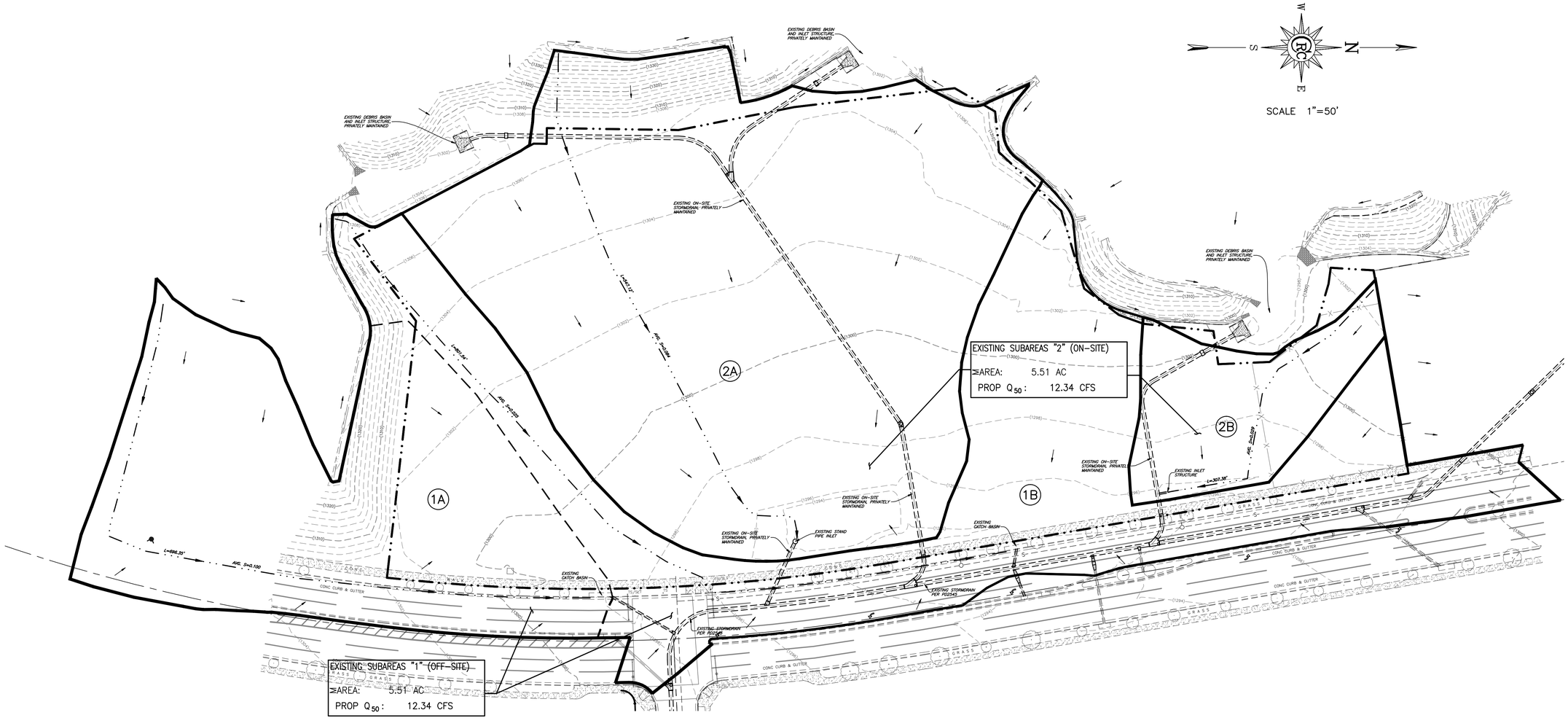
HYDROLOGY STUDY
FOR TR 52455-01
EXISTING CONDITIONS



HYDROLOGIC DATA

RAINFALL ISOHYET: 5.8 IN. (50YR-24HR)
SOIL TYPE 097
DPA ZONE: 08
BURNING FACTOR: 0.34
BULKING FACTORS: 16500/mi² DEBRIS PRODUCTION RATE
1.36 PEAK BULKING FACTOR
(DEBRIS COLLECTED AT EXISTING DEBRIS BASINS)

HYDROLOGIC TABLE-EXISTING CONDITIONS

ZONE	AREA (ac)	FLOWLINE	Tc (min)	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{50} (cfs)	V_2 (ft^3)	V_5 (ft^3)	V_{10} (ft^3)	V_{25} (ft^3)	V_{50} (ft^3)
1A	2.44	696.35'	6	1.11	2.42	3.50	4.80	6.03	6385	10146	12818	16402	19229
1B	3.07	801.54'	9	1.28	2.65	3.68	5.15	6.31	10484	16374	20453	25825	29989
2A	4.64	547.12'	6	4.12	4.12	6.15	9.34	10.90	5228	9173	12252	16681	20366
2B	0.64	307.38'	5	0.65	0.65	1.00	1.43	1.67	725	1269	1693	2302	2811

REGISTERED PROFESSIONAL ENGINEER
RONALD N. KOESTER
NO. 42399
CIVIL
STATE OF CALIFORNIA

PREPARED UNDER THE DIRECTION OF:

RON KOESTER R.C.E. 42399 — 14 OCT. 2016 DATE

REVISIONS | DATE

EXISTING CONDITIONS
HYDROLOGY PLAN
SHEET 1 OF 3 SHEETS
CRC 2826

PREPARED FOR:
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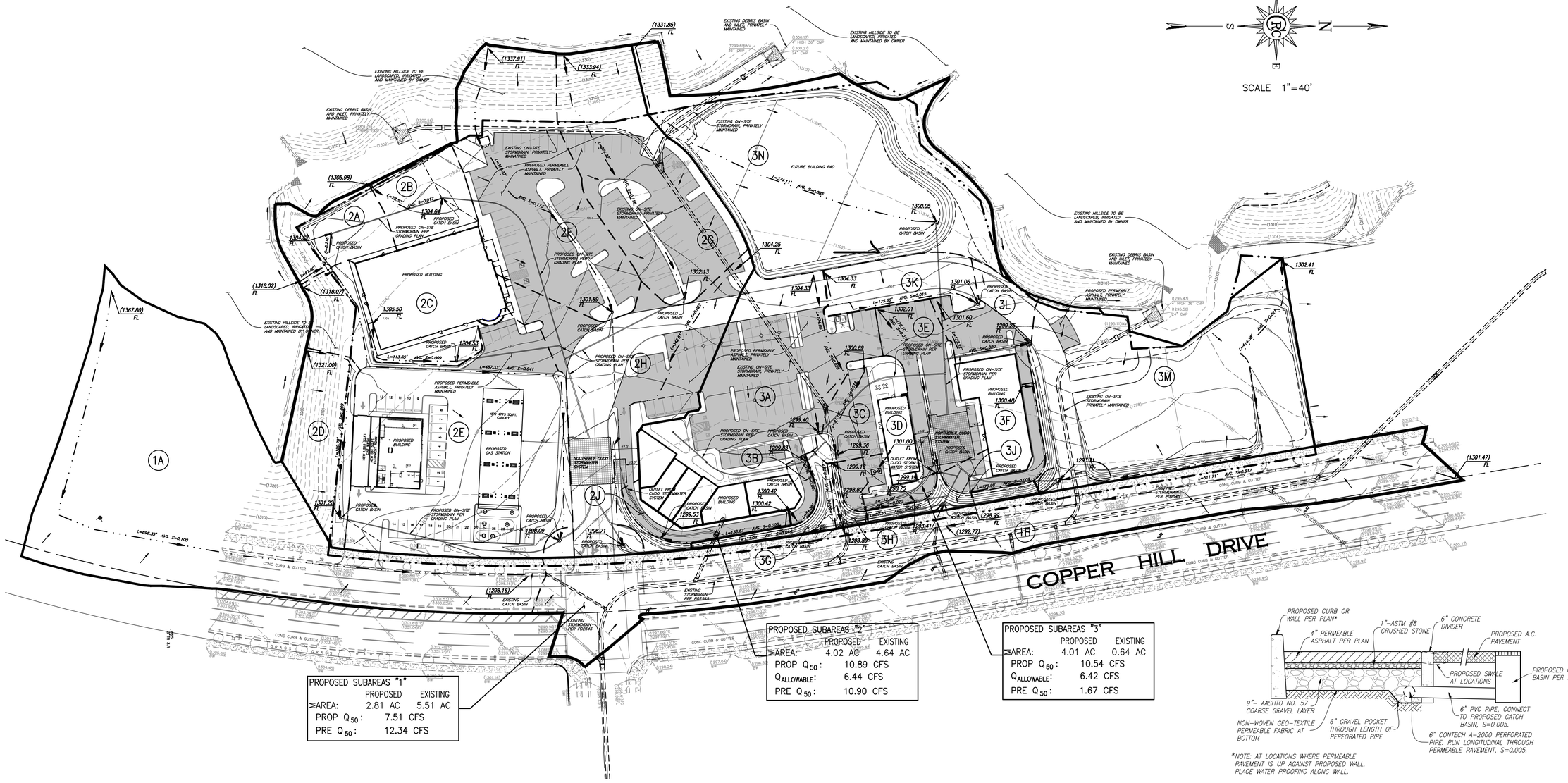
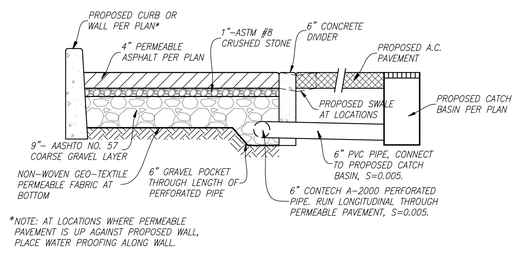
HYDROLOGY STUDY
FOR TR 52455-01
PROPOSED CONDITIONS





TYPICAL PERMEABLE PAVEMENT DETAIL
NOT TO SCALE

HYDROLOGIC TABLE-PROPOSED CONDITIONS

ZONE	AREA (ac)	FLOWLINE	Tc (min)	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{50} (cfs)	V_2 (ft^3)	V_5 (ft^3)	V_{10} (ft^3)	V_{25} (ft^3)	V_{50} (ft^3)	SWQDv (ft^3)
1A	1.62	696.35'	6	0.84	1.69	2.42	3.28	4.11	5448	8503	10626	13424	15595	–
1B	1.19	511.71'	6	0.95	1.64	2.12	2.77	3.40	8580	12952	15837	19479	22189	–
2A	0.16	61.80'	5	0.13	0.22	0.28	0.36	0.42	203	347	458	617	749	65
2B	0.16	78.57'	5	0.13	0.22	0.28	0.36	0.42	234	391	511	680	819	77
2C	0.34	113.65'	5	0.35	0.59	0.73	0.90	1.03	2136	3238	3970	4901	5598	851
2D	0.23	199.78'	5	0.14	0.31	0.40	0.51	0.60	263	458	609	827	1010	80
2E	1.13	487.33'	6	0.76	1.48	1.96	2.64	3.03	5835	8911	10980	13636	15646	2299
2F	0.66	318.73'	5	0.36	0.81	1.16	1.48	1.73	833	1431	1891	2546	3091	265
2G	0.59	274.22'	5	0.34	0.80	1.03	1.31	1.54	673	1174	1562	2122	2592	206
2H	0.68	342.51'	5	0.43	0.83	1.12	1.53	1.94	2573	4251	5276	6610	7635	1066
2J	0.07	138.67'	5	0.04	0.09	0.12	0.16	0.18	80	139	185	252	307	24
3A	0.78	174.05'	5	0.56	1.16	1.46	1.85	2.14	2195	3463	4356	5550	6489	819
3B	0.03	84.88'	5	0.02	0.04	0.05	0.07	0.08	34	60	79	108	132	10
3C	0.14	91.16'	5	0.10	0.19	0.25	0.32	0.37	203	342	447	595	717	67
3D	0.14	113.79'	5	0.14	0.22	0.27	0.34	0.40	533	825	1026	1288	1490	205
3E	0.23	176.10'	5	0.13	0.29	0.41	0.52	0.61	347	582	759	1007	1211	116
3F	0.20	170.98'	5	0.17	0.30	0.41	0.51	0.59	1021	1559	1922	2388	2740	402
3G	0.06	131.09'	5	0.04	0.08	0.10	0.13	0.16	69	119	159	216	264	21
3H	0.02	60.96'	5	0.02	0.03	0.03	0.04	0.05	23	40	53	72	88	7
3J	0.06	87.35'	5	0.05	0.08	0.10	0.13	0.16	69	119	159	216	264	21
3K	0.16	175.60'	5	0.14	0.26	0.32	0.40	0.46	728	1117	1381	1722	1983	284
3L	0.15	127.22'	5	0.12	0.22	0.28	0.35	0.41	422	666	838	1067	1248	157
3M	0.97	414.38'	6	0.37	0.90	1.33	1.84	2.32	1633	2711	3512	4624	5528	566
3N	1.07	374.11'	5	0.49	1.18	1.68	2.36	2.79	1214	2123	2831	3849	4700	374

CUDO STORMWATER DEVICES

	SOUTHERLY (subarea "2")	NORTHERLY (subarea "3")	SITE TOTAL
TRIBUTARY AREA	4.02 ac	4.01 ac	8.03 ac
SWQDv REQUIRED	4933 ft^3	3049 ft^3	7982 ft^3
RETENTION CAPACITY	14872 ft^3	14841 ft^3	**29713 ft^3**
DETENTION REQUIRED	1572 ft^3	1354 ft^3	2926 ft^3
DETENTION CAPACITY	2203 ft^3	1836 ft^3	4039 ft^3
Q_{50} (cfs)	10.89	10.54	21.43
$Q_{ALLOWABLE}$ (cfs)	6.44	6.42	12.86

TOTAL SITE DRAINAGE COMPARISON

EXISTING VS PROPOSED TABLE

	EXISTING	PROPOSED	△
AREA (ac)	10.79	10.84	+0.05
Q_2 (cfs)	4.38	6.82	+1.99
V_2 (ft^3)	22822	35529	+12707
Q_5 (cfs)	9.84	13.63	+3.79
V_5 (ft^3)	36962	55521	+18559
Q_{10} (cfs)	14.33	18.31	+3.98
V_{10} (ft^3)	47216	68959	+21743
Q_{25} (cfs)	20.72	24.18	+3.46
V_{25} (ft^3)	61210	87886	+26676
Q_{50} (cfs)	24.91	28.94	+4.03*
V_{50} (ft^3)	72395	102085	+29690

*NORTHERLY AND SOUTHERLY CUDO STORMWATER DEVICES LIMIT THE OVERALL RUNOFF TO 20.37 CFS DUE TO $Q_{ALLOWABLE}$. OVERALL RUNOFF FROM THE SITE REDUCED BY -4.53 CFS.

HYDROLOGIC DATA

RAINFALL ISOHYET: 5.8 IN. (50YR-24HR)
SOIL TYPE 097
85TH% STORM: 0.90 IN.
$Q_{ALLOW.}$ 1.60 CFS/ACRE
DPA ZONE: 08
BURNING FACTOR: 0.34
BULKING FACTORS: 16500/mi² DEBRIS PRODUCTION RATE
1.36 PEAK BULKING FACTOR
(NO DEBRIS POTENTIAL ON THIS SITE)

TOTAL VOLUME RETAINED: 29,713 ft^3

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REVISIONS | DATE

PROPOSED DEVELOPMENT
HYDROLOGY PLAN
SHEET 2 OF 3 SHEETS
CRC 2826

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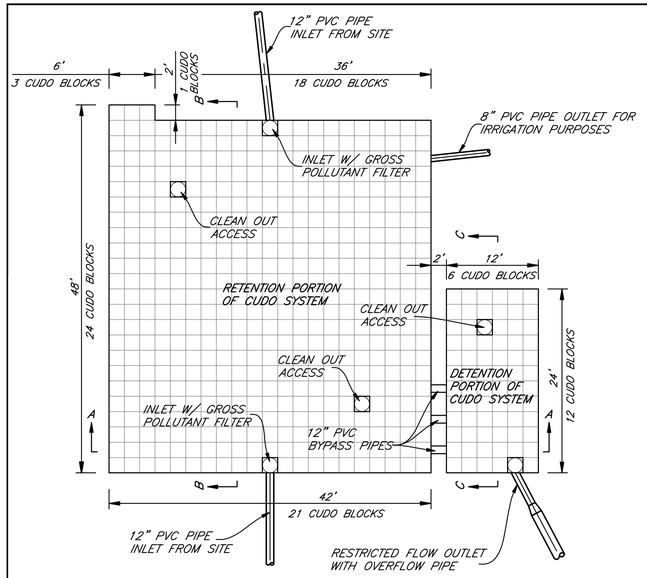
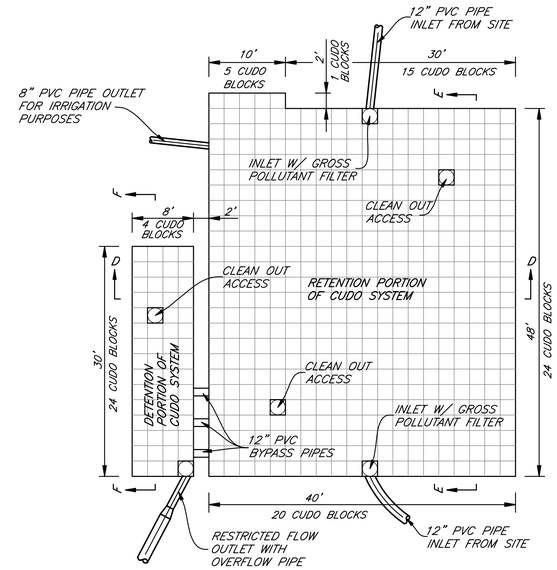
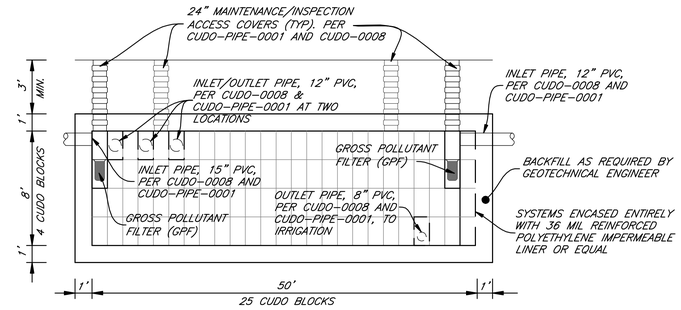


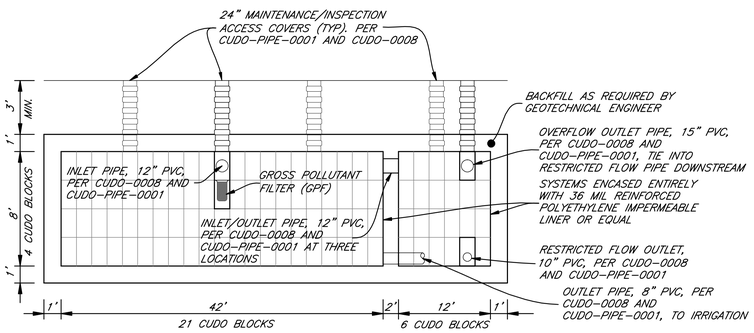
PLAN VIEW



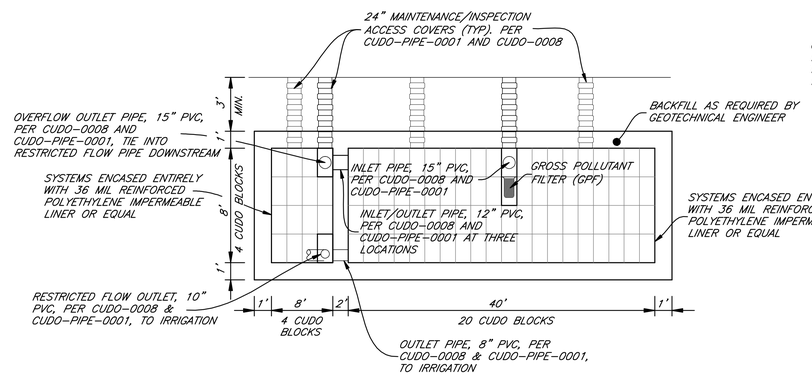
PLAN VIEW



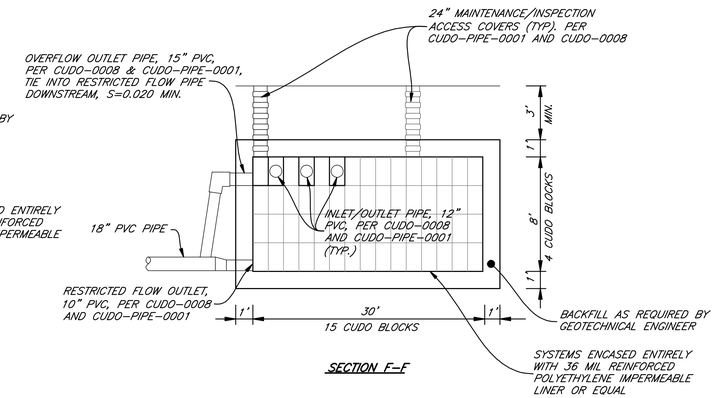
SECTION E-E



SECTION A-A

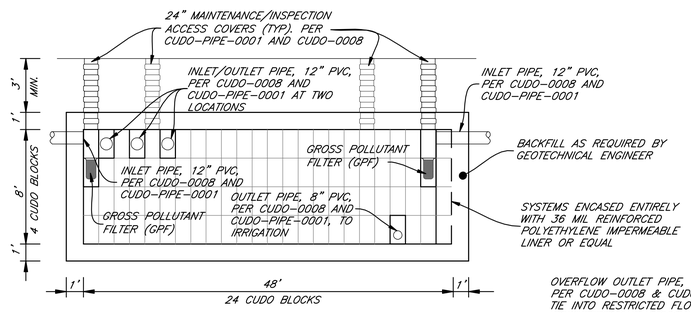


SECTION D-D



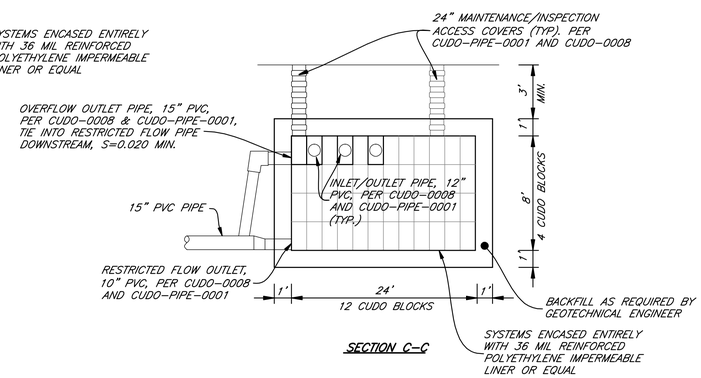
SECTION F-F

NORTHERLY CUDO STORMWATER SYSTEM



SECTION B-B

SOUTHERLY CUDO STORMWATER SYSTEM



SECTION C-C

CUDO STORMWATER SYSTEM

NOT TO SCALE

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DATE	REVISIONS

DETAILS
HYDROLOGY PLAN

CRC 2826

SHEET 3 OF 3 SHEETS

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