

CITY OF ALBUQUERQUE

Planning Department
David Campbell, Director



Mayor Timothy M. Keller

October 8, 2019

Don Briggs, P.E.
Don Briggs Engineering, LLC
5324 Oakledge Ct. NW
Albuquerque, NM 87120

RE: 8500 Glendale Ave. NE
Grading and Drainage Plan
Engineer's Stamp Date: 05/28/19
Engineer's Certification Date: 10/04/19
Hydrology File: B20D067

Dear Mr. Briggs:

PO Box 1293

Based upon the information provided in your Certification received on 10/04/19 and site visit on 10/08/19, the above referenced Certification is acceptable for Building Pad Certification for 8500 Glendale Ave. NE.

Albuquerque

As a reminder, prior to approval in support of Permanent Release of Occupancy by Hydrology, Engineer Certification per the DPM checklist will be required.

NM 87103

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

www.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: _____ **Building Permit #:** _____ **Hydrology File #:** _____

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

Legal Description: _____

City Address: _____

Applicant: _____ **Contact:** _____

Address: _____

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

Owner: _____ **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:

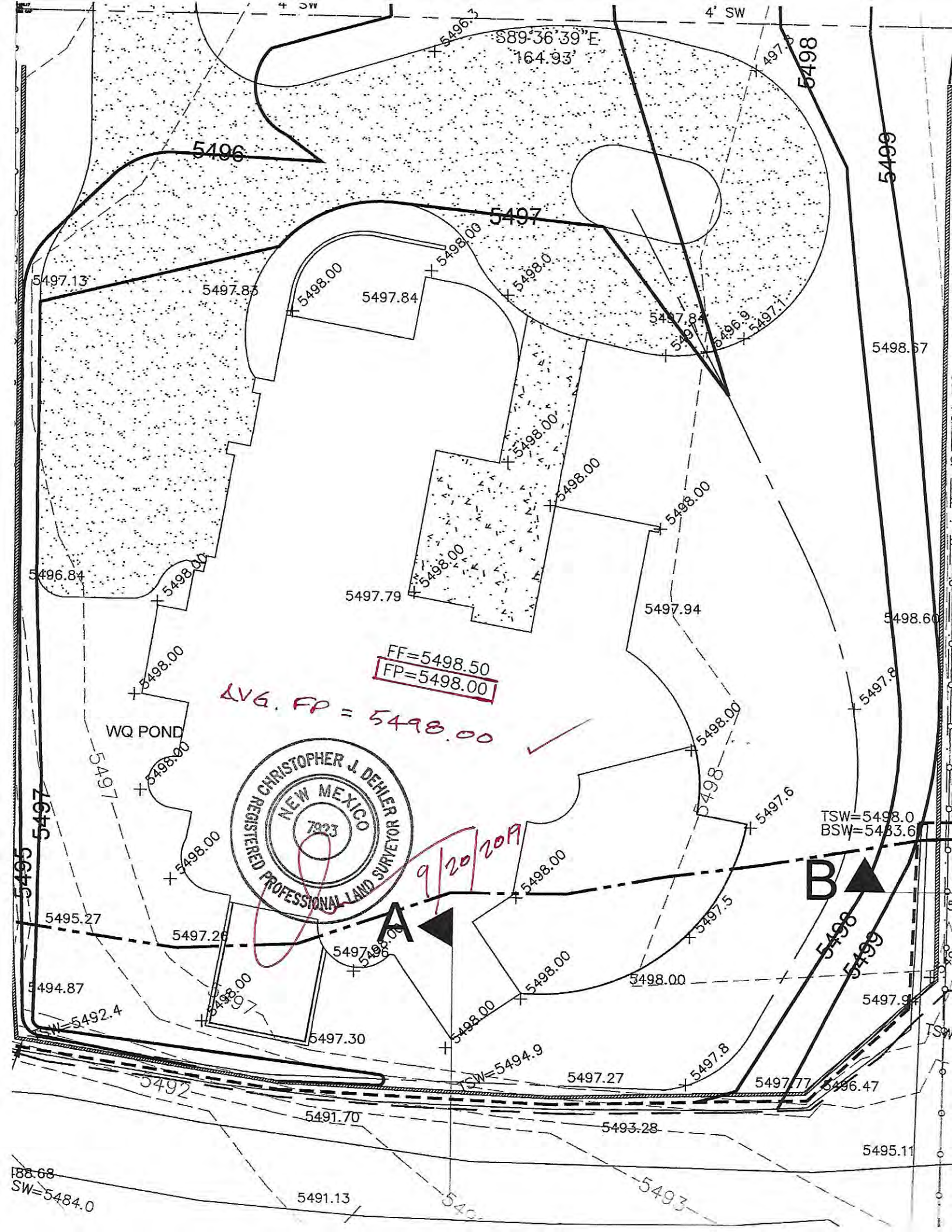
- _____ BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY
- _____ PRELIMINARY PLAT APPROVAL
- _____ SITE PLAN FOR SUB'D APPROVAL
- _____ SITE PLAN FOR BLDG. PERMIT APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ SIA/ RELEASE OF FINANCIAL GUARANTEE
- _____ FOUNDATION PERMIT APPROVAL
- _____ GRADING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

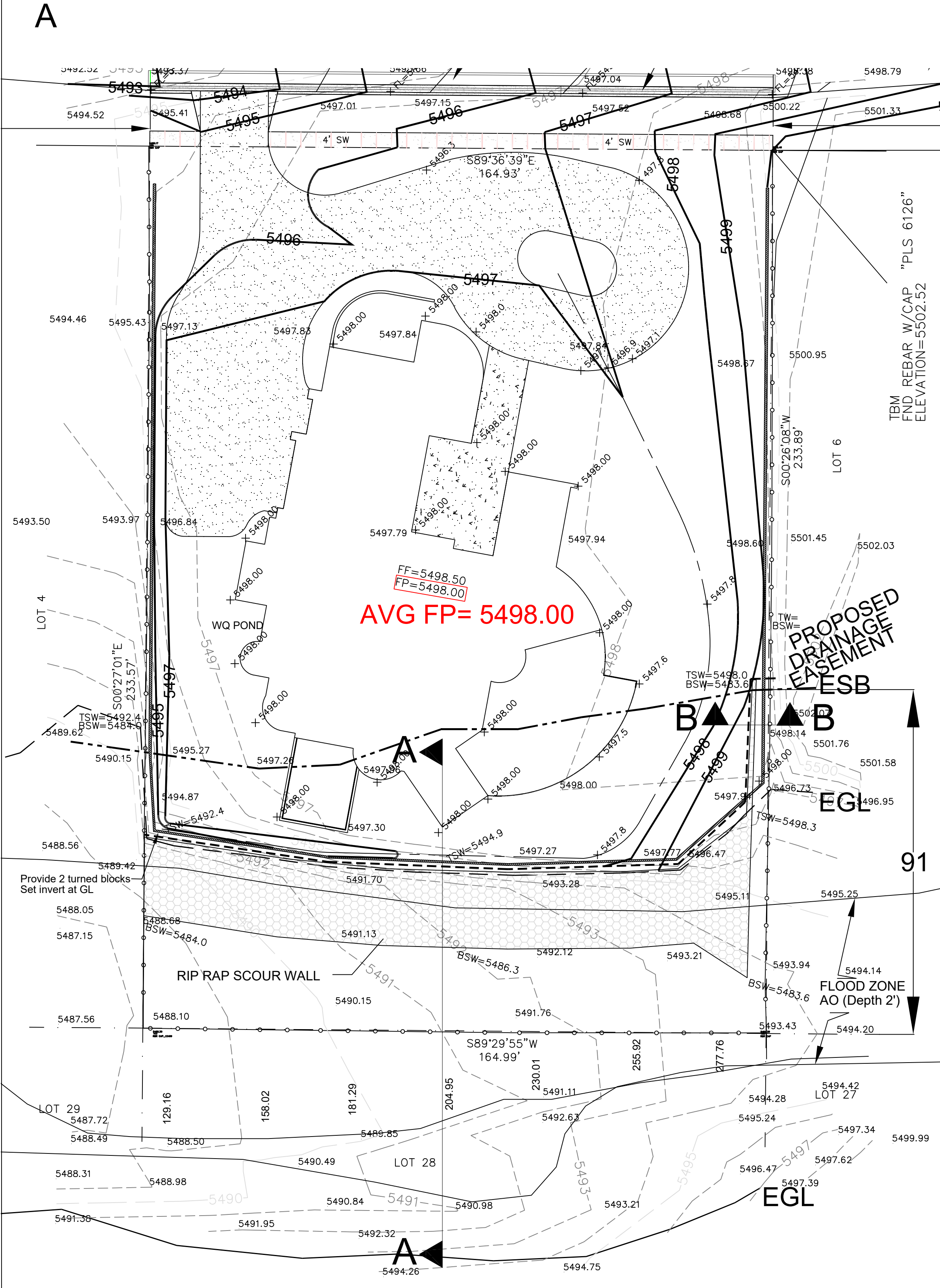
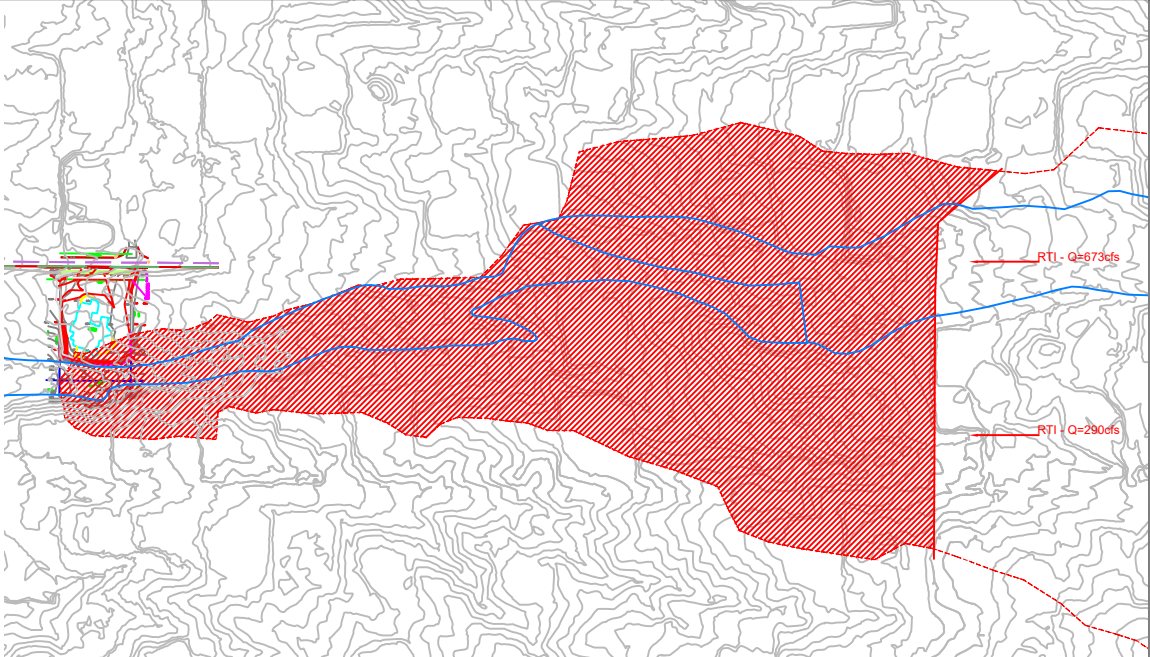
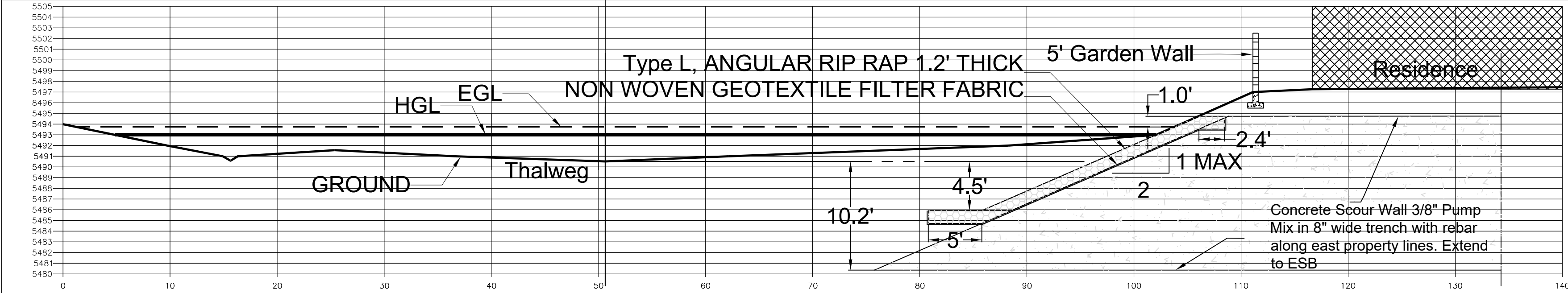
DATE SUBMITTED: _____ **By:** _____

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____





Hydrology Calculations
8500 Glendale NE

Precipitation Zone 3
100 yr 6 hr Storm
Basin D1 Area =
Historic (Allowable)

0.89 ac. 38768.4 sq ft Determined by DB

Land Treatment	Percent	Area (ac)	Excess Precipitation (in.)	Unit Peak Discharge (cfs/acre)	Runoff Volume (ac-ft)	Peak Discharge (cfs)	Comments
A	20.00%	0.18	0.66	1.87	0.01	0.33	Natural Ground
B	20.00%	0.18	0.92	2.60	0.01	0.46	Landscaped Areas
C	34.00%	0.30	1.29	3.45	0.03	1.04	Compacted earth
D	26.00%	0.23	2.36	5.02	0.05	1.16	Impervious Areas
TOTAL	100.00%	0.89	1.37		0.10	3.00	

4420.24 cu ft

Proposed 0.89 ac. 38768.4 sq ft Determined by DB

Land Treatment	Percent	Area (ac)	Excess Precipitation (in.)	Unit Peak Discharge (cfs/acre)	Runoff Volume (ac-ft)	Peak Discharge (cfs)	Comments
A	10.00%	0.09	0.66	1.87	0.00	0.17	Natural Ground
B	36.00%	0.32	0.92	2.60	0.02	0.83	Landscaped Areas
C	30.00%	0.27	1.29	3.45	0.03	0.92	Compacted earth
D	24.00%	0.21	2.36	5.02	0.04	1.07	Impervious Areas
TOTAL	100.00%	0.89	1.35		0.10	2.99	

4363.38 cu ft

Water Quality Retention Volume = 0.42" x 9304.416 sq ft 325.65 cu ft.

% Change 13% 0%

DIFFERENCE Runoff Volume (ac-ft) Peak Discharge (cfs) Volume (ac-ft) Discharge (cfs)

Pond only Water Quality Volume 0.00 0.00 0.00 0.00

Hydrology Calculations
Additional Offsite Watershed Assuming Full Development

Precipitation Zone 3
100 yr 6 hr Storm
Offsite Basin
Historic (Allowable)

24.6124 ac. 1072117.1 sq ft Determined by DB

Land Treatment	Percent	Area (ac)	Excess Precipitation (in.)	Unit Peak Discharge (cfs/acre)	Runoff Volume (ac-ft)	Peak Discharge (cfs)	Comments
A	20.00%	4.92	0.66	1.87	0.27	9.21	Natural Ground
B	20.00%	4.92	0.92	2.60	0.38	12.80	Landscaped Areas
C	34.00%	8.37	1.29	3.45	0.90	28.87	Compacted earth
D	26.00%	6.40	2.36	5.02	1.26	32.12	Impervious Areas
TOTAL	100.00%	24.61	1.37		2.81	83.00	

RTI Flows at Ventura (Camino Arroyo) 290 673 1046.00

DRAINAGE NARRATIVE

This grading & drainage plan was prepared to support a building permit application for a new residence located at 8500 Glendale NE (Lot 5, Block 17, Tract 1, Unit 3, NAA) in North Albuquerque Acres. The plan was prepared using allowable discharge rates based on land treatment percentages of A=20%, B=20%, C=34%, and D=26% and the hydrology methodology presented in Chapter 22.2 of the City of Albuquerque's Development Process Manual (abbreviated method).

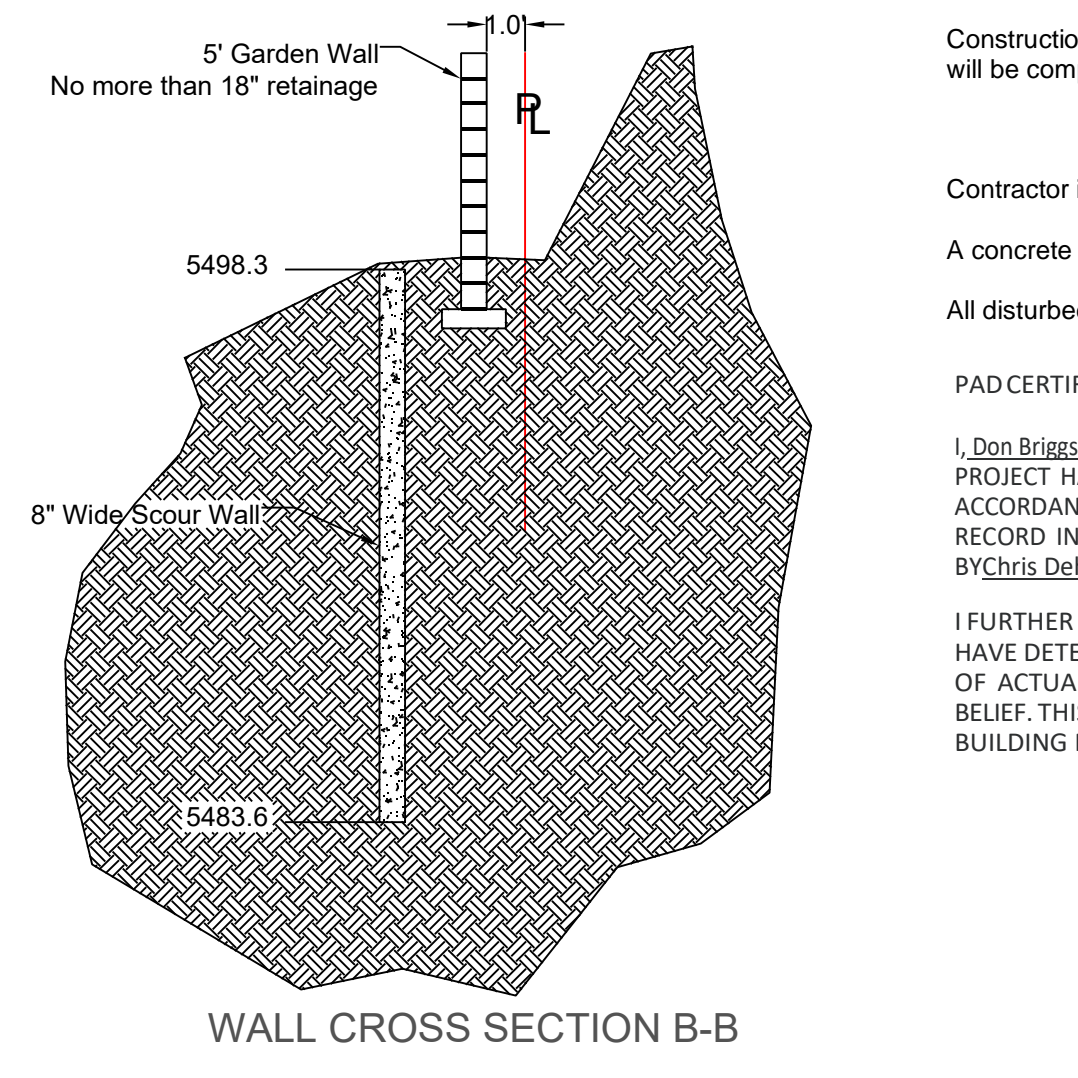
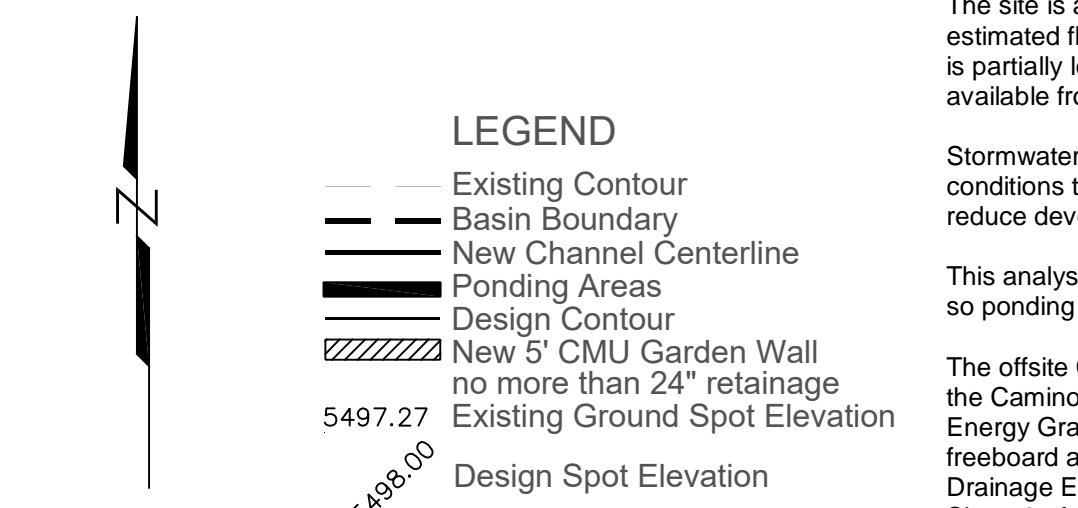
The site is a 0.89 acre parcel located in Precipitation Zone 3. The site is impacted by the Camino Arroyo with an estimated flow rate of 1046cfs (RTI Flows @ Ventura + additional developed basin flow) at the property. The property is partially located in FEMA Flood Zone AO (Depth 2') as shown on panel 35001C0133H. Sewer and water service is available from ABCWUA.

Stormwater impacts and mitigation requirements are determined by comparing runoff from the proposed developed conditions to the NAA allowable conditions (see Site Hydrology on this plan). Mitigation measures are designed to reduce developed runoff to at or below the NAA allowable.

This analysis indicates that the site developed runoff will not exceed the allowable runoff in a 100yr. 6hr. rainfall event so ponding is not required.

The offsite Camino Arroyo flow is passed through the property in its natural channel location. A hydraulic analysis of the Camino Arroyo was performed using the US Army's HEC RAS software to determine the Hydraulic Grade Line, Energy Grade Line and flow velocity. The results of the analysis indicated the developed lot will have a minimum 2' freeboard above the water surface and a 1' freeboard above the Energy Grade Line at the South East corner. A Drainage Easement that encompasses the Energy Grade Line is proposed. The HEC RAS analysis is presented on Sheet 2 of 2.

Due to the proximity of the home to the Camino Arroyo a scour analysis is required. Scour calculations were performed using the equations presented in AMAFCA's Sediment and Erosion Design Guide. The Erosion Setback is calculated at 90' and the parallel scour depth at 4.5' (3.5' + 1' Safety Factor) and 10.2' (9.2' + 1') for the perpendicular scour depth. As the home will be located within the Erosion Setback a scour wall is required for this development. The scour wall design is presented on this plan.



SCOUR CALCULATIONS (SEBG)
CROSS SECTION 204.96

Q100 = 1033 cfs
SLOPE THALWEG ELEVATION 0.01587 ft/ft
HGL DEPTH = D100 5490.8 ft
HGL ELEVATION 5493.08 ft
EGL ELEVATION 5493.84 ft
AREA = 147.73 sq ft
VELOCITY = 6.99 fps
VELOCITY HEAD = 0.76 ft
FRICTION 1.01

LATERAL EROSION (Erosion Setback)
Qd = 0.2(Q100) 206.6 cfs (Dominant Discharge)
ESB = (0.02+4.6*log(Qd/Qd0.4) = 98 ft (EQ 3.81b)

VERTICAL EROSION (Scour Depth)
PARALLEL Vb = (W/(7.24*(14'3.14159*F^2)/D100) = 3.45 ft (EQ 3.89)
SAFETY FACTOR 1.00 ft
REQUIRED SCOUR DEPTH 4.45 ft

PERPENDICULAR Vb = ((.73+((.14*3.14159*F^2)/COS(θ) + (4'F^0.33)/SIN(θ))/D100) (θ = 90) 9.15 ft (EQ 3.90)
REQUIRED SCOUR DEPTH ELEVATION = 5496.35
TOP OF SCOUR WALL = EGL + 1' = 5494.84

SCOUR WALL ROCK SIZING (Denver Urban Drainage Design Manual)
MINIMUM #500 0.59 ft Vb0.1775/88 2.1 SS Max.
N for Riprap 0.036 Neo 0355(D50^1/16)
Riprap Layer Thickness 1.2 ft 2(d50)

GENERAL NOTES

Contractor is responsible for utility spots and controlling sediment deposition and erosion during construction.

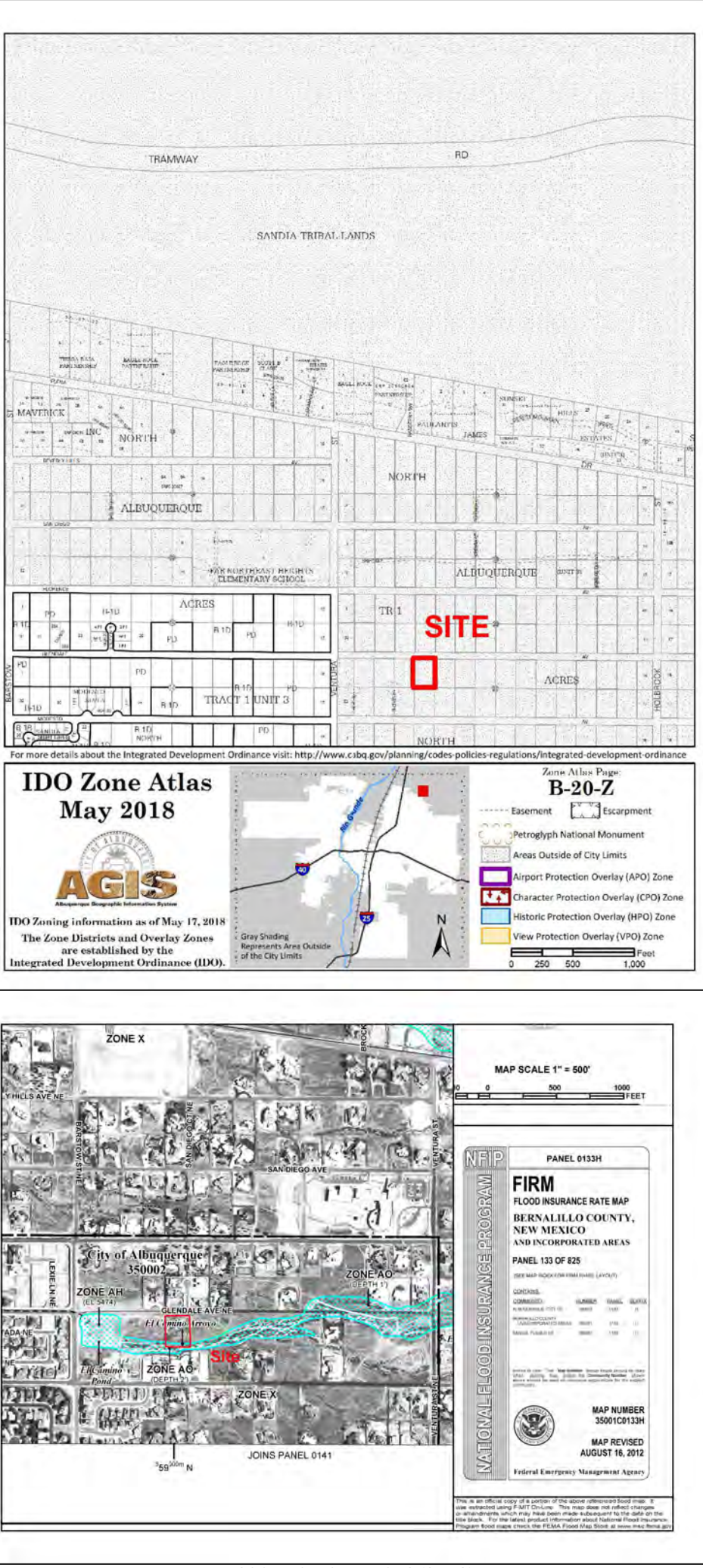
A concrete washout bin must be provided as per Bernalillo County MS4 Permit requirements.

All disturbed area due to construction must be reseeded or landscaped following construction.

PAD CERTIFICATION

I, Don Briggs, NMPE 14912, OF THE FIRM, Don Briggs Engineering LLC, HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 5/28/2019. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY Chris Dehler NMPS 7923, OF THE FIRM, Christopher J. Dehler PLS.

I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 10/4/2019 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS PAD ELEVATION CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR BUILDING PERMIT APPROVAL.



SCOUR WALL CALCULATIONS

Scour Depth 4.5

X Section	Thalweg	Botm SW	EGL	Top SW
129.16	5488.5	5484.0	5491.42	5492.42
158.02	5489.3	5484.8	5492.29	5493.29
181.29	5489.9	5485.4	5493.15	5494.15
204.95	5490.8	5486.3	5493.86	5494.86
230.01	5491.4	5486.9	5494.76	5495.76
255.92	5492.8	5488.3	5496.01	5497.01
277.76	5493.5	5489.0	5496.97	5497.97

REVISIONS

NO.	DATE	REMARKS
1	5/28/2019	Address Comments

DESIGNED BY DB DATE 4/25/2019
DRAWN BY DB DATE 4/25/2019
CHECKED BY DATE

AS-BUILT INFORMATION

CONTRACTOR
WORK STAKED BY
DATE
ACCEPTANCE BY
DATE
FIELD VERIFICATION BY
DATE
CORRECTED BY
DATE
RECORDING INFORMATION
RECORDED BY
DATE
NO.

BENCHMARKS

CONTRACTOR
WORK STAKED BY
DATE
ACCEPTANCE BY
DATE
FIELD VERIFICATION BY
DATE
CORRECTED BY
DATE
RECORDING INFORMATION
RECORDED BY
DATE
NO.

SURVEY INFORMATION

FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL

BY DB

REVISIONS
DESIGN

DATE 4/25/2019
DATE 4/25/2019
DATE

Don Briggs Engineering LLC
505-249-4843
donbriggseengineering@gmail.com
5324 Oakledge Ct. NW, Albuquerque, NM 87120

8500 Glendale Grading & Drainage Plan

Design Review Committee City Engineer Approval

City Project No. B20D067 Zone Map No. Sheet 1 Of 3