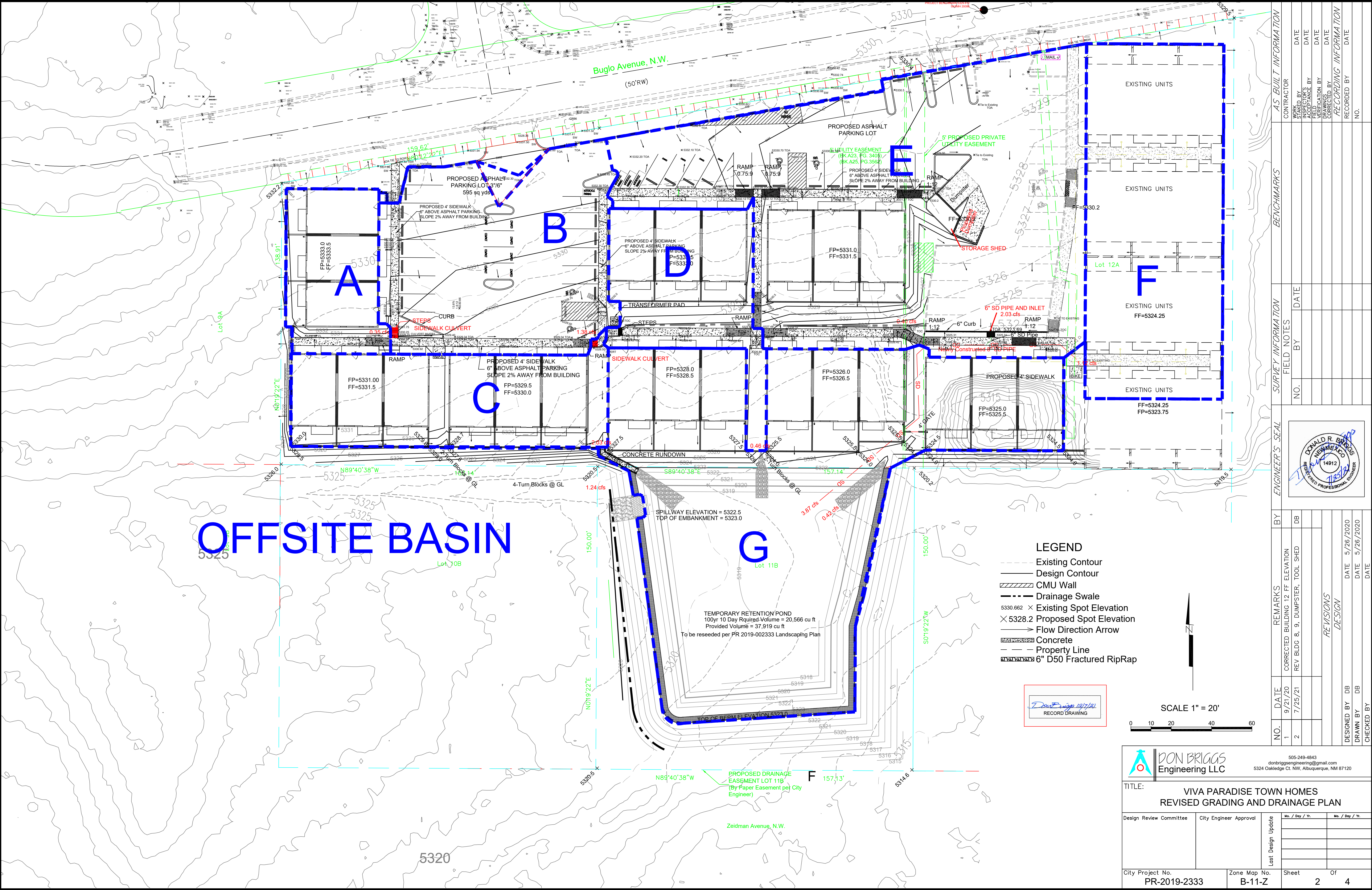
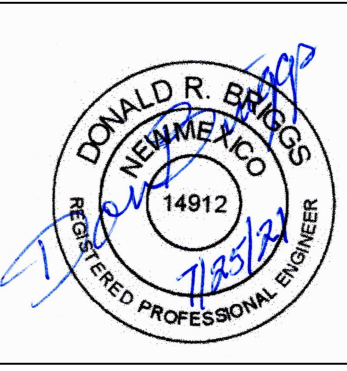
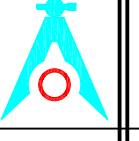




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CONTRACTOR	DATE	NO.	BY	NO.	BY	NO.	BY	NO.	BY	NO.	BY
WORK BY	DATE	NO.	BY	NO.	BY	NO.	BY	NO.	BY	NO.	BY
INSPECTOR'S	DATE	NO.	BY	NO.	BY	NO.	BY	NO.	BY	NO.	BY
ACCEPTANCE BY	DATE	NO.	BY	NO.	BY	NO.	BY	NO.	BY	NO.	BY
VERIFICATION BY	DATE	NO.	BY	NO.	BY	NO.	BY	NO.	BY	NO.	BY
DRAWINGS	DATE	NO.	BY	NO.	BY	NO.	BY	NO.	BY	NO.	BY
CORRECTED BY	DATE	NO.	BY	NO.	BY	NO.	BY	NO.	BY	NO.	BY
RECORDING INFORMATION	DATE	NO.	BY	NO.	BY	NO.	BY	NO.	BY	NO.	BY



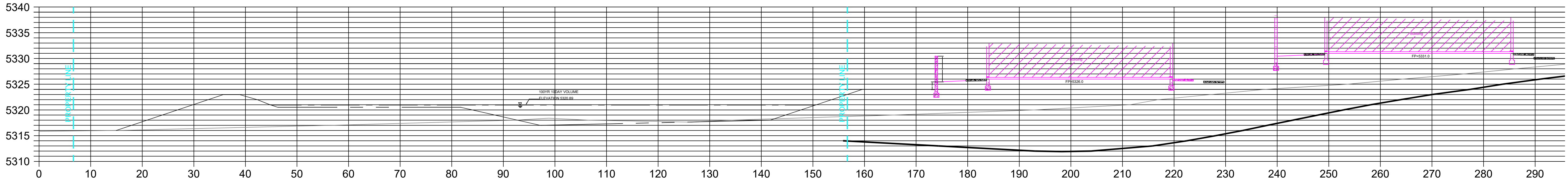


DON BRIGGS
Engineering LLC

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

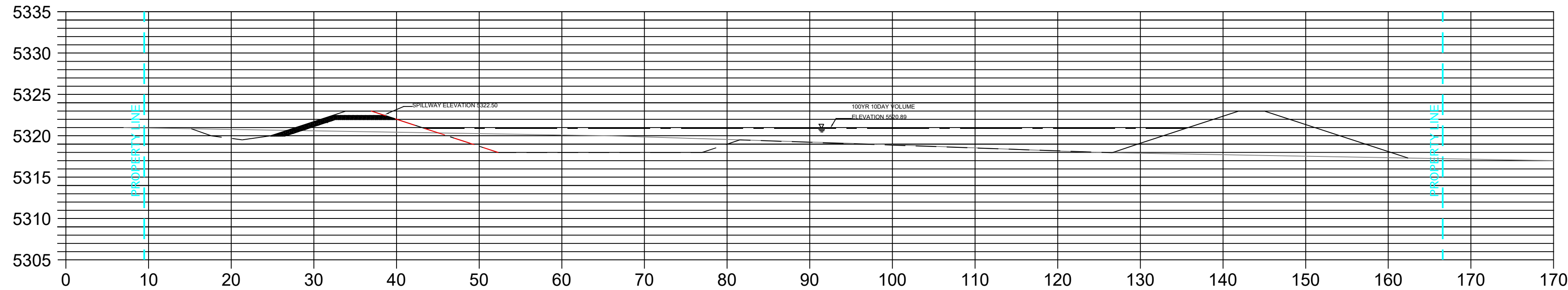
TITLE: VIVA PARADISE TOWN HOMES
REVISED GRADING AND DRAINAGE PLAN

Design Review Committee	City Engineer Approval	Last Design Update	No. / Day / Yr.	No. / Day / Yr.
City Project No. PR-2019-2333	Zone Map No. B-11-Z	Sheet 2	Of 4	



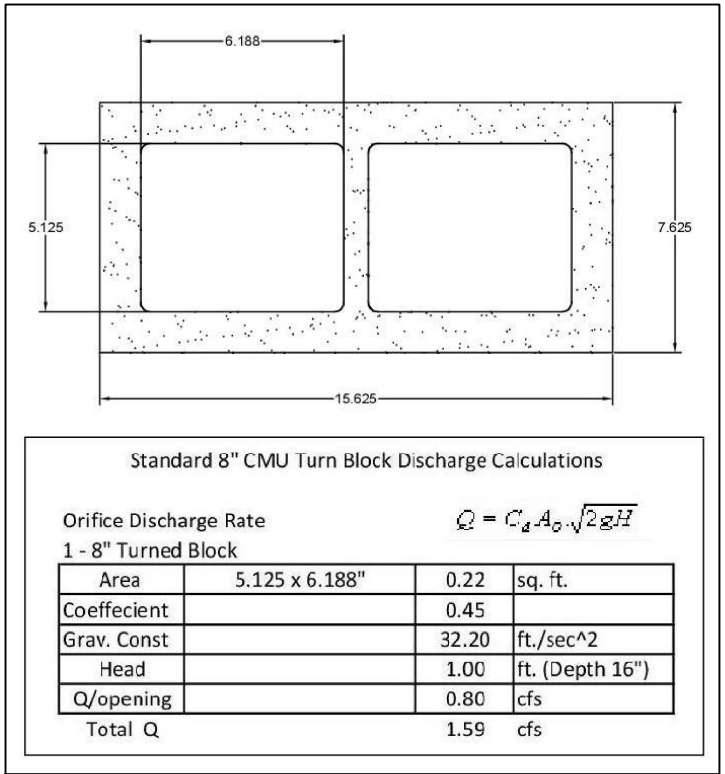
F

POND CROSS SECTION F-F



H

POND CROSS SECTION H-H



DRAINAGE NARRATIVE

This grading & drainage plan was prepared to support a rough grading and building permit application for Phase II of an existing town home development located at 5512 Buglo Ave. NW. This project is required to retain the 100 year 10 day runoff volume in a temporary retention pond as downstream infrastructure has not been constructed. This plan was prepared using the hydrology methodology presented in Chapter 22.2 of the City of Albuquerque's Development Process Manual (abbreviated method).

The site is a 2.52 acre parcel (not including offsite retention pond) located in Precipitation Zone 1 and Floodzone X (Unshaded). It slopes from the north west to the south east at about 8.5%. The site is minimally impacted by cross lot runoff from the adjacent properties to the west. Buglo Ave. is constructed with curb, gutter.

Storm water is routed through the development using landscaped swales, sidewalk culverts, a new area drain and an existing area drain associated with the Phase I development. The existing Phase I storm water pond will be backfilled and the storm water from the area drain rerouted to the new pond with an extension to the 8 inch area drain pipe and the addition of a 6 inch inlet pipe and inlet. Storm water from a small offsite basin is routed around the development with a small swale.

Total disturbance is expected to impact a little over 2 acres of the 2.52 ac site. A SWPPP will be prepared for this project.

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 City of Albuquerque MS4 Permit requirements.

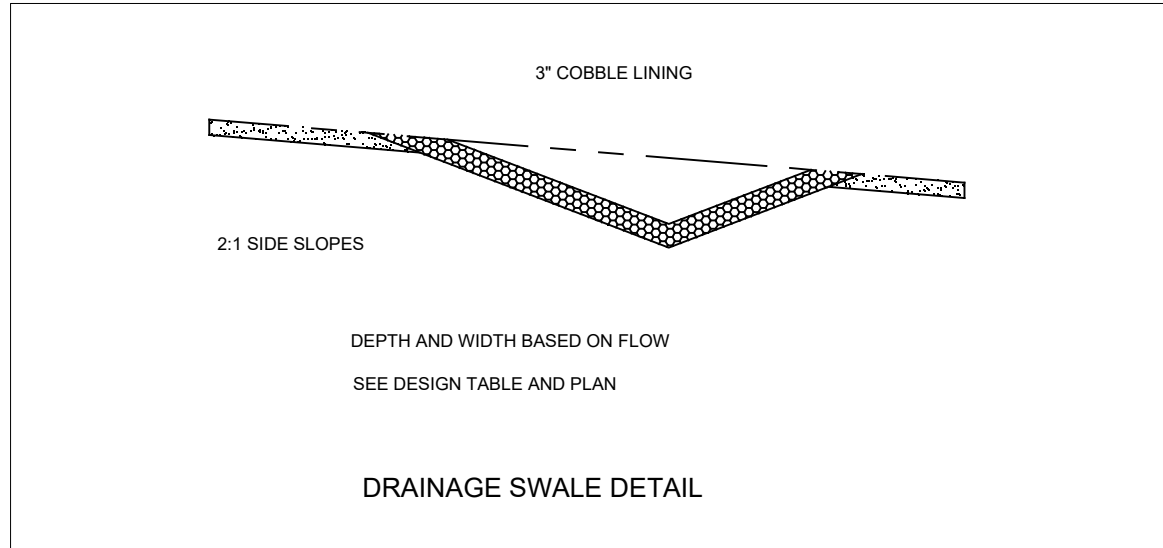
All disturbed area due to construction must be reseeded or landscaped following construction.

FULL RETENTION POND VOLUME 3:1 SIDE SLOPES BERMED Revised					
ELEVATION	AREA	AVE AREA	DEPTH	CUM DEPTH	CUM VOLUME
5318.00	653.14				
		4125.82	1.00	1.00	4125.82
5319.00	7598.50				
		8151.32	1.00	2.00	8151.32
5320.00	8704.15				
		9279.26	1.00	3.00	9279.26
5321.00	9854.37				
		10470.54	1.00	4.00	10470.54
5322.00	11086.71				
		11784.40	1.00	5.00	11784.40
5323.00	12482.09				

Required Volume = 20388 cu ft
Required Volume Elevation = 5320.89 ft
Berm Elevation = 5323.00 ft
Spillway Elevation = 5322.50 ft
Spillway Volume = 36083 cu ft

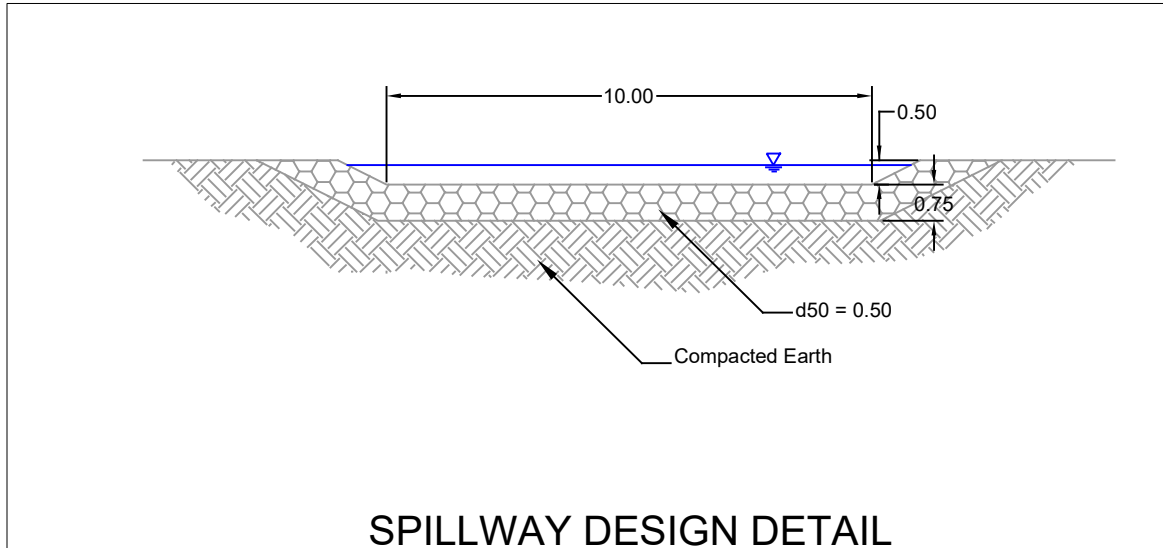
STAGE - DISCHARGE TABLE MANNING EQUATION FOR TRAPEZOIDAL CHANNEL											
VIVA PARADISE TOWN HOMES SWALE DESIGN											
Q100=	VARIES	Thalweg Elevation (ft)									
ELEV=	0.00	Mannings N									
N=	0.031	Rip Rap (ft)									
d50=	0.250	Channel Slope (ft/ft)									
S=	0.07000	Average Side Slopes (S:1)									
SS=	2	Bottom Width (ft)									
W=	0.0										
A=	W*D + SS*D^2										
WP=	2*(D^2 + SS^2)^1/2 + W										
EG=	V^2/2g, g=32.2										
d50=	VIS^1.77/5.88 2:1 SS Max.										
N for Riprap	N=0.0395(D50^1/6) = 0.031										

D	WS Elev	EG Elev	d50	Q	A	V	WP	1.49/N	(A/WP)^2/3	(S)^1/2
0.10	0.10	0.10	0.00	0.01	0.02	0.37	4.00	48.06	0.02922	0.26458
0.20	0.20	0.20	0.01	0.07	0.08	0.95	4.02	48.06	0.07344	0.26458
0.30	0.30	0.34	0.03	0.29	0.18	1.60	4.04	48.06	0.12558	0.26458
0.40	0.40	0.48	0.06	0.75	0.32	2.33	4.08	48.06	0.18325	0.26458
0.50	0.50	0.65	0.11	1.56	0.50	3.12	4.12	48.06	0.24500	0.26458
0.60	0.60	0.84	0.18	2.84	0.72	3.94	4.18	48.06	0.30977	0.26458
0.70	0.70	1.06	0.27	4.70	0.98	4.79	4.24	48.06	0.37675	0.26458
0.80	0.80	1.30	0.38	7.25	1.28	5.66	4.31	48.06	0.44526	0.26458
0.90	0.90	1.57	0.50	10.60	1.62	6.55	4.39	48.06	0.51476	0.26458
1.00	1.00	1.86	0.65	14.87	2.00	7.44	4.47	48.06	0.58480	0.26458
1.10	1.10	2.18	0.81	20.16	2.42	8.33	4.57	48.06	0.65500	0.26458
1.20	1.20	2.52	1.00	26.55	2.88	9.22	4.66	48.06	0.72506	0.26458
1.30	1.30	2.89	1.20	34.16	3.38	10.11	4.77	48.06	0.79473	0.26458
1.40	1.40	3.27	1.41	43.06	3.92	10.98	4.88	48.06	0.86382	0.26458
1.50	1.50	3.68	1.65	53.34	4.50	11.85	5.00	48.06	0.93217	0.26458
1.60	1.60	4.11	1.89	65.09	5.12	12.71	5.12	48.06	0.99967	0.26458
1.70	1.70	4.55	2.15	78.37	5.78	13.56	5.25	48.06	1.06625	0.26458
1.80	1.80	5.02	2.43	93.27	6.48	14.39	5.38	48.06	1.13184	0.26458
1.90	1.90	5.49	2.71	109.85	7.22	15.21	5.52	48.06	1.19640	0.26458
2.00	2.00	5.99	3.01	128.18	8.00	16.02	5.66	48.06	1.25992	0.26458



STAGE - DISCHARGE TABLE MANNING EQUATION FOR TRAPEZOIDAL CHANNEL											
VIVA PARADISE TOWN HOMES TEMPORARY POND SPILLWAY DESIGN											
Q100=	8.26	Thalweg Elevation (ft)									
ELEV=	0.00	Mannings N									
N=	0.035	Rip Rap (ft)									
d50=	0.500	Channel Slope (ft/ft)									
S=	0.01000	Average Side Slopes (S:1)									
SS=	2	Bottom Width (ft)									
W=	10.0										
A=	W*D + SS*D^2										
WP=	2*(D^2 + SS^2)^1/2 + W										
EG=	V^2/2g, g=32.2										
d50=	VIS^1.77/5.88 2:1 SS Max.										
N for Riprap	N=0.0395(D50^1/6) = 0.035										

D	WS Elev	EG Elev	d50	Q	A	V	WP	1.49/N	(A/WP)^2/3	(S)^1/2
0.10	0.10	0.11	0.00	0.75	1.02	0.74	14.00	42.57	0.17440	0.10000
0.20	0.20	0.22	0.01	2.48	2.08	1.19	14.02	42.57	0.28025	0.10000
0.30	0.30	0.34	0.02	5.03	3.18	1.58	14.04	42.57	0.37149	0.10000
0.40	0.40	0.46	0.02	8.17	4.32	1.94	14.08	42.57	0.44992	0.10000
0.50	0.50	0.58	0.03	12.49	5.50	2.27	14.12	42.57	0.53328	0.10000
0.60	0.60	0.70	0.04	17.39	6.72	2.59	14.18	42.57	0.60796	0.10000
0.70	0.70	0.83	0.05	23.09	7.98	2.89	14.24	42.57	0.67978	0.10000
0.80	0.80	0.96	0.06	29.60	9.28	3.19	14.31	42.57	0.74928	0.10000
0.90	0.90	1.09	0.07	36.93	10.62	3.48	14.39	42.57	0.81680	0.10000
1.00	1.00	1.22	0.09	45.09	12.00	3.76	14.47	42.57	0.88260	0.10000
1.10	1.10	1.35	0.10	54.10	13.42	4.03	14.57	42.57	0.94688	0.10000
1.20	1.20	1.49	0.11	63.96	14.88	4.30	14.66	42.57	1.00976	0.10000
1.30	1.30	1.62	0.13	74.71	16.38	4.56	14.77	42.57	1.07137	0.10000
1.40	1.40	1.76	0.14	86.34	17.92	4.82	14.88	42.57	1.13181	0.10000
1.50	1.50	1.90	0.16	98.88	19.50	5.07	15.00	42.57	1.19114	0.10000
1.60	1.60	2.04	0.17	112.34	21.12	5.32	15.12	42.57	1.24943	0.10000
1.70	1.70	2.18	0.19	126.73	22.78	5.56	15.25	42.57	1.30675	0.10000
1.80	1.80	2.32	0.20	142.06	24.48	5.80	15.38	42.57	1.36315	0.10000
1.90	1.90	2.47	0.22	158.35	26.22	6.04	15.52	42.57	1.41866	0.10000
2.00	2.00	2.61	0.24	175.62	28.00	6.27	15.66	42.57	1.47334	0.10000



Hydrology Calculations (Full Retention)
VIVA PARADISE TOWNHOMES

ZONE 1 DMP VALUES

LAND TREATMENTS	LT-A	LT-B	LT-C	LT-D
UNIT PEAK DISCHARGE (cfs/ac)	1.29	2.03	2.87	4.37
EXCESS PRECIPITATION (in)	0.44	0.67	0.99	1.97

2.51 ac SITE CONDITIONS

BASIN	AREA (sq ft)	LT-A (sq ft)	LT-B (sq ft)	LT-C (sq ft)	LT-D (sq ft)	DISCHARGE (cfs)	VOLUME (cu ft)
EXISTING	109771	76820.72	0.00	13496.48	19454.00	5.12	7124
100YR 10DAY TOTAL						5.12	9880
DEVELOPED	109771	20001.83	3202.62	27305.23	59261.52	8.49	12894
100YR 10DAY TOTAL						8.49	21289

DEVELOPED BASINS INCLUDING POND

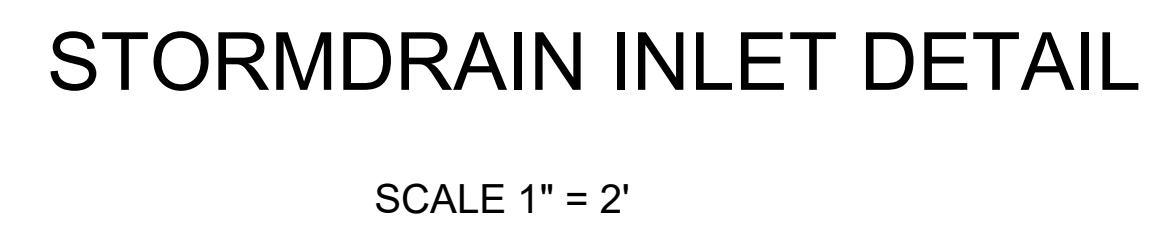
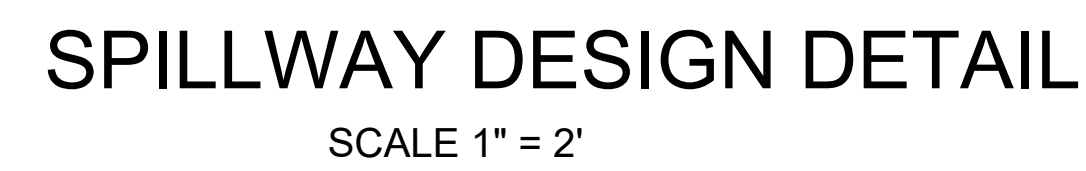
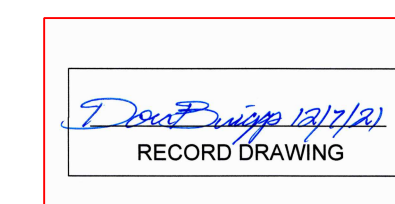
BASIN	AREA (sq ft)	LT-A (sq ft)	LT-B (sq ft)	LT-C (sq ft)	LT-D (sq ft)	DISCHARGE (cfs)	VOLUME (cu ft)
A	3803	0.00	284.14	583.08	2936.14	0.35	546
B	10703	0.00	623.88	280.27	9799.09	1.03	1667
C	7271	0.00	487.29	1584.36	5199.33	0.65	1011
D	5443	0.00	297.40	1993.55	3152.31	0.46	699
E	25284	0.00	915.12	4109.34	20259.80	2.35	3716
F	11950	0.00	0.00	2286.99	9662.52	1.12	1775
G	25315	0.00	594.79	16467.64	8252.33	1.94	2747
TOTAL	89769	0	3203	27305	59262	7.89	12160
Percentages		0%	4%	30%	66%		

Additional 100yr 10day volume	8395
Required Ponding	20556
Water Quality Volume = 0.34"/(12"/ft) * 59262	1679

BASIN	AREA (sq ft)	LT-A (sq ft)	LT-B (sq ft)	LT-C (sq ft)	LT-D (sq ft)	DISCHARGE (cfs)	VOLUME (cu ft)
OFFSITE BASIN	42016	42015.65	0	0	0	1.24	1541

Don Briggs 12/17/20
RECORD DRAWING

DON BRIGGS Engineering LLC		505-249-4843 donbriggsengineering@gmail.com 5324 Oakledge Ct. NW, Albuquerque, NM 87120	
TITLE: VIVA PARADISE TOWN HOMES REVISED GRADING AND DRAINAGE PLAN			
Design Review Committee	City Engineer Approval	Last Design Update	Mo. / Day / Yr.
City Project No.	Zone Map No.	Sheet	Of
PR-2019-2333	B-11-Z	3	4

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TITLE: VIVA PARADISE TOWN HOMES REVISED GRADING AND DRAINAGE PLAN		
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Design Review Committee	City Engineer Approval	Last Design Update	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; padding: 5px;">Mo. / Day / Yr.</th> <th style="width: 50%; padding: 5px;">Mo. / Day / Yr.</th> </tr> </thead> <tbody> <tr><td style="height: 30px;"></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td></tr> </tbody> </table>	Mo. / Day / Yr.	Mo. / Day / Yr.										
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City Project No. PR-2019-2333	Zone Map No. B-11-Z	Sheet Of 4 4													