



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

Project Title: Golf Course & Westside Blvd **Building Permit #** _____ **Hydrology File #** _____

DRB# _____ **EPC#** _____

Legal Description: TR D-1 Plat of TRS D-1, E-1 AMAFCA City Address OR Parcel 10120665048211303
Black Arroyo Channel Row Paradise Heights Unit 1

Applicant/Agent: Tierra West LLC **Contact:** Luis Noriega

Address: 5571 Midway Park Place NE Albuquerque, NM 87109 **Phone:** (505) 858-3100

Email: LNORIEGA@TIERRAWESTLLC.COM

Applicant/Owner: _____ **Contact:** _____

Address: _____ **Phone:** _____

Email: _____

TYPE OF DEVELOPMENT: ☒ PLAT (#of lots) 4 RESIDENCE ☐ DRB SITE ☐ ADMIN SITE: ☐

RE-SUBMITTAL: ☒ 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
- ☐ FLOOD PLAN DEVELOPMENT PERMIT APP.
- ☐ ELEVATION CERTIFICATE
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ADMINISTRATIVE
- ☐ TRAFFIC CIRCULATION LAYOUT FOR DRB APPROVAL
- ☐ TRAFFIC IMPACT STUDY (TIS)
- ☐ STREET LIGHT LAYOUT
- ☐ OTHER (SPECIFY) _____
- ☐ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY
- ☐ CONCEPTUAL TCL DRB APPROVAL
- ☒ 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
- ☐ FLOOD PLAN DEVELOPMENT PERMIT
- ☐ OTHER (SPECIFY) _____

DATE SUBMITTED: 11.16.2022



TIERRA WEST, LLC

November 16, 2022

Mr. James D. Hughes
Principal Engineer, Planning Dept.
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: GOLF COURSE + WESTSIDE COMMERCIAL SUBDIVISION
10850 GOLF COURT RD. NW
ENGINEER'S STAMP DATE: 9/14/22
HYDROLOGY FILE: A12D008B2

Dear Mr. Hughes:

Per the correspondence dated October 11, 2022, please find the following responses addressing the comments listed below:

1. A more detailed Drainage Report and Grading Plan are required prior to Hydrology approval for action by the DRB. An Infrastructure List and Preliminary Plat must also be reviewed by Hydrology and approved for action by the DRB. Design calculations or all of the storm drainage infrastructure must be included in the G & D application for subdivision approval. Common storm drain inlets, pipes, manholes, junctions and pond outlets structures must be identified on the Grading Plan and Drainage Basin Map.

RESPONSE: See attached Drainage Management Report.

2. The application form shows this application to be for "Site Plan for Subdivision", this type of DRB hearing hasn't existed since the IDO replaced the old zoning ordinance. It appears that the application then, is for Preliminary Plat. This application is only being considered for subdivision purposed at this time, not for building permits (s), so buildings shouldn't be shown. This review assumes that the G & D Plan labeled as "Interim" will be the responsibility of the subdivision developer. The term interim can be dropped from the title as this will be the only G & D plan for the subdivision.

RESPONSE: Acknowledged, this is a conceptual drainage report for subdivision approval.

3. Ponds 1, 2, 3, and 4 appear to be included as part of the subdivision infrastructure and, as such, should include permanent pond stabilization, and all developed stormwater runoff should be directed into a non-erosive inlet structure constructed with the infrastructure. The pond outfall structures will also be part of the infrastructure, and detailed hydraulic design calculations will be required with this submittal. Hydraulic capacity calculations and construction details of inlet and outlet structures for Ponds 1, 2, 3 and 4 are missing. Alternatively, these ponds may be deferred to the site development of each lot at the time of building Permit, so this subdivision would only construct storm sewer stub-outs to each lot and temporary 100-yr retention pond on each lot that would serve both the purpose of temporary stormwater control and Erosion and Sediment Control. A specific design for each pond should be provided now as part of a master drainage plan for this subdivision, whether the final construction of the ponds is a subdivision or building permit requirement.

RESPONSE: Acknowledged, see updated drainage report for details.

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4. Stormwater Quality Volume (SWQV) must be provided in the form of retention, not detention. If combining the SWQ volume calculations with the simplified hydrology for small watersheds, DPM Section 6-2 (A)(7), method of calculation detention volumes, then the two volumes should be conservatively added together. AHYMO 24-hr pond routing may be used instead of the simplified method to reduce the total required volume, provided that none of the detention volume is used to satisfy the SWQV requirement. Peak flow limitations are due to the limited capacity of the storm drain through the Wintergreen Apartments, not the limited capacity of Blacks Arroyo, so instead of reducing the peak flow rates from this subdivision, it may be possible to find another way to pass the peak flow rates through the Apartment site without providing detention.

RESPONSE: Acknowledged, AHYMO is used instead of the DPM simplified method, see report for details.

5. Drainage easements, including beneficiary and maintenance responsibilities, must be shown on the Preliminary Plat and on the Grading Plan. Provide similar documentation for the offsite downstream drainage easement.

RESPONSE: Acknowledged, Preliminary plat with easements added to end of report pending DRB approval.

6. The SWQV calculations are missing for basins D1, D2, D3, and D4. There has been no attempt to provide the SWQV for D5, but SWQV must be provided for all impervious areas. The SWQV for the undeveloped lots may be deferred to the site development of each lot at the time of the Building Permit; however, cross-lot drainage issues need to be resolved with this subdivision.

RESPONSE: SWQV calculations provided in the Appendix portion of the report. The storm water quality volume of Basin D5 is now accounted for in Pond 4.

7. The drainage basin boundaries need to match the grading. Presently the basin boundaries are on the lot lines, thus indicating that there will be no cross-lot drainage and that each lot drains to its own pond and then into the common storm drain system. However, the grades show the west portion of basin D1 drains into D2 and not into Pond 1. The west perimeter slopes drain to offsite, and the south side of each lot has some slope drainage across the lot line. Identify how cross-lot drainage will be prevented or identify cross-lot drainage easements with beneficiary and maintenance.

RESPONSE: Drainage basins updated.

8. If this project increases the peak flow rate in the '*Drainage Report for Wintergreen Apartments*' into the Blacks Arroyo, an Albuquerque Metropolitan Arroyo and Floor Control Activity (AMAFCA) facility, approval by AMAFCA will be needed prior to Hydrology approval. Please contact Jared Romero P.E., CFM (jromero@amafca.org or 505-884-2215)

RESPONSE: Acknowledged, flows are not increased with this report.

9. Please provide the Benchmark information (location, description, and elevation) for the survey contour information provided.

RESPONSE: Topographic survey added to end of drainage report.

10. Provide sections through all external boundaries showing proposed retaining walls, garden wall, property/ROW lines, and existing and proposed grades. In accordance with DPM Ch.22, section 5 part B, grading and wall construction near the property line may not endanger adjacent property or constrain its use.

RESPONSE: This is referencing an old version of the IDO, and this is a conceptual drainage management plan. Final design may vary.

11. Please provide the legal description of the property.

RESPONSE: TR D-1 PLAT OF TRS D-1, E-1 AMAFCA BLACK ARROYOCHANNEL ROW PARADISE HEIGHTS UNIT 1 CONT 7.6716 AC.

12. As a reminder, if the project's 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, dhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

RESPONSE: Acknowledged.

13. Engineer's Certification, per the DPM Part 6-14 (G): *Engineer's Certification Checklist For Subdivision is required.*

RESPONSE: Acknowledged.

14. Please provide the Drainage Covenant with Exhibit A for the SWQ ponds per Article 6-15(C) of the DPM prior to the release of the IIA and Financial Guarantees. Please submit the original copies along with the \$25.00 recording fee check made payable to Bernalillo County to Carrie Compton (cacompton@cabq.gov) on the 4th floor of Plaza del 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: 2022055

RRB/ln/jg

DRAINAGE REPORT FOR

Golf Course and Westside Commercial Development SE Corner of Golf Course Rd and Westside Blvd

Prepared by:



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

TW# 2022055

November 16, 2022

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
PE # 7868

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Map Pocket

Conceptual 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 subdivision plat and development of the vacant Tract D-1 of Paradise Heights, Unit 1 Albuquerque, New Mexico. The project site is a 7.67-acre multi-pad commercial development project, located at 10850 Golf Course Rd, Albuquerque NM 87114 (the “project site”). The project site is in precipitation zone 1 per the city of Albuquerque Development Process Manual (DPM) Ch 6, west of the Rio Grande River. The project site is located north of the Wintergreen Apartments on Tract E-1 (Hydronum: A12D008D) and the AMAFCA Black Arroyo Channel. The project site is currently zoned MX-M and is legally described as TRACT D-1 PLAT OF TRS D-1, E-1 AMAFCA BLACK ARROYO CHANNEL ROW PARADISE HEIGHTS UNIT 1 CONT 7.6716 AC.

Context

Most of the project site has not been previously graded and remains vacant. The southern portion of the project site contains sediment ponds meant to retain the storm water discharge from the project site and protect the southern apartment development (Hydronum: A12D008D). To the north, the site is bordered by a variety of single-family homes with the City of Rio Rancho. To the south lays a new apartment complex and to the east lays single-family residential developments. West of the project site is zoned MX-M for a variety of multi-family and commercial developments. The proposed site lays within hydrology number A12D008B2. The boundary of the proposed site is located on the Zone atlas page H-13-Z as shown on **Figure 1.**

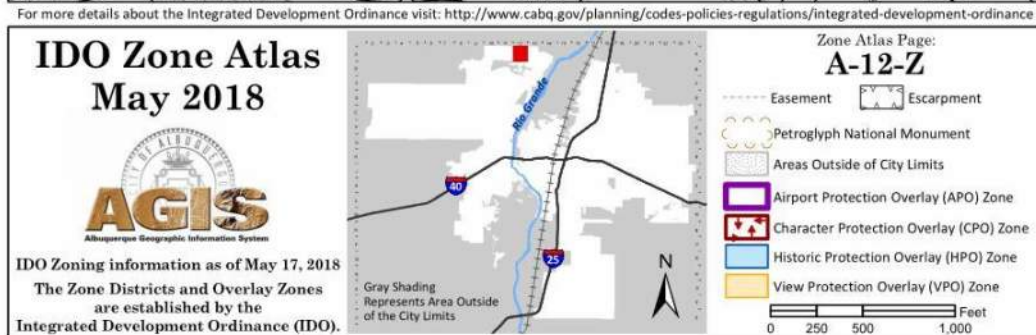




Figure 2 – Site Aerial Image

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 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.

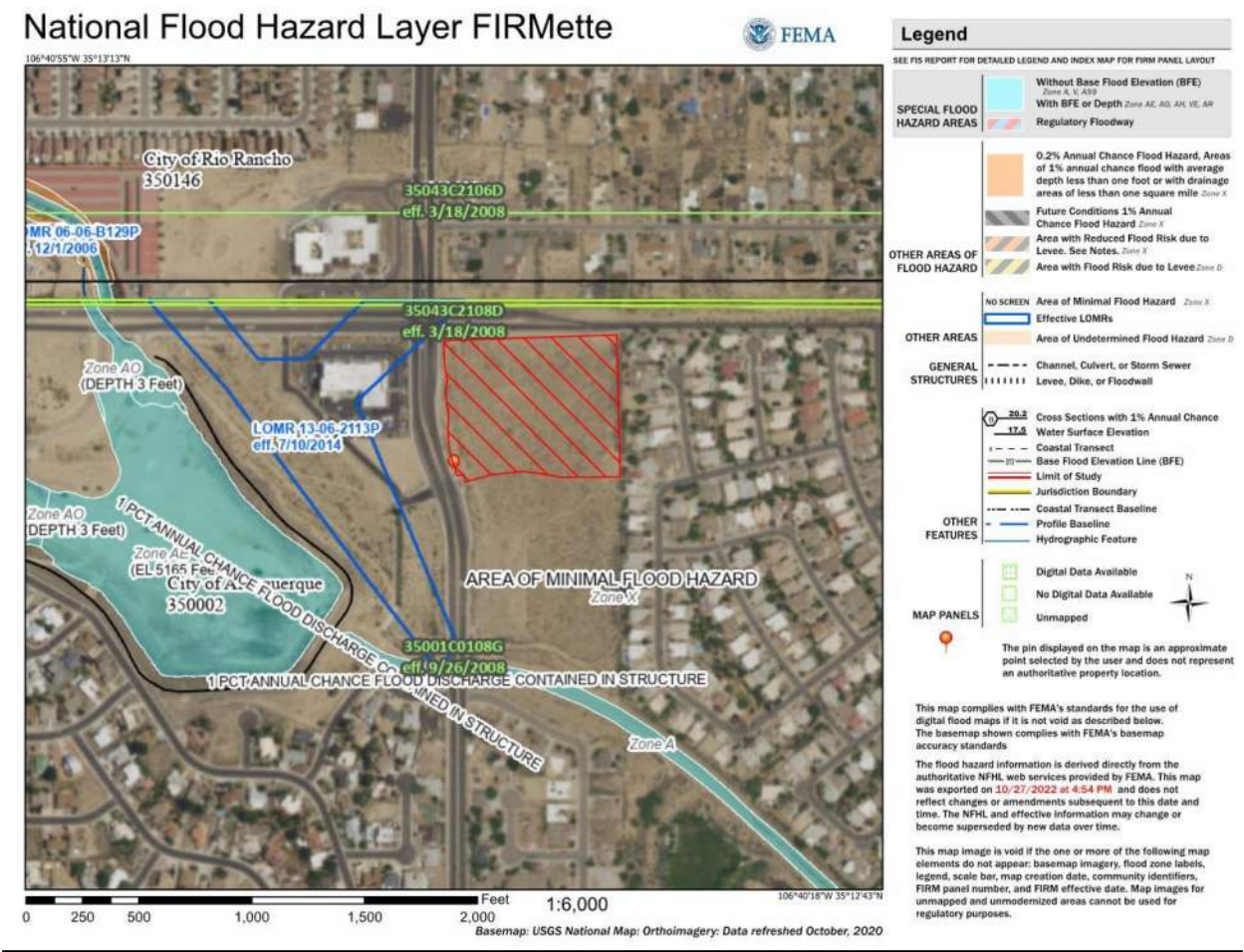


Figure 3 – FIRM Map

Calculations

The hydrology calculation follows the guidance of the DPM's Chapter 6 Part 6-2(C). Point precipitation frequency estimates were obtained from the NOAA Atlas 14, Precipitation – Frequency Atlas of the United States, Vol 1 Version 5 Semiarid Southwest, see appendix A for precipitation frequency data and study location. 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 Section 2.A.2, will be applied to the various pervious and impervious areas for the proposed site.

AHYMO-S4 is the computer program used to determine the existing and proposed development flows for the principle 100-year, 6-hour storm event. Using the ROUTE RESERVOIR command, the AHYMO program was used to model the detention pond system and was used to determine the outflow discharge.

The proposed commercial site is located west of the Rio Grande River and according to Article 6-12 of the DPM new development site are required to retain the 0.42-inch storm runoff. Therefore, the required storm water quality volume to be captured and infiltrated is the product of the impervious area multiplied by 0.42 inches.

Existing Conditions

The subdivision is located within the Black Arroyo Detention Dam Basin Area L11 as shown in Appendix C of the report. Currently the subdivision lies in an undeveloped condition with vegetation typical of the west mesa. The southern portion of Tract D-1 contained sediments ponding and an access road with roundabout (Hydronum: A12D008D). The subdivision slopes consistently from the north to the south 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 is directed to the sediment ponds currently being constructed under (Hydronum: A12D008D) and is completely retained on site for the 100 yr. – 10 day. storm event. The subdivision is allocated mainly as treatment A with no offsite flows entering 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. Flows from the access road and roundabout are managed by the apartment site (Hydronum: A12D008D). The site is divided into 2 drainage basins as shown in Figure 4.

A 24-inch storm drainpipe was extended up to the project site with the construction of the apartment site to the south (Hydronum: A12D008D). The overall site is characterized as free discharge per the City of Albuquerque online mapping system and the Black Arroyo Detention Dam Hydrology Report but due to capacity constraints in the 24-inch pipe the project site is allowed to discharge at an allowable flow of 19.5 CFS per (Hydronum: A12D008D). The allowable flow rate can be increased with a developer funded plan to increase the size of the 24-inch storm drainpipe. AMAFCA approval is also required with the increase in flow.

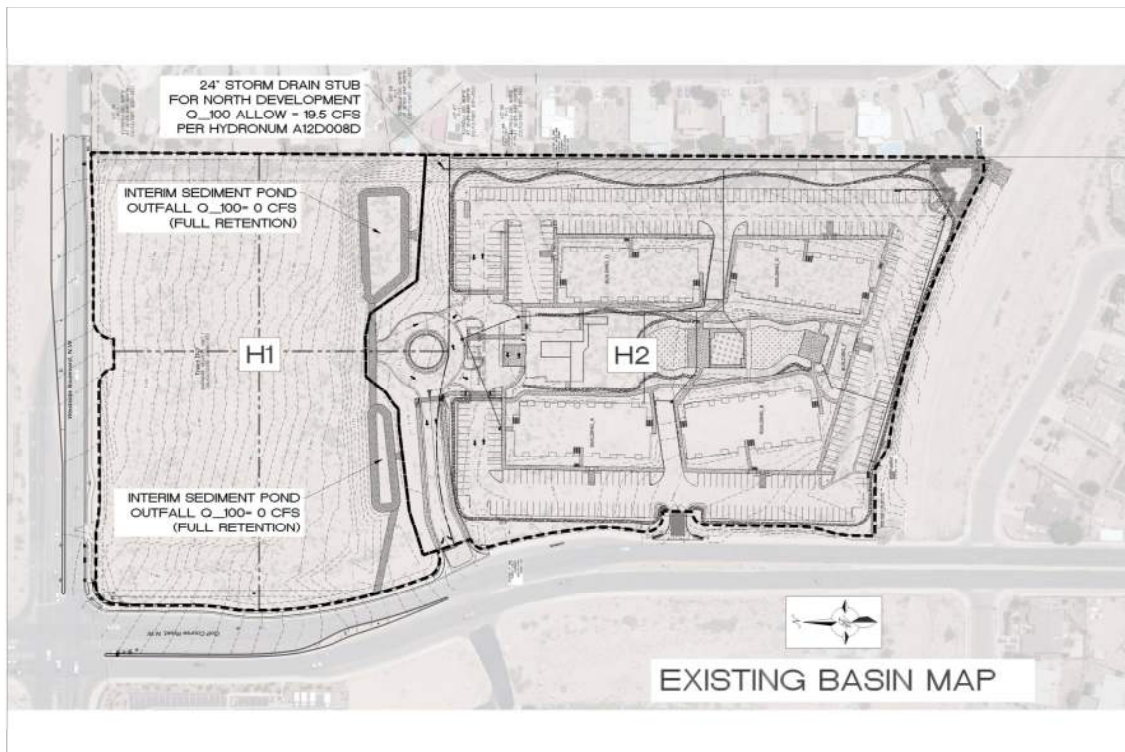


Figure 4 – Existing Basin Map

Proposed Conditions

The developed project site was analyzed to determine the flow, storm water volume and drainage pipe system requirements. The project site was divided into five basins one of the basins (Basin D5) being the center access road as depicted on **Figure 5** below. The others developed project site basins represent individual developments. The total developed flow is 28.66 CFS. Per the drainage report prepared for the apartment site on Tract E-1 south of the project site (Hydronum: A12D008D) the allowable discharge is to be 19.5 CFS. As mentioned

above the flow rate can be increased with a developer funded plan to increase the size of the 24-inch storm drainpipe along Tract E-1 to the south and requires AMAFCA approval for the increase in flow. However, currently the reduction in flow can be reduced with a flow control structure such as a detention ponds which was used as the design structure in this analysis. Each new development shall be allowed to discharge at a rate of roughly 2.67 CFS per acre. Each development shall contain a flow rate control structure such as a detention pond and shall discharge into an underground storm drainpipe system under an easement to be granted by the subdivision plat. Stormwater from Basin D5 (the center road) will discharge into Pond 4 to retain the storm water quality volume. After the detention ponds the storm water will then be routed to the 24" storm drain system along Tract E-1 where the stormwater will discharge into the Black Arroyo Channel to the south.

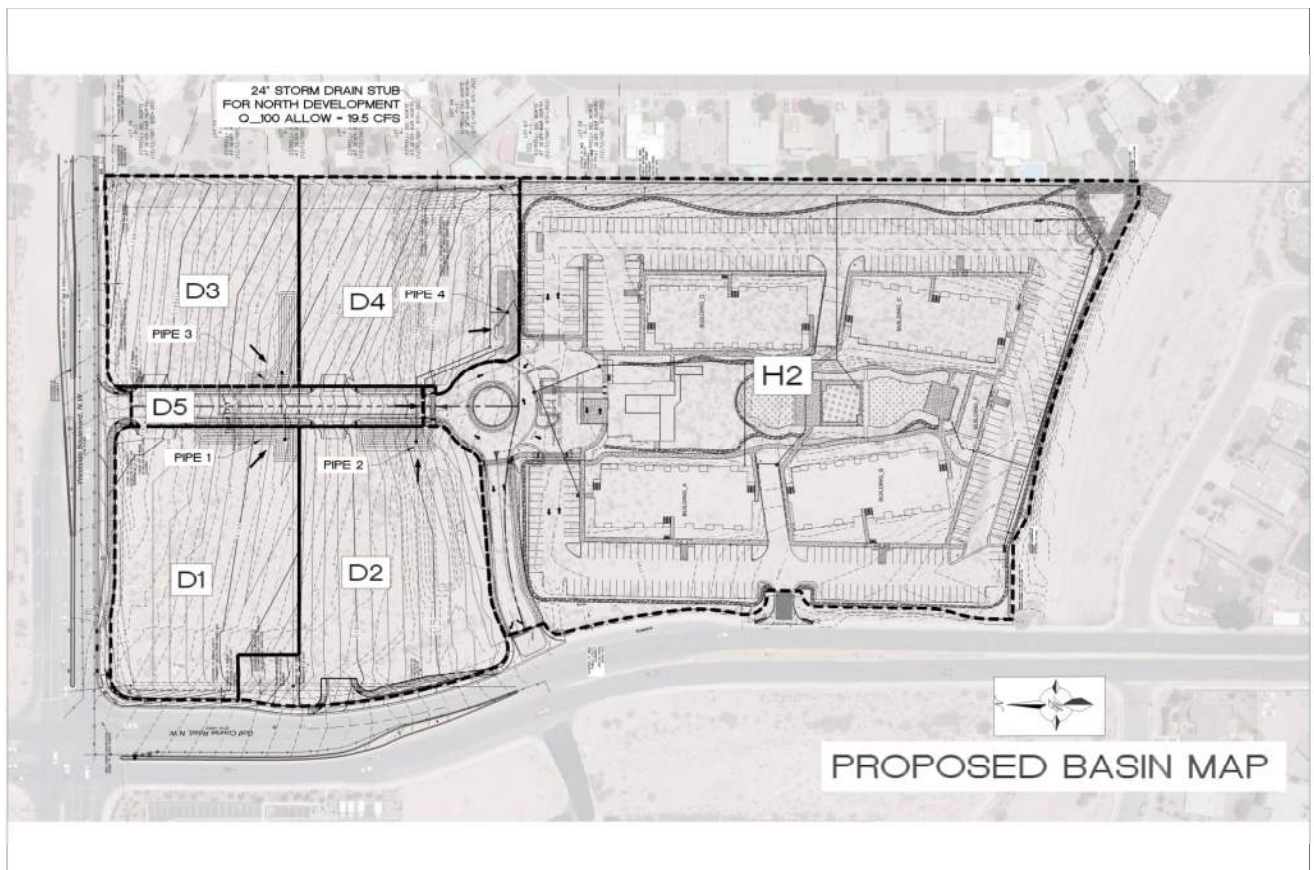


Figure 5 – Developed Basin Map

Stormwater Quality Volume Management

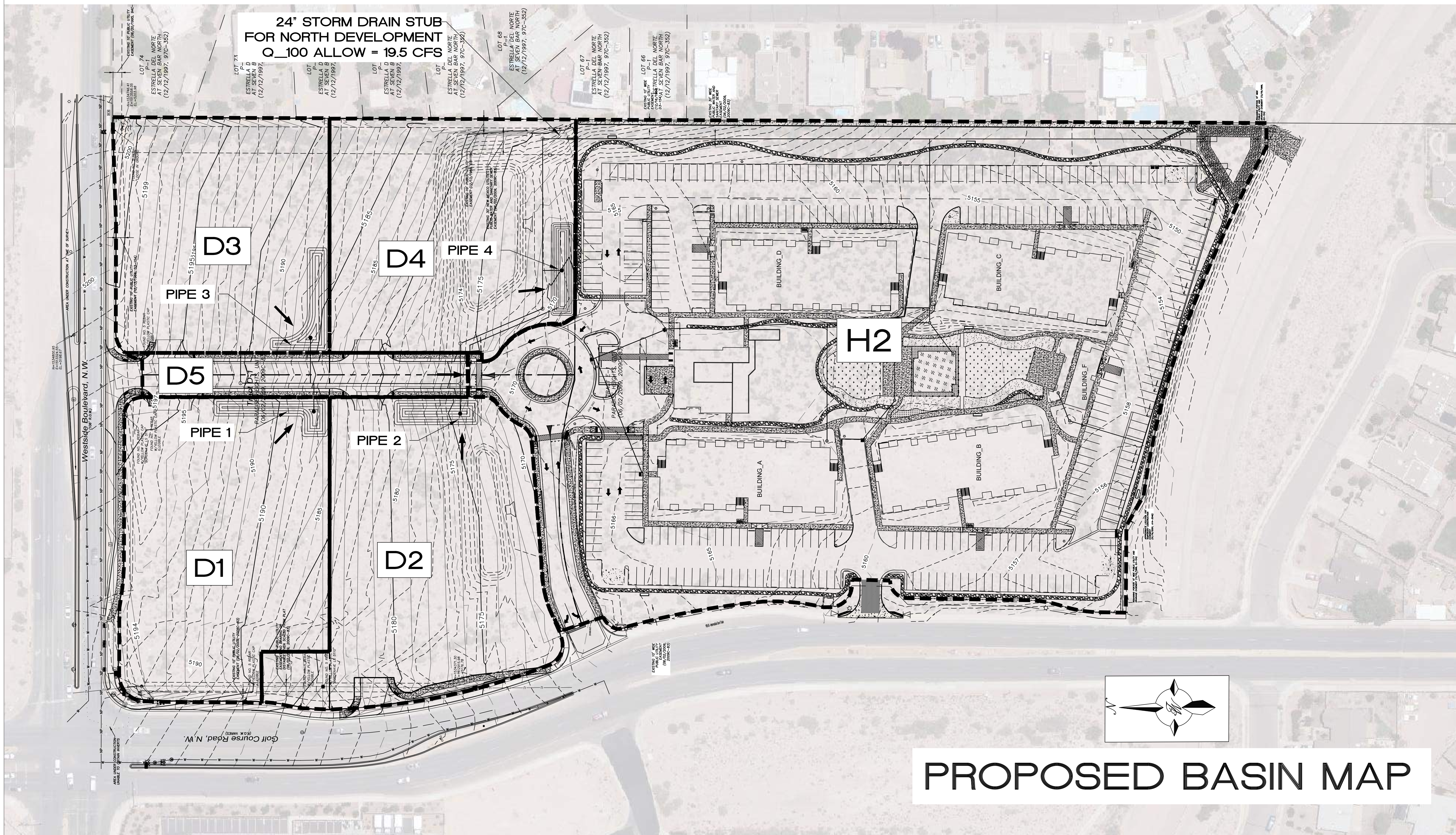
As this site is a new development, the water quality volume is calculated based on the 0.42-inch storm. The methodology used in the EPA Report, Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed, New Mexico, TetraTech, April 2014, EPA Publication Number 832-R-14-007, yields a runoff 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 D-1 is detailed on the design calculations in Appendix A of the report.

Summary

This report outlines the Drainage Management Plan for the Golf Course and Westside Commercial Subdivision and presents the on-site best management practices, storm water quality ponding, and drainage improvements needed to safely convey the future developed flows for Tract D-1. The required storm water quality volume ponding for Tract D-1 is achieved with a suitable sized pond located within each future lot. Developed stormwater runoff from the center road shall be collected through combination of curb inlets and discharged to the storm water quality pond at the southeast corner of the project site, before passing directly into the Black Arroyo Channel.

APPENDIX A

EXISTING/PROPOSED HYDROLOGY TABLE, POND DISCHARGE-
ORIFICE CALCULATIONS AND DRAINAGE BASIN MAPS



Existing Conditions															
Basin Descriptions													100-Year, 6-Hr (AHYMO-S4)		
Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Time To Peak (Hours)	Volume (ac-ft)	Flow cfs
					%	(acres)	%	(acres)	%	(acres)	%	(acres)			
H1	D-1	297,705	6.83	0.01068	90%	6.151	0%	0.000	10%	0.683	0%	0.000	1.560	0.370	11.34
H2	E-1	418,883	9.62	0.01503	0%	0.000	7%	0.673	18%	1.731	75%	7.212	1.550	1.415	35.89
Total		716,588	16.45	0.02570		6.151		0.673		0.000		7.212		1.785	47.23

Proposed Conditions					Basin Descriptions								100-Year, 6-Hr (AHYMO-S4)		
Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Time To Peak (Hours)	Volume (ac-ft)	Flow cfs
					%	(acres)	%	(acres)	%	(acres)	%	(acres)			
D1	D-1	76,744	1.76	0.00275	0%	0.000	0%	0.000	15%	0.264	85%	1.498	1.500	0.220	6.92
D2	E-1	85,001	1.95	0.00305	0%	0.000	0%	0.000	15%	0.293	85%	1.659	1.500	0.244	7.67
D3	E-1	64,908	1.49	0.00233	0%	0.000	0%	0.000	15%	0.224	85%	1.267	1.500	0.186	5.86
D4	E-1	71,968	1.65	0.00258	0%	0.000	0%	0.000	15%	0.248	85%	1.404	1.500	0.207	6.49
D5	E-1	18,596	0.43	0.00067	0%	0.000	0%	0.000	10%	0.043	90%	0.384	1.500	0.053	1.72
H2	E-1	399,371	9.17	0.01433	0%	0.000	0%	0.000	20%	1.834	80%	7.335	1.500	1.399	35.45
Total		716,588	16.45	0.02570		0.000		0.000		2.905		13.546		2.309	64.110

SWQV Pond Volume Calculation				
BASIN ID	AREA D (AC)	AREA D (SF)	SWQV (CF) REQUIRED	SWQV (CF) PROVIDED
D1	1.50	65,232.40	2,283.13	2,423.00
D2	1.66	72,250.85	2,528.78	2,586.00
D3	1.27	55,171.80	1,931.01	2,176.00
D4	1.40	61,172.80	2,141.05	2,831.00
D5	0.38	16,736.40	585.77	
Total	6.21	270,564.25	9,469.75	10,016.00

Pond 1 Discharge-Orifice Calculations

POND 1 VOLUME CALCULATIONS			
ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
80	111	0	0
81	473	292	292
82	1312	892.5	1185
82.75	1990	1238.25	2423
83	2226	527	2950
84	3206	2716	5666

POND 1 STORAGE FUNCTION

ACTUAL ELEV.	H (FT)	VOLUME (CF)	Q (CFS)	VOLUME (AC-FT)
80	0.00	0	0.00	0.0000
81	0.00	292	0.00	0.0067
82	0.00	1185	0.00	0.0272
82.75	0.00	2423	0.00	0.0556
83	0.25	2950	2.95	0.0677
84	1.25	5666	6.61	0.1301

Pond 1 Orifice Equation

Q =	CA(2gh) ^{1/2}		
C =	0.6		
DIA (Ft)	1.25		
A (SF) =	1.2272		
H (Ft) =	Head		
Q (CFS)=	Flow		

Pond 2 Discharge-Orifice Calculations

POND 2 VOLUME CALCULATIONS			
ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
70	235	0	0
71	714	474.5	475
72	1265	989.5	1464
72.75	1726	1121.625	2586
73	1888	451.75	3037
74	2583	2235.5	5273

POND 2 STORAGE FUNCTION

ACTUAL	H	VOLUME	Q	VOLUME	
ELEV.	(FT)	(CF)	(CFS)	(AC-FT)	
70	0.00	0	0.00	0.0000	
71	0.00	475	0.00	0.0109	
72	0.00	1464	0.00	0.0336	
72.75	0.00	2586	0.00	0.0594	INV
73	0.25	3037	2.95	0.0697	
74	1.25	5273	6.61	0.1210	

Pond 2 Orifice Equation

Q =	CA(2gh) ^{1/2}	
C =	0.6	
DIA (Ft)	1.25	
A (SF) =	1.2272	
H (Ft) =	Head	
Q (CFS)=	Flow	

Pond 3 Discharge-Orifice Calculations

POND 3 VOLUME CALCULATIONS			
ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
82	90	0	0
83	611	350.5	351
84	1405	1008	1359
84.5	1863	817	2176
85	2340	1050.75	3226
86	3340	2840	6066

POND 3 STORAGE FUNCTION

ACTUAL	H	VOLUME	Q	VOLUME
ELEV.	(FT)	(CF)	(CFS)	(AC-FT)
82	0.00	0	0.00	0.0000
83	0.00	351	0.00	0.0080
84	0.00	1359	0.00	0.0312
84.5	0.00	2176	0.00	0.0499
85	0.50	3226	2.67	0.0741
86	1.50	6066	4.63	0.1393

Pond 3 Orifice Equation

Q =	CA(2gh) ^{1/2}		
C =	0.6		
DIA (Ft)	1		
A (SF) =	0.7854		
H (Ft) =	Head		
Q (CFS) =	Flow		

Pond 4 Discharge-Orifice Calculations

POND 4 VOLUME CALCULATIONS			
ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
65	443	0	0
66	820	631.5	632
67	1229	1024.5	1656
67.833	1592	1174.947	2831
68	1670	272.377	3103
69	2141	1905.5	5009
70	2638	2389.5	7398

POND 4 STORAGE FUNCTION

ACTUAL	H	VOLUME	Q	VOLUME
ELEV.	(FT)	(CF)	(CFS)	(AC-FT)
65	0.00	0	0.00	0.0000
66	0.00	632	0.00	0.0145
67	0.00	1656	0.00	0.0380
67.833	0.00	2831	0.00	0.0650
68	0.17	3103	2.41	0.0712
69	1.17	5009	6.38	0.1150
70	2.17	7398	8.70	0.1698

Pond 4 Orifice Equation

Q =	CA(2gh) ^{1/2}		
C =	0.6		
DIA (Ft)	1.25		
A (SF) =	1.2272		
H (Ft) =	Head		
Q (CFS)=	Flow		



NOAA Atlas 14, Volume 1, Version 5
Location name: Albuquerque, New Mexico, USA*
Latitude: 35.2168°, Longitude: -106.6758°
Elevation: 5184.48 ft**

* source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aeriels](#)

PF tabular

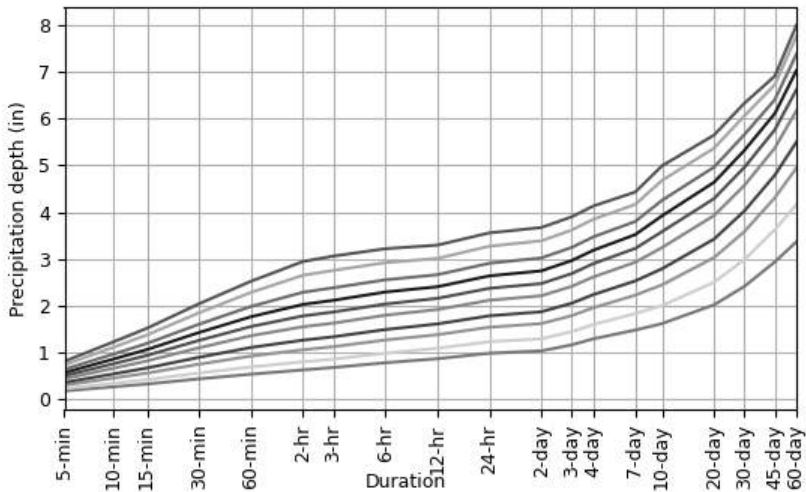
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.167 (0.143-0.196)	0.217 (0.184-0.253)	0.291 (0.248-0.342)	0.349 (0.296-0.409)	0.429 (0.363-0.502)	0.492 (0.414-0.575)	0.559 (0.467-0.652)	0.629 (0.522-0.734)	0.725 (0.595-0.846)	0.801 (0.653-0.934)
10-min	0.255 (0.218-0.298)	0.329 (0.281-0.386)	0.443 (0.377-0.520)	0.532 (0.451-0.622)	0.653 (0.552-0.764)	0.749 (0.631-0.875)	0.850 (0.710-0.993)	0.957 (0.794-1.12)	1.10 (0.905-1.29)	1.22 (0.993-1.42)
15-min	0.315 (0.270-0.370)	0.408 (0.348-0.478)	0.548 (0.467-0.644)	0.659 (0.560-0.771)	0.810 (0.684-0.947)	0.928 (0.782-1.08)	1.05 (0.880-1.23)	1.19 (0.984-1.38)	1.37 (1.12-1.60)	1.51 (1.23-1.76)
30-min	0.425 (0.363-0.498)	0.550 (0.469-0.644)	0.739 (0.629-0.868)	0.887 (0.753-1.04)	1.09 (0.921-1.28)	1.25 (1.05-1.46)	1.42 (1.18-1.66)	1.60 (1.32-1.86)	1.84 (1.51-2.15)	2.04 (1.66-2.37)
60-min	0.525 (0.450-0.616)	0.680 (0.580-0.797)	0.914 (0.779-1.07)	1.10 (0.932-1.28)	1.35 (1.14-1.58)	1.55 (1.30-1.81)	1.76 (1.47-2.05)	1.98 (1.64-2.31)	2.28 (1.87-2.66)	2.52 (2.05-2.94)
2-hr	0.617 (0.523-0.740)	0.791 (0.668-0.949)	1.05 (0.884-1.26)	1.26 (1.06-1.49)	1.54 (1.29-1.83)	1.78 (1.47-2.10)	2.02 (1.66-2.39)	2.28 (1.86-2.69)	2.65 (2.14-3.12)	2.94 (2.35-3.48)
3-hr	0.669 (0.572-0.797)	0.850 (0.726-1.01)	1.12 (0.953-1.32)	1.33 (1.13-1.57)	1.62 (1.37-1.92)	1.86 (1.56-2.19)	2.11 (1.76-2.49)	2.38 (1.97-2.80)	2.75 (2.25-3.24)	3.06 (2.48-3.61)
6-hr	0.771 (0.665-0.910)	0.975 (0.843-1.15)	1.26 (1.09-1.48)	1.48 (1.28-1.74)	1.79 (1.53-2.10)	2.03 (1.73-2.37)	2.29 (1.93-2.67)	2.55 (2.14-2.97)	2.92 (2.42-3.40)	3.22 (2.65-3.76)
12-hr	0.857 (0.749-0.986)	1.08 (0.945-1.24)	1.37 (1.20-1.58)	1.60 (1.39-1.84)	1.91 (1.65-2.19)	2.15 (1.85-2.46)	2.40 (2.06-2.75)	2.66 (2.26-3.04)	3.01 (2.54-3.45)	3.29 (2.75-3.78)
24-hr	0.974 (0.859-1.12)	1.22 (1.08-1.40)	1.53 (1.35-1.75)	1.78 (1.56-2.02)	2.11 (1.85-2.40)	2.37 (2.06-2.69)	2.63 (2.29-2.99)	2.90 (2.51-3.29)	3.27 (2.80-3.70)	3.55 (3.03-4.03)
2-day	1.02 (0.908-1.16)	1.28 (1.14-1.45)	1.61 (1.43-1.82)	1.86 (1.65-2.10)	2.21 (1.94-2.48)	2.47 (2.17-2.78)	2.74 (2.40-3.08)	3.02 (2.62-3.39)	3.38 (2.93-3.81)	3.67 (3.16-4.14)
3-day	1.15 (1.04-1.28)	1.44 (1.30-1.59)	1.78 (1.61-1.97)	2.05 (1.85-2.26)	2.41 (2.17-2.66)	2.68 (2.41-2.96)	2.96 (2.65-3.27)	3.24 (2.89-3.58)	3.62 (3.21-4.00)	3.90 (3.44-4.32)
4-day	1.28 (1.18-1.40)	1.59 (1.46-1.74)	1.95 (1.79-2.12)	2.23 (2.05-2.43)	2.61 (2.39-2.84)	2.90 (2.65-3.15)	3.18 (2.90-3.46)	3.47 (3.15-3.77)	3.85 (3.48-4.19)	4.13 (3.73-4.50)
7-day	1.47 (1.35-1.60)	1.82 (1.68-1.98)	2.22 (2.04-2.40)	2.52 (2.32-2.73)	2.92 (2.69-3.16)	3.22 (2.96-3.47)	3.52 (3.22-3.79)	3.80 (3.48-4.10)	4.16 (3.80-4.50)	4.43 (4.03-4.79)
10-day	1.61 (1.48-1.75)	2.00 (1.84-2.16)	2.44 (2.25-2.64)	2.78 (2.57-3.01)	3.24 (2.99-3.50)	3.58 (3.29-3.86)	3.92 (3.60-4.22)	4.25 (3.89-4.58)	4.68 (4.27-5.05)	4.99 (4.55-5.40)
20-day	2.01 (1.85-2.18)	2.49 (2.30-2.71)	3.02 (2.79-3.27)	3.42 (3.16-3.70)	3.93 (3.62-4.24)	4.29 (3.95-4.62)	4.64 (4.26-4.99)	4.96 (4.56-5.35)	5.37 (4.92-5.78)	5.65 (5.18-6.09)
30-day	2.41 (2.22-2.60)	2.98 (2.75-3.22)	3.58 (3.31-3.86)	4.02 (3.71-4.32)	4.57 (4.22-4.90)	4.96 (4.57-5.32)	5.32 (4.90-5.70)	5.66 (5.20-6.06)	6.06 (5.57-6.50)	6.33 (5.81-6.79)
45-day	2.93 (2.71-3.16)	3.62 (3.36-3.90)	4.31 (3.99-4.63)	4.79 (4.44-5.15)	5.37 (4.98-5.77)	5.76 (5.35-6.18)	6.11 (5.67-6.54)	6.41 (5.95-6.86)	6.73 (6.27-7.19)	6.92 (6.45-7.38)
60-day	3.36 (3.12-3.63)	4.16 (3.85-4.48)	4.94 (4.59-5.32)	5.50 (5.11-5.91)	6.17 (5.73-6.63)	6.62 (6.16-7.10)	7.03 (6.54-7.54)	7.38 (6.88-7.92)	7.77 (7.25-8.34)	8.00 (7.49-8.58)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
 Please refer to NOAA Atlas 14 document for more information.

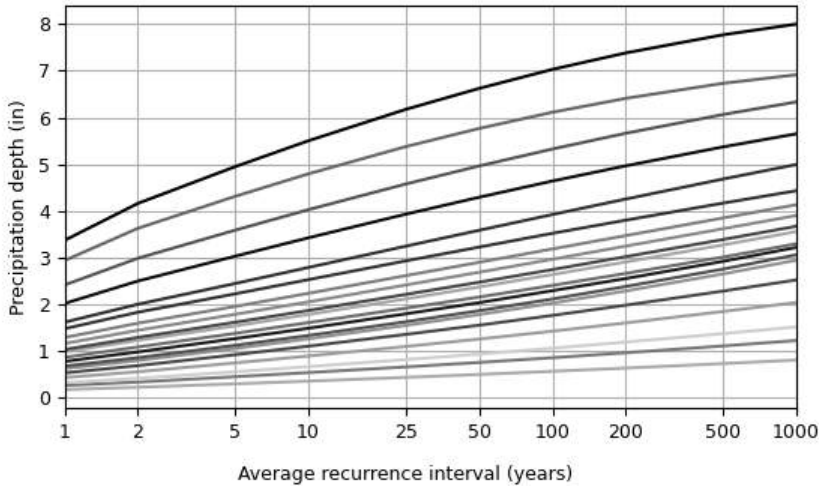
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PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 35.2168°, Longitude: -106.6758°



Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000



Duration	
5-min	2-day
10-min	3-day
15-min	4-day
30-min	7-day
60-min	10-day
2-hr	20-day
3-hr	30-day
6-hr	45-day
12-hr	60-day
24-hr	

NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Thu Oct 27 21:09:43 2022

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Maps & aerals

Small scale terrain



Large scale terrain

AHYMO-S4 INPUT

```

*****
*                                GOLF COURSE AND WESTSIDE (COMERCIAL)                                *
*****
*                                100-YEAR 6-HR STORM (UNDER EXISTING CONDITIONS)                        *
*****
*Zone 1                                                                    *
*NOAA ATLAS 14, VOLUME 1, VERSION 5                                        *
*LATITUDE: 35.2168°                                                       *
*LONGITUDE: -106.6758°                                                    *
*ELEVATION: 5184.48 FT                                                    *
*****
START                                TIME=0.0

*
RAINFALL                            TYPE=1 RAIN QUARTER=0.0 IN
                                    RAIN ONE=1.76 IN RAIN SIX=2.29 IN
                                    RAIN DAY=2.63 IN DT=0.01 HR

*
* H1
*
COMPUTE NM HYD                      ID=1 HYD NO=H1 AREA=0.01088 SQ MI
                                    PER A=90.00 PER B=0.00 PER C=10.00 PER D=0.00
                                    TP= 0.15 HR MASS RAINFALL=-1

PRINT HYD                           ID=1 CODE=1

*
* H2
*
COMPUTE NM HYD                      ID=1 HYD NO=H2 AREA=0.01504 SQ MI
                                    PER A=0.00 PER B=7.00 PER C=18.00 PER D=75.00
                                    TP= 0.15 HR MASS RAINFALL=-1

PRINT HYD                           ID=1 CODE=1

*****
*                                100-YEAR 6-HR STORM (UNDER PROPOSED CONDITIONS)                        *
*****
*****
START                                TIME=0.0
*
*
RAINFALL                            TYPE=1 RAIN QUARTER=0.0 IN
                                    RAIN ONE=1.76 IN RAIN SIX=2.29 IN
                                    RAIN DAY=2.63 IN DT=0.15 HR

*
* D1
*
COMPUTE NM HYD                      ID=1 HYD NO=D1 AREA=0.00275 SQ MI
                                    PER A=0.00 PER B=0.00 PER C=15.00 PER D=85.00
                                    TP=0.15 HR MASS RAINFALL=-1

PRINT HYD                           ID=1 CODE=1
*

```

* D2

*

COMPUTE NM HYD ID=2 HYD NO=D2 AREA=0.00305 SQ MI
PER A=0.00 PER B=0.00 PER C=15.00 PER D=85.00
TP=0.15 HR MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

*

* D3

*

COMPUTE NM HYD ID=3 HYD NO=D3 AREA=0.00233 SQ MI
PER A=0.00 PER B=0.00 PER C=15.00 PER D=85.00
TP=0.15 HR MASS RAINFALL=-1

PRINT HYD ID=3 CODE=1

*

* D4

*

COMPUTE NM HYD ID=4 HYD NO=D4 AREA=0.00258 SQ MI
PER A=0.00 PER B=0.00 PER C=15.00 PER D=85.00
TP=0.15 HR MASS RAINFALL=-1

PRINT HYD ID=4 CODE=1

*

* D5

*

COMPUTE NM HYD ID=5 HYD NO=D5 AREA=0.00067 SQ MI
PER A=0.00 PER B=0.00 PER C=10.00 PER D=90.00
TP=0.15 HR MASS RAINFALL=-1

PRINT HYD ID=5 CODE=1

*

* H2

*

COMPUTE NM HYD ID=14 HYD NO=H2 AREA=0.01433 SQ MI
PER A=0.00 PER B=0.00 PER C=20.00 PER D=80.00
TP=0.15 HR MASS RAINFALL=-1

PRINT HYD ID=14 CODE=1

*

* ADD BASINS D4, D5

*

ADD HYD ID =6 HYD = 100.1 ID I = 4 ID II = 5

PRINT HYD ID=6 CODE=1

*

* ROUTE BASINS TO POND 1 *

ROUTE RESERVOIR ID=7 HYD NO=POND.1 INFLOW ID=1 CODE=1
OUTFLOW(CFS) STORAGE(AC-FT) ELEVATION(FT)

0.0000	0.0000	80.00
0.0100	0.0556	82.75
2.9500	0.0677	83.00
6.6100	0.1301	84.00

*

PRINT HYD ID=7 CODE=1

*

* ROUTE BASINS TO POND 2 *

ROUTE RESERVOIR	ID=8	HYD NO=POND.2	INFLOW ID=2	CODE=1
	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)	
	0.0000	0.0000	70.00	
	0.0100	0.0594	72.75	
	2.9500	0.0697	73.00	
	6.6100	0.1210	74.00	

PRINT HYD ID=8 CODE=1

*

* ROUTE BASINS TO POND 3 *

ROUTE RESERVOIR	ID=9	HYD NO=POND.3	INFLOW ID=3	CODE=1
	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)	
	0.0000	0.0000	82.00	
	0.0100	0.0499	84.50	
	2.6700	0.0741	85.00	
	4.6300	0.1393	86.00	

PRINT HYD ID=9 CODE=1

*

* ROUTE BASINS TO POND 4 *

ROUTE RESERVOIR	ID=10	HYD NO=POND.4	INFLOW ID=6	CODE=1
	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)	
	0.0000	0.0000	65.00	
	0.0100	0.0650	67.83	
	2.4100	0.0712	68.00	
	6.3800	0.1150	69.00	
	8.7000	0.1698	70.00	

*

PRINT HYD ID=410 CODE=1

*

* ADD BASINS

*

ADD HYD	ID =11	HYD = 100.2	ID I = 7	ID II = 8
ADD HYD	ID =12	HYD = 100.3	ID I =11	ID II = 9
ADD HYD	ID =13	HYD = 100.4	ID I =12	ID II = 10

PRINT HYD
*
FINISH

ID=13 CODE=1

AHYMO-S4 OUTPUT

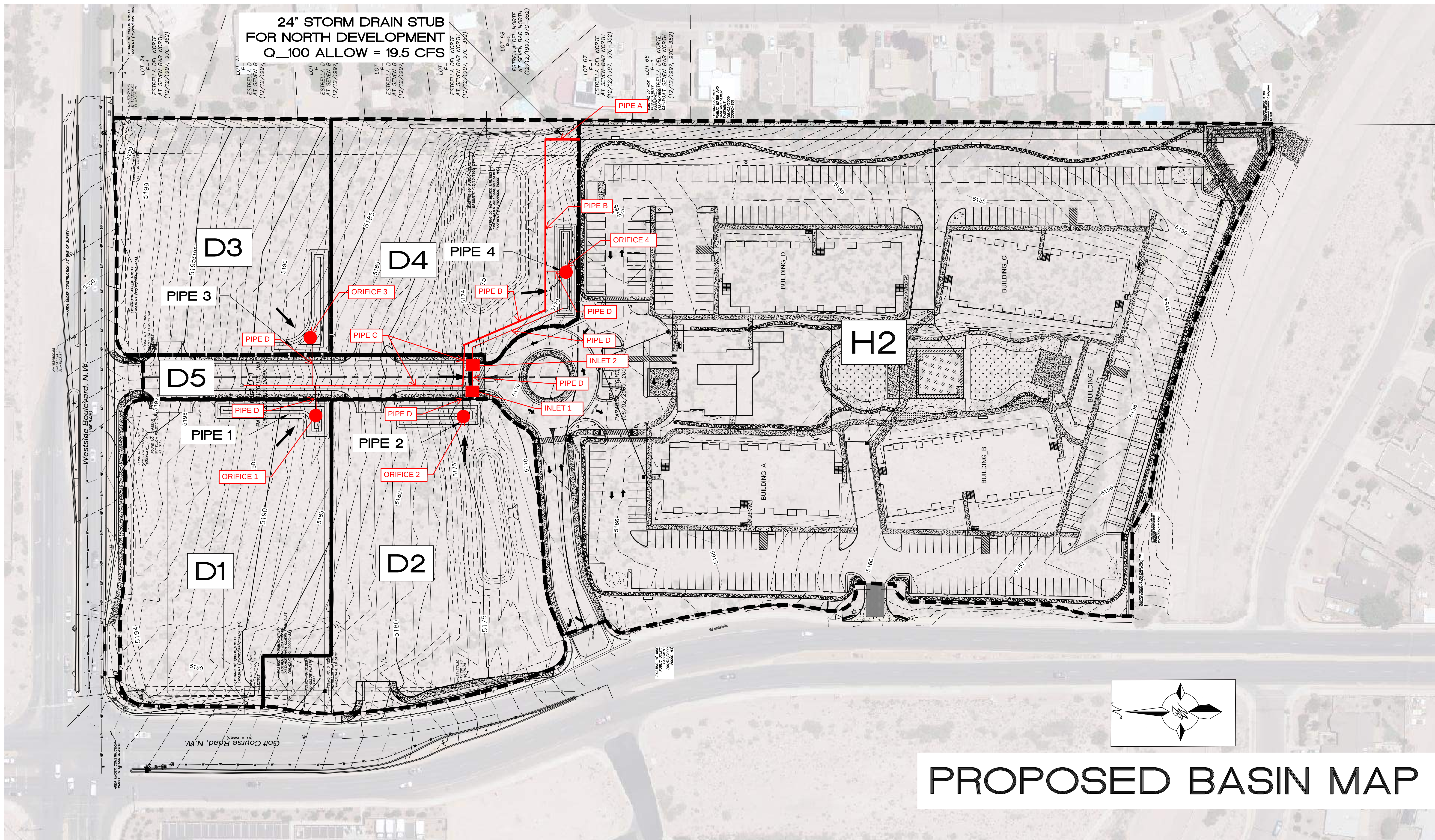
RUN DATE (MON/DAY/YR)

AHYMO_Temp_User:20122010

[illegible]

APPENDIX B

GUTTER DEPTH CALCULATION,
STORM DRAIN AND INLET SCHEMEMATIC MAP



PRIVATE ROAD GUTTER DEPTH

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.065 ft/ft
Discharge	1.72 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.67
0+00	0.00
0+02	0.08
0+15	0.36
0+29	0.10
0+30	0.00
0+30	0.67

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.67)	(0+02, 0.08)	0.017
(0+02, 0.08)	(0+29, 0.10)	0.017
(0+29, 0.10)	(0+30, 0.00)	0.017
(0+30, 0.00)	(0+30, 0.67)	0.017

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

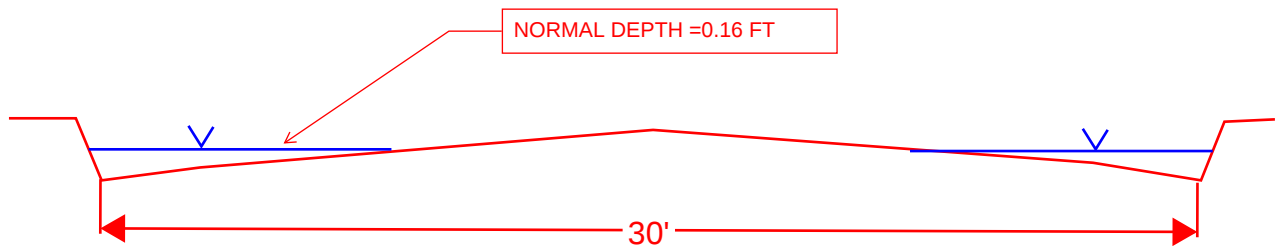
Results

Normal Depth	1.9 in
Roughness Coefficient	0.017
Elevation	0.16 ft
Elevation Range	0.0 to 0.7 ft
Flow Area	0.5 ft ²
Wetted Perimeter	9.9 ft
Hydraulic Radius	0.7 in
Top Width	9.60 ft
Normal Depth	1.9 in
Critical Depth	2.5 in
Critical Slope	0.010 ft/ft
Velocity	3.20 ft/s

Bentley Systems, Inc. Haestad Methods Solution Center
27 Siemon Company Drive Suite 200 W
Watertown, CT 06795 USA +1-203-755-1666

FlowMaster
[10.03.00.03]
Page 1 of 2

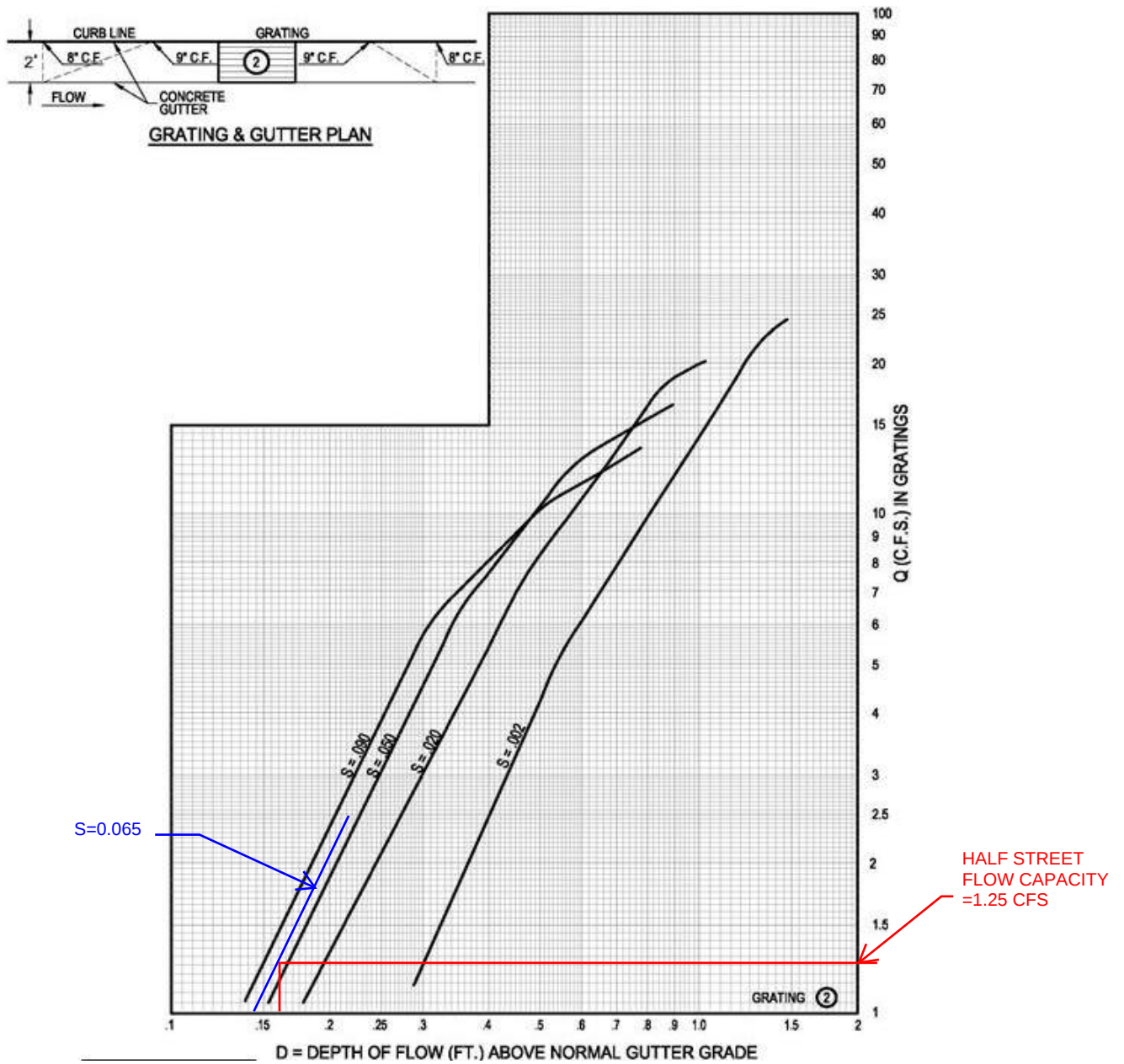
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11/16/2022



PRIVATE ROAD GUTTER DEPTH

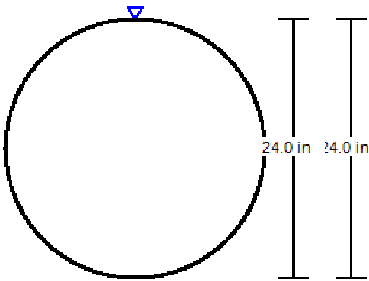
Results	
Velocity Head	0.16 ft
Specific Energy	0.32 ft
Froude Number	2.387
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.9 in
Critical Depth	2.5 in
Channel Slope	0.065 ft/ft
Critical Slope	0.010 ft/ft

FIGURE 6.9.9 Grate Capacities for Types "A," "C," and "D"



STORM DRAIN PIPE A CAPACITY

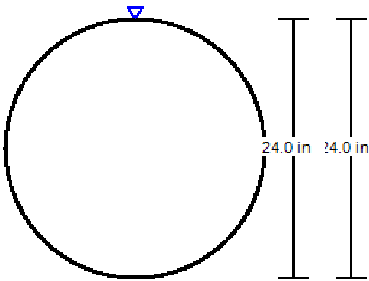
Project Description	
Friction Method	Manning Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.013
Channel Slope	0.040 ft/ft
Normal Depth	24.0 in
Diameter	24.0 in
Discharge	45.24 cfs



V: 1
H: 1

STORM DRAIN PIPE B CAPACITY

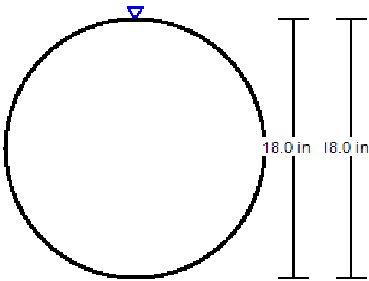
Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.013
Channel Slope	0.021 ft/ft
Normal Depth	24.0 in
Diameter	24.0 in
Discharge	32.78 cfs



V: 1
H: 1

STORM DRAIN PIPE C CAPACITY

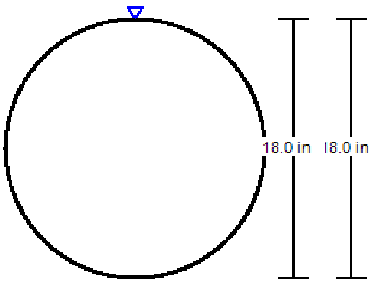
Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.013
Channel Slope	0.023 ft/ft
Normal Depth	18.0 in
Diameter	18.0 in
Discharge	15.93 cfs



V: 1
H: 1

STORM DRAIN PIPE D CAPACITY

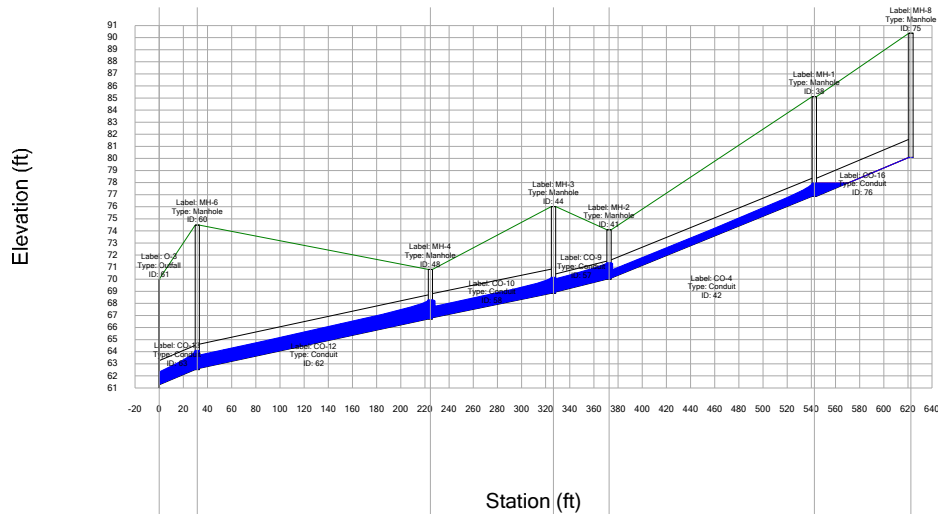
Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.013
Channel Slope	0.020 ft/ft
Normal Depth	18.0 in
Diameter	18.0 in
Discharge	14.85 cfs



V: 1
H: 1

Profile Report
Profile: Profile - 1

Profile - 1 - Base



ID\Label	63 \ CO-13	62 \ CO-12	58 \ CO-10	57 \ CO-9	42 \ CO-4	76 \ CO-16
Link Length (ft)	31.5	193.0	102.0	46.0	170.0	80.0
Rise (in)\Material	24.0 \ Concrete	24.0 \ Concrete	24.0 \ Concrete	18.0 \ Concrete	18.0 \ Concrete	18.0 \
Flow (cfs)	19.50	19.50	13.54	13.54	8.09	0.00
Slope (ft/ft)	0.040	0.021	0.020	0.023	0.040	0.040
ID\Label	61 \ CO-80 \ MH-6		48 \ MH-4	44 \ MH-3 \ 41 \ MH-2	38 \ MH-1	75 \ MH-8
Ground (ft)	70.00	74.48	70.81	76.01	74.10	85.11
Invert (ft)	61.00	62.52	66.71	68.84	70.00	76.85
Station (ft)	0.0	31.5	224.5	325.5	372.5	542.5

APPENDIX C

PAGES FROM BLACK ARROYO DRAINAGE REPORT

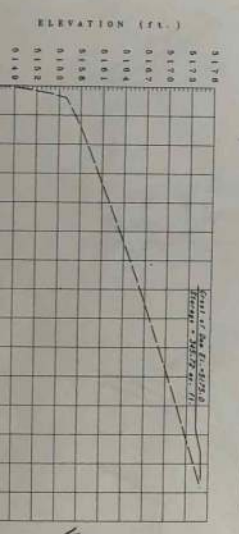
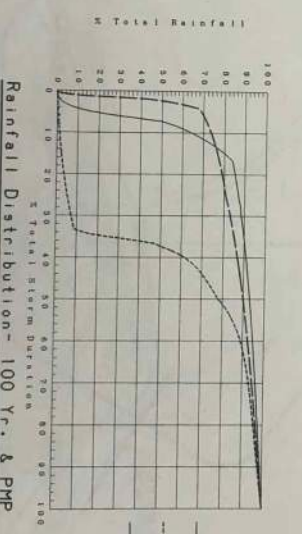
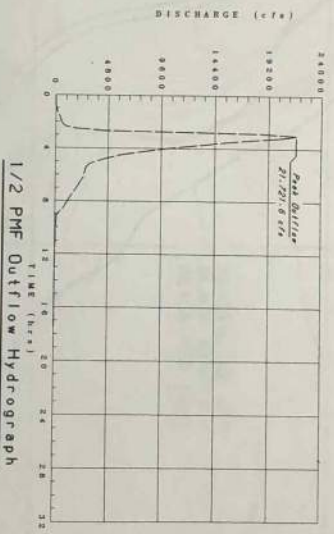
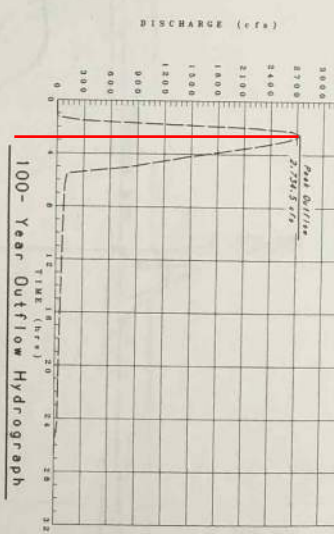
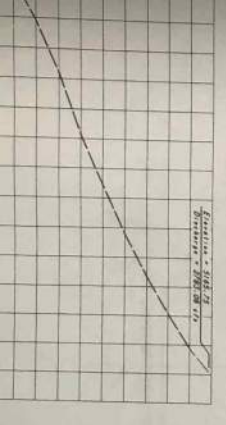
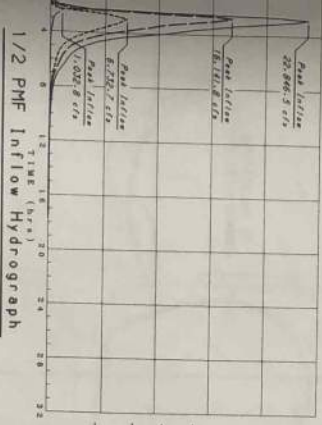
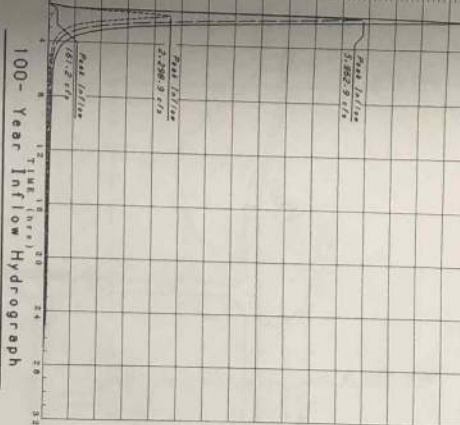
TABLE 6
ULTIMATE DEVELOPMENT CONDITION
DISCHARGE TABLE
HYDROLOGIC ANALYSIS FOR BLACK ARROYO

BASIN	AREA (SQ. MI.)	TIME TO PEAK (HRS.)	<i>CN=95</i> 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	<i>463 120*</i>	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	<i>3797 3579*</i>	2278
Analysis Point 5	1691	1952	2206	1381
Analysis Point 6	4498	5239	<i>5794 5759*</i>	3639
Analysis Point 7	4506	5268	<i>5826* 6061</i>	3608

Downstream of Confluence with 7-Bar	5293	6095	<i>6666* 6922</i>	4319
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** Error in L4*



WATER SURFACE ELEVATION (ft.)	AREA (ac.)	CUMULATIVE VOLUME (ac-ft.)
5146	0	0
5148	3.63	3.63
5150	8.80	12.43
5152	17.71	30.14
5154	27.12	57.26
5156	37.16	94.42
5158	47.80	142.22
5160	58.35	200.57
5162	68.80	269.37
5164	79.12	348.49
5166	89.35	437.84
5168	99.48	537.32
5170	109.50	646.82
5172	119.42	766.24
5174	129.15	895.39
5176	138.68	1034.07
5178	148.00	1182.07

NOTE: Future Configuration Hydrology assumes Fully Developed Conditions. See Reference 2 for further details.

* Includes sediment storage

** Does not include sediment storage

REFERENCES:

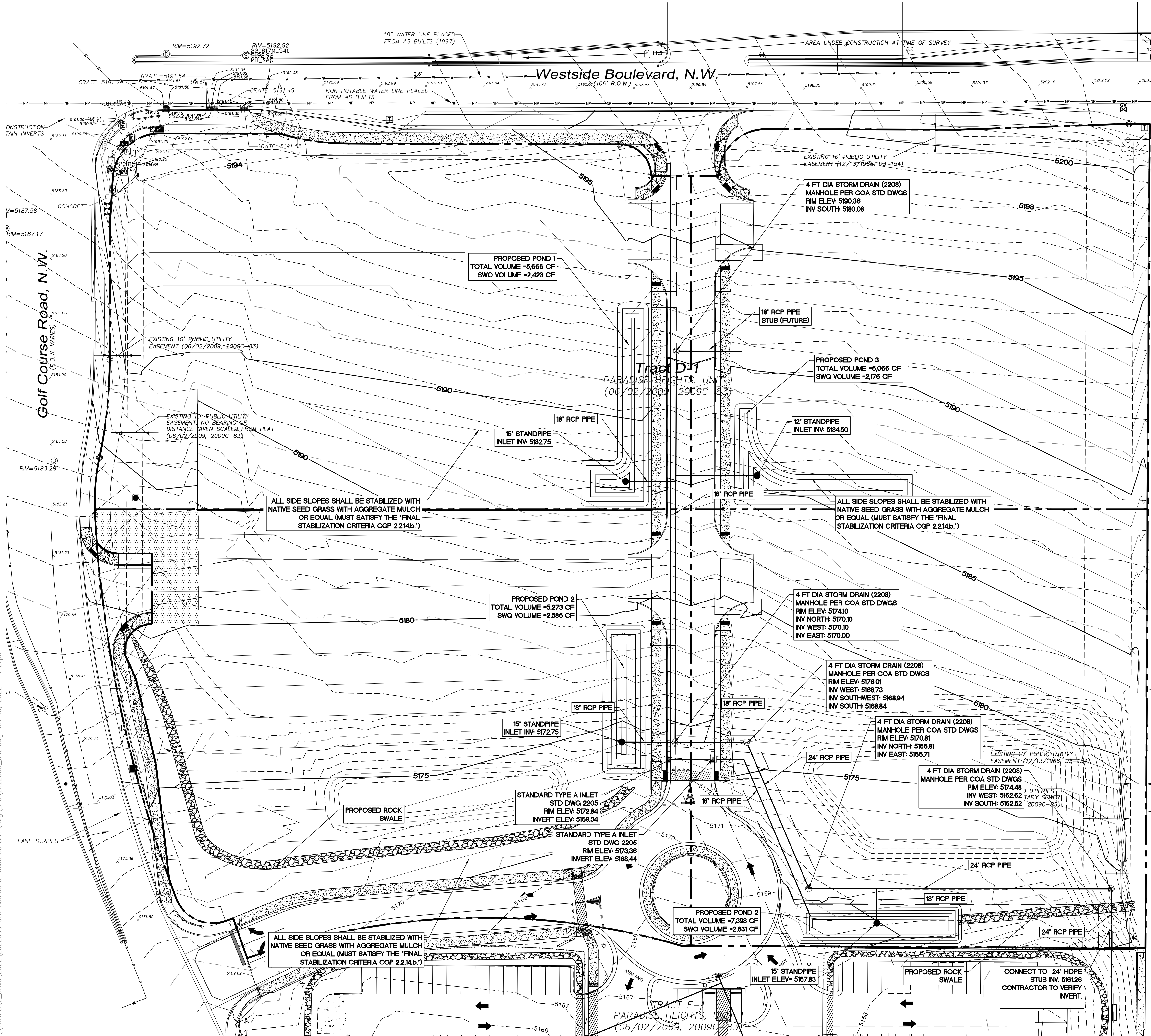
- SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT, Process Manual Volume 2, Design Criteria for the City of Albuquerque, New Mexico, February 1991.
- BLACK ARROYO FINAL HYDROLOGY, SEDIMENT ISSUES, BOHANNAN - HUSTON INC., AUGUST 1990.
- "GEOTECHNICAL INVESTIGATION BLACK ARROYO DETENTION BASIN, Vinyard & Associates, Inc., AN ANALYSIS OF THE BIOLOGY, ARCHAEOLOGY AND NATURAL HISTORY OF BLACK ARROYO," BLACK ARROYO DETENTION BASIN ADDITIONAL CALCULATIONS, ADDENDUM TO FINAL, BLACK ARROYO PROJECT, COLE COURSE ROAD TO NORTH OF THE COUNTY LINE, SEPTEMBER 1990.
- "FINAL BLACK ARROYO PROJECT COLE COURSE ROAD TO NORTH OF THE COUNTY LINE", Bohnan-Houston Inc., September 1990.
- "BLACK ARROYO DETENTION DAM FINAL CALCULATIONS"



BLACK ARROYO DETENTION HYDROLOGY DATA

ALBUQUERQUE METROPOLITAN WATER SUPPLY AUTHORITY

\\TWS\Z_Drive\2022\2022055 Golf Course & Westside Blvd\dwg\EP\2022055_GRB.dwg Nov 16, 2022 -- 1:27pm

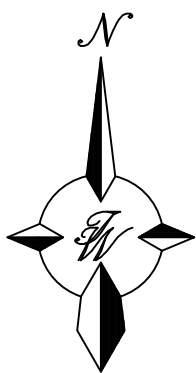


LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- SIDEWALK
- SCREEN WALL
- RETAINING WALL
- 5010 CONTOUR MAJOR
- 5011 CONTOUR MINOR
- x 5048.25 SPOT ELEVATION
- FLOW ARROW
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- x 5048.25 EXISTING SPOT ELEVATION
- STORM DRAIN (18"-24")

NOTICE TO CONTRACTORS

- BUILD SIDEWALK CULVERT PER COA STD DWG 2236.
- CONTACT STORM DRAIN MAINTENANCE AT (505) 857-8033 TO SCHEDULE A MEETING PRIOR TO FORMING.
- AN EXCAVATION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
- ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- 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.
- 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.
- MAINTENANCE OF THE FACILITY SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY BEING SERVED.
- 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.

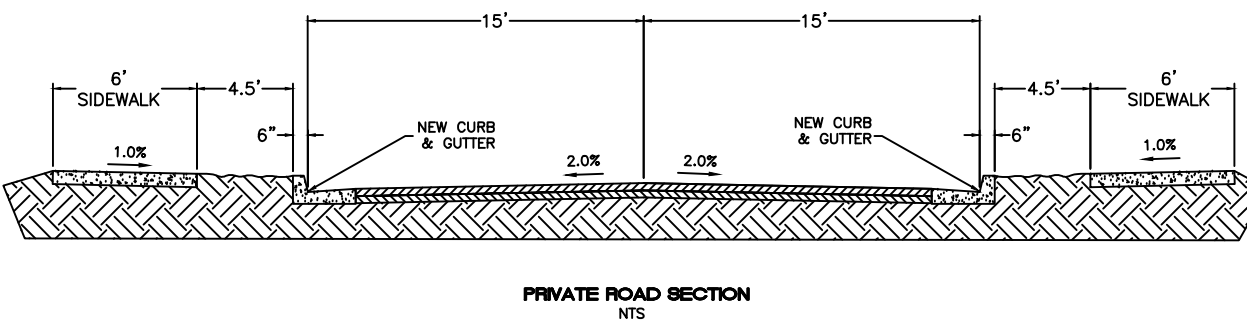


GRAPHIC SCALE

30 15 0 15 30
SCALE: 1"=30'

CAUTION

ALL EXISTING UTILITIES/TOPOGRAPHY SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.



ENGINEER'S SEAL

RONALD R. BOHANNAN
NEW MEXICO
7868

11/16/2022

RONALD R. BOHANNAN
P.E. #7868

GOLF COURSE + WESTSIDE
ALBUQUERQUE, NM

CONCEPTUAL GRADING &
DRAINAGE PLAN

TERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrowestllc.com

DRAWN BY
RG

DATE
08/31/2022

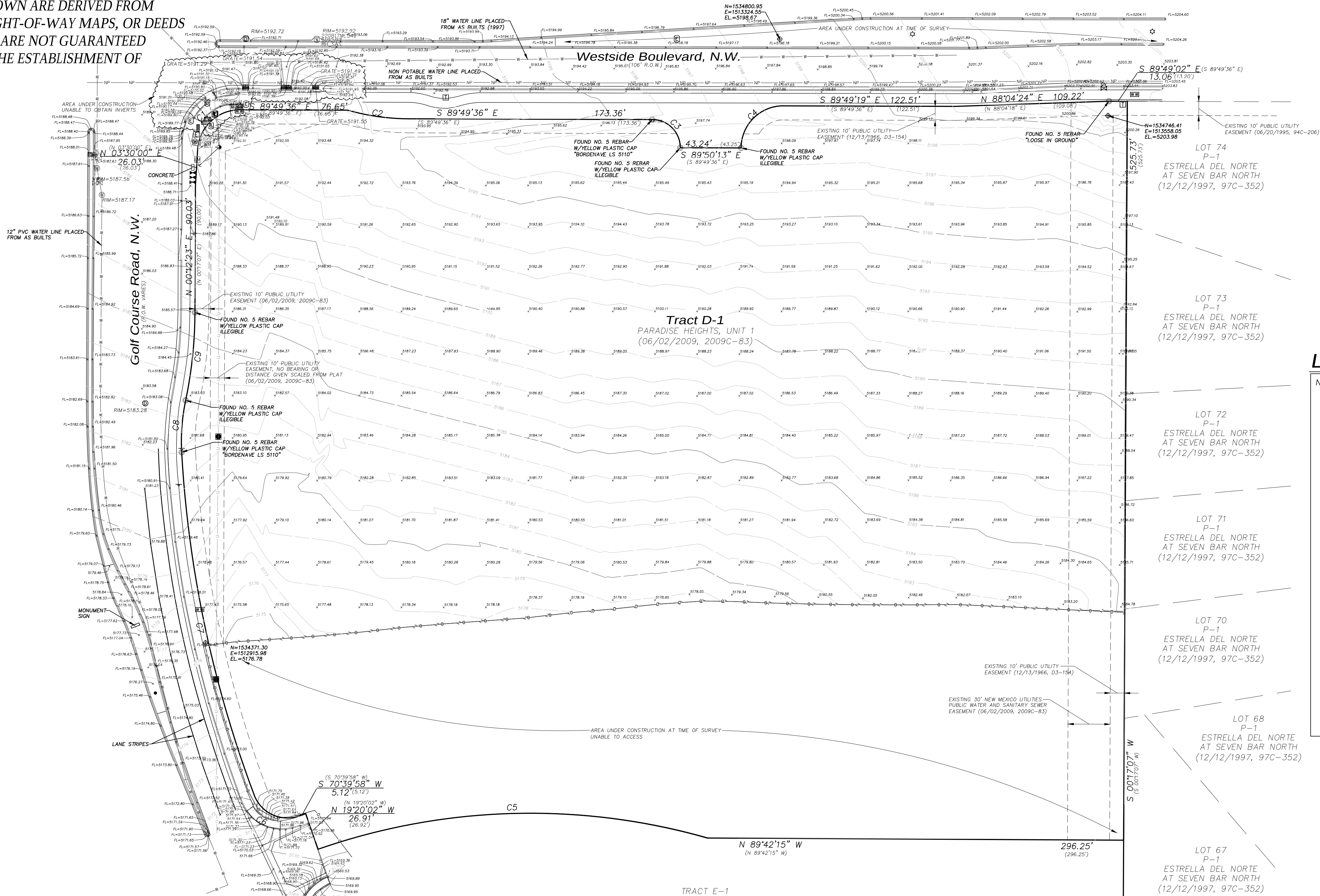
2022055_GRB

SHEET #
C2

JOB #
2022025

THIS IS NOT A BOUNDARY SURVEY
OR A RIGHT-OF-WAY SURVEY
APPARENT PROPERTY CORNERS, RIGHT-OF-WAY LINES,
OR PROPERTY LINES AS SHOWN ARE DERIVED FROM
RECORD SURVEY PLATS, RIGHT-OF-WAY MAPS, OR DEEDS
REFERENCED HEREON AND ARE NOT GUARANTEED
OR TO BE RELIED ON FOR THE ESTABLISHMENT OF
PROPERTY LINES.

Topographic Survey Of
Tract D-1
Paradise Heights, Unit 1
Section 1, Township 11, Range 2, N.M.P.M.
Albuquerque, Bernalillo County, New Mexico
October 2022



Legend

N 90°00'00" E	MEASURED BEARINGS AND DISTANCES
○	RECORD BEARINGS AND DISTANCES
○	FOUND AND USED MONUMENT AS DESIGNATED
○	DENOTES NO. 5 REBAR WITH PINK PLASTIC CAP "PS 11984" SET THIS SURVEY
○	CONTROL POINT SET THIS SURVEY
○	NO. 5 REBAR WITH PINK PLASTIC CAP "L" MEASUREMENT "PS 11984"
●	UTILITY POLE
●	ANCHOR POLE
—	GUY WIRE
□	ELECTRIC BOX
□	ELECTRIC METER
□	ELECTRIC CONDUIT
□	LIGHT POLE
□	PULLBOX
□	TRANSFORMER
□	TRAFFIC SIGNAL BOX
□	LIGHT BOX
□	TRAFFIC LIGHT
□	TELEPHONE PEDESTAL
□	IRRIGATION CONTROL VALVE
□	WATER METER
□	WATER VALVE
□	FIRE HYDRANT
□	WATER MANHOLE
□	SANITARY SEWER MANHOLE
□	STORM SEWER MANHOLE
□	GAS VALVE
□	SIGN
□	CURB INLET
□	POST
□	CURB AND GUTTER
—	OVERHEAD UTILITY LINE
—	CHAIN LINK FENCE
—	SILT FENCE
—	EDGE OF ASPHALT

Notes

- PLAT REFERENCES:
- A PLAT OF TRACTS D-1, E-1, AMAFCA BLACK ARROYO CHANNEL ROW, PARADISE HEIGHTS UNIT 1, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON SEPTEMBER 11, 1984, IN PLAT BOOK C26, PAGE 6.
 - ELEVATION DATUM IS BASED ON NAVD 1988 FROM AGRS MONUMENT "8_A11", PUBLISHED ELEVATION (FEET) = 5283.03
 - LOCATION OF UNDERGROUND UTILITIES AND EASEMENTS NOT VERIFIED BY THIS PLAN. UNDERGROUND UTILITIES MAY EXIST WHERE NONE ARE SHOWN. UNDERGROUND UTILITY LOCATION IS BASED UPON INFORMATION PROVIDED BY OTHERS AND MAY BE INCOMPLETE OR OBSOLETE AT THE TIME OF CONSTRUCTION. THE OWNER SHOULD INFORM HIMSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE OWNER IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES AND UNDERGROUND UTILITY LINES. THE OWNER IS URGED TO COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE OWNER SHOULD MAKE THEMSELVES AWARE OF REGULATIONS STATED IN CHAPTER 62, ARTICLE 14, NMSA 1978 RELATING TO EXCAVATION DAMAGE TO PIPELINES AND UNDERGROUND UTILITY LINES.
 - THIS MAP HAS BEEN PRODUCED ACCORDING TO PROCEDURES THAT HAVE BEEN DEMONSTRATED TO PRODUCE DATA THAT MEETS OR EXCEEDS THE MINIMUM STANDARDS FOR A TOPOGRAPHIC MAP COMPILED AT A SCALE OF 1"=50' WITH A CONTOUR INTERVAL OF ONE FOOT.

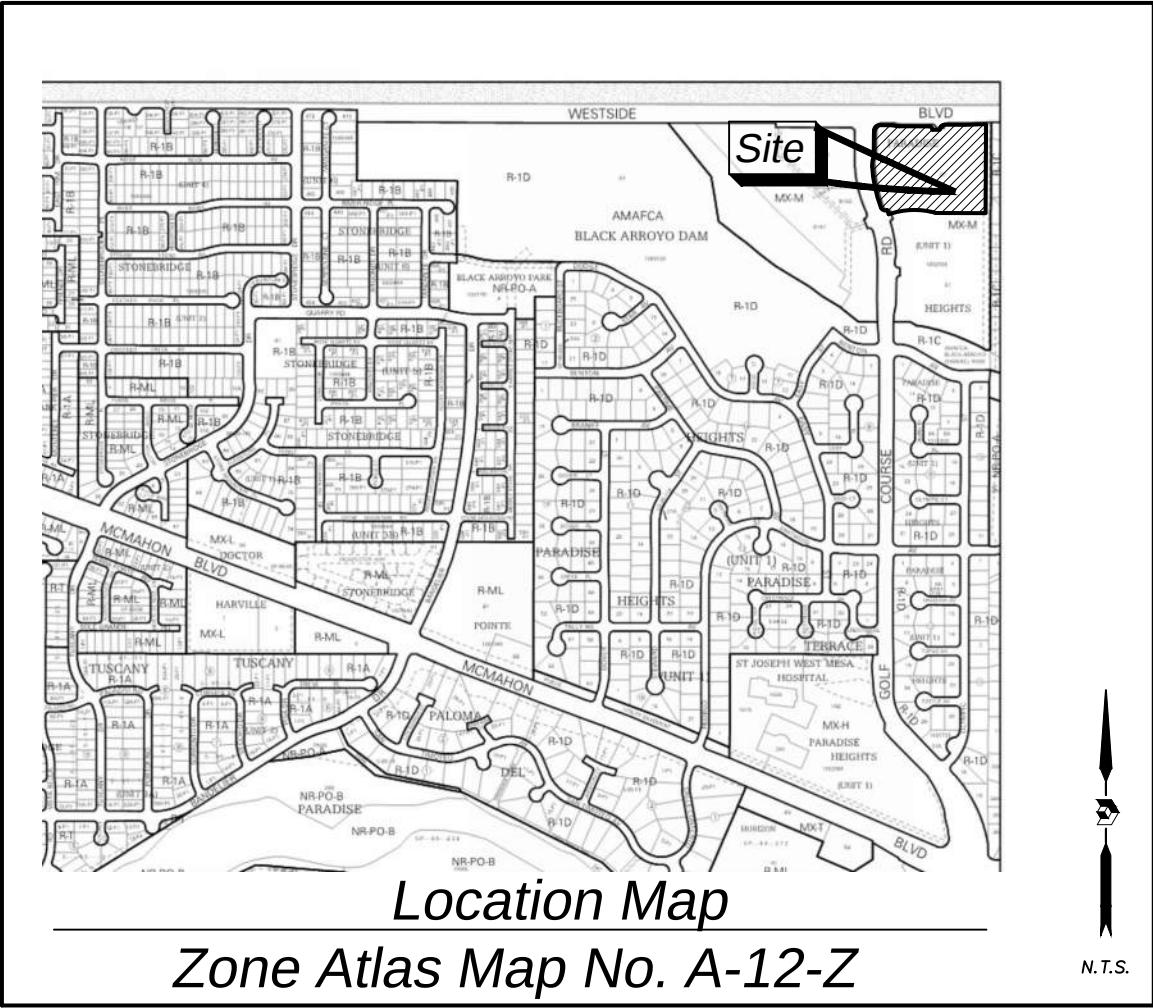
Curve Table

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	30.00'	45.39'	41.18'	S 46°50'12" W	86°40'52"
(C1)	(30.00')	(45.39')	(41.18')	(S 46°50'12" W)	(86°40'52")
C2	160.00'	43.96'	43.82'	S 81°57'23" E	15°44'29"
(C2)	(160.00')	(43.96')	(43.82')	(S 81°57'23" E)	(15°44'29")
C3	20.00'	31.49'	28.34'	N 44°50'49" W	90°13'16"
(C3)	(20.00')	(31.49')	(28.34')	(N 44°50'49" W)	(90°13'16")
C4	30.00'	47.13'	42.43'	S 45°06'11" W	90°00'35"
(C4)	(30.00')	(47.13')	(42.43')	(S 45°06'11" W)	(90°00'35")
C5	458.00'	281.41'	277.01'	S 88°20'54" W	35°12'18"
(C5)	(458.00')	(281.41')	(277.01')	(S 88°20'54" W)	(35°12'18")
C6	25.00'	38.69'	34.94'	S 65°00'35" E	88°39'42"
(C6)	(25.00')	(38.69')	(34.94')	(S 65°00'35" E)	(88°39'42")
C7	825.00'	250.35'	249.39'	S 11°57'19" E	172°31'12"
(C7)	(825.00')	(250.35')	(249.39')	(S 11°57'19" E)	(172°31'12")
C8	140.00'	37.18'	37.07'	S 04°25'59" W	15°12'51"
(C8)	(140.00')	(37.18')	(37.07')	(S 04°25'59" W)	(15°12'51")
C9	310.01'	62.86'	62.86'	N 06°02'21" E	11°38'14"
(C9)	(310.01')	(62.86')	(62.86')	(N 06°02'21" E)	(11°38'14")

REVISIONS			COORDINATE AND DIMENSION INFORMATION			PLSS INFORMATION			INDEXING INFORMATION FOR COUNTY CLERK			PROJECT INFORMATION	
NO.	DATE	BY	DESCRIPTION	STATE PLANE ZONE:	GRID	GRID GROUND COORDINATES:	GEIOD:	GEIOD 18 (CONUS)	LAND GRANT	TOWN GRANT	PROPERTY OWNER	CREW/TECH:	DATE OF SURVEY
				NAD83	NAVD88			ROTATION ANGLE: 0° 00' 00.00" YES	SECTION 1	TOWNSHIP 11 NORTH	DENNIS & GEORGE LLC	ML	08/17/2022
				CONTROL USED: 8_A11				BASE POINT FOR SCALING AND/OR ROTATION: N=0 E=0	RANGE 02 EAST	MERIDIAN NM PM		DRAWN BY: MT	CHECKED BY: LM
				COMBINED SCALE FACTOR: GRID TO GROUND: 1.0003263844				ELEVATION TRANSLATION: ±0.00'	CITY ALBUQUERQUE	COUNTY BERNALILLO	SUBDIVISION NAME: PARADISE HEIGHTS, UNIT 1	PSI JOB NO. 22-8233T	SHEET NUMBER 1 OF 1
				GROUND TO GRID: 0.9996737221							ADDRESS N/A		
											SECOND ADDRESS N/A		



OFFICE LOCATION:
9200 San Mateo Boulevard, NE
Albuquerque, NM 87113
505.856.5700 PHONE
505.856.7900 FAX



Subdivision Data:

GROSS SUBDIVISION ACREAGE: 7.5979 ACRES±
ZONE ATLAS INDEX NO: A-12-Z
NO. OF TRACTS CREATED: 4
NO. OF LOTS CREATED: 0
MILES OF FULL-WIDTH STREETS CREATED: 0

Notes:

- PLAT SHOWS ALL EASEMENTS OF RECORD.
- EASEMENT BEARINGS AND DISTANCES SHOWN HEREON ARE RECORD AND EASEMENTS HAVE BEEN ROTATED TO MATCH BASIS OF BEARINGS AND BOUNDARY UNLESS OTHERWISE INDICATED.

Public Utility Easements

PUBLIC UTILITY EASEMENTS SHOWN ON THIS PLAT ARE GRANTED FOR THE COMMON JOINT USE OF:
A. PUBLIC SERVICE COMPANY OF NEW MEXICO ("PNM"), A NEW MEXICO CORPORATION, (PNM ELECTRIC) FOR INSTALLATION, MAINTENANCE AND SERVICE OF OVERHEAD AND UNDERGROUND ELECTRICAL LINES, TRANSFORMERS, AND OTHER EQUIPMENT AND RELATED FACILITIES REASONABLY NECESSARY TO PROVIDE ELECTRICAL SERVICES.
B. NEW MEXICO GAS COMPANY FOR INSTALLATION, MAINTENANCE, AND SERVICE OF NATURAL GAS LINES, VALVES AND OTHER EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE NATURAL GAS SERVICES.
C. QWEST CORPORATION D/B/A CENTURYLINK QC FOR THE INSTALLATION, MAINTENANCE, AND SERVICE OF SUCH LINES, CABLE, AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE COMMUNICATION SERVICES.
D. CABLE TV FOR THE INSTALLATION, MAINTENANCE, AND SERVICE OF SUCH LINES, CABLE, AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE CABLE SERVICES.

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

EASEMENTS FOR ELECTRIC TRANSFORMER/SWITCHGEARS, AS INSTALLED, SHALL EXTEND TEN (10) FEET IN FRONT OF TRANSFORMER/SWITCHGEAR DOORS AND FIVE (5) FEET ON EACH SIDE.

Disclaimer

IN APPROVING THIS PLAT, PUBLIC SERVICE COMPANY OF NEW MEXICO (PNM), QWEST CORPORATION D/B/A CENTURYLINK QC AND NEW MEXICO GAS COMPANY (NMGC) DID NOT CONDUCT A TITLE SEARCH OF THE PROPERTIES SHOWN HEREON. CONSEQUENTLY, PNM, QWEST CORPORATION D/B/A CENTURYLINK QC AND NMGC DO NOT WAIVE OR RELEASE ANY EASEMENT OR EASEMENT RIGHTS WHICH HAVE BEEN GRANTED BY PRIOR PLAT, REPLAT OR OTHER DOCUMENT AND WHICH ARE NOT SHOWN SPECIFICALLY DESCRIBED AND ON THIS PLAT.

RECORDING STAMP

Legal Description

A TRACT OF LAND LYING AND SITUATE WITHIN THE TOWN OF ALAMEDA GRANT SECTION 1, TOWNSHIP 11 NORTH, RANGE 2 EAST, N.M.P.M, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, COMPRISING OF TRACT D-1, AMAFCA BLACK ARROYO CHANNEL ROW, PARADISE HEIGHTS UNIT 1, CITY OF ALBUQUERQUE, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON JUNE 2, 2009, IN PLAT BOOK 2009C, PAGE 83 NOW COMPRISING OF TRACTS D-1-A, D-1-B, D-1-C AND D-1-D, PARADISE HEIGHTS UNIT 1.

TREASURER'S CERTIFICATE

Purpose of Plat

THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE THE EXISTING ONE TRACT INTO 4 TRACTS, GRANT NEW EASEMENTS, VACATE EXISTING EASEMENTS AND DEDICATE PUBLIC RIGHT-OF-WAY FOR ROADWAY PURPOSES.

Solar Note:

NO PROPERTY WITHIN THE AREA OF REQUESTED FINAL ACTION SHALL AT ANY TIME BE SUBJECT TO A DEED RESTRICTION, COVENANT, OR BINDING AGREEMENT PROHIBITING SOLAR COLLECTORS FROM BEING INSTALLED ON BUILDINGS OR ERRECTED ON THE LOTS OF PARCELS WITHIN THE AREA OF THIS PLAT.

M.R.G.C.D. Note

APPROVED ON THE CONDITION THAT ALL RIGHTS OF THE MIDDLE RIO GRANDE CONSERVANCY DISTRICT IN EASEMENTS, RIGHTS OF WAY, ASSESSMENTS AND LIENS, ARE FULLY RESERVED TO SAID DISTRICT, AND THAT IF PROVISION FOR IRRIGATION SOURCE AND EASEMENTS ARE NOT PROVIDED FOR BY THE SUBDIVIDER FOR THE SUBDIVISION, ADDITION, OR PLAT, SAID DISTRICT IS ABSOLVED OF ALL OBLIGATIONS TO FURNISH IRRIGATION WATERS AND SERVICES TO ANY PORTIONS THEREOF, OTHER THAN FROM EXISTING TURNOUTS.

Free Consent and Dedication

THE SUBDIVISION SHOWN HEREON IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNER. EXISTING PUBLIC UTILITY EASEMENTS SHOWN HEREON FOR THE COMMON AND JOINT USE OF GAS, ELECTRICAL POWER AND COMMUNICATION SERVICES FOR BURIED AND/OR OVERHEAD DISTRIBUTION LINES, CONDUITS, AND PIPES FOR UNDERGROUND UTILITIES WHERE SHOWN OR INDICATED, AND INCLUDING THE RIGHT OF INGRESS AND EGRESS FOR CONSTRUCTION AND MAINTENANCE, AND THE RIGHT TO TRIM INTERFERING TREES AND SHRUBS. SAID OWNER DOES HEREBY CERTIFY THAT THIS SUBDIVISION IS THEIR FREE ACT AND DEED. SAID OWNERS WARRANT THAT THEY HOLD AMONG THEM COMPLETE AND INDEFEASIBLE TITLE IN FEE SIMPLE TO THE LAND SUBDIVIDED.

SAID OWNER DOES HEREBY GRANT ALL EASEMENTS AS SHOWN HEREON WITH LISTED BENEFICIARIES AND STIPULATIONS.

SAID OWNER DOES HEREBY DEDICATE ALL STREETS AND PUBLIC RIGHTS OF WAY SHOWN HEREON TO THE CITY OF ALBUQUERQUE IN FEE SIMPLE WITH WARRANTY COVENANTS.

DENNIS CARPENTER, MANAGING PARTNER DENNIS & GEORGE LLC DATE

Acknowledgment

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) SS

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 2022 BY DENNIS CARPENTER, MANAGING PARTNER OF DENNIS & GEORGE LLC.

BY _____ MY COMMISSION EXPIRES: _____
NOTARY PUBLIC

Plat of
Tracts D-1-A, D-1-B, D-1-C and D-1-D
Paradise Heights, Unit 1
Section 1, Township 11 North, Range 2 East, N.M.P.M.
Albuquerque, Bernalillo County, New Mexico
October 2022

Project No. PR-2022-

Application No. -2022-

Utility Approvals

PNM DATE

NEW MEXICO GAS COMPANY DATE

QWEST CORPORATION D/B/A CENTURYLINK QC DATE

COMCAST DATE

City Approvals

CITY SURVEYOR DATE

TRAFFIC ENGINEERING, TRANSPORTATION DEPARTMENT DATE

A.B.C.W.U.A. DATE

PARKS AND RECREATION DEPARTMENT DATE

AMAFCA DATE

CITY ENGINEER DATE

DRB CHAIRPERSON, PLANNING DEPARTMENT DATE

CODE ENFORCEMENT DATE

MRGCD DATE

Surveyor's Certificate

I, LARRY W. MEDRANO, A LICENSED NEW MEXICO PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF NEW MEXICO, HEREBY CERTIFY THAT THIS SUBDIVISION PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL ON THE GROUND SURVEY AND THAT I AM RESPONSIBLE FOR THIS SURVEY. THIS SURVEY MEETS THE MINIMUM REQUIREMENTS FOR MONUMENTATION AND LAND SURVEYING OF THE CITY OF ALBUQUERQUE SUBDIVISION ORDINANCE AND THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO AS ADOPTED BY THE NEW MEXICO BOARD OF LICENSURE FOR PROFESSIONAL ENGINEERS AND PROFESSIONAL SURVEYORS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

LARRY W. MEDRANO DATE
N.M.P.S. No. 11993

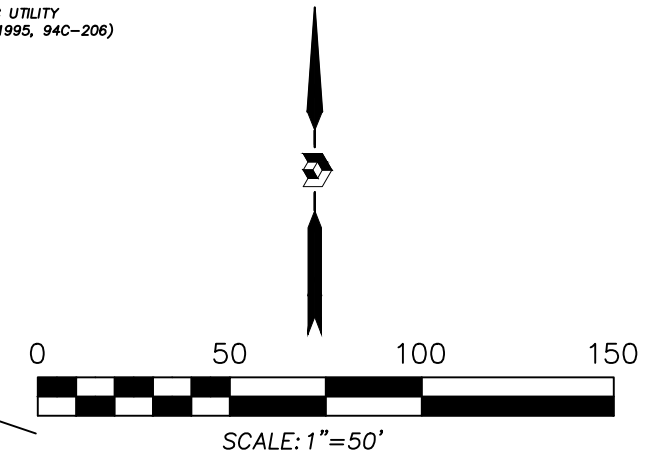


COORDINATE AND DIMENSION INFORMATION						PLSS INFORMATION				INDEXING INFORMATION FOR COUNTY CLERK				PROJECT INFORMATION									
STATE PLANE ZONE: NM-C		GRID /GROUND COORDINATES: GRID		GEIOD: ABQ GEIOD		LAND GRANT TOWN OF ALAMEDA GRANT				PROPERTY OWNER DENNIS & GEORGE LLC				 PRECISION SURVEYS, INC. OFFICE LOCATION: 9200 San Mateo Boulevard, NE Albuquerque, NM 87113 505.856.5700 PHONE 505.856.7900 FAX		CREW/TECH: ML		DATE OF SURVEY 08/17/2022					
HORIZONTAL DATUM: NAD83		VERTICAL DATUM: NAVD88		ROTATION ANGLE: 0° 00' 00.00"		MATCHES DRAWING UNITS YES		SECTION 1		TOWNSHIP 11 NORTH		RANGE 02 EAST				MERIDIAN NMPM		SUBDIVISION NAME PARADISE HEIGHTS, UNIT 1		DRAWN BY: ME		CHECKED BY: LM	
CONTROL USED: ALBUQUERQUE GEODETIC REFERENCE SYSTEM						BASE POINT FOR SCALING AND/OR ROTATION: N = 0 E = 0						CITY ALBUQUERQUE				COUNTY BERNALILLO		STATE NM		UPC 101206651048211303		ADDRESS N/A	
COMBINED SCALE FACTOR: GRID TO GROUND: 1.0003263844 GROUND TO GRID: 0.9996737221						DISTANCE ANNOTATION: GROUND		BEARING ANNOTATION: GRID		ELEVATION TRANSLATION: ±0.00'		ELEVATIONS VALID: NO		PSI JOB NO. 22-8233P		SHEET NUMBER 1 OF 3							

Plat of
Tracts D-1-A, D-1-B, D-1-C and D-1-D
Paradise Heights, Unit 1
Section 1, Township 11 North, Range 2 East, N.M.P.M.
Albuquerque, Bernalillo County, New Mexico
October 2022

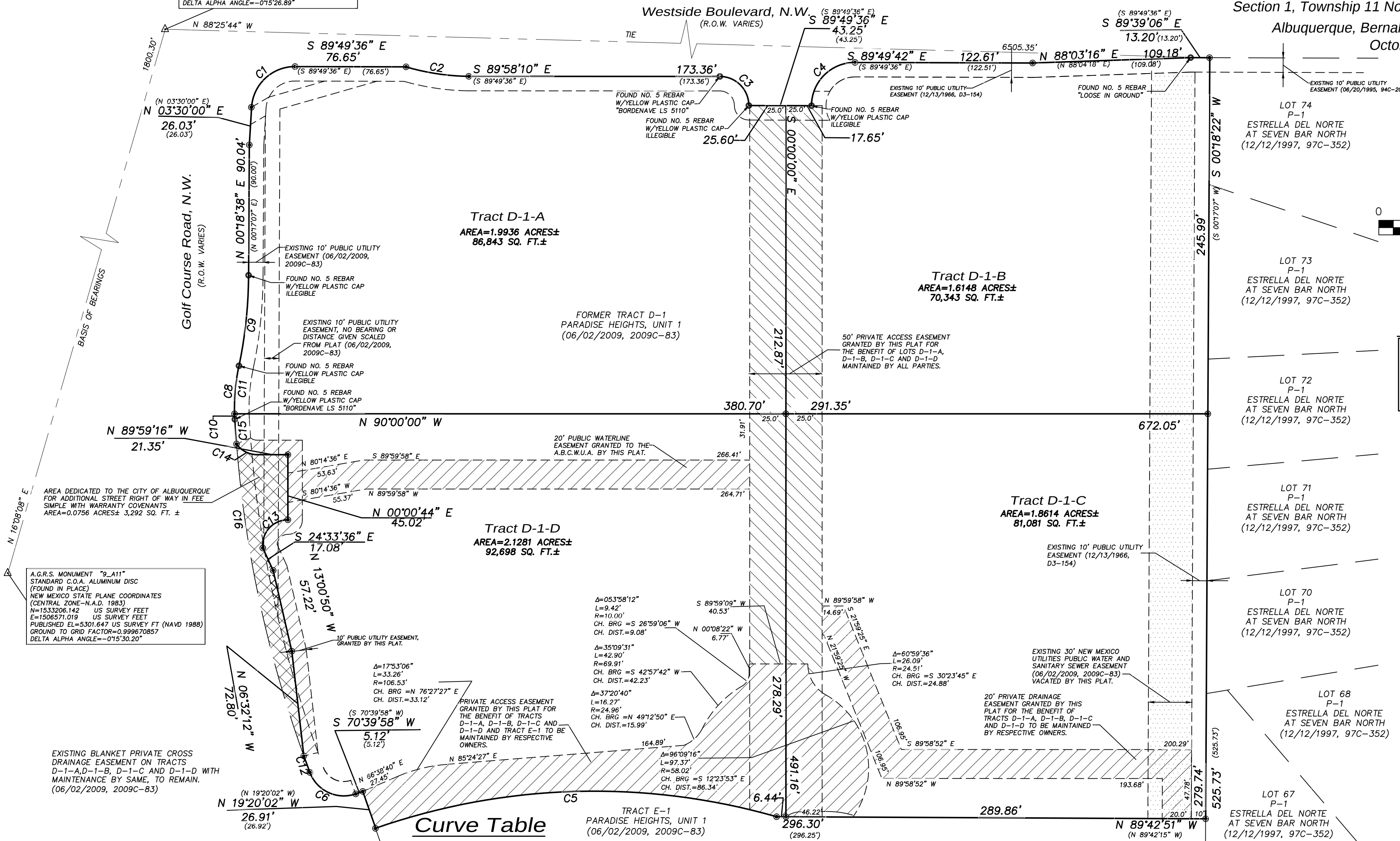
RECORDING STAMP

A.G.R.S. MONUMENT "8_A11"
STANDARD C.O.A. ALUMINUM DISC
(FOUND IN PLACE)
NEW MEXICO STATE PLANE COORDINATES
(CENTRAL ZONE-N.A.D. 1983)
N=1,534,934.957 US SURVEY FEET
E=1,507,071.174 US SURVEY FEET
PUBLISHED EL=5283.03 US SURVEY FT (NAVD 1988)
GROUND TO GRID FACTOR=0.999671590
DELTA ALPHA ANGLE=-0°15'26.89"



Legend

N 90°00'00" E MEASURED BEARING AND DISTANCES
(S 89°49'36" E) RECORD BEARINGS AND DISTANCES
○ FOUND AND USED MONUMENT AS DESIGNATED
● DENOTES NO. 5 REBAR WITH PINK PLASTIC CAP "PS 11993" SET THIS SURVEY
△ FOUND AND USED A.G.R.S. MONUMENT



Curve Table

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	30.00'	45.39'	41.18'	N 46°50'12" E	86°40'52"
(C1)	(30.00')	(45.38')	(41.18')	(S 46°50'12" W)	(86°40'24")
C2	160.00'	43.96'	43.82'	S 81°25'47" E	15°44'29"
(C2)	(160.00')	(43.96')	(43.82')	(S 81°57'23" E)	(15°44'26")
C3	20.00'	31.50'	28.34'	S 44°51'41" E	90°14'35"
(C3)	(20.00')	(31.42')	(28.28')	(N 44°49'36" W)	(90°00'00")
C4	30.00'	47.13'	42.43'	N 45°10'24" E	90°00'35"
(C4)	(30.00')	(47.12')	(42.43')	(S 45°10'24" W)	(90°00'00")
C5	458.00'	281.36'	276.95'	S 88°21'31" W	35°11'51"
(C5)	(458.00')	(283.04')	(278.59')	(S 88°22'12" W)	(35°24'30")
C6	25.00'	38.69'	34.94'	N 65°00'35" W	88°39'42"
(C6)	(25.00')	(38.68')	(34.94')	(S 65°00'35" E)	(88°38'55")
C7	826.23'	250.33'	249.38'	N 11°59'56" W	17°21'35"
(C7)	(825.00')	(250.27')	(249.31')	(S 11°59'41" E)	(16°22'53")
C8	139.23'	37.20'	37.09'	N 04°26'34" E	15°18'30"
(C8)	(140.00')	(37.24')	(37.13')	(S 04°19'02" W)	(15°14'32")
C9	310.24'	62.98'	62.88'	N 06°02'21" E	11°37'55"
(C9)	(310.00')	(63.05')	(62.94')	(N 06°06'42" E)	(11°39'11")
C10	139.23'	33.39'	33.31'	N 02°40'31" W	01°33'54"
C11	139.23'	33.39'	33.31'	N 05°13'37" E	13°44'25"
C12	826.23'	12.23'	12.22'	N 20°05'18" W	00°50'51"
C13	17.36'	29.39'	26.01'	N 41°39'48" W	97°01'27"
C14	17.51'	16.53'	15.93'	N 62°27'10" W	54°06'52"
C15	826.23'	17.07'	17.07'	N 03°54'40" W	01°11'23"
C16	826.23'	221.04'	220.38'	N 12°10'02" W	15°19'41"

See Sheet 3 for Additional A.B.C.W.U.A. Easements and Private Ingress/Egress Easement

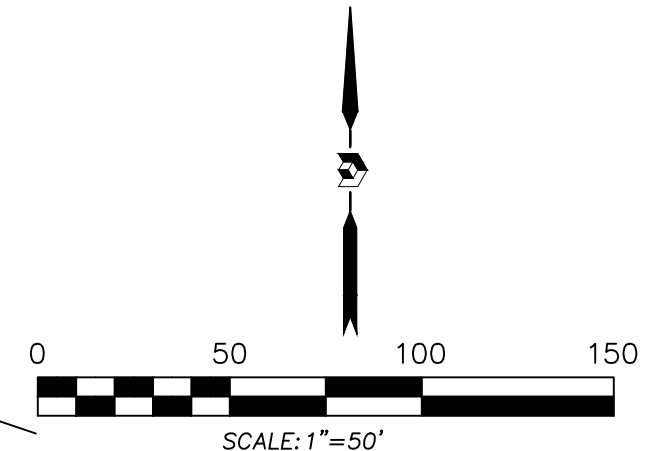


OFFICE LOCATION:
9200 San Mateo Boulevard, NE
Albuquerque, NM 87113

505.856.5700 PHONE
505.856.7900 FAX

PROJECT INFORMATION	
CREW/TECH: ML	DATE OF SURVEY 08/17/2022
DRAWN BY: ME	CHECKED BY: LM
PSI JOB NO. 22-8233P	SHEET NUMBER 2 OF 3

Plat of
Tracts D-1-A, D-1-B, D-1-C and D-1-D
Paradise Heights, Unit 1
Section 1, Township 11 North, Range 2 East, N.M.P.M.
Albuquerque, Bernalillo County, New Mexico
October 2022

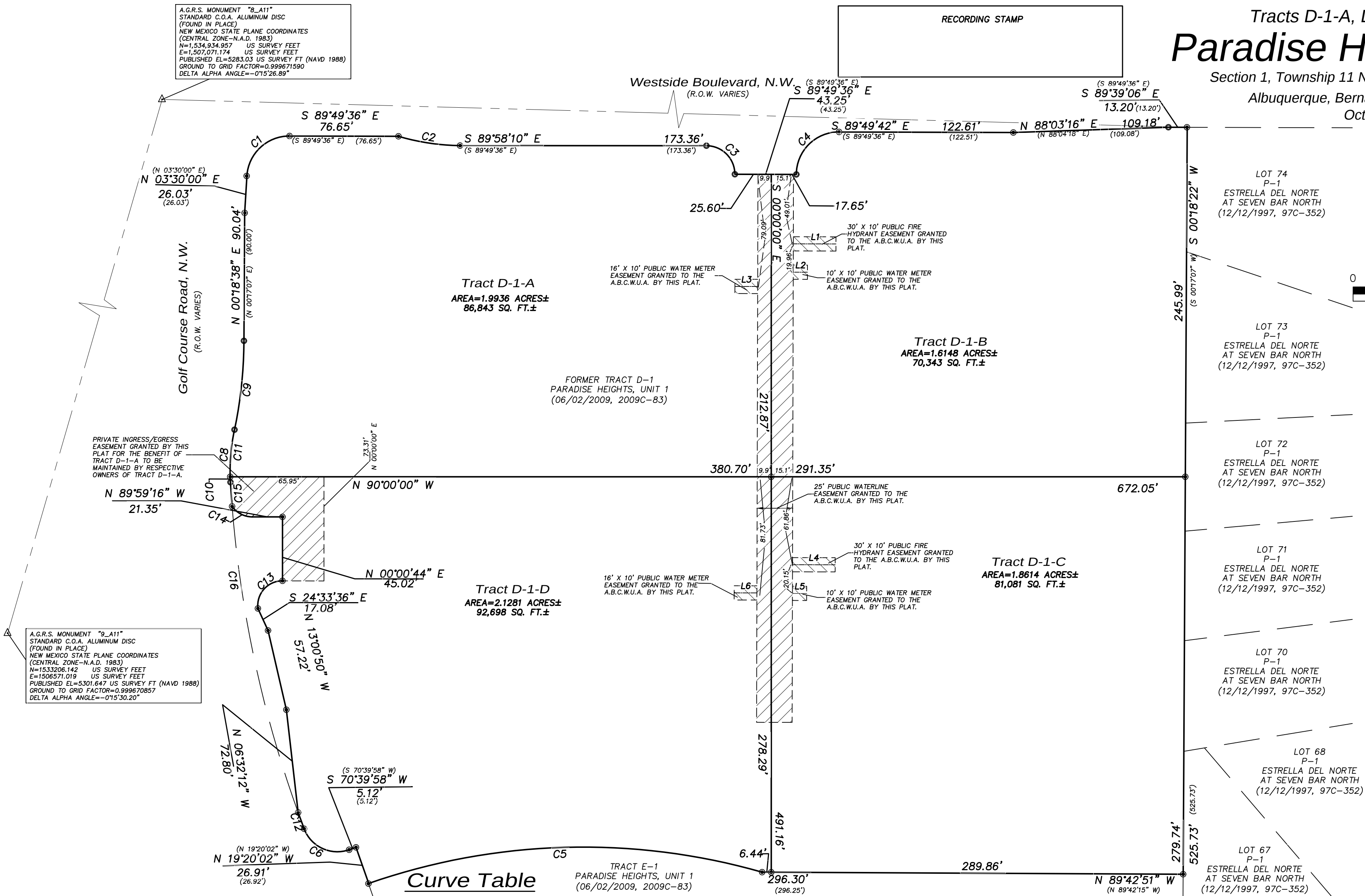


Legend

N 90°00'00" E MEASURED BEARING AND DISTANCES
(S 89°49'36" E) RECORD BEARINGS AND DISTANCES
○ FOUND AND USED MONUMENT AS DESIGNATED
● DENOTES NO. 5 REBAR WITH PINK PLASTIC CAP "PS 11993" SET THIS SURVEY
△ FOUND AND USED A.G.R.S. MONUMENT

A.G.R.S. MONUMENT "8_A11"
STANDARD C.O.A. ALUMINUM DISC
(FOUND IN PLACE)
NEW MEXICO STATE PLANE COORDINATES
(CENTRAL ZONE-N.A.D. 1983)
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E=1,507,071.174 US SURVEY FEET
PUBLISHED EL=5283.03 US SURVEY FT (NAVD 1988)
GROUND TO GRID FACTOR=0.999671590
DELTA ALPHA ANGLE=-0°15'26.89"

RECORDING STAMP



A.G.R.S. MONUMENT "9_A11"
STANDARD C.O.A. ALUMINUM DISC
(FOUND IN PLACE)
NEW MEXICO STATE PLANE COORDINATES
(CENTRAL ZONE-N.A.D. 1983)
N=1533206.142 US SURVEY FEET
E=1506571.019 US SURVEY FEET
PUBLISHED EL=5301.647 US SURVEY FT (NAVD 1988)
GROUND TO GRID FACTOR=0.999670857
DELTA ALPHA ANGLE=-0°15'30.20"

Easement Centerline Table

LINE	BEARING	DISTANCE
L1	N 89°51'24" W	30.01'
L2	N 89°51'24" E	10.00'
L3	S 89°51'24" E	16.01'
L4	N 89°51'24" W	30.01'
L5	N 89°51'24" W	10.00'
L6	N 89°51'24" W	16.01'

Curve Table

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	30.00'	45.39'	41.18'	N 46°50'12" E	86°40'52"
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C3	20.00'	31.50'	28.34'	S 44°51'41" E	90°14'35"
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C7	826.23'	250.33'	249.38'	N 11°59'56" W	17°21'35"
C8	139.23'	37.20'	37.09'	N 04°26'34" E	15°18'30"

C9	310.24'	62.98'	62.88'	N 06°02'21" E	11°37'55"
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C11	826.23'	12.23'	12.22'	N 20°05'18" W	00°50'51"
C12	17.36'	29.39'	26.01'	N 41°39'48" W	97°01'27"
C13	17.51'	16.53'	15.93'	N 62°27'10" W	54°06'52"
C14	826.23'	17.07'	17.07'	N 03°54'40" W	01°11'23"
C15	826.23'	221.04'	220.38'	N 12°10'02" W	15°19'41"



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PROJECT INFORMATION	
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PSI JOB NO. 22-8233P	SHEET NUMBER 3 OF 3