

CITY OF ALBUQUERQUE



March 24, 2015

Ronald Bohannon, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

RE: **Whataburger
Grading and Drainage Plan
Engineer's Stamp Date 2-18-2015 (File: K10-D001B)**

Dear Mr. Bohannon:

Based upon the information provided in your submittal received 2-20-15, the above referenced plan is approved for action by EPC and for action by DRB on the Site Plan for Building Permit.

PO Box 1293

Prior to Building Permit approval, the comments from the letter dated March 6, 2015 still need to be addressed. Comment 1 from this letter has already been satisfied based on the AHYMO data provided on March 17, 2015.

Albuquerque

If you have any questions, you can contact me at 924-3924.

New Mexico 87103

Sincerely,

www.cabq.gov

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

AHYMO

AHYMO PROGRAM (AHYMO-S4) - Version: S4.01a - Rel: 01a
 RUN DATE (MON/DAY/YR) = 03/17/2015
 START TIME (HR:MIN:SEC) = 14:22:43 USER NO.=
 AHYMO_Temp_User:20122010
 INPUT FILE = Z:\2014\2014075 Whataburger Coors & Central\Working
 Documents\2014075 Hymo.txt

 * WHATABURGER TRACT D-1 AT COORS AND CENTRAL, ALBUQUERQUE, NM *

 * 100-YEAR 6-HR STORM (UNDER PROPOSED CONDITIONS) W/ ROUTING *

START TIME=0.0

*

*

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=1.87 IN RAIN SIX=2.20 IN
 RAIN DAY=2.66 IN DT=0.05 HR

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE
 AREAS (NM & AZ) - D1

DT = 0.050000 HOURS				END TIME = 6.000000 HOURS			
0.0000	0.0022	0.0045	0.0069	0.0096	0.0123	0.0154	
0.0197	0.0264	0.0336	0.0412	0.0494	0.0578	0.0664	
0.0753	0.0844	0.0946	0.1052	0.1168	0.1387	0.1657	
0.2020	0.2430	0.2937	0.3614	0.4375	0.5689	0.7733	
1.1234	1.3695	1.5635	1.6610	1.7465	1.8079	1.8568	
1.8994	1.9306	1.9592	1.9828	1.9979	2.0087	2.0183	
2.0273	2.0352	2.0426	2.0499	2.0568	2.0625	2.0659	
2.0692	2.0724	2.0754	2.0784	2.0813	2.0842	2.0870	
2.0896	2.0923	2.0949	2.0974	2.0999	2.1023	2.1046	
2.1069	2.1092	2.1115	2.1136	2.1158	2.1179	2.1199	
2.1220	2.1240	2.1260	2.1280	2.1299	2.1318	2.1337	
2.1356	2.1374	2.1392	2.1411	2.1428	2.1446	2.1463	
2.1481	2.1498	2.1514	2.1531	2.1548	2.1564	2.1580	
2.1596	2.1612	2.1628	2.1643	2.1658	2.1674	2.1689	
2.1704	2.1718	2.1733	2.1747	2.1762	2.1776	2.1790	
2.1804	2.1818	2.1832	2.1845	2.1859	2.1872	2.1885	
2.1899	2.1912	2.1925	2.1937	2.1950	2.1963	2.1975	
2.1988	2.2000						

*

*OVERALL BASIN FOR SITE

*

COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=.00873 SQ MI
 PER A=0.00 PER B=14.00 PER C=0.00 PER D=86.00
 TP=-0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 29.641 CFS UNIT VOLUME = 0.9988 B = 526.28
 P60 = 1.8700
 AREA = 0.007508 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.130992HR TP = 0.133300HR K/TP RATIO = 0.982685 SHAPE
 CONSTANT, N = 3.593298
 UNIT PEAK = 2.9989 CFS UNIT VOLUME = 0.9966 B = 327.08
 P60 = 1.8700

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PRINT HYD
ID=1 CODE=1
PARTIAL HYDROGRAPH 100.10
RUNOFF VOLUME = 1.79960 INCHES =
PEAK DISCHARGE RATE = 23.40 CFS AT 1.500 HOURS 0.8379 ACRE-FEET
BASIN AREA = 0.0087 SQ. MI.

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0.0000	1.0801	0.0003	5084.93
0.0000	1.0802	0.0006	5085.43
0.0003	1.0803	0.0009	5085.93
1.0804	1.0804	0.0013	5086.43
1.0805	1.0805	0.0016	5086.93
1.0806	1.0806	0.0019	5087.43
1.0807	1.0807	0.0216	5087.93
1.0808	1.0808	0.0427	5088.43
1.0809	1.0809	0.0636	5088.93
1.0810	1.0810	0.0846	5089.43
1.0811	1.0811	0.1057	5089.93
1.0812	1.0812	0.1267	5090.43
1.0813	1.0813	0.1479	5090.93
1.0814	1.0814	0.1690	5091.43
1.0815	1.0815	0.1901	5091.93
1.0816	1.0816	0.2593	5092.43
1.0817	1.0817	0.3451	5092.93
1.0818	1.0818	0.4163	5093.43
1.0819	1.0819	0.4873	5093.93
1.0820	1.0820	0.5274	5094.18
1.0821	1.0821	0.5784	5094.43
1.0822	1.0822	0.6587	5094.68
1.0823	1.0823	0.8102	5094.93

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	5084.47	0.000	0.00
0.05	0.00	5084.47	0.000	0.00
0.10	0.00	5084.47	0.000	0.00
0.15	0.00	5084.47	0.000	0.00
0.20	0.00	5084.47	0.000	0.00
0.25	0.00	5084.47	0.000	0.00
0.30	0.00	5084.47	0.000	0.00
0.35	0.00	5084.47	0.000	0.00
0.40	0.00	5084.47	0.000	0.00
0.45	0.00	5084.47	0.000	0.00
0.50	0.00	5084.47	0.000	0.00

			AHYMO	
0.55	0.00	5084.47	0.000	0.00
0.60	0.00	5084.47	0.000	0.00
0.65	0.00	5084.47	0.000	0.00
0.70	0.00	5084.47	0.000	0.00
0.75	0.00	5084.47	0.000	0.00
0.80	0.00	5084.47	0.000	0.00
0.85	0.01	5084.48	0.000	0.01
0.90	0.13	5084.52	0.000	0.12
0.95	0.41	5084.64	0.000	0.39
1.00	0.90	5084.84	0.000	0.86
1.05	1.47	5086.20	0.001	1.08
1.10	2.08	5087.48	0.004	1.08
1.15	2.70	5087.62	0.009	1.08
1.20	3.38	5087.83	0.017	1.08
1.25	4.31	5088.10	0.029	1.08
1.30	5.51	5088.48	0.045	1.08
1.35	7.97	5089.04	0.068	1.08
1.40	12.71	5089.95	0.106	1.08
1.45	19.68	5091.42	0.169	1.08
1.50	23.40	5092.39	0.253	1.08
1.55	22.27	5092.92	0.343	1.08
1.60	18.19	5093.47	0.422	1.08
1.65	13.93	5093.91	0.484	1.08
1.70	10.78	5094.20	0.531	1.08
1.75	8.54	5094.37	0.566	1.08
1.80	6.97	5094.48	0.594	1.08
1.85	5.75	5094.55	0.616	1.08
1.90	4.79	5094.60	0.633	1.08
1.95	4.03	5094.64	0.647	1.08
2.00	3.29	5094.68	0.657	1.08
2.05	2.60	5094.69	0.665	1.08
2.10	2.08	5094.70	0.670	1.08
2.15	1.71	5094.70	0.674	1.08
2.20	1.44	5094.71	0.676	1.08
2.25	1.23	5094.71	0.677	1.08
2.30	1.07	5094.71	0.677	1.08
2.35	0.94	5094.71	0.677	1.08
2.40	0.80	5094.71	0.676	1.08
2.45	0.64	5094.71	0.674	1.08
2.50	0.50	5094.70	0.672	1.08
2.55	0.40	5094.70	0.669	1.08
2.60	0.33	5094.69	0.666	1.08
2.65	0.28	5094.69	0.663	1.08
2.70	0.24	5094.68	0.660	1.08
2.75	0.21	5094.67	0.656	1.08

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
2.80	0.18	5094.66	0.653	1.08
2.85	0.15	5094.65	0.649	1.08
2.90	0.13	5094.64	0.645	1.08
2.95	0.12	5094.62	0.641	1.08
3.00	0.10	5094.61	0.637	1.08
3.05	0.09	5094.60	0.633	1.08
3.10	0.08	5094.59	0.629	1.08
3.15	0.07	5094.57	0.625	1.08
3.20	0.06	5094.56	0.620	1.08
3.25	0.05	5094.55	0.616	1.08
3.30	0.05	5094.53	0.612	1.08
3.35	0.05	5094.52	0.608	1.08
3.40	0.05	5094.51	0.603	1.08
3.45	0.04	5094.49	0.599	1.08

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
3.50	0.04	5094.48	0.595	1.08
3.55	0.04	5094.47	0.590	1.08
3.60	0.04	5094.45	0.586	1.08
3.65	0.04	5094.44	0.582	1.08
3.70	0.04	5094.43	0.578	1.08
3.75	0.04	5094.40	0.573	1.08
3.80	0.04	5094.38	0.569	1.08
3.85	0.04	5094.36	0.565	1.08
3.90	0.04	5094.34	0.560	1.08
3.95	0.04	5094.32	0.556	1.08
4.00	0.04	5094.30	0.552	1.08
4.05	0.05	5094.28	0.547	1.08
4.10	0.05	5094.26	0.543	1.08
4.15	0.05	5094.24	0.539	1.08
4.20	0.05	5094.22	0.535	1.08
4.25	0.05	5094.20	0.530	1.08
4.30	0.05	5094.17	0.526	1.08
4.35	0.05	5094.15	0.522	1.08
4.40	0.05	5094.12	0.518	1.08
4.45	0.06	5094.09	0.513	1.08
4.50	0.06	5094.07	0.509	1.08
4.55	0.06	5094.04	0.505	1.08
4.60	0.06	5094.01	0.501	1.08
4.65	0.06	5093.99	0.497	1.08
4.70	0.07	5093.96	0.492	1.08
4.75	0.07	5093.94	0.488	1.08
4.80	0.07	5093.91	0.484	1.08
4.85	0.07	5093.88	0.480	1.08
4.90	0.07	5093.85	0.476	1.08
4.95	0.07	5093.82	0.471	1.08
5.00	0.07	5093.79	0.467	1.08
5.05	0.08	5093.76	0.463	1.08
5.10	0.08	5093.73	0.459	1.08
5.15	0.08	5093.70	0.455	1.08
5.20	0.08	5093.67	0.451	1.08
5.25	0.08	5093.64	0.447	1.08
5.30	0.09	5093.61	0.442	1.08
5.35	0.09	5093.58	0.438	1.08
5.40	0.09	5093.56	0.434	1.08
5.45	0.09	5093.53	0.430	1.08
5.50	0.09	5093.50	0.426	1.08
5.55	0.10	5093.47	0.422	1.08
5.60	0.10	5093.44	0.418	1.08
5.65	0.10	5093.41	0.414	1.08
5.70	0.10	5093.38	0.410	1.08
5.75	0.11	5093.36	0.406	1.08
5.80	0.11	5093.33	0.402	1.08
5.85	0.11	5093.30	0.398	1.08
5.90	0.11	5093.27	0.394	1.08
5.95	0.11	5093.24	0.390	1.08
6.00	0.12	5093.21	0.386	1.08
6.05	0.11	5093.19	0.382	1.08
6.10	0.08	5093.16	0.378	1.08
6.15	0.05	5093.13	0.373	1.08
6.20	0.03	5093.10	0.369	1.08
6.25	0.02	5093.07	0.365	1.08
6.30	0.01	5093.04	0.360	1.08
6.35	0.01	5093.01	0.356	1.08
6.40	0.01	5092.98	0.351	1.08

			AHYMO	
6.45	0.01	5092.94	0.347	1.08
6.50	0.01	5092.92	0.343	1.08
6.55	0.00	5092.89	0.338	1.08
6.60	0.00	5092.86	0.334	1.08
6.65	0.00	5092.84	0.329	1.08
6.70	0.00	5092.81	0.325	1.08
6.75	0.00	5092.79	0.320	1.08
6.80	0.00	5092.76	0.316	1.08
6.85	0.00	5092.73	0.311	1.08
6.90	0.00	5092.71	0.307	1.08
6.95	0.00	5092.68	0.302	1.08
7.00	0.00	5092.66	0.298	1.08
7.05	0.00	5092.63	0.293	1.08
7.10	0.00	5092.60	0.289	1.08
7.15	0.00	5092.58	0.285	1.08
7.20	0.00	5092.55	0.280	1.08
7.25	0.00	5092.52	0.276	1.08
7.30	0.00	5092.50	0.271	1.08
7.35	0.00	5092.47	0.267	1.08
7.40	0.00	5092.45	0.262	1.08
7.45	0.00	5092.42	0.258	1.08
7.50	0.00	5092.39	0.253	1.08
7.55	0.00	5092.35	0.249	1.08
7.60	0.00	5092.32	0.244	1.08
7.65	0.00	5092.29	0.240	1.08
7.70	0.00	5092.26	0.235	1.08
7.75	0.00	5092.23	0.231	1.08
7.80	0.00	5092.19	0.226	1.08
7.85	0.00	5092.16	0.222	1.08
7.90	0.00	5092.13	0.218	1.08
7.95	0.00	5092.10	0.213	1.08
8.00	0.00	5092.06	0.209	1.08
8.05	0.00	5092.03	0.204	1.08
8.10	0.00	5092.00	0.200	1.08
8.15	0.00	5091.97	0.195	1.08
8.20	0.00	5091.93	0.191	1.08
8.25	0.00	5091.84	0.186	1.08
8.30	0.00	5091.73	0.182	1.08
8.35	0.00	5091.63	0.177	1.08
TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
8.40	0.00	5091.52	0.173	1.08
8.45	0.00	5091.41	0.168	1.08
8.50	0.00	5091.31	0.164	1.08
8.55	0.00	5091.20	0.159	1.08
8.60	0.00	5091.10	0.155	1.08
8.65	0.00	5090.99	0.150	1.08
8.70	0.00	5090.89	0.146	1.08
8.75	0.00	5090.78	0.142	1.08
8.80	0.00	5090.67	0.137	1.08
8.85	0.00	5090.57	0.133	1.08
8.90	0.00	5090.46	0.128	1.08
8.95	0.00	5090.36	0.124	1.08
9.00	0.00	5090.25	0.119	1.08
9.05	0.00	5090.14	0.115	1.08
9.10	0.00	5090.04	0.110	1.08
9.15	0.00	5089.93	0.106	1.08
9.20	0.00	5089.83	0.101	1.08
9.25	0.00	5089.72	0.097	1.08
9.30	0.00	5089.61	0.092	1.08
9.35	0.00	5089.51	0.088	1.08

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*
NORMAL PROGRAM FINISH
END TIME (HR:MIN:SEC) = 14:22:43

FINISH
*
*
0.0087 SQ. MI.
PEAK DISCHARGE RATE = 1.80092 INCHES AT 2.300 HOURS BASIN AREA =
RUNOFF VOLUME = 0.8385 ACRE-Feet
*
*
PRINT HYD ID=11 CODE=1
PARTIAL HYDROGRAPH 101.10
*
*
MAXIMUM STORAGE = 0.6770 AC-FT
MAXIMUM WATER SURFACE ELEVATION = 5094.710
PEAK DISCHARGE = 1.082 CFS - PEAK OCCURS AT HOUR 2.30
INCREMENTAL TIME= 0.050000HRS
*
*
9.40 5089.40 0.00 5089.40 0.083 1.08
9.45 5089.30 0.00 5089.30 0.079 1.08
9.50 5089.19 0.00 5089.19 0.075 1.08
9.55 5089.08 0.00 5089.08 0.070 1.08
9.60 5088.98 0.00 5088.98 0.066 1.08
9.65 5088.87 0.00 5088.87 0.061 1.08
9.70 5088.76 0.00 5088.76 0.057 1.08
9.75 5088.66 0.00 5088.66 0.052 1.08
9.80 5088.55 0.00 5088.55 0.048 1.08
9.85 5088.44 0.00 5088.44 0.043 1.08
9.90 5088.34 0.00 5088.34 0.039 1.08
9.95 5088.23 0.00 5088.23 0.034 1.08
10.00 5088.13 0.00 5088.13 0.030 1.08
10.05 5088.02 0.00 5088.02 0.025 1.08
10.10 5087.91 0.00 5087.91 0.021 1.08
10.15 5087.80 0.00 5087.80 0.016 1.08
10.20 5087.69 0.00 5087.69 0.012 1.08
10.25 5087.57 0.00 5087.57 0.008 1.08
10.30 5087.46 0.00 5087.46 0.003 1.08
10.35 5084.62 0.00 5084.62 0.000 0.35
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*

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March 6, 2015

Ronald Bohannon, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

RE: **Whataburger
Grading Plan
Engineer's Stamp Date 2-18-2015 (File: K10-D001B)**

Dear Mr. Bohannon:

Based upon the information provided in your submittal received 2-20-15, the above referenced Grading Plan cannot be approved for Building Permit until the following comments are addressed:

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

- 1) The volume of on-site storage detention is shown to be based on the 100-year 6-hour storm event. Provide a hydrograph which shows that 90% of the storage volume will be discharged from the site within 6 hours, as per the Drainage Ordinance.
- 2) On the plan view for the "Grading and Drainage Plan", label all of the different detention volumes that correspond to the "Proposed Conditions" discussion which include the 0.43 ac-ft detention pond, the 0.16 ac-ft surface pond, and the underground storage of 0.22 ac-ft. Show the underground storage system area on the plan view for the "Grading and Drainage Plan", and label the connections from the new 24-inch storm drain to this underground storage system.
- 3) There is a Section A-A on the "Grading and Drainage Plan" which shows pond elevations within the detention pond in the north area of the site. Provide more spot elevations within this area at the corners of the pond to ensure that there will be enough volume provided for the detention pond.
- 4) Eliminate the existing timed butterfly valve as discussed. If there are issues with the valve not operating properly, it will pose a risk to the site. The pipe discharging from the site to Coors Boulevard is at the upstream end of the existing storm drainage system, and it is discharging to a fairly steep 18-inch pipe in Coors Boulevard to convey the required 1.08 cfs. Therefore, due to the amount of existing

pipe capacity to handle such a small amount of flow, there is no concern regarding elimination of the timed valve.

- 5) How is storm drainage getting to the Double-D inlet on the west side of the site? Provide capacity calculations for the 5.6-foot wide curb cut that is accepting the off-site flow from the west and adjust as necessary.

- 6) Provide capacity calculations for all of the curb cuts shown on the plan.

- 7) A summary table is provided for grate capacities and pipe capacities on the "Basin Map and Calculations" sheet. Please provide the calculations for these capacities.

- 8) It is not clear if the subject site is accepting off-site flows from the site or how the site to the north will be impacted. Include discussion of off-site flows from the site to the north to ensure that grading of the Whataburger site does not adversely impact this site.

- 9) The number of chambers shown on the "Basin Map and Calculations" sheet is 75. This needs to be called out on the plan view detail on the "Stormchamber Storage System" sheet to make sure the right number of stormchambers will be installed. Also, please provide a legible table showing the layout dimensions for the stormchambers.

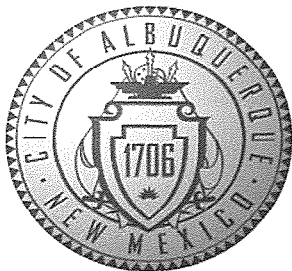
If you have any questions, you can contact me at 924-3924.

Sincerely,



Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email



City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Whataburger City Drainage #: _____

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

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: 111 Coors Blvd. NW Albuquerque, NM 87121

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

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

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

Owner: Oak Realty Partners, Inc. Contact: _____

Address: 5975 S Quebec Street, Suite 141 Greenwood Village Colorado 80111

Phone#: 303-318-0100 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

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

Surveyor: _____ Contact: _____

Address: _____

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

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL
- ☒ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL G & D PLAN
- ☐ GRADING PLAN
- ☒ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☐ ENGINEER'S CERT (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEER'S CERT (TCL)
- ☐ ENGINEER'S CERT (DRB SITE PLAN)
- ☐ ENGINEER'S CERT (ESC)
- ☐ SO-19
- ☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

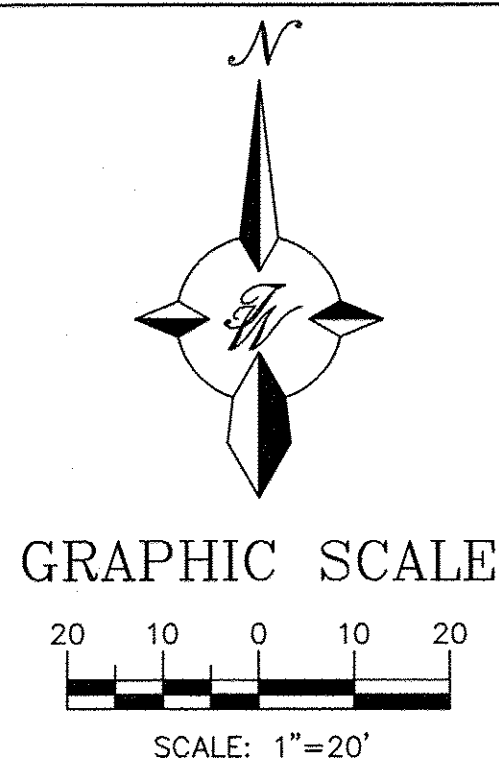
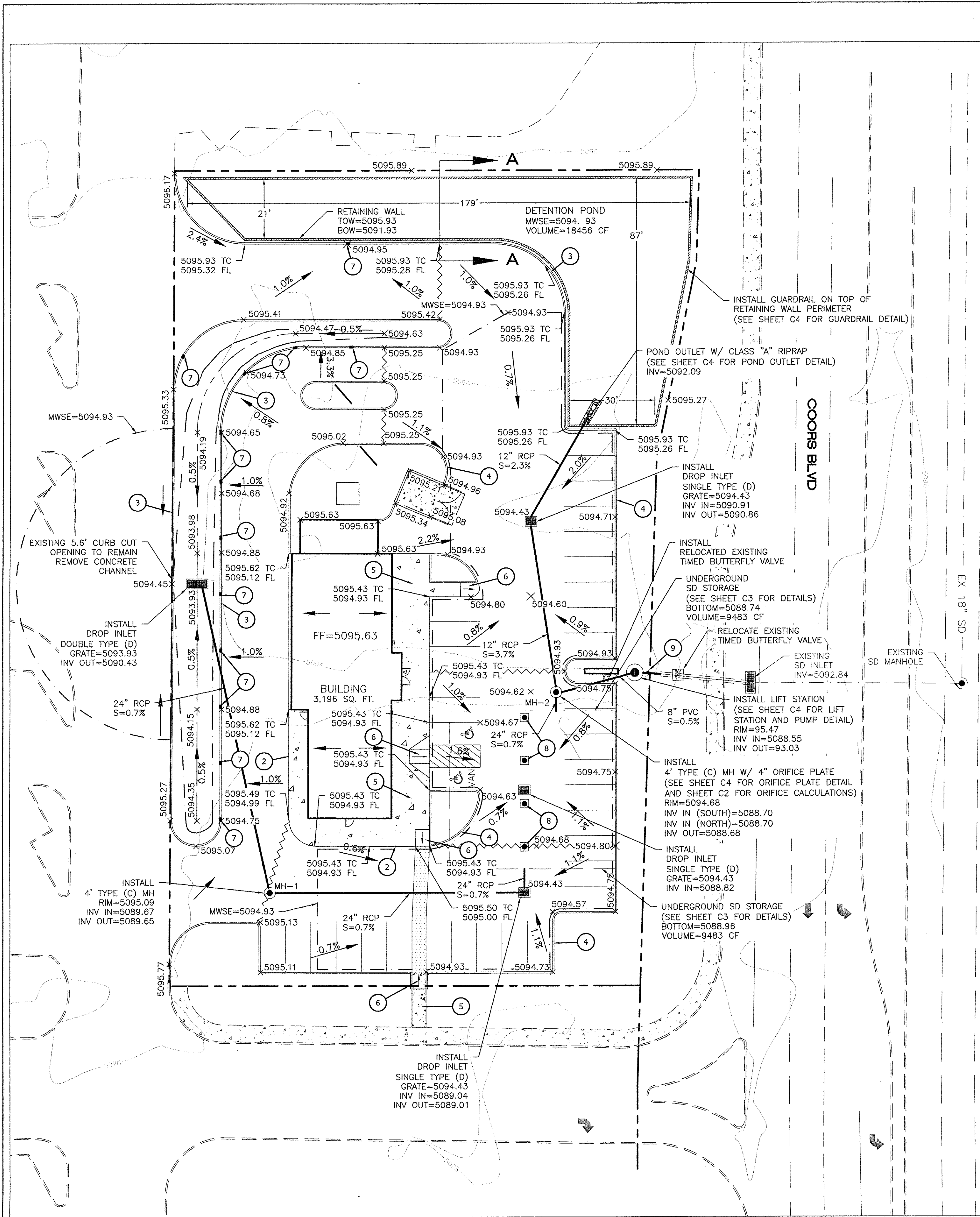
- ☐ SIA/FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D APPROVAL
- ☐ S. DEV. FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM)
- ☐ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ BUILDING PERMIT APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ GRADING CERTIFICATION
- ☐ SO-19 APPROVAL
- ☐ ESC PERMIT APPROVAL
- ☐ ESC CERT. ACCEPTANCE
- ☐ OTHER (SPECIFY) _____

WAS A PRE-DESIGN CONFERENCE ATTENDED: ☐ Yes ☐ No ☐ Copy Provided

DATE SUBMITTED: 02/18/2015 By: Vinny Perea

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

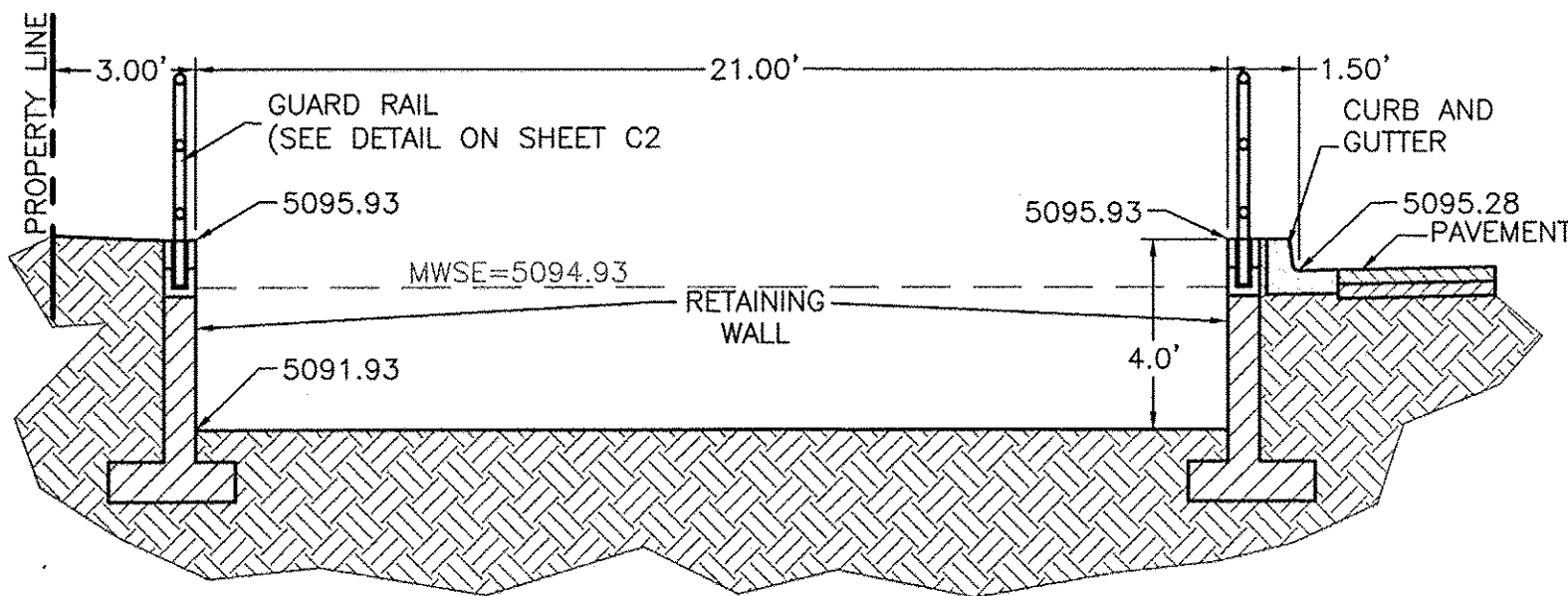


SITE LEGEND

- 1 RETAINING WALL
- 2 TURN DOWN CURB
- 3 CURB AND GUTTER
- 4 HEADER CURB
- 5 CONCRETE SIDEWALK
- 6 HC RAMP
- 7 1 FT. CURB CUT
- 8 10" PVC RISER
- 9 4"x8" REDUCER

LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- SIDEWALK
- PEDESTRAIN CROSSWALK
- RETAINING WALL
- CONTOUR MAJOR
- CONTOUR MINOR
- SPOT ELEVATION
- WATER BLOCK
- FLOW ARROW
- EXISTING SIDEWALK
- EXISTING CURB & GUTTER
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- EXISTING SPOT ELEVATION
- EXISTING POND



SECTION A-A

Introduction

The purpose of this submittal is to provide a drainage management plan for the proposed Whataburger restaurant located near the intersection of Coors Blvd. and Central Ave. in Albuquerque, New Mexico. The site contains approximately 1.15 acres and is located within the Hubbell Plaza Shopping Center. The site lies outside of any flood plains (FIRM Map 35001C0329H).

Existing Conditions

The site is part of an approved drainage plan titled "Coors & Central Shopping Center" (K10-D018). The location is tract D-1 within the Hubbell Plaza Shopping Center and is currently a detention pond for 5.4 acres of the shopping center. The site collects all flows from the 5.4 acres via surface flow through a concrete channel located on the west side of the site. The pond holds all flows for a minimum of 2 hours before being discharged through an 8-inch connecting pipe on the east side of the site. A delay timer is used to discharge the pond through the 8-inch pipe towards the back of a catch basin located on Coors Blvd. and into the street storm drain system. Per the approved drainage plan calculations, the pond is designed to hold 30,068 cubic feet of runoff and discharge to the Coors storm drain system at a rate of 1.08 cfs.

Proposed Conditions

The subject site will continue to collect all flows from the offsite area of the shopping center and detain in a subsurface system. The offsite flows will drain via surface flow through both driveway aisles and through a curb cut on the west side of the site where the existing concrete channel lies. The offsite flows through the south driveway and curb cut will be collected into a Double D Drop Inlet that is located in a bio swale on the western side of site. The offsite flows through the north driveway will be collected in the detention pond on the north side of the site. All flows from the west side of the building and directly north of the building will be directed towards the bio swale and into the Double D Drop Inlet. Flows from the north driveway aisle will be directed towards the detention pond. All other flows from the site will be directed to three Single D drop inlets in the parking lot. The Double D inlet will interconnect via storm drain with the southern Single D inlet and an underground storage system. The detention pond will interconnect via storm drain with the northernmost Single D inlet and the underground storage system.

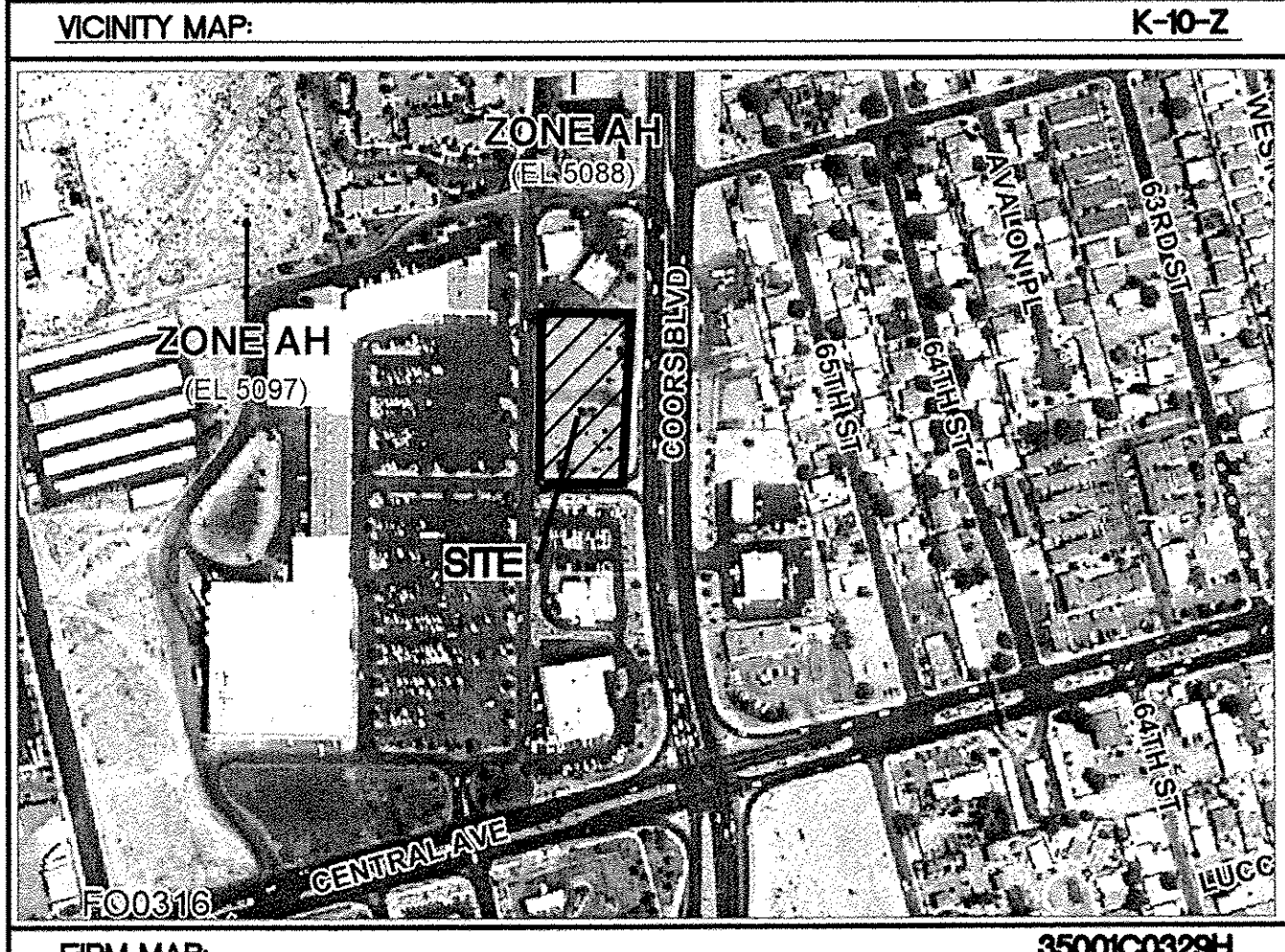
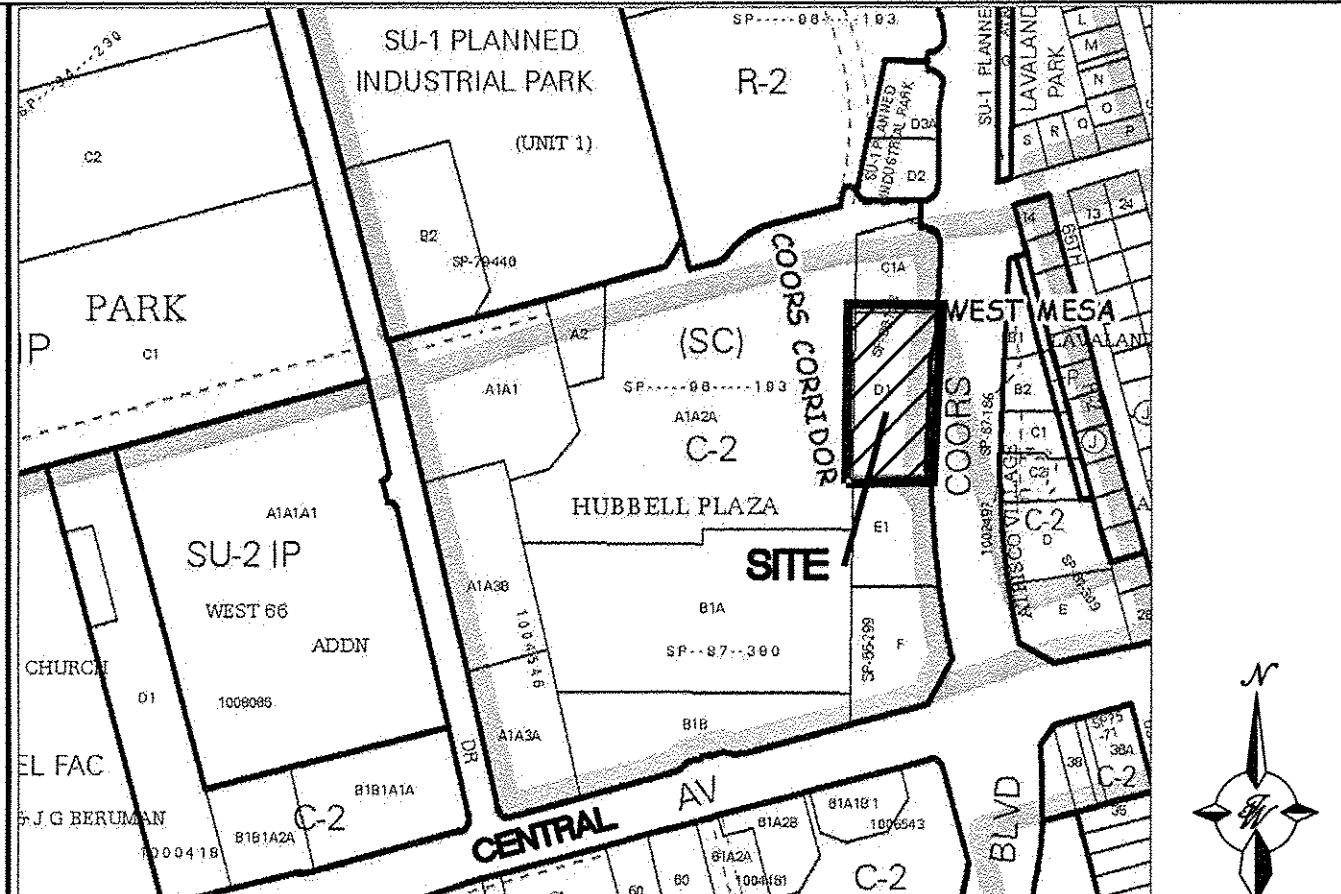
As runoff volume increases and fills up the underground storage system completely, the interconnecting storm drains, drop inlets and detention pond will act as an equalizing system and allow runoff to be stored in both the detention pond and on the surface of the parking lot and bio swale. During the 100 year-6 hour storm, the maximum water surface elevation for the detention system is 5094.93. This water surface elevation allows six inches of ponding depth in the parking lot and 12 inches of ponding in the bio swale and is below the elevation of the finished floor of the building (5095.63). Emergency overflow of the water surface elevation would send flows over the southeast part of the parking lot and onto Coors Blvd. The detention system will outflow through a 4" orifice plate located at MH-2 and then through a relocated butterfly valve time to release flow 2 hours after start of the storm. When flows are released, they will be sent to a Grindex pump system to outfall towards the existing catch basin on Coors.

When the maximum water surface elevation is reached; the volume of the detention pond is 0.43 ac-ft, volume of underground storage is 0.22 ac-ft, and the volume of surface ponding is 0.16 ac-ft. This gives a total storage volume of 0.81 ac-ft equivalent to the required 0.81 ac-ft of storage required for developed runoff. The orifice plate at MH-2 will control the outflow to the required discharge of 1.08 cfs. The detention pond and underground storage system will capture sediment within the bottom of each respective area, the detention pond outlet will be raised 0.16ft above the pond bottom to retain the first flush volume of the site.

See sheet C2 for DPM calculations, Grate capacity, Pipe capacity, Orifice Calcs, and Basin Map
See sheet C3 for Underground StormChamber configuration and details
See sheet C4 for Pump Details and Site Details

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.



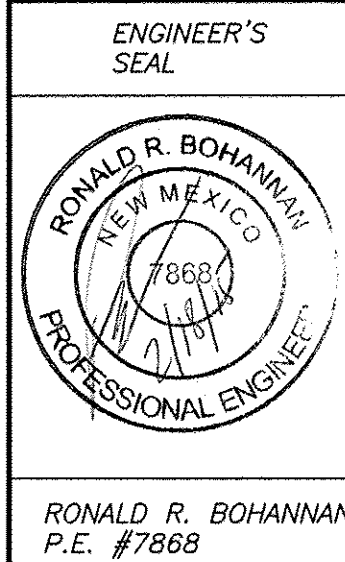
EROSION CONTROL NOTES:

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

NOTICE TO CONTRACTORS

- AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
- 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.
- TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 785-1234, FOR LOCATION OF EXISTING UTILITIES.
- 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.
- BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
- MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
- WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

APPROVAL	NAME	DATE
INSPECTOR		



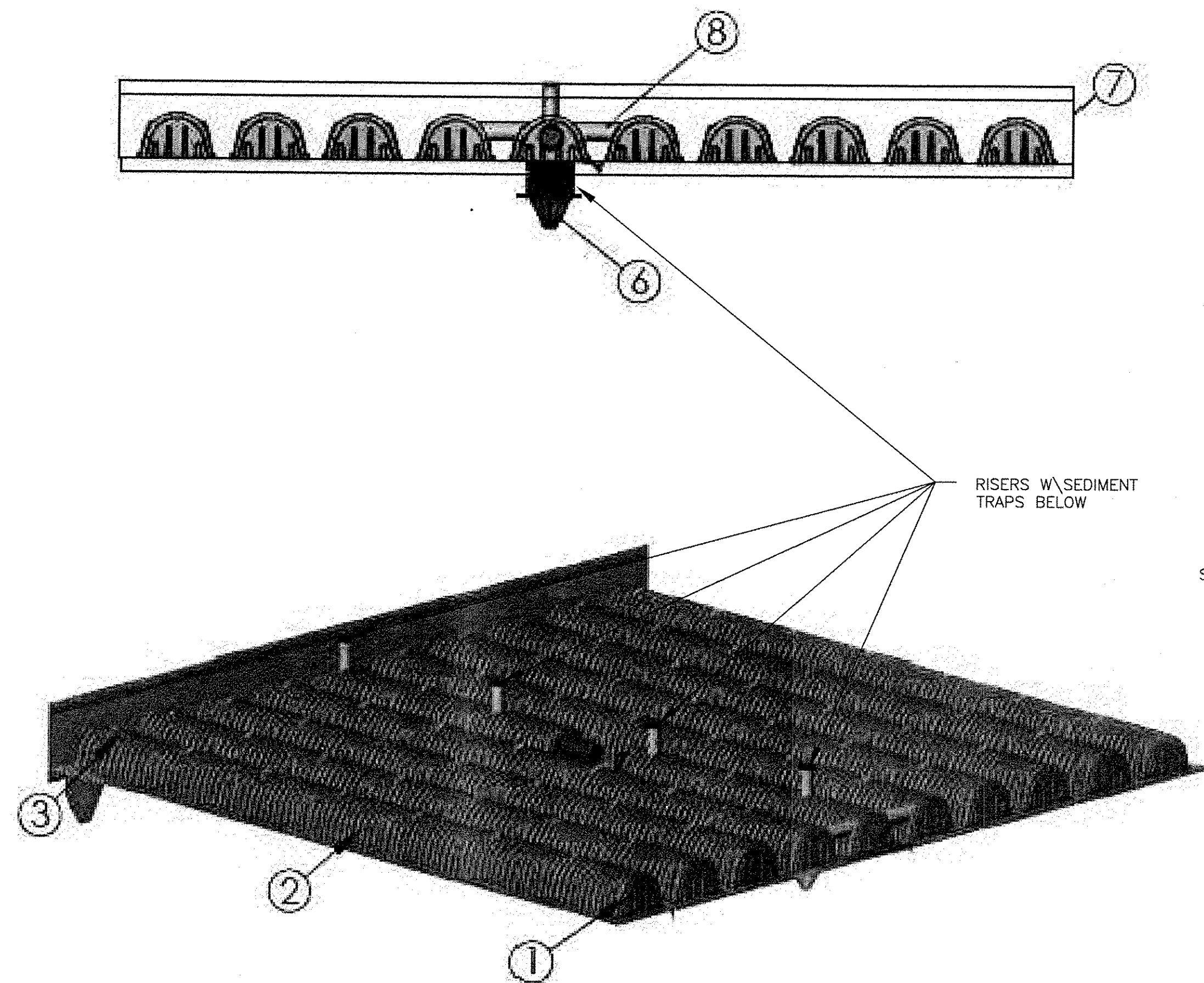
WHATABURGER
COORS AND CENTRAL
GRADING AND
DRAINAGE PLAN

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

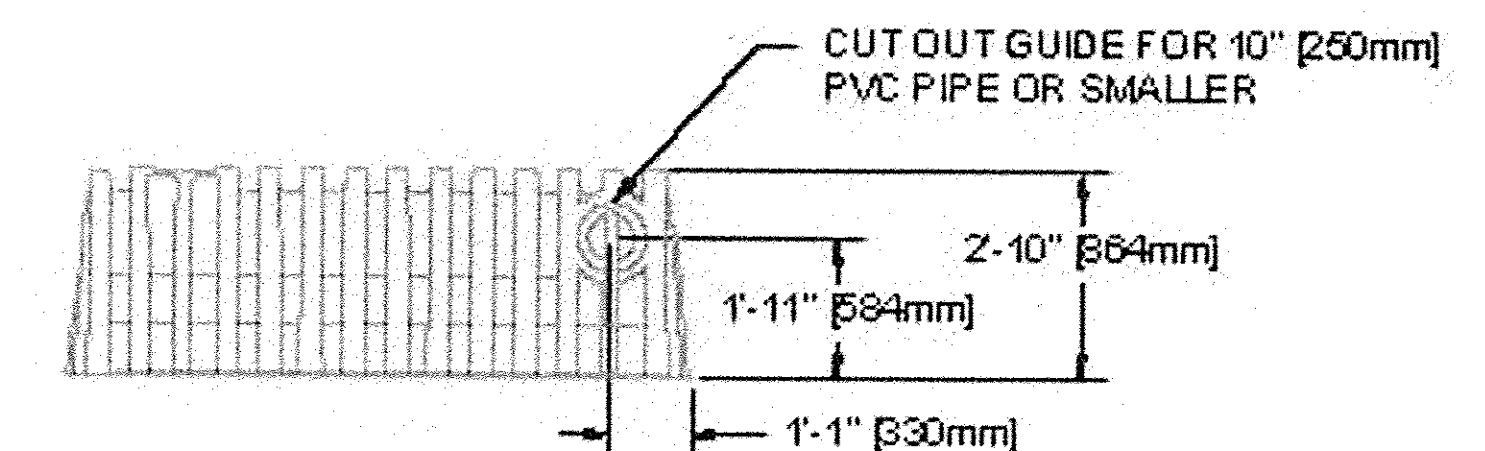
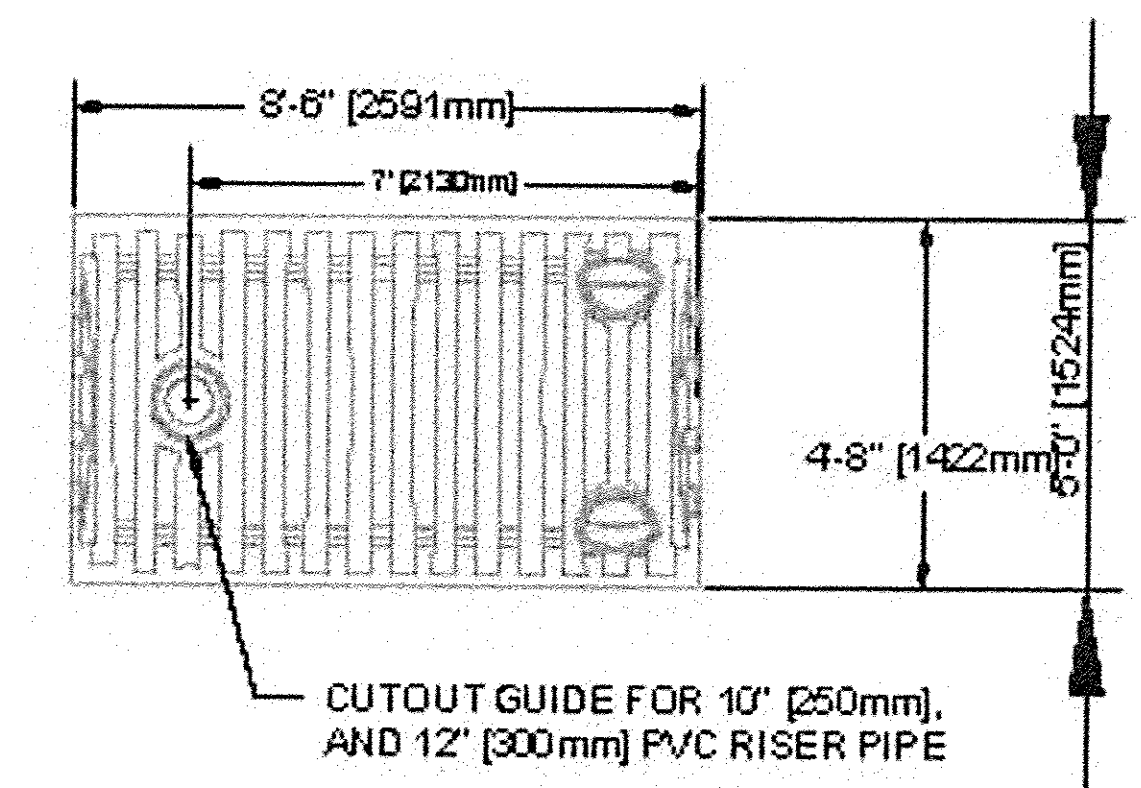
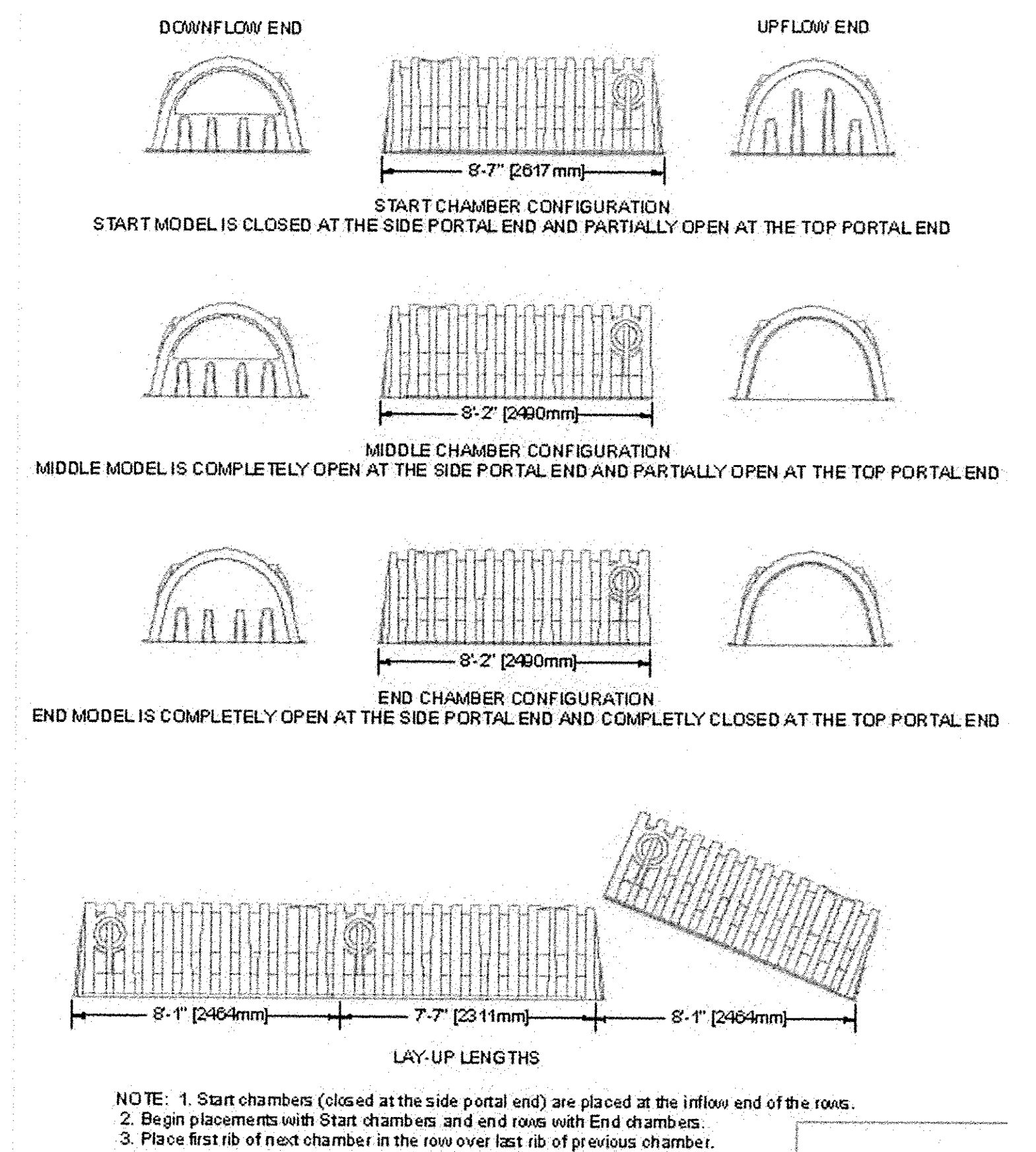
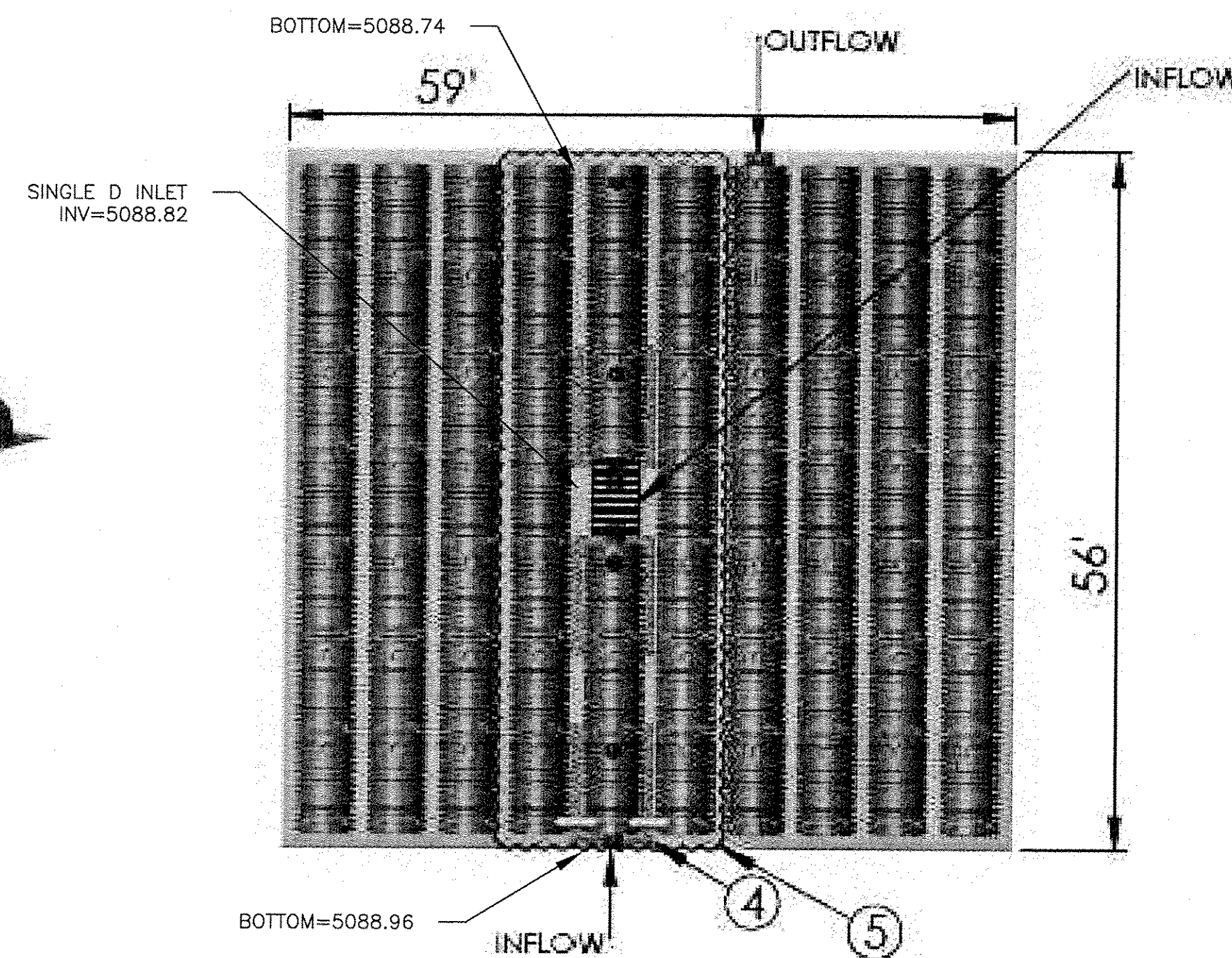
DRAWN BY
BJF
DATE
02/18/15
2014075_GRB
SHEET #
C1
JOB #
2014075

ALL GRADES INDICATE FLOWLINE UNLESS OTHERWISE NOTED

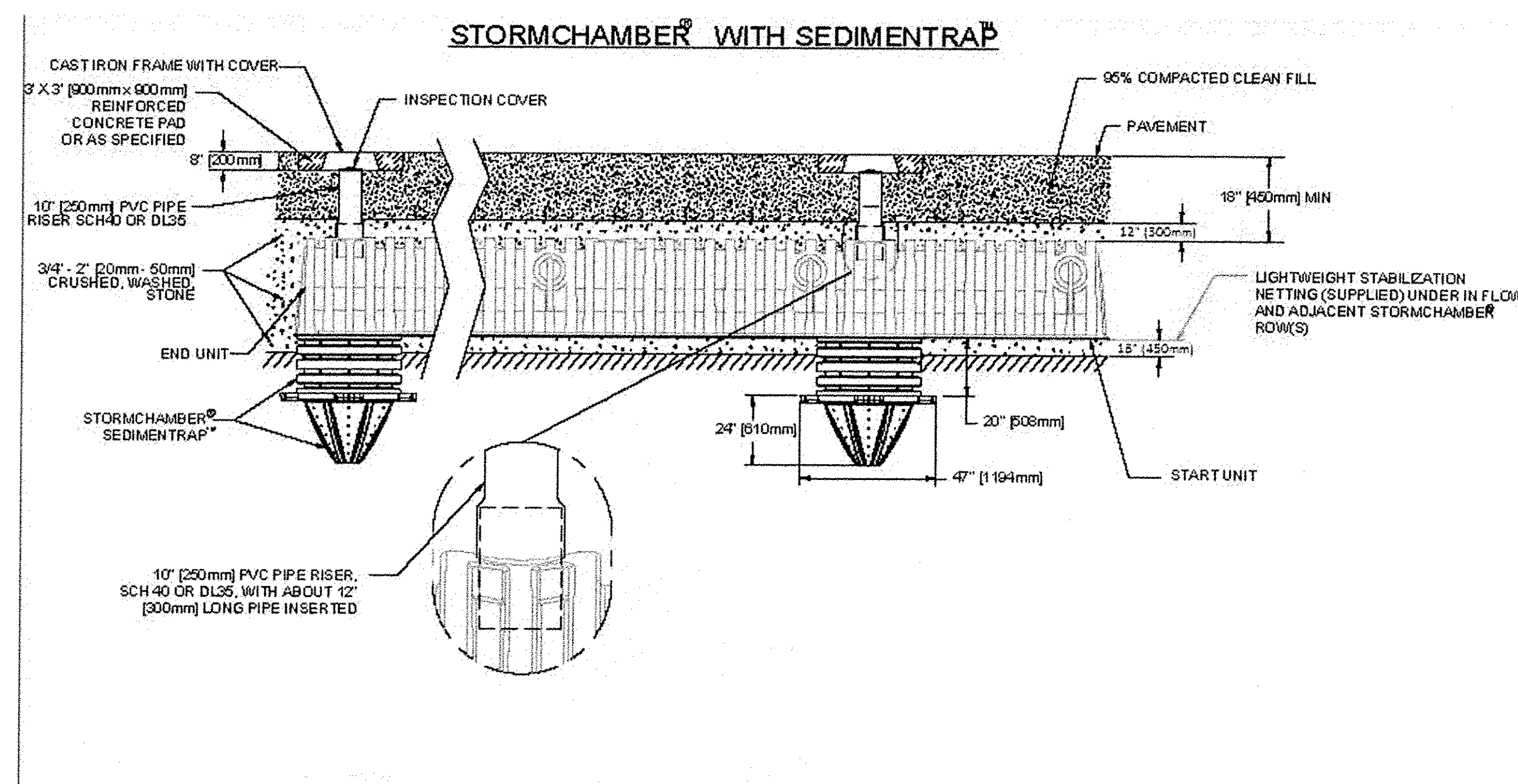
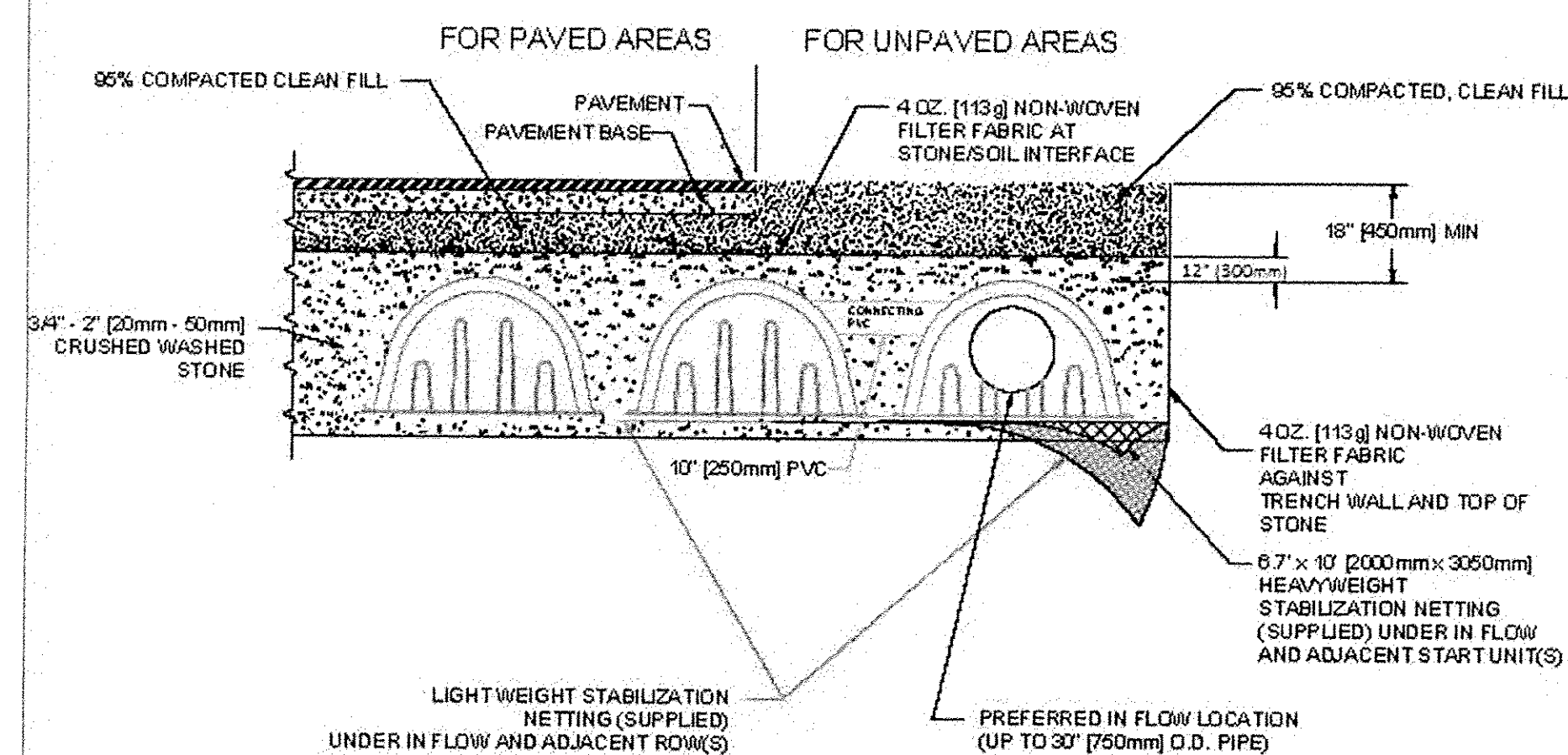




ITEM NO.	STORMCHAMBER PROPOSED LAYOUT DESCRIPTION	QTY
1	START UNITS	11
2	MIDDLE UNITS	47
3	END UNITS	11
4	7'x10' HEAVY DUTY NETTING (SUPPLIED)	3
5	LIGHTWEIGHT STABILIZATION NETTING (INFLOW AND ADJACENT ROWS) (SUPPLIED)	1
6	10" PVC SEPARATION / CLEAN-OUT RISER - (SUPPLIED BY OTHERS) W/ FRAME AND LID AND SEDIMENT TRAP (SUPPLIED)	4
7	4oz NON-WOVEN STORMCHAMBER GEOTEXTILE FILTER FABRIC (SUPPLIED)	2
8	ROW CONNECTING 10" PVC (SUPPLIED BY OTHERS)	2
*INSTALLED WITH 12" COVER STONE 18" BASE STONE, 50% STONE VOLUME. INSTALLED SYSTEM VOLUME (PERIMETER STONE INCLUDED) = 5534 CF.		



STORMCHAMBER® TYPICAL CROSS-SECTION INSTALLATION

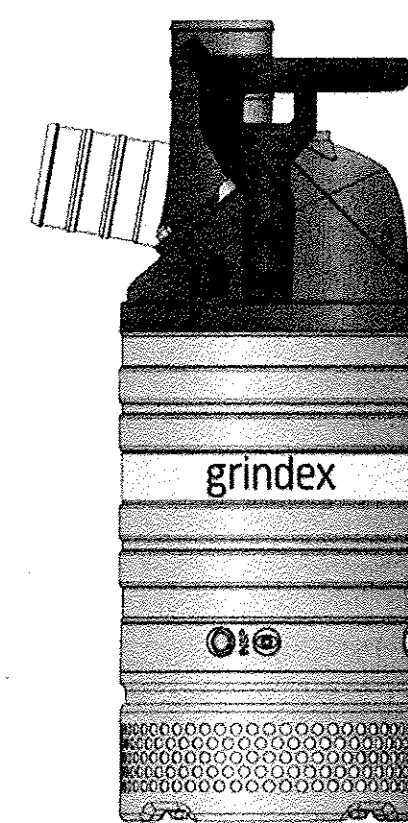


ENGINEER'S SEAL RONALD R. BOHANNAN P.E. #7866	WHATABURGER COORS AND CENTRAL STORMCHAMBER STORAGE SYSTEM	DRAWN BY BJF DATE 02/18/15 2014075_GRB
	TERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrowestllc.com	SHEET # C3 JOB # 2014075

No: PD603181-INT | Revision 0 2014.02 | 60 Hz 8103.181

Minor

Electrical submersible drainage pump



60 Hz	N	H
Discharge connection	4"	3"
Rated power P _r [kW/HP]	4.4 / 6.0	4.4 / 6.0
Max. power consumption P _i [kW]	5.2	5.2
Shaft speed [r.p.m.]	3480	3480
Rated current at 230V	15 A	15 A
Rated current at 460V	7.1 A	7.1 A
Rated current at 575V	5.5 A	5.5 A
Solids passage [mm/inch]	10 / 0.39	10 / 0.39
Height [mm/inch]	768 / 30 1/4	768 / 30 1/4
Diameter [mm/inch]	286 / 11 1/4	286 / 11 1/4
Weight [kg/lbs]	50 / 110	50 / 110

Other voltages on request

Pump types

N: normal pressure

H: high pressure

Classification

Electrical submersible drainage pump

Protection class: IP 68

Electrical motor

Squirrel cage induction motor, insulation class: H (IEC 85)

Motor protection

Phase sequence control, phase failure guard, temperature guard with thermal contacts in the stator opening temperature 140°C (284°F) (= SMART system), air valve

Cable - SubCab

4G2,5mm², length 20 m or 14AWG/4, length 53 ft

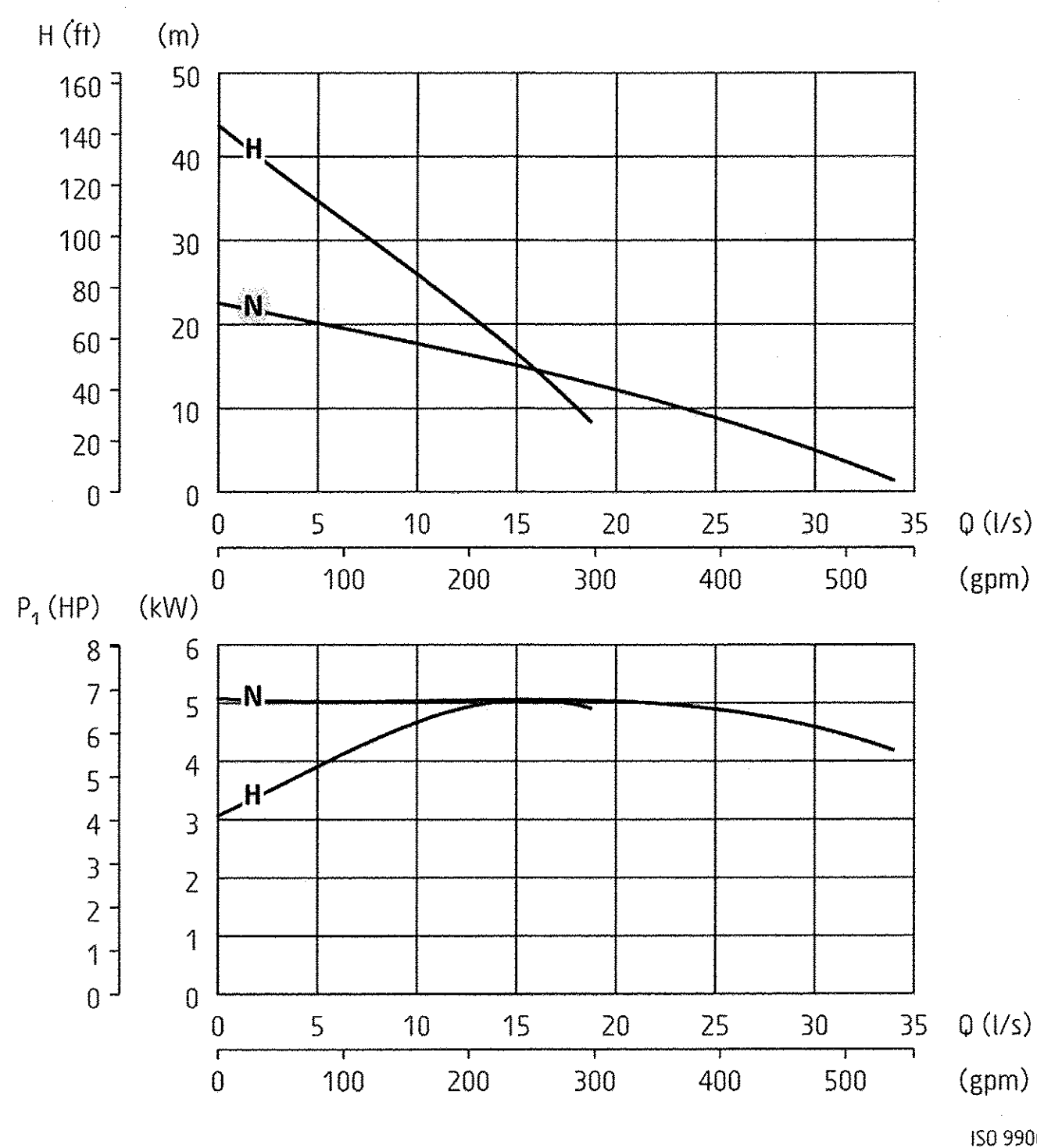
Limitations

Max. submersion depth: 20 m (66 ft)

Max. liquid temperature: 40 °C (104 °F)

Allowed pH range: 5 - 8

Maximum liquid density: 1100 kg/m³ (68 lbs/ft³)



Shaft seals

Cartridge seal: pre-assembled double mechanical seal running in an oil compartment

Material lower seal: *silicon carbide - silicon carbide*

Material upper seal: *tungsten carbide - aluminium oxide*

Bearings

Ball bearings with C3 clearance

Discharge connection

3-4" hose, ISO-G or NPT

Materials

Casted parts: *Aluminium*

Outer casing: *Stainless steel*

Motor shaft: *Stainless steel*

Impeller and suction cover: *Hard-Iron™*

Diffusers: *Nitrile rubber*

Screws and nuts: *Stainless steel*

O-rings: *Nitrile rubber*

Accessories

Level regulator

Zinc anodes

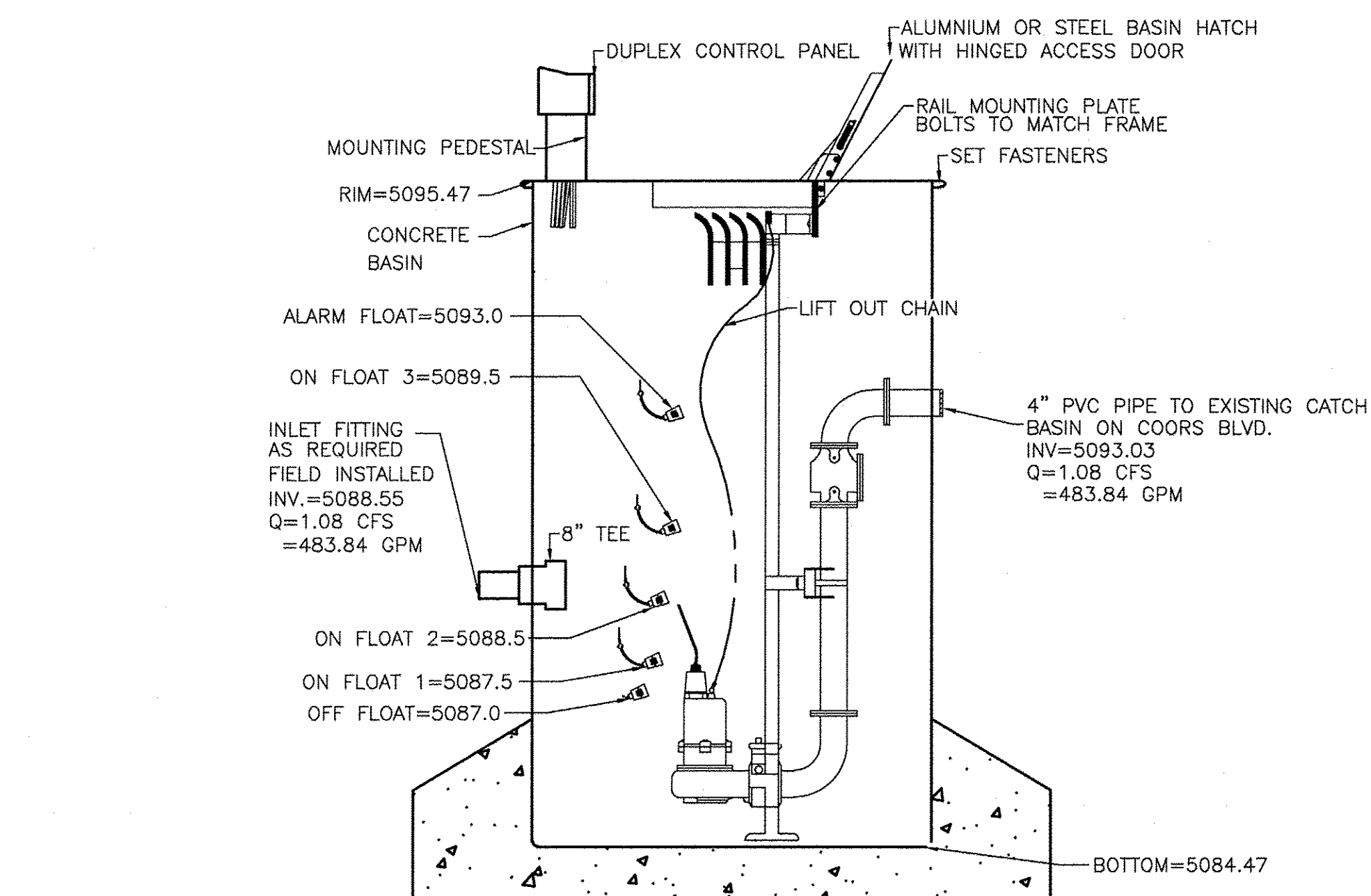
Tandem connection

Low suction collar

Pump raft

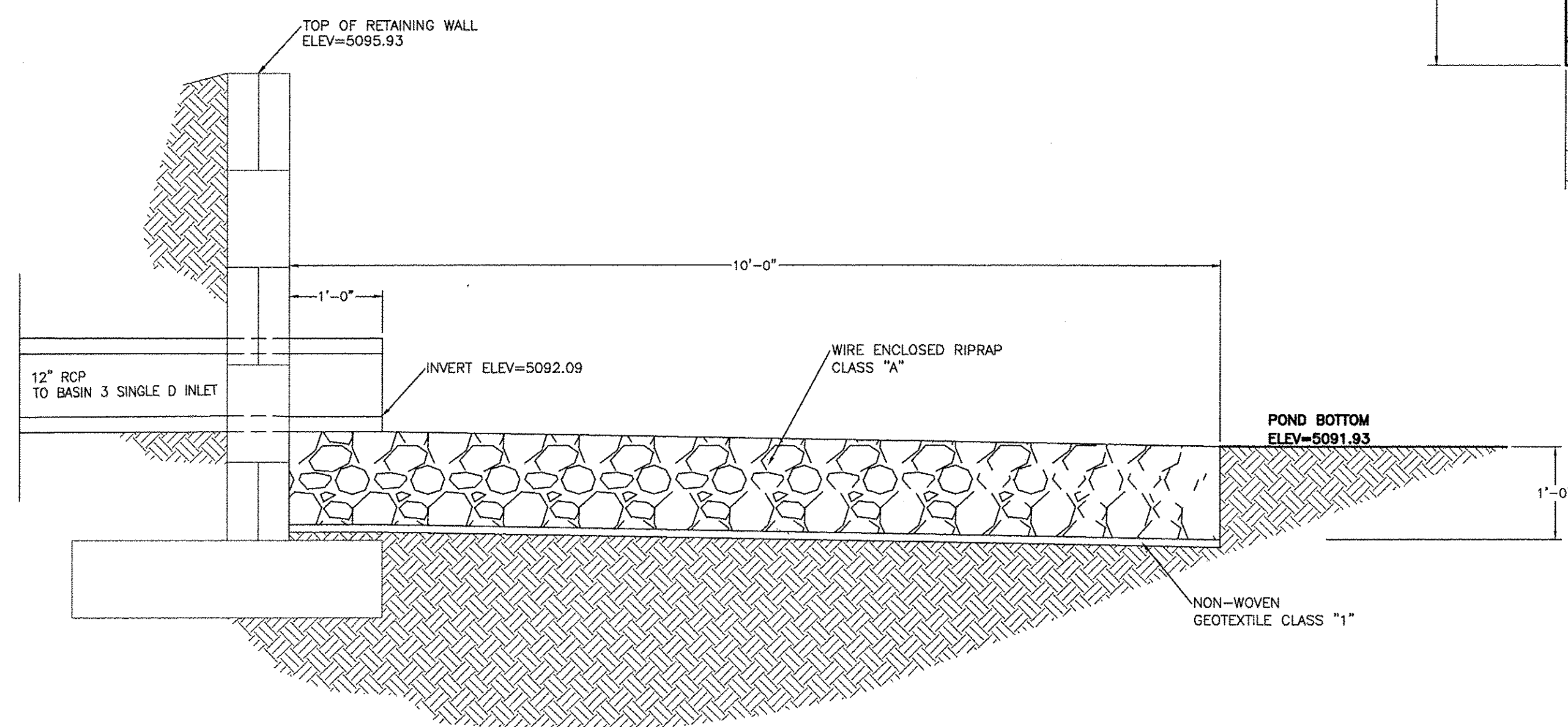
GRINDEX PUMP DETAIL

NTS



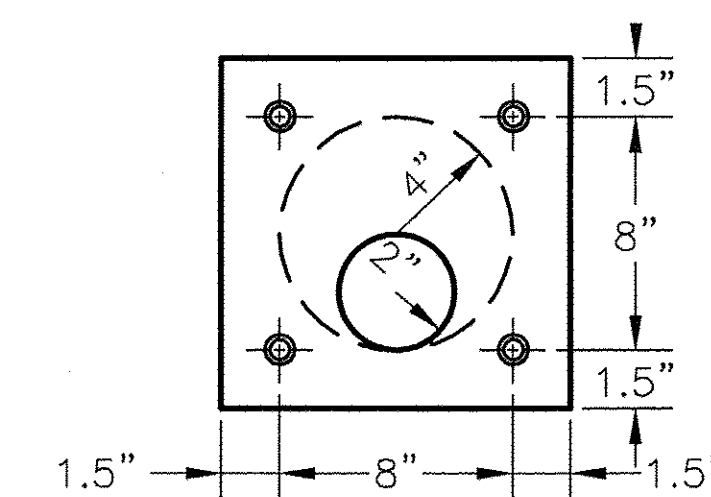
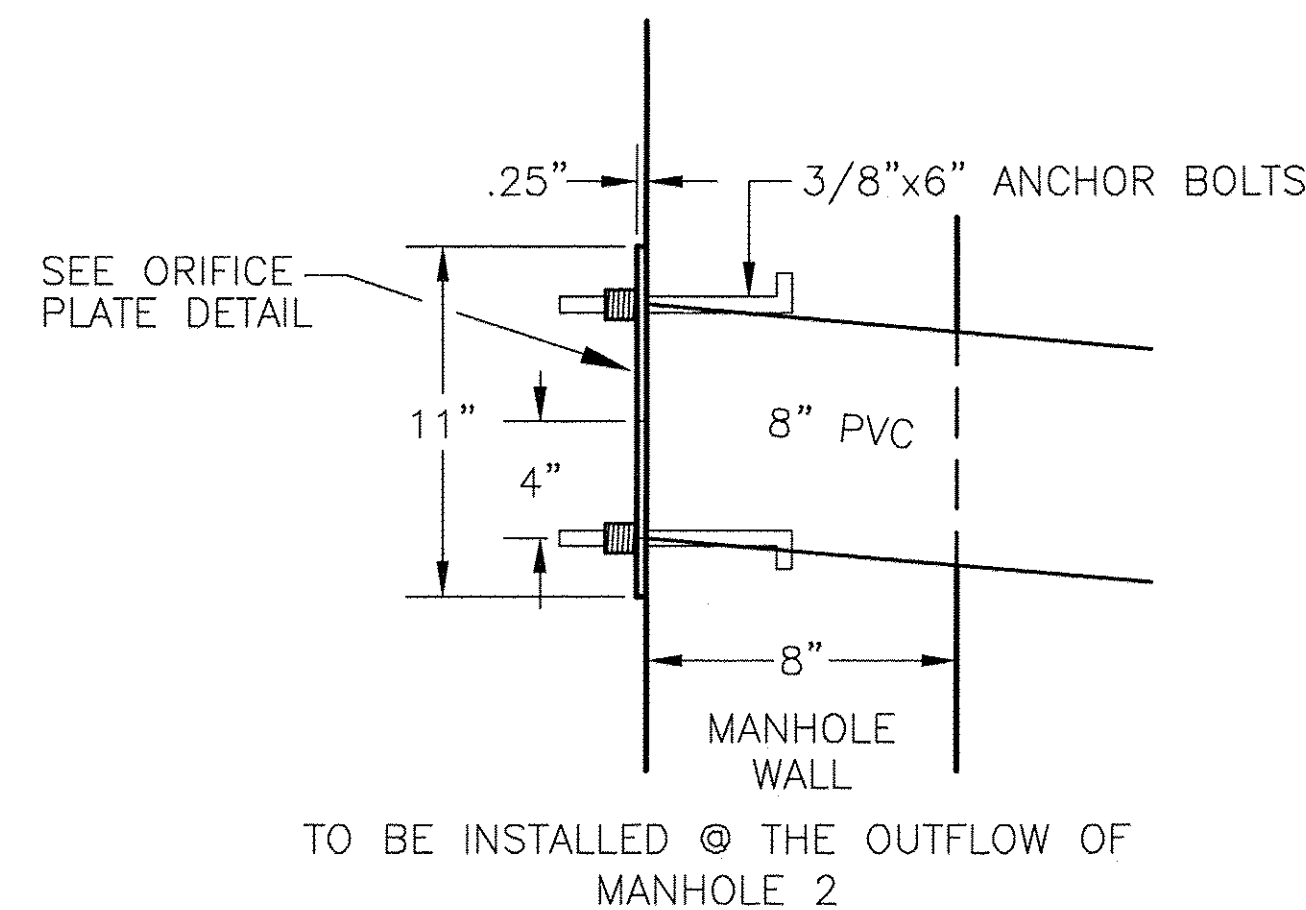
LIFT STATION DETAIL

NTS



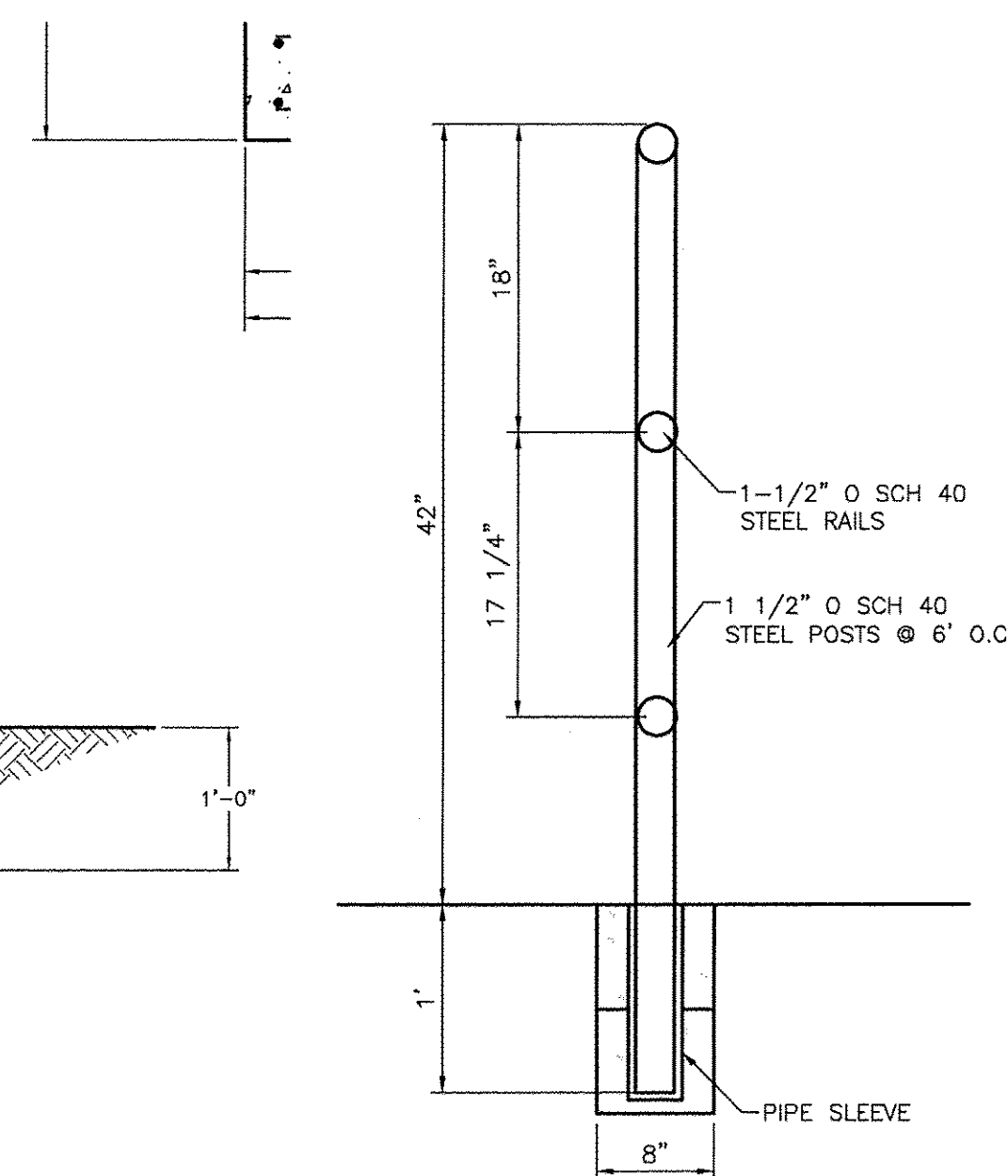
POND OUTLET DETAIL

NTS



TYP. ORIFICE PLATE DETAIL

NTS



GUARD RAIL DETAIL

NTS

	ENGINEER'S SEAL	WHATABURGER COORS AND CENTRAL PUMP AND DETAIL SHEET	DRAWN BY BJF
			DATE 02/18/15
		 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	2014075_GRB
			SHEET # C4
RONALD R. BOHANNAN P.E. #7868			JOB # 2014075