CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director

Mayor Timothy M. Keller

June 22, 2022

Dana Peterson, P.E.
AECOM
6501 Americas Parkway NE, Suite 900
Albuquerque, NM 87110

RE: PNM – Prosperity Substation
Drainage Report
Engineer's Stamp Date: 05/23/22
Hydrology File: Q15D002
CPN # 732579

Dear Mr. Peterson:

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Based upon the information provided in your submittal received 06/02/2022, the Drainage Report is **not** approved for Work Order. The following comments need to be addressed for approval of the above referenced project:

1. The Tijeras Arroyo north of Los Picaros near this site lies on private property. Currently there is no public drainage easement granted to either Bernalillo County or AMAFCA. Therefore, any outfall into the Tijeras Arroyo will be subject to the Property Owner granting a Public Drainage Easement to the City for the section of storm drain pipe on private property (within the arroyo) and approval of any outfall to the arroyo by the Property Owner. Additionally, the outfall will need to be coordinated with the Sunport South Master Drainage Plan which affects the Tijeras Arroyo in the locations of the proposed outfalls. The City will need copies of both the easement and the agreement with the Property Owner on the outfalls prior to granting approval for the Work Order.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette

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

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

Project Title: Prosperity Substation **Building Permit #**_____ **Hydrology File #** Q15D___
DRB#_____ **EPC#**_____
Legal Description: Tract A-1 and Tract B, Sunset Memorial Park City Address OR Parcel Los Picaros Rd SE
Applicant/Agent: AECOM **Contact:** Dana Peterson
Address: 6501 Americas Pkwy NE Suite 900 Albuquerque, NM 87110 **Phone:** 505-539-0410
Email: dana.peterson1@aecom.com

Applicant/Owner: PNM **Contact:** _____
Address: _____ **Phone:** _____
Email: _____

TYPE OF DEVELOPMENT: ___PLAT (#of lots) __RESIDENCE __DRB SITE ___ ADMIN SITE: __X_
RE-SUBMITTAL: _____YES __X__ NO

DEPARTMENT: _____TRANSPORTATION __X__ HYDROLOGY/DRAINAGE
Check all that apply:

TYPE OF SUBMITTAL:

___ENGINEER/ARCHITECT CERTIFICATION
___PAD CERTIFICATION
___CONCEPTUAL G&D PLAN
__XGRADING PLAN
__X 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
__X WORK ORDER APPROVAL
___CLOMR/LOMR
___FLOOD PLAN DEVELOPMENT PERMIT
___OTHER (SPECIFY)_____

DATE SUBMITTED: 6/6/2022

Prosperity Substation

Drainage Report

Prepared for: PNM

AECOM Project Number: 60664881

May 2022

AECOM Imagine it. Delivered.

PNM

This report, entitled Prosperity Substation Drainage Report, was prepared by me or directly under my supervision.

05/23/2022

Dana M Peterson, PE

New Mexico PE Number 23231

Table of Contents

Attachments

Purpose

The purpose of this report is to determine pre- and post- runoff drainage characteristics and drainage design for the new PNM substation on Los Picaros Rd, between I-25 and University Blvd.

Introduction

Project Location

The project is located in Zone Atlas Grid Q15 on Tract A-1 and Tract B, Sunset Memorial Park, see below (Figure 1). PNM is also the owner of the lot to west (Tract A-2, Sunset Memorial Park); the existing plats are included as Attachment 1-1.

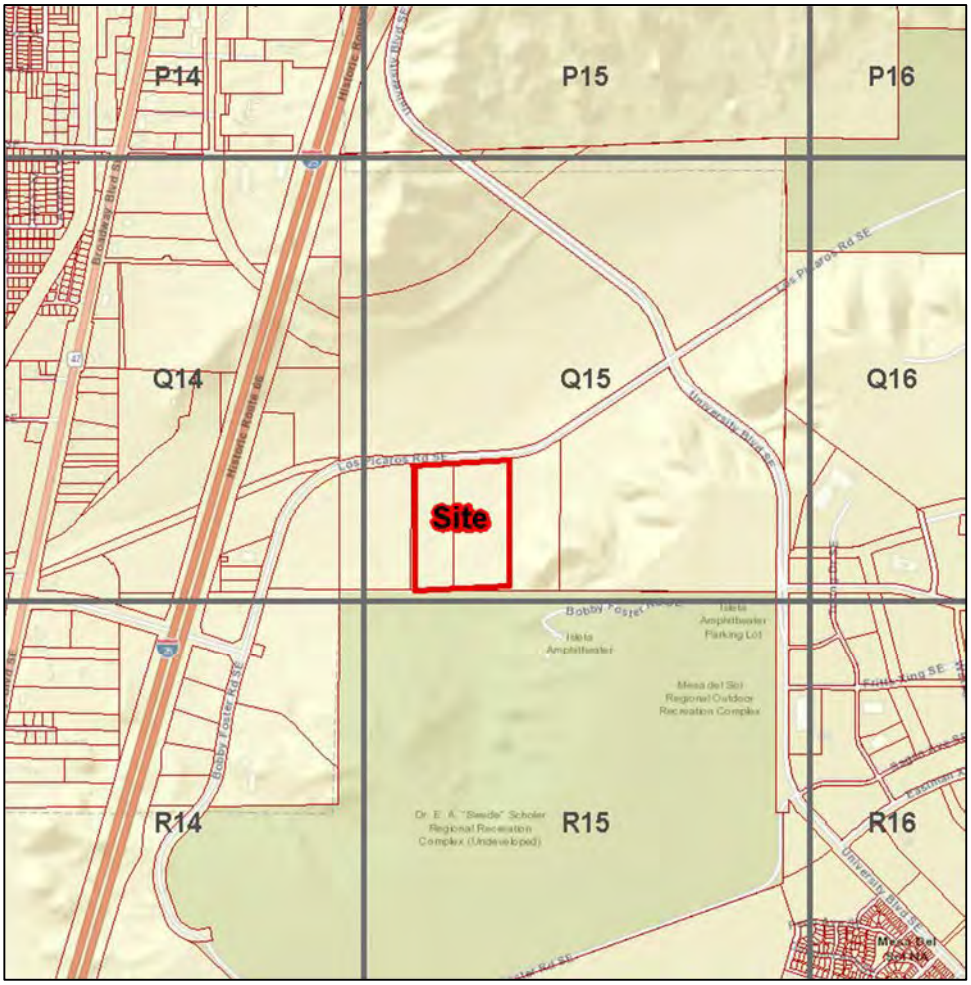


Figure 1: Project location

The Site is located in unincorporated Bernalillo County and takes access off Los Picaros Rd, a City of Albuquerque maintained road in unincorporated Bernalillo County. The adjacent properties to the south- Isleta Amphitheater, the Scholer Regional Recreational Complex, and the closed South Broadway Landfill are within the Albuquerque City limits; portions of these lands drain into the site.

Floodplain

This project is not located in a Special Flood Hazard Area per FEMA FIRM Panel: 35001C0344G effective: 9/26/2008 (Figure 2):

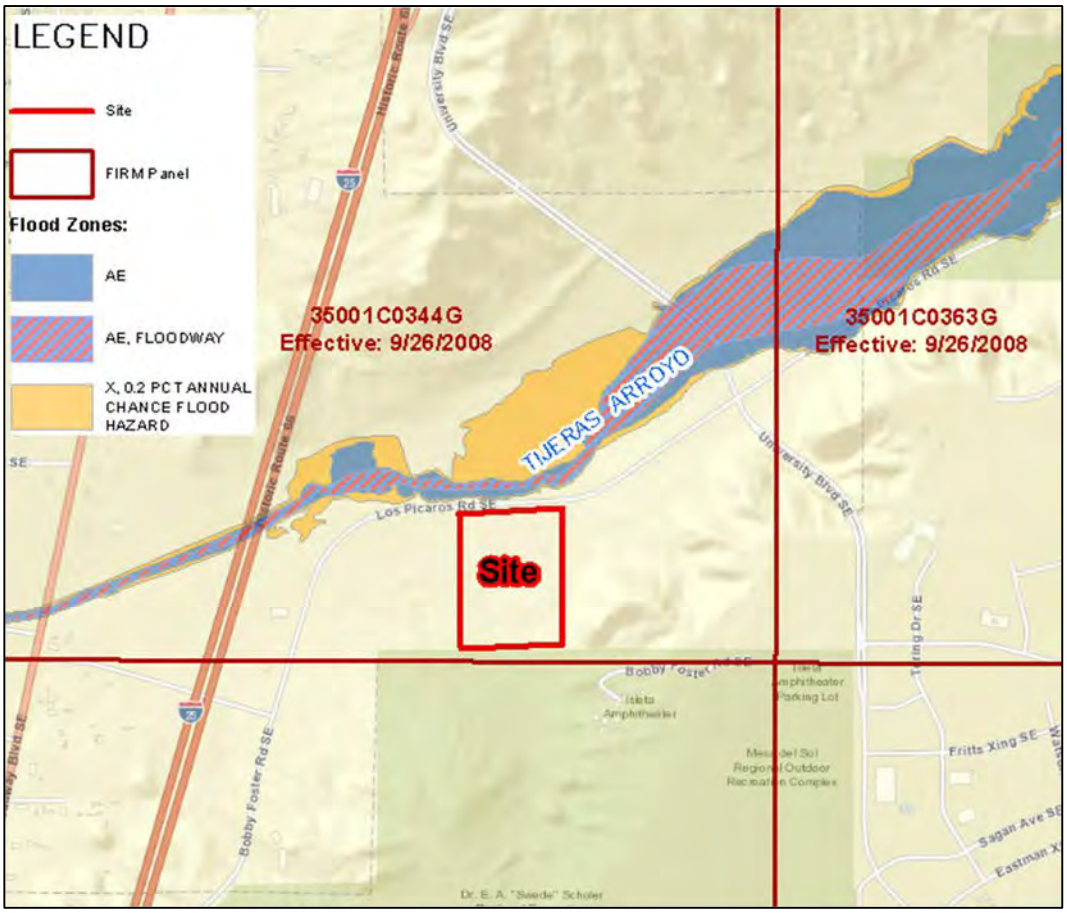


Figure 2: FEMA FIRM excerpt

This project is designed to result in no adverse impact to downstream floodplains, namely the Tijeras Arroyo Floodway and Floodplain.

Hydrology

The purpose of the existing and proposed Hydrology is to demonstrate that the proposed development will have no adverse impact on downstream capacity as it will not modify the discharge locations in a way that negatively impacts adjacent properties, including Los Picaros Road Right-of-Way (ROW).

Hydrology Design Data

Elevation data for the offsite contributing drainage areas was obtained from 2010 Bernalillo County LiDAR with 1-2ft vertical accuracy (BernCo, 2010). All elevation data herein is presented in NAVD 88; horizonal data is in NAD83/New Mexico State Plan Coordinate System -Central (US Foot).

The following hydrologic inputs and assumptions were used:

- Software: HEC-HMS 4.7
- Runoff Method: SCS Curve Numbers w/ CABQ Land Treatments (A, B, C, & D)
- Storm: 100-year, 24-hour storm with peak at hour 12
- Precipitation Data: NOAA Atlas 14, at centroid of study area, see Attachment 1-2
- Time of Concentration: SCS Upland method, per DPM 6-2(B)(2)
- Lag time: SCS Curve Number method, per DPM 6-2(B)(3)

Existing Hydrology

The existing drainage is divided as shown in Figure 3 and in greater detail as Attachment 2-1. Hydrologic inputs are provided in Attachment 2-2; HEC-HMS model development and model results are provided in Attachment 2-3.

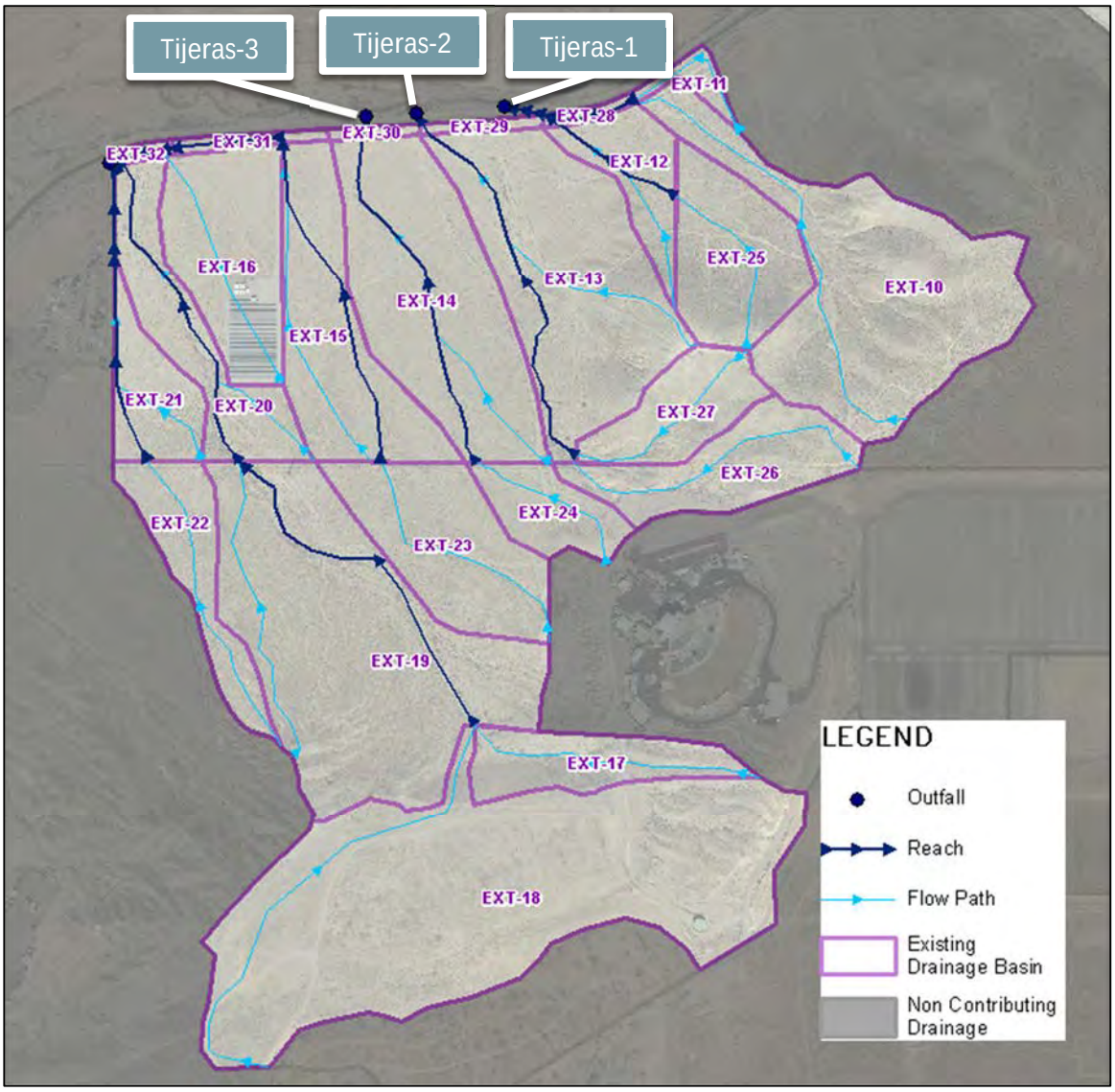


Figure 3: Existing drainage patterns

- Basins EXT-10, EXT-11, EXT-12, EXT-25, and EXT -28 discharge across Los Picaros Rd and into the Tijeras Arroyo at outfall "Tijeras-1". These flows are adjacent (east) to the project site and do not impact the project site but will be wholly or partially captured and attenuated by the construction of a detention pond.
- Basins EXT-13, EXT-26, EXT-27, and EXT-29 discharge across Los Picaros Rd and into the Tijeras Arroyo at outfall "Tijeras-2". These flows impact the eastern side of the project site and will be impacted by the project.
- Basins EXT-14, EXT-24, and EXT-30 discharge into the Tijeras Arroyo at outfall "Tijeras-3". These flows impact the center of the project area and will be impacted by the project.
- Basins EXT-15, EXT-23, and EXT-31 discharge to a swale along the south side of Los Picaros Rd, then to outfall "LosPicaros-1". These flows impact the western side of the project area and will be impacted by the project.
- Basins EXT-19 and EXT-20 discharge to a swale along the south side of Los Picaros Rd then to outfall "LosPicaros-1". These flows are adjacent (west) to the project site and do not impact the project site, but a small portion of these basins will be captured by the construction of a detention pond.
- Basins EXT-16, EXT-17, EXT-18, EXT-21, EXT-22, and EXT-32 discharge to a swale along the south side of Los Picaros Rd then to outfall "LosPicaros-1". These flows are adjacent (west) to the project site and do not impact the project site nor will they be impacted by the project.

The existing site and surrounding drainage is moderately sloped desert scrub (Figure 4). Gradual slopes (0-10%) were assigned CABQ Land Treatment A, moderate slopes (11-20%) were assigned Treatment B, and steep slopes (21% +) were assigned Treatment C.

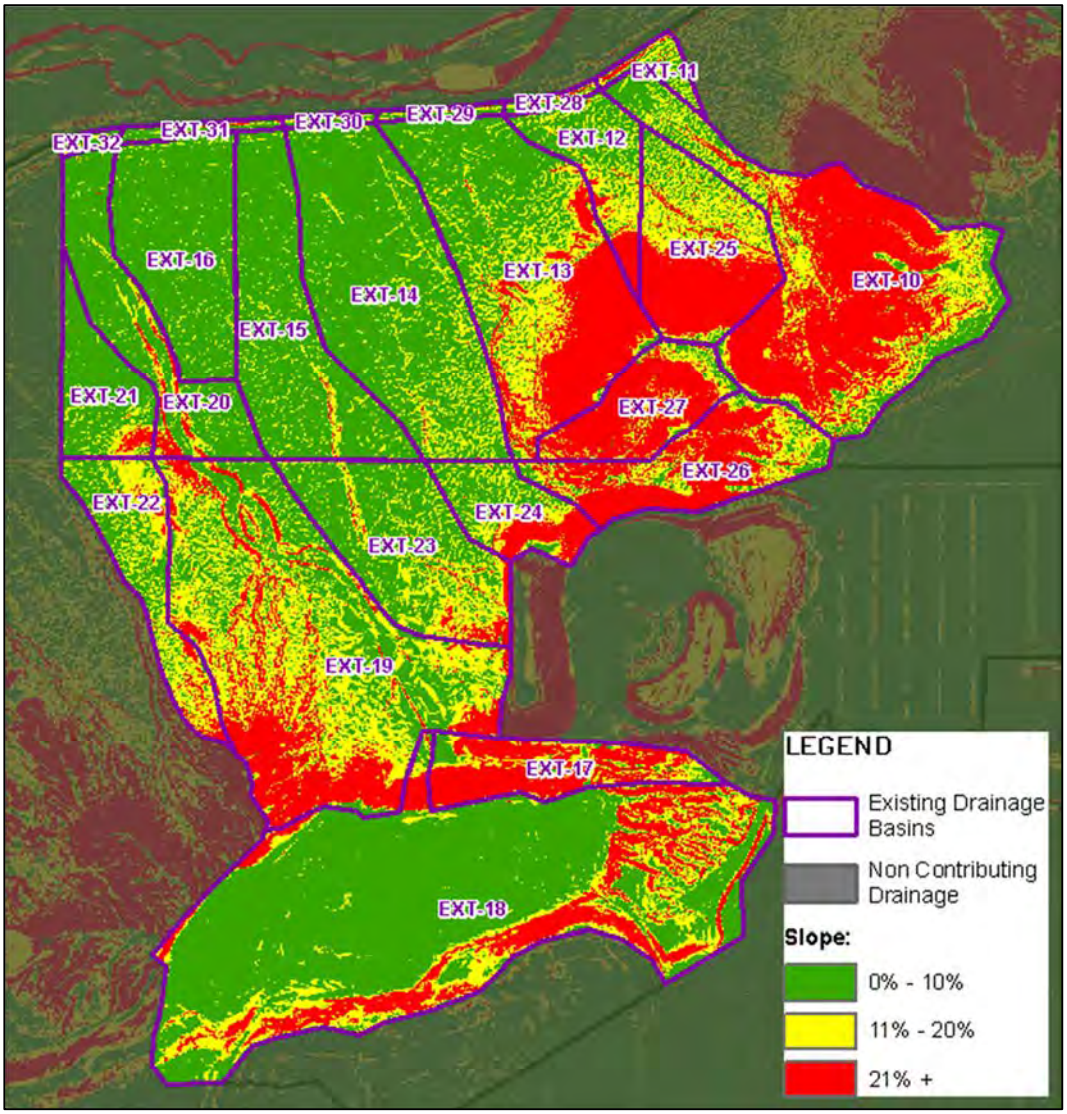


Figure 4: Contributing drainage area slopes

Slope was the primary driver for land treatment and curve number selection, with the following exceptions:

- Basin EXT-18. A substantial portion of this basin is the closed South Broadway Landfill; land treatments were adjusted to Treatment C, for landfill cap, over the landfill area.
- Basins- EXT-11, EXT-28, EXT29, EXT-30, EXT-31, and EXT-32. These basins are the Los Picaros Right-of-Way (ROW) (EXT-11 does contain a portion of private land) and were adjusted to include the paved road (Treatment D); remaining ROW was adjusted to Treatment C, for soils compacted by human activity.
- Basin EXT-16. This includes the existing PNM solar site. The solar site and gravel access road were adjusted to Treatment C, for soils compacted by human activity.

Proposed Hydrology

The proposed drainage area is divided as shown in Figure 5 and in greater detail as Attachment 3-1. Hydrologic inputs are provided in Attachment 3-2; HEC-HMS model development and model results are provided in Attachment 3-3.

The proposed grading will reroute drainage as follows:

- The delineations of basins EXT-12, EXT-13, EXT-14, EXT-15, EXT-19, EXT-20, EXT-23, EXT-24, EXT-26, EXT-28, EXT-29, EXT-30, and EXT-31 will be adjusted due to the proposed grading and relabeled using "PROP" instead of "EXT."
- The delineations of basins EXT-10, EXT-11, EXT-16, EXT-17, EXT-18, EXT-21, EXT-22, EXT-25, EXT-27, and EXT-32 will not be adjusted by the proposed grading, but will also be relabeled using "PROP" instead of "EXT."
- The discharges from PROP-26 and PROP-27 will combine and continue into basin PROP-13. The combined discharge from these basins empties into the East Pond.
- The discharge from PROP-14 and PROP-24 will be redirected around the proposed substation and will empty into the East Pond.
- The East Pond also receives the discharge from PROP-10, PROP-12, and PROP-25. Excess flow from the East Pond will be routed across Los Picaros Rd to the "Tijeras1" outlet.
- The discharge from PROP-37 will join with the discharge from PROP-23, which will be extended to drain into the West Pond at the north end of PROP-38.
- The West Pond also receives the discharge from PROP-15 and PROP-38, and the redirected discharge around the proposed substation from PROP-40. Excess flow from the West Pond will be routed north and join with the rerouted discharge from PROP-34, then continue across Los Picaros Rd to the "Tijeras2" outlet.

Downstream Capacity: Existing vs. Proposed

For the existing condition, the three Tijeras outlets on the north side of Los Picaros Rd were selected based on imagery and low points in the terrain. For the proposed condition, two concrete storm drains will be constructed to discharge flow under Los Picaros Rd and into the Tijeras Arroyo. The overall change in onsite flow and volume is shown below in Table 1:

Table 1: Change in Onsite Flow and Volume: Existing vs. Proposed

EXISTING			PROPOSED				
Discharge Point	Q_{100} (cfs)	V_{100} (Ac-Ft)	Storm Drain	Q_{100} (cfs)	V_{100} (Ac-Ft)		
Tijeras-1. Low point in road	96.1	4.0	Tijeras-1. East Pond outlet pipe	114.0	6.8		
Tijeras-2. Low point in road	82.0	3.5	Tijeras-2. West Pond outlet pipe	51.6	4.0	Change in Flow (cfs)	Change in Volume (Ac-Ft)
Tijeras-3. Low point in road	43.5	1.9					
Total:	221.6	9.4	Total:	165.6	10.8	-56.0	+1.4

The proposed grading also slightly decreases the contributing flow along the south side of Los Picaros Road via adjacent swales. The majority of this flow is discharged across Los Picaros Road and into the Tijeras Arroyo. The values below are conservative because on multiple occasions, the roadside ditch is silted in due to the sediment transport conveyed through the site, which can diminish the overall capacity. The change in offsite flow and volume at each outlet is shown below in Table 2:

Table 2: Change in Offsite Flow and Volume

Outlet ID	EXISTING		PROPOSED		Change in Flow (cfs)	Change in Volume (Ac-Ft)
	Q_{100} (cfs)	V_{100} (Ac-Ft)	Q_{100} (cfs)	V_{100} (Ac-Ft)		
R105/R205	63.9	4.0	58.7	4.0	-5.2	0

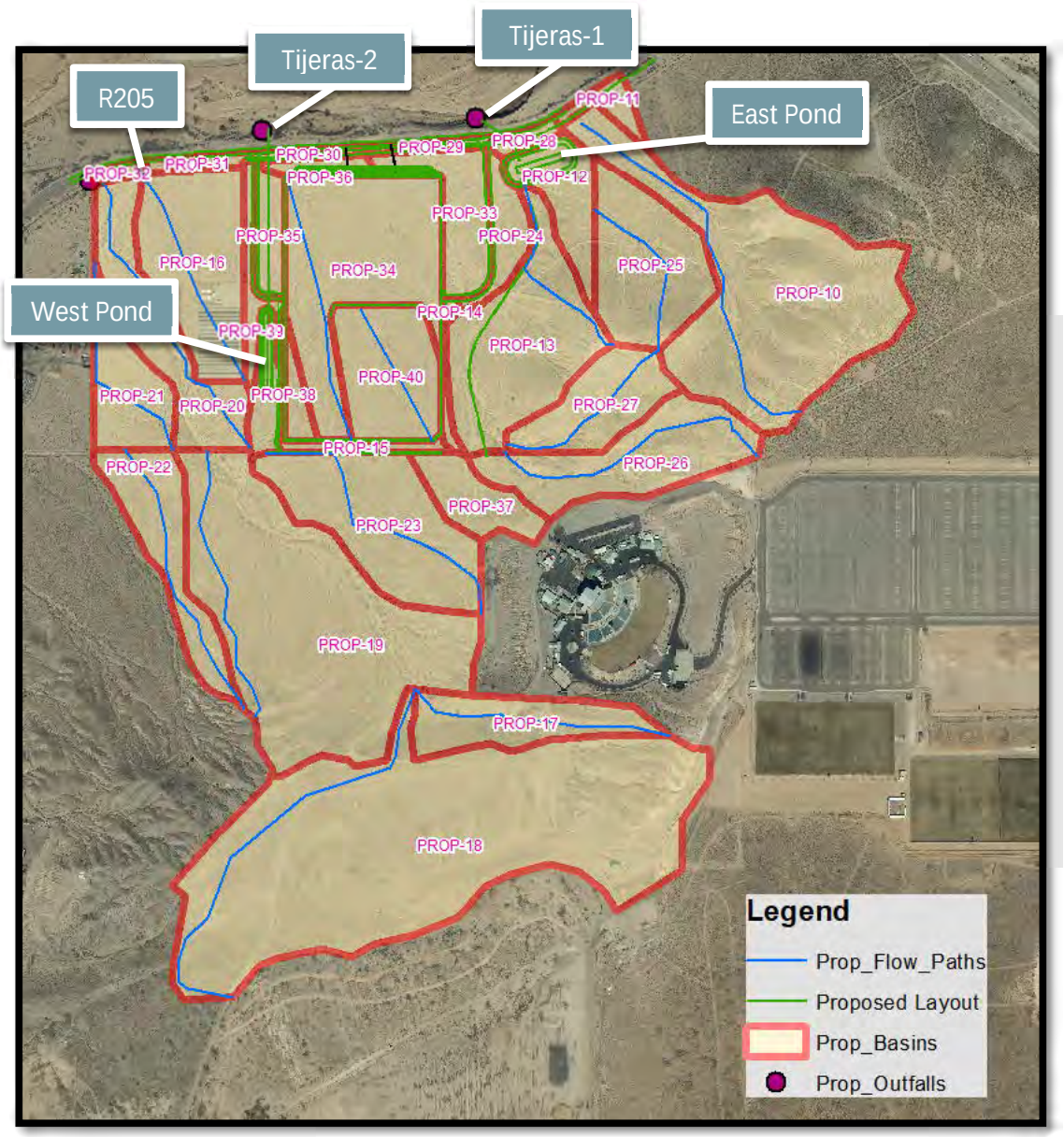


Figure 5: Proposed drainage patterns

Proposed Hydraulics

The calculated flows from the proposed HMS model were used in FlowMaster to size the storm drains that will discharge onsite flow from the proposed ponds into the Tijeras Arroyo. The concrete pipes will carry flow under the Los Picaros Road from the East Pond and West Pond as shown below in Figure 6 and Figure 7, respectively:

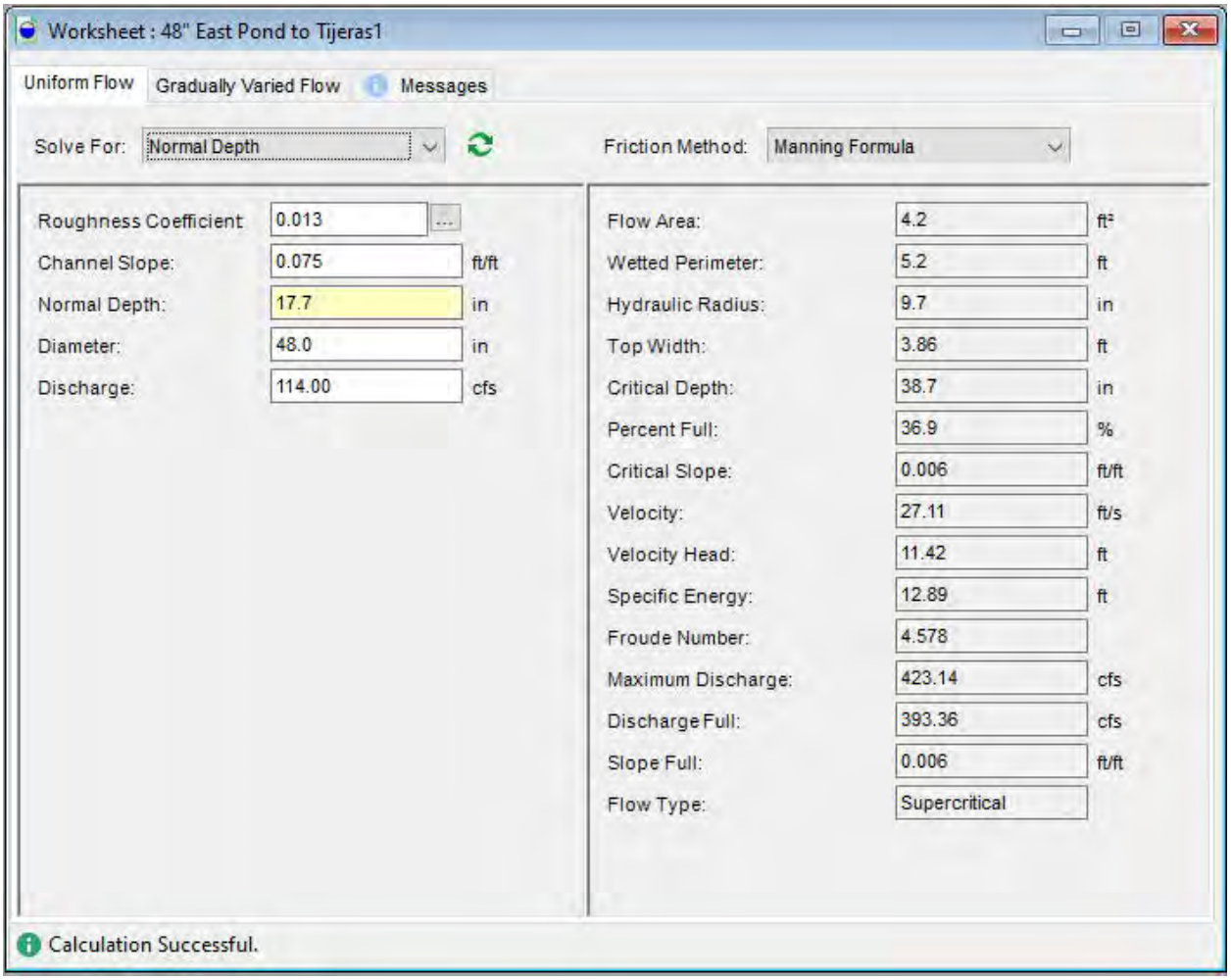


Figure 6: FlowMaster Calculation for 48" Storm Drain from East Pond to Tijeras1 Outlet

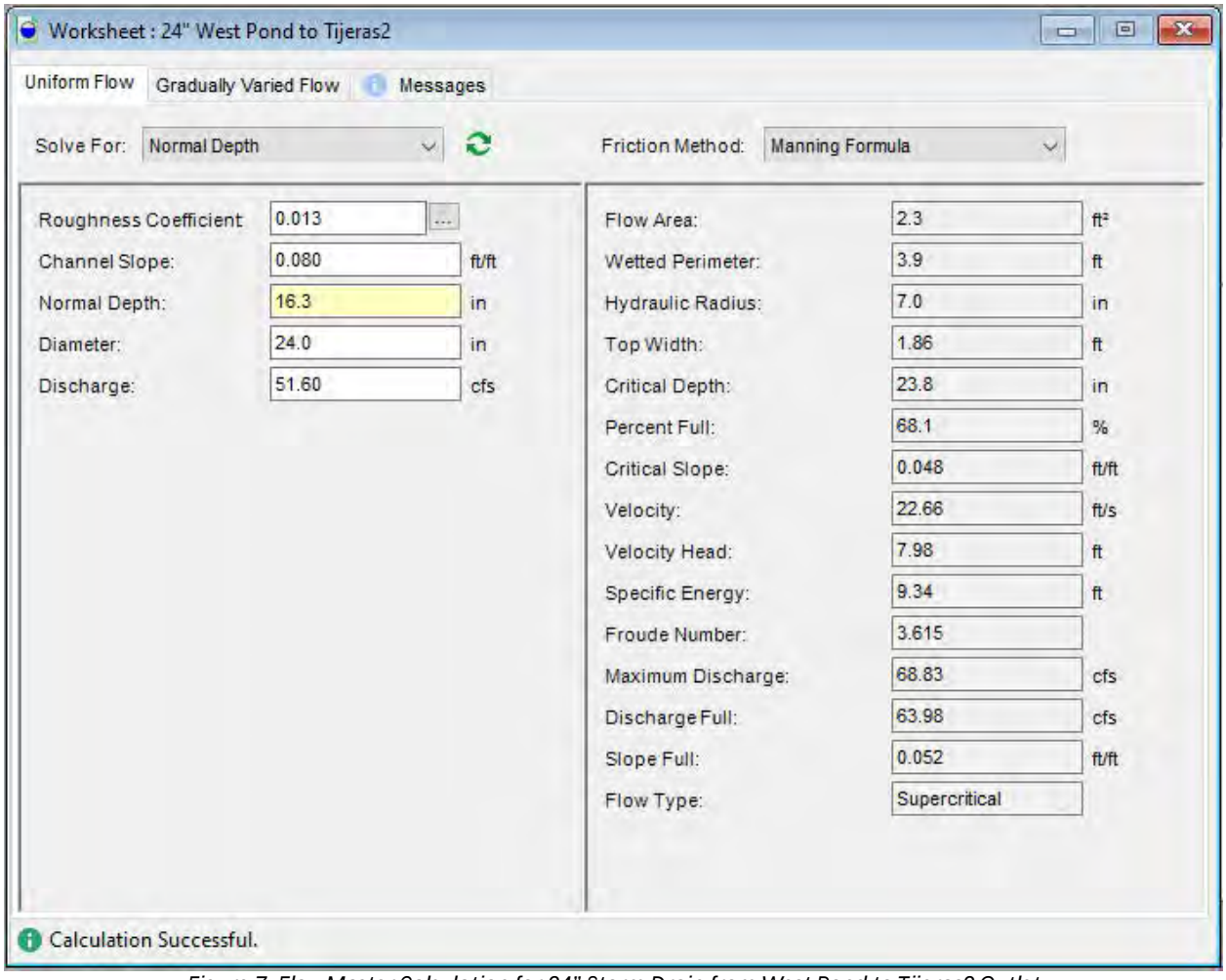


Figure 7: FlowMaster Calculation for 24" Storm Drain from West Pond to Tijeras2 Outlet

Due to the steep slopes of the outlet pipes, the pipes will flow partially full and supercritical, meaning the pond outflow will be regulated by the headwater depth at the outfall, modeled as an orifice. Pond storage tables were developed from the proposed pond grading plans and orifice rating tables generated using a simple orifice equation as shown below in Table 3 and Table 4:

Table 3: West Pond Storage and Orifice Information

West Pond Storage Table

Description	Pond Depth	Elevation	Surface Area	Ave End Volume	Cumulative Volume
	Ft	Ft	Sq Ft	Ac-Ft	Ac-Ft
bottom of pond:	0	5077	157	0	0.000
	1	5078	9259	0.108	0.108
	2	5079	11809	0.242	0.350
	3	5080	14415	0.301	0.651
	4	5081	17079	0.362	1.012
top of pond:	5	5082	19798	0.423	1.436

West Pond - Simple Orifice

Q=Ca(2gh)^0.5

Circular orifice, sharp edge outlet pipe

Orifice Dia	2	ft
C coeffic.	0.6	unitless
g	32.2	ft/s^2
area	3.142	sf

West Pond Outlet Rating Table

depth from orifice invert	h	Q
ft	ft	cfs
0.00	-1.00	0
0.25	-0.75	
0.50	-0.50	
0.75	-0.25	
1.00	0.00	
1.25	0.25	
1.50	0.50	
1.75	0.75	
2.00	1.00	
2.25	1.25	
2.50	1.50	
2.75	1.75	
3.00	2.00	21.4
3.25	2.25	22.7
3.50	2.50	23.9
3.75	2.75	25.1
4.00	3.00	26.2
4.25	3.25	27.3
4.50	3.50	28.3
4.75	3.75	29.3
5.00	4.00	30.3

Table 4: East Pond Storage and Orifice Information

East Pond Storage Table

Description	Pond Depth	Elevation	Surface Area	Ave End Volume	Cumulative Volume
	Ft	Ft	Sq Ft	Ac-Ft	Ac-Ft
bottom of pond:	0	5055	162	0	0.000
	1	5056	7800	0.091	0.091
	2	5057	11578	0.222	0.314
	3	5058	13425	0.287	0.601
	4	5059	15500	0.332	0.933
	5	5060	17466	0.378	1.311
	6	5061	19668	0.426	1.737
	7	5062	21843	0.476	2.214
	8	5063	23983	0.526	2.740
	9	5064	26179	0.576	3.316
	10	5065	28764	0.631	3.946
	11	5066	31180	0.688	4.634
	12	5067	33701	0.745	5.379
	13	5068	36349	0.804	6.183
	14	5069	39342	0.869	7.052
top of pond:	15	5070	42504	0.939	7.992

East Pond - Simple Orifice

Q=Ca(2gh)^0.5

Circular orifice, sharp edge outlet pipe

Orifice Dia	4	ft
C coeffic.	0.6	unitless
g	32.2	ft/s^2
area	12.566	sf

East Pond Outlet Rating Table

depth from orifice invert	h	Q
ft	ft	cfs
0.00	-2.00	0
0.50	-1.50	
1.00	-1.00	
1.50	-0.50	
2.00	0.00	
2.50	0.50	
3.00	1.00	
3.50	1.50	
4.00	2.00	
4.50	2.50	
5.00	3.00	
5.50	3.50	
6.00	4.00	121.0
6.50	4.50	128.4

depth from orifice invert	h	Q
ft	ft	cfs
7.00	5.00	135.3
7.50	5.50	141.9
8.00	6.00	148.2
8.50	6.50	154.3
9.00	7.00	160.1
9.50	7.50	165.7
10.00	8.00	171.1
10.50	8.50	176.4
11.00	9.00	181.5
11.50	9.50	186.5
12.00	10.00	191.3
12.50	10.50	196.1
13.00	11.00	200.7
13.50	11.50	205.2
14.00	12.00	209.6
14.50	12.50	213.9
15.00	13.00	218.2

The East and West Ponds and associated rating curves were modeled within HEC-HMS to determine their respective water surface elevations, storage volumes and outflow for the 100-yr event. These outputs are summarized below (Table 5):

Table 5: Pond Summary Results

West Pond Summary Results, 100-yr Event		
Peak Inflow:	64.8	cfs
Peak Outflow:	26.5	cfs
Storage:	0.896	Ac-Ft
Max Depth:	4.1	ft
Water Surface Elevation:	5081.1	ft

East Pond Summary Results, 100-yr Event		
Peak Inflow:	164.1	cfs
Peak Outflow:	114.0	cfs
Storage:	1.135	Ac-Ft
Max Depth:	5.5	ft
Water Surface Elevation:	5060.5	ft

Storm Water Quality

No impervious surfaces are proposed with this development; therefore, no retention of storm water is included with this project.

References and Data Sources

BernCo. "LiDAR-derived, Topographic Contours – Bernalillo County." Bohannan-Huston, Inc. 2010.

CABQ. "Albuquerque Development Process Manual: Chapter 6, Drainage, Flood Control, and Erosion Control." 2020.

NOAA. "Point Precipitation Frequency Estimates." Version: NOAA Atlas 14, Volume 1, Version 5. Retrieved April, 2021.

Attachment 1

Supporting Documents

1-1 Existing Plat

1-2 NOAA 14 Precipitation

1-1 Existing Plat

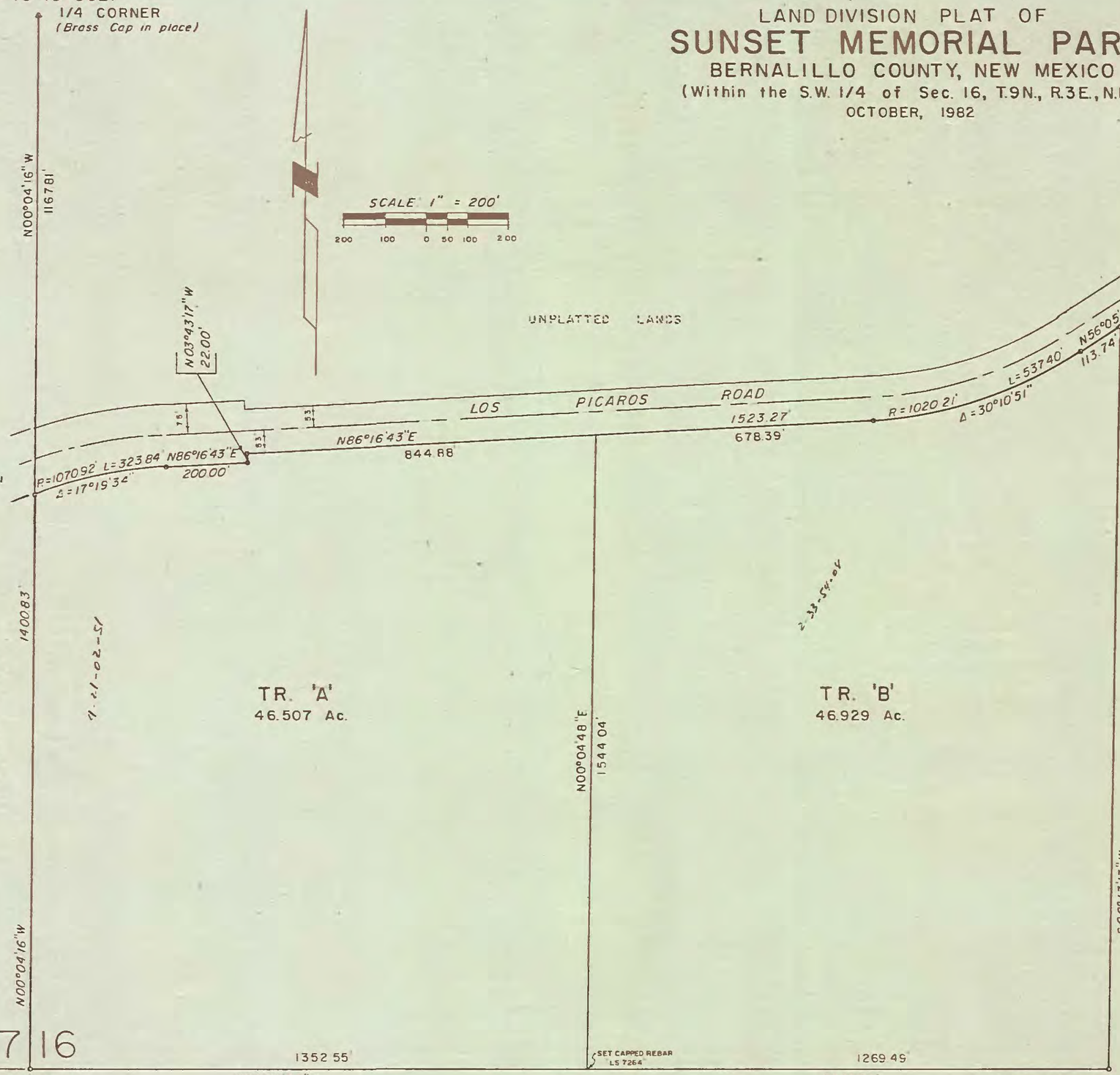
SP 10-19-0621

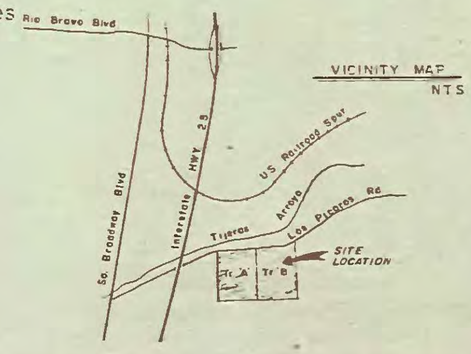
LAND DIVISION PLAT OF
SUNSET MEMORIAL PARK
BERNALILLO COUNTY, NEW MEXICO
(Within the S.W. 1/4 of Sec. 16, T.9N., R.3E., N.M.P.M.)
OCTOBER, 1982

82 59934

State of New Mexico } ss
County of Bernalillo }
This instrument was filed for record
on NOV 16 1982
At 11 o'clock A.m. Recorded in Vol. C20
of records of said County Folio 57
Clerk & Recorder
Deputy Clerk

11/16/82





DESCRIPTION:

A Land Division Plat of a certain Tract of Land, lying and being situate in the Southwest Quarter (SW¼) of Section 16, Township 9 North, Range 3 East, N.M.P.M., Bernalillo County, New Mexico, and being more particularly described as follows:
BEGINNING at the Southwest corner of said Section 16, being an Iron Pipe in place, and running -
THENCE, N. 00 deg. 04' 16" W., along the West line of said Section 16, a distance of 1571.64 feet to the North line of an existing road known as Los Picaros Road;
THENCE, along the North line of said Los Picaros Road, N. 86 deg. 16' 43" E., a distance of 2030.94 feet to a point of curve to the left;
THENCE, Northeasterly along the arc of said curve to the left with a Radius of 914.21 feet, a distance along arc of 481.56 feet to a point of tangent;
THENCE, N. 56 deg. 05' 52" E., along the Northerly line of said Los Picaros Road, a distance of 185.53 feet to a point on the North-South 1/4 Section line of saic Section 16;
THENCE, S. 00 deg. 13' 13" W., along the North-South 1/4 Section line of said Section 16, a distance of 1929.90 feet to the South 1/4 corner of said Section 16, being a rebar in place;
THENCE, S. 89 deg. 19' 57" W., along the South line of said Section 16, a distance of 2622.04 feet to the point of beginning and Containing 99.995 acres, more or less.

FREE CONSENT, DEDICATION

The undersigned owners and proprietors of the property described hereon, do hereby consent to the Platting of said property as shown hereon and the same is with free consent and in accordance with their desires.

THE BANK OF ALBUQUERQUE
BY: Ron Shettlesworth
Ron Shettlesworth, Vice-President

SUNSET MEMORIAL PARK, INC.
BY: Chester F. Stewart
Chester F. Stewart, President

ACKNOWLEDGEMENT

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) SS

On this 29th day of October, 1982, the foregoing instrument was acknowledged before me by Ron Shettlesworth and Chester F. Stewart

My commission expires 11-2-85

Notary Public

SURVEYOR'S CERTIFICATE

I, Verlon E. Hall, New Mexico Registered Land Surveyor No. 3241, do hereby certify that this Plat was prepared by me or under my supervision, meets the minimum requirements of the Bernalillo County Subdivision Ordinance and is true and correct to the best of my belief and knowledge.

Verlon E. Hall
Verlon E. Hall, N.M.L.S. No. 3241

APPROVED AND ACCEPTED BY:

Planning Director	11/16/82 Date
City Engineer	11-16-82 Date
A.M.A.F.C.A.	11/11/82 Date
Traffic Engineer	11-16-82 Date
Water Resources	11-16-82 Date
Parks & Recreation	11-16-82 Date
Chief City Surveyor	11/3/82 Date

SP-85-285
Number-County Zone Atlas Q-15-Z

DISCLOSURE STATEMENT

The purpose of this Plat is to divide the Tract of Land described hereon into 2 Tracts as shown on this Plat, meeting the required zoning and set back requirements. Bearings are based on a Survey Plat of Section 16, T. 9 N., R. 3 E., N.M.P.M., Bernalillo County, New Mexico by D. T. Morrison, N.M.L.S. No. 1010, dated April 10, 1972. Property Corners were found and set as shown on this Plat.
Approval of and filing with the Bernalillo County Clerk of this Plat does not vacate or in anyway affect public or private easements.

NOTE: The location of Los Picaros Rd. is from Survey Map made by D.T. Morrison & evidence found in the field.

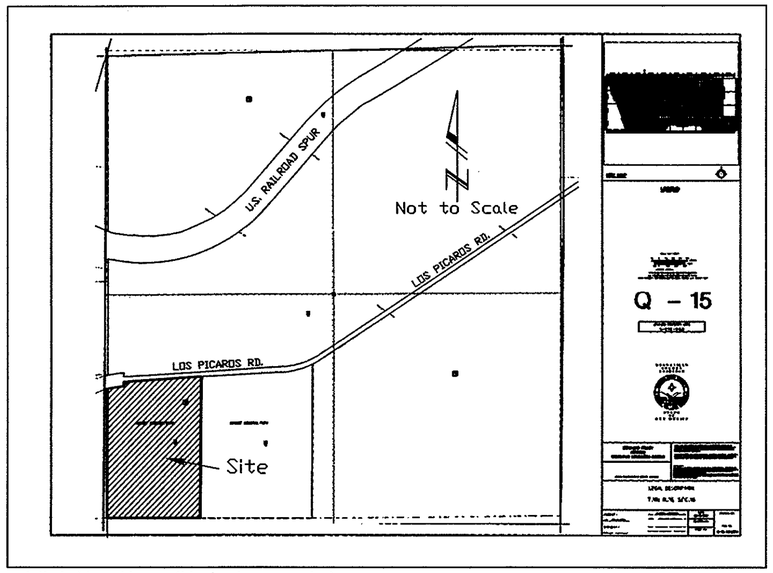
MICROFILM
FEB 22 1983

HALL ENGINEERING & SURVEYING CO
2625 Pennsylvania Ave N.E., Suite 350
Albuquerque, New Mexico 87110
Phones: (505) 884-6200 & 884-6444

S-1880 10/19/81 FB 81-02

C20-87

C20-87



Vicinity Map (Not to scale)

LEGAL DESCRIPTION:

Tract A Replat of SUNSET MEMORIAL PARK, situate in Section 16 T.9 N., R.3 E., N.M.P.M., Bernalillo County, New Mexico, being a replat of Tract A of Land Division Plat Sunset Memorial Park filed for record in the office of the County Clerk of Bernalillo County, New Mexico in Plat Book C20, Page 87 on November 5, 1982.

PURPOSE OF THE PLAT:

The purpose of this plat is to split one Tract into two tracts. Splitting Tract A into Tract A-1 and A-2.

NOTES:

1. Zone Atlas Q-15-Z
2. Bearings are grid based on the New Mexico State Plane Coordinate System Central Zone (NAD83)
3. Distances are ground.
4. Unless otherwise shown, set a 1/2" rebar with plastic cap stamped LS 16006
5. Statement of Declaration: Tract A will be divided into two (2) Tracts.
6. A grading and drainage plan prepared by an engineer registered in the State of New Mexico may be required with future development of these lots.
7. Cross lot drainage must not be increased or impacted by development of these lots.
8. Lots must accept storm water runoff from adjacent roadways and properties as it currently exists.
9. No mass site grading, clearing, or grubbing is allowed without and approved grading and drainage plan.
10. Total gross acreage: 46.6553

DISCLOSURE STATEMENT

Replat of TRACT A Sunset Memorial Park

Los Picaros LLC
1111 University NE
Albuquerque, New Mexico 87102

There are no deed or plat restrictions of record, current zoning is A-1.

Upon development of any habitable building a drinking water system will be installed that meets the current Bernalillo County Drinking Water Well Ordinances and/or other Ordinance or municipal water by the ABCWUA.

Upon development:
A wastewater system will be installed that meets the current Bernalillo County Wastewater Ordinance and/or other Ordinance municipal sewer by the ABCWUA.

A list of suppliers for Solidwaste pick-up will be provided.

A slope analysis with 2' contours as relates to suitability for development; a terrain management plan as relates to soil erosion and the protection of ephemeral waterways and, COA air quality permits will be obtained.

PNM, Comcast, and Qwest will be contacted for availability of service.

FREE CONSENT:

We, The Undersigned Owners, do hereby certify that we are the owners of the property described hereon and that we have caused the said property to be surveyed and replatted as shown hereon and that this plat is with our free consent. We do also grant any and all easements as may be created by this plat.

Owner:

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me on this

18th day of September, 2008.

By: Chester F. Stewart

My Commission Expires: May 14, 2009 Carol Chavez
Notary Public

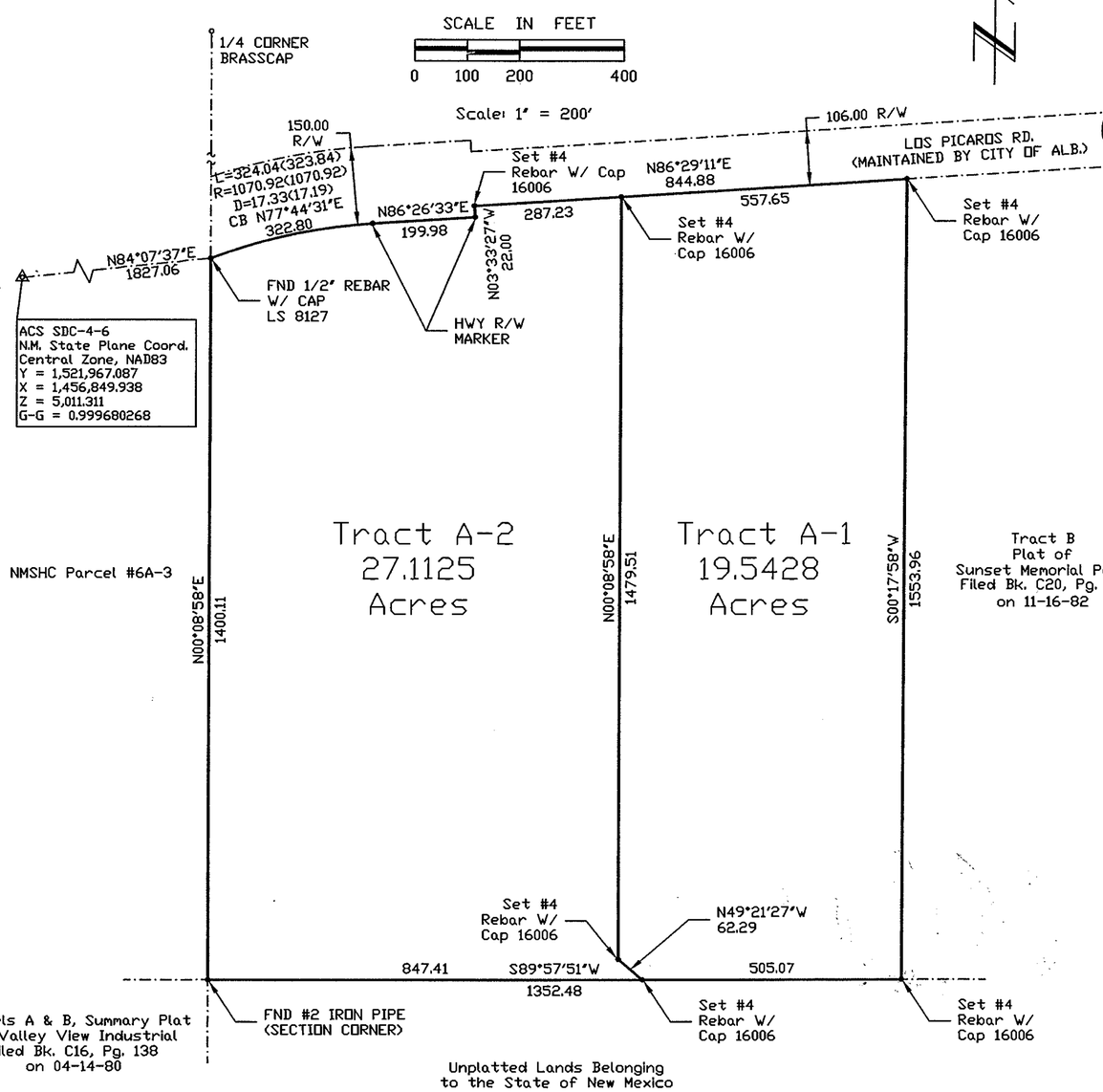
UTILITY APPROVALS:

By: Fernando Vigil — 9-18-08
PNM Electric Service — Date

By: Fernando Vigil — 9-18-08
PNM Gas Service — Date

By: [signature] — 9/23/08
Qwest Telecommunications — Date

By: [signature] — 9.18.08
Comcast — Date



Plat of Tract A-1 & A-2 of

SUNSET MEMORIAL PARK

Being a Replat of Tract A of
LAND DIVISION PLAT OF SUNSET MEMORIAL PARK
In Section 16, T.9 N., R.3 E., N.M.P.M.
Bernalillo County, New Mexico
September, 2008

COUNTY TREASURER CERTIFICATE:
This is to certify that taxes are current and paid on

2008-Codes U.P.C. 101515206707530105

Property Owner of Record:

Los Picaros

Bernalillo County Treasure's office: 10.9.08

CITY/COUNTY APPROVALS

Bern. County Devel. Review Authority, Chair — Date: 10/9/08

Bernalillo County Zoning — Date: 9.26.08

Bern. County Fire Marshal's Office — Date: 9.26.2008

Bernalillo County Public Works — Date: 9/19/08

Bern. County Environmental Health — Date: 9/25/08

A.M.A.F.C.A. — Date: 9-18-08

City of Albuquerque Surveyor — Date: 9-19-08

A.B.C.W.U.A. — Date: 9.25-08

DOC# 2008111075
10/09/2008 11:58 AM Page: 1 of 1
PLAT R:$7.00 B: 2008C P: 0221 M. Toulous Olivere, Bernalillo Count

SURVEYOR'S CERTIFICATION

I, William Goss, New Mexico Professional Land Surveyor No. 16006, hereby certify that this plat was prepared by me, that it meets the minimum requirements for monumentation and surveys of the Bernalillo County Subdivision Ordinance and standards for Surveying in the State of New Mexico as adopted by the New Mexico State Board of Registration for Professional Engineers and Land Surveyors; and that it is true and correct to the best of my knowledge and belief.

William Goss N.M.L.S. No. 16006

WILLIAM T. GOSS NEW MEXICO 16006 LICENSED PROFESSIONAL SURVEYOR

Talos Log: 2008371432

Case number: SRP-80081

1-2 NOAA 14 Precipitation

NOAA Atlas 14, Volume 1, Version 5
Location name: Albuquerque, New Mexico, USA*
Latitude: 34.9995°, Longitude: -106.6347°
Elevation: 5133.07 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_&_aerials

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	0.178 (0.155-0.206)	0.231 (0.200-0.267)	0.309 (0.266-0.357)	0.369 (0.318-0.424)	0.452 (0.387-0.518)	0.515 (0.439-0.591)	0.582 (0.492-0.667)	0.652 (0.547-0.747)	0.746 (0.620-0.856)	0.820 (0.678-0.942)
10-min	0.272 (0.236-0.314)	0.352 (0.304-0.407)	0.470 (0.406-0.543)	0.562 (0.484-0.646)	0.687 (0.589-0.789)	0.783 (0.667-0.899)	0.885 (0.749-1.01)	0.992 (0.833-1.14)	1.14 (0.944-1.30)	1.25 (1.03-1.43)
15-min	0.337 (0.293-0.389)	0.436 (0.377-0.504)	0.583 (0.503-0.673)	0.696 (0.599-0.801)	0.852 (0.730-0.977)	0.971 (0.827-1.12)	1.10 (0.928-1.26)	1.23 (1.03-1.41)	1.41 (1.17-1.62)	1.55 (1.28-1.78)
30-min	0.453 (0.394-0.523)	0.587 (0.508-0.679)	0.785 (0.677-0.906)	0.937 (0.807-1.08)	1.15 (0.983-1.32)	1.31 (1.11-1.50)	1.48 (1.25-1.70)	1.66 (1.39-1.90)	1.89 (1.58-2.18)	2.08 (1.72-2.39)
60-min	0.561 (0.488-0.648)	0.727 (0.629-0.840)	0.972 (0.838-1.12)	1.16 (0.998-1.33)	1.42 (1.22-1.63)	1.62 (1.38-1.86)	1.83 (1.55-2.10)	2.05 (1.72-2.35)	2.34 (1.95-2.69)	2.58 (2.13-2.96)
2-hr	0.638 (0.551-0.749)	0.816 (0.703-0.960)	1.08 (0.928-1.26)	1.29 (1.10-1.50)	1.58 (1.34-1.83)	1.81 (1.53-2.10)	2.05 (1.72-2.38)	2.31 (1.92-2.67)	2.67 (2.19-3.09)	2.96 (2.41-3.43)
3-hr	0.676 (0.590-0.790)	0.860 (0.746-1.00)	1.13 (0.977-1.31)	1.34 (1.15-1.55)	1.63 (1.39-1.89)	1.86 (1.59-2.15)	2.11 (1.79-2.44)	2.38 (1.99-2.74)	2.74 (2.27-3.16)	3.03 (2.49-3.51)
6-hr	0.785 (0.686-0.910)	0.988 (0.865-1.15)	1.27 (1.11-1.47)	1.49 (1.30-1.72)	1.80 (1.56-2.07)	2.03 (1.75-2.34)	2.28 (1.95-2.62)	2.54 (2.16-2.92)	2.90 (2.44-3.33)	3.18 (2.66-3.67)
12-hr	0.870 (0.768-0.988)	1.10 (0.971-1.25)	1.39 (1.22-1.57)	1.61 (1.42-1.83)	1.92 (1.68-2.17)	2.16 (1.88-2.44)	2.40 (2.08-2.72)	2.66 (2.28-3.00)	3.00 (2.55-3.40)	3.27 (2.76-3.72)
24-hr	0.978 (0.874-1.11)	1.23 (1.09-1.38)	1.53 (1.36-1.72)	1.77 (1.58-1.99)	2.10 (1.86-2.36)	2.35 (2.08-2.64)	2.61 (2.31-2.93)	2.87 (2.52-3.22)	3.23 (2.81-3.62)	3.50 (3.04-3.92)
2-day	1.04 (0.931-1.16)	1.30 (1.17-1.45)	1.62 (1.45-1.80)	1.86 (1.67-2.07)	2.20 (1.97-2.44)	2.46 (2.19-2.73)	2.72 (2.42-3.02)	2.99 (2.65-3.32)	3.34 (2.95-3.71)	3.61 (3.17-4.02)
3-day	1.12 (1.02-1.23)	1.40 (1.27-1.54)	1.72 (1.57-1.89)	1.98 (1.80-2.17)	2.32 (2.11-2.54)	2.58 (2.34-2.83)	2.85 (2.58-3.12)	3.11 (2.81-3.41)	3.47 (3.11-3.80)	3.73 (3.33-4.09)
4-day	1.20 (1.11-1.31)	1.50 (1.38-1.62)	1.83 (1.69-1.98)	2.09 (1.93-2.26)	2.44 (2.25-2.64)	2.71 (2.49-2.93)	2.98 (2.73-3.21)	3.24 (2.96-3.50)	3.59 (3.27-3.88)	3.85 (3.50-4.17)
7-day	1.39 (1.28-1.50)	1.72 (1.59-1.86)	2.09 (1.94-2.26)	2.38 (2.20-2.56)	2.75 (2.55-2.96)	3.03 (2.80-3.26)	3.31 (3.05-3.56)	3.57 (3.29-3.84)	3.91 (3.60-4.21)	4.16 (3.81-4.48)
10-day	1.53 (1.42-1.65)	1.90 (1.76-2.05)	2.31 (2.15-2.49)	2.64 (2.45-2.84)	3.07 (2.85-3.30)	3.40 (3.14-3.64)	3.72 (3.43-3.98)	4.04 (3.71-4.33)	4.44 (4.07-4.76)	4.74 (4.33-5.09)
20-day	1.94 (1.79-2.09)	2.40 (2.23-2.60)	2.92 (2.70-3.14)	3.30 (3.06-3.55)	3.79 (3.51-4.08)	4.15 (3.83-4.45)	4.49 (4.14-4.81)	4.81 (4.43-5.15)	5.20 (4.79-5.58)	5.48 (5.05-5.89)
30-day	2.32 (2.15-2.49)	2.87 (2.66-3.08)	3.45 (3.20-3.70)	3.88 (3.60-4.15)	4.41 (4.09-4.71)	4.79 (4.43-5.11)	5.14 (4.76-5.49)	5.48 (5.06-5.84)	5.87 (5.42-6.27)	6.15 (5.67-6.56)
45-day	2.81 (2.62-3.01)	3.47 (3.24-3.72)	4.13 (3.85-4.41)	4.60 (4.29-4.91)	5.16 (4.82-5.50)	5.54 (5.18-5.91)	5.88 (5.50-6.26)	6.18 (5.78-6.58)	6.51 (6.10-6.91)	6.69 (6.29-7.10)
60-day	3.25 (3.02-3.49)	4.01 (3.74-4.31)	4.78 (4.46-5.12)	5.32 (4.97-5.70)	5.98 (5.58-6.39)	6.42 (5.99-6.86)	6.83 (6.37-7.29)	7.18 (6.71-7.67)	7.58 (7.09-8.10)	7.83 (7.33-8.35)

[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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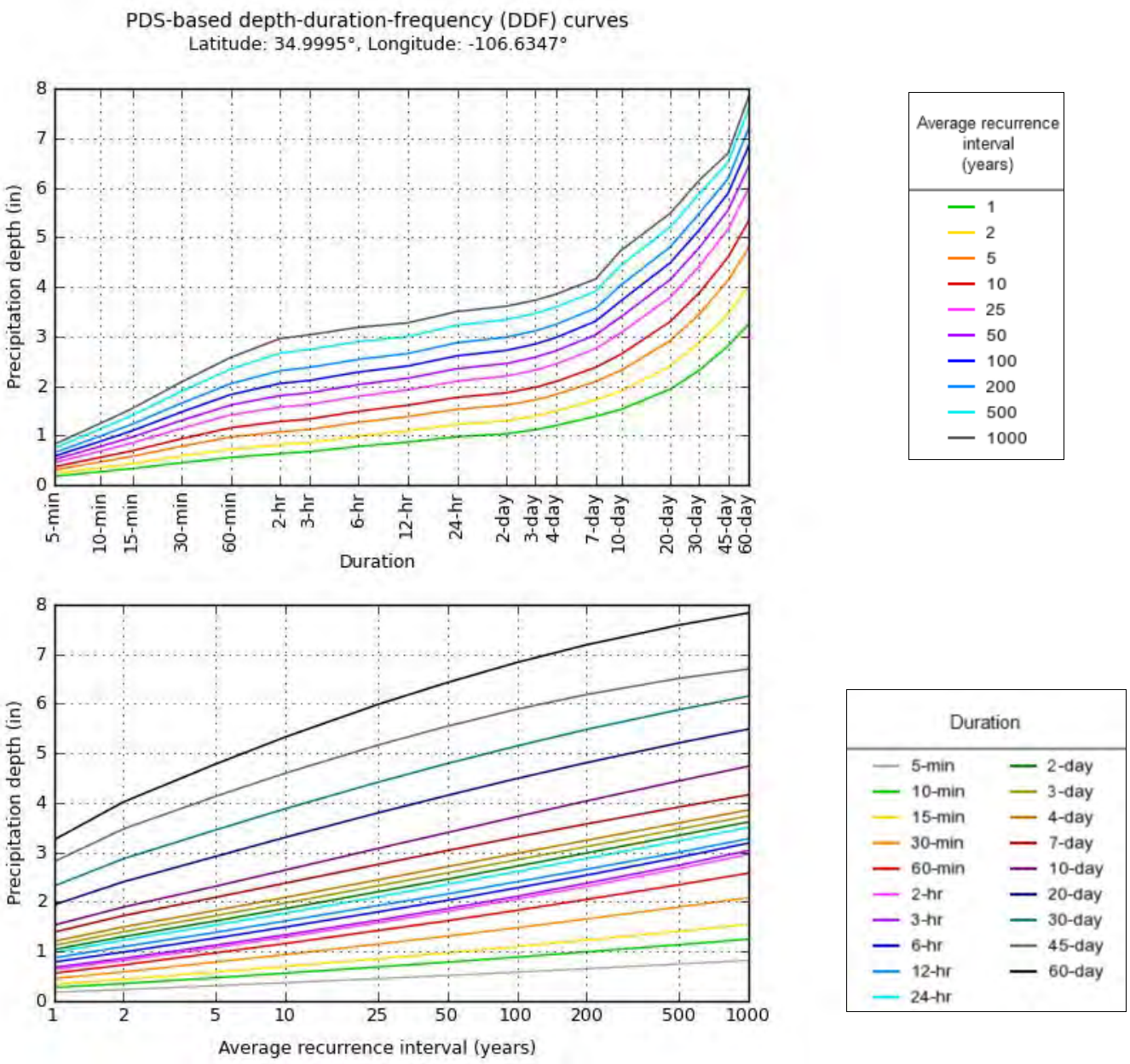
PF graphical



NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Fri Apr 23 16:34:46 2021

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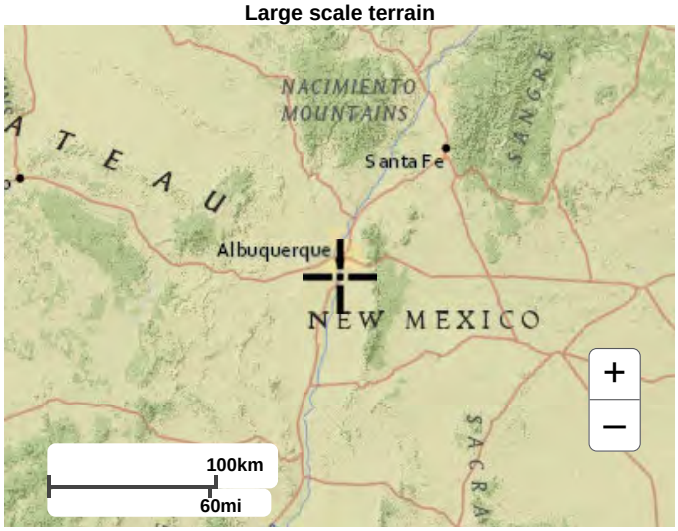
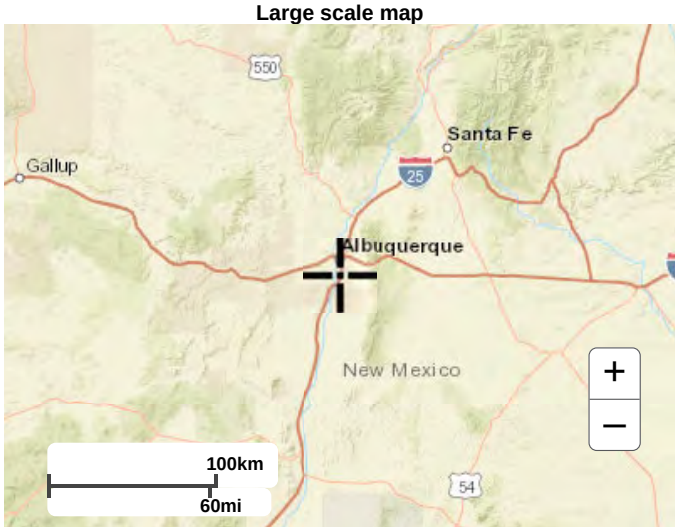
Maps & aerials

Small scale terrain

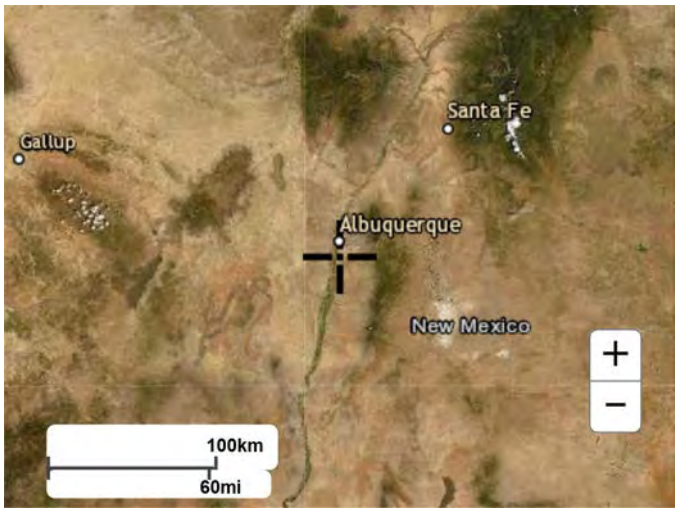
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Attachment 2

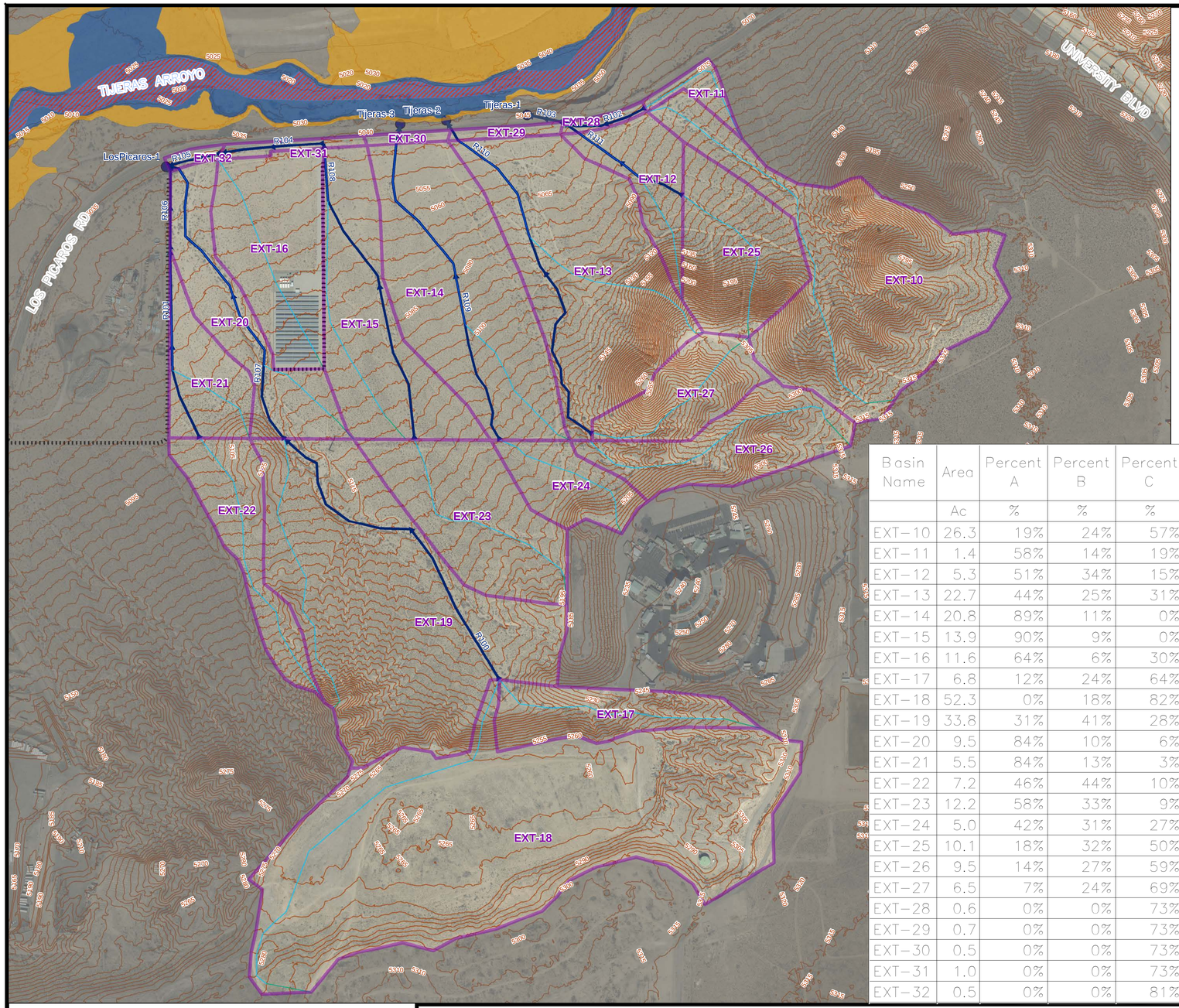
Existing Hydrologic Calculations

2-1 Existing Drainage Patterns

2-2 Existing Drainage Tabulation

2-3 Existing HEC-HMS Inputs and Outputs

2-1 Existing Drainage Patterns



Name	Q100	Volume
Reaches:	cfs	Ac-Ft
R100	152.5	6.1
R101	13.0	0.5
R102	62.2	2.6
R103	96.1	4.0
R104	42.1	1.8
R105	63.9	2.9
R106	21.6	0.9
R107	212.9	8.9
R108	21.6	0.9
R109	9.9	0.4
R110	37.9	1.5
R111	22.2	0.9
Outfalls:		
R105	63.9	2.9
Tijeras-1	96.1	4.0
Tijeras-2	82.0	3.5
Tijeras-3	43.5	1.9
Tijeras Total	221.6	9.3

Basin Name	Area	Percent A	Percent B	Percent C	Percent D	Weighted CN	Q100	24hr Volume	Runoff Rate
	Ac	%	%	%	%	unitless	cfs	Ac-Ft	cfs/Ac
EXT-10	26.3	19%	24%	57%	0%	82.6	60.5	2.4	2.3
EXT-11	1.4	58%	14%	19%	9%	80.8	2.9	0.1	2.1
EXT-12	5.3	51%	34%	15%	0%	79.0	9.7	0.4	1.8
EXT-13	22.7	44%	25%	31%	0%	80.3	45.3	1.9	2.0
EXT-14	20.8	89%	11%	0%	0%	77.2	33.8	1.4	1.6
EXT-15	13.9	90%	9%	0%	0%	77.2	22.6	0.9	1.6
EXT-16	11.6	64%	6%	30%	0%	79.8	22.6	0.9	1.9
EXT-17	6.8	12%	24%	64%	0%	83.3	16.3	0.7	2.4
EXT-18	52.3	0%	18%	82%	0%	84.8	136.2	5.5	2.6
EXT-19	33.8	31%	41%	28%	0%	80.4	68.1	2.8	2.0
EXT-20	9.5	84%	10%	6%	0%	77.8	16.1	0.7	1.7
EXT-21	5.5	84%	13%	3%	0%	77.5	9.1	0.4	1.7
EXT-22	7.2	46%	44%	10%	0%	78.8	13	0.5	1.8
EXT-23	12.2	58%	33%	9%	0%	78.5	21.6	0.9	1.8
EXT-24	5.0	42%	31%	27%	0%	80.1	9.9	0.4	2.0
EXT-25	10.1	18%	32%	50%	0%	82.1	22.6	0.9	2.2
EXT-26	9.5	14%	27%	59%	0%	82.8	22.1	0.9	2.3
EXT-27	6.5	7%	24%	69%	0%	83.7	15.8	0.6	2.4
EXT-28	0.6	0%	0%	73%	27%	89.2	2.1	0.1	3.3
EXT-29	0.7	0%	0%	73%	27%	89.2	2.5	0.1	3.4
EXT-30	0.5	0%	0%	73%	27%	89.2	1.7	0.1	3.3
EXT-31	1.0	0%	0%	73%	27%	89.2	3.3	0.1	3.3
EXT-32	0.5	0%	0%	81%	19%	88.3	1.6	0.1	3.3

LEGEND

- EXISTING DRAINAGE BASINS
- NON-CONTRIBUTING DRAINAGE
- BERM
- CHANNEL REACHES
- OUTFALLS
- 5FT CONTOURS
- PROPERTY LINE

LONGEST FLOW PATHS:

- SHEET
- SHALLOW CONCENTRATED
- CHANNEL

JURISDICTION:

- ALBUQUERQUE
- UNINCORPORATED

FLOOD ZONES:

- AE
- AE, FLOODWAY
- X, 0.2 PCT ANNUAL CHANCE FLOOD HAZARD

N

0 600 1,200 FEET

1 INCH = 300 FEET
WHEN PRINTED ON 22" X 34" PAPER

AECOM

PROJECT: PROSPERITY SUBSTATION
LOCATION: BERNALILLO COUNTY, NM
PREPARED FOR: PNM
AECOM PROJECT NO.: 606XXXXX

PROPRIETARY STATEMENT

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PNM REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D	OKD	APP'D
0						

PNM PUBLIC SERVICE COMPANY OF NEW MEXICO

EXISTING CONDITIONS DRAINAGE PATTERNS

DR:	DATE: 5/2022	ATTACHMENT 2-1
ACAD-	APP:	

LastSavedBy: Keaton.Leander

PLOT DATE: 5/20/2022

2-2 Existing Drainage Tabulation

Attachment 2-2: Existing Conditions Drainage Basins Input and Output Data

Input Data:

Basin Name	Area	Area	Area A	Area B	Area C	Area D	Percent A	Percent B	Percent C	Percent D	CN A	CN B	CN C	CN D	Weighted CN
	sf	Ac	Ac	Ac	Ac	Ac	%	%	%	%	unitless	unitless	unitless	unitless	unitless
EXT-10	1145724	26.3	5.02	6.22	15.06	0.00	19%	24%	57%	0%	77	79	86	98	82.6
EXT-11	60091	1.4	0.80	0.20	0.26	0.12	58%	14%	19%	9%	77	79	86	98	80.8
EXT-12	228840	5.3	2.68	1.80	0.77	0.00	51%	34%	15%	0%	77	79	86	98	79.0
EXT-13	986433	22.7	9.97	5.65	7.03	0.00	44%	25%	31%	0%	77	79	86	98	80.3
EXT-14	905213	20.8	18.50	2.28	0.00	0.00	89%	11%	0%	0%	77	79	86	98	77.2
EXT-15	606075	13.9	12.57	1.28	0.07	0.00	90%	9%	0%	0%	77	79	86	98	77.2
EXT-16	506693	11.6	7.45	0.69	3.49	0.00	64%	6%	30%	0%	77	79	86	98	79.8
EXT-17	296017	6.8	0.81	1.61	4.38	0.00	12%	24%	64%	0%	77	79	86	98	83.3
EXT-18	2277962	52.3	0.00	9.30	43.00	0.00	0%	18%	82%	0%	77	79	86	98	84.8
EXT-19	1472559	33.8	10.36	13.91	9.54	0.00	31%	41%	28%	0%	77	79	86	98	80.4
EXT-20	412283	9.5	7.92	0.94	0.61	0.00	84%	10%	6%	0%	77	79	86	98	77.8
EXT-21	240118	5.5	4.62	0.72	0.17	0.00	84%	13%	3%	0%	77	79	86	98	77.5
EXT-22	311854	7.2	3.30	3.13	0.73	0.00	46%	44%	10%	0%	77	79	86	98	78.8
EXT-23	530402	12.2	7.11	3.96	1.11	0.00	58%	33%	9%	0%	77	79	86	98	78.5
EXT-24	218161	5.0	2.09	1.55	1.37	0.00	42%	31%	27%	0%	77	79	86	98	80.1
EXT-25	441326	10.1	1.86	3.20	5.07	0.00	18%	32%	50%	0%	77	79	86	98	82.1
EXT-26	411818	9.5	1.35	2.52	5.58	0.00	14%	27%	59%	0%	77	79	86	98	82.8
EXT-27	280828	6.5	0.44	1.54	4.47	0.00	7%	24%	69%	0%	77	79	86	98	83.7
EXT-28	27334	0.6	0.00	0.00	0.46	0.17	0%	0%	73%	27%	77	79	86	98	89.2
EXT-29	32205	0.7	0.00	0.00	0.54	0.20	0%	0%	73%	27%	77	79	86	98	89.2
EXT-30	22779	0.5	0.00	0.00	0.38	0.14	0%	0%	73%	27%	77	79	86	98	89.2
EXT-31	43965	1.0	0.00	0.00	0.74	0.27	0%	0%	73%	27%	77	79	86	98	89.2
EXT-32	21467	0.5	0.00	0.00	0.40	0.09	0%	0%	81%	19%	77	79	86	98	88.3

Attachment 2-2: Existing Conditions Drainage Basins Input and Output Data

Output Data (From HEC-HMS):

Basin Name	Drainage Area	Q100	Time to Peak	24hr Volume	Runoff Rate
	Sq Mi.	cfs		Ac-Ft	cfs/Ac
EXT-10	0.041	**60.5**	23Apr2021, 12:10	2.4	2.3
EXT-11	0.002	**2.9**	23Apr2021, 12:10	0.1	2.1
EXT-12	0.008	**9.7**	23Apr2021, 12:10	0.4	1.8
EXT-13	0.035	**45.3**	23Apr2021, 12:10	1.9	2.0
EXT-14	0.033	**33.8**	23Apr2021, 12:10	1.4	1.6
EXT-15	0.022	**22.6**	23Apr2021, 12:10	0.9	1.6
EXT-16	0.018	**22.6**	23Apr2021, 12:10	0.9	1.9
EXT-17	0.011	**16.3**	23Apr2021, 12:10	0.7	2.4
EXT-18	0.082	**136.2**	23Apr2021, 12:10	5.5	2.6
EXT-19	0.053	**68.1**	23Apr2021, 12:10	2.8	2.0
EXT-20	0.015	**16.1**	23Apr2021, 12:10	0.7	1.7
EXT-21	0.009	**9.1**	23Apr2021, 12:10	0.4	1.7
EXT-22	0.011	**13**	23Apr2021, 12:10	0.5	1.8
EXT-23	0.019	**21.6**	23Apr2021, 12:10	0.9	1.8
EXT-24	0.008	**9.9**	23Apr2021, 12:10	0.4	2.0
EXT-25	0.016	**22.6**	23Apr2021, 12:10	0.9	2.2
EXT-26	0.015	**22.1**	23Apr2021, 12:10	0.9	2.3
EXT-27	0.010	**15.8**	23Apr2021, 12:10	0.6	2.4
EXT-28	0.001	**2.1**	23Apr2021, 12:10	0.1	3.3
EXT-29	0.001	**2.5**	23Apr2021, 12:10	0.1	3.4
EXT-30	0.001	**1.7**	23Apr2021, 12:10	0.1	3.3
EXT-31	0.002	**3.3**	23Apr2021, 12:10	0.1	3.3
EXT-32	0.001	**1.6**	23Apr2021, 12:10	0.1	3.3

Attachment 2-2: Existing Conditions Time of Concentration and Lag Time

1st Flow Reach (Sheet Flow):

Basin Name	Elev_hi	Elev_low	Length	Slope	Conveyance Factor, K	Velocity, Vn	nth Travel Time, Tn
	Ft	Ft	Ft	Ft/Ft	unitless	fps	Hrs
EXT-10	5315.2	5309.1	147	0.041	1	2.0	0.020
EXT-11	5110.1	5105.0	60	0.084	1	2.9	0.006
EXT-12	5250.0	5240.0	28	0.358	1	6.0	0.001
EXT-13	5297.0	5295.0	40	0.049	1	2.2	0.005
EXT-14	5155.9	5150.0	75	0.078	1	2.8	0.007
EXT-15	5113.6	5105.0	164	0.053	1	2.3	0.020
EXT-16	5089.1	5085.0	91	0.045	1	2.1	0.012
EXT-17	5304.4	5295.0	195	0.048	1	2.2	0.025
EXT-18	5300.9	5290.0	231	0.047	1	2.2	0.030
EXT-19	5267.8	5260.0	52	0.149	1	3.9	0.004
EXT-20	5107.7	5100.0	169	0.046	1	2.1	0.022
EXT-21	5112.6	5105.0	69	0.110	1	3.3	0.006
EXT-22	5260.0	5245.0	35	0.433	1	6.6	0.001
EXT-23	5188.2	5185.0	149	0.021	1	1.5	0.028
EXT-24	5231.4	5220.0	57	0.200	1	4.5	0.004
EXT-25	5306.1	5300.0	73	0.083	1	2.9	0.007
EXT-26	5314.6	5305.0	186	0.052	1	2.3	0.023
EXT-27	5306.1	5300.0	115	0.053	1	2.3	0.014
EXT-28*							
EXT-29*							
EXT-30*							
EXT-31*							
EXT-32*							

**minimum Tc of 0.2 hrs used for small basins*

Attachment 2-2: Existing Conditions Time of Concentration and Lag Time

2nd Flow Reach (Shallow Concentrated Flow):

Basin Name	Elev_hi	Elev_low	Length	Slope	Conveyance Factor, K	Adjusted Slope, s' **	Velocity, Vn	nth Travel Time, Tn
	Ft	Ft	Ft	Ft/Ft	unitless	ft/ft	fps	Hrs
EXT-10	5309.1	5075.0	2076	0.113	2	0.059	4.9	0.118
EXT-11	5105.0	5072.4	712	0.046	2	0.045	4.2	0.047
EXT-12	5240.0	5082.2	653	0.242	2	0.068	5.2	0.035
EXT-13	5295.0	5077.9	1026	0.212	2	0.066	5.1	0.056
EXT-14	5150.0	5095.0	738	0.075	2	0.055	4.7	0.043
EXT-15	5105.0	5053.4	1172	0.044	2	0.044	4.2	0.078
EXT-16	5085.0	5035.6	1114	0.044	2	0.044	4.2	0.074
EXT-17	5295.0	5178.8	1220	0.095	2	0.058	4.8	0.070
EXT-18	5290.0	5178.8	2196	0.051	2	0.048	4.4	0.139
EXT-19	5260.0	5091.2	1442	0.117	2	0.060	4.9	0.082
EXT-20	5100.0	5075.0	438	0.057	2	0.051	4.5	0.027
EXT-21	5105.0	5065.0	488	0.082	2	0.057	4.8	0.028
EXT-22	5245.0	5088.2	1492	0.105	2	0.059	4.9	0.085
EXT-23	5185.0	5112.3	1149	0.063	2	0.053	4.6	0.069
EXT-24	5220.0	5134.1	798	0.108	2	0.059	4.9	0.046
EXT-25	5300.0	5100.3	852	0.235	2	0.067	5.2	0.046
EXT-26	5305.0	5155.0	1376	0.109	2	0.059	4.9	0.079
EXT-27	5300.0	5154.9	895	0.162	2	0.063	5.0	0.050
EXT-28*								
EXT-29*								
EXT-30*								
EXT-31*								
EXT-32*								

**minimum Tc of 0.2 hrs used for small basins*

***slope adjustment per DPM section 6-2(B)(5) for slopes greater than 4%*

Attachment 2-2: Existing Conditions Time of Concentration and Lag Time

3rd Flow Reach (Channel Flow):

Basin Name	Elev_hi	Elev_low	Length	Slope	Conveyance Factor, K	Adjusted Slope, s' **	Velocity, Vn	nth Travel Time, Tn
	Ft	Ft	Ft	Ft/Ft	unitless	ft/ft	fps	Hrs
EXT-10								
EXT-11								
EXT-12	5082.2	5058.2	389	0.062	3	0.053	6.9	0.016
EXT-13	5077.9	5045.1	648	0.051	3	0.048	6.6	0.027
EXT-14	5095.0	5043.3	1054	0.049	3	0.047	6.5	0.045
EXT-15	5053.4	5043.4	270	0.037	3		5.8	0.013
EXT-16								
EXT-17								
EXT-18								
EXT-19								
EXT-20	5075.0	5037.4	1156	0.032	3		5.4	0.059
EXT-21	5065.0	5047.1	621	0.029	3		5.1	0.034
EXT-22								
EXT-23								
EXT-24								
EXT-25								
EXT-26								
EXT-27								
EXT-28*								
EXT-29*								
EXT-30*								
EXT-31*								
EXT-32*								

**minimum Tc of 0.2 hrs used for small basins*

***slope adjustment per DPM section 6-2(B)(5) for slopes greater than 4%*

Attachment 2-2: Existing Conditions Time of Concentration and Lag Time

Time of Concentration and Lag Time:

Basin Name	Calculated Time of Conc., Tc	Tc Used (0.2hrs Min.)	Lag Time	Recommended Max Time Step (0.29*Lag)
	Hrs	Hrs	Min	Min
EXT-10	0.14	0.2	7.2	2.1
EXT-11	0.05	0.2	7.2	2.1
EXT-12	0.05	0.2	7.2	2.1
EXT-13	0.09	0.2	7.2	2.1
EXT-14	0.10	0.2	7.2	2.1
EXT-15	0.11	0.2	7.2	2.1
EXT-16	0.09	0.2	7.2	2.1
EXT-17	0.09	0.2	7.2	2.1
EXT-18	0.17	0.2	7.2	2.1
EXT-19	0.09	0.2	7.2	2.1
EXT-20	0.11	0.2	7.2	2.1
EXT-21	0.07	0.2	7.2	2.1
EXT-22	0.09	0.2	7.2	2.1
EXT-23	0.10	0.2	7.2	2.1
EXT-24	0.05	0.2	7.2	2.1
EXT-25	0.05	0.2	7.2	2.1
EXT-26	0.10	0.2	7.2	2.1
EXT-27	0.06	0.2	7.2	2.1
EXT-28*		0.2	7.2	2.1
EXT-29*		0.2	7.2	2.1
EXT-30*		0.2	7.2	2.1
EXT-31*		0.2	7.2	2.1
EXT-32*		0.2	7.2	2.1

**minimum Tc of 0.2 hrs used for small basins*

Attachment 2-2: Existing Conditions Reach and Outfall Input and Output Data

Input Data:

Name	elev_hi	elev_low	length	Slope	s' **	K	Velocity	Travel Time
Reaches:	ft	ft	ft	ft/ft	ft/ft	unitless	fps	minutes
R100	5178.8	5091.1	1789	0.049	0.047	3	6.5	4.6
R101	5088.2	5047.1	997	0.041	0.041	3	6.1	2.7
R102	5072.4	5051.6	442	0.047	0.046	3	6.4	1.1
R103	5051.6	5045.0	185	0.036		3	5.7	0.5
R104	5041.5	5034.7	530	0.013		3	3.4	2.6
R105	5034.7	5033.9	279	0.003		3	1.5	3.0
R106	5047.1	5033.9	428	0.031		3	5.3	1.4
R107	5091.2	5033.9	1626	0.035		3	5.6	4.8
R108	5112.3	5041.5	1624	0.044	0.043	3	6.2	4.3
R109	5134.1	5041.5	1778	0.052	0.049	3	6.6	4.5
R110	5154.2	5041.3	1914	0.059	0.052	3	6.8	4.7
R111	5100.3	5051.6	725	0.067	0.054	3	7.0	1.7

***slope adjustment per DPM section 6-2(B)(5) for slopes greater than 4%*

Attachment 2-2: Existing Conditions Reach and Outfall Input and Output Data

Output Data (From HEC-HMS):

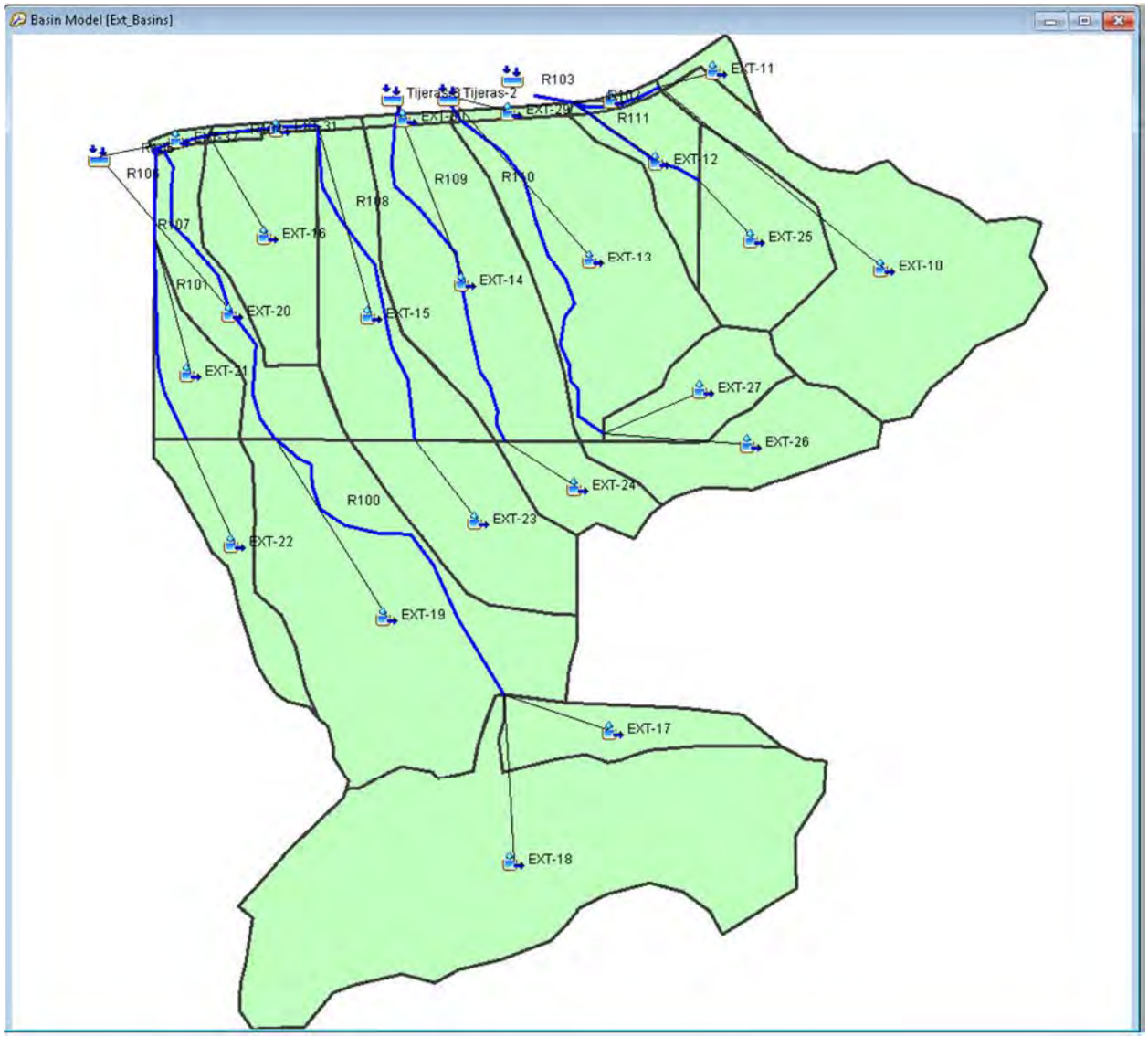
Name	drainage area	Q100	time of peak	Volume
Reaches:	sq mi.	cfs		Ac-Ft
R100	0.092	**152.45**	23Apr2021, 12:14	6.105
R101	0.011	**13.01**	23Apr2021, 12:12	0.537
R102	0.043	**62.24**	23Apr2021, 12:10	2.559
R103	0.068	**96.12**	23Apr2021, 12:10	3.954
R104	0.041	**42.11**	23Apr2021, 12:14	1.842
R105	0.061	**63.88**	23Apr2021, 12:16	2.9
R106	0.020	**21.6**	23Apr2021, 12:12	0.92
R107	0.145	**212.87**	23Apr2021, 12:16	8.877
R108	0.019	**21.63**	23Apr2021, 12:14	0.896
R109	0.008	**9.86**	23Apr2021, 12:14	0.403
R110	0.025	**37.9**	23Apr2021, 12:14	1.524
R111	0.016	**22.15**	23Apr2021, 12:10	0.913
Outfalls:				
R105	0.0605	**63.88**	23Apr2021, 12:16	2.90
Tijeras-1	0.068	**96.12**	23Apr2021, 12:10	3.95
Tijeras-2	0.062	**81.99**	23Apr2021, 12:12	3.48
Tijeras-3	0.041	**43.53**	23Apr2021, 12:12	1.89

2-3 Existing HEC-HMS Inputs and Outputs

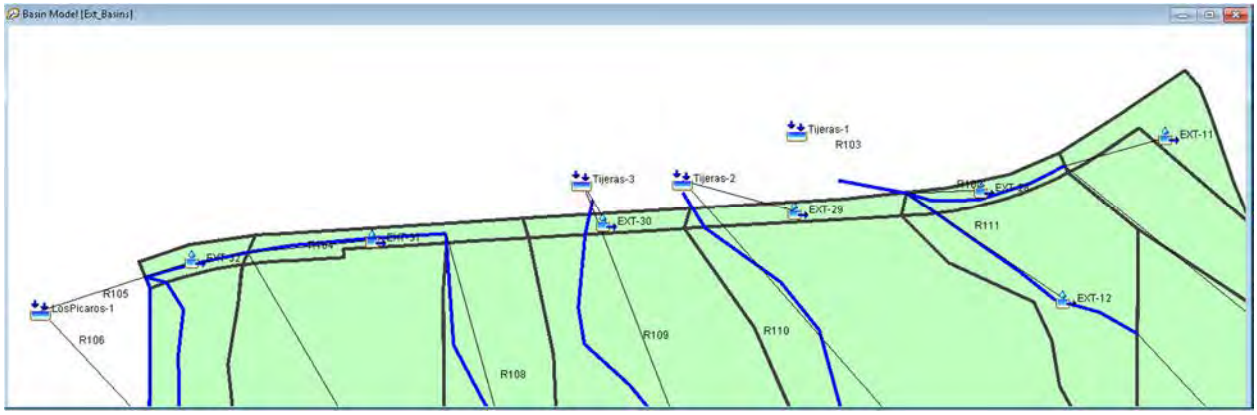
HEC-HMS Inputs and Outputs

Existing Conditions, 100yr, 24hr Storm

Basin Model



Basin Model – Street Detail



Precipitation

Frequency Storm

Met Name: Met 1

Storm Type:	HYDRO35 TP40 TP49
Annual-Partial Conversion:	--None--
Annual-Partial Ratio:	1.00
Storm Duration:	1 Day
Intensity Duration:	5 Minutes
Intensity Position:	50 Percent
Area Reduction:	--None--
Curve:	Uniform For All Subbasins

Duration	Depth (IN)
5 Minutes	0.582
15 Minutes	1.100
1 Hour	1.830
2 Hours	2.050
3 Hours	2.110
6 Hours	2.280
12 Hours	2.400
1 Day	2.610
2 Days	

Control

Control Specifications

Name: Control 1

Description:	
*Start Date (ddMMMYYYY)	23Apr2021
*Start Time (HH:mm)	00:00
*End Date (ddMMMYYYY)	24Apr2021
*End Time (HH:mm)	00:00
Time Interval:	2 Minutes

Summary Output Table

Global Summary Results for Run "Ext_100yr"

Project: Prosperity_90 Simulation Run: Ext_100yr

Start of Run: 23Apr2021, 00:00
End of Run: 24Apr2021, 00:00
Compute Time: DATA CHANGED, RECOMPUTE

Basin Model: Ext_Basins
Meteorologic Model: Met 1
Control Specifications: Control 1

Show Elements: All Elements | Volume Units: IN / ACRE-FT | Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EXT-10	0.0411	60.5	23Apr2021, 12:10	2.4
EXT-11	0.0022	2.9	23Apr2021, 12:10	0.1
EXT-12	0.0082	9.7	23Apr2021, 12:10	0.4
EXT-13	0.0354	45.3	23Apr2021, 12:10	1.9
EXT-14	0.0325	33.8	23Apr2021, 12:10	1.4
EXT-15	0.0217	22.6	23Apr2021, 12:10	0.9
EXT-16	0.0182	22.6	23Apr2021, 12:10	0.9
EXT-17	0.0106	16.3	23Apr2021, 12:10	0.7
EXT-18	0.0817	136.2	23Apr2021, 12:10	5.5
EXT-19	0.0528	68.1	23Apr2021, 12:10	2.8
EXT-20	0.0148	16.1	23Apr2021, 12:10	0.7
EXT-21	0.0086	9.1	23Apr2021, 12:10	0.4
EXT-22	0.0112	13.0	23Apr2021, 12:10	0.5
EXT-23	0.0190	21.6	23Apr2021, 12:10	0.9
EXT-24	0.0078	9.9	23Apr2021, 12:10	0.4
EXT-25	0.0158	22.6	23Apr2021, 12:10	0.9
EXT-26	0.0148	22.1	23Apr2021, 12:10	0.9
EXT-27	0.0101	15.8	23Apr2021, 12:10	0.6
EXT-28	0.0010	2.1	23Apr2021, 12:10	0.1
EXT-29	0.0012	2.5	23Apr2021, 12:10	0.1
EXT-30	0.0008	1.7	23Apr2021, 12:10	0.1
EXT-31	0.0016	3.3	23Apr2021, 12:10	0.1
EXT-32	0.0008	1.6	23Apr2021, 12:10	0.1
LosPicaros-1	0.2410	309.2	23Apr2021, 12:16	13.4
R100	0.0923	152.4	23Apr2021, 12:14	6.1
R101	0.0112	13.0	23Apr2021, 12:12	0.5
R102	0.0433	62.2	23Apr2021, 12:10	2.6
R103	0.0683	96.1	23Apr2021, 12:10	4.0
R104	0.0407	42.1	23Apr2021, 12:14	1.8
R105	0.0605	63.9	23Apr2021, 12:16	2.9
R106	0.0198	21.6	23Apr2021, 12:12	0.9
R107	0.1451	212.9	23Apr2021, 12:16	8.9
R108	0.0190	21.6	23Apr2021, 12:14	0.9
R109	0.0078	9.9	23Apr2021, 12:14	0.4
R110	0.0249	37.9	23Apr2021, 12:14	1.5
R111	0.0158	22.1	23Apr2021, 12:10	0.9
Tijeras-1	0.0683	96.1	23Apr2021, 12:10	4.0
Tijeras-2	0.0615	82.0	23Apr2021, 12:12	3.5
Tijeras-3	0.0411	43.5	23Apr2021, 12:12	1.9

Attachment 3

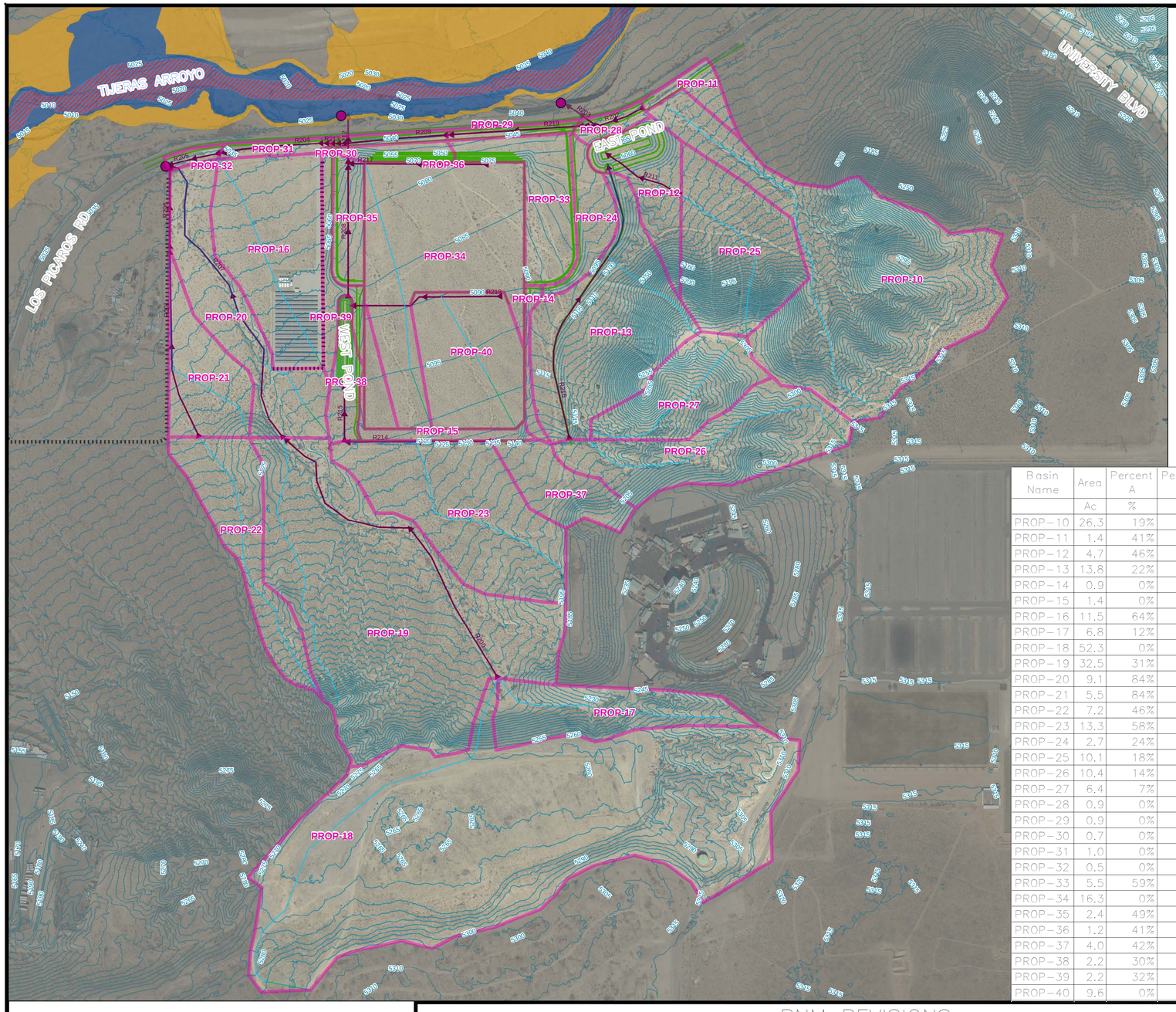
Proposed Hydrologic Calculations

3-1 Proposed Drainage Patterns

3-2 Proposed Drainage Tabulation

3-3 Proposed HEC-HMS Inputs and Outputs

3-1 Proposed Drainage Patterns



Name	Q100	Volume
Reaches:	cfs	Ac-Ft
R200	152.5	6.1
R201	13.0	0.5
R202	3.1	0.1
R203	114.0	6.8
R204	37.9	1.7
R205	58.7	2.7
R206	21.6	0.9
R207	210.3	8.8
R208	26.5	2.7
R209	24.4	1.0
R211	21.1	0.9
R212	51.6	4.0
R213	34.0	1.5
R214	8.4	0.3
R215	31.6	1.3
R216	37.6	1.5
R217	31.1	1.3
R218	26.5	1.1
R219	5.5	0.2
Outfalls:		
R205	58.7	2.7
Tijeras1	114.0	6.8
Tijeras2	51.6	4.0
Tijeras Total	165.6	10.8

Basin Name	Area	Percent A	Percent B	Percent C	Percent D	Weighted CN	Q100	24hr Volume	Runoff Rate
	Ac	%	%	%	%	unitless	cfs	Ac-Ft	cfs/Ac
PROP-10	26.3	19%	24%	57%	0%	82.6	60.5	2.441	2.3
PROP-11	1.4	41%	22%	29%	9%	81.9	3.0	0.123	2.2
PROP-12	4.7	46%	30%	24%	0%	79.8	9.1	0.372	1.9
PROP-13	13.8	22%	28%	50%	0%	82.1	30.8	1.246	2.2
PROP-14	0.9	0%	0%	100%	0%	86.0	2.4	0.098	2.8
PROP-15	1.4	0%	0%	100%	0%	86.0	4.0	0.161	2.8
PROP-16	11.5	64%	6%	30%	0%	79.8	22.2	0.911	1.9
PROP-17	6.8	12%	24%	64%	0%	83.3	16.3	0.655	2.4
PROP-18	52.3	0%	18%	82%	0%	84.8	136.2	5.455	2.6
PROP-19	32.5	31%	41%	28%	0%	80.4	65.4	2.668	2.0
PROP-20	9.1	84%	10%	6%	0%	77.8	15.4	0.642	1.7
PROP-21	5.5	84%	13%	3%	0%	77.5	9.2	0.383	1.7
PROP-22	7.2	46%	44%	10%	0%	78.8	13.0	0.537	1.8
PROP-23	13.3	58%	33%	9%	0%	78.5	23.7	0.98	1.8
PROP-24	2.7	24%	36%	40%	0%	81.3	6.0	0.244	2.2
PROP-25	10.1	18%	32%	50%	0%	82.1	21.6	0.876	2.1
PROP-26	10.4	14%	27%	59%	0%	82.8	23.3	0.941	2.2
PROP-27	6.4	7%	24%	69%	0%	83.7	15.0	0.605	2.3
PROP-28	0.9	0%	0%	83%	17%	88.0	2.3	0.093	2.4
PROP-29	0.9	0%	0%	81%	19%	88.3	2.6	0.105	3.1
PROP-30	0.7	0%	0%	81%	19%	88.3	2.3	0.093	3.1
PROP-31	1.0	0%	0%	81%	19%	88.3	3.0	0.119	3.0
PROP-32	0.5	0%	0%	81%	19%	88.3	1.5	0.061	3.1
PROP-33	5.5	59%	15%	26%	0%	79.6	17.2	0.686	3.1
PROP-34	16.3	0%	0%	100%	0%	86.0	31.1	1.278	1.9
PROP-35	2.4	49%	8%	43%	0%	81.0	6.8	0.271	2.8
PROP-36	1.2	41%	18%	41%	0%	81.1	2.6	0.105	2.1
PROP-37	4.0	42%	32%	26%	0%	80.0	8.4	0.339	2.1
PROP-38	2.2	30%	35%	35%	0%	80.8	4.3	0.174	2.0
PROP-39	2.2	32%	16%	52%	0%	82.0	4.6	0.187	2.1
PROP-40	9.6	0%	0%	100%	0%	86.0	26.6	1.062	2.8

LEGEND

- PROPOSED DRAINAGE BASINS
- PROPOSED OUTFALLS

FLOOD ZONES:

- AE
- AE, FLOODWAY
- X, 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- NON-CONTRIBUTING DRAINAGE
- BERM

LONGEST FLOW PATHS:

- SHEET
- SHALLOW CONCENTRATED
- CHANNEL
- CHANNEL REACHES
- SITE LAYOUT
- 5 FT CONTOURS
- PROPERTY LINE

JURISDICTION:

- ALBUQUERQUE
- UNINCORPORATED

N

0 600 1,200 FEET

1 INCH = 300 FEET
WHEN PRINTED ON 22" X 34" PAPER

AECOM

PROJECT: PROSPERITY SUBSTATION
LOCATION: BERNALILLO COUNTY, NM
PREPARED FOR: PNM
AECOM PROJECT NO.: 606XXXXX

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PNM REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D	OKD	APP'D
0						

PNM PUBLIC SERVICE COMPANY OF NEW MEXICO

PROPOSED CONDITIONS DRAINAGE PATTERNS

DR:	DATE: 5/2022	ATTACHMENT 3-1
ACAD-	APP:	

LastSavedBy: Keaton.Leander

PLOT DATE: 5/19/2022

3-2 Proposed Drainage Tabulation

Attachment 3-2:Proposed Conditions Drainage Basins Input and Output Data

Input Data:

Basin Name	Area	Area	Area A	Area B	Area C	Area D	Percent A	Percent B	Percent C	Percent D	CN A	CN B	CN C	CN D	Weighted CN
	sf	Ac	Ac	Ac	Ac	Ac	%	%	%	%	unitless	unitless	unitless	unitless	unitless
PROP-10	1145680	26.30	5.02	6.22	15.06	0.00	19%	24%	57%	0%	77	79	86	98	82.6
PROP-11	60043	1.38	0.56	0.30	0.40	0.12	41%	22%	29%	9%	77	79	86	98	81.9
PROP-12	204028	4.68	2.16	1.39	1.13	0.00	46%	30%	24%	0%	77	79	86	98	79.8
PROP-13	601084	13.80	3.03	3.87	6.89	0.00	22%	28%	50%	0%	77	79	86	98	82.1
PROP-14	38322	0.88	0.00	0.00	0.88	0.00	0%	0%	100%	0%	77	79	86	98	86.0
PROP-15	63043	1.45	0.00	0.00	1.45	0.00	0%	0%	100%	0%	77	79	86	98	86.0
PROP-16	499561	11.47	7.35	0.68	3.44	0.00	64%	6%	30%	0%	77	79	86	98	79.8
PROP-17	296017	6.80	0.81	1.61	4.38	0.00	12%	24%	64%	0%	77	79	86	98	83.3
PROP-18	2277962	52.30	0.00	9.30	43.00	0.00	0%	18%	82%	0%	77	79	86	98	84.8
PROP-19	1414049	32.46	9.95	13.35	9.16	0.00	31%	41%	28%	0%	77	79	86	98	80.4
PROP-20	395184	9.07	7.60	0.90	0.58	0.00	84%	10%	6%	0%	77	79	86	98	77.8
PROP-21	240118	5.51	4.62	0.72	0.17	0.00	84%	13%	3%	0%	77	79	86	98	77.5
PROP-22	311854	7.16	3.30	3.13	0.73	0.00	46%	44%	10%	0%	77	79	86	98	78.8
PROP-23	579154	13.30	7.76	4.33	1.21	0.00	58%	33%	9%	0%	77	79	86	98	78.5
PROP-24	118377	2.72	0.66	0.98	1.08	0.00	24%	36%	40%	0%	77	79	86	98	81.3
PROP-25	441326	10.13	1.86	3.20	5.07	0.00	18%	32%	50%	0%	77	79	86	98	82.1
PROP-26	453731	10.42	1.49	2.78	6.15	0.00	14%	27%	59%	0%	77	79	86	98	82.8
PROP-27	280828	6.45	0.44	1.54	4.46	0.00	7%	24%	69%	0%	77	79	86	98	83.7
PROP-28	40933	0.94	0.00	0.00	0.78	0.16	0%	0%	83%	17%	77	79	86	98	88.0
PROP-29	37229	0.85	0.00	0.00	0.69	0.16	0%	0%	81%	19%	77	79	86	98	88.3
PROP-30	32451	0.74	0.00	0.00	0.60	0.14	0%	0%	81%	19%	77	79	86	98	88.3
PROP-31	42564	0.98	0.00	0.00	0.79	0.18	0%	0%	81%	19%	77	79	86	98	88.3
PROP-32	21467	0.49	0.00	0.00	0.40	0.09	0%	0%	81%	19%	77	79	86	98	88.3
PROP-33	239757	5.50	3.25	0.83	1.43	0.00	59%	15%	26%	0%	77	79	86	98	79.6
PROP-34	709033	16.28	0.00	0.00	16.28	0.00	0%	0%	100%	0%	77	79	86	98	86.0
PROP-35	106189	2.44	1.19	0.20	1.04	0.00	49%	8%	43%	0%	77	79	86	98	81.0
PROP-36	53560	1.23	0.50	0.22	0.51	0.00	41%	18%	41%	0%	77	79	86	98	81.1
PROP-37	172807	3.97	1.67	1.25	1.05	0.00	42%	32%	26%	0%	77	79	86	98	80.0
PROP-38	94461	2.17	0.65	0.77	0.75	0.00	30%	35%	35%	0%	77	79	86	98	80.8
PROP-39	96909	2.22	0.71	0.36	1.16	0.00	32%	16%	52%	0%	77	79	86	98	82.0
PROP-40	416574	9.56	0.00	0.00	9.56	0.00	0%	0%	100%	0%	77	79	86	98	86.0

Attachment 3-2:Proposed Conditions Drainage Basins Input and Output Data

Output Data (From HEC-HMS):

Basin Name	Drainage Area	Q100	Time to Peak	24hr Volume	Runoff Rate
	Sq Mi.	cfs		Ac-Ft	cfs/Ac
PROP-10	0.041	60.5	23Apr2021, 12:10	2.441	2.3
PROP-11	0.002	3.0	23Apr2021, 12:10	0.123	2.2
PROP-12	0.007	9.1	23Apr2021, 12:10	0.372	1.9
PROP-13	0.022	30.8	23Apr2021, 12:10	1.246	2.2
PROP-14	0.001	2.4	23Apr2021, 12:10	0.098	2.8
PROP-15	0.002	4.0	23Apr2021, 12:10	0.161	2.8
PROP-16	0.018	22.2	23Apr2021, 12:10	0.911	1.9
PROP-17	0.011	16.3	23Apr2021, 12:10	0.655	2.4
PROP-18	0.082	136.2	23Apr2021, 12:10	5.455	2.6
PROP-19	0.051	65.4	23Apr2021, 12:10	2.668	2.0
PROP-20	0.014	15.4	23Apr2021, 12:10	0.642	1.7
PROP-21	0.009	9.2	23Apr2021, 12:10	0.383	1.7
PROP-22	0.011	13.0	23Apr2021, 12:10	0.537	1.8
PROP-23	0.021	23.7	23Apr2021, 12:10	0.98	1.8
PROP-24	0.004	6.0	23Apr2021, 12:10	0.244	2.2
PROP-25	0.016	21.6	23Apr2021, 12:10	0.876	2.1
PROP-26	0.016	23.3	23Apr2021, 12:10	0.941	2.2
PROP-27	0.010	15.0	23Apr2021, 12:10	0.605	2.3
PROP-28	0.002	2.3	23Apr2021, 12:10	0.093	2.4
PROP-29	0.001	2.6	23Apr2021, 12:10	0.105	3.1
PROP-30	0.001	2.3	23Apr2021, 12:10	0.093	3.1
PROP-31	0.002	3.0	23Apr2021, 12:10	0.119	3.0
PROP-32	0.001	1.5	23Apr2021, 12:10	0.061	3.1
PROP-33	0.009	17.2	23Apr2021, 12:10	0.686	3.1
PROP-34	0.025	31.1	23Apr2021, 12:10	1.278	1.9
PROP-35	0.004	6.8	23Apr2021, 12:10	0.271	2.8
PROP-36	0.002	2.6	23Apr2021, 12:10	0.105	2.1
PROP-37	0.006	8.4	23Apr2021, 12:10	0.339	2.1
PROP-38	0.003	4.3	23Apr2021, 12:10	0.174	2.0
PROP-39	0.004	4.6	23Apr2021, 12:10	0.187	2.1
PROP-40	0.015	26.6	23Apr2021, 12:10	1.062	2.8

Attachment 3-2: Proposed Conditions Time of Concentration and Lag Time

1st Flow Reach (Sheet Flow):

Basin Name	Flow Type	Elev_hi	Elev_low	Length	Slope	Conveyance Factor, K	Velocity, Vn	nth Travel Time, Tn
		Ft	Ft	Ft	Ft/Ft	unitless	fps	Hrs
PROP-10	SHEET	5315.5	5308.3	147	0.049	1	2.2	0.018
PROP-11*								
PROP-12*								
PROP-13	SHEET	5296.9	5294.7	40	0.055	1	2.3	0.005
PROP-14*								
PROP-15*								
PROP-16	SHEET	5089.1	5084.9	91	0.046	1	2.1	0.012
PROP-17	SHEET	5304.4	5294.6	195	0.051	1	2.3	0.024
PROP-18	SHEET	5301.0	5289.8	231	0.048	1	2.2	0.029
PROP-19	SHEET	5268.0	5258.0	52	0.193	1	4.4	0.003
PROP-20	SHEET	5104.7	5095.2	198	0.048	1	2.2	0.025
PROP-21	SHEET	5111.7	5104.2	69	0.109	1	3.3	0.006
PROP-22	SHEET	5257.7	5242.6	35	0.437	1	6.6	0.001
PROP-23	SHEET	5188.6	5184.5	149	0.028	1	1.7	0.025
PROP-24*								
PROP-25	SHEET	5305.8	5299.2	73	0.090	1	3.0	0.007
PROP-26	SHEET	5314.8	5304.5	186	0.055	1	2.4	0.022
PROP-27	SHEET	5305.8	5300.3	115	0.048	1	2.2	0.015
PROP-28*								
PROP-29*								
PROP-30*								
PROP-31*								
PROP-32*								
PROP-33*								
PROP-34	SHEET	5103.2	5095.0	323	0.025	1	1.6	0.056
PROP-35*								
PROP-36*								
PROP-37*								
PROP-38*								
PROP-39*								
PROP-40	SHEET	5113.5	5098.1	305	0.050	1	2.2	0.038

**minimum Tc of 0.2 hrs used for small basins*

Attachment 3-2: Proposed Conditions Time of Concentration and Lag Time

2nd Flow Reach (Shallow Concentrated Flow):

Basin Name	Flow Type	Elev_hi	Elev_low	Length	Slope	Conveyance Factor, K	Adjusted Slope, s' **	Velocity, Vn	nth Travel Time, Tn
		Ft	Ft	Ft	Ft/Ft	unitless	ft/ft	fps	Hrs
PROP-10	SC	5308.3	5080.8	1960	0.116	2	0.060	4.9	0.111
PROP-11*									
PROP-12*									
PROP-13	SC	5294.7	5085.0	605	0.347	2	0.075	5.5	0.031
PROP-14*									
PROP-15*									
PROP-16	SC	5084.9	5035.1	1114	0.045	2	0.044	4.2	0.074
PROP-17	SC	5294.5	5178.7	1220	0.095	2	0.058	4.8	0.070
PROP-18	SC	5289.8	5178.7	2196	0.051	2	0.048	4.4	0.139
PROP-19	SC	5258.1	5090.7	1442	0.116	2	0.060	4.9	0.082
PROP-20	SC	5095.2	5074.8	317	0.064	2	0.053	4.6	0.019
PROP-21	SC	5104.2	5064.8	488	0.081	2	0.056	4.8	0.029
PROP-22	SC	5242.6	5087.5	1492	0.104	2	0.059	4.8	0.085
PROP-23	SC	5184.5	5120.0	1129	0.057	2	0.051	4.5	0.069
PROP-24*									
PROP-25	SC	5299.2	5100.0	852	0.234	2	0.067	5.2	0.046
PROP-26	SC	5304.3	5154.7	1376	0.109	2	0.059	4.9	0.079
PROP-27	SC	5300.3	5154.8	895	0.163	2	0.063	5.0	0.050
PROP-28*									
PROP-29*									
PROP-30*									
PROP-31*									
PROP-32*									
PROP-33*									
PROP-34	SC	5095.0	5076.9	1088	0.017	2		2.6	0.117
PROP-35*									
PROP-36*									
PROP-37*									
PROP-38*									
PROP-39*									
PROP-40	SC	5098.1	5090.0	479	0.017	2		2.6	0.051

**minimum Tc of 0.2 hrs used for small basins*

***slope adjustment per DPM section 6-2(B)(5) for slopes greater than 4%*

Attachment 3-2: Proposed Conditions Time of Concentration and Lag Time

3rd Flow Reach (Channel Flow):

Basin Name	Flow Type	Elev_hi	Elev_low	Length	Slope	Conveyance Factor, K	Adjusted Slope, s' **	Velocity, Vn	nth Travel Time, Tn
		Ft	Ft	Ft	Ft/Ft	unitless	ft/ft	fps	Hrs
PROP-10									
PROP-11									
PROP-12									
PROP-13	CHANNEL	5085.0	5065.0	496	0.040	3		6.0	0.023
PROP-14									
PROP-15									
PROP-16									
PROP-17									
PROP-18									
PROP-19									
PROP-20	CHANNEL	5074.8	5036.8	1156	0.033	3		5.4	0.059
PROP-21	CHANNEL	5064.8	5046.5	621	0.029	3		5.2	0.033
PROP-22									
PROP-23	CHANNEL	5120.0	5107.5	361	0.035	3		5.6	0.018
PROP-24									
PROP-25									
PROP-26									
PROP-27									
PROP-28									
PROP-29									
PROP-30									
PROP-31									
PROP-32									
PROP-33									
PROP-34									
PROP-35									
PROP-36									
PROP-37									
PROP-38									
PROP-39									
PROP-40									

**minimum Tc of 0.2 hrs used for small basins*

***slope adjustment per DPM section 6-2(B)(5) for slopes greater than 4%*

Attachment 3-2: Proposed Conditions Time of Concentration and Lag Time

Time of Concentration and Lag Time:

Basin Name	Calculated Time of Conc., Tc	Tc Used (0.2hrs Min.)	Lag Time	Recommended Max Time Step (0.29*Lag)
	Hrs	Hrs	Min	Min
PROP-10	0.13	0.2	7.2	2.1
PROP-11*		0.2	7.2	2.1
PROP-12*		0.2	7.2	2.1
PROP-13	0.06	0.2	7.2	2.1
PROP-14*		0.2	7.2	2.1
PROP-15*		0.2	7.2	2.1
PROP-16	0.09	0.2	7.2	2.1
PROP-17	0.09	0.2	7.2	2.1
PROP-18	0.17	0.2	7.2	2.1
PROP-19	0.09	0.2	7.2	2.1
PROP-20	0.10	0.2	7.2	2.1
PROP-21	0.07	0.2	7.2	2.1
PROP-22	0.09	0.2	7.2	2.1
PROP-23	0.11	0.2	7.2	2.1
PROP-24*		0.2	7.2	2.1
PROP-25	0.05	0.2	7.2	2.1
PROP-26	0.10	0.2	7.2	2.1
PROP-27	0.06	0.2	7.2	2.1
PROP-28*		0.2	7.2	2.1
PROP-29*		0.2	7.2	2.1
PROP-30*		0.2	7.2	2.1
PROP-31*		0.2	7.2	2.1
PROP-32*		0.2	7.2	2.1
PROP-33*		0.2	7.2	2.1
PROP-34	0.17	0.2	7.2	2.1
PROP-35*		0.2	7.2	2.1
PROP-36*		0.2	7.2	2.1
PROP-37*		0.2	7.2	2.1
PROP-38*		0.2	7.2	2.1
PROP-39*		0.2	7.2	2.1
PROP-40	0.09	0.2	7.2	2.1

Attachment 3-2: Proposed Conditions Reach and Outfall Input and Output Data

Input Data:

Name	elev_hi	elev_low	length	Slope	s' **	K	Velocity	Travel Time
Reaches:	ft	ft	ft	ft/ft	ft/ft	unitless	fps	minutes
R200	5178.7	5090.6	1789	0.049	0.047	3	6.5	4.6
R201	5087.5	5046.5	997	0.041	0.041	3	6.1	2.7
R202	5071.9	5053.5	326	0.056	0.051	3	6.7	0.8
R203**			199	0.020		3	4.2	0.8
R204	5040.2	5034.8	530	0.010		3	3.0	2.9
R205	5034.8	5034.0	279	0.003		3	1.6	2.9
R206	5046.5	5034.0	428	0.029		3	5.1	1.4
R207	5090.7	5034.0	1626	0.035		3	5.6	4.8
R208**			689	0.048	0.046	3	6.5	1.8
R209	5040.1	5038.1	551	0.004		3	1.8	5.1
R211	5100.0	5055.1	451	0.100	0.058	3	7.3	1.0
R212**			260	0.020		3	4.2	1.0
R213**			92	0.010		3	3.0	0.5
R214	5132.4	5107.5	751	0.033		3	5.5	2.3
R215	5107.5	5083.0	300	0.082	0.057	3	7.1	0.7
R216	5144.2	5065.0	1534	0.052	0.048	3	6.6	3.9
R217**			720	0.040		3	6.0	2.0
R218**			800	0.010		3	3.0	4.4
R219	5053.5	5040.1	696	0.019		3	4.2	2.8

**slope adjustment per DPM section 6-2(B)(5) for slopes greater than 4%*

***proposed storm drain slope used (from plan)*

Attachment 3-2: Proposed Conditions Reach and Outfall Input and Output Data

Output Data (From HEC-HMS):

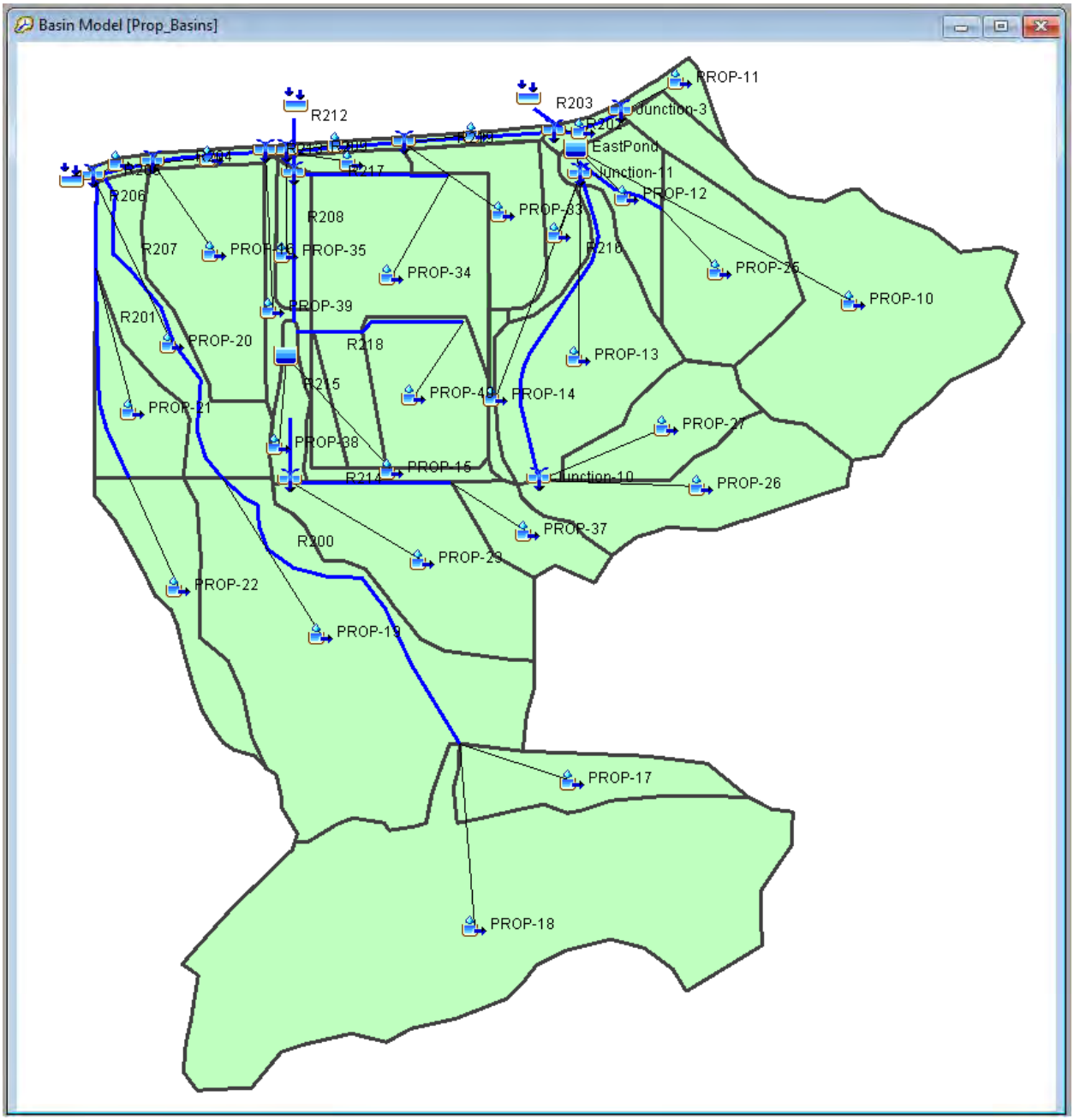
Name	drainage area	Q100	time of peak	Volume
Reaches:	sq mi.	cfs		Ac-Ft
R200	0.092	152.5	23Apr2021, 12:14	6.105
R201	0.011	13.0	23Apr2021, 12:12	0.537
R202	0.002	3.1	23Apr2021, 12:10	0.126
R203	0.118	114.0	23Apr2021, 12:18	6.819
R204	0.024	37.9	23Apr2021, 12:16	1.665
R205	0.043	58.7	23Apr2021, 12:16	2.694
R206	0.020	21.6	23Apr2021, 12:12	0.92
R207	0.143	210.3	23Apr2021, 12:16	8.767
R208	0.048	26.5	23Apr2021, 12:28	2.712
R209	0.014	24.4	23Apr2021, 12:14	1.008
R211	0.016	21.1	23Apr2021, 12:10	0.874
R212	0.073	51.6	23Apr2021, 12:14	3.988
R213	0.021	34.0	23Apr2021, 12:14	1.477
R214	0.006	8.4	23Apr2021, 12:12	0.339
R215	0.027	31.6	23Apr2021, 12:10	1.32
R216	0.026	37.6	23Apr2021, 12:12	1.548
R217	0.025	31.1	23Apr2021, 12:12	1.276
R218	0.0149	26.47	23Apr2021, 12:14	1.058
R219	0.0037	5.46	23Apr2021, 12:12	0.22
Outfalls:				
R205	0.0434	58.7	23Apr2021, 12:16	2.69
Tijeras1	0.118	114.0	23Apr2021, 12:18	6.82
Tijeras2	0.073	51.6	23Apr2021, 12:14	3.99
Tijeras Total	0.191	165.6		10.807

3-3 Proposed HEC-HMS Inputs and Outputs

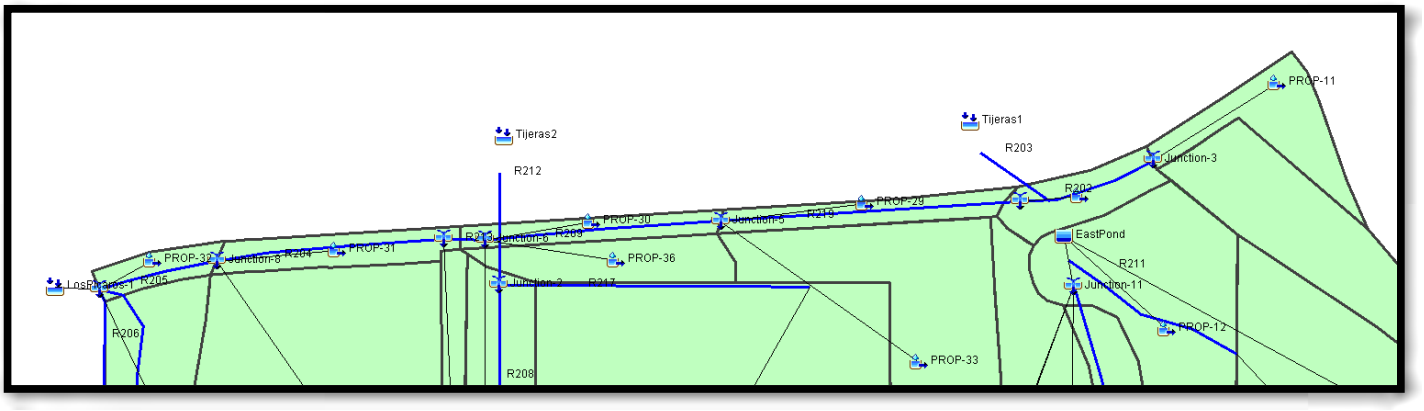
HEC-HMS Inputs and Outputs

Proposed Conditions, 100yr, 24hr Storm

Basin Model



Basin Model – Street Detail



Precipitation

Frequency Storm

Met Name: Met 1

Storm Type:	HYDRO35 TP40 TP49
Annual-Partial Conversion:	--None--
Annual-Partial Ratio:	1.00
Storm Duration:	1 Day
Intensity Duration:	5 Minutes
Intensity Position:	50 Percent
Area Reduction:	--None--
Curve:	Uniform For All Subbasins

Duration	Depth (IN)
5 Minutes	0.582
15 Minutes	1.100
1 Hour	1.830
2 Hours	2.050
3 Hours	2.110
6 Hours	2.280
12 Hours	2.400
1 Day	2.610
2 Days	

Control

Control Specifications

Name: Control 1

Description:	
*Start Date (ddMMMYYYY)	23Apr2021
*Start Time (HH:mm)	00:00
*End Date (ddMMMYYYY)	24Apr2021
*End Time (HH:mm)	00:00
Time Interval:	2 Minutes

Summary Output Table

Element	DA (Mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (IN)	Volume (Acre-ft)
EastPond	0.1178	114.0	23Apr2021, 12:18	1.1	6.8
Junction-1	0.027	31.6	23Apr2021, 12:10	0.9	1.3
Junction-10	0.0264	38.4	23Apr2021, 12:10	1.1	1.5
Junction-11	0.0536	74.7	23Apr2021, 12:12	1.1	3.1
Junction-2	0.073	51.9	23Apr2021, 12:14	1.0	4.0
Junction-3	0.0022	3.1	23Apr2021, 12:10	1.1	0.1
Junction-4	0.0037	5.5	23Apr2021, 12:10	1.1	0.2
Junction-5	0.0136	25.0	23Apr2021, 12:10	1.4	1.0
Junction-6	0.0205	34.0	23Apr2021, 12:14	1.4	1.5
Junction-7	0.024	37.9	23Apr2021, 12:14	1.3	1.7
Junction-8	0.0434	58.7	23Apr2021, 12:14	1.2	2.7
Junction-9	0.2212	300.9	23Apr2021, 12:16	1.1	13.1
LosPicaros-1	0.2212	300.9	23Apr2021, 12:16	1.1	13.1
PROP-10	0.0411	60.5	23Apr2021, 12:10	1.1	2.4
PROP-11	0.0022	3.1	23Apr2021, 12:10	1.1	0.1
PROP-12	0.0073	9.1	23Apr2021, 12:10	1.0	0.4
PROP-13	0.0216	30.9	23Apr2021, 12:10	1.1	1.2
PROP-14	0.0014	2.5	23Apr2021, 12:10	1.3	0.1
PROP-15	0.0023	4.1	23Apr2021, 12:10	1.3	0.2
PROP-16	0.0179	22.2	23Apr2021, 12:10	1.0	0.9
PROP-17	0.0106	16.3	23Apr2021, 12:10	1.2	0.7
PROP-18	0.0817	136.2	23Apr2021, 12:10	1.3	5.5
PROP-19	0.0507	65.4	23Apr2021, 12:10	1.0	2.7
PROP-20	0.0142	15.4	23Apr2021, 12:10	0.9	0.6
PROP-21	0.0086	9.1	23Apr2021, 12:10	0.8	0.4
PROP-22	0.0112	13.0	23Apr2021, 12:10	0.9	0.5
PROP-23	0.0208	23.7	23Apr2021, 12:10	0.9	1.0
PROP-24	0.0042	6.0	23Apr2021, 12:10	1.1	0.2
PROP-25	0.0158	21.5	23Apr2021, 12:10	1.0	0.9
PROP-26	0.0163	23.3	23Apr2021, 12:10	1.1	0.9
PROP-27	0.0101	15.1	23Apr2021, 12:10	1.1	0.6
PROP-28	0.0015	2.4	23Apr2021, 12:10	1.2	0.1
PROP-29	0.0013	2.6	23Apr2021, 12:10	1.5	0.1
PROP-30	0.0012	2.4	23Apr2021, 12:10	1.5	0.1
PROP-31	0.0015	3.0	23Apr2021, 12:10	1.5	0.1
PROP-32	0.0008	1.6	23Apr2021, 12:10	1.5	0.1
PROP-33	0.0086	17.1	23Apr2021, 12:10	1.5	0.7
PROP-34	0.0254	31.1	23Apr2021, 12:10	0.9	1.3

Element	DA (Mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (IN)	Volume (Acre-ft)
PROP-35	0.0038	6.8	23Apr2021, 12:10	1.3	0.3
PROP-36	0.0019	2.5	23Apr2021, 12:10	1.0	0.1
PROP-37	0.0062	8.3	23Apr2021, 12:10	1.0	0.3
PROP-38	0.0034	4.3	23Apr2021, 12:10	1.0	0.2
PROP-39	0.0035	4.6	23Apr2021, 12:10	1.0	0.2
PROP-40	0.0149	26.5	23Apr2021, 12:10	1.3	1.1
R200	0.0923	152.4	23Apr2021, 12:14	1.2	6.1
R201	0.0112	13.0	23Apr2021, 12:12	0.9	0.5
R202	0.0022	3.1	23Apr2021, 12:10	1.1	0.1
R203	0.1178	114.0	23Apr2021, 12:18	1.1	6.8
R204	0.024	37.9	23Apr2021, 12:16	1.3	1.7
R205	0.0434	58.7	23Apr2021, 12:16	1.2	2.7
R206	0.0198	21.6	23Apr2021, 12:12	0.9	0.9
R207	0.143	210.3	23Apr2021, 12:16	1.2	8.8
R208	0.0476	26.5	23Apr2021, 12:28	1.1	2.7
R209	0.0136	24.4	23Apr2021, 12:14	1.4	1.0
R211	0.0158	21.1	23Apr2021, 12:10	1.0	0.9
R212	0.073	51.6	23Apr2021, 12:14	1.0	4.0
R213	0.0205	34.0	23Apr2021, 12:14	1.4	1.5
R214	0.0062	8.3	23Apr2021, 12:12	1.0	0.3
R215	0.027	31.6	23Apr2021, 12:10	0.9	1.3
R216	0.0264	37.6	23Apr2021, 12:12	1.1	1.5
R217	0.0254	31.1	23Apr2021, 12:12	0.9	1.3
R218	0.0149	26.5	23Apr2021, 12:14	1.3	1.1
R219	0.0037	5.5	23Apr2021, 12:12	1.1	0.2
Tijeras1	0.1178	114.0	23Apr2021, 12:18	1.1	6.8
Tijeras2	0.073	51.6	23Apr2021, 12:14	1.0	4.0
WestPond	0.0476	26.5	23Apr2021, 12:26	1.1	2.7

Attachment 4

Drainage and Grading Plan

TIJERAS 4 ARROYO
WEST POND DISCHARGE MANHOLE MH-01
OVERHEAD POWER LINE
SWALE
EAST POND DISCHARGE
CULVERT
LOS PICAROS ROAD
MANHOLE MH-02
TERRACE WALL
D C-08
C C-08
NORTH WALL
STORM SEWER
-0.60%
PROPERTY LINE
WEST ACCESS ROAD
-1.25%
-5.79%
A C-07
WEST POND DISCHARGE SEE SHEET C-10
WEST WALL
ELECTRICAL EQUIPMENT PAD
EAST WALL
EAST ACCESS ROAD
DETENTION POND
STORMWATER DIVERSION CHANNEL
1
2
3
4
WEST GATE
RAIL GATE
-2.67%
LOW RETAINING WALL
EAST GATE
-3.00%
-1.18%
EXISTING SOLAR SITE
DETENTION POND
B C-07
AT-GRADE DRIVE ACCESS
-1.50%
-1.69%
SOUTH WALL
-0.60%

GRADING PLAN OVERALL
Scale: 1"=100'

N

0 100' 200'

KEY PLAN

N

REVISION	NO.	DATE	BY

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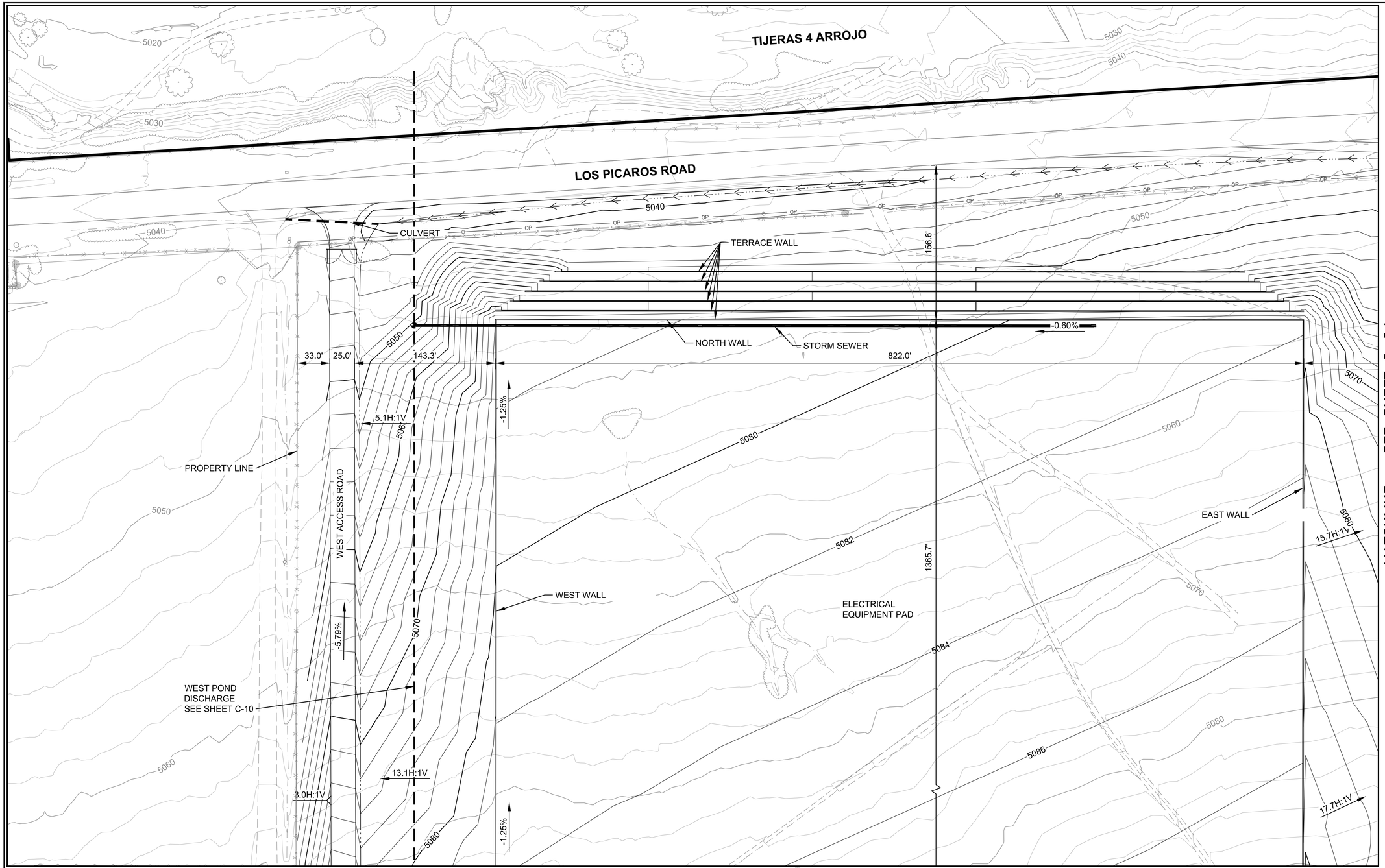
DRAINAGE AND GRADING PLAN OVERALL
--
PROSPERITY SUBSTATION

DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:	C–02	6 OF 15
REV. NO.		

DWG: C:\Users\jesse.higgins\Desktop\Prosperity\910_CAD\CITY-SUBMITTAL\C-GRADING OVERALL.dwg
DATE: Apr 05, 2022 3:47pm
XREFS: PNM Title block
Site Linework
Sheet Limits
USER: jesse.higgins
Original layout Linework
Plot Linework
Proposed Storm Sewer
IMAGES:



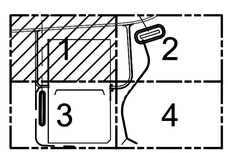
GRADING PLAN
Scale: 1"=50'

N

0 50' 100'

GENERAL NOTES

1.



KEY PLAN

REVISION	NO.	DATE	BY

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DRAINAGE AND GRADING PLAN 1
--
PROSPERITY SUBSTATION

DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:	C-03	7 OF 15
REV. NO.		

DWG: C:\Users\Jesse.Higgins\Desktop\Prosperity\310_CAD\CITY-SUBMITTAL\C-GRADING PLAN 1.dwg
DATE: Apr 05, 2022 3:47pm
USER: Jesse.Higgins
Original Topo Linework
Site Linework
Sheet Limits
PNM Title block
Plot Linework
Proposed Storm Sewer
IMAGES:

TIJERAS 4 ARROJO

LOS PICAROS ROAD

CULVERT

EAST POND DISCHARGE

6.2H:1V

DETENTION POND

EAST ACCESS ROAD

230.1'

30.0'

5.4H:1V

-3.57%

15.7H:1V

3.0H:1V

STORMWATER DIVERSION CHANNEL

2.9H:1V

17.7H:1V

MATCHLINE – SEE SHEET C-03

MATCHLINE – SEE SHEET C-06

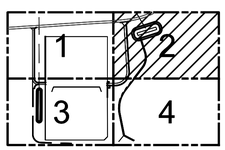
GRADING PLAN
Scale: 1"=50'

0 50' 100'

N

GENERAL NOTES

1.



KEY PLAN

REVISION	NO.	DATE	BY

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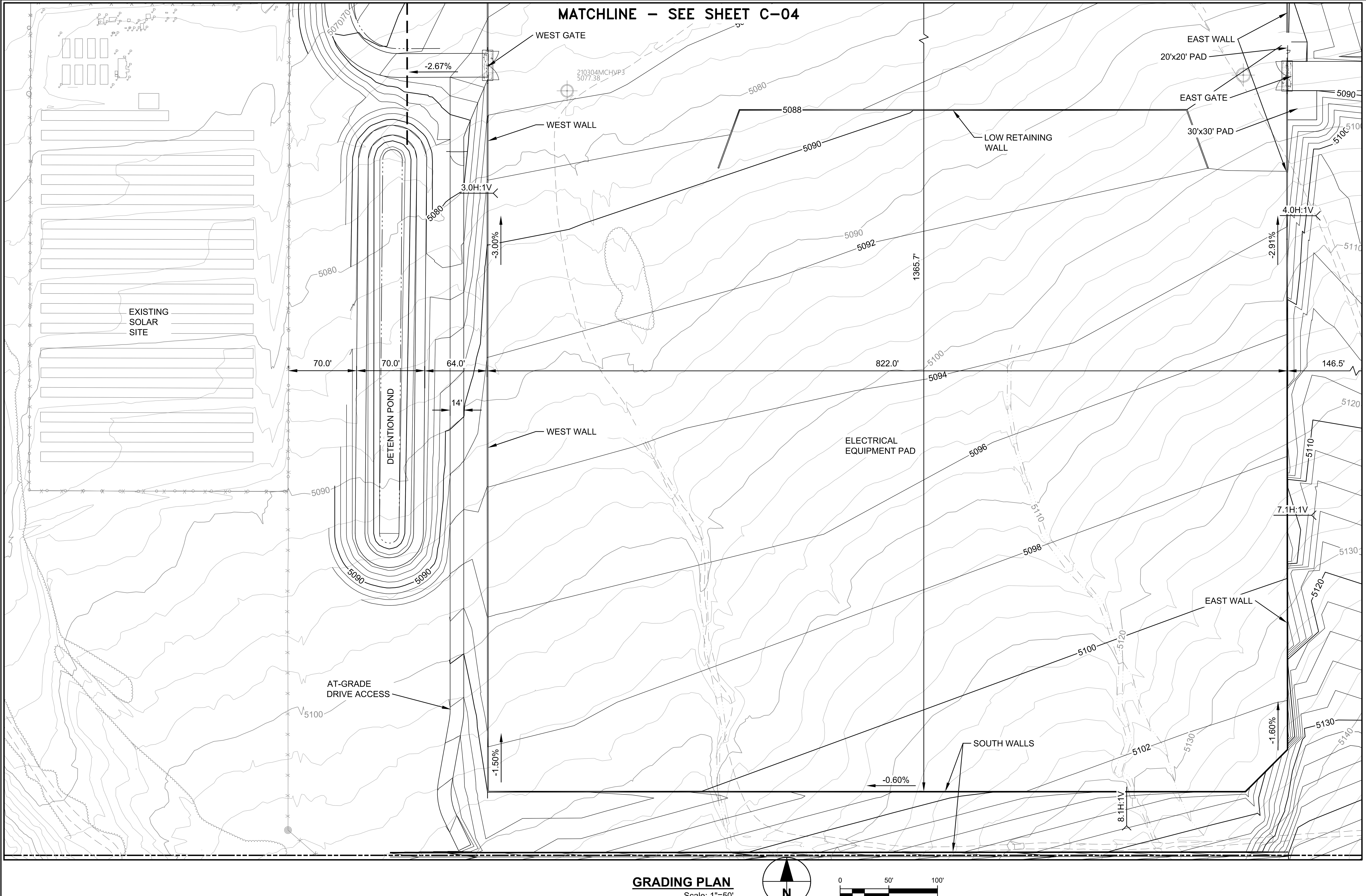
DRAINAGE AND GRADING PLAN 2
--
PROSPERITY SUBSTATION

DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:	C-04	8 OF 15
REV. NO.		

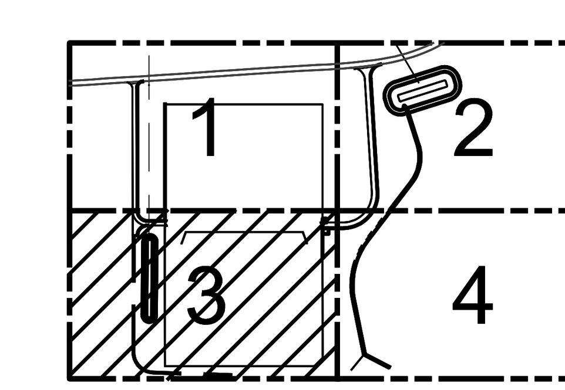
DWG: C:\Users\jesse.higgins\Desktop\Prosperity\910_CAD\CITY-SUBMITTAL\C-GRADING PLAN 2.dwg
DATE: Apr 05, 2021 3:47pm
XREFS: PNM Title block Street Lights Site Linework Original Topo Linework USER: jesse.higgins Plot Linework Proposed Storm Sewer IMAGES:

GENERAL NOTES

1.



GRADING PLAN
Scale: 1"=50'



KEY PLAN

REVISION		
NO.	DATE	BY

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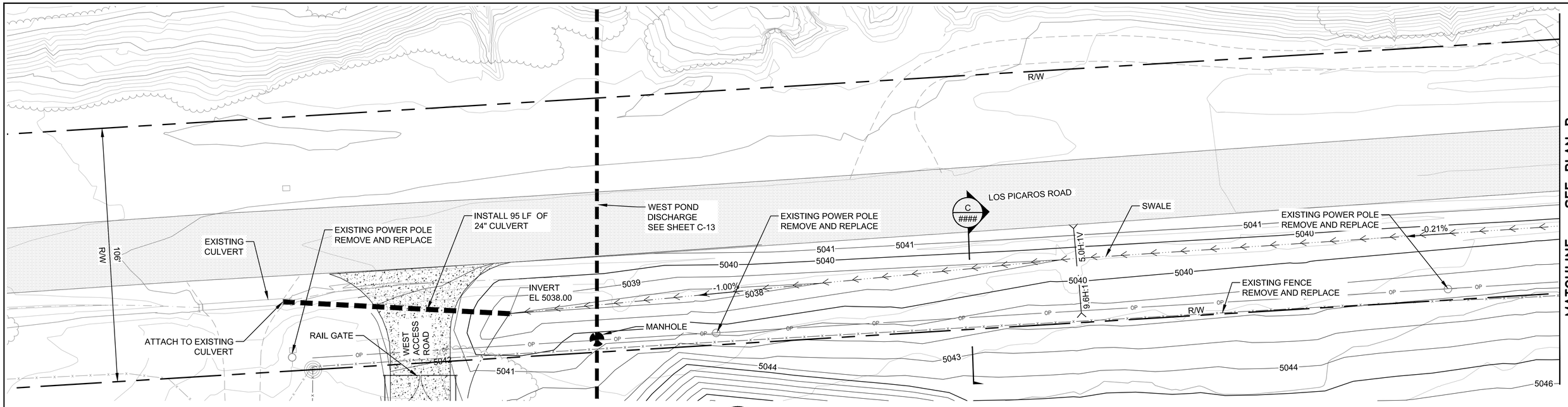
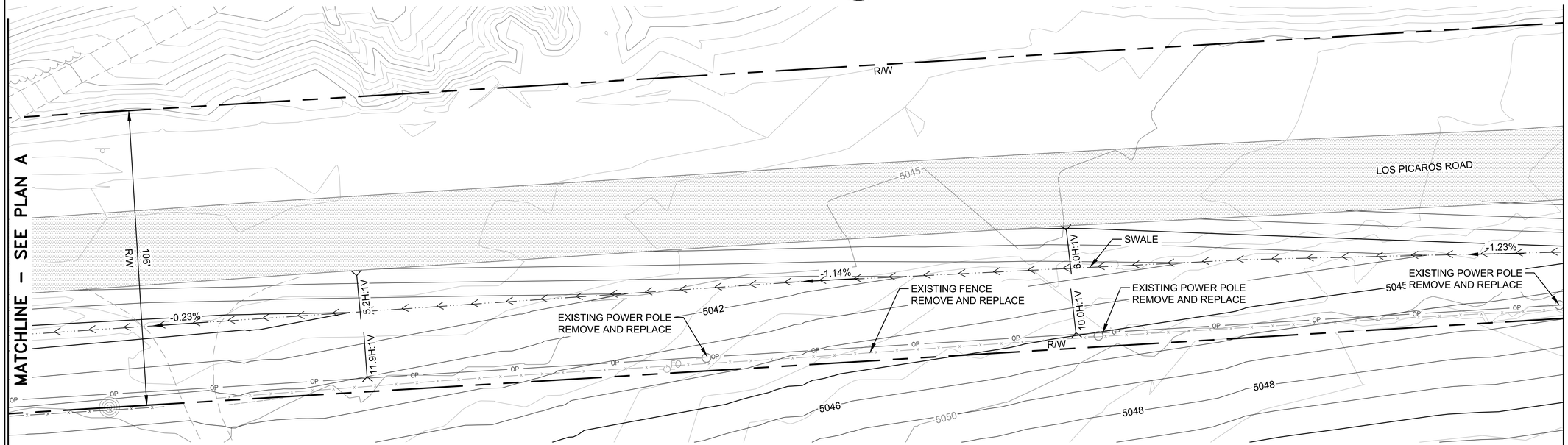
DRAINAGE AND GRADING PLAN 3
--
PROSPERITY SUBSTATION

DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:		
REV. NO.	C-05	9 OF 15

DWG: C:\Users\jesse.higgins\Desktop\Prosperity\910_CAD\CITY-SUBMITTAL\C-GRADING PLAN 3.dwg USER: jesse.higgins
DATE: Apr 05, 2022 3:47pm
XREFS: PNM Title block Sheet Limits Site Linework Original Topo Linework Plat Linework Proposed Storm Sewer IMAGES:



PLAN A
Scale: 1"=20'



PLAN B
Scale: 1"=20'

GENERAL NOTES

1.

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LOS PICAROS ROAD RIGHT-OF-WAY
GRADING PLAN
PROSPERITY SUBSTATION

DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:	C-06	10 OF 15
REV. NO.		

DWG: C:\Users\jesse.higgins\Desktop\Prosperity\310_CAD\CITY-SUBMITTAL\C-LOS PICAROS PLAN.dwg USER: jesse.higgins
DATE: Apr 05, 2022 3:47pm Site Linework Original Topo Linework Proj. Linework Proposed Storm Sewer IMAGES:
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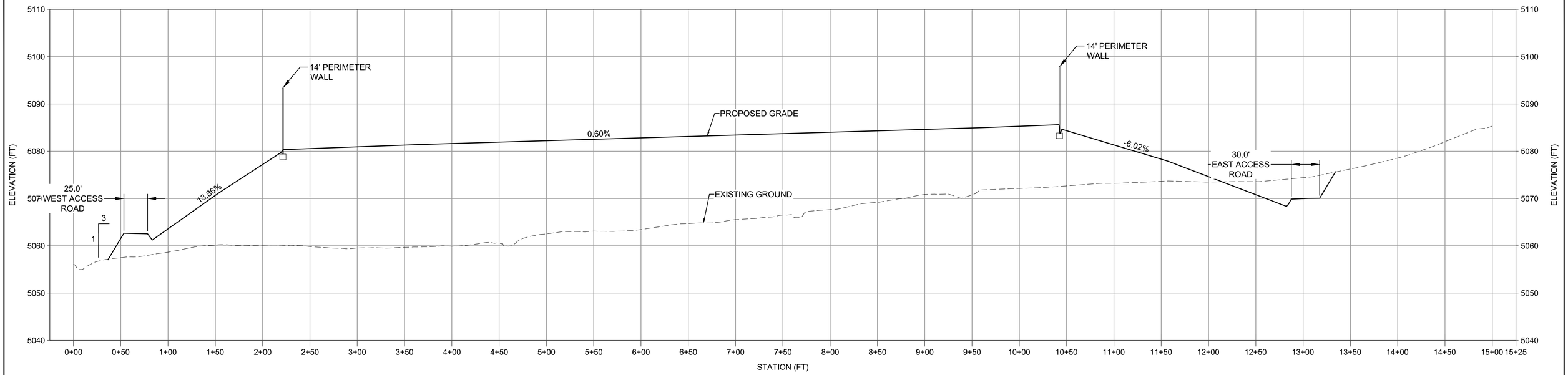

A | **SECTION**
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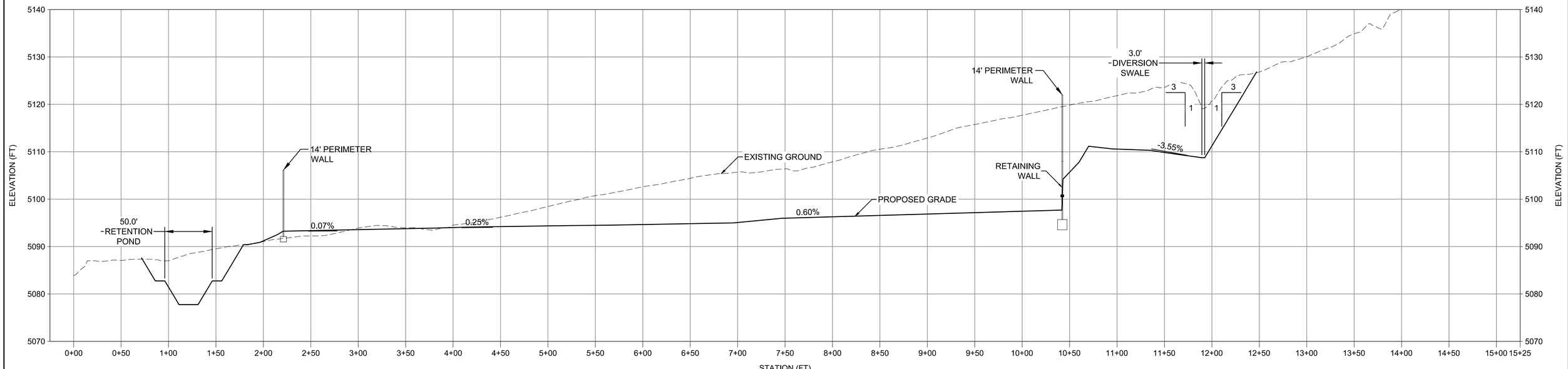
Horiz. 1"=50'



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Horiz. 1"=50'

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DATE: Apr 05, 2022 - 3:47pm Original Type: Linework Proposed Storm Sewer
XREFS: PNM Title Block Site Linework IMAGES:

REVISION

NO.	DATE	BY

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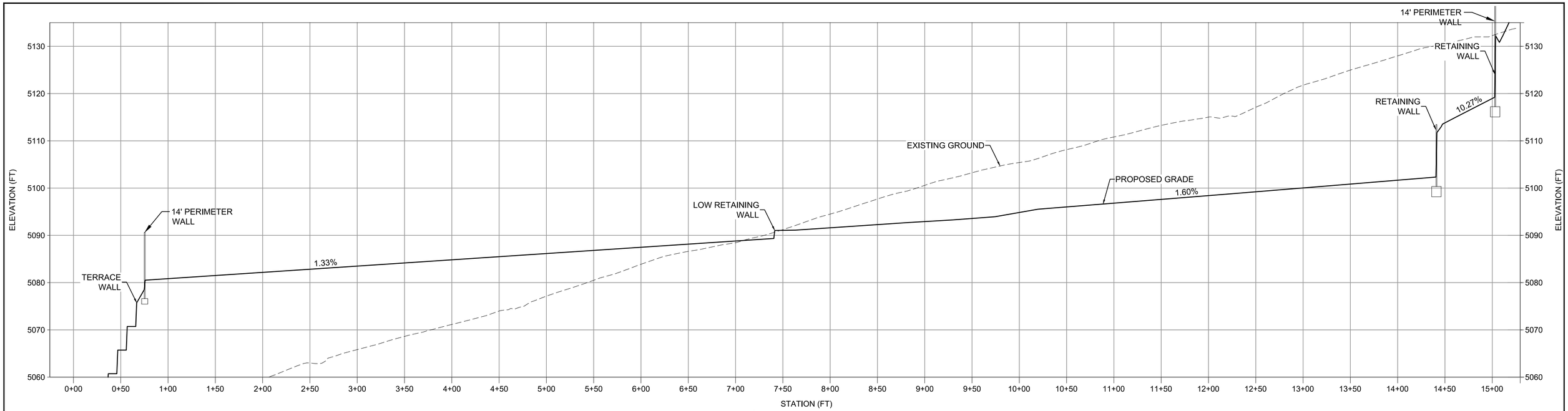
GRADING SECTIONS 1
--
PROSPERITY SUBSTATION

DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:	C-07	11 OF 15
REV. NO.		



C | **SECTION**
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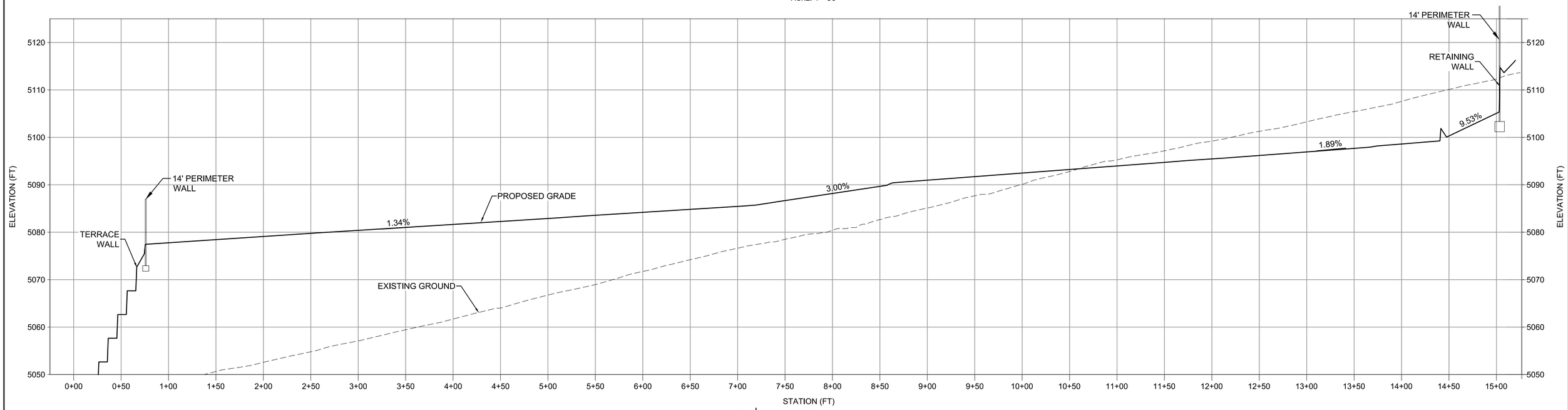
Horiz. 1"=50'



D | **SECTION**
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Horiz. 1"=50'

DWG: G:\Users\Jesse.Higgins\Desktop\Prosperity\910_CAD\CITY-SUBMITTAL\C-GRADING SECTIONS.dwg USER: Jesse.Higgins
DATE: Apr 05, 2022 - 3:47pm Proposed Storm Sewer Plot Linework
XREFS: PNM Title.dwgXT Original Topo Linework
Site Linework
IMAGES:

REVISION

NO.	DATE	BY

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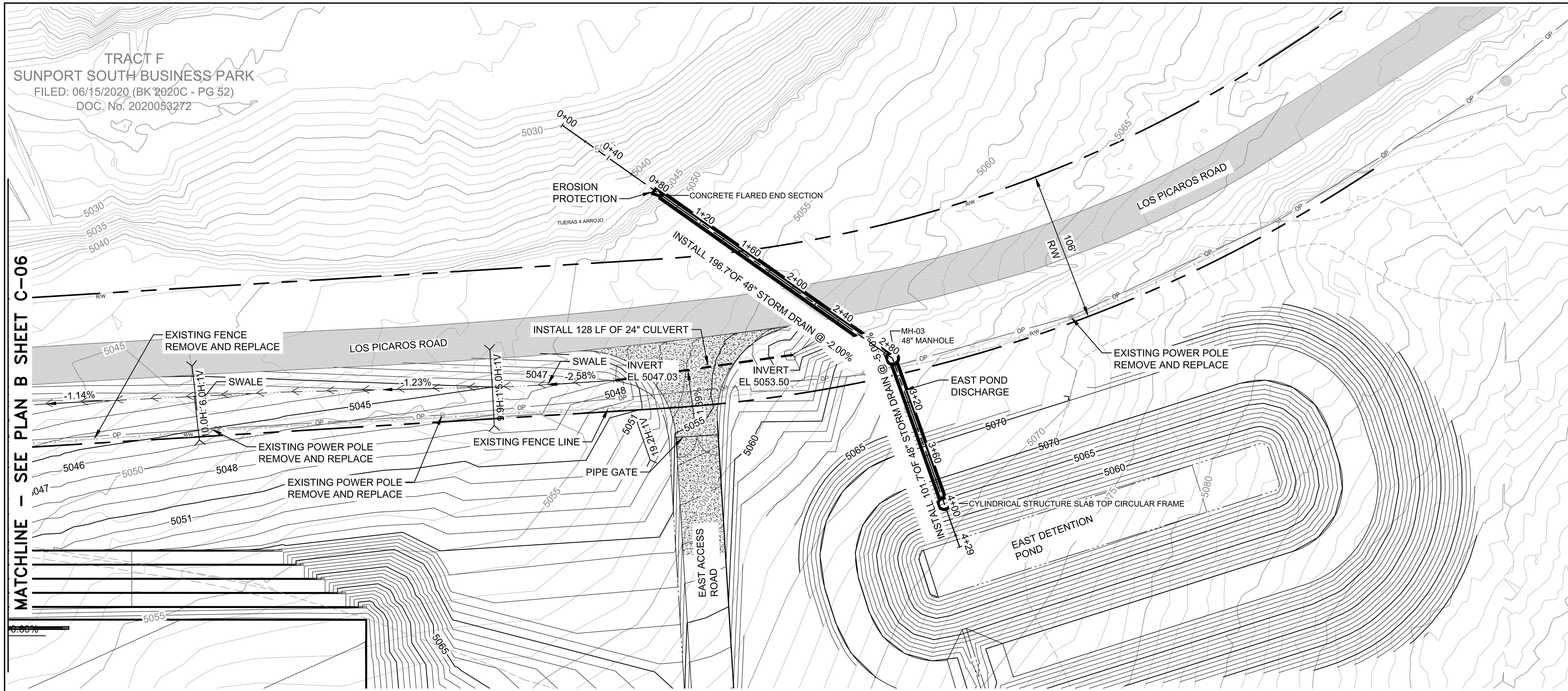
PNM PUBLIC SERVICE COMPANY OF NEW MEXICO

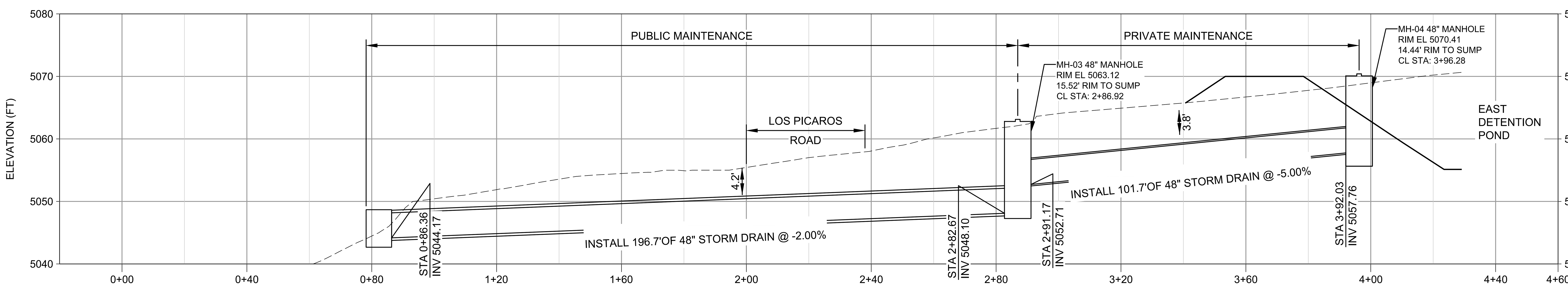
GRADING SECTIONS 2
--
PROSPERITY SUBSTATION

DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:	C-08	12 OF 15
REV. NO.		



PLAN C

Scale: 1"=40'



PROFILE

Scale: 1"=20' Horiz.
1"=10' Vert.

GENERAL NOTES

1.

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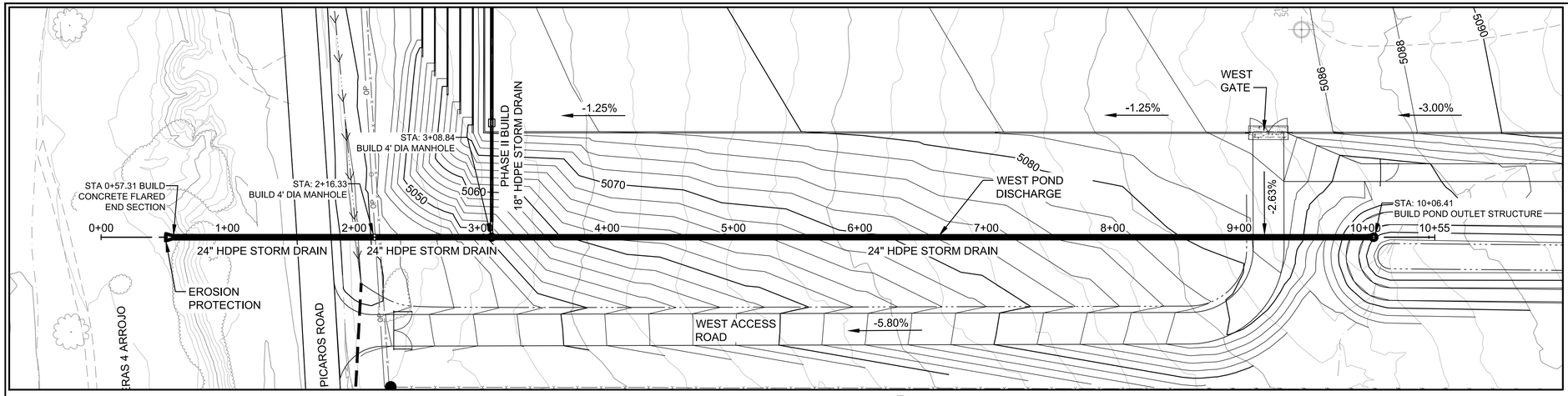
EAST POND DISCHARGE

PROSPERITY SUBSTATION

DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:		
REV. NO.	C-09	13 OF 15

REVISION | NO. | DATE | BY

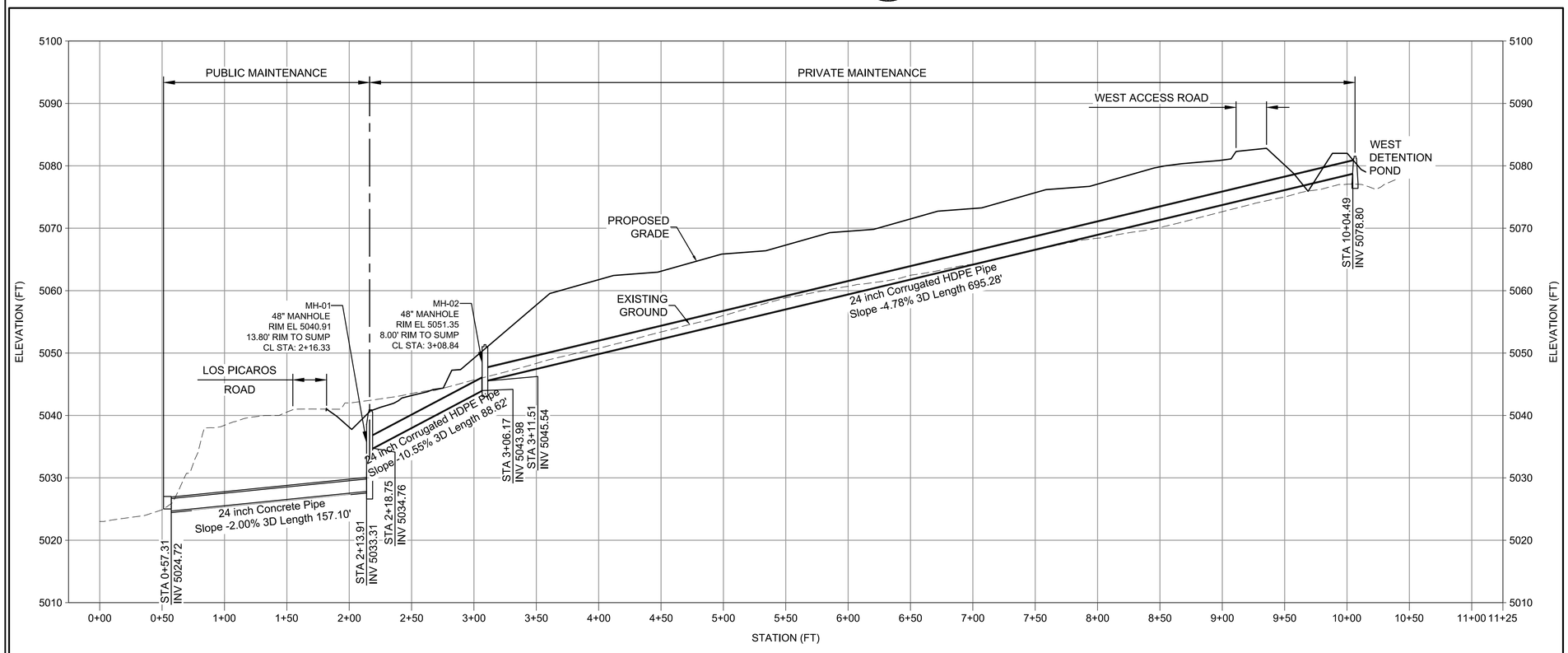
DWG: C:\Users\jesse.higgins\Desktop\Prosperity\910_CAD\CITY-SUBMITTAL\C-LOS PICAROS PLAN.dwg USER: jesse.higgins IMAGES:
DATE: Apr 05, 2022 3:48pm XREFS: PNM Title block Site Linework Original Topo Linework Plat Linework Proposed Storm Sewer



WEST POND DISCHARGE PLAN

Scale: 1"=50'

0 50' 100'



WEST POND DISCHARGE PROFILE

Scale: 1"=50' Horiz.
1"=10' Vert.

DWG: C:\Users\jesse.higgins\Desktop\Prosperity\310_CAD\CITI-SUBMITTAL\C-WEST_POND_DISCH_PnP.dwg
DATE: Apr 05, 2022 3:40pm
XREFS: PNM Title.dwg
Site Linework
Original Topo Linework
Prop Linework
USER: jesse.higgins
Proposed Storm Sewer
IMAGES:

NO.	DATE	BY
REVISION		

ENGINEER'S STAMP

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WEST POND DISCHARGE
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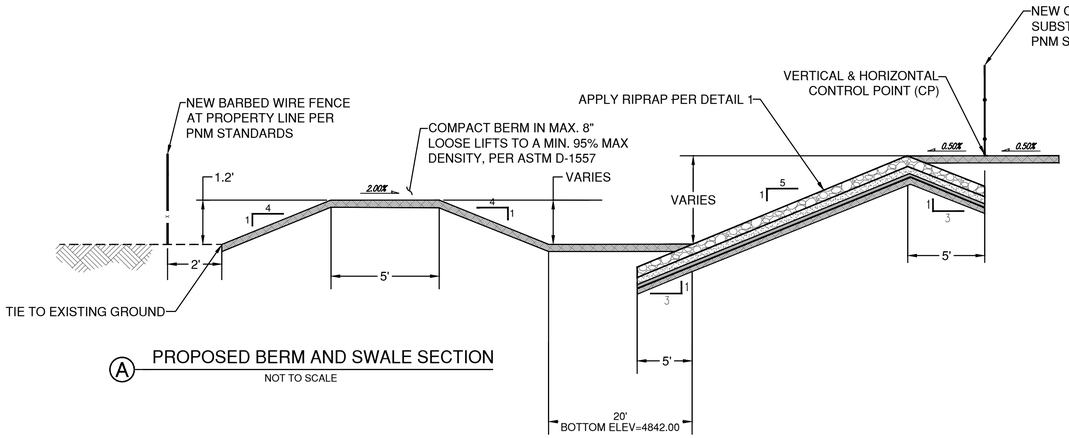
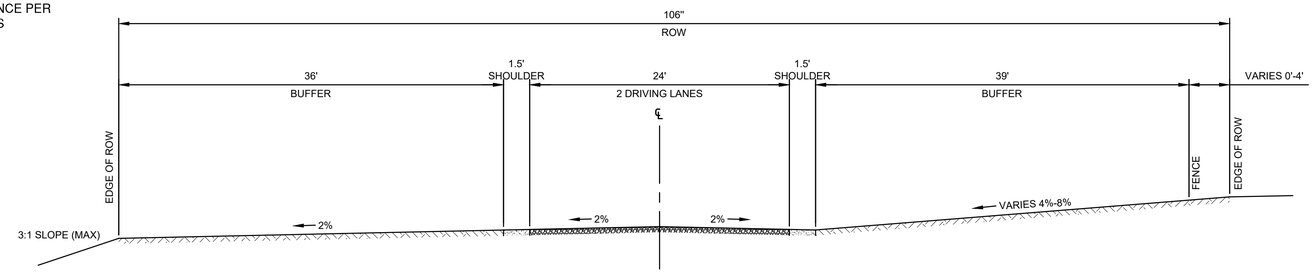
PROSPERITY SUBSTATION

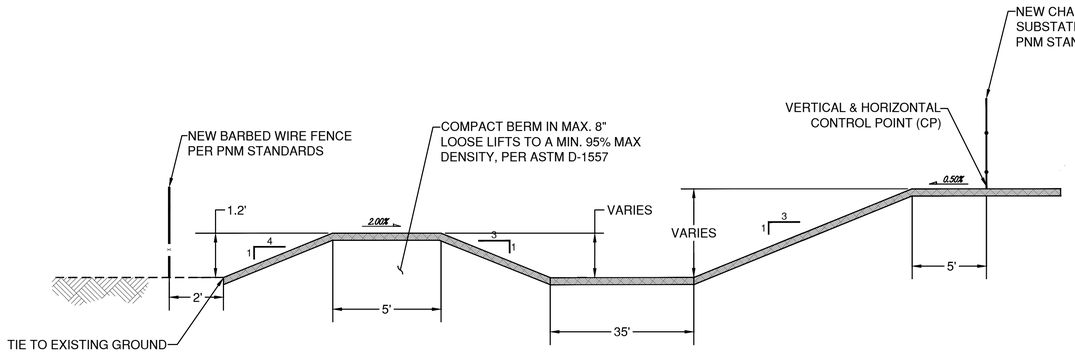
DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:		
REV. NO.	C-10	14 OF 15



A PROPOSED BERM AND SWALE SECTION
NOT TO SCALE



E EXISTING LOS PICAROS ROADWAY CROSS-SECTION
NOT TO SCALE



B PROPOSED BERM AND SWALE SECTION
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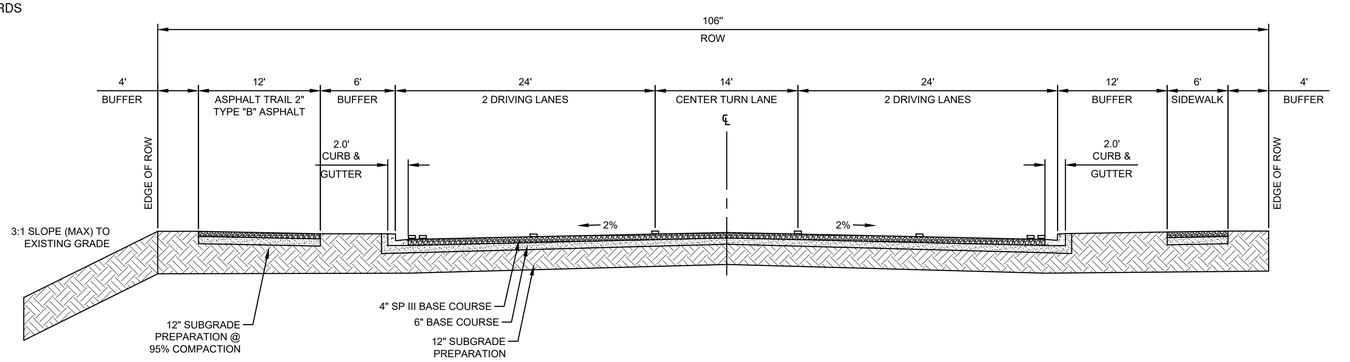

F FUTURE LOS PICAROS ROADWAY CROSS-SECTION
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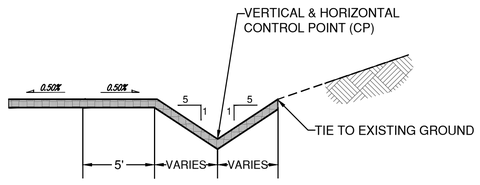
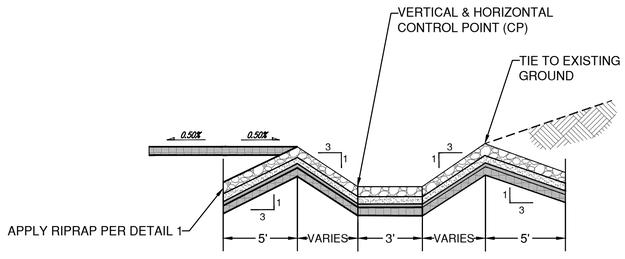
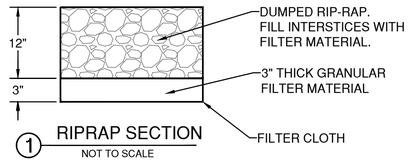


C LOS PICAROS ROADSIDE SWALE
NOT TO SCALE



D SECTION B TO SECTION TRANSITION
NOT TO SCALE



1 RIPRAP SECTION
NOT TO SCALE

RIP-RAP:
RIP-RAP SHALL CONSIST OF ROCK MEETING THE FOLLOWING GRADATION.

MAX DIMENSION	% SMALLER
12"	100
9"	50-70
6"	35-55
3"	10

FILTER MATERIAL:
FILTER MATERIAL SHALL CONSIST OF ROCK MEETING THE FOLLOWING GRADATION.

U.S. STANDARD SIEVE SIZE	PASSING BY WEIGHT
1"	100
3/4"	45-65
#4	25-45
#40	0-20
#200	0-5

FILTER MATERIAL SHALL BE PLACED UNDER THE RIP-RAP RAMP PAVEMENT AS SHOWN HEREIN, AND SHALL ALSO BE SPREAD CONCURRENTLY WITH THE RIP-RAP, SUCH AS TO COMPLETELY FILL THE INTERSTICES BETWEEN THE STONES.

THE RAMP AND SIDESLOPE SUBGRADES SHALL BE PROCESSED TO A 12" MINIMUM DEPTH AND COMPACTED TO 95% MINIMUM RELATIVE DENSITY PER ASTM D 698. THE FILTER MATERIAL BASE SHALL BE TAMPED AND SHAPED TO FORM A SMOOTH, EVEN, AND FIRM FOUNDATION FOR THE OVERLYING RIP-RAP. THE CONTRACTOR'S OPERATIONS AND METHODS OF PLACING SHALL PREVENT SEGREGATION OF THE MATERIALS.

DWG: C:\Users\jesse.higgins\Desktop\Prosperity\910_CAD\CITY-SUBMITTAL\C-DRAINAGE DETAILS.dwg USER: jesse.higgins
DATE: Apr 05, 2022 - 2:32pm Sheet Units: Site Drawing Proposed Storm Sewer
XREFS: PNM Title Block IMAGES:

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DRAINAGE DETAILS
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PROSPERITY SUBSTATION

DR:		DATE: 01/11/22
CKD:	OK:	SCALE: As Noted
APP:	C–11	15 OF 15
REV. NO.		

Attachment 5

Models (Electronic)

5-1 HEC-HMS Model

5-2 Bentley FlowMaster Workbook