CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director

Mayor Timothy M. Keller

January 4, 2024

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

RE: McMahon Market Place – Lot 9C
Grading & Drainage Plan
Engineer's Stamp Date: 12/21/23
Hydrology File: A11D011J

Dear Mr. Arfman:

Based upon the information provided in your submittal received 12/20/2023, the Grading & Drainage Plan is approved for Building Permit and Grading Permit. 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 CERTIFICATE OF OCCUPANCY:

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

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 (Dough Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (DTIS)

Project Title: McMahon Market Place New Shell Building Hydrology File # A11
Legal Description: Lot 9-C, McMahon Marketplace
City Address, UPC, OR Parcel: 5770 McMahon Blvd. NW - Albuquerque, NM 87114

Applicant/Agent: Isaacson & Arfman, Inc. Contact: Fred C. Arfman or Bryan J. Bobrick
Address: 128 Monroe Street NE - Albuquerque, NM 87108 Phone: (505) 268-8828
Email: freda@iacivil.com or bryanb@iacivil.com

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

(Please note that a DFT SITE is one that needs Site Plan Approval & ADMIN SITE is one that does not need it.)

TYPE OF DEVELOPMENT: ☐ PLAT (#of lots) _____ ☐ RESIDENCE
☐ DFT SITE ☑ ADMIN SITE

RE-SUBMITTAL: ☐ YES ☑ NO

DEPARTMENT: ☐ TRANSPORTATION ☑ HYDROLOGY/DRAINAGE

Check all that apply under Both the Type of Submittal and the Type of Approval Sought:

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ARCHITECT CERTIFICATION
- ☐ PAD CERTIFICATION
- ☐ CONCEPTUAL G&D PLAN
- ☑ GRADING & DRAINAGE PLAN
- ☑ DRAINAGE REPORT
- ☐ DRAINAGE MASTER PLAN
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL) ADMINISTRATIVE
- ☐ TRAFFIC CIRCULATION LAYOUT FOR DFT APPROVAL
- ☐ TRAFFIC IMPACT STUDY (TIS)
- ☐ STREET LIGHT LAYOUT
- ☐ OTHER (SPECIFY)_____

TYPE OF APPROVAL SOUGHT:

- ☑ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY
- ☐ CONCEPTUAL TCL DFT APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ SITE PLAN FOR BLDG PERMIT DFT 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
- ☐ OTHER (SPECIFY)_____

DATE SUBMITTED: December 21, 2023

REV. 09/13/23

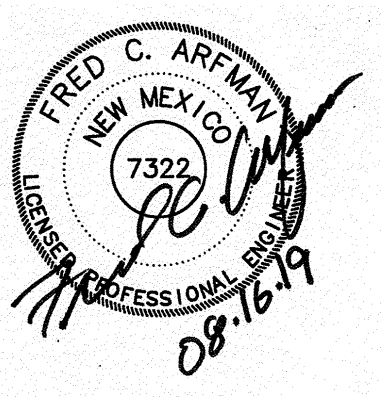
AUGUST 28, 2019

McMahon Marketplace
Lot 9a and Lot 9b
Drainage Study

updated for
Lot 9c -
12-21-2023

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 01/04/24
BY: Renée C. Brissette
HydroTrans # A11D011J

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION, OR ERROR OR DIMENSIONS IN PLANS, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

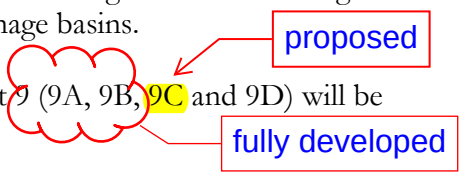


by

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

Thomas O. Isaacson, PE(RET.) & LS(RET.)
Fred C. Arfman, PE
Åsa Nilsson-Weber, PE

The McMahon Marketplace Drainage Management Plan (DMP) prepared by Bohannan-Huston, Inc., dated 05/07/10 limits the discharge from the entire 12.13 acre McMahon Marketplace property to 41.55 cfs. The image below shows the McMahon Marketplace DMP drainage basins B1 through B4 and the relationship between the Lot 9 limits (green) and the drainage basins.

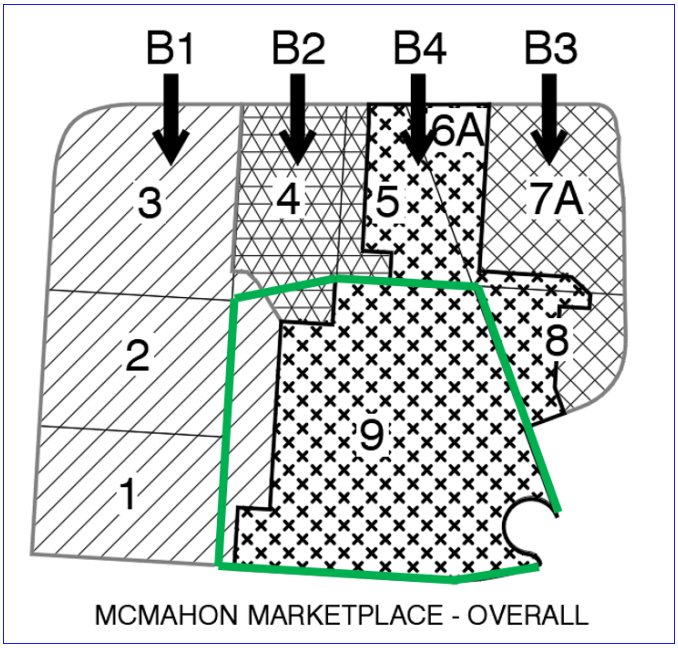


The McMahon Marketplace Lots 1 through 8 are now developed. Lot 9 (9A, 9B, 9C and 9D) will be the final acreage to be developed.

A conceptual Grading and Drainage Plan for Lot 9 (CDG) prepared by Isaacson & Arfman, PA with stamp date 11/01/17 (COA Hydrology File A11/D011I) was approved for action by the DRB on the Site Plan for Building Permit.

This plan analyzed the fully developed discharge rates from Lots 1 through 8 and clarified the allowable discharge for the remaining Lot 9 sub-basins to limit the total discharge to the allowable rate of 41.55 cfs.

Per the CDG, Lot 9 is permitted to discharge flow as follows:



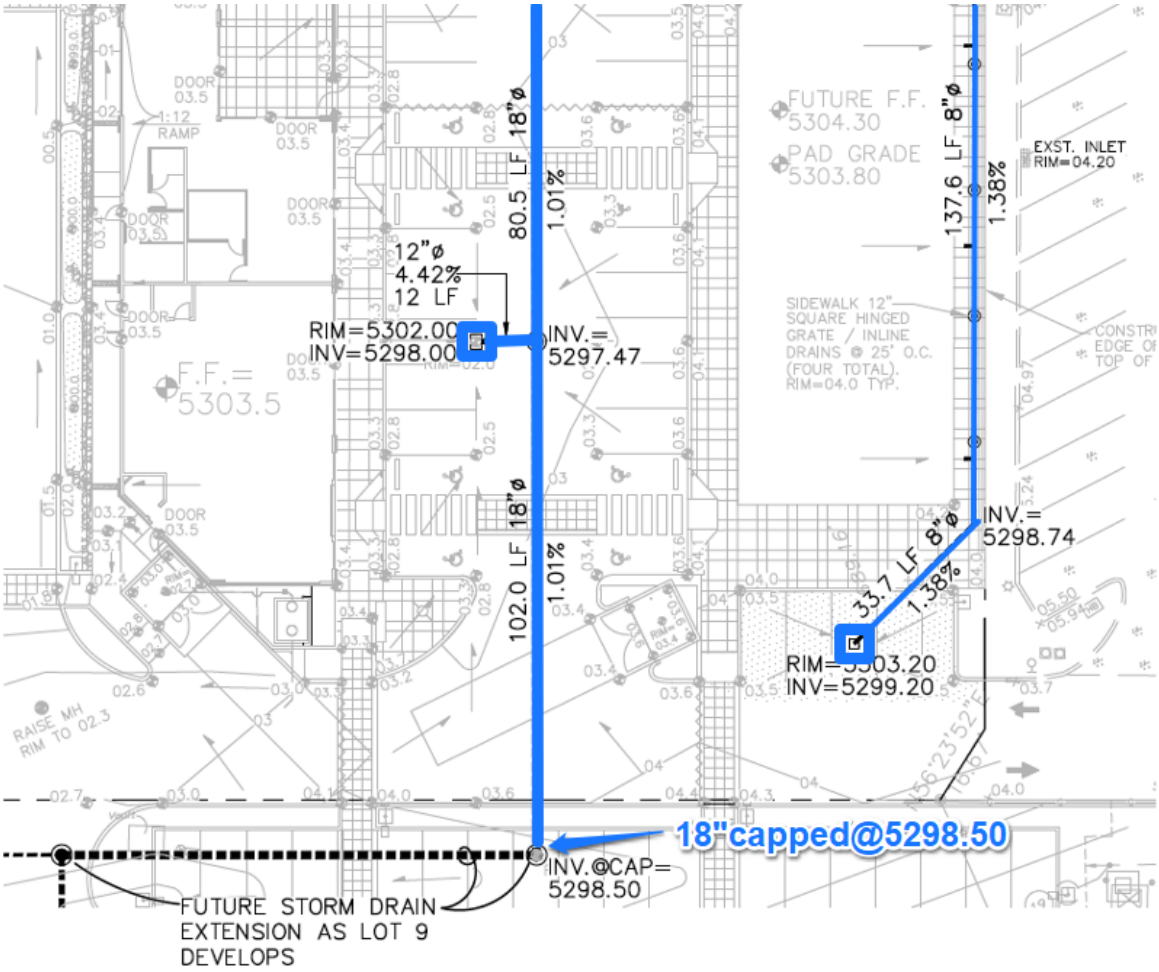
MCMAHON MARKETPLACE - OVERALL

DMP B1: Free discharge to McMahon Blvd. Per the approved Lot 9 conceptual G&D plan and calculations, it was estimated that Lot 9 will discharge 2.8 cfs to DMP B1.

DMP B2: Free discharge to McMahon Blvd. Per the approved Lot 9 conceptual G&D plan and calculations, it was estimated that Lot 9 will discharge 0.1 cfs to DMP B2.

DMP B4: Detention required to limit fully developed discharge from Lot 9 to the Lot 5/6 Detention Pond to 10.9 cfs.

The recent construction of Lots 5A and 6A1 (Hydrology File A11D011H) included extending an 18" dia. on-site storm drain system into Lot 9, capped within the Lot 9 property limits at an invert elevation of 5298.50.



~~PROPOSED~~ STORM DRAIN SYSTEM

SCALE: 1"=30'

Lot 9 detention is required to limit developed discharge draining from Lot 9 to the Lot 5/6 Detention Pond to 10.9 cfs.

FULLY DEVELOPED CONDITION:

The fully developed Lot 9 property (3.98 acres) will generate 16.3 cfs during the 100-year 6-hour storm event (based on 5% Land Treatment B, 10% C and 85% D).

CALCULATIONS: McMahon Marketplace Lots 9A, 9B, 9C and 9D : August 9, 2019

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

100-YEAR, 6-HOUR CALCULATIONS

AREA OF SITE: 173574 SF = 3.98 ACRE

100-year, 6-hour

HISTORIC FLOWS:

DEVELOPED FLOWS:

		Treatment SF	%
Area A	=	0	0%
Area B	=	8679	5%
Area C	=	17357	10%
Area D	=	147538	85%
Total Area	=	173574	100%

EXCESS PRECIP:

Precip. Zone 1

E_A = 0.44

E_B = 0.67

E_C = 0.99

E_D = 1.97

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

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

Developed E = 1.81 in.

On-Site Volume of Runoff: V360 = E*A / 12

Developed V_{360} = 26137 CF

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

For Precipitation Zone 1

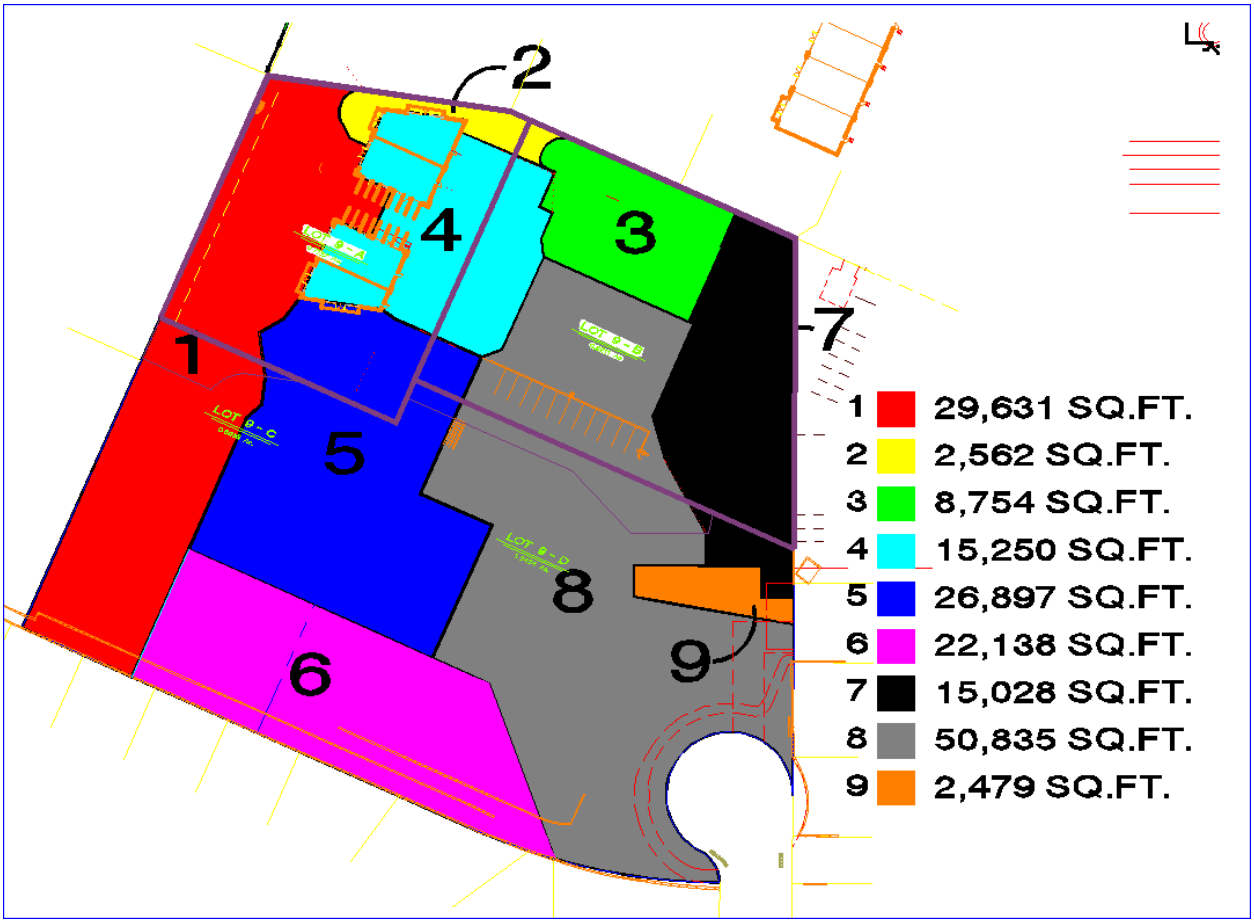
Q_{pA} = 1.29 Q_{pC} = 2.87

Q_{pB} = 2.03 Q_{pD} = 4.37

Developed Q_p = 16.3 CFS

FULLY DEVELOPED CONDITION:

In the fully developed condition, the property is divided into 9 drainage basins.



The Lot D fully developed flow will be routed as follows:

BASIN 1 – Free Discharge through DMP B1: The west portion of the Lot 9 site will discharge 2.8 cfs through DMP B1 to McMahon Blvd. Per the approved Lot 9 conceptual Grading & Drainage plan and calculations, MDP Basin B1 (fully developed) will free discharge 19.1 cfs to McMahon Blvd.

BASIN 2 - Free Discharge through DMP B2: A small northerly portion of Lot 9 will be routed through the Starbucks property (Lot 4) and free discharge 0.2 cfs to McMahon Blvd. Per the approved Lot 9 conceptual Grading & Drainage plan and calculations, DMP Basin B2 (fully developed) will free discharge 4.8 cfs to McMahon Blvd.

BASIN 3 – through BASIN 9: A portion of the Lot 9 parking area (Basin 3) will discharge 0.8 cfs to the storm drain inlet(s) on Lots 5/6. The remainder (Basins 4 – 9) will be routed to the proposed underground storage chambers which will provide detention as needed to limit the discharge to 10.1

cfs (10.9 cfs per conceptual Grading and Drainage Plan for Lot 9 – 0.8 cfs from Basin 3 which bypasses the underground storage chambers).

The total discharge from the fully developed McMahon Marketplace will be limited to 41.6 cfs.

Lot 9 Drainage Basins 1-5 (fully developed)

BASIN NO.	**1**	**DESCRIPTION**	Free Discharge through DMP B1
Area of basin flows =	29631 SF	=	0.7 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation:			A = 0%
Weighted E =	1.81 in.		B = 5%
Sub-basin Volume of Runoff:			C = 10%
V_{360} =	4462 CF		D = 85%
Sub-basin Peak Discharge Rate:			FIRST FLUSH VOL. REQ'D
Q_P =	2.8 cfs		714 CF

BASIN NO.	**2**	**DESCRIPTION**	Free Discharge through DMP B2
Area of basin flows =	2562 SF	=	0.1 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation:			A = 0%
Weighted E =	1.81 in.		B = 5%
Sub-basin Volume of Runoff:			C = 10%
V_{360} =	386 CF		D = 85%
Sub-basin Peak Discharge Rate:			FIRST FLUSH VOL. REQ'D
Q_P =	0.2 cfs		62 CF

BASIN NO.	**3**	**DESCRIPTION**	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	8754 SF	=	0.2 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation:			A = 0%
Weighted E =	1.81 in.		B = 5%
Sub-basin Volume of Runoff:			C = 10%
V_{360} =	1318 CF		D = 85%
Sub-basin Peak Discharge Rate:			FIRST FLUSH VOL. REQ'D
Q_P =	0.8 cfs		211 CF

BASIN NO.	**4**	**DESCRIPTION**	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	15250 SF	=	0.4 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation:			A = 0%
Weighted E =	1.81 in.		B = 5%
Sub-basin Volume of Runoff:			C = 10%
V_{360} =	2296 CF		D = 85%
Sub-basin Peak Discharge Rate:			FIRST FLUSH VOL. REQ'D
Q_P =	1.4 cfs		367 CF

BASIN NO.	**5**	**DESCRIPTION**	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	26897 SF	=	0.6 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation:			A = 0%
Weighted E =	1.81 in.		B = 5%
Sub-basin Volume of Runoff:			C = 10%
V_{360} =	4050 CF		D = 85%
Sub-basin Peak Discharge Rate:			FIRST FLUSH VOL. REQ'D
Q_P =	2.5 cfs		648 CF

Lot 9 Drainage Basins 6-9 (fully developed)

BASIN NO. 6		DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	22138 SF	=	0.5 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation:			A = 0%
Weighted E =	1.81 in.		B = 5%
Sub-basin Volume of Runoff:			C = 10%
V_{360} =	3334 CF		D = 85%
Sub-basin Peak Discharge Rate:			FIRST FLUSH VOL. REQ'D
Q_P =	2.1 cfs		533 CF

BASIN NO. 7		DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	15028 SF	=	0.3 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation:			A = 0%
Weighted E =	1.81 in.		B = 5%
Sub-basin Volume of Runoff:			C = 10%
V_{360} =	2263 CF		D = 85%
Sub-basin Peak Discharge Rate:			FIRST FLUSH VOL. REQ'D
Q_P =	1.4 cfs		362 CF

BASIN NO. 8		DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	50835 SF	=	1.2 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation:			A = 0%
Weighted E =	1.81 in.		B = 5%
Sub-basin Volume of Runoff:			C = 10%
V_{360} =	7655 CF		D = 85%
Sub-basin Peak Discharge Rate:			FIRST FLUSH VOL. REQ'D
Q_P =	4.8 cfs		1224 CF

BASIN NO. 9		DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	2479 SF	=	0.1 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation:			A = 0%
Weighted E =	1.81 in.		B = 5%
Sub-basin Volume of Runoff:			C = 10%
V_{360} =	373 CF		D = 85%
Sub-basin Peak Discharge Rate:			FIRST FLUSH VOL. REQ'D
Q_P =	0.2 cfs		60 CF

ORIFICE EQUATION - GENERAL - SOLVE FOR A

(2*g*h) ^ 0.5				
Q	=	10.1	cfs	
C	=	0.6		
A	=	1.0	sq.ft.	
g	=	32.2	ft/sec^2	
h	=	4.4	ft	depth of flow at opening from the center of culvert

Discharge from detention system (see next page) shall be limited to 10.1 cfs via orifice control. A 1 sq.ft. opening will be provided in the outlet structure (see plans for additional design information.)

Per the inflow/outflow hydrograph, stormwater detention volume of 4009 cf will be provided as part of the underground detention / storm water quality system.

DEVELOPED TO STORMTECH		DESCRIPTION	Basins 4-9 area draining to stormtech chambers
Area of basin flows =	132627 SF	=	3.04 Ac.

The following calculations are based on Treatment %'s as shown in table to the right

LAND TREATMENT	
A =	0%
B =	5%
C =	10%
D =	85%

Sub-basin Weighted Excess Precipitation:

Weighted E = 1.81 in.

Sub-basin Volume of Runoff:

V_{360} = 19971 CF

Sub-basin Peak Discharge Rate:

Q_P = 12.5 cfs

CALCULATIONS - FULLY DEVELOPED
HYDROGRAPH FOR SMALL WATERSHED
DPM SECTION 22-2 * PAGE A-13/14

Fully Developed Basins 4 through 9

Base time, t_B, for a small watershed hydrograph is,

$tB = (2.107 * E * A / Q_P) - (0.25 * A_D / A)$

Where

E	=	1.81 inches
A	=	3.04 acres
A_D	=	2.59 acres
Q_P	=	12.5 cfs

Basins 4-9

t_B	=	0.72 hours

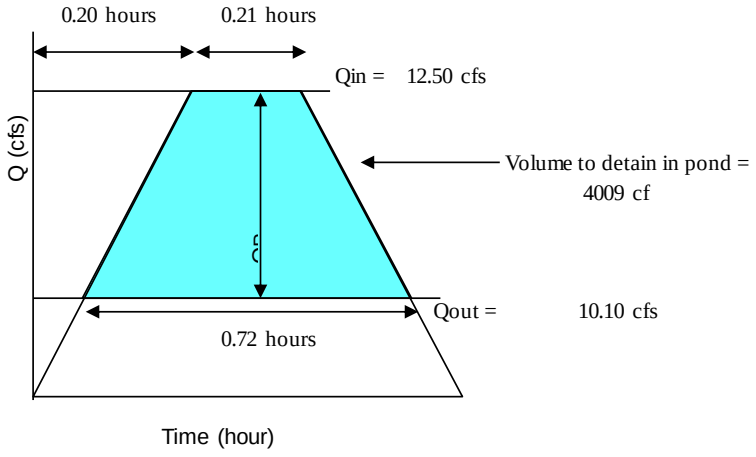
E is the excess precipitation in inches (from DPM TABLE A-8), Q_P is the peak flow, A_D is the area (acres) of treatment D, and A_T is the total area in acres. Using the time of concentration, t_C (hours), the time to peak in hours is:

$t_P = (0.7 * tC) + ((1.6 - (A_D / A)) / 12)$

Where t_C = 0.20 hours

t_P = 0.20 hours

Continue the peak for $0.25 * A_D / A_T$ hours. When A_D is zero, the hydrograph will be triangular. When A_D is not zero, the hyrograph will be trapezoidal. see the graph below:



Stormtech Chamber system constructed as part of 9A/9B development. Provides for entirety of Lot 9.

User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	Yes
Project Name:	McMahon Market-place
Engineer:	Bryan Bobrick
Project Location:	New Mexico
Measurement Type:	Imperial
Required Storage Volume:	4009 cubic ft.
Stone Porosity:	40%
Stone Foundation Depth:	12 in.
Stone Above Chambers:	12 in.
Average Cover Over Chambers:	18 in.
Design Constraint Dimensions:	(30 ft. x 80 ft.)

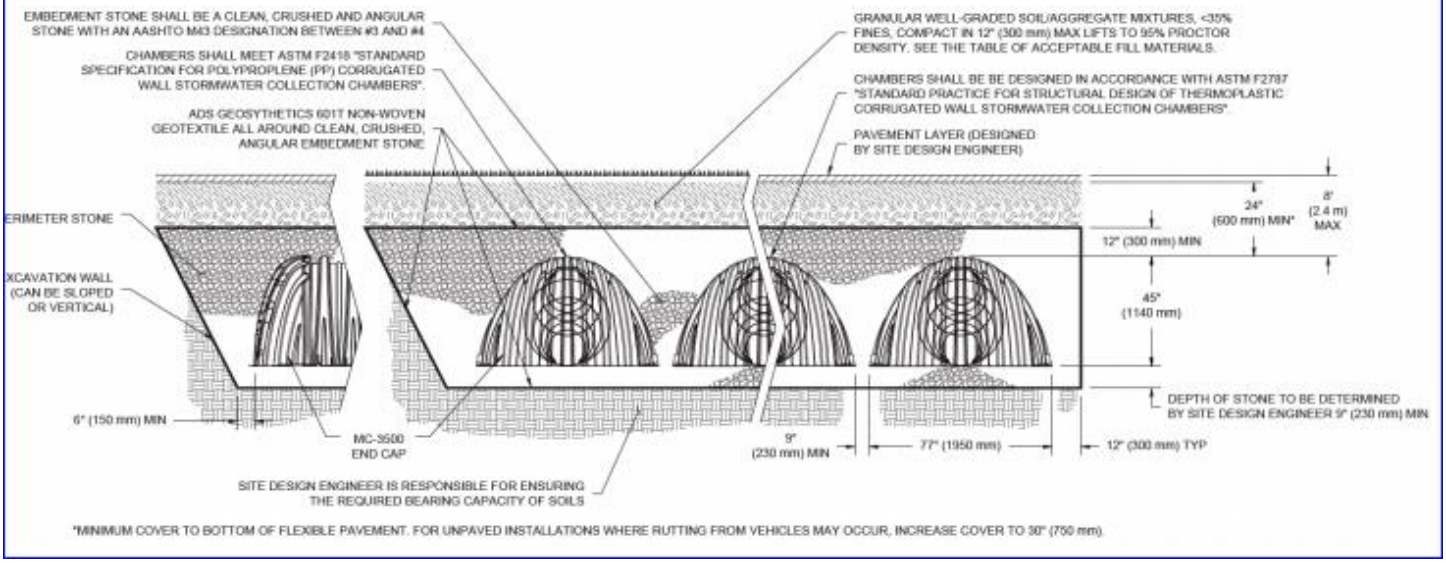
Results

System Volume and Bed Size

Installed Storage Volume:	5266.86 cubic ft.
Storage Volume Per Chamber:	109.90 cubic ft.
Number Of Chambers Required:	24
Number Of End Caps Required:	6
Chamber Rows:	3
Maximum Length:	70.95 ft.
Maximum Width:	22.25 ft.
Approx. Bed Size Required:	1578.55 square ft.

System Components

Amount Of Stone Required:	235.17 cubic yards
Volume Of Excavation (Not Including Fill):	336.17 cubic yards



For the fully developed condition

The 24" gravel layer (height 0" to 24") below the chambers provides 1067 cf of retention for stormwater quality. The chambers and 12" gravel cover provides 4171 cf > 4009 cf required.

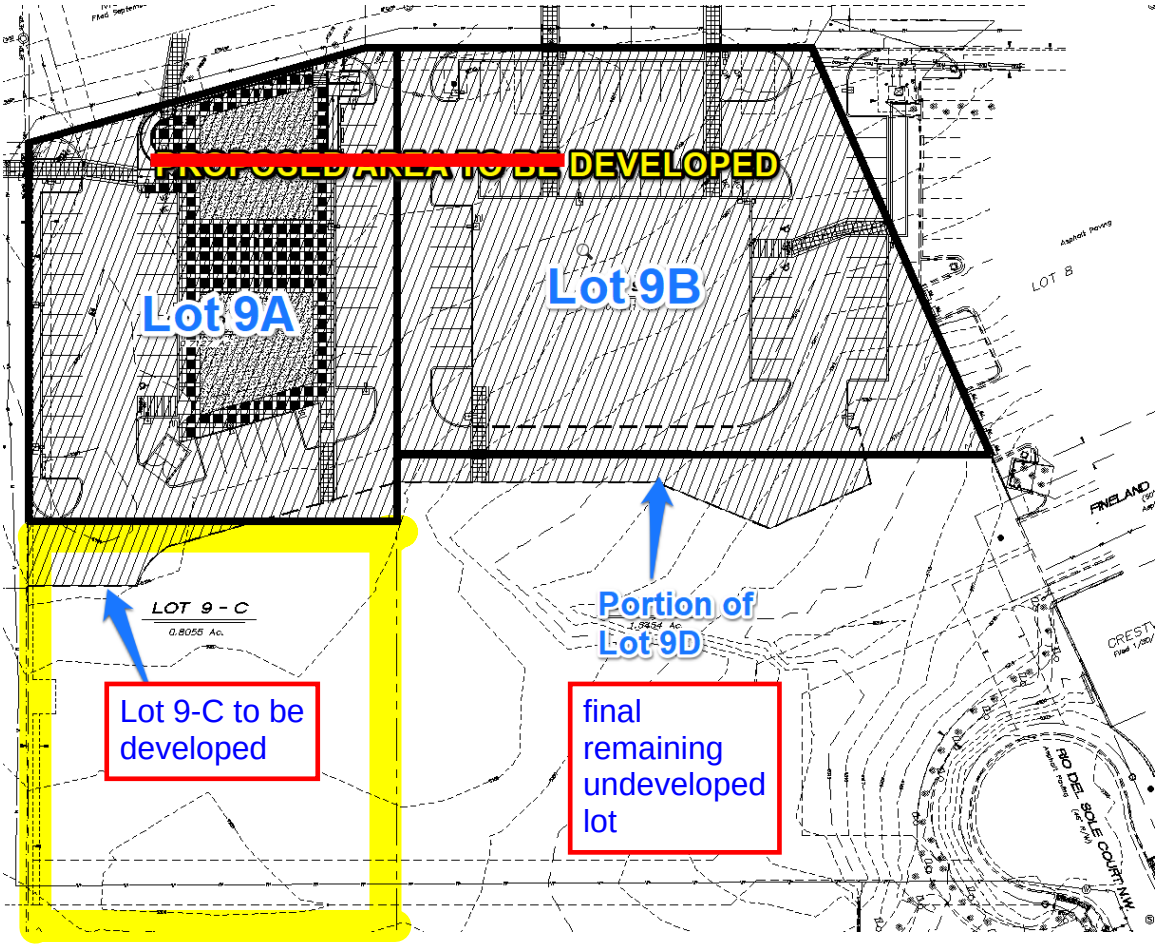
StormTech MC-3500 Cumulative Storage Volumes

Height of System *(inches)*	Incremental Single Chamber *(cubic feet)*	Incremental Single End Cap *(cubic feet)*	Incremental Chambers *(cubic feet)*	Incremental End Cap *(cubic feet)*	Incremental Stone *(cubic feet)*	Incremental Ch, EC and Stone *(cubic feet)*	Cumulative System (cubic feet)	Elevation (feet)
81	0.00	0.00	0.00	0.00	44.46	44.46	5237.97	5304.75
70	0.00	0.00	0.00	0.00	44.46	44.46	4748.96	5303.83
69	0.06	0.00	1.39	0.00	43.90	45.29	4704.51	5303.75
68	0.19	0.02	4.66	0.14	42.53	47.34	4659.22	5303.67
67	0.29	0.04	7.06	0.23	41.54	48.82	4611.88	5303.58
66	0.40	0.05	9.69	0.31	40.46	50.45	4563.05	5303.50
65	0.69	0.07	16.49	0.41	37.70	54.59	4512.60	5303.42
64	1.03	0.09	24.68	0.53	34.37	59.58	4458.01	5303.33
63	1.25	0.11	29.99	0.64	32.20	62.83	4398.43	5303.25
62	1.42	0.13	34.13	0.76	30.50	65.39	4335.59	5303.17
61	1.57	0.14	37.76	0.87	29.01	67.63	4270.20	5303.08
60	1.71	0.16	40.97	0.98	27.68	69.62	4202.57	5303.00
59	1.83	0.18	43.88	1.09	26.47	71.44	4132.95	5302.92
58	1.94	0.20	46.51	1.20	25.37	73.08	4061.51	5302.83
57	2.04	0.22	48.98	1.31	24.34	74.63	3988.43	5302.75
56	2.13	0.23	51.23	1.41	23.40	76.04	3913.80	5302.67
55	2.22	0.25	53.38	1.50	22.50	77.39	3837.76	5302.58
54	2.31	0.27	55.36	1.59	21.67	78.63	3760.37	5302.50
53	2.38	0.28	57.23	1.68	20.89	79.80	3681.74	5302.42
52	2.46	0.29	59.02	1.76	20.14	80.92	3601.94	5302.33
51	2.53	0.31	60.68	1.85	19.45	81.97	3521.01	5302.25
50	2.59	0.32	62.25	1.93	18.78	82.96	3439.04	5302.17
49	2.66	0.33	63.75	2.01	18.15	83.91	3356.08	5302.08
48	2.72	0.35	65.16	2.08	17.56	84.80	3272.18	5302.00
47	2.77	0.36	66.51	2.16	16.99	85.66	3187.37	5301.92
46	2.82	0.37	67.79	2.23	16.45	86.47	3101.72	5301.83
45	2.88	0.38	69.01	2.31	15.93	87.25	3015.24	5301.75
44	2.92	0.40	70.18	2.38	15.43	87.99	2928.00	5301.67
43	2.97	0.41	71.28	2.45	14.97	88.69	2840.01	5301.58
42	3.01	0.42	72.30	2.51	14.53	89.34	2751.32	5301.50
41	3.05	0.43	73.28	2.58	14.11	89.97	2661.98	5301.42
40	3.09	0.44	74.26	2.64	13.69	90.60	2572.01	5301.33
39	3.13	0.45	75.13	2.70	13.32	91.16	2481.41	5301.25
38	3.17	0.46	75.98	2.77	12.96	91.70	2390.25	5301.17
37	3.20	0.47	76.79	2.82	12.61	92.22	2298.55	5301.08
36	3.23	0.48	77.55	2.88	12.28	92.71	2206.33	5301.00
35	3.26	0.49	78.27	2.94	11.97	93.18	2113.62	5300.92
34	3.29	0.50	78.97	2.99	11.67	93.63	2020.44	5300.83
33	3.32	0.51	79.63	3.04	11.39	94.06	1926.81	5300.75
32	3.34	0.51	80.26	3.09	11.12	94.46	1832.75	5300.67
31	3.37	0.52	80.85	3.13	10.86	94.84	1738.29	5300.58
30	3.39	0.53	81.42	3.18	10.62	95.21	1643.45	5300.50
29	3.41	0.54	81.95	3.22	10.39	95.56	1548.23	5300.42
28	3.44	0.54	82.49	3.26	10.16	95.90	1452.68	5300.33
27	3.46	0.55	82.99	3.30	9.94	96.22	1356.77	5300.25
26	3.48	0.56	83.49	3.33	9.73	96.55	1260.55	5300.17
25	3.51	0.59	84.12	3.57	9.38	97.07	1164.00	5300.08
24	0.00	0.00	0.00	0.00	44.46	44.46	1066.93	5300.00
1	0.00	0.00	0.00	0.00	44.46	44.46	44.46	5298.08

PROPOSED PARTIALLY DEVELOPED CONDITION (THIS PHASE):

The proposed area of development for this project falls within Lot 9 Basins 2, 3, 4, and a portion of 1, 5, 7, 8 and 9.

The proposed area to be developed with this project totals 1.76 acres or 44% of the total Lot D property. This includes 100% of 9A & 9B with small areas of access pavement on 9C & 9D.



Total stormwater quality retention required for the fully developed lot 9 properties (9a, 9b, 9c and 9d) = ~~4180~~ cf based on ~~85%~~ total impervious area.

80%

3,935 CF

1003 cf of stormwater quality retention has been provided within the existing pond on lots 5/6a.

~~Therefore 3,177 cf will be required within lots 9a through 9d for fully developed conditions.~~

~~In the interim (proposed) condition, the partial development requires a total of 1,845 cf of stormwater quality storage. Subtracting the 1003 provided offsite, 842 cf of permanent retention volume is required~~.

1262 cf ~~will be~~ provided within the 24" gravel base of the stormtech chamber system. ~~This addresses the required volume plus there will be an excess of 225 cf which will be utilized as the lot 9 properties continue to develop.~~

A final accounting of the overall stormwater quality volume will be analyzed with the development of the Lot 9D. Current volume addresses the proposed development of Lot 9C.

STORM DRAIN LEGEND

T# — 18" ADS INLINE DRAIN WITH LOCKING, 2'X3' TRAFFIC RATED (H-20 MIN.) GRATE.

EXTEND 12"Ø ADS N-12WT STORM DRAIN MAIN (152 LF) TO EXISTING STUB PROVIDED. WATERTIGHT CONNECTION.

GENERAL NOTES

A. INSTALL ALL STORM DRAIN INLETS AND PIPE PER MANUFACTURER'S SPECIFICATIONS.

B. ALL STORM DRAIN LINES AND FITTINGS TO BE ADS N-12WT WATERTIGHT.

C. STORM DRAIN SYSTEM WILL REQUIRE REGULAR MAINTENANCE TO ENSURE PROPER FUNCTIONING DURING STORM EVENTS. ENGINEER RECOMMENDS THAT PROPERTY OWNER PUT IN PLACE INSPECTION AND MAINTENANCE CRITERIA SCHEDULED TO ON A REGULAR BASIS AND AFTER EACH STORM EVENT.

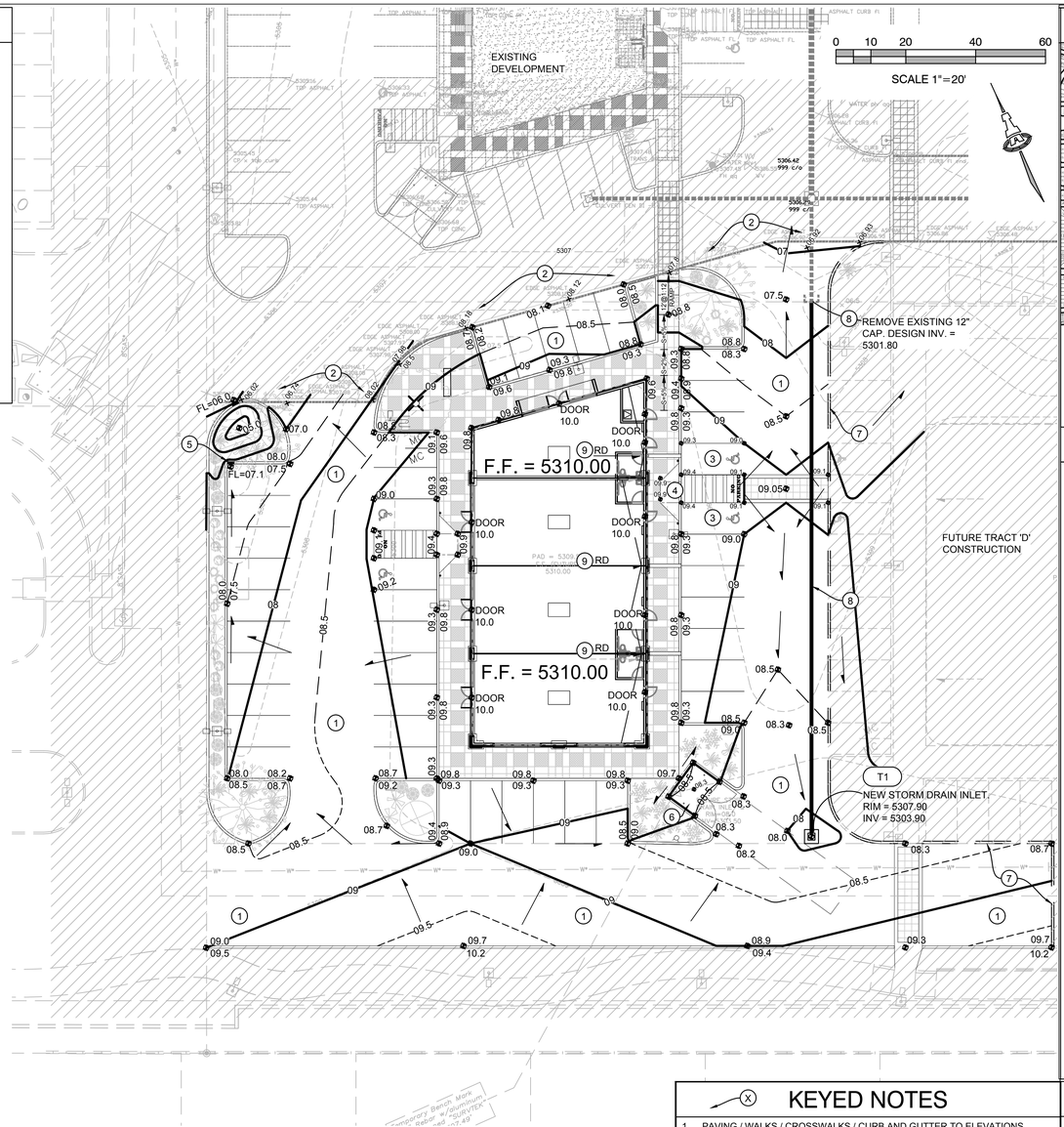
FIRST FLUSH RETENTION

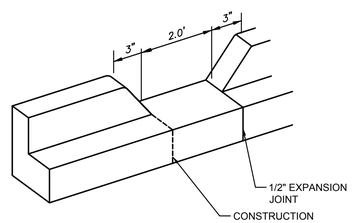
STORMWATER QUALITY RETENTION REQUIRED FOR THE FULLY DEVELOPED LOT 9 PROPERTIES (9A, 9B, 9C AND 9D) IS PROVIDED WITHIN THE EXISTING POND ON LOTS 5/6A (±1,003 CF), IN THE GRAVEL SUB-BASE OF THE PREVIOUSLY CONSTRUCTED STORMTECH CHAMBER SYSTEM ON LOT 9 (±1,067 CF) AND IN DEPRESSED LANDSCAPING THROUGHOUT THE PROPERTY.

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 01/04/24
BY: Ronald R. Bohannetta
HydroTrans # A11D011J

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO BE A VIOLATION OF ANY NOT ORDINANCE OR STATUTE WHICH MAY HAVE BEEN PASSED BY THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION, OR ERROR OR DIMENSIONS IN PLANS, SPECIFICATIONS OR CALCULATIONS. THESE PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

APPROVAL OF GRADING & DRAINAGE PLAN(S) SHALL EXPIRE TWO (2) YEARS AFTER THE APPROAL DATE BY THE CITY IF NO BUILDING PERMIT HAS BEEN PULLED ON THE DEVELOPMENT.





GENERAL NOTES

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

CURB OPENING

SCALE: N.T.S.

KEYED NOTES

1. PAVING / WALKS / CROSSWALKS / CURB AND GUTTER TO ELEVATIONS SHOWN. SEE PAVING PLAN FOR PAVEMENT MATERIAL, EXTENTS, SECTIONS, PARKING LAYOUT, DIMENSIONS, STRIPING, ETC. PROVIDE SMOOTH TRANSITION TO EXISTING.
2. EXISTING PAVING TO REMAIN. PROVIDE SMOOTH TRANSITIONS.
3. HC PARKING AREA TO ADA STANDARDS. TARGET SLOPE = 1% TO 1.5%. SLOPE SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION.
4. ADA COMPLIANT CURB RAMP AT ELEVATIONS SHOWN. TARGET LONGITUDINAL SLOPE = 7% LONGITUDINAL SLOPE SHALL NOT EXCEED 12:1 (8.3%). SEE ARCHITECTURAL.
5. 2.0' WIDE CURB OPENING AT FLOWLINE ELVATIONS SHOWN. INSTALL 3'X3'X8" DEEP ROCK EROSION PROTECTION (AVG. 4" DIA.) TO EXTENTS SHOWN.
6. NEW CONCRETE DUMPSTER PAD AND ENCLOSURE AT ELEVATIONS SHOWN. INSTALL FLOOR DRAIN AT RIM ELEVATION SHOWN & EXTEND TO SANITARY SEWER GREASE TRAP (SEE UTILITY PLAN).
7. TEMPORARY ASPHALT CURB. SEE PAVING DETAILS.
8. INSTALL PRIVATE STORM DRAIN INLET AND EXTEND TO EXISTING STUB PROVIDED. SEE STORM DRAIN NOTES THIS SHEET FOR ADDITIONAL INFORMATION.
9. ROOF DRAIN DISCHARGE TO 12" WIDE (BOTTOM WIDTH) COVERED SIDEWALK CULVERT. SEE ARCHITECTURAL FOR ADDITIONAL INFORMATION.

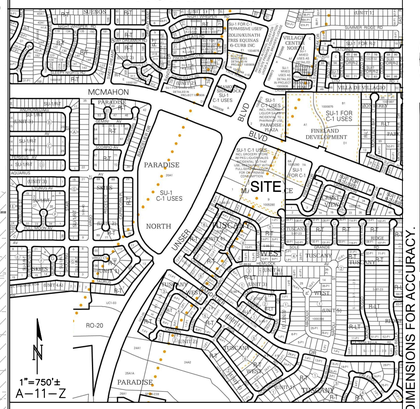
LEGEND

+5309.56	EXISTING SPOT ELEVATION
—5309—	EXISTING CONTOUR
08	PROPOSED CONTOUR (1' INCREMENT)
08.2	PROPOSED SPOT ELEVATION
	FLOW ARROW
F.F.=	FINISH FLOOR ELEVATION
	PROPOSED STORM DRAIN

RAMP AND WALK SLOPE CRITERIA

- SIDEWALK(S) AND RAMP(S): TARGET CROSS SLOPE = 1% TO 1.5%. CROSS SLOPE SHALL NOT EXCEED 2%.
- ACCESSIBLE RAMP(S): TARGET LONGITUDINAL SLOPE = 7% LONGITUDINAL SLOPE SHALL NOT EXCEED 12:1 (8.3%).
- ACCESSIBLE PARKING: TARGET SLOPE = 1% TO 1.5%. SLOPE SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION

VICINITY MAP



PROJECT DATA

PROPERTY: THE SITE IS PARTIALLY DEVELOPED COMMERCIAL PROPERTY WITHIN C.O.A. VICINITY MAP A-11. THE SITE IS BOUND TO THE NORTH, EAST, SOUTH AND WEST BY MCMAHON MARKETPLACE DRIVES COMMERCIAL PROPERTIES.

SITE AREA: 0.8055 ACRES

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS FALL WITHIN THE SOUTHWEST PORTION OF LOT 9 AND INCLUDE THE FULL DEVELOPMENT OF LOT 9-C, AND PARTIAL ASPHALT PAVED PARKING ON 9-D.

LEGAL: LOT 9-C, MCMAHON MARKETPLACE, CITY OF ALBUQUERQUE, NEW MEXICO.

BENCHMARK: VERTICAL DATUM IS BASED UPON THE ALBUQUERQUE CONTROL SURVEY MONUMENT "9-A11", ELEVATION = 5301.647 (NAVD 1988)

OFF-SITE: NO OFFSITE FLOW OTHER THAN LOTS 9-A THROUGH 9-D WILL IMPACT THIS PROPERTY AS PROVIDED IN THE AMENDED DRAINAGE MANAGEMENT PLAN.

FLOOD HAZARD: PROPERTY IS LOCATED WITHIN ZONE X, DESIGNATING AREAS DETERMINED TO BE OUTSIDE THE 100-YEAR FLOOD PLAIN ACCORDING TO THE FLOOD INSURANCE RATE MAP, BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS MAP NO. 35001C0104H, MAP REVISED AUGUST 16, 2012.

DRAINAGE PLAN CONCEPT: THE OVERALL LOT 9 PROPERTY (LOTS 9-A THROUGH 9-D) WILL DISCHARGE PER THE COA HYDROLOGY APPROVED CONCEPTUAL GRADING AND DRAINAGE PLAN FOR LOT 9, STAMP DATE: 11/01/17 PREPARED BY ISAACSON & ARFMAN PA (COA HYDROLOGY FILE A11/DO11I) WHICH ADHERES TO THE WHOLE OF THE MCMAHON MARKETPLACE PROPERTY LIMITED TO 41.55 CFS PER THE APPROVED DRAINAGE MASTER PLAN. THE WEST PORTION OF THE PROPOSED PROPERTY FALLS WITHIN MASTER PLANNED BASINS B1 AND B2 (FREE DISCHARGE). EXISTING DETENTION PONDING IS PROVIDED FOR THE FULL DEVELOPMENT OF THE REMAINDER OF LOT 9 TO LIMIT THE ALLOWABLE DISCHARGE TO THE EXISTING DETENTION POND TO THE NORTH.

PER THE APPROVED MASTER PLAN FOR LOT 9, STORMWATER QUALITY (S.Q.) CONTROL MEASURES ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH' DEFINED AS THE 90TH PERCENTILE STORM EVENT OR 0.34" OF STORMWATER WHICH DISCHARGES DIRECTLY TO A PUBLIC STORM DRAINAGE SYSTEM.

ENGINEER: FRED C. ARFMAN, NMPE 7322
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TELEPHONE: (505) 268-8828

SURVEYOR: RUSS P. HUGG, NMPS NO. 9750
SURV-TEK, INC.
9384 VALLEY VIEW DR. NW, 87114
TELEPHONE: (505) 897-3366

ISAACSON & ARFMAN, P.A.
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128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 www.iacivil.com
2618 CG-101.dwg Dec 20,2023

4 DEC 2023

MARTIN FM GRUMMER
ARCHITECT
331 WELLESLEY PLACE NE
ALBUQUERQUE, NEW MEXICO 87106
(505) 265-2507

PETERSON PROPERTIES

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER
12-21-23

McMAHON MARKET PLACE
NEW SHELL BUILDING
5770 McMAHON BLVD NW
ALBUQUERQUE, NM 87114

GRADING & DRAINAGE PLAN

ALL DIMENSIONS ARE TO BE FIELD VERIFIED. IF THERE ARE DISCREPANCIES, PLEASE NOTIFY THE ARCHITECT. DRAWINGS ARE NOT TO BE SCALED. USE DIMENSIONS FOR ACCURACY.

DATE: 15 DEC 2023
DRAWN BY: BJB
CHECKED BY: FCA
VERIFIED BY:

REVISIONS

SHEET NO: CG1.0