

# CITY OF ALBUQUERQUE

Planning Department  
Alan Varela, Interim Director



Mayor Timothy M. Keller

November 17, 2021

Ronald Bohannon, P.E.  
Tierra West, LLC  
5571 Midway Park Place NE  
Albuquerque, NM 87109

**RE: Wintergreen Apartments  
10800 Golf Course Rd NW  
Grading & Drainage Plan and Drainage Report  
Engineer's Stamp Date: 08/26/21  
Hydrology File: A12D008D**

Dear Mr. Bohannon:

PO Box 1293

Based upon the information provided in your submittal received 09/21/2021, the Grading & Drainage Plan and Drainage Report are approved for Building Permit. Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter.

Albuquerque

**PRIOR TO CERTIFICATE OF OCCUPANCY:**

NM 87103

1. Engineer's Certification, per the DPM Part 6-14 (F): *Engineer's Certification Checklist For Non-Subdivision* is required.
2. Please provide the Drainage Covenant with Exhibit A for the stormwater quality pond per Article 6-15(C) of the DPM prior to Permanent Release of Occupancy. Please submit the original copies along with the \$ 25.00 recording fee check made payable to Bernalillo County to Marion G. Velasquez ([mgvelasquez@cabq.gov](mailto:mgvelasquez@cabq.gov)) on the 4th floor of Plaza de Sol.

[www.cabq.gov](http://www.cabq.gov)

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Dough Hughes, PE, [jhughes@cabq.gov](mailto:jhughes@cabq.gov), 924-3420) 14 days prior to any earth disturbance.

# CITY OF ALBUQUERQUE

*Planning Department*  
Alan Varela, Interim Director



*Mayor Timothy M. Keller*

If you have any questions, please contact me at 924-3995 or [rbrissette@cabq.gov](mailto:rbrissette@cabq.gov).

Sincerely,

*Renée C. Brissette*

Renée C. Brissette, P.E. CFM  
Senior Engineer, Hydrology  
Planning Department

PO Box 1293

Albuquerque

NM 87103

[www.cabq.gov](http://www.cabq.gov)



# City of Albuquerque

Planning Department  
Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

**Project Title:** Wintergreen Apartments Golf Course Rd NW **Building Permit #:** \_\_\_\_\_ **Hydrology File #:** \_\_\_\_\_  
**DRB#:** \_\_\_\_\_ **EPC#:** \_\_\_\_\_ **Work Order#:** \_\_\_\_\_  
**Legal Description:** TR E-1 Plat of TRS D-1, E-1 AMAFCA Black Arroyo Channel ROW Paradise Heights Unit 1  
**City Address:** Golf Course RD NW Albuquerque, NM 87114

**Applicant:** Tierra West, LLC **Contact:** Luis Noriega  
**Address:** 5571 Midway Park PI NE Albuquerque NM 87109  
**Phone#:** 505-858-3100 **Fax#:** 505-858-1118 **E-mail:** lnoriega@tierrawestllc.com

**Other Contact:** \_\_\_\_\_ **Contact:** \_\_\_\_\_  
**Address:** \_\_\_\_\_  
**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**TYPE OF DEVELOPMENT:** \_\_\_\_\_ PLAT (# of lots) \_\_\_\_\_ RESIDENCE \_\_\_\_\_ DRB SITE ☒ ADMIN SITE

IS THIS A RESUBMITTAL? ☒ Yes \_\_\_\_\_ No

**DEPARTMENT** \_\_\_\_\_ TRANSPORTATION ☒ HYDROLOGY/DRAINAGE

Check all that Apply:

### TYPE OF SUBMITTAL:

- ☐ ENGINEER/ARCHITECT CERTIFICATION
- ☐ PAD CERTIFICATION
- ☐ CONCEPTUAL G & D PLAN
- ☒ GRADING PLAN
- ☒ DRAINAGE REPORT
- ☐ DRAINAGE MASTER PLAN
- ☐ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- ☐ ELEVATION CERTIFICATE
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ TRAFFIC IMPACT STUDY (TIS)
- ☐ STREET LIGHT LAYOUT
- ☐ OTHER (SPECIFY) \_\_\_\_\_
- ☐ PRE-DESIGN MEETING?

### TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

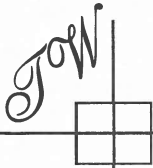
- ☒ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ SITE PLAN FOR SUB'D APPROVAL
- ☒ SITE PLAN FOR BLDG. PERMIT APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ SO-19 APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ GRADING/ PAD CERTIFICATION
- ☐ WORK ORDER APPROVAL
- ☐ CLOMR/LOMR
- ☐ FLOODPLAIN DEVELOPMENT PERMIT
- ☐ OTHER (SPECIFY) \_\_\_\_\_

**DATE SUBMITTED:** 9-21-21 **By:** Luis Noriega

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: \_\_\_\_\_

FEE PAID: \_\_\_\_\_



# TIERRA WEST, LLC

September 21, 2021

Ms. Renee C. Brissette, P.E.  
Planning Department – Hydrology  
PO BOX 1293  
Albuquerque, NM 87109

**RE: WINTERGREEN APARTMENTS  
10800 GOLF COURSE RD NW  
GRADING & DRAINAGE PLAN AND DRAINAGE REPORT  
HYDROLOGY FILE: A12D008D**

Dear Ms. Brissette:

Per the correspondence dated July 6, 2021, please find the following responses addressing the comments listed below:

1. Since the project is adjacent to, or drains into an Albuquerque Metropolitan Arroyo and Flood Control Authority (AMAFCA) facility, approval by the AMAFCA will be needed prior to Hydrology approval. Please contact Nicole Friedt P.E., CFM ([nfriedt@amafca.org](mailto:nfriedt@amafca.org) or 505-884-2215).  
**Response: Please see correspondence from Nicole Friedt.**
2. Please remove "Issued for Permit – Not for Construction" on all the Sheets C1 – C7. Hydrology can only approve plans that are for construction for Building Permit.  
**Response: "Issued for Permit – Not for Construction" removed from Grading & Drainage Plan sheets.**
3. Sheet C3 – C5. Please either add a note "all spot elevations next to curbs are flowline elevation" or add "FL" behind those spot elevations that are next to the curbs.  
**Response: Note added to sheets C3-C5.**
4. Sheet C5. Per our phone conversation on July 6, 2021, AMAFCA is requiring the removal and replacement of the existing concrete channel at the southeast corner of the site. Please show all elevations needed to construct this. This information may be shown as a blown up area on Sheet C7 next to the cross-section detail of the channel.  
**Response: See sheet C3.5 and sheet C6.5.**
5. Sheet C7. The Vehicle Gate Detail and Carport Detail are from another project. The Carport Detail has a structural engineer's stamp and date on it. Therefore, these details were payed under the project and the company and engineer needs to provide updated details for this project. Please check with the architect about this since these are not standard details.  
**Response: Contractor to provide shop drawings for the engineer to review prior to construction.**

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Albuquerque, NM 87109  
(505) 858-3100 fax (505) 858-1118  
tierrawestllc.com



6. Please reference City of Albuquerque standard detail No. 2236 – Sidewalk Culvert with Steel Plate Top at the sidewalk culvert.

**Response: See updated sheet C3.2 and detail No. 2236 was added to sheet C6.4.**

7. As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Doug Hughes, PE, [jhughes@cabq.gov](mailto:jhughes@cabq.gov), 505-924-3420) 14 days prior to any earth disturbance.

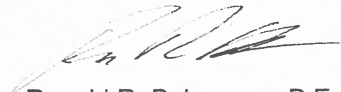
**Response: Acknowledged.**

8. Also as a reminder, please provide the recorded Drainage Covenant to Hydrology prior to Permanent Certificate of Occupancy. The Drainage Covenant for the proposed Stormwater Quality Pond and retention ponds must meet Chapter Article 6-15(C) of the DPM. Drop off the original executed drainage covenant, the exhibit, and the \$25.00 recording fee check made payable to Bernalillo County at the 4<sup>th</sup> floor of Plaza de Sol.

**Response: Acknowledged.**

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,



Ronald R. Bohannon, P.E

JN: 2020013  
RRB/ln/ye

## Luis Noriega

---

**From:** Nicole Friedt <nfriedt@amafca.org>  
**Sent:** Wednesday, September 15, 2021 9:56 AM  
**To:** Luis Noriega; Brad Bingham  
**Cc:** Ron Bohannon; Jared Romero  
**Subject:** RE: [#2020013] Wintergreen Apartment - Black Arroyo Channel - DRAFT Turnkey for Review  
**Attachments:** Item 11c Wintergreen Apartments - Turnkey Agreement DRAFT.docx; Item 11c\_Exhibit C Final.pdf; Item 11c\_Exhibit B\_Const Plans.pdf; Item 11c Exhibit A\_Page\_A-12-Z.pdf

Good morning Luis –

I still believe the pond will be difficult to maintain, but I recognize that you have improved the design to try to accommodate maintenance.

As such, AMAFCA has no further comments on the design plans.

Attached is the draft turnkey that will be going to the AMAFCA Board as a draft at the September Board Meeting. Please have the signatory entity review and provide comments. This will be submitted for our legal review today as well. We'd like to take the final to the Board for signature in October. I also need to know who the entity will be responsible for maintenance of the connection to this rundown so that we can begin drafting that license agreement; or let me know if it is the same entity.

Thanks,  
Nicole

Nicole M. Friedt, P.E., CFM  
Development Review Engineer  
AMAFCA

(Office) 505-884-2215  
(Cell) 505-362-1272

---

**From:** Luis Noriega <lnoriega@tierrawestllc.com>  
**Sent:** Tuesday, September 14, 2021 8:28 AM  
**To:** Nicole Friedt <nfriedt@amafca.org>; Brad Bingham <bbingham@amafca.org>  
**Cc:** Ron Bohannon <rrb@tierrawestllc.com>; Armijo, Ernest M. <earmijo@cabq.gov>; Renee Brissette <rbrissette@cabq.gov> <rbrissette@cabq.gov>; Jared Romero <jromero@amafca.org>  
**Subject:** RE: [#2020013] Wintergreen Apartment - Black Arroyo Channel

Nicole,

Just wanted to follow up if you have had time to review the response to comments for the wintergreen apartments?

Thank you,

**Luis Noriega**



Civil Engineering  
5571 Midway Park Pl, NE  
Albuquerque, NM 87109  
(505)858-3100 ext. 1216

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---

**From:** Luis Noriega  
**Sent:** Thursday, August 26, 2021 11:16 AM  
**To:** Nicole Friedt; Brad Bingham  
**Cc:** Ron Bohannon; Armijo, Ernest M.; Renee Brissette ([rbrissette@cabq.gov](mailto:rbrissette@cabq.gov)); Jared Romero  
**Subject:** RE: [#2020013] Wintergreen Apartment - Black Arroyo Channel

Nicole,

Please use the link below to access the response to comments and updated report, grading and drainage plans.

<http://ftpsrvr.tierrawestllc.com/>

User ID:  
2020013

Password:  
2020013

Thank you,

**Luis Noriega**



Civil Engineering  
5571 Midway Park Pl, NE  
Albuquerque, NM 87109  
(505)858-3100 ext. 1216

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---

**From:** Nicole Friedt [<mailto:nfriedt@amafca.org>]  
**Sent:** Friday, August 20, 2021 1:23 PM  
**To:** Luis Noriega; Brad Bingham  
**Cc:** Ron Bohannon; Armijo, Ernest M.; Renee Brissette ([rbrissette@cabq.gov](mailto:rbrissette@cabq.gov)); Jared Romero  
**Subject:** RE: [#2020013] Wintergreen Apartment - Black Arroyo Channel

Attached are AMAFCA's comments on the G&D plan and Drainage Report provided for our review. Please let me know if you have any questions. Also, let me know when to schedule a meeting to discuss the Turnkey Agreement & TCAL that will be required.

Thanks,

Nicole

Nicole M. Friedt, P.E., CFM  
Development Review Engineer  
AMAFCA

(Office) 505-884-2215  
(Cell) 505-362-1272

---

**From:** Luis Noriega <[lnoriega@tierrawestllc.com](mailto:lnoriega@tierrawestllc.com)>  
**Sent:** Friday, August 6, 2021 11:49 AM  
**To:** Nicole Friedt <[nfriedt@amafca.org](mailto:nfriedt@amafca.org)>; Brad Bingham <[bbingham@amafca.org](mailto:bbingham@amafca.org)>  
**Cc:** Ron Bohannon <[rbb@tierrawestllc.com](mailto:rbb@tierrawestllc.com)>; Armijo, Ernest M. <[earmijo@cabq.gov](mailto:earmijo@cabq.gov)>; Renee Brissette <[rbrissette@cabq.gov](mailto:rbrissette@cabq.gov)>; Jared Romero <[jromero@amafca.org](mailto:jromero@amafca.org)>  
**Subject:** RE: [#2020013] Wintergreen Apartment - Black Arroyo Channel

Nicole,

Please use the link below to access the Grading and Drainage plans and Report for the Wintergreen Apartments project at [GOLF COURSE RD NW ALBUQUERQUE 87114](#).

The existing on-site rundown was determined to not be up to the new AMAFCA standards and is to be removed and replaced.

Also with my research of the Black Arroyo channel It was determined that the arroyo does not have a capacity issues.

<http://ftpserver.tierrawestllc.com/>

User ID:  
2020013

Password:  
2020013

Please review the material for comment and or approval and let me know if there are questions.

Thank you,

**Luis Noriega**



5571 Midway Park Pl, NE  
Albuquerque, NM 87109  
(505)858-3100 ext. 1216  
Civil Engineering

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---

**From:** Nicole Friedt [<mailto:nfriedt@amafca.org>]  
**Sent:** Wednesday, June 9, 2021 12:14 PM  
**To:** Luis Noriega; Brad Bingham

**Cc:** Ron Bohannon; Armijo, Ernest M.; Renee Brissette ([rbrissette@cabq.gov](mailto:rbrissette@cabq.gov)); Jared Romero  
**Subject:** RE: [#2020013] Wintergreen Apartment - Black Arroyo Channel

Good afternoon Luis –

It is my understanding that there isn't a capacity issue in the Black Arroyo Channel that would prevent free discharge, but you will need to pull the appropriate report from our library, verify this, and reference that in your drainage report submittal.

We will want to see improvements to the rundown to meet the current standard if you plan to utilize it.

We can schedule a meeting to discuss this further. Let me know what your availability and timeline is.

Thanks,  
Nicole

Nicole M. Friedt, P.E., CFM  
Development Review Engineer  
AMAFCA

(Office) 505-884-2215  
(Cell) 505-362-1272

---

**From:** Luis Noriega <[lnoriega@tierrawestllc.com](mailto:lnoriega@tierrawestllc.com)>  
**Sent:** Tuesday, June 1, 2021 8:19 AM  
**To:** Nicole Friedt <[nfriedt@amafca.org](mailto:nfriedt@amafca.org)>; Brad Bingham <[bbingham@amafca.org](mailto:bbingham@amafca.org)>  
**Cc:** Ron Bohannon <[rbr@tierrawestllc.com](mailto:rbr@tierrawestllc.com)>  
**Subject:** [#2020013] Wintergreen Apartment - Black Arroyo Channel

Nicole,

Good morning, we are working on a new 4-4 story apartment complex at GOLF COURSE RD NW ALBUQUERQUE 87114.

The plan is to free discharge into the AMAFCA Black Arroyo Channel using an existing concrete rundown. The storm water quality volume will be retained on site and the excess storm water will discharge into the channel.

The question is are we allowed to use the existing rundown to discharge our developed flows into the AMAFCA channel?  
Or what procedure should we follow to obtain permission to do so?

I can provide more detailed plans if requested

Thank you,

**Luis Noriega**



5571 Midway Park Pl, NE  
Albuquerque, NM 87109  
(505)858-3100 ext. 1216

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# TIERRA WEST, LLC

August 26, 2021

Nicole M. Friedt, P.E.  
AMAFCA – Development Review  
2600 Prospect Ave NE  
Albuquerque, NM 87107

**RE: WINTERGREEN LUXURY APARTMENTS  
10820 GOLF COURSE RD NW  
AMAFCA COMMENTS**

Dear Ms. Friedt:

Per the correspondence dated August 20, 2021, please find the following responses addressing the comments listed below:

**General Comment:**

1. Because AMAFCA will be accepting infrastructure for maintenance (the improved rundown); a Turnkey Agreement & TCAL will be required. This is a minimum of a 2 month process (reduced a month from the standard 3 months because of the simplicity of the infrastructure being accepted). Please account for this requirement and schedule in your plans for development.

**Response: See Below**

**Owner Name: CALABAC ILLAS GROUP C/O DONALD HARVILLE**

**Owner Address: 3301R COORS BLVD NW 305 ALBUQUERQUE NM 87120-1229**

**Email: [peterstalland@hotmail.com](mailto:peterstalland@hotmail.com)**

**Phone: 651-433-0155**

2. AMAFCA will need to review and approve what kind of fencing that will be utilized in the drainage easement and adjacent to our facility. This may impact AMAFCA maintenance and induce further comments.

**Response: Information sent on 8/23/2021 from Luis Noriega [Lnoriega@tierrawestllc.com](mailto:Lnoriega@tierrawestllc.com) to Nicole Friedt [nfriedt@amafca.org](mailto:nfriedt@amafca.org), waiting on comments.**

**Sheet C3.1 Grading and Drainage Basin Map:**

1. You are restricting future developed flows from Basin D1 (and what is equivalent to Tract D-1) from 28.92 cfs to 19.5 cfs, correct?

**Response: Correct**

**Sheet C3.2 Grading and Drainage Plan:**

1. The water quality pond has pretty steep slopes. How is it going to be access and maintained? You have enough room behind the parking to add an access ramp.

**Response: See sheet C3.2, access ramp with gate added to water quality pond.**

2. If the pipe that is being run down the east side of the property is to account for the future developed flows from Tract D1, why is that flow not reflected in the pip capacity calculations?

**Response: Pipe capacity calculation updated to reflect future development flow, see Grading and Drainage Report Appendix A.**

5571 Midway Park Pl. NE  
Albuquerque, NM 87109  
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1-800-245-3102  
[tierrawestllc.com](http://tierrawestllc.com)

**Drainage Report:**

1. Section Flood Plain
  - a. Floodplain is one word:  
**Response: Acknowledged and corrected.**
2. Subdivision Existing Conditions
  - a. Black Arroyo Channel is a proper noun; capitalize it in all instances  
**Response: Acknowledged and corrected.**
3. Proposed Conditions
  - a. 3<sup>rd</sup> paragraph, replace 2<sup>nd</sup> sentence to read as follows: "The existing rundown is located at the southeast corner of the proposed site and does not conform to AMAFCA's standards."  
**Response: Acknowledged and corrected. See 5<sup>th</sup> paragraph, 4<sup>th</sup> sentence.**
  - b. Southeast is one word with no hyphen. Fix in all variations found throughout this report  
**Response: Acknowledged and corrected.**
  - c. Clarify in the report the discharge restriction from D-1, and how the flows 'add up' to get to the 57.42 cfs in the report.  
**Response: See paragraphs 3 and 4.**
4. AMAFCA – Black Arroyo Channel
  - a. 1<sup>st</sup> paragraph, replace 2<sup>nd</sup> sentence to read as follows: "The existing rundown is located at the southeast corner of the proposed site and does not conform to AMACA's standards."  
**Response: Acknowledged and corrected.**

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,



Ronald R. Bohannon, P.E

Cc: Renee Brissette, Hydrology City of Albuquerque  
Ernest Armijo, Hydrology City of Albuquerque

JN: 2020013  
RRB/ln/ye

# DRAINAGE REPORT FOR

## WINTERGREEN APARTMENTS

TRACT E-1 PARADISE HEIGHTS, UNIT 1

ALBUQUERQUE, NM

City of Albuquerque  
Planning Department  
Development Review Services  
HYDROLOGY SECTION

**APPROVED**

DATE: 11/17/21

BY: *Renée C. Brissette*

HydroTrans # A12D008D

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE  
CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY  
ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT  
THE CITY OF ALBUQUERQUE FROM REQUIRING  
CORRECTION, OR ERROR OR DIMENSIONS IN PLANS,  
SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS  
SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT  
AUTHORIZATION.

Prepared by:

*TIERRA WEST*

Tierra West, LLC  
5571 Midway Park Place NE  
Albuquerque, New Mexico 87109

August, 2021

I certify that this report was prepared under my supervision, and I am a registered  
Professional Engineer in the State of New Mexico in good standing.



*Ronald R. Bohannon*

08/26/2021

Ronald R. Bohannon  
PE # 7868



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AMAFCA –Black Arroyo Channel.....	9
Summary .....	10

### **Appendices**

Drainage Basin Maps, Hydrology Tables/Calculations and Inlet Capacity Charts.....	APPENDIX A
Pages from AMFAFCA Drainage Report.....	APPENDIX B
Property Plat detailing cross drainage.....	APPENDIX C

### **Map Pocket**

Grading and Drainage Plan

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## **Purpose**

The purpose of this report is to outline the Drainage Plan intent and present a solution for the development of the vacant tract E-1 of Paradise Heights, Unit 1 Albuquerque, New Mexico. The developed site is a proposed four 52 unit apartment complex and associated clubhouse and site amenities.

This report outlines the developed flows associated in developing the  $\pm 8.7$  acre site and describes the on-site and offsite surface improvements needed to safely convey the developed flows. The drainage analysis improvements also considers the vacant site to the north, a  $\pm 7.6$  acre parcel Tract D-1, whose runoff passes through the subject property.

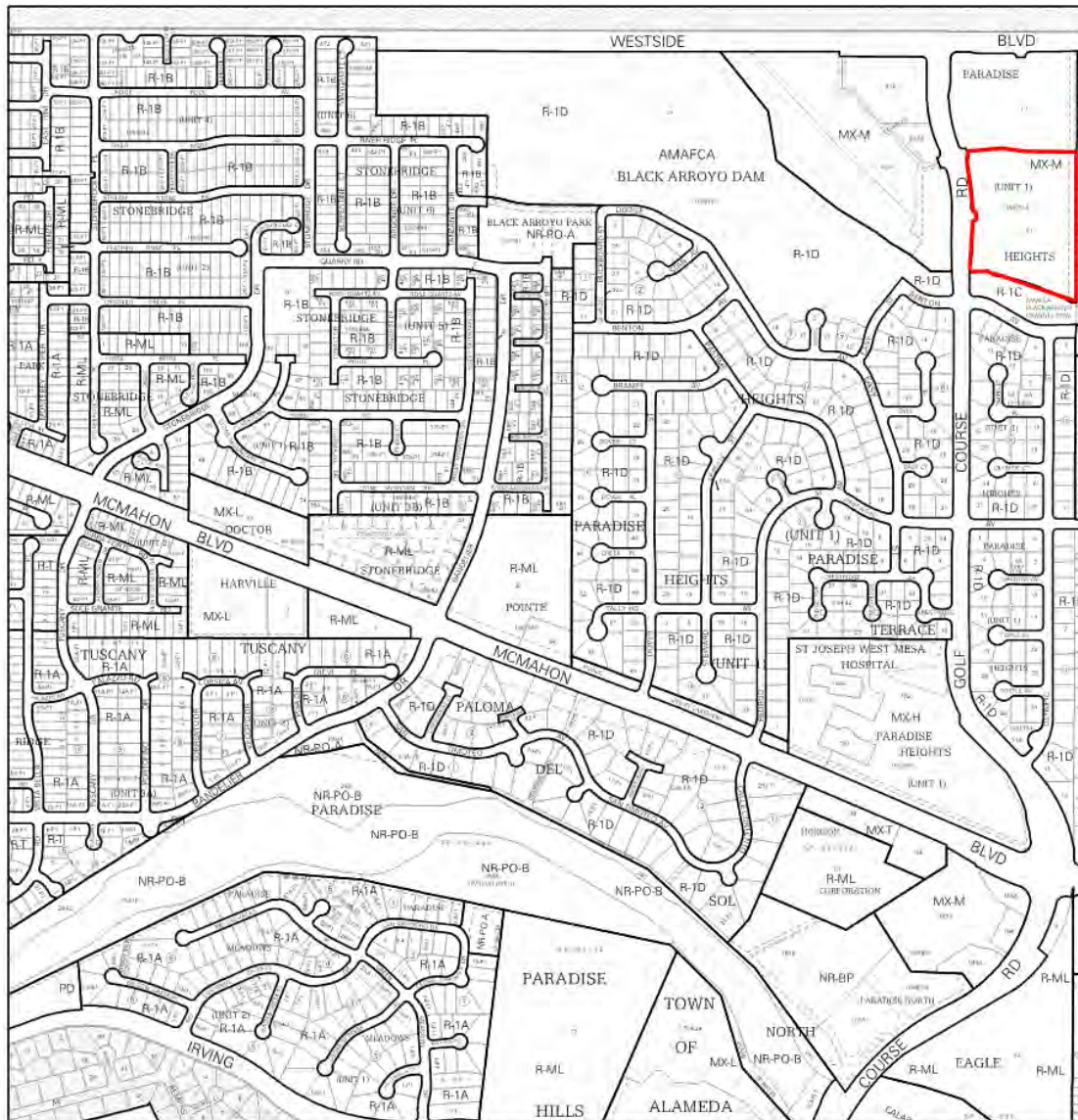
In 2008 a platting action was completed for the property and a conceptual grading and drainage plan with engineers stamp date 06-26-20 was approved by COA Hydrology.

## **Location and Background**

The site is located on the northeast corner of Golf Course Rd and the AMAFCA Black Arroyo Channel. The address of both undeveloped parcels is 10800 Golf Course Rd NW, Albuquerque, NM, 87114. The proposed development will occur across the entire vacant tract E-1, legally described as TRACT E-1, AMAFCA BLACK ARROYO CHANNEL ROW, PARADISE HEIGHTS, and UNIT 1 BERNALILLO COUNTY, NEW MEXICO. As mentioned the existing parcel is undeveloped with areas of scrub, small vegetation and some minor disturbance by dumping of soils.

The site is bordered to the north by Tract D-1, also undeveloped, by Golf Course Rd to the west and Black Arroyo Channel to the south. Single Family residential dwellings border the site to the east.

## Exhibit A – Vicinity Map



For more details about the Integrated Development Ordinance visit: <http://www.cabq.gov/planning/codes-policies-regulations/integrated-development-ordinance>

### IDO Zone Atlas May 2018



IDO Zoning information as of May 17, 2018  
The Zone Districts and Overlay Zones  
are established by the  
Integrated Development Ordinance (IDO).



### Zone Atlas Page: A-12-Z

- Easement
- Escarpment
- Petroglyph National Monument
- Areas Outside of City Limits
- Airport Protection Overlay (APO) Zone
- Character Protection Overlay (CPO) Zone
- Historic Protection Overlay (HPO) Zone
- View Protection Overlay (VPO) Zone

0 250 500 1,000 Feet





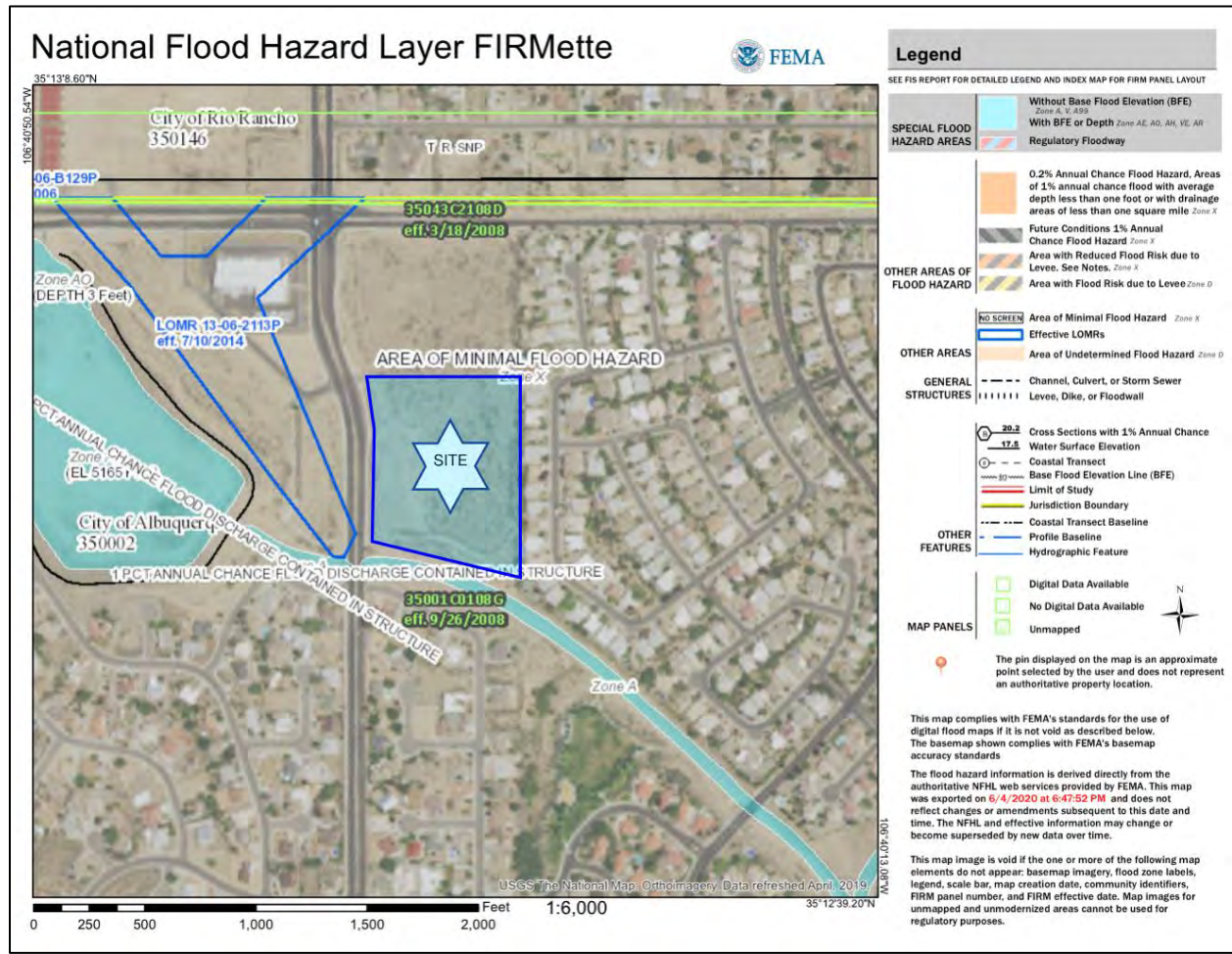
### **Exhibit B – Site Aerial Image**

#### **Floodplain**

The floodplain information is published for the site by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Bernalillo County, New Mexico and Incorporated Areas. The subject site is detailed on Community Panel Number 35001C0108G dated August 26, 2008 and is shown below.



The subject site is located within Flood Zone X, which is which is defined as, “Areas determined to be outside the 0.2% annual chance floodplain”. The site does not lie within a Flood Hazard Area as shown on the FEMA map requiring no further flood-proofing or other flood mitigation.



**Exhibit C – FIRM Map**

## Calculations

The proposed site is divided into appropriate drainage basins related to existing topography and existing drainage conveyance plans. The onsite project area includes 16.59 acres of developable acreage, including private vehicle driveway accesses, open areas for landscaping and buffer zones, and asphalt parking areas. At this site there are no offsite flows which contribute to the sites drainage as both Tracts D-1 and E-1 are considered in this analysis.

The site is located within Precipitation Zone 1, west of the Rio Grande, as specified in Chapter 6, Article 2 of the City of Albuquerque Development Process Manual 20202 Revision (DPM). The principal design storm is the 100-year, 6 hour event.

The appropriate land treatments A through D, as defined in the DPM Chapter 6 Article 2, will be applied to the various pervious and impervious areas for the proposed site.

Excess precipitation is the depth of runoff remaining after the initial volume of rainfall retained on the surface and infiltration has been subtracted from the design storm hydrograph. The DPM defines the excess precipitation for the 100-year, 6 hour event in Chapter 6 Table 6.2.13 for Zone 1 with the corresponding land treatments.

A weighted excess precipitation rate is used to calculate the volume runoff as defined in the DPM Chapter 6 (Equation 6.1). The calculation requires the sum of excess precipitation multiplied by the corresponding treatment areas divided by the total area, multiplied by the weighted excess precipitation of the watershed area.

To determine the peak discharge for the development the corresponding treatment areas are multiplied by the peak rate for each treatment and sum to compute the total flow. The peak rates for the treatment areas are defined in the DPM Chapter 6 Table 6.2.14 for the 100-year event.

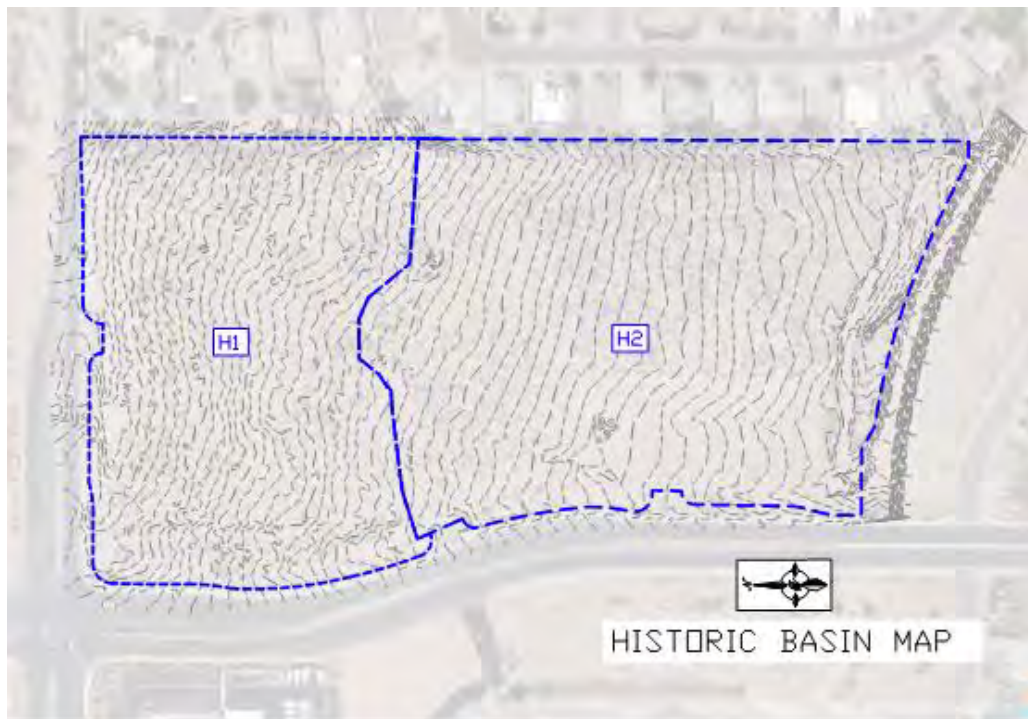
New development sites are required to capture and infiltrate the "stormwater quality volume" from the 90th percentile storm. The methodology used in the EPA report "estimating predevelopment hydrology in the middle Rio Grande watershed" April 2014, yields a runoff value of 0.42 inches for the 90th percentile storm. Therefore the required stormwater quality volume to be captured and infiltrated is the product of the impervious area multiplied by 0.42 inches for new development sites.



## Subdivision Existing Conditions

The subdivision is located within the Black Arroyo Detention Dam Basin Area L11 as shown in Appendix B of the report. Currently the subdivision lies in an undeveloped condition with vegetation typical of the west mesa. The subdivision slopes consistently from the northeast to the southwest with the flows predominately overland with a moderately defined drainage course along the east side of Golf Course Rd. and along the east side of the subdivision adjacent to the residential dwellings. The sheet flow consolidates and is directed to an existing concrete rundown at the southeast corner of the subdivision which discharges into the Black Arroyo Channel. The subdivision is allocated as treatment A. No offsite flows enter the subdivision parcels of Tract D-1 and E-1. Offsite flows are contained in the surrounding roadway and directed to curb inlets along Golf Course Rd. before discharging to the Black Arroyo Channel at the overpass.

The site is divided into two drainage basins as shown in Exhibit D. Basin H1 covers the undisturbed northern Tract D-1 and basin H2 reflects the disturbed southern Tract E-1. The runoff and volume calculations for the existing condition, based on the drainage criteria detailed in the DPM are included in appendix A.



**Exhibit D – Existing Drainage Basin Map**

## Proposed Conditions

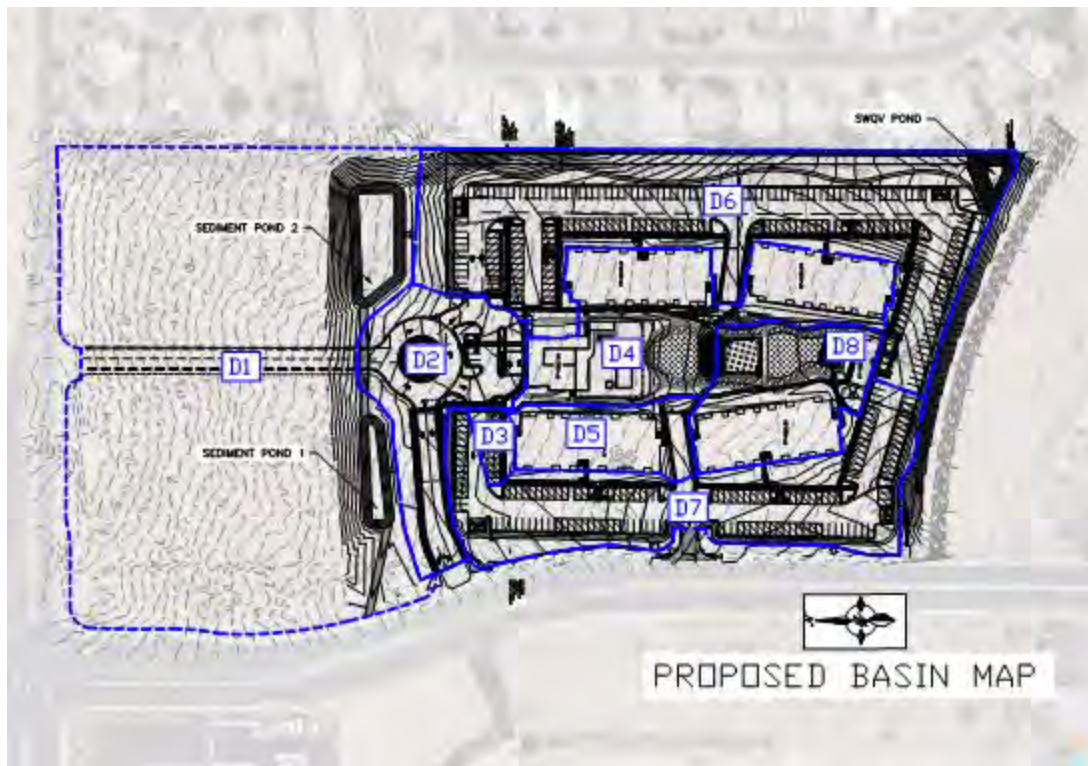
The developed site, including consideration for Tract D-1 in its future developed state, was analyzed to determine the total subdivision runoff and the required drainage improvements necessary to safely convey storm water runoff. As detailed on the subdivision plat there is an existing 30-foot public water and sanitary sewer easement extending along the entire eastern boundary of the site. A blanket cross access and drainage easement is in place between Tracts D-1 and E-1, with the maintenance of the easement the responsibility of the underlying owner/s.

The site was divided into eight drainage basins to determine the overall developed flows and to size the storm drain pipes and inlets accordingly. Included in the appendix is the drainage basin calculations for the runoff associated with each basin and the total developed flow discharged from the site.

Flows from the undeveloped Tract D-1 shall be retained on site via two temporary sediment ponds. Flow from the developed Tract D-1 shall be restricted from the estimated developed flow of 28.92 CFS to the allowable flow rate of 19.5 CFS. The reduction in flow can be accomplished by adequately sizing a detention pond which can also serve as the SWQP for Tract D-1.

The onsite storm water shall be collected by a combination of curb inlets and area drains, and shall discharge to the SWQV pond at the southeast corner of the site via storm drain pipe. Within the site there are two separate storm drain systems. The first system collects storm water from basins D2, D3, a part of D4, D5, a part of D8 and developed basin D1 with a total flow of 32.07 CFS. The second storm drain system collects storm water from basins D6, D7, a part of D4 and D8 with a total flow of 25.32 CFS. The total discharge for the design storm was calculated to be 57.39 CFS. The capacity charts of the inlets and storm pipe calculations are included in the appendix.

The flows will be routed into a storm water quality pond. The excess flow discharges over a concrete spillway. There is an existing concrete flume rundown connecting to AMAFCAs Black Arroyo Channel which is to be removed and replaced. The existing rundown is located at the southeast corner of the proposed site and does not conform to AMAFCA's standards. A new concrete rundown per AMACA's requirements shall be installed and connected to the existing channel. The new rundown adequately handles the design flows and the capacity calculations are included in the appendix.



### **Exhibit E – Drainage Basin Map**

#### **Stormwater Quality Volume Management**

As this site is a new development, the water quality volume is calculated based on the 0.42 inch storm. The methodology used in the EPA Report, Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed, New Mexico, TetraTech, April 2014, EPA Publication Number 832-R-14-007, yields a runoff value of 0.42 inches for the 90th percentile storm. Therefore to calculate the Stormwater Quality Volume the impervious area is multiplied by 0.42 inches. The formula used is  $SWQV = I * 43,560 * 0.42 * (1/12)$  where I is the impervious area in acres.

The impervious areas and SWQV ponding required for Tract E-1 is detailed on the design calculations in the appendix of the report and the required volume to be retained onsite is provided for Tract E-1. For Tract D-1, appropriate onsite SWQV ponding must be provided within Tract D-1 at time of development.

## AMAFCA – Black Arroyo Channel

On-site storm water free discharges into the AMAFCA concrete lined Black Arroyo Channel to the south of the property. The existing rundown is located at the southeast corner of the proposed site and does not conform to AMAFCA's standards. The existing rundown is to be removed and replaced to the most recent standards. Included in the appendix are the discharge calculations for the new rundown at fully developed flow which includes tracts D-1 and E-1.

The Black Arroyo Channel does not have a capacity issue which would prevent free discharge. At full development tracts D-1 and E-1 are to discharge at a maximum allowable peak discharge rate of 57.42 CFS into the Black Arroyo Channel at the 100 year storm event. The time to peak for the fully developed flow occurs after 0.207 hours or 12.4 minutes. According to the Black Arroyo Detention Dam Hydrology Report the Dam discharges at a peak discharge rate of 2,734.5 CFS into the Black Arroyo Channel adjacent to the subject site at the 100 year storm event. The time to peak for the fully developed flow occurs after roughly three hours. Pages from the Black Arroyo Dam Hydrology report are included in the appendix and the on-site time to peak calculation are shown below using Chapter 6 of the city of Albuquerque's DPM, Equation 6.9.

$$\text{Equation 6.9: } T_p = (0.7 \cdot t_c) + (1.6 - A_D/A_P)/12$$

Where:

$T_p$  = Time to peak (Hr)

$t_c$  = Time of concentration (Hr) = 0.2 (Assuming for small area)

$A_D$  = Area in land treatment D (acre) = 13.204

$A_T$  = Total Area (acre) = 16.59

$$T_p = (0.7 \cdot 0.2) + (1.6 - 13.204/16.59)/12 = 0.207 \text{ Hr}$$

## Summary

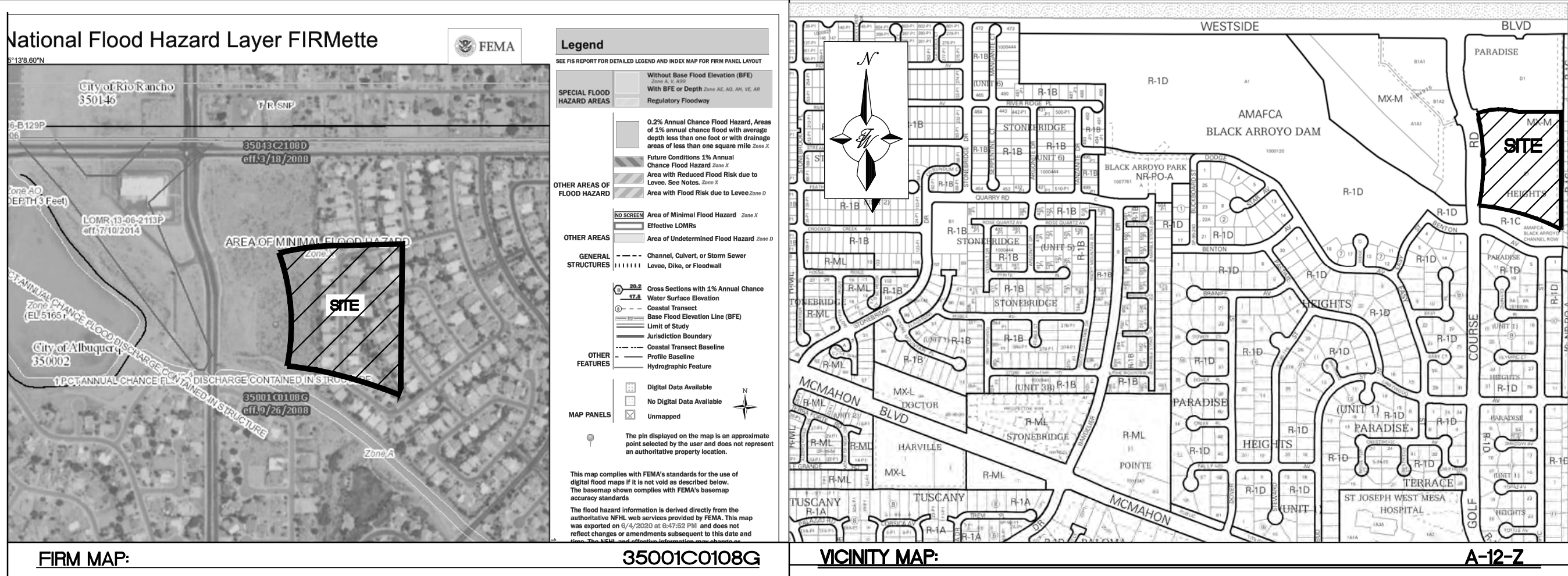
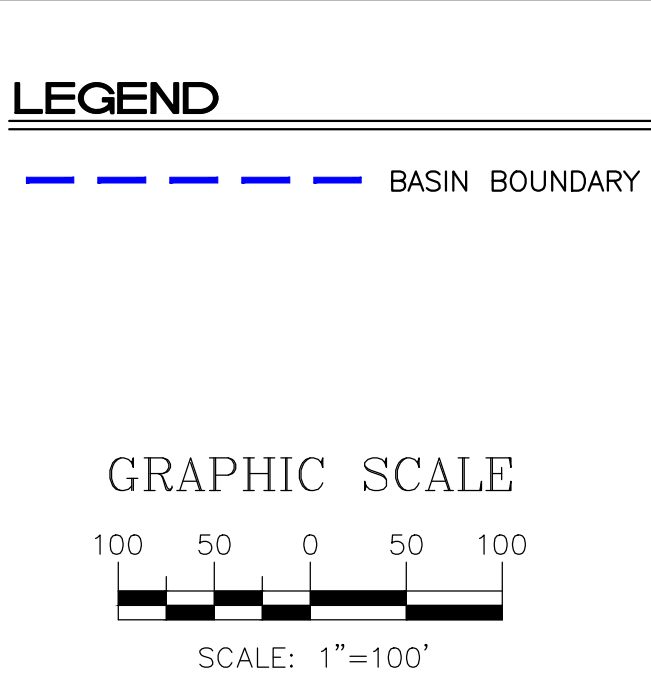
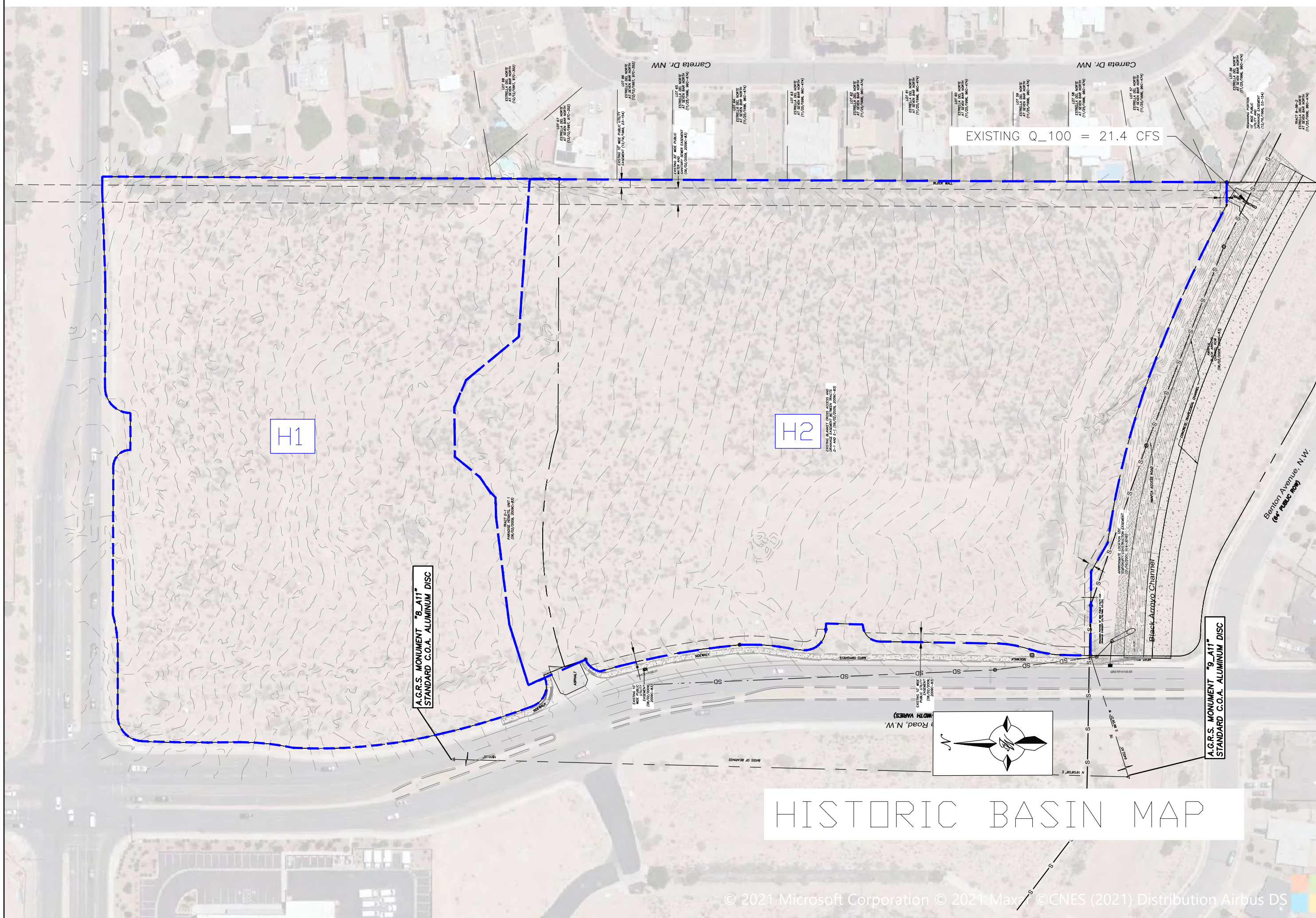
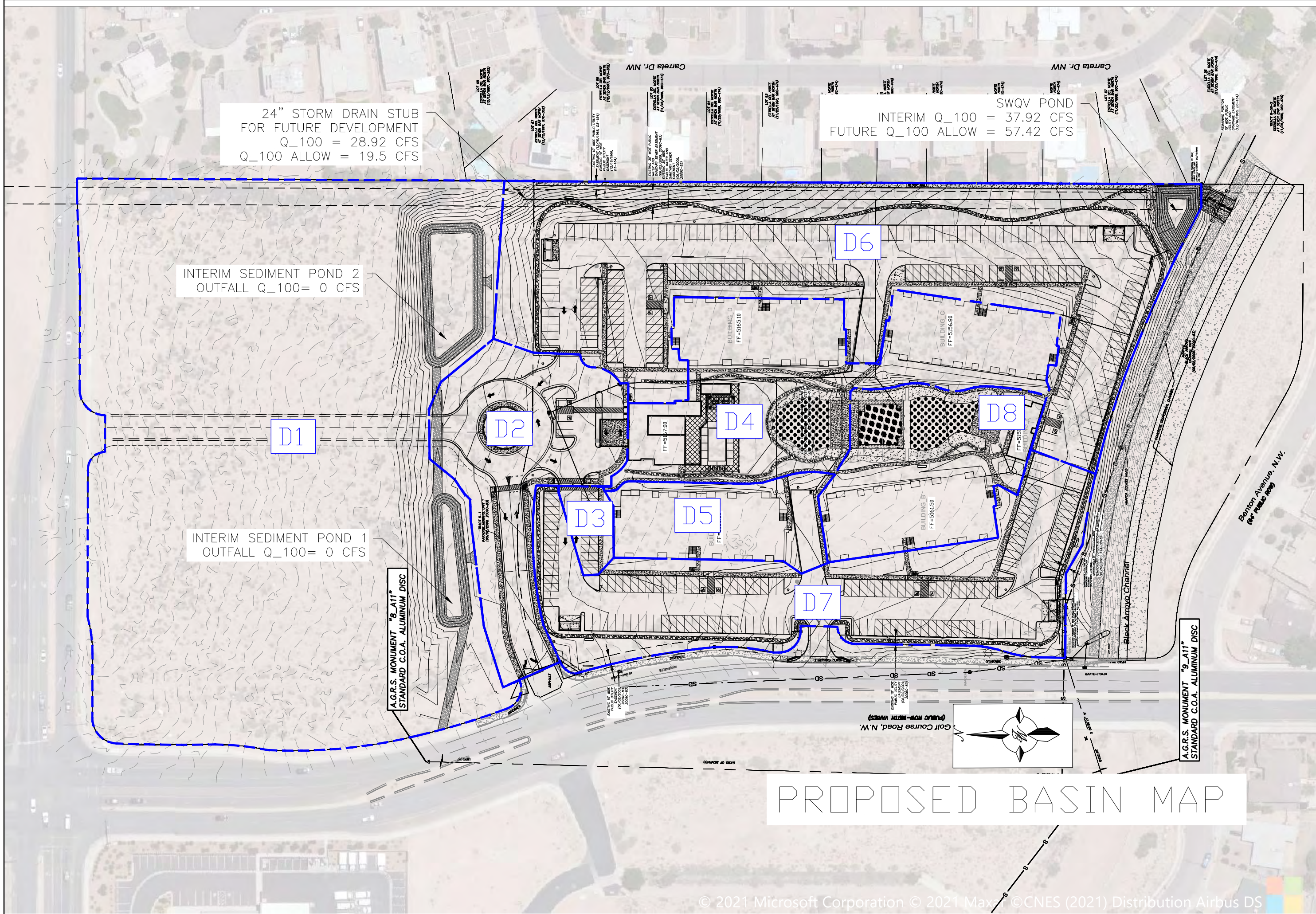
This report outlines the Drainage Plan and presents the on-site BMP SWQV ponding and drainage improvements needed to safely convey the developed flows for both tracts D-1 and E-1. Tract D-1 will be developed some time in the future therefore temporary sedimentation ponds will be constructed to manage the historic flows prior to entering into the developed tract E-1. When Tract D-1 is developed in the future onsite SWQV ponding must be provided within Tract D-1 to meet EPA requirements. The required SWQV ponding for Tract E-1 is achieved with a suitable size pond located at the southeast corner of Tract E-1.

Developed stormwater runoff shall be collected through combination of curb inlets and area drains, and discharged to the SWQV pond at the southeast corner of the site, before passing directly into the Black Arroyo Channel through a new concrete rundown.

## APPENDIX A



\\TNWAS\Z\_Drive\2020\2020013\_Apartments at Golf Course Rd\dwg\DRB\2020013\_BASINS.dwg Aug 26, 2021 - 10:14am



#### Existing Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr		
					Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
					%	(acres)	%	(acres)	%	(acres)	%	(acres)						
H1	D-1	303,908	6.98	0.01090	100%	6.977	0%	0.000	0%	0.000	0%	0.000	0.440	0.256	9.00	0.080	0.047	1.67
H2	E-1	418,804	9.61	0.01502	100%	9.614	0%	0.000	0%	0.000	0%	0.000	0.440	0.353	12.40	0.080	0.064	2.31
<b>Total</b>		<b>722,712</b>	<b>16.59</b>	<b>0.02592</b>		<b>16.591</b>		<b>0.000</b>		<b>0.000</b>		<b>0.000</b>		<b>0.608</b>	<b>21.40</b>		<b>0.111</b>	<b>3.98</b>

#### Proposed Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr		
					Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
					%	(acres)	%	(acres)	%	(acres)	%	(acres)						
D1	D-1	303,908	6.98	0.01090	0%	0.000	0%	0.000	15%	1.047	85%	5.930	1.823	1.060	28.92	1.120	0.651	18.70
D2	E-1	49,255	1.13	0.00177	0%	0.000	5%	0.057	25%	0.283	70%	0.792	1.660	0.156	4.39	0.989	0.093	2.75
D3	E-1	4,963	0.11	0.00018	0%	0.000	0%	0.000	10%	0.011	90%	0.103	1.872	0.018	0.48	1.160	0.011	0.31
D4	E-1	69,351	1.59	0.00249	0%	0.000	5%	0.080	15%	0.239	80%	1.274	1.758	0.233	6.41	1.069	0.142	4.10
D5	E-1	23,420	0.54	0.00084	0%	0.000	5%	0.027	10%	0.054	85%	0.457	1.807	0.081	2.21	1.109	0.050	1.42
D6	E-1	149,183	3.42	0.00535	0%	0.000	10%	0.342	20%	0.685	70%	2.397	1.644	0.469	13.14	0.978	0.279	8.21
D7	E-1	81,673	1.87	0.00293	0%	0.000	5%	0.094	10%	0.187	85%	1.594	1.807	0.282	7.69	1.109	0.173	4.96
D8	E-1	40,959	0.94	0.00147	0%	0.000	10%	0.094	20%	0.188	70%	0.658	1.644	0.129	3.61	0.978	0.077	2.25
<b>Total</b>		<b>722,712</b>	<b>16.59</b>	<b>0.02592</b>		<b>0.000</b>		<b>0.693</b>		<b>2.694</b>		<b>13.204</b>		<b>2.429</b>	<b>66.841</b>		<b>1.476</b>	<b>42.701</b>

Basin ID	SWQV	
	Vol Required (cf)	Provided (cf)
D1	-	0
D2	1,207	0
D3	156	0
D4	1,942	0
D5	697	0
D6	3,655	12,754
D7	2,287	0
D8	1,003	0
<b>Total</b>		<b>10,947</b>

NOTE: TRACT D-1 TO PROVIDE SEPARATE FUTURE STORM WATER QUALITY POND.

#### Equations:

Weighted E = Ea\*Aa + Eb\*Ab + Ec\*Ac + Ed

Volume = Weighted E \* Total Area

Flow = Qa\*Aa + Qb\*Ab + Qc\*Ac + Qd\*Ad

SWQV Pond Volume Calculation	
Area at Mid Depth	1,822 Sq. Ft.
Depth of Pond	7 Ft.
Total Volume	12,754 Cubic Ft.

Sediment Pond 1 Volume Calculation	
Area at Mid Depth	3,800 Sq. Ft.
Depth of Pond	4 Ft.
Volume	15,200 Cubic Ft.
Sediment Pond 2 Volume Calculation	
Area at Mid Depth	8,616 Sq. Ft.
Depth of Pond	4 Ft.
Volume	34,464 Cubic Ft.
Total Volume	49664 Cubic Ft.

Excess Precipitation, E (in.)		
Zone 1	100-Year	10-Year
Ea	0.44	0.08
Eb	0.67	0.22
Ec	0.99	0.44
Ed	1.97	1.24

Peak Discharge (cfs/acre)		
Zone 1	100-Year	10-Year
Qa	1.29	0.24
Qb	2.03	0.76
Qc	2.87	1.49
Qd	4.37	2.89

#### Stormwater Quality Volume

Total Impervious Area =

Retainage depth = 0.42" Per DPM Pg. 272

Retention Volume =

ΣArea in "Treatment D"

0.035

=0.035 x area

foot

CF

"FOR REFERENCE ONLY"		
ENGINEER'S SEAL	WINTERGREEN LUXURY APARTMENTS	DRAWN BY BF
	10820 GOLF COURSE RD. NW	DATE 08/25/2021
	GRADING AND DRAINAGE BASIN MAP	2020013_BASINS
		SHEET # C3.1
RONALD R. BOHANNAN P.E. #7868	TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	JOB # 2020013



Pipe Capacity Tables

Pipe ID	D	Slope	Area	R	Q 100	Q Provided
	(in)	(%)	(ft^2)		(cfs)	(cfs)
1	18	1.00	1.77	0.375	0.48	10.53
2	18	2.00	1.77	0.375	2.68	14.90
3	18	1.90	1.77	0.375	4.87	14.52
4	18	1.90	1.77	0.375	5.64	14.52
5	18	2.00	1.77	0.375	1.81	14.90
6	18	1.90	1.77	0.375	7.45	14.52
7	18	1.90	1.77	0.375	2.09	14.52
8	18	2.00	1.77	0.375	1.25	14.90
9	18	1.00	1.77	0.375	0.40	10.53
10	18	2.00	1.77	0.375	9.54	14.90
11	18	1.00	1.77	0.375	0.63	10.53
12	18	2.00	1.77	0.375	11.02	14.90
13	18	2.00	1.77	0.375	12.57	14.90
<b>14a (TR D-1)</b>	<b>24</b>	<b>3.00</b>	<b>3.14</b>	<b>0.500</b>	<b>19.50</b>	<b>39.29</b>
<b>14b</b>	<b>24</b>	<b>2.00</b>	<b>3.14</b>	<b>0.500</b>	<b>32.07</b>	<b>32.08</b>
15	18	1.00	1.77	0.375	7.69	10.53
16	18	1.00	1.77	0.375	2.94	10.53
17	18	1.00	1.77	0.375	0.63	10.53
18	24	2.00	3.14	0.500	10.63	32.08
19	24	2.00	3.14	0.500	12.18	32.08
<b>20</b>	<b>24</b>	<b>2.00</b>	<b>3.14</b>	<b>0.500</b>	<b>25.32</b>	<b>32.08</b>
Total					57.39	

Manning's Equation:

$$Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$$

A = Area

R = D/4

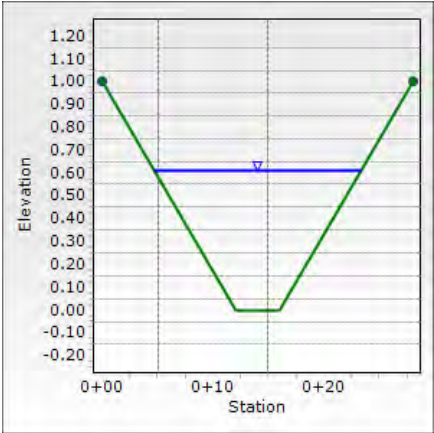
S = Slope

n = 0.013



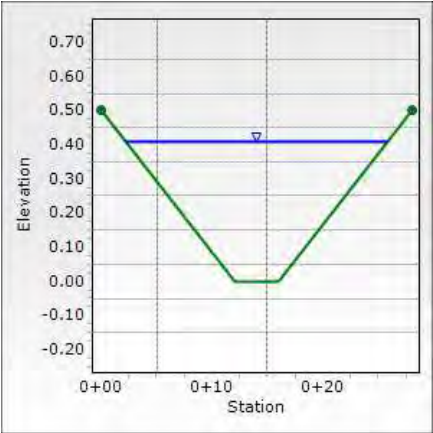
AMAFCA CHANNEL RUNDOWN

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.020 ft/ft
Normal Depth	7.3 in
Discharge	57.42 cfs



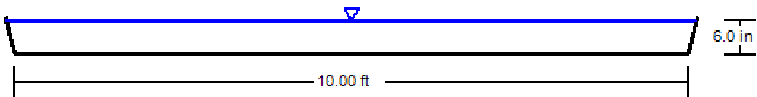
SWQP SPILLWAY

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.280 ft/ft
Normal Depth	4.9 in
Discharge	57.42 cfs



TEMP SEDIMENT POND 1 SPILLWAY

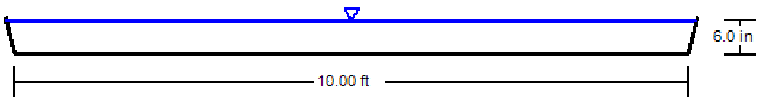
Project Description	
Friction Method	Manning Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.069
Channel Slope	0.050 ft/ft
Normal Depth	6.0 in
Left Side Slope	0.250 H:V
Right Side Slope	0.250 H:V
Bottom Width	10.00 ft
Discharge	14.50 cfs



V: 1  
H: 1

TEMP SEDIMENT POND 2 SPILLWAY

Project Description	
Friction Method	Manning Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.069
Channel Slope	0.100 ft/ft
Normal Depth	6.0 in
Left Side Slope	0.250 H:V
Right Side Slope	0.250 H:V
Bottom Width	10.00 ft
Discharge	20.51 cfs



V: 1  
H: 1



# Nyloplast®

Tomorrow's Storm Drainage  
Structures Today.

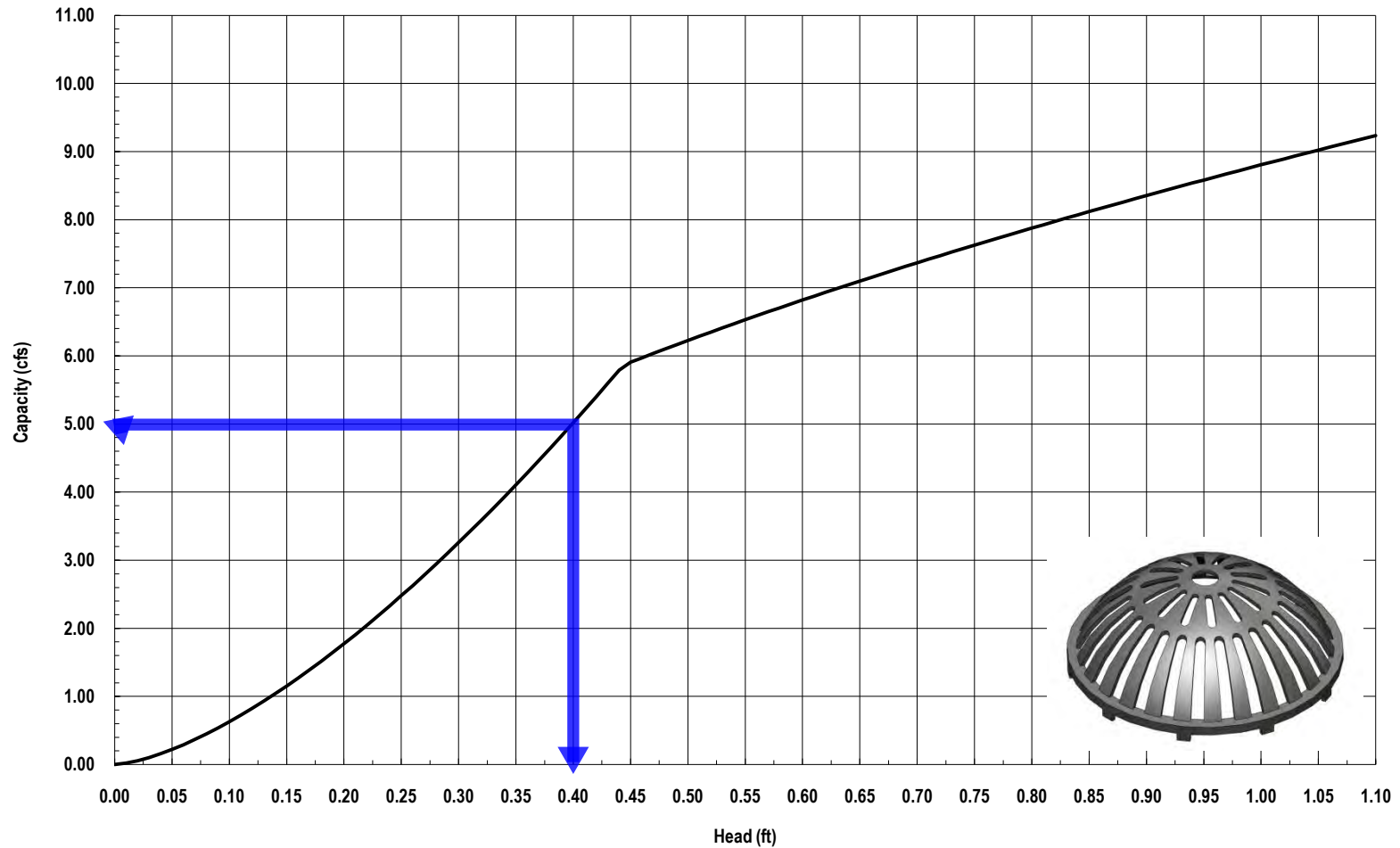
## Nyloplast Grate Inlet Capacity Charts

These charts are based on equations from the USDOT/FAA Advisory Circular pertaining to Surface Drainage Design, AC No: AC150/5320-5C and the USDOT/FHWA Urban Drainage Design Manual, Hydraulic Engineering Circular No. 22, Third Edition, Publication No. FHWA-NHI-10-009. Certain assumptions have been made, and no two installations will necessarily perform the same way. Safety factors should change with site conditions and is left to the discretion of the design engineer.



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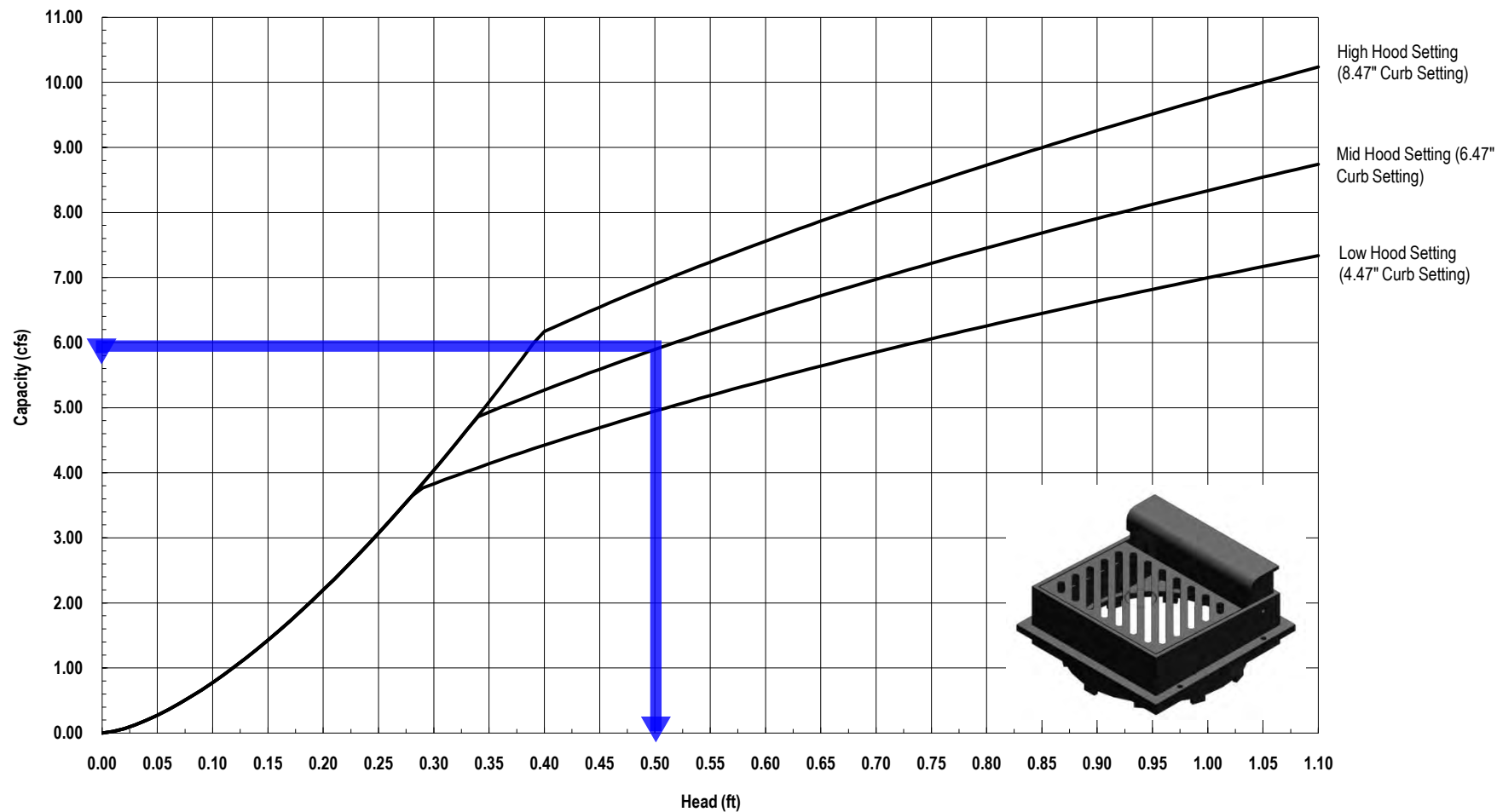
Nyloplast 24" Dome Grate Inlet Capacity Chart



**Nyloplast**<sup>®</sup>

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Nyloplast 2' x 2' Curb Inlet Diagonal Grate Inlet Capacity Chart

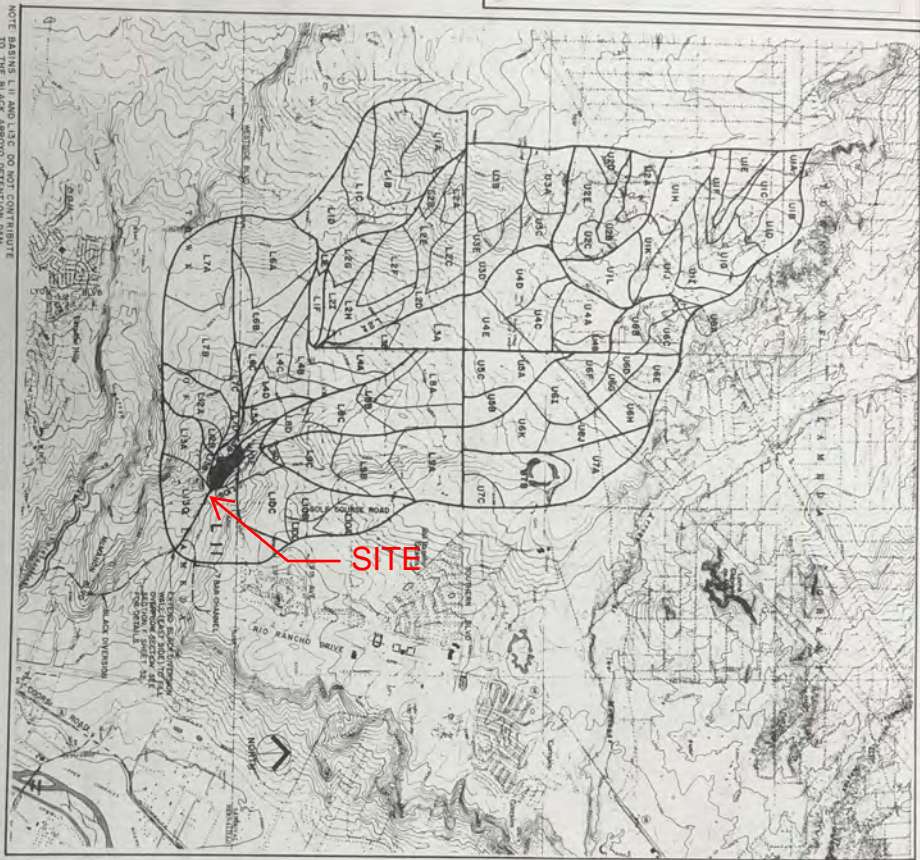


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## APPENDIX B





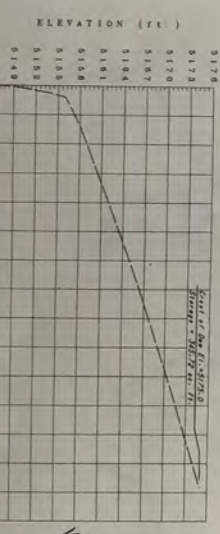
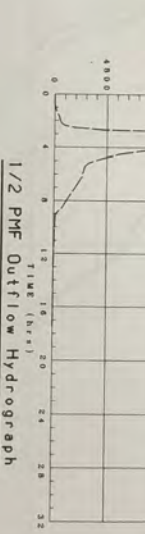
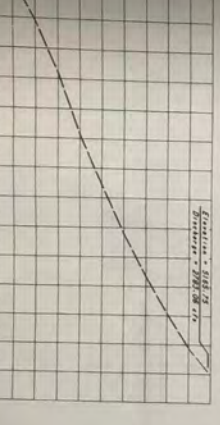
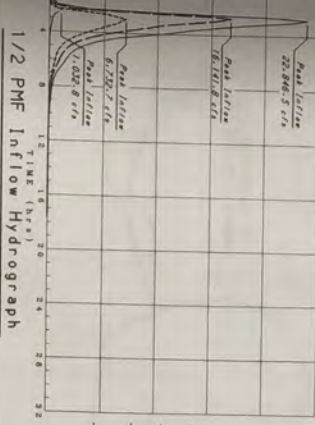
- # GENERAL NOTES
1. NEW MEXICO STATE HIGHWAY DEPARTMENT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, EDITION OF 1984," and supplemental sheets thereto, shall govern the construction of this project. (See Appendix A, Section A-01, for general construction notes.)
  2. All drawings are to be read before work has been started.
  3. All engineering by the State and County shall be the assumed standard division left and right of centerline or making the direction of crossing obvious.
  4. Wherever the term "line" is used, it shall mean the centerline of the proposed right-of-way.
  5. Wherever the term "centerline" is used, it shall mean the centerline of the proposed right-of-way.
  6. Wherever the term "line" is used, it shall mean the centerline of the proposed right-of-way.
  7. Additional construction at vias areas and with right-of-way shall be considered incidental to the cost of the construction of the project.
  8. Right-of-way shown on the plans shall be "Sufficient of Note" for this project. The project shall be constructed within the right-of-way shown on the plans and shall be considered incidental to the cost of the construction of the project.
  9. All materials for this project shall be of the quality and quantity specified in the project manual and shall be of the quality and quantity specified in the project manual.
  10. Contractors, suppliers, and any other interested parties shall not be allowed to handle or use any materials for this project without the approval of the project manager.
  11. The project manager shall be responsible for the construction of the project and shall be responsible for the construction of the project.
  12. The project manager shall be responsible for the construction of the project and shall be responsible for the construction of the project.
  13. The project manager shall be responsible for the construction of the project and shall be responsible for the construction of the project.
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  16. The project manager shall be responsible for the construction of the project and shall be responsible for the construction of the project.
  17. The project manager shall be responsible for the construction of the project and shall be responsible for the construction of the project.
  18. Major changes in the project shall be approved by the project manager.



TABLE 6  
ULTIMATE DEVELOPMENT CONDITION  
DISCHARGE TABLE  
HYDROLOGIC ANALYSIS FOR BLACK ARROYO

BASIN	AREA (SQ. MI.)	TIME TO PEAK (HRS.)	CN=95 IMPERVIOUS AREA (SQ. MI.)			SCS CURVE NO. (PERV.)	100-YEAR DISCHARGE RATE (CFS)			
			SCE.1	SCE.2	SCE.3		SCEN. 1	SCEN. 2	SCEN. 3	SCEN. 4
U1	1.20	.591	.42	.42	.42	69	808	808	808	808
U2	.48	.292	.17	.17	.17	64	481	481	481	481
U3	.66	.325	.23	.23	.23	67	655	655	655	655
U4	.59	.300	.21	.21	.21	67	624	624	624	624
U5	.31	.239	.11	.11	.11	67	372	372	372	372
U6	.95	.523	.33	.33	.33	67	673	673	673	673
U7	.39	.401	.14	.14	.14	67	344	344	344	344
L1	.781	.447	.172	.258	.344	70	526	649	774	371
L2	.804	.409	.177	.265	.354	65	517	659	805	337
L3	.194	.331	.043	.064	.085	67	145	184	223	96
L4	.388	.298	.09	.128	.171	65	290	373	463.120*	179
L5	.074	.169	.016	.024	.033	63	67	88	112	41
L6	.524	.288	.115	.173	.231	66	409	528	647	264
L7	.574	.334	.126	.189	.253	63	366	492	619	212
L12	.194	.271	.043	.064	.085	59	124	173	223	62
L8	.554	.438	.122	.183	.244	65	316	414	512	193
L9	.534	.433	.117	.176	.235	66	318	411	506	202
L10	.574	.387	.126	.189	.253	68	399	503	610	270
L13	.264	.265	.058	.087	.116	64	201	265	330	122
L11	.214	.239	.047	.071	.094	63	166	222	277	98
Analysis Point 1							1345	1345	1345	1345
Analysis Point 2							624	624	624	624
Analysis Point 3							976	976	976	976
Analysis Point 4							2826	3298	3797.3579*	2278
Analysis Point 5							1691	1952	2206	1381
Analysis Point 6							4498	5239	5794.5759*	3639
Analysis Point 7							4506	5268	5826*	3608
Downstream of Confluence with 7-Bar							5293	6095	6666*	4319
							6922			

\* Error in L4



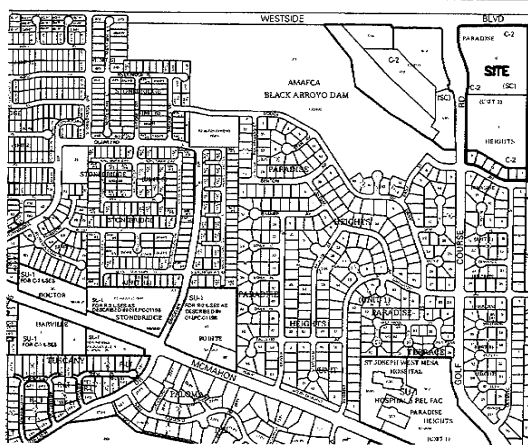
seed storage

- 

ALBUQUERQUE METROPOLITAN  
ARROYO FLOOD CONTROL DISTRICT



## APPENDIX C



LOCATION MAP ZONE ATLAS SHEET A-12  
SCALE 1" = 750' +/-

### PUBLIC UTILITY EASEMENTS

QWEST COMMUNICATIONS  
DATE 5/22/09

NEW MEXICO GAS CO.  
DATE 5/29/09

COMCAST CABLE  
DATE 5/27/2009

PUBLIC UTILITY EASEMENTS SHOWN ON THIS PLAT ARE GRANTED FOR THE COMMON AND JOINT USE OF:

1. PUBLIC SERVICE COMPANY OF NEW MEXICO ELECTRIC SERVICES FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF OVERHEAD AND UNDERGROUND ELECTRICAL LINES, TRANSFORMERS, POLES AND ANY OTHER EQUIPMENT, FIXTURES, STRUCTURES AND RELATED FACILITIES REASONABLY NECESSARY TO PROVIDE ELECTRICAL SERVICE.
2. PUBLIC SERVICE COMPANY OF NEW MEXICO GAS SERVICES FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF NATURAL GAS LINES, VALVES AND OTHER EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE NATURAL GAS SERVICE.
3. QWEST COMMUNICATIONS FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF ALL BURIED AND AERIAL COMMUNICATION LINES AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE COMMUNICATION SERVICES, INCLUDING BUT NOT LIMITED TO ABOVE GROUND PEDESTALS AND CLOSURES.
4. COMCAST CABLE FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF SUCH LINES, CABLE AND OTHER EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE CABLE TV SERVICE.

INCLUDED IS THE RIGHT TO BUILD, REBUILD, CONSTRUCT, RECONSTRUCT, LOCATE, RELOCATE, CHANGE, REMOVE, MODIFY, RENEW, OPERATE AND MAINTAIN FACILITIES FOR THE PURPOSES DESCRIBED ABOVE, TOGETHER WITH FREE ACCESS, TO, FROM AND OVER SAID EASEMENTS, INCLUDING SUFFICIENT WORKING AREA SPACE FOR ELECTRIC TRANSFORMERS, WITH THE RIGHT TO TRIM AND REMOVE TREES, SHRUBS OR BUSHES WHICH INTERFERE WITH THE PURPOSES SET FORTH HEREIN. NO BUILDING, SIGN, POOL (ABOVE GROUND OR SUBSURFACE), HOT TUB, CONCRETE OR WOOD DECKING OR OTHER STRUCTURE SHALL BE ERECTED OR CONSTRUCTED ON SAID EASEMENTS, NOR SHALL ANY WELL BE DRILLED OR OR OPERATED THEREON. PROPERTY OWNERS SHALL BE SOLELY RESPONSIBLE FOR CORRECTING ANY VIOLATIONS OF THE NATIONAL ELECTRIC OR SAFETY CODE CAUSED BY CONSTRUCTION OF POOLS, DECKING, OR ANY STRUCTURES ADJACENT TO OR WITHIN OR NEAR EASEMENT SHOWN ON THIS PLAT.

DOCH 2009061460

Copyright 2009 06-11 PM Page: 1 of 3  
PLAT R-517.30-B, 2009C P. 008 P. Toulous Oliveira, Bernalillo County

### TREASURER'S CERTIFICATION

THIS IS TO CERTIFY THAT TAXES ARE CURRENT AND PAID ON UPC# 10025561302

PROPERTY OWNER OF RECORD:

CALABACILLAS GROUP

BERNALILLO COUNTY TREASURER'S OFFICE:

### NOTICE OF SUBDIVISION PLAT CONDITIONS

A VARIANCE OR WAIVER FROM CERTAIN SUBDIVISION REQUIREMENTS HAS BEEN GRANTED BY THE CITY AND THE ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY IN CONNECTION WITH THIS PLAT.

FUTURE SUBDIVISION OF LANDS WITHIN THIS PLAT, ZONING AND SITE DEVELOPMENT PLAN APPROVALS, AND DEVELOPMENT PERMITS MAY BE CONDITIONED UPON DEDICATION OF RIGHTS-OF-WAY AND EASEMENTS, AND/OR UPON INFRASTRUCTURE IMPROVEMENTS BY THE OWNER FOR WATER, SANITARY SEWER, STREETS, DRAINAGE, GRADING AND PARKS IN ACCORDANCE WITH CURRENT RESOLUTIONS, ORDINANCES AND POLICIES IN EFFECT AT THE TIME FOR ANY SPECIFIC PROPOSAL.

THE CITY (AND AMAFCA WITH REFERENCE TO DRAINAGE) MAY REQUIRE AND/OR PERMIT EASEMENTS TO BE ADDED, MODIFIED OR REMOVED WHEN FUTURE PLANS OR SITE DEVELOPMENT PLANS ARE APPROVED.

BY ITS APPROVAL THE CITY MAKES NO REPRESENTATION OR WARRANTIES AS TO AVAILABILITY OF UTILITIES, OR FINAL APPROVAL OF ALL REQUIREMENTS INCLUDING (BUT NOT LIMITED TO) THE FOLLOWING ITEMS: WATER AND SANITARY SEWER AVAILABILITY; FUTURE STREET DEDICATIONS AND/OR IMPROVEMENTS; PARK AND OPEN SPACE REQUIREMENTS; DRAINAGE REQUIREMENTS AND/OR IMPROVEMENTS; AND EXCAVATION, FILLING OR GRADING REQUIREMENTS. ANY PERSON INTENDING DEVELOPMENT OF LANDS WITHIN THIS SUBDIVISION IS CAUTIONED TO INVESTIGATE THE STATUS OF THESE ITEMS.

### DISCLOSURE STATEMENT

THE PURPOSE OF THIS PLAT IS TO: REDEFINE THE BOUNDARY BETWEEN TRACTS D AND E; DELETE ALL INTERNAL LOT LINES IN BLOCK 19 TO FORM A SINGLE TRACT; DEDICATE NEW RIGHT-OF-WAY ON BOTH GOLF COURSE RD. NW AND WESTSIDE BLVD. NW AND VACATE A PORTION ROAD RIGHT-OF-WAY ON GOLF COURSE RD. NW AND WESTSIDE BLVD. NW; VACATE EASEMENT(S); GRANT NEW EASEMENTS AND ESTABLISH A WAIVER OR VARIANCE FROM CERTAIN SUBDIVISION REQUIREMENTS AS NOTED ABOVE.

### SURVEYOR'S CERTIFICATION

I, JEAN J. BORDENAVE, A REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR UNDER THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THIS PLAT WAS PREPARED BY ME OR UNDER MY SUPERVISION; MEETS THE MINIMUM REQUIREMENTS OF MONUMENTATION AND SURVEYS OF THE ALBUQUERQUE SUBDIVISION ORDINANCE; SHOWS EASEMENTS OF RECORD AND/OR INDICATED IN TITLE COMMITMENT NO. 6218002146, DATED FEBRUARY 19, 2007, ISSUED BY LAND AMERICA ALBUQUERQUE TITLE AND OR MADE KNOWN TO ME BY THE OWNERS; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JEAN J. BORDENAVE, NMPE&LS NO. 5110



## PLAT OF TRACTS D-I, E-I AMAFCA BLACK ARROYO CHANNEL ROW PARADISE HEIGHTS, UNIT I

ALBUQUERQUE, NEW MEXICO

MARCH, 2009

### APPROVALS

PROJECT NO: 1002556 APPLICATION NO: 09DRB-70099

CITY SURVEYOR  
Christina Sandoval  
DATE 3-6-09

PARKS AND RECREATION DEPARTMENT  
Curtis C. Chum  
DATE 4-1-09

CITY ENGINEER  
John J. Hume  
DATE 5-29-09

A.M.A.F.C.A.

UTILITIES DEVELOPMENT  
Roger J. Hume  
DATE 4-1-09

TRAFFIC ENGINEERING, TRANSPORTATION DIVISION  
DATE 04-14-09

DEP CHAIRPERSON, PLANNING DEPARTMENT  
DATE 06-02-09

TALOS LOG NO. 2009101434

### FREE CONSENT AND DEDICATION

THE SUBDIVISION OF THE LAND DESCRIBED ON THIS PLAT IS WITH THE FREE CONSENT OF AND IN ACCORDANCE WITH THE DESIRE OF THE UNDERSIGNED OWNERS OF THE LAND. THE OWNERS DO HEREBY:

WARRANT THAT THEY HOLD AMONG THEM COMPLETE AND INDEFEASIBLE TITLE TO THE LAND SUBDIVIDED, GRANT SPECIFIC SURFACE AND SUBSURFACE POWER, GAS, WATER, SEWER AND COMMUNICATION EASEMENTS AS DELINEATED ON THIS PLAT;

ACKNOWLEDGE EXISTING EASEMENTS AS SHOWN ON THIS PLAT;

STATE THAT THIS SUBDIVISION LIES WITHIN THE SUBDIVISION REGULATION JURISDICTION OF THE CITY OF ALBUQUERQUE, NEW MEXICO.

IN ADDITION THE OWNER OF TRACTS D AND E DOES HEREBY DEDICATE PUBLIC RIGHTS-OF-WAY, SHOWN HEREON, IN FEE SIMPLE WITH WARRANTY COVENANTS TO THE CITY OF ALBUQUERQUE.

TRACTS D & E (CALABACILLAS GROUP, A NEW MEXICO GENERAL PARTNERSHIP)

Donald D. Harville  
DONALD D. HARVILLE, GENERAL PARTNER

STATE OF NEW MEXICO )  
COUNTY OF BERNALILLO ) SS  
THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON 03/05/09 BY  
Donald D. Harville, GENERAL PARTNER.

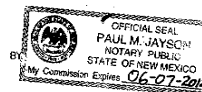
NOTARY PUBLIC: Paul M. Jayson 06-07-2012

AMAFCA BLACK ARROYO CHANNEL (AMAFCA)

John P. Kelly, P.E., EXECUTIVE ENGINEER

STATE OF NEW MEXICO )  
COUNTY OF BERNALILLO ) SS  
THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON 3/5/09 BY  
John P. Kelly, EXECUTIVE ENGINEER

NOTARY PUBLIC: Paul J. Hume



B BORDENAVE DESIGNS  
P.O. BOX 91194, ALBUQUERQUE, NM 87199  
(505)823-1344 FAX (505)821-9105

SHEET 1 OF 3



A TRACT OF LAND SITUATED IN PROJECTED SECTION 1, T11N, R2E, N.M.P.M., TOWN OF ALAMEDA GRANT, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO; SAID TRACT BEING THE SAME AS TRACTS D AND E AND BLOCK 1, AS SHOWN ON THE PLAT OF "PARADISE HEIGHTS UNIT 1" AS MODIFIED BY THE PLAT OF "REALIGNMENT OF GOLF COURSE ROAD" AND A WARRANTY DEED FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON DEC. 13, 1968 IN BK. D3, PAGE 154 AND ON JULY 26, 1974 IN BK. D6, PAGE 61 AND ON MEX. STATE, PLATE BEARING (CENTRAL ZONE) AND HORIZONTAL GROUP DISTANCES AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF THE TRACT HEREIN DESCRIBED, FROM WHENCE THE ACS MONUMENT ACS 8-A11 BEARS N88°25'44"W A DISTANCE OF 6504.75 FEET, SAID POINT BEING ON THE SOUTHERLY RIGHT-OF-WAY OF WESTSIDE BLVD; THENCE DEPARTING THE SOUTHERLY RIGHT-OF-WAY OF WESTSIDE BLVD.

S00°17'07"W, 1430.00 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY OF BENTON AVE.; THENCE

N89°42'15"W, 170.20 FEET ALONG THE NORTHERLY RIGHT-OF-WAY OF BENTON AVE. TO A POINT; THENCE

NORTHWESTERLY, 81.40 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 158.45 FEET AND A LONG CHORD BEARING N74°59'10"W A DISTANCE OF 80.51 FEET TO A POINT; THENCE,

N60°18'05"W, 200.82 FEET TO A POINT; THENCE

NORTHWESTERLY, 114.29 FEET ALONG THE ARC OF A CURVE LEFT, HAVING A RADIUS OF 222.45 FEET AND A LONG CHORD BEARING N74°59'10"W A DISTANCE OF 113.03 FEET TO A POINT; THENCE,

NORTHWESTERLY, 39.27 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 25.00 FEET AND A LONG CHORD BEARING N44°41'54"W A DISTANCE OF 35.36 FEET TO A POINT AND TRANSITIONING FROM THE NORTHERLY RIGHT-OF-WAY OF BENTON AVE TO THE EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD.; THENCE,

N00°18'26"E 104.10 FEET ALONG THE EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD. TO A POINT; THENCE,

N00°17'23"E, 487.42 FEET ALONG THE VACATED EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD. TO A POINT ON THE NEW RIGHT-OF-WAY OF GOLF COURSE RD.; THENCE,

NORTHWESTERLY, 91.76 FEET ALONG THE ARC OF A CURVE LEFT, HAVING A RADIUS OF 857.00 FEET AND A LONG CHORD BEARING N13°22'53"W A DISTANCE OF 91.72 FEET TO A POINT; THENCE,

NORTHEASTERLY, 22.64 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 23.50 FEET AND A LONG CHORD BEARING N43°04'17"E A DISTANCE OF 21.77 FEET TO A POINT; THENCE,

N19°20'02"W, 53.83 FEET TO A POINT; THENCE

N70°59'58"W, 5.12 FEET TO A POINT; THENCE,

NORTHWESTERLY, 38.68 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 25.00 FEET AND A LONG CHORD BEARING N65°00'35"W A DISTANCE OF 34.94 FEET TO A POINT; THENCE,

NORTHWESTERLY, 250.27 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 825.00 FEET AND A LONG CHORD BEARING N11°59'41"W A DISTANCE OF 249.31 FEET TO A POINT; THENCE,

NORTHEASTERLY, 37.24 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 140.00 FEET AND A LONG CHORD BEARING N04°19'02"E A DISTANCE OF 37.13 FEET TO A POINT; THENCE,

NORTHEASTERLY, 63.05 FEET ALONG THE ARC OF A CURVE LEFT, HAVING A RADIUS OF 310.00 FEET AND A LONG CHORD BEARING N06°06'42"E A DISTANCE OF 62.94 FEET TO A POINT; THENCE,

N00°17'07"E, 90.00 FEET TO A POINT: THENCE

N03°30'00"E. 26.03 FEET TO A POINT; THENCE

NORTHEASTERLY, 18.00 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 30.00 FEET AND A LONG CHORD BEARING N20°41'13"E A DISTANCE OF 17.73 FEET TO A POINT ON THE VACATED EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD.; THENCE,

NORTHEASTERLY, 25.19 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 25.00 FEET AND A LONG CHORD BEARING N61°18'21"E A DISTANCE OF 24.14 FEET TO A POINT AND TRANSITIONING FROM THE VACATED EASTERLY RIGHT-OF-WAY OF GOLF COURSE RD. TO THE SOUTHERLY RIGHT-OF-WAY OF WESTSIDE BLVD.; THENCE,

S89°49'36"E, 79.24 FEET TO A POINT; THENCE,

S89°49'36"E, 295.05 FEET ALONG THE VACATED RIGHT-OF-WAY OF WESTSIDE BLVD. TO A POINT ON THE NEW RIGHT-OF-WAY OF WESTSIDE BLVD.; THENCE,

NORTHEASTERLY, 15.67 FEET ALONG THE ARC OF A CURVE RIGHT, HAVING A RADIUS OF 30.00 FEET AND A LONG CHORD BEARING N75°12'36"E A DISTANCE OF 15.49 FEET TO A POINT; THENCE,

S89°49'36"E. 122.51 FEET TO A POINT: THENCE

S88°04'18"E. 109.08 FEET TO A POINT; THENCE

S89°49'36"E, 13.20 FEET TO A POINT; SAID POINT BEING THE POINT OF BEGINNING

SAID TRACT CONTAINS 18.6713 ACRES MORE OR LESS.

New Mexico Gas Company, Inc., a Delaware corporation, does hereby release, waive, quitclaim and discharge its right, title and interest in the easement(s) (granted by prior plat, replat or document) shown to be vacated on this plat.

By: Chad B.

STATE OF NEW MEXICO      SS  
COUNTY OF BERNALILLO

This instrument was acknowledged before me on 27<sup>th</sup> of May, 20 09

My Commission Expires: March 24, 2013

 **OFFICIAL SEAL**  
**Amanda Carlyle**  
NOTARY PUBLIC  
STATE OF NEW MEXICO  
My Commission Expires: March 28, 2025

Erinanda Cardella  
Notary Public

1. MILES OF FULL WIDTH PRIVATE STREETS CREATED BY THIS  
PLAT = 0.0000 MILES.

2. TOTAL NUMBER OF TRACTS CREATED - 3

3. BASIS OF POSITION AND BEARINGS

ACS 8-A11 (NAD 1983 & NAD83 1988)

NORTHING = 1534934.957  
EASTING = 1507071.174  
ELEVATION = 0.000

DELTA ALPHA = -0°15'26.89"  
GROUND TO GRID  
FACTOR = 0.999671590

ACS 9-A11 (NAD 1983 & NAD83 1988)

NORTHING = 1533206.142  
EASTING = 1506571.019  
ELEVATION = 5301.647

DELTA ALPHA = -0°15'30.20"  
GROUND TO GRID  
FACTOR = 0.999670857

GRID BEARING FROM ACS 8-A11 TO 9-A11 IS S16°08'08"W

4. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES.

5. ALL BOUNDARY CORNERS, LOT CORNERS AND ANGLE POINTS ARE  
MONUMENTED WITH A 5/8" REBAR AND YELLOW PLASTIC CAP  
STAMPED "BORNEAVE, LS 5110" UNLESS SHOWN OTHERWISE.

CURRENT ZONING OF TRACTS D & E IS C-2 AND OF LOTS 1 THRU 7 IS R-1.

INSET 2 SCALE 1" = 10'

DELTA = 57°44'05"  
 RADIUS = 25.00'  
 ARC = 25.19'  
 CHORD = 24.14'  
 CHD BRG = N61°18'21"E

S89°49'36"E  
 79.24'

C25  
 R.O.W. AREA VACATED BY THIS  
 PLAT 11 SQ. FT.

C17

C25  
 13.87'  
 N59°48'19"E

N74°01'07"E  
 10' P.U.E.

DELTA = 32°17'08"  
 RADIUS = 25.00'  
 ARC = 14.09'  
 CHORD = 13.99'  
 CHD BRG = N16°17'45"E

NOTE: SEE SHEET 3 FOR CURVE DATA NOT SHOWN ON THIS SHEET

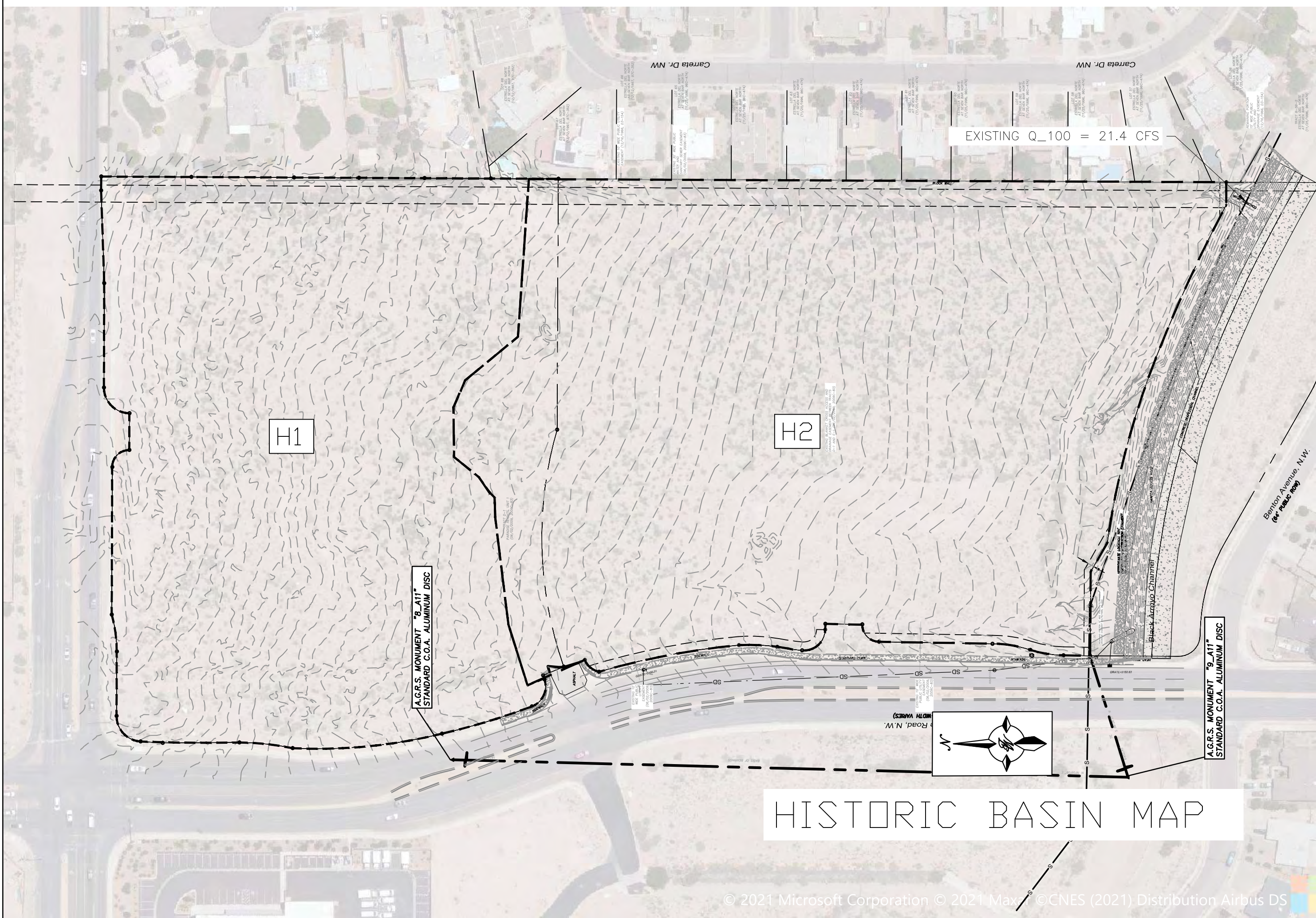
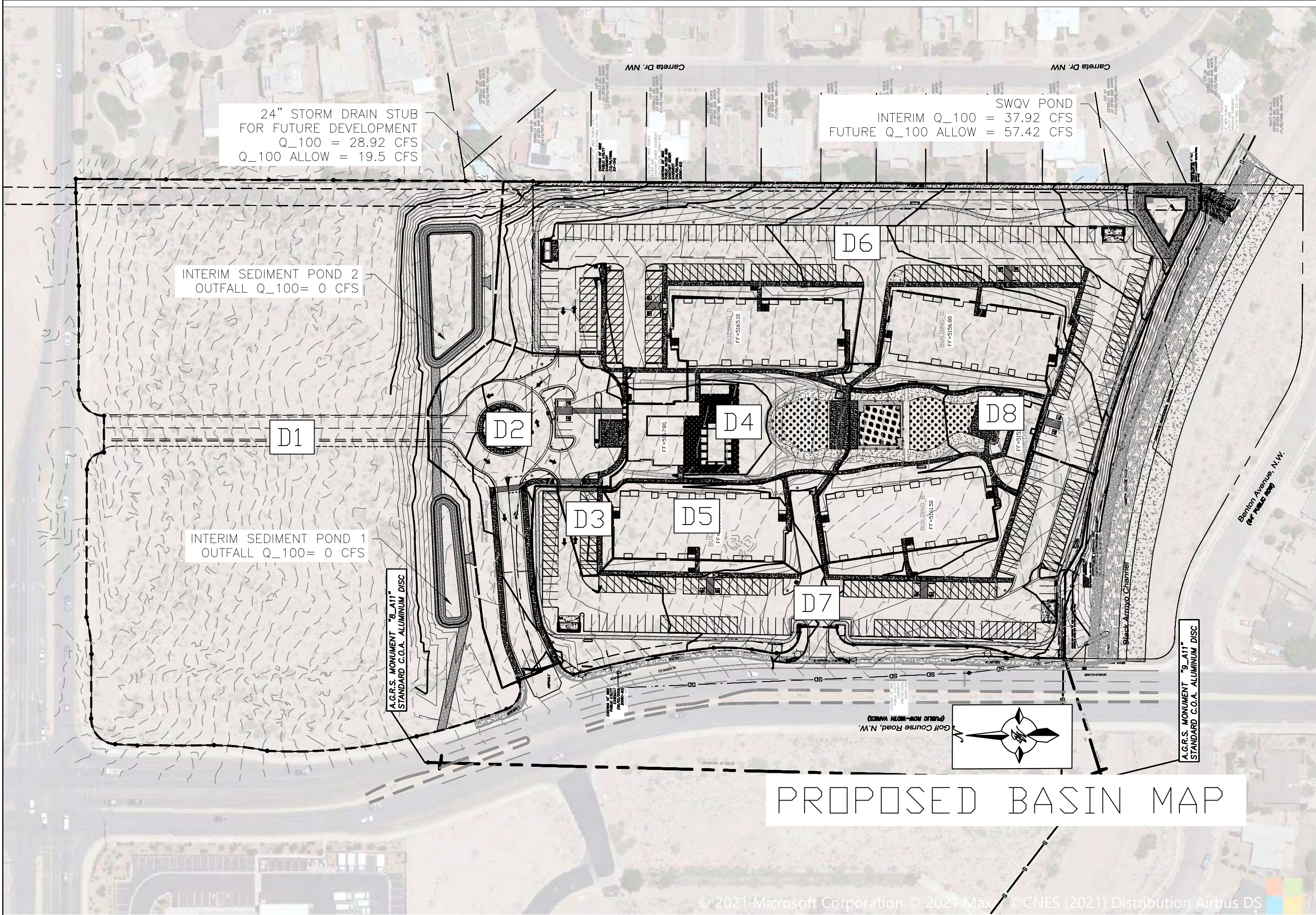
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**B** **BORDENA VE DESIGNS**  
P.O. BOX 91194, ALBUQUERQUE, NM 87199  
(505)823-1344 FAX (505)821-9105

SHEET 2 OF 3



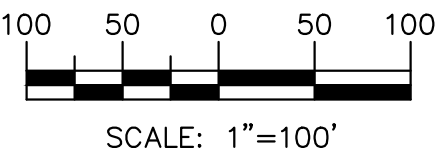




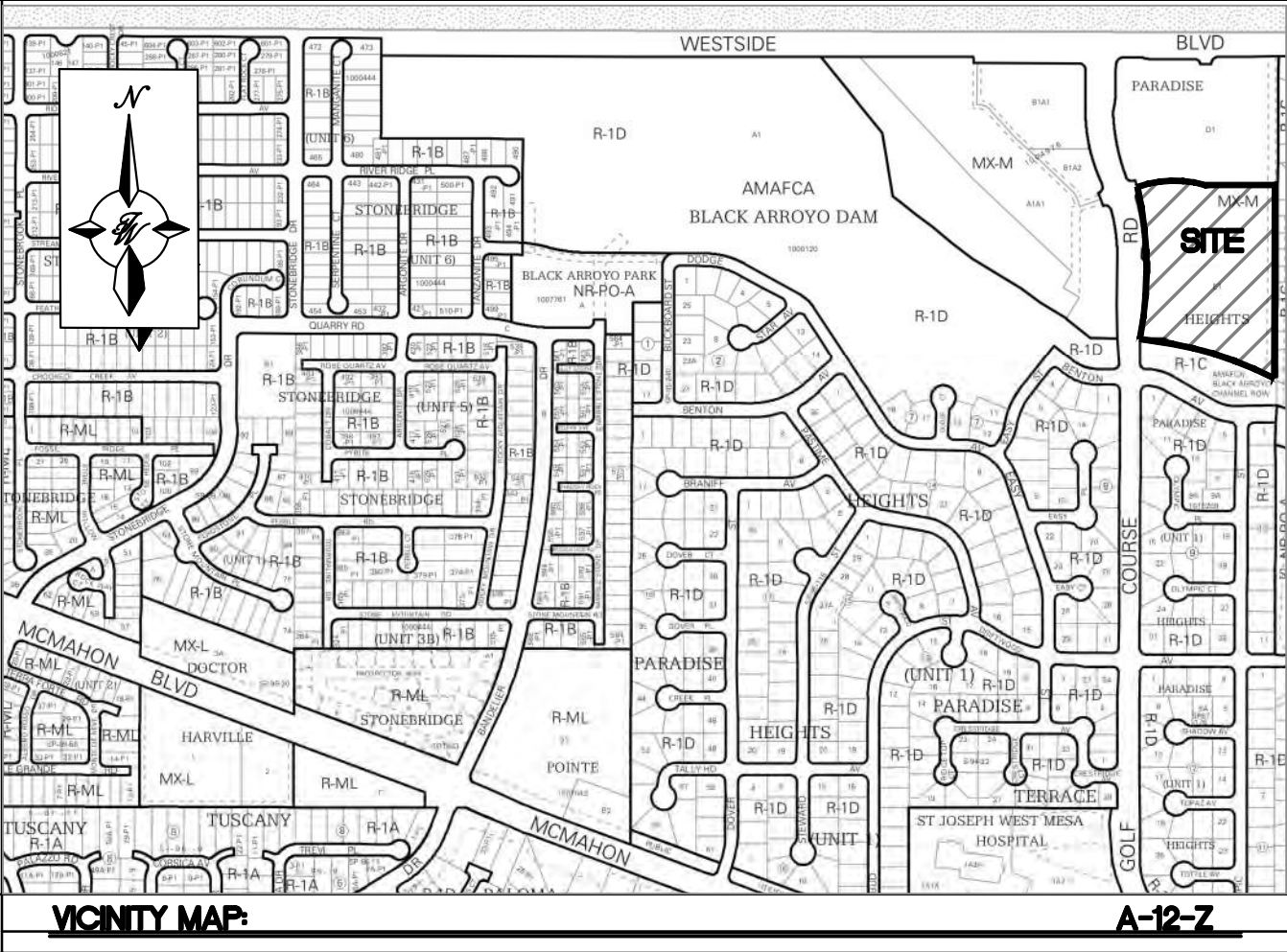
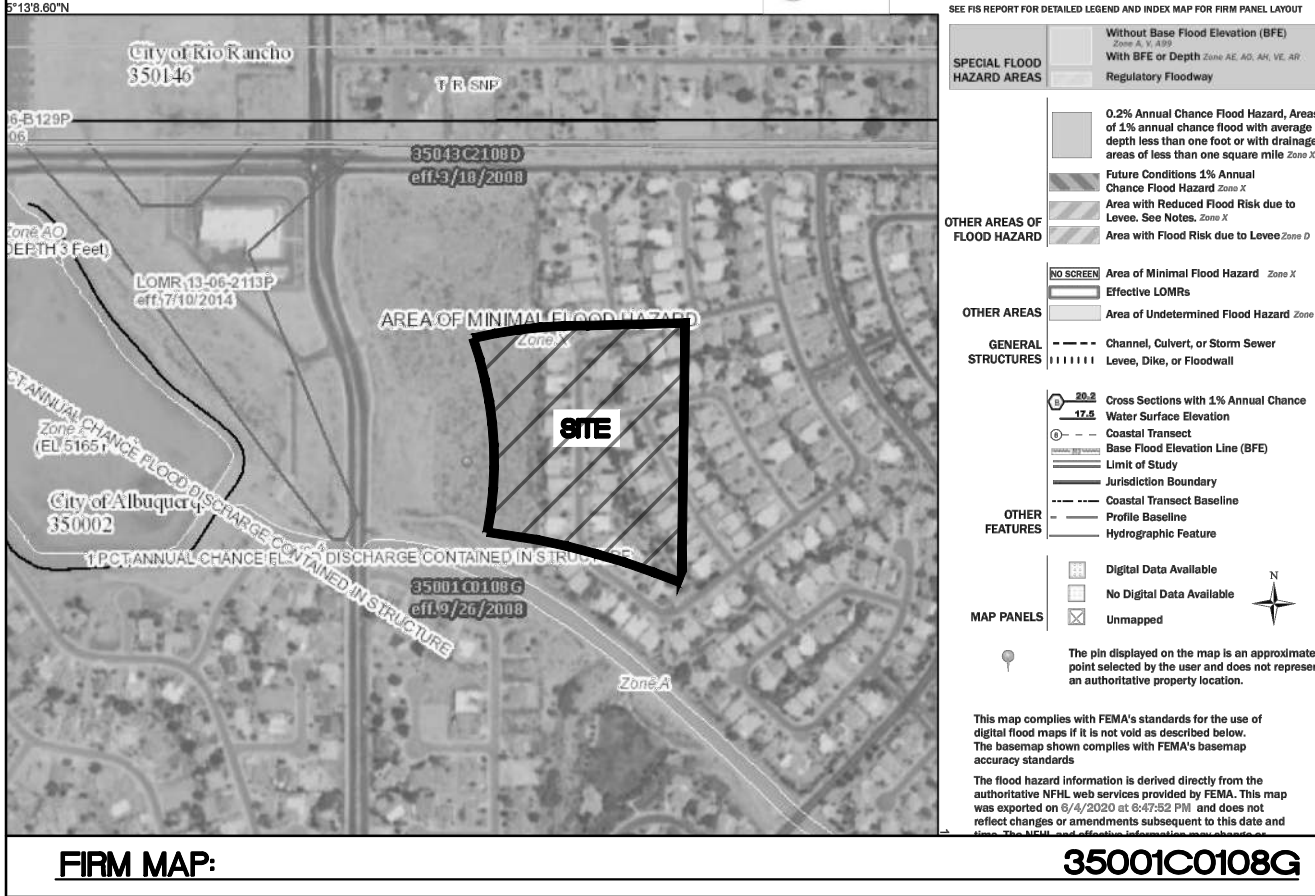
## LEGEND

----- BASIN BOUNDARY

## GRAPHIC SCALE



## National Flood Hazard Layer FIRMette



## Existing Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr		
					Treatment A		Treatment B		Treatment C		Treatment D		Weighted E	Volume	Flow	Weighted E	Volume	Flow
					%	(acres)	%	(acres)	%	(acres)	%	(acres)	(in)	(ac-ft)	cfs	(in)	(ac-ft)	cfs
H1	D-1	303,908	6.98	0.01090	100%	6.977	0%	0.000	0%	0.000	0%	0.000	0.440	0.256	9.00	0.080	0.047	1.67
H2	E-1	418,804	9.61	0.01502	100%	9.614	0%	0.000	0%	0.000	0%	0.000	0.440	0.353	12.40	0.080	0.064	2.31
Total		722,712	16.59	0.02592		16.591		0.000		0.000		0.000		0.608	21.40		0.111	3.98

## Proposed Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr		
					Treatment A		Treatment B		Treatment C		Treatment D		Weighted E	Volume	Flow	Weighted E	Volume	Flow
					%	(acres)	%	(acres)	%	(acres)	%	(acres)	(in)	(ac-ft)	cfs	(in)	(ac-ft)	cfs
D1	D-1	303,908	6.98	0.01090	0%	0.000	0%	0.000	15%	1.047	85%	5.930	1.823	1.060	28.92	1.120	0.651	18.70
D2	E-1	49,255	1.13	0.00177	0%	0.000	5%	0.057	25%	0.283	70%	0.792	1.660	0.156	4.39	0.989	0.093	2.75
D3	E-1	4,963	0.11	0.00018	0%	0.000	0%	0.000	10%	0.011	90%	0.103	1.872	0.018	0.48	1.160	0.011	0.31
D4	E-1	69,351	1.59	0.00249	0%	0.000	5%	0.080	15%	0.239	80%	1.274	1.758	0.233	6.41	1.069	0.142	4.10
D5	E-1	23,420	0.54	0.00084	0%	0.000	5%	0.027	10%	0.054	85%	0.457	1.807	0.081	2.21	1.109	0.050	1.42
D6	E-1	149,183	3.42	0.00535	0%	0.000	10%	0.342	20%	0.685	70%	2.397	1.644	0.469	13.14	0.978	0.279	8.21
D7	E-1	81,673	1.87	0.00293	0%	0.000	5%	0.094	10%	0.187	85%	1.594	1.807	0.282	7.69	1.109	0.173	4.96
D8	E-1	40,959	0.94	0.00147	0%	0.000	10%	0.094	20%	0.188	70%	0.658	1.644	0.129	3.61	0.978	0.077	2.25
Total		722,712	16.59	0.02592		0.000		0.693		2.694		13.204		2.429	66.841		1.476	42.701

Basin ID	SWQV	
	Vol Required (cf)	Provided (cf)
D1	-	0
D2	1,207	0
D3	156	0
D4	1,942	0
D5	697	0
D6	3,655	11,258
D7	2,287	0
D8	1,003	0
Total	10,947	11,258

NOTE: TRACT D-1 TO PROVIDE SEPARATE FUTURE STORM WATER QUALITY POND.

## MAINTENANCE SCHEDULE

Responsible Party: Property Operator(s).

Access to storm water quality elements: All access to the storm water quality elements shall be accessible from the paved areas within the site. There is no restricted access to the location of both the surface and sub-surface elements.

REGULAR MAINTENANCE	FREQUENCY
LITTER MANAGEMENT Pick up all litter at site and in Landscape areas and remove from site	Daily
INLETS AND OUTLETS Visual inspection for function. Remove silt from slab aprons and debris in pavement areas. Remove all fallen vegetation around inlet and outlet structures.	Monthly
HARD SURFACES Sweep all paving regularly. Maintain pavement in autumn after leaf fall. Coordinate with Landscape Contractor if additional maintenance is required.	As required
OCCASIONAL TASKS INSPECTION AND INLETS, OUTLETS AND CONTROL CHAMBERS Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage. For below ground control chambers, remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt.	Yearly
POND VEGETATION Ensure Pond vegetation is maintained by Landscape Contractor. All weeds and all cuttings removed from site.	As required
SILT MANAGEMENT Inspect swales and water quality pond for silt accumulation. Excavate silt, stack and dry within 2-feet of the water quality feature, but outside the design profile where water flows, spread, rake and over-seed. Protect surface from siltation and manage main area of basin for design function or appearance.	Yearly
REMEDIAL WORK Inspect storm all water quality structures regularly to check for damage or failure. Undertake remedial work as required.	Yearly

## Equations:

Weighted E = Ea\*Aa + Eb\*Ab + Ec\*Ac + Ed

Volume = Weighted E \* Total Area

Flow = Qa\*Aa + Qb\*Ab + Qc\*Ac + Qd\*Ad

SWQV Pond Volume Calculation	
Area at Mid Depth	2,815 Sq. Ft.
Depth of Pond	4 Ft.
Total Volume	11,258 Cubic Ft.

Excess Precipitation, E (in.)			
Zone 1	100-Year	10-Year	10-Year
Ea	0.44	0.08	
Eb	0.67	0.22	
Ec	0.99	0.44	
Ed	1.97	1.24	

Peak Discharge (cfs/acre)			
Zone 1	100-Year	10-Year	10-Year
Qa	1.29	0.24	
Qb	2.03	0.76	
Qc	2.87	1.49	
Qd	4.37	2.89	

## Stormwater Quality Volume

Total Impervious Area =

Retention depth = 0.42" Per DPM Pg. 272

Retention Volume =

ΣArea in "Treatment D"

0.035

foot

=0.035 x area

CF

## Sediment Pond 1 Volume Calculation

Area at Mid Depth	3,800 Sq. Ft.
Depth of Pond	4 Ft.
Volume	15,200 Cubic Ft.

## Sediment Pond 2 Volume Calculation

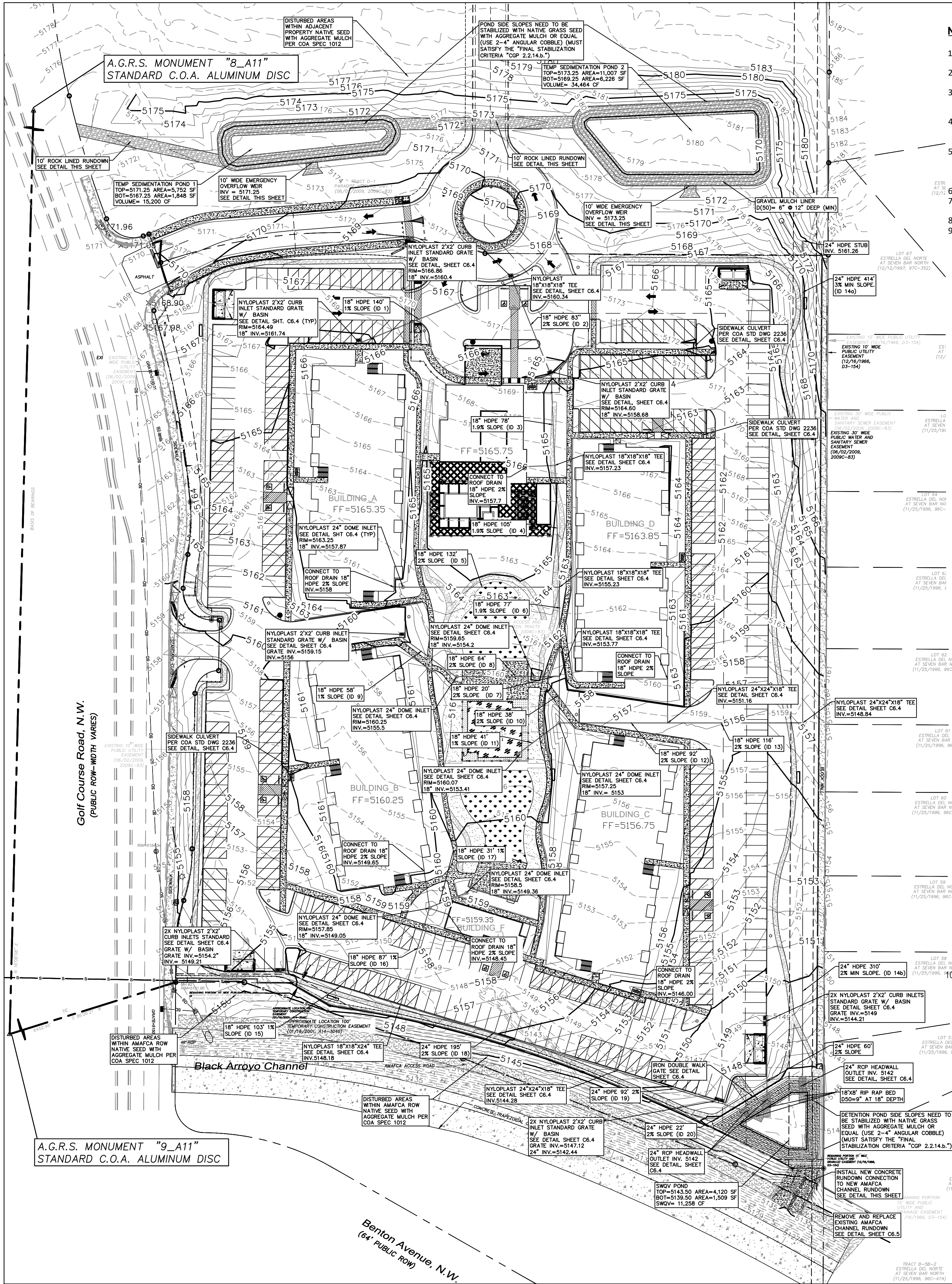
Area at Mid Depth	8,616 Sq. Ft.
Depth of Pond	4 Ft.
Volume	34,464 Cubic Ft.
Total Volume	49664 Cubic Ft.



ENGINEER'S SEAL		WINTERGREEN LUXURY APARTMENTS 10800 GOLF COURSE RD. NW		DRAWN BY BF	
		<b>GRADING AND DRAINAGE BASIN MAP</b>		DATE 08/25/2021	
		<i>TERRA WEST, LLC</i> 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrowestllc.com		2020013_BASINS	
RONALD R. BOHANNAN P.E. #7868		SHEET # <b>C3.1</b>		JOB # 2020013	



\\TWS\XZ\_Drive\2020\2020013 Apartments at Golf Course Rd\A-12\2020013\_GRB.dwg Rev 15, 2021 -- 11:54am

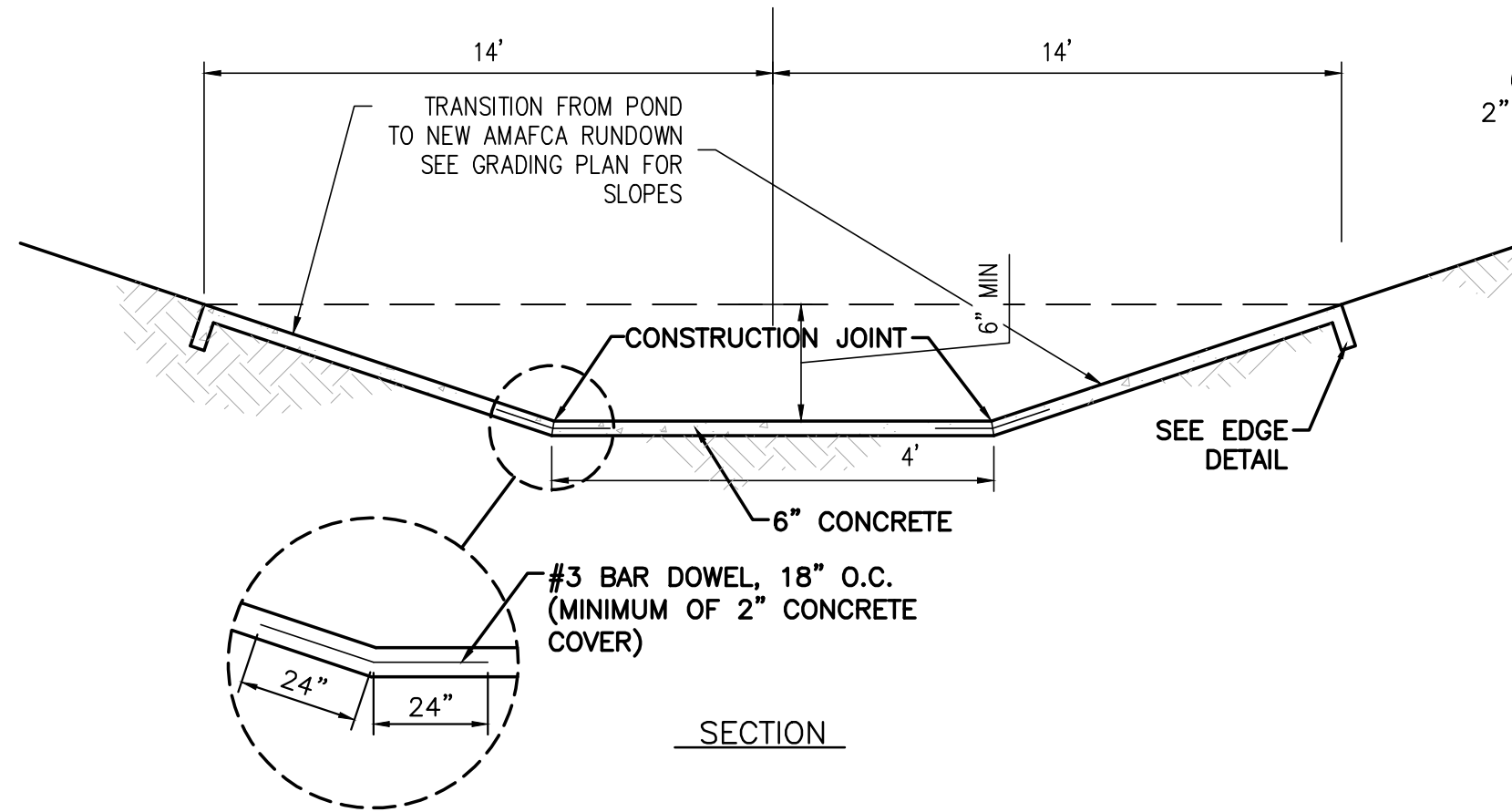
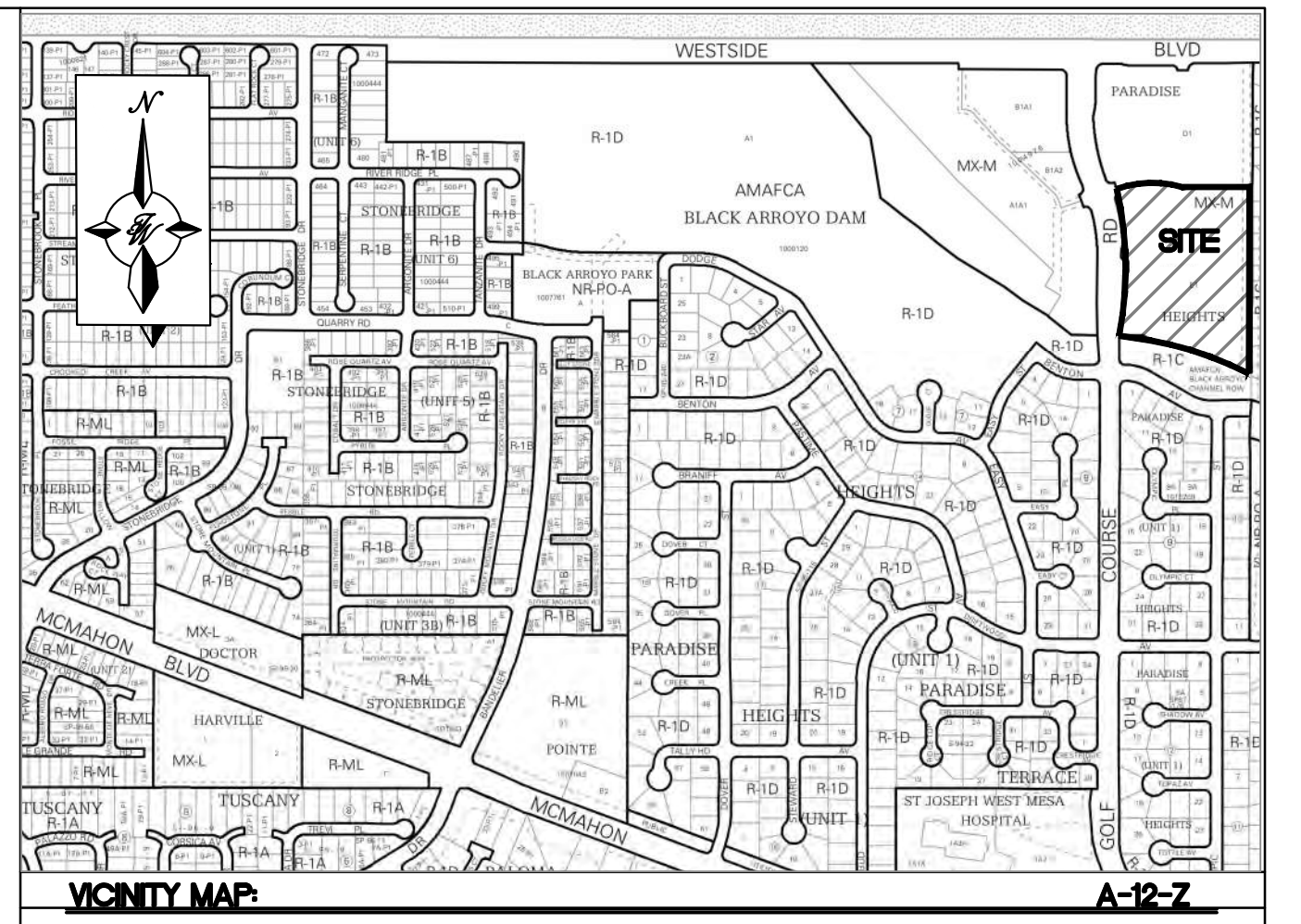


NOTICE TO CONTRACTORS

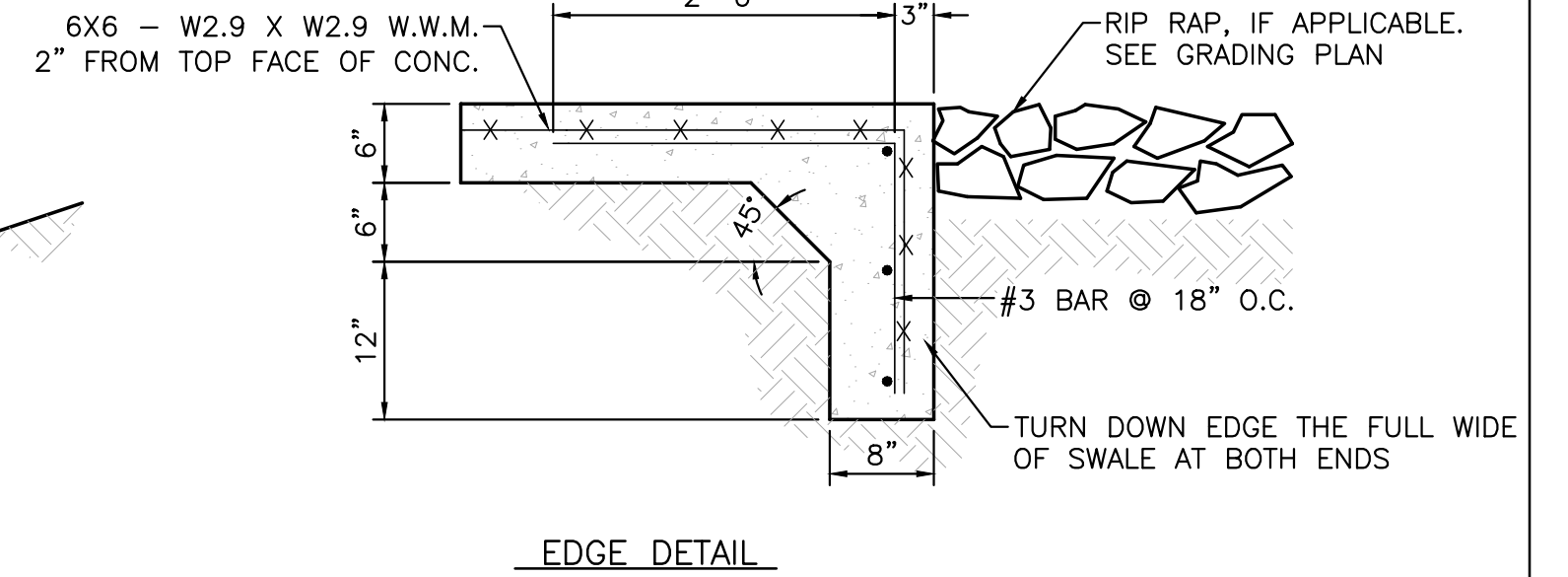
1. CONTACT STORM DRAIN MAINTENANCE AT (505) 857-8033 TO SCHEDULE A MEETING PRIOR TO FORMING.
2. AN EXCAVATION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
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4. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL, DIAL "811" [OR (505) 260-1990] FOR THE LOCATION OF EXISTING UTILITIES.
5. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THE FACILITY SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY BEING SERVED.
7. WORK ON ARTERIAL STREETS MAY BE REQUIRED ON A 24-HOUR BASIS. CONTRACTOR MUST CONTACT STORM DRAIN MAINTENANCE AT (505) 857-8033 TO SCHEDULE A CONSTRUCTION INSPECTION. FOR EXCAVATING AND BARRICADING INSPECTIONS, CONTACT CONSTRUCTION COORDINATION AT (505) 924-3416.

LEGEND

	CURB & GUTTER
	BOUNDARY LINE
	EASEMENT
	CENTERLINE
	RIGHT-OF-WAY
	BUILDING
	SIDEWALK
	SCREEN WALL
	RETAINING WALL
	CONTOUR MAJOR
	CONTOUR MINOR
	SPOT ELEVATION
	FLOW ARROW
	EXISTING CURB & GUTTER
	EXISTING BOUNDARY LINE
	EXISTING CONTOUR MAJOR
	EXISTING CONTOUR MINOR
	EXISTING SPOT ELEVATION

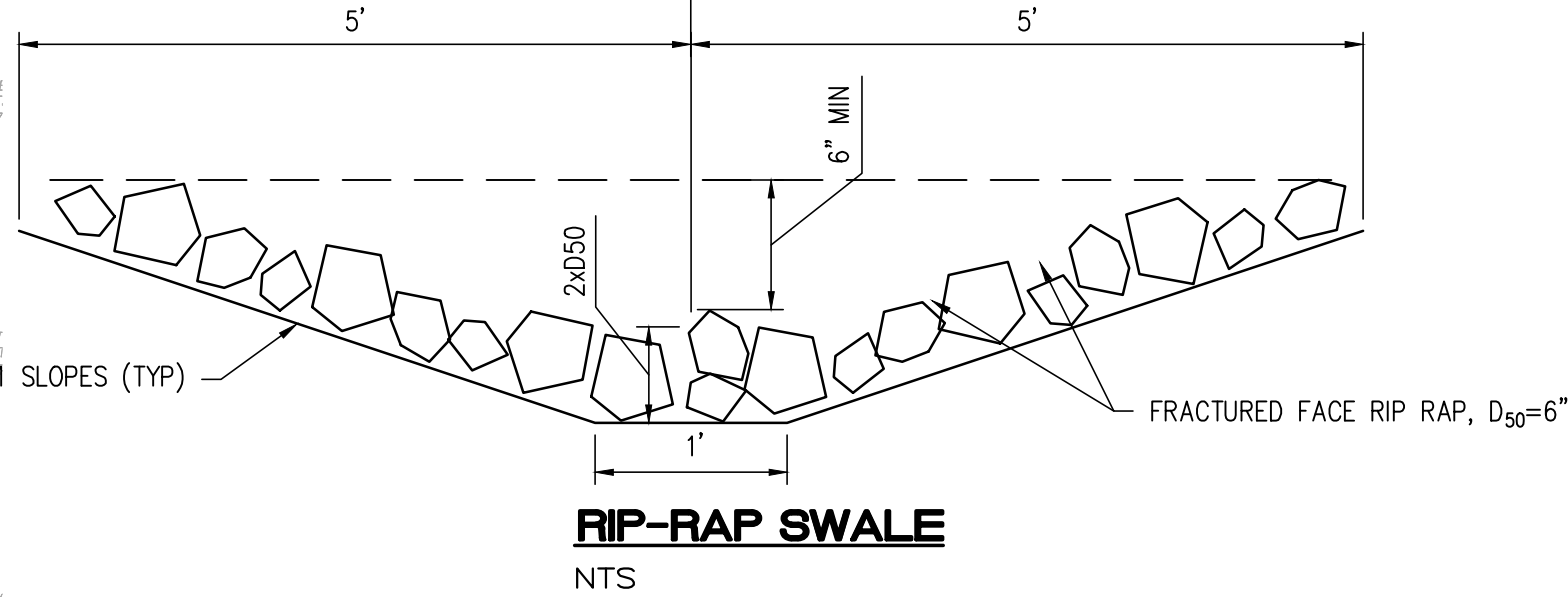


CONCRETE DRAINAGE SWALE  
NTS

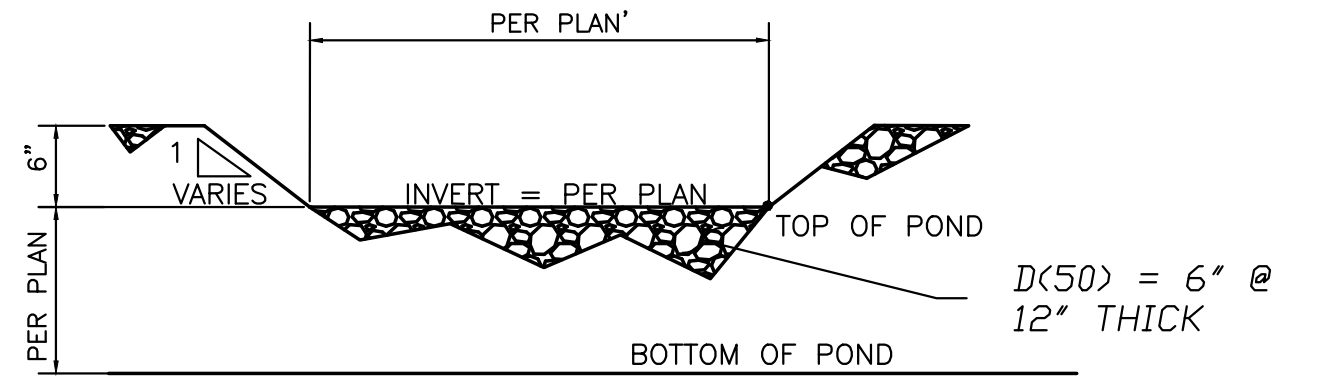


GENERAL NOTES:

1. ALL REINFORCEMENT BARS TO BE GRADE 60 YIELD STRENGTH.
2. CONTROL JOINTS TO BE 15' O.C. TRANSVERSE TO CHANNEL CENTERLINE AXIS. FILL JOINTS WITH SEALANT.



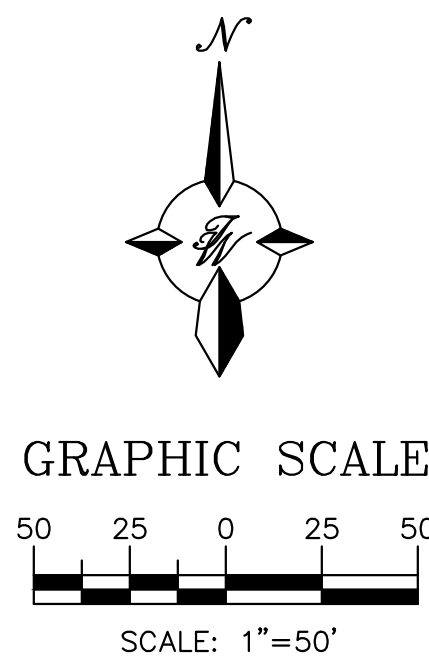
RIP-RAP SWALE  
NTS



POND SPILLWAY DETAIL  
NTS



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<b>ENGINEER'S SEAL</b>  RONALD R. BOHANNAN P.E. #7868	<b>WINTERGREEN LUXURY APARTMENTS</b> 10800 GOLF COURSE RD. NW <b>GRADING &amp; DRAINAGE PLAN</b>	<b>DRAWN BY</b> BF <b>DATE</b> 08/25/2021 <b>2020013-GRB</b>
	<b>TERRA WEST, LLC</b> 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrowestllc.com	<b>SHEET #</b> <b>C3.2</b> <b>JOB #</b> 2020013









#### LEGEND

	CURB & GUTTER		5010	CONTOUR MAJOR
	BOUNDARY LINE		5011	CONTOUR MINOR
	EASEMENT		5048.25	SPOT ELEVATION
	CENTERLINE			FLOW ARROW
	RIGHT-OF-WAY			EXISTING CURB & GUTTER
	BUILDING			EXISTING BOUNDARY LINE
	SIDEWALK		5010	EXISTING CONTOUR MAJOR
	SCREEN WALL		5011	EXISTING CONTOUR MINOR
	RETAINING WALL		5048.25	EXISTING SPOT ELEVATION

#### NOTICE TO CONTRACTORS

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#### SPOT ELEVATION LEGEND

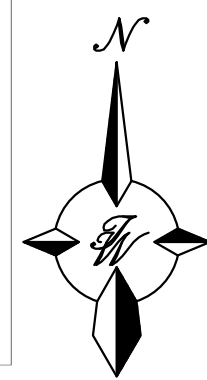
SW=SIDEWALK ELEVATION

#### SPOT ELEVATION NOTE:

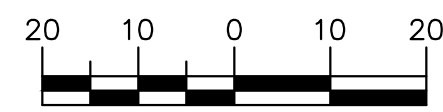
ALL SPOT ELEVATIONS ARE FLOWLINE UNLESS OTHERWISE NOTED.

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#### GRAPHIC SCALE



	ENGINEER'S SEAL	WINTERGREEN LUXURY APARTMENTS 10800 GOLF COURSE RD. NW	DRAWN BY BF
		CENTER GRADING PLAN	DATE 08/25/2021
			SHEET # C3.4
			JOB # 2020013



\\TWS\AS\Z\_Drive\2020\2020013 Apartments at Golf Course Rd.dwg (DRA) 2020013\_GRB.dwg Nov 15, 2021 12:05pm

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#### LEGEND

	CURB & GUTTER		CONTOUR MAJOR
	BOUNDARY LINE		CONTOUR MINOR
	EASEMENT		SPOT ELEVATION
	CENTERLINE		FLOW ARROW
	RIGHT-OF-WAY		EXISTING CURB & GUTTER
	BUILDING		EXISTING BOUNDARY LINE
	SIDEWALK		EXISTING CONTOUR MAJOR
	SCREEN WALL		EXISTING CONTOUR MINOR
	RETAINING WALL		EXISTING SPOT ELEVATION

**Benton Avenue, N.W.**  
(64' PUBLIC ROW)

#### SPOT ELEVATION LEGEND

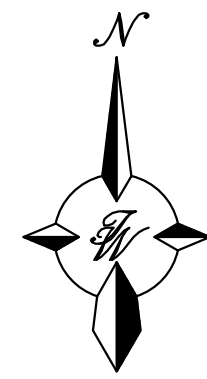
SW=SIDEWALK ELEVATION

#### SPOT ELEVATION NOTE:

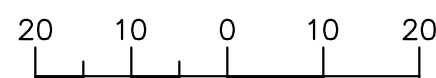
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GRAPHIC SCALE



SCALE: 1"=20'

ENGINEER'S SEAL  RONALD R. BOHANNAN P.E. #7868	WINTERGREEN LUXURY APARTMENTS 10800 GOLF COURSE RD. NW	DRAWN BY BF
	<b>SOUTH GRADING PLAN</b>	DATE 08/25/2021
 TERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # <b>C3.5</b>	2020013_GRB
		JOB # 2020013