CITY OF ALBUQUERQUE

April 11, 2017

Richard J. Berry, Mayor

Ronald R. Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Pl. NE
Albuquerque, NM, 87109

RE: Lot 2A & 3A Del Norte Plaza
Grading and Drainage Plan
Engineer's Stamp Date 4-10-2017 (File: C18D042D)

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 4-10-2017, the above referenced Grading and Drainage Plan is approved for building permit based on the following condition:

- Trash enclosure if used for restaurants / food services must have drains which would drain to grease traps and then to sanitary sewer system.

Please attach a copy of this approved plan in the construction sets for Building Permit processing. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3999.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Dept.
Development Review Services

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

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Lot 2A & 3A Del Norte Plaza Building Permit #: _____ City Drainage #: _____

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

Legal Description: Lot 2A & A Portion of Lot 3A Del Norte Plaza

City Address: 8130 San Pedro Dr. NE

Engineering Firm: Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Pl. NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

Owner: Pacific Paseo Land Investment LLC Contact: _____

Address: 6101 Moon NE Suite 4000 Albuquerque, NM 87111

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

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE

_____ TRAFFIC/ TRANSPORTATION

_____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

_____ ENGINEER/ ARCHITECT CERTIFICATION

_____ CONCEPTUAL G & D PLAN

x GRADING PLAN

_____ DRAINAGE MASTER PLAN

x DRAINAGE REPORT

_____ CLOMR/LOMR

_____ TRAFFIC CIRCULATION LAYOUT (TCL)

_____ TRAFFIC IMPACT STUDY (TIS)

_____ EROSION & SEDIMENT CONTROL PLAN (ESC)

_____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

x BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY

_____ PRELIMINARY PLAT APPROVAL

_____ SITE PLAN FOR SUB'D APPROVAL

x 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

_____ PRE-DESIGN MEETING

_____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: x Yes _____ No

DATE SUBMITTED: 4/10/2017 By: Vinny Perea

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

DRAINAGE REPORT

For

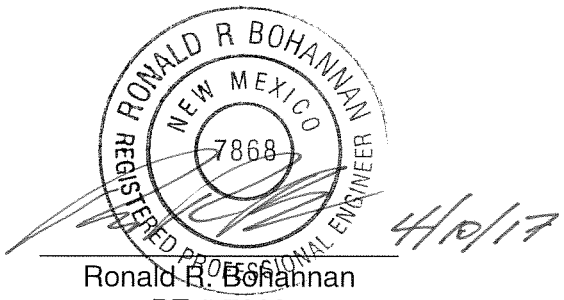
Lot 2-A and 3-A Del Norte Plaza

Prepared by:

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

April 10, 2017

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. Bohannan
PE # 7868

Job No. 2015064

TABLE OF CONTENTS

Appendices

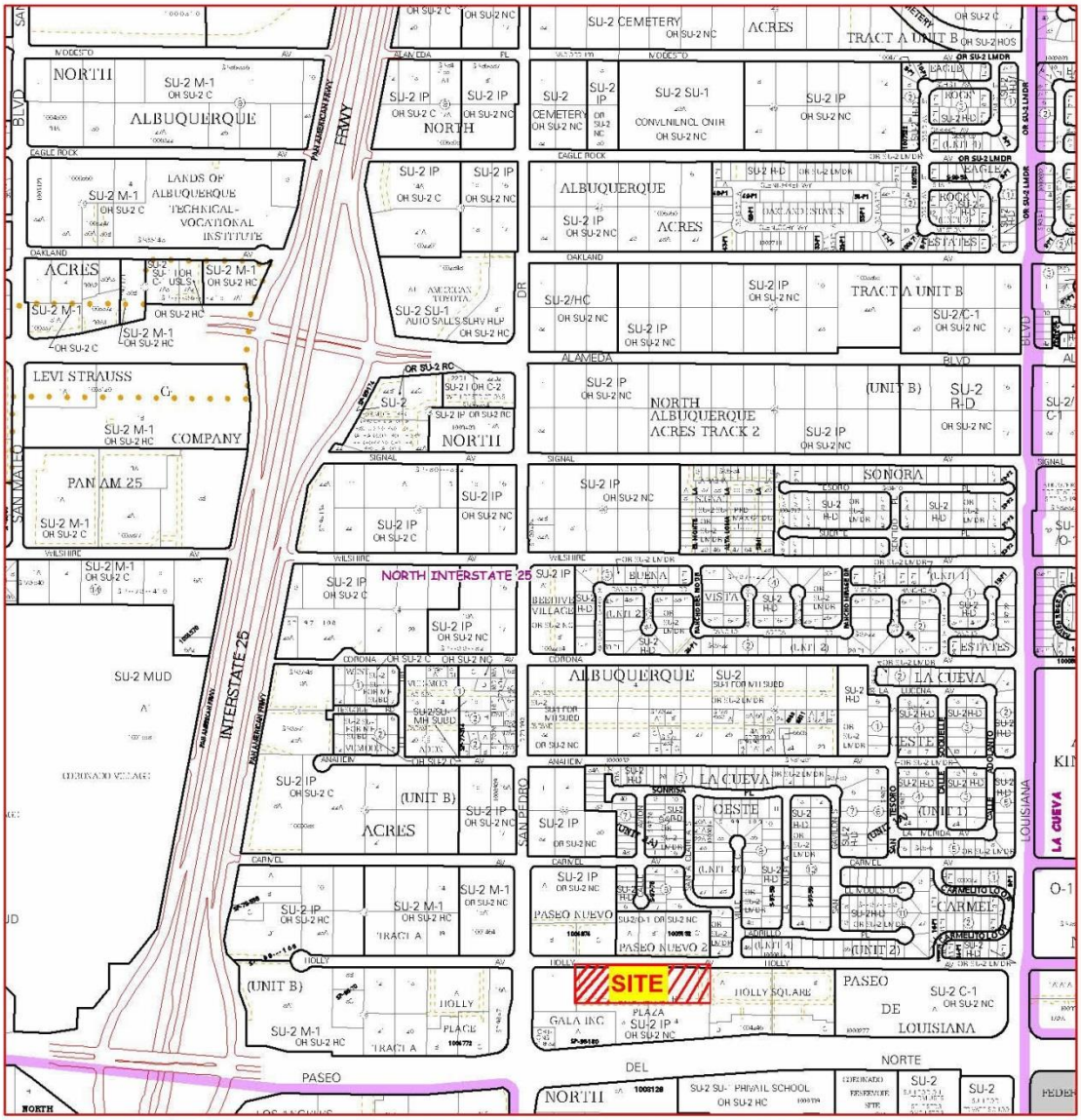
Purpose

The purpose of this report is to develop a Drainage Management Plan for a 2.99 acre parcel of land, which is a all of Lot 2A & a portion of Lot 3A Del Norte Plaza. The 2.99 acres of development will be for retail/restaurant and parking use within the Del Norte Plaza Shopping Center.

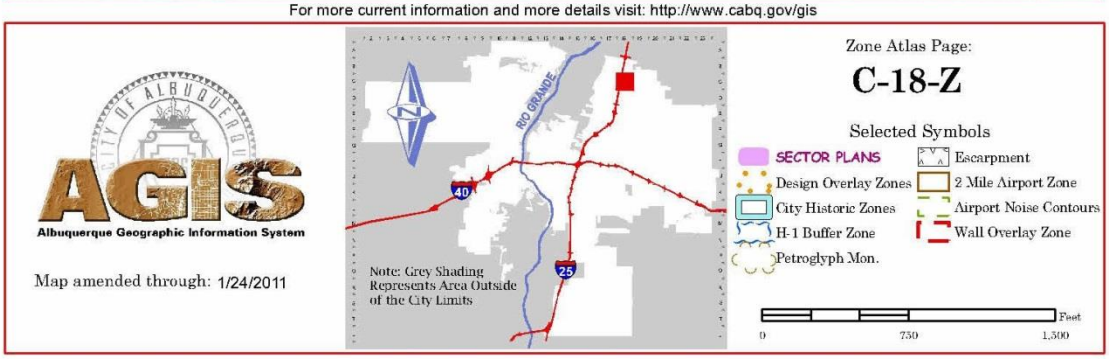
Location

The site is located near the northeast corner of the Paseo Del Norte Blvd/San Pedro Dr. Intersection. The site is bounded by a paved private road for the Del Norte Plaza Shopping Center along the east, west and south property lines and is bounded by Holly Ave. to the north. The site location is shown on the Zone Atlas Page, C-18-Z found in Exhibit A.

Exhibit A – Vicinity Map



For more current information and more details visit: http://www.cabq.gov/gis



Existing Conditions

The site is undeveloped and rough graded with the overall surface drainage flowing from northeast to southeast. There are two existing drainage basins for the lot which essentially splits the lot in half.

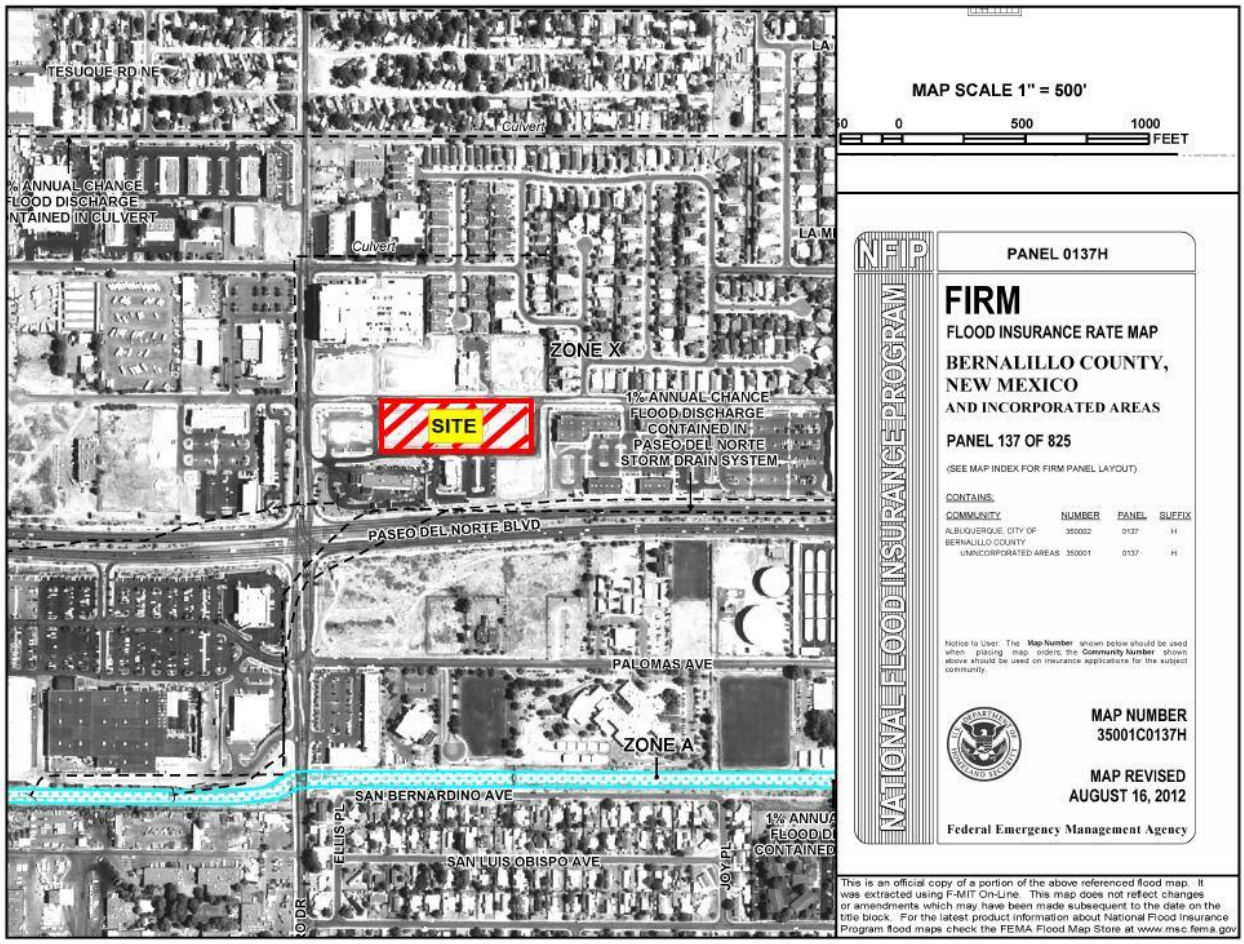
The western drainage basin (Existing Basin 1) surface flows to the southwest corner of the site towards an existing Single D drop inlet. The inlet conveys the collected flows via storm drain towards the public storm drain underneath Holly Avenue. The eastern drainage basin (Existing Basin 2) surface flows south towards the private roadway directly south of the site and flows west, making its way towards Holly Ave. and entering the public storm drain system.

There is an approved drainage report for the site titled “Lot 1A Block 35 Tract A Unit B of North Albuquerque Acres” stamped 11-1-06 (C18/D42). The drainage report calls for allowing a discharge of 11.15 cfs from lots 2A & 3A to the Holly Avenue storm drain system. This report was approved prior to the change in the drainage ordinance.

Flood Plain

The site is located on FIRM Map 35001C0137H. The map indicates that the site does not lie within a 100-year flood plain. This FIRM Map can be found in Exhibit B.

Exhibit B – FIRM Map



Proposed Conditions

The site will be built in its entirety for all paving and landscape improvements. There are three developed basins to the site which all send the drainage flow from northeast to southwest. The furthest western basin (Basin 1) includes all three buildings and the parking area south and east of the furthest west building. All flows within this basin will be conveyed towards a landscaped pond in the southwest corner of the property with a raised single D inlet for discharge and first flush retention with a total discharge of 6.96 cfs. The landscaped pond will be depressed enough to retain the first flush volume of this basin (1666 cubic feet) before all remaining runoff will discharge into the raised single D inlet.

The two easternmost buildings and patios will drain on the north side of the respective buildings via roof drain and area drain connections to a grated trench drain that will run along the span of the proposed sidewalk behind these buildings. The trench drain will daylight along the parking area west of these buildings and flow towards the landscaped pond with raised inlet. Capacity calculations for the trench drain can be found in Appendix C.

Basin 2 consists of the paved and parking area directly south of the middle building. All flows in this basin flow towards a depressed landscaped area for first flush retention before being conveyed through a 2 foot wide sidewalk culvert to the existing private road with a discharge of 1.06 cfs. The landscaped pond in this basin will be depressed enough to retain the first flush volume of this basin (283 cubic feet) before the remaining runoff discharges through the sidewalk culvert towards the private road.

Basin 3 consists of the paved parking area directly south and east of the easternmost building. All flows will flow similar to Basin 2 towards a landscaped depressed area onsite for first flush retention before being conveyed through a 2 foot sidewalk culvert towards the existing private road with a discharge of 3.13 cfs. The landscaped pond will be depressed enough to retain the first flush volume of this basin (735 cubic feet) before the remaining runoff discharges through the sidewalk culvert towards the private road.

All runoff from this developed site will ultimately be directed towards the storm drain system in Holly Avenue with a total discharge of 11.15 cfs, which is the allowable developed discharge rate for this site per the approved drainage report (C18/D42) for this subdivision.

Calculations and Water Quality

The Weighted E Method from the “City of Albuquerque Development Process Manual Volume I – Design Criteria, 2006 Revision” was used to calculate the runoff and volume for the site, the hydrology table can be found in Appendix B. Drainage capacities for the sidewalk culverts, single D inlet, and trench drain can be found in Appendix C. Also included on the weighted E table is the first flush retention volume calculations for the fully developed site calculated per the City of Albuquerque drainage ordinance as 0.44” of the impervious area.

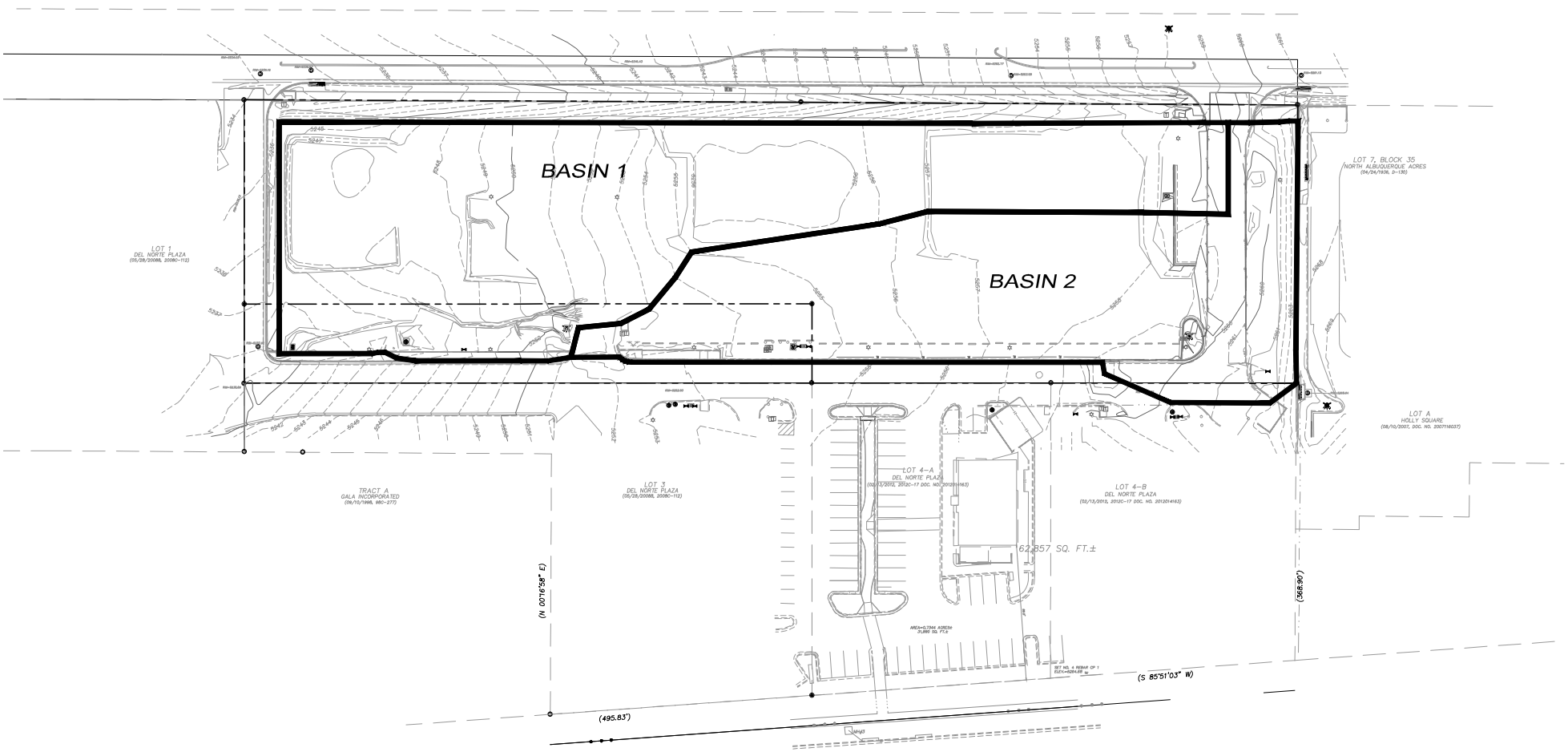
Summary

The entire site will be graded and all of the surface improvements will be built out in their entirety. The enclosed grading plan shows the grades for the entire project.

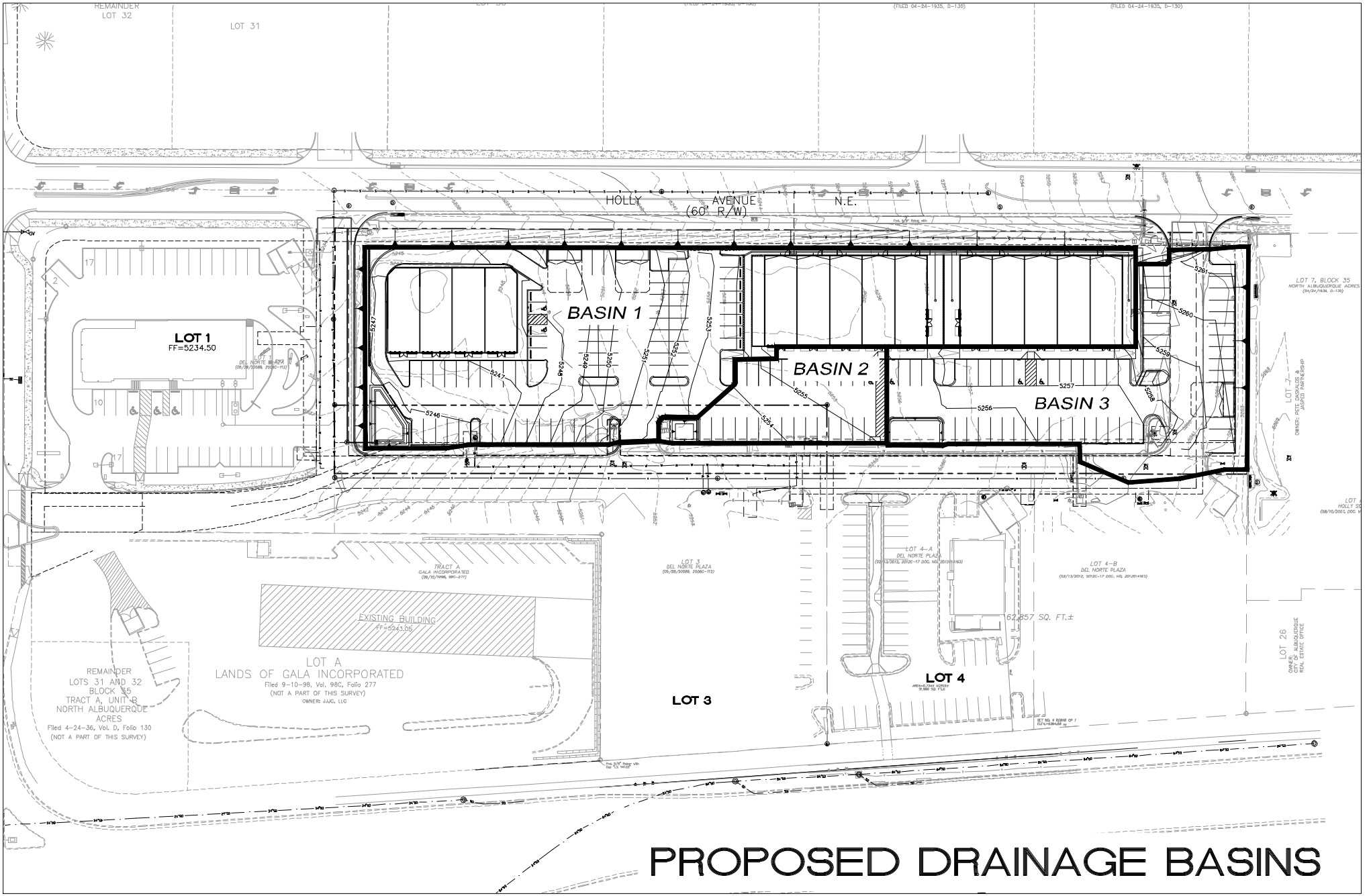
The proposed development consists of three drainage basins that all flow from northeast to southwest towards a landscaped ponding area within each respective basin. Basin 1 will convey the non-retained flows through an existing single D inlet towards the storm drain in Holly Avenue. Basins 2 and 3 will convey the non-retained flows through a proposed sidewalk culvert for each basin and free discharge to the private roadway that bounds the property. The total discharge of the proposed development will be 11.15 cfs which is the allowable discharge per the approved drainage report entitled “Lot 1A Block 35 Tract A Unit B of North Albuquerque Acres” stamped 11-1-06 (C18/D42).

APPENDIX A:

Drainage Basin Maps



EXISTING DRAINAGE BASINS



PROPOSED DRAINAGE BASINS

APPENDIX B:

Hydrology Calculations

DPM Weighted E Method

Precipitation Zone 3
SE Corner of San Pedro Dr. and Holly Ave.
Lot 2 Del Norte Plaza
TWLLC **Date** 2/15/2016

Existing Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
1	63,540.68	1.459	0.00228	0%	0.000	97%	1.415	0%	0.000	3%	0.044	0.963	0.117	3.90	0.394	0.048	1.83
2	46,090.02	1.058	0.00165	0%	0.000	88%	0.931	0%	0.000	12%	0.127	1.093	0.096	3.06	0.497	0.044	1.54
Total	**109,630.70**	**2.517**	**0.00393**										**0.213**	**6.96**		**0.092**	**3.37**

Proposed Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
1	64,767.60	1.487	0.00232	0%	0.000	14%	0.208	0%	0.000	86%	1.279	2.158	0.267	6.96	1.340	0.166	4.58
2	9,800.50	0.225	0.00035	0%	0.000	13%	0.029	0%	0.000	87%	0.196	2.173	0.041	1.06	1.352	0.025	0.70
3	29,877.37	0.686	0.00107	0%	0.000	19%	0.130	0%	0.000	81%	0.556	2.086	0.119	3.13	1.283	0.073	2.04
Total	**104,445.47**	**2.398**	**0.00375**										**0.427**	**11.15**		**0.265**	**7.32**

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

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

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

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

First Flush

Total Impervious Area = 2.03 acres = 88,426.8 SF

Retainage depth = 0.44" -IA = 0.44" - 0.1" = 0.34"=0.028'

Retention Volume = 0.028 * 88426.8 = **2502.5 CF = 0.058 ac-ft**

APPENDIX C:

Trench Drain, Inlet, and Sidewalk Culvert Capacities

Worksheet for Trench Drain Capacity

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00500	ft/ft
Normal Depth	0.88	ft
Bottom Width	1.00	ft

Results

Discharge	3.32	ft³/s
Flow Area	0.88	ft²
Wetted Perimeter	2.76	ft
Hydraulic Radius	0.32	ft
Top Width	1.00	ft
Critical Depth	0.70	ft
Critical Slope	0.00891	ft/ft
Velocity	3.77	ft/s
Velocity Head	0.22	ft
Specific Energy	1.10	ft
Froude Number	0.71	
Flow Type	Subcritical	

Although the trench drain varies in height, the capacity was calculated using the minimum height (0.88 ft) as a conservative approach. The maximum discharge capacity with these parameter (3.32 cfs) is greater than the maximum discharge of the eastern buildings' roofs, patios, and rear sidewalk (2.24 cfs), therefore the trench drain capacity is OK.

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.88	ft
Critical Depth	0.70	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00891	ft/ft

Worksheet for Basin 1 Curb Cut Capacities

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	0.50	ft
Bottom Width	2.50	ft

Results

Discharge	7.19	ft³/s
Flow Area	1.25	ft²
Wetted Perimeter	3.50	ft
Hydraulic Radius	0.36	ft
Top Width	2.50	ft
Critical Depth	0.64	ft
Critical Slope	0.00496	ft/ft
Velocity	5.75	ft/s
Velocity Head	0.51	ft
Specific Energy	1.01	ft
Froude Number	1.43	
Flow Type	Supercritical	

Discharge capacity of a 2.5' curb cut (7.19 cfs) is greater than the discharge of Basin 1 (6.96 cfs), therefore curb cuts within these respective basins are OK.

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.64	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00496	ft/ft

Worksheet for Basin 2 and 3 Curb Cut Capacities

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	0.50	ft
Bottom Width	2.00	ft

Results

Discharge	5.50	ft^3/s
Flow Area	1.00	ft^2
Wetted Perimeter	3.00	ft
Hydraulic Radius	0.33	ft
Top Width	2.00	ft
Critical Depth	0.62	ft
Critical Slope	0.00549	ft/ft
Velocity	5.50	ft/s
Velocity Head	0.47	ft
Specific Energy	0.97	ft
Froude Number	1.37	
Flow Type	Supercritical	

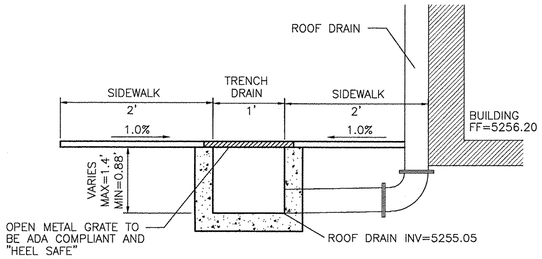
Discharge capacity of a 2' curb cut (5.5 cfs) is greater than discharge of Basin 2 (1.06 cfs) and Basin 3 (3.13 cfs), therefore curb cuts within these respective basins are OK.

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.62	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00549	ft/ft

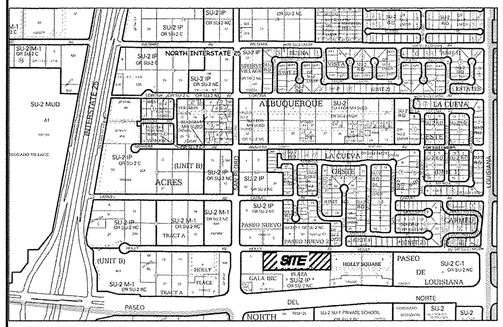


SECTION A-A
NTS

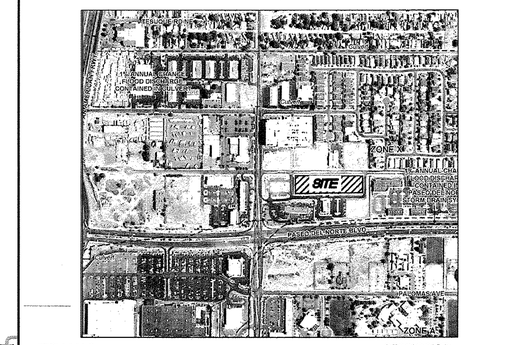
NOTICE TO CONTRACTORS

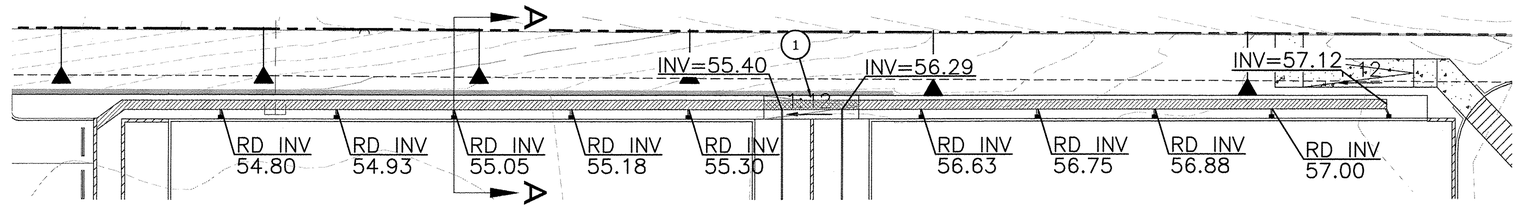
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

APPROVAL	NAME	DATE
INSPECTOR		

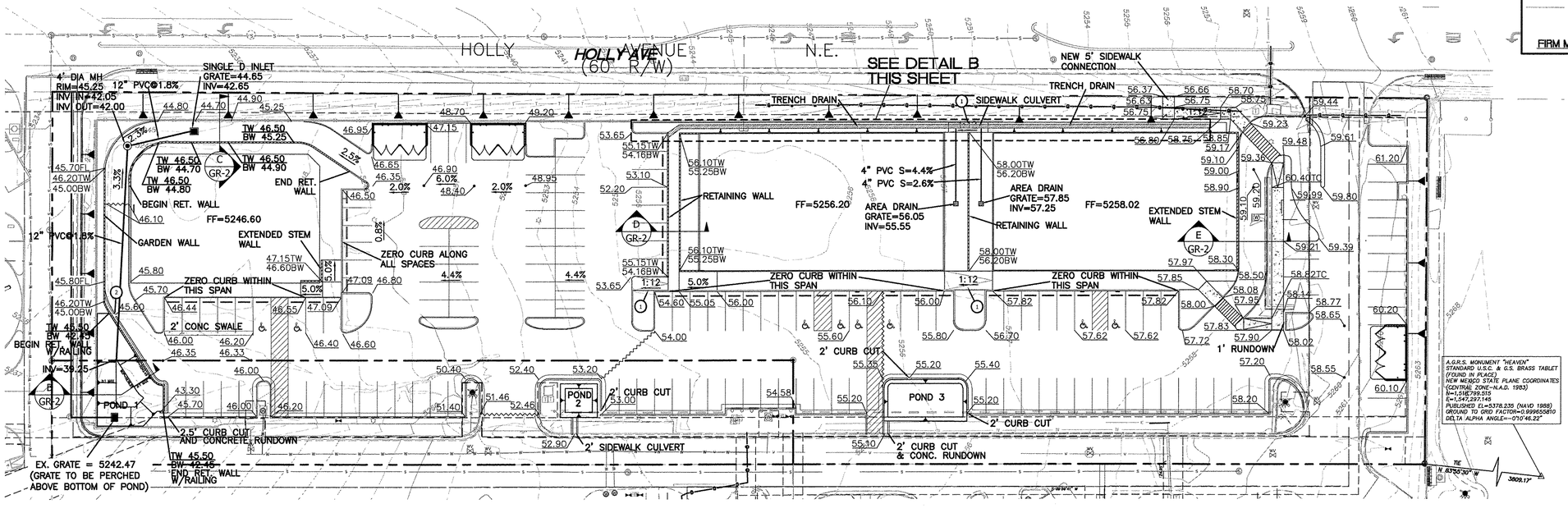


ZONE ATLAS C-18-Z





DETAIL B - TRENCH DRAIN DETAIL
NTS



LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- SIDEWALK
- EXISTING CURB & GUTTER
- SINGLE CLEAN OUT
- DOUBLE CLEAN OUT
- EXISTING SD MANHOLE
- EXISTING SAS MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EXISTING POWER POLE
- EXISTING GAS VALVE
- EXISTING OVERHEAD UTILITIES
- EXISTING GAS
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING STORM SEWER LINE
- EXISTING INDEX CONTOUR
- EXISTING CONTOUR
- WATER BLOCK

DET POND	VOL REQUIRED	VOL PROVIDED	TOP ELEV	BOT ELEV
1	1665.73 CF	1667.15 CF	5242.45	5239.25
2	282.93 CF	301.84 CF	5253.00	5251.75
3	734.98 CF	737.08 CF	5255.20	5254.20

NOTE - 2:1 SIDE SLOPES FROM CURB TO TOP OF POND 1
3:1 MAX SIDE SLOPES FROM TOP TO BOTTOM OF POND 1
2:1 MAX SIDE SLOPES ON PONDS 2 AND 3

KEYED NOTES

1. ADA RAMP WITH RAILING
2. 2 FT CURB CUT

N

GRAPHIC SCALE
30 0 15 30
(IN FEET)
1 inch = 30 ft.

NOTICE TO CONTRACTORS

1. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONNECTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
3. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
4. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
5. SOURCE OF TOPO IS ALTA/ACSM LAND TITLE SURVEY OF LOT 2 HARMS INDUSTRIAL PARK PREPARED BY PRECISION SURVEYS, INC DATED JUNE, 2014.

EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL ACCEPTANCE OF ANY PROJECT.

CAUTION:

ALL EXISTING UTILITIES 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.

ROUGH GRADING APPROVAL DATE

ENGINEER'S SEAL

RONALD R. BOHANNAN NEW MEXICO 7868 REGISTERED PROFESSIONAL ENGINEER

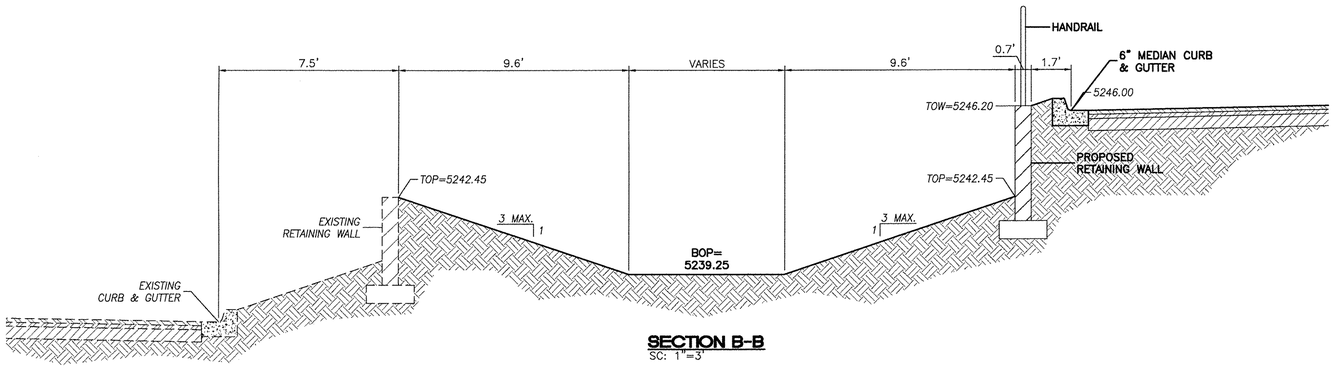
RONALD R. BOHANNAN P.E. #7868

LOT 2 DEL NORTE PLAZA ALBUQUERQUE, NM

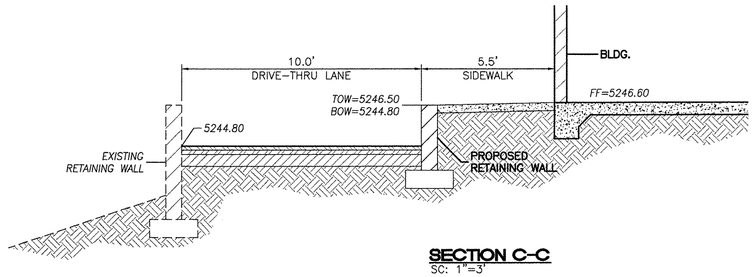
GRADING AND DRAINAGE PLAN

TIERRA WEST, LLC
5571 MIDWAY PARK PL NE
ALBUQUERQUE, NEW MEXICO 87109
(505) 858-3100
www.tierrawestllc.com

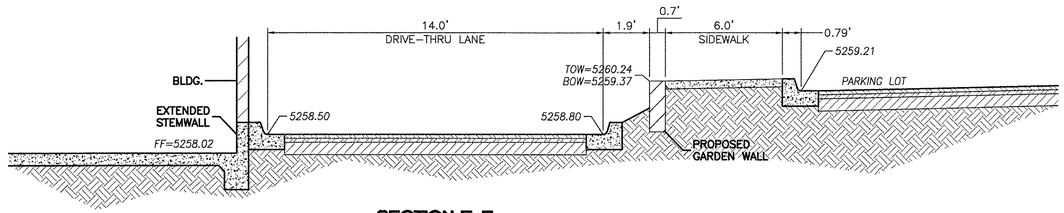
DRAWN BY pm
DATE 4-10-17
DRAWING 2015064-GR
SHEET # GR-1
JOB # 2015064



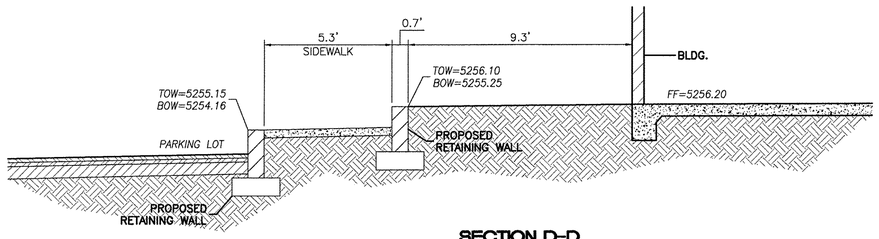
SECTION B-B
SC: 1"=3'



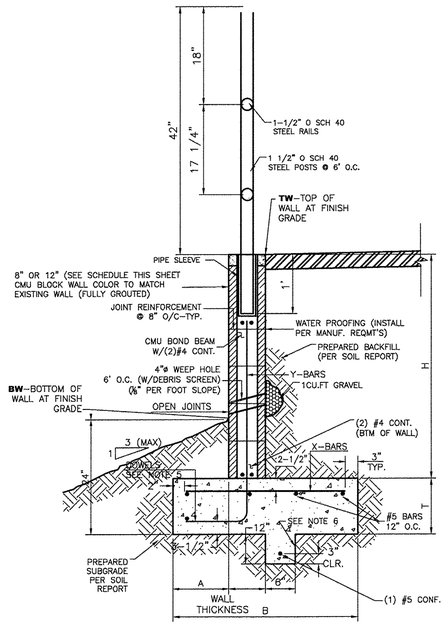
SECTION C-C
SC: 1"=3'



SECTION E-E
SC: 1"=3'



SECTION D-D
SC: 1"=3'



RETAINING WALL DETAIL

NTS

- $f'm$ = 1500 PSI
- SOIL ALLOWABLE 2000 PSF (VERIFY W/SOILS REPORT)
- ACTIVE SOIL PRESSURE – 35 PSF/FT (VERIFY W/SOILS REPORT)
- PASSIVE SOIL PRESSURE – 250 PSF/FT (VERIFY W/SOILS REPORT)
- SOIL FRICTION FACTOR – 0.4 (VERIFY W/SOILS REPORT)

8 INCH REINFORCED CONCRETE MASONRY WALL

H	A	B	T	Y-BARS	X-BARS
ft.-in.	in.	ft.-in.	in.		
2'-0"	10"	2'-4"	10"	#4 @24" O.C.	#4 @24" O.C.
2'-8"	10"	2'-4"	10"	#4 @24" O.C.	#4 @24" O.C.
3'-4"	10"	2'-4"	10"	#4 @24" O.C.	#4 @24" O.C.
4'-0"	12"	2'-8"	10"	#4 @16" O.C.	#4 @24" O.C.
4'-8"	16"	3'-4"	12"	#5 @16" O.C.	#4 @18" O.C.
5'-4"	19"	3'-10"	12"	#5 @ 8" O.C.	#5 @24" O.C.
6'-0"	20"	4'-8"	12"	#6 @ 8" O.C.	#5 @24" O.C.

Y- BARS EDGE (2 ½") FROM RETAINING FACE

12 INCH REINFORCED CONCRETE MASONRY WALL

H	A	B	T	Y-BARS	X-BARS
ft.-in.	in.	ft.-in.	in.		
5'-4"	16"	3'-8"	12"	#5 @16" O.C.	#5 @24" O.C.
6'-0"	19"	4'-2"	12"	#5 @ 8" O.C.	#5 @24" O.C.
6'-8"	21"	4'-6"	12"	#5 @ 8" O.C.	#5 @16" O.C.
7'-4"	23"	4'-10"	12"	#6 @ 8" O.C.	#6 @18" O.C.
8'-0"	26"	5'-4"	12"	#6 @ 8" O.C.	#6 @18" O.C.
8'-8"	28"	5'-8"	12"	#6 @ 8" O.C.	#6 @12" O.C.

Y- BARS EDGE (3") FROM RETAINING FACE

GENERAL NOTES:

1. ALL CONCRETE IS TO BE 4000 PSI @ 28 DAYS.
2. MINIMUM COMPACTION UNDER FOOTINGS IS TO BE 95% PER ASTM. D 1557 FOR A DEPTH OF 12" MOISTURE CONTENT IS TO BE ± 2.0%.
3. BACK FILL AGAINST WALLS IS TO BE HAND-PLACED AND COMPACTED.
4. ALL BARS ARE TO BE GRADE 60, ASTM 615.
5. DOWELS SHALL BE EQUAL IN SIZE AND SPACING TO Y-BARS, SHALL PROJECT A MINIMUM OF #4-24", #5-30", #6-36" INTO THE FILLED BLOCK CORES, AND SHALL EXTEND TO THE TOE OF THE FOOTING.
6. PROVIDE KEY FOR 8" AND 12" WALLS WHERE H EXCEEDS 6'
7. USE EITHER EXPANSION JOINTS ON 20' CENTERS OR PILASTERS EVERY 16'.

ENGINEER'S SEAL

RONALD R BOHANNAN NEW MEXICO 7868 REGISTERED PROFESSIONAL ENGINEER

RONALD R. BOHANNAN P.E. #7868

LOT 2 DEL NORTE PLAZA ALBUQUERQUE, NM

GRADING AND DRAINAGE SECTIONS

TIERRA WEST, LLC
5571 MIDWAY PARK PL NE
ALBUQUERQUE, NEW MEXICO 87109
(505) 858-3100
www.tierrawestllc.com

DRAWN BY: pm
DATE: 4-10-17
DRAWING: 2015064-GR
SHEET #: GR-2
JOB #: 2015064