

CITY OF ALBUQUERQUE



May 23, 2006

Paul Brasher, P.E.
Brasher & Lorenz, Inc.
2201 San Pedro NE
Albuquerque, NM 87110

Re: Unser Substation Grading and Drainage Plan
Engineer's Stamp dated 5-10-06 (G10/D10A)

Dear Mr. Brasher,

P.O. Box 1293

Based upon the information provided in your submittal dated 5-11-06, the above referenced plan is approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Albuquerque

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. If you have any questions feel free to call the Municipal Development Department Hydrology Section at 768-3654 (Charles Caruso).

New Mexico 87103

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

www.cabq.gov

Sincerely,

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

Bob

C: file
Charles Caruso, DMD

G-10/D10A

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 06/22/2005)

PROJECT TITLE: PNM - UNSETT SUBSTATION ZONE MAP/DRG. FILE # G10-D10A
DRB#: _____ EPC#: 06 EPC 00133 WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT C, RINCONADA POINT #1
CITY ADDRESS: 7850 VISTA ALBARE

ENGINEERING FIRM: BRASHER & LORENZ, INC. CONTACT: PAUL BRASHER
ADDRESS: 2201 SAN PEDRO MS PHONE: 888-6088
CITY, STATE: ALBUQ. NM ZIP CODE: 87110

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

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

SURVEYOR: PRECISION SURVEYS CONTACT: _____
ADDRESS: 8414 JEFFERSON PHONE: _____
CITY, STATE: ALBUQ. NM ZIP CODE: _____

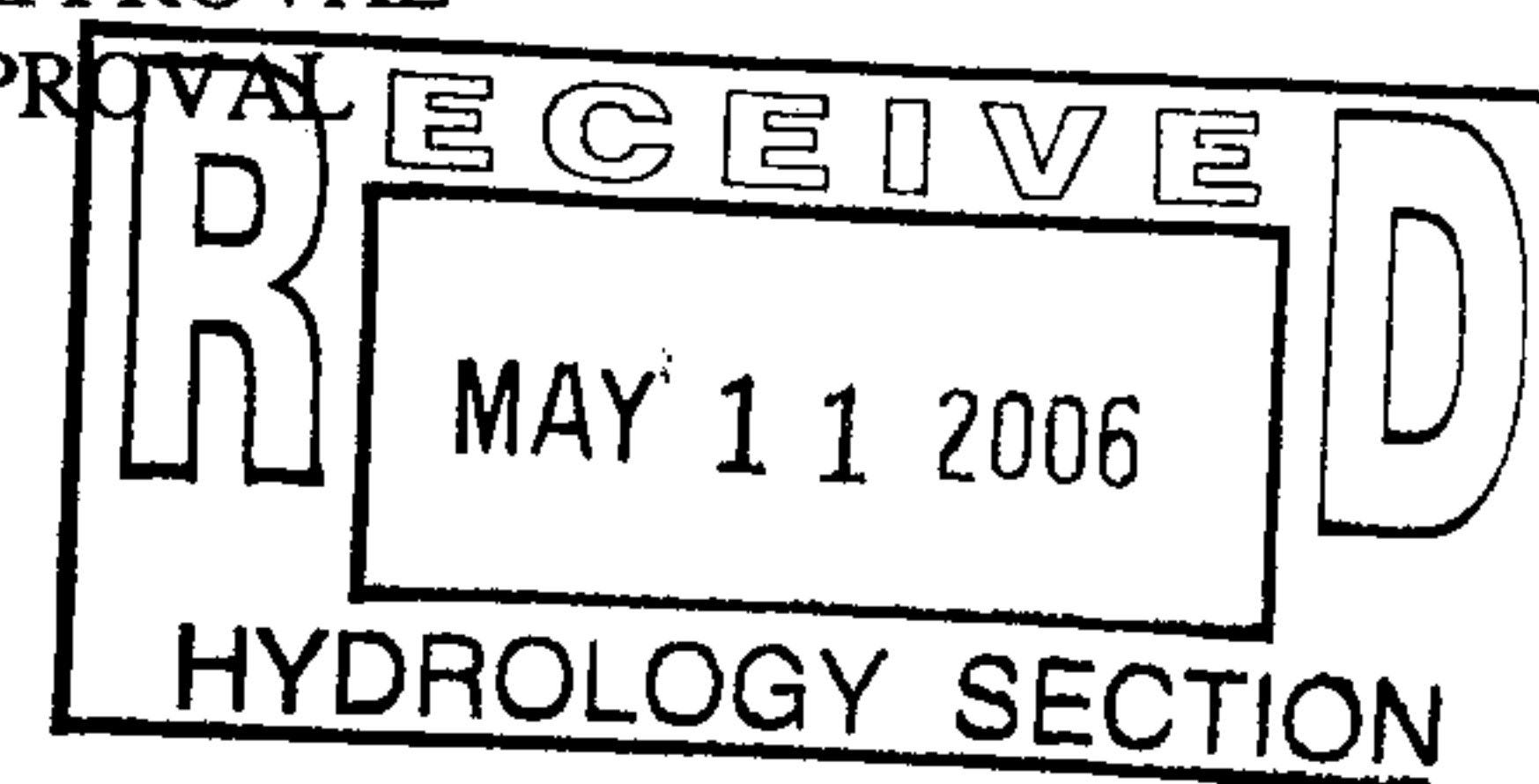
CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL
☒ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL G & D PLAN
☒ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERT (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT
☐ ENGINEER'S CERT (TCL)
☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:
☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☐ S. DEV. FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
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☐ CERTIFICATE OF OCCUPANCY (PERM)
☐ CERTIFICATE OF OCCUPANCY (TEMP)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ OTHER (SPECIFY) _____

<Resub>

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



SUBMITTED BY: [Signature] DATE: 05-10-06

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 following:

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



BRASHER & LORENZ, INC.
CONSULTING ENGINEERS

2201 San Pedro NE Bldg 1 Suite 1200 • Albuquerque, NM 87110 • Phone (505) 888-6088 • Fax (505) 888-6188 •

May 10, 2006

Kristal D. Metro
Senior Engineer, Planning Dept.
City of Albuquerque
PO Box 1293
Albuquerque, New Mexico 87102

RE: PNM UNSER SUBSTATION (G10-D10A)

Dear Ms. Metro:

We have reviewed your comments regarding our grading and drainage submittal for the PNM Unser Substation, stamp-dated 3/20/06, and have addressed them as follows:

1. We expect to pay the fee if required with this submittal.
2. The 150' x 300' PNM easement has been dimensioned on the plan.
3. The abbreviations "FDNS" refers to the proposed ground-level concrete foundations to be located within the substation yard. The legend reference on the drawing has been clarified.
4. The plan scale has been adjusted to ensure that the drawing scales as labeled.
5. The drawing has been modified to label the existing swale along the east property line of the tract. This swale is otherwise only evident in the field and by the shape of the contours. It apparently is not naturally-occurring but was constructed, presumably according to some plan that has not been discovered.
6. The substation electrical equipment will be contained in a yard enclosed by a 12' high CMU wall, with openings only for gates. The drainage intent of the yard grading is that the yard be isolated from all runoff and runoff - all precipitation falling within the yard will remain within the yard. To accomplish this, the yard area within the wall is to be graded and graveled with a slight slope downward to a depression in the north end of the yard which will serve as a retention pond. The wall openings for gates are fitted with concrete aprons that are elevated high enough relative to both the yard and the surrounding site grading that they prevent stormwater runoff from either entering or leaving the yard. While the volume of runoff retained within the yard is not great, this internal retention pond is also necessary as the grading component of PNM's standard system of secondary containment guarding against the effects of equipment failure. The grading plan therefore shows the spot elevations and proposed grading contours necessary to construct this solution. The narrative in the plan has been revised to clarify this intent.
7. As suggested by the somewhat irregular shape of the existing contours, runoff generated over a portion of the entire tract can be expected to meander in an eastward direction toward the swale, and then into the pond at the southeast

corner of the property. For drainage analysis purposes, the entire property has been divided into its relevant drainage basins. The project hydrology shown on the plan reflects the impact this project has on each of these basins. The plan has been revised to add flow direction arrows to clarify the general direction of flow within each of the respective basins and respective outfalls. As with the existing swale, the only evidence of a pond on site is the shape of the contours and a slight depression at the downstream end of the swale. The hydrology calculations of the plan report the volume of runoff expected to reach this pond under both present conditions and under otherwise present conditions after the construction of the substation project. The narrative in the plan has been revised to clarify that the difference this substation project makes with respect to runoff in the direction of the pond is an increase of about 1550 cubic feet. It would appear the original intent of the pond was to retain runoff until such time as the storm sewer system in Vista Alegre was constructed. According to as-built drawings for construction of Rinconada Point Unit 2 Subdivision, an outfall from this pond was called for to drain it to a new storm sewer system in Vista Alegre. However, no details for this outfall were provided in the plans, and the drawing making reference to this outfall pipe is not much better than schematic. The substation will occupy an easement within the presently undeveloped 11.6-acre tract. As the owner of the tract, the City will determine the ultimate development of the property. With a closed-conduit storm sewer system, including drop inlets, in the street immediately adjacent to the tract, it is unlikely that the pond will be a necessary component of any ultimate drainage solution for the property.

8. There are no design criteria and details available for this pond. The only geometric reference we have is the shape of the contours. In the field, it is evident that a pond must have been constructed, but has deteriorated and lost its original shape over the years. This pond, and the swale that drains into it, are within a City drainage easement on a City-owned tract of land. As a City pond, its condition and outfall are properly the maintenance responsibility of the City. If there ever was a piped outfall from this pond, it is not visible in the field, is likely obstructed, and is not functional. In either case, the outfall from this tract by overflow of the pond or by its piped discharge is received by the storm sewer system in Vista Alegre. The substation project does not propose anything that will change this pattern, and adds only minimally to the present outfall conditions. Attached is a photograph of the pond to illustrate its condition.

We have been granted site development plan approval by EPC and DRB. Our intent is to submit the wall drawings for building permit. We intend to begin grading by May 22 this year, and complete the project by the end of summer. If you have any questions, please contact me. Thanks for your help in this.

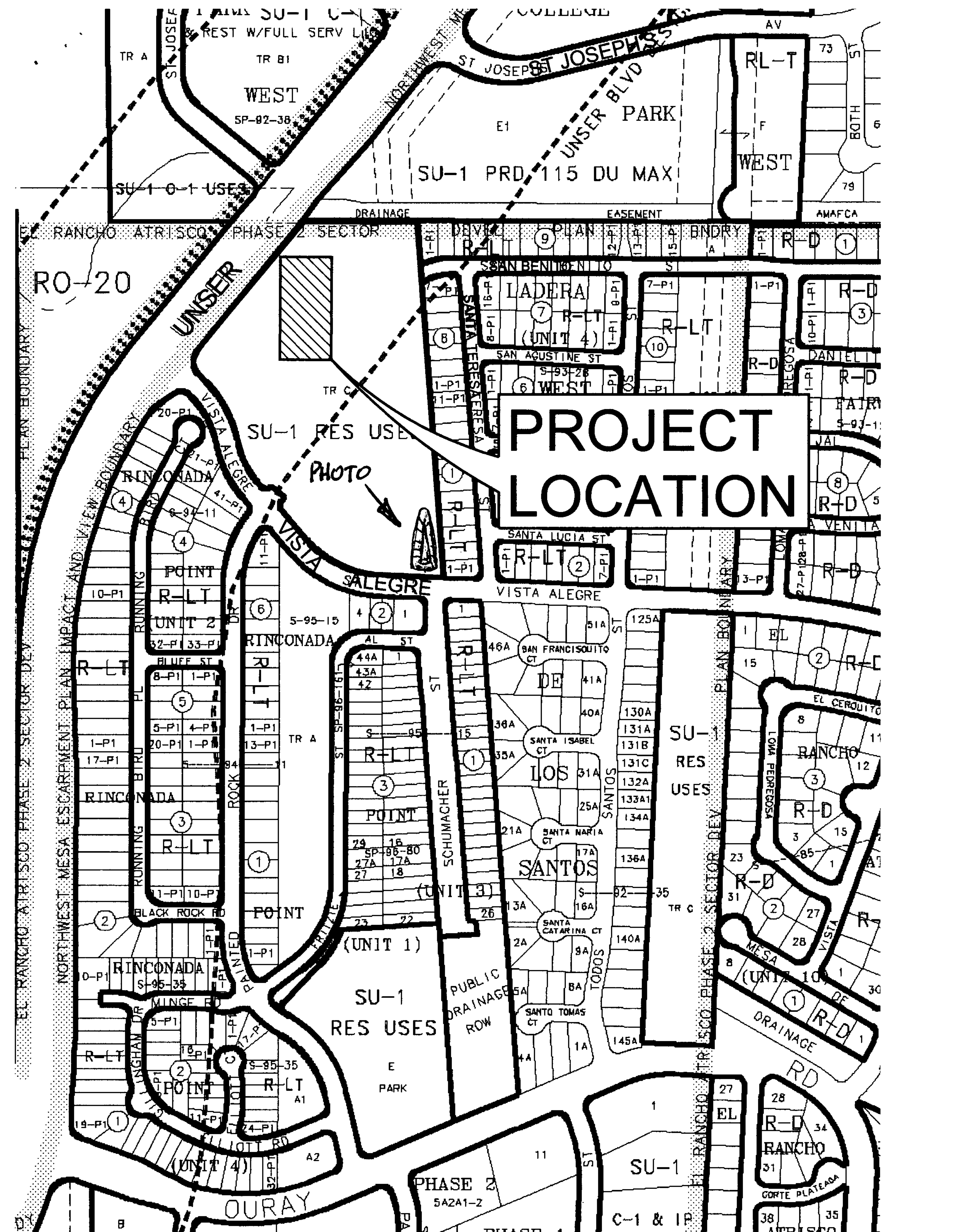
Sincerely,



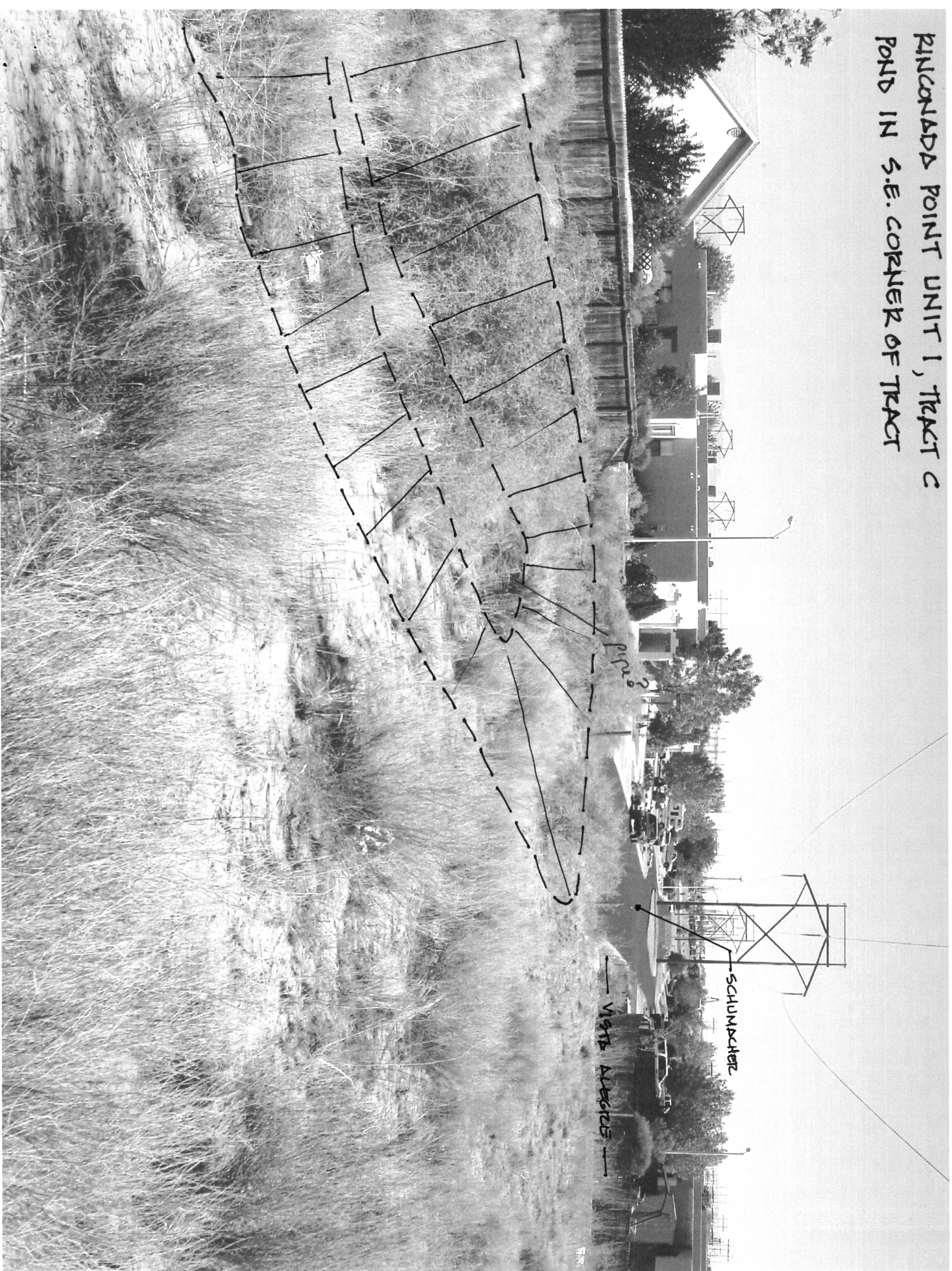
Paul Brasher, PE
Brasher & Lorenz, Inc.

aren 103 to drain down San Bruno, which
was never constructed through site

Temporary
Retention
Pond
Ladera West
Units 3 & 4
Subdivision
August 1993
Community Survey



RINCONADA POINT UNIT 1, TRACT C
POND IN S.E. CORNER OF TRACT



CITY OF ALBUQUERQUE



April 24, 2006

Paul Brasher, P.E.
Brasher & Lorenz
2201 San Pedro NE, Building 1 Suite 1200
Albuquerque, NM 87110

**Re: PNM Unser Substation, 7850 Vista Alegre Street, Site Development Plan
Engineer's Stamp dated 3-20-06 (G10-D10A)**

Dear Mr. Brasher,

Based upon the information provided in your submittal received 3-27-06, the above referenced plan is approved for Site Development Plan for Building Permit action by the DRB. However, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

- ✓ 1. A \$100 submittal fee must be paid in full prior to your next submittal.
- ✓ 2. Call out the 150' x 300' PNM easement.
- ✓ 3. What does FDNS mean? FDN? Please update your legend to include these items.
- ✓ 4. Check the plan scale; the easement widths do not scale to their defined lengths.
- ✓ 5. Show the existing swale located along the east property line. This swale is defined in the write up, but not shown on the plan.
- ✓ 6. More detail must be provided for the proposed yard. The write up says the site runoff will stay within the yard; how will this be done? You propose (within the write up) small depressions, or ponds, to be placed within the yard. What is the purpose of these ponds? Water harvesting for landscaping? Please provide more information.
7. Clearly define the quantity of flow that drains to the existing pond. Where does the rest of the flow drain?
8. Provide geometric detail for the existing pond. What will the proposed site improvements do to the flow entering the existing pond? If the pond outfall is currently blocked, you will need to rectify this situation with this project.

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: PNM - UNSER SUBSTATION ZONE MAP/DRG. FILE # G-10/D10A
DRB#: _____ EPC#: 06 EPC 00133 WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT C, RINCONADA POINT #1
CITY ADDRESS: 7850 VISTA ALEGRE

ENGINEERING FIRM: BRASHER & LORENZ, INC.
ADDRESS: 2201 SAN PEDRO NE
CITY, STATE: ALBUQUERQUE, NM

CONTACT: PAUL BRASHER
PHONE: 888-6088
ZIP CODE: 87110

OWNER: CITY OF ALBUQUERQUE
ADDRESS: P.O. BOX 1293
CITY, STATE: ALBUQUERQUE, NM

CONTACT: _____
PHONE: _____
ZIP CODE: 87102

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

SURVEYOR: PRECISION SURVEYORS
ADDRESS: 8414 JEFFERSON
CITY, STATE: ALBUQ. NM

CONTACT: _____
PHONE: _____
ZIP CODE: 87113

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL
☒ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL G & D PLAN
☒ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERT (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT
☐ ENGINEER'S/ARCHITECT'S CERT (TCL)
☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ OTHER

still need \$100 fee!

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☒ S. DEV. FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY (PERM)
☐ CERTIFICATE OF OCCUPANCY (TEMP)
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☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ OTHER (SPECIFY) _____

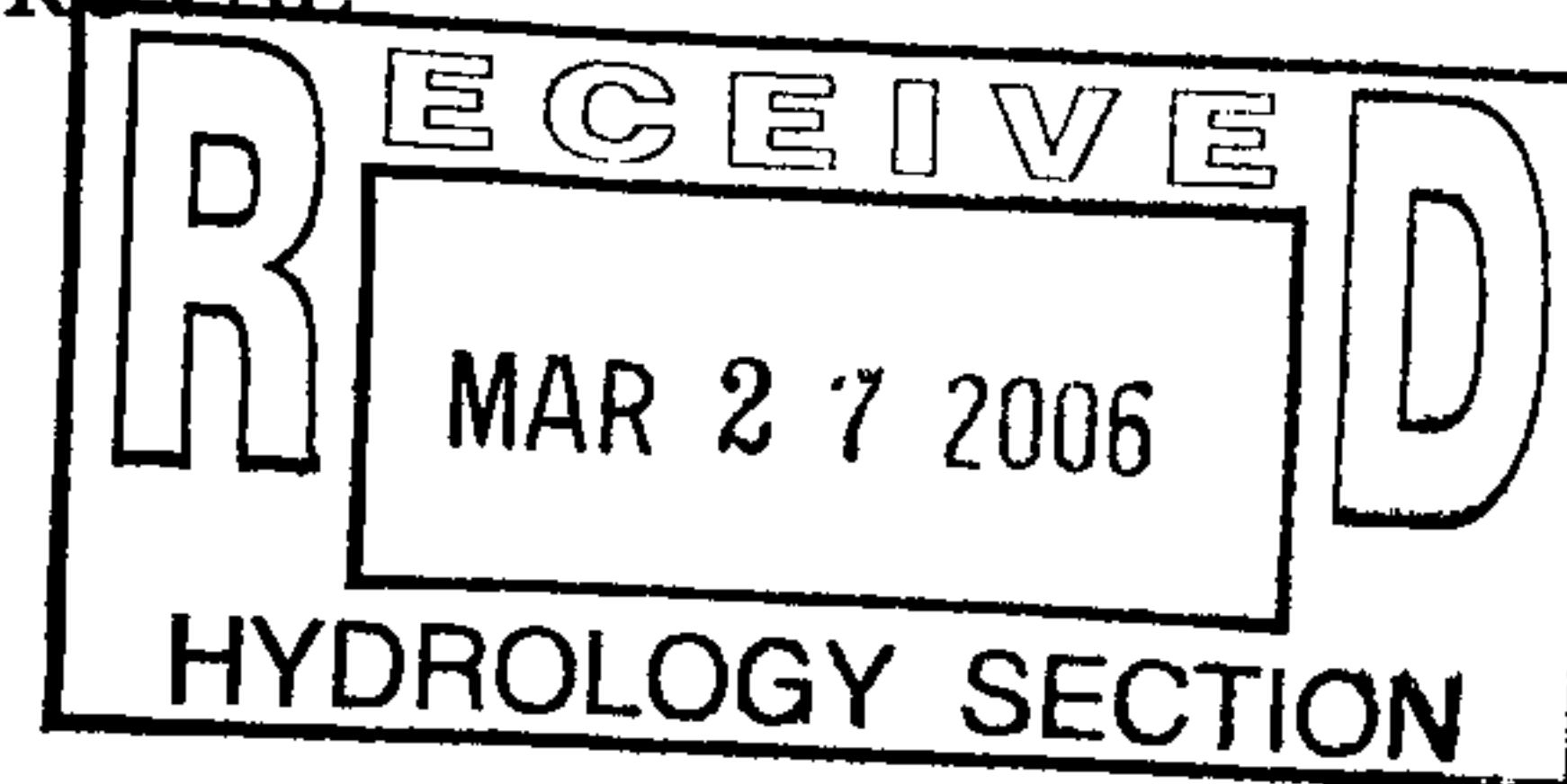
WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☒ YES
☐ NO
☐ COPY PROVIDED

SUBMITTED BY: _____

Paul Brasher
PAUL BRASHER

DATE: 03-24-06



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 following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
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DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 06/22/2005)

PROJECT TITLE: PNM - UNSER SUBSTATION ZONE MAP/DRG. FILE # G-10
DRB#: _____ EPC#: _____ WORK ORDER#: 7730

LEGAL DESCRIPTION: TRACT C, RINCONADA POINT #1
CITY ADDRESS: 7850 VISTA ALEGRE

ENGINEERING FIRM: BRASHER & LORENZ, INC. CONTACT: PAUL BRASHER
ADDRESS: 2201 SAN PEDRO BLVD. NE PHONE: (505) 888-6088
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: 87110

OWNER: CITY OF ALBUQUERQUE CONTACT: _____
ADDRESS: P.O. BOX 1293 PHONE: _____
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: _____

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

SURVEYOR: PRECISION CONTACT: _____
ADDRESS: 8414 JEFFERSON PHONE: _____
CITY, STATE: ALBUQ NM ZIP CODE: _____

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

TYPE OF SUBMITTAL:	CHECK TYPE OF APPROVAL SOUGHT:
<input type="checkbox"/> DRAINAGE REPORT	<input type="checkbox"/> SIA/FINANCIAL GUARANTEE RELEASE
<input type="checkbox"/> DRAINAGE PLAN 1 st SUBMITTAL	<input type="checkbox"/> PRELIMINARY PLAT APPROVAL
<input checked="" type="checkbox"/> DRAINAGE PLAN RESUBMITTAL	<input type="checkbox"/> S. DEV. PLAN FOR SUB'D APPROVAL
<input type="checkbox"/> CONCEPTUAL G & D PLAN	<input checked="" type="checkbox"/> S. DEV. FOR BLDG. PERMIT APPROVAL
<input checked="" type="checkbox"/> GRADING PLAN	<input type="checkbox"/> SECTOR PLAN APPROVAL
<input type="checkbox"/> EROSION CONTROL PLAN	<input type="checkbox"/> FINAL PLAT APPROVAL
<input type="checkbox"/> ENGINEER'S CERT (HYDROLOGY)	<input type="checkbox"/> FOUNDATION PERMIT APPROVAL
<input type="checkbox"/> CLOMR/LOMR	<input checked="" type="checkbox"/> BUILDING PERMIT APPROVAL
<input type="checkbox"/> TRAFFIC CIRCULATION LAYOUT	<input type="checkbox"/> CERTIFICATE OF OCCUPANCY (PERM)
<input type="checkbox"/> ENGINEER'S CERT (TCL)	<input type="checkbox"/> CERTIFICATE OF OCCUPANCY (TEMP)
<input type="checkbox"/> ENGINEER'S CERT (DRB SITE PLAN)	<input type="checkbox"/> GRADING PERMIT APPROVAL
<input type="checkbox"/> OTHER	<input type="checkbox"/> PAVING PERMIT APPROVAL
	<input type="checkbox"/> WORK ORDER APPROVAL
	<input type="checkbox"/> OTHER (SPECIFY _____)

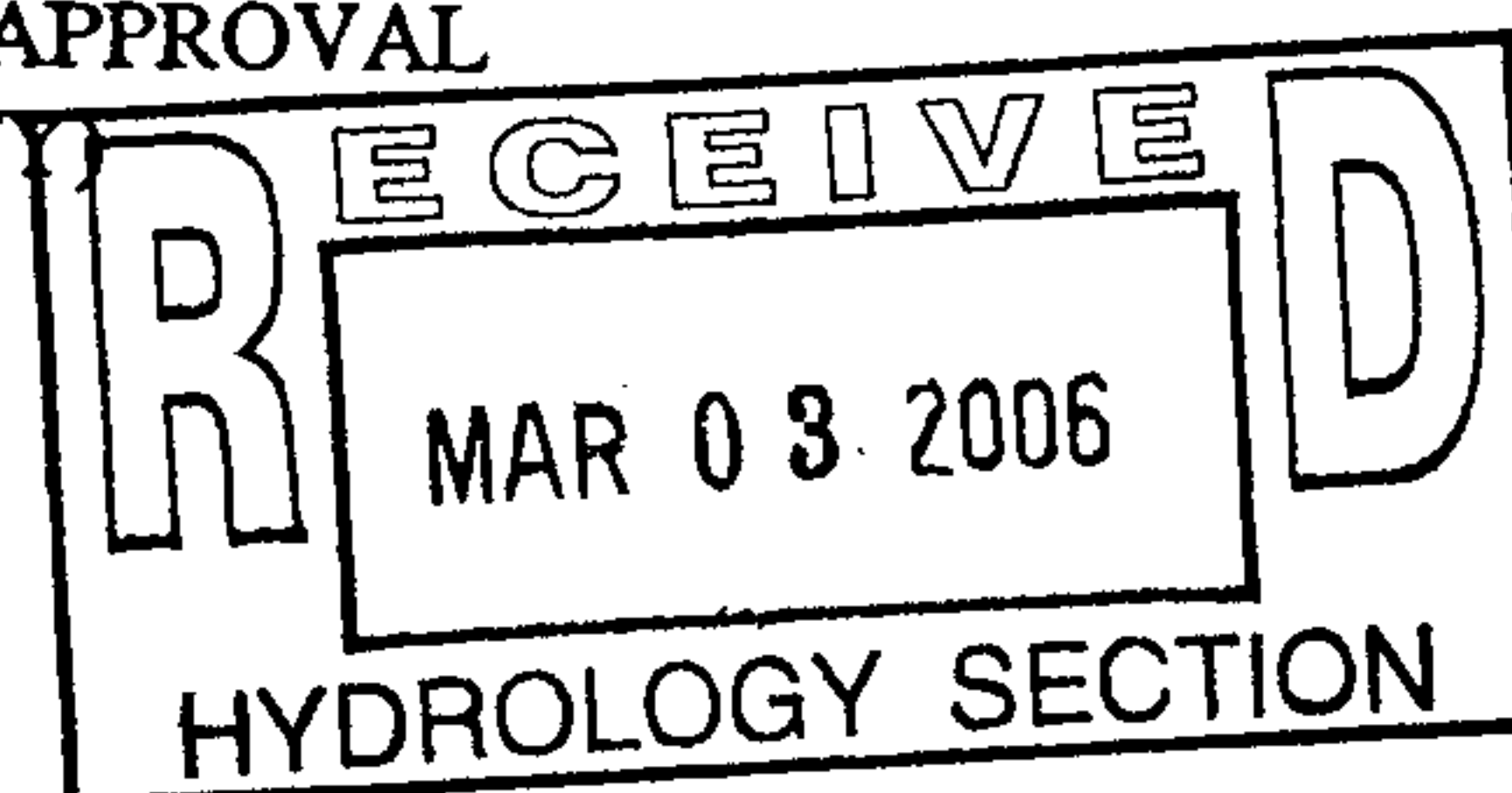
Need Fee \$100.00

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

SUBMITTED BY: PAUL BRASHER DATE: 03-03-06

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DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: PNM - UNSER SUBSTATION ZONE MAP/DRG. FILE # G-10/D10A
DRB#: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT C, RINCUNADA POINT #1
CITY ADDRESS: 7850 VISTA ALLEGRE

ENGINEERING FIRM: BRASHER & LORENZ, INC.
ADDRESS: 2201 SAN PEDRO NW
CITY, STATE: ALBUQUERQUE NM

CONTACT: PAUL BRASHER
PHONE: 888-6086
ZIP CODE: 87110

OWNER: CITY OF ALBUQUERQUE
ADDRESS: P.O. BOX 1293
CITY, STATE: ALBUQUERQUE NM

CONTACT: _____
PHONE: _____
ZIP CODE: _____

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
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ZIP CODE: _____

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CITY, STATE: ALBUQUERQUE NM

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ADDRESS: _____
CITY, STATE: _____

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☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ OTHER

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☐ CERTIFICATE OF OCCUPANCY (TEMP)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ OTHER (SPECIFY)

Need \$100.00 Fee

WAS A PRE-DESIGN CONFERENCE ATTENDED:

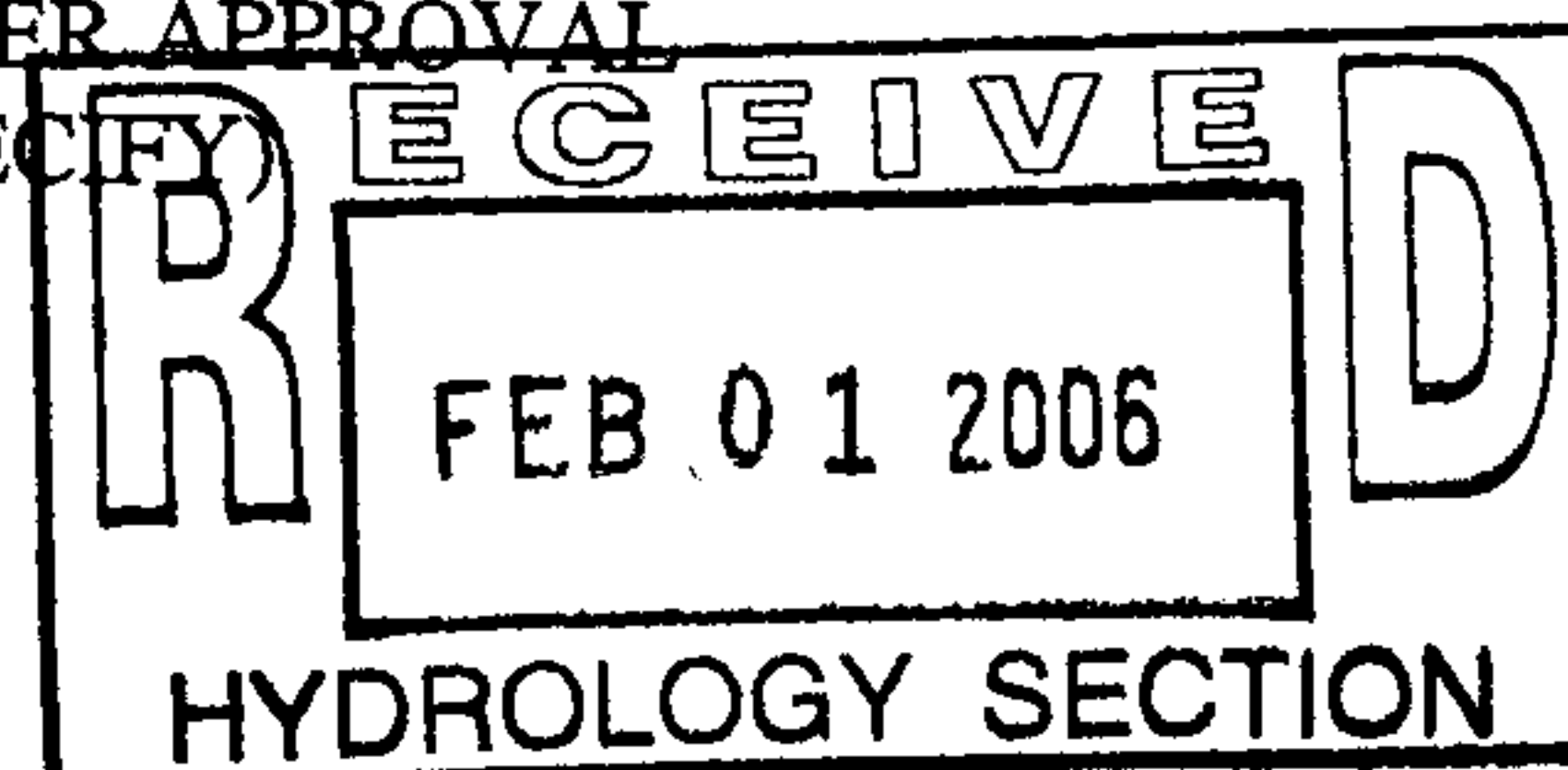
- ☒ YES
☐ NO
☐ COPY PROVIDED

SUBMITTED BY: Paul Brasher

DATE: 01-31-06

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FORM DRWS: DRAINAGE REPORT / WATER & SANITARY SEWER AVAILABILITY
THIS FORM IS REQUIRED WITH THE DEVELOPMENT REVIEW BOARD APPLICATION
FOR MAJOR SUBDIVISIONS AND SITE DEVELOPMENT PLANS.

PROJECT NAME: PNM Unser Substation -

AGIS MAP # G-10

LEGAL DESCRIPTIONS: Rinconada Point
Unit 1
Tract C

X **DRAINAGE REPORT**

A drainage report, as per the Drainage Ordinance, was submitted to the City of Albuquerque Public Works Department, Hydrology Division (2nd Floor Plaza del Sol) on 2/1/06 (date).

[Signature]
Applicant/Agent

2-1-06
Date

[Signature]
Hydrology Division Representative

2/1/06
Date

✓ **WATER AND SEWER AVAILABILITY STATEMENT**

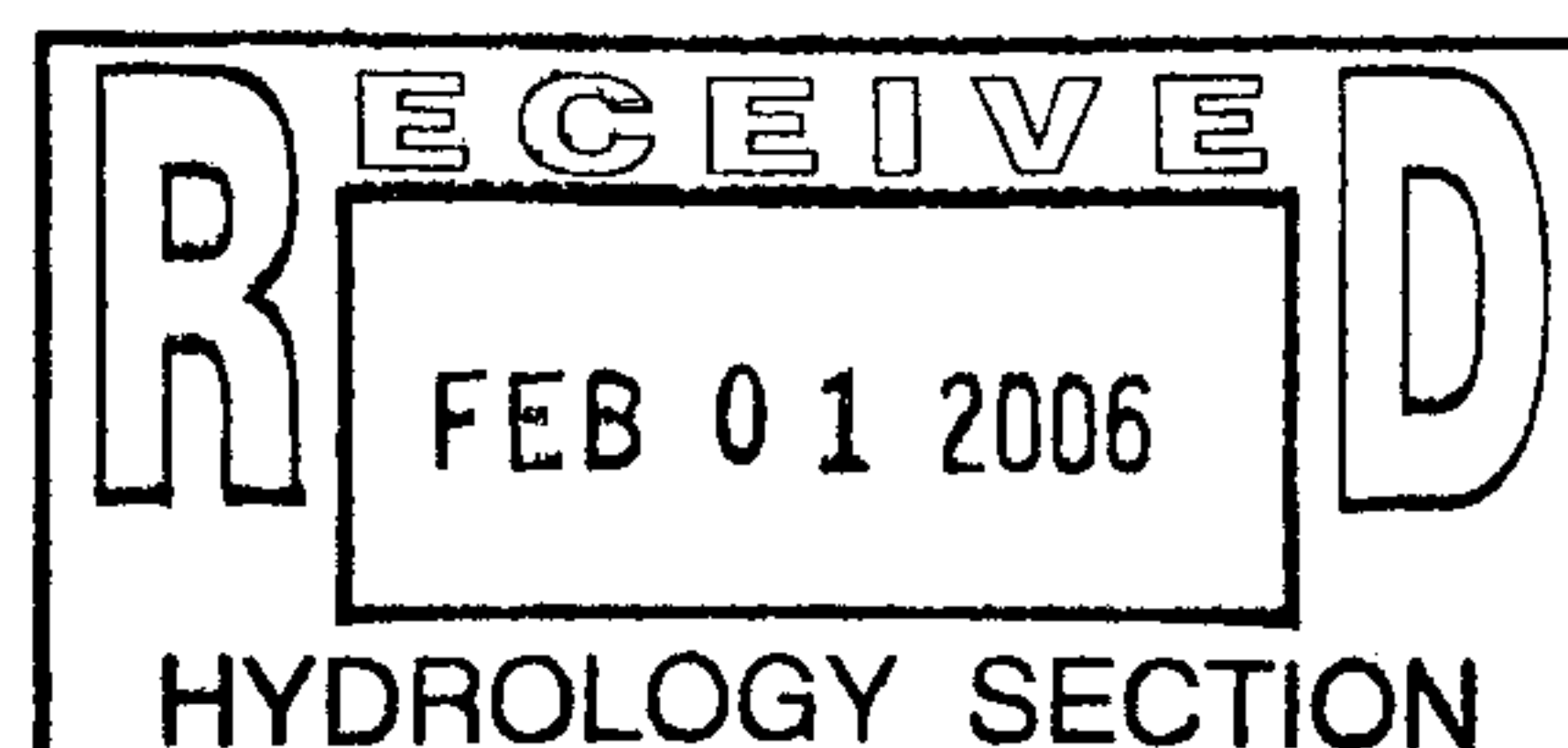
A Water and Sewer Availability Statement for this project was requested from the City of Albuquerque Utilities Development Division (2nd floor, Plaza del Sol) on 1-30-06 (date).

[Signature]
Applicant/Agent Manuel Barrera
[Signature]
Utilities Division Representative

1-30-06
Date

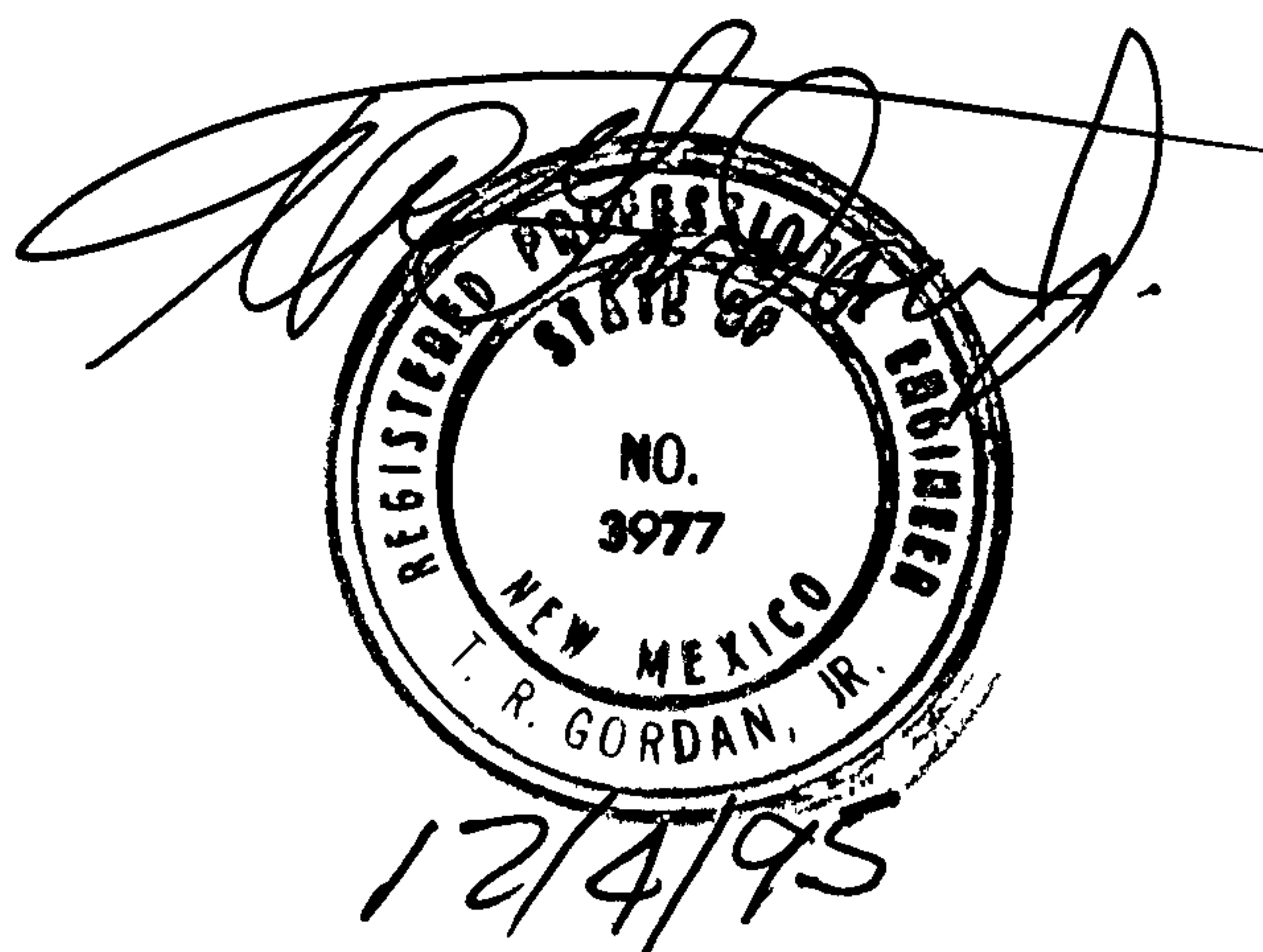
1-30-06
Date

PROJECT # _____



RINCONADA POINT UNIT 4

DRAINAGE REPORT



DECEMBER 4, 1995

**PREPARED BY
GORDAN AND ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 2467
SANTA FE, NEW MEXICO 87504
PH (505) 982-2587 FAX (505) 982-3906**

DEC - 4

G-10/D010

**RINCONADA UNIT 4
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**AHYMO OFF-SITE FLOW OUTPUT: 100 YEAR STORM
OUTPUT FROM RINCONADA POINT UNIT 3: DRAINAGE REPORT**

APPENDIX 5

1. Purpose and Scope

This drainage report for Rinconada Point Unit 4 was prepared to meet the drainage requirements of the City of Albuquerque, New Mexico. It was based on the previously completed report for Rinconada Point Unit 3 and outlines the impacts the proposed Unit 4 development will have on local drainage and the plans for the associated conveyance system. The proposed development of Rinconada Unit 4 covers approximately 9.37 acres to be subdivided into 56 duplex lots.

Unit 4 was previously zoned for Commercial Development; it is now zoned RLT. The site occupies the northeast corner of the intersection of Unser Boulevard and Ouray Road N.W.. An HOA Tract on the eastern boundary occupies 4.56 acres.

2. Site Description and History

Rinconada Point Unit 4 is legally described as Tract A Rinconada Point Unit 1 Subdivision. One Pedestrian Easement is located in the northwest corner connecting Minges Rd. N.W. with Unser Boulevard.

The site slopes approximately 3.9% to the east; the soil type is Blue point Loamy Sands (BCC) as described by the Soil Conservation Service.

The site previously drained as sheet flow and through a segment of an arroyo to Painted Rock Drive, the eastern boundary. Runoff then entered the storm sewers through six catch basins. Previous drainage plans include a design for a detention pond west of the catch basins on Painted Rock Drive to be drained by a 30" Storm Sewer routing flow under Painted Rock Drive. Proposed site grading will divide Unit 4 into two drainage basins at Elliot Rd. N.W. Station 7+00. Grading will route flow to the streets, into six existing catch basins on Painted Rock Drive, two proposed catch basins at Elliot Rd. N.W. Station 0+70 and a small detention pond located in the north east HOA Tract. Double Type A Storm Inlets on both sides of Elliot Rd. N.W. will route runoff, via a 24" storm sewer, to the existing 30" storm sewer. The proposed catch basins are not designed to capture all runoff, but to reduce the flow entering the existing catch basins on Painted Rock Drive to a value below the value for total clogged flow (59.16 cfs). The eastern portion of the lots on the east side of Elliot Ct. will drain to the north eastern HOA Tract where runoff will be detained in a small pond. The runoff which previously drained through the arroyo segment will be routed to the streets and the arroyo filled to allow lot development. Off-site runoff does not enter Unit 4, Runoff modeled as off-site flow for Unit 3 originating to the west of Unser Boulevard flows to existing catch basins on Unser Boulevard and into existing catch basins on Ouray Road. Reports for Tracts 6-A and 7-A-1 of Ladera West Units 3 and 4 and Rinconada Unit 3 address off site flow surrounding Rinconada Unit 4; the proposed development will not alter these plans. ✓

The Flood Insurance Rate Map (FIRM) covering the southern portions of Tracts 6-A and 7-A-1 has been revised by FEMA eliminating the flood hazard area along the small natural channel. ✓

3. Design Criteria

A. Flood Control Regulations

The drainage plan for Rinconada Unit 4 has been designed to comply with AMAFCA Resolution 80-15, which requires that proposed development projects be designed such that no flooding of private properties will occur during any storm up to and including the 100 year frequency event. This drainage plan has been designed to comply with current "City of Albuquerque Drainage Ordinance" and Chapter 22 of the Development Process Manual (DPM), and subsequently adopted general policies for the City of Albuquerque.

1. 100-year storm:
 - a. Storm water flow depth not to exceed the top of curb in any street.
 - b. Jump depth to be contained within right-of-way.
2. 10-year storm:
 - a. Local street-velocity times depth less than 6.5
 - b. Arterial streets:
 1. Flow not to exceed a depth of 0.50
 2. Velocity times depth less than 6.5
 3. One driving lane in each direction free of storm water

B. Engineering Parameters

In accordance with AMAFCA criteria, all hydrologic analysis are based on the 100-year frequency, 6-hour duration storm, as represented in section 22.2, Hydrology, of the "Development Process Manual, Volume 2, Design Criteria for the City of Albuquerque, New Mexico, January 1993". Ten-year, 6-hour values were also used for subcatchments, in accordance with city drainage policies regarding street flow.

The four rainfalls pertinent to the study are as follows:

	<u>10-Year</u>	<u>100-Year</u>
One-hour	1.26"	1.87"
Six-hour	1.47"	2.20"

4. Computational Procedures

Hydrological computations were performed by the AHYMO Computer Program developed by AMAFCA (January 1994 Version). The input data and the resulting runoff for the 10 year storm are presented in Appendix 1. Input and runoff for the 100 year storm are presented in Appendix 2. An AHYMO Hydrology Summary Table is in Appendix 4.

Times of concentration were estimated using the Upland Method and then converted to times to peak (Lg), in accordance with Section 22.2 DPM for the City of Albuquerque. Time of concentration is 12 minutes.

Elliot Rd. N.W., Elliot Ct. N.W., Gillingham Dr. N.W. and Minges Rd. N.W. are 28 feet face to face, Painted Rock Drive is 40 feet face to face. All streets slope 2% crown to gutters. Curb and gutters will be in accordance with City of Albuquerque Standard Details. Street cross sections were input using shot and elevation data for a typical street cross section, elevations for water surfaces were computed by HEC-2 computer software and water surface profiles created by Eagle Point Software. Detailed Reports and cross sections showing the water surfaces are in Appendix 3, a Street Hydraulics Summary Table is in Appendix 4. The street models were designed for flows without the proposed catch basins on Elliot Rd. N.W.. Street models were created for Elliot Rd. N.W. station 0+50, Minges Rd. N.W. station 11+75 (Station 0+00: Water Surface Profile Detailed Report), Elliot Ct. N.W. station 0+50 and Painted Rock Drive station 26+00 (Station 3+79: Water Surface Profile Detailed Report).

5. Off-site Drainage

Local off-site drainage does not enter Rinconada Unit 4, and the proposed development will not alter off-site drainage presented in the drainage plan for Rinconada Unit 3. Runoff from west of Unser Boulevard will enter catch basins on Unser Boulevard and Ouray Road. Runoff from Rinconada Unit 1, sub-basins 114.01 and 114.02, was included in the on-site model for Unit 4 to determine the total runoff routed to Painted Rock Drive N.W.. Runoff routed to Painted Rock Drive does not enter Unit 4; it is intercepted by the six existing catch basins on Painted Rock Drive. All off-site runoff is routed through existing storm sewers. Off-site flow from the Unit 3 Drainage Report is presented in Appendix 5.

6. On-site Drainage

Unit 4 is the last unit proposed for development in the Rinconada Point subdivision. Nomenclature for individual drainage basins follows the configuration of the Rinconada Unit 3 Drainage Plan. On site flow includes all of Unit 4 and drainage basins 114.01 and 114.02 of Rinconada Point Unit 1. The modeled drainage basins are shown on the Drainage Plan.

Flow at the intersection of Minges Rd. N.W. and Painted Rock Drive totaled 11.39 cfs. Flow at the intersection of Elliot Rd. N.W. and Painted Rock Drive including lots accessed by Elliot Ct. N.W. totaled 24.96 cfs. Runoff routed to Painted Rock Drive and to the six existing

catch basins including basins 114.01 and 114.02 in Unit 1 total 53.29. The six existing catch basins were designed for a total flow of 97.00 cfs. After a clogging factor of 0.60 was applied this value was lowered to 59.16 per Unit 1 plans. The two catch basins, Double Type A, to be built on Elliot Rd. N.W. will capture 22.73 cfs. Runoff will be routed to a 24" storm sewer reducing flow to the six existing catch basins to 55.52 cfs. A Storm Drain Design Summary Table is in Appendix 4. The 24" storm sewer will connect to the existing 30" storm sewer. At manhole #3, station 28+21.84 on Painted Rock Drive flow from both the six existing catch basins and the two proposed catch basins will enter a 54" storm sewer and will be routed to a 60" storm sewer beneath Ouray Boulevard.

Runoff from the eastern portion of the lots on the east side Elliot Ct. N.W. will drain to the east to the existing HOA Tract. The pond was designed to detain a maximum volume of 3072 cubic feet. 1.3 cfs will flow into the pond from the lots surrounding the court. The pond will drain via a pond outlet structure in accordance with City of Albuquerque standard details into the existing 30" storm sewer.

Flow from Unit 1,2 and 3 routed through the detention pond, basin 109.01, located in the southeast corner of the Rinconada Point subdivision totals 130 cfs. 100 year peak outflow exiting the pond totals 15.88 cfs.

Total combined flow from Painted Rock Drive, Unit 4 and the outflow from the detention pond to be discharged to the Ouray Boulevard Storm Sewer will total 94.13 cfs.

7. Erosion Control

Control of excessive soil erosion into city streets and drainage improvements during construction will be accomplished by use of temporary lot line (water-trap) berms. The lot line berms will be windrowed into place following mass grading operations and left in place until each home is constructed and sold.