SOFT BOTTOM CHANNEL VEGETATION CLEARING PROJECT PRECONSTRUCTION EELGRASS SURVEY REPORT

Prepared for:

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SECTION 1.0 – PURPOSE AND INTRODUCTION

Preconstruction eelgrass (*Zostera marina*) surveys were conducted at five soft-bottom reaches with tidal influence for the Los Angeles County Flood Control District (LACFCD) soft bottom channel (SBC) vegetation clearing project (Project). Maintenance work to be performed under this Project includes clearing vegetation, debris, and brush, as well as potential trimming and removal of riparian vegetation to reduce the impact on flow in the channel as future growth occurs. The surveyed reaches include: Ballona Creek, Dominguez Channel, Los Angeles River, San Gabriel River, and Los Cerritos Channel (Figure 1). The total survey area length is approximately 18 miles of flood control channel. The purpose of these surveys was to provide a quantitative assessment of the eelgrass communities within the vicinity of the project sites in conformance with Southern California Eelgrass Mitigation Policy (SCEMP) (NMFS 1991, as revised) and the recently adopted California Eelgrass Mitigation Policy (CEMP) (NOAA Fisheries, West Coast Region 2014).

SECTION 2.0 – PROJECT LOCATION AND SURVEY AREA

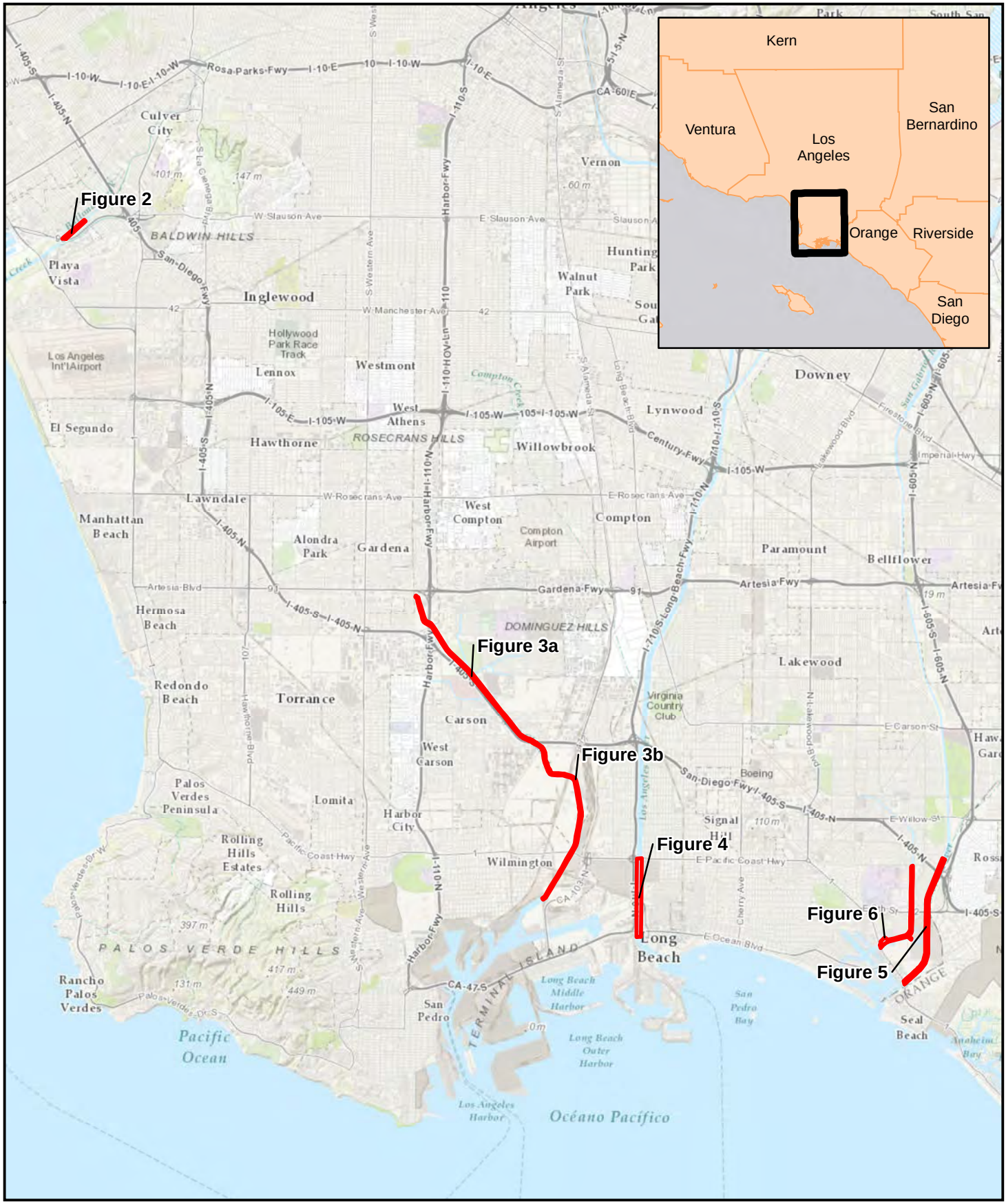
The Ballona Creek survey included approximately 2.9 miles of the Creek, located in the City of Los Angeles (Figure 2). The downstream limit for the survey was the CA-90 (Marina Freeway), and the upstream limit was Centinela Avenue.

The Dominguez Channel survey included approximately 8.2 miles of the Channel, located in the City of Gardena (Figures 3a and 3b). The downstream limit for the survey was Henry Ford Avenue, and the upstream limit was Vermont Avenue.

The Los Angeles River survey included approximately 1.7 miles of the River, located in the City of Long Beach (Figure 4). The downstream limit for the survey was Ocean Boulevard, and the upstream limit was Pacific Coast Highway.

The San Gabriel River survey included approximately 2.9 miles of the River, located in the City of Long Beach (Figure 5). The downstream limit for the survey was 350 feet upstream of the Pacific Ocean, and the upstream limit was 1,750 feet upstream of Interstate 405.

The Los Cerritos Channel survey included approximately 2.3 miles of the Channel, located in the City of Long Beach (Figure 6). The downstream limit for the survey was Pacific Coast Highway, and the upstream limit was Atherton Street.



Legend

soft bottom channels

N

0 1 2 4

Miles

Figure 1

Regional Vicinity Map

Los Angeles Flood Control District Soft Bottom Channel Vegetation Clearing Project

Name: 20876 Fig1 Regional Vicinity.Mxd
Print Date: 9/3/2015, Author: stondre

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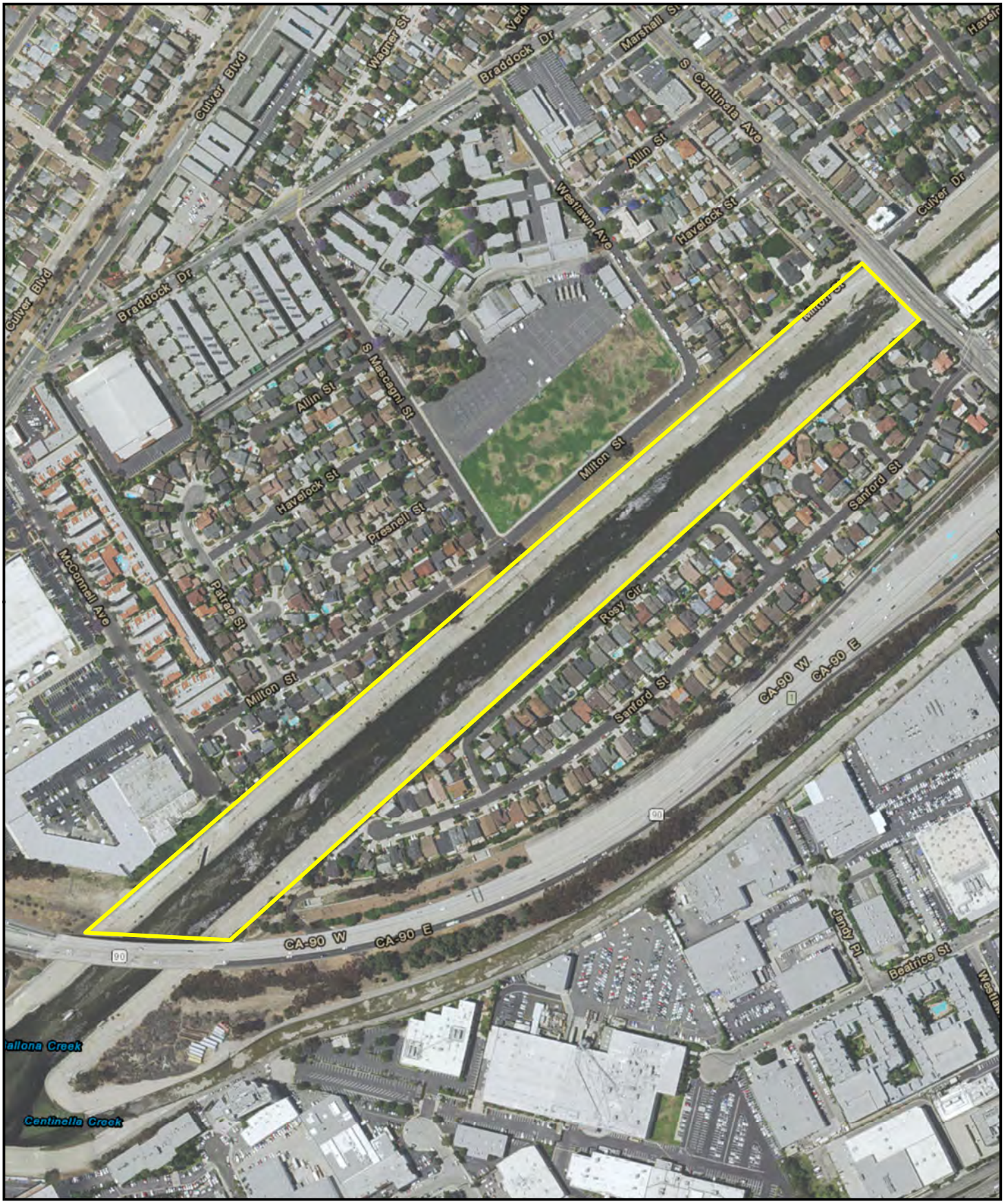

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Survey Area

N

0 170 340 680

Feet

Figure 2

Ballona Creek - Reach 112

Project Vicinity Map

Los Angeles Flood Control District Soft Bottom Channel Vegetation Clearing Project

Name: 20876 Fig2 to Fig6 Project Vicinity.Mxd
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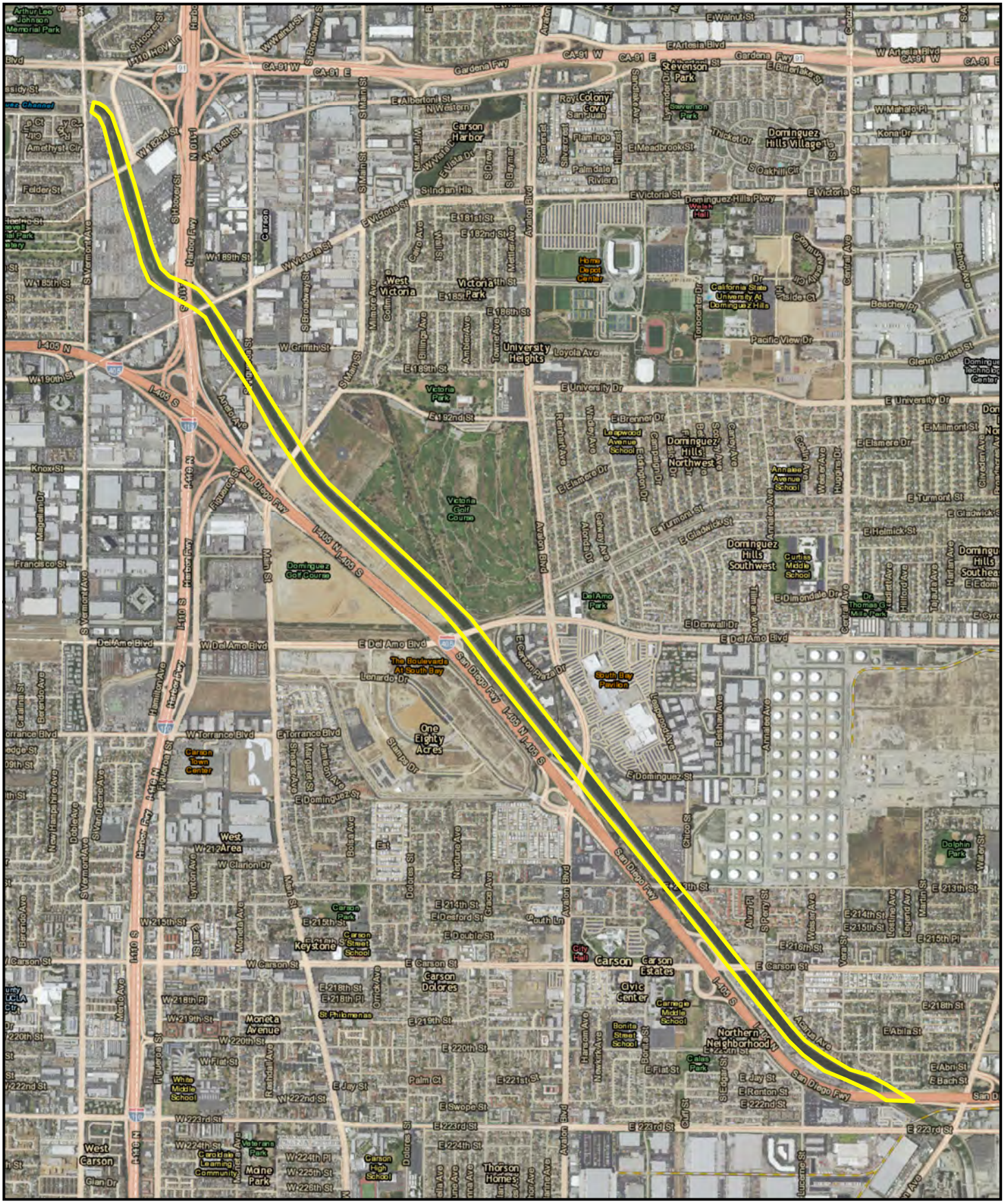

Legend

Survey Area

N

0 875 1,750 3,500

Feet

Figure 3a

Dominguez Channel Upstream - Reach 113
Project Vicinity Map

Los Angeles Flood Control District Soft Bottom Channel Vegetation Clearing Project

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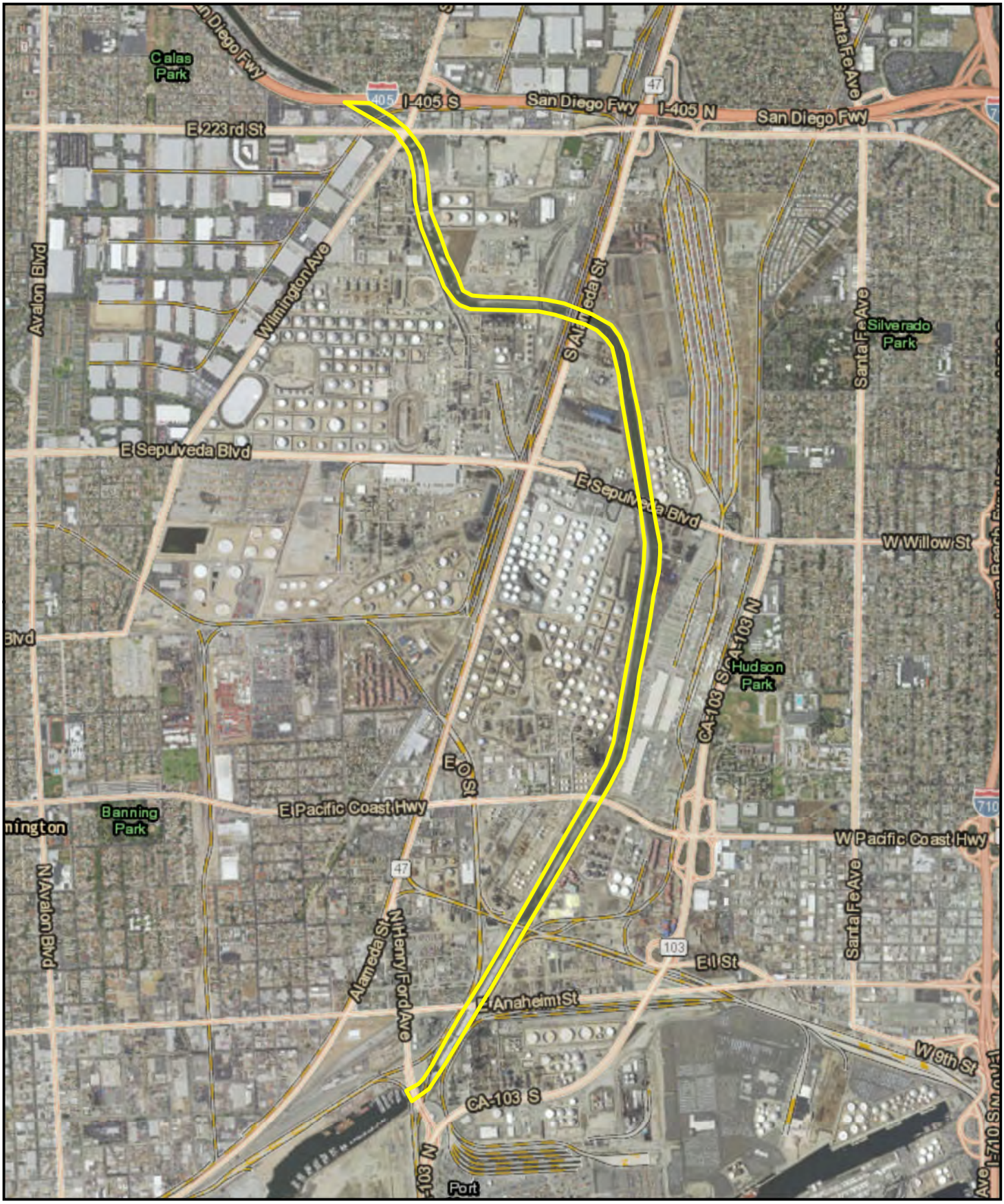

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Survey Area

N

0 900 1,800 3,600

Feet

Figure 3b

Dominguez Channel Downstream - Reach113

Project Vicinity Map

Los Angeles Flood Control District Soft Bottom Channel Vegetation Clearing Project

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Legend

Survey Area

N

0 475 950 1,900

Feet

Figure 4

Los Angeles River - Reach 114

Project Vicinity Map

Los Angeles Flood Control District Soft Bottom Channel Vegetation Clearing Project

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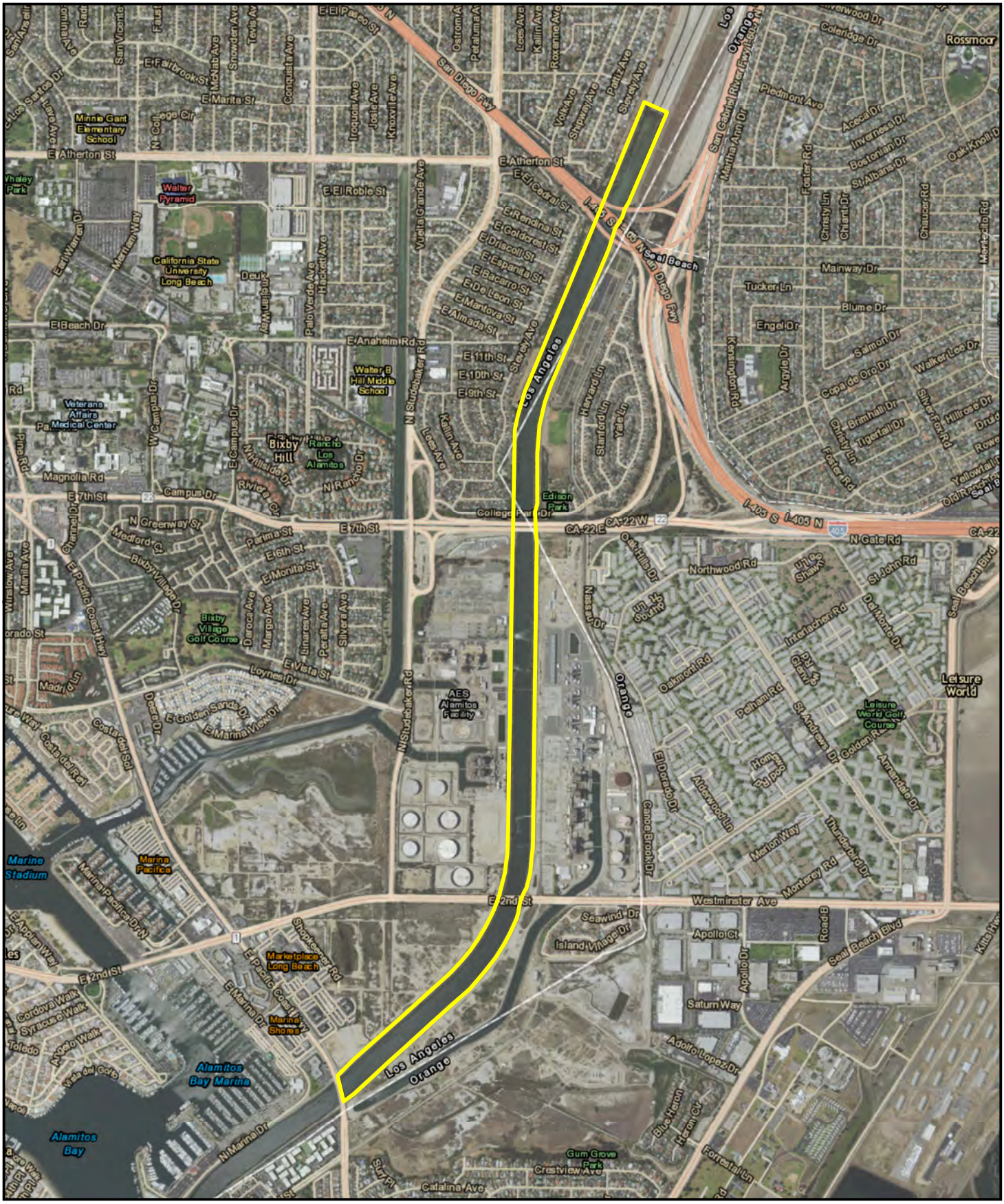

Legend

Survey Area

N

0 750 1,500 3,000

Feet

Figure 5

San Gabriel River - Reach 115

Project Vicinity Map

Los Angeles Flood Control District Soft Bottom Channel Vegetation Clearing Project

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Legend

Survey Area

N

0 487.5 975 1,950

Feet

Figure 6

Los Cerritos Channel - Reach 116

Project Vicinity Map

Los Angeles Flood Control District Soft Bottom Channel Vegetation Clearing Project

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SECTION 3.0 – SURVEY METHODOLOGY

The preconstruction surveys were conducted from August 12 through August 14, and September 15, 2015 by Jordan Volker, Rochelle Petruccelli, and Thomas Valencia. Data were collected using interferometric sidescan sonar, which provided an acoustic backscatter image of the seafloor within the project area. Interpretation of the backscatter data allowed for an assessment of the distribution of eelgrass. Sidescan backscatter data were acquired at a frequency of 468 kHz scanning out 31 meters on both the starboard and port channels for a 62-m wide swath. The survey was conducted by running parallel transects that were spaced to allow for overlap between adjoining sidescan swaths. Transects were performed until the entirety of the survey area was captured in the survey report. All data were collected in latitude and longitude using the North American Datum of 1983 (NAD 83), converted to the Universal Transverse Mercator system (UTM).

A remotely operated vehicle (ROV) was utilized to confirm the sonographic survey results and to visually inspect the seafloor for the presence of eelgrass. ROV navigation was aided by the use of an ultra-short baseline positioning system. The ROV was navigated over the mud-bottom to search for eelgrass along the toe of the rip rap and to generally characterize the habitats.

The surveyed channels were inaccessible by survey vessel in three areas. These include 1) the Ballona Creek survey area, 2) the Dominguez Channel upstream of a diked and dewatered section (dewatered piping in place unrelated to this project) of the channel under I-405, and 3) upstream of the barrier weir on the Los Angeles River. In the case of the Ballona Creek area, a low-tide walk of the channel along the public bicycle path was used to supplement survey data. In addition, channel bottom salinity samples were taken at the point at which vessel navigation was no longer possible near the lower end of the survey area (just above the 90 Marina Freeway). Bottom water salinity was used as a determining factor to rule out eelgrass within the upper Dominguez Channel and Los Angeles River work areas.

Dry summer bottom salinities generally considered to be too low to support eelgrass in southern California were used as a factor to dismiss channel suitability to support eelgrass. A refractometer was used to investigate water grabs from the bottom water at barriers to vessel navigation. While eelgrass globally can be found in waters with salinities ranging from 2-70 ppt depending on authors (Salo et al 2014; Short et al 2010), it is rare to find eelgrass at persistent salinities of less than approximately 18 ppt in southern California populations; and in San Francisco Bay, salinities below 10 ppt that persist for approximately one month are known to be lethal to eelgrass (Merkel, unpub. data). It is important to note that salinities as applied here refer to bottom salinities, as surface discharges from estuaries are typically lower than the bottom waters within which eelgrass occurs.

SECTION 4.0 – PROJECT SURVEY RESULTS

No eelgrass was detected in surveys of the Ballona Creek, Dominguez Channel, Los Angeles River, or San Gabriel River. Where navigation barriers occurred in Ballona Creek, bottom water salinity was determined to be 11 ppt. During low tide, the bottom of the channel was fully visible from the bike path and was observed to lack eelgrass. The downstream half of Dominguez Channel was investigated to I-405 by interferometric sidescan sonar from Henry Ford Ave to I-405, and no eelgrass was identified in this project reach. At the dewatered construction site at I-405 in the upper area, flows from upstream were being bypassed via a piping system from above and sump pumps within a bermed and dewatered segment of the channel. The upper area bottom salinity was 3 ppt and deemed unsuited to support eelgrass. The lower segment of the Los Angeles River was investigated by interferometric sidescan sonar and was determined to not support eelgrass. Above the weir barrier, bottom salinities were measured at 6 ppt and deemed unsuitable to support eelgrass. The full length of the San Gabriel River survey area was investigated by interferometric sidescan sonar and ROV groundtruthing. No eelgrass was found in this system.

At the time of the pre-activity survey, eelgrass was only found within the Los Cerritos Channel (Figure 7). Eelgrass was mapped from approximately 410 meters upstream of the East Pacific Coast Highway Bridge to approximately 96 meters downstream of the East 7th Street Bridge, and a small patch was found approximately 125 meters upstream of the East 7th Street Bridge. Upon finding eelgrass within the Channel, two reference sites were identified and surveyed (Figure 7). The western reference site is located at the marina just north of the channel and upstream of East Pacific Coast Highway Bridge; and the eastern reference site is located in a finger off the east side of the Channel, just downstream of the Loynes Drive Bridge. As outlined in both the SCEMP and CEMP, these sites were chosen as they are in close proximity and have similar physical characteristics to the identified eelgrass beds in the Los Cerritos Channel. The reference sites may be used to monitor natural variability in eelgrass resources to account for any natural changes in the project bed area between preconstruction and post-construction surveys.

At the time of the preconstruction survey, 5.26 acres of eelgrass was mapped within the Los Cerritos Channel; 0.46 acre of eelgrass was mapped within the western reference site; and 0.31 acre of eelgrass was mapped within the eastern reference site. Eelgrass turion densities (± 1 SD) were 82.7.9±37.8 shoots per m^2 (n=27) within the channel, 109.6±41.6 shoots per m^2 (n=20) within the southern reference site, and 91.2±38.2 shoots per m^2 (n=20) within the northern reference site.

SECTION 5.0 – PRELIMINARY IMPACT ASSESSMENT AND RECOMMENDATIONS

It is understood that the work to be performed is the removal of vegetation, debris, and brush, as well as potential trimming and removal of riparian vegetation to reduce the impact on flow in the channel as future growth occurs. This activity poses no risk to eelgrass within channels that lack eelgrass presence. This applies to Ballona Creek, Dominguez Channel, Los Angeles River, and San Gabriel River segments.

Within the Los Cerritos Channel, it is understood that the removal of flow impediments would not include dredging of the channel floor. If access for this work is taken by vessel, there is some potential to damage eelgrass by vessels operating at low tides. However, if work is performed from the land only, there are no identifiable mechanisms to generate eelgrass impacts. For this reason, it is suggested that work in the Los Cerritos Channel be performed from the land. If this is done, there is no reason to perform a post-activity eelgrass survey. If, however, work must be performed using vessel support, it is recommended that vessels be used during high tides, avoiding extreme low tides where eelgrass may be exposed to ground and propeller scar damage. If vessels are used for the work, it is recommended that a post-activity eelgrass survey be conducted to verify that no damage to eelgrass has occurred. In the unlikely event that eelgrass impacts are identified under the CEMP assessment methods, impacts should be mitigated in accordance with the CEMP standards.

Legend

- Eelgrass
- Reference Site
- Survey Area

N

0 220 440 880

Feet

Figure 7

Pre-construction Eelgrass Survey Map
Los Cerritos Channel - August 2015

Los Angeles Flood Control District Soft Bottom Channel Vegetation Clearing Project

Name: 20876 Fig7 PreCon Eelgrass LC.Mxd
Print Date: 9/3/2015, Author: stondre

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SECTION 6.0 – REFERENCES

National Marine Fisheries Service (NMFS)
1991 Southern California Eelgrass Mitigation Policy, as revised. Revision 11.

National Oceanic and Atmospheric Administration (NOAA) Fisheries, West Coast Region
2014 California Eelgrass Mitigation Policy and Implementing Guidelines. October 2014.

Salo, T. E., M. Pedersen, C. Boström
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Short, F.T., T.J.R. Carruthers, M.Waycott, G.A. Kendrick, J.W. Fourqurean, A. Callabine, W.J. Kenworthy, and W.C. Dennison
2010 *Zostera marina*. The International Union for Conservation of Nature (IUCN) Red List of Threatened Species. Version 2015.2. <www.iucnredlist.org>. Downloaded on 03 September 2015.