

# **PRELIMINARY HYDROLOGY STUDY**

**FOR**

**TORRANCE COMMERCE CENTER**

**2271-2311 & 2341 WEST 205<sup>TH</sup> STREET**

**IN THE**

**CITY OF TORRANCE, CA**

**DECEMBER 2023**

**PREPARED BY:**

**WALDEN & ASSOCIATES  
2552 WHITE ROAD, SUITE B  
IRVINE, CA 92614**



**JN: 2089-940-001**



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SECTION 1

**DISCUSSION**



## **PURPOSE**

This preliminary report has been prepared to support the proposed design of a drainage system, which will provide the desired conveyance and the required storm protection according to the City of Torrance and to demonstrate the ability of the development to mitigate the storm flow runoff so as not to exceed the existing site's Q10 runoff that currently drains toward the public storm drain system. This drainage mitigation is necessary to limit the site runoff to the existing Q10 runoff to the public storm drain system that is deficient in capacity based on the most current City of Torrance Master Plan of Drainage (MPD).

As part of the development conditions runoff shall be limited to the 10-year flows that the existing development would have contributed to the tributary area, which will be established in this hydrology study and any increased runoff must be mitigated by the development by on-site detention and retention. This condition must be maintained until downstream deficiencies have been attained by the City.

## **PROJECT DESCRIPTION**

The project site is currently developed as a commercial property with six building and associated hardscape including parking areas and landscaping and is located along West 205<sup>th</sup> Street between Amapola Avenue and Beech Avenue. The project is bounded by existing residential units to the north with Del Amo Boulevard beyond, existing commercial properties to the east and west and W 205<sup>th</sup> Street to the south. The proposed development will consist of one building with associated hardscaping including parking areas and landscaping. The existing site has four driveways that access the site; the proposed development will eliminate two. The property's acreage is approximately 6.3 acres. The existing 40-year-old, 42-inch RCP public storm drain traversing the property in a north south direction will be relocated due to the location of the proposed 132,000 square foot building. No flow from the site will be added to the relocated 42-inch pipe all site flows will be directed to the existing catch basin at the north eastly corner of the site. Additionally, five of the six existing grated catch basins will be removed and abandon, the one remaining will be modified to have the grate 6" above the proposed curb to be used as an additional protection method.

The entire site's post-development runoff will be directed to the proposed private underground storm drain system. The subsurface discharge will then be diverted through the first diversion manhole into the proposed infiltration system that is sized to capture the required 17,512 c.f. of first-flush runoff; this volume will then be infiltrated. As the 50-year storm event peaks, the maximum allowable 50-year discharge into the City's existing storm drain system will be restricted to 7.31 cfs at the second diversion manhole to match the pre-development discharge. Any increase in the post-development discharge (up to 5 cfs) will be mitigated by diverting the flow increase at the aforementioned second diversion manhole into a proposed detention system sized to detain 3,003 c.f. The detention system will be sloped at a minimal uphill slope of 0.0020, allowing the single connecting pipe to act as both the inflow and outflow conduit of the detained volume. Once the peak storm event subsides below the restricted 7.31 cfs runoff, the detention system will empty itself back into the second diversion manhole and will discharge with the rest of the site's runoff into the City's storm drain system.

## **DESCRIPTION OF WATERSHED**

The existing topography of the site splits the drainage pattern into two runoff areas. The majority of the site, which is approximately 94-percent of the entire project area, is tabled to surface drain in a northerly direction to several grated catch basins that join an existing 42-inch storm drain line (MTD 1062), running in an east west direction. The remaining area, approximately 6-percent of the site, is tabled to surface drain in a southerly direction to West 205<sup>th</sup> Steet to several public catch basins along the north side of the street, that eventually join the 42-inch storm drain line stated above.

The proposed development will maintain similar drainage patterns to the existing development condition, dividing the site into the two runoff areas. Area "A" will surface drain to multiple proposed grated catch basins, storm drain pipe, low flow pretreatment unit and infiltration facility before joining the existing 42" storm drain line stated above. It should be noted that any existing catch basins located off site, will remain. Area "B", which will now be predominantly landscaping, will surface drain in a southerly direction as stated above, and was not modeled, since the conditions have been improved, due to increased perviousness.

The proposed storm drain system will collect site water and direct the flows towards the proposed diversion manhole were the BMP flows (prepared under separate cover) along with the difference between the proposed Q50 (12.75 cfs) and the existing Q10 (7.31 cfs), which is 5.44 cfs or 3,003 cf will be directed to a

## **METHODOLOGY**

This Hydrology Study was performed using the HydroCalc Calculator as required by the LA County Department of Public Works. The calculations were done for the existing 10-year frequency and the proposed 50-year storm frequency. The proposed inlets, pipes, and other drainage structures were sized for the 50-year storm event.

The storm drain hydraulics were analyzed by the CivilDesign WSPG computer software program. The controlling water surface elevation was obtained from the storm drain plans prepared for Tract #39796 (MTD 1062) and adjusted to current datum. All upstream flows were obtained from the MPD.

## **FLOODING HAZARD**

Based on the most current Flood Insurance Rate Map (September 26, 2008) prepared by the Federal Emergency Management Agency (FEMA), the site has been determined to lie within the unshaded ZONE X which is an area outside the 0.2% (500-year) annual chance floodplain.

## **SUMMARY**

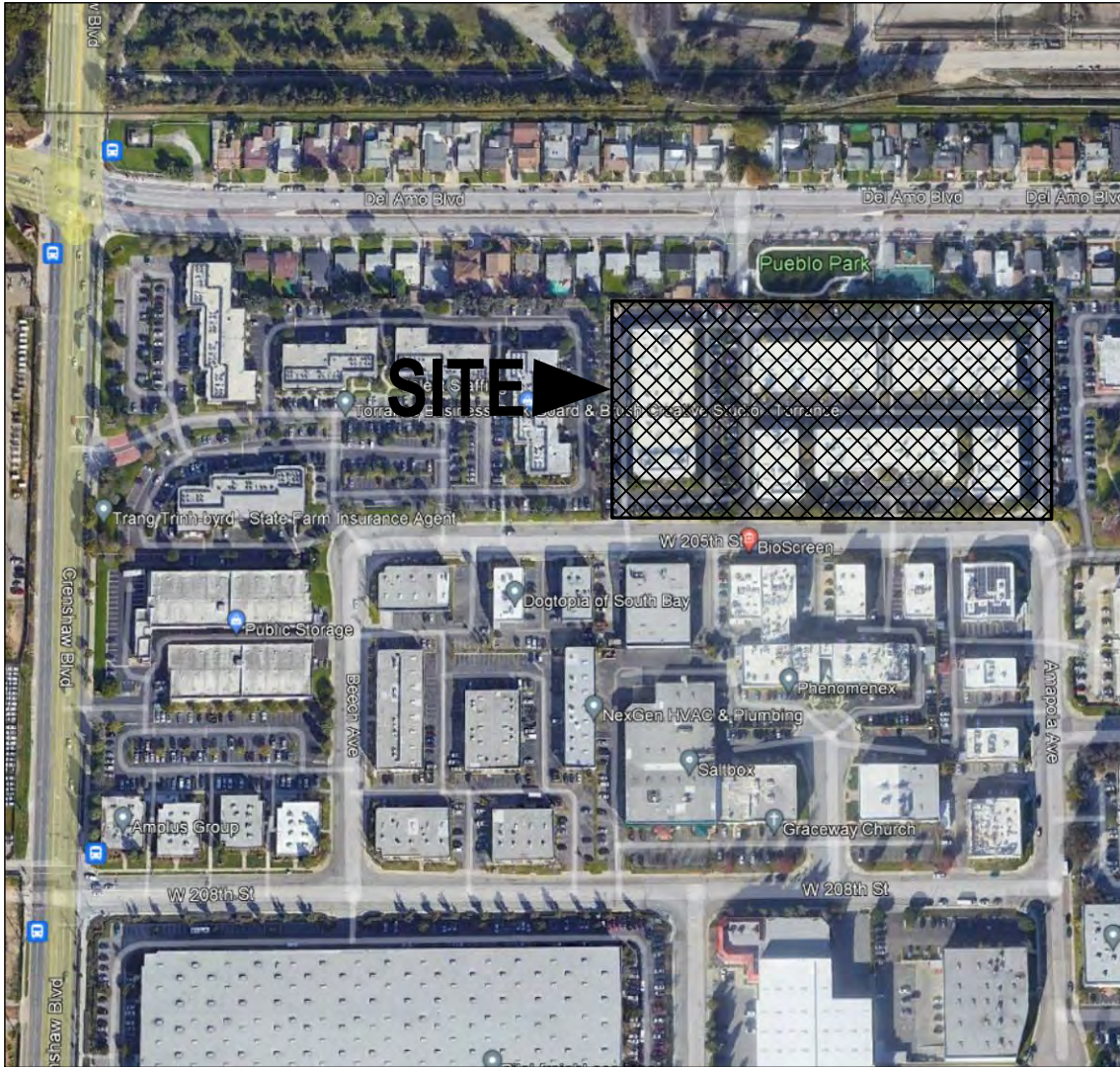
Plans for which this report has been prepared will meet all standards of rainstorm protection as adopted by the City of Torrance. Should the on-site inlets clogged and/or become inoperable overflow for the project site will spill through relief holes in the new wall along Madrid Street at an elevation of approximately 68.10, which is 3.9-feet below the finish floor of 72.00 and will provide

protection to the building against a 50-year storm. Additionally, as stated above there will be an additional relief measure provided at the remaining grated catch basin and the driveways which are approximately 1.0-feet below the finish floor of the building.

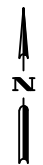


## SECTION 2

### VICINITY MAP



**THOMAS GUIDE  
MAP 763 GRID G-4**



NO SCALE



**ALDEN &  
ASSOCIATES**

CIVIL ENGINEERS - LAND SURVEYORS - PLANNERS  
2552 WHITE ROAD, SUITE B • IRVINE, CA 92614-6236  
(949) 660-0110 FAX: 660-0418

**LOCATION MAP  
TORRANCE COMMERCE CENTER  
2271-2311 & 2341 W. 205TH STREET  
TORRANCE, CA**

W.O. No. 2089-940-001  
Engr. SK Chk'd. MV

Date 12/2022  
Sheet 1 of 1





SECTION 3

**HYDROLOGIC CLASSIFICATION OF SOILS & ISOHYET**  
**(50-YEAR 24-HOUR ISOHYET = 5.87")**  
**(SOIL CLASSIFICATION = 010)**



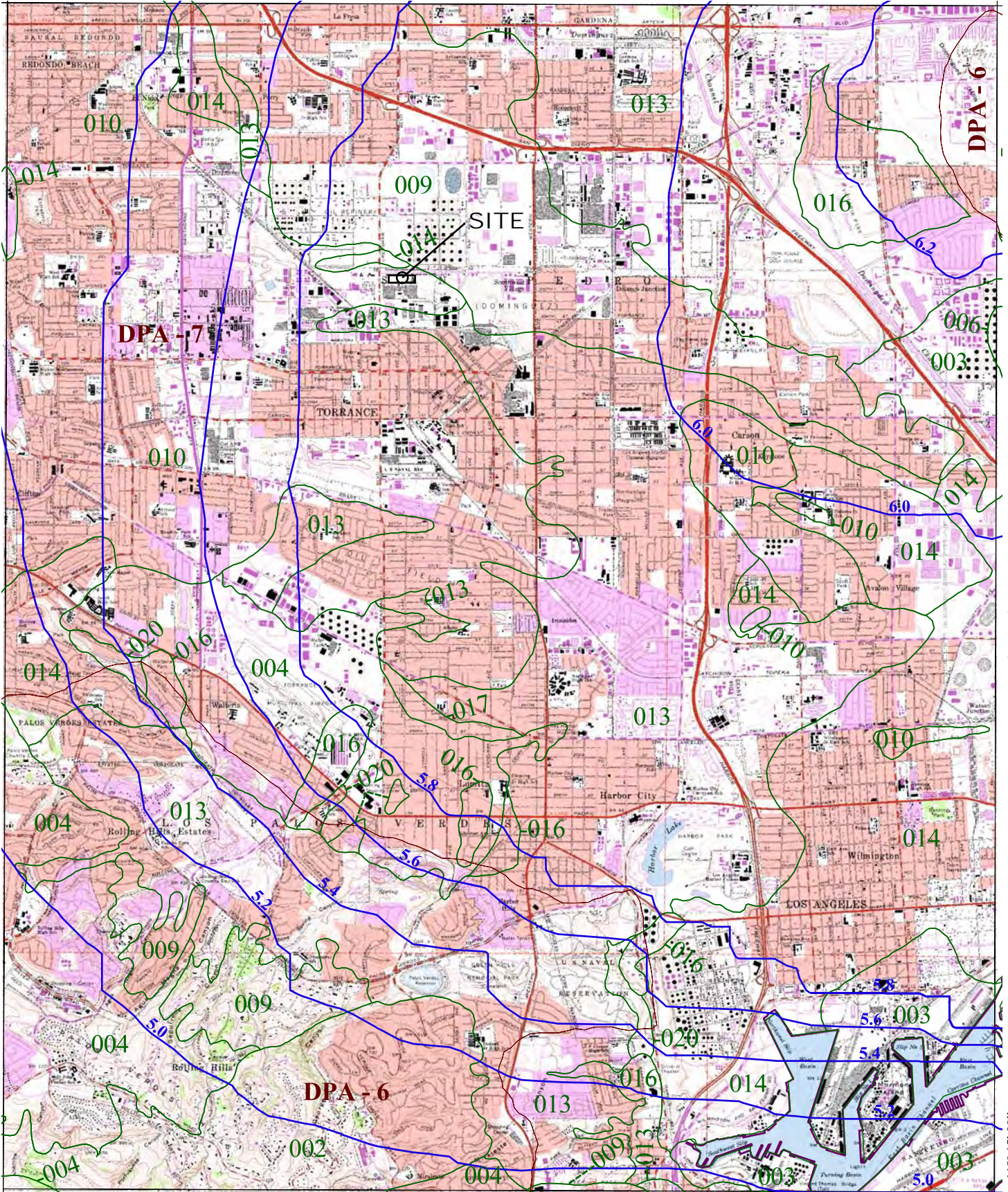
33° 52' 30"

INGLEWOOD 1-H1.8

-118° 22' 30"

REDONDO BEACH 1-H1.3

LONG BEACH 1-H1.5



-118° 15' 00"

SAN PEDRO 1-H1.2

33° 45' 00"



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

1 0 1 2 Miles

25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878  
 10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

# TORRANCE

## 50-YEAR 24-HOUR ISOHYET

1-H1.4







## SECTION 4.1

### HYDROLOGY

<b>FREQUENCY:</b>	<b>10-YEAR EXISTING</b>
<b>ISOHYET:</b>	<b>5.87"</b>
<b>SOIL CLASS:</b>	<b>010</b>

# Peak Flow Hydrologic Analysis

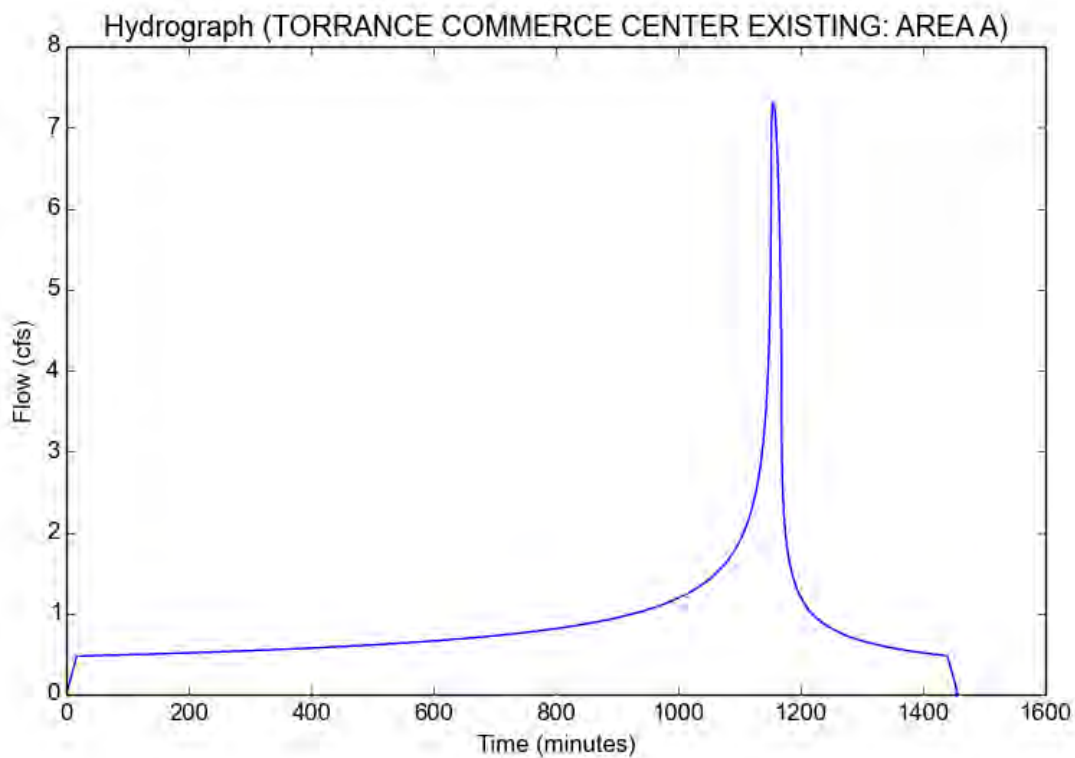
File location: G:/projdata/2089 W. 205th Street, Torrance/DWG/Hydrology/TORRANCE COMMERCE CENTER EXISTING - AREA A Q10 2023 11 27.pd  
Version: HydroCalc 1.0.3

## Input Parameters

Project Name	TORRANCE COMMERCE CENTER EXISTING
Subarea ID	AREA A
Area (ac)	6.26
Flow Path Length (ft)	1053.0
Flow Path Slope (vft/hft)	0.005
50-yr Rainfall Depth (in)	5.87
Percent Impervious	0.89
Soil Type	10
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

## Output Results

Modeled (10-yr) Rainfall Depth (in)	4.1912
Peak Intensity (in/hr)	1.4068
Undeveloped Runoff Coefficient (Cu)	0.2665
Developed Runoff Coefficient (Cd)	0.8303
Time of Concentration (min)	17.0
Clear Peak Flow Rate (cfs)	7.3124
Burned Peak Flow Rate (cfs)	7.3124
24-Hr Clear Runoff Volume (ac-ft)	1.7635
24-Hr Clear Runoff Volume (cu-ft)	76818.2811





## SECTION 4.2

### HYDROLOGY

<b>FREQUENCY:</b>	<b>50-YEAR PROPOSED</b>
<b>ISOHYET:</b>	<b>5.87"</b>
<b>SOIL CLASS:</b>	<b>010</b>

## Peak Flow Hydrologic Analysis

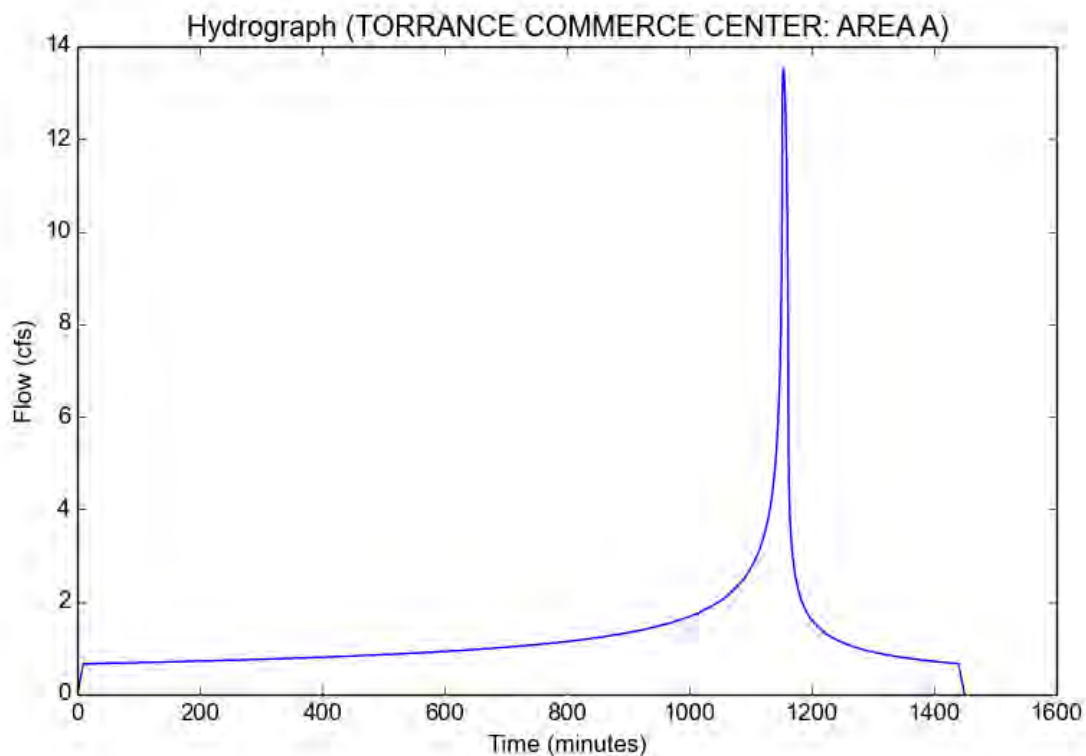
File location: G:/projdata/2089 W. 205th Street, Torrance/DWG/Hydrology/TORRANCE COMMERCE CENTER - AREA A Q50 PROPOSED 2023 11 27.  
Version: HydroCalc 1.0.3

### Input Parameters

Project Name	TORRANCE COMMERCE CENTER
Subarea ID	AREA A
Area (ac)	6.26
Flow Path Length (ft)	895.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.87
Percent Impervious	0.89
Soil Type	10
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

### Output Results

Modeled (50-yr) Rainfall Depth (in)	5.87
Peak Intensity (in/hr)	2.5285
Undeveloped Runoff Coefficient (Cu)	0.4867
Developed Runoff Coefficient (Cd)	0.8545
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	13.5258
Burned Peak Flow Rate (cfs)	13.5258
24-Hr Clear Runoff Volume (ac-ft)	2.4755
24-Hr Clear Runoff Volume (cu-ft)	107831.1018



TORRANCE COMMERCE CENTER

**PROPOSED MAIN AREA COMPUTATIONS\***

Project	Area	Area (acres)	%imp	Freq.	Soil Type	Length (ft.)	Slope (ft./ft.)	Isohyet (in.)	Tc (min.)	Flow rate (cfs)	Fire Factor	Volume (cu.ft.)
TCC	A TOTAL	6.26	0.89	50-Year	10	895	0.010	5.87	10	13.52	0	107,831

**PROPOSED SUB-AREA COMPUTATIONS\*\***

Project	Subarea	Area (acres)	%imp	Freq.	Soil Type	Length (ft.)	Slope (ft./ft.)	Isohyet (in.)	Tc (min.)	Flow rate (cfs)	Fire Factor	Volume (cu.ft.)
TCC	A-1	0.61	0.83	50-Year	10	408	0.005	5.87	10	1.32	0	10,507
TCC	A-2	0.67	1.00	50-Year	10	137	0.020	5.87	10	1.45	0	11,541
TCC	A-3	0.59	0.84	50-Year	10	236	0.010	5.87	10	1.27	0	10,163
TCC	A-4	0.61	1.00	50-Year	10	137	0.020	5.87	10	1.32	0	10,507
TCC	A-5	0.70	1.00	50-Year	10	137	0.020	5.87	10	1.51	0	12,058
TCC	A-6	0.50	0.91	50-Year	10	128	0.010	5.87	10	1.08	0	8,613
TCC	A-7	0.65	1.00	50-Year	10	137	0.020	5.87	10	1.40	0	11,197
TCC	A-8	1.93	0.90	50-Year	10	530	0.010	5.87	10	4.17	0	33,245
TCC	A TOTAL	6.26								13.52		107,831

\*Total area calculation performed using the Los Angeles County HydroCalc Calculator v0.3.0-beta.

\*\*Subareas were apportioned using Section 7.4 of the Los Angeles County Hydrology Manual.

$Q_{subarea} = A_{subarea} / A_{total} \times Q_{total}$



SECTION 5.1

**HYDROGRAPH**  
**PROPOSED Q50 – EXISTING Q10**



## HYDROGRAPH AND HYETOGRAPH DATA -TORRANCE COMMERCE CENTER (50-YEAR, 24-HOUR)

Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.			
0.0	0.00	0	8.4	0.55	140	16.8	0.66	468	25.2	0.66	802	33.6	0.67	1138	42.0	0.67	1474	50.4	0.67	1812	58.8	0.67	2151	67.2	0.68	2491	75.6	0.68	2833
0.2	0.01	0	8.6	0.57	147	17.0	0.66	476	25.4	0.66	810	33.8	0.67	1146	42.2	0.67	1482	50.6	0.67	1820	59.0	0.67	2159	67.4	0.68	2499	75.8	0.68	2841
0.4	0.03	0	8.8	0.58	153	17.2	0.66	484	25.6	0.66	818	34.0	0.67	1154	42.4	0.67	1490	50.8	0.67	1828	59.2	0.67	2167	67.6	0.68	2508	76.0	0.68	2849
0.6	0.04	1	9.0	0.59	160	17.4	0.66	492	25.8	0.66	826	34.2	0.67	1162	42.6	0.67	1498	51.0	0.67	1836	59.4	0.67	2175	67.8	0.68	2516	76.2	0.68	2857
0.8	0.05	1	9.2	0.61	168	17.6	0.66	500	26.0	0.66	834	34.4	0.67	1170	42.8	0.67	1506	51.2	0.67	1844	59.6	0.67	2183	68.0	0.68	2524	76.4	0.68	2865
1.0	0.07	2	9.4	0.62	175	17.8	0.66	508	26.2	0.66	842	34.6	0.67	1178	43.0	0.67	1514	51.4	0.67	1852	59.8	0.67	2192	68.2	0.68	2532	76.6	0.68	2874
1.2	0.08	3	9.6	0.63	183	18.0	0.66	516	26.4	0.66	850	34.8	0.67	1186	43.2	0.67	1522	51.6	0.67	1860	60.0	0.67	2200	68.4	0.68	2540	76.8	0.68	2882
1.4	0.09	4	9.8	0.65	190	18.2	0.66	523	26.6	0.66	858	35.0	0.67	1194	43.4	0.67	1530	51.8	0.67	1868	60.2	0.67	2208	68.6	0.68	2548	77.0	0.68	2890
1.6	0.11	5	10.0	0.66	198	18.4	0.66	531	26.8	0.66	866	35.2	0.67	1202	43.6	0.67	1538	52.0	0.67	1877	60.4	0.67	2216	68.8	0.68	2556	77.2	0.68	2898
1.8	0.12	6	10.2	0.66	206	18.6	0.66	539	27.0	0.66	874	35.4	0.67	1210	43.8	0.67	1547	52.2	0.67	1885	60.6	0.67	2224	69.0	0.68	2564	77.4	0.68	2906
2.0	0.13	8	10.4	0.66	214	18.8	0.66	547	27.2	0.66	882	35.6	0.67	1218	44.0	0.67	1555	52.4	0.67	1893	60.8	0.67	2232	69.2	0.68	2573	77.6	0.68	2914
2.2	0.15	10	10.6	0.66	222	19.0	0.66	555	27.4	0.67	890	35.8	0.67	1226	44.2	0.67	1563	52.6	0.67	1901	61.0	0.67	2240	69.4	0.68	2581	77.8	0.68	2922
2.4	0.16	11	10.8	0.66	230	19.2	0.66	563	27.6	0.67	898	36.0	0.67	1234	44.4	0.67	1571	52.8	0.67	1909	61.2	0.67	2248	69.6	0.68	2589	78.0	0.68	2931
2.6	0.17	13	11.0	0.66	238	19.4	0.66	571	27.8	0.67	906	36.2	0.67	1242	44.6	0.67	1579	53.0	0.67	1917	61.4	0.67	2256	69.8	0.68	2597	78.2	0.68	2939
2.8	0.18	16	11.2	0.66	246	19.6	0.66	579	28.0	0.67	914	36.4	0.67	1250	44.8	0.67	1587	53.2	0.67	1925	61.6	0.67	2264	70.0	0.68	2605	78.4	0.68	2947
3.0	0.20	18	11.4	0.66	254	19.8	0.66	587	28.2	0.67	922	36.6	0.67	1258	45.0	0.67	1595	53.4	0.67	1933	61.8	0.67	2272	70.2	0.68	2613	78.6	0.68	2955
3.2	0.21	20	11.6	0.66	261	20.0	0.66	595	28.4	0.67	930	36.8	0.67	1266	45.2	0.67	1603	53.6	0.67	1941	62.0	0.67	2281	70.4	0.68	2621	78.8	0.68	2963
3.4	0.22	23	11.8	0.66	269	20.2	0.66	603	28.6	0.67	938	37.0	0.67	1274	45.4	0.67	1611	53.8	0.67	1949	62.2	0.67	2289	70.6	0.68	2629	79.0	0.68	2971
3.6	0.24	26	12.0	0.66	277	20.4	0.66	611	28.8	0.67	946	37.2	0.67	1282	45.6	0.67	1619	54.0	0.67	1957	62.4	0.67	2297	70.8	0.68	2638	79.2	0.68	2980
3.8	0.25	29	12.2	0.66	285	20.6	0.66	619	29.0	0.67	954	37.4	0.67	1290	45.8	0.67	1627	54.2	0.67	1965	62.6	0.68	2305	71.0	0.68	2646	79.4	0.68	2988
4.0	0.26	32	12.4	0.66	293	20.8	0.66	627	29.2	0.67	962	37.6	0.67	1298	46.0	0.67	1635	54.4	0.67	1973	62.8	0.68	2313	71.2	0.68	2654	79.6	0.68	2996
4.2	0.28	35	12.6	0.66	301	21.0	0.66	635	29.4	0.67	970	37.8	0.67	1306	46.2	0.67	1643	54.6	0.67	1981	63.0	0.68	2321	71.4	0.68	2662	79.8	0.68	3004
4.4	0.29	38	12.8	0.66	309	21.2	0.66	643	29.6	0.67	978	38.0	0.67	1314	46.4	0.67	1651	54.8	0.67	1989	63.2	0.68	2329	71.6	0.68	2670	80.0	0.68	3012
4.6	0.30	42	13.0	0.66	317	21.4	0.66	651	29.8	0.67	986	38.2	0.67	1322	46.6	0.67	1659	55.0	0.67	1998	63.4	0.68	2337	71.8	0.68	2678	80.2	0.68	3020
4.8	0.32	46	13.2	0.66	325	21.6	0.66	659	30.0	0.67	994	38.4	0.67	1330	46.8	0.67	1667	55.2	0.67	2006	63.6	0.68	2345	72.0	0.68	2686	80.4	0.68	3029
5.0	0.33	50	13.4	0.66	333	21.8	0.66	667	30.2	0.67	1002	38.6	0.67	1338	47.0	0.67	1675	55.4	0.67	2014	63.8	0.68	2353	72.2	0.68	2694	80.6	0.68	3037
5.2	0.34	54	13.6	0.66	341	22.0	0.66	675	30.4	0.67	1010	38.8	0.67	1346	47.2	0.67	1683	55.6	0.67	2022	64.0	0.68	2362	72.4	0.68	2703	80.8	0.68	3045
5.4	0.36	58	13.8	0.66	349	22.2	0.66	683	30.6	0.67	1018	39.0	0.67	1354	47.4	0.67	1691	55.8	0.67	2030	64.2	0.68	2370	72.6	0.68	2711	81.0	0.68	3053
5.6	0.37	62	14.0	0.66	357	22.4	0.66	691	30.8	0.67	1026	39.2	0.67	1362	47.6	0.67	1699	56.0	0.67	2038	64.4	0.68	2378	72.8	0.68	2719	81.2	0.68	3061
5.8	0.38	67	14.2	0.66	365	22.6	0.66	699	31.0	0.67	1034	39.4	0.67	1370	47.8	0.67	1707	56.2	0.67	2046	64.6	0.68	2386	73.0	0.68	2727	81.4	0.68	3069
6.0	0.40	71	14.4	0.66	373	22.8	0.66	707	31.2	0.67	1042	39.6	0.67	1378	48.0	0.67	1715	56.4	0.67	2054	64.8	0.68	2394	73.2	0.68	2735	81.6	0.68	3078
6.2	0.41	76	14.6	0.66	380	23.0	0.66	714	31.4	0.67	1050	39.8	0.67	1386	48.2	0.67	1723	56.6	0.67	2062	65.0	0.68	2402	73.4	0.68	2743	81.8	0.68	3086
6.4	0.42	81	14.8	0.66	388	23.2	0.66	722	31.6	0.67	1058	40.0	0.67	1394	48.4	0.67	1732	56.8	0.67	2070	65.2	0.68	2410	73.6	0.68	2751	82.0	0.68	3094
6.6	0.44	86	15.0	0.66	396	23.4	0.66	730	31.8	0.67	1066	40.2	0.67	1402	48.6	0.67	1740	57.0	0.67	2078	65.4	0.68	2418	73.8	0.68	2760	82.2	0.68	3102
6.8	0.45	92	15.2	0.66	404	23.6	0.66	738	32.0	0.67	1074	40.4	0.67	1410	48.8	0.67	1748	57.2	0.67	2086	65.6	0.68	2426	74.0	0.68	2768	82.4	0.68	3110
7.0	0.46	97	15.4	0.66	412	23.8	0.66	746	32.2	0.67	1082	40.6	0.67	1418	49.0	0.67	1756	57.4	0.67	2095	65.8	0.68	2435	74.2	0.68	2776	82.6	0.68	3118
7.2	0.48	103	15.6	0.66	420	24.0	0.66	754	32.4	0.67	1090	40.8	0.67	1426	49.2	0.67	1764	57.6	0.67	2103	66.0	0.68	2443	74.4	0.68	2784	82.8	0.68	3127
7.4	0.49	108	15.8	0.66	428	24.2	0.66	762	32.6	0.67	1098	41.0	0.67	1434	49.4	0.67	1772	57.8	0.67	2111	66.2	0.68	2451	74.6	0.68	2792	83.0	0.68	3135
7.6	0.50	114	16.0	0.66	436	24.4	0.66	770	32.8	0.67	1106	41.2	0.67	1442	49.6	0.67	1780	58.0	0.67	2119	66.4	0.68	2459	74.8	0.68	2800	83.2	0.68	3143
7.8	0.52	121	16.2	0.66	444	24.6	0.66	778	33.0	0.67	1114	41.4	0.67	1450	49.8	0.67	1788	58.2	0.67	2127	66.6	0.68	2467	75.0	0.68	2808	83.4	0.68	3151
8.0	0.53	127	16.4	0.66	452	24.8	0.66	786	33.2	0.67	1122	41.6	0.67	1458	50.0	0.67	1796	58.4	0.67	2135	66.8	0.68	2475	75.2	0.68	2817	83.6	0.68	3159
8.2	0.54	133	16.6	0.66	460	25.0	0.66	794	33.4	0.67	1130	41.8	0.67	1466	50.2	0.67	1804	58.6	0.67	2143	67.0	0.68	2483	75.4	0.68	2825	83.8	0.68	3167

Indicates times above allowable 50-year Q of 5.14 cfs for project site.

Note: Data generated using the Los Angeles County's HydroCalc v0.3.0-Beta



























## HYDROGRAPH AND HYETOGRAPH DATA -TORRANCE COMMERCE CENTER (50-YEAR, 24-HOUR)

Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.			
1092.0	2.55	67212	1100.4	2.72	68538	1108.8	2.93	69959	1117.2	3.21	71504	1125.6	3.59	73213	1134.0	4.17	75158	1142.4	5.25	77498	1150.8	8.79	80778	1159.2	11.43	87074	1167.6	3.20	90045
1092.2	2.55	67243	1100.6	2.72	68570	1109.0	2.94	69995	1117.4	3.22	71543	1125.8	3.60	73256	1134.2	4.19	75208	1142.6	5.29	77561	1151.0	9.04	80885	1159.4	11.27	87210	1167.8	3.17	90083
1092.4	2.55	67274	1100.8	2.73	68603	1109.2	2.94	70030	1117.6	3.23	71581	1126.0	3.61	73299	1134.4	4.21	75258	1142.8	5.32	77625	1151.2	9.32	80995	1159.6	11.09	87345	1168.0	3.14	90121
1092.6	2.56	67304	1101.0	2.73	68636	1109.4	2.95	70065	1117.8	3.23	71620	1126.2	3.63	73343	1134.6	4.22	75309	1143.0	5.36	77689	1151.4	9.65	81109	1159.8	10.90	87477	1168.2	3.11	90158
1092.8	2.56	67335	1101.2	2.74	68669	1109.6	2.96	70101	1118.0	3.24	71659	1126.4	3.64	73386	1134.8	4.24	75360	1143.2	5.40	77754	1151.6	10.07	81227	1160.0	10.70	87606	1168.4	3.08	90195
1093.0	2.57	67366	1101.4	2.74	68701	1109.8	2.96	70136	1118.2	3.25	71698	1126.6	3.65	73430	1135.0	4.26	75411	1143.4	5.45	77819	1151.8	10.64	81352	1160.2	10.48	87733	1168.6	3.05	90232
1093.2	2.57	67397	1101.6	2.75	68734	1110.0	2.97	70172	1118.4	3.26	71737	1126.8	3.66	73474	1135.2	4.28	75462	1143.6	5.49	77884	1152.0	12.11	81488	1160.4	10.25	87858	1168.8	3.02	90268
1093.4	2.57	67427	1101.8	2.75	68767	1110.2	2.97	70207	1118.6	3.27	71776	1127.0	3.67	73518	1135.4	4.30	75513	1143.8	5.53	77951	1152.2	12.81	81638	1160.6	10.00	87979	1169.0	3.00	90305
1093.6	2.58	67458	1102.0	2.76	68800	1110.4	2.98	70243	1118.8	3.27	71815	1127.2	3.68	73562	1135.6	4.32	75565	1144.0	5.58	78017	1152.4	13.05	81793	1160.8	9.73	88098	1169.2	2.97	90340
1093.8	2.58	67489	1102.2	2.76	68833	1110.6	2.99	70279	1119.0	3.28	71855	1127.4	3.70	73606	1135.8	4.34	75617	1144.2	5.62	78084	1152.6	13.20	81950	1161.0	9.43	88212	1169.4	2.95	90376
1094.0	2.58	67520	1102.4	2.76	68867	1110.8	2.99	70315	1119.2	3.29	71894	1127.6	3.71	73651	1136.0	4.36	75669	1144.4	5.67	78152	1152.8	13.31	82109	1161.2	9.09	88324	1169.6	2.92	90411
1094.2	2.59	67551	1102.6	2.77	68900	1111.0	3.00	70351	1119.4	3.30	71934	1127.8	3.72	73695	1136.2	4.38	75722	1144.6	5.72	78221	1153.0	13.39	82270	1161.4	8.70	88430	1169.8	2.90	90446
1094.4	2.59	67582	1102.8	2.77	68933	1111.2	3.00	70387	1119.6	3.31	71973	1128.0	3.73	73740	1136.4	4.41	75775	1144.8	5.77	78289	1153.2	13.44	82430	1161.6	8.23	88532	1170.0	2.88	90481
1094.6	2.60	67613	1103.0	2.78	68966	1111.4	3.01	70423	1119.8	3.31	72013	1128.2	3.74	73785	1136.6	4.43	75828	1145.0	5.82	78359	1153.4	13.48	82592	1161.8	7.61	88627	1170.2	2.86	90515
1094.8	2.60	67645	1103.2	2.78	69000	1111.6	3.02	70459	1120.0	3.32	72053	1128.4	3.76	73830	1136.8	4.45	75881	1145.2	5.87	78429	1153.6	13.51	82754	1162.0	6.12	88709	1170.4	2.83	90549
1095.0	2.60	67676	1103.4	2.79	69033	1111.8	3.02	70495	1120.2	3.33	72093	1128.6	3.77	73875	1137.0	4.47	75934	1145.4	5.93	78500	1153.8	13.52	82916	1162.2	5.38	88778	1170.6	2.81	90583
1095.2	2.61	67707	1103.6	2.79	69067	1112.0	3.03	70532	1120.4	3.34	72133	1128.8	3.78	73920	1137.2	4.49	75988	1145.6	5.98	78571	1154.0	13.53	83078	1162.4	5.10	88841	1170.8	2.79	90617
1095.4	2.61	67738	1103.8	2.80	69100	1112.2	3.04	70568	1120.6	3.35	72173	1129.0	3.79	73966	1137.4	4.52	76042	1145.8	6.04	78644	1154.2	13.52	83241	1162.6	4.89	88901	1171.0	2.77	90650
1095.6	2.62	67770	1104.0	2.80	69134	1112.4	3.04	70604	1120.8	3.36	72213	1129.2	3.81	74011	1137.6	4.54	76096	1146.0	6.10	78717	1154.4	13.51	83403	1162.8	4.72	88959	1171.2	2.75	90683
1095.8	2.62	67801	1104.2	2.81	69168	1112.6	3.05	70641	1121.0	3.37	72253	1129.4	3.82	74057	1137.8	4.56	76151	1146.2	6.16	78790	1154.6	13.49	83565	1163.0	4.58	89014	1171.4	2.73	90716
1096.0	2.62	67833	1104.4	2.81	69201	1112.8	3.05	70678	1121.2	3.38	72294	1129.6	3.83	74103	1138.0	4.59	76206	1146.4	6.23	78864	1154.8	13.46	83727	1163.2	4.45	89069	1171.6	2.71	90749
1096.2	2.63	67864	1104.6	2.82	69235	1113.0	3.06	70714	1121.4	3.38	72334	1129.8	3.85	74149	1138.2	4.61	76261	1146.6	6.30	78940	1155.0	13.43	83888	1163.4	4.34	89121	1171.8	2.70	90781
1096.4	2.63	67896	1104.8	2.82	69269	1113.2	3.07	70751	1121.6	3.39	72375	1130.0	3.86	74195	1138.4	4.64	76317	1146.8	6.36	79016	1155.2	13.39	84049	1163.6	4.24	89173	1172.0	2.68	90814
1096.6	2.64	67927	1105.0	2.83	69303	1113.4	3.07	70788	1121.8	3.40	72416	1130.2	3.87	74242	1138.6	4.66	76372	1147.0	6.44	79092	1155.4	13.35	84209	1163.8	4.15	89223	1172.2	2.66	90846
1096.8	2.64	67959	1105.2	2.83	69337	1113.6	3.08	70825	1122.0	3.41	72457	1130.4	3.89	74288	1138.8	4.69	76429	1147.2	6.51	79170	1155.6	13.30	84369	1164.0	4.07	89273	1172.4	2.64	90877
1097.0	2.64	67991	1105.4	2.84	69371	1113.8	3.09	70862	1122.2	3.42	72498	1130.6	3.90	74335	1139.0	4.71	76485	1147.4	6.59	79249	1155.8	13.24	84528	1164.2	4.00	89321	1172.6	2.63	90909
1097.2	2.65	68022	1105.6	2.84	69405	1114.0	3.10	70899	1122.4	3.43	72539	1130.8	3.92	74382	1139.2	4.74	76542	1147.6	6.67	79328	1156.0	13.18	84687	1164.4	3.93	89369	1172.8	2.61	90940
1097.4	2.65	68054	1105.8	2.85	69439	1114.2	3.10	70936	1122.6	3.44	72580	1131.0	3.93	74429	1139.4	4.77	76599	1147.8	6.75	79409	1156.2	13.11	84845	1164.6	3.86	89416	1173.0	2.59	90972
1097.6	2.66	68086	1106.0	2.86	69473	1114.4	3.11	70973	1122.8	3.45	72622	1131.2	3.95	74476	1139.6	4.80	76656	1148.0	6.84	79490	1156.4	13.04	85002	1164.8	3.80	89462	1173.2	2.58	91003
1097.8	2.66	68118	1106.2	2.86	69508	1114.6	3.12	71011	1123.0	3.46	72663	1131.4	3.96	74524	1139.8	4.82	76714	1148.2	6.93	79573	1156.6	12.96	85158	1165.0	3.75	89507	1173.4	2.56	91034
1098.0	2.67	68150	1106.4	2.87	69542	1114.8	3.12	71048	1123.2	3.47	72705	1131.6	3.98	74572	1140.0	4.85	76772	1148.4	7.03	79657	1156.8	12.88	85313	1165.2	3.69	89551	1173.6	2.55	91064
1098.2	2.67	68182	1106.6	2.87	69576	1115.0	3.13	71086	1123.4	3.48	72746	1131.8	3.99	74619	1140.2	4.88	76830	1148.6	7.13	79742	1157.0	12.79	85467	1165.4	3.64	89595	1173.8	2.53	91095
1098.4	2.67	68214	1106.8	2.88	69611	1115.2	3.14	71123	1123.6	3.49	72788	1132.0	4.01	74667	1140.4	4.91	76889	1148.8	7.24	79828	1157.2	12.70	85620	1165.6	3.59	89639	1174.0	2.52	91125
1098.6	2.68	68246	1107.0	2.88	69645	1115.4	3.14	71161	1123.8	3.50	72830	1132.2	4.02	74715	1140.6	4.94	76948	1149.0	7.35	79915	1157.4	12.60	85771	1165.8	3.54	89682	1174.2	2.50	91155
1098.8	2.68	68278	1107.2	2.89	69680	1115.6	3.15	71199	1124.0	3.51	72872	1132.4	4.04	74764	1140.8	4.97	77008	1149.2	7.47	80004	1157.6	12.50	85922	1166.0	3.50	89724	1174.4	2.49	91185
1099.0	2.69	68311	1107.4	2.89	69715	1115.8	3.16	71237	1124.2	3.52	72914	1132.6	4.05	74812	1141.0	5.01	77068	1149.4	7.60	80095	1157.8	12.39	86071	1166.2	3.46	89766	1174.6	2.47	91215
1099.2	2.69	68343	1107.6	2.90	69750	1116.0	3.17	71275	1124.4	3.53	72956	1132.8	4.07	74861	1141.2	5.04	77128	1149.6	7.73	80187	1158.0	12.27	86219	1166.4	3.41	89807	1174.8	2.46	91244
1099.4	2.70	68375	1107.8	2.90	69784	1116.2	3.17	71313	1124.6	3.54	72999	1133.0	4.09	74910	1141.4	5.07	77189	1149.8	7.87	80280	1158.2	12.15	86366	1166.6	3.37	89848	1175.0	2.45	91274
1099.6	2.70	68408	1108.0	2.91	69819	1116.4	3.18	71351	1124.8	3.55	73041	1133.2	4.10	74959	1141.6	5.11	77250	1150.0	8.03	80376	1158.4	12.02	86511	1166.8	3.34	89888	1175.2	2.43	91303
1099.8	2.70	68440	1108.2	2.92	69854	1116.6	3.19	71389	1125.0																				

## HYDROGRAPH AND HYETOGRAPH DATA -TORRANCE COMMERCE CENTER (50-YEAR, 24-HOUR)

Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.			
1176.0	2.38	91419	1184.4	2.00	92514	1192.8	1.76	93457	1201.2	1.59	94300	1209.6	1.47	95069	1218.0	1.37	95782	1226.4	1.29	96451	1234.8	1.22	97082	1243.2	1.16	97682	1251.6	1.11	98255
1176.2	2.37	91447	1184.6	1.99	92538	1193.0	1.75	93478	1201.4	1.59	94319	1209.8	1.46	95087	1218.2	1.37	95799	1226.6	1.29	96466	1235.0	1.22	97097	1243.4	1.16	97696	1251.8	1.11	98268
1176.4	2.36	91476	1184.8	1.98	92562	1193.2	1.75	93499	1201.6	1.59	94338	1210.0	1.46	95104	1218.4	1.36	95815	1226.8	1.28	96482	1235.2	1.22	97111	1243.6	1.16	97710	1252.0	1.11	98281
1176.6	2.35	91504	1185.0	1.98	92586	1193.4	1.75	93520	1201.8	1.58	94357	1210.2	1.46	95122	1218.6	1.36	95832	1227.0	1.28	96497	1235.4	1.22	97126	1243.8	1.16	97724	1252.2	1.11	98295
1176.8	2.34	91532	1185.2	1.97	92609	1193.6	1.74	93541	1202.0	1.58	94376	1210.4	1.46	95139	1218.8	1.36	95848	1227.2	1.28	96512	1235.6	1.21	97140	1244.0	1.16	97737	1252.4	1.11	98308
1177.0	2.33	91560	1185.4	1.96	92633	1193.8	1.74	93562	1202.2	1.58	94395	1210.6	1.45	95157	1219.0	1.36	95864	1227.4	1.28	96528	1235.8	1.21	97155	1244.2	1.16	97751	1252.6	1.11	98321
1177.2	2.31	91588	1185.6	1.96	92657	1194.0	1.73	93583	1202.4	1.57	94414	1210.8	1.45	95174	1219.2	1.36	95880	1227.6	1.28	96543	1236.0	1.21	97169	1244.4	1.15	97765	1252.8	1.11	98334
1177.4	2.30	91616	1185.8	1.95	92680	1194.2	1.73	93604	1202.6	1.57	94432	1211.0	1.45	95192	1219.4	1.35	95897	1227.8	1.27	96558	1236.2	1.21	97184	1244.6	1.15	97779	1253.0	1.10	98348
1177.6	2.29	91643	1186.0	1.95	92703	1194.4	1.72	93624	1202.8	1.57	94451	1211.2	1.45	95209	1219.6	1.35	95913	1228.0	1.27	96574	1236.4	1.21	97198	1244.8	1.15	97793	1253.2	1.10	98361
1177.8	2.28	91671	1186.2	1.94	92727	1194.6	1.72	93645	1203.0	1.56	94470	1211.4	1.44	95226	1219.8	1.35	95929	1228.2	1.27	96589	1236.6	1.21	97213	1245.0	1.15	97807	1253.4	1.10	98374
1178.0	2.27	91698	1186.4	1.93	92750	1194.8	1.71	93666	1203.2	1.56	94489	1211.6	1.44	95244	1220.0	1.35	95945	1228.4	1.27	96604	1236.8	1.21	97227	1245.2	1.15	97820	1253.6	1.10	98387
1178.2	2.26	91725	1186.6	1.93	92773	1195.0	1.71	93686	1203.4	1.56	94507	1211.8	1.44	95261	1220.2	1.35	95961	1228.6	1.27	96619	1237.0	1.20	97242	1245.4	1.15	97834	1253.8	1.10	98401
1178.4	2.25	91752	1186.8	1.92	92796	1195.2	1.71	93707	1203.6	1.55	94526	1212.0	1.44	95278	1220.4	1.34	95978	1228.8	1.27	96635	1237.2	1.20	97256	1245.6	1.15	97848	1254.0	1.10	98414
1178.6	2.24	91779	1187.0	1.91	92819	1195.4	1.70	93727	1203.8	1.55	94545	1212.2	1.43	95295	1220.6	1.34	95994	1229.0	1.26	96650	1237.4	1.20	97271	1245.8	1.15	97862	1254.2	1.10	98427
1178.8	2.23	91806	1187.2	1.91	92842	1195.6	1.70	93747	1204.0	1.55	94563	1212.4	1.43	95313	1220.8	1.34	96010	1229.2	1.26	96665	1237.6	1.20	97285	1246.0	1.14	97876	1254.4	1.10	98440
1179.0	2.22	91833	1187.4	1.90	92865	1195.8	1.69	93768	1204.2	1.54	94582	1212.6	1.43	95330	1221.0	1.34	96026	1229.4	1.26	96680	1237.8	1.20	97300	1246.2	1.14	97889	1254.6	1.10	98453
1179.2	2.21	91859	1187.6	1.90	92888	1196.0	1.69	93788	1204.4	1.54	94600	1212.8	1.43	95347	1221.2	1.34	96042	1229.6	1.26	96695	1238.0	1.20	97314	1246.4	1.14	97903	1254.8	1.10	98466
1179.4	2.20	91886	1187.8	1.89	92910	1196.2	1.69	93808	1204.6	1.54	94619	1213.0	1.42	95364	1221.4	1.33	96058	1229.8	1.26	96710	1238.2	1.20	97328	1246.6	1.14	97917	1255.0	1.09	98480
1179.6	2.19	91912	1188.0	1.88	92933	1196.4	1.68	93829	1204.8	1.53	94637	1213.2	1.42	95381	1221.6	1.33	96074	1230.0	1.26	96725	1238.4	1.19	97343	1246.8	1.14	97930	1255.2	1.09	98493
1179.8	2.18	91938	1188.2	1.88	92956	1196.6	1.68	93849	1205.0	1.53	94656	1213.4	1.42	95398	1221.8	1.33	96090	1230.2	1.26	96741	1238.6	1.19	97357	1247.0	1.14	97944	1255.4	1.09	98506
1180.0	2.17	91964	1188.4	1.87	92978	1196.8	1.67	93869	1205.2	1.53	94674	1213.6	1.42	95415	1222.0	1.33	96106	1230.4	1.25	96756	1238.8	1.19	97371	1247.2	1.14	97958	1255.6	1.09	98519
1180.2	2.16	91990	1188.6	1.87	93001	1197.0	1.67	93889	1205.4	1.53	94692	1213.8	1.41	95432	1222.2	1.33	96122	1230.6	1.25	96771	1239.0	1.19	97385	1247.4	1.14	97971	1255.8	1.09	98532
1180.4	2.16	92016	1188.8	1.86	93023	1197.2	1.67	93909	1205.6	1.52	94711	1214.0	1.41	95449	1222.4	1.32	96138	1230.8	1.25	96786	1239.2	1.19	97400	1247.6	1.14	97985	1256.0	1.09	98545
1180.6	2.15	92042	1189.0	1.86	93045	1197.4	1.66	93929	1205.8	1.52	94729	1214.2	1.41	95466	1222.6	1.32	96153	1231.0	1.25	96801	1239.4	1.19	97414	1247.8	1.13	97999	1256.2	1.09	98558
1180.8	2.14	92068	1189.2	1.85	93067	1197.6	1.66	93949	1206.0	1.52	94747	1214.4	1.41	95483	1222.8	1.32	96169	1231.2	1.25	96816	1239.6	1.19	97428	1248.0	1.13	98012	1256.4	1.09	98571
1181.0	2.13	92094	1189.4	1.84	93090	1197.8	1.65	93969	1206.2	1.51	94765	1214.6	1.41	95500	1223.0	1.32	96185	1231.4	1.25	96831	1239.8	1.18	97442	1248.2	1.13	98026	1256.6	1.09	98584
1181.2	2.12	92119	1189.6	1.84	93112	1198.0	1.65	93988	1206.4	1.51	94783	1214.8	1.40	95517	1223.2	1.32	96201	1231.6	1.24	96845	1240.0	1.18	97457	1248.4	1.13	98039	1256.8	1.08	98597
1181.4	2.11	92144	1189.8	1.83	93134	1198.2	1.65	94008	1206.6	1.51	94801	1215.0	1.40	95533	1223.4	1.31	96217	1231.8	1.24	96860	1240.2	1.18	97471	1248.6	1.13	98053	1257.0	1.08	98610
1181.6	2.10	92170	1190.0	1.83	93156	1198.4	1.64	94028	1206.8	1.51	94820	1215.2	1.40	95550	1223.6	1.31	96232	1232.0	1.24	96875	1240.4	1.18	97485	1248.8	1.13	98066	1257.2	1.08	98623
1181.8	2.10	92195	1190.2	1.82	93178	1198.6	1.64	94048	1207.0	1.50	94838	1215.4	1.40	95567	1223.8	1.31	96248	1232.2	1.24	96890	1240.6	1.18	97499	1249.0	1.13	98080	1257.4	1.08	98636
1182.0	2.09	92220	1190.4	1.82	93200	1198.8	1.63	94067	1207.2	1.50	94856	1215.6	1.39	95584	1224.0	1.31	96264	1232.4	1.24	96905	1240.8	1.18	97513	1249.2	1.13	98093	1257.6	1.08	98649
1182.2	2.08	92245	1190.6	1.81	93221	1199.0	1.63	94087	1207.4	1.50	94874	1215.8	1.39	95600	1224.2	1.31	96280	1232.6	1.24	96920	1241.0	1.18	97527	1249.4	1.12	98107	1257.8	1.08	98662
1182.4	2.07	92270	1190.8	1.81	93243	1199.2	1.63	94106	1207.6	1.49	94892	1216.0	1.39	95617	1224.4	1.30	96295	1232.8	1.23	96935	1241.2	1.17	97542	1249.6	1.12	98120	1258.0	1.08	98675
1182.6	2.06	92295	1191.0	1.80	93265	1199.4	1.62	94126	1207.8	1.49	94909	1216.2	1.39	95634	1224.6	1.30	96311	1233.0	1.23	96950	1241.4	1.17	97556	1249.8	1.12	98134	1258.2	1.08	98688
1182.8	2.06	92320	1191.2	1.80	93286	1199.6	1.62	94145	1208.0	1.49	94927	1216.4	1.38	95650	1224.8	1.30	96327	1233.2	1.23	96964	1241.6	1.17	97570	1250.0	1.12	98147	1258.4	1.08	98701
1183.0	2.05	92344	1191.4	1.79	93308	1199.8	1.62	94165	1208.2	1.49	94945	1216.6	1.38	95667	1225.0	1.30	96342	1233.4	1.23	96979	1241.8	1.17	97584	1250.2	1.12	98161	1258.6	1.08	98714
1183.2	2.04	92369	1191.6	1.79	93329	1200.0	1.61	94184	1208.4	1.48	94963	1216.8	1.38	95684	1225.2	1.30	96358	1233.6	1.23	96994	1242.0	1.17	97598	1250.4	1.12	98174	1258.8	1.07	98727
1183.4	2.03	92393	1191.8	1.78	93351	1200.2	1.61	94204	1208.6	1.48	94981	1217.0	1.38	95700	1225.4	1.30	96373	1233.8	1.23	97009	1242.2	1.17	97612	1250.6	1.12	98188	1259.0	1.07	98740
1183.6	2.03	92418	1192.0	1.78	93372	1200.4	1.61	94223	1208.8	1.48	94998	1217.2	1.38	95717	1225.6	1.29	96389	1234.0	1.23	97023	1242.4	1.17	97626	1250.8	1.12	98201	1259.2	1.07	98753
1183.8	2.02	92442	1192.2	1.77	93394	1200.6	1.60	94242	1209.0	1.47	95016	1217.4	1.37	957															







## HYDROGRAPH AND HYETOGRAPH DATA -TORRANCE COMMERCE CENTER (50-YEAR, 24-HOUR)

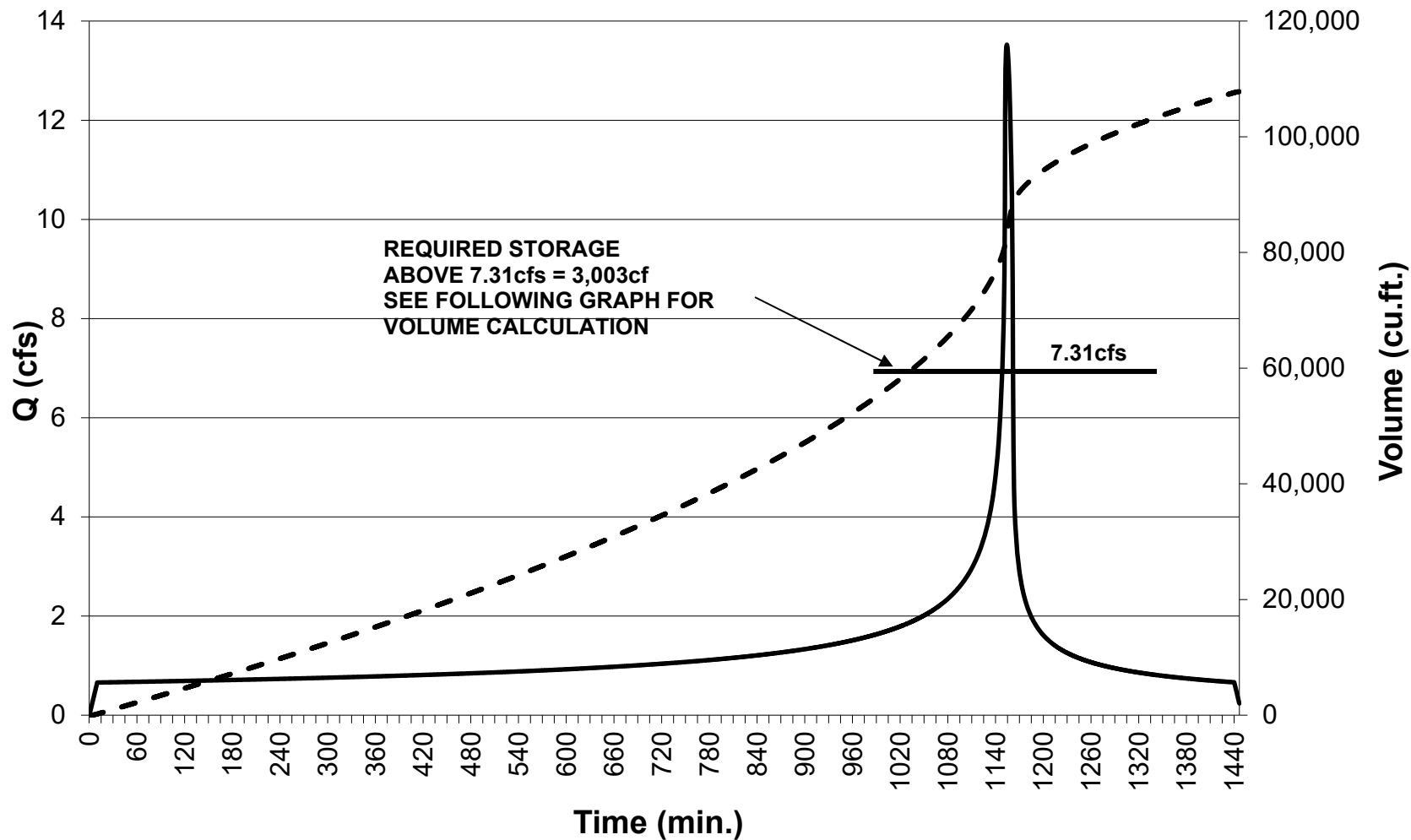
Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.	Time min.	Q cfs	Vol. cu.ft.
1428.0	0.68	#####	1436.4	0.67	#####	1444.8	0.34	#####
1428.2	0.68	#####	1436.6	0.67	#####	1445.0	0.33	#####
1428.4	0.68	#####	1436.8	0.67	#####	1445.2	0.32	#####
1428.6	0.68	#####	1437.0	0.67	#####	1445.4	0.30	#####
1428.8	0.68	#####	1437.2	0.67	#####	1445.6	0.29	#####
1429.0	0.68	#####	1437.4	0.67	#####	1445.8	0.28	#####
1429.2	0.68	#####	1437.6	0.67	#####	1446.0	0.26	#####
1429.4	0.68	#####	1437.8	0.67	#####	1446.2	0.25	#####
1429.6	0.68	#####	1438.0	0.67	#####	1446.4	0.24	#####
1429.8	0.68	#####	1438.2	0.67	#####	1446.6	0.22	#####
1430.0	0.68	#####	1438.4	0.67	#####	1446.8	0.21	#####
1430.2	0.68	#####	1438.6	0.67	#####	1447.0	0.20	#####
1430.4	0.68	#####	1438.8	0.67	#####	1447.2	0.18	#####
1430.6	0.68	#####	1439.0	0.67	#####	1447.4	0.17	#####
1430.8	0.67	#####	1439.2	0.67	#####	1447.6	0.16	#####
1431.0	0.67	#####	1439.4	0.67	#####	1447.8	0.15	#####
1431.2	0.67	#####	1439.6	0.66	#####	1448.0	0.13	#####
1431.4	0.67	#####	1439.8	0.66	#####	1448.2	0.12	#####
1431.6	0.67	#####	1440.0	0.66	#####	1448.4	0.11	#####
1431.8	0.67	#####	1440.2	0.65	#####	1448.6	0.09	#####
1432.0	0.67	#####	1440.4	0.64	#####	1448.8	0.08	#####
1432.2	0.67	#####	1440.6	0.62	#####	1449.0	0.07	#####
1432.4	0.67	#####	1440.8	0.61	#####	1449.2	0.05	#####
1432.6	0.67	#####	1441.0	0.60	#####	1449.4	0.04	#####
1432.8	0.67	#####	1441.2	0.58	#####	1449.6	0.03	#####
1433.0	0.67	#####	1441.4	0.57	#####	1449.8	0.01	#####
1433.2	0.67	#####	1441.6	0.56	#####	1450.0	0.00	#####
1433.4	0.67	#####	1441.8	0.54	#####	0.0	0.00	0
1433.6	0.67	#####	1442.0	0.53	#####	0.0	0.00	0
1433.8	0.67	#####	1442.2	0.52	#####	0.0	0.00	0
1434.0	0.67	#####	1442.4	0.50	#####	0.0	0.00	0
1434.2	0.67	#####	1442.6	0.49	#####	0.0	0.00	0
1434.4	0.67	#####	1442.8	0.48	#####	0.0	0.00	0
1434.6	0.67	#####	1443.0	0.46	#####	0.0	0.00	0
1434.8	0.67	#####	1443.2	0.45	#####	0.0	0.00	0
1435.0	0.67	#####	1443.4	0.44	#####	0.0	0.00	0
1435.2	0.67	#####	1443.6	0.42	#####	0.0	0.00	0
1435.4	0.67	#####	1443.8	0.41	#####	0.0	0.00	0
1435.6	0.67	#####	1444.0	0.40	#####	0.0	0.00	0
1435.8	0.67	#####	1444.2	0.38	#####	0.0	0.00	0
1436.0	0.67	#####	1444.4	0.37	#####	0.0	0.00	0
1436.2	0.67	#####	1444.6	0.36	#####	0.0	0.00	0

Indicates times above allowable 50-year Q of 5.14 cfs for project site.

Note: Data generated using the Los Angeles County's HydroCalc v0.3.0-Beta

# HYDROGRAPH (50-YEAR, 24 HOUR)

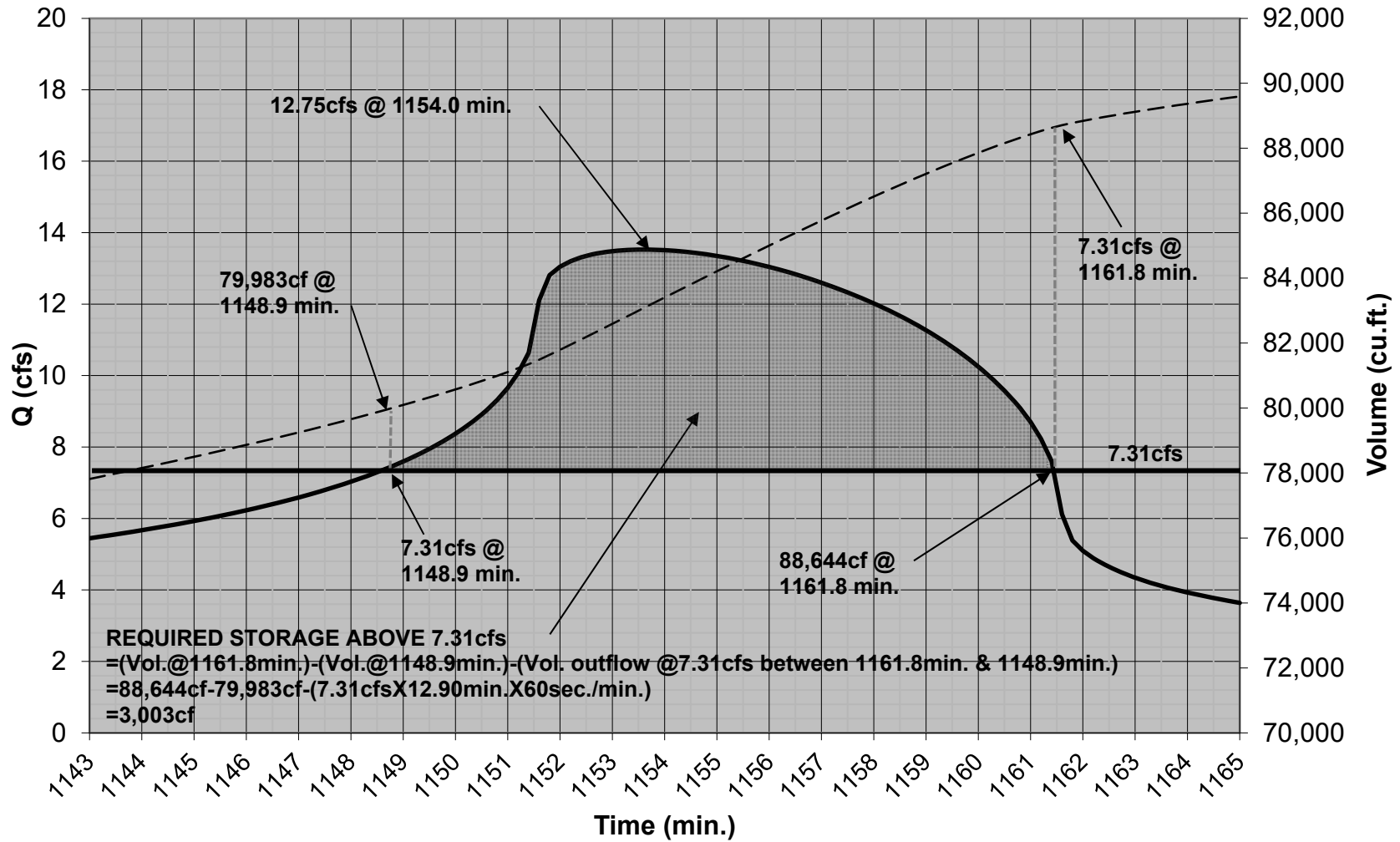
— Hydrograph Q50, 24-Hour (cfs)  
- - Hyetograph 4th Day, 50Y (cu.ft.)



Note: Graph generated using the Los Angeles County's HydroCalc v0.3.0-Beta

# HYDROGRAPH ABOVE ALLOWABLE Q

— Hydrograph Q50, 24-Hour (cfs)  
 - - - Hyetograph 4th Day, 50Y (cu. Ft.)



Note: Graph generated using the Los Angeles County's HydroCalc v0.3.0-Beta



## SECTION 5.2

### **HYDRAULIC CALCULATIONS** **INLET SIZING (50-YEAR)**

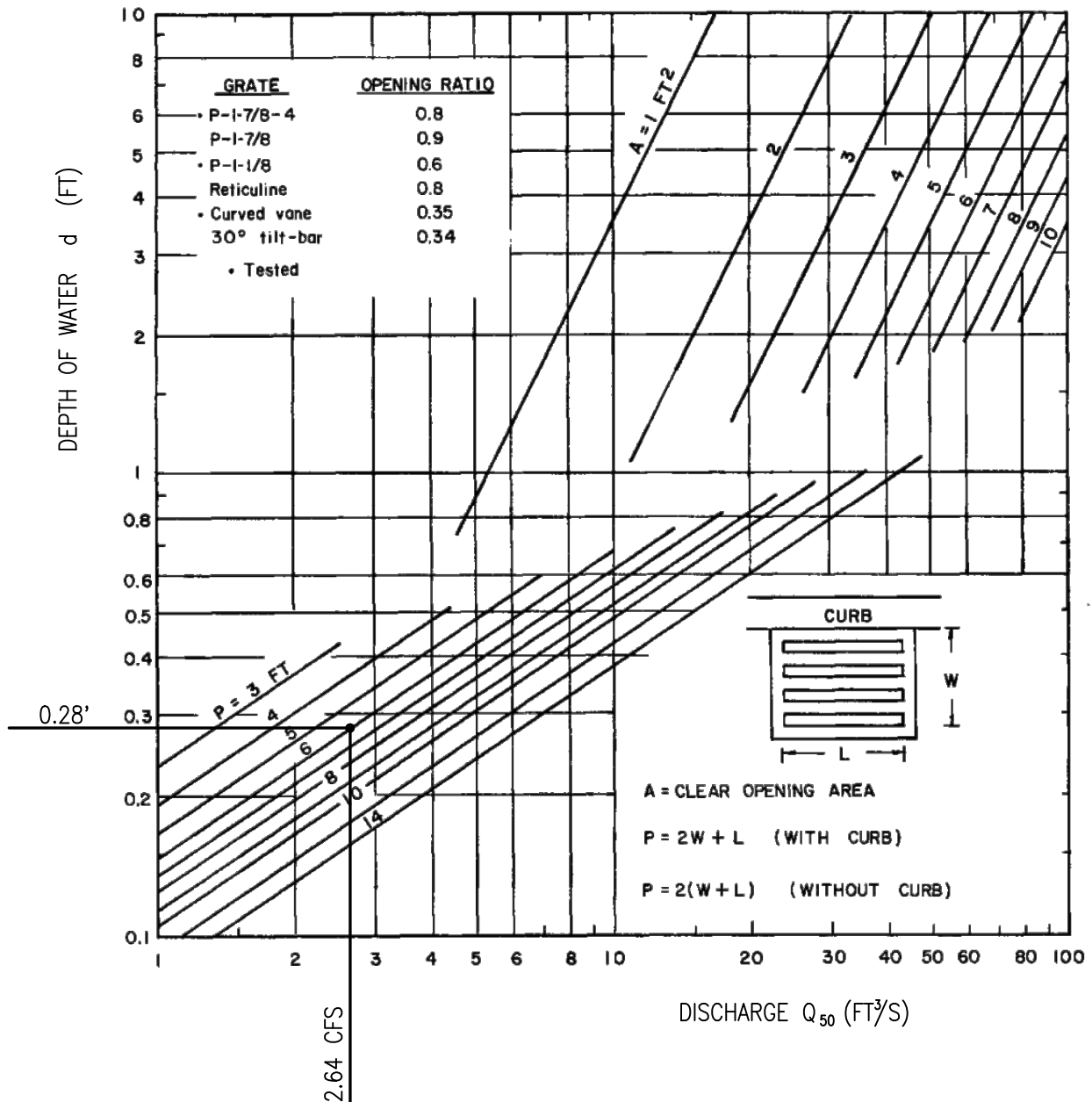
# 24" X 24" GRATED INLET FOR AREAS A-1, A-3 AND A-6

$Q_{50} = 1.32$  CFS (A-1),  $1.27$  CFS (A-3) AND  $1.08$  CFS (A-6)

$P = 2W + L = 6'$

$Q \times 2 = 1.32$  CFS  $\times 2 = 2.64$  CFS (CLOGGING ASSUMPTION)

**RESULT: 0.28' WHICH IS LESS THAN THE TOP OF A 6-INCH CURB AND THE NEAREST SPILL OVER DEPTH OF  $\pm 0.55'$  HIGHER, THEREFORE OK**



NOTE: TABLE ASSUMES NO CLOGGING



2552 WHITE RD., SUITE B, IRVINE, CA 92614  
 (949) 660-0110 FAX: 660-0418

## GRATE INLET CAPACITY IN SUMP CONDITION

SOURCE: U.S. DEPARTMENT OF TRANSPORTATION, HEC-22, CHART 9B

## 2-12"X12" GRATED INLET FOR AREA A-2, A-4\*, A-5\* AND A-7\*

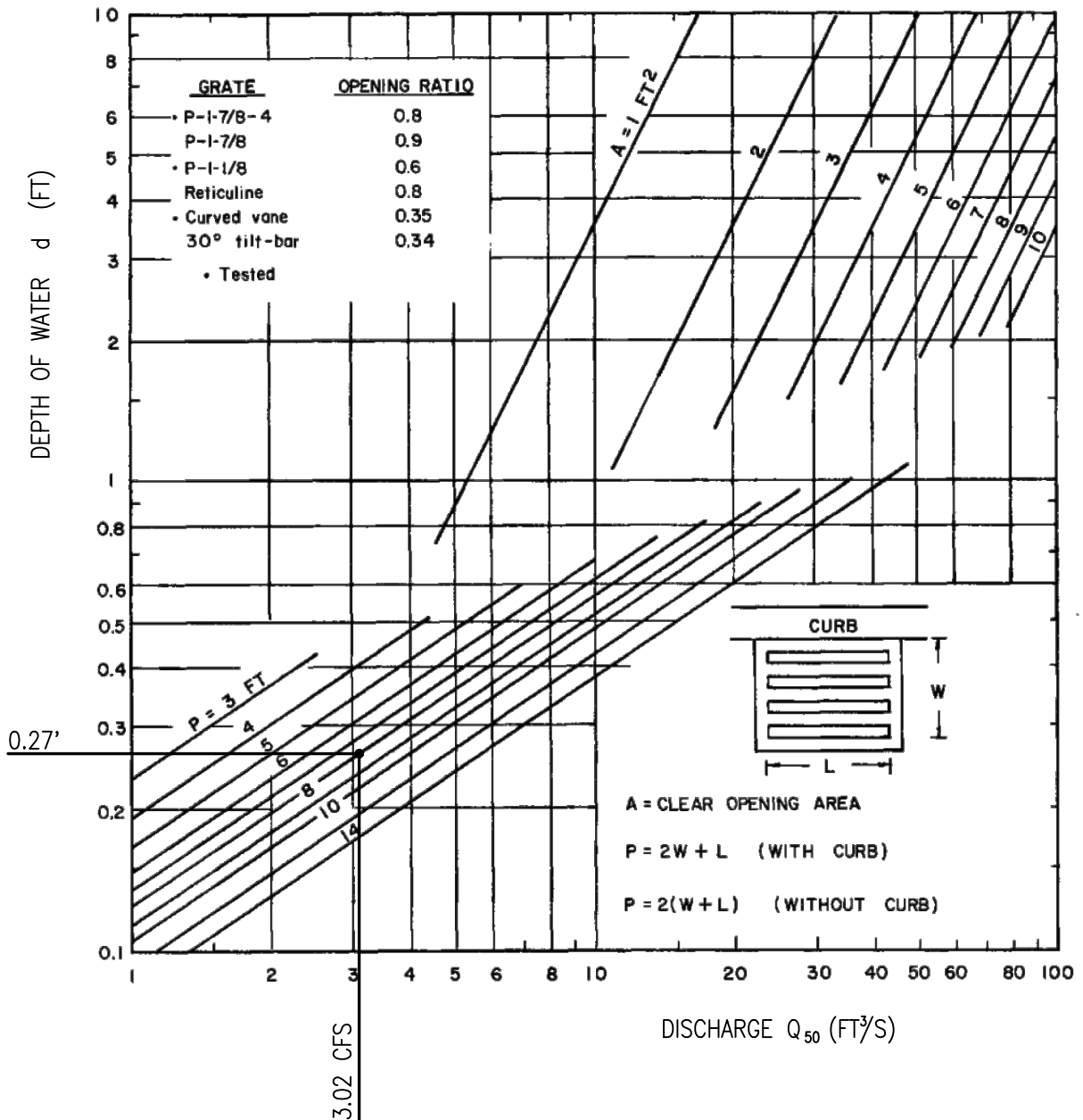
$Q_{50} = 1.45$  CFS (A-2), 1.32 CFS (A-4), 1.51 CFS (A-5) AND 1.40 CFS (A-7)

$P = 2 \times 2(W+L) = 8'$

$Q \times 2 = 1.51$  CFS  $\times 2 = 3.02$  CFS (CLOGGING ASSUMPTION)

**RESULT: 0.27' WHICH IS LESS THAN SPILL OVER DEPTH  $\pm 1.0'$  HIGHER, THEREFORE OK**

**\*A-4, A-5 AND A-7 HAVE THREE (3) INLETS, SO DEPTH WILL BE LOWER**



NOTE: TABLE ASSUMES NO CLOGGING



**WALDEN &  
ASSOCIATES**

2552 WHITE RD., SUITE B, IRVINE, CA 92614  
(949) 660-0110 FAX: 660-0418

**GRATE INLET CAPACITY  
IN SUMP CONDITION**

SOURCE: U.S. DEPARTMENT OF TRANSPORTATION, HEC-22, CHART 9B

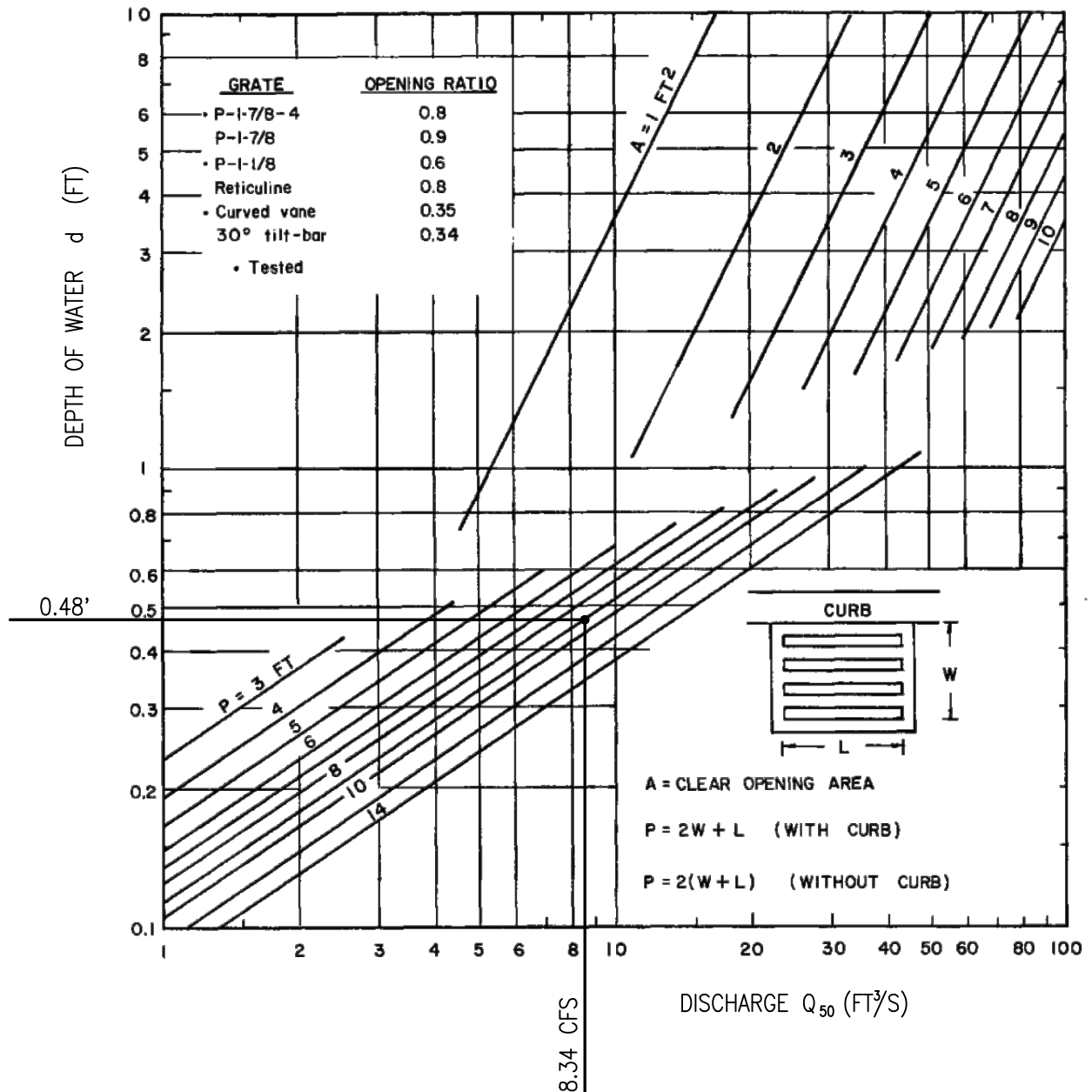
# 36" X 36" GRATED INLET FOR AREA A-8

$Q_{50} = 4.17$  CFS

$P = 2W + L = 9'$

$Q \times 2 = 4.17$  CFS  $\times 2 = 8.34$  CFS (CLOGGING ASSUMPTION)

**RESULT: 0.48' WHICH IS LESS THAN THE TOP OF A 6-INCH CURB AND THE NEAREST SPILL OVER DEPTH OF  $\pm 0.54'$  HIGHER, THEREFORE OK**



NOTE: TABLE ASSUMES NO CLOGGING



**WALDEN &  
ASSOCIATES**

2552 WHITE RD., SUITE B, IRVINE, CA 92614  
(949) 660-0110 FAX: 660-0418

**GRATE INLET CAPACITY  
IN SUMP CONDITION**

SOURCE: U.S. DEPARTMENT OF TRANSPORTATION, HEC-22, CHART 9B





SECTION 5.3

**HYDRAULIC - WSPG**  
**10-YEAR**





U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H
	1758.460	57.940	1		.013				44.996	-90.000	.000	0

W S P G W

PAGE NO 3

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	11	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT				RADIUS	ANGLE	ANG PT	MAN H		
			2026.460	58.480	1				.000	.000	.000	0		
ELEMENT NO	12	IS A JUNCTION	*	*	*	*	*	*	*	*	*	*		
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			2032.710	58.490	4	4	0	.013	28.000	.000	58.620	.000	30.000	.000
											RADIUS	ANGLE		
											22.501	-15.915		
ELEMENT NO	13	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			2068.260	58.600	4			.013			22.500	-90.527	.000	0
ELEMENT NO	14	IS A REACH	*	*	*									
		U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			2267.230	59.000	4			.013			.000	.000	.000	0
ELEMENT NO	15	IS A SYSTEM HEADWORKS			*				*					
		U/S DATA	STATION	INVERT	SECT						W S ELEV			
			2267.230	59.000	4						59.000			

EX SD JOIN TO NEW SD  
2089-940-001

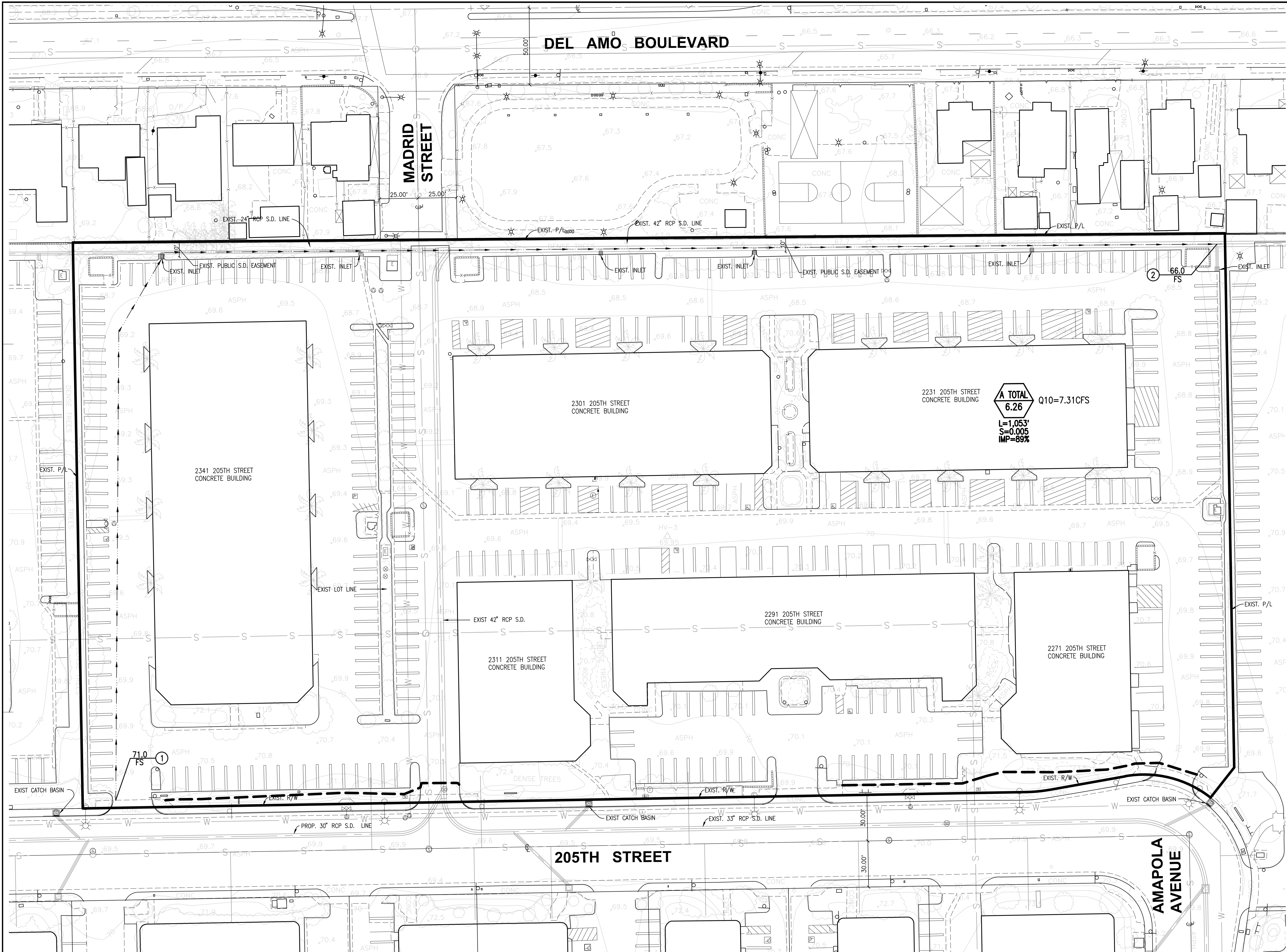
CITY OF TORRANCE 205TH STREET

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1000.000	55.300	3.000	58.300	86.31	9.83	1.50	59.80	.00	2.89	2.45	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.060	.0049					.0068	.01	3.00	.92	3.50	.013	.00	.00	PIPE
1002.060	55.310	3.023	58.333	86.31	9.77	1.48	59.82	.00	2.89	2.40	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.0051					.0065	.03	3.02	.90		.013	.00	.00	PIPE
1005.980	55.330	3.683	59.013	79.00	8.21	1.05	60.06	.00	2.78	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
494.010	.0040					.0062	3.05	3.68	.00	3.50	.013	.00	.00	PIPE
1499.990	57.300	4.759	62.059	79.00	8.21	1.05	63.11	.00	2.78	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.0255					.0054	.03	4.76	.00		.013	.00	.00	PIPE
1505.490	57.440	5.057	62.497	69.00	7.17	.80	63.30	.00	2.60	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.420	.0016					.0047	.03	5.06	.00	3.50	.013	.00	.00	PIPE
1511.910	57.450	5.219	62.669	69.00	7.17	.80	63.47	.00	2.60	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.520	-.0007					.0047	.07	.00	.00	.00	.013	.00	.00	PIPE
1526.430	57.440	5.400	62.840	69.00	7.17	.80	63.64	.00	2.60	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.690	.0014					.0047	.13	.00	.00	3.50	.013	.00	.00	PIPE
1555.120	57.480	5.653	63.133	69.00	7.17	.80	63.93	.00	2.60	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
132.660	.0024					.0047	.62	5.65	.00	3.50	.013	.00	.00	PIPE
1687.780	57.800	5.957	63.757	69.00	7.17	.80	64.56	.00	2.60	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70.680	.0020					.0047	.33	.00	.00	3.50	.013	.00	.00	PIPE



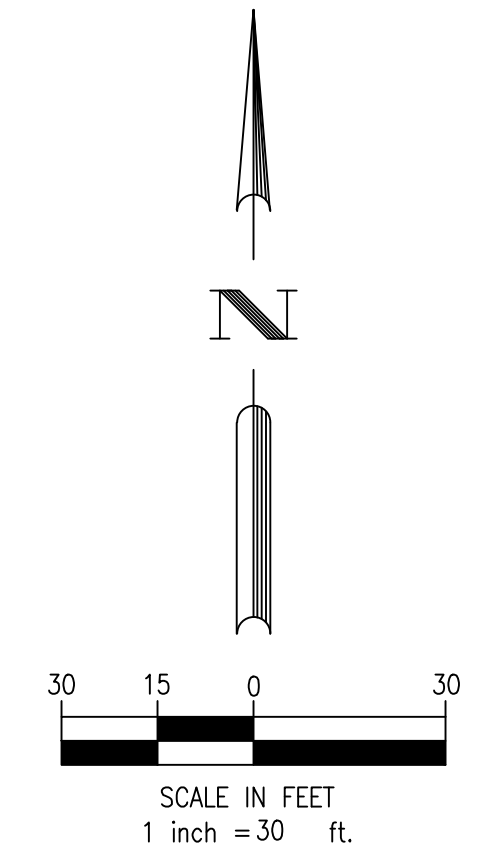


## **DRAINAGE MAPS**



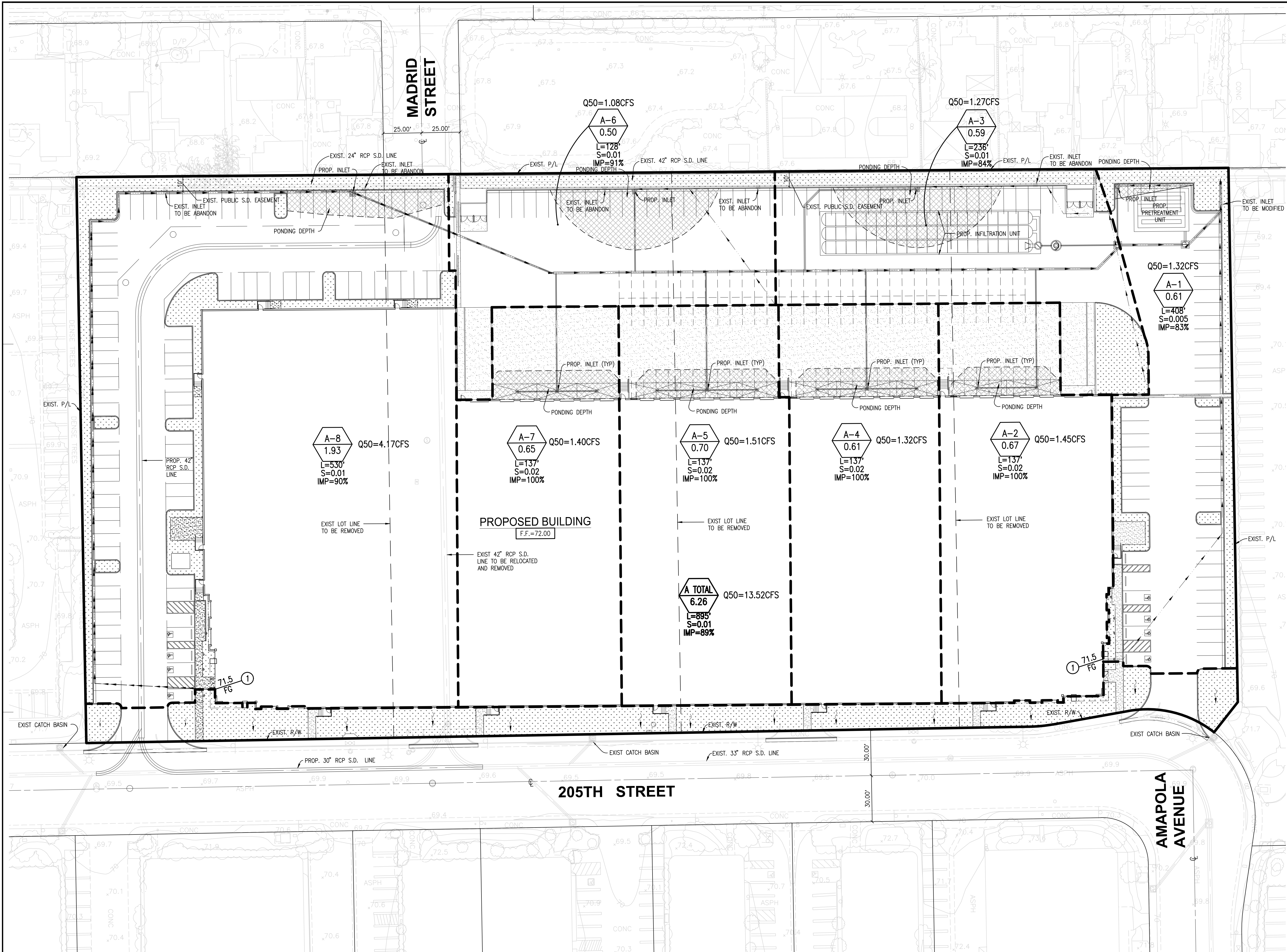
- LEGEND:**
- A-1** INDICATES TRIBUTARY SUBAREA DESIGNATION
  - 3.66** INDICATES TRIBUTARY SUBAREA ACREAGE
  - L=810'** INDICATES FLOW DISTANCE THRU SUBAREA
  - S=0.007** INDICATES SLOPE OF SUBAREA
  - IMP.=91%** INDICATES IMPERVIOUS SURFACE PERCENTAGE
  - A TOTAL** INDICATES TRIBUTARY AREA DESIGNATION
  - 23.23** INDICATES TRIBUTARY AREA ACREAGE
  - L=2,155'** INDICATES FLOW DISTANCE THRU AREA
  - S=0.003** INDICATES SLOPE OF AREA
  - IMP.=88%** INDICATES IMPERVIOUS SURFACE PERCENTAGE
  - 1** INDICATES NODE NUMBER
  - INDICATES DRAINAGE AREA BOUNDARY
  - - -** INDICATES DRAINAGE SUBAREA BOUNDARY
  - Q50=1.48CFS** DENOTES 50-YEAR RUN-OFF FROM SUB-AREA
  - INDICATES MAIN FLOW PATH
  - INDICATES MINOR FLOW PATH
  - INDICATES DIRECTION OF SHEET FLOW

**A TOTAL**  
**6.26**  
**L=1,053'**  
**S=0.005**  
**IMP=89%**  
**Q10=7.31CFS**

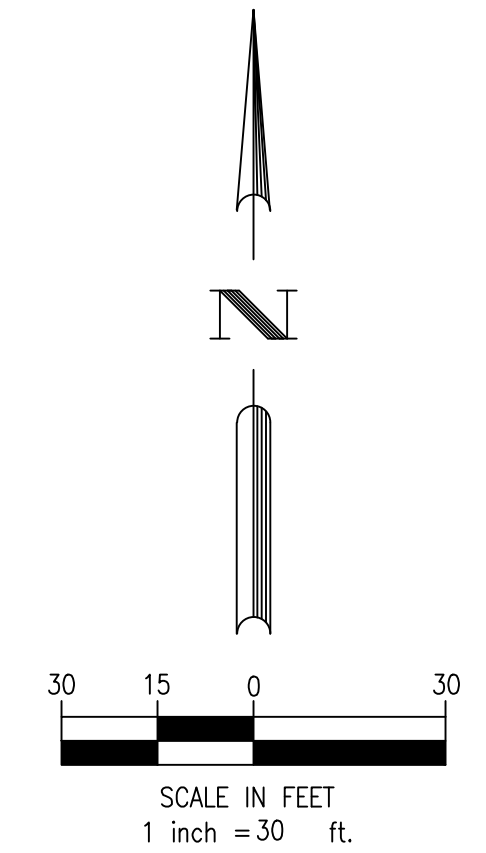


 <b>ALDEN &amp; ASSOCIATES</b> CIVIL ENGINEERS LAND SURVEYORS PLANNERS 2552 WHITE ROAD, SUITE B, IRVINE, CA 92614 (949) 660-0110 FAX: 660-0418	<b>EXISTING HYDROLOGY MAP</b> FOR <b>TORRANCE COMMERCE CENTER</b> <b>2271-2311 &amp; 2341 WEST 205TH STREET</b> TORRANCE, CA		JOB NUMBER 2089-940-001 DATE: 11/2023 DRAWN: SK CHECKED: MV
			SHEET 1 OF 1





- LEGEND:**
- INDICATES TRIBUTARY SUBAREA DESIGNATION  
INDICATES TRIBUTARY SUBAREA ACREAGE
  - $L=810'$  INDICATES FLOW DISTANCE THRU SUBAREA  
 $S=0.007$  INDICATES SLOPE OF SUBAREA  
 $IMP.=91\%$  INDICATES IMPERVIOUS SURFACE PERCENTAGE
  - INDICATES TRIBUTARY AREA DESIGNATION  
INDICATES TRIBUTARY AREA ACREAGE
  - $L=2,155'$  INDICATES FLOW DISTANCE THRU AREA  
 $S=0.003$  INDICATES SLOPE OF AREA  
 $IMP.=88\%$  INDICATES IMPERVIOUS SURFACE PERCENTAGE
  - INDICATES NODE NUMBER
  - INDICATES DRAINAGE AREA BOUNDARY
  - INDICATES DRAINAGE SUBAREA BOUNDARY
  - $Q50=1.48CFS$  DENOTES 50-YEAR RUN-OFF FROM SUB-AREA
  - INDICATES MAIN FLOW PATH
  - INDICATES MINOR FLOW PATH
  - INDICATES DIRECTION OF SHEET FLOW
  - INDICATES PONDING AREA



<p><b>ALDEN &amp; ASSOCIATES</b>  <small>CIVIL ENGINEERS          LAND SURVEYORS          PLANNERS</small></p> <p><small>2552 WHITE ROAD, SUITE B, IRVINE, CA 92614          (949) 660-0110 FAX: 660-0418</small></p>	<p><b>PROPOSED HYDROLOGY MAP</b>          FOR  <b>TORRANCE COMMERCE CENTER</b>          2271-2311 &amp; 2341 WEST 205TH STREET</p> <p style="text-align: center;">TORRANCE, CA</p>	<p>JOB NUMBER 2089-940-001</p> <p>DATE: 12/2023</p> <p>DRAWN: SK</p> <p>CHECKED: MV</p>
	<p><b>SHEET</b></p> <p style="font-size: 24px; font-weight: bold;">1</p> <p><b>OF</b></p> <p style="font-size: 24px; font-weight: bold;">1</p>	
	<p><b>1</b></p>	
	<p><b>1</b></p>	



**FEMA MAP**



**NOTES TO USERS**

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services  
NOAA, NNGS12  
National Geodetic Survey  
SSMC-3, #9202  
1315 East-West Highway  
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov/>.

**Base map** information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1994 or later and from National Geospatial Intelligence Agency imagery produced at a scale of 1:4,000 from photography dated 2003 or later.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at <http://www.msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/>.



THIS AREA SHOWN AT A  
SCALE OF 1" = 500'  
ON MAP NUMBER 06037C1928

**LEGEND**

**SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

**ZONE A** No Base Flood Elevations determined.

**ZONE AE** Base Flood Elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

**ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

**ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

**ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**

**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

**OTHER AREAS**

**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.

**ZONE D** Areas in which flood hazards are undetermined, but possible.

**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

**OTHERWISE PROTECTED AREAS (OPAs)**

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet\*
  - Base Flood Elevation value where uniform within zone; elevation in feet\*

\* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

**Cross section line**

**Transect line**

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid values, zone 11

5000-foot grid ticks: California State Plane coordinate system, V zone (FIPSZONE 0405), Lambert Conformal Conic

Bench mark (see explanation in Notes to Users section of this FIRM panel)

River Mile

MAP REPOSITORIES  
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP  
September 26, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 1930F**

**FIRM FLOOD INSURANCE RATE MAP**

**LOS ANGELES COUNTY, CALIFORNIA AND INCORPORATED AREAS**

**PANEL 1930 OF 2350**  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

**CONTAINS:**

COMMUNITY	NUMBER	PANEL	SUFFIX
GARDENA, CITY OF	060119	1930	F
LAWRENDALE, CITY OF	060134	1930	F
REDONDO BEACH, CITY OF	060150	1930	F
TORRANCE, CITY OF	060165	1930	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**MAP NUMBER 06037C1930F**

**EFFECTIVE DATE SEPTEMBER 26, 2008**

Federal Emergency Management Agency





**EXISTING STORM DRAIN PLAN MTD 1062**

GENERAL NOTES

STORM DRAINS

TRACT NO. 39796

IN

EASEMENT SOUTH OF DEL AMO BOULEVARD  
 BETWEEN EXISTING CHANNEL EAST OF VAN NESS  
 AVENUE AND 285 FEET ± EAST OF CRENSHAW BOULEVARD  
 AND  
 EASEMENT EAST OF CRENSHAW BOULEVARD AT  
 MADRID AVENUE (PRODUCED)  
 AND  
 205TH STREET BETWEEN BEECH AVE. AND AMAPOLA AVE.  
 AND  
 BEECH AVENUE SOUTH OF 205TH STREET  
 AND  
 AMAPOLA AVENUE BETWEEN 205TH ST. AND 208TH ST.  
 AND  
 208TH STREET WEST OF AMAPOLA AVENUE

- 14. A PERMIT SHALL BE OBTAINED FROM THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PRIOR TO COMMENCING ANY CONSTRUCTION WORK UNDER THIS CONTRACT. CONTACT THE DISTRICT BY TELEPHONE AT 226-4208 TO OBTAIN AN INSPECTION AND CONNECTION PERMIT AND TO MAKE DEPOSIT FOR CONSTRUCTION INSPECTION BY THE DISTRICT.
- 15. THE CONTRACTOR SHALL NOTIFY THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT, CONTRACT ADMINISTRATION DIVISION BY TELEPHONE AT 226-4206 AT LEAST 24 HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.

- 1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION," LATEST EDITION AND SUPPLEMENTS THERETO, AS WRITTEN AND PROMULGATED BY THE SOUTHERN CALIFORNIA CHAPTERS OF THE A.P.W.A., A.G.C.C. JOINT COOPERATIVE COMMITTEE, AND TO THE SATISFACTION OF THE CITY ENGINEER.
- 2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PROTECT ALL STRUCTURES, INCLUDING SUBSTRUCTURES, SHOWN HEREON. THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF REPAIRING OR REPLACING ANY OF SAID STRUCTURES DAMAGED BY HIM DURING PROSECUTION OF HIS WORK. ALL LOCATIONS SHOWN HEREON FOR UTILITY LINES HAVE BEEN TAKEN FROM AVAILABLE RECORDS AND THEIR COMPLETENESS OR CORRECTNESS IS IN NO WAY GUARANTEED. SEE NOTE 13 RE: T.M.W.D.
- 3. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC UTILITY COMPANIES AND OWNERS OF PRIVATE FACILITIES WITHIN THE AREA OF CONSTRUCTION AT LEAST 2 WORKING DAYS IN ADVANCE OF PERFORMING ANY WORK WITHIN SAID AREA.
- 4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY ENGINEER BEFORE COMMENCING WORK.
- 5. ASBESTOS CEMENT PIPE MAY BE USED IN LIEU OF REINFORCED CONCRETE PIPE PER LACPCD STANDARD DRAWING 2-D431 AND LACPCD SPECIFICATIONS. ALL RCP AND AC STORM DRAIN PIPE SHALL BE BEDDED IN ACCORDANCE WITH LACPCD STANDARD DRAWING 2-D177, CASE III.
- 6. TRENCH BACKFILL SHALL BE COMPACTED TO A RELATIVE DENSITY OF 95% IN THE UPPER 3 FEET AND 90% OR EQUAL TO THE RELATIVE DENSITY OF THE UNDISTURBED SOIL ADJACENT TO THE TRENCH, WHICHEVER IS LESS, BELOW A DEPTH OF THE UPPER 3 FEET.
- 7. TRENCH RESURFACING SHALL BE EXISTING BASE + 2" AND EXISTING PAVEMENT + 1" IN EXISTING PAVED AREAS SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.
- 8. IN CASE OF CONFLICT BETWEEN A CONNECTOR PIPE AND AN EXISTING UNDERGROUND LINE, THE CONNECTOR PIPE MAY BE REALIGNED OVER OR UNDER THE CONFLICTING LINE. CONNECTOR PIPE GRADES SHALL DRAIN POSITIVELY TOWARD THE MAIN LINE, AND WHERE GRADE BREAKS EXCEED FIVE DEGREES, A CONCRETE COLLAR PER LACPCD STANDARD DRAWING 2-D393 SHALL BE CONSTRUCTED. "D" LOAD STRENGTHS OF THE REALIGNED PIPE SHALL CONFORM TO LACPCD STANDARD DRAWINGS 2-D213.1 AND/OR 2-D431.
- 10. CAUTION: REVIEW APPROVED CONSTRUCTION PLAN. IF CONSTRUCTION REQUIRED WORKERS AND/OR EQUIPMENT TO BE WITHIN 6 FEET AND CRANES OR HOISTING DEVICES TO BE WITHIN 10 FEET OF OVERHEAD ELECTRIC LINES CALL SO. CALIF. EDISON CO. (213) 6.4-9441/639-5471 EXT 810 OR 832 IMMEDIATELY.
- 11. REFER TO PLAN NO. ST-735 FOR STREET AND SS-300 FOR SEWER CONSTRUCTION FOR TRACT NO. 39796. ALSO ST-753 & SS-306
- 12. SHORING DETAILS & SPECIFICATIONS TO BE PROVIDED BY CONTRACTOR & APPROVED BY CAL-OSHA AND CITY ENGINEER PRIOR TO ISSUANCE OF PERMIT. (SHEET NO'S 2,3,4 AND 10 ONLY.)
- 13. CONTRACTOR SHALL VERIFY ELEVATION OF PROPOSED TORRANCE MUNICIPAL WATER DEPT. (T.M.W.D.) WATER MAIN IF SAID MAIN IS CONSTRUCTED PRIOR TO OR CONCURRENTLY WITH THIS STORM DRAIN. ANY CONFLICTS SHALL BE RESOLVED PRIOR TO CONSTRUCTION OF THE STORM DRAIN.

LIST OF STANDARD DRAWINGS

TITLE	DRWG. NO.
LOS ANGELES CO. FLOOD CONTROL DISTRICT:	
CATCH BASIN NO. 1	2-D 160
CATCH BASIN MANHOLE FRAME & COVER	2-D 156
CATCH BASIN PROTECTION BAR	2-D 175
CATCH BASIN REINFORCEMENT IN WALLS & INVERT	2-D 172
CATCH BASIN REINFORCEMENT AROUND MANHOLE	2-D 157
CATCH BASIN CONNECTIONS FOR PIPES 12 IN. THRU 72 IN.	2-D 224
CATCH BASIN SIDE OPENING DETAIL	2-E 232
LOCAL DEPRESSION NO. 4	2-D 415
JUNCTION STRUCTURE NO. 2	2-D 112
JUNCTION STRUCTURE NO. 4	2-D 193
MANHOLE NO. 1 (PIPES, 33" OR SMALLER)	2-D 102
MANHOLE 24" FRAME & COVER	2-D 472
MANHOLE SHAFT	2-D 107
TRANSITION STRUCTURE NO. 3	2-D 188
STANDARD DROP STEP	2-D 96
STANDARD A-615 REINFORCING BARS	2-D 171
PIPE SUPPORT ACROSS TRENCHES	2-D 173.1 to .3
PIPE BEDDING IN TRENCH	2-D 177
MANHOLE NO. 2 (PIPES, 36" OR LARGER)	2-D 184
TRANS. STRUCTURE NO. 1	2-D 255
CATCH BASIN NO. 2	2-D 162
CONCRETE COLLAR	2-D 313
PROTECTION FOR SEWERS	2-D 251
CITY OF TORRANCE:	
TYPICAL STREET SECTION	S-2
CURB & GUTTER	S-4
L.A. Co. Road Dept.:	
STD. R.C. BOX CULVERT NO. 1	SG-01
PIPE CONNECTION TO EXIST. PIPE	2-D190

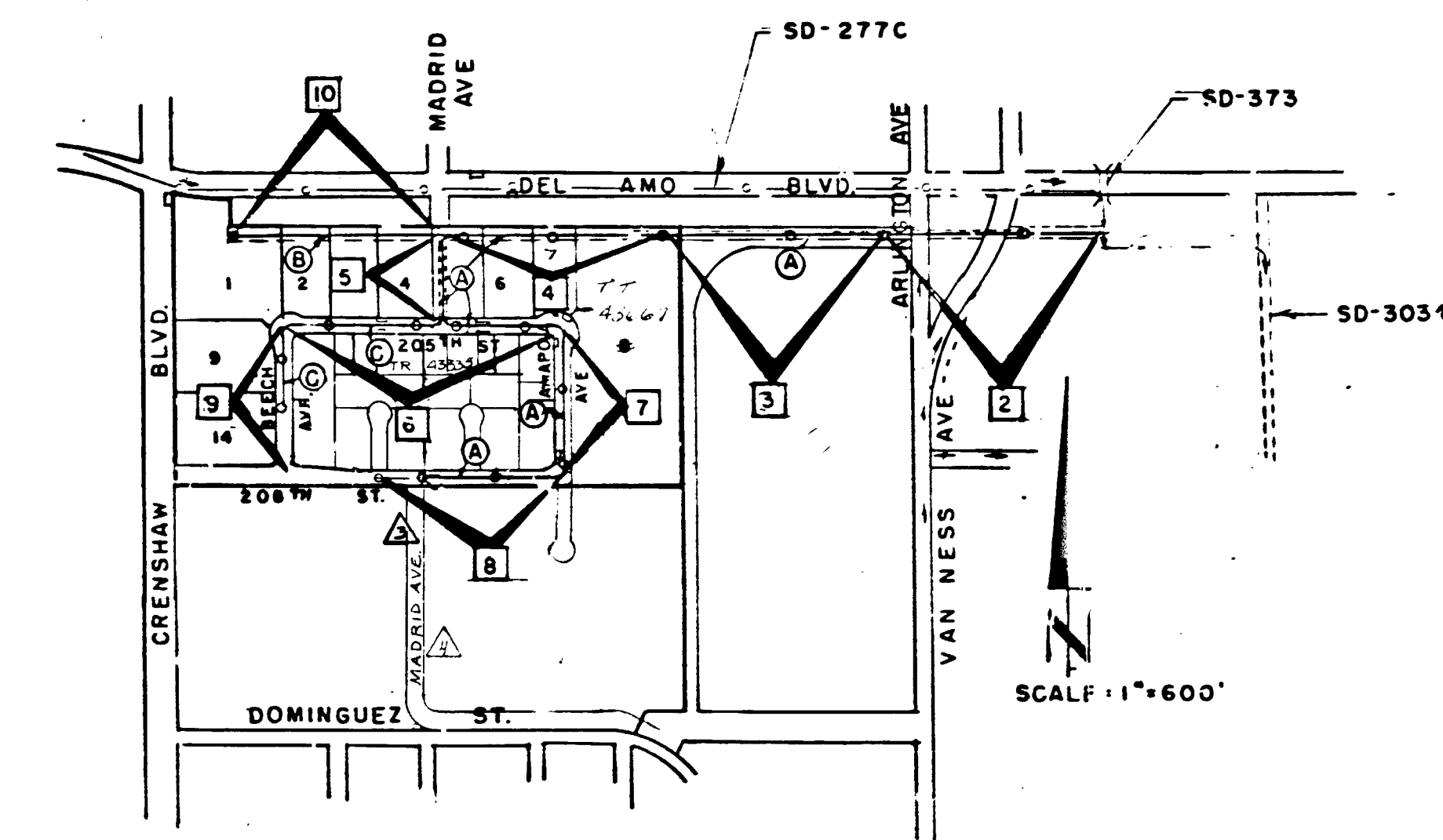
LEGEND

---	EXISTING	(100.00)	EXISTING ELEVATIONS
---	FUTURE	100.00	PROPOSED ELEVATIONS
---	PROPOSED		
---	W	W	UNDERGROUND UTILITIES

NOTE INLET FACILITIES NOT LOCATED WITHIN PUBLIC STREETS ARE NOT TO BE MAINTAINED BY THE CITY OF TORRANCE

NOTE: OUTLET STRUCTURE AT CONNECTION TO MAIN CHANNEL (DETAIL E) ON SHEET 111) MAY BE REVISED TO MATCH PROPOSED MAIN CHANNEL RECONSTRUCTION (PENDING). DO NOT CONSTRUCT THIS OUTLET STRUCTURE WITHOUT SEPARATE APPROVAL FROM CITY ENGINEER.

NOTE: LINE A STATIONING SOUTH OF M.H. NO. 4 PER DETAIL C, SHEET 11 SHOULD BE REDUCED 2'42" TO REFLECT "AS-BUILT" S.D. BY DEVELOPER.



VICINITY MAP

BENCH MARK

TORR. ( )  
 L.A. CO. R.D. 8433  
 RDBM TAG 8 FT. S. B.C.R. 8 SE COR.  
 CRENSHAW BLVD. & DEL AMO BLVD  
 103 FT. S. & 40 FT. E. C/L INT.  
 BASELINE 1975 ELEV. 68.616

M.T.D. 1062

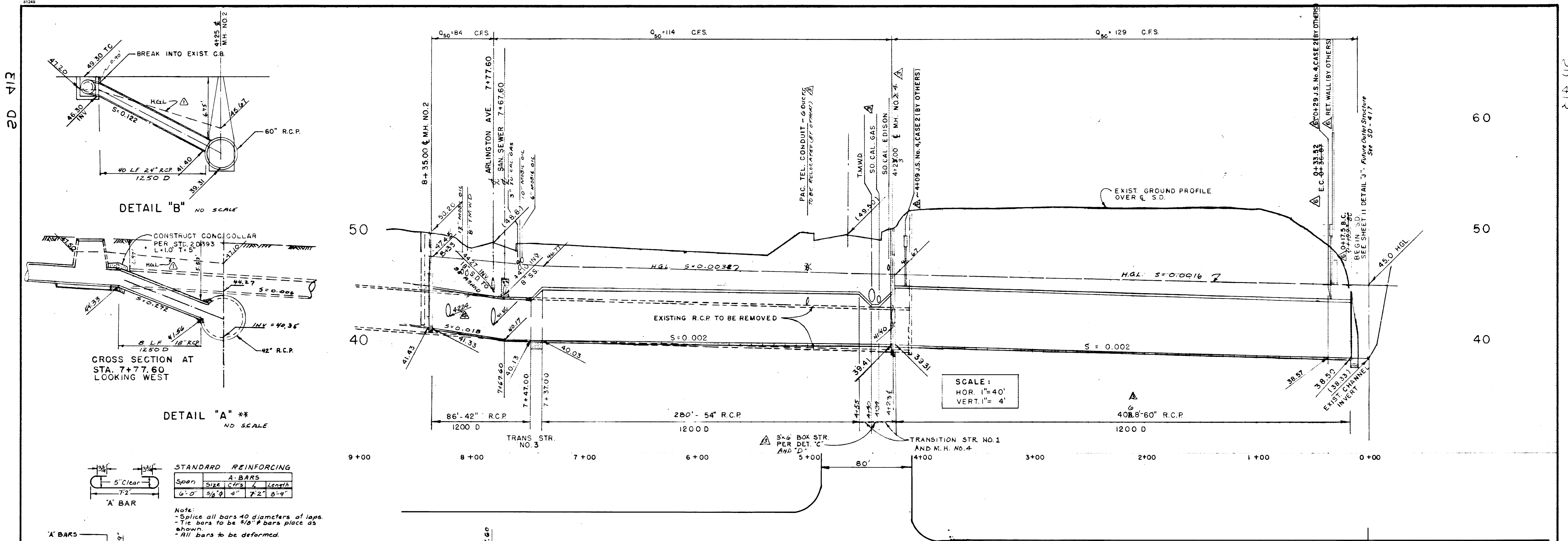
REVISION	DATE	DESCRIPTION	BY	CHECKED
10-24-84		REVISED GENERAL NOTES, VICINITY MAP	PVT. ENG.	
9-5-84		ADDED STD. DRWG'S	PVT. ENG.	
8-16-84		REVISED GENERAL NOTES	PVT. ENG.	
7-31-85		Added Pt. Built Stationing Note (see Developer)	SJC	ME AD
3-25-85		REVISED VICINITY MAP & ADDED STD. DRWG'S	PVT. ENG.	

PLANS PREPARED BY:		CITY OF TORRANCE	
DENN ENGINEERS		ENGINEERING DEPARTMENT	
23751 MADISON ST.		E. E. BOURBONNAIS CITY ENGINEER	
TORRANCE, CA 90505		DRAWN: PVT. ENGINEER	
378 0279		DESIGNED: PVT. ENGINEER	
MARTIN M. DENN R.C.E. 7081		RECOMMENDED: PVT. ENGINEER	
DATE: 3/30/87		APPROVED: 3/30/87	
		SCALE: AS SHOWN SHEET 1 OF 1	
		PLAN NO. SD-413 SD-1063	

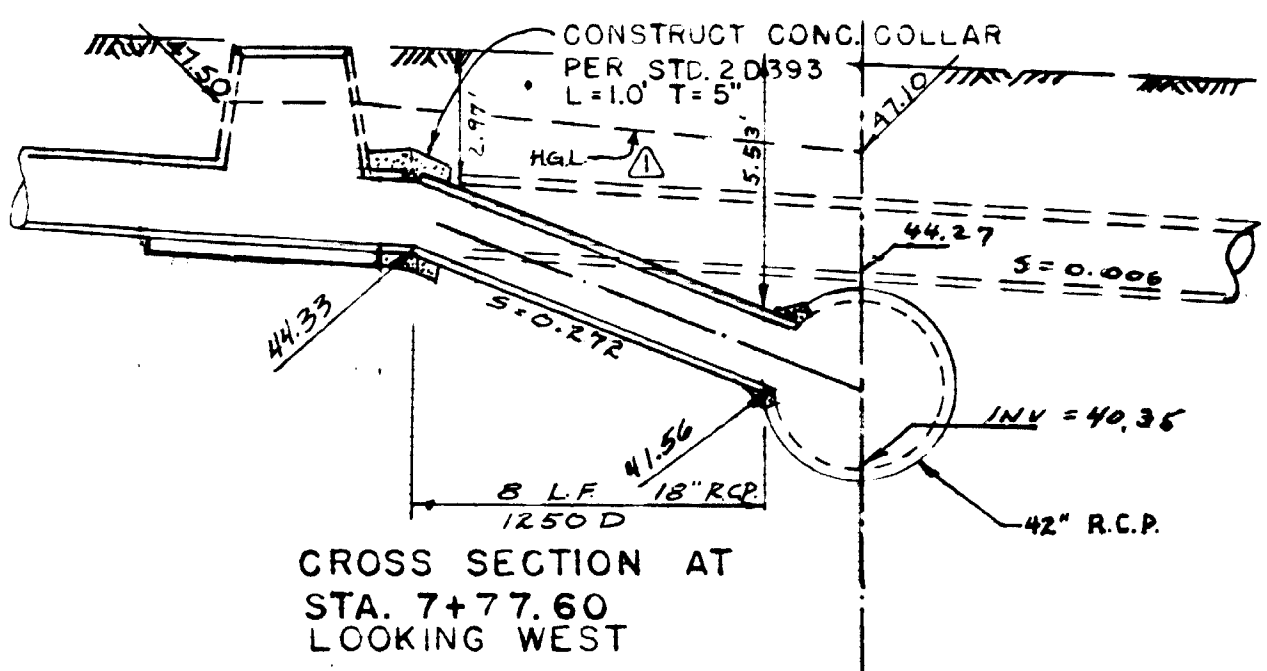
SD-1063 SD-413 1-11 90 Del Amo Blvd. Easement Crenshaw-Van Ness

2D 413

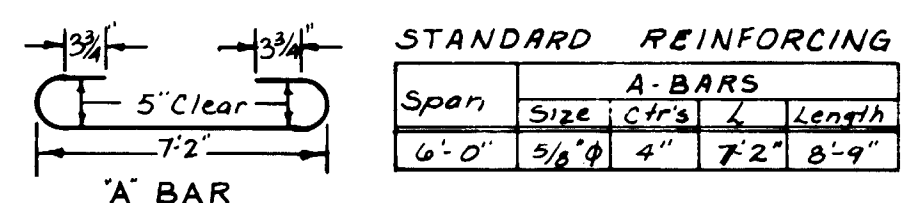
2D 413



DETAIL "B" NO SCALE

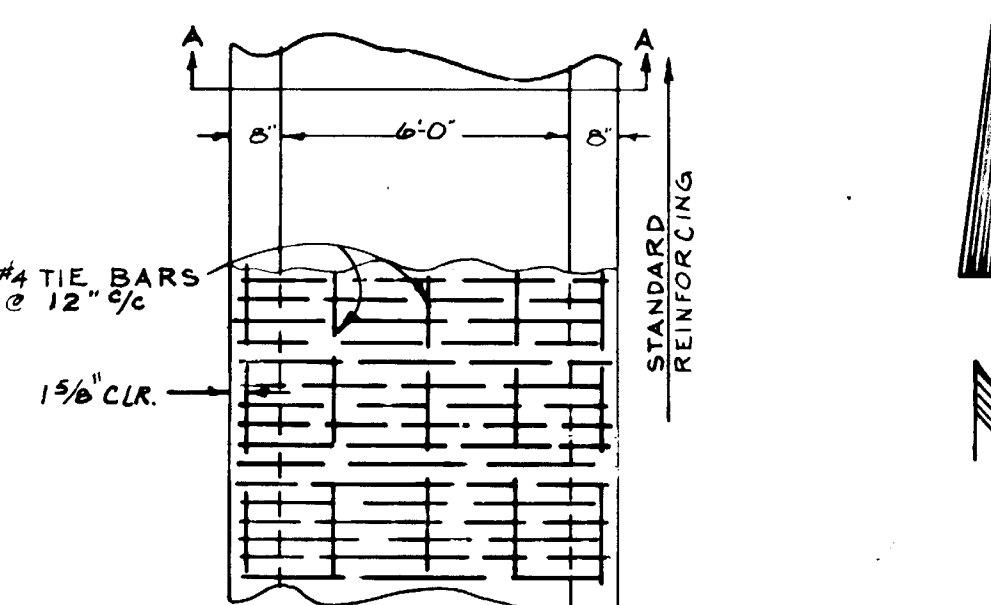
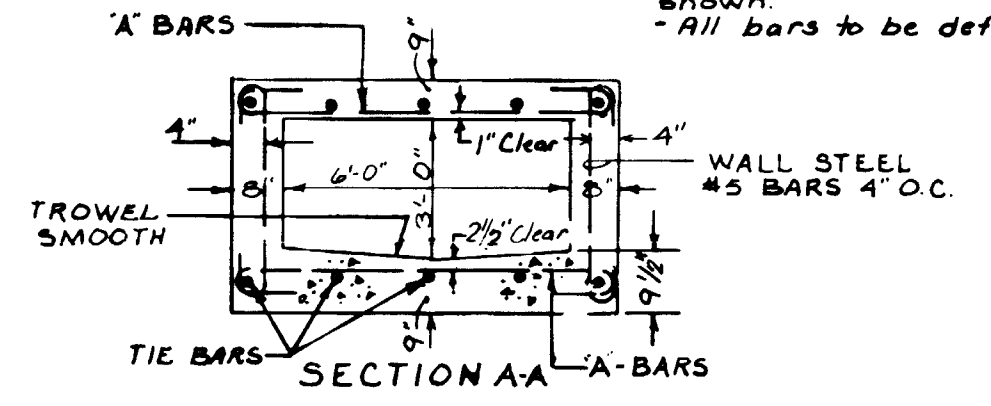


DETAIL "A" \*\* NO SCALE

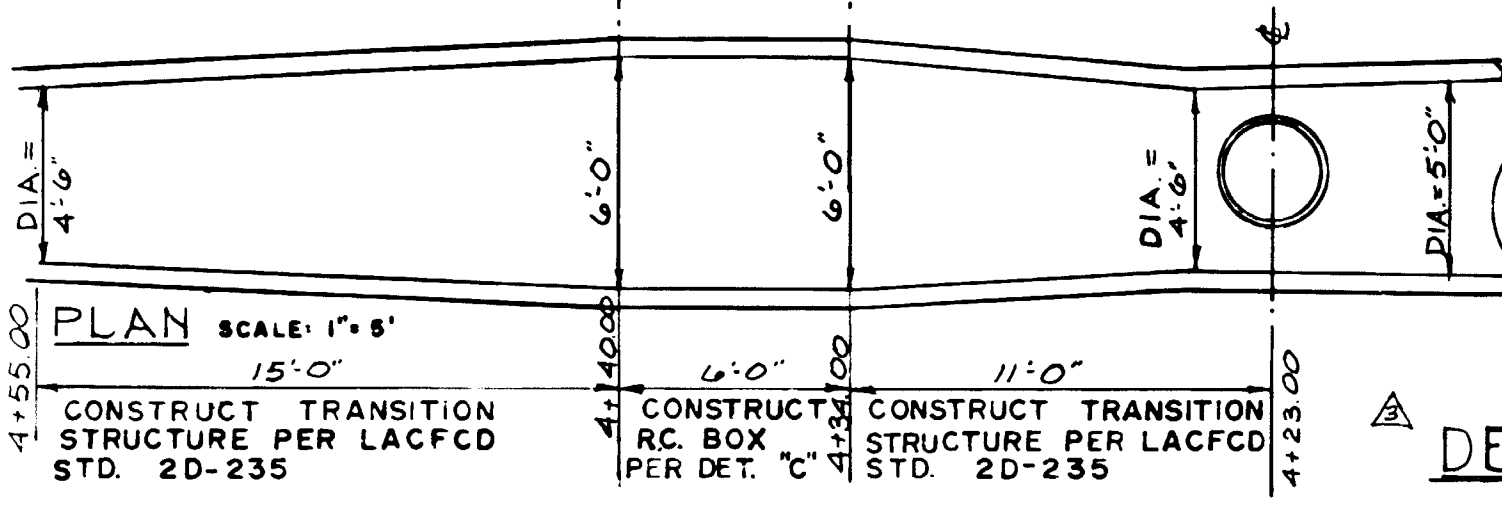
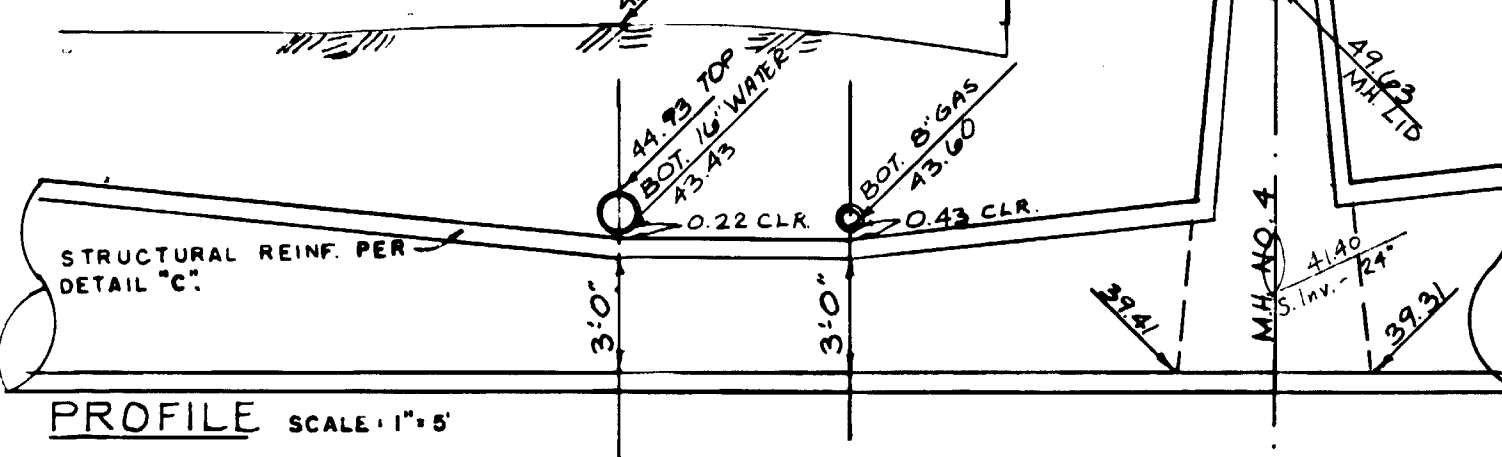


Note:
 

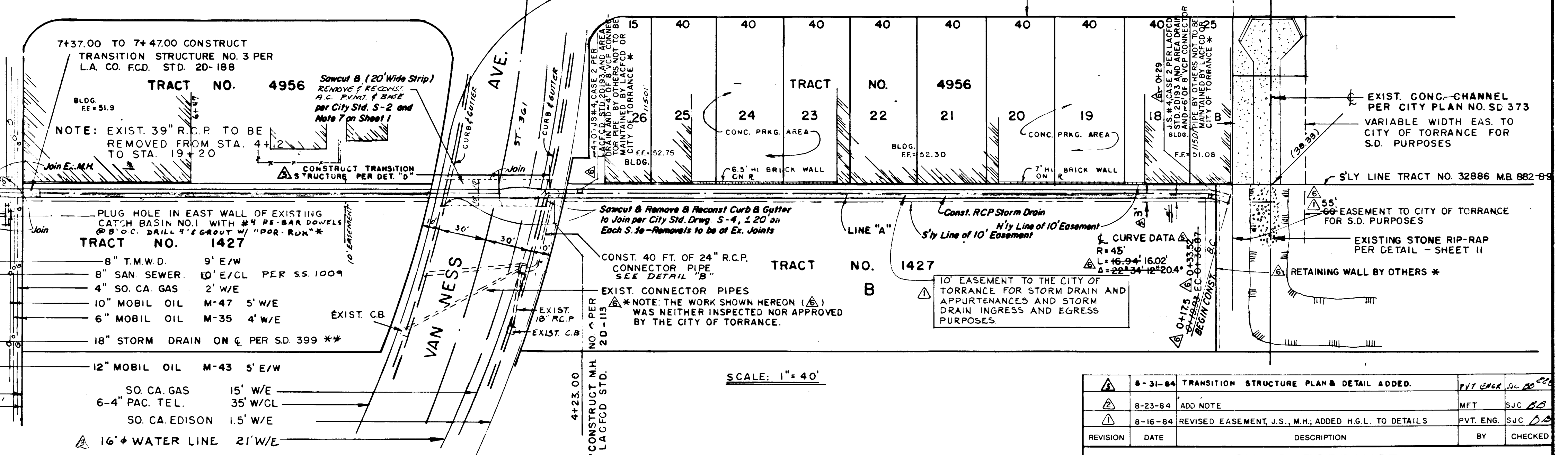
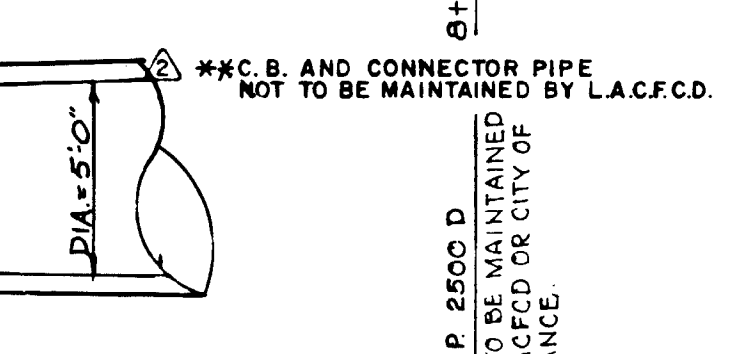
- Splice all bars 40 diameters of laps.
- Tie bars to be 5/8" bars place as shown.
- All bars to be deformed.



DETAIL "C" LOS ANGELES COUNTY ROAD DEPT. STD. PLAN 56-01



DETAIL "D"



SCALE: 1"=40'

PLANS PREPARED BY:  
**DENN ENGINEERS**  
 23751 MADISON ST.  
 TORRANCE, CA 90505  
 378-0279

NO.	DATE	REVISION	BY	CHECKED
1	11-2-84	ADD J.S., R.C.P.	PVT	SD
2	7-31-85	AS-BUILT PER DEV	ENG	SD
3	2-14-86	AS-BUILT PER DEV	ENG	SD

REVISION	DATE	DESCRIPTION	BY	CHECKED
1	8-31-84	TRANSITION STRUCTURE PLAN & DETAIL ADDED.	PVT	SD
2	8-23-84	ADD NOTE	MFT	SD
3	8-16-84	REVISED EASEMENT, J.S., M.H., ADDED H.G.L. TO DETAILS	PVT	SD

CITY OF TORRANCE  
**ENGINEERING DEPARTMENT**  
 E. E. BOURBONNAIS  
 CITY ENGINEER

DRAWN: PVT. ENGINEER  
 DESIGNED: PVT. ENGINEER  
 RECOMMENDED: JSC

APPROVED: *E.E. Bourbonnais*  
 CITY ENGINEER R.C.E. NO. 31183

SCALE: AS SHOWN  
 SHEET 2 OF 11

PLAN NO. **SD-413** SD-10633

SD-1063  
 2-11  
 Del Amo Blvd. Easement Crenshaw-Mann Ness

2D 413

2D 413

2D 413

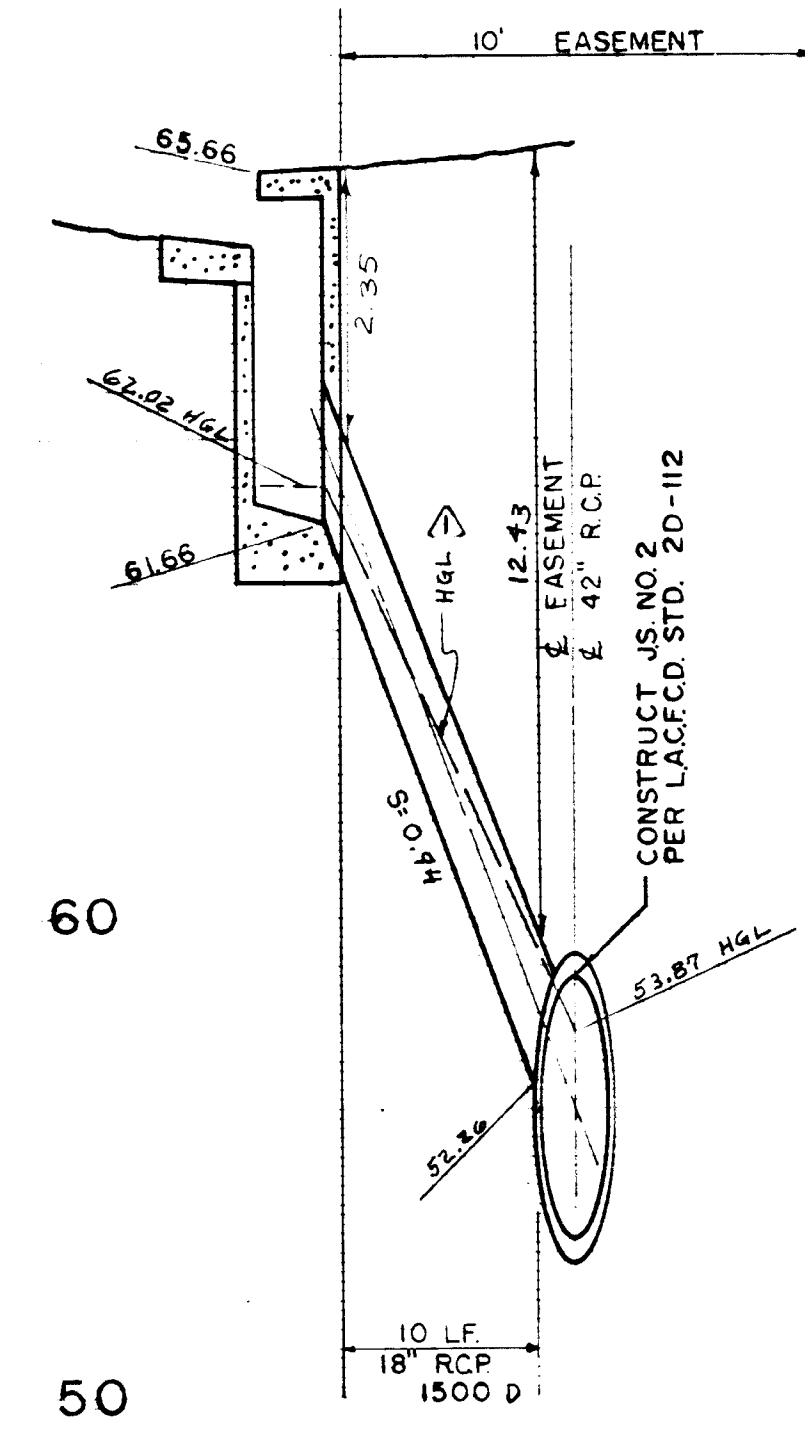
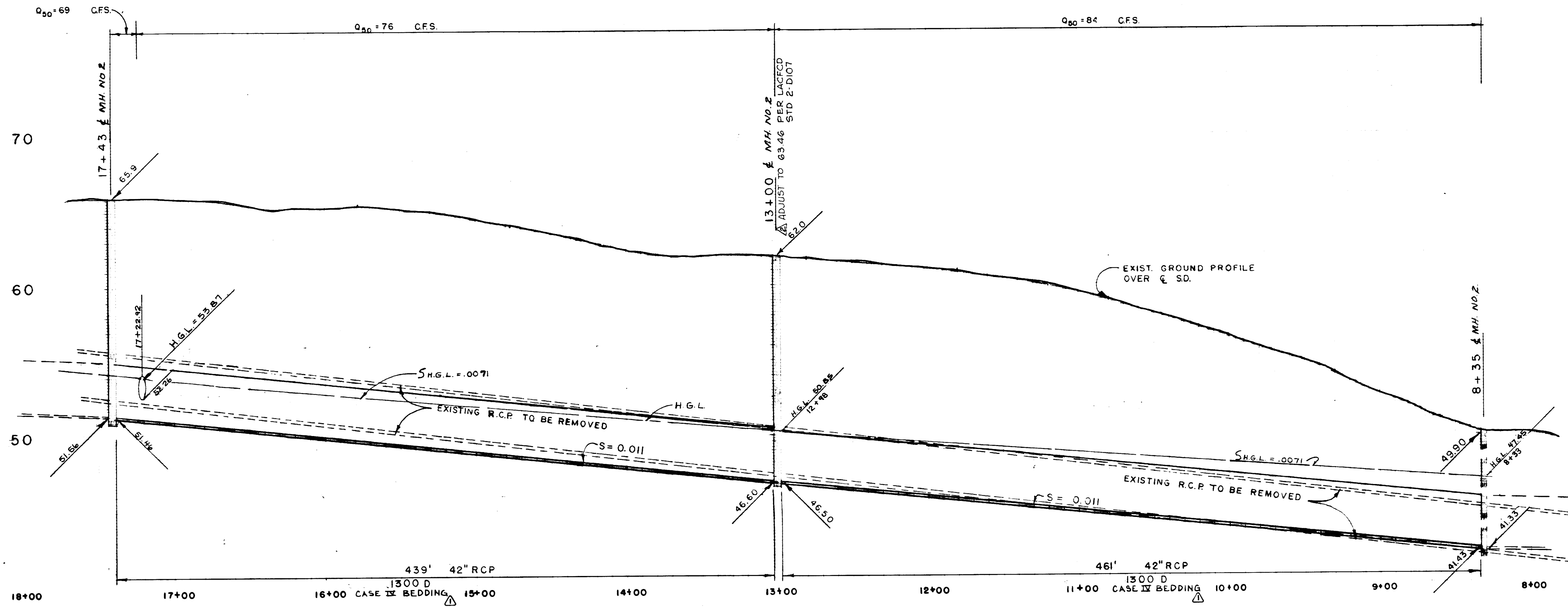
2D 413



SD-1063  
 SD-413  
 3-11  
 De/Amo Blvd. Easement Construction Plans

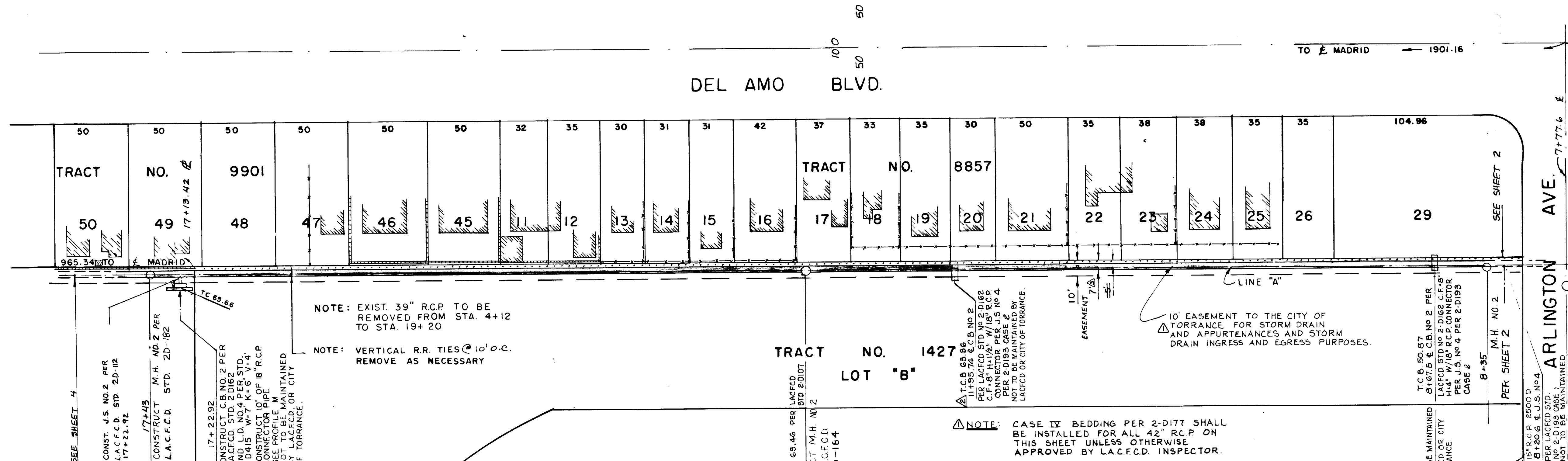
2D 413

2D 413



PROFILE M  
NO SCALE

SCALE:  
 HOR. 1" = 40'  
 VERT. 1" = 4'



NOTE: EXIST 39" RCP TO BE REMOVED FROM STA. 4+12 TO STA. 19+20

NOTE: VERTICAL R.R. TIES @ 10' O.C. REMOVE AS NECESSARY

NOTE: CASE IV BEDDING PER 2-D117 SHALL BE INSTALLED FOR ALL 42" RCP ON THIS SHEET UNLESS OTHERWISE APPROVED BY L.A.C.F.C.D. INSPECTOR.

REVISION	DATE	DESCRIPTION	BY	CHECKED
0-17-85		AS BUILT PER DEV.		PVT. ENG. JJC
8-16-84		ADDED CASE III BEDDING, REVISION EASEMENT CALLOUT		PVT. ENG. JJC

CITY OF TORRANCE  
**ENGINEERING DEPARTMENT**  
 E. E. BOURBONNAIS CITY ENGINEER

APPROVED: *E.E. Bourbonnais*  
 CITY ENGINEER R.C.E. NO. 31163

SCALE: AS SHOWN SHEET 3 OF 11

PLAN NO. **SD-413**

PLANS PREPARED BY:  
**DENN ENGINEERS**  
 23751 MADISON ST.  
 TORRANCE, CA 90505  
 378-0279

SOUTH BAY ENGINEERING CORP.  
 504 TEJON PLACE  
 PALOS VERDES ESTATES, CA 90274

NO.	DATE	REVISION	BY	CHECKED
11-2-84		ADD CBS, J.S. ADJ. M.H.	JJC	JJC

Martin M. Denn R.C.E. 7081

SCALE: 1" = 40'

2D 413

2D 413

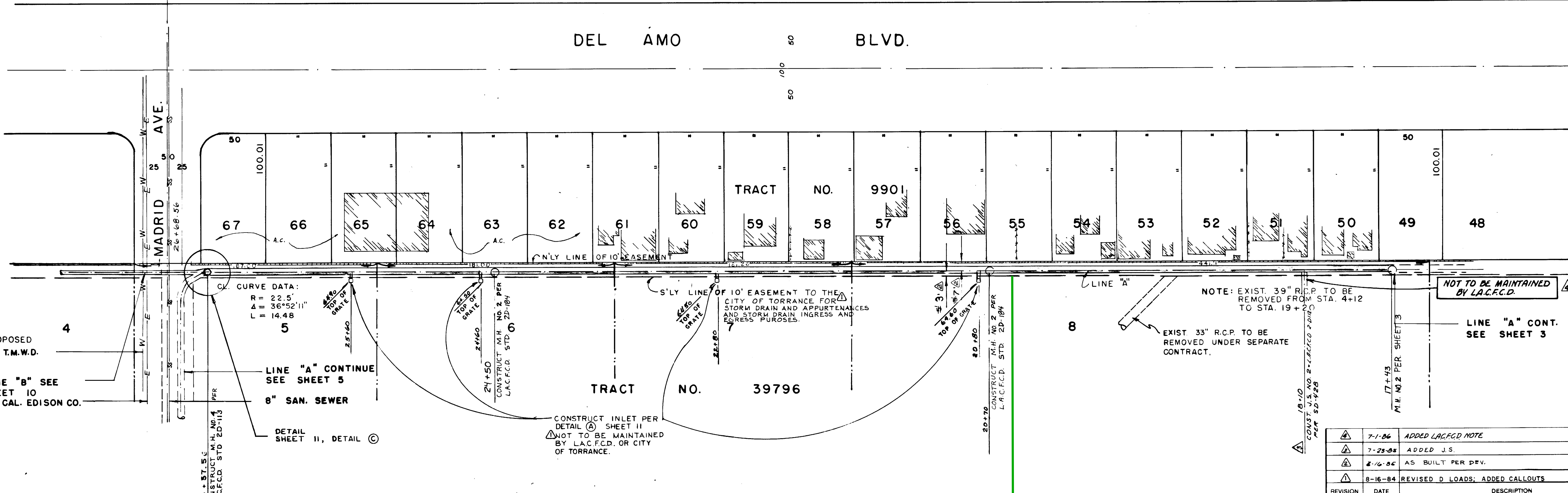
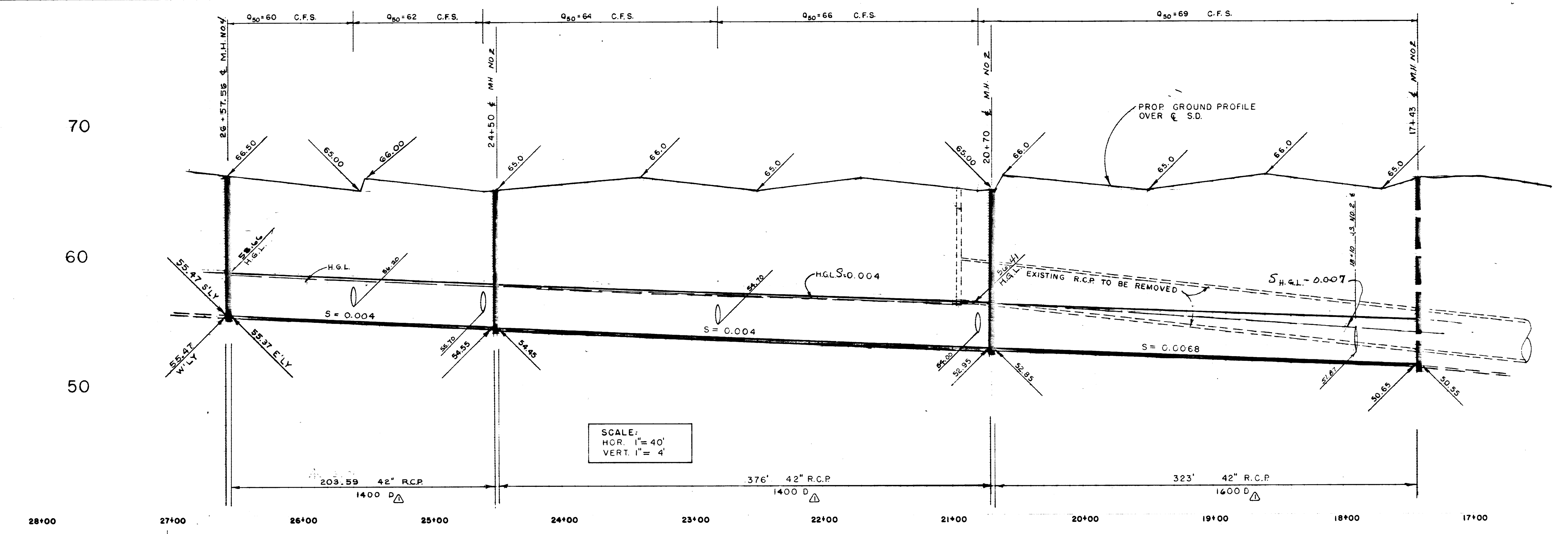
SD-1063  
 SD-413-4-11  
 Del Amo Blvd. Easement Crenshaw - Van Ness

2D 412

2D 412

2D 412

2D 412



PROPOSED 12" T.M.W.D.  
 LINE "B" SEE SHEET 10 SO. CAL. EDISON CO.  
 LINE "A" CONTINUE SEE SHEET 5  
 8" SAN. SEWER  
 DETAIL SHEET II, DETAIL ©

CONSTRUCT INLET PER DETAIL (A) SHEET II  
 NOT TO BE MAINTAINED BY L.A.C.F.C.D. OR CITY OF TORRANCE.

NOTE: EXIST 39" R.C.P. TO BE REMOVED FROM STA. 4+12 TO STA. 19+20  
 EXIST 33" R.C.P. TO BE REMOVED UNDER SEPARATE CONTRACT.  
 NOT TO BE MAINTAINED BY L.A.C.F.C.D.  
 LINE "A" CONT. SEE SHEET 3

← SITE →

PLANS PREPARED BY:  
**DENN ENGINEERS**  
 23751 MADISON ST.  
 TORRANCE, CA 90505  
 378-0279  
 Martin M. Denn  
 MARTIN M. DENN R.C.E. 7081

REVISION	DATE	DESCRIPTION	BY	CHECKED
7-1-84		ADDED L.A.C.F.C.D. NOTE	JMS	MPP
7-28-84		ADDED J.S.	PVT. ENG.	JLC
8-16-84		AS BUILT PER DEV.	PVT. ENG.	JLC
8-16-84		REVISED D LOADS; ADDED CALLOUTS	PVT. ENG.	SJC

CITY OF TORRANCE  
**ENGINEERING DEPARTMENT**  
 E. E. BOURBONNAIS  
 CITY ENGINEER

DRAWN: PVT. ENGINEER  
 DESIGNED: PVT. ENGINEER  
 RECOMMENDED: J.S.C.

APPROVED:  
*E. E. Bourbonnais*  
 CITY ENGINEER R.C.E. NO. 31163

SCALE: AS SHOWN  
 SHEET 4 OF 11  
 PLAN NO. SD-413 SD-1063

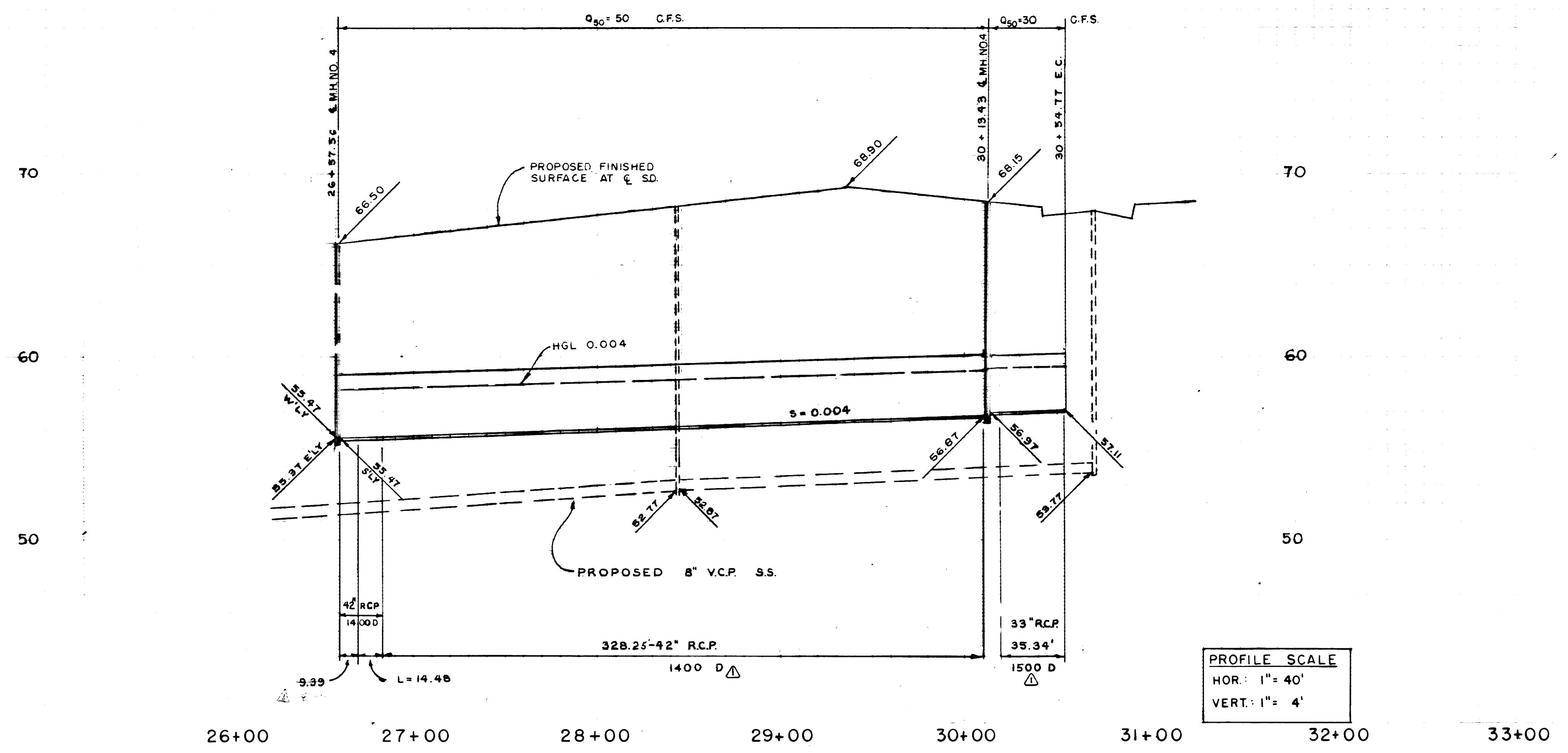
DATE: 5/20/80



MANUFACTURED BY  
 SD-1063  
 5-11  
 Del Amo Blvd Easement Crenshaw/Van Ness

SD 413

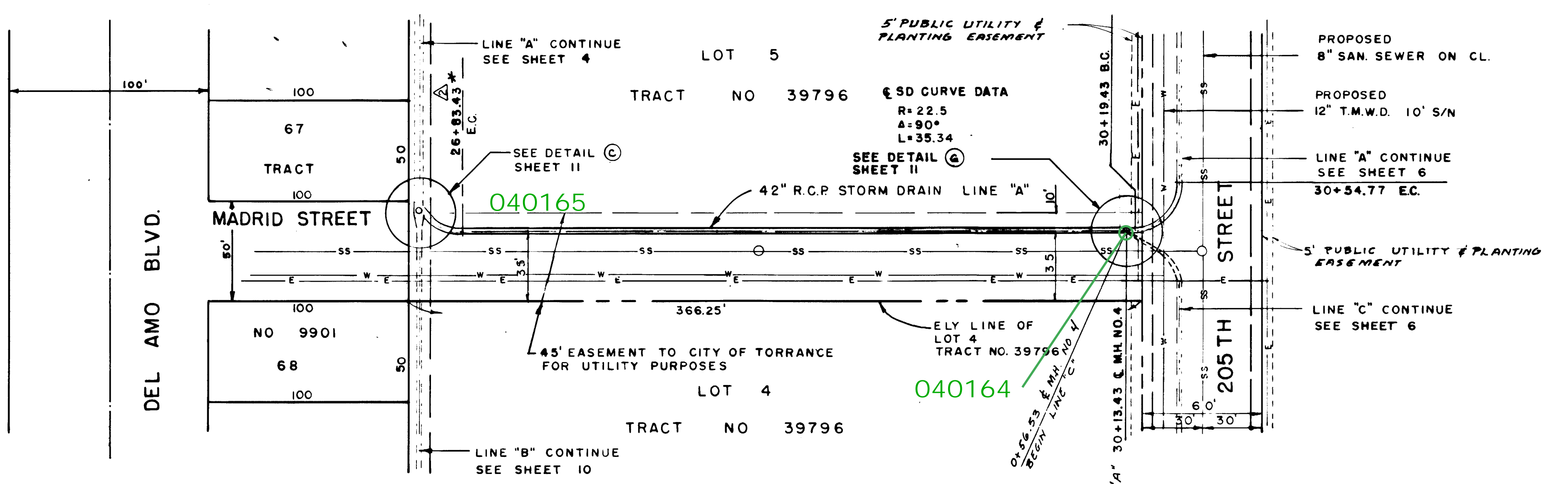
SD 413



PROFILE SCALE  
 HOR: 1" = 40'  
 VERT: 1" = 4'

△ \* ACTUAL E.C. STA. = 26+81.01  
 "AS BUILT" - SEE NOTES ON SHEETS I & II.

SCALE: 1" = 40'



TRACT NO 39796

7-31-85	Added "AS BUILT" Note per Developer.	JT	uc	ab
8-16-84	REVISED D LOADS	PVT. ENG.	SJC	SP
REVISION	DATE	DESCRIPTION	BY	CHECKED

PLANS PREPARED BY:  
**DENN ENGINEERS**  
 23751 MADISON ST  
 TORRANCE, CA 90505  
 378-0279  
 Martin M. Denn  
 MARTIN M. DENN R.C.E. 7081

**CITY OF TORRANCE  
 ENGINEERING DEPARTMENT  
 E. E. BOURBONNAIS  
 CITY ENGINEER**

DRAWN: PVT. ENGINEER	APPROVED: <i>E.E. Bourbonnais</i> CITY ENGINEER R.C.E. NO. 31183
DESIGNED: PVT. ENGINEER	SCALE: AS SHOWN
RECOMMENDED: S.C.	SHEET 5 OF 11
DATE: 5/30/84	PLAN NO. SD-413-SD-1063

SD 413

SD 413







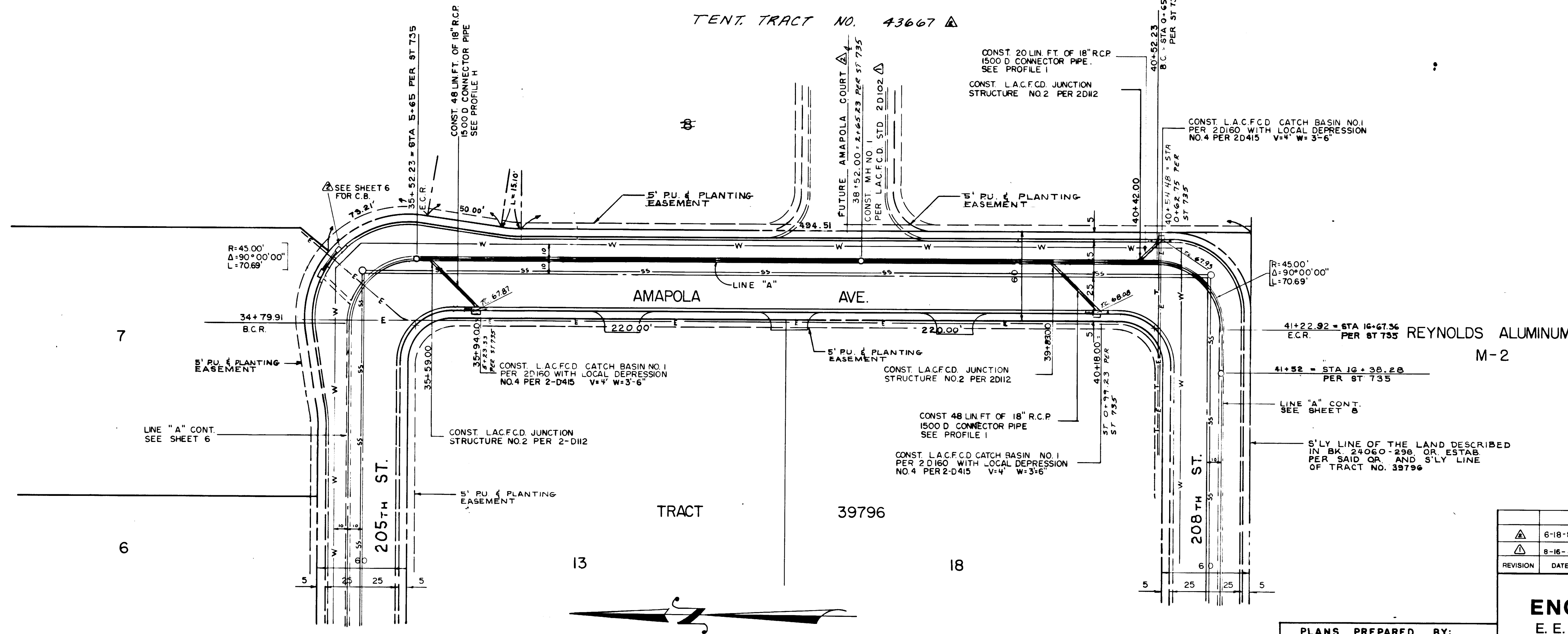
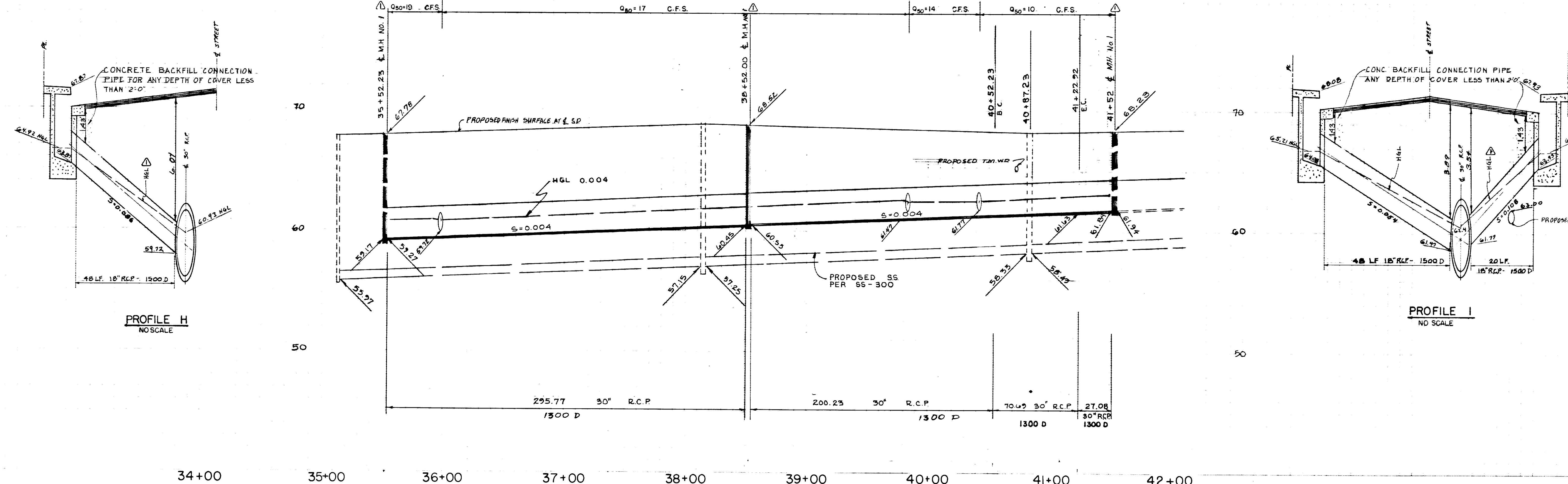
SD-1063  
 7-11  
 Amapola Ave 205th St-208th St

2D 413

2D 413

2D 413

2D 413



SCALE: 1" = 40'

6-18-85	ADDED FUTURE AMAPOLA COURT, C.B. REV.	PVT. ENG. SJC	SD
8-16-84	REVISED M.H.'S, ADDED H.G.L.'S TO PROFILE	PVT. ENG. SJC	SD
REVISION	DATE	DESCRIPTION	BY CHECKED

**CITY OF TORRANCE**  
**ENGINEERING DEPARTMENT**  
 E. E. BOURBONNAIS CITY ENGINEER

PLANS PREPARED BY:  
**DENN ENGINEERS**  
 23751 MADISON ST.  
 TORRANCE, CA 90505  
 378-0279

APPROVED:  
*E. E. Bourbonnais*  
 CITY ENGINEER R.C.E. NO. 31163

SCALE: AS SHOWN SHEET 7 OF 11

PLAN NO. **SD-413** SD-1063

DRAWN: PVT. ENGINEER  
 DESIGNED: PVT. ENGINEER  
 RECOMMENDED: SJC

*Martin M. Denn*  
 MARTIN M. DENN R.C.E. 7081

DATE: 5/30/84



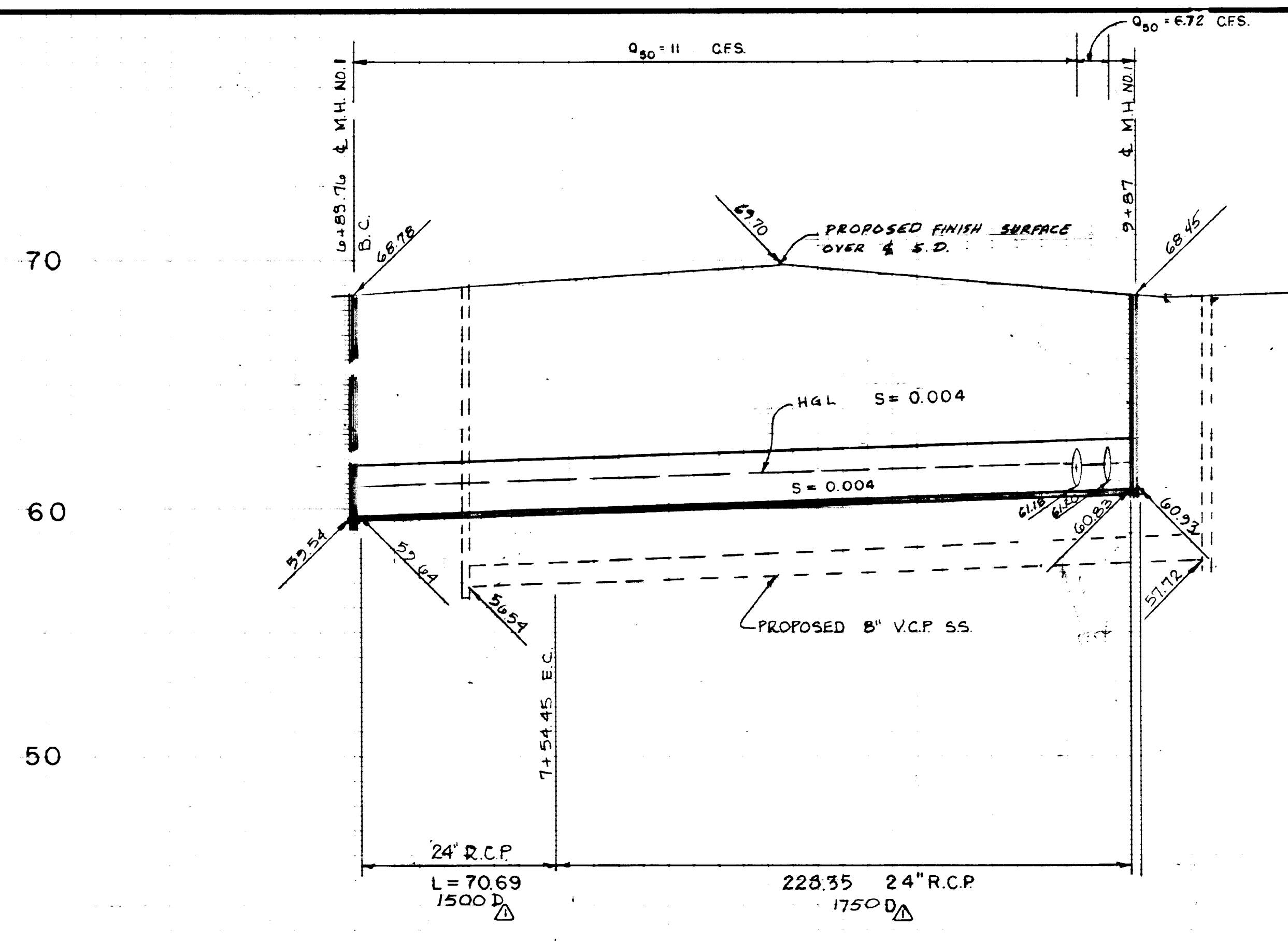
SD-1063  
 SD-413  
 Beach Ave. 205th St ~ 208th St

2D 413

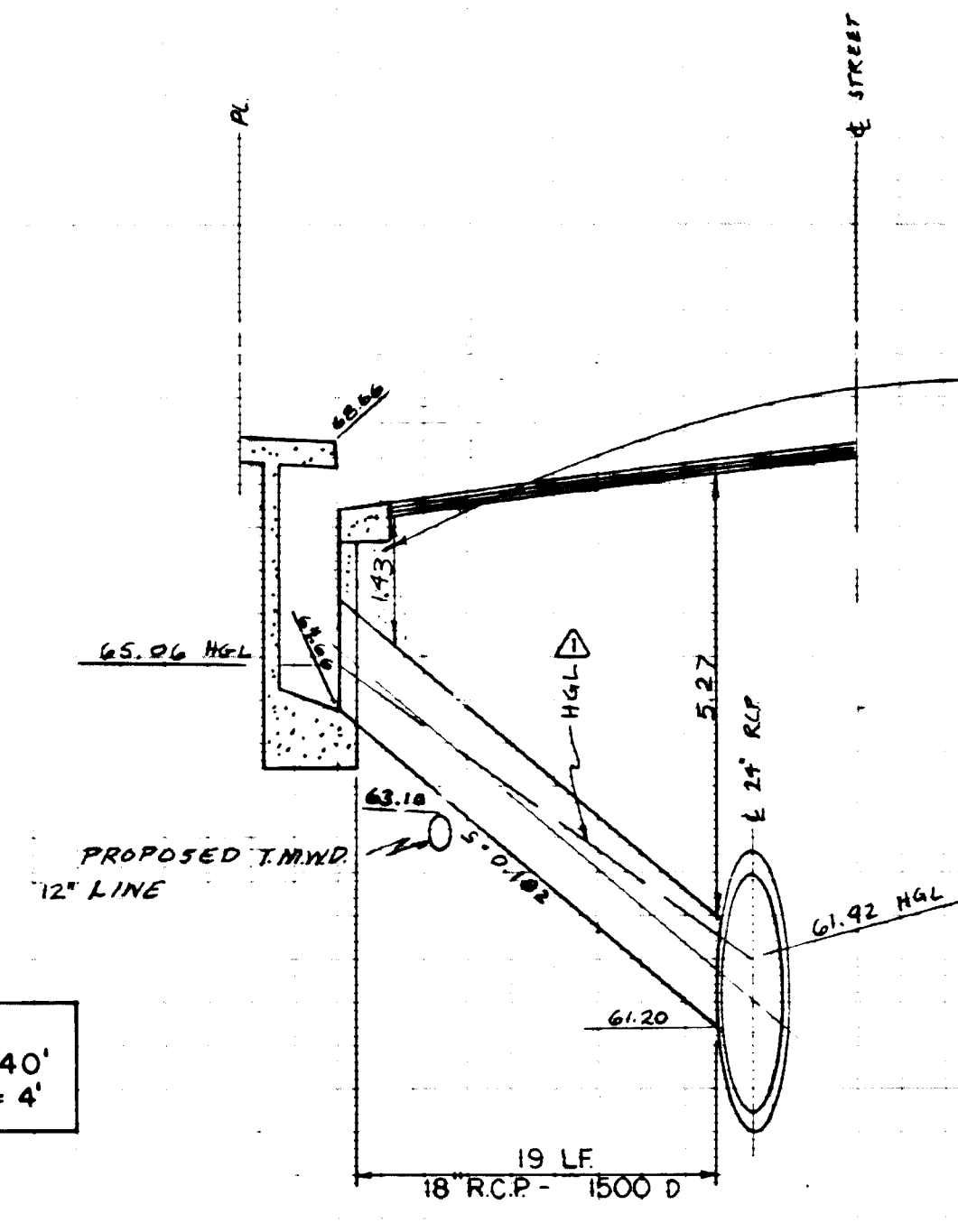
2D 413

2D 413

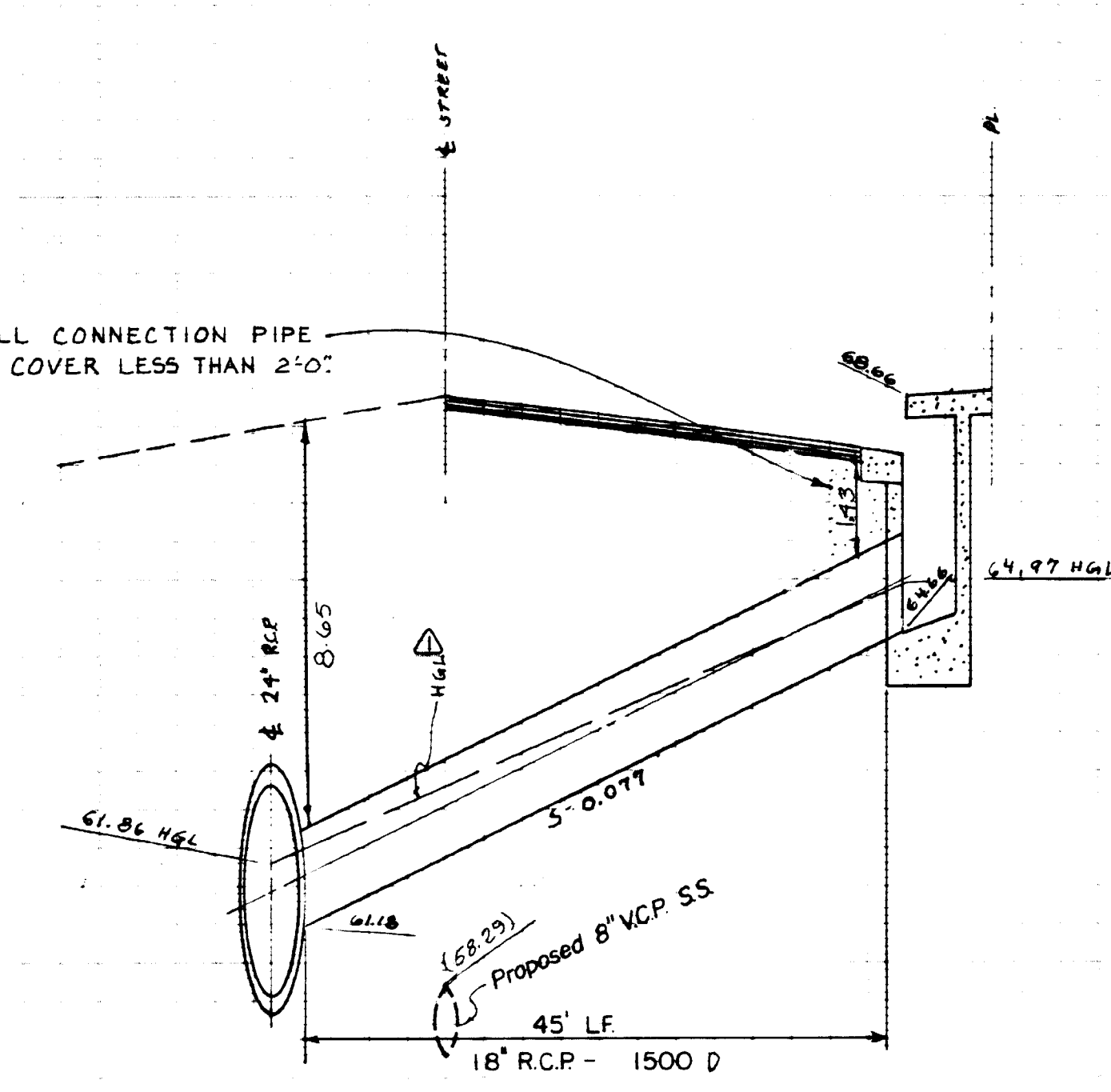
2D 413



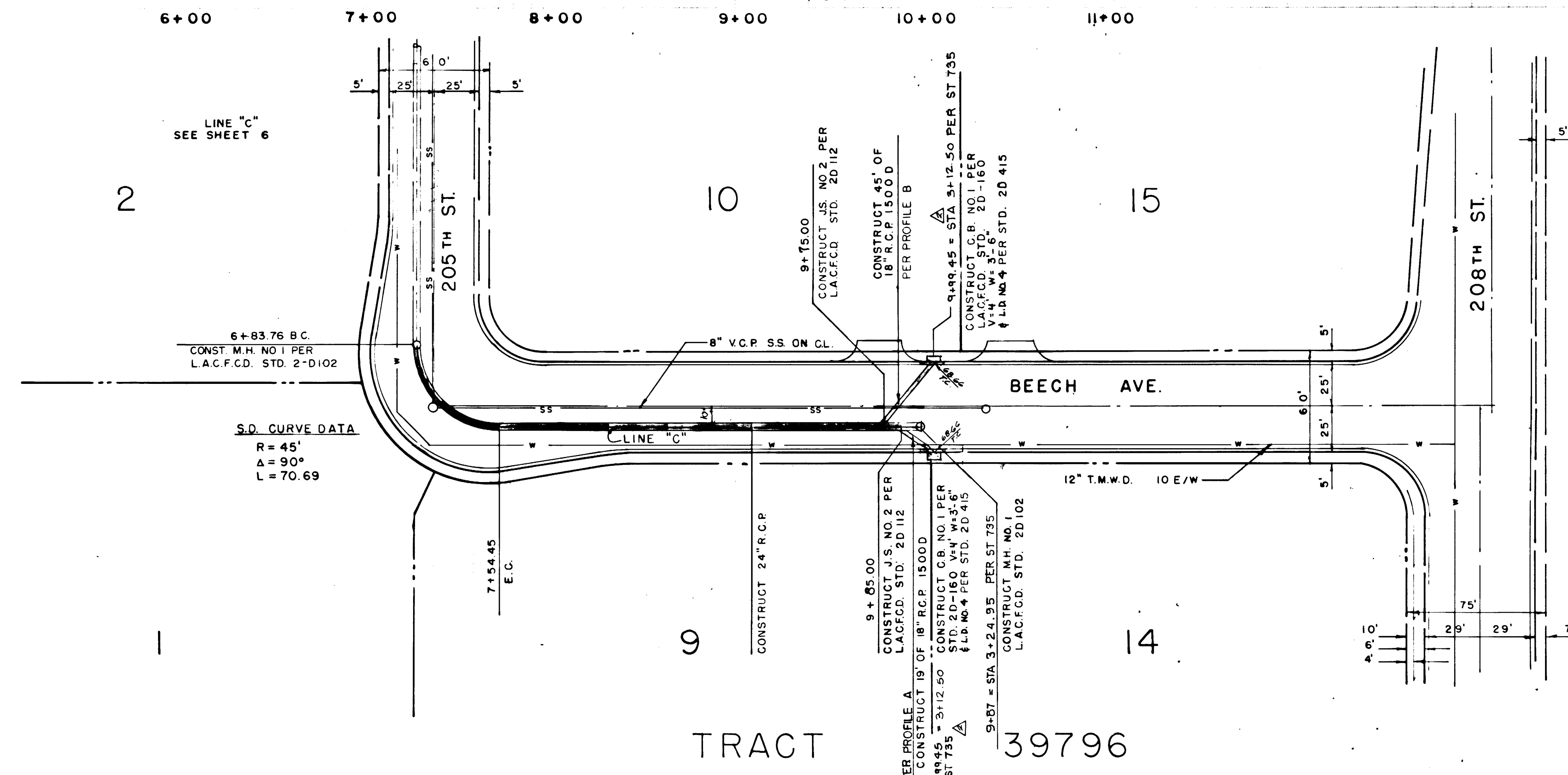
SCALE:  
 HOR. 1" = 40'  
 VERT. 1" = 4'



PROFILE A  
 NO SCALE



PROFILE B  
 NO SCALE



TRACT 39796



REVISION	DATE	DESCRIPTION	BY	CHECKED
△	10-11-84	MOVED CATCH BASIN	PVT. ENG. J.C. CDB	
△	8-16-84	REVISED D LOADS, ADDED H.G.L.'S TO PROFILES	PVT. ENG. S.J.C.	

**CITY OF TORRANCE**  
**ENGINEERING DEPARTMENT**  
 E. E. BOURBONNAIS CITY ENGINEER

DRAWN: PVT. ENGINEER	APPROVED: <i>E.E. Bourbonnais</i> CITY ENGINEER R.C.E. NO. 31163
DESIGNED: PVT. ENGINEER	SCALE: AS SHOWN SHEET 9 OF 11
RECOMMENDED:	PLAN NO. <b>SD-413</b> SD-1063
DATE: 5/30/84	

PLANS PREPARED BY:  
**DENN ENGINEERS**  
 23751 MADISON ST.  
 TORRANCE, CA 90505  
 378-0279  
*Martin M. Denn*  
 MARTIN M. DENN R.C.E. 7081



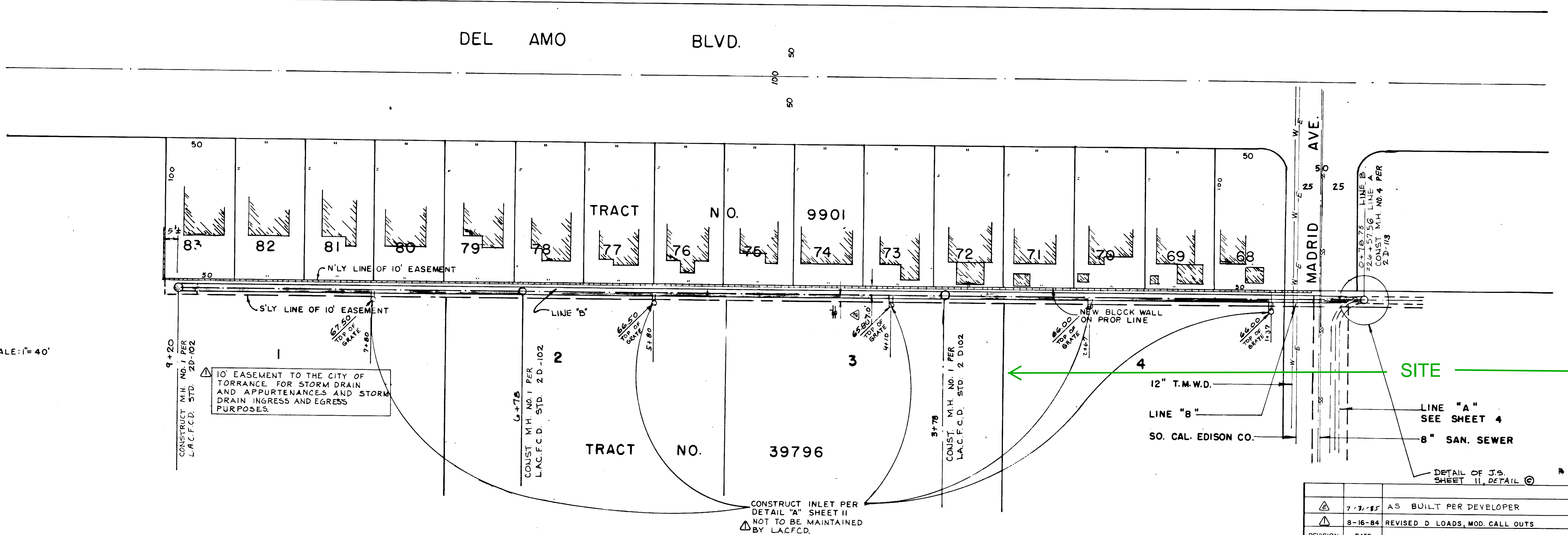
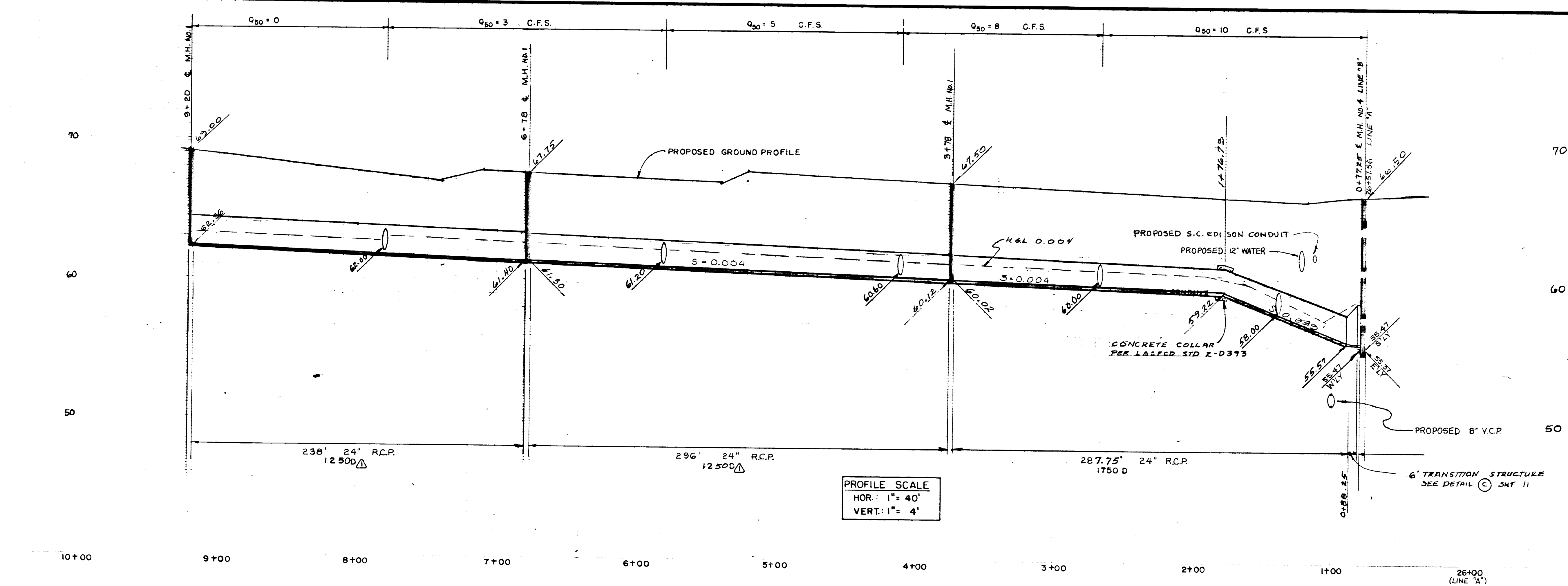
SD-1063-A  
 10-11  
 80 Del Amo Blvd Easement Crenshaw-Marin Ness

SD 413

SD 413



SCALE: 1" = 40'



PROFILE SCALE  
 HOR.: 1" = 40'  
 VERT.: 1" = 4'

REVISION	DATE	DESCRIPTION	BY	CHECKED
7-2-85		AS BUILT PER DEVELOPER	TITELBA	JVC
8-16-84		REVISED D LOADS, MOD. CALL OUTS	PVT. ENG. SJC	CS

**CITY OF TORRANCE**  
**ENGINEERING DEPARTMENT**  
 E. E. BOURBONNAIS  
 CITY ENGINEER

APPROVED: *E. E. Bourbonnais*  
 CITY ENGINEER R.C.E. NO. 31163

DESIGNED: PVT. ENGINEER  
 RECOMMENDED: SJC

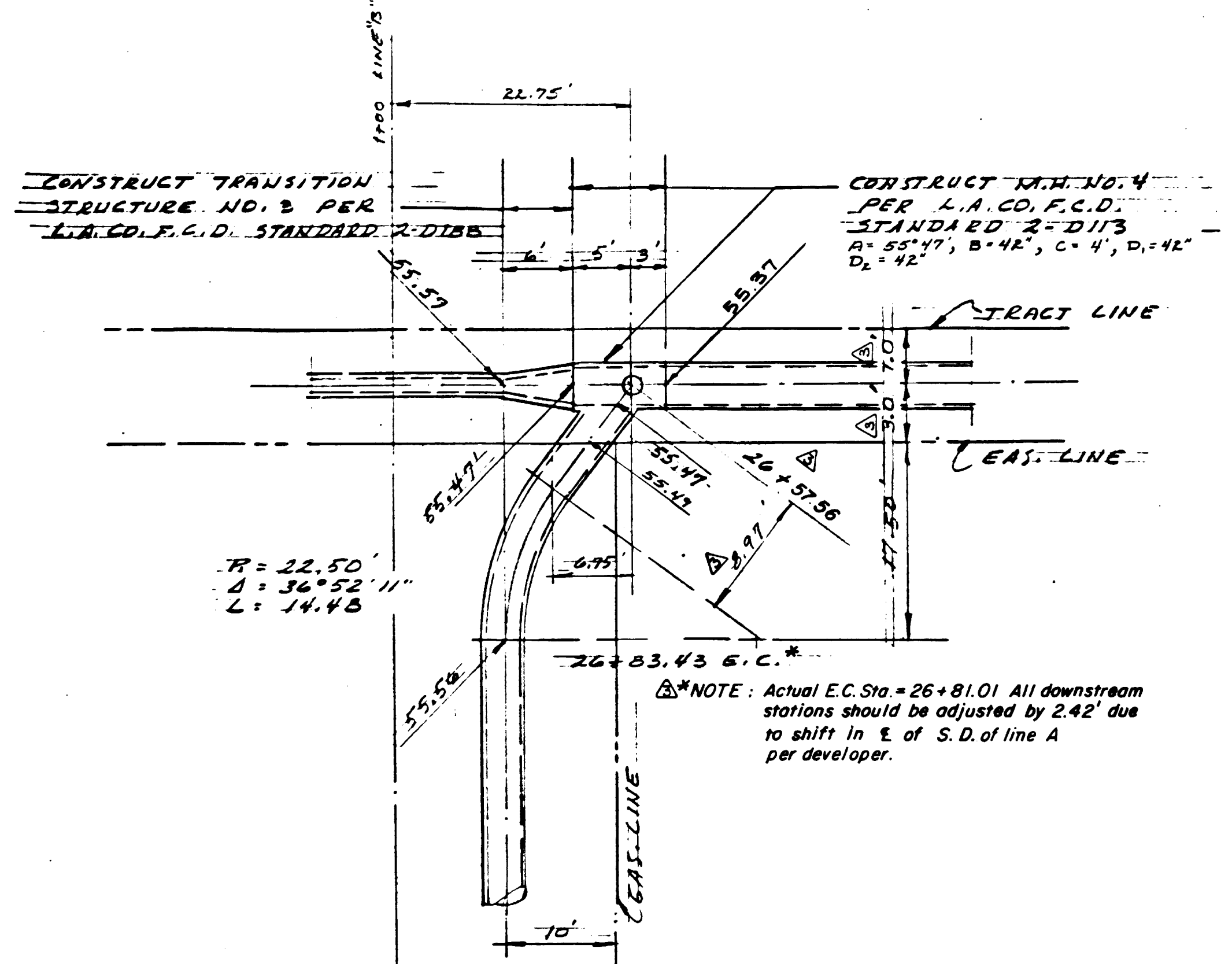
SCALE: AS SHOWN  
 SHEET 10 OF 11

PLANS PREPARED BY:  
**DENN ENGINEERS**  
 23751 MADISON ST.  
 TORRANCE, CA 90505  
 378-0279

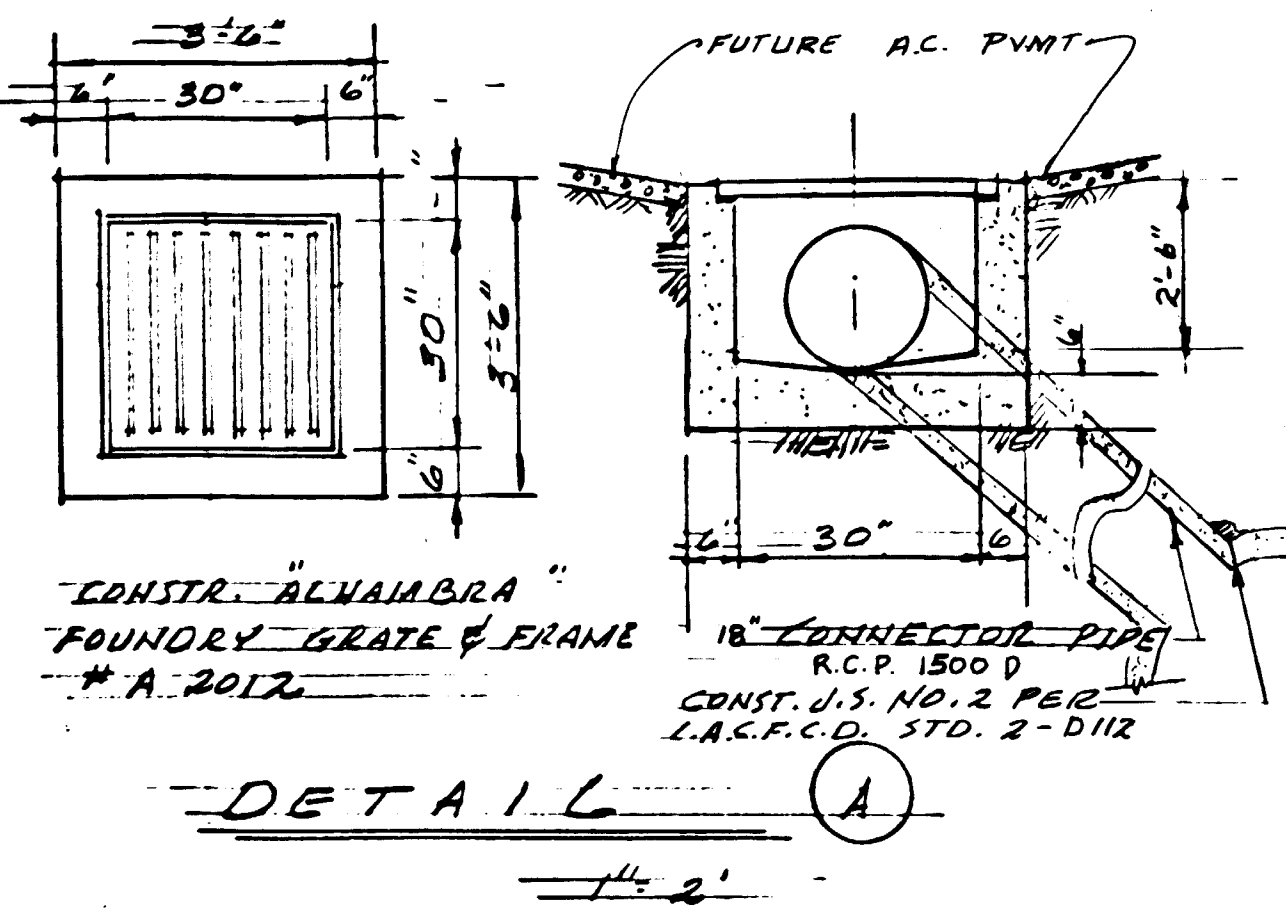
MARTIN M. DENN  
 R.C.E. 7081

DATE: 5/30/87

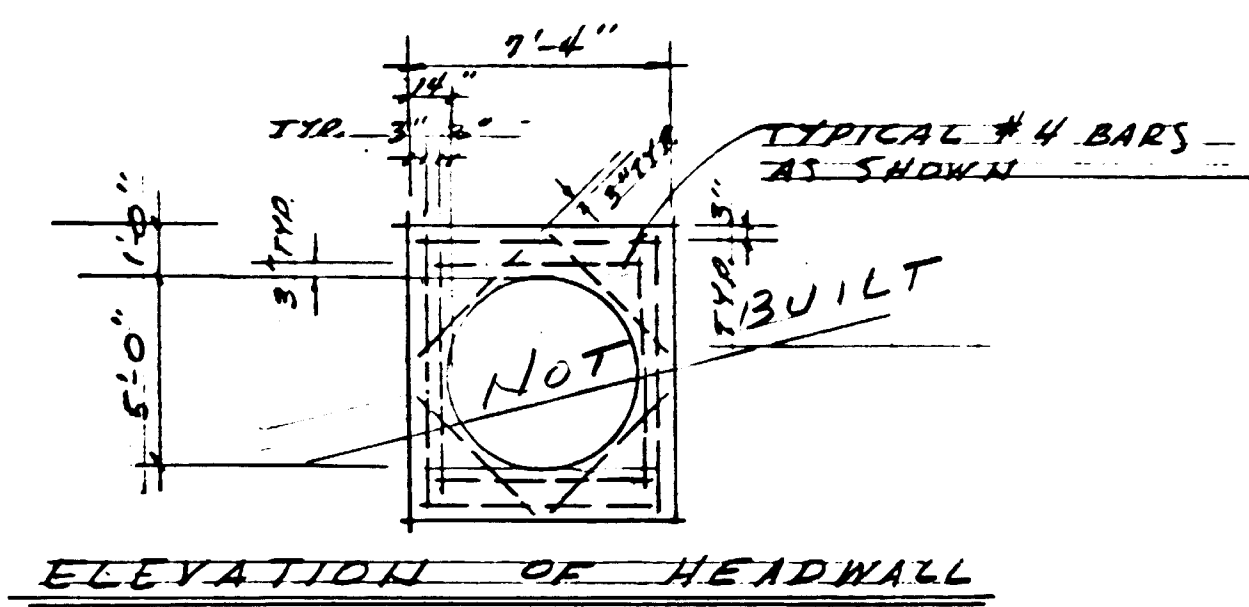
PLAN NO. **SD-413** SD-1063



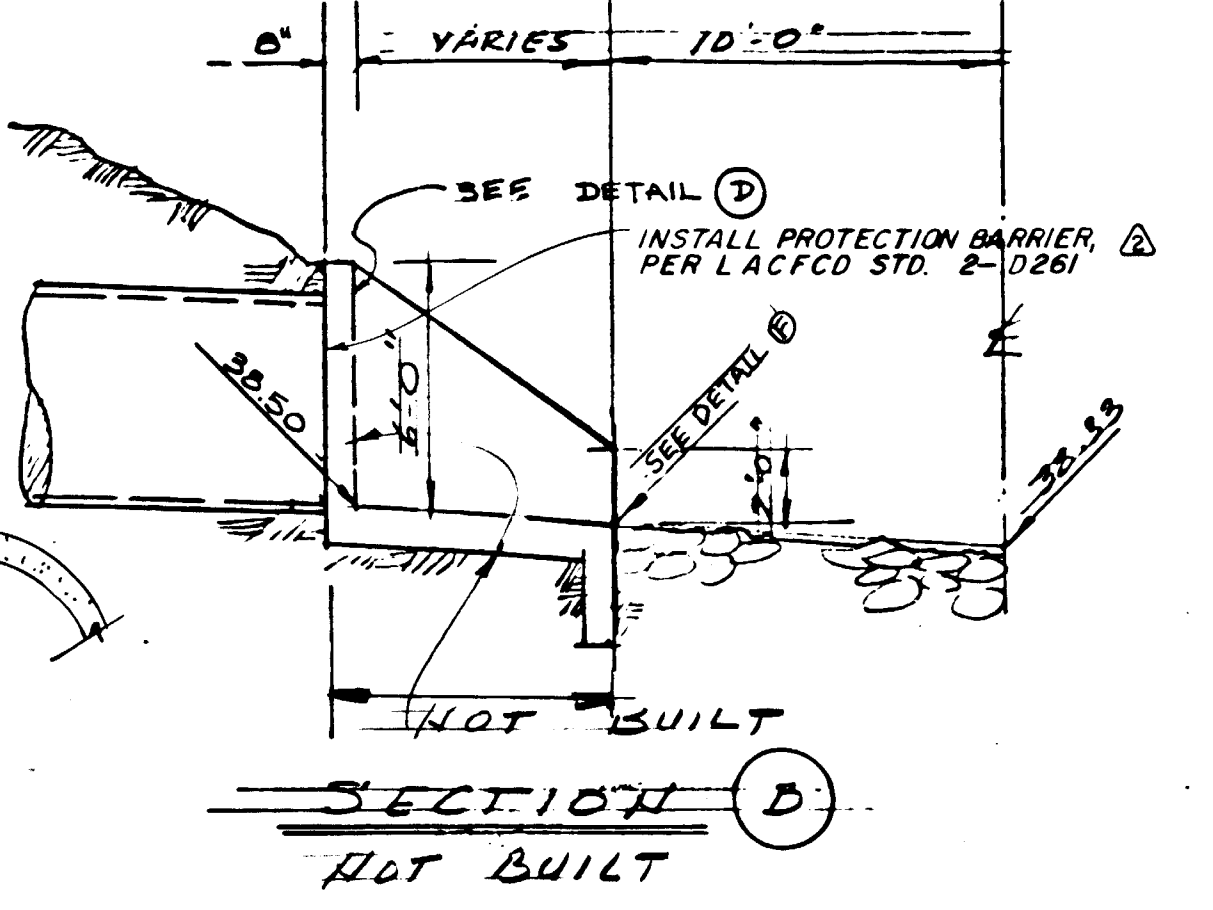
DETAIL C PLAN VIEW SCALE 1"=10'



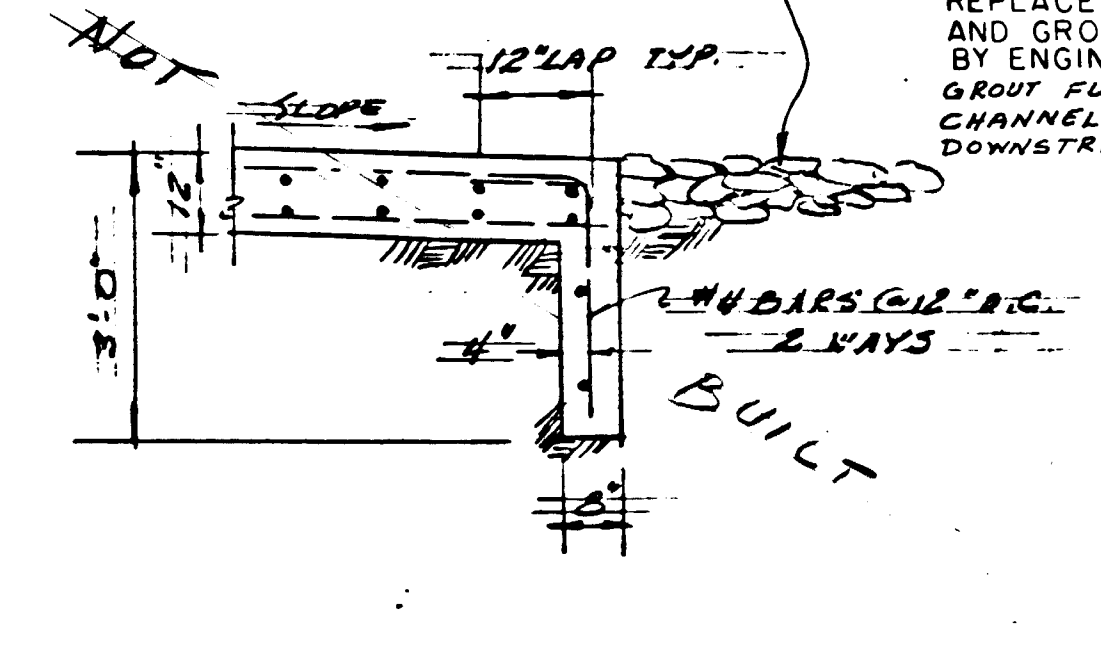
DETAIL A (NOT BUILT) SCALE 1"=5'



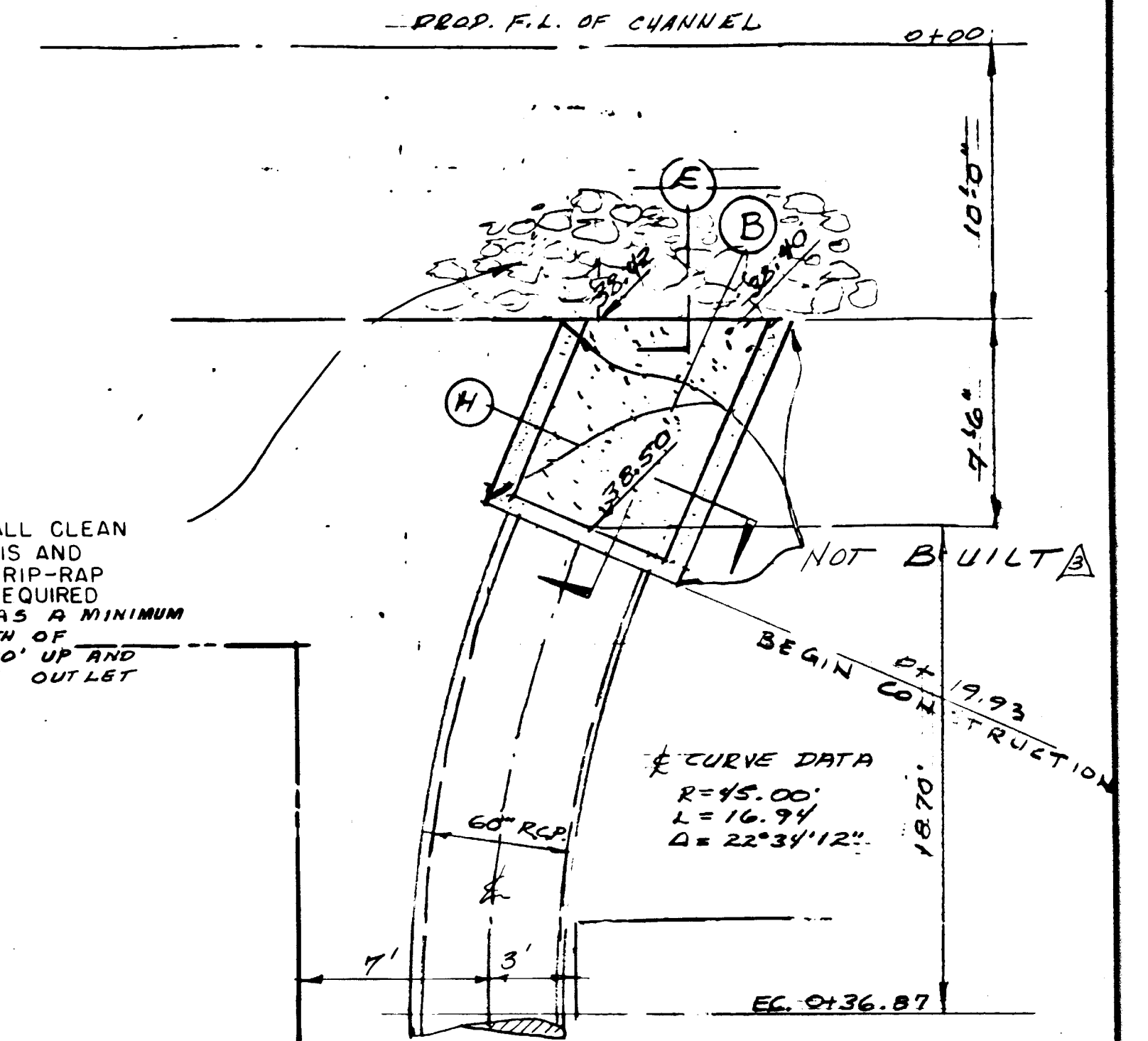
DETAIL D (NOT BUILT) SCALE 1"=5'



SECTION D (NOT BUILT) SCALE 1"=5'



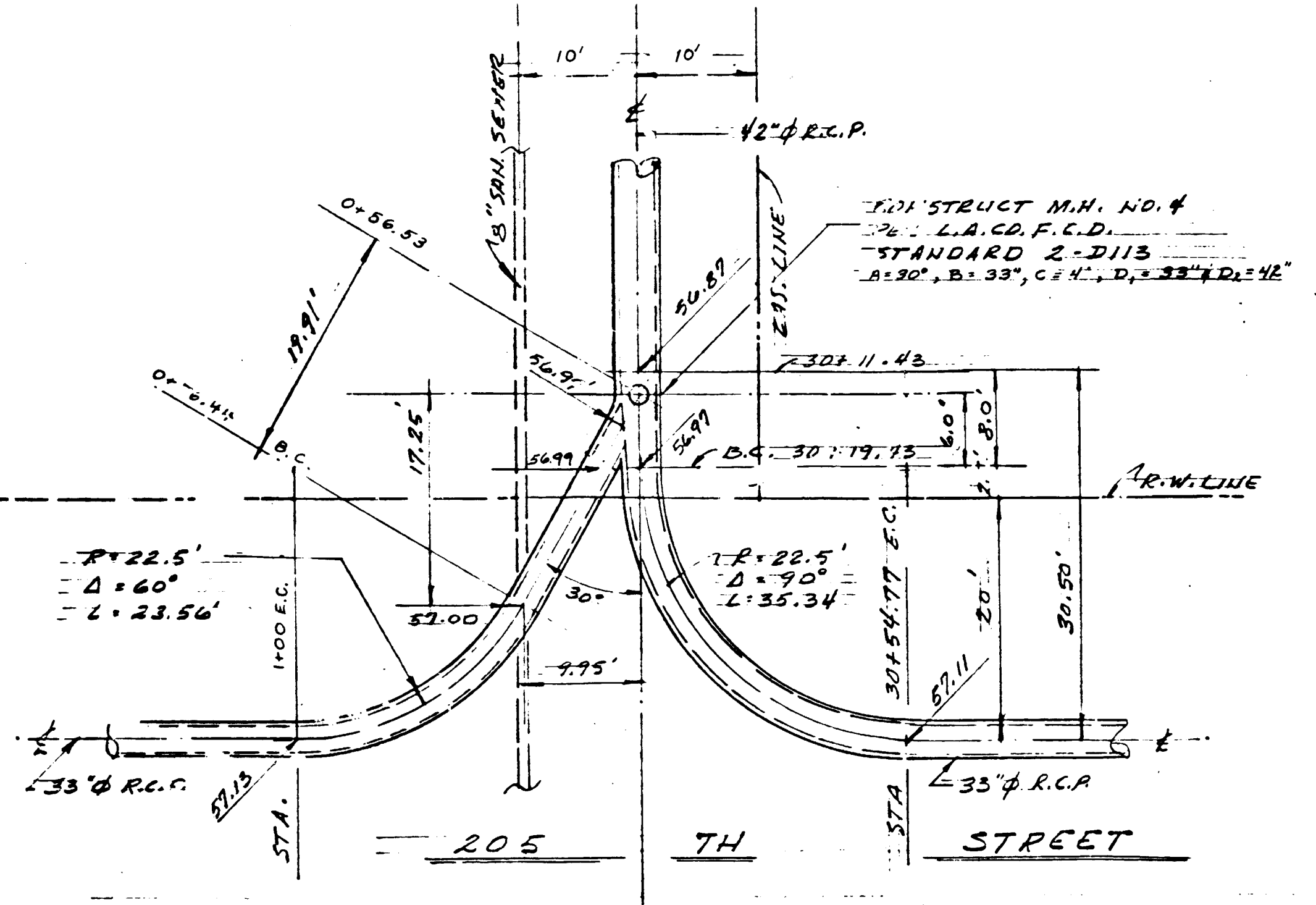
SECTION E (NOT BUILT) SCALE 1"=5'



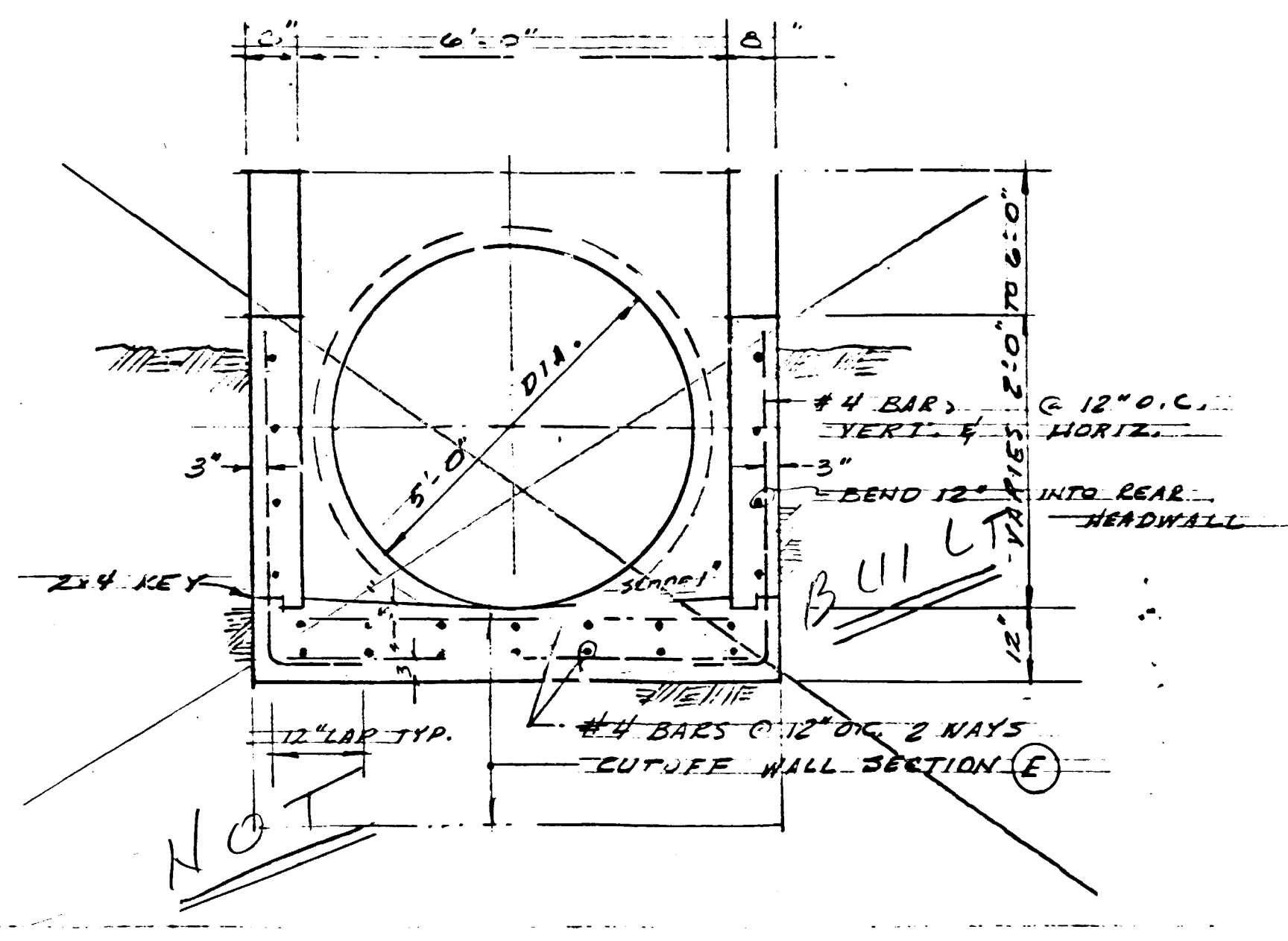
DETAIL F PLAN VIEW SCALE 1"=5'

CONCRETE STRENGTH TO REACH 2500 P.S.I. AT THE END OF 28 DAYS. LOADS MAY BE APPLIED AFTER 7 DAY SET.

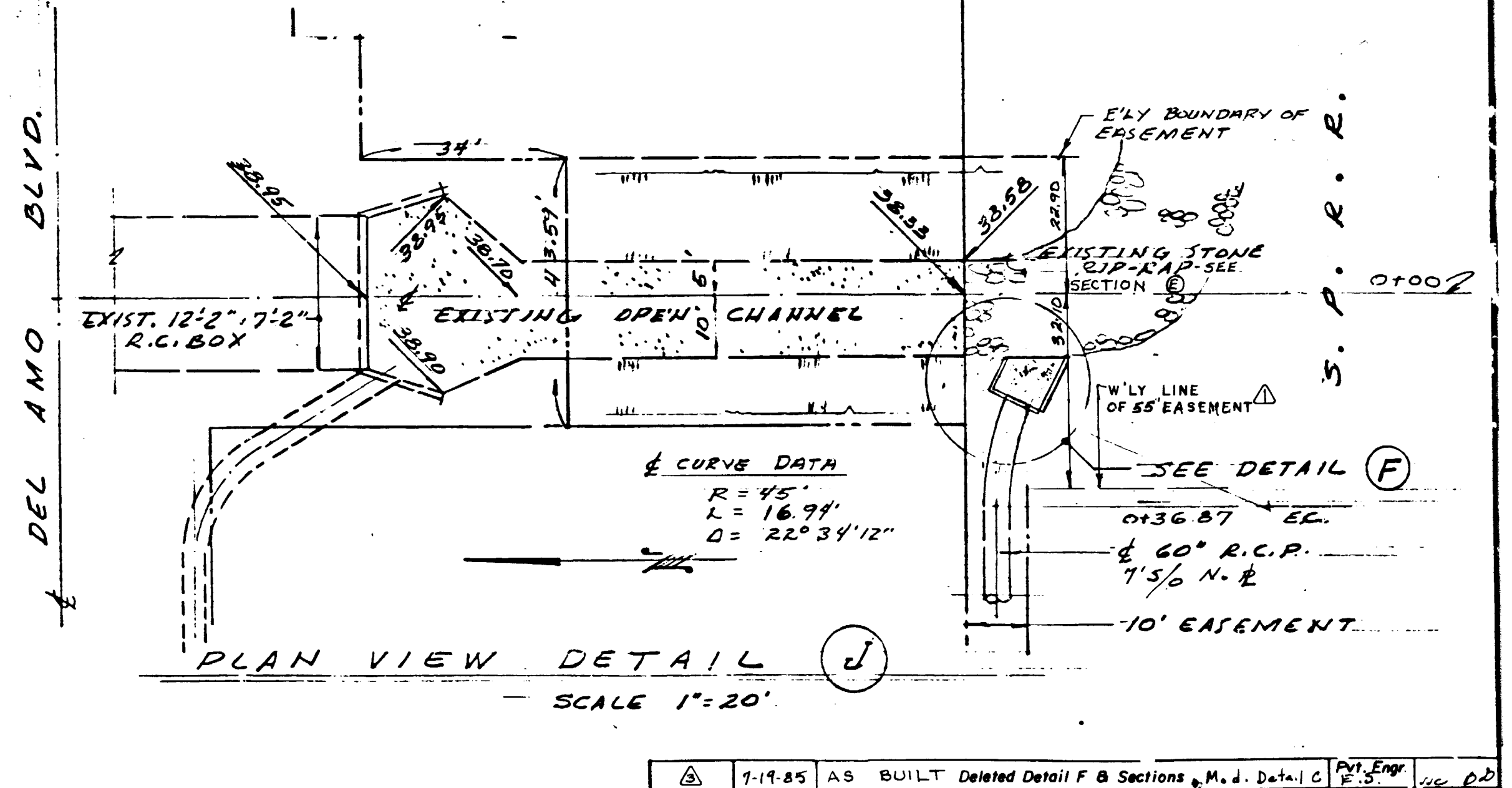
REINFORCING STEEL TO BE DEFORMED BARS CONFORMING TO LATEST A.S.T.M. A-615 GRADE 40 SPECIFICATIONS. LAPS TO BE 24 BAR DIAMETERS IN CONCRETE. BENDS TO BE MADE AROUND PINS OF 6 BAR DIAMETERS. TIE STEEL IN PLACE SUFFICIENTLY TO PREVENT MOVEMENT DURING GROUT OR CONCRETE POUR. MIN. COVER 1" AGAINST DIRT 2" AGAINST FORMS.



DETAIL G PLAN VIEW SCALE 1"=10'



SECTION H (NOT BUILT) SCALE 1"=2'



PLAN VIEW DETAIL J SCALE 1"=20'

REVISION	DATE	DESCRIPTION	BY	CHECKED
1	7-1-85	AS BUILT Detail F & Sections H, J, D, Detail C	PVT. ENGR	MC 02
2	8-23-84	ADD PROTECTION BARRIER	MFT	SJC 02
3	8-16-84	SHOWED EASEMENT OF DETAIL J	SJC	MC 03

CITY OF TORRANCE  
**ENGINEERING DEPARTMENT**  
E. E. BOURBONNAIS CITY ENGINEER

PLANS PREPARED BY:  
**DENN ENGINEERS**  
23751 MADISON ST.  
TORRANCE, CA 90505  
378-0279

DRAWN: PVT. ENGINEER  
DESIGNED: PVT. ENGINEER  
RECOMMENDED: SJC

APPROVED: *E.E. Bourbonnais*  
CITY ENGINEER R.C.E. NO 31163

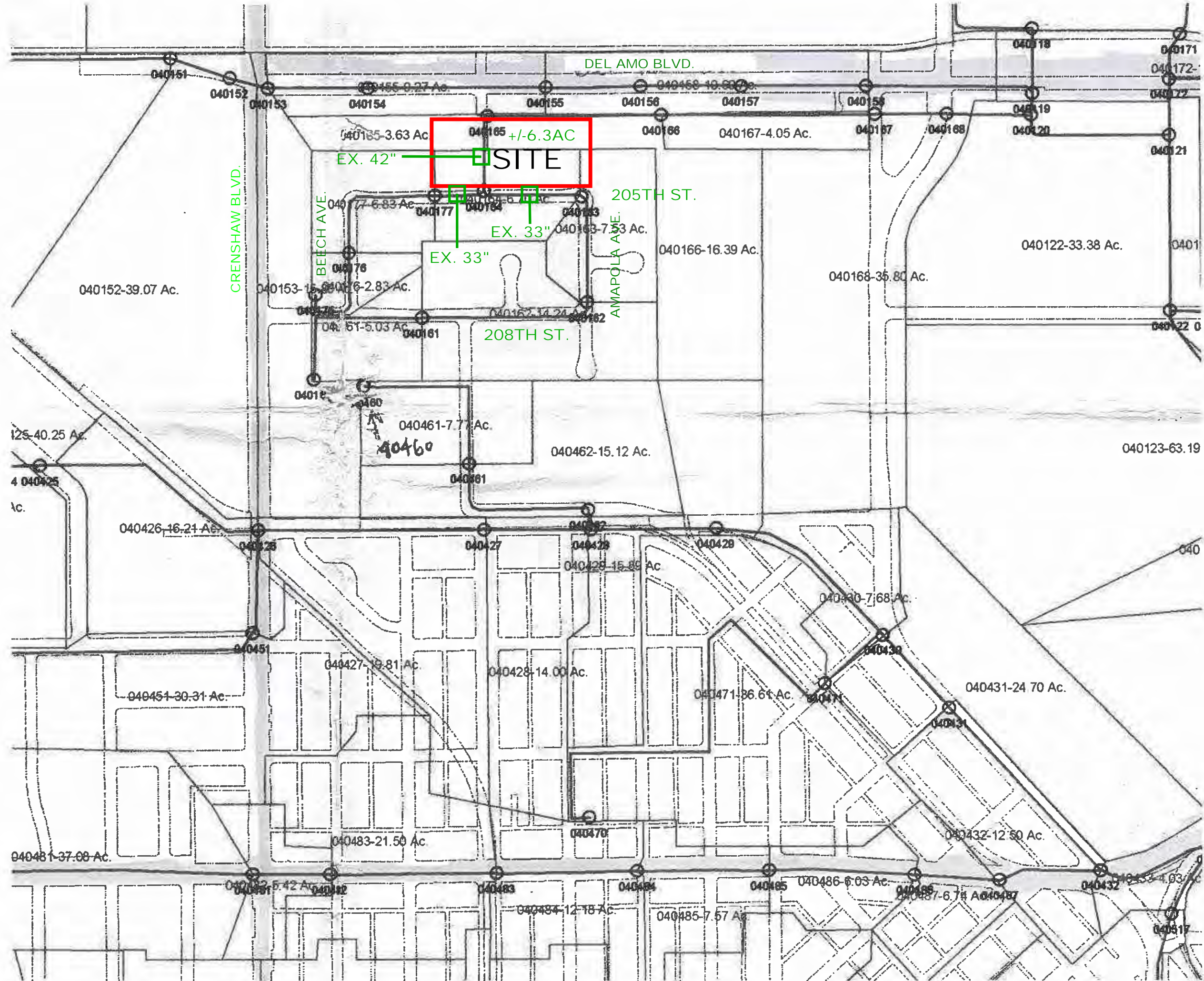
SCALE: AS SHOWN SHEET 11 OF 11  
PLAN NO. **SD-113 SD-1063**

DATE: 5/20/84  
DATE: 5/20/84

SD-113 11-11  
100 Del Amo Blvd Easement, Greystone, Marina

100-1063







NODE_ID	USNODE	DSNODE	AREA	Expr1	Expr2	USELEV	TOPO	DSELEV	TOPO	LENGTH	TOP	TOPOSLOPE	DIAHTE	PIPENO	WI	SIDESLOPE	MANNIN	Q10LAF	Q25LAF	Q50LAF	BALHGL_U	BALHGL_D	STWID	QST25	QST50	PIPECAP	Q10TOT	Q25TOT	Q50TOT	Q10DEF	Q25DEF	Q50DEF	MAXDEF	MAXDEFY	PARALLELQ	PARALLELD	REPLQ	REPLDIA	ADVOCDI	RECDDIA	RECWDI					
040110-040111	40110	40111	357373.04	01		60	60.5	1573	-0.0003	8	7	0	0	223	254	294	51.78	48.63	0	0	0	0	0	0	358	358	358	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
040111-040112	40111	40112	2910148.04	01		60.5	60	221	0.0023	9	8	0	0	302	346	398	48.63	48.19	80	24.4	52.6	496.8	496.8	521.2	549.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
040112-040113	40112	40113	2473730.04	01		60	59.5	750	0.0007	7.08	9	0	0	370	424	487	48.19	46.69	80	13.2	28.6	413.5	413.5	426.7	442.1	0	0	45	45	50-Yr	45	3.75	4.58	2.00	0	0	9.00	0	0	0	0	0				
040113-040114	40113	40114	259013.1.04	01		59.5	59.2	1048	0.0003	7.08	9	0	0	371	426	489	46.69	44.59	52	22.3	37.8	413.5	413.5	432.8	451.3	0	0	38	38	50-Yr	38	3.50	4.51	9.00	0	0	9.00	0	0	0	0	0				
040114-040115	40114	40115	04	01		59.2	59	522	0.0004	8.5	1	0	0	368	422	485	44.59	43.55	52	22.3	43.7	445.2	445.2	467.5	488.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
040141-040142	40141	40142	349321.8.04	01		58.41	58.3	460	0.0002	2	1	0	0	27	30	33	53.22	49.67	32	15.7	27.5	18.4	18.4	34.1	45.9	9	9	10-Yr	9	1.75	2.7	2.50	0	0	2.50	0	0	0	0	0	0	0				
040142-040115	40142	40115	04	01		58.3	59	792	-0.0009	2	1	0	0	21	24	27	49.67	43.55	0	0	0	18.4	18.4	18.4	18.4	3	6	9	9	50-Yr	9	1.75	2.7	2.50	0	0	2.50	0	0	0	0	0				
040115-040116	40115	40116	1140292.04	01		59	58.6	550	0.0007	8.5	1	0	0	384	442	506	43.55	42.45	52	30.7	60.2	445.2	445.2	475.9	505.4	0	0	1	1	50-Yr	1	0.75	4.46	9.00	0	0	9.00	0	0	0	0	0				
040116-040117	40116	40117	84118.82.04	01		58.6	58.3	1101	0.0003	8	7	0	0	385	443	506	42.45	40.25	52	18.8	36.9	340	340	358.8	376.9	45	84	129	129	50-Yr	129	5.50	4.69	9.00	0	0	9.00	0	0	0	0	0				
040117-040118	40117	40118	11149700.04	01		58.3	57	1118	0.0012	25	9	0	0	640	741	829	40.25	38.01	0	0	0	2224.8	2224.8	2224.8	2224.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
040118-040119	40118	40119	04	01		57	51.16	315	0.0185	35	9	0	0	638	738	827	38.01	37.38	0	0	0	3204	3204	3204	3204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
040151-040152	40151	40152	2497093.04	01		70	69	305	0.0033	3.75	1	0	0	78	87	99	66.71	65.28	65	38.5	83.6	97.3	97.3	127.7	163.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
040152-040153	40152	40153	1700882.04	01		69	68	191	0.0052	3.75	1	0	0	134	150	174	66.71	65.28	65	38.5	83.6	97.3	97.3	135.8	180.8	37	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
040153-040154	40153	40154	689021.8.04	01		68	65	496	0.006	3.75	1	0	0	167	189	217	65.28	61.56	66	41	89.7	97.3	97.3	138.2	187	70	51	30	37	10-Yr	37	2.75	13.4	4.25	0	0	4.25	0	0	0	0	0				
040154-040155	40154	40155	04	01		65	59	860	0.007	4	1	0	0	166	189	216	61.56	55.12	66	44	96.4	115.5	115.5	159.5	211.9	50	29	4	50	10-Yr	50	3.00	166	4.75	0	0	4.75	0	0	0	0	0	0			
040155-040156	40155	40156	404155.2.04	01		59	56	460	0.0065	4	1	0	0	173	197	225	55.12	51.67	66	42.5	93.2	115.5	115.5	158.1	208.7	57	39	16	57	10-Yr	57	3.25	173	4.75	0	0	4.75	0	0	0	0	0				
040156-040157	40156	40157	04	01		56	53	482	0.0062	4.25	1	0	0	171	196	223	51.67	48.06	66	41.6	91.1	135.8	135.8	177.4	226.9	35	19	0	35	10-Yr	35	2.75	171	4.75	0	0	4.75	0	0	0	0	0				
040157-040158	40157	40158	04	01		53	50.34	607	0.0044	3.25	1	0	0	171	195	223	48.06	43.51	66	34.9	76.4	66.4	66.4	101.3	142.8	105	94	80	105	10-Yr	105	4.00	171	4.75	0	0	4.75	0	0	0	0	0				
040158-040119	40158	40119	467480.4.04	01		50.34	51.16	818	-0.001	5	1	0	0	177	202	229	43.51	37.38	0	0	0	209.4	209.4	209.4	209.4	0	0	20	20	50-Yr	20	2.25	229	5.25	0	0	5.25	0	0	0	0	0				
040119-040120	40119	40120	04	01		51.16	51.93	105	-0.0074	35	9	0	0	790	905	1023	37.38	37.17	0	0	0	3204	3204	3204	3204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
040161-040162	40161	40162	219135.04	01		69.48	68.11	847	0.0016	2	1	0	0	22	25	27	66.92	61.73	55	45.5	91.1	16.4	16.4	61.9	107.5	6	0	0	6	10-Yr	6	1.50	22	2.25	0	0	2.25	0	0	0	0	0				
040162-040163	40162	40163	620491.3.04	01		68.11	67.75	522	0.0007	2.5	1	0	0	40	47	52	61.73	58.54	46	29.8	56.3	29.8	29.8	59.5	86	10	0	0	10	10-Yr	10	1.75	40	3.00	0	0	3.00	0	0	0	0	0				
040163-040164	40163	40164	328036.9.04	01		67.75	67.81	484	-0.0001	2.75	1	0	0	41	56	68	58.54	55.58	0	0	0	38.4	38.4	38.4	38.4	3	18	30	30	50-Yr	30	2.50	68	3.50	0	0	3.50	0	0	0	0	0				
040176-040177	40176	40177	123251.7.04	01		69	67.92	665	0.0016	2.5	1	0	0	11	13	13	63.98	57.82	46	45.7	86.3	36.7	36.7	82.5	123.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
040177-040164	40177	40164	297627.1.04	01		67.92	67.81	242	0.0005	2.75	1	0	0	28	32	35	57.82	55.58	46	24.2	45.6	47.4	47.4	71.5	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
040164-040165	40164	40165	292057.6.04	01		67.81	65	376	0.0075	3.5	1	0	0	72	95	111	55.58	53.28	0	0	0	73	73	73	73	0	22	38	38	50-Yr	38	2.75	111	4.25	0	0	4.25	0	0	0	0	0				
040165-040166	40165	40166	158016.5.04	01		65	62.92	840	0.0025	3.5	1	0	0	79	102	120	53.28	48.13	0	0	0	73	73	73	73	6	29	47	47	50-Yr	47	3.00	120	4.25	0	0	4.25	0	0	0	0	0				
040166-040167	40166	40167	713873.9.04	01		62.92	46.03	1031	0.0164	3.5	1	0	0	108	135	155	48.13	41.82	0	0	0	73	73	73	73	35	62	82	82	50-Yr	82	3.75	155	4.75	0	0	4.75	0	0	0	0	0				
040167-040168	40167	40168	176192.5.04	01		46.03	53.03	351	-0.02	4.5	1	0	0	109	136	156	41.82	39.68	0	0	0	142.6	142.6	142.6	142.6	0	0	13	13	50-Yr	13	2.00	156	4.75	0	0	4.75	0	0	0	0	0				
040168-040120	40168	40120	1558008.04	01		53.03	51.93	409	0.0027	5	1	0	0	160	193	223	39.68	37.17	0	0	0	188.9	188.9	188.9	188.9	0	4	34	34	50-Yr	34	2.75	223	5.50	0	0	5.50	0	0	0	0	0				
040120-040																																														