offsite flows and existing flows in the South La Cueva Arroyo, directing them to the west and off the site.

SAN MATEO BLVD

The central and western portion of the site (Basin EX4) discharges to San Mateo Blvd (AP15), where it is captured in an existing storm drain. The PNM substation within this basin also surface flows to San Mateo Blvd.

San Diego Ave and Modesto Ave both have storm inlets to capture flows within the adjoining rights-of-way. Those inlets direct storm water to the San Mateo Blvd storm drain.

IV. PROPOSED CONDITIONS

For proposed basin maps, calculations, and summary of contributing basins and flows at Analysis Points (AP's) see APPENDIX B.

The amended DMP addresses the potentially changed layout of the site from the previously approved North I-25 Corporate Center DMP dated 09/02/2009 while using the same drainage concepts for the backbone systems (i.e. the North and South La Cueva Arroyos) as the previous plan.

The proposed site is a multi-use development with end uses and detailed site plans to be determined. In the ultimate condition the existing manufacturing plant will be removed, along with parking and the drainage infrastructure that specifically serves the plant. The site slopes east to west, but a high point running down the middle of the property directs storm water to the north and south, similar to the existing condition. The overall site is allowed free discharge to the North or South La Cueva Arroyos.

Future projects will be responsible for providing an approved, site-specific grading & drainage plan that meets the requirements of this DMP and all governing agencies prior to its development. Individual projects are responsible for constructing the infrastructure required to capture storm water from the project, and discharge it to the designated arroyo.

This DMP assumes that all projects developed with buildings or roads have 85% impervious surface, the maximum allowed by zoning. (85% D, 15%C) The Site Development Plans for Building Permit will determine the actual impervious area allowed. These percentages are conservative to provide a margin of safety. The allowable discharge per acre is 4.78 cfs/acre as designated in the Proposed Basin & Analysis Point (AP) Summary Table in Appendix B. All private storm drains shall be sized to carry this developed discharge rate from contributing basin areas.

Management of storm water quality for future projects will meet City of Albuquerque requirements. The individual Grading & Drainage Plans for these projects shall provide details for how this will be accomplished.

Future projects are responsible for providing drainage infrastructure to capture and convey the maximum amount of storm water practical from that project to the North or South La Cueva Arroyos, or San Mateo Blvd as appropriate, without impacting downstream projects.

Each project is responsible for constructing all storm drains that serve its property.

Projects within Basin 3 discharge to the South La Cueva Arroyo. Storm water discharges to the arroyo from these projects shall be reviewed and approved by the City of Albuquerque. Projects within Basins 5 & 6 discharge to the North La Cueva Arroyo. Storm water discharges to the arroyo from these projects shall be reviewed and approved by AMAFCA and the City of Albuquerque.

Only projects within Basin 4 are allowed to discharge to San Mateo Blvd or may choose to drain to either the North or South La Cueva Arroyo. San Mateo can accept a maximum of 29.9 cfs.

OFFSITE

Offsite flows enter the site from several sources: the North La Cueva Arroyo (AP11); the South La Cueva Arroyo and an arch pipe under Modesto Ave (AP13); surface flows from the I-25 Frontage Road (Basins EX1, EX2, & EX7); and a 24" RCP that crosses under I-25 (AP10).

San Mateo Blvd, San Diego Ave, and Modesto Ave have existing inlets that discharge to the storm drain in San Mateo Blvd. No storm water enters the site from these streets.

I-25 & WEST FRONTAGE ROAD

The existing 24" RCP that crosses under I-25 carries 28.2 cfs of storm water from the Offsite Basin on the east side of the Interstate, and discharges it at AP10. This water is then redirected north along the west side of the I-25 Frontage Road via a new public storm drain, where it discharges to the North La Cueva Arroyo.

Surface flows from the I-25 Frontage Road (Basins EX1, EX2, & EX7) must be captured and directed to either the North or South La Cueva Arroyo as part of the ultimate condition.

NORTH LA CUEVA ARROYO

As per the previously approved DMP, the North La Cueva Arroyo remains largely unchanged by this development.

Flows from the north half of the project (Basins 5 & 6) discharge to the North La Cueva through private storm drains. Additional flows generated by the North La Cueva area (Basin 7) are included. They are contained within Tract 2, and do not affect the area to be developed.

The box culvert under San Mateo Blvd (AP12) conveys the combined onsite storm water with the flows from the Offsite Basin, offsite Basins EX1 & EX7, and existing flows in the South La Cueva Arroyo, directing them to the west and off the site.

Storm water discharges to the arroyo from each of these projects shall be reviewed and approved by AMAFCA and the City of Albuquerque.

SOUTH LA CUEVA ARROYO

As per the previously approved DMP, this plan realigns and moves the South La Cueva Arroyo underground in its final condition, and allows phasing of the improvements. (See South La Cueva Arroyo Conceptual First Phase in Appendix B.) A conceptual alignment and profile are included in this DMP to assist in the design of each phase of the arroyo, and of private storm drain connections if they occur prior to the realignment. Final design plans for the new alignment shall be prepared with future projects and approved prior to construction. (See South La Cueva Arroyo Conceptual Plan & Profiles and Storm Drain Capacity Calculations in Appendix B.)

Moving the existing channel underground brings the storm infrastructure up to 100-year capacity, and allows a LOMR to be submitted upon completion of all phases of the storm drain for floodplain removal. The new structure captures 418 cfs from the existing 8-36" CMP culverts under I-25, routes them south to AP13 to intercept an additional 368 cfs at the outlet of the existing RCP arch pipe under Modesto Ave, then directs the total 786 cfs west.

Flows from the south half of the project (Basin 3) discharge to the South La Cueva through private storm drains.

The box culvert under San Mateo Blvd (AP14) conveys the combined onsite storm water with the offsite flows from Basin EX2 and existing flows in the South La Cueva Arroyo, directing them to the west and off the site.

The existing RCP arch pipe under Modesto Ave is undersized. The new junction between the arch pipe and the South La Cueva Arroyo provides the potential for the City to later add a parallel arch pipe at the east side of the junction.

Any project adjacent to the South La Cueva Arroyo is responsible for designing and building that portion of the new double storm drain. If an upstream portion is built, all downstream segments must also be constructed.

If non-adjacent projects develop prior to the construction of the new alignment, they may discharge private storm drains to the existing channel. However, private storm drains for these projects must be designed so that they can be easily connected to the new storm drain per the South La Cueva Conceptual Plan & Profiles. (See Appendix B.) Design of the penetrations into the existing channel must be approved by the City of Albuquerque.

Upon completion of all phases of the new alignment construction, a LOMR will be submitted to FEMA to remove the Zone A floodplain contained within the channel, and re-designate it as "1% annual flood contained in storm drain."

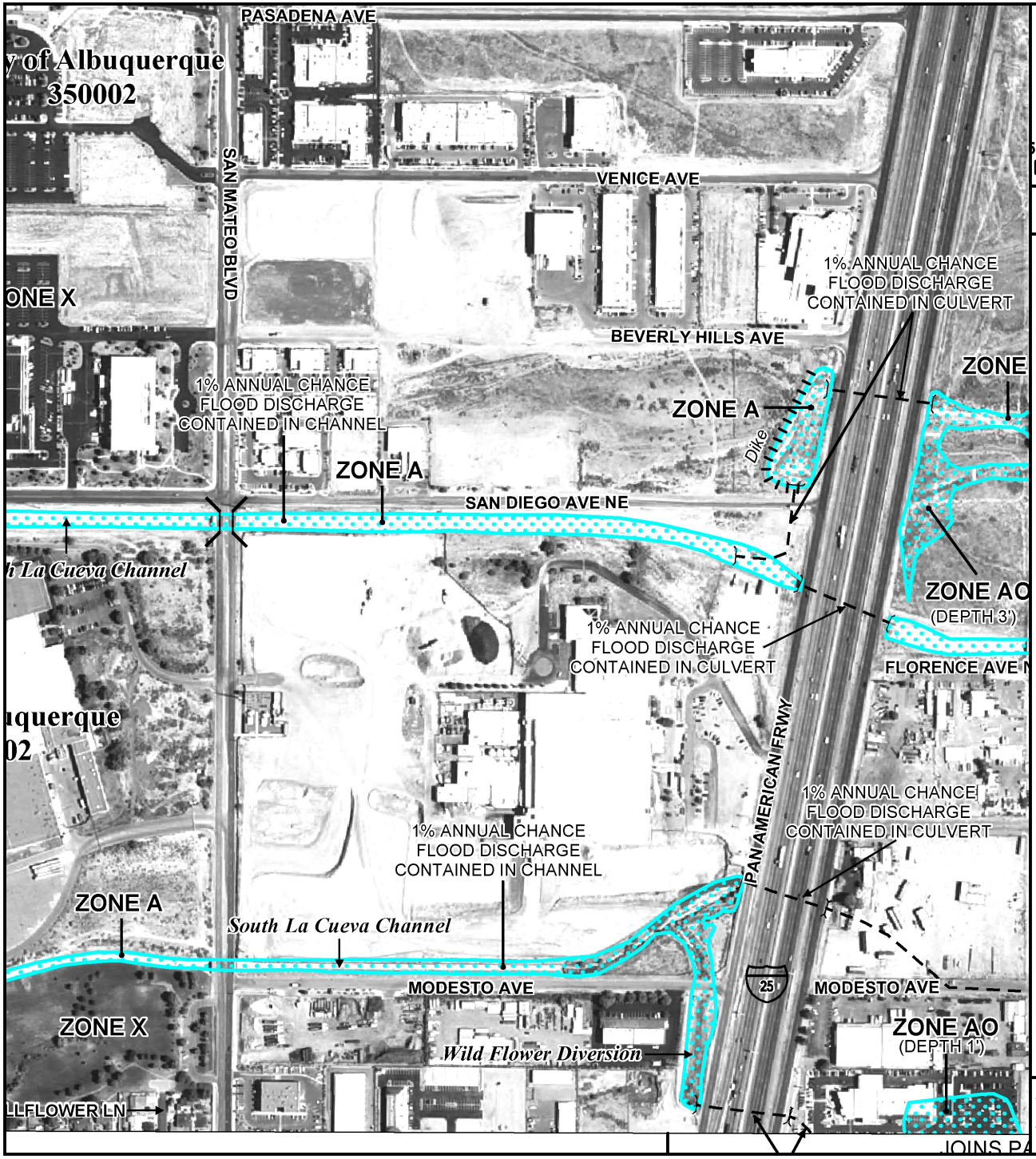
SAN MATEO BLVD

Developed storm water from Basin 4 is smaller than historic discharges from Basin EX4 to San Mateo Blvd (AP15). Flows to San Mateo Blvd are reduced by this plan. A negligible amount of storm water is added to Modesto Ave by proposed sidewalks along the north side of the road.

No additional storm drain is required in these streets.

APPENDIX A

Existing Conditions



MAP SCALE 1" = 500'

50 0 500 1000 FEET

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)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	0129	H
BERNALILLO COUNTY UNINCORPORATED AREAS	350001	0129	H
SANDIA, PUEBLO OF	350087	0129	H

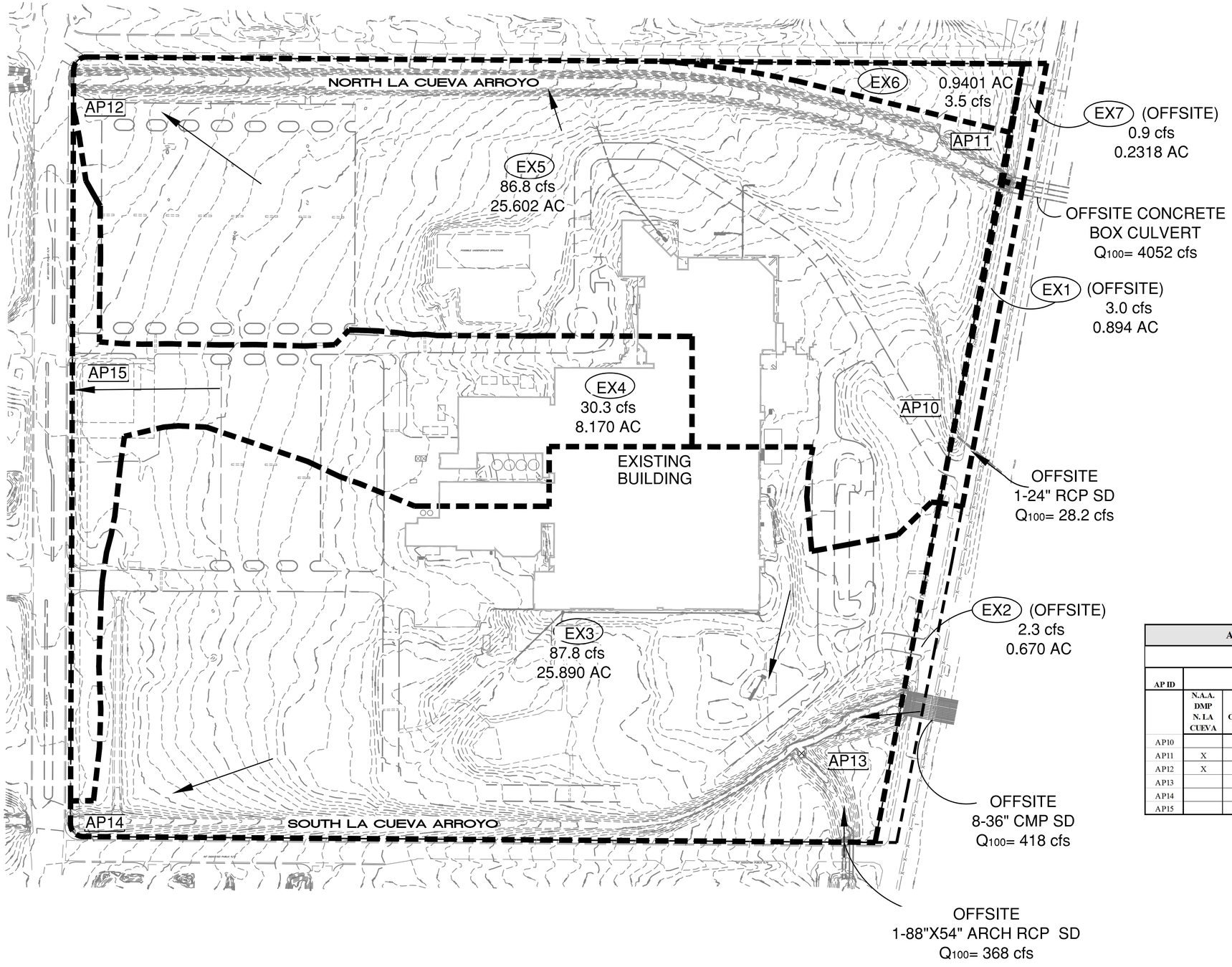
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

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



0 50 100 200 300
SCALE 1"=100'

LEGEND

XX	BASIN ID
— — —	BASIN BOUNDARY
XX.X cfs	100-YEAR 6 HOUR STORM FLOWS
× APX	ANALYSIS POINT

EXISTING LAND TREATMENTS

10% A
25% B
25% C
40% D

ANALYSIS POINT (AP) CONTRIBUTING BASINS

PROPOSED CONDITIONS

AP ID	Contributing Basins										Total Discharge
	N.A.A. DMP N. LA CUEVA	OFFSITE BASIN	N.A.A. DMP S. LA CUEVA	EX1	EX2	EX3	EX4	EX5	EX6	EX7	
AP10		X									28.2 cfs
AP11	X			X						X	4,056.2 cfs
AP12	X	X		X				X	X	X	4,182.8 cfs
AP13			X		X						788.5 cfs
AP14			X		X	X					884.5 cfs
AP15							X				30.3 cfs

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Albuquerque, New Mexico 87108
Ph. 505-268-8828 Fax. 505-268-2632
1686 C-701-BASIN MAPS.dwg Nov 04,2015

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NORTHPOINT 25

TITAN DEVELOPMENT

EXISTING BASIN MAP

Date: 08/12/15	No.	Revisions	Date	Job No. 1686
Drawn By: GLD				PAGE
Ckd By: GLD				SH. OF

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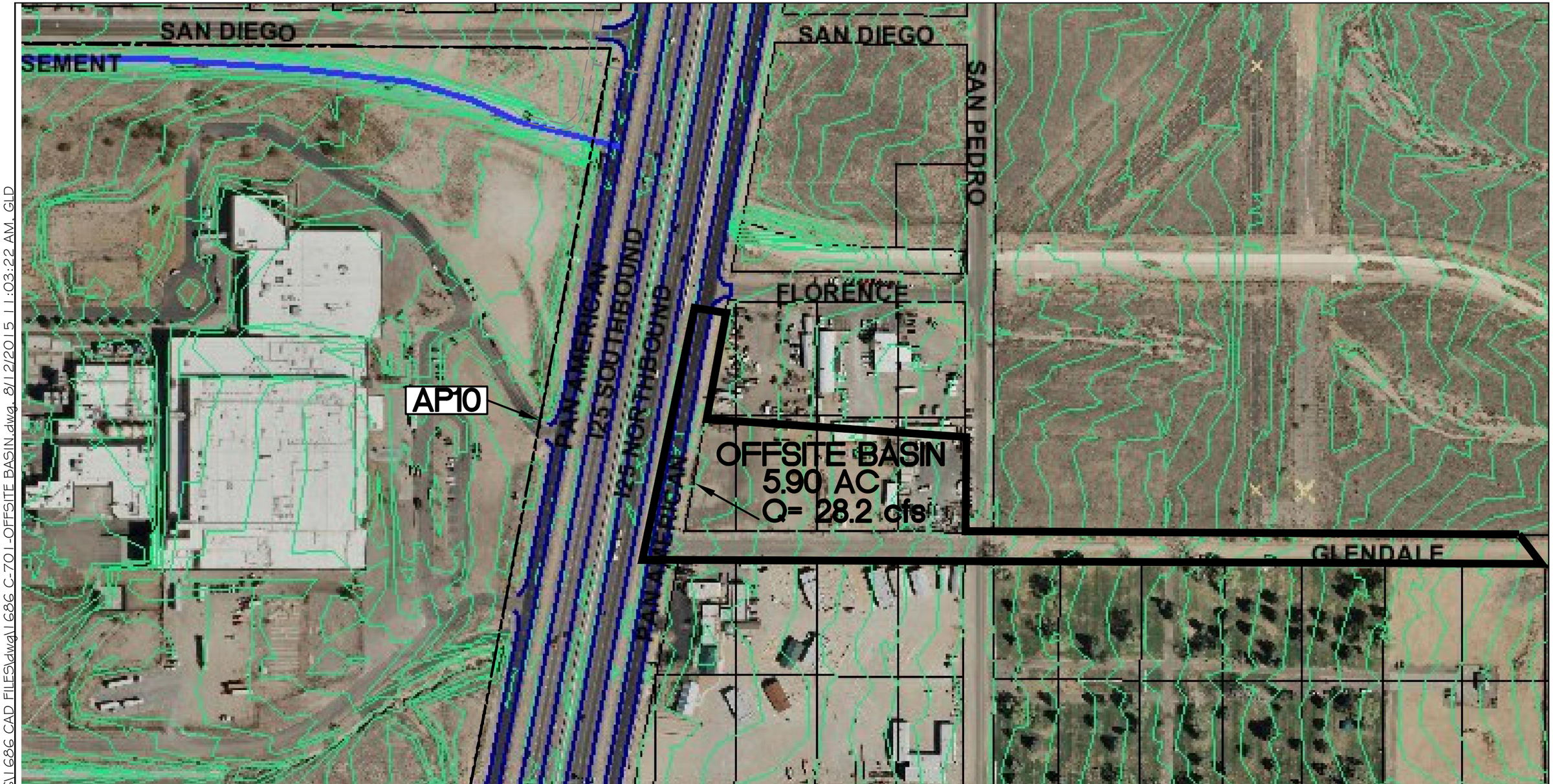

OFFSITE BASIN EXHIBIT

1"=200'

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CALCULATIONS: Northpoint 25 :

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

ON-SITE

AREA OF SITE: 2598866.53 SF = 59.7

100-year, 6-hour

HISTORIC FLOWS:

		Treatment SF	%
Area A	=	259886.653	10%
Area B	=	649716.6325	25%
Area C	=	649716.6325	25%
Area D	=	1039546.612	40%
Total Area	=	2598866.53	100%

DEVELOPED FLOWS:

		Treatment SF	%
Area A	=	0	0%
Area B	=	129943.3265	5%
Area C	=	259886.653	10%
Area D	=	2209036.551	85%
Total Area	=	2598866.53	100%

EXCESS PRECIP:

Precip. Zone 3

E_A = 0.66

E_B = 0.92

E_C = 1.29

E_D = 2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Historic E	=	1.56	in.	Developed E	=	2.18	in.

On-Site Volume of Runoff: V360 = E*A / 12

Historic V_{360}	=	338394	CF	Developed V_{360}	=	472344	CF

On-Site Peak Discharge Rate: $Qp = Q_{pA}A_A + Q_{pB}A_B + Q_{pC}A_C + Q_{pD}A_D / 43{,}560$

For Precipitation Zone 3

Q_{pA}	=	1.87	Q_{pC}	=	3.45
Q_{pB}	=	2.60	Q_{pD}	=	5.02

Historic Q_p	=	221.2	CFS	Developed Q_p	=	282.9	CFS

BASIN NO.	EX1	DESCRIPTION	Offsite - Adjoing I-25 Frontage Rd - North

Area of basin flows = 38946 SF = 0.9 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.56 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 5071 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 3.3 cfs

LAND TREATMENT	
A =	10%
B =	25%
C =	25%
D =	40%

BASIN NO.	EX2	DESCRIPTION	Offsite - Adjoing I-25 Frontage Rd - South

Area of basin flows = 29165 SF = 0.7 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.56 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 3798 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 2.5 cfs

LAND TREATMENT	
A =	10%
B =	25%
C =	25%
D =	40%

BASIN NO.	EX3	DESCRIPTION	Drains to South La Cueva Arroyo

Area of basin flows = 1127750 SF = 25.9 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.56 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 146842 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 96.0 cfs

LAND TREATMENT	
A =	10%
B =	25%
C =	25%
D =	40%

BASIN NO.	EX4	DESCRIPTION	Drains to San Mateo Blvd

Area of basin flows = 355879 SF = 8.2 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.56 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 46338 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 30.3 cfs

LAND TREATMENT	
A =	10%
B =	25%
C =	25%
D =	40%

BASIN NO.	EX5	DESCRIPTION	Drains to North La Cueva Arroyo

Area of basin flows = 1115238 SF = 25.6 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.56 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 145213 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 94.9 cfs

LAND TREATMENT	
A =	10%
B =	25%
C =	25%
D =	40%

BASIN NO.	EX6	DESCRIPTION	North of La Cueva Arroyo

Area of basin flows = 40951 SF = 0.9 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.56 in.

LAND TREATMENT	
A =	10%
B =	25%

Sub-basin Volume of Runoff (see formula above)

V_{360} = 5332 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 3.5 cfs

C =	25%
D =	40%

BASIN NO. EX7 **DESCRIPTION** Offsite - Adjoing I-25 Frontage Rd - North

Area of basin flows = 10099 SF = 0.2 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.56 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 1315 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 0.9 cfs

LAND TREATMENT	
A =	10%
B =	25%
C =	25%
D =	40%

BASIN NO. OFFSITE BASIN **DESCRIPTION** Offsite - East of I-25

Area of basin flows = 256843 SF = 5.9 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.20 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 47077 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 28.2 cfs

LAND TREATMENT	
A =	0%
B =	0%
C =	15%
D =	85%

EXISTING BASIN & ANALYSIS POINT (AP) SUMMARY

Basin No.	Description	Discharge (Q)	AP10	AP11	AP12	AP13	AP14	AP15
EX1	Offsite - Adjoing I-25 Frontage Rd - North	3.3 cfs		3.3 cfs	3.3 cfs			
EX2	Offsite - Adjoing I-25 Frontage Rd - South	2.5 cfs				2.5 cfs	2.5 cfs	
EX3	Drains to South La Cueva Arroyo	96.0 cfs					96.0 cfs	
EX4	Drains to San Mateo Blvd	30.3 cfs						30.3 cfs
EX5	Drains to North La Cueva Arroyo	94.9 cfs			94.9 cfs			
EX6	North of La Cueva Arroyo	3.5 cfs			3.5 cfs			
EX7	Offsite - Adjoing I-25 Frontage Rd - North	0.9 cfs		0.9 cfs	0.9 cfs			
OFFSITE BASIN	Offsite - East of I-25	28.2 cfs	28.2 cfs		28.2 cfs			
NAA DMP CALCULATED OFFSITE DISCHARGE RATES:								
	North La Cueva Arroyo	4,052.0 cfs		4,052.0 cfs	4,052.0 cfs			
	South La Cueva Arroyo	786.0 cfs				786.0 cfs	786.0 cfs	
TOTAL DISCHARGE		**5,097.6 CFS**	**28.2 CFS**	**4,056.2 CFS**	**4,182.8 CFS**	**788.5 CFS**	**884.5 CFS**	**30.3 CFS**

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Aug 12 2015

Elliptical Culvert

Invert Elev Dn (ft)	=	5186.94
Pipe Length (ft)	=	80.80
Slope (%)	=	0.53
Invert Elev Up (ft)	=	5187.37
Rise (in)	=	54.0
Shape	=	Elliptical
Span (in)	=	84.0
No. Barrels	=	1
n-Value	=	0.017
Culvert Type	=	Horizontal Ellipse Concrete
Culvert Entrance	=	Groove end projecting (H)
Coeff. K,M,c,Y,k	=	0.0045, 2, 0.0317, 0.69, 0.2

Embankment

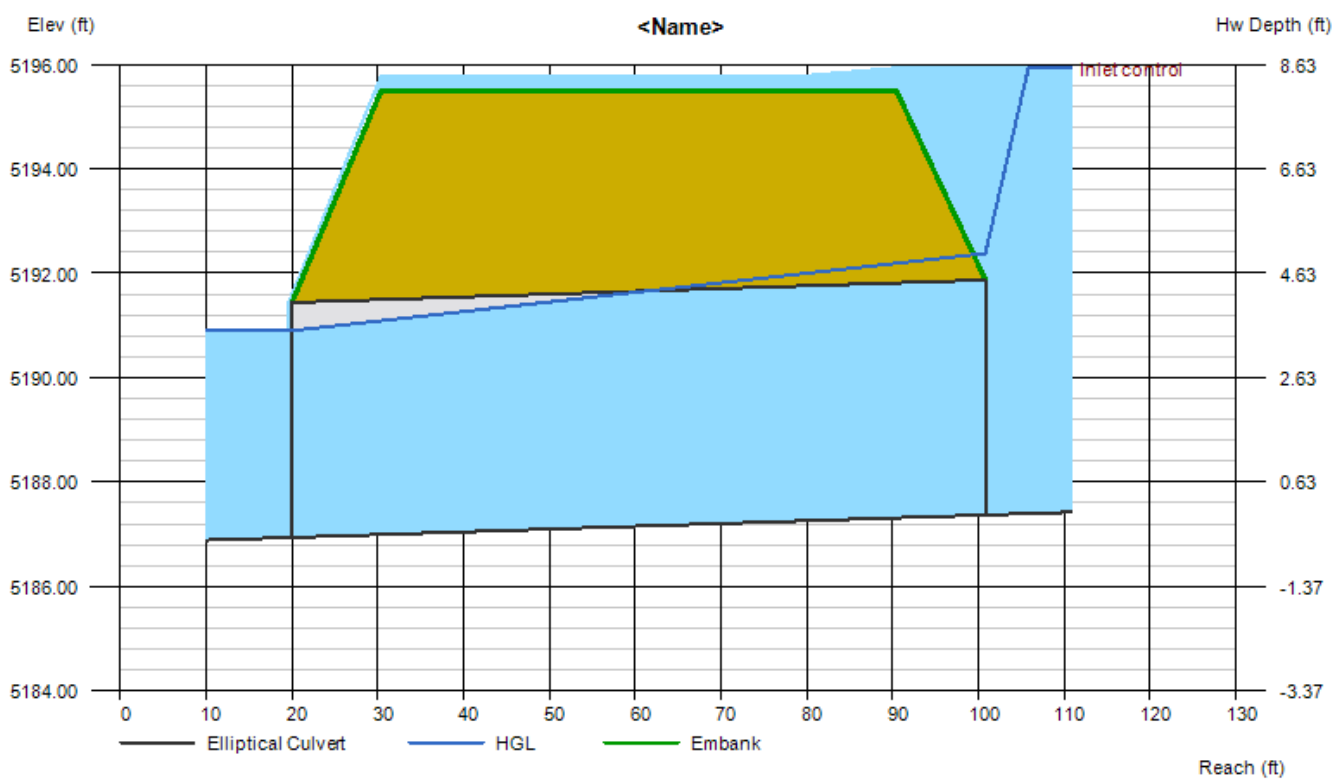
Top Elevation (ft)	=	5195.50
Top Width (ft)	=	60.00
Crest Width (ft)	=	50.00

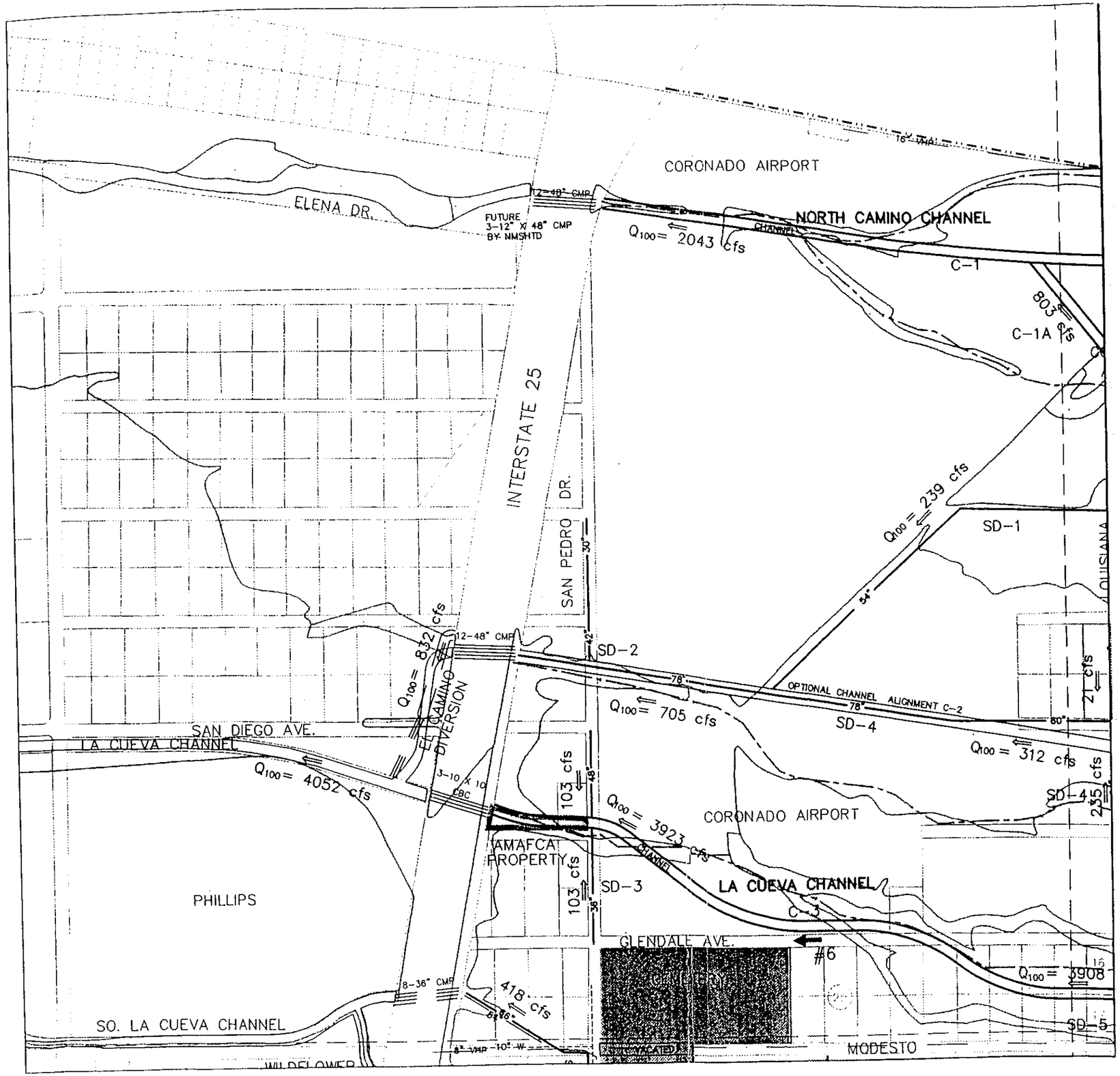
Calculations

Qmin (cfs)	=	367.00
Qmax (cfs)	=	368.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	367.00
Qpipe (cfs)	=	324.81
Qovertop (cfs)	=	42.19
Veloc Dn (ft/s)	=	14.04
Veloc Up (ft/s)	=	13.13
HGL Dn (ft)	=	5190.90
HGL Up (ft)	=	5192.38
Hw Elev (ft)	=	5195.93
Hw/D (ft)	=	1.90
Flow Regime	=	Inlet Control





N

500 0 250 500

(IN FEET)

LEGEND

- MUNICIPAL LIMITS
- EXISTING PLATTING
- EXISTING ARROYO FLOW PATH
- 10" W — EXISTING WATER LINE
- 10" SAS — EXISTING SANITARY SEWER
- 12" VHP — EXISTING GAS LINE
- 78" — EXISTING STORM DRAIN
- 54" — PROPOSED STORM DRAIN
- CHANNEL — PROPOSED CHANNEL
- PROPOSED STRUCTURE OR ROAD
- PROPOSED DIKE
- #5 AV-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

City of Albuquerque

Resource Technology, Inc.
Civil Engineering
Environmental Sciences
Water Resources
Landscape Architecture
Planning
1720 - B Randolph Road SE
Albuquerque, New Mexico 87106
E-mail: rti@nmia.com
Telephone: (505) 243-7300
Facsimile: (505) 243-7400

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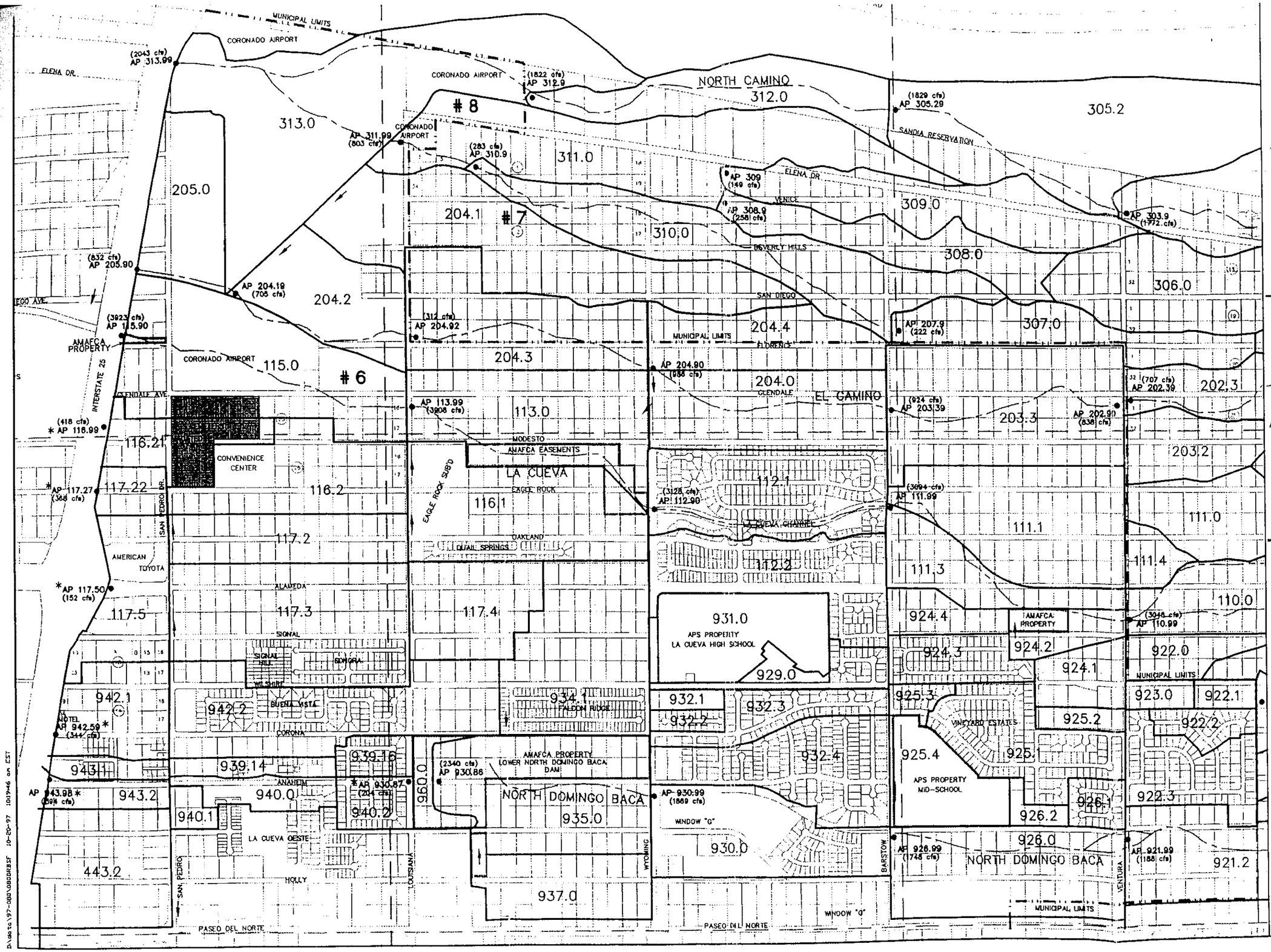

LEGEND

107.1 SUBBASIN DESIGNATION

SUBBASIN BOUNDARY

EXISTING PLATTING

EXISTING ARROYO FLOW PATH

AP 107.29 (8756 cfs) ANALYSIS POINT AND FUTURE CONDITION FLOW RATE

* FLOW RATE NOT BULKED FOR SEDIMENT

2 POTENTIAL AVULSION LOCATION

MUNICIPAL LIMITS

NORTH ALBUQUERQUE ACRE MASTER DRAINAGE PLAN

FUTURE CONDITION

FIGURE 4A

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT

CITY OF Albuquerque

Resource Technology, Inc
Civil Engineering
Environmental Sciences
Water Resources
Landscape Architecture
Planning
1720 - B Randolph Road SE
Albuquerque, New Mexico 87
E-mail: rti@rtinc.com
Telephone: (505) 243-7300
Facsimile: (505) 243-7400

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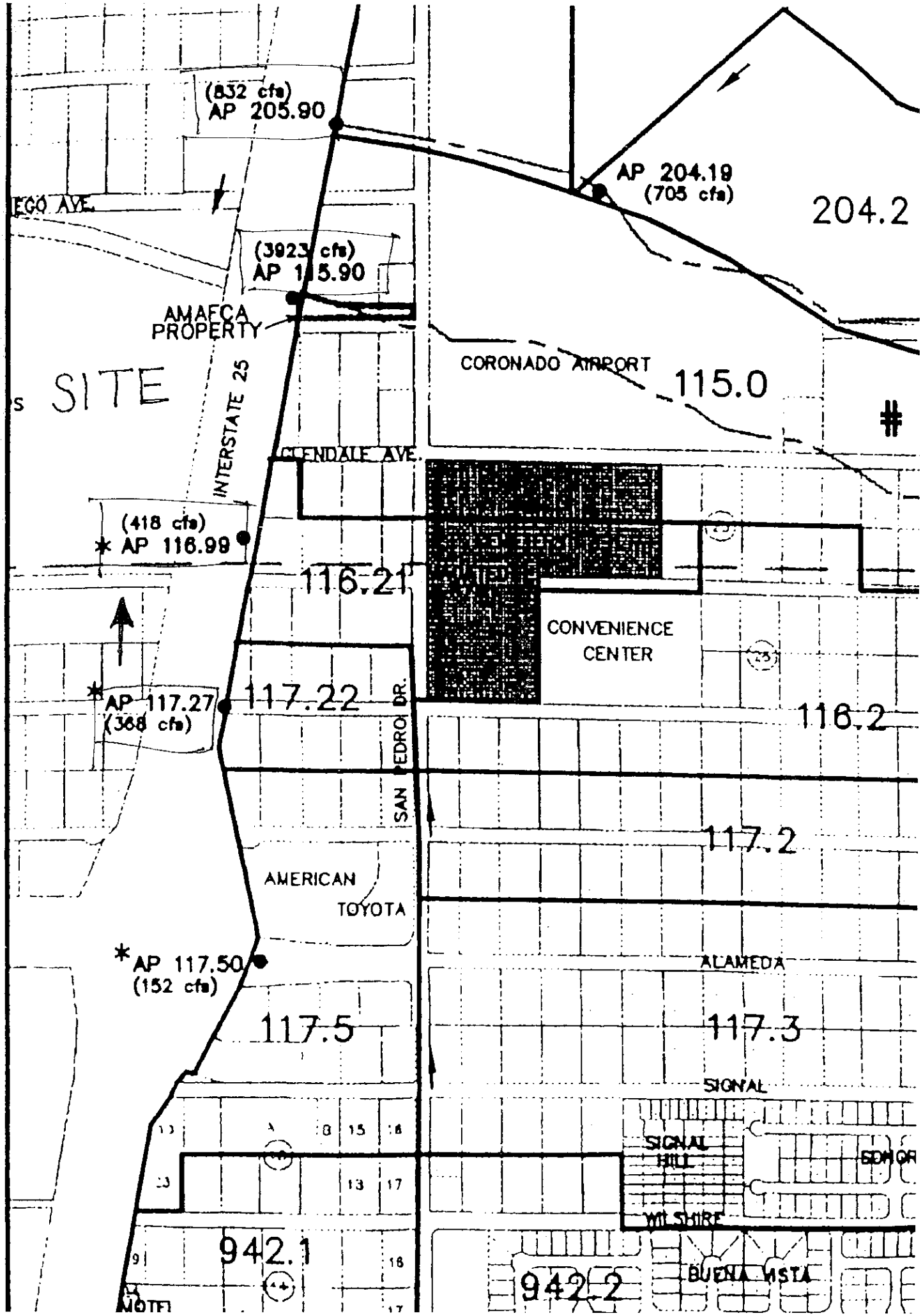
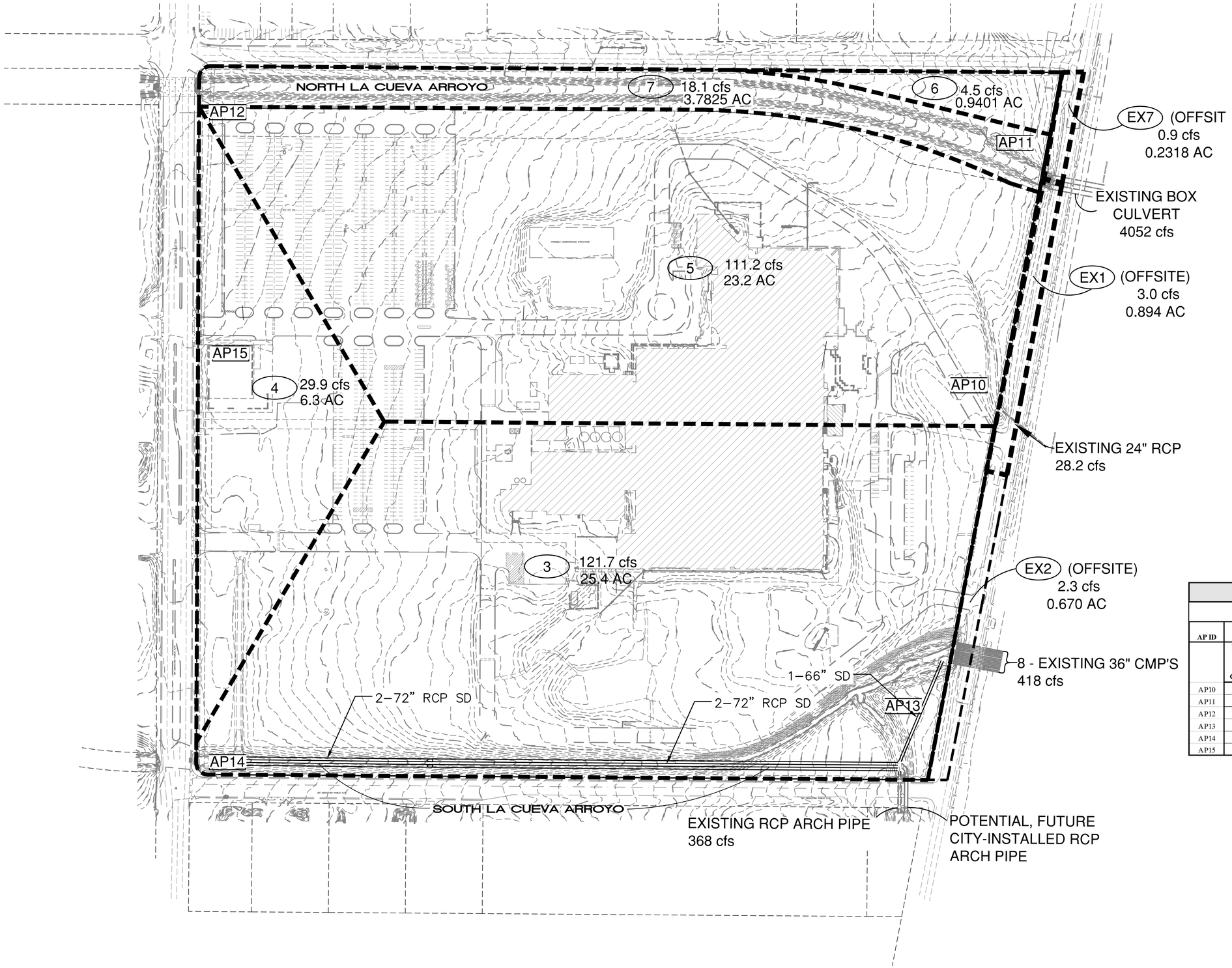

(832 cfs)
AP 205.90
AP 204.19
(705 cfs)
204.2
EGO AVE.
(3923 cfs)
AP 115.90
AMAFCA
PROPERTY
CORONADO AIRPORT
115.0
SITE
INTERSTATE 25
GLENDALE AVE.
(418 cfs)
AP 116.99
116.21
CONVENIENCE
CENTER
AP 117.27
(368 cfs)
117.22
116.2
SAN PEDRO DR.
117.2
AMERICAN
TOYOTA
AP 117.50
(152 cfs)
ALAMEDA
117.5
117.3
SIGNAL
SIGNAL
HILL
WILSHIRE
942.1
942.2
BUENA VISTA
MOTEL

APPENDIX B

Proposed Conditions



0 50 100 200 300
SCALE 1"=100'

LEGEND

XX BASIN ID

APX ANALYSIS POINT

BASIN BOUNDARY

XX.X cfs 100-YEAR 6 HOUR STORM FLOWS

PROPOSED LAND TREATMENTS

0% A
0% B
15% C
85% D

ANALYSIS POINT (AP) CONTRIBUTING BASINS

PROPOSED CONDITIONS

AP ID	Contributing Basins											Total Discharge
	N.A.A. DMP N. LA CUEVA	OFFSITE BASIN	N.A.A. DMP S. LA CUEVA	EX1	EX2	EX7	3	4	5	6	7	
AP10		X										28.2 cfs
AP11	X			X		X						4,056.2 cfs
AP12	X	X		X		X			X	X	X	4,218.2 cfs
AP13			X		X							788.5 cfs
AP14			X		X		X					910.2 cfs
AP15								X				29.9 cfs

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NORTHPOINT 25

TITAN DEVELOPMENT

PROPOSED BASIN MAP

Date: 08/12/15	No.	Revision	Date	Job No. 1686
Drawn By: GLD				PAGE
Ckd By: GLD				SH. OF

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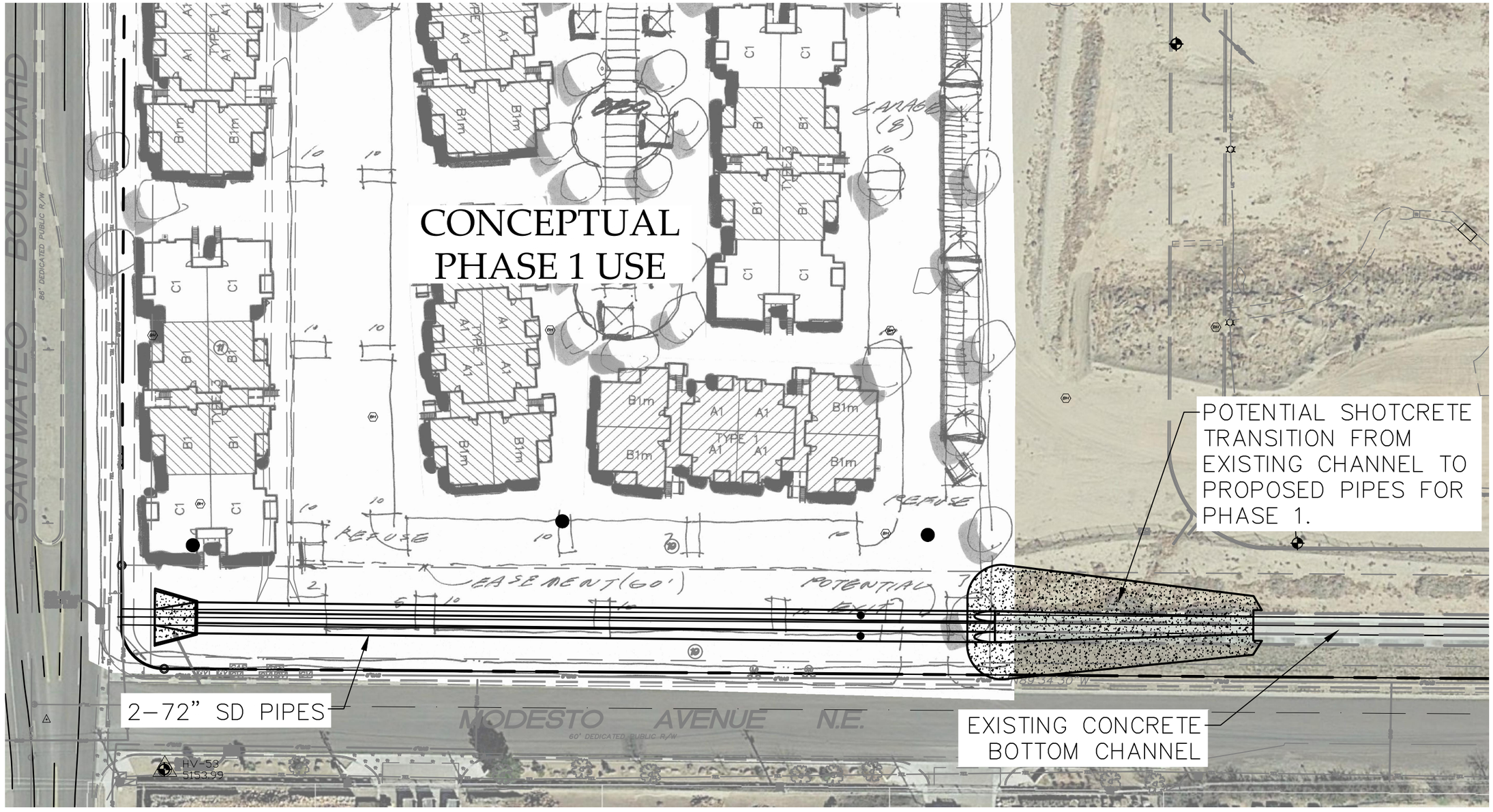

SOUTH LA CUEVA ARROYO
CONCEPTUAL FIRST PHASE

1"=60'

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CALCULATIONS: Northpoint 25 :

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

ON-SITE

AREA OF SITE: 2598866.53 SF = 59.7

100-year, 6-hour

HISTORIC FLOWS:

		Treatment SF	%
Area A	=	259886.653	10%
Area B	=	649716.6325	25%
Area C	=	649716.6325	25%
Area D	=	1039546.612	40%
Total Area	=	2598866.53	100%

DEVELOPED FLOWS:

		Treatment SF	%
Area A	=	0	0%
Area B	=	129943.3265	5%
Area C	=	259886.653	10%
Area D	=	2209036.551	85%
Total Area	=	2598866.53	100%

EXCESS PRECIP:

Precip. Zone 3

E_A = 0.66

E_B = 0.92

E_C = 1.29

E_D = 2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Historic E	=	1.56	in.	Developed E	=	2.18	in.

On-Site Volume of Runoff: V360 = E*A / 12

Historic V_{360}	=	338394	CF	Developed V_{360}	=	472344	CF

On-Site Peak Discharge Rate: $Qp = Q_{pA}A_A + Q_{pB}A_B + Q_{pC}A_C + Q_{pD}A_D / 43{,}560$

For Precipitation Zone 3

Q_{pA}	=	1.87	Q_{pC}	=	3.45
Q_{pB}	=	2.60	Q_{pD}	=	5.02

Historic Q_p	=	221.2	CFS	Developed Q_p	=	282.9	CFS

3		DESCRIPTION	South half of site
ws =	1107671 SF	=	25.4 Ac.

lculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	0%
C =	15%
D =	85%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.20 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 203027 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 121.7 cfs

4		DESCRIPTION	Western area that drains to San Mateo
ws =	272472 SF	=	6.3 Ac.

lculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	0%
C =	15%
D =	85%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.20 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 49942 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 29.9 cfs

5		DESCRIPTION	North half of site
ws =	1012764 SF	=	23.2 Ac.

lculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	0%
C =	15%
D =	85%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.20 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 185631 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 111.2 cfs

7		DESCRIPTION	North La Cueva Arroyo
ws =	164738 SF	=	3.8 Ac.

lculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	0%
C =	15%
D =	85%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.20 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 30195 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 18.1 cfs

6		DESCRIPTION	NE corner of ste, on other side of N La Cueva
ws =	40951 SF	=	0.9 Ac.

lculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	0%
C =	15%
D =	85%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.20 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 7506 CF

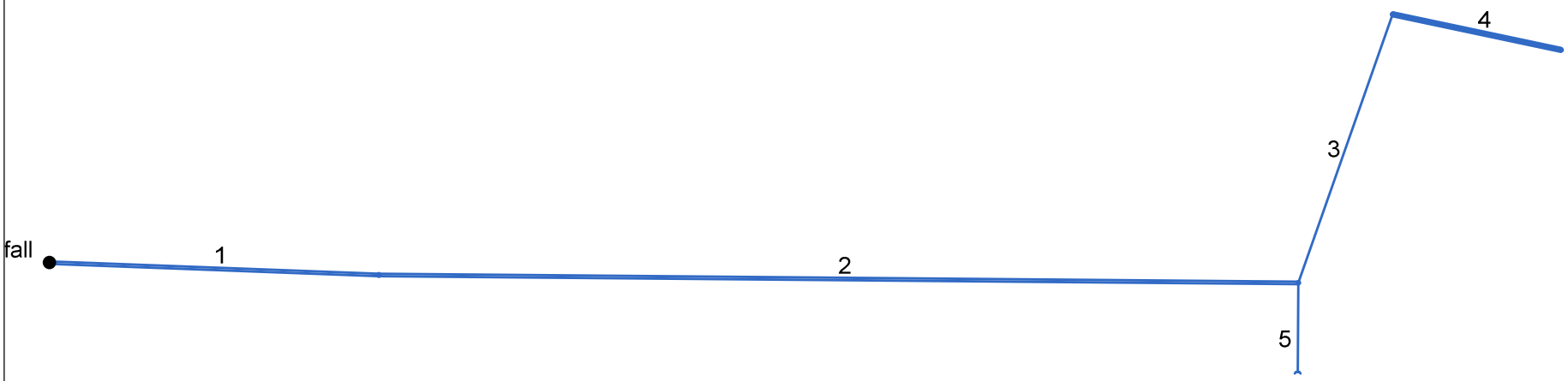
Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 4.5 cfs

PROPOSED BASIN & ANALYSIS POINT (AP) SUMMARY

Basin No.	Description	Discharge	Area (Ac.)	Allowable Discharge per Acre	AP10	AP11	AP12	AP13	AP14	AP15
3	South half of site	121.7 cfs	25.43	4.79					121.7 cfs	
4	Western area that drains to San Mateo	29.9 cfs	6.26	4.78						29.9 cfs
5	North half of site	111.2 cfs	23.25	4.78			111.2 cfs			
7	North La Cueva Arroyo	18.1 cfs	3.78				18.1 cfs			
6	NE corner of ste, on other side of N La Cueva	4.5 cfs	0.94	4.79			4.5 cfs			
EX1	Offsite - Adjoing I-25 Frontage Rd - North	3.3 cfs				3.3 cfs	3.3 cfs			
EX2	Offsite - Adjoing I-25 Frontage Rd - South	2.5 cfs						2.5 cfs	2.5 cfs	
EX6	North of La Cueva Arroyo	4 cfs								
EX7	Offsite - Adjoing I-25 Frontage Rd - North	0.9 cfs				0.9 cfs	0.9 cfs			
FSITE BAS	Offsite - East of I-25	28.2 cfs			28.2 cfs		28.2 cfs			
NAA DMP CALCULATED OFFSITE DISCHARGE RATES:										
	North La Cueva Arroyo	4,052 cfs				4052.0 cfs	4,052 cfs			
	South La Cueva Arroyo	786 cfs						786 cfs	786 cfs	
TOTAL DISCHARGE		**5162.3 CFS**	59.66		**28.2 CFS**	**4,056.2 CFS**	**4,218.2 CFS**	**788.5 CFS**	**910.2 CFS**	**29.9 CFS**

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: 1686SD-LACUEVACHANNEL 05-21-09.stm	Number of lines: 5	Date: 8/11/2015

Storm Sewers v10.50

GLD

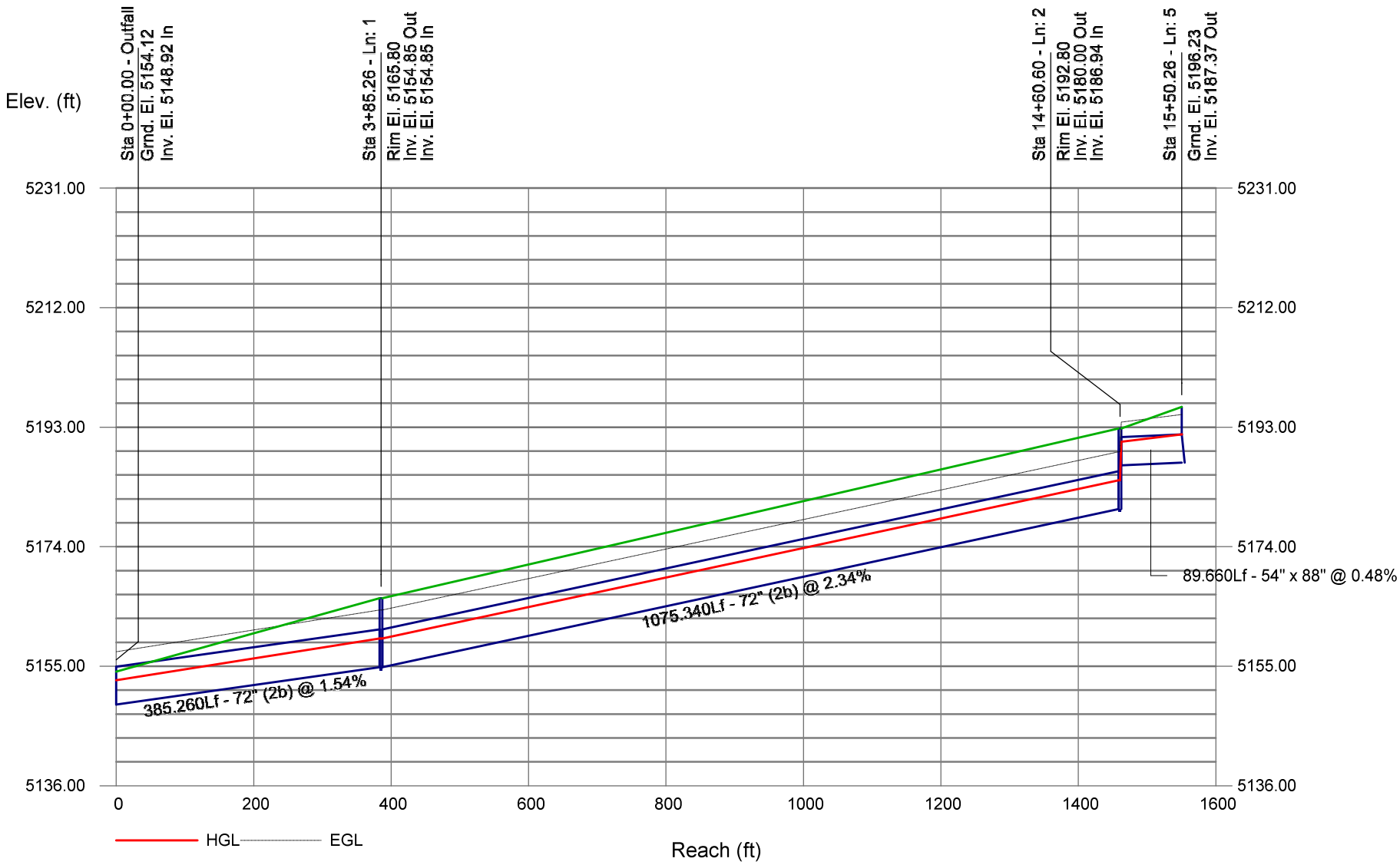
Line No.	DnStm Ln No	Line Length (ft)	Known Q (cfs)	Flow Rate (cfs)	Capac Full (cfs)	Vel Ave (ft/s)	Line Size (in)	Line Slope (%)	Invert Dn (ft)	Invert Up (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)
1	Outfall	385.260	0.00	786.00	1051.04	18.71	72(2b)	1.54	5148.92	5154.85	5152.79	5159.41	5159.41	5154.12	5165.80
2	1	1075.340	0.00	786.00	1295.56	17.05	72(2b)	2.34	5154.85	5180.00	5159.41	5184.56	5184.56	5165.80	5192.80
3	2	291.890	0.00	418.00	585.47	20.07	66	3.04	5180.50	5189.37	5184.56	5194.61	5199.49	5192.80	5197.70
4	3	200.000	418.00	418.00	1198.06	3.70	72(4b)	0.50	5189.37	5190.37	5199.49	5199.61	5199.83	5197.70	5200.00
5	2	89.660	368.00	368.00	256.15	14.20	54 x 88	0.48	5186.94	5187.37	5190.68	5191.87	5191.87	5192.80	5196.23

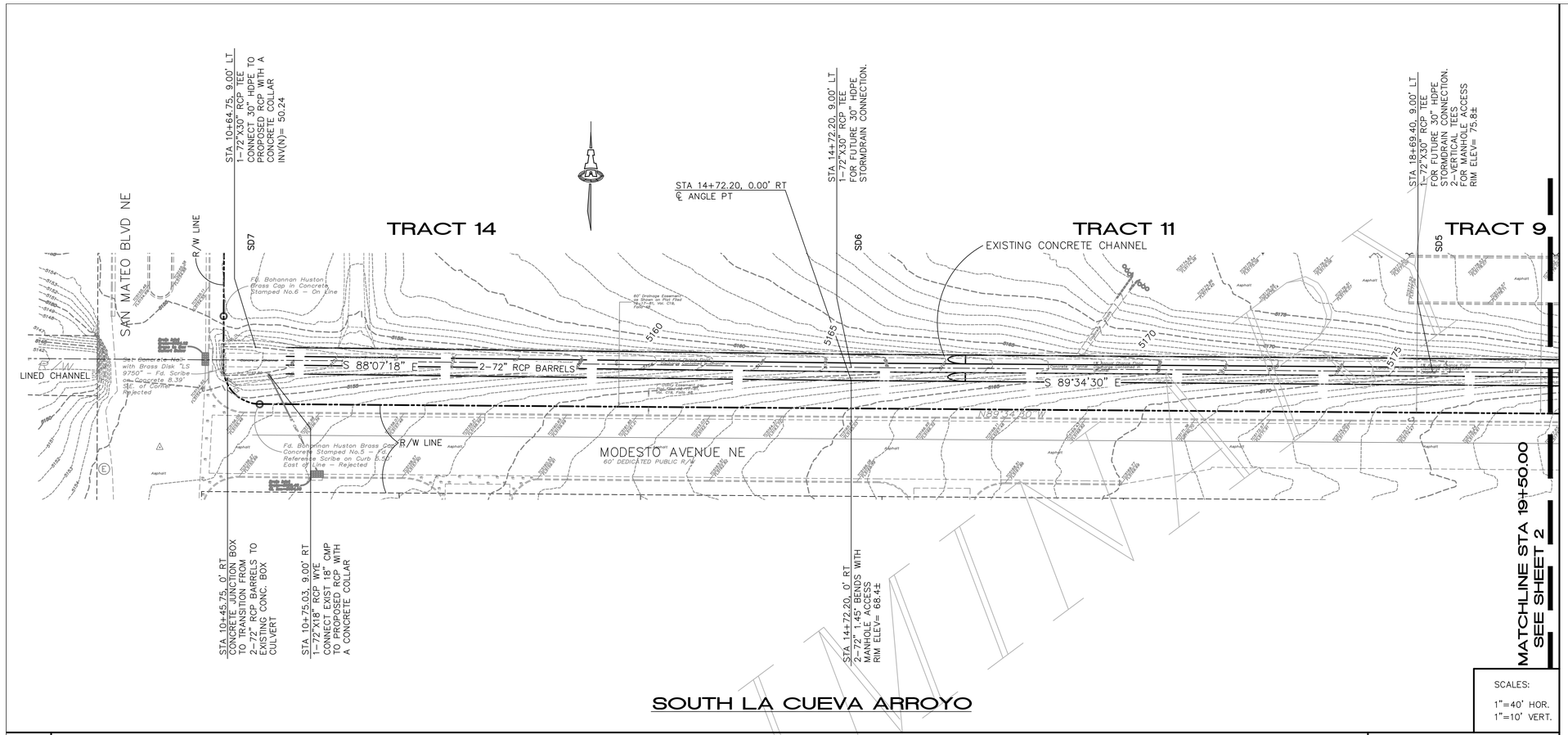
Project File: 1686SD-LACUEVACHANNEL 05-21-09.stm | Number of lines: 5 | Date: 8/11/2015

NOTES: ** Critical depth

Storm Sewer Profile

Proj. file: 1686SD-LACUEVACHANNEL 05-21-09.stm

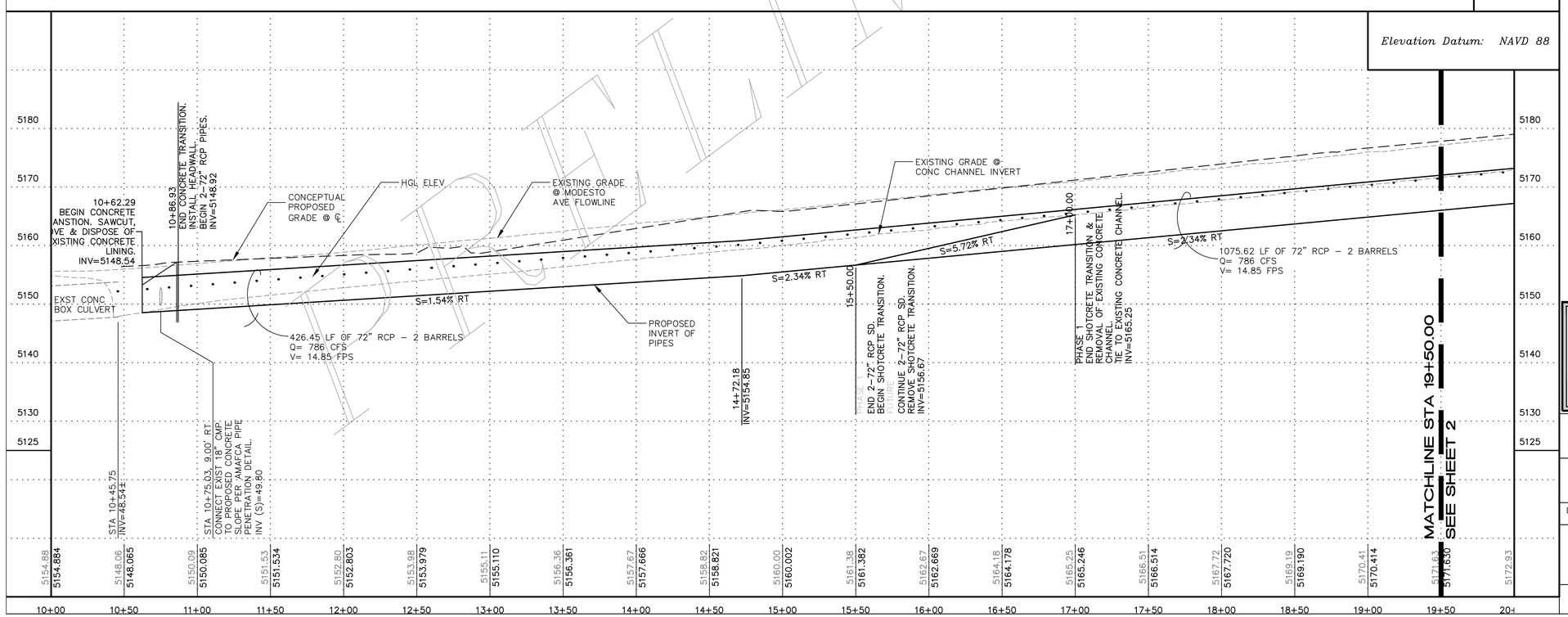




SOUTH LA CUEVA ARROYO

SCALES:
1"=40' HOR.
1"=10' VERT.

Elevation Datum: NAVD 88



AS-BUILT INFORMATION

CONTRACTOR
WORK STAKED BY — DATE
INSPECTORS ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS

ALBUQUERQUE CONTROL SURVEY/NEW MEXICO STATE HIGHWAY COMMISSION MONUMENT "I-25-11"
ELEVATION= 5209.617 (NGVD 1988)

SURVEY INFORMATION

FIELD NOTES

ENGINEER'S SEAL

PRELIMINARY
FOR REVIEW ONLY
NOT FOR CONSTRUCTION USE.

NO.	DATE	REMARKS	BY

REVISIONS

DESIGNED BY	GLD	DATE 05/28/09
DRAWN BY	dlp	DATE 05/28/09
CHECKED BY	GLD	DATE 05/29/09

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 Fax. 505-268-2632
1686 CU-301.dwg Sep 09,2015

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: NORTHPOINT 25

SOUTH LA CUEVA ARROYO

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

City Project No.	Zone Map No.	Sheet	Of
.	B-18	1	2

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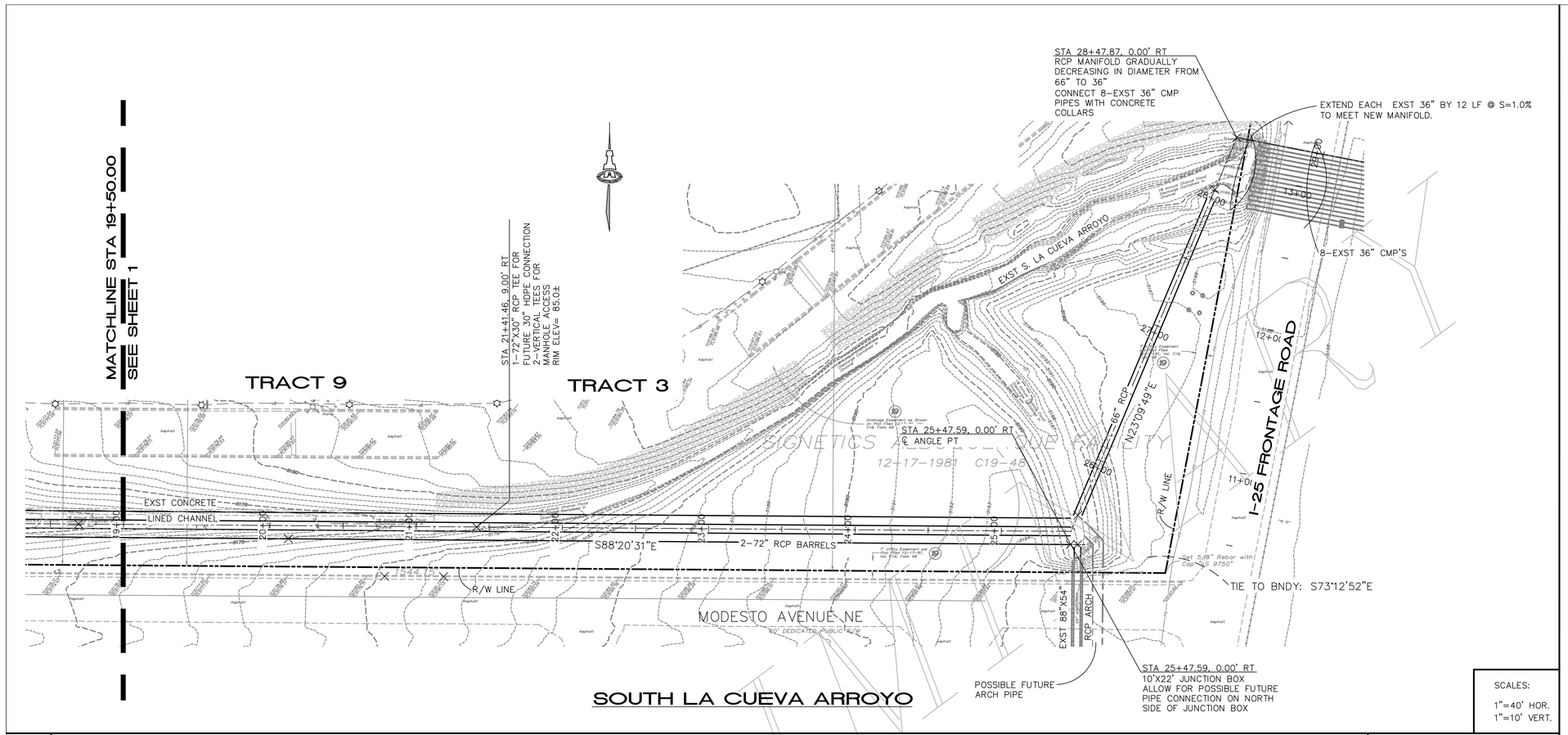

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1686 CU-301.dwg Aug 12,2015

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: NORTHPOINT 25

SOUTH LA CUEVA ARROYO

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

City Project No.	Zone Map No.	Sheet	Of
.	B-18	2	2

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