

CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director



Mayor Timothy M. Keller

April 27, 2020

Fred C. Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. N.E
Albuquerque, NM 87108

**RE: Albuquerque RV & Boat Storage
2201 Vista Oriente St. NW
Revised Grading and Drainage Plan
Engineer's Stamp Date: 04/21/20
Hydrology File: H10D030**

Dear Mr. Arfman:

PO Box 1293

Based upon the information provided in your submittal received 04/24/2020, the Revised Grading & Drainage Plan is approved for Building Permit and SO-19 Permit.

Albuquerque

Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter. Prior to approval in support of Permanent Release of Occupancy by Hydrology, Engineer Certification per the DPM checklist will be required.

NM 87103

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

www.cabq.gov

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

Sincerely,

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 (REV 11/2018)

Project Title: Albuquerque RV & Boat Storage **Building Permit #:** _____ **Hydrology File #:** H09D030
DRB#: _____ **EPC#:** _____ **Work Order#:** _____
Legal Description: Tract 1, Ladera Business Park, Unit 2
City Address: 2201 Vista Oriente Street NW - Albuquerque, NM 87129

Applicant: Isaacson & Arfman, PA **Contact:** Fred C. Arfman or
Bryan J. Bobrick
Address: 128 Monroe Street NE - Albuquerque, NM 87108
Phone#: (505) 268-8828 **Fax#:** _____ **E-mail:** freda@iacivil.com
bryanb@iacivil.com
Owner: Ladera Enterprises, LLC **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

TYPE OF SUBMITTAL: _____ PLAT (____ # OF LOTS) _____ RESIDENCE _____ DRB SITE ☒ ADMIN SITE

IS THIS A RESUBMITTAL?: ☒ Yes _____ No

DEPARTMENT: ☒ TRAFFIC/ TRANSPORTATION _____ HYDROLOGY/ DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

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

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

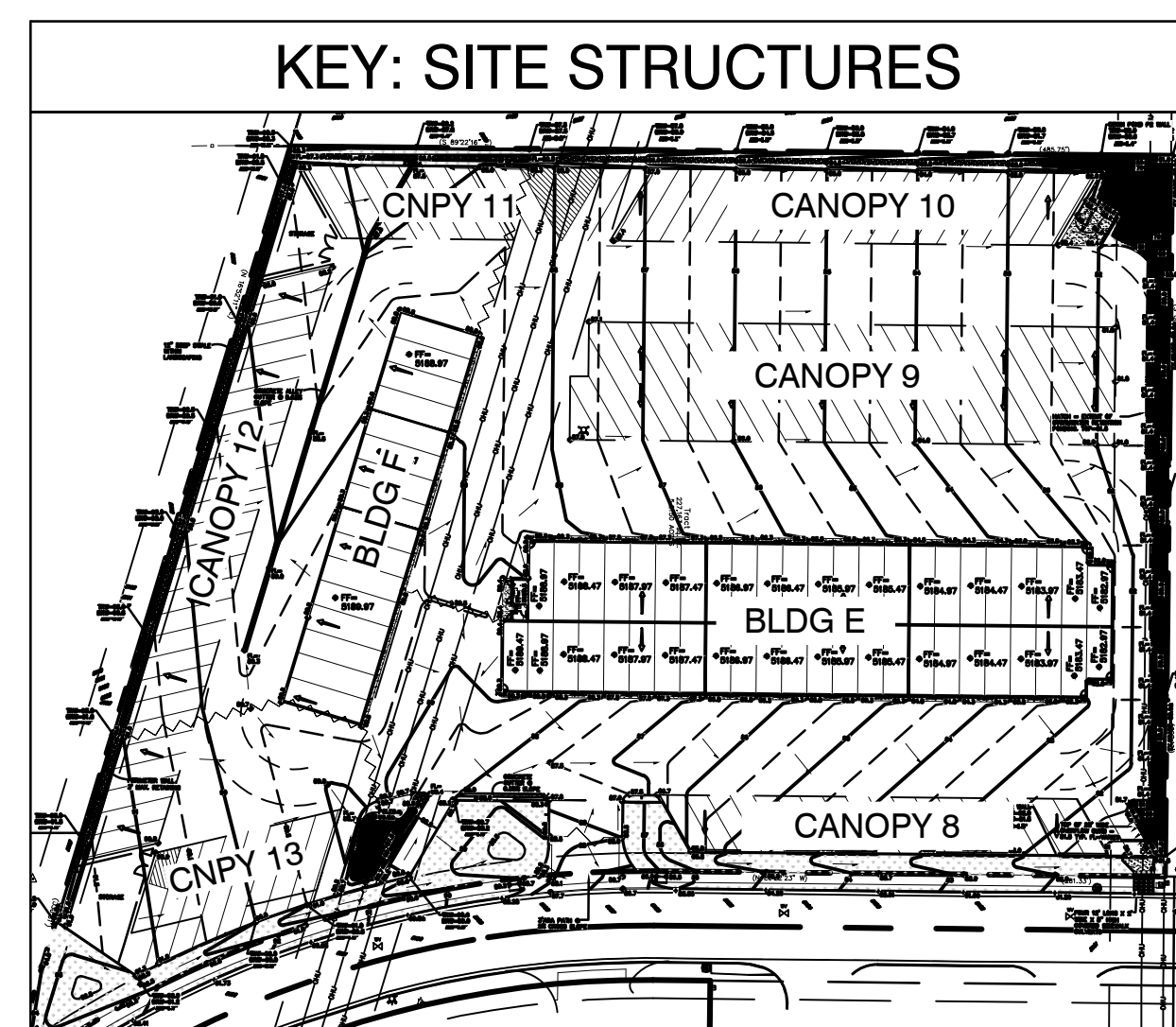
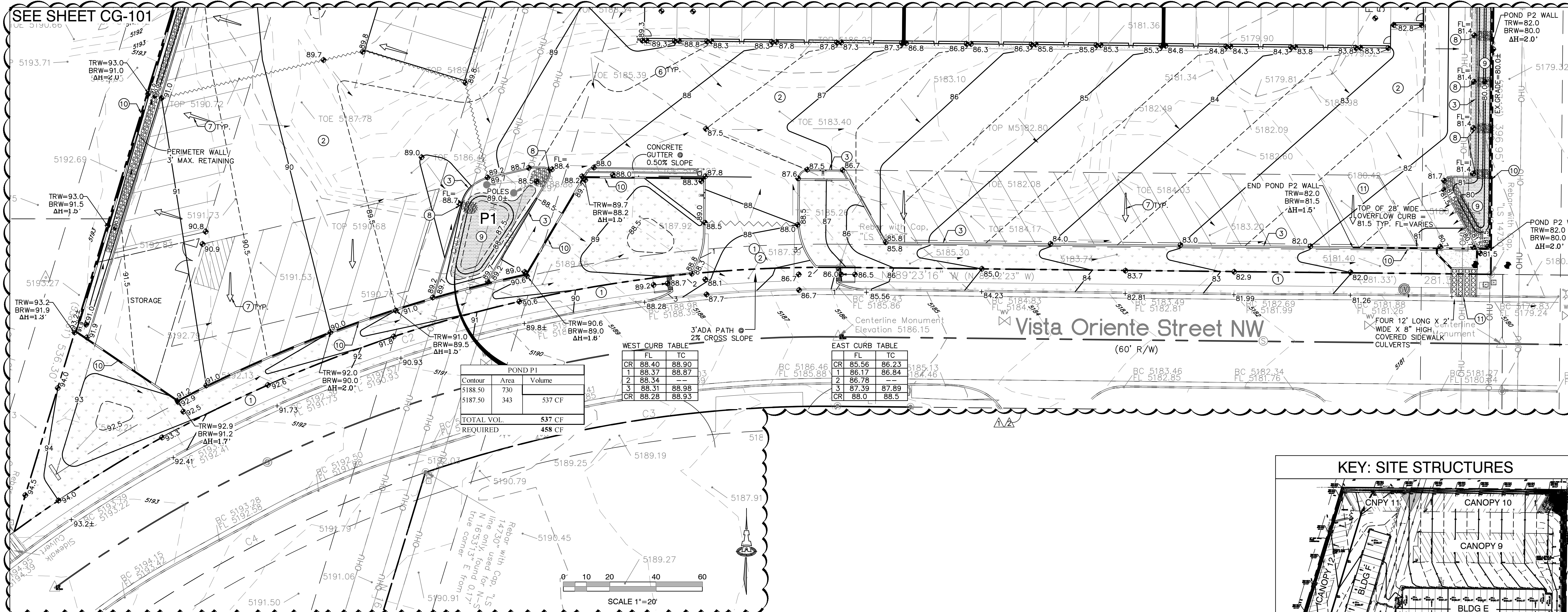
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY
☐ PRELIMINARY PLAT APPROVAL
☐ SITE PLAN FOR SUB'D APPROVAL
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL
☐ FINAL PLAT APPROVAL
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
☐ FOUNDATION PERMIT APPROVAL
☐ GRADING PERMIT APPROVAL
☐ SO-19 APPROVAL
☐ PAVING PERMIT APPROVAL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

DATE SUBMITTED: April 24, 2020 **By:** Fred C. Arfman

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____



LEGEND

- 5105.65' EXISTING SPOT ELEVATION
- - - 5110 - - - EXISTING CONTOUR
- - - 12 - - - PROPOSED CONTOUR (1' INCREMENT)
- - - 10.5 - - - PROPOSED CONTOUR (0.5' INCREMENT)
- ◆ 08.9 PROPOSED SPOT ELEVATION
- FLOW ARROW
- PROPOSED STORMWATER QUALITY RETENTION POND LIMITS
- ← ROOF / CANOPY DISCHARGE DIRECTION
- GRADE BREAK
- EROSION CONTROL (TO EXTENTS SHOWN)
- PERIMETER RETAINING WALL (>16" RETAINING)
- PERIMETER WALL (<16" RETAINING)

KEYED NOTES

KEYED NOTES ARE REFERENCED ON SHEETS CG-101 AND CG-102. NOT ALL NOTES ARE USED ON EACH SHEET.

- CONSTRUCT ENTRANCE DRIVES, CONCRETE VALLEY GUTTER, PUBLIC SIDEWALK, AND ADA COMPLIANT RAMPS PER COA STD. DETAILS AND SPECIFICATIONS. SEE CP-101 FOR ADDITIONAL INFORMATION.
- CONSTRUCT NEW PAVING AT ELEVATIONS SHOWN. SEE CP-101 FOR ADDITIONAL INFORMATION FOR MATERIAL, EXTENTS, JOINTS, AND PAVING SECTIONS.
- CONSTRUCT 6" HIGH CURB (HEADER OR MEDIAN CURB AND GUTTER - OWNER'S OPTION). NOTE: ENGINEER RECOMMENDS MEDIAN CURB AND GUTTER FOR CONCENTRATED FLOWPATHS.
- CONSTRUCT 2' WIDE CONC. ALLEY GUTTER. SEE CG-501 FOR SECTION.
- SEE CG-501 FOR SECTIONS THROUGH EAST, WEST AND NORTH PROPERTY LINES.
- 0.5' DESIGN CONTOURS ARE SHOWN DASHED WHERE NECESSARY TO CLARIFY GRADING CONCEPT.
- BUILDING AND OVERHEAD CANOPY ROOF DISCHARGE DIRECTION. (OWNER'S OPTION - ENGINEER RECOMMENDS CONCRETE SPLASHPAD FOR CONCENTRATED ROOF DISCHARGE TO ASPHALT PAVEMENT.) SEE BUILDING PLANS FOR SPECIFIC ROOF DISCHARGE INFORMATION.
- PROVIDE 2' WIDE OPENING(S) IN CURB TO PASS FLOW. INSTALL 4'x4'x8" DEEP ROCK EROSION PROTECTION AT CURB OPENINGS.

TRW=HIGH SIDE GRADE + 6" OR AS NOTED

ADDITIONAL WALL. SEE ARCHITECTURAL

BRW=LOW SIDE GRADE OR AS NOTED

- SEE CG-102 FOR ENLARGED PLAN OF OUTFALL TO VISTA ORIENTE STREET NW.
- SEE CG-501 FOR ROCK EROSION PROTECTION DETAIL.

PROJECT DATA

PROPERTY: THE SITE IS A 5.22 ACRE, UNDEVELOPED PROPERTY LOCATED WITHIN C.O.A. VICINITY MAP H-09. THE SITE IS BOUND TO THE LADERA CHANNEL, TO THE WEST AND EAST BY UNDEVELOPED LAND, AND TO THE SOUTH BY VISTA ORIENTE ST NW.

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE SELF STORAGE BUILDINGS AND OUTDOOR RV STORAGE WITH ASSOCIATED ASPHALT PAVED ACCESS, PARKING AND LANDSCAPING.

PROPERTY ADDRESS: 2201 VISTA ORIENTE ST. NW, ALBUQUERQUE, 87120

LEGAL: TRACT 1, LADERA BUSINESS PARK, UNIT 2, CITY OF ALBUQUERQUE, BERNALILLO CNTY, NM.

BENCHMARK: BRASS CAP STAMPED "2-H9, 1980", ON THE WEST MESA UNDER POWER LINES RUNNING NE/SW, 0.2 MI. NORTH OF LADERA DR. NW, 111FT. WEST OF THE CENTERLINE OF UNSER BLVD., IN THE MIDDLE OF A SET OF POWERPOLES.

OFF-SITE FLOW: NO OFF-SITE DRAINAGE IMPACTS THIS PROPERTY.

FLOOD HAZARD: PER BERNALILLO COUNTY FIRM MAP #35001C0326J, THE SITE IS LOCATED WITHIN FLOODZONE "X" DESIGNATED AS AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

DRAINAGE FOR THIS TRACT WAS INCLUDED IN THE LADERA BUSINESS PARK MASTER DRAINAGE REPORT (MDR) BY MARK GOODWIN & ASSOCIATES DATED 11-21-02. PER THE MDR, THIS PROPERTY (DESIGNATED AS BASIN B-1) IS PERMITTED FREE DISCHARGE.

ENGINEER: FRED C. ARFMAN: NMPE 7322 - ISAACSON & ARFMAN, P.A.
128 MONROE NE 87108 - (505) 268-8828

SURVEYOR: WILL PLOTNER JR: NMPS NO. 14271 - CARTESIAN SURVEYS INC
P.O. BOX 44414 RIO RANCHO, NM 87174 - (505) 891-0244

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 www.isacsi.com

2278 CG-101.dwg Apr 21, 2020

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ABQ RV & BOAT STORAGE

LADERA ENTERPRISES LLC

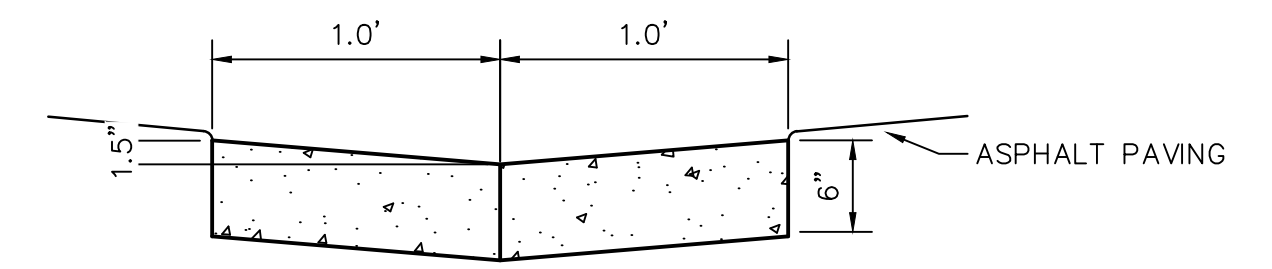
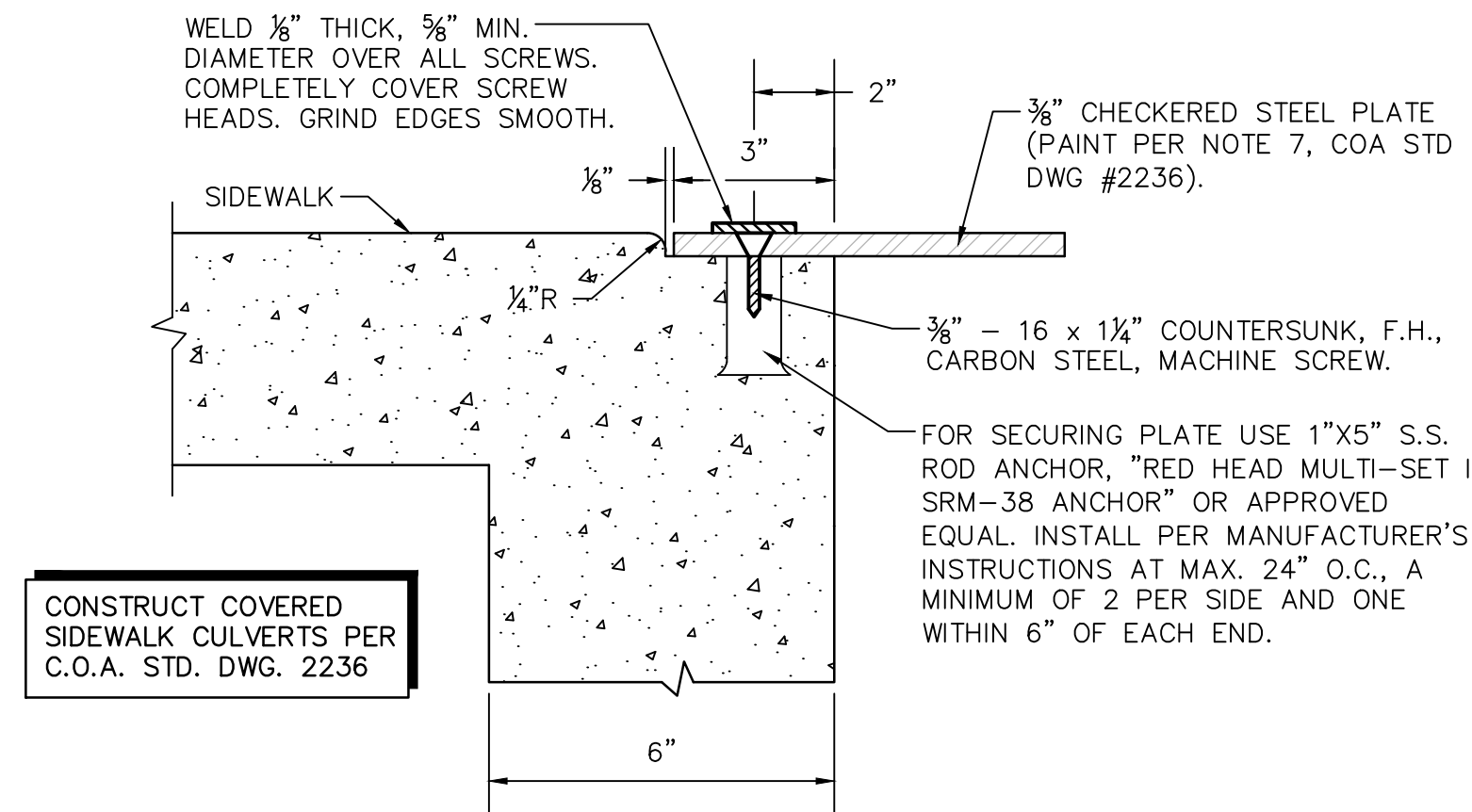
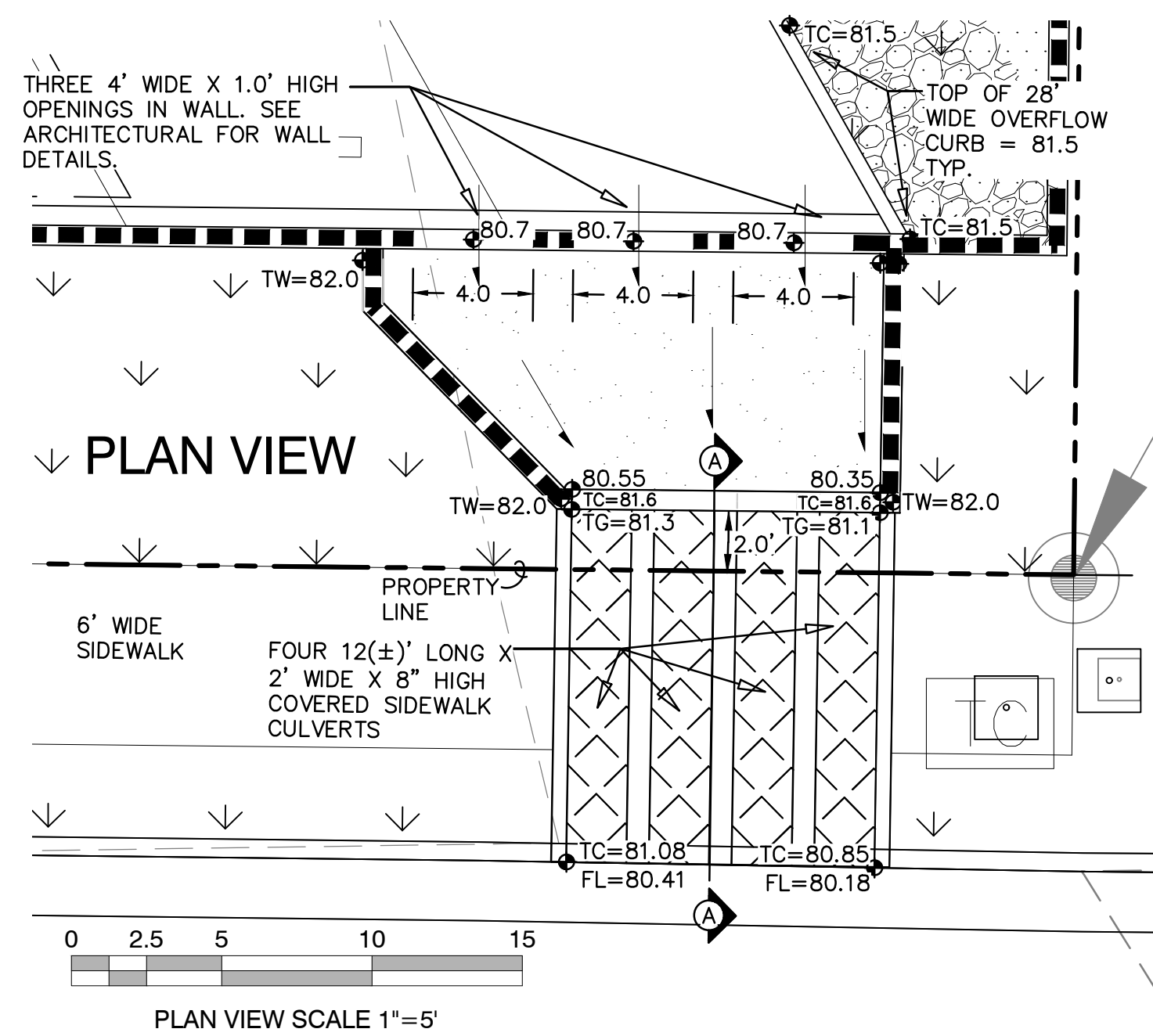
GRADING & DRAINAGE PLAN 2 OF 2

Date: 05-17-19	No. Revision: 1 SITE PLAN REVISIONS	Date: 04/20/20	Job No. 2278
Drawn By: BJB	2 GRADE REVISIONS	04/20/20	
Ckd By: FCA			

CG-102

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\\N:\PROJECTS\2201-2209\2278\DWG\2278 CG-101.dwg Bjarne Blomdahl 4/22/2020 3:03 PM

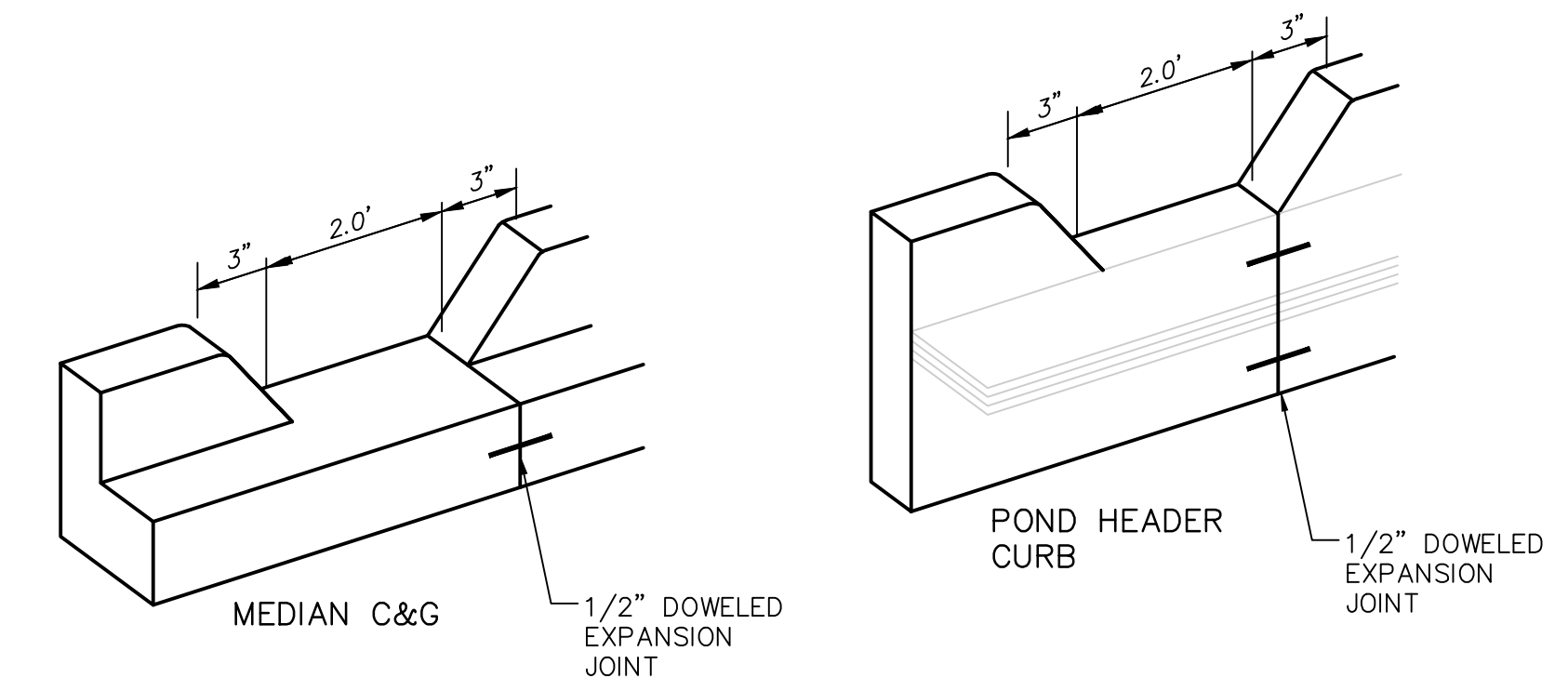


GENERAL NOTES

1. EDGES SHALL BE SHAPED WITH A 3/8" EDGING TOOL.
2. CONSTRUCTION CONTROL JOINTS AT 6' O.C. MAX.
3. SEALED 1/2" EXPANSION JOINTS AT 48' O.C. MAX.
4. EDGE OF ASPHALT PAVING TO BE 1/2" ABOVE EDGE OF CONCRETE (TYP).

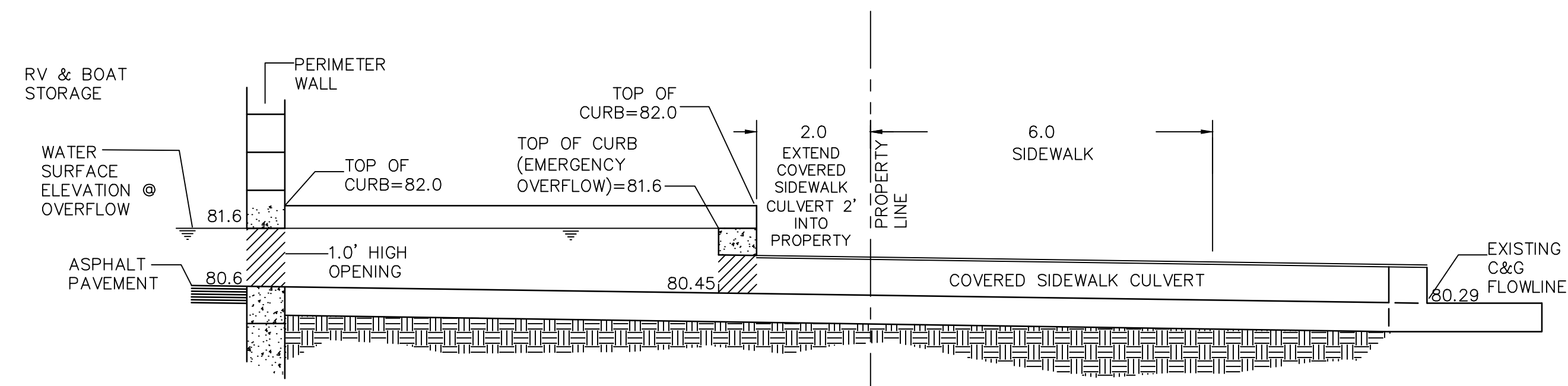
CONCRETE ALLEY GUTTER

SCALE: N.T.S.



GENERAL NOTES

1. EDGES NOT SPECIFICALLY DIMENSIONED SHALL BE SHAPED WITH A 3/8" EDGING TOOL.

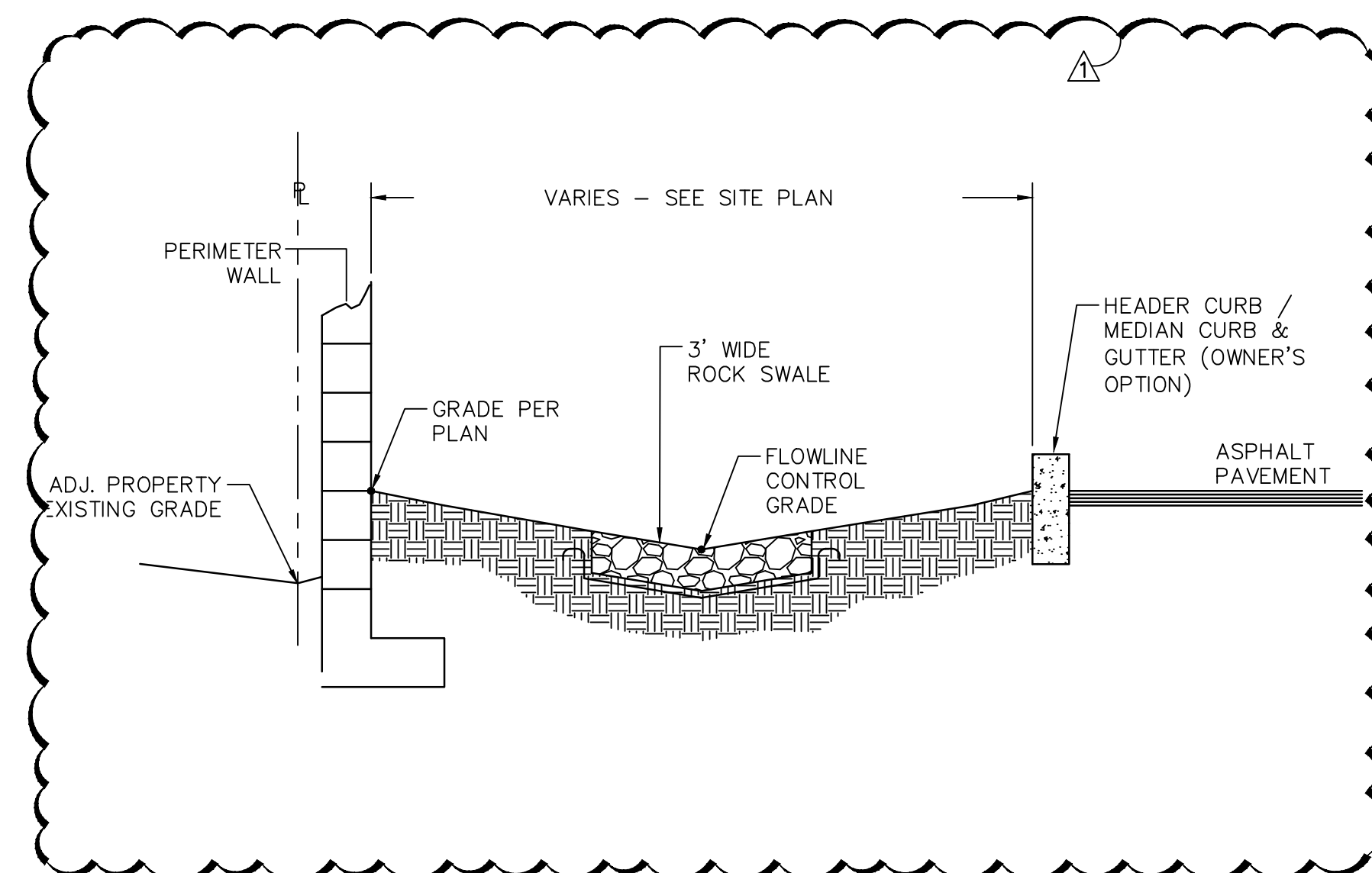


STORMWATER OUTFALL STRUCTURE TO VISTA ORIENTE

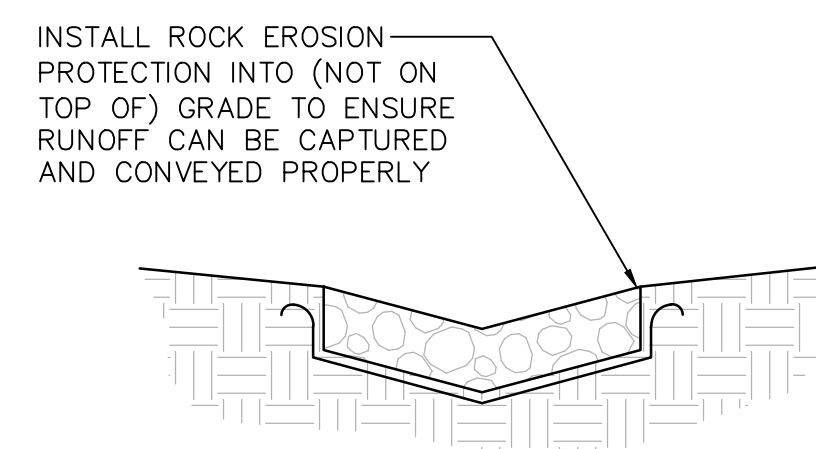
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SCALE: N.T.S.

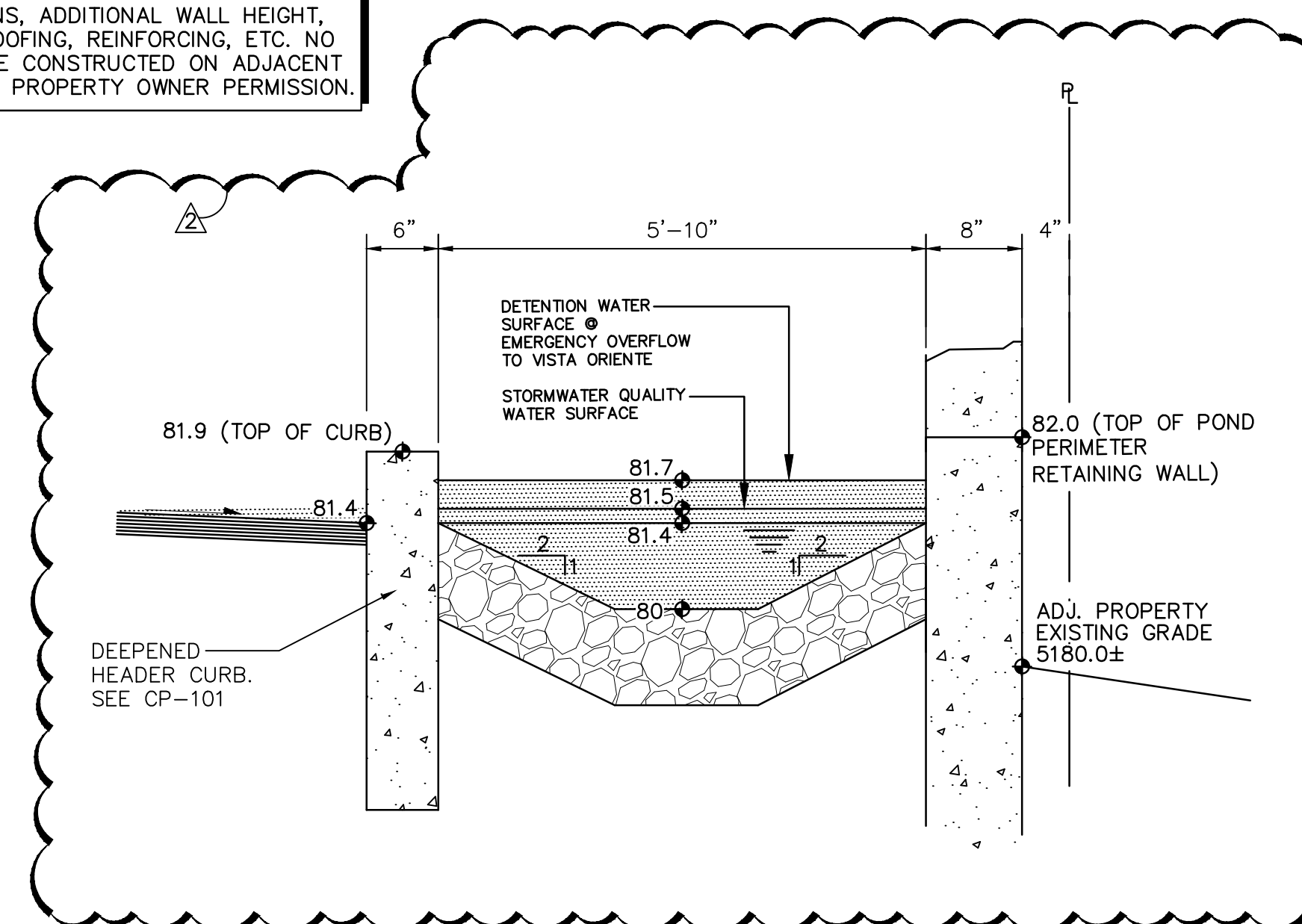


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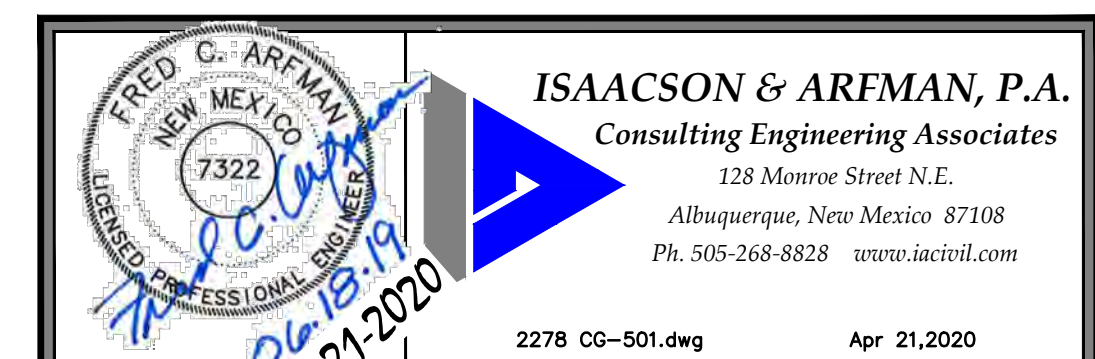


- ALL EROSION PROTECTION TO BE 8" DEEP, 4" AVG. DIA. ANGULAR FACED ROCK.
- PLACE GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.) BENEATH ALL EROSION PROTECTION
- ROCK SWALES TO BE 3' WIDE, 6" DEPRESSED

SCALE: N.T.S.



SCALE: N.T.S.



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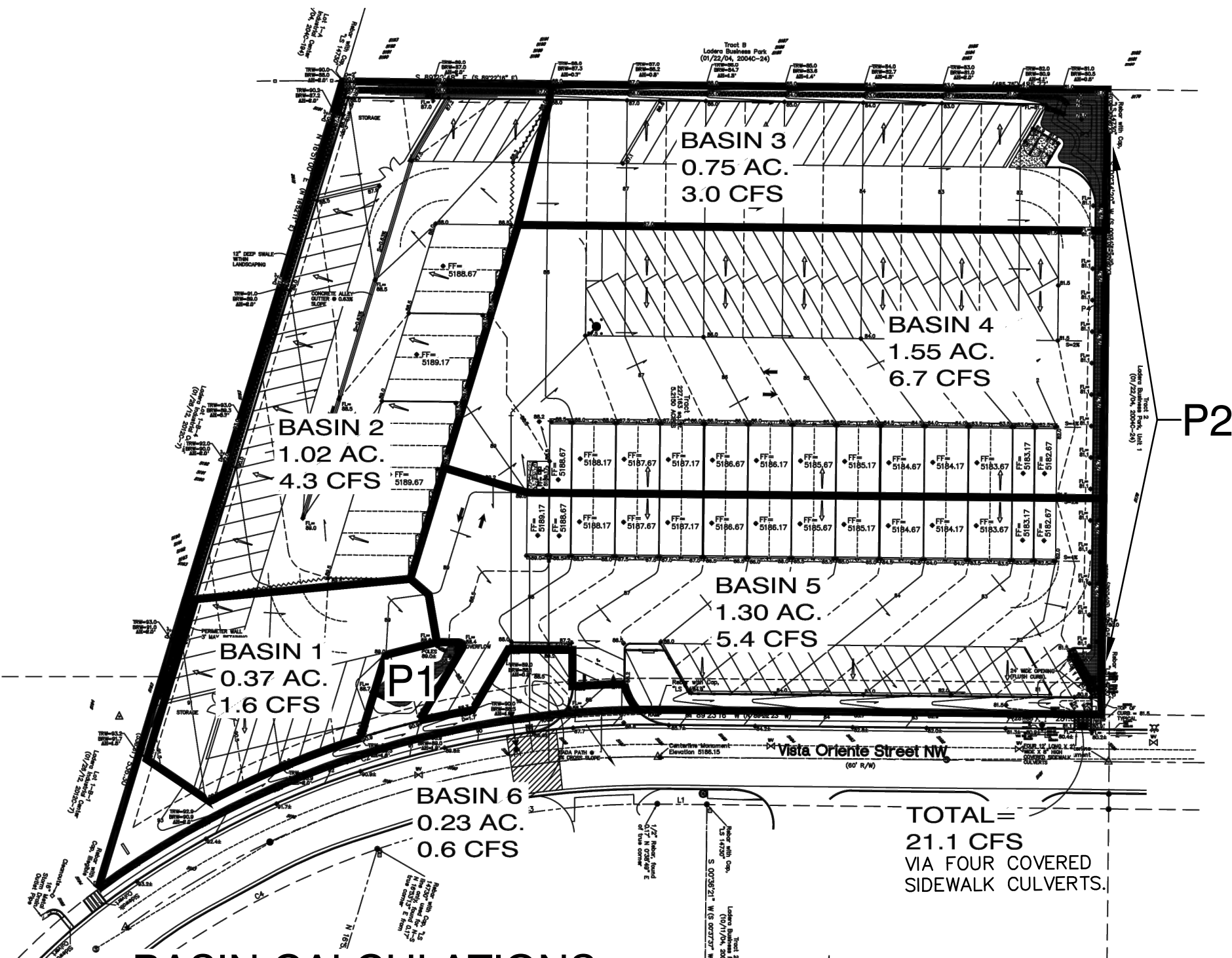
ABQ RV &
BOAT STORAGE

LADERA ENTERPRISES LLC

GRADING & DRAINAGE DETAILS

Date:	No.	Revision:	Date:	Job No.	
05-17-19	1	SITE PLAN REVISIONS	04/20/20	2278	
Drawn By: BJB	2	GRADE REVISIONS	04/20/20	CG-501	
Ckd By: FCA					SH. OF

DRAINAGE BASINS



BASIN CALCULATIONS

BASIN NO.	DESCRIPTION	Area of basin flows =	Ac.
1	16168 SF	0.37	Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			
Weighted E = 1.27 in			
Sub-basin Volume of Runoff (see formula above)			
V ₁₀₀ = 2654 CF			
Sub-basin Peak Discharge Rate: (see formula above)			
Q _p = 1.6 cfs			
FIRST FLUSH VOL = 458 CF			
BASIN NO.	DESCRIPTION	Area of basin flows =	Ac.
2	44466 SF	1.02	Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			
Weighted E = 1.89 in			
Sub-basin Volume of Runoff (see formula above)			
V ₁₀₀ = 7010 CF			
Sub-basin Peak Discharge Rate: (see formula above)			
Q _p = 4.3 cfs			
FIRST FLUSH VOL = 1172 CF			
BASIN NO.	DESCRIPTION	Area of basin flows =	Ac.
3	32547 SF	0.75	Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			
Weighted E = 1.79 in			
Sub-basin Volume of Runoff (see formula above)			
V ₁₀₀ = 4848 CF			
Sub-basin Peak Discharge Rate: (see formula above)			
Q _p = 3.0 cfs			
FIRST FLUSH VOL = 775 CF			
BASIN NO.	DESCRIPTION	Area of basin flows =	Ac.
4	67211 SF	1.55	Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			
Weighted E = 1.95 in			
Sub-basin Volume of Runoff (see formula above)			
V ₁₀₀ = 10922 CF			
Sub-basin Peak Discharge Rate: (see formula above)			
Q _p = 6.7 cfs			
FIRST FLUSH VOL = 1869 CF			
BASIN NO.	DESCRIPTION	Area of basin flows =	Ac.
5	56453 SF	1.30	Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			
Weighted E = 1.87 in			
Sub-basin Volume of Runoff (see formula above)			
V ₁₀₀ = 8778 CF			
Sub-basin Peak Discharge Rate: (see formula above)			
Q _p = 5.4 cfs			
FIRST FLUSH VOL = 1456 CF			
BASIN NO.	DESCRIPTION	Area of basin flows =	Ac.
6	10113 SF	0.23	Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			
Weighted E = 0.90 in			
Sub-basin Volume of Runoff (see formula above)			
V ₁₀₀ = 757 CF			
Sub-basin Peak Discharge Rate: (see formula above)			
Q _p = 0.6 cfs			
FIRST FLUSH VOL = 17 CF			

BASIN 1 DISCHARGES THROUGH STORMWATER QUALITY POND P1 WITH EXCESS FLOW PASSING TO THE SOUTHEAST COVERED SIDEWALK CULVERTS. 458 CF REQUIRED.

BASINS 2, 3 AND 4 DISCHARGE THROUGH STORMWATER QUALITY POND P2 BEFORE FREE DISCHARGING TO VISTA ORIENTE STREET. 3,816 CF REQUIRED.

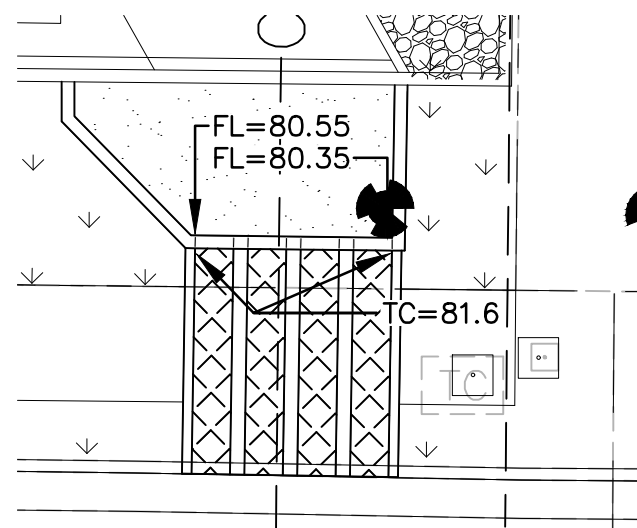
TOTAL SITE STORMWATER QUALITY POND VOLUME REQUIRED = 5,747 CF.
TOTAL STORMWATER QUALITY POND VOLUME PROVIDED = 5,990 CF.

BASINS 5 AND 6 FREE DISCHARGE TO VISTA ORIENTE STREET. 1,473 CF REQUIRED.

COVERED SIDEWALK CULVERT CALCULATIONS

ORIFICE EQUATION - SIDEWALK CULVERT			
The Orifice Equation is used to calculate the Flow at the opening of a Channel			
$Q = C^* A * (2 * g * h)^{0.5}$			
Where	Q	= 5.47 cfs	Water Surface = 81.6
	C	= 0.6	Flowline = 80.45
	A	= 1.24 sq.ft.	h = 0.84
	g	= 32.2 ft/sec ²	
	h	= 0.84 ft	depth of flow at opening from the center of culvert

COVERED SIDEWALK CULVERT CAPACITY = 5.5 CFS EACH
FOUR REQUIRED: 4 * 5.5 CFS = 22.0 CFS > REQUIRED



OVERALL CALCULATIONS

CALCULATIONS: 2278 - ABQ RV & BOAT STORAGE : May 17, 2019									
Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993									
ON-SITE									
AREA OF SITE:		227163		SF		=		5.2	
100-year, 6-hour									
PREVIOUS DEVELOPED FLOWS:					EXCESS PRECIP:				
		Treatment SF		%				Precip. Zone 1	
Area A	=	0	0%	Area A	=	0	0%	E _A	= 0.44
Area B	=	113581.5	50%	Area B	=	12239	5.4%	E _B	= 0.67
Area C	=	113581.5	50%	Area C	=	12119	5.3%	F _C	= 0.99
Area D	=	0.0	0%	Area D	=	202805	89.3%	E _D	= 1.97
Total Area	=	227163	100%	Total Area	=	227163	100%		

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Historic E	=	0.83 in.	Developed E	=	1.85 in.
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On-Site Volume of Runoff: V ₃₆₀	=	E * A / 12			
Historic V ₃₆₀	=	15712 CF	Developed V ₃₆₀	=	34977 CF

On-Site Peak Discharge Rate: Q_p = Q_{pA}A_A + Q_{pB}A_B + Q_{pC}A_C + Q_{pD}A_D / 43,560

For Precipitation Zone 1					
Q _{pA}	=	1.29	Q _{pC}	=	2.87
Q _{pB}	=	2.03	Q _{pD}	=	4.37
Historic Q _p	=	12.78 CFS	Developed Q _p	=	21.7 CFS

WEIR CALCULATIONS

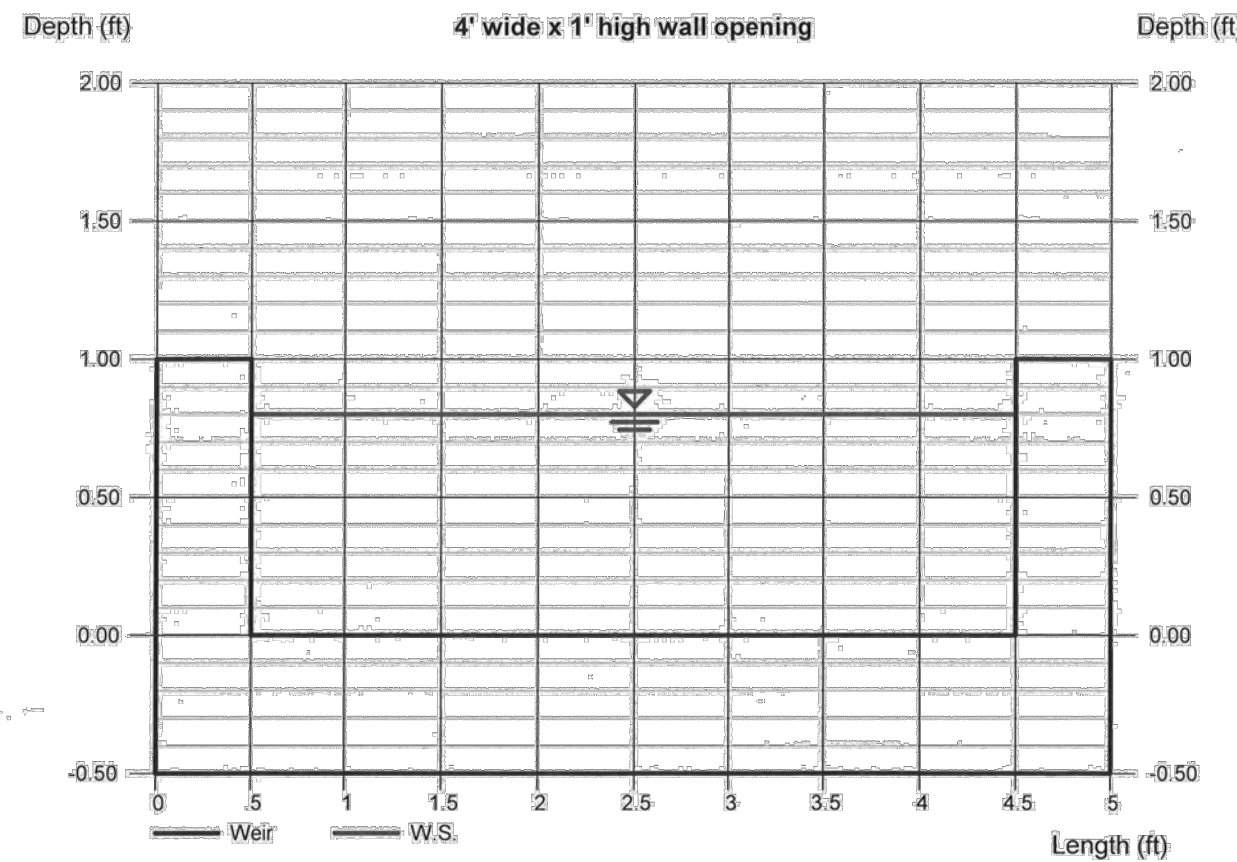
Weir Report

Hydraflo Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Friday, Jun 7 2019

4' wide x 1' high wall opening

Rectangular Weir	= Broad	Highlighted	= 0.80
Crest	= 4.00	Depth (ft)	= 7.442
Bottom Length (ft)	= 1.00	Q (cfs)	= 3.20
Total Depth (ft)	= 1.00	Area (sqft)	= 2.33
		Velocity (ft/s)	= 4.00
Calculations	= 2.60	Top Width (ft)	= 4.00
Weir Coeff. Cw	= 2.60		
Compute by:	Q vs Depth		
No. Increments	= 5		

THREE 4' WIDE X 1.0' HIGH OPENINGS IN WALL. SEE ARCHITECTURAL FOR WALL DETAILS. AT 0.8' DEEP, CAPACITY = 7.4 CFS. THREE @ 7.4 = 22.2 > REQUIRED



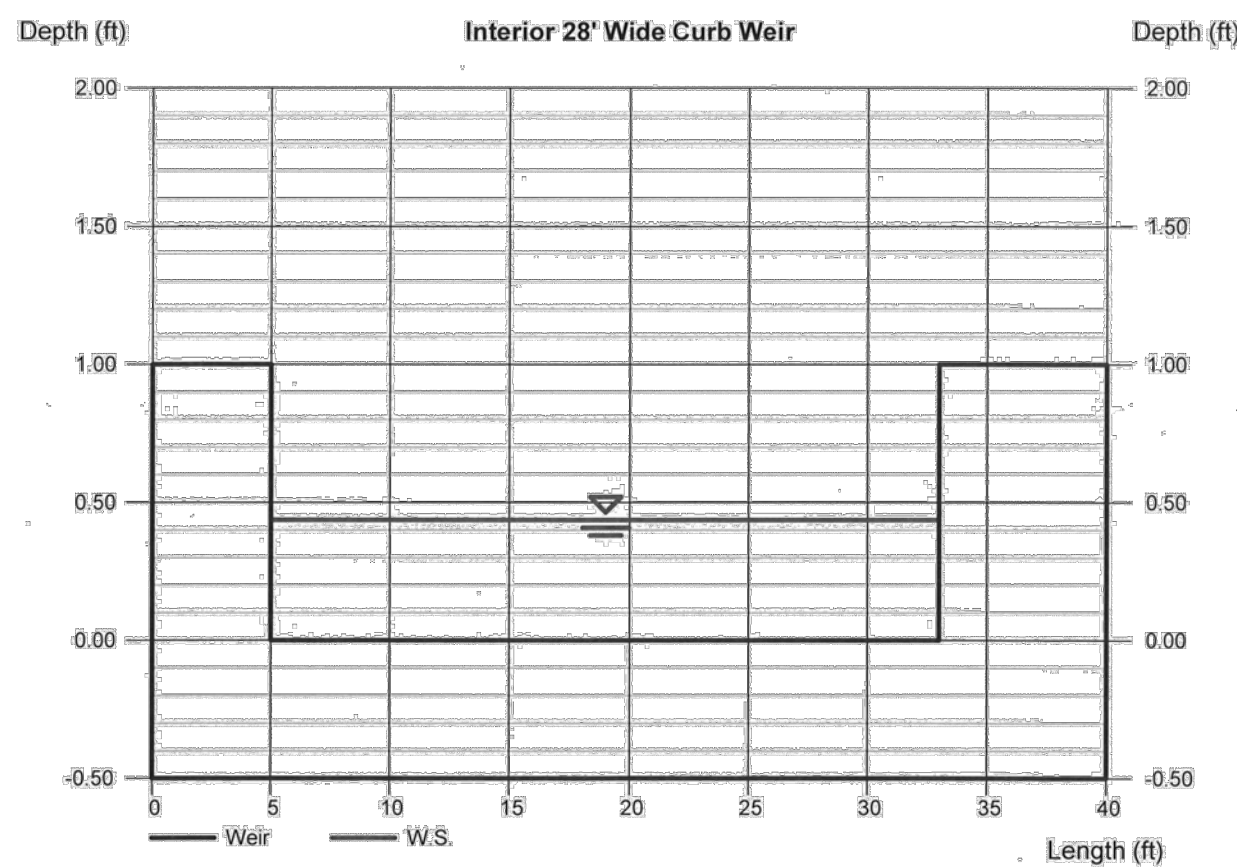
Weir Report

Hydraflo Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Friday, Jun 7 2019

Interior 28' Wide Curb Weir

Rectangular Weir	= Broad	Highlighted	= 0.44
Crest	= 28.00	Depth (ft)	= 21.00
Bottom Length (ft)	= 1.00	Q (cfs)	= 12.22
Total Depth (ft)	= 1.00	Area (sqft)	= 1.72
		Velocity (ft/s)	= 28.00
Calculations	= 2.60	Top Width (ft)	= 28.00
Weir Coeff. Cw	= 2.60		
Compute by:	Known Q		
Known Q (cfs)	= 21.00		

TOP OF 28' OVERFLOW WEIR ELEVATION = 81.5. AT 81.6, ADDITIONAL FLOW WILL BYPASS THE STORMWATER QUALITY PONDING AND DISCHARGE DIRECTLY.



ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph: 505-268-8828 www.isaacson.com

2278 CG-501.dwg Apr 21, 2020

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ABQ RV & BOAT STORAGE LADERA ENTERPRISES LLC			
DRAINAGE CALCULATIONS			
Date: 05-17-19	No. Revision: 1	Date: 04/20/20	Job No. 2278
Drawn By: BJB	2 REVISED CALCULATIONS	04/20/20	CG-502
Ckd By: FCA			SH. OF