

8 LOS ANGELES HARBOR EAST

8.1 Watershed Hydrology Analysis

The Los Angeles Harbor East drainage area is part of the Dominguez Channel and LA Harbor watershed defined by County of Los Angeles DPW (Exhibit J). This drainage area includes four canyons. These canyons collect runoff water from the eastern portion of this watershed. This subarea's storm drain system connects to pipes own by the City of Los Angeles. The Miraleste Canyon is located within this watershed. Most of the tributary area to this canyon is open space areas. There is a small portion of urbanized areas that drain directly into Miraleste Canyon. Other areas are collected by storm drain pipes that discharge into the Canyon. Runoff originating from the City of Rolling Hills drains into this drainage area.

The hydrology results for the 10-, 25- and 50-year storm events are provided in Appendix I-1.

8.1.1 Hydrology Results Summary 10-, 25-, 50-year storm events

Los Angeles Harbor East drainage area was divided into 70 subwatersheds and Table 8-1 summarizes the maximum 10-, 25-, and 50- year storm event discharge flow draining into each node.

Hydrology ID	Structure ID	Subarea (acres)	10-Year Flow (cfs)	25-Year Flow (cfs)	50-Year Flow (cfs)
1A	CB0839	4.5	2.6	3.9	5
2A	CB0837	1.3	1.4	2.1	2.6
3B	CB0842	2.8	2.6	3.7	4.7
4B	CB0841	1.4	1.3	2	2.4
6A	CB0006	34.1	27	37.4	46.1
7B	CB0002	18.6	13.6	19.3	23.8
9D	CB0864	10.3	13.3	18.3	22.3
11D	CB0861	2.4	3.1	4.4	5.6
12E	CB0851	5.2	6.7	9.5	11.7
13E	TS0852	1.3	1.5	2	2.6
15D	IS0858	13.6	16.8	23.8	28.9
17C	IS0853	16	13.8	19.2	24.9
20D	MH0040	10.1	11.4	16.5	19.8
21D	MH0040	12.1	23.7	33.9	40.6
28D	JS16517	6	9.4	12.3	15
30E	CB0127	17.6	14.6	21.4	26.3
31F	CB0869	6	10.2	14.1	16.9
32F	IS0130	34	27.3	39.7	48.3
34F	IS0915	25.1	23.8	35.4	42.3
35F	34F	1.2	3.3	4.3	5
36G	CB0918	3.7	4.6	6.7	8.1
37H	CB0881	2.2	3.4	4.8	6.1
38J	IS0876	17.2	15.8	22.2	26.6
39K	IS0878	32.8	34.2	48.9	58.5
43G	43G	37.1	31.1	45.5	55.8
44G	43G	13.5	45.6	66.7	81.4
46G	CB3272	20	15.2	22.5	27.4

Table 8-1: LAE Hydrology Summary					
Hydrology ID	Structure ID	Subarea (acres)	10-Year Flow (cfs)	25-Year Flow (cfs)	50-Year Flow (cfs)
47G	JS3273	4.1	7.5	9.9	12.6
51F	JS2712	6.2	8.9	11.7	14.4
52F	JS2712	7.4	17.6	23.6	28.7
56E	JS0140	28.9	24.8	35.5	43.8
58E	JS0149	1.6	2.2	3	3.6
65E	CB0924	11.5	12.4	16.6	20.6
66E	IS0164	7.5	10.9	15.3	19
67E	CB0156	13.9	14.8	19.8	24.6
68E	MH0160	8.4	8.1	12.6	15.5
71D	CB1908	6.2	8	10.8	13
77I	CB0045	5.1	3.5	5.2	6.5
78F	CB0846	1.8	1.8	2.7	3.2
79F	CB0847	1	0.9	1.4	1.7
80G	CB0804	0.3	0.6	0.9	1.1
81H	CB0798	28.7	29.7	40.4	48.7
82I	CB0786	5.8	8	10.9	13.7
83K	CB0790	5.1	7	9.3	11.4
85I	IS54939	66.6	53.8	76.9	95.2
87K	CB3122	15.3	18.1	24.1	31.3
88K	CB0801	3.9	3.6	5.1	6.1
91G	91G	16.3	17.4	24.2	31.2
94E	IS0047	18.7	14.9	21.1	27.2
95F	JS1920	9.6	6.6	11.4	14.6
97E	MH1914	49.1	37	55.4	67.1
99F	JS45733	2.3	2.6	3.5	4.2
104F	JS2944	9.6	15.5	22.4	25.6
106F	CB2939	5.4	6.6	9.6	11.9
109F	JS2975	9.5	11	15.1	19.3
113D	MH2978	2.9	4	5.4	6.6
115L	CB0007	10.8	7.4	10.6	13.2
116H	CB0845	7.1	3.9	6	7.7
117H	IS0029	9.8	7.4	10.8	13.9
118H	CB0020	21.2	18.3	26.5	32.2
121H	IS3418	7.1	9.2	13.2	15.3
123H	MH3423	10.2	7.5	10.5	13.4
126G	CB0016	13.4	10.4	14.2	17.7
129M	MH2961	27.9	18.6	28.1	36
136G	CB2966	19.9	13.2	20.6	26.7
144N	CB46133	1.1	1.4	1.9	2.3
145G	CB0166	32.6	20.9	34.2	45.2
146O	CB0011	10.7	7.3	10.5	13.1
147P	CB0151	12.5	12.6	17.4	21.5
148Q	CB0909	12.8	13.8	21.2	25.8

8.2 Hydraulic Analysis

8.2.1 Existing Condition

Table 8-2 provides important modeling assumptions used for the hydraulic analysis and Appendix I-2 provides the existing condition hydraulic analysis for the 10-, 25- and 50-year storm events.

Table 8-2: LAE Hydraulic Model Assumptions					
System	Upstream Structure ID	Downstream Structure ID	Pipe ID	Street	Assumption
1	JS3419	MH46528	SD14729	Western Avenue at West Crestwood Street	Updated based on field observations, the alignment shown on the County of Los Angeles DPW storm drain system GIS database, Navigate LA, and the 2014 CCTV inspection. For this system, the invert elevations were calculated using street slope and the known upstream and downstream inverts.
	CB53739	MH46528	SD43944		
	MH46528	MH0012	SD43943		
	MH0012	MH46131	SD43945		
	CB0016	MH0013	SD2875		
	MH0013	JS46129	SD43942		
	CB46128	JS46129	SD43941		
	JS46129	MH0012	SD2863		
2	CB0850	OS0849	SD2866	El Tesoro Place	Used a 12-inch PVC storm drain (most storm drain systems in the surroundings are 12-inch PVC).
	JS0865	OS0866	SD2853	Via de Anzar	
3	IS0164	OS0165	SD2767	Santa Rosa Drive	Assumed to be a 4-foot wide x 2-foot high RCB. These two storm drain lines have inlets behind private property and outlet into the street in front of the houses. The invert elevations were assumed to be at ground elevation.
	IS0162	OS0163	SD2774		

8.2.1.1 Results

This drainage area transitions from very steep slopes to flatter slopes and the entire storm drain system ultimately connects to the City of Los Angeles.

Table 8-3 provides a list of the storm drain structures that were flooded in the 10- and 50-year hydraulic analysis.

Table 8-3: LAE Flooded Storm Drain Structures		
Storm Drain Structure ID	Floods in 50-Year Storm Event	Floods in 10-Year Storm Event
CB1908	X	
CB3272	X	
CB0151	X	
GB3401	X	X
GB3403	X	
CB0851	X	
CB0877	X	X
MH1914	X	
IS0876	X	X
CB0864	X	X
MH0160	X	

Table 8-3: LAE Flooded Storm Drain Structures		
Storm Drain Structure ID	Floods in 50-Year Storm Event	Floods in 10-Year Storm Event
IS0915	X	
JS3412	X	
JS3413	X	X
GB3414	X	X
CB0166	X	X
CB0787	X	
MH0012	X	X
MH46528	X	
CB0127	X	
IS0047	X	

8.2.2 Recommended Improvements

Table 8-4 provides the storm drain systems within this drainage area that were found to be deficient following Section 2.4.4 criteria, and improvements are recommended. The recommended improvement maps (atlas map) are attached at the end of this chapter (Figure 8-1). The proposed condition hydraulic analysis results are included in Appendix I-3.

Table 8-4: LAE Pipes to be Improved								
System	Owner	Upstream Structure ID	Downstream Structure ID	Pipe ID	Atlas Map	Existing Size (in)	Proposed Size (in)	Street
1	LAC	CB1908	MH3210	SD40739	33C	24	30	Santa Rena Drive Western Drive
		MH3210	GB3211	SD2216		24	30	
		GB3211	JS3212	SD2206		24	30	
2	RPV	IS0876	CB0877	SD1733	16A	12	30	Palos Verdes Drive East
		CB0877	CB0875	SD2841		12	30	
		CB0875	OS0872	SD2840		12	30	
3	RPV	CB3272	CB3271	SD2260	15D	18	24	Golden Spur Lane
4	LAC	CB0851	TS0852	SD2386	16B	12	18	Via Canada
5	LAC	IS0858	GB3403	SD2384	16B	21	24	Via Canada
		GB3403	MH0857	SD2385		21	24	
		MH0857	GB3401	SD2381		21	24	
		GB3401	CB0856	SD2382		15	24	
		CB0856	GB0855	SD0355		24	-	
		GB0855	GB0854	SD0354		21	24	
		GB0854	OS3402	SD2383		24	-	
6	RPV	CB0127	CB0128	SD2832	34A	18	24	Becham Drive
		CB0128	GB52139	SD2829		18	24	
		GB52139	GB52140	SD50773	33C	18	24	
		GB52140	GB0129	SD50774		18	24	
7	LAC	MH1914	JS45732	SD2826	33C	36	60	Western Avenue
		JS45732	JS45733	SD2825		36	60	
		JS45733	MH2941	SD2823		42	60	
8	RPV	CB0864	JS0865	SD2857	16B	12	18	Via Canada
		JS0865	OS0866	SD2853		12	18	
9	RPV	IS0915	OS0916	SD2787	15D	18	24	Rocking Horse Road

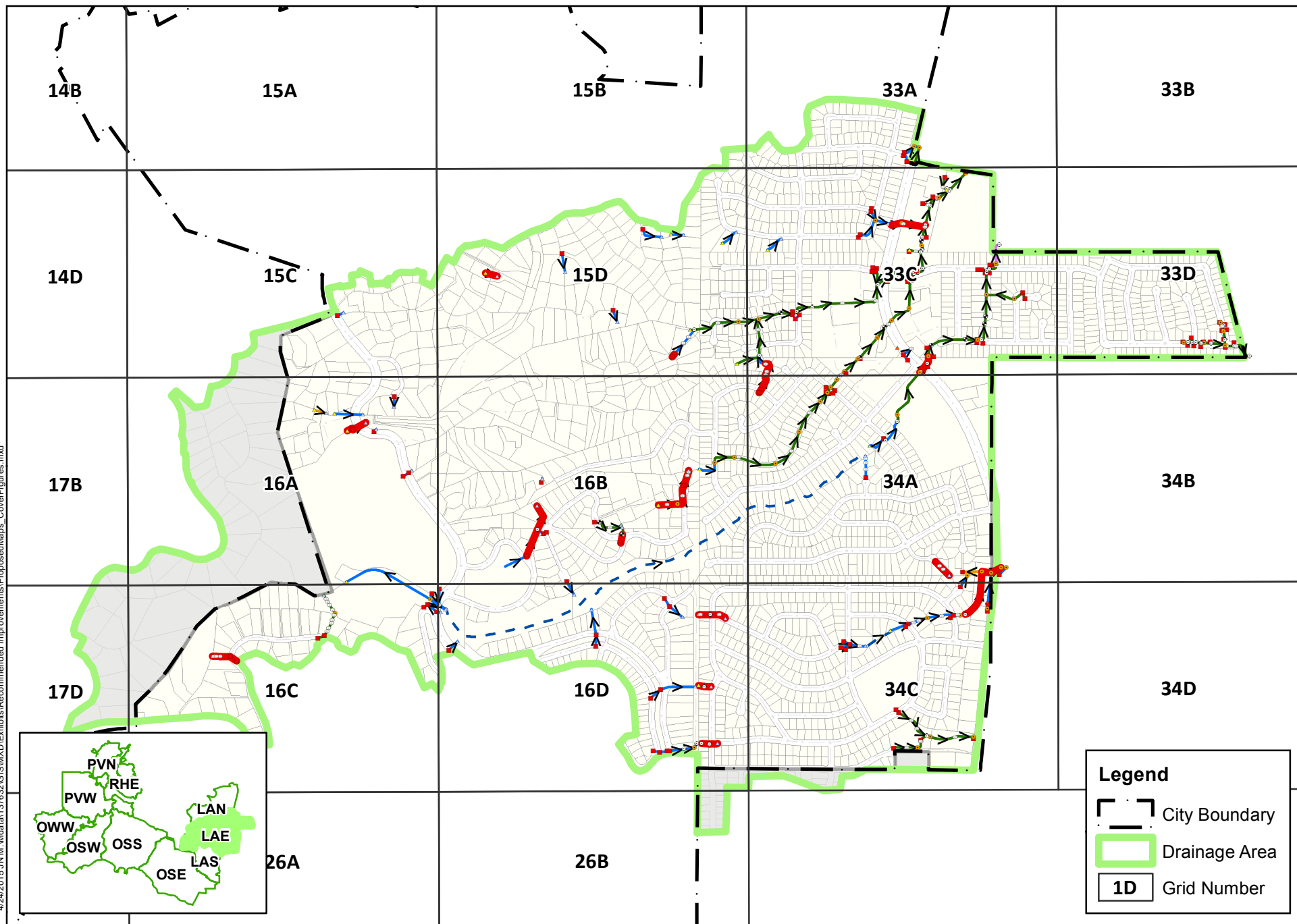
Table 8-4: LAE Pipes to be Improved								
System	Owner	Upstream Structure ID	Downstream Structure ID	Pipe ID	Atlas Map	Existing Size (in)	Proposed Size (in)	Street
10	RPV	IS0029	GB3414	SD2397	16D	18	24	North Enrose Avenue
		GB3414	JS34133	SD2398		18	24	
		JS34133	GB3415	SD2399		1X1.083	4X2	
		GB3415	OS0028	SD2400		1X1.084	4X2	
11	RPV	JS3411	JS34128	SD2395	16D	1X1.083	4X2	North Enrose Avenue
		JS34128	OS0024	SD2396		1X1.083	4X2	
12	RPV	IS0027	JS3410	SD2393	16D	1X1.083	4X2	North Enrose Avenue
		JS3410	OS0026	SD2392		1X1.083	4X2	
13	RPV	CB0786	CB0787	SD0382	16C	18	24	Crownview Drive
		CB0787	GB3118	SD0381		18	24	
		GB3118	GB3120	SD2113		18	24	
		GB3120	GB3119	SD2115		18	24	
		GB3119	OS0788	SD2114		18	24	
14	RPV	JS3419	MH46528	SD14729	34C	24	48	North Western Avenue
		MH46528	MH0012	SD43943	34A	30	48	
		MH0012	MH46131	SD43945		24	48	
15	RPV	CB0007	GB41729	SD40747	34A	18	24	Homeworth Drive
		GB41729	GB41730	SD40748		18	24	
		GB41730	OS0008	SD2859		18	24	

8.2.3 Cost Estimates

Table 8-5 provides an estimate of the construction cost of recommended improvements for this drainage area. The recommended improvements are shown in the attached atlas maps. Appendix B-6 includes the cost estimates for each recommended improvement map.

Table 8-5: LAE Total Cost Estimate	
Atlas Map	Total Project Cost
15D	\$85,000
16A	\$109,000
16B	\$465,000
16C (2)	\$145,000
16D (2)	\$1,449,000
33C & 34A	\$162,000
33C	\$344,000
34A & 34C	\$532,000
34A	\$93,000
Total	\$3,384,000

4/24/2015 J:\M:\Data\137632\GIS\W\X\Exhibits\Recommended Improvements\Proposed Maps_CoverFigures.mxd



Source:



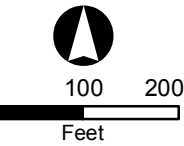
Michael Baker
INTERNATIONAL

Storm Water
Recommended
Improvements

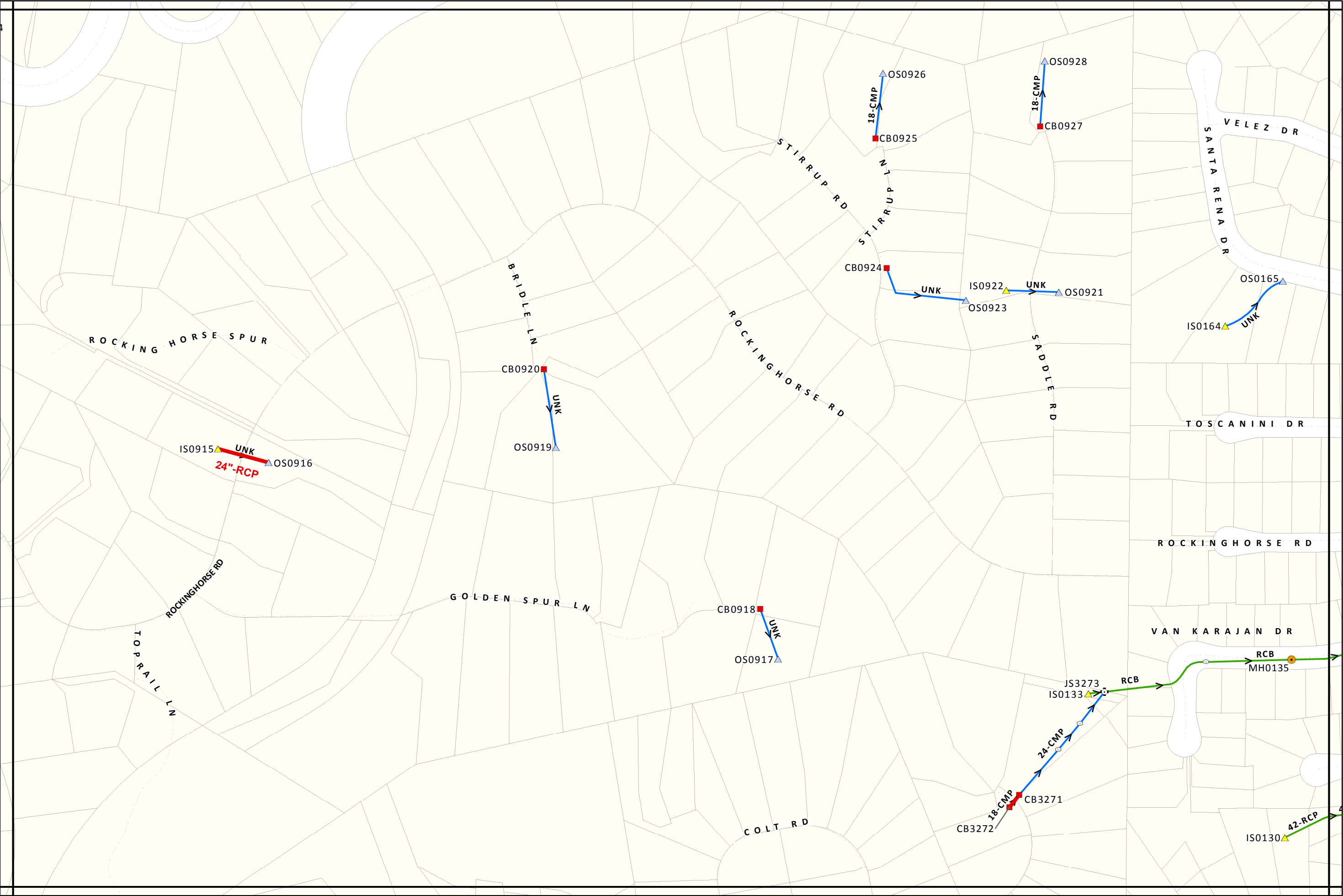
- Catch Basin
- Inlet
- Outlet
- Parkway Outlet
- Manhole
- Junction
- Transition
- Grade Break
- Storm Filter and Storm Gate
- Proposed Pipe
- Proposed Size
- Open Watercourse
- Rancho Palos Verdes
- Rolling Hills Estates
- Palos Verdes Estates

- Private
- City of LA
- County of LA
- Unknown

City Boundary



15A	15B	33A
15C	15D	33C
16A	16B	34A

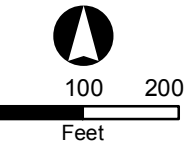




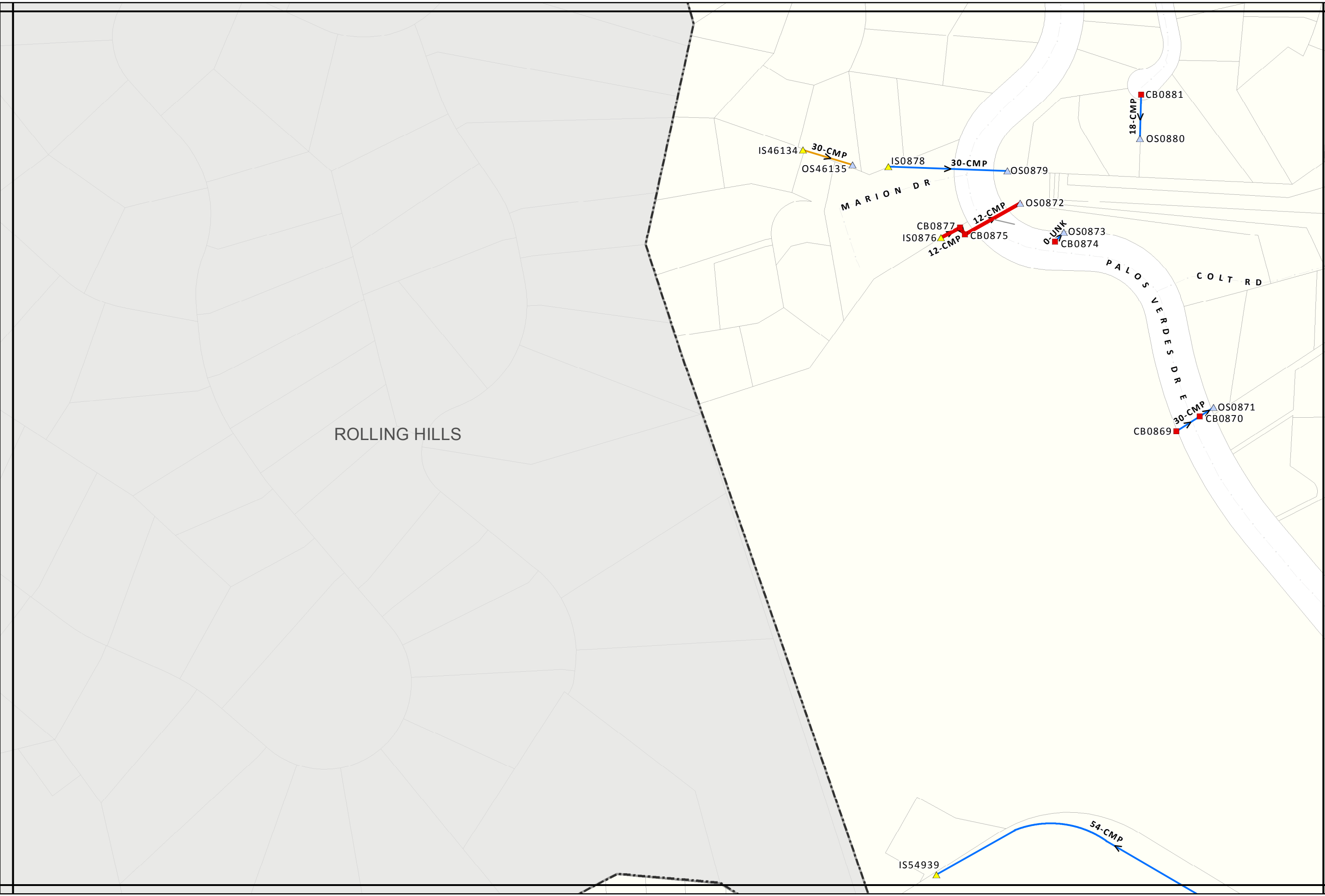
Michael Baker
INTERNATIONAL

Storm Water
Recommended
Improvements

- Catch Basin
- Inlet
- Outlet
- Parkway Outlet
- Manhole
- Junction
- Transition
- Grade Break
- Storm Filter and Storm Gate
- Proposed Pipe
- Proposed Size
- Open Watercourse
- Rancho Palos Verdes
- Rolling Hills Estates
- Palos Verdes Estates
- Private
- City of LA
- County of LA
- Unknown
- City Boundary



14D	15C	15D
17B	16A	16B
17D	16C	16D

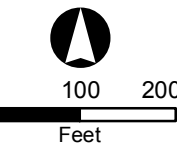




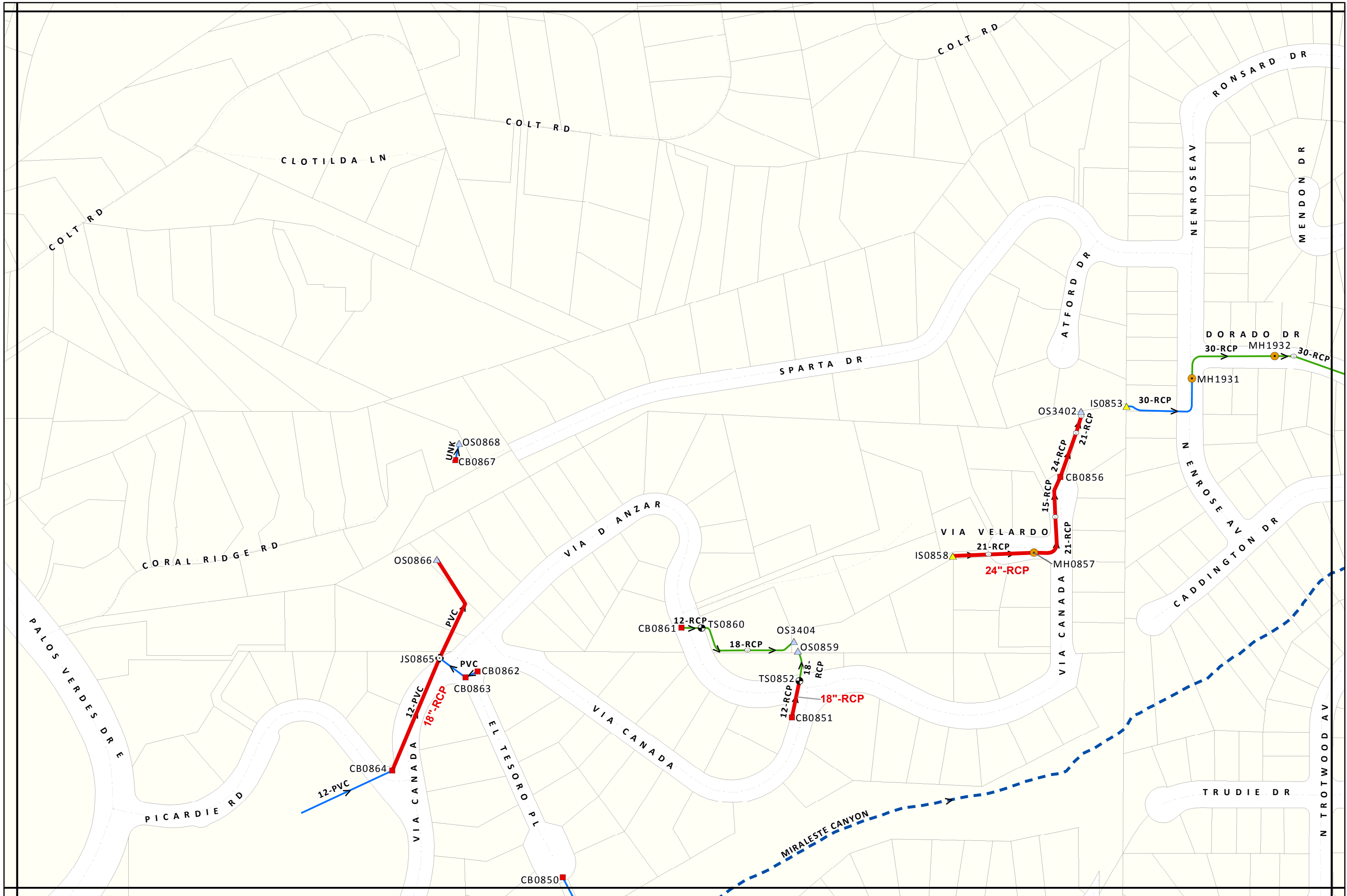
Storm Water
Recommended
Improvements

- Catch Basin
- Inlet
- Outlet
- Parkway Outlet
- Manhole
- Junction
- Transition
- Grade Break
- Storm Filter and Storm Gate
- Proposed Pipe
- 30" Proposed Size
- Open Watercourse
- Rancho Palos Verdes
- Rolling Hills Estates
- Palos Verdes Estates
- Private
- City of LA
- County of LA
- Unknown

City Boundary



15C	15D	33C
16A	16B	34A
16C	16D	34C



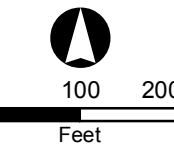


Michael Baker
INTERNATIONAL

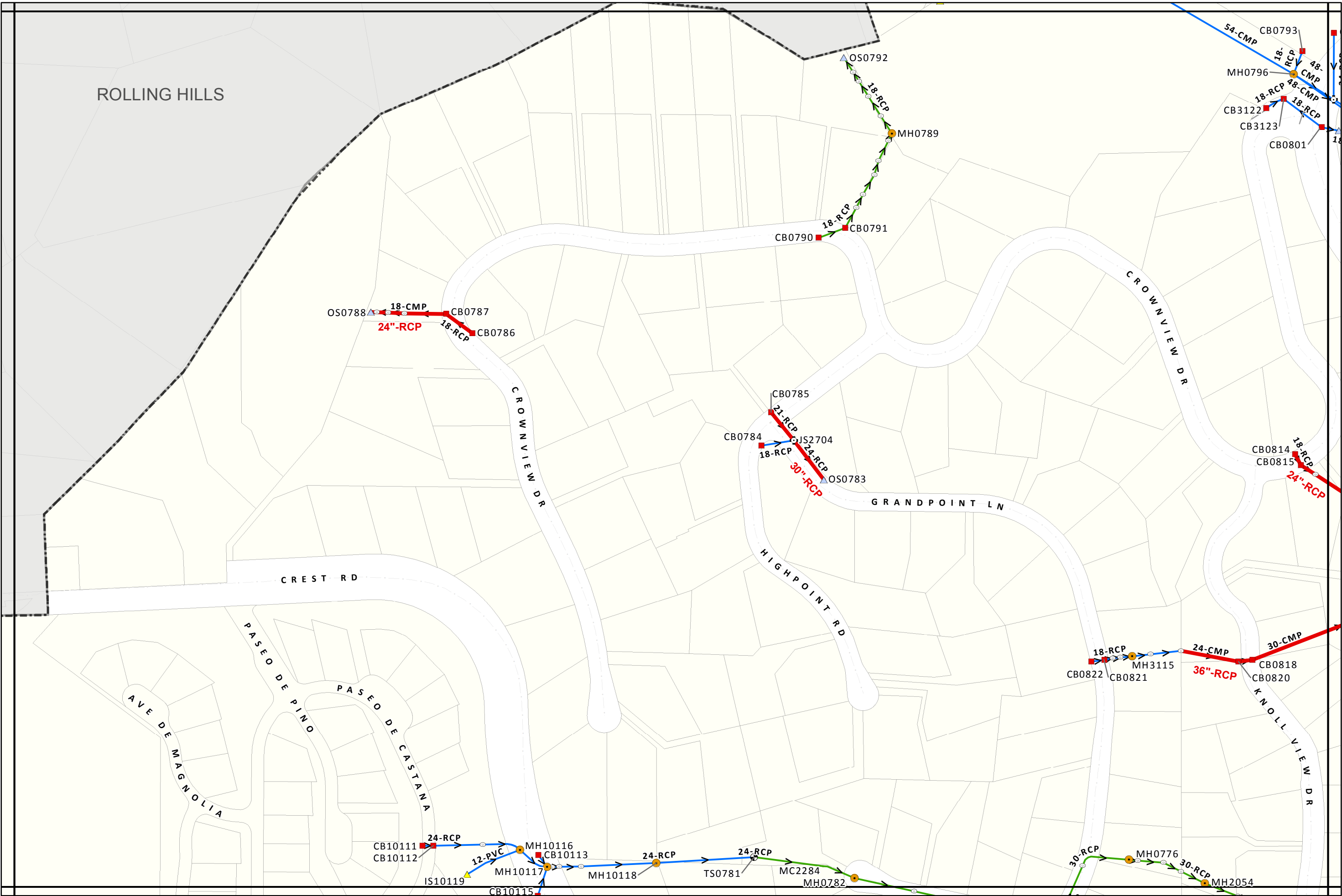
Storm Water
Recommended
Improvements

- Catch Basin
- Inlet
- Outlet
- Parkway Outlet
- Manhole
- Junction
- Transition
- Grade Break
- Storm Filter and Storm Gate
- Proposed Pipe
- 30" Proposed Size
- Open Watercourse
- Rancho Palos Verdes
- Rolling Hills Estates
- Palos Verdes Estates
- Private
- City of LA
- County of LA
- Unknown

City Boundary



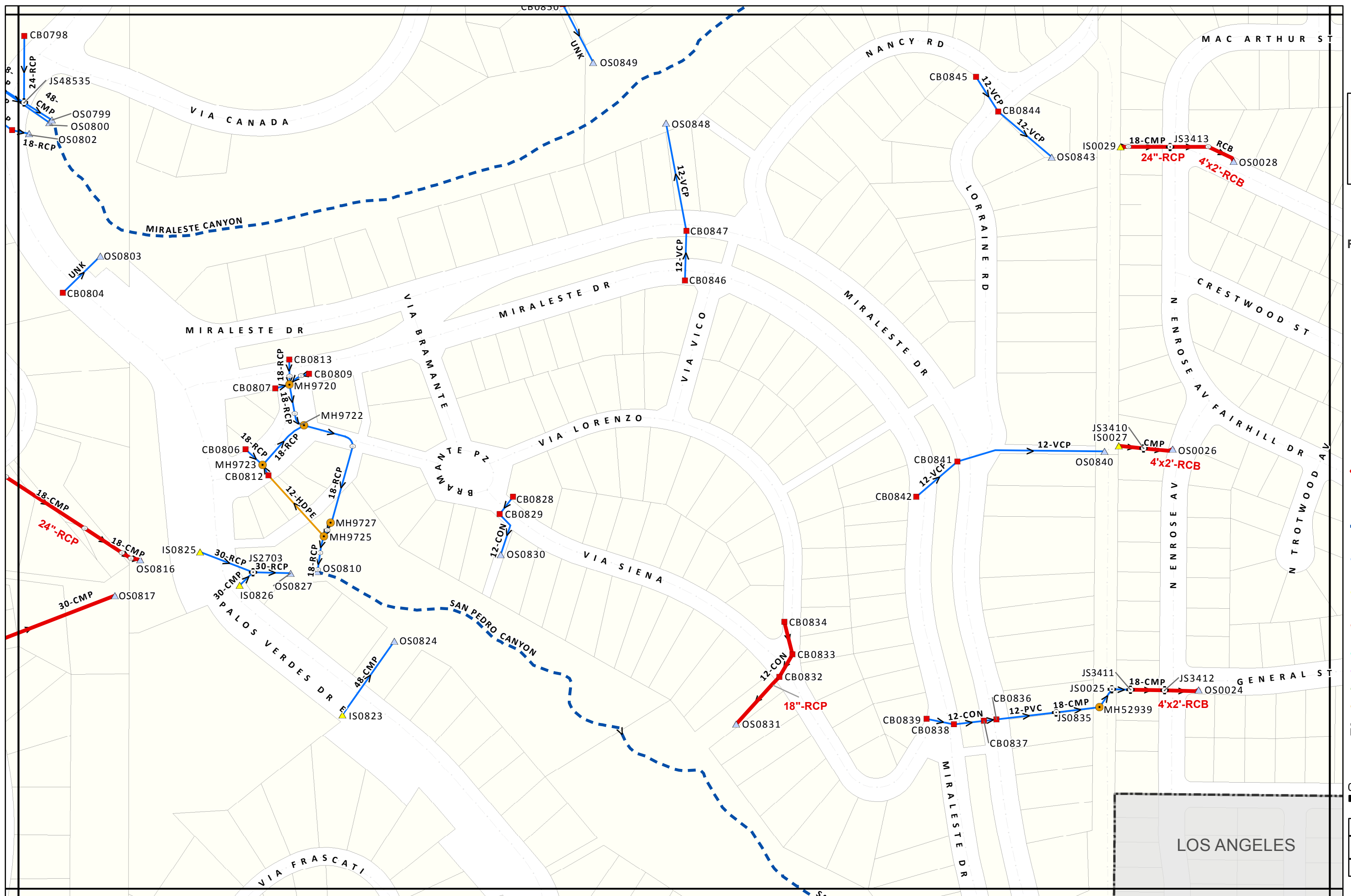
17B	16A	16B
17D	16C	16D
25B	26A	26B



Storm Water Recommended Improvements

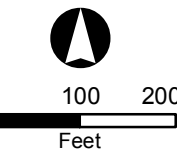
-

16A	16B	34A
16C	16D	34C
26A	26B	

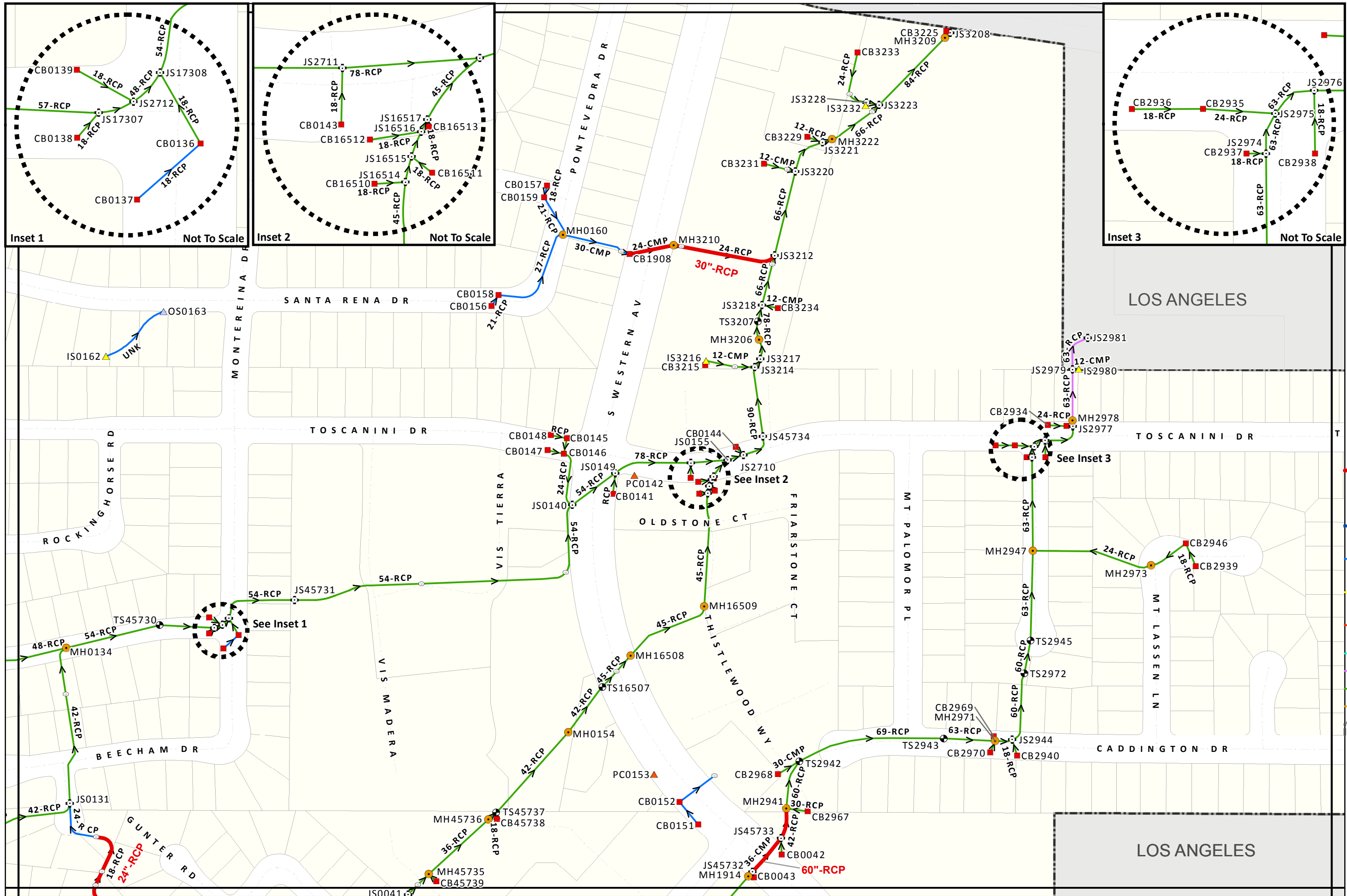




- Catch Basin
- Inlet
- Outlet
- Parkway Outlet
- Manhole
- Junction
- Transition
- Grade Break
- Storm Filter and Storm Gate
- Proposed Pipe
- Proposed Size
- Open Watercourse
- Rancho Palos Verdes
- Rolling Hills Estates
- Palos Verdes Estates
- Private
- City of LA
- County of LA
- Unknown
- City Boundary



15B	33A	33B
15D	33C	33D
16B	34A	34B

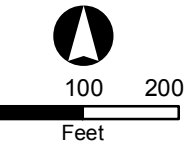




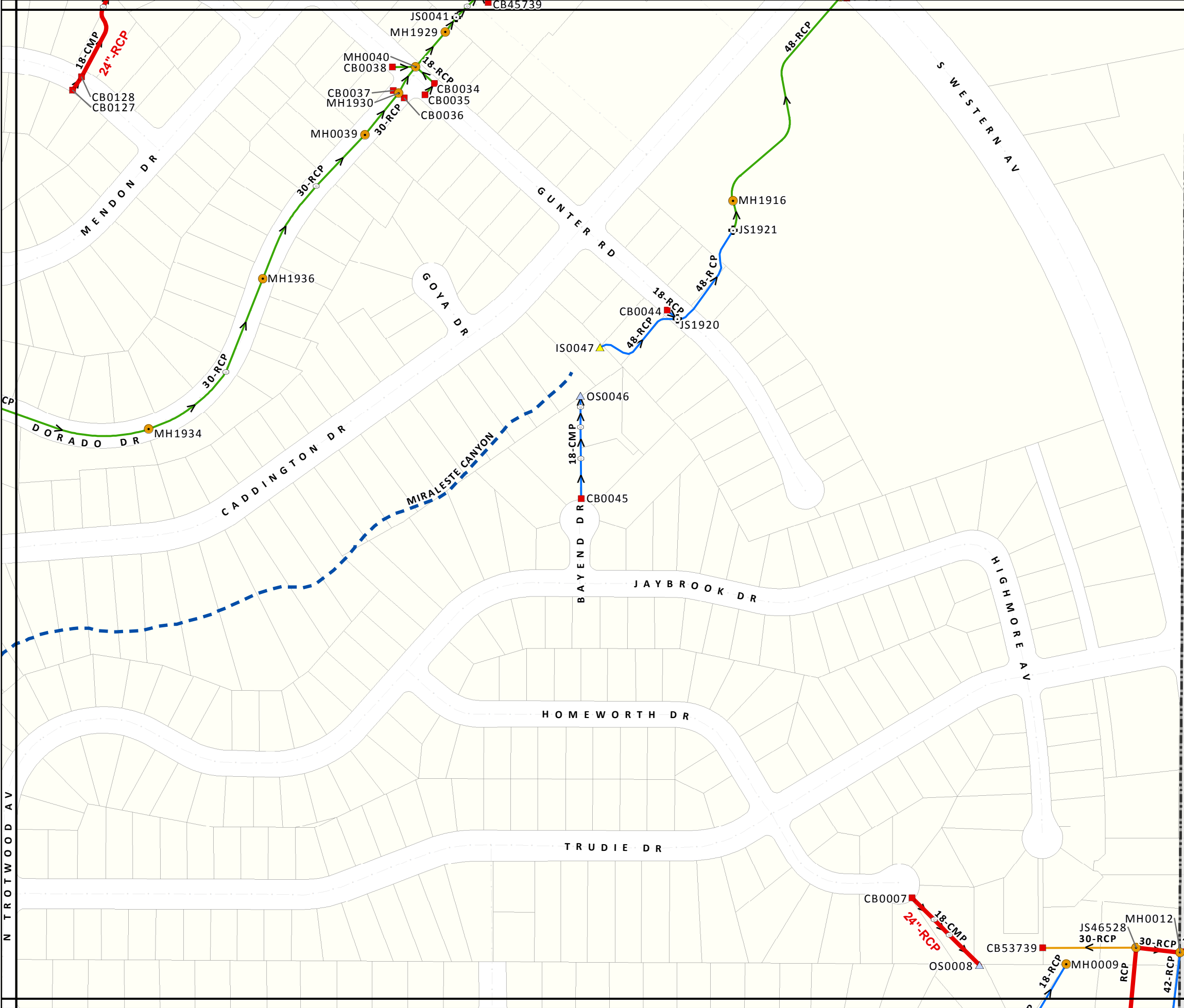
Storm Water
Recommended
Improvements

- Catch Basin
- Inlet
- Outlet
- Parkway
Outlet
- Manhole
- Junction
- Transition
- Grade Break
- Storm Filter
and Storm
Gate
- Proposed
Pipe
- 30"
Proposed
Size
- Open
Watercourse
- Rancho
Palos Verdes
- Rolling Hills
Estates
- Palos Verdes
Estates
- Private
- City of LA
- County of LA
- Unknown

City
Boundary



15D	33C	33D
16B	34A	34B
16D	34C	34D



-  Catch Basin
-  Inlet
-  Outlet
-  Parkway Outlet
-  Manhole
-  Junction
-  Transition
-  Grade Break
-  Storm Filter and Storm Gate
-  Proposed Pipe
-  30" Proposed Size
-  Open Watercourse
-  Rancho Palos Verdes
-  Rolling Hills Estates
-  Palos Verdes Estates

