

Attachment
SMMC Item 17
November 4, 2013

Agenda Item 17

SMMC

11/4/13

DRAFT Remedial Action Plan

Taylor Yard Parcel G-2 Los Angeles, California

Prepared for:
Union Pacific Railroad Company
951 Atkinson Street
Suite 100
Roseville, WA 95747

July 10, 2013





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Denver, Colorado 80202
tel: 303-383-2300
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July 10, 2013

TRANSMITTED VIA EMAIL AND HARD COPY

Ms. Jessy Fierro
Project Manager
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, CA 91311

Subject: Submittal of Draft Remedial Action Plan
Taylor Yard Parcel G-2
Los Angeles, California

Dear Ms. Fiero:

CDM Smith Inc. (CDM Smith), on behalf of Union Pacific Railroad (UPRR), is submitting the attached Draft Remedial Action Plan (RAP) for UPRR's Taylor Yard Parcel G-2 property located at 2800 Kerr Street in Los Angeles, California. This Draft RAP addresses the comments provided by the California Department of Toxic Substances Control (DTSC) on January 29 and May 24, 2012.

Should you have any questions regarding this document, please do not hesitate to contact the undersigned at 714-308-2945 or 303-383-2341 or via email at subramanianr@cdmsmith.com.

Very truly yours,

Ravi Subramanian, P.E.
Associate and Project Manager
CDM Smith Inc.

Attachments

Cc: Jim Diel, UPRR



The information contained in this report has received appropriate technical review and approval. The approach and methodology are based upon professional judgments founded upon review of available reports, the interpretation of such data and upon our professional experience and background. This acknowledgment is made in lieu of all warranties, either expressed or implied.



Reviewed and Approved by:

A handwritten signature in black ink that reads "Ravi Subramanian". The signature is written in a cursive style and is positioned above a horizontal line.

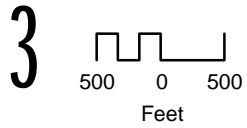
Ravi Subramanian, P.E.

Associate and Project Manager



Legend

- Site Boundary
- Former Taylor Yard Extent



**Union Pacific Railroad
Taylor Yard Remedial Action Plan
Site Vicinity Map**

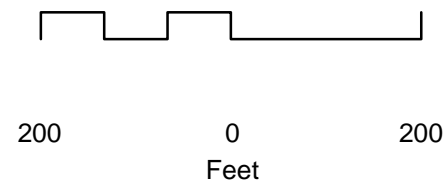
Figure 1-1

K:\2205_UPRR\42300_FED_TaylorYard\2010\Figure 1-1_Site Vicinity Map.mxd



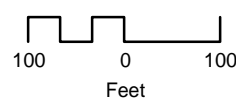
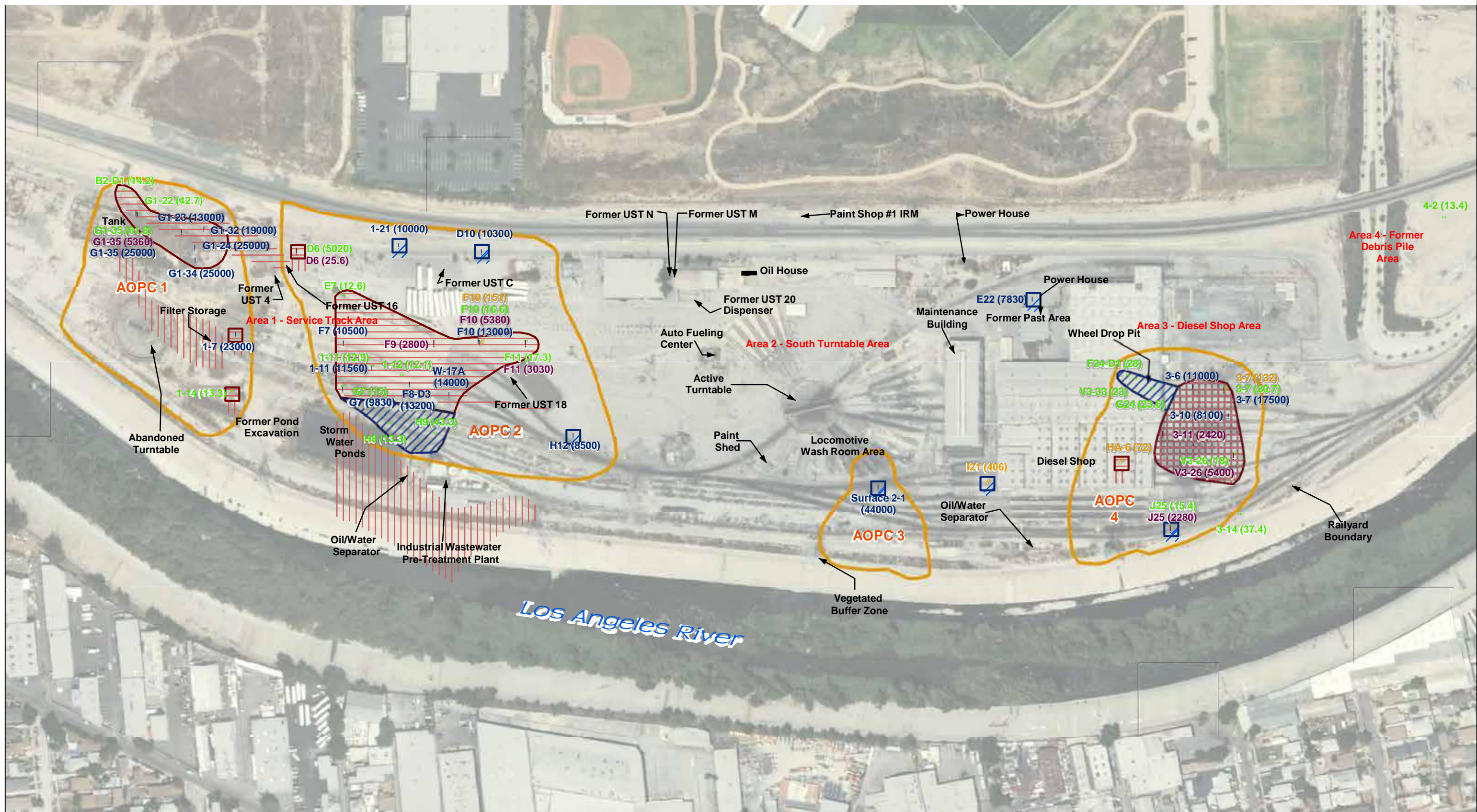
Legend

- Orange outline: Areas of Potential Concern
- Red exclamation mark (!): Total TPH (TPH) Greater Than 7,800 mg/kg
- Green double quote ("): Antimony (Sb) Greater Than > 71 mg/kg
- Purple exclamation mark (!): Lead (Pb) Greater Than 2,280 mg/kg
- Green single quote ('): Arsenic (As) Greater Than > 12 mg/kg



Union Pacific Railroad
Taylor Yard Remedial Action Plan
Areas of Potential Concern
Based on Concentrations of Lead,
Total Petroleum Hydrocarbon (C12 C35+),
Arsenic and Antimony

Figure 3-1



Legend

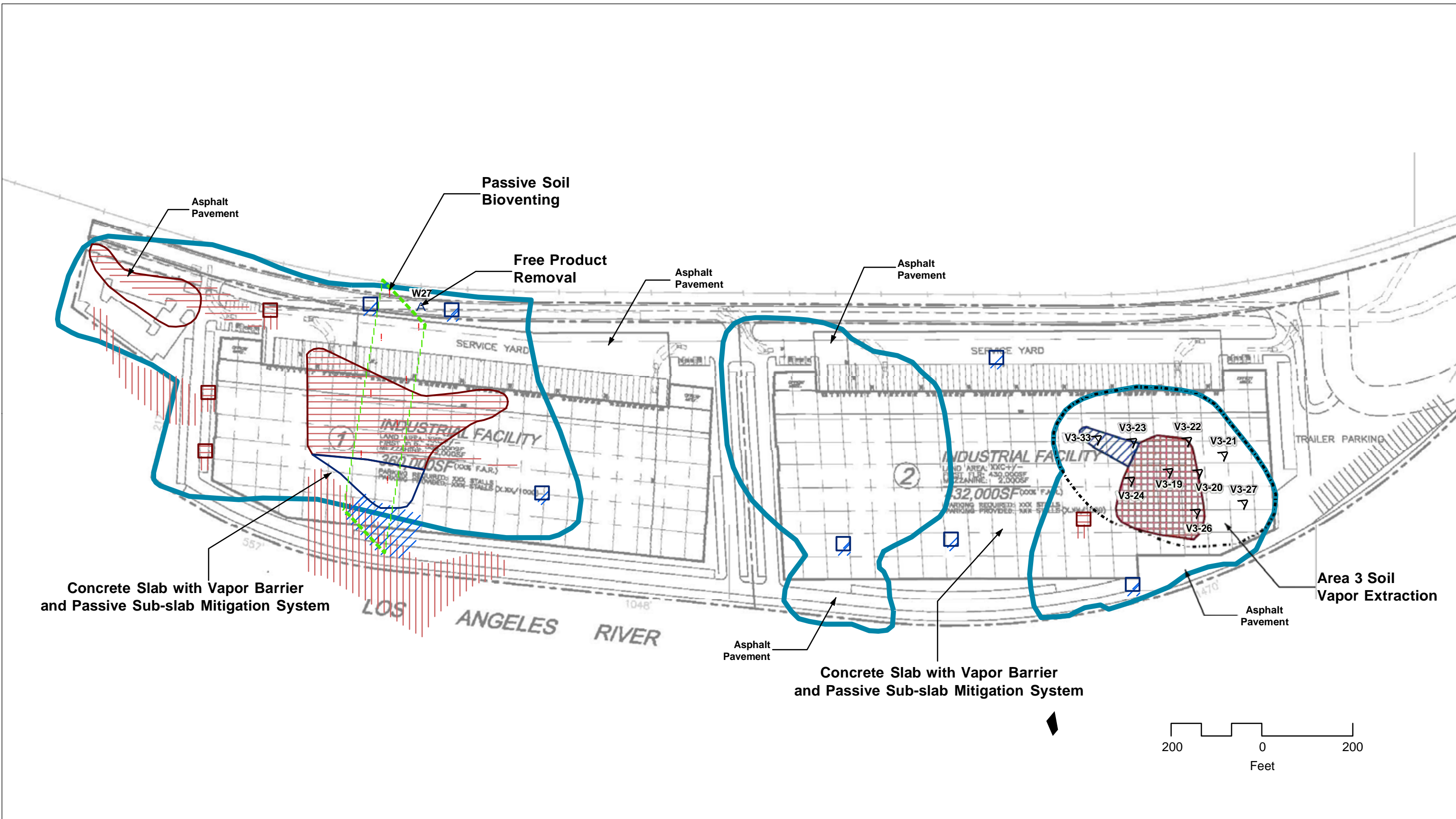
- Soil Areas of Potential Concern (AOPCs)
- 2.5 foot Excavation Depth
- 5 foot Excavation Depth

- # Antimony (Sb) Greater Than > 71 mg/kg
- ! Total TPH (TPH) Greater Than 7,800 mg/kg
- ! Lead (Pb) Greater Than 2,280 mg/kg
- " Arsenic (As) Greater Than > 12 mg/kg

Note:
Soil Areas of Potential Concern (AOPCs) shown here are based on concentrations of Lead, Total Petroleum Hydrocarbons (C12 to C35+) Arsenic and Antimony.



Union Pacific Railroad
Taylor Yard Remedial Action Plan
Soil AOPCs and Alternative 5
Figure 4-1



Legend

- Remediation Areas
- Passive Soil Bioventing
- 2.5-foot Excavation Depth
- Area of Potential Concern for Risk Assessment
- 5-foot Excavation Depth
- Area 3 Soil Vapor Extraction

- Vapor Extraction Well
- Bioventing Well Location
- Groundwater Monitoring Well

Union Pacific Railroad
Taylor Yard Remedial Action Plan
Proposed Remedial Action

Figure 6-1

EXECUTIVE SUMMARY

On behalf of Union Pacific Railroad (UPRR), CDM Smith Inc. (CDM Smith) has prepared this Remedial Action Plan (RAP) to address future remedial action of UPRR's Taylor Yard Parcel G-2 property (the Site) located at 2800 Kerr Street in Los Angeles, California. This property is referred to as "the Site" in this RAP.

The purpose of this RAP is to summarize the remedial alternatives that were considered in the Feasibility Study (FS) and supporting documents, provide rationale for selection of the preferred remedial alternative, and describe the remedial activities that will be implemented at the Site under the preferred remedial alternative (Alternative 5). Alternative 5 was selected based on the results and conclusions of the remedial investigations, risk assessments, interim remedial measures conducted at the Site, and the FS.

UPRR and its predecessors have owned the Site since at least the early 1900s. Maintenance and fueling began in the 1930s and continued through 2006, when the yard was permanently closed. Former facilities at the Site include a diesel shop, a machine shop, a roundhouse, two turntables, underground and aboveground storage tanks (USTs and ASTs), a service track area, and miscellaneous buildings. A storm water collection system and associated industrial wastewater treatment plant (IWTP) were in operation at the Site until decommissioning in 2011. Materials previously used or stored at the Site included diesel fuel, Bunker C fuel oil, journal box lubrication oil, gasoline, other types of oils, greases, acids, alkaline cleaning soaps, water treatment chemicals, paints and thinners, pesticides and herbicides, compressed gases, lead, cleaning solvents, and chlorinated solvents. Since 1985, a number of soil and groundwater investigations have been conducted at the Site. Results of the several progressive phases of remedial investigation have identified constituents of potential concern (COPCs) in the Site soil to be lead, arsenic, petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). VOCs are also present in groundwater beneath the Site; however, groundwater impacts are generally attributed to the regional VOC groundwater plume and VOC sources located upgradient of the Site.

In 2004, CDM implemented a Focused Remedial Investigation (RI) to delineate the lateral and vertical extent of COPCs in Site soil. These data were used in preparation of a Human Health Risk Assessment (HHRA). The HHRA evaluated the COPCs and determined a subset to be constituents of concern (COCs) for the Site. COCs for soil include TPH total (C12 to C35+), antimony, arsenic, lead, benzo (a) pyrene equivalents, and tetrachloroethene. COCs for soil gas include benzene, 1,2-dichloroethane, cis-1,2-dichloroethene, ethylbenzene, naphthalene, tetrachloroethene, trichloroethene, and vinyl chloride. The HHRA then determined human health risks under appropriate exposure scenarios and pathways, and concluded that unacceptable risks were present at the Site and a FS was warranted to address these risks. Results of the HHRA were used to delineate Areas of Potential Concern (AOPCs) at the Site requiring further evaluation. AOPCs were defined by comparing COC concentrations to site-specific preliminary remediation goals (PRGs) and delineating areas of the Site where concentrations exceed PRGs. AOPCs encompass Site areas where, if COCs could be removed or treated sufficiently, the resulting Site-wide upper confidence limit (UCL) concentrations (UCL95) of the COCs would be reduced to below their PRGs. Four AOPCs were developed for soil based on lead, arsenic, TPH, and

antimony concentrations in the upper ten feet of soil (designated AOPC 1, AOPC 2, AOPC 3, and AOPC 4) and three AOPCs were developed for VOCs in soil gas (designated AOPC A, AOPC B, and AOPC C). The combined areas of these seven AOPCs collectively constitute three noncontiguous remedial action areas within the Site.

The following activities were performed to evaluate remedial alternatives:

- § Development of Remedial Action Objectives (RAOs);
- § Identification of project-specific Applicable or Relevant and Appropriate Requirements (ARARs) for the remediation;
- § Evaluation of technologies and process options that are potentially applicable for the planned remediation;
- § Incorporation of retained process options into possible remedial alternatives.

Based on the conclusions from the RI and results from the aforementioned activities, five remedial alternatives were developed and evaluated in the final FS and FS technical memorandum:

- § Alternative 1 - No action (included as a baseline for comparison);
- § Alternative 2 – Continued operation of the Area 3 soil vapor extraction system (VES) and record institutional controls;
- § Alternative 3 – Cap all remedial action areas with pavement, install vapor mitigation systems, record institutional controls, reinstallation and continued operation of the Area 3 VES, and record institutional controls;
- § Alternative 4 – Excavation of soil to depths of 10 feet below grade, backfill remedial action areas, off-site disposal of soil, recording of institutional controls, reinstallation and continued operation of the Area 3 VES, and record institutional controls; and
- § Alternative 5 – Excavation of soil to depths of 2.5 to 5 feet below grade, backfill remedial action areas, off-site disposal of soil, free-product removal and installation of a passive bioventing system around W-27 area, capping of the excavation areas, recording of institutional controls, and, if needed, reinstallation and continued operation of the Area 3 VES.

All alternatives were evaluated against the nine criteria outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and in the California Health and Safety Code §25356.1(d), which include:

- § Protection of Human Health and Environment
- § Compliance with ARARs
- § Long-Term Effectiveness and Permanence
- § Reduction of Toxicity, Mobility, or Volume through Treatment

- § Short-Term Effectiveness
- § Implementability
- § Cost
- § State Acceptance
- § Community Acceptance

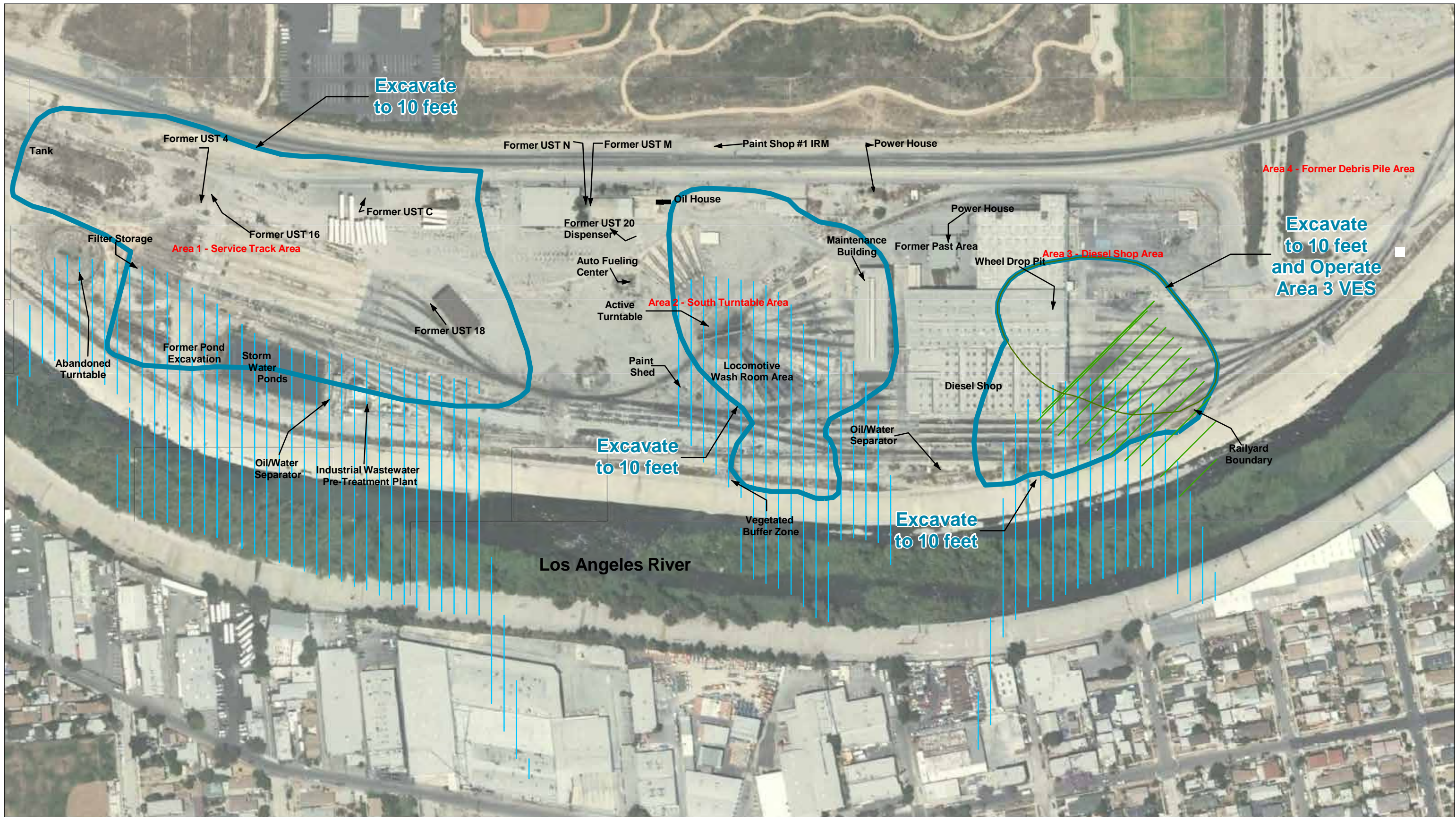
DTSC solicited and received comments on the draft FS, dated March 23, 2011, from the Los Angeles River Project (City of Los Angeles Department of Public Works), Natural Resources Defense Council, Friends of the Los Angeles River, the River Project, the Los Angeles Sector California State Parks, and the Mountains Recreation and Conservation Authority Los Angeles River Center and Gardens. These public comments as well as DTSC comments on the draft FS were addressed in the September 2011 version of the FS. Although not required under the NCP, each remedial alternative was also evaluated for sustainability in accordance with the DTSC's Interim Advisory for Green Remediation (DTSC, 2009).

Alternative 5 was developed after submittal of the September 2011 version of the FS, in response to comments from DTSC. Alternative 5 is a hybrid remedial alternative combining capping with excavation designed to achieve all of the RAOs developed in the FS while resulting in maximum reductions in risk and site-wide exposure point concentration (EPCs) with minimal localized excavation. To remediate the impacted site soil and groundwater present at the Site, Alternative 5 consists primarily of the following elements:

- § Data Gaps Investigation – A subsurface investigation will be conducted prior to remedial action and Site development to address the six data gaps identified during the development of the FS. Drillings of borings, soil sample collection, field screening, laboratory analysis, soil gas survey, and a passive soil bioventing pilot study will be performed.
- § Shallow Soil Remediation – Hot spot excavation from 2.5 to 5 feet will be conducted to remove the most impacted soil followed by backfilling with clean soil. Control measures associated with the excavation and backfilling activities will be implemented. Perimeter air monitoring and other safety precaution will be engineered during excavation.
- § Engineered Cap, Vapor Barrier, and Sub-Slab Venting System - A vapor barrier and passive sub-slab venting system will be installed under the new building slab to prevent mitigate future vapor intrusion into Site buildings. The system will be engineered to allow the flexibility to be converted into an active system if warranted.
- § Operation of the Area 3 VES (Optional) – If necessary, based on the results of the Area 3 data gaps investigation/soil gas survey, the Area 3 VES will be reinstalled and operated after Site redevelopment to mitigate elevated VOCs in soil gas at Area 3.
- § Passive Soil Bioventing - A passive soil bioventing system will be installed and operated in areas where elevated concentrations of petroleum hydrocarbons are present in the deep vadose zone.

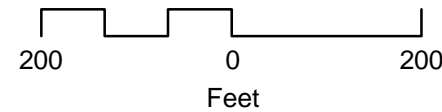
- § Free-Product Removal – A passive free-product recovery system will be installed at W-27 for removal of free-product that has historically been detected at this well.
- § Monitoring and Reporting – Groundwater monitoring will be implemented to ensure the effectiveness of the engineered remediation systems and to determine if any contingency plans and/or corrective actions are warranted.
- § Contingency for Groundwater Impacts - A groundwater contingency plan is included under Alternative 5 for additional groundwater monitoring and/or mitigation in the event that site-specific risk based groundwater action levels are exceeded.
- § Institutional Controls – A land use covenant and groundwater use restriction will be prepared to minimize the potential for human exposure to the impact Site soil and/or groundwater and to protect the integrity of the implemented remedy.

In addition to the aforementioned remedial activities, other elements of the remedial action including health and safety, the California Environmental Quality Act (CEQA), and public participation are also discussed.



Legend

- Operate Area 3 Vapor Extraction System (VES)
- Excavate to 10 feet



**Union Pacific Railroad
Taylor Yard Remedial Investigation
Alternative 4 Remedial Action Map
Excavate to 10 Feet and Off-Site Disposal**

Figure 6-4