CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

February 26, 2016

Scott Steffen, PE
BOHANNAN-HUSTON, INC.
7500 Jefferson Street NE Courtyard I
Albuquerque, NM 87109

RE: **Wilderness Cañon at High Desert (F23D012)**
Grading & Drainage Plan, Engineer Stamp Date 2/18/16
Offsite Basin Analysis and DRC/WO sheets 11-17 (Stamp 2/22/16)
Drainage Report Dated 8/9/15

Dear Mr. Steffen,

Based upon the information provided in your submittal received 2/18/16 and 2/22/16, the above referenced plan is approved for for ESC Permit (Grading Permit). Prior to Building Permit approval, Engineer Certification per the DPM checklist will be required.

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

PO Box 1293

Albuquerque

New Mexico 87103

Sincerely,

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

Orig: Drainage file
c.pdf Addressee via Email

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

February 22, 2016

Scott Steffen, PE
BOHANNAN-HUSTON, INC.
7500 Jefferson Street NE Courtyard I
Albuquerque, NM 87109

RE: **Wilderness Cañon at High Desert (~~E12D012~~ F23)**
Grading & Drainage Plan, Engineer Stamp Date 2/18/16
Offsite Basin Analysis and DRC/WO sheets 11-~~17~~ 16 ~~(not stamped)~~ 2/22/16 RTH
Drainage Report Dated 8/9/15

Dear Mr. Steffen,

& 2/26/16 RTH

Based upon the information provided in your submittal received 2/18/16, the above referenced plan is approved for for ESC Permit (Grading Permit). Prior to Building Permit approval, Engineer Certification per the DPM checklist will be required.

The offsite grading plans issued thru the DRC process will need to be stamped and must be used for the Engineer's Certification.

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

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Sincerely,

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

Orig: Drainage file
c.pdf Addressee via Email

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: WILDERNESS CANON SUBDIVISION AT HIGH DESERT Building Permit #: _____ City Drainage #: F23/D012

DRB#: 1004989 EPC#: _____ Work Order#: _____

Legal Description: TRACT A-1 WILDERNESS CANON AT HIGH DESERT

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: SCOTT STEFFEN

Address: 7500 JEFFERSON ST NE COURTYARD I ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: SSTEFFEN@BHINC.COM

Owner: MESA VERDE DEVELOPMENT Contact: SCOTT SCHIABOR

Address: 8300 CARMEL AVE NE ALBUQUERQUE NM 87122

Phone#: 505-828-9900 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

X HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
X GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

X OTHER (SPECIFY) supplemental drainage report

IS THIS A RESUBMITTAL?: ____ Yes X No

RECEIVED
FEB 26 2016
LAND DEVELOPMENT SECTION

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
X GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
X WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

DATE SUBMITTED: 2/25/16 By: SCOTT STEFFEN

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: WILDERNESS CANON SUBDIVISION AT HIGH DESERT Building Permit #: _____ City Drainage #: F23/D012

DRB#: 1004989 EPC#: _____ Work Order#: _____

Legal Description: TRACT A-1 WILDERNESS CANON AT HIGH DESERT

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: SCOTT STEFFEN

Address: 7500 JEFFERSON ST NE COURTYARD I ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: SSTEFFEN@BHINC.COM

Owner: MESA VERDE DEVELOPMENT Contact: SCOTT SCHIABOR

Address: 8300 CARMEL AVE NE ALBUQUERQUE NM 87122

Phone#: 505-828-9900 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

X HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
X GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

X OTHER (SPECIFY) supplemental drainage report

RECEIVED 2-18-16

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

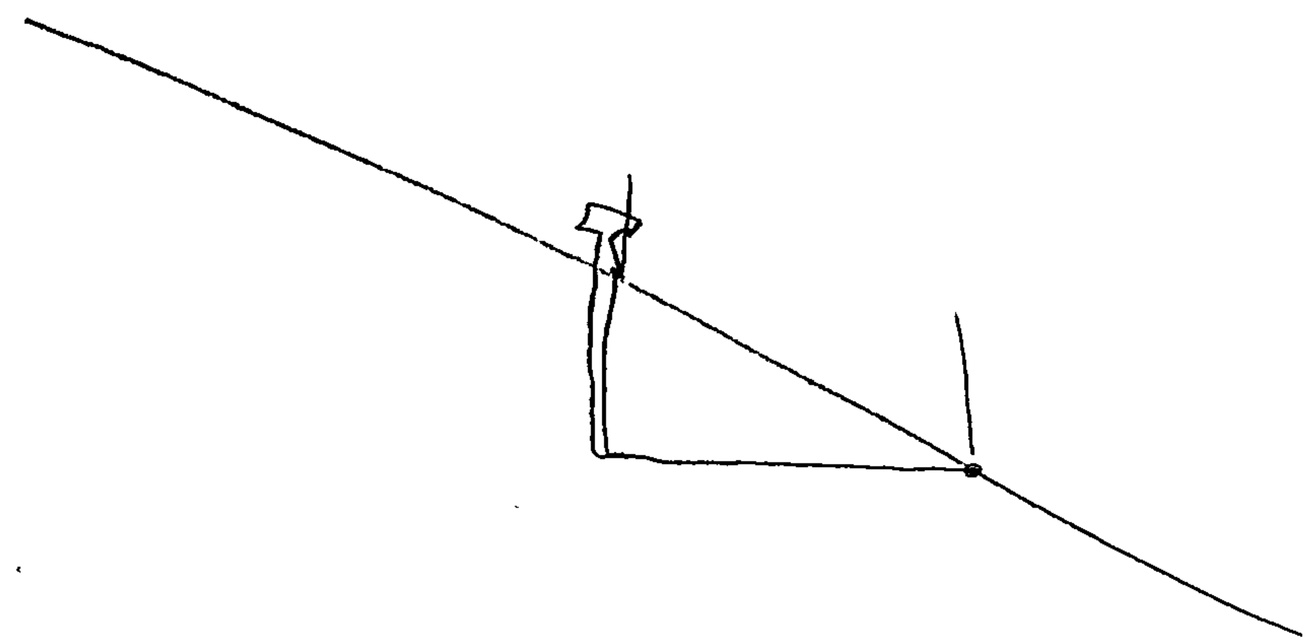
____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL
____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
X GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION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

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ____ Yes X No

DATE SUBMITTED: 2/18/16 By: SCOTT STEFFEN

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___



UNCLASSIFIED

Current DRC
Project No. _____

Date Submitted: ~~10/20/2015~~
Date Site Plan Approved.
Date Preliminary Plat Approved: 10-21-15
Date Preliminary Plat Expires: 10-21-16

DRB Project No. 1004989

Figure 12

AMENDED INFRASTRUCTURE LIST

EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D R B) REQUIRED INFRASTRUCTURE LIST

WILDERNESS CANON
(TRACT A-1, WILDERNESS CANON AT HIGH DESERT)

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees All such revisions require approval by the DRC Chair, the User Department and agent/owner If such approvals are obtained these revisions to the listing will be incorporated administratively In addition, any unforeseen items which arise during construction which which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
		PRIVATE ROADWAY IMPROVEMENTS - ON-SITE							
		22' F-F (IN) 24' F-F (OUT) W/ 6' MEDIAN	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 6' WIDE SIDEWALK ON ONE SIDE*†	ELEVADA TRAIL	HIGH DESERT PLACE	LOT 17	/	/	/
		26' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 6' WIDE SIDEWALK ON ONE SIDE*†	ELEVADA TRAIL	LOT 17	PIEDRA ALTA LANE	/	/	/
		26' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 6' WIDE SIDEWALK ON ONE SIDE*†	PIEDRA CANTO WAY	PIEDRA CANTO WAY TERMINUS	ELEVADA TRAIL	/	/	/
		26' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 6' WIDE SIDEWALK ON ONE SIDE*†	PIEDRA CERRO WAY	PIEDRA CERRO WAY TERMINUS	ELEVADA TRAIL	/	/	/
		26' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 6' WIDE SIDEWALK ON ONE SIDE*†	PIEDRA ALTA LANE	NORTH PIEDRA ALTA ALTA TERMINUS	SOUTH PIEDRA ALTA ALTA TERMINUS	/	/	/
		2 - 14' WIDE	SPEED HUMPS W/TRAFFIC OPS APPROVAL	HIGH DESERT PLACE	SOUTH OF PIEDRA GRANDE PLACE	SOUTH OF EMBUDITO VIEW COURT			
							/	/	/

*ALL SIDEWALKS TO BE DEFERRED
†SIDEWALK TO BE WAIVED FRONTING LOTS 1-2, 18-19 AND ADJACENT TO LOTS 10, 12, 18, 19
**PROVIDE / INSTALL THE NECESSARY ROADWAY SIGNAGE ASSOCIATED W/ THE DEVELOPMENT AS APPROVED BY THE CITY DRC

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PUBLIC WATERLINE IMPROVEMENTS - ON-SITE						
		10" DIA	WATERLINE W/ NEC VALVES FH'S, MJ'S & RJ'S	ELEVADA TRAIL	HIGH DESERT PLACE	PIEDRA CERRO WAY	/	/	/
		6" DIA	WATERLINE W/ NEC VALVES FH'S, MJ'S & RJ'S	ELEVADA TRAIL	PIEDRA CERRO WAY	PIEDRA ALTA LANE	/	/	/
		6" DIA	WATERLINE W/ NEC VALVES FH'S, MJ'S & RJ'S	PIEDRA CANTO WAY	ELEVADA TRAIL	PIEDRA ALTA LANE	/	/	/
		10" DIA	WATERLINE W/ NEC VALVES FH'S, MJ'S & RJ'S	PIEDRA CERRO WAY	SOUTH PROPERTY BOUNDARY (LOT 13)	ELEVADA TRAIL	/	/	/
		6" DIA	WATERLINE W/ NEC VALVES FH'S, MJ'S & RJ'S	PIEDRA ALTA LANE	PIEDRA CANTO WAY	SOUTH PIEDRA ALTA ALTA TERMINUS (LOT 9)	/	/	/
			REMOVAL OF EXISTING 6" WATERLINE	LOTS 13-17	LOT 13	HIGH DESERT PLACE	/	/	/
			PUBLIC SANITARY SEWER IMPROVEMENTS - ON-SITE						
		8" DIA	SANITARY SEWER W/ NEC MH'S & SERVICES	ELEVADA TRAIL	HIGH DESERT PLACE	PIEDRA ALTA LANE	/	/	/
		8" DIA	SANITARY SEWER W/ NEC MH'S & SERVICES	PIEDRA CANTO WAY	PIEDRA CANTO WAY TERMINUS	ELEVADA TRAIL	/	/	/
		8" DIA	SANITARY SEWER W/ NEC MH'S & SERVICES	PIEDRA CERRO WAY	PIEDRA CERRO TERMINUS	ELEVADA TRAIL	/	/	/
		8" DIA	SANITARY SEWER W/ NEC MH'S & SERVICES	PIEDRA ALTA LANE	NORTH PIEDRA ALTA ALTA TERMINUS	SOUTH PIEDRA ALTA ALTA TERMINUS	/	/	/

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
		PUBLIC STORM DRAIN IMPROVMENTS - ON-SITE							
		18" DIA	RCP W/ NEC MH'S, LATERALS & INLETS	PIEDRA CANTO WAY	LOT 3	PIEDRA ALTA LANE TERMINUS (LOT 5)	/	/	/
		24" DIA	RCP W/ NEC MH'S, LATERALS & INLETS	PIEDRA CANTO WAY	ELEVADA TRAIL	LOT 3	/	/	/
		24" DIA	RCP W/ NEC. MH'S, LATERALS & INLETS	ELEVADA TRAIL	LOT 14	HIGH DESERT PLACE	/	/	/
		24" DIA	RCP W/ NEC MH'S, LATERALS & INLETS	HIGH DESERT PLACE	ELEVADA TRAIL	NORTH END OF LOT 1 EX SD MANHOLE	/	/	/
		REMOVE 24" DIA	RCP W/ NEC MH'S, LATERALS & INLETS	LOT 1	HIGH DESERT PLACE	EXISTING POND SD TERMINUS	/	/	/
		NOTE:	A GRADING AND DRAINAGE CERTIFICAITON OF THE APPROVED GRADING PLAN IS REQUIRED PRIOR TO THE RELEASE OF FINANCIAL GUARANTEES						
		DRAINAGE IMPROVMENTS - OFF-SITE							
		4' - 5' WIDE	LINED SWALE	OPEN SPACE	LOT 8	EXISTING NATURAL SWALE - ACROSS FROM LO T 5 TRACT 13-B-2 HDROA TRACT	/	/	/
		4' WIDE	TRAIL IMPROVMENTS	OPEN SPACE	LOT 9		/	/	/
		2' WIDE	COBBLE "V"	BACK PROPERTY LINE IN OPEN SPACE ADJ TO WALL	LOT 4	LOT 8	/	/	/
		30" SD w/ TRIPLE GRATE TYPE "D" INLET	SEDIMENTATION POND #2 IMPROVEMENTS	TRACT 13-B-3 HDROA TRACT	HIGH DESERT PLACE	SEDIMENTATION POND #2	/	/	/

AGENT/OWNER

SCOTT J. STEFFEN — 10/20/2015
PREPARED BY: — DATE

BOHANNAN HUSTON INC
FIRM

10/21/15
SIGNATURE

MAXIMUM TIME ALLOW TO CONSTRUCT IMPROVEMENTS WITHOUT A DRB EXTENSION

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR	DATE: 10-21-15	PARKS & ~~GENERAL SERVICES~~ Recreation: Carol S. Dumont	DATE: 10-21-15
TRANSPORTATION DEVELOPMENT	DATE: 10/21/15		DATE
UTILITY DEVELOPMENT	DATE: 10/21/15		DATE
CITY ENGINEER	DATE: 10-21-15		DATE

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT/OWNER

CITY OF ALBUQUERQUE

Planning Department
Suzanne Lubar, Director

Mayor Richard J. Berry

October 20, 2015

Scott Steffen, PE
Bohannan-Huston
7500 Jefferson St NE Courtyard I
Albuquerque, NM 87109

Re: Wilderness Cañon at High Desert
Grading & Drainage Plan
Engineer Stamp Date 8/12/15 (F23D012)
Report Dated 8/9/15

19

Dear Mr. Steffen,

Based upon the information provided in your submittal received 9/10/15, the above referenced plan is approved for Preliminary Plat and Site Plan for Building Permit action by the DRB.

However, before Grading and Building Permits can be approved the following comments must be addressed.

1. Provide actual pad size on each lot showing the location of the "First Flush" pond.
2. Provide an asterisk for lot 18 showing the location of the drainage outlet for this lot.
3. Provide offsite swales, channels and ponds as part of the grading and drainage plan so they can be certified.

This letter takes precedence over any previous letter sent. If you have any questions, you can contact me at 924-3695 or Rudy Rael at 924-3977.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Hydrology
Planning Department

RR/RH
C: email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

Planning Department
Suzanne Lubar, Director

Mayor Richard J. Berry

October 20, 2015

Scott Steffen, PE
Bohannan-Huston
7500 Jefferson St NE Courtyard I
Albuquerque, NM 87109

Re: Wilderness Cañon at High Desert
Report Dated 8/9/15
Grading & Drainage Plan
Engineer Stamp Date 8/12/15(F23D012)

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However, before Grading and Building permit can be approved the following comments must be addressed.

1. Provide actual pad size on each lot showing the location of the "First Flush" pond.
2. Provide an asterisk for lot 18 showing the location of the drainage for this lot.

If you have any questions, you can contact me at 924-3695 or Rudy Rael at 924-3977.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Hydrology
Planning Department

RR/RH
C: email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: WILDERNESS CANON SUBDIVISION AT HIGH DESERT Building Permit #: _____ City Drainage #: F23D012

DRB#: 1004989 EPC#: _____ Work Order#: _____

Legal Description: TRACT A-1 WILDERNESS CANON AT HIGH DESERT

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: SCOTT STEFFEN

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: SSTEFFEN@BHINC.COM

Owner: MESA VERDE DEVELOPMENT Contact: SCOTT SCHIABOR

Address: 8300 CARMEL AVE NE ALBUQUERQUE NM 87122

Phone#: 505-828-9900 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

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

Surveyor: _____ Contact: _____

Address: _____

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

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
X 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
X PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
X GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

Received 9-10-15

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

DATE SUBMITTED: 9/10/15 By: SCOTT STEFFEN

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, anc 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

Bohannan Huston

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

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

September 10, 2015

Rita Harmon, P. E.
Planning Department
Hydrology Review Section
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Wilderness Canon, Grading and Drainage Plan (F23/D012)

Dear Rita:

The Wilderness Canon Grading and Drainage Plan, dated July 17, 2007 was approved by the City on August 28, 2007. The approval letter is attached for your reference. Based you're your comments at the sketch plat hearing on May 13, 2015 we are resubmitting the Grading and Drainage Plan.

- The first flush is addressed in the drainage report and with a detail on the grading plan showing the typical location of the first flush pond on the lot.

- The "Typical Backyard Drainage Adjacent to Standard Curb" detail has been modified to eliminate "Backyard" and a symbol added to lots where the detail applies.

- The offsite swale and trail grading are part of the plans that were previously approved by DRC on November 5, 2007. The plans will be resubmitted to DRC for re-approval. The swale and trail will be as-built and certified with the public work order plans. A half size set of these plans is included for your reference.

If you have any questions or require further information in order to approve the Grading and Drainage Plan, please feel free to contact me at 823-1000. I am available to meet to go over the changes.

Sincerely,

Scott J. Steffen, P.E.
Vice President
Community Development and Planning Group

RECEIVED
SEP 1 0 2015
LAND DEVELOPMENT SECTION

Enclosures

Engineering ▲

Spatial Data ▲

Advanced Technologies ▲

P:\20160078\Correspondence\Submittals\Gradingplan\G&D 1st Submittal 20150910\Wilderness Canon Drainage Submittal Ltr.Docx

CITY OF ALBUQUERQUE

August 28, 2007

Yolanda Moyer, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Wilderness Canon at High Desert Drainage Report
Engineer's Stamp dated 7-17-07, (F23/D12)

Dear Ms. Moyer,

Based upon the information provided in your submittal dated 7-17-07 and letter dated 8-10-07, the above referenced plan is approved for Amended Preliminary Plat approval by the DRB. Once that board approves the grading plan, please submit a mylar copy for my signature in order to obtain a Rough Grading Permit.

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

Prior to Release of SIA and Financial Guarantees, an Engineer's Certification of this grading plan will be required.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham

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

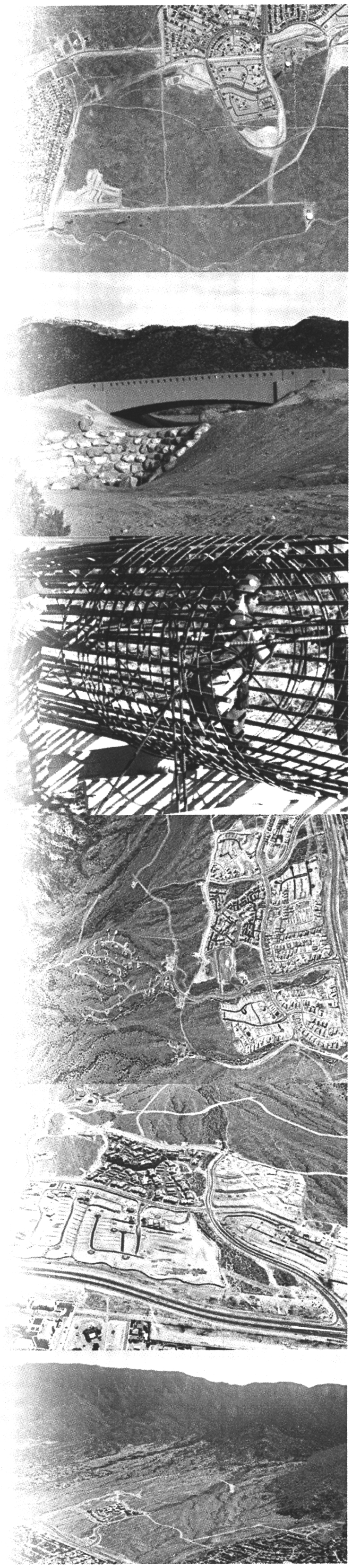
C: file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

RECEIVED
SEP 10 2015
LAND DEVELOPMENT SECTION

09/12/2007 13:52 9243864 PAGE 04/04

DRAINAGE REPORT FOR THE WILDERNESS CAÑON SUBDIVISION AT HIGH DESERT



AUGUST 19, 2015

RECEIVED
SEP 10 2015
LAND DEVELOPMENT SECTION

Prepared for:

Mesa Verde Development
8300 Carmel Avenue NE – Suite 401
Albuquerque, NM 87122

Prepared by:

Bohannan Huston

Engineering
Spatial Data
Advanced Technologies

AMENDED

DRAINAGE REPORT

FOR

THE WILDERNESS CAÑON

SUBDIVISION AT HIGH DESERT

AUGUST 19, 2015

Prepared for:

MESA VERDE DEVELOPMENT

8300 CARMEL AVENUE NE - SUITE 401

ALBUQUERQUE, NM 87122

Prepared by:

BOHANNAN HUSTON, INC.

COURTYARD I

7500 JEFFERSON STREET NE

ALBUQUERQUE, NM 87109

Prepared by:

Scott J. Steffen 8/19/15

Scott Steffen, P.E. Date

SCOTT J. STEFFEN
NEW MEXICO
14664
REGISTERED PROFESSIONAL ENGINEER

Bohannan Huston

TABLE OF CONTENTS

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I. INTRODUCTION

This is an amended report to the July 13, 2007 report, which amended the September 29, 2006 report for the Wilderness Cañon Subdivision at High Desert. The September 29, 2006 report was amended to address the revised layout, the lot count reduced from 25 to 19, as well as to address the offsite drainage concern the High Desert Residential Owner's Association has in the City Open Space east of the site. This report amends the July 13, 2007 report by adding the first flush requirements for the project.

For location of the site, please refer to the vicinity map on the grading and drainage plan enclosed with this report.

The Wilderness Subdivisions at High Desert is located north of Glenwood Hills and the Trailhead Subdivision, south of High Desert Open Space Tracts OS-2 and OS-3, and the Michael Emery Bear Canyon Trailhead parking lot, west of the Cibola National Forest and City Open Space Tract (Tract OS-5). The site is zoned SU-2 HD/R-R and is approximately 72.73 acres in size. Access to the site will be provided from High Desert Place.

The Wilderness Cañon Subdivision encompasses the southern portion of the Wilderness Subdivision at High Desert. This area is approximately 3.97 acres and is bounded by the Wilderness Village Subdivision of Unit 2 to the north, the Embudito Arroyo to the South, City of Albuquerque Open Space to the east, and City of Albuquerque and High Desert Open Space to the west (see location map, **Appendix A**).

The High Desert Development is bound by an approved City of Albuquerque and Bernalillo County Sector Development Plan. The entire Wilderness is located outside of the Design Overlay Boundary. The Wilderness Cañon Subdivision at High Desert is a mass graded site, where curb and gutter, and storm drains will be used to convey the flows to the existing arroyos.

II. PURPOSE OF REPORT

The purpose of this report is to provide site specific drainage analysis for existing and ultimate conditions for the subdivision development, referred to as the Wilderness Cañon Subdivision at High Desert as amended from the previously approved preliminary plat submittal. This plan is prepared and submitted to support design and rough grading of the subdivision and internal streets and for the preliminary and final plat approvals. The site is approximately 3.97 acres and consists of 19 lots.

III. METHODOLOGIES AND REFERENCES

Site conditions are analyzed for a 100-yr and 10-yr, 6-hour storm event in accordance with the City of Albuquerque Drainage Ordinance and the Development Process Manual (DPM), Volume 2 Design Criteria, Section 22.2, Hydrology for the City of Albuquerque, January 2002. The Wilderness Cañon Subdivision described in the "Site Location and Characteristics" section below, is approximately 3.97 acres, therefore Part A of the DPM, Section 22.2, which provides a simplified procedure for projects with sub-basins smaller than 40 acres, was used.

This report will reference the following City of Albuquerque and the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) approved studies prepared for the High Desert Development: 1) the *High Desert Drainage Management Master Plan, dated December 1993; and 2) Drainage Report for Tract 13 at High Desert, dated* October 25, 2002.

The High Desert Drainage Management Master Plan, dated December 1993, was prepared to support future drainage plans submitted for the development of individual land parcels within High Desert and to provide design guidance for the design of primary drainage infrastructure to be constructed by High Desert in advance of or simultaneously with individual parcel development.

The *Drainage Report for Tract 13 at High Desert*, dated October 25, 2002 establishes existing and proposed developed conditions for Tract 13 and existing conditions for the Wilderness Cañon Subdivision. The drainage report discusses existing and proposed drainage patterns for Tract 13. Within the scope of this report, both the Bear Canyon Arroyo and Embudito Arroyo were hydraulically analyzed under existing and developed conditions. The onsite infrastructure was designed to facilitate all onsite flow and discharge to each corresponding arroyos with minimal disturbance to the arroyos natural drainage patterns.

IV. SITE LOCATION AND CHARACTERISTICS

For location of the site, please refer to the report introduction and to the location map provided in Exhibit 1.

Vegetation consists primarily of native grasses and trees. Slopes in the project site range from 2% to 15%. Offsite slopes in the City Open Space vary from 5% to as much as 33%. The Soil Conservation Service has classified the soils on this site as Embudo-Tijeras complex, Embudo gravely fine sandy loam and Tijeras gravely fine sandy loam, all of which correspond to a common hydrological soil group classification B.

V. EXISTING HYDROLOGICAL AND SITE DRAINAGE CONDITIONS

Please refer to the Existing Conditions Basin Map (Exhibit 2) for the following existing conditions discussion.

The Wilderness Cañon Subdivision consists of three existing basins, Offsite Basins B and C and Onsite Basin A, which is divided into two sub-basins. The flow generated from Offsite Basin B (4.40 ac, Q100 = 15.65cfs) follows natural drainage patterns west to combine with flows from Sub-Basin A-2 (2.17 ac, Q100 = 5.66cfs). This combined flow within Basin A-2, Q100 = 34.05cfs, is directed north and enters Sedimentation Pond #1 located on the southeast side of High Desert Place. Flow within the Pond is then conveyed via existing storm drain north, constructed with the Wilderness Village and Compound, and empties to the Bear Canyon Arroyo. Sub-Basin A-1 (1.80 ac, Q100 = 4.69cfs) flows north and sheet flows onto High Desert Place. The flow is captured by inlets and conveyed by existing storm drain west and empties into a pond upstream to the Bear Canyon Arroyo and ultimately to that arroyo. Originally it was assumed that runoff from Offsite Basin C (3.55 ac, Q100 = 12.74cfs) drains into Basin A-2, however past experience has shown that the runoff from Basin C is diverted north via the existing trail which acts as a swale and enters Sedimentation Pond #2. Similar to Sedimentation Pond #1, the captured runoff enters an existing storm drain, is conveyed north, and discharges to the Bear Canyon Arroyo. Larger storm events are eroding the existing trail located on the city's open space and discharging more runoff and more sediment into Sedimentation Pond #2 than was previously anticipated. This additional concentrated flow is causing erosion on the HDROA private opens space tract before entering Sedimentation Pond #2.

VI. DEVELOPED HYDROLOGICAL AND HYDRAULIC CONDITIONS

The developed site will be mass graded. Cross-lot drainage is not allowed within the development. Each lot will have individual side yard swale to convey runoff. The runoff generated in each lot will drain into private roadways with standard curb where a majority will be captured by an internal public storm drain network. Ultimately, the flow will be conveyed north into the existing public storm drain in High Desert Place and empty into the Bear Canyon Arroyo. The residual flow from The Wilderness Cañon will enter High Desert Place and be intercepted by existing downstream inlets. The downstream inlets originally accepted the flow from Existing Basin A-1 (Q100=4.69cfs) (See Exhibit 2). With the development of the site, Basin A-1 no longer directly discharges into High Desert Place and the residual from the site (Q100 = 1.88cfs) is less than the original, and therefore can be

accommodated. Ultimately, the flow will be conveyed west and empties into the Retention Pond located upstream of the Bear Canyon arroyo at the northwest corner of the Wilderness Unit 2. Offsite flows will be facilitated by constructing a swale along the northeastern edge of the existing and realigned hiking and biking trail. Ultimately, this flow will enter the existing storm drain network within High Desert Place and discharged to the Bear Canyon Arroyo. See Section B: Offsite Basins for more information.

Impervious land treatment types (%D) are based on 4.8 DU/AC with the remaining portions distributed equally between land types B and C.

Please refer to Exhibit 3: Developed Conditions Basins Map for the following ultimate developed conditions summary.

A. ON-SITE BASINS

The proposed site is composed of one basin. For analysis purposes, this basin has been divided into sub basins. These basins are discussed in more detail below. Please refer to Exhibit 3 for the following section of this report.

Basin G (1.22 ac, Q100 = 5.19 cfs) encompasses Lots 5-9 and Piedra Alta Lane and is located at the upper end of the subdivision. The majority of the flow, Q100 = 4.10 cfs, is conveyed north on Piedra Alta Lane by standard curb and gutter to Inlet # 1 located at the low point at the northwest corner of Piedra Alta Lane which connects to storm drains in Piedra Canto Way. The remaining runoff, Q100 = 1.09 cfs, is conveyed west onto Elevada Trail where the flow will combined with the runoff in Basin F and be captured via inlets and storm drain. See section below for further information on Basin F.

Inlet #1, composed of one single grate Type "A" inlet in sump condition and is located on the northwest corner of Piedra Alta Lane across from Lot 5 (See Exhibit 3). The inlet captures all of the 4.10 cfs flow and accommodates the 2x100yr storm event given that there is no emergency spillway. See **Appendix C** for more information.

Basin F (0.56 ac, Q100 = 2.39 cfs) encompasses Lots 10-12 and a portion of Elevada Trail from Basin G to Basin E. Basin E (0.22 ac, Q100 = 0.94 cfs) contains Lot 13 and Piedra Cedro Way. Basin D (0.46 ac, Q100 = 1.95 cfs) encompasses Lots 18 and 19 and a portion of Elevada Trail from Basin G to Basin C. Basins D, E and F discharge into Elevada Trail and is conveyed via standard curb and gutter to Inlets #2A and 2B located at Lot 14/15 property line.

Inlet #2A and 2B are double grate Type "A" inlets, is located on Elevada Trail between Lots 14+15 and at the southeast corner of Elevada Trail and Piedra Canto Way (See Exhibit

3). The Inlet #2A, on the eastside of Elevada Trail, has an allowable capacity of 2.40 cfs; therefore all of the 1.96 cfs of flow is captured leaving no residual flow. A flow of 4.88 cfs reaches Inlet #2B, located on the west side of Elevada Trail. It has an allowable capacity of 4.27 cfs, leaving a residual flow of 0.61 cfs. See **Appendix C** for more information.

Basin B (0.62 ac, Q100 = 2.64 cfs) encompasses Lots 14-17 and a portion of Elevada Trail from Basin E to High Desert Place. Basin C (0.41 ac, Q100 = 1.74 cfs) contains Lots 3 and 4 and Piedra Canto Way. Basin A (0.48 ac, Q100 = 2.04 cfs) contains Lots 1 and 2 and a portion of Elevada Trail from Basin C to High Desert Place. The flow from these basins along with a portion from Basin D along with the residual from Inlet #2B are conveyed by standard curb and gutter north where the flow will be captured via Inlet #3A an 3B.

Inlet #3A, composed of two double grate Type "C", is located on Elevada Trail between Lots 1 and 2 and Lots 16 and 17. Inlet #3A, on the eastside of Elevada Trail, has an allowable capacity of 3.1 cfs; therefore all of the 2.75 cfs of flow is captured leaving no residual flow. Inlet #3B, on the westside of Elevada Trail, has an allowable capacity of 2.20 cfs; therefore all of the 1.93 cfs of flow is captured leaving no residual flow. See **Appendix C** for more information. Inlets #1 - #3 are carried via 24 in. storm drain to the existing 24 in. pipe originally built to drain Sedimentation Pond #1 (Sedimentation Pond #1 will be removed with this project). However, the existing pipe will need to be relocated and extended in High Desert Place in order to tie to the proposed storm drain.

Lot 1, approximately 60% of Basin A (0.288 ac, Q100 = 1.22cfs) and Lot 17, approximately 25% of Basin B (0.155 ac, Q100 = 0.66 cfs), giving a total flow of 1.88 cfs, discharges into Elevada Trail and then into High Desert Place and flows west to existing inlets, which is carried by existing storm drains to the Retention Pond located upstream of the Bear Canyon arroyo at the northwest corner of the Wilderness Unit 2.

B. FIRST FLUSH REQUIREMENTS

Wilderness Cañon is required to meet the first flush requirements of the new City Drainage Ordinance. The first flush requirement for Wilderness Cañon will be met with on lot ponding and is calculated as 0.34 in. (0.44 in. - 0.1 in. initial abstraction) times the roof area that can drain to the on lot pond (taken as one half the pad area). There pad sizes range from 2,800 to 5,400 square feet, with a first flush requirement of 40 to 77 cubic feet, respectively. See the typical lot grading detail on the Grading Plan, Exhibit 4, for the first flush pond location.

C. OFF-SITE BASINS

The flow of offsite Basins B, C and D will remain constant since the basins reside within the City of Albuquerque's Open Space. See Exhibit 5 for Offsite Basins.

In order to address the offsite flows and help with the ongoing erosion problem, we are proposing a swale along the northeast edge of the existing hiking and biking trail (See Exhibit 5). In some isolated cases, the trail is the swale. Currently a small portion of the offsite flows sheet flow across the trail onto the site, however most of the flow is diverted by the trail itself which conveys runoff downstream to Sedimentation Pond #2 (See Exhibit 5 for location). The trail acting as a swale has caused ongoing erosion problems during larger storm events. The proposed swale would assist in conveying runoff to Sedimentation Pond #2 in a non-erosive manner. The swale will be permanent and stabilized to convey the offsite flow to Sedimentation Pond #2. The swale will be a trapezoidal swale lined with rip-rap or moss-rock (or approved alternate). The swale varies from 4 ft. wide to 5 ft. wide. (See Exhibit 5 for cross-section and flows at each analysis point). The swale has been analyzed adding a 10% bulking factor to the 100yr-6hr storm event as well as provides a 6 in. freeboard to address any sediment concerns the High Desert Residential Owners Association may have concerning sediment storage in the swale. The proposed swale will discharge into an existing natural swale at AP #4. At this point the trail will be realigned to switchback through this existing arroyo to improve the slope severity and create a safer trail. The newly aligned trail will now act as a series of check dams to slow down the flow from both the existing natural swale and the newly constructed swale. At AP #6, the existing natural swale (Q100 = 27.56 cfs) will combine with the existing trail through a passage of boulders. The trail\swale will be lined with waffle pavers through this section to help with any erosion. Just past the boulder the trail\swale separates with the trail staying to the west (at its current location) and swale to the east. The flow discharges into an existing swale east of the trail. The swale continues north where it will cross the trail at a lined dip section into the High Desert Residential Owners Association Tract. The flow will then enter a cobble swale and discharge into Sedimentation Pond #2. For pond analysis, see section below.

In addition to the improvements above, a two foot wide "V" swale will be installed along the back end of the perimeter wall to protect the wall and convey the small amount of flow (Q100=1.39cfs) generated between the west edge of trail and the property line to the existing natural swale mentioned above. (See **Appendix F** for offsite analysis)

All efforts have been extensively coordinated with the High Desert Residential Owners Association and the City Open Space to come to a consensus on the type of improvements to help eliminate any possible erosion problems.

D. DESILTATION POND (SEDIMENTATION POND #2) - TRACT 13-B-2; UNITS 2 & 3 OF THE WILDERNESS SUBDIVISION AT HIGH DESERT

Tract 13-B-2 is a private open space parcel currently owned and maintained by the High Desert Residential Owners Association. It is located north of Tract A (aka Wilderness Cañon), east of High Desert Place, west of the City Open Space Parcel and south of Wilderness Compound. Tract 13-B-2 is also the location of an existing desiltation pond (Sedimentation Pond #2) designed and constructed with the development of the Wilderness Village and Compound Subdivisions (aka Unit 2 and Unit 3 of the Wilderness Subdivision at High Desert).

The purpose of this existing pond, as it was designed and constructed with the Wilderness Village and Compound, was to intercept the runoff (Q100=25.8 cfs) from the upland off-site basins (referred to and shown as Basin OS-1 in the approved Drainage Report for Tract 13 at High Desert; see exhibit "Proposed Drainage Basins Map – Unit 2 & 3" in that report) and convey it into an inlet located in the pond and then a storm drain located in High Desert Place. This report, for the Wilderness Cañon, labels this off site basin as Basins "C" and "D" (Q100=28.50 cfs). The basin runoffs are slightly different from the two reports because the basin acreages are slightly different (Basin OS-1 = 6.8 acres; while Basins C & D = 7.94 acres). The approved Drainage Report for Tract 13 at High Desert will be referred to as the October 25, 2002 Drainage Report.

In the October 25, 2002 Drainage Report, Offsite Basin OS-7 located at the southeast corner of the Basin Map, drained into Basin 2E in Tract A (aka Wilderness Cañon), where the combined basins were picked up in a storm drain stubbed out from High Desert Place. With the development of the Wilderness Cañon we are proposing to redirect a portion of the runoff (Q100 = 14.26 cfs) from this offsite basin (now referred to as Offsite Basin B) to the north into Sedimentation Pond #2.

Sedimentation Pond #2 will now capture 42.76 cfs instead of the 25.8 cfs originally anticipated with the October 25, 2002 report. In order for the pond to capture and convey the additional runoff proposed, we must replace the existing single grate type "D" inlet and the 24 in. diameter RCP storm drain pipe from the inlet to the storm drain in High Desert Place with a triple grate type "D" inlet and a 30 in. diameter RCP pipe from the new inlet to

the existing storm drain pipe in High Desert Place. As with the previously approved reports in High Desert we have bulked the runoff by 3.1% to account for necessary sediment storage in Sedimentation Pond #2. The existing volume of Sedimentation Pond #2 is 0.0834 acre ft. The necessary sediment storage for the 100-year 24-hour storm event is 0.045 acre ft. (2.5 feet above the bottom of the pond). We have assumed orifice control for the triple grate type "D" inlet with a 30 in. RCP storm drain pipe. Our analysis indicates that we need 3.30 ft. of head from the centerline of the 30 in. pipe or 4.55 ft. from the invert of the inlet to pass the runoff in the 100-year 6-hour storm event. We believe however that the top of the grate analysis will control in which we will need 0.8 ft. of head above the triple grate type "D" inlet. Our intent is to locate the top of the type "D" inlet grate at the top of the sediment storage that is 2.5 ft. from the bottom of the pond. Therefore, the water surface elevation must be 3.3 ft. above the bottom of the pond to pass 43 cfs (0.8 ft. above the top of the inlet grate, which is 2.5 ft. above the bottom of the pond or sediment storage). The construction plans will provide a detail that will include a french drain adjacent to the inlet that will drain the 2.5 ft. of runoff within the sediment storage volume that will pond in the interim condition. The top elevation of Sedimentation Pond #2 is 6185.0. The elevation at the bottom of the pond is 6181.30. The top of the water surface elevation will be 6184.60 100-yr 6-hr storm event. It is our recommendation that an emergency spillway be constructed along the High Desert Place perimeter wall at the 6185.0 elevation allowing any runoff beyond the analyzed storm event to drain into High Desert Place. (See **Appendix E** for pond analysis)

VII. CONCLUSION

The primary goal of this drainage plan for Wilderness Cañon Subdivision is to provide sound and innovative drainage management schemes that permit preservation of the natural terrain with the least possible impact. The utilization of drainage schemes outlined in this report accomplishes this goal in a safe and adequate manner. We recommend that this plan be approved as requested.

APPENDICES

APPENDIX A: BASIN ANALYSIS AND SUMMARY OF LAND TREATMENT

APPENDIX B: STREET HYDRAULICS

APPENDIX C: INLET CAPACITY ANALYSIS

APPENDIX D: STORM DRAIN ANALYSIS

APPENDIX E: POND ANALYSIS

APPENDIX F: OFFSITE ANALYSIS

APPENDIX A - BASIN ANALYSIS

AND SUMMARY OF LAND TREATMENT

Bohannan Huston

BASIN SUMMARY FOR THE WILDERNESS TRACT A SUBDIVISION AT HIGH DESERT

BASIN I.D.	AREA (AC)	UNITS #		% LAND TREATMENT A	B	C	D		DISCHARGE (CFS) 10 YR	100YR
HYRDOLOGICAL VOLUMETRIC & DISCHARGE DATA (EXISTING CALCULATED)										
Basin A	3.97			49.6%	43.8%	6.7%	0.0%		4.86	10.35
Basin B (Offsite)	4.40			0.8%	17.5%	81.8%	0.0%		9.29	15.65
Basin C (Offsite)	3.55			1.7%	11.0%	87.3%	0.0%		7.62	12.74
Basin D (Offsite)	4.39			1.7%	11.0%	87.3%	0.0%		9.43	15.76
TOTAL	**8.37**								**14.1**	**26.0**
HYRDOLOGICAL VOLUMETRIC & DISCHARGE DATA (DEVELOPED)										
ONSITE										
BASINS										
A	0.48	2		0.0%	26.0%	26.0%	48.0%		1.28	2.04
B	0.62	4		0.0%	26.0%	26.0%	48.0%		1.66	2.64
C	0.41	2		0.0%	26.0%	26.0%	48.0%		1.10	1.74
D	0.46	2		0.0%	26.0%	26.0%	48.0%		1.22	1.95
E	0.22	1		0.0%	26.0%	26.0%	48.0%		0.59	0.94
F	0.56	3		0.0%	26.0%	26.0%	48.0%		1.50	2.39
G	1.22	5		0.0%	26.0%	26.0%	48.0%		3.26	5.19
SUBTOTAL	**3.97**	**19**							**10.62**	**16.88**

NOTES: Impervious percentages were calculated from the DPM equation A-4, with the remaining percentages distributed to land treatment type B, due to the relatively flat terrain

N=UNITS/ACRES = 4.8
%D= 7*SQRT((N*N)+(5*N)) = 47.9 %

*Table A-4
**Table A-11

APPENDIX B -

STREET HYDRAULICS

Bohannan Huston

Piedra Canto Way-6.3%.txt

MANNING'S N = 0.017 SLOPE = 0.063

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.7	4.0	13.6	0.4	7.0	27.3	0.7
2.0	0.6	0.0	5.0	24.6	0.1			
3.0	2.6	0.1	6.0	26.6	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.011	0.012	0.870	1.161	0.847	0.046
0.050	0.050	0.042	0.078	1.740	1.842	1.693	0.103
0.075	0.075	0.095	0.230	2.610	2.414	2.540	0.166
0.100	0.100	0.169	0.495	3.480	2.924	3.387	0.233
0.125	0.125	0.265	0.898	4.350	3.393	4.233	0.304
0.150	0.150	0.397	1.349	6.534	3.393	6.395	0.329
0.175	0.175	0.584	2.115	8.718	3.620	8.557	0.379
0.200	0.200	0.825	3.240	10.903	3.926	10.719	0.440
0.225	0.225	1.120	4.774	13.087	4.262	12.881	0.507
0.250	0.250	1.469	6.769	15.271	4.607	15.043	0.580
0.275	0.275	1.872	9.275	17.456	4.953	17.205	0.657
0.300	0.300	2.330	12.339	19.640	5.297	19.367	0.736
0.325	0.325	2.841	16.009	21.825	5.635	21.529	0.819
0.350	0.350	3.406	20.328	24.009	5.968	23.691	0.904
0.375	0.375	4.025	25.339	26.193	6.295	25.853	0.991
0.400	0.400	4.689	31.941	27.108	6.812	26.746	1.122
0.425	0.425	5.358	39.828	27.176	7.433	26.793	1.284
0.450	0.450	6.029	48.393	27.245	8.027	26.840	1.452
0.475	0.475	6.700	57.610	27.313	8.598	26.886	1.625
0.500	0.500	7.373	67.457	27.381	9.149	26.933	1.802
0.525	0.525	8.047	77.914	27.450	9.682	26.979	1.983
0.550	0.550	8.722	88.961	27.518	10.199	27.026	2.168
0.575	0.575	9.398	100.585	27.587	10.702	27.073	2.357
0.600	0.600	10.076	112.770	27.655	11.192	27.119	2.548
0.625	0.625	10.754	125.502	27.723	11.670	27.166	2.743
0.650	0.650	11.434	138.772	27.792	12.137	27.213	2.941

Basin C = 1.74 cfs
10% Basin D = 0.20 cfs
Σ = 1.94 cfs

Street Capacity

$$\frac{2.115 - 1.349}{0.379 - 0.329} = \frac{2.115 - 1.94}{0.379 - x}$$

$$\frac{0.766}{0.05} = \frac{0.175}{0.379 - x} \Rightarrow 0.00075 = 0.290314 - 0.766x$$

$x = 0.37 < 0.67'$ ok

7/3/07

Piedra Alta Lane-2.0% cross slope 8.68%.txt

MANNING'S N = 0.017 SLOPE = 0.087

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.7	4.0	2.6	0.1	7.0	27.1	1.1
2.0	0.2	0.7	5.0	24.6	0.6	8.0	27.3	1.1
3.0	0.6	0.0	6.0	26.6	0.4			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.021	0.045	0.862	2.154	1.174	0.122
0.100	0.100	0.083	0.285	1.724	3.419	2.008	0.282
0.150	0.150	0.198	0.763	3.435	3.846	3.692	0.380
0.200	0.200	0.429	1.906	5.996	4.440	6.226	0.507
0.250	0.250	0.787	4.128	8.557	5.246	8.760	0.678
0.300	0.300	1.271	7.712	11.118	6.067	11.294	0.872
0.350	0.350	1.882	12.919	13.679	6.864	13.828	1.083
0.400	0.400	2.620	19.995	16.240	7.632	16.362	1.306
0.450	0.450	3.485	29.003	18.974	8.322	19.062	1.527
0.500	0.500	4.506	39.837	22.396	8.842	22.430	1.716
0.550	0.550	5.694	53.529	25.819	9.401	25.798	1.925
0.600	0.600	7.011	73.613	26.931	10.500	26.856	2.315
0.650	0.650	8.338	97.988	27.052	11.751	26.924	2.798

Basin Q = 5.19 cfs
− 1.09 cfs
4.1 cfs

Street Capacity

$$\frac{4.128-1.906}{0.678-0.507} = \frac{4.128-4.1}{0.678-x}$$

$$\frac{2.222}{0.171} = \frac{0.028}{0.678-x} \Rightarrow 0.004788 = 1.50652 - 2.222x$$

$x = 0.67$ ✓ ok

B-2

6/25/07

Piedra Cerro Way-3.0%.txt

MANNING'S N = 0.017 SLOPE = 0.030

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.7	4.0	13.6	0.4	7.0	27.3	0.7
2.0	0.6	0.0	5.0	24.6	0.1			
3.0	2.6	0.1	6.0	26.6	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.011	0.008	0.870	0.801	0.847	0.035
0.050	0.050	0.042	0.054	1.740	1.271	1.693	0.075
0.075	0.075	0.095	0.159	2.610	1.666	2.540	0.118
0.100	0.100	0.169	0.342	3.480	2.018	3.387	0.163
0.125	0.125	0.265	0.620	4.350	2.342	4.233	0.210
0.150	0.150	0.397	0.931	6.534	2.342	6.395	0.235
0.175	0.175	0.584	1.460	8.718	2.498	8.557	0.272
0.200	0.200	0.825	2.236	10.903	2.709	10.719	0.314
0.225	0.225	1.120	3.295	13.087	2.941	12.881	0.360
0.250	0.250	1.469	4.671	15.271	3.179	15.043	0.407
0.275	0.275	1.872	6.400	17.456	3.418	17.205	0.457
0.300	0.300	2.330	8.515	19.640	3.655	19.367	0.508
0.325	0.325	2.841	11.047	21.825	3.889	21.529	0.560
0.350	0.350	3.406	14.027	24.009	4.118	23.691	0.614
0.375	0.375	4.025	17.486	26.193	4.344	25.853	0.668
0.400	0.400	4.689	22.041	27.108	4.700	26.746	0.744
0.425	0.425	5.358	27.484	27.176	5.129	26.793	0.834
0.450	0.450	6.029	33.394	27.245	5.539	26.840	0.927
0.475	0.475	6.700	39.755	27.313	5.933	26.886	1.023
0.500	0.500	7.373	46.550	27.381	6.313	26.933	1.120
0.525	0.525	8.047	53.766	27.450	6.681	26.979	1.219
0.550	0.550	8.722	61.389	27.518	7.038	27.026	1.321
0.575	0.575	9.398	69.410	27.587	7.385	27.073	1.423
0.600	0.600	10.076	77.818	27.655	7.723	27.119	1.528
0.625	0.625	10.754	86.605	27.723	8.053	27.166	1.634
0.650	0.650	11.434	95.762	27.792	8.375	27.213	1.741

Basin E = 0.94 cfs

Street Capacity

$$\frac{1.46 - 0.931}{0.272 - 0.235} = \frac{1.46 - 0.94}{0.272 - x}$$

$$\frac{0.529}{0.037} = \frac{0.52}{0.272 - x} \Rightarrow 0.01924 = 0.143888 - 0.529x$$

$x = 0.236' < 0.67'$ ✓ ok

6/21/07

Elevada Trail (westside)-11.0%.txt

MANNING'S N = 0.017 SLOPE = 0.110

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.7	3.0	2.6	0.1			
2.0	0.6	0.0	4.0	13.6	0.4			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.005	0.008	0.435	1.533	0.423	0.062
0.050	0.050	0.021	0.052	0.870	2.434	0.847	0.142
0.075	0.075	0.048	0.152	1.305	3.190	1.270	0.233
0.100	0.100	0.085	0.327	1.740	3.864	1.693	0.332
0.125	0.125	0.132	0.593	2.175	4.484	2.117	0.438
0.150	0.150	0.199	0.891	3.267	4.484	3.198	0.463
0.175	0.175	0.292	1.398	4.359	4.784	4.279	0.531
0.200	0.200	0.413	2.141	5.451	5.188	5.360	0.619
0.225	0.225	0.560	3.154	6.544	5.631	6.441	0.718
0.250	0.250	0.735	4.472	7.636	6.087	7.522	0.826
0.275	0.275	0.936	6.128	8.728	6.545	8.603	0.941
0.300	0.300	1.165	8.152	9.820	6.999	9.684	1.062
0.325	0.325	1.420	10.577	10.912	7.446	10.765	1.187
0.350	0.350	1.703	13.430	12.004	7.886	11.846	1.317
0.375	0.375	2.013	16.741	13.097	8.318	12.927	1.451

Inlet #3

Half Section

10% Basin D = 0.105 cfs
Basin C = 1.94 cfs
40% Basin A = 0.816 cfs
Σ = 2.751 cfs

Street Capacity

$$\frac{3.154 - 2.141}{0.225 - 0.20} = \frac{3.154 - 2.751}{0.225 - x}$$

$$\frac{1.013}{0.025} = \frac{0.403}{0.225 - x} \Rightarrow 0.010075 = 0.227925 - 1.013x$$

$x = 0.22' = d$

Inlet Capacity

@ 9% ≅ 2.9 cfs

@ 8% ≅ 2.8 cfs

∴ @ 11%

= 3.1 cfs ✓ NO Residual Flow

7/12/07

Elevada Trail (eastside)-11.0%.txt

MANNING'S N = 0.017 SLOPE = 0.110

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.7	3.0	2.6	0.1			
2.0	0.6	0.0	4.0	13.6	0.4			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.005	0.008	0.435	1.533	0.423	0.062
0.050	0.050	0.021	0.052	0.870	2.434	0.847	0.142
0.075	0.075	0.048	0.152	1.305	3.190	1.270	0.233
0.100	0.100	0.085	0.327	1.740	3.864	1.693	0.332
0.125	0.125	0.132	0.593	2.175	4.484	2.117	0.438
0.150	0.150	0.199	0.891	3.267	4.484	3.198	0.463
0.175	0.175	0.292	1.398	4.359	4.784	4.279	0.531
0.200	0.200	0.413	2.141	5.451	5.188	5.360	0.619
0.225	0.225	0.560	3.154	6.544	5.631	6.441	0.718
0.250	0.250	0.735	4.472	7.636	6.087	7.522	0.826
0.275	0.275	0.936	6.128	8.728	6.545	8.603	0.941
0.300	0.300	1.165	8.152	9.820	6.999	9.684	1.062
0.325	0.325	1.420	10.577	10.912	7.446	10.765	1.187
0.350	0.350	1.703	13.430	12.004	7.886	11.846	1.317
0.375	0.375	2.013	16.741	13.097	8.318	12.927	1.451

Inlet #3

Half Section

50% Basin B = 1.32 cfs

Residual = 0.61 cfs

1.93 cfs

Street Capacity

$$\frac{2.141 - 1.398}{0.2 - 0.175} = \frac{2.141 - 1.93}{0.2 - x}$$

$$\frac{0.743}{0.025} = \frac{0.211}{0.2 - x} \Rightarrow 0.005275 = 0.1486 - 0.743x$$

$x = 0.19' = d$

Inlet Capacity

@ 9% ≅ 2.10 cfs

@ 8% ≅ 2.05 cfs

∴ 11% ≅ 2.20 cfs ✓ No Residual Flow

7/12/07

Elevada Trail (westside)-9.35%.txt

MANNING'S N = 0.017 SLOPE = 0.094

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.7	3.0	2.6	0.1			
2.0	0.6	0.0	4.0	13.6	0.4			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.021	0.048	0.870	2.244	0.847	0.128
0.100	0.100	0.085	0.302	1.740	3.563	1.693	0.297
0.150	0.150	0.199	0.821	3.267	4.134	3.198	0.416
0.200	0.200	0.413	1.974	5.451	4.783	5.360	0.556
0.250	0.250	0.735	4.123	7.636	5.612	7.522	0.740
0.300	0.300	1.165	7.516	9.820	6.453	9.684	0.948
0.350	0.350	1.703	12.382	12.004	7.271	11.846	1.172

Inlet #2

Half Section

Basin F = 2.39 cfs

Basin E = 0.94 cfs

1/4 Basin B = 0.66 cfs

Portion of Basin G = 0.89 cfs

$\Sigma = 4.88$ cfs

Street Capacity

$$\frac{7.516-4.123}{0.30-0.25} = \frac{7.516-4.88}{0.30-x}$$

$$\frac{3.393}{0.05} = \frac{2.636}{0.30-x} \Rightarrow 0.1318 = 1.0178 - 3.353x$$

$x = 0.26' = d$

Inlet Analysis

@ 9%

≈ 4.20 cfs

@ 8%

≈ 4.00 cfs

$\therefore$ @ 9.35%

≈ 4.27 cfs $\therefore$ 0.61 cfs of residual

7/12/07

Elevada Trail (eastside)-9.35%.txt

MANNING'S N = 0.017 SLOPE = 0.094

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.7	3.0	2.6	0.1			
2.0	0.6	0.0	4.0	13.6	0.4			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.021	0.048	0.870	2.244	0.847	0.128
0.100	0.100	0.085	0.302	1.740	3.563	1.693	0.297
0.150	0.150	0.199	0.821	3.267	4.134	3.198	0.416
0.200	0.200	0.413	1.974	5.451	4.783	5.360	0.556
0.250	0.250	0.735	4.123	7.636	5.612	7.522	0.740
0.300	0.300	1.165	7.516	9.820	6.453	9.684	0.948
0.350	0.350	1.703	12.382	12.004	7.271	11.846	1.172

Inlet #2

Half Section

Basin D (-10%) = 1.76 cfs

Portion of Basin G = 0.20 cfs

$\Sigma = 1.96$ cfs

Street Capacity

$$\frac{1.974-0.821}{0.20-0.15} = \frac{1.974-1.96}{0.20-x}$$

$$\frac{1.153}{0.05} = \frac{0.014}{0.20-x} \Rightarrow 0.0007 = 0.2306-1.153x$$

$$x = 0.20' = d$$

Inlet Analysis

@ 9%

≈ 2.35 cfs

@ 8%

≈ 2.20 cfs

$\therefore$ @ 9.35%

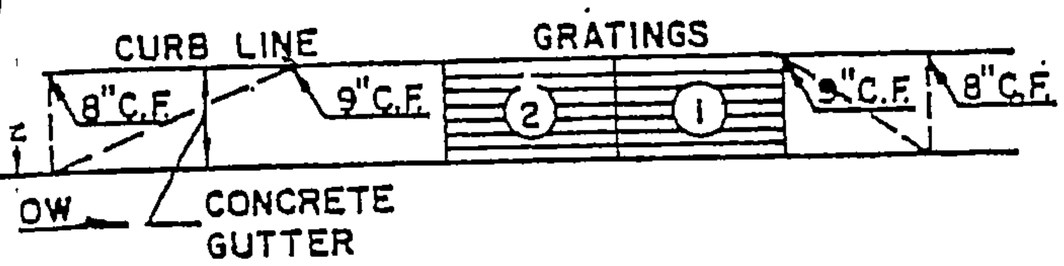
= 2.40 cfs ✓ No Residual Flow

7/12/07

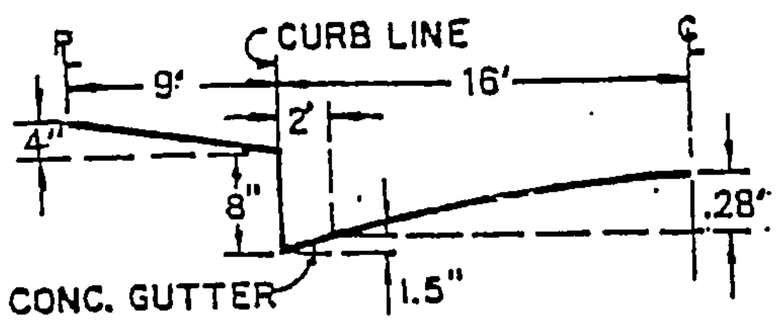
APPENDIX C - INLET CAPACITY ANALYSIS

Bohannan Huston

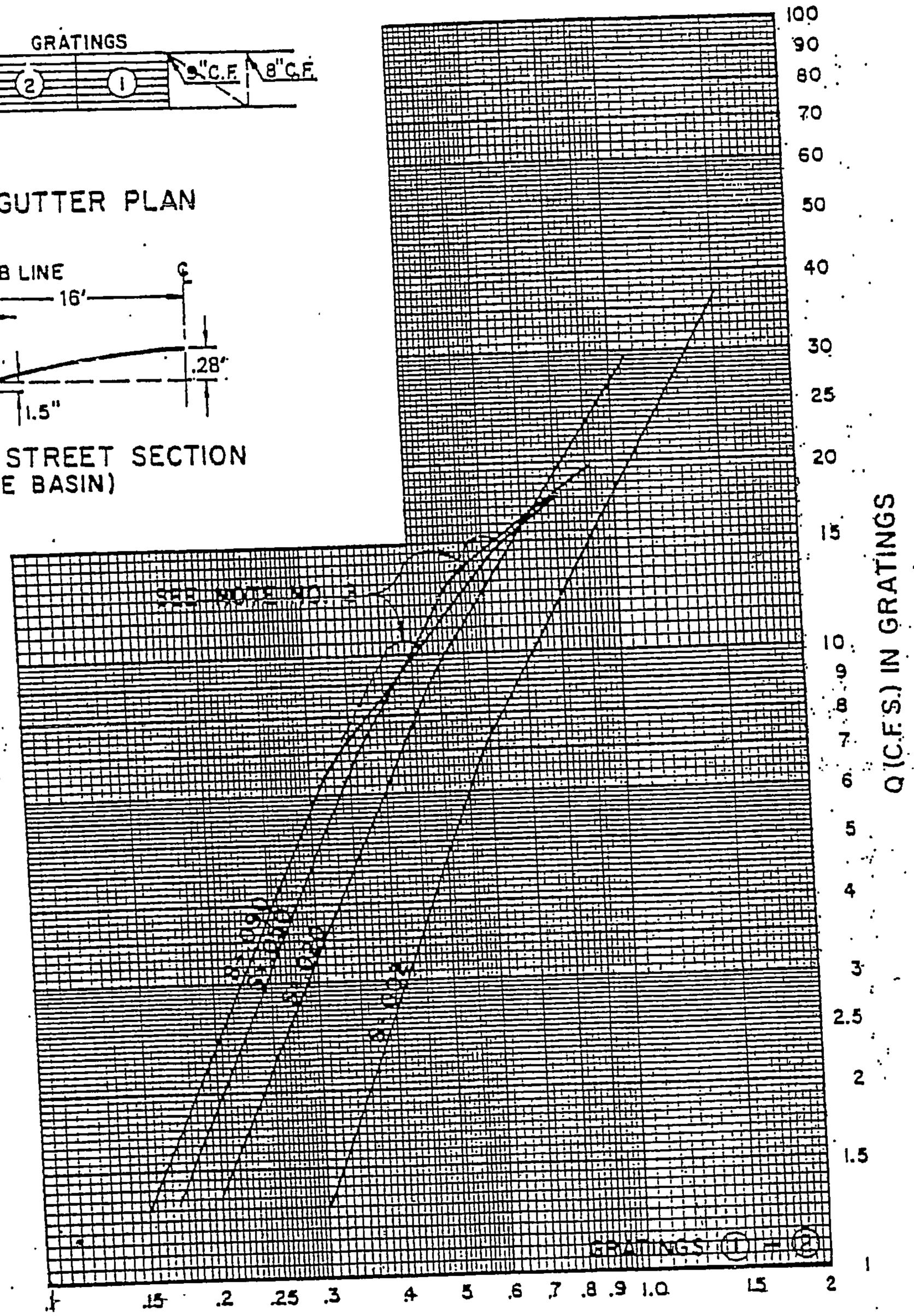
GRATING CAPACITIES FOR TYPE DOUBLE "C" AND "D"



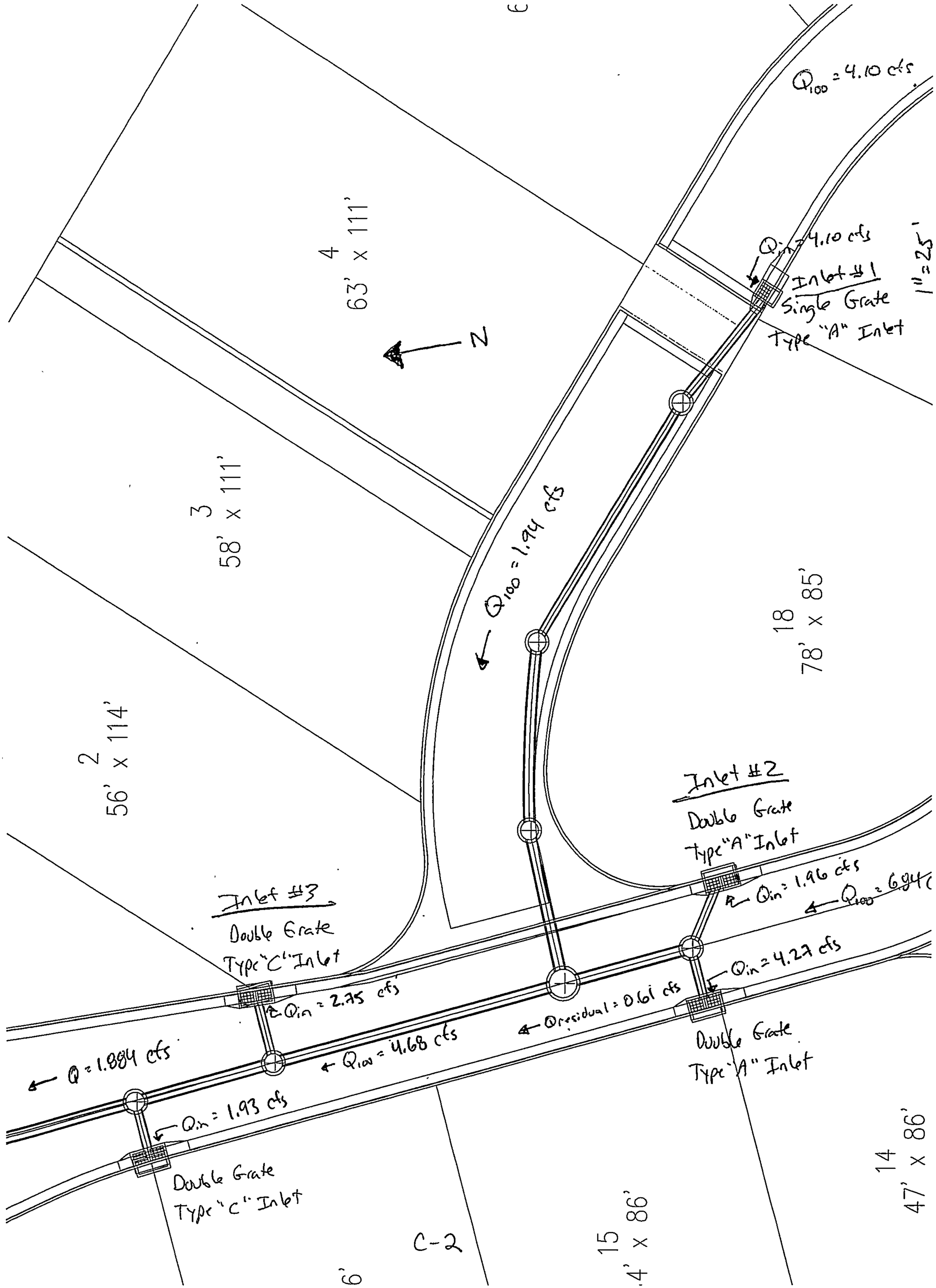
GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



C-2


Q_{100} = 4.10 cfs
Q_{in} = 4.10 cfs
Inlet #1
Single Grate
Type "A" Inlet
1" = 25'
N
4
63' x 111'
3
58' x 111'
2
56' x 114'
18
78' x 85'
Q_{100} = 1.94 cfs
Inlet #2
Double Grate
Type "A" Inlet
Q_{in} = 1.96 cfs
Q_{100} = 6.94 cfs
Inlet #3
Double Grate
Type "C" Inlet
Q_{in} = 2.75 cfs
Q_{in} = 4.27 cfs
$Q_{residual}$ = 0.61 cfs
Double Grate
Type "A" Inlet
Q = 1.884 cfs
Q_{100} = 4.68 cfs
Q_{in} = 1.93 cfs
Double Grate
Type "C" Inlet
C-2
15
4' x 86'
14
47' x 86'

ANALYSIS OF AN INLET IN A SUMP CONDITION - **Piedra Alta Lane**

INLET TYPE: Single Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5		ORIFICE: Q=C*A*(2*G*H)**0.5	
Wing opening	Grate opeining	Grate opening	Wing opening
C= 3.0	C=3.0	C=0.6	C=0.6
L= 4.0 ft	L(single grate)=[(2.67')+2(1.8')]=6.2	A(single grate)=4.09 sf	A=2.0 sf
Q=3.0(4.0')H**1.5= 12.0H**1.5	Q=3.0(6.27)H^1.5=18.81*H^1.5	Q=2.46*(64.4*H)^0.5	Q=1.2*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR WING OPENING	Q (CFS) WEIR SINGLE GRATE	Q (CFS) ORIFICE SINGLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at single "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.59	6.24	1.35	Weir controls on grate analysis
	0.20	0.20	1.07	1.68	8.82	3.83	
	0.30	0.30	1.97	3.09	10.80	7.03	Q(100 yr) = 4.10 cfs is provided at this depth
	0.40	0.40	3.04	4.76	12.47	10.83	Q(2x100 yr) = 8.20 cfs is provided at this depth
	0.50	0.50	4.24	6.65	13.94	15.14	
	0.60	0.60	5.58	8.74	15.27	19.90	
TOP OF CURB	0.70	0.70	7.03	11.02	16.50	25.07	
	0.80	0.80	8.59	13.46	17.64	30.63	
	0.90	0.90	10.25	16.06	18.71	36.55	
ROW LIMIT	1.00	1.00	12.00	18.81	19.72	42.81	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:

Q(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].

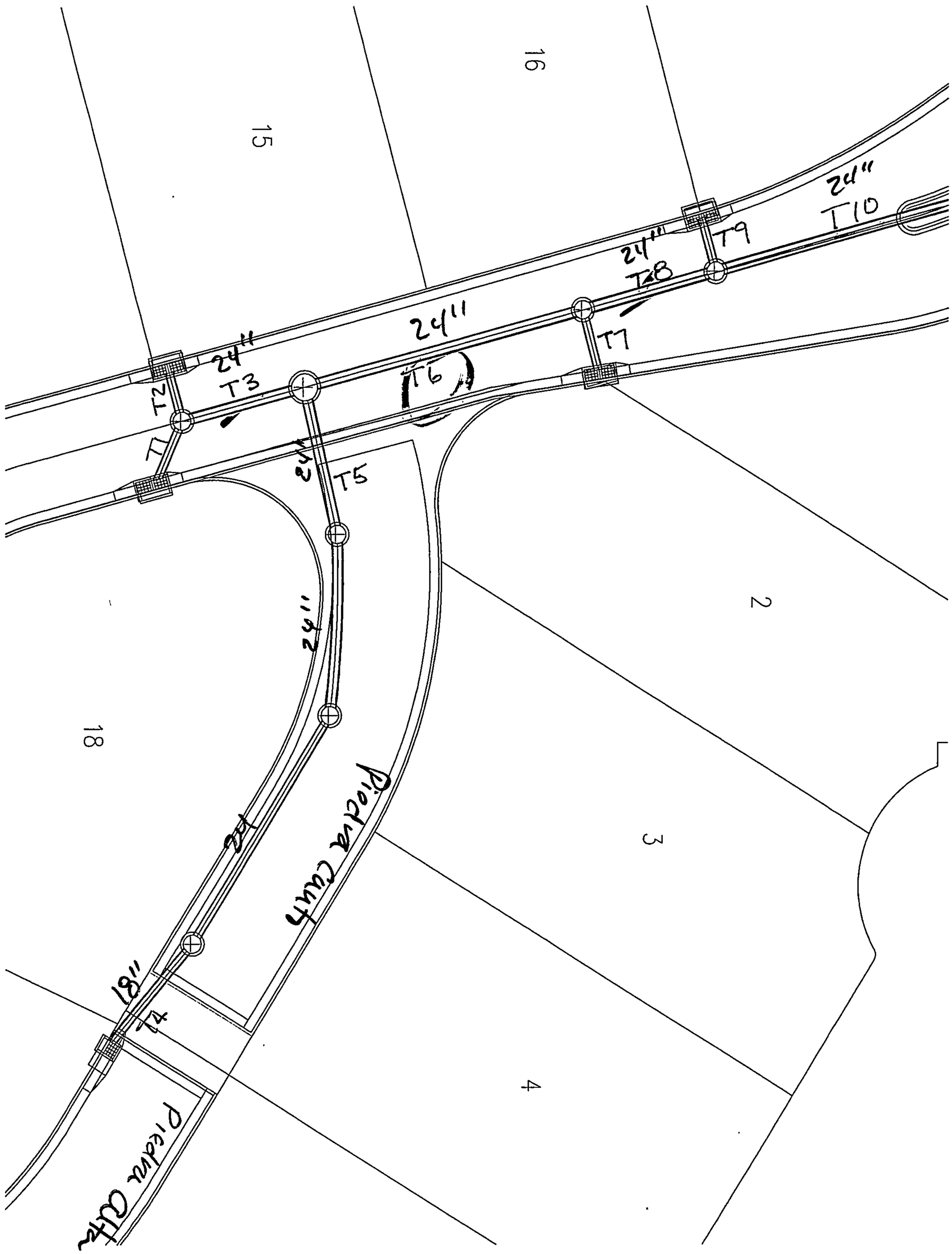
THE 100 YR STORM EVENT = 4.10 CFS at the sump condition

THE 2 x 100 YR STORM EVENT = 8.20 CFS at the sump condition

C-3

APPENDIX D - STORM DRAIN ANALYSIS

Bohannan Huston


16
15
18
2
3
4
24"
T10
T9
24"
T8
24"
T7
24"
T6
24"
T3
T2
T1
24"
T5
24"
Picdua Cuth
24"
18"
T4
Picdua Cuth

D-1

T1

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	1.9600 cfs
Slope	20.3000%
Size (W x T):	18.00 x 2.5000

Output Results

Flow Rate	1.9600 cfs
Slope	20.3000%
d/D	0.1387
Capacity	47.3278 cfs
Velocity	13.2167 ft/s
Depth	0.2080 ft
Critical Depth	0.5200 ft
Size (W x T):	18.00 x 2.5000

T2

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	2.9000 cfs
Slope	2.0000%
Size (W x T):	18.00 x 2.5000

Output Results

Flow Rate	2.9000 cfs
Slope	2.0000%
d/D	0.2993
Capacity	14.8554 cfs
Velocity	6.5241 ft/s
Depth	0.4490 ft
Critical Depth	0.6400 ft
Size (W x T):	18.00 x 2.5000

T3

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	4.8600 cfs
Slope	3.3400%
Size (W x T):	24.00 x 3.0000

Output Results

Flow Rate	4.8600 cfs
Slope	3.3400%

D-2

d/D	0.2315
Capacity	41.3439 cfs
Velocity	8.8217 ft/s
Depth	0.4630 ft
Critical Depth	0.7700 ft
Size (W x T):	24.00 x 3.0000

T4

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	4.1000 cfs
Slope	33.9700%
Size (W x T):	18.00 x 2.5000

Output Results

Flow Rate	4.1000 cfs
Slope	33.9700%
d/D	0.1747
Capacity	61.2233 cfs
Velocity	19.7938 ft/s
Depth	0.2620 ft
Critical Depth	0.7700 ft
Size (W x T):	18.00 x 2.5000

T5

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	4.1000 cfs
Slope	7.7400%
Size (W x T):	24.00 x 3.0000

Output Results

Flow Rate	4.1000 cfs
Slope	7.7400%
d/D	0.1725
Capacity	62.9375 cfs
Velocity	11.3361 ft/s
Depth	0.3450 ft
Critical Depth	0.7100 ft
Size (W x T):	24.00 x 3.0000

T6

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	8.9600 cfs
Slope	6.6300%

Size (W x T): 24.00 x 3.0000

Output Results

Flow Rate	8.9600 cfs
Slope	6.6300%
d/D	0.2650
Capacity	58.2499 cfs
Velocity	13.4403 ft/s
Depth	0.5300 ft
Critical Depth	1.0600 ft
Size (W x T):	24.00 x 3.0000

T7

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	2.7500 cfs
Slope	38.7100%
Size (W x T):	18.00 x 2.5000

Output Results

Flow Rate	2.7500 cfs
Slope	38.7100%
d/D	0.1393
Capacity	65.3552 cfs
Velocity	18.4150 ft/s
Depth	0.2090 ft
Critical Depth	0.6200 ft
Size (W x T):	18.00 x 2.5000

T8

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	11.7100 cfs
Slope	0.6000%
Size (W x T):	24.00 x 3.0000

Output Results

Flow Rate	11.7100 cfs
Slope	0.6000%
d/D	0.5975
Capacity	17.5232 cfs
Velocity	5.9796 ft/s
Depth	1.1950 ft
Critical Depth	1.2200 ft
Size (W x T):	24.00 x 3.0000

T9

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	3.3000 cfs
Slope	1.4600%
Size (W x T):	18.00 x 2.5000

Output Results

Flow Rate	3.3000 cfs
Slope	1.4600%
d/D	0.3473
Capacity	12.6924 cfs
Velocity	6.0496 ft/s
Depth	0.5210 ft
Critical Depth	0.6900 ft
Size (W x T):	18.00 x 2.5000

T-10

Input Data

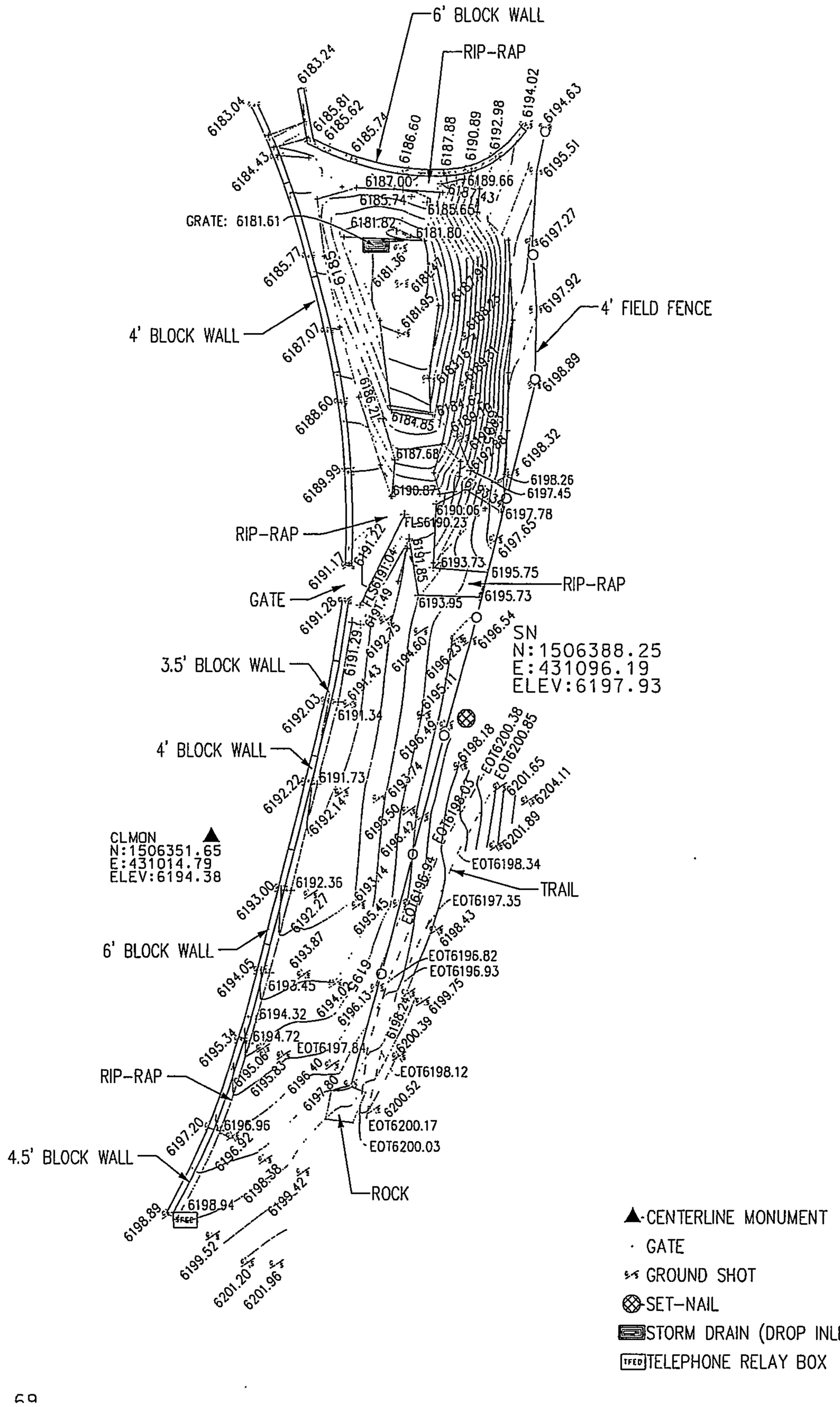
Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	15.0100 cfs
Slope	5.9300%
Size (W x T):	24.00 x 3.0000

Output Results

Flow Rate	15.0100 cfs
Slope	5.9300%
d/D	0.3565
Capacity	55.0891 cfs
Velocity	14.9386 ft/s
Depth	0.7130 ft
Critical Depth	1.3900 ft
Size (W x T):	24.00 x 3.0000

APPENDIX E - POND ANALYSIS

Bohannan Huston



SN
N:1506189.69

p:\070128\cdp\control\existing\ Pondasbuilts from Survey

Job # 070128 015 CDPABQ
(This is CD# so please detail what you did)

Elevation	Incremental Volume cu ft	Cumulative Volume cu ft	Acre-Feet	Surface Area sq ft
6181.3600	0.0000	0.0000	0.0000	0.0000
6181.6100	0.0000	0.0000	0.0000	0.0000
6181.8600	0.0000	0.0000	0.0000	0.0000
6182.1100	0.0000	0.0000	0.0000	0.0000
6182.3600	0.0000	0.0000	0.0000	0.0000
6182.6100	524.7182	524.7182	0.0120	857.5338
6182.8600	228.7927	753.5109	0.0173	972.3584
6183.1100	257.1617	1010.6727	0.0232	1084.4861
6183.3600	285.0106	1295.6833	0.0297	1199.5346
6183.6100	313.4743	1609.1575	0.0369	1313.0972
6183.8600	343.0813	1952.2388	0.0448	1433.8527
6184.1100	373.8355	2326.0743	0.0534	1558.8958
6184.3600	405.5758	2731.6501	0.0627	1685.5555
6184.6100	436.1040	3167.7541	0.0727	1802.2014
6184.8600	464.8172	3632.5713	0.0834	1919.3344
6185.1100	0.0000	3632.5713	0.0834	0.0000
6185.3600	0.0000	3632.5713	0.0834	0.0000
6185.6100	0.0000	3632.5713	0.0834	0.0000
6185.8600	0.0000	3632.5713	0.0834	0.0000
6186.1100	0.0000	3632.5713	0.0834	0.0000
6186.3600	0.0000	3632.5713	0.0834	0.0000
6186.6100	0.0000	3632.5713	0.0834	0.0000
6186.8600	0.0000	3632.5713	0.0834	0.0000
6187.1100	0.0000	3632.5713	0.0834	0.0000
6187.3600	0.0000	3632.5713	0.0834	0.0000
6187.6100	0.0000	3632.5713	0.0834	0.0000
6187.8600	0.0000	3632.5713	0.0834	0.0000
6188.1100	0.0000	3632.5713	0.0834	0.0000
6188.3600	0.0000	3632.5713	0.0834	0.0000
6188.6100	0.0000	3632.5713	0.0834	0.0000
6188.8600	0.0000	3632.5713	0.0834	0.0000
6189.1100	0.0000	3632.5713	0.0834	0.0000
6189.3600	0.0000	3632.5713	0.0834	0.0000
6189.6100	0.0000	3632.5713	0.0834	0.0000
6189.8600	0.0000	3632.5713	0.0834	0.0000
6190.0000	0.0000	3632.5713	0.0834	0.0000

Total Volume

ANALYSIS OF AN INLET IN A SUMP CONDITION

INLET TYPE: Triple Grate Type "D"

WEIR: Q=C*L*H^1.5

Grate opeining

C=3.0

L(triple grate)=[6(2.67')+2(1.8')]=19.62'

Q=3.0(19.62)H^1.5=58.86*H^1.5

ORIFICE: Q=C*A*(2*G*H)^0.5

Grate opening

C=0.6

A(triple grate)=13.36 sf

Q=8.01*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR TRIPLE GRATE	Q (CFS) ORIFICE TRIPLE GRATE	TOTAL Q (CFS)	COMMENTS:
Top of Grate	0.00	0.00	0.00	0.00	0.00	Flow at triple "d" inlet at grate
	0.10	0.10	1.86	20.34	1.86	Weir controls on grate analysis
	0.30	0.30	9.67	35.23	9.67	
	0.50	0.50	20.81	45.49	20.81	
	0.70	0.70	34.47	53.82	34.47	
	0.80	0.80	42.12	57.54	42.12	WS elevation needed for 43 cfs
	0.90	0.90	50.26	61.03	50.26	
	1.10	1.10	67.91	67.47	67.47	Orifice Controls
	1.20	1.20	77.37	70.47	70.47	
	1.30	1.30	87.24	73.35	73.35	
	1.50	1.50	108.13	78.79	78.79	
	1.70	1.70	130.46	83.87	83.87	
	1.90	1.90	154.15	88.67	88.67	

ORIFICE ANALYSIS OF A PIPE IN AN INLET

ORIFICE:

30" RCP Q=CA(2GH)^.5 Invert = 77.00

C=0.6 Diameter (inches) = **30** Top of Grate = 81.50

DEPTH OF INLET 4.50 Height to top of grate = 4.5

AREA (SF) = 4.91 WS elevation above invert = 4.55

WS ELEVATION (ft)	HEIGHT ABOVE ABOVE C.L. OF PIPE (ft)	Q (CFS) ORIFICE	COMMENTS
0.00	0.00	0.00	
1.45	0.20	10.56	
1.65	0.40	14.94	
1.85	0.60	18.30	
2.05	0.80	21.13	
2.25	1.00	23.62	
2.45	1.20	25.88	
2.65	1.40	27.95	
2.85	1.60	29.88	
3.05	1.80	31.69	
3.25	2.00	33.41	
3.45	2.20	35.04	
3.65	2.40	36.60	
3.85	2.60	38.09	
4.05	2.80	39.53	
4.25	3.00	40.92	
4.45	3.20	42.26	
4.55	3.30	42.91	WS Elevation at 43 cfs
4.75	3.50	44.20	
4.95	3.70	45.44	

E-4

Volume Calculations Based on the Albuquerque Development Process Manual, Section 22.2, for Wilderness Cañon at High Desert

Basin	Area	Weighted E	Volume $_{360}$ TOTAL (ac-ft)	Volume $_{1440}$ TOTAL (ac-ft)	Volume $_{360}$ Sediment 3.1% (ac-ft)	Volume $_{1440}$ Sediment 3.1% (ac-ft)
B.1	0.45	1.390	0.052	0.055	0.002	0.002
B.2	1.37	1.390	0.159	0.167	0.005	0.005
B.3	2.58	1.390	0.299	0.315	0.009	0.010
C	3.55	1.407	0.416	0.438	0.013	0.014
D	4.39	1.403	0.513	0.541	0.016	0.017
TOTAL	**12.34**		**1.439**	**1.516**	**0.045**	**0.047**

Notes:

1. Project is in Zone 4 according to the ABQ DPM.
2. Bulking Factors varied between High Desert Phase I Hydrology Design Drainage Report, March 1994 and the Drainage Report for Tract 13 at High Desert, October 2002. Therefore a calculation was completed using both bulking factors.

E-5

Elevation	Incremental Volume	Cumulative Volume	Acre-Feet	Surface Area
	cu ft	cu ft		sq ft
6181.3600	0.0000	0.0000	0.0000	0.0000
6181.8600	0.0000	0.0000	0.0000	0.0000
6182.3600	0.0000	0.0000	0.0000	0.0000
6182.8600	753.5109	753.5109	0.0173	972.3584
6183.3600	542.1723	1295.6833	0.0297	1199.5346
6183.8600	656.5555	1952.2388	0.0448	1433.8527
6183.8650	7.1715	1959.4103	0.0450	1436.3116

sediment volume needed

Sediment Basin Results for Sediment Pond #2

Storage for sediment required = 0.045 acre-ft
(Volume$_{360}$ @ 3.1% Bulked)

Total Sediment Pond Storage = 0.0834 acre-ft

Excess Volume:

$$\begin{array}{r} 0.0834 \\ -\ 0.045 \\ \hline 0.0384 \end{array}$$ acre-ft

Pond min elevation = 6181.36'

Pond max elevation = 6190'

Depth needed for 0.045 acre ft of storage

$$\begin{array}{r} 6183.865 \\ -\ 6181.36 \\ \hline \end{array}$$

▷ 2.505'

Maximum excess depth in sediment pond

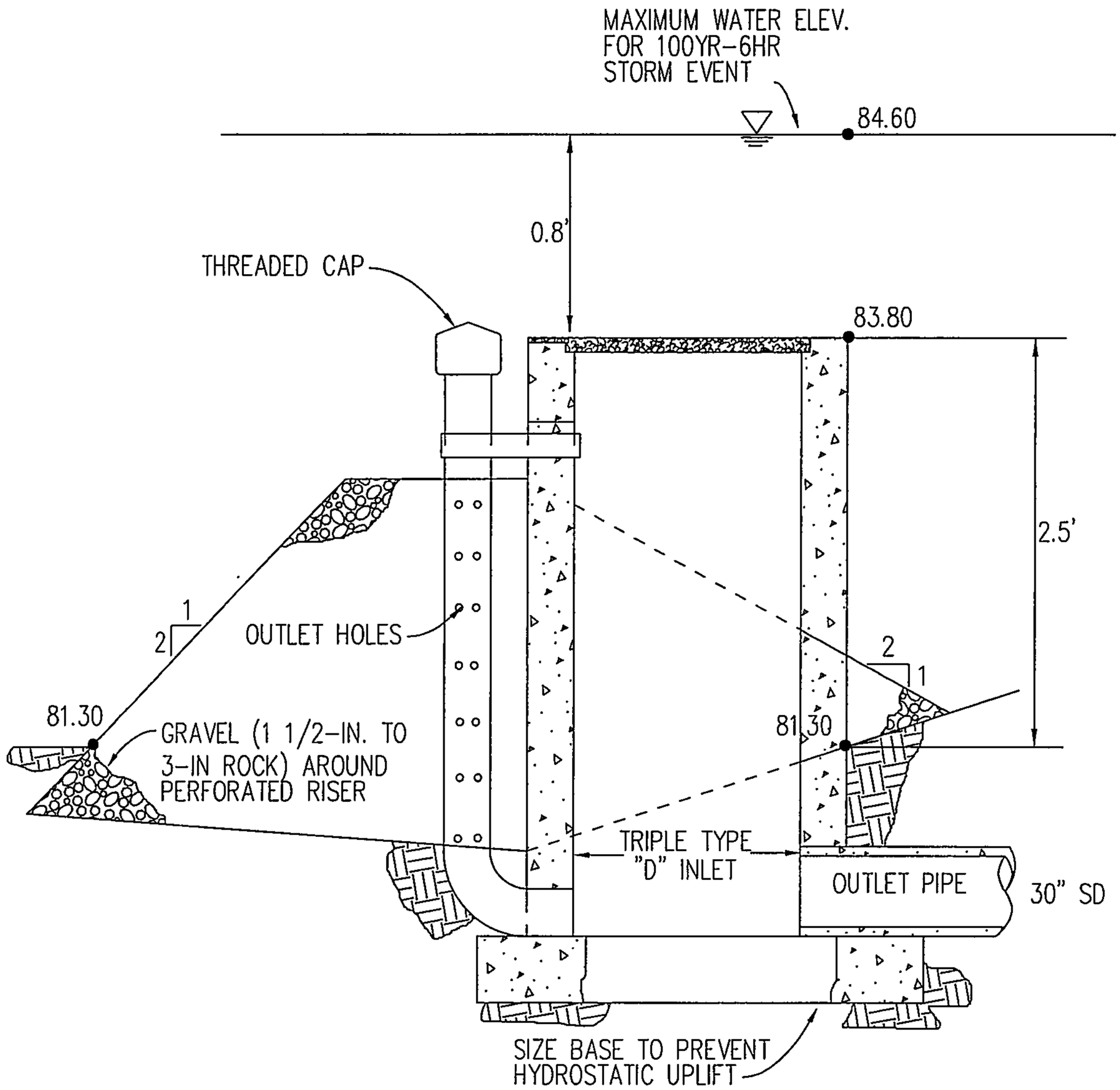
$$\begin{array}{r} 6190 \\ -\ 6183.865 \\ \hline \end{array}$$

▷ 6.135'

Bohannan Huston INC.

PROJECT NAME Wilderness Canon SHEET ____ OF ____
PROJECT NO. at High Desert BY ____ DATE 7/5/07
SUBJECT ____ CH'D EJ DATE ____

ENGINEERING
SPATIAL DATA
ADVANCED TECHNOLOGIES



PERFORATED WATER QUALITY RISER OUTLET

→ Storm Water Quality Design

Total Area

B + C + D = 12.34 acres

1 acre = 43,560 square ft

Area = 537,530.40 ft^2

$\frac{1}{4}'' = 0.021'$ Collect and treat first 1/4" of runoff from watershed

taken from SMAFCA STORM WATER QUALITY GENERAL DESIGN CRITERIA

$V = Area \times \frac{1}{4}'' = 537{,}530.40^{\#} \times 1/48'' = \underline{11{,}198.55\ ft}$

$\boxed{V = 0.2571 \text{ acre-ft}}$ ← volume needed for water + sediment

Bulking Factor of 10% used from Appendix N Drainage Report for Tract 3 at High Desert

$V = 0.2571 \times 0.10 = \underline{0.02571 \text{ acre-ft}}$

(pond volume needed for sediment)

Volume of pond w/o freeboard calculated w/ 1 foot for sedimentation Pond #2

updated 7/5 V=0.0834

$\boxed{V = 0.0627 \text{ acre-ft}}$

Volume of sediment expected < size of pond

So sediment should not be a problem!

Bohannan ▲ Huston INC.

PROJECT NAME Wilderness Canyon SHEET ____ OF ____ ENGINEERING ▲

PROJECT NO. @ High Desert BY E-9 DATE ____ SPATIAL DATA ▲

SUBJECT Sedimentation Ponds CH'D ____ DATE ____ ADVANCED TECHNOLOGIES ▲

SMA to Renewal.

223918

AMAFCA STORMWATER QUALITY FACILITY
FIELD TRIP NOTES

MAY 19, 2005

ATTENDED BY:
Loren Meinz, AMAFCA
David Stoliker, SSCAFCA
Howard Stone, BHI
Scott Armstrong, BHI
Clint Dodge, ASCG

COPIES TO ATTENDEES

PURPOSE:
This field trip was to review representative stormwater quality facilities (SWQ) constructed in the AMAFCA/Albuquerque drainage system. Please review these notes and let me know of any corrections, additions, etc.
One goal was to familiarize the parties with the pros & cons of the different types of facilities constructed to date. BHI and ASCG are currently designing dams for SSCAFCA that will incorporate SWQ components, using some of the information gained from this field trip.

BACKGROUND:
AMAFCA and the City of Albuquerque have constructed and operate about 50 SWQ facilities, many as retrofits to existing drainage facilities (location map attached). SSCAFCA and the City of Rio Rancho have several SWQ facilities with more being incorporated as new projects are built.
SSCAFCA, AMAFCA and the City have developed proposed SWQ standards currently being reviewed for inclusion in the City DPM. A copy of the proposed DPM revisions is attached. Also, the City and AMAFCA have performed a Gross Pollutant Study for the Albuquerque/AMAFCA MS4 (currently in draft form). Some of the data in these notes were generated in that study.

GENERAL DESIGN INFO/CRITERIA
Stormwater quality design criteria:

- Collect and treat the stormwater quality volume (SWQV), defined as the first one fourth inch (¼") of runoff from the watershed area not being treated by upstream facilities.
- The storm event equivalent to the initial ¼" of runoff is approximately the average

annual event - 0.6" rainfall depth. !! check AHYMO input to verify our assumption !!

- Treatment includes collection of Gross Pollutants (floatables) 1-3/4" and larger.
- Collected Gross Pollutants should be prevented from re-entering the system in larger events.
- Treatment should include extended detention of the SWQV to reduce stormwater constituent reduction (i.e. bacteria, dissolved and suspended pollutants, etc.) by sunlight, wind, plant uptake, etc.
- Local treatment includes Priority Projects defined in the proposed Chapter 22 of the DPM modifications, although these do not impact regional drainage facilities.
- One critical finding of the Gross Pollutant Study is that "floatables don't float". A significant portion of the "floatables" are not on the surface, but are buoyant neutral and are submerged. The consequence is that facilities must address both surface floating and submerged gross pollutants.
- Very little local data is available regarding the efficiency of these facilities, the quantity of debris, etc. Consequently, national and international data are the basis for some of the design criteria.

what does this mean?

need to read Ch 22 proposed

SITE VISITS

Six SWQ sites were visited, annotated on the location map. Photographs of the facilities follow each description.

1. MENAUL DETENTION BASIN

This is a combined settling basin, filter-media and gross pollutant baffled outlet facility.
The settling basin slows the inflow with a gabion overflow wall. This slows the inflow allowing larger sediment to drop out.
The filter media is coarse sand with perforated drain piping discharging to the outfall SD.
Fine and colloidal sediment continues into the sand filter causing "sealing-off" the surface.
The result is an inoperable media filter with standing water. A minor disturbance to break up the surface seal allows drainage through the filter. A means to back flush the filter is not provided.

have plans revised

The outlet structure is a pipe grate with large (4"?) openings to collect large debris and a baffled standpipe inside to prevent surface floating debris from entering the system. The standpipe is connected to a large diameter (54"?) storm drain discharging to the Alameda Drain. This system was modeled by UNM – with the standpipe dropping directly into the SD, flow was limited to about 6 cfs (due to vortex?). A 90° bend was inserted in the standpipe before entering the SD increasing the flow to about 36 cfs (due to increased head preventing the vortex from forming?).

1 1/8" per my notes from Loren M.

24"

PROS

Based on anecdotal data, the outlet structure does a good job of collecting gross pollutants.

CONS

Difficult to maintain filter and ~~grate~~ grade due to wet conditions/standing water.
The sand filter plugs up with fine sediments and completely blocks off the drain field. The blockage is a thin layer of colloidal material (i.e. shallow scarifying will open it up).

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APPENDIX F - OFFSITE DRAINAGE

Bohannan Huston

Analyzer Report

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Drainage Structure Analyzer

Culvert Hydraulic Analysis

Date: Thursday, July 05, 2007 4:24:18 PM

==========

Input Data

Shape	Circular
Material	PVC - SDR 35
Roughness	0.013000
Entrance Edge	Smooth tapered inlet throat
Number of Barrels	1
Length	12.0000 ft
Slope	2.0000%
Tailwater	0.0000 ft
Inlet Control Equation	Entrance Loss
Size (W x T):	6.00 x 0.1800
Flow Rate	0.4000 cfs

Output Results

Flow Rate	0.4000 cfs
Control	Inlet
Capacity	0.7935 cfs
Manning's Velocity	4.0333 ft/s
Headwater	0.4669 ft
Critical Depth	0.3200 ft
Normal Depth	0.2510 ft
Size (W x T):	6.00 x 0.1800

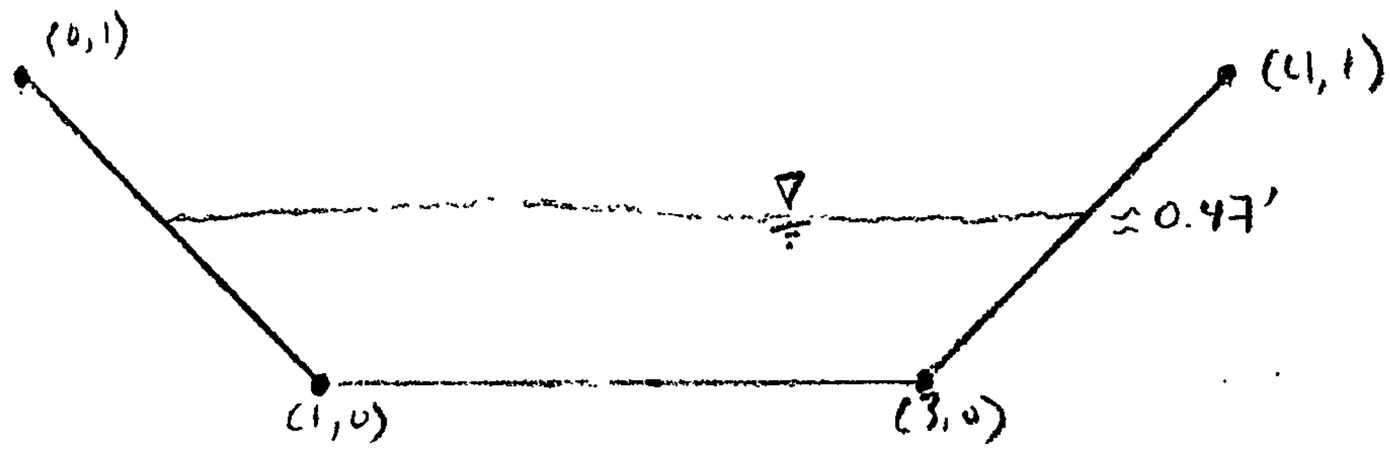
Point1(1to1).txt

MANNING'S N = 0.045 SLOPE = 0.046

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	1.0	3.0	3.0	0.0			
2.0	1.0	0.0	4.0	4.0	1.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.103	0.095	2.141	0.931	2.100	0.063
0.100	0.100	0.210	0.302	2.283	1.439	2.200	0.132
0.150	0.150	0.323	0.593	2.424	1.840	2.300	0.203
0.200	0.200	0.440	0.959	2.566	2.179	2.400	0.274
0.250	0.250	0.563	1.393	2.707	2.477	2.500	0.345
0.300	0.300	0.690	1.893	2.849	2.743	2.600	0.417
0.350	0.350	0.823	2.456	2.990	2.986	2.700	0.489
0.400	0.400	0.960	3.081	3.131	3.210	2.800	0.560
0.450	0.450	1.103	3.768	3.273	3.418	2.900	0.632
0.500	0.500	1.250	4.516	3.414	3.613	3.000	0.703
0.550	0.550	1.403	5.325	3.556	3.797	3.100	0.774
0.600	0.600	1.560	6.195	3.697	3.971	3.200	0.845
0.650	0.650	1.723	7.127	3.838	4.138	3.300	0.916
0.700	0.700	1.890	8.121	3.980	4.297	3.400	0.987
0.750	0.750	2.063	9.178	4.121	4.450	3.500	1.058
0.800	0.800	2.240	10.297	4.263	4.597	3.600	1.129
0.850	0.850	2.423	11.481	4.404	4.739	3.700	1.199
0.900	0.900	2.610	12.728	4.546	4.877	3.800	1.270
0.950	0.950	2.803	14.041	4.687	5.010	3.900	1.340

Point 1 = 3.94 cfs



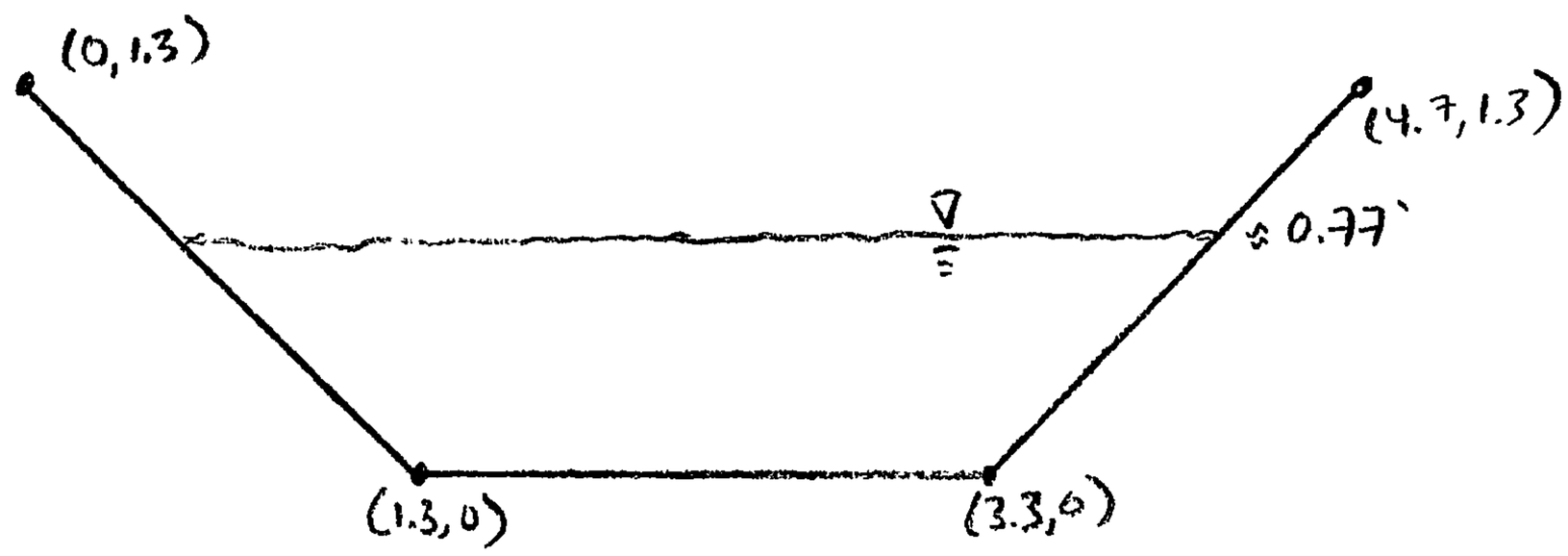
Point2(1to1).txt

MANNING'S N = 0.045 SLOPE = 0.044

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	1.3	3.0	3.3	0.0			
2.0	1.3	0.0	4.0	4.7	1.3			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.103	0.094	2.142	0.917	2.100	0.063
0.100	0.100	0.210	0.298	2.283	1.418	2.201	0.131
0.150	0.150	0.323	0.585	2.425	1.813	2.301	0.201
0.200	0.200	0.440	0.945	2.567	2.148	2.402	0.272
0.250	0.250	0.563	1.374	2.708	2.441	2.502	0.343
0.300	0.300	0.690	1.866	2.850	2.704	2.602	0.414
0.350	0.350	0.823	2.422	2.992	2.943	2.703	0.485
0.400	0.400	0.961	3.039	3.134	3.164	2.803	0.556
0.450	0.450	1.103	3.717	3.275	3.369	2.903	0.627
0.500	0.500	1.251	4.455	3.417	3.561	3.004	0.697
0.550	0.550	1.404	5.253	3.559	3.742	3.104	0.768
0.600	0.600	1.561	6.112	3.700	3.915	3.205	0.838
0.650	0.650	1.724	7.032	3.842	4.079	3.305	0.909
0.700	0.700	1.892	8.013	3.984	4.235	3.405	0.979
0.750	0.750	2.065	9.056	4.125	4.386	3.506	1.049
0.800	0.800	2.242	10.161	4.267	4.531	3.606	1.119
0.850	0.850	2.425	11.329	4.409	4.672	3.706	1.189
0.900	0.900	2.613	12.562	4.550	4.807	3.807	1.259
0.950	0.950	2.806	13.858	4.692	4.939	3.907	1.329
1.000	1.000	3.004	15.220	4.834	5.067	4.008	1.399
1.050	1.050	3.207	16.648	4.975	5.192	4.108	1.469
1.100	1.100	3.415	18.143	5.117	5.313	4.208	1.539
1.150	1.150	3.627	19.705	5.259	5.432	4.309	1.609
1.200	1.200	3.845	21.336	5.401	5.548	4.409	1.679
1.250	1.250	4.068	23.036	5.542	5.662	4.509	1.749
1.300	1.300	4.296	24.807	5.684	5.774	4.610	1.819

Point 2 = 951 cfs



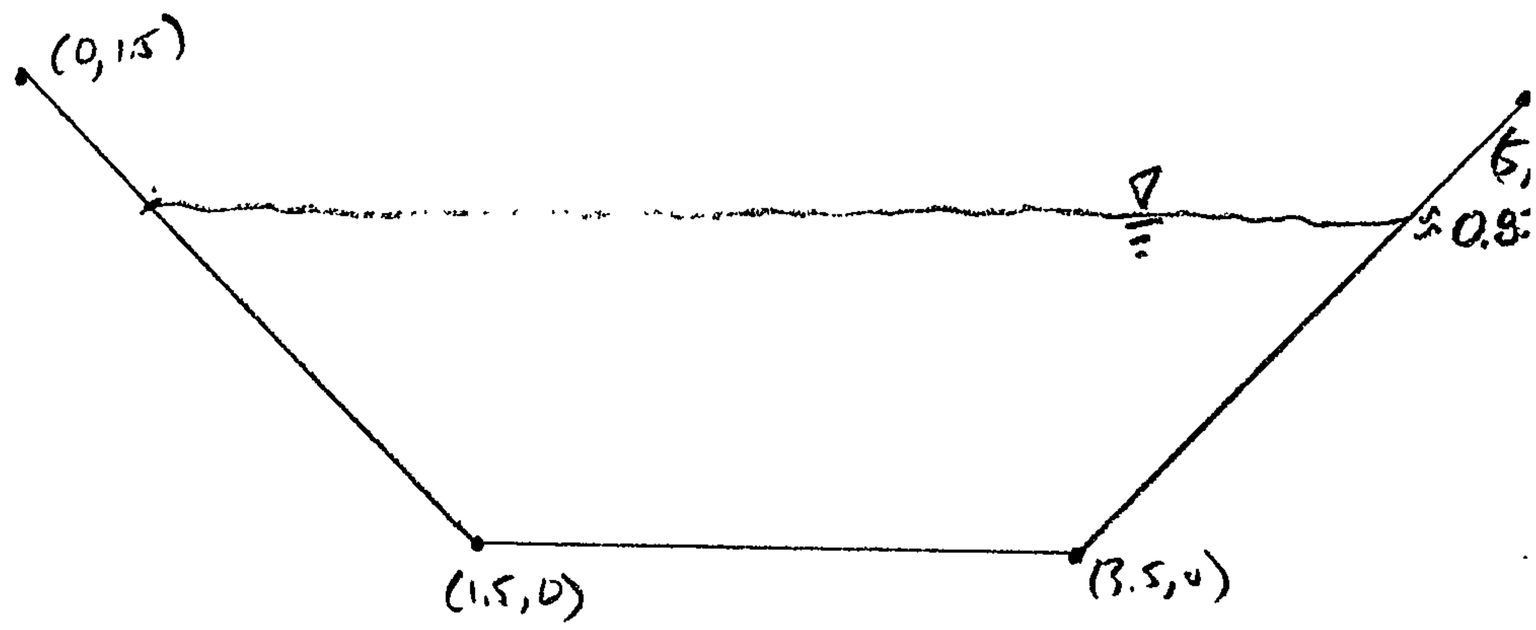
Point3(1to1).txt

MANNING'S N = 0.045 SLOPE = 0.071

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	1.5	3.0	3.5	0.0			
2.0	1.5	0.0	4.0	5.0	1.5			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.103	0.119	2.141	1.163	2.100	0.071
0.100	0.100	0.210	0.378	2.283	1.798	2.200	0.150
0.150	0.150	0.323	0.742	2.424	2.299	2.300	0.232
0.200	0.200	0.440	1.198	2.566	2.724	2.400	0.315
0.250	0.250	0.563	1.741	2.707	3.096	2.500	0.399
0.300	0.300	0.690	2.366	2.849	3.429	2.600	0.483
0.350	0.350	0.823	3.070	2.990	3.732	2.700	0.567
0.400	0.400	0.960	3.851	3.131	4.012	2.800	0.650
0.450	0.450	1.103	4.710	3.273	4.272	2.900	0.734
0.500	0.500	1.250	5.645	3.414	4.516	3.000	0.817
0.550	0.550	1.403	6.656	3.556	4.746	3.100	0.900
0.600	0.600	1.560	7.744	3.697	4.964	3.200	0.983
0.650	0.650	1.723	8.909	3.838	5.172	3.300	1.066
0.700	0.700	1.890	10.151	3.980	5.371	3.400	1.149
0.750	0.750	2.063	11.472	4.121	5.562	3.500	1.231
0.800	0.800	2.240	12.871	4.263	5.746	3.600	1.314
0.850	0.850	2.423	14.350	4.404	5.924	3.700	1.396
0.900	0.900	2.610	15.910	4.546	6.096	3.800	1.478
0.950	0.950	2.803	17.551	4.687	6.263	3.900	1.560
1.000	1.000	3.000	19.275	4.828	6.425	4.000	1.642
1.050	1.050	3.203	21.082	4.970	6.583	4.100	1.724
1.100	1.100	3.410	22.973	5.111	6.737	4.200	1.806
1.150	1.150	3.623	24.951	5.253	6.888	4.300	1.888
1.200	1.200	3.840	27.014	5.394	7.035	4.400	1.970
1.250	1.250	4.063	29.166	5.536	7.179	4.500	2.052
1.300	1.300	4.290	31.406	5.677	7.321	4.600	2.134
1.350	1.350	4.523	33.735	5.818	7.459	4.700	2.215
1.400	1.400	4.760	36.156	5.960	7.596	4.800	2.297
1.450	1.450	5.003	38.668	6.101	7.730	4.900	2.379

Point 3 = 14.79 cfs



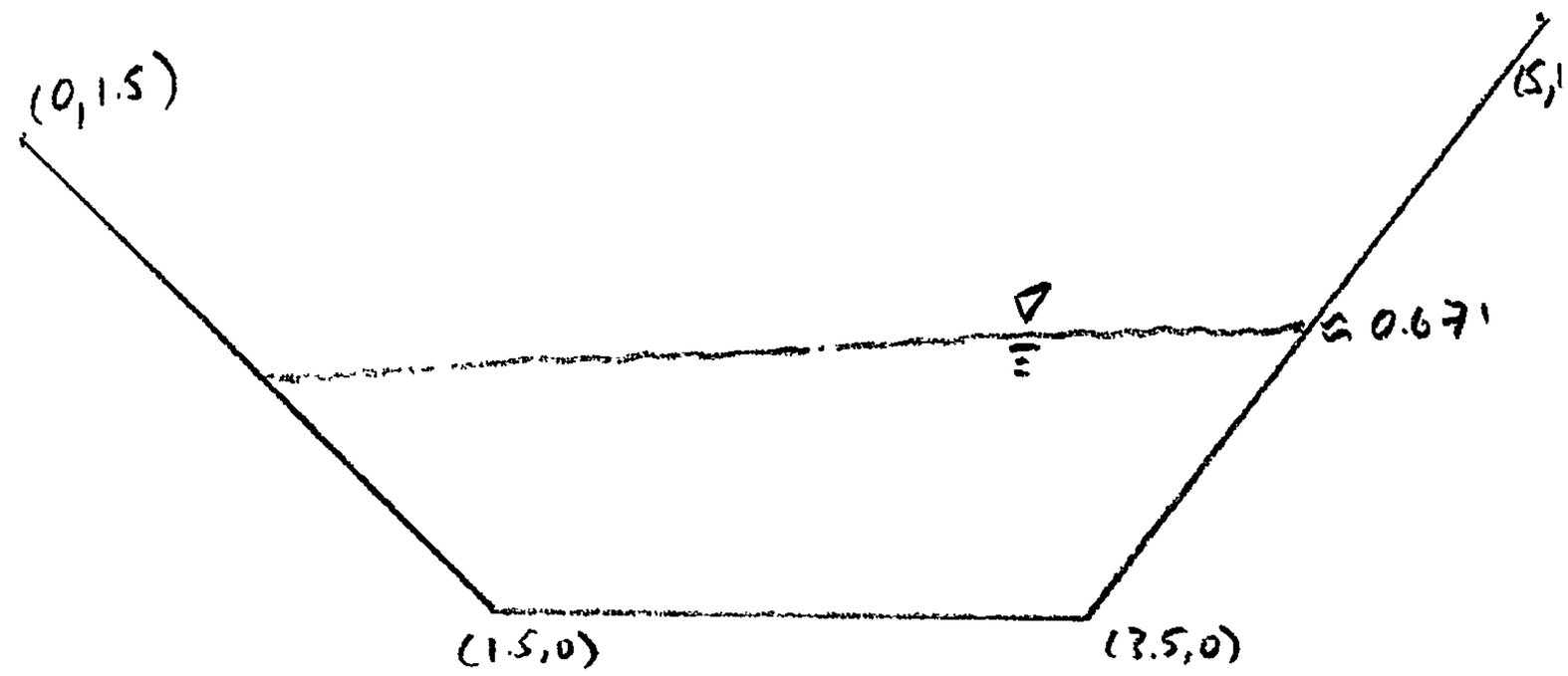
Point4(1to1).txt

MANNING'S N = 0.045 SLOPE = 0.188

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	1.5	3.0	3.5	0.0			
2.0	1.5	0.0	4.0	5.0	1.5			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.103	0.193	2.141	1.888	2.100	0.105
0.100	0.100	0.210	0.613	2.283	2.918	2.200	0.232
0.150	0.150	0.323	1.203	2.424	3.731	2.300	0.367
0.200	0.200	0.440	1.945	2.566	4.420	2.400	0.504
0.250	0.250	0.563	2.825	2.707	5.023	2.500	0.642
0.300	0.300	0.690	3.839	2.849	5.564	2.600	0.781
0.350	0.350	0.823	4.981	2.990	6.056	2.700	0.920
0.400	0.400	0.960	6.250	3.131	6.510	2.800	1.059
0.450	0.450	1.103	7.643	3.273	6.932	2.900	1.197
0.500	0.500	1.250	9.160	3.414	7.328	3.000	1.335
0.550	0.550	1.403	10.801	3.556	7.701	3.100	1.472
0.600	0.600	1.560	12.566	3.697	8.055	3.200	1.609
0.650	0.650	1.723	14.456	3.838	8.392	3.300	1.746
0.700	0.700	1.890	16.472	3.980	8.715	3.400	1.881
0.750	0.750	2.063	18.614	4.121	9.025	3.500	2.017
0.800	0.800	2.240	20.885	4.263	9.324	3.600	2.152
0.850	0.850	2.423	23.285	4.404	9.612	3.700	2.287
0.900	0.900	2.610	25.816	4.546	9.891	3.800	2.422
0.950	0.950	2.803	28.479	4.687	10.162	3.900	2.556
1.000	1.000	3.000	31.276	4.828	10.425	4.000	2.691
1.050	1.050	3.203	34.209	4.970	10.682	4.100	2.825
1.100	1.100	3.410	37.278	5.111	10.932	4.200	2.959
1.150	1.150	3.623	40.487	5.253	11.176	4.300	3.093
1.200	1.200	3.840	43.835	5.394	11.415	4.400	3.227
1.250	1.250	4.063	47.326	5.536	11.650	4.500	3.361
1.300	1.300	4.290	50.961	5.677	11.879	4.600	3.495
1.350	1.350	4.523	54.741	5.818	12.104	4.700	3.629
1.400	1.400	4.760	58.669	5.960	12.325	4.800	3.763
1.450	1.450	5.003	62.746	6.101	12.543	4.900	3.897

Point 4 = 15.59 cfs

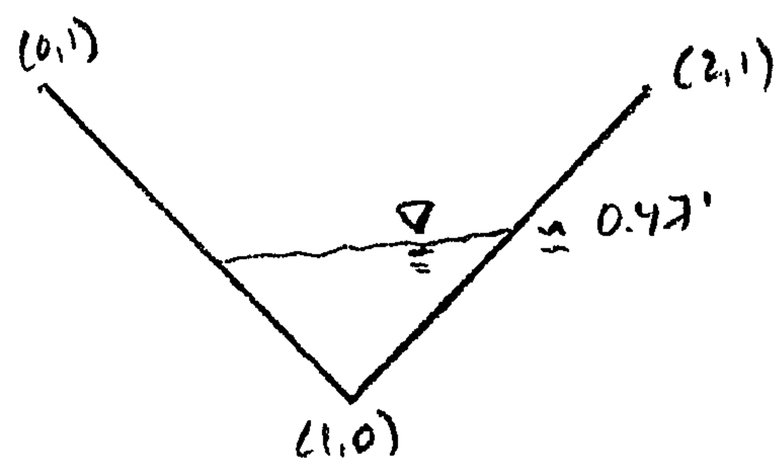


MANNING'S N = 0.045 SLOPE = 0.023

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	1.0	2.0	1.0	0.0	3.0	2.0	1.0

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.003	0.001	0.141	0.338	0.100	0.052
0.100	0.100	0.010	0.005	0.283	0.536	0.200	0.104
0.150	0.150	0.023	0.016	0.424	0.702	0.300	0.158
0.200	0.200	0.040	0.034	0.566	0.851	0.400	0.211
0.250	0.250	0.063	0.062	0.707	0.987	0.500	0.265
0.300	0.300	0.090	0.100	0.849	1.115	0.600	0.319
0.350	0.350	0.123	0.151	0.990	1.235	0.700	0.374
0.400	0.400	0.160	0.216	1.131	1.351	0.800	0.428
0.450	0.450	0.203	0.296	1.273	1.461	0.900	0.483
0.500	0.500	0.250	0.392	1.414	1.567	1.000	0.538
0.550	0.550	0.303	0.505	1.556	1.670	1.100	0.593
0.600	0.600	0.360	0.637	1.697	1.770	1.200	0.649
0.650	0.650	0.423	0.789	1.838	1.867	1.300	0.704
0.700	0.700	0.490	0.961	1.980	1.961	1.400	0.760
0.750	0.750	0.563	1.155	2.121	2.054	1.500	0.816
0.800	0.800	0.640	1.372	2.263	2.144	1.600	0.871
0.850	0.850	0.723	1.613	2.404	2.232	1.700	0.928
0.900	0.900	0.810	1.878	2.546	2.319	1.800	0.984
0.950	0.950	0.903	2.170	2.687	2.404	1.900	1.040

Point A = 0.35 cfs



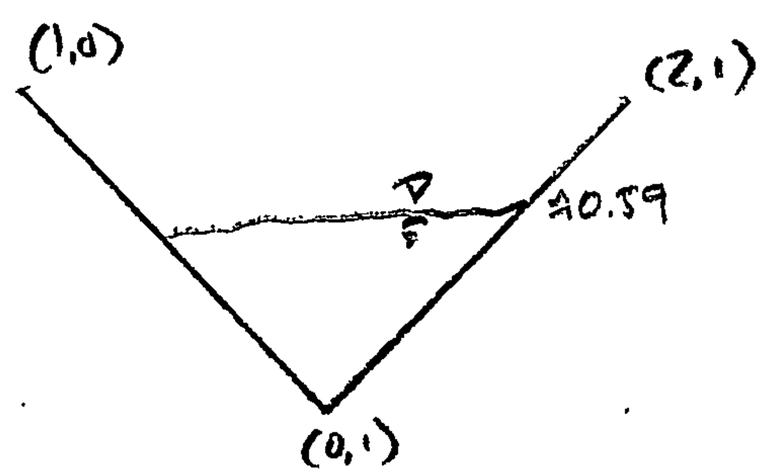
PointB.txt

MANNING'S N = 0.045 SLOPE = 0.045

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	1.0	2.0	1.0	0.0	3.0	2.0	1.0

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.003	0.001	0.141	0.473	0.100	0.053
0.100	0.100	0.010	0.008	0.283	0.750	0.200	0.109
0.150	0.150	0.023	0.022	0.424	0.983	0.300	0.165
0.200	0.200	0.040	0.048	0.566	1.191	0.400	0.222
0.250	0.250	0.063	0.086	0.707	1.382	0.500	0.280
0.300	0.300	0.090	0.140	0.849	1.561	0.600	0.338
0.350	0.350	0.123	0.212	0.990	1.730	0.700	0.397
0.400	0.400	0.160	0.303	1.131	1.891	0.800	0.456
0.450	0.450	0.203	0.414	1.273	2.045	0.900	0.515
0.500	0.500	0.250	0.549	1.414	2.194	1.000	0.575
0.550	0.550	0.303	0.707	1.556	2.338	1.100	0.635
0.600	0.600	0.360	0.892	1.697	2.478	1.200	0.695
0.650	0.650	0.423	1.104	1.838	2.614	1.300	0.756
0.700	0.700	0.490	1.346	1.980	2.746	1.400	0.817
0.750	0.750	0.563	1.617	2.121	2.875	1.500	0.879
0.800	0.800	0.640	1.921	2.263	3.002	1.600	0.940
0.850	0.850	0.723	2.258	2.404	3.125	1.700	1.002
0.900	0.900	0.810	2.630	2.546	3.247	1.800	1.064
0.950	0.950	0.903	3.038	2.687	3.366	1.900	1.126

Point B = 0.87 cfs



MANNING'S N = 0.045 SLOPE = 0.211

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	1.0	2.0	1.0	0.0	3.0	2.0	1.0

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.003	0.003	0.141	1.028	0.100	0.066
0.100	0.100	0.010	0.016	0.283	1.632	0.200	0.141
0.150	0.150	0.023	0.048	0.424	2.139	0.300	0.221
0.200	0.200	0.040	0.104	0.566	2.591	0.400	0.304
0.250	0.250	0.063	0.188	0.707	3.006	0.500	0.391
0.300	0.300	0.090	0.306	0.849	3.395	0.600	0.479
0.350	0.350	0.123	0.461	0.990	3.762	0.700	0.570
0.400	0.400	0.160	0.658	1.131	4.113	0.800	0.663
0.450	0.450	0.203	0.901	1.273	4.448	0.900	0.758
0.500	0.500	0.250	1.193	1.414	4.772	1.000	0.854
0.550	0.550	0.303	1.538	1.556	5.085	1.100	0.952
0.600	0.600	0.360	1.940	1.697	5.389	1.200	1.052
0.650	0.650	0.423	2.402	1.838	5.684	1.300	1.153
0.700	0.700	0.490	2.926	1.980	5.972	1.400	1.255
0.750	0.750	0.563	3.517	2.121	6.253	1.500	1.358
0.800	0.800	0.640	4.178	2.263	6.528	1.600	1.463
0.850	0.850	0.723	4.911	2.404	6.797	1.700	1.569
0.900	0.900	0.810	5.720	2.546	7.062	1.800	1.676
0.950	0.950	0.903	6.607	2.687	7.321	1.900	1.784

Point c = 1.19 cfs

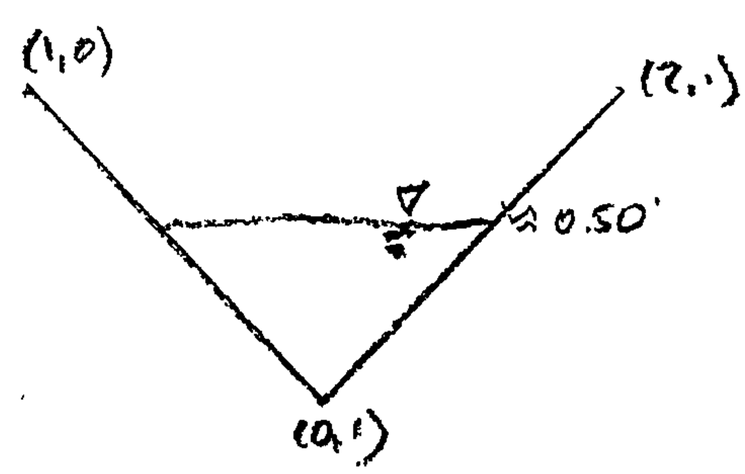


EXHIBIT 2 - EXISTING CONDITIONS BASIN MAP

Bohannan Huston

EXHIBIT 3 - DEVELOPED CONDITIONS BASIN MAP

Bohannan Huston

EXHIBIT 4 - GRADING PLAN

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EXHIBIT 5 - OFFSITE BASIN AND SWALE ANALYSIS

Bohannan Huston

Bohannan Huston

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7500 Jefferson St. NE
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87109-4335

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80112-5928

voice: 303.799.5103
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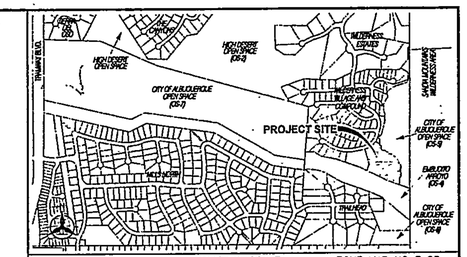
toll free: 877.799.5103

www.bhinc.com

CONSTRUCTION PLANS
FOR
WILDERNESS CAÑON
AT HIGH DESERT
ALBUQUERQUE, NEW MEXICO

INDEX

SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
2	(NOT USED)
3	PRELIMINARY PLAT
4	GRADING PLAN
5	OVERALL PAVING PLAN
	PAVING PLAN AND PROFILE SHEETS
6	ELEVADA TRAIL / PIEDRA ALTA LANE
7	PIEDRA CANTO WAY / PIEDRA CERRO WAY
8	OVERALL UTILITY PLAN
	UTILITY PLAN AND PROFILE SHEETS
9	ELEVADA TRAIL / PIEDRA ALTA LANE
10	PIEDRA CANTO WAY / PIEDRA CERRO WAY
11	OVERALL TRAIL / SWALE PLAN
	TRAIL / SWALE PLAN AND DETAIL SHEETS
12	TRAIL / SWALE PLAN STA. 1+00 TO STA. 4+00
13	TRAIL / SWALE PLAN STA. 4+00 TO STA. 7+00
14	TRAIL / SWALE PLAN STA. 7+00 TO STA. 1+50
15	TRAIL / SWALE PLAN STA. 1+50 TO STA. 3+09
16	TRAIL / SWALE DETAILS



VICINITY MAP: NOT TO SCALE ZONE MAP NO. F-23

NOTICE TO CONTRACTORS

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN THE CITY RIGHT-OF-WAY
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION AS REVISED THROUGH UPDATE No. 7
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM (260-1990) FOR LOCATION OF EXISTING UTILITIES,
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR SURVEYOR IMMEDIATELY SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. FIVE (5) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT, TO THE CONSTRUCTION COORDINATION DIVISION, A DETAILED CONSTRUCTION SCHEDULE. TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A BARRICADING PERMIT FROM THE CONST. COORDINATION DIVISION. CONTRACTOR SHALL NOTIFY CONSTRUCTION COORDINATION ENGINEER (924-3400) PRIOR TO OCCUPYING AN INTERSECTION. REFER TO SECTION 19 OF THE GENERAL CONDITIONS OF THE STANDARD SPECIFICATIONS.
6. ALL WORK EFFECTING ARTERIAL ROADWAYS REQUIRES TWENTY-FOUR HOUR CONSTRUCTION.
7. ALL STREET STRIPING ALTERED OR DESTROYED SHALL BE REPLACED W/ PLASTIC REFLECTORIZED PAVEMENT MARKING BY CONTRACTOR TO THE SAME LOCATION AS EXISTING, OR AS INDICATED BY THIS PLAN SET.
8. CONTRACTOR SHALL NOTIFY THE ENGINEER NOT LESS THAN SEVEN (7) DAYS PRIOR TO STARTING WORK IN ORDER THAT THE CITY SURVEYOR MAY TAKE NECESSARY MEASURES TO INSURE THE PRESERVATION OF SURVEY MONUMENTS. CONTRACTOR SHALL NOT DISTURB PERMANENT SURVEY MONUMENTS WITHOUT THE CONSENT OF THE CITY SURVEYOR AND SHALL NOTIFY THE CITY SURVEYOR AND BEAR THE EXPENSE OF REPLACING ANY THAT MAY BE DISTURBED WITHOUT PERMISSION. REPLACEMENT SHALL BE DONE ONLY BY THE CITY SURVEYOR. WHEN A CHANGE IS MADE IN THE FINISHED ELEVATIONS OF THE PAVEMENT OF ANY ROADWAY IN WHICH A PERMANENT SURVEY MONUMENT IS LOCATED, CONTRACTOR SHALL, AT HIS OWN EXPENSE, ADJUST THE MONUMENT COVER TO THE NEW GRADE UNLESS OTHERWISE SPECIFIED. REFER TO SECTION 4.4 OF THE GENERAL - CONDITIONS OF THE STANDARD SPECIFICATIONS.
9. CONTRACTOR SHALL RECORD DATA ON ALL UTILITY LINES AND ACCESSORIES AS REQUIRED BY THE CITY OF ALBUQUERQUE FOR THE PREPARATION OF "AS CONSTRUCTED" DRAWINGS. CONTRACTOR SHALL NOT COVER UTILITY LINES AND ACCESSORIES UNTIL ALL DATA HAS BEEN RECORDED.
10. CONTRACTOR SHALL MAINTAIN A GRAFFITI-FREE WORK SITE. CONTRACTOR SHALL PROMPTLY REMOVE ANY GRAFFITI FROM ALL EQUIPMENT, WHETHER PERMANENT OR TEMPORARY.
11. CONTRACTOR SHALL COORDINATE WITH THE ABCWUA WATER SYSTEMS DIVISION (857-8200) SEVEN WORKING DAYS IN ADVANCE OF ANY WORK THAT MAY AFFECT EXISTING PUBLIC WATER OR SEWER UTILITIES. EXISTING VALVES TO BE OPERATED BY WATER PERSONNEL ONLY. CONTRACTOR SHALL CONTACT THE WATER SYSTEMS DIVISION SEVEN(7) DAYS PRIOR TO NEEDING VALVES TURNED ON OR OFF.

THE FOLLOWING NOTES ALSO APPLY WHEN CHECKED

- [X] ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
- [X] BACKFILL COMPACTION SHALL BE ACCORDING TO SPECIFIED STREET USE.
- [X] TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE ENGINEER.
- [X] SIDEWALKS AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED.
- [X] IF CURB IS DEPRESSED FOR A DRIVEPAD, THE DRIVEPAD SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF CURB AND GUTTER.
- [X] ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE.
- [X] THE REQUESTOR OR DEVELOPER SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ALL CURB AND GUTTER OR SIDEWALK DAMAGED AFTER APPROVAL BY THE CITY ENGINEER OF WORK COMPLETED BY THE CONTRACTOR.

NOTICE TO CONTRACTORS CONTINUED

12. CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL CONSTRUCTION SIGNING UNTIL PROJECT HAS BEEN ACCEPTED BY THE CITY OF ALBUQUERQUE.
13. DEVELOPER SHALL PROVIDE AND MAINTAIN ALL SIGNING AND STRIPING WITHIN PRIVATE STREETS / DEVELOPMENT.

RECEIVED
SEP 10 2015
LAND DEVELOPMENT SECTION

REV.	SHEETS	CITY ENGINEER	DATE	USER DEPARTMENT	DATE	USER DEPARTMENT	DATE

ENGINEERS STAMP & SIGNATURE

YOLANDA PADILLA MOYER NEW MEXICO 16035 11-5-07 LICENSED PROFESSIONAL ENGINEER

APPROVALS	ENGINEER	DATE
DRC Chairman		
Transportation		11-15-07
Water/Wastewater		11-5-07
Hydrology		11-5-07
CIP		
Const. Mngmt.		
Const. Coord.		
AMAFCA		

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

APPROVED FOR CONSTRUCTION

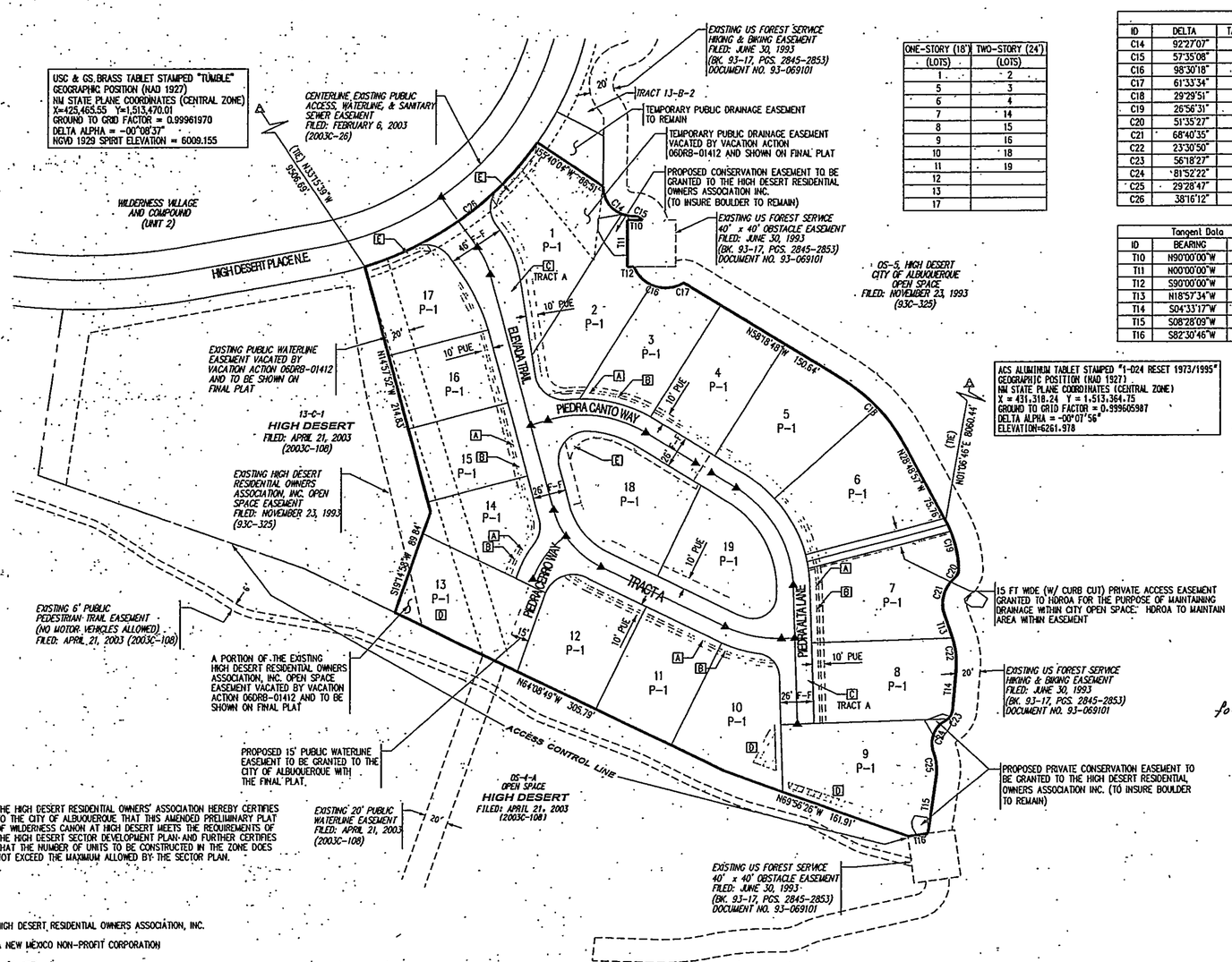
City Engineer Date

DRB CASE NUMBER 1004989

CITY PROJECT NO. 703782

SHEET 1 OF 16

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



THE HIGH DESERT RESIDENTIAL OWNERS' ASSOCIATION HEREBY CERTIFIES TO THE CITY OF ALBUQUERQUE THAT THIS AMENDED PRELIMINARY PLAT OF WILDERNESS CANON AT HIGH DESERT MEETS THE REQUIREMENTS OF THE HIGH DESERT SECTOR DEVELOPMENT PLAN AND FURTHER CERTIFIES THAT THE NUMBER OF UNITS TO BE CONSTRUCTED IN THE ZONE DOES NOT EXCEED THE MAXIMUM ALLOWED BY THE SECTOR PLAN.

HIGH DESERT RESIDENTIAL OWNERS ASSOCIATION, INC.

A NEW MEXICO NON-PROFIT CORPORATION

Raymond Berg 8/9/07

BY: RAY BERG, ITS PRESIDENT DATE

HIGH DESERT INVESTMENT CORPORATION

8/8/07

DATE

ONE-STORY (18') (LOTS)	TWO-STORY (24') (LOTS)
1	2
5	3
6	4
7	14
8	15
9	16
10	18
11	19
12	
13	
17	

Curve Data

ID	DELTA	TANGENT	ARC	RADIUS	CHORD	CHORD BRG
C14	92°27'07"	26.09'	40.34'	25.00'	36.10'	S45°35'18"E
C15	57°35'08"	4.40'	8.04'	8.00'	7.71'	S63°01'18"E
C16	98°30'18"	32.87'	48.69'	28.32'	42.91'	S70°37'14"E
C17	61°33'34"	1.19'	2.15'	2.00'	2.05'	S89°05'36"E
C18	29°29'51"	39.49'	77.22'	150.00'	76.37'	S43°33'53"E
C19	26°56'31"	21.56'	42.32'	90.00'	41.93'	S15°20'41"E
C20	51°35'27"	4.83'	9.00'	10.00'	8.70'	S23°55'18"W
C21	68°40'35"	19.13'	33.56'	28.00'	31.59'	S15°22'44"W
C22	23°30'50"	14.15'	27.91'	68.00'	27.71'	S07°12'09"E
C23	56°18'27"	6.42'	11.79'	12.00'	11.32'	S32°42'30"W
C24	81°52'22"	19.08'	31.44'	22.00'	28.83'	S19°55'33"W
C25	29°28'47"	10.52'	20.58'	40.00'	20.35'	S06°18'14"E
C26	38°16'12"	94.72'	182.35'	273.00'	178.98'	N53°28'02"E

Tangent Data

ID	BEARING	DISTANCE
T10	N90°00'00"W	12.11'
T11	N00°00'00"W	40.00'
T12	S90°00'00"W	5.30'
T13	N18°57'34"W	20.00'
T14	S04°33'17"W	34.00'
T15	S08°28'09"W	48.69'
T16	S82°30'46"W	17.03'

ACS ALUMINUM TABLET STAMPED "1-024 RESET 1973/1995"
GEOGRAPHIC POSITION (NAD 1927)
NM STATE PLANE COORDINATES (CENTRAL ZONE)
X = 431,318.24 Y = 1,513,364.75
GROUND TO GRID FACTOR = 0.999605987
DELTA ALPHA = -00°07'56"
ELEVATION=6261.978

SURVEY NOTES:

1. UNLESS OTHERWISE NOTED, ALL BOUNDARY CORNERS SHOWN THUS (●) SHALL BE MARKED BY A #5 REBAR STAMPED "GROMATZKY, PS 16469".
2. ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PT'S, ANGLE POINTS AND STREET INTERSECTIONS AND SHOWN THUS (▲) WILL BE MARKED BY A FOUR (4") ALUMINUM CAP STAMPED "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION MARKED. DO NOT DISTURB, P.L.S. 16469".
3. THE SUBDIVISION BOUNDARY WILL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN.
4. BASIS OF BEARINGS WILL BE NEW MEXICO STATE PLANE GRID BEARINGS.
5. DISTANCES SHALL BE GROUND DISTANCES.
6. MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE POINTS OF TANGENCY; STREET INTERSECTION-S AND ALL OTHER ANGLE POINTS TO ALLOW THE USE OF CENTERLINE MONUMENTATION.

APPROVED FOR MONUMENTATION AND STREET NAMES

for CITY SURVEYOR August 9, 2007 DATE

[A] 5' PUBLIC WATERLINE EASEMENT TO BE GRANTED TO THE CITY OF ALBUQUERQUE BY FINAL PLAT.

[B] 7' PRIVATE PEDESTRIAN ACCESS EASEMENT.

[C] FULLY ENCOMPASSED WITHIN TRACT 'A' IS A PUBLIC SANITARY SEWER AND WATERLINE EASEMENT GRANTED TO THE CITY OF ALBUQUERQUE'S & ABCWUA. A PUBLIC SUBSURFACE STORM DRAIN EASEMENT SHALL BE DEDICATED TO AND MAINTEANCED BY THE CITY OF ALBUQUERQUE, AND A PRIVATE VEHICLE & PEDESTRIAN ACCESS AND SURFACE DRAINAGE EASEMENT GRANTED TO THE HIGH DESERT RESIDENTIAL OWNER'S ASSOCIATION WITH THE FILING OF THIS PLAT. ACCESS EASEMENT TO BE MAINTAINED BY HIGH DESERT RESIDENTIAL OWNERS ASSOCIATION.

[D] LOT 9: SIDEYARD SETBACK ADJACENT TO OPEN SPACE SHALL BE 10 FT. NO BUILD ZONE ON SOUTHEAST SIDE OF LOT. (SEE HATCHED AREA)
LOT 10: NO BUILD ZONE ON EAST SIDE OF LOT (SEE HATCHED AREA)
LOT 13: SOUTH YARD SETBACK SPLIT 30% AT 15 FT AND 70% AT 10 FT

[E] LANDSCAPE EASEMENT TO BE GRANTED TO HIGH DESERT RESIDENTIAL ASSOCIATION WITH FINAL PLAT

AMENDED PRELIMINARY PLAT

WILDERNESS CAÑON AT HIGH DESERT

(TRACT A OF UNIT 2 WILDERNESS)

ALBUQUERQUE, NEW MEXICO
AUGUST, 2007

N

50 25 0 50
SCALE: 1"=50
(HORIZ.)

THE PURPOSE OF THIS PRELIMINARY PLAT IS TO SUBDIVIDE TRACT A INTO 19 LOTS.

GENERAL NOTES

1. EXISTING ZONING: SU-2 HO/R-R

   PROPOSED DEVELOPMENT: SINGLE FAMILY DETACHED

2. DESCRIPTION: TRACT 'A' OF UNIT 2 WILDERNESS AT HIGH DESERT FILED: DECEMBER 11, 2003, BK.-2003C, PG.-373 DOCUMENT NO. 2003220908

   TOTAL SUBDIVISION ACREAGE:

   WILDERNESS CAÑON 3.9653 ACRES
   TRACT 'A' 0.6353 ACRES

   TOTAL NUMBER OF LOTS 19

   PROPOSED DENSITY:
   UNIT 1 4.80 D.U./AC.
   MINIMUM LOT WIDTH 53'
   MINIMUM LOT AREA 5256.26 SF / 0.1207 AC.

GENERAL NOTES

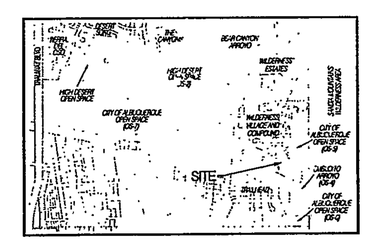
1. NO WOOD BURNING FIREPLACE WILL BE PERMITTED : ALL FIREPLACES MUST BE GAS FIRED USING ARTIFICIAL LOGS.
2. ALL SETBACKS SHOWN ARE IN ACCORDANCE WITH THE R-T ZONING,
3. ALL INTERIOR STREETS ARE TO BE PRIVATE AND TO BE GRANTED TO AND MAINTAINED BY THE HIGH DESERT RESIDENTIAL OWNERS ASSOCIATION (TRACT A)
4. ALL SANITARY AND WATER UTILITIES IN THE TRACT A ARE TO BE PUBLIC, AND OWNED AND MAINTAINED BY THE ABCWUA.
5. THIS SUBDIVISION LIES WITHIN THE CITY OF ALBUQUERQUE WATER AND SANITARY SEWER CAPABILITIES ARE BASED ON THE CITY OF ALBUQUERQUE'S & ABCWUA FACILITIES. WATER AND SANITARY SEWER INFRASTRUCTURE IMPROVEMENTS MUST BE APPROVED BY THE CITY OF ALBUQUERQUE & ABCWUA.
6. ALL SUBSURFACE STORM DRAINS IN TRACT A AND/OR UTILITY EASEMENTS ARE TO BE PUBLIC AND SHALL BE DEDICATED TO AND MAINTAINED BY THE CITY OF ALBUQUERQUE AS SHOWN ON FINAL PLAT.

OWNER:

SCOTT SCHIABOR

LEGEND

SUBDIVISION BOUNDARY
TRACT BOUNDARY LINE
PROPOSED PROPERTY LINE
PROPOSED RIGHT OF WAY LINE
CROSS HATCHING REPRESENTS EXISTING EASEMENT AREAS TO BE VACATED BY VACATION ACTION AND FINAL PLAT



LOCATION MAP
ZONE ATLAS MAP NO. F-23-Z
NOT TO SCALE

Bohannan Huston
Courtyard 1 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING · SPATIAL DATA ADVANCED TECHNOLOGIES

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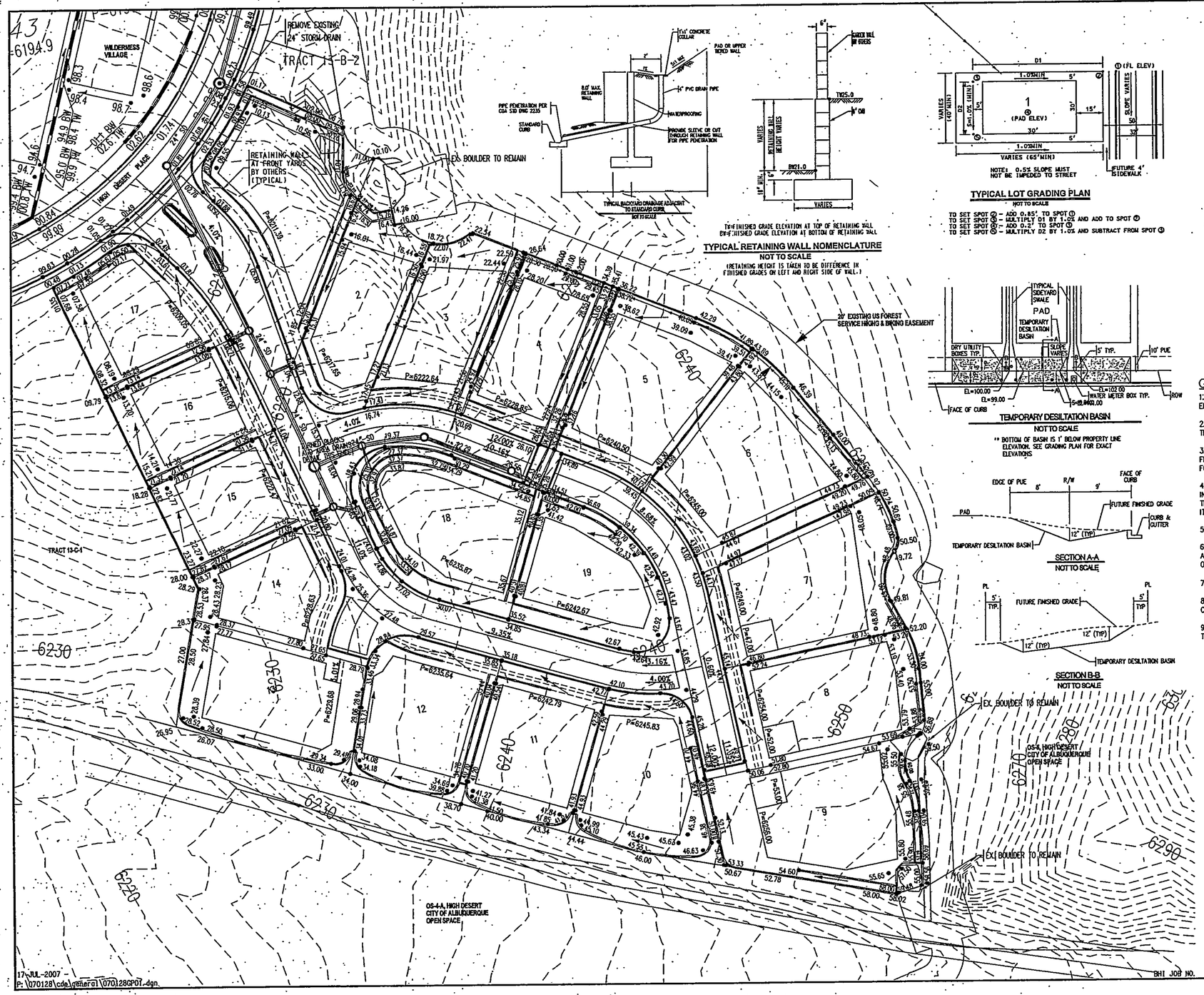
Wed, 08-AUG-2007 - 12:52PM, Plotted by: bpatterson



TY=FINISHED GRADE ELEVATION AT TOP OF RETAINING WALL
BW=FINISHED GRADE ELEVATION AT BOTTOM OF RETAINING WALL

TYPICAL RETAINING WALL NOMENCLATURE

NOT TO SCALE

(RETAINING HEIGHT IS TAKEN TO BE DIFFERENCE IN FINISHED GRADES ON LEFT AND RIGHT SIDE OF WALL.)

NOTE: 0.5% SLOPE MUST NOT BE IMPEDED TO STREET

TYPICAL LOT GRADING PLAN

NOT TO SCALE

TO SET SPOT ② – ADD 0.85' TO SPOT ①
TO SET SPOT ③ – MULTIPLY D1 BY 1.0% AND ADD TO SPOT ②
TO SET SPOT ④ – ADD 0.2' TO SPOT ①
TO SET SPOT ⑤ – MULTIPLY D2 BY 1.0% AND SUBTRACT FROM SPOT ④

TEMPORARY DESILTATION BASIN

NOT TO SCALE

** BOTTOM OF BASIN IS 1' BELOW PROPERTY LINE ELEVATION. SEE GRADING PLAN FOR EXACT ELEVATIONS

SECTION A-A

NOT TO SCALE

SECTION B-B

NOT TO SCALE

LEGEND

PROPOSED SPOT	● 5235.25
EXISTING SPOT	○ 5235.25
LEE LINE	
LIMITS OF GRADING	
EXISTING CONTOUR	5910
PROPOSED CONTOUR	5910
FLOW DIRECTION ARROW	
BUILDING ENVELOPE OR PAD	
RETAINING WALL	
GARDEN WALL	
EXISTING STORM DRAIN LINE	SD
PROPOSED STORM DRAIN INLET	
PROPOSED STORM DRAIN LINE	
PROPOSED STORM DRAIN MANHOLE	
TRACT BOUNDARY	
TEMPORARY DESILTATION BASIN	

GENERAL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.

2. THE CONTRACTOR IS TO REFER TO EARTHWORK SPECIFICATION AS NOTED IN THE SOILS REPORT PREPARED BY GEOTEST, DATED MAY, 2003.

3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES & REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.

4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY PONDS AS PER DETAIL THIS SHEET AND WETTING THE SOIL TO KEEP IT FROM BLOWING.

5. ALL SPOT ELEVATIONS ARE TO FLOWLINE UNLESS OTHERWISE NOTED.

6. BOULDERS GREATER THAN 3 FEET IN DIAMETER EXCAVATED DURING GRADING ACTIVITIES SHALL BE STOCKPILED AND DISPOSED OF AT THE DISCRETION OF THE OWNER.

7. ALL SIDEYARD SPOTS ARE SWALE POINTS AND LOCATED 2' OFFSET FROM PAD.

8. CONTRACTOR SHALL RESEED ALL DISTRURBED AREAS. CONTRACTOR SHALL COORDINATE WITH OWNER ON EXACT SEED MIX AND LANDSCAPING.

9. ALL OFFSITE GRADING, TRAIL AND SWALE IMPROVEMENTS WILL BE PROVIDED ON THE INFRASTRUCTURE PLANS.

N

30 15 0 30
SCALE: 1"=30'
(HORIZ.)

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

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

WILDERNESS TRACT A AT HIGH DESERT
GRADING PLAN

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
	F-23		

AS-BUILT INFORMATION

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

BENCH MARKS

ACS BRASS TABLET STAMPED "1-A8 1980"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
X=350,152.25 Y=1,531,818.60
GROUND-TO-GRID FACTOR = 0.9996593
DELTA ALPHA = -00°17'21"
NGVD 1929 ELEVATION = 5570.04

SURVEY INFORMATION

FIELD NOTES

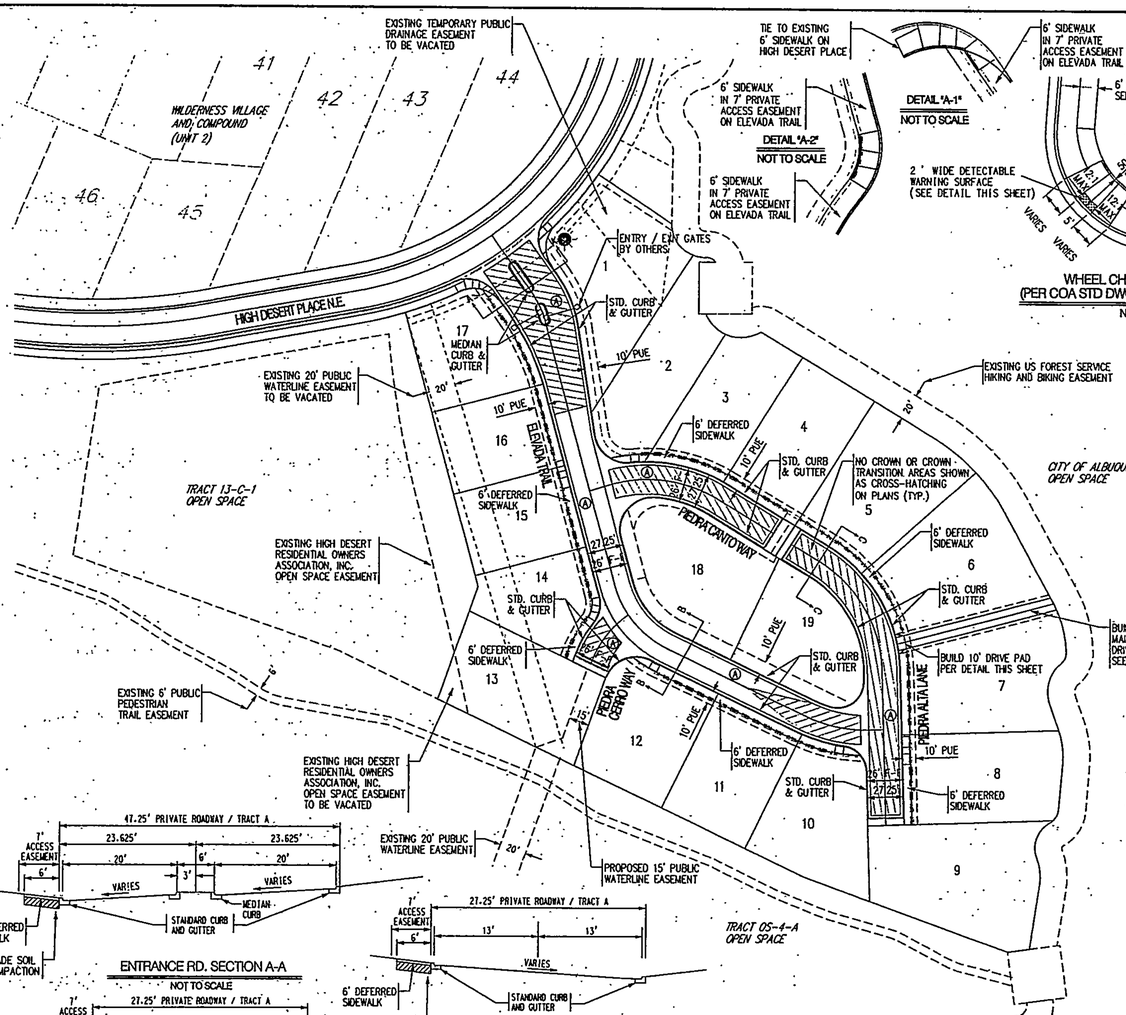
NO.	BY	DATE

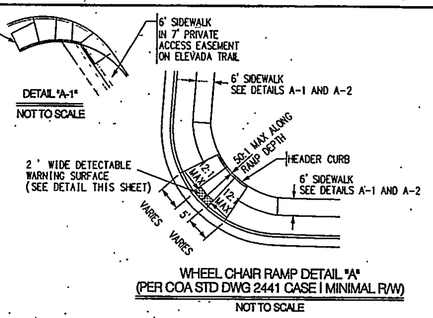
ENGINEER'S SEAL

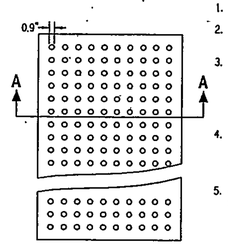
KEITH G. PATTON
NEW MEXICO
07-17-07

NO.	DATE	REMARKS	BY	DATE
		REVISIONS		
		DESIGN	YPM	DATE 07/2007

DESIGNED BY YPM DATE 07/2007
DRAWN BY YPM DATE 07/2007
CHECKED BY YPM DATE 07/2007

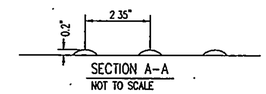




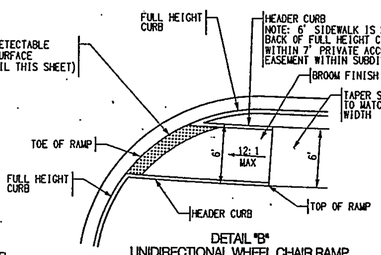


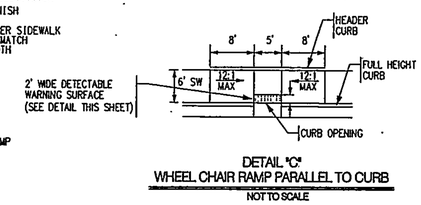
DETECTABLE WARNING SURFACE NOTES:

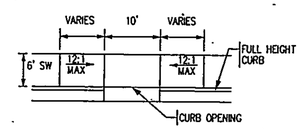
1. DESIGN PER ADA GUIDELINES.
2. SUBMIT SPECIFICATIONS TO C.O.A. CONST. ENGINEER FOR EVALUATION PRIOR TO CONSTRUCTION.
3. THE DETECTABLE WARNING SURFACE SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A NOMINAL DIAMETER OF 23mm. (0.9"), A NOMINAL HEIGHT OF 5mm. (0.2"), AND A NOMINAL CENTER TO CENTER SPACING OF 60mm. (2.35"). THE SURFACE SHALL BE FIBERGLASS PANELS (PROCESS TO BE COORDINATED WITH AND FIELD APPROVED WITH CITY PRIOR TO INSTALLATION).
4. THE DETECTABLE WARNING SURFACE SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE INTEGRAL PART OF THE WALKING SURFACE. PROVIDE 70/30 CONTRAST PER ADA.
5. CONTRACTOR SHALL COORDINATE THE EXACT CONTRAST OF DETECTABLE WARNING SURFACE W/ OWNER.



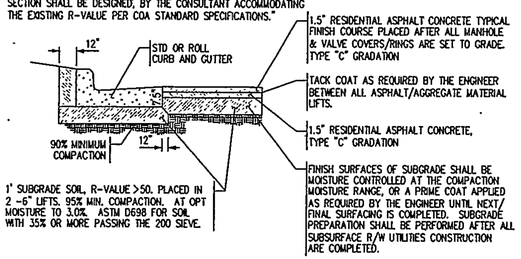
NOTE:
ADA ACCESSIBLE ROUTE (3' @ 2% CROSS-SLOPE) WILL NOT BE PROVIDED WITHIN THE PRIVATE DEVELOPMENT AND AT CONNECTION WITH CITY OF ALBUQUERQUE R/W.

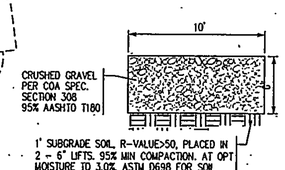


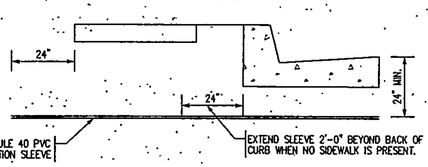




NOTE:
"SOIL NOT HAVING THE MINIMUM R-VALUE OF 50, SHALL BE REMOVED TO A DEPTH OF 2 FEET AND REPLACED, BY THE CONTRACTOR, WITH SUITABLE MATERIAL OR PAVEMENT SECTION SHALL BE DESIGNED, BY THE CONSULTANT ACCOMMODATING THE EXISTING R-VALUE PER COA STANDARD SPECIFICATIONS."

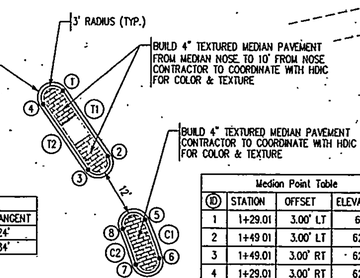




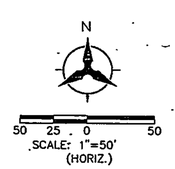


Median Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C1	10.47'	78.00'	07°41'21"	5.24'
C2	9.66'	72.00'	07°41'21"	4.84'

Median Tangent Table		
ID	BEARING	LENGTH
T1	N34°42'32"W	20.00'
T2	N34°42'32"W	20.00'



Median Point Table			
ID	STATION	OFFSET	ELEVATION
1	1+29.01	3.00' LT	6202.41
2	1+49.01	3.00' LT	6203.40
3	1+49.01	3.00' RT	6203.33
4	1+29.01	3.00' RT	6202.35
5	1+67.08	3.00' LT	6204.41
6	1+77.14	3.00' LT	6205.03
7	1+77.14	3.00' RT	6204.96
8	1+67.08	3.00' RT	6204.34



LEGEND

- PROPOSED CURB AND GUTTER
- EXISTING CURB AND GUTTER
- FUTURE CURB AND GUTTER
- PROPOSED STORM DRAIN MANHOLE
- EXISTING STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- STREET LIGHT
- PROPOSED STOP SIGN
- CROWN FLATTENING

BHI JOB NO. 070128

AS-BUILT INFORMATION

CONTRACTOR	DATE
WORK STAKED BY	DATE
INSPECTED BY	
ACCEPTANCE BY	DATE
VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
RECORDED BY	DATE
NO	DATE

BENCH MARKS

USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
X=425,465.55 Y=1,513,470.01
GROUND-TO-GRID FACTOR = 0.99961970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 6009.155

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

VERONICA PADILLA MOYA
NEW MEXICO
16035
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY	YPM / RA	DATE 08/2007
DRAWN BY	ARR / CAM	DATE 08/2007
CHECKED BY	YPM	DATE 08/2007

MICRO-FILM INFORMATION

Bohannan ▲ Huston

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

ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON

OVERALL PAVING PLAN

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
703782	F-23	5	16

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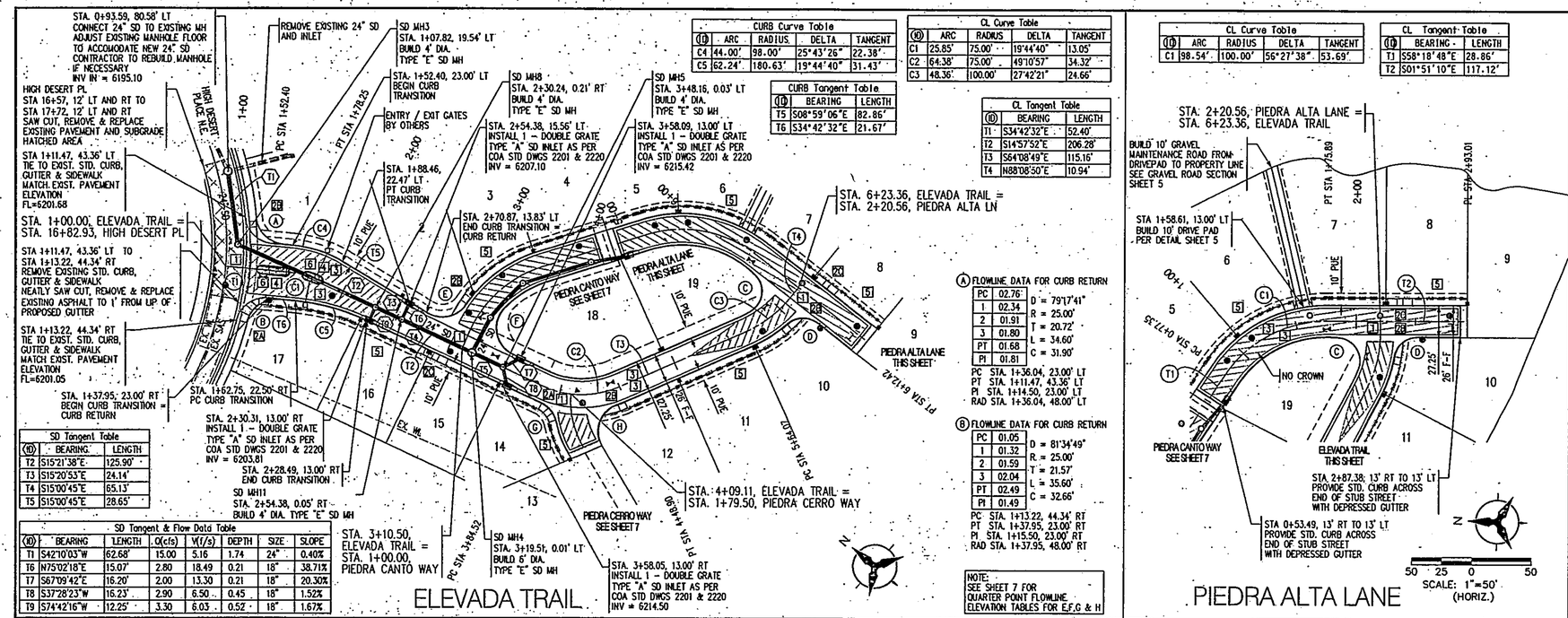
Tue, 06-NOV-2007 -- 17:16PM, Plotted by: srodnovi



SD Tangent Table		
(10)	BEARING	LENGTH
T2	S15°21'38"E	125.90'
T3	S15°20'53"E	24.14'
T4	S15°00'45"E	65.13'
T5	S15°00'45"E	28.65'

SD Tangent & Flow Data Table							
(10)	BEARING	LENGTH	Q(cfs)	V(f/s)	DEPTH	SIZE	SLOPE
T1	S42°10'03"W	62.68'	15.00	5.16	1.74	24"	0.40%
T6	N75°02'18"E	15.07'	2.80	18.49	0.21	18"	38.71%
T7	S67°09'42"E	16.20'	2.00	13.30	0.21	18"	20.30%
T8	S37°28'23"W	16.23'	2.90	6.50	0.45	18"	1.52%
T9	S74°42'16"W	12.25'	3.30	6.03	0.52	18"	1.67%

CURB Curve Table				
(10)	ARC	RADIUS	DELTA	TANGENT
C4	44.00'	98.00'	25°43'26"	22.38'
C5	62.24'	180.63'	19°44'40"	31.43'

CURB Tangent Table		
(10)	BEARING	LENGTH
T5	S08°59'06"E	82.86'
T6	S34°42'32"E	21.67'

CL Curve Table				
(10)	ARC	RADIUS	DELTA	TANGENT
C1	25.85'	75.00'	19°44'40"	13.05'
C2	64.38'	75.00'	49°10'57"	34.32'
C3	48.36'	100.00'	27°42'21"	24.66'

CL Tangent Table		
(10)	BEARING	LENGTH
T1	S34°42'32"E	52.40'
T2	S14°57'52"E	206.28'
T3	S64°08'49"E	115.16'
T4	N88°08'50"E	10.94'

(A) FLOWLINE DATA FOR CURB RETURN

PC	02.76'	D = 79°17'41"
1	02.34	R = 25.00'
2	01.91	T = 20.72'
3	01.80	L = 34.60'
PT	01.68	C = 31.90'
PI	01.81	

PC STA. 1+36.04, 23.00' LT
PT STA. 1+11.47, 43.36' LT
PI STA. 1+14.50, 23.00' LT
RAD STA. 1+36.04, 48.00' LT

(B) FLOWLINE DATA FOR CURB RETURN

PC	01.05	D = 81°34'49"
1	01.32	R = 25.00'
2	01.59	T = 21.57'
3	02.04	L = 35.60'
PT	02.49	C = 32.66'
PI	01.49	

PC STA. 1+13.22, 44.34' RT
PT STA. 1+37.95, 23.00' RT
PI STA. 1+15.50, 23.00' RT
RAD STA. 1+37.95, 48.00' RT

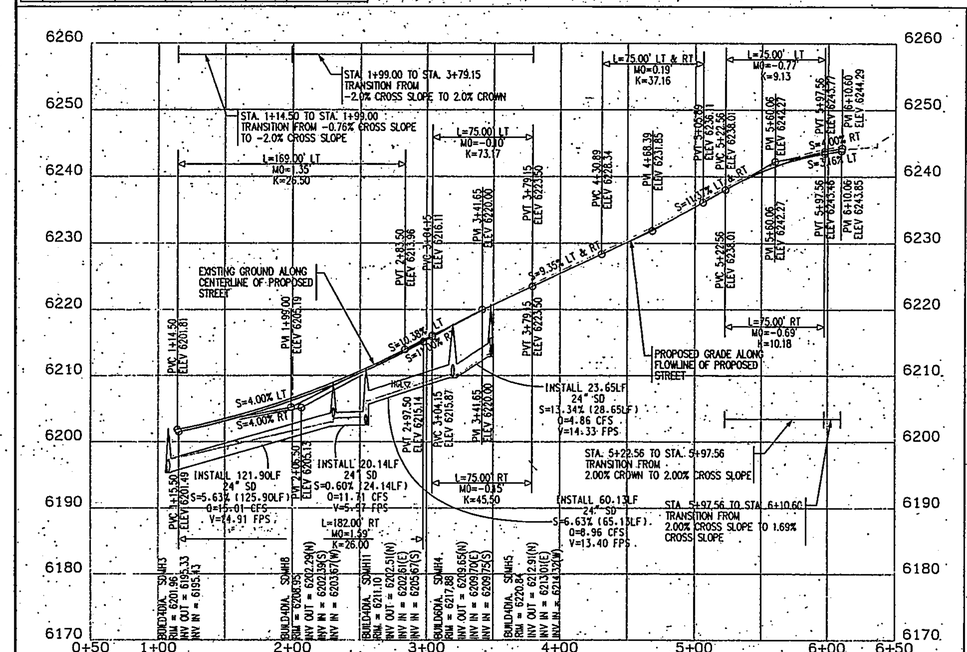
NOTE:
SEE SHEET 7 FOR
QUARTER POINT FLOWLINE
ELEVATION TABLES FOR E,F,G & H

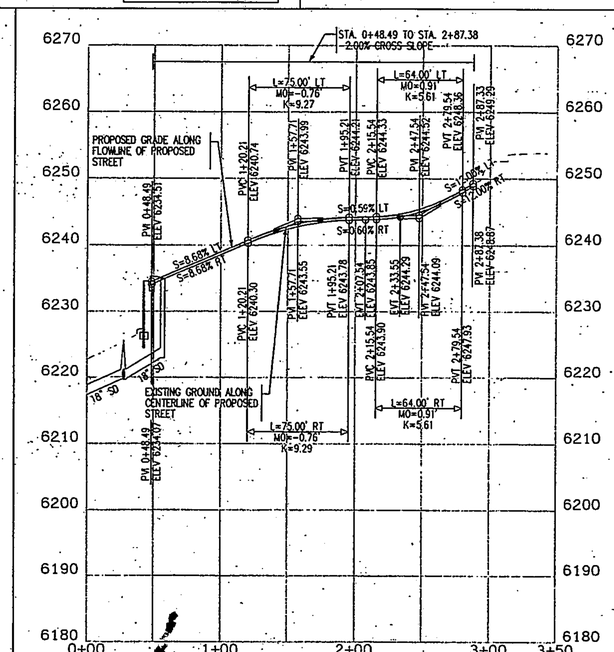
CL Curve Table				
(10)	ARC	RADIUS	DELTA	TANGENT
C1	98.54'	100.00'	56°27'38"	53.69'

CL Tangent Table		
(10)	BEARING	LENGTH
T1	S58°18'48"E	28.86'
T2	S01°51'10"E	117.12'

NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF OF ANY DISCREPANCIES.
2. ALL CURB RETURN RADII SHALL BE 25' UNLESS OTHERWISE SPECIFIED.
3. ALL CURVE DATA AND DIMENSIONS REFER TO FACE OF CURB UNLESS OTHERWISE SPECIFIED.
4. GRADE ELEVATIONS, WHERE NOTED, ARE ALONG FLOWLINE OF CURB UNLESS OTHERWISE SPECIFIED.
5. CONTRACTOR IS TO INSTALL A 4" X 4" X 5' POST AND END AT THE END OF EACH SANITARY SEWER SERVICE.
6. CONTRACTOR IS RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ALL UTILITY CONDUITS AND EXISTING LINES.
7. ANY ADDITIONAL GRADING REQUIRED TO MATCH PROPOSED STREET GRADES SHALL BE INCIDENTAL TO PAVING ITEMS.
8. CONTRACTOR SHALL PROVIDE THE INSPECTORS, (CITY AND PRIVATE) WITH THE PROPOSED HYDROSTATIC TESTING PLAN. THE PLAN MUST BE APPROVED BEFORE TESTING OPERATIONS BEGIN.
9. CONTRACTOR SHALL PARK EQUIPMENT AND VEHICLES AS NOT TO INTERFERE WITH NORMAL ACTIVITIES OF RESIDENTS OR OTHER CONTRACTORS ON SITE.
10. ANY DAMAGE TO THE EXISTING FACILITIES (CURB & GUTTER), PAVEMENT, CONDUITS, LANDSCAPING, UTILITY LINES, ETC.) DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS' EXPENSE.
11. REMOVAL OF THE EXISTING CURB AND GUTTER SHALL BE AS PER COA STD. DWG. 2415 (SAWCUT ONLY).
12. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF CURB & GUTTER.
13. FOR STORM DRAIN CONSTRUCTION, RCP PIPE JOINTS SHALL NOT BE GROUTED PRIOR TO FINAL INSPECTION. FINAL INSPECTION WILL DETERMINE JOINTS TO BE GROUTED FOR FINAL ACCEPTANCE OF THE CONSTRUCTION.
14. ALL WATER SERVICE LINES SHALL BE 3/4" UNLESS OTHERWISE NOTED





(C) FLOWLINE DATA FOR CURB RETURN

PC	43.67	D = 102°58'02"
1	43.84	R = 20.00'
2	44.00	T = 25.13'
3	43.32	L = 35.94'
PT	42.64	C = 31.30'
PI	43.85	

PC STA. 1+85.99, 13.59' RT
PT STA. 2+02.51, 40.17' RT
PI STA. 2+07.54, 13.00' RT
RAD STA. 1+83.67, 33.45' RT

(D) FLOWLINE DATA FOR CURB RETURN

PC	43.70	D = 80°27'13"
1	44.09	R = 20.00'
2	44.49	T = 16.92'
3	44.89	L = 28.08'
PT	45.28	C = 25.83'
PI	44.29	

PC STA. 2+32.00, 29.68' RT
PT STA. 2+51.72, 13.00' RT
PI STA. 2+33.55, 13.00' RT
RAD STA. 2+51.72, 33.00' RT

KEYED GENERAL NOTES

1. INSTALL 6' CONCRETE VALLEY GUTTER AS PER STD. DWG. 2420
2. INSTALL WHEELCHAIR RAMP (2A, 2B, OR 2C) AS PER RAMP DETAILS A, B, AND C-SHEET 5
3. STD. CURB & GUTTER AS PER STD. DWG. 2415A
4. MEDIAN CURB & GUTTER AS PER STD. DWG. 2415B
5. 6' DEFERRED SIDEWALK PER STD. DWG. 2430
6. BUILD 4" TEXTURED MEDIAN PAVEMENT FROM MEDIAN NOSE TO 10' FROM NOSE. CONTRACTOR TO COORDINATE WITH HDIC FOR COLOR AND TEXTURE. MEDIAN NOSES SHALL BE PAINTED YELLOW TO APPROX. 6' BEHIND PC/PT. PER COA STD DWG 2408.

GENERAL NOTE:
ALL STORM DRAIN MANHOLES SHALL BE 6' DIAMETER TYPE "E" AS PER STANDARD DRAWING 2102 UNLESS OTHERWISE NOTED.

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

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
PAVING PLAN & PROFILE
ELEVADA TRAIL / PIEDRA ALTA LANE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
703782	F-23	6	16

SCALE: 1" = 50' (HORIZ.)
1" = 10' (VERT.)
BHI JOB NO. 070128

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Tue, 06-NOV-2007 - 17:18PM, Plotted by: srodnovl

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

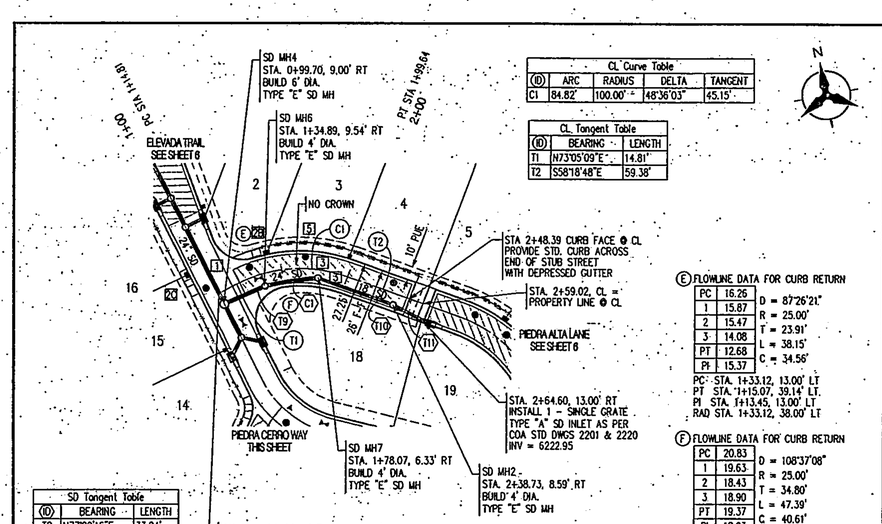
BENCH MARKS
USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
X=425,465.55 Y=1,513,470.01
GROUND-TO-GRID FACTOR = 0.99961970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 6009.155

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
YOLANDA PADILLA MOYER
NEW MEXICO
16035
LICENSED PROFESSIONAL ENGINEER
11-5-07

NO.	DATE	REMARKS / REVISIONS	BY
		DESIGN	

DESIGNED BY YPM / RA — DATE 08/2007
DRAWN BY ARR / CAM — DATE 08/2007
CHECKED BY YPM — DATE 08/2007



CL Curve Table				
(ID)	ARC	RADIUS	DELTA	TANGENT
C1	84.82'	100.00'	48°36'03"	45.15'

CL Tangent Table		
(ID)	BEARING	LENGTH
T1	N73°05'09"E	14.81'
T2	S58°18'48"E	59.38'

SD Tangent Table		
(ID)	BEARING	LENGTH
T9	N77°09'16"E	33.24'
T10	S58°13'46"E	59.14'
T11	S50°05'27"E	29.71'

SD Curve Table				
(ID)	ARC	RADIUS	DELTA	TANGENT
C1	39.61'	260.00'	08°43'40"	19.84'

(E) FLOWLINE DATA FOR CURB RETURN

PC	16.26
1	15.87
2	15.47
3	14.08
PT	12.68
PI	15.37

D = 87°26'21"
R = 25.00'
T = 23.91'
L = 38.15'
C = 34.56'

PC STA. 1+33.12, 13.00' LT
PT STA. 1+15.07, 39.14' LT.
PI STA. 1+13.45, 13.00' LT
RAD STA. 1+33.12, 38.00' LT

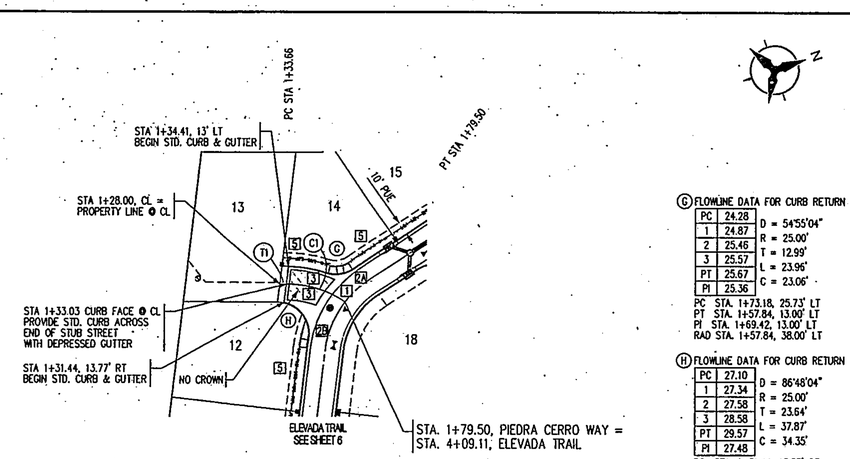
(F) FLOWLINE DATA FOR CURB RETURN

PC	20.83
1	19.63
2	18.43
3	18.90
PT	19.37
PI	18.03

D = 108°37'08"
R = 25.00'
T = 34.80'
L = 47.39'
C = 40.61'

PC STA. 1+11.61, 41.10' RT
PT STA. 1+50.71, 13.00' RT
PI STA. 1+12.56, 13.00' RT
RAD STA. 1+50.71, 38.00' RT

PIEDRA CANTO WAY



CL Curve Table				
(ID)	ARC	RADIUS	DELTA	TANGENT
C1	45.84'	75.00'	35°01'02"	23.66'

CL Tangent Table		
(ID)	BEARING	LENGTH
T1	N19°17'34"E	5.66'

(G) FLOWLINE DATA FOR CURB RETURN

PC	24.28
1	24.87
2	25.46
3	25.57
PT	25.67
PI	25.36

D = 54°55'04"
R = 25.00'
T = 12.99'
L = 23.96'
C = 23.06'

PC STA. 1+73.18, 25.73' LT
PT STA. 1+57.84, 13.00' LT
PI STA. 1+69.42, 13.00' LT
RAD STA. 1+57.84, 38.00' LT

(H) FLOWLINE DATA FOR CURB RETURN

PC	27.10
1	27.34
2	27.58
3	28.58
PT	29.57
PI	27.48

D = 86°48'04"
R = 25.00'
T = 23.64'
L = 37.87'
C = 34.35'

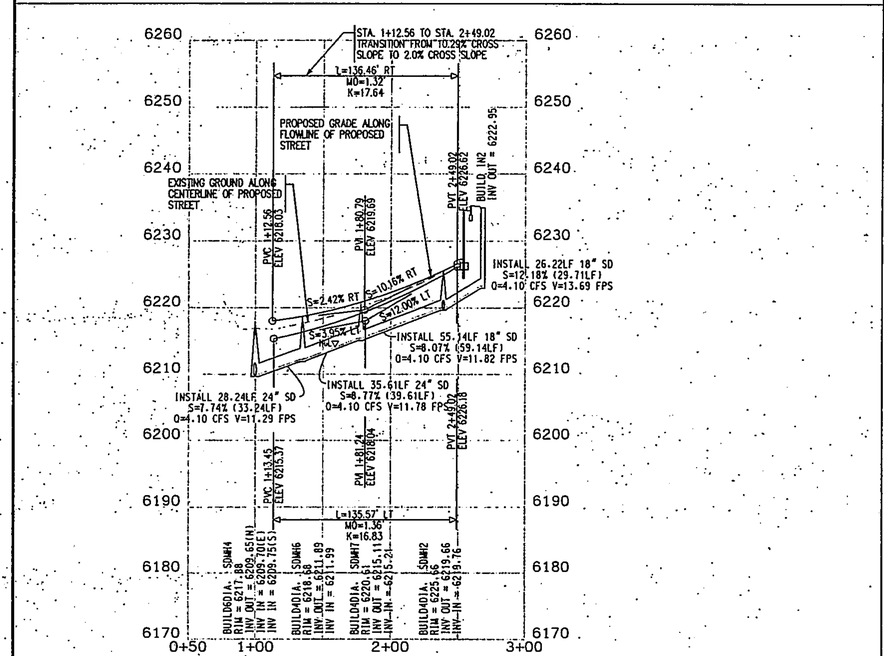
PC STA. 1+31.44, 13.77' RT
PT STA. 1+68.86, 38.70' RT
PI STA. 1+64.56, 13.00' RT
RAD STA. 1+25.50, 38.05' RT

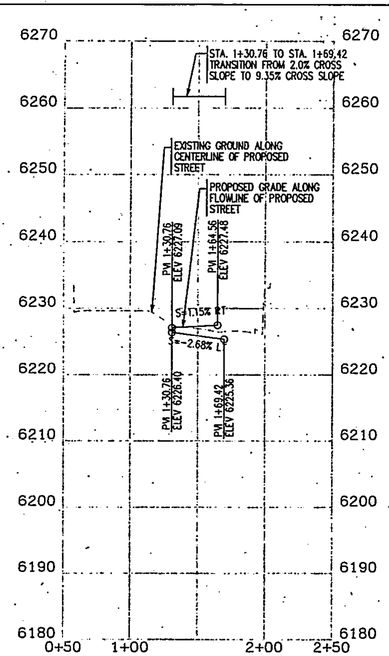
50 25 0 50
SCALE: 1"=50'
(HORIZ.)

PIEDRA CERRO WAY

NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF OF ANY DISCREPANCIES.
2. ALL CURB RETURN RADII SHALL BE 25' UNLESS OTHERWISE SPECIFIED.
3. ALL CURVE DATA AND DIMENSIONS REFER TO FACE OF CURB UNLESS OTHERWISE SPECIFIED.
4. GRADE ELEVATIONS, WHERE NOTED, ARE ALONG FLOWLINE OF CURB UNLESS OTHERWISE SPECIFIED.
5. CONTRACTOR IS TO INSTALL A 4" X 4" X 5' POST AND EMD AT THE END OF EACH SANITARY SEWER SERVICE.
6. CONTRACTOR IS RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ALL UTILITY CONDUITS AND EXISTING LINES.
7. ANY ADDITIONAL GRADING REQUIRED TO MATCH PROPOSED STREET GRADES SHALL BE INCIDENTAL TO PAVING ITEMS.
8. CONTRACTOR SHALL PROVIDE THE INSPECTORS, (CITY AND PRIVATE) WITH THE PROPOSED HYDROSTATIC TESTING PLAN. THE PLAN MUST BE APPROVED BEFORE TESTING OPERATIONS BEGIN.
9. CONTRACTOR SHALL PARK EQUIPMENT AND VEHICLES AS NOT TO INTERFERE WITH NORMAL ACTIVITIES OF RESIDENTS OR OTHER CONTRACTORS ON SITE.
10. ANY DAMAGE TO THE EXISTING FACILITIES (CURB & GUTTER), PAVEMENT, CONDUITS, LANDSCAPING, UTILITY LINES, ETC.) DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS' EXPENSE.
11. REMOVAL OF THE EXISTING CURB AND GUTTER SHALL BE AS PER COA STD. DWG. 2415 (SAWCUT ONLY).
12. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF CURB & GUTTER.
13. FOR STORM DRAIN CONSTRUCTION, RCP PIPE JOINTS SHALL NOT BE GROUTED PRIOR TO FINAL INSPECTION. FINAL INSPECTION WILL DETERMINE JOINTS TO BE GROUTED FOR FINAL ACCEPTANCE OF THE CONSTRUCTION.
14. ALL WATER SERVICE LINES SHALL BE 3/4" UNLESS OTHERWISE NOTED





KEYED GENERAL NOTES

1. INSTALL 6' CONCRETE VALLEY GUTTER AS PER STD. DWG. 2420
2. INSTALL WHEELCHAIR RAMP (2A, 2B, OR 2C) AS PER RAMP DETAILS A, B, AND C SHEET 5
3. STD. CURB & GUTTER AS PER STD. DWG. 2415A
4. MEDIAN CURB & GUTTER AS PER STD. DWG. 2415B
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GENERAL NOTE:
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Bohannan Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
PAVING PLAN & PROFILE
PIEDRA CANTO WAY / PIEDRA CERRO WAY

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

AS-BUILT INFORMATION
CONTRACTOR / DATE
WORK STAKED BY / DATE
WORK INSPECTED BY / DATE
ACCEPTANCE BY / DATE
FIELD VERIFICATION BY / DATE
DRAWINGS CORRECTED BY / DATE
MICRO-FILM INFORMATION
RECORDED BY / DATE
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BENCH MARKS
USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES
(CENTRAL ZONE)
X=425,465.55 Y=1,513,470.01
GROUND-TO-GRID FACTOR = 0.99961970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 6009.155

SURVEY INFORMATION
FIELD NOTES
NO. / BY / DATE

ENGINEER'S SEAL
YOLANDA PADILLA MOYER
NEW MEXICO
16035
LICENSED PROFESSIONAL ENGINEER
5-5-08

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY YPM / RA DATE 08/2007
DRAWN BY ARR / CAM DATE 08/2007
CHECKED BY YPM DATE 08/2007

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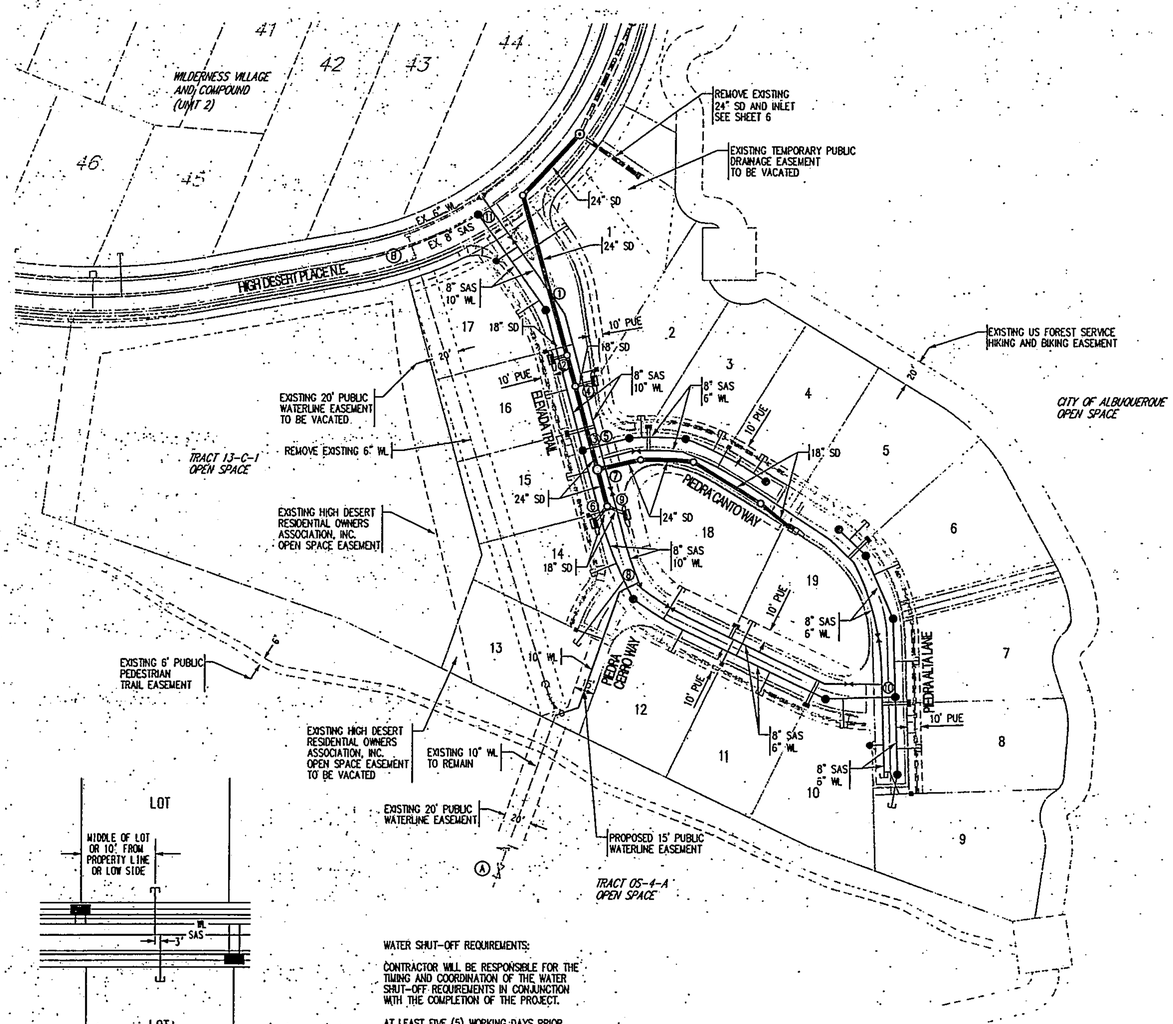
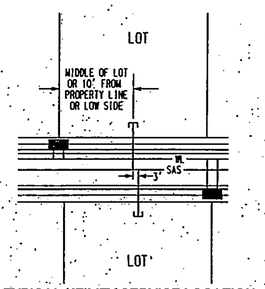
Mon, 05-NOV-2007 - 10:30AM, Plotted by: aromero

BHI JOB NO. 070128

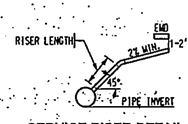
SCALE: 1" = 50' (HORIZ.)
1" = 10' (VERT.)

CITY PROJECT NO. 703782 | ZONE MAP NO. F-23 | SHEET 7 OF 16





TYPICAL UTILITY SERVICE LOCATION
NOT TO SCALE



SERVICE RISER DETAIL
(SERVICE CONNECTION INSTALLATION TO CONFORM TO COA STD. DWG. 2134)

WATER SHUT-OFF REQUIREMENTS:

CONTRACTOR WILL BE RESPONSIBLE FOR THE TIMING AND COORDINATION OF THE WATER SHUT-OFF REQUIREMENTS IN CONJUNCTION WITH THE COMPLETION OF THE PROJECT.

AT LEAST FIVE (5) WORKING DAYS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT PWD/WATER SYSTEM DIVISION (857-8200) TO INITIATE IMPLEMENTATION OF THIS WATER SHUT-OFF PLAN. CONTRACTOR SHALL NOT OPERATE CITY VALVES.

WATER SHUT-OFF PLAN:	CLOSE VALVES
1. 2 – 10" NON-PRESSURE CONNECTIONS TO THE EXISTING 6" & 10" WATERLINES	A, B, C & D
2. EXIST. 6" WL REMOVAL	A, B, C & D

NOTE:
VALVES A, B, C & D ARE NOT SHOWN ON THE CITY OF ALBUQUERQUE AUTOMATED WATER DISTRIBUTION SYSTEM SECTIONAL MAPS AND FOR THIS REASON ARE LABELED AS SUCH FOR THIS PLAN ONLY. THE CONTRACTOR SHALL COORDINATE THE SHUT-OFF PLAN WITH THE OWNER.

NOTE:

EXISTING VALVE A IS APPROXIMATELY 250' FROM NEW 10" CONNECTION AT SOUTH BOUNDARY OF PROJECT TO OPPOSITE SIDE OF EMBUDITO ARROYO ADJACENT TO TRAILHEAD SUBDIVISION

FOR EXISTING VALVE LOCATION B SEE THIS SHEET

FOR EXISTING VALVE LOCATIONS C & D SEE SHEET 11

RESTRAINING JOINT TABLE

MECHANICAL JOINTS	LENGTH OF RESTRAINED JOINTS				
	6"	8"	10"	12"	14"
6" X 8" TEE	1	–	–	–	–
8" X 8" TEE	–	1	–	–	–
8" X 10" TEE	–	–	1	–	–
8" X 12" TEE	–	–	–	1	–
10" X 10" TEE	–	–	1	–	–
10" X 12" TEE	–	–	–	1	–
10" X 14" TEE	–	–	1	–	–
8" X 8" CROSS	–	1	–	–	–
8" X 12" CROSS	–		–	–	–
8" X 6" REDUCER	–	23	–	–	–
10" X 6" REDUCER	–	–	22	–	–
10" X 8" REDUCER	–	–	22	–	–
12" X 8" REDUCER	–	–	–	42	–
12" X 10" REDUCER	–	–	–	25	–
90° HORIZ. BEND	16	20	24	23	27
45° HORIZ. BEND	7	8	10	10	11
22.5° HORIZ. BEND	4	4	5	5	5
11.25° HORIZ. BEND	2	2	2	2	3
GATE VALVE/CAP	42	55	66	50	57
22.5° VERT. BEND (UPPER)	9	7	8	10	11
(LOWER)	3	2	3	3	4
11.25° VERT. BEND (UPPER)	5	3	4	5	6
(LOWER)	2	1	1	2	2

* NOTE:
6" WL, 8" WL & 10" WL TO BE PVC (C-900)
~~12" WL & 14" WL TO BE DUCTILE IRON PIPE~~
~~6" RWL TO BE PURPLE POLYWRAPPED DUCTILE IRON PIPE CL350.~~

Crossings				
DES	SAS	SD	WL	Clearance
1		24" TP 01.91	10" TP 98.37	1.04
		24" BP 99.41	10" BP 97.47	
2	8" TP 01.92	18" TP 05.46		1.61
	8" BP 01.22	18" BP 03.54		
3	8" TP 06.74	24" TP 10.97		1.74
	8" BP 06.03	24" BP 08.47		
4		18" TP 05.88	10" TP 07.92	1.14
		18" BP 03.96	10" BP 07.02	
5	8" TP 07.34		10" TP 13.01	4.77
	8" BP 06.63		10" BP 12.11	
6	8" TP 11.09	18" TP 16.13		3.12
	8" BP 10.39	18" BP 14.22		
7		24" TP 12.18	10" TP 14.79	1.70
		24" BP 09.68	10" BP 13.89	
8	8" TP 16.91		10" TP 23.35	5.54
	8" BP 16.20		10" BP 22.45	
9		18" TP 15.84	10" TP 18.09	1.34
		18" BP 13.93	10" BP 17.19	
10	8" TP 31.42		6" TP 41.36	9.39
	8" BP 30.72		6" BP 40.81	
11	EX. 8" TP 95.76		10" TP 98.38	1.72
	EX. 8" BP 95.05		10" BP 97.48	

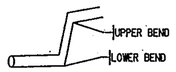
LEGEND

PROPOSED CURB AND GUTTER	
EXISTING CURB AND GUTTER	
FUTURE CURB AND GUTTER	
PROPOSED STORM DRAIN MANHOLE	
EXISTING STORM DRAIN MANHOLE	
PROPOSED SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	
PROPOSED FIRE HYDRANT	
PROPOSED GATE VALVE	
EXISTING GATE VALVE	
PROPOSED STORM DRAIN	SD
PROPOSED SANITARY SEWER	SAS
PROPOSED WATER LINE	W
STORM DRAIN INLET	
STORM DRAIN CULVERT	
EXISTING STORM DRAIN	SD
EXISTING SANITARY SEWER	SAS
EXISTING WATER LINE	W

BHI JOB NO. 070128

NOTE:

1. ALL MECHANICAL JOINTS SHALL BE RESTRAINED AT THE FITTING.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM PIPE LENGTH OF 20 LF FROM ALL MECHANICAL JOINTS. ALL PIPE POINTS WITHIN 20 LF OF MJ SHALL BE RESTRAINED AT THE CONTRACTORS EXPENSE.
3. THE CONTRACTOR SHALL RESTRAIN ALL PIPE JOINTS IN THE SPECIFIED DISTANCE LISTED IN THE TABLE ABOVE. (SEE NOTE 2 ABOVE).
4. THE CONTRACTOR SHALL RESTRAIN ALL FIRE HYDRANT JOINTS FROM THE TEE ON THE MAIN TO THE FIRE HYDRANT FLANGE.
5. ALL CAPS SHALL UTILIZE PCC BLOCKING, UNLESS OTHERWISE NOTED.
6. RESTRAINED LENGTH IS ON LARGE SIDE ON ALL REDUCERS
7. RESTRAIN ALL JOINTS BETWEEN UPPER AND LOWER VERTICAL BENDS.



NOTE:
THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

N

50 25 0 50
SCALE: 1"=50'
(HORIZ.)

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

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
OVERALL UTILITY PLAN

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
703782	F-23	8	16

ENGINEER'S SEAL
LORENZO PADILLA PADILLA
NEW MEXICO
16035
PROFESSIONAL ENGINEER
11-5-07

AS-BUILT INFORMATION
CONTRACTOR WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
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BENCH MARKS
USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
X=425,485.55 Y=1,513,470.01
GROUND-TO-GRID FACTOR = 0.99961970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 6009.155

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

REMARKS
REVISIONS
DESIGN

NO.	DATE	BY

		DATE
DESIGNED BY	YPM / RA	DATE 08/2007
DRAWN BY	ARR / CAM	DATE 08/2007
CHECKED BY	YPM	DATE 08/2007

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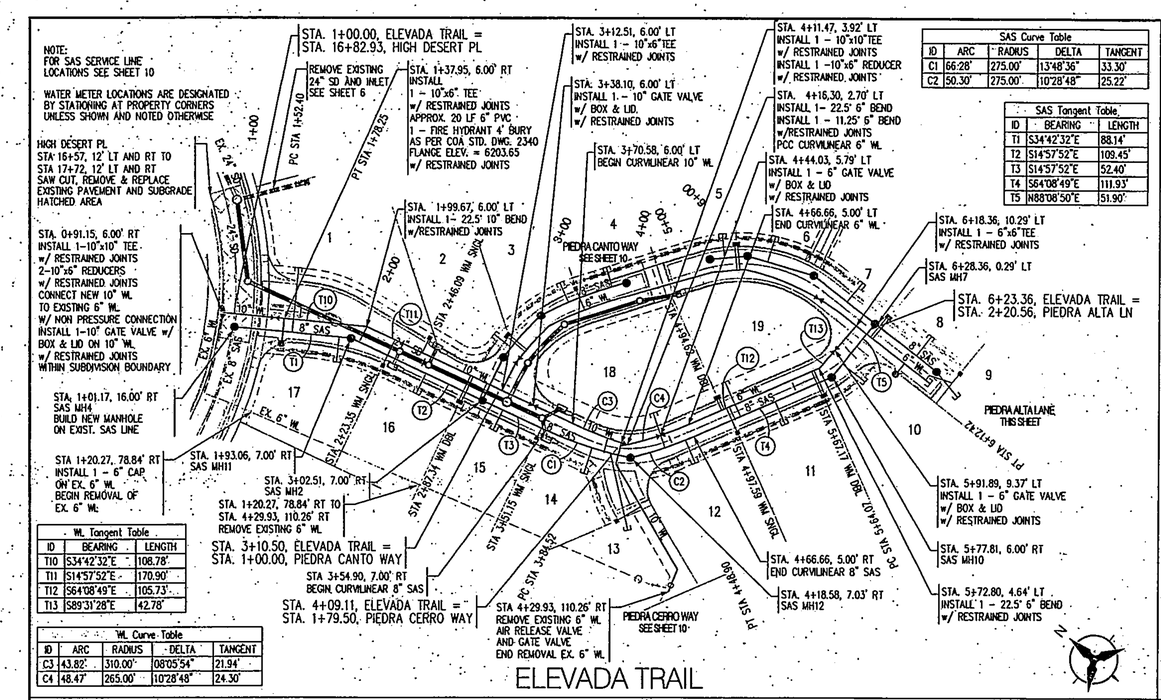
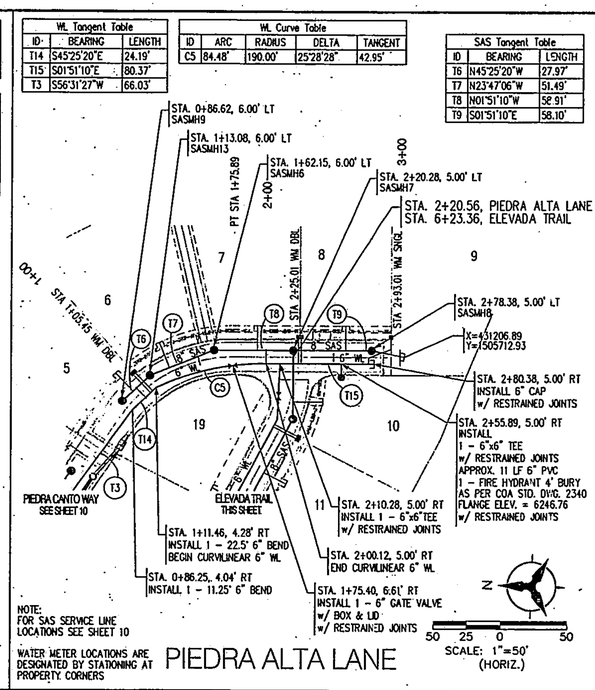


SAS Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C1	66.28'	275.00'	13°48'36"	33.30'
C2	50.30'	275.00'	10°28'48"	25.22'

SAS Tangent Table		
ID	BEARING	LENGTH
T1	S34°42'32"E	88.14'
T2	S14°57'52"E	109.45'
T3	S14°57'52"E	52.40'
T4	S64°08'49"E	111.93'
T5	N88°08'50"E	51.90'

WL Tangent Table		
ID	BEARING	LENGTH
T10	S34°42'32"E	108.78'
T11	S14°57'52"E	170.90'
T12	S64°08'49"E	105.73'
T13	S89°31'28"E	42.78'

WL Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C3	43.82'	310.00'	08°05'54"	21.94'
C4	48.47'	265.00'	10°28'48"	24.30'



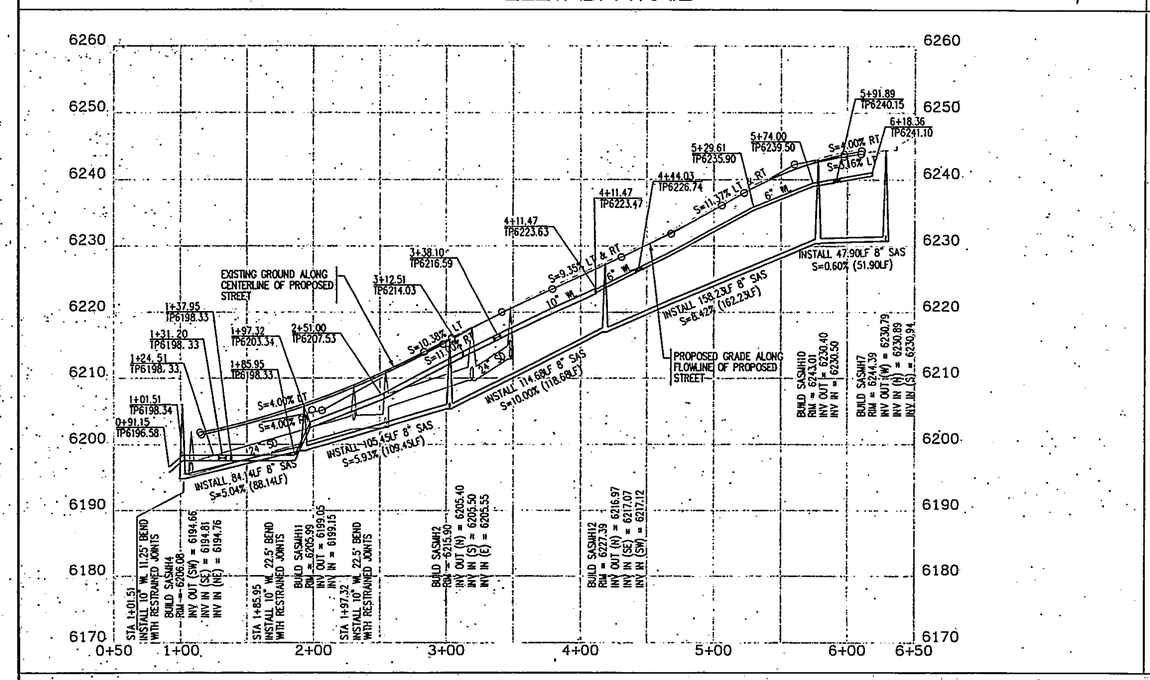
WL Tangent Table		
ID	BEARING	LENGTH
T14	S45°25'20"E	24.19'
T15	S01°51'10"E	80.37'
T3	S56°31'27"W	66.03'

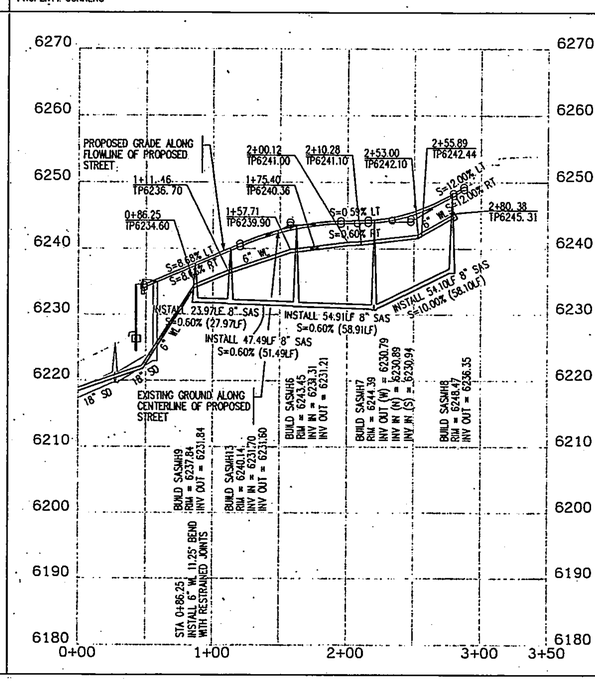
WL Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C5	84.48'	190.00'	25°28'28"	42.95'

SAS Tangent Table		
ID	BEARING	LENGTH
T6	N45°25'20"W	27.97'
T7	N23°47'06"W	51.49'
T8	N01°51'10"W	58.91'
T9	S01°51'10"E	58.10'

NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF OF ANY DISCREPANCIES.
2. ALL CURB RETURN RADII SHALL BE 25' UNLESS OTHERWISE SPECIFIED.
3. ALL CURVE DATA AND DIMENSIONS REFER TO FACE OF CURB UNLESS OTHERWISE SPECIFIED.
4. GRADE ELEVATIONS, WHERE NOTED, ARE ALONG FLOWLINE OF CURB UNLESS OTHERWISE SPECIFIED.
5. CONTRACTOR IS TO INSTALL A 4" X 4" X 5' POST AND END AT THE END OF EACH SANITARY SEWER SERVICE.
6. CONTRACTOR IS RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ALL UTILITY CONDUITS AND EXISTING LINES.
7. ANY ADDITIONAL GRADING REQUIRED TO MATCH PROPOSED STREET GRADES SHALL BE INCIDENTAL TO PAVING ITEMS.
8. CONTRACTOR SHALL PROVIDE THE INSPECTORS, (CITY AND PRIVATE) WITH THE PROPOSED HYDROSTATIC TESTING PLAN. THE PLAN MUST BE APPROVED BEFORE TESTING OPERATIONS BEGIN.
9. CONTRACTOR SHALL PARK EQUIPMENT AND VEHICLES AS NOT TO INTERFERE WITH NORMAL ACTIVITIES OF RESIDENTS OR OTHER CONTRACTORS ON SITE.
10. ANY DAMAGE TO THE EXISTING FACILITIES (CURB & GUTTER), PAVEMENT, CONDUITS, LANDSCAPING, UTILITY LINES, ETC.) DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS' EXPENSE.
11. REMOVAL OF THE EXISTING CURB AND GUTTER SHALL BE AS PER COA STD. DWG. 2415 (SAWCUT ONLY).
12. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF CURB & GUTTER.
13. FOR STORM DRAIN CONSTRUCTION, RCP PIPE JOINTS SHALL NOT BE GROUTED PRIOR TO FINAL INSPECTION. FINAL INSPECTION WILL DETERMINE JOINTS TO BE GROUTED FOR FINAL ACCEPTANCE OF THE CONSTRUCTION.
14. ALL WATER SERVICE LINES SHALL BE 3/4" UNLESS OTHERWISE NOTED
15. ALL EXCAVATION, TRENCHING, AND SHORING ACTIVITIES MUST BE CARRIED-OUT IN ACCORDANCE WITH OSHA 29 CFR 1926. 650 SUBPART P.
16. ELECTRONIC MARKER DISKS (EMD) WILL BE PLACED ACCORDING TO SECTION 170 OF THE CITY OF ALBUQUERQUE STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION AS REVISED THROUGH UPDATE #7.





GENERAL NOTE:
'ALL SANITARY SEWER MANHOLES SHALL BE 4' DIAMETER TYPE "B" AS PER NM APWA STANDARD DRAWING 2102 UNLESS OTHERWISE NOTED.

VALVES	PER STD. DWG.	2326 & 2328
MANHOLES	PER STD. DWG.	2101 & 2102
WATER SERVICE	PER STD. DWG.	2361, 2362 & 2368
SAS SERVICE	PER STD. DWG.	2125

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ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
UTILITY PLAN & PROFILE
ELEVADA TRAIL / PIEDRA ALTA LANE

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

AS-BUILT INFORMATION
CONTRACTOR / WORK STAKED BY / ACCEPTANCE BY / FIELD VERIFICATION BY / DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
DATE / REEL NO. / NO.

BENCH MARKS
USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
X=425,465.55 Y=1,513,470.01
GROUND-TO-GRID FACTOR = 0.99961970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 6009.155

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
VICTORIA PHILLIPS LOVATO
NEW MEXICO
16035
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	

		DATE
DESIGNED BY	YPM / RA	DATE 08/2007
DRAWN BY	ARR / CAM	DATE 08/2007
CHECKED BY	YPM	DATE 08/2007

SCALE: 1" = 50' (HORIZ.) 1" = 10' (VERT.)
BHI JOB NO. 070128

CITY PROJECT NO. 703782 | ZONE MAP NO. F-23 | SHEET 9 OF 16

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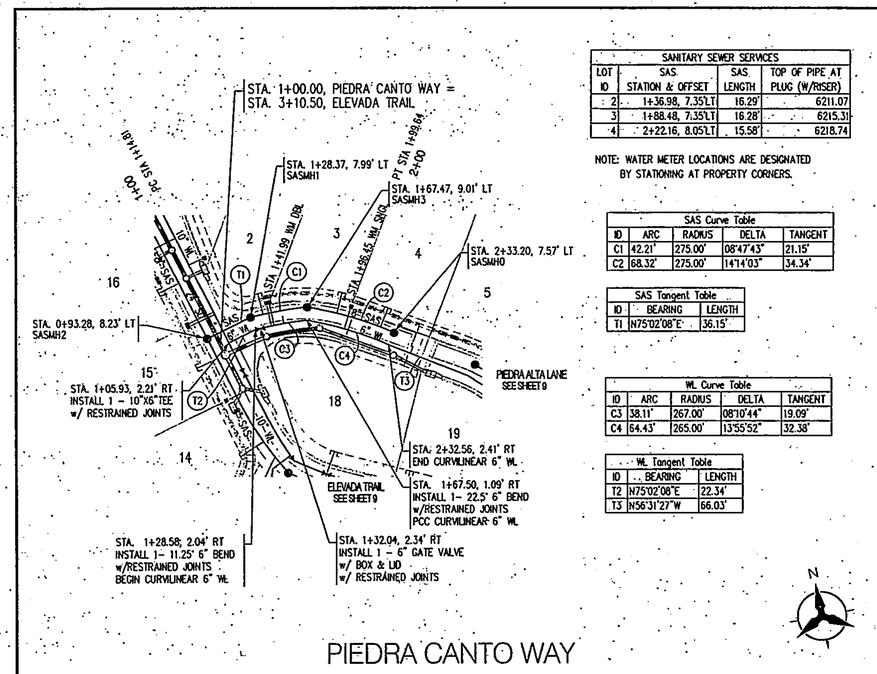
Mon, 05-NOV-2007 - 10:30AM, Plotted by: aromero



PIEDRA CANTO WAY

SANITARY SEWER SERVICES			
LOT ID	SAS STATION & OFFSET	SAS LENGTH	TOP OF PIPE AT PLUG (W/RISER)
2	1+36.98, 7.35'LT	16.29'	6211.07
3	1+88.48, 7.35'LT	16.28'	6215.31
4	2+22.16, 8.05'LT	15.58'	6218.74

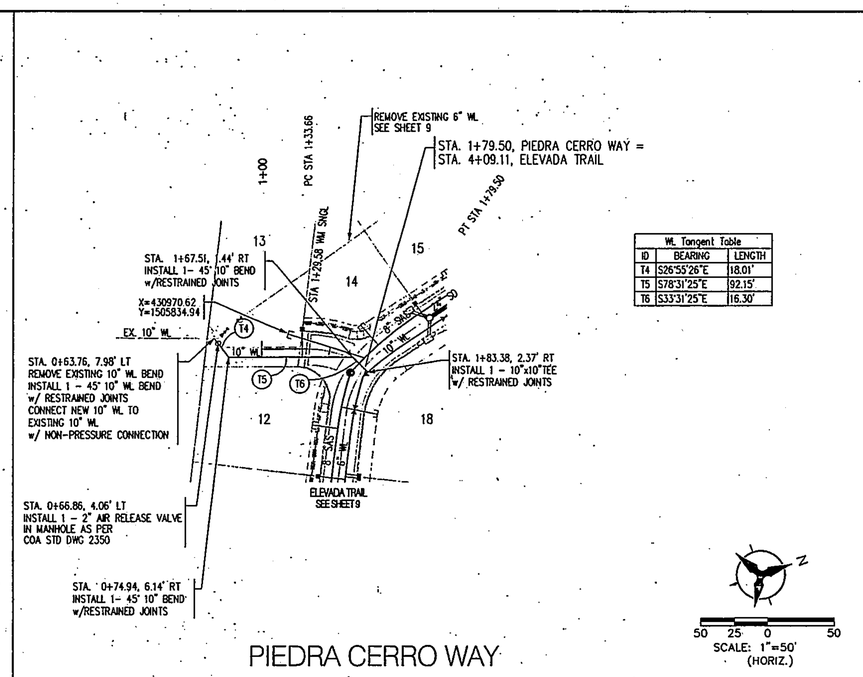
NOTE: WATER METER LOCATIONS ARE DESIGNATED BY STATIONING AT PROPERTY CORNERS.

SAS Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C1	42.21'	275.00'	08°47'43"	21.15'
C2	68.32'	275.00'	14°14'03"	34.34'

SAS Tangent Table		
ID	BEARING	LENGTH
T1	N75°02'08"E	36.15'

WL Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C3	38.11'	267.00'	08°10'44"	19.09'
C4	64.43'	265.00'	13°55'52"	32.38'

WL Tangent Table		
ID	BEARING	LENGTH
T2	N75°02'08"E	22.34'
T3	N56°31'27"W	66.03'



PIEDRA CERRO WAY

WL Tangent Table		
ID	BEARING	LENGTH
T4	S26°55'26"E	18.01'
T5	S78°31'25"E	92.15'
T6	S33°31'25"E	16.30'

NOTES

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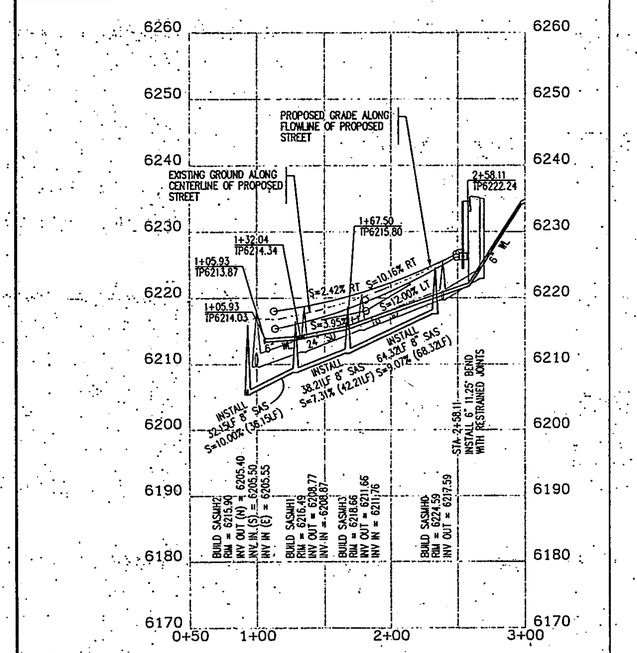


SANITARY SEWER SERVICES ELEVADA TRAIL			
LOT ID	SAS STATION & OFFSET	SAS LENGTH	TOP OF PIPE AT PLUG (W/RISER)
1	1+35.48, 16.00'RT	49.63'	6201.34 (3')
* 10	5+89.79, 2.32'RT	21.83'	6237.34 (5')
* 11	5+32.59, 5.00'RT	18.63'	6234.41 (6')
* 12	4+60.09, 4.92'RT	18.71'	6227.30 (5')
13	4+04.35, 4.84'RT	59.57'	6222.06 (4')
* 14	3+90.80, 4.69'RT	20.23'	6220.93 (5')
* 15	3+19.25, 7.00'RT	16.62'	6213.65 (5')
16	2+55.35, 7.71'RT	15.92'	6206.46 (3')
17	1+84.71, 9.99'RT	18.91'	6200.43
* 18	4+43.93, 4.21'RT	27.84'	6226.10 (5')
* 19	5+04.53, 5.00'RT	28.63'	6231.24 (5')

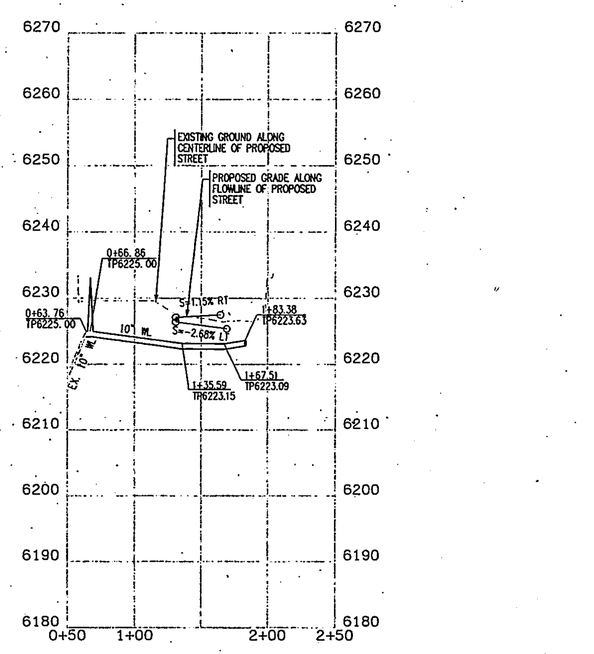
NOTE: WATER METER LOCATIONS ARE DESIGNATED BY STATIONING AT PROPERTY CORNERS.

* VERTICAL RISER

SANITARY SEWER SERVICES PIEDRA ALTA LANE			
LOT ID	SAS STATION & OFFSET	SAS LENGTH	TOP OF PIPE AT PLUG (W/RISER)
5	0+96.91, 5.12'LT	18.51'	6233.50
6	1+27.77, 3.33'LT	20.38'	6236.04 (4')
* 7	1+93.64, 5.00'LT	18.63'	6239.75 (7')
* 8	2+59.01, 5.00'LT	18.63'	6243.70 (7')
* 9	2+78.38, 5.00'LT	25.11'	6245.89 (7')

NOTE: WATER METER LOCATIONS ARE DESIGNATED BY STATIONING AT PROPERTY CORNERS.

* VERTICAL RISER



GENERAL NOTE:
***ALL SANITARY SEWER MANHOLES SHALL BE 4' DIAMETER TYPE "E" AS PER NM APWA STANDARD DRAWING 2102 UNLESS OTHERWISE NOTED.**

VALVES	PER STD. DWG. 2326 & 2328
MANHOLES	PER STD. DWG. 2101 & 2102
WATER SERVICE	PER STD. DWG. 2361, 2362 & 2368
SAS SERVICE	PER STD. DWG. 2125

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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
UTILITY PLAN & PROFILE
PIEDRA CANTO WAY / PIEDRA CERRO WAY

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

AS-BUILT INFORMATION: CONTRACTOR / DATE; STAKED BY / DATE; INSPECTOR'S CHANGES BY / DATE; FIELD VERIFICATION BY / DATE; DRAWINGS CORRECTED BY / DATE

BENCH MARKS: USC&GS BRASS TABLET STAMPED "TUMBLE" GEOGRAPHIC POSITION (NAD 1927) N.M. STATE PLANE COORDINATES (CENTRAL ZONE) X=425,465.55 Y=1,513,470.01 GROUND-TO-GRID FACTOR = 0.99961970 DELTA ALPHA = -00°08'37" NGVD 1929 SPIRIT ELEVATION = 6009.155

MICRO-FILM INFORMATION: RECORDED BY / DATE; NO. / DATE

SURVEY INFORMATION: FIELD NOTES NO. / BY / DATE

ENGINEER'S SEAL: YOLANDA PADILLA REGISTERED PROFESSIONAL ENGINEER 16035 11-5-07

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGNED BY	YPM / RA	DATE 08/2007
DRAWN BY	ARR / CAM	DATE 08/2007
CHECKED BY	YPM	DATE 08/2007

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Mon, 05-NOV-2007 - 10:30AM, Plotted by: aromero

BHI JOB NO. 070128

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
703782	F-23	10	16

APPROX. EMERGENCY SPILLWAY LOCATION AT PROPERTY LINE

WILDERNESS SUBDIVISION AT HIGH DESERT – UNIT 3

SHEET 15

SEDIMENTATION POND #2

REMOVE AND REPLACE 24" SD WITH 30" SD AND SINGLE TYPE "D" INLET WITH TRIPLE TYPE "D" INLET.

EXISTING US FOREST SERVICE HIKING & BIKING EASEMENT

NOTE:
CONTRACTOR SHALL COORDINATE LANDSCAPING / REVEGETATION & BOULDER LOCATION WITH OWNER.

13-B-2 HIGH DESERT

PROPOSED TRAPEZOIDAL SWALE AS PER SWALE TO POND DETAIL, SHEET 16

STA. 20+03.63 INSTALL SPEED HUMP AS PER DETAIL, THIS SHEET

EXISTING 24" SD

SHEET 14

SHEET 13

OS-5, HIGH DESERT CITY OF ALBUQUERQUE OPEN SPACE

PROPOSED TRAIL REALIGNMENT

PROPOSED TRAPEZOIDAL SWALE AS PER SECTIONS A-A, B-B & C-C, SHEET 16

EXISTING US FOREST SERVICE 40' x 40' OBSTACLE EASEMENT

EXISTING 24" SD & INLET TO BE REMOVED

PROPOSED V-SWALE AS PER V-SWALE DETAIL, SHEET 16

EXISTING US FOREST SERVICE HIKING & BIKING EASEMENT

SHEET 12

STA. 18+14.90 INSTALL SPEED HUMP AS PER DETAIL, THIS SHEET

SEDIMENTATION POND #1 TO BE REMOVED DURING GRADING

WILDERNESS SUBDIVISION AT HIGH DESERT – UNIT 2

PROPOSED 24" SD

PROPOSED 15' WIDE PRIVATE ACCESS EASEMENT W/ 10' GRAVEL MAINTENANCE ROAD

ELEVADA TRAIL

PIEDRA CANTO WAY

PROPOSED 18" SD

PROPOSED 24" SD

TRACT A

PIEDRA ALTO LANE

EXISTING US FOREST SERVICE 40' x 40' OBSTACLE EASEMENT

HIGH DESERT PLACE NE

PIEDRA CIELO WAY

PROPOSED 15' PUBLIC WATER LINE EASEMENT

13-C-1 HIGH DESERT

EXISTING 20' PUBLIC WATERLINE EASEMENT TO BE VACATED

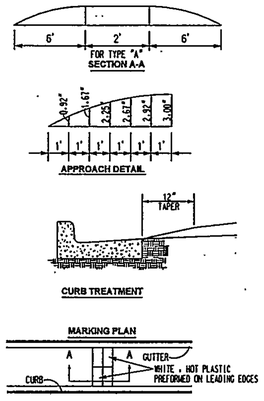
EXISTING 6' PUBLIC PEDESTRIAN TRAIL EASEMENT (NO MOTOR VEHICLES ALLOWED)

OS-4-A OPEN SPACE HIGH DESERT

SCALE: 1"=40'

30" 30" SPEED HUMP B/FY W17-1-30

NOTE:
SIGNING SHALL BE PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD.



SPEED HUMP DETAILS
NOT TO SCALE

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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
OVERALL TRAIL / SWALE PLAN

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
703782	F-23	11	16

AS-BUILT INFORMATION

CONTRACTOR		DATE
STAKED BY		DATE
AS-BUILTS PREPARED BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO	DATE

BENCH MARKS

USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
X=425,465.55 Y=1,513,470.01
GROUND-TO-GRID FACTOR = 0.99961970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 6009.155

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

YOLANDA PADILLA MORALES NEW MEXICO 16035 PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY	YPM / RA	DATE 08/2007
DRAWN BY	ARR / CAM	DATE 08/2007
CHECKED BY	YPM	DATE 08/2007

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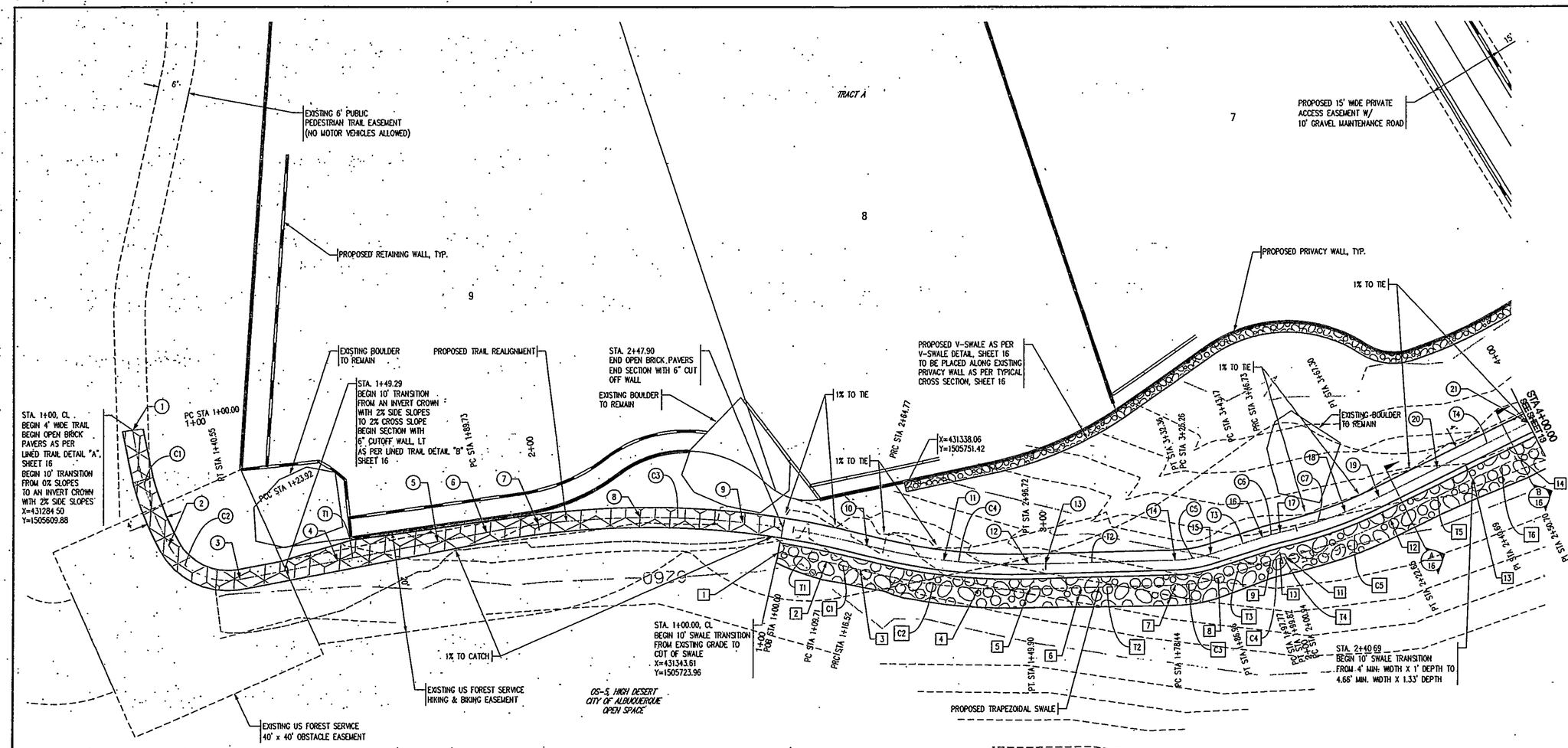
BHI JOB NO. 070128



Trail Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C1	23.92'	69.33'	19°45'59"	12.08'
C2	16.63'	12.90'	73°50'38"	9.70'
C3	75.04'	166.45'	25°49'50"	38.17'
C4	31.95'	110.69'	16°32'22"	16.09'
C5	7.10'	25.00'	16°15'59"	3.57'
C6	3.57'	44.39'	04°36'13"	1.78'
C7	20.57'	89.36'	13°11'14"	10.33'

Trail Tangent Table		
ID	BEARING	LENGTH
T1	N05°36'21"E	49.18'
T2	N14°53'48"E	28.54'
T3	N01°22'11"W	10.81'
T4	N09°57'15"W	51.56'

Trail Point Table			
	STATION	ELEVATION	EVENT
1	1+00.00	6254.39	PC
2	1+23.92	6257.90	PCC
3	1+40.55	6258.12	PT
4	1+60.00	6258.24	STA
5	1+80.00	6258.36	STA
6	1+89.73	6258.41	PC
7	2+00.00	6258.48	STA
8	2+20.00	6258.60	STA
9	2+40.00	6258.71	STA
10	2+64.77	6258.12	PRC
11	2+80.00	6257.55	STA
12	2+96.72	6256.93	PT

Trail Point Table			
	STATION	ELEVATION	EVENT
13	3+00.00	6256.81	STA
14	3+25.26	6255.30	PC
15	3+32.36	6254.77	PT
16	3+43.17	6254.25	PC
17	3+46.73	6254.08	PRC
18	3+60.00	6253.62	STA
19	3+67.30	6253.49	PT
20	3+80.00	6252.70	STA
21	4+00.00	6252.44	STA

Swale Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C1	6.81'	161.45'	02°24'58"	3.40'
C2	33.39'	115.68'	16°32'12"	16.81'
C3	8.52'	30.00'	16°16'09"	4.29'
C4	2.04'	61.08'	01°54'57"	1.02'
C5	21.72'	97.91'	12°42'28"	10.90'

Swale Tangent Table		
ID	BEARING	LENGTH
T1	N27°17'35"E	9.71'
T2	N14°54'54"E	28.54'
T3	N01°24'02"W	10.81'
T4	N01°40'55"E	1.12'
T5	N09°56'18"W	18.04'
T6	N08°03'56"W	10.01'

Swale Point Table			
	STATION	ELEVATION	EVENT
1	1+00.00	6259.43	POB
2	1+09.71	6257.41	PC
3	1+16.52	6257.10	PRC
4	1+40.00	6256.24	STA
5	1+49.90	6255.88	PT
6	1+60.00	6255.34	STA
7	1+78.44	6254.32	PC
8	1+86.96	6253.84	PT
9	1+97.77	6253.22	PC
10	1+99.82	6253.10	PT
11	2+00.94	6253.06	PC
12	2+22.65	6252.47	PT

Swale Point Table			
	STATION	ELEVATION	EVENT
13	2+40.69	6251.57	PI
14	2+50.70	6251.06	PI

NOTE:
ALL TIE-BACKS ARE 3:1 TIES UNLESS OTHERWISE NOTED

N

10 5 0 10
SCALE: 1"=10'

BHI JOB NO. 020128

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Mon, 05-NOV-2007 - 10:39AM, Plotted by: aromero

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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
TRAIL / SWALE PLAN
STA. 1+00 TO STA. 4+00

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
703782	F-23	12	16

AS-BUILT INFORMATION
CONTRACTOR / DATE
SUPERVISED BY / DATE
INSPECTOR'S ACCEPTANCE BY / DATE
FIELD VERIFICATION BY / DATE
DRAWINGS CORRECTED BY / DATE
RECORDED BY / DATE
NGVD 1929 SPIRIT ELEVATION = 6009.155

BENCH MARKS
USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
X=425,485.55 Y=1,513,470.01
GROUND-TO-GRID FACTOR = 0.99961970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 6009.155

MICRO-FILM INFORMATION

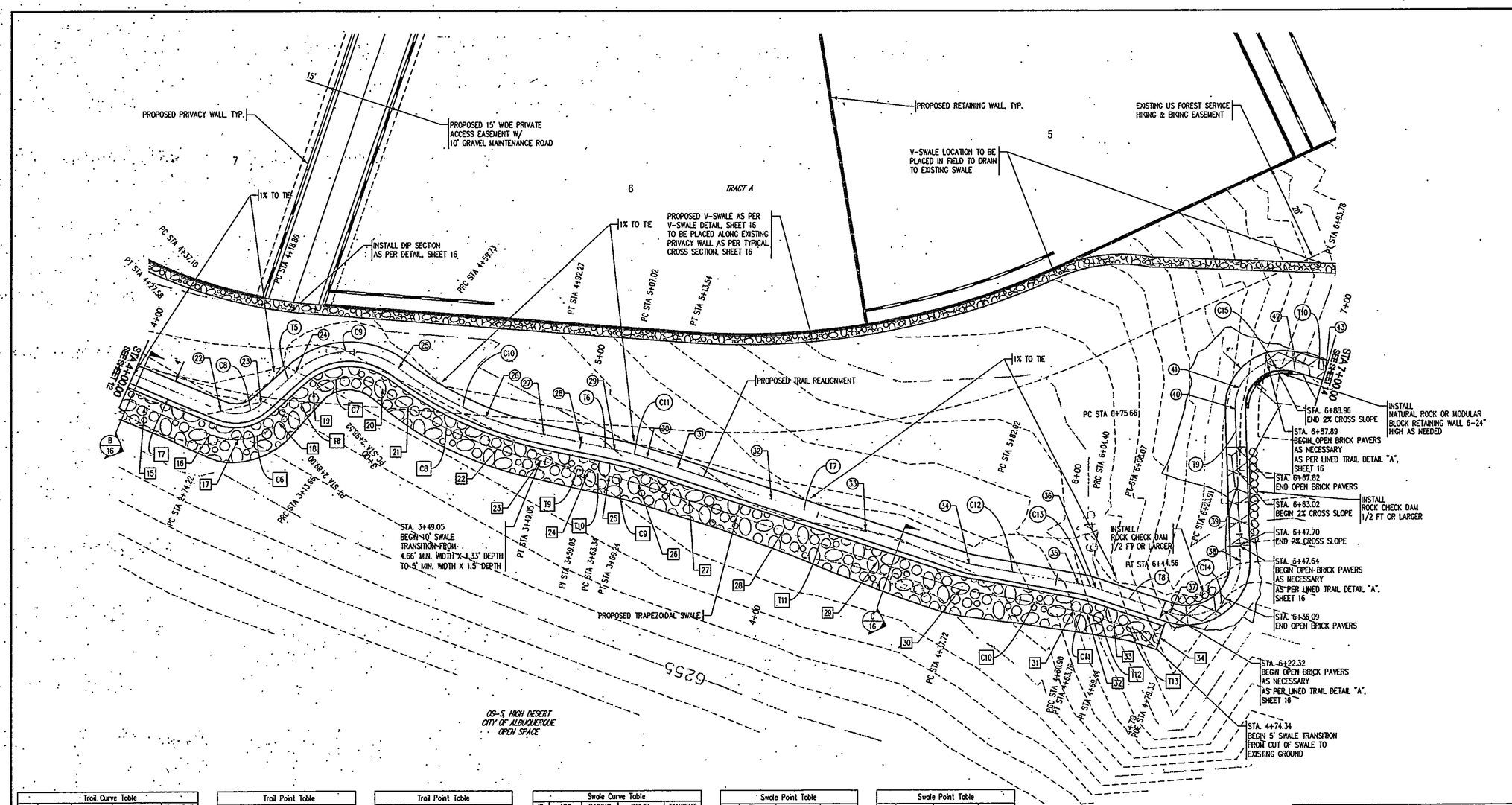
SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL
YOLANDA PADILLA
NEW MEXICO
16035
11-5-07
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY	YPM / RA	DATE 08/2007
DRAWN BY	ARR / CAM	DATE 08/2007
CHECKED BY	YPM	DATE 08/2007



Trail Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C8	8.72'	7.60'	65°42'11"	4.91'
C9	22.63'	16.18'	80°08'37"	13.61'
C10	32.55'	72.42'	25°45'00"	16.55'
C11	6.52'	57.28'	06°31'15"	3.26'
C12	22.38'	2667.14'	00°28'51"	11.19'
C13	3.66'	25.00'	08°23'44"	1.83'
C14	20.65'	10.71'	110°28'01"	15.43'
C15	18.12'	9.58'	108°22'11"	13.27'

Trail Tangent Table		
ID	BEARING	LENGTH
T5	N75°39'24"W	9.52'
T6	N21°15'48"W	14.75'
T7	N14°44'33"W	68.48'
T8	N14°43'43"W	15.85'
T9	S54°48'17"W	31.10'
T10	N16°49'32"W	31.33'

Trail Point Table			
	STATION	ELEVATION	EVENT
22	4+18.86	6252.60	PC
23	4+27.58	6252.70	PT
24	4+37.10	6252.17	PC
25	4+59.73	6250.99	PRC
26	4+80.00	6250.44	STA
27	4+92.27	6250.10	PT
28	5+00.00	6249.89	STA
29	5+07.02	6249.69	PC
30	5+13.54	6249.50	PT
31	5+20.00	6249.29	STA
32	5+40.00	6248.66	STA
33	5+60.00	6248.46	STA

Trail Point Table			
	STATION	ELEVATION	EVENT
34	5+82.02	6248.41	PC
35	6+04.40	6245.21	PRC
36	6+08.07	6244.69	PT
37	6+23.91	6242.92	PC
38	6+44.56	6240.34	PT
39	6+60.00	6238.16	STA
40	6+75.66	6237.15	PC
41	6+80.00	6236.89	STA
42	6+93.78	6236.07	PT
43	7+00.00	6235.66	STA

Swale Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C6	14.78'	13.22'	64°02'46"	8.27'
C7	15.14'	10.89'	79°37'34"	9.08'
C8	35.39'	79.26'	25°34'57"	18.00'
C9	5.89'	57.06'	05°55'01"	2.95'
C10	23.18'	665.61'	01°59'43"	11.59'
C11	2.86'	26.48'	06°10'40"	1.43'

Swale Tangent Table		
ID	BEARING	LENGTH
T7	N09°57'39"W	23.52'
T8	N75°33'55"W	9.52'
T9	N20°23'53"W	10.00'
T10	N21°14'05"W	4.29'
T11	N14°45'27"W	68.48'
T12	N14°46'00"W	5.68'
T13	N14°45'58"W	9.89'

Swale Point Table			
	STATION	ELEVATION	EVENT
15	2+60.00	6250.99	STA
16	2+74.22	6250.88	PC
17	2+80.00	6250.84	STA
18	2+89.00	6250.77	PT
19	2+98.52	6250.69	PC
20	3+13.66	6249.94	PRC
21	3+20.00	6249.59	STA
22	3+40.00	6248.93	STA
23	3+49.05	6248.69	PT
24	3+59.05	6248.35	PI
25	3+63.34	6248.19	PC
26	3+69.24	6247.99	PT

Swale Point Table			
	STATION	ELEVATION	EVENT
27	3+80.00	6247.62	STA
28	4+00.00	6246.99	STA
29	4+20.00	6246.29	STA
30	4+37.72	6245.66	PC
31	4+60.90	6244.16	PCC
32	4+63.76	6243.88	PT
33	4+69.44	6243.33	PI
34	4+79.33	6242.82	POE

NOTE:
ALL TIE-BACKS ARE 3:1 TIES UNLESS OTHERWISE NOTED

P:\070128\cdp\general\070128OffsiteTrailPlan02.dgn
Mon, 05-NOV-2007 - 10:39AM, Plotted by: aromero

BHI JOB NO. 070128

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

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
TRAIL / SWALE PLAN
STA. 4+00 TO STA. 7+00

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
703782	F-23	13	16

ENGINEER'S SEAL: VERONICA PADILLA ARCHULETA, NEW MEXICO, 16035, REGISTERED PROFESSIONAL ENGINEER

AS-BUILT INFORMATION

CONTRACTOR STAKED BY		DATE
INSPECTOR'S ACCEPTANCE BY		DATE
FIELD FABRICATION BY		DATE
MARKINGS CORRECTED BY		DATE
MICRO-FILM INFORMATION		
RECORDED BY		DATE
NO		DATE

BENCH MARKS

USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
X=425,465.55 Y=1,513,470.01
GROUND-TO-GRID FACTOR = 0.99961970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 6009.155

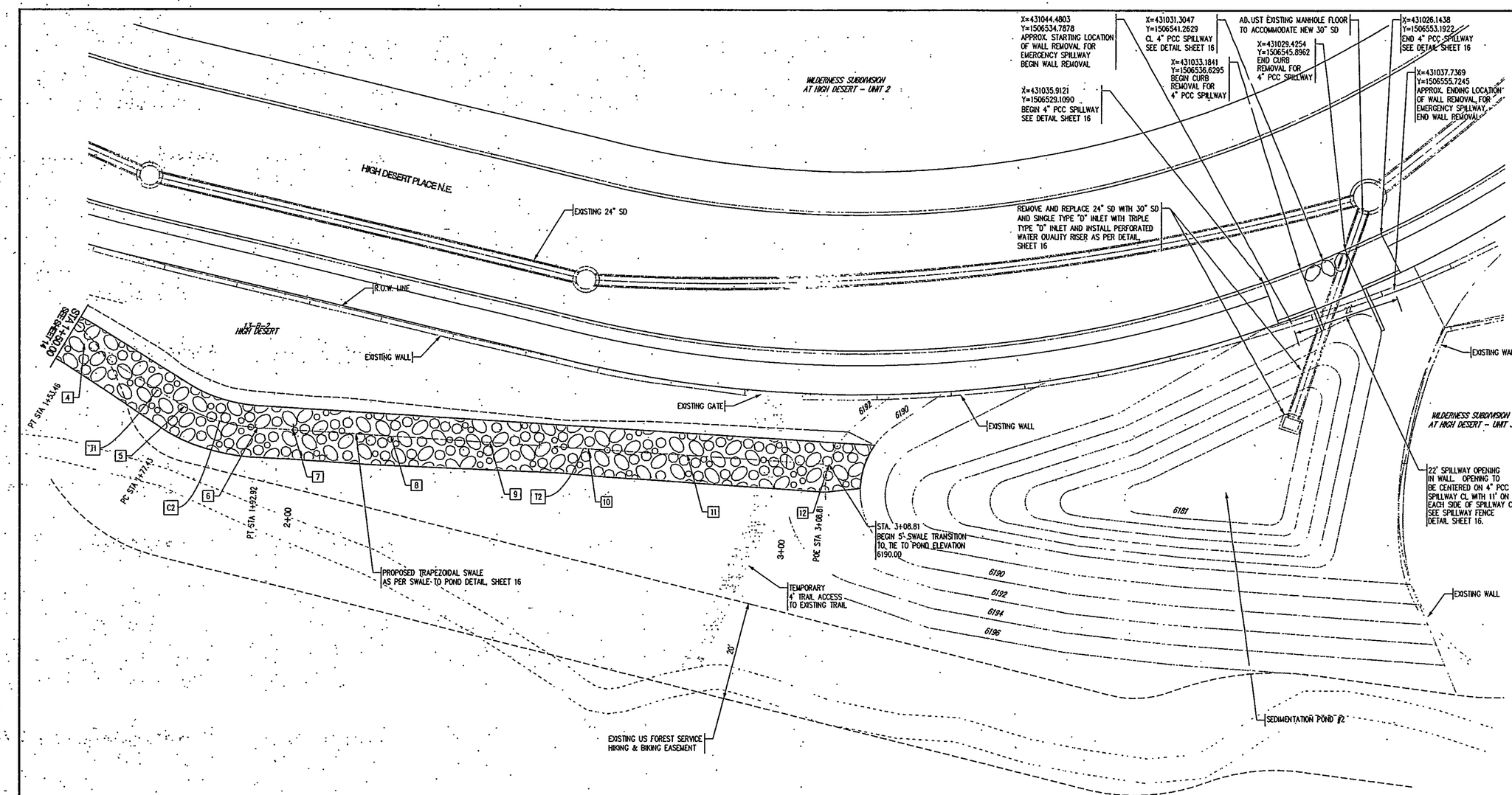
SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY	YPM / RA	DATE 08/2007
DRAWN BY	ARR / CAM	DATE 08/2007
CHECKED BY	YPM	DATE 08/2007



Swale Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C2	15.49'	34.49'	25°44'10"	7.88'

Swale Tangent Table		
ID	BEARING	LENGTH
T1	N33°10'35"E	23.97'
T2	N04°28'46"E	115.89'

Swale Point Table			
	STATION	ELEVATION	EVENT
4	1+53.46	6194.86	PT
5	1+77.43	6193.78	PC
6	1+92.92	6193.45	PT
7	2+00.00	6193.36	STA
8	2+20.00	6193.11	STA
9	2+40.00	6192.86	STA
10	2+60.00	6192.61	STA
11	2+80.00	6192.36	STA

Swale Point Table			
	STATION	ELEVATION	EVENT
12	3+08.81	6192.00	POE

N

10 5 0 10
SCALE: 1"=10'

P:\070128\cdp\general\070128OffsiteTrailPlan04.dgn
Mon, 05-NOV-2007 - 10:40AM, Plotted by: aromero

BHI JOB NO. 070128

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

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
TRAIL / SWALE PLAN
STA. 1+50 TO STA. 3+09

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
703782	F-23	15	16

AS-BUILT INFORMATION

		DATE
CONTRACTOR		
STAKED BY		
INSPECTOR ACCEPTANCE BY		
FIELD VERIFICATION BY		
DRAWINGS CORRECTED BY		
RECORDED BY		
NO		

BENCH MARKS
USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
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GROUND-TO-GRID FACTOR = 0.99961970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 6009.155

SURVEY INFORMATION
FIELD NOTES

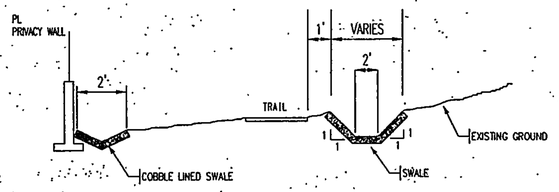
NO.	BY	DATE

ENGINEER'S SEAL
YOLANDA PADILLA
NEW MEXICO
16035
REGISTERED PROFESSIONAL ENGINEER
11-5-07

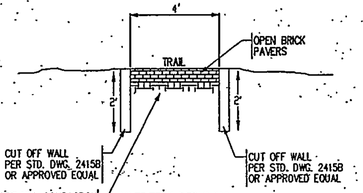
NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

		DATE
DESIGNED BY	YPM / RA	DATE 08/2007
DRAWN BY	ARR / CAM	DATE 08/2007
CHECKED BY	YPM	DATE 08/2007

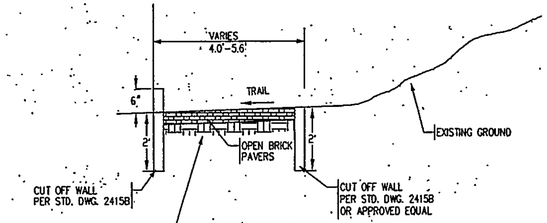
NOTE: ALL FILTER FABRIC SHALL BE PER AASHTO M288 (1996) CLASS 2 SEPARATER



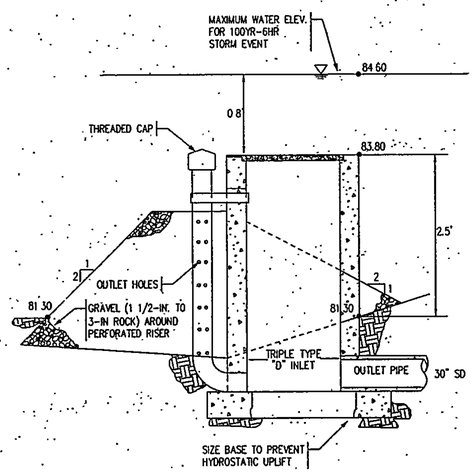
TYPICAL CROSS SECTION
NOT TO SCALE



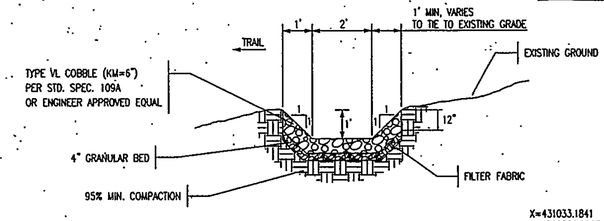
LINED TRAIL DETAIL "A"
NOT TO SCALE



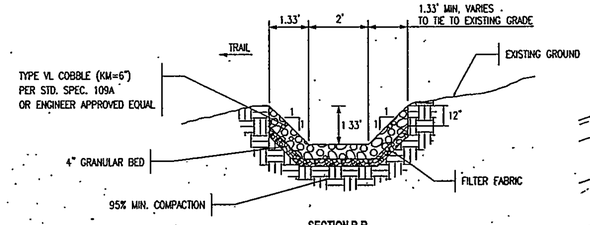
LINED TRAIL DETAIL "B"
NOT TO SCALE



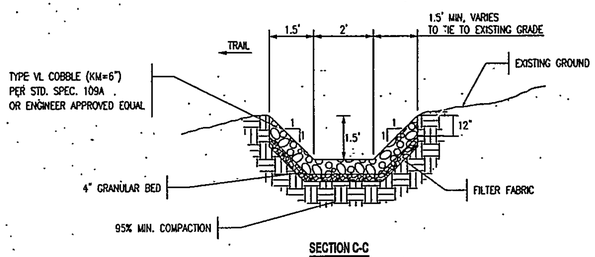
PERFORATED WATER QUALITY RISER OUTLET
NOT TO SCALE



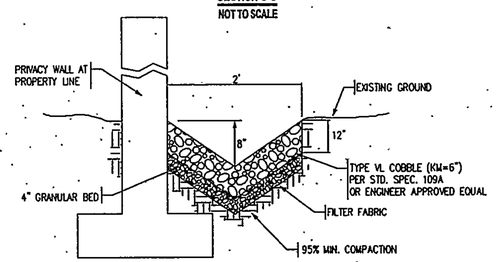
SECTION A-A
NOT TO SCALE



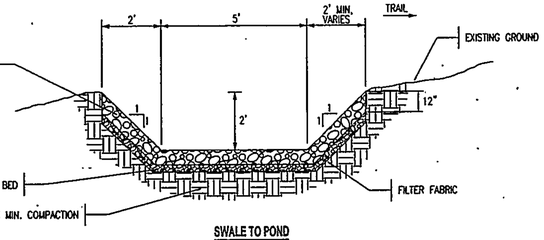
SECTION B-B
NOT TO SCALE



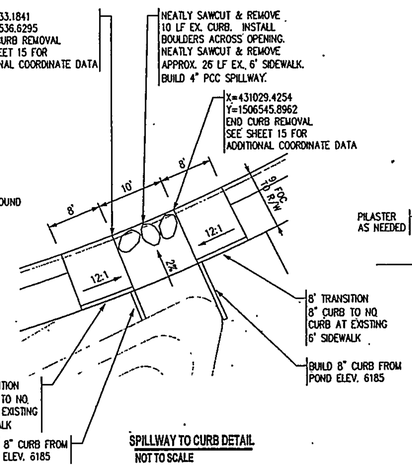
SECTION C-C
NOT TO SCALE



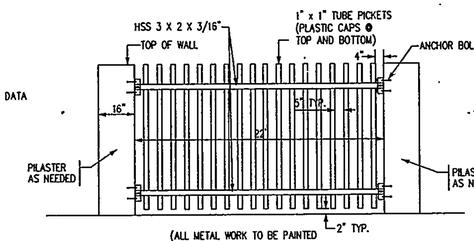
V-SWALE
NOT TO SCALE



SWALE TO POND
NOT TO SCALE

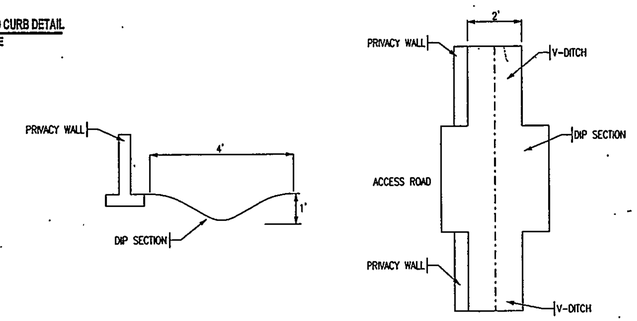


SPILLWAY TO CURB DETAIL
NOT TO SCALE

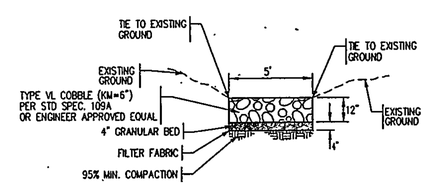


(ALL METAL WORK TO BE PAINTED WITH SYSTEM AND COLOR AS SPECIFIED BY OWNER.)

SPILLWAY FENCE DETAIL
NOT TO SCALE



DIP SECTON
NOT TO SCALE



EROSION CONTROL PAD TYPICAL SECTION
NOT TO SCALE

AS-BUILT INFORMATION

CONTRACTOR		DATE
WORK STAKED BY		DATE
INSPECTOR'S ACCEPTANCE BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE
RECORDED BY		DATE
NO		DATE

BENCH MARKS

USC&GS BRASS TABLET STAMPED "TUMBLE"
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES
(CENTRAL ZONE)
X=425,465.55 Y=1,513,470.01
GROUND-TO-GRID FACTOR = 0.999661970
DELTA ALPHA = -00°08'37"
NGVD 1929 SPIRIT ELEVATION = 5009.155

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

LINDA PADILLA-WALKER
16035
NEW MEXICO
LICENSED PROFESSIONAL ENGINEER
11-5-07

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY	YPM / RA	DATE 08/2007
DRAWN BY	ARR / CAM	DATE 08/2007
CHECKED BY	YPM	DATE 08/2007

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

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

WILDERNESS CAÑON
TRAIL / SWALE DETAILS

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
703782	F-23	16	16

BH JOB NO. 020128

P:\070128\cdp\general\070128OffsiteDetails.dgn
Mon, 05-NOV-2007 - 10:40AM, Plotted by: aromero

CITY OF ALBUQUERQUE

August 28, 2007

Yolanda Moyer, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Wilderness Canon at High Desert Drainage Report
Engineer's Stamp dated 7-17-07, (F23/D12)

Dear Ms. Moyer,

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

Based upon the information provided in your submittal dated 7-17-07 and letter dated 8-10-07, the above referenced plan is approved for Amended Preliminary Plat approval by the DRB. Once that board approves the grading plan, please submit a mylar copy for my signature in order to obtain a Rough Grading Permit.

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

Prior to Release of SIA and Financial Guarantees, an Engineer's Certification of this grading plan will be required.

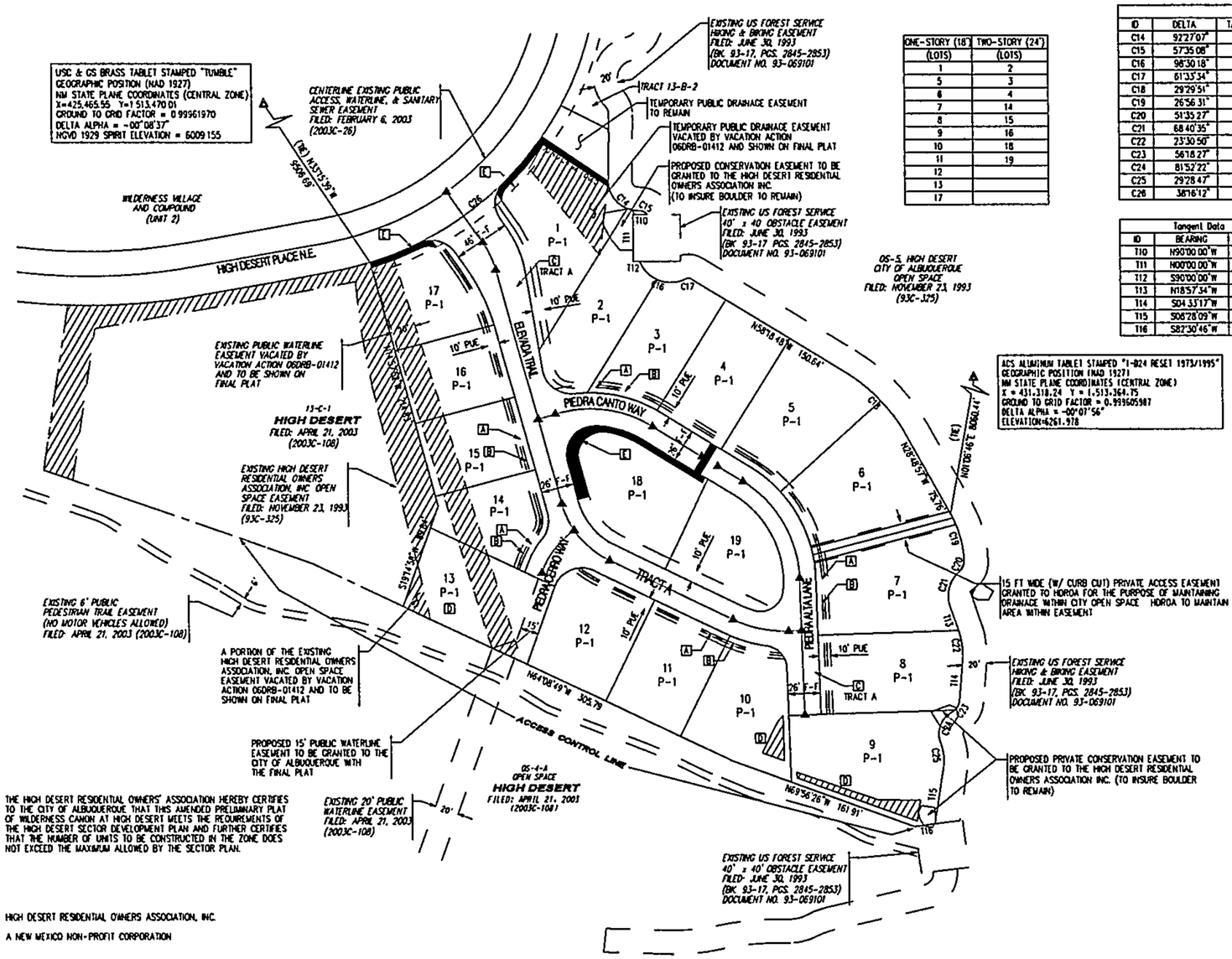
If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham

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

C: file



ONE-STORY (18') (LOTS)	TWO-STORY (24') (LOTS)
1	2
5	3
6	4
7	14
8	15
9	16
10	18
11	19
12	
13	
17	

Curve Data

ID	DELTA	TANGENT	ARC	RADIUS	CHORD	CHORD BRG
C14	92°27'07"	28.09'	40.34'	25.00'	36.10'	S45°35'18"E
C15	57°35'08"	4.40'	8.04'	8.00'	7.71'	S63°01'18"E
C16	98°30'18"	32.87'	48.69	28.32	42.91'	S70°37'14"E
C17	61°33'34"	1.19'	2.15'	2.00'	2.05'	S89°05'36"E
C18	29°29'51"	39.49'	77.22'	150.00'	76.37'	S43°33'53"E
C19	26°56'31"	21.56'	42.32'	90.00'	41.93'	S15°20'41"E
C20	51°35'27"	4.83'	9.00'	10.00'	8.70'	S23°55'18"W
C21	68°40'35"	19.13'	33.56'	28.00'	31.59	S15°22'44"W
C22	23°30'50"	14.15	27.91	68.00	27.71	S07°12'09"E
C23	56°18'27"	8.42'	11.79	12.00	11.32'	S32°42'30"W
C24	81°52'22"	19.08'	31.44'	22.00'	28.83'	S19°55'33"W
C25	29°28'47"	10.52'	20.58	40.00'	20.35'	S06°16'14"E
C26	38°16'12"	94.72'	182.35	273.00'	178.98'	N53°28'02"E

Tangent Data

ID	BEARING	DISTANCE
T110	N90°00'00"W	12.11
T111	N00°00'00"W	40.00
T112	S90°00'00"W	5.30'
T113	N18°57'34"W	20.00'
T114	S04°33'17"W	34.00'
T115	S06°28'09"W	48.69'
T116	S82°30'46"W	17.03'

SURVEY NOTES.

1 UNLESS OTHERWISE NOTED, ALL BOUNDARY CORNERS SHOWN THUS (●) SHALL BE MARKED BY A #5 REBAR STAMPED "GROMATZKY, PS 16469"

2 ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PT'S, ANGLE POINTS AND STREET INTERSECTIONS AND SHOWN THUS (▲). WILL BE MARKED BY A FOUR (4") ALUMINUM CAP STAMPED "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION MARKED DO NOT DISTURB, P.L.S. 16469"

3. THE SUBDIVISION BOUNDARY WILL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN

4 BASIS OF BEARINGS WILL BE NEW MEXICO STATE PLANE GRID BEARINGS.

5. DISTANCES SHALL BE GROUND DISTANCES

6 MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE POINTS OF TANGENCY, STREET INTERSECTIONS AND ALL OTHER ANGLE POINTS TO ALLOW THE USE OF CENTERLINE MONUMENTATION

APPROVED FOR MONUMENTATION AND STREET NAMES

CITY SURVEYOR DATE

[A] 5' PUBLIC WATERLINE EASEMENT TO BE GRANTED TO THE CITY OF ALBUQUERQUE BY FINAL PLAT

[B] 7' PRIVATE PEDESTRIAN ACCESS EASEMENT

[C] FULLY ENCOMPASSED WITHIN TRACT 'A' IS A PUBLIC SANITARY SEWER AND WATERLINE EASEMENT GRANTED TO THE CITY OF ALBUQUERQUE'S & ABCWUA. A PUBLIC SUBSURFACE STORM DRAIN EASEMENT SHALL BE DEDICATED TO AND MAINTEANCED BY THE CITY OF ALBUQUERQUE AND A PRIVATE VEHICLE & PEDESTRIAN ACCESS AND SURFACE DRAINAGE EASEMENT GRANTED TO THE HIGH DESERT RESIDENTIAL OWNER'S ASSOCIATION WITH THE FILING OF THIS PLAT. ACCESS EASEMENT TO BE MAINTAINED BY HIGH DESERT RESIDENTIAL OWNERS ASSOCIATION.

[D] LOT 9: SIDEYARD SETBACK ADJACENT TO OPEN SPACE SHALL BE 10 FT. NO BUILD ZONE ON SOUTHEAST SIDE OF LOT (SEE HATCHED AREA)
LOT 10: NO BUILD ZONE ON EAST SIDE OF LOT (SEE HATCHED AREA)
LOT 13: SOUTH YARD SETBACK SPLIT 30% AT 15 FT AND 70% AT 10 FT

[E] LANDSCAPE EASEMENT TO BE GRANTED TO HIGH DESERT RESIDENTIAL ASSOCIATION WITH FINAL PLAT

THE PURPOSE OF THIS PRELIMINARY PLAT IS TO SUBDIVIDE TRACT A INTO 19 LOTS.

GENERAL NOTES

1 EXISTING ZONING: SU-2 HD/R-R
PROPOSED DEVELOPMENT: SINGLE FAMILY DETACHED

2 DESCRIPTION: TRACT 'A' OF UNIT 2 WILDERNESS AT HIGH DESERT FILED: DECEMBER 11, 2003, BK-2003C, PG.-373 DOCUMENT NO 2003220908

TOTAL SUBDIVISION ACREAGE

WILDERNESS CAÑON 3.9653 ACRES
TRACT 'A' 0.6353 ACRES

TOTAL NUMBER OF LOTS 19

PROPOSED DENSITY
UNIT 1 4.80 D.U./AC.
MINIMUM LOT WIDTH 53'
MINIMUM LOT AREA 5256.26 SF / 0.1207 AC.

GENERAL NOTES

1 NO WOOD BURNING FIREPLACE WILL BE PERMITTED. ALL FIREPLACES MUST BE GAS FIRED USING ARTIFICIAL LOGS.

2. ALL SETBACKS SHOWN ARE IN ACCORDANCE WITH THE R-1 ZONING.

3. ALL INTERIOR STREETS ARE TO BE PRIVATE AND TO BE GRANTED TO AND MAINTAINED BY THE HIGH DESERT RESIDENTIAL OWNERS ASSOCIATION (TRACT A)

4 ALL SANITARY AND WATER UTILITIES IN THE TRACT A ARE TO BE PUBLIC, AND OWNED AND MAINTAINED BY THE ABCWUA.

5. THIS SUBDIVISION LIES WITHIN THE CITY OF ALBUQUERQUE WATER AND SANITARY SEWER CAPABILITIES ARE BASED ON THE CITY OF ALBUQUERQUE'S & ABCWUA FACILITIES. WATER AND SANITARY SEWER INFRASTRUCTURE IMPROVEMENTS MUST BE APPROVED BY THE CITY OF ALBUQUERQUE & ABCWUA.

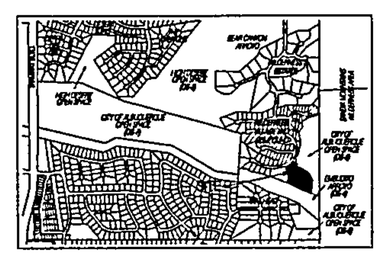
6. ALL SUBSURFACE STORM DRAINS IN TRACT A AND/OR UTILITY EASEMENTS ARE TO BE PUBLIC AND SHALL BE DEDICATED TO AND MAINTAINED BY THE CITY OF ALBUQUERQUE AS SHOWN ON FINAL PLAT

OWNER:

SCOTT SCHABOR

LEGEND

SUBDIVISION BOUNDARY
TRACT BOUNDARY LINE
PROPOSED PROPERTY LINE
PROPOSED RIGHT OF WAY LINE
CROSS HATCHING REPRESENTS EXISTING EASEMENT AREAS TO BE VACATED BY VACATION ACTION AND FINAL PLAT



LOCATION MAP
ZONE ATLAS MAP NO. F-23-Z
NOT TO SCALE

THE HIGH DESERT RESIDENTIAL OWNERS' ASSOCIATION HEREBY CERTIFIES TO THE CITY OF ALBUQUERQUE THAT THIS AMENDED PRELIMINARY PLAT OF WILDERNESS CAÑON AT HIGH DESERT MEETS THE REQUIREMENTS OF THE HIGH DESERT SECTOR DEVELOPMENT PLAN AND FURTHER CERTIFIES THAT THE NUMBER OF UNITS TO BE CONSTRUCTED IN THE ZONE DOES NOT EXCEED THE MAXIMUM ALLOWED BY THE SECTOR PLAN.

HIGH DESERT RESIDENTIAL OWNERS ASSOCIATION, INC.

A NEW MEXICO NON-PROFIT CORPORATION

BY RAY BERG, ITS PRESIDENT DATE

HIGH DESERT INVESTMENT CORPORATION

DATE

AMENDED PRELIMINARY PLAT

WILDERNESS CAÑON AT HIGH DESERT

(TRACT A OF UNIT 2 WILDERNESS)

ALBUQUERQUE, NEW MEXICO
AUGUST, 2007

N

50 25 0 50
SCALE 1"=50
(HORIZ)

DGN_NAME
$BRAND$

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

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toll free: 800.877.5332

August 10, 2007

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

RECEIVED
AUG 30 2007
HYDROLOGY SECTION

Re: Wilderness Canon Subdivision at High Desert dated July 13, 2007
DRB Case No 1004989; COA Drainage File # F23/D12

Dear Brad:

The purpose of this letter is to provide you with minor clarifications to the text and provide an updated Preliminary Plat (Exhibit 1) and Offsite Basin and Swale Analysis Exhibit (Exhibit 5).

The Offsite Basin and Swale Analysis Exhibit has two revisions. One is to add the location of the emergency spillway discussed in section V.C Desiltation Pond located at the northwest corner of the pond along the High Desert Place right-of-way. Design details of this spillway will be provided in the infrastructure plans. The second is to revise the location of the proposed swale in Tract 13-B-2. The previous plan showed it along the wall and labeled "Existing Swale". The new plan shows it in the center of the tract and labeled "Proposed Swale".

There was some confusion about the bolded original text on Page 9 as stated below:

- We have assumed orifice control for the triple grate type "D" inlet with a 30" RCP storm drain pipe. Our analysis indicates that we need 3.30 ft of head from the centerline of the 30" pipe or 4.55 ft from the invert of the inlet to pass the runoff in the 100 year 6 hour storm event. **We believe however that the top of the grate analysis will control in which we will need 0.8 ft of head above the triple grate type "D" inlet.** Our intent is to locate the top of the type "D" inlet grate at the top of the sediment storage that is 2.5 ft from the bottom of the pond. Therefore, the water surface elevation must be 3.3 ft above the bottom of the pond to pass 43 cfs (0.8 ft above the top of the inlet grate, which is 2.5 ft above the bottom of the pond or sediment storage). ?

We would like to reword it as below:

- We have assumed orifice control for the triple grate type "D" inlet with a 30" RCP storm drain pipe. Our analysis indicates that we need 3.30 ft of head from the centerline of the 30" pipe or 4.55 ft from the invert of the inlet to pass the runoff in the 100 year 6 hour storm event. **The spring line elevation of the pipe is 6177.00 which would require a water surface elevation of 6182.80. The necessary orifice head for the triple grade type "D" inlet is 0.8' above the top of the grate. The grate elevation is 6183.80 which would put the necessary water surface elevation to 6184.60. Thus, the grate analysis controls.** Our intent is to locate the top of the type "D" inlet grate at the top of the sediment storage that is 2.5 ft from the bottom of the pond. Therefore, the water surface elevation must be 3.3 ft above the bottom of the pond to pass 43 cfs (0.8 ft above the top of the inlet grate, which is 2.5 ft above the bottom of the pond or sediment storage).

WIER?

In section B. Offsite Basins, a paragraph should be included which indicates Sub-Basin B-1 (Q100=1.52cfs, a portion of Basin B) drains east and ultimately south via the lined trail/swale at the east boundary of the site to the Embudito Arroyo

Sincerely,

Yolanda Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Engineer
Community Development and Planning

ypm
Enclosures

cc:
Matt Martin, MVD (w/ encl)
Ray Berg, HDROA (w/encl)
Doug Collister, HDIC (w/encl)
Janet Lentz (w/encl)
Kevin Patton, BHI (w/o encl)

CITY OF ALBUQUERQUE

November 14, 2006

Yolanda Padilla, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Wilderness Canon at High Desert Drainage Report
Engineer's Stamp dated 11-7-06, (F23/D12)

Dear Ms. Padilla,

Based upon the information provided in your submittal dated 11-8-06, the above referenced plan is approved for Preliminary Plat approval by the DRB. Once that board approves the grading plan, please submit a mylar copy for my signature in order to obtain a Rough Grading Permit.

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

Prior to Release of SIA and Financial Guarantees, an Engineer's Certification of this grading plan will be required.

If you have any questions, you can contact me at 924-3986.

Sincerely,

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

C: Chuck Caruso, DMD
file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

October 5, 2006

Yolanda O. Padilla, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE – Courtyard 1
Albuquerque, NM 87109

Re: Wilderness Tract A at High Desert Grading and Drainage Plan and Drainage Report

Engineer's Stamp dated 9-28-06 (Plan) and 9-29-06 (Report) (F23/D12)

Dear Ms. Padilla,

Based upon the information provided in your submittal dated 9-29-06, the above referenced plan and report cannot be approved for Preliminary Plat action by the DRB until the following comments are addressed:

- Drainage Report

  - Since the proposed design to handle offsite flows involved work on Open Space property, concurrence from the City of Albuquerque Parks and Recreation Department would be required prior to approval. I recommend meeting with them as soon as possible to discuss a design to handle offsite flows that is agreeable to all parties.

- Grading and Drainage Plan

  - The slope of Elevada Trail at Piedra Alta lane is 11.37%. Per the DPM, approach gradients to intersections generally must not exceed 4% for a distance of at least 50' back from the projected curb flowline of the through street. This section will have to be flattened out.

  - Add a build note to remove the storm drain from lot 1.

  - The manhole near lot 5 will be difficult to service. Please consider moving it to Piedra Canto Way.

P.O. Box 1293

Albuquerque

New Mexico 87103

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CITY OF ALBUQUERQUE

- Provide locations and details of storm drainage infrastructure for offsite flows.

- The flow arrow of the northern section of Piedra Alta Lane is pointing in the wrong direction.

- In a couple areas (lot 11 and lot 24) spot elevation text is written over other spot elevation text making it difficult to read.

- It appears that lots 11, 22, 23, and 24 will not drain as intended. Show area drains where applicable.

- The Grading and Drainage Plan sheet is not labeled "Grading and Drainage Plan".

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

Sincerely,

Curtis A. Cherne

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

C: file
Brad Bingham

P.O. Box 1293

Albuquerque

New Mexico 87103

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