

DRAFT
CALIFORNIA ENVIRONMENTAL QUALITY ACT
NEGATIVE DECLARATION
FOR
PILOT TESTING AT
FORMER KAST TANK FARM PROPERTY
CAROUSEL TRACT RESIDENTIAL NEIGHBORHOOD
CARSON, CALIFORNIA
(File No. 97-043)

This Negative Declaration has been prepared in accordance with the California Environmental Quality Act (CEQA) as provided for in Public Resources Code Section 21000 *et seq.* and California Code of Regulations, Title 14, Section 15000 *et seq.* for the project that is described in the attached Initial Study and briefly described as follows:

Project Title: Remedial Excavation and In-Situ Treatment Pilot Testing, Former Kast Tank Farm Property, Carousel Tract Residential Neighborhood, Carson, California

Project Sponsor: Shell Oil Products US
20945 S. Wilmington Avenue
Carson, CA 90810

Project Sponsor's Contact(s): Edward E. Freed
Shell Oil Products US
Environmental Services
20945 S. Wilmington Avenue
Carson, CA 90810
(818) 991-5556

Roy H. Patterson, PG
Vice President and Principal Geologist
URS Corporation
2020 East First Street, Suite 400
Santa Ana, CA 92705
(714) 714-433-7699

Project Description: The Initial Study provides a detailed description of the project. Briefly, the proposed project involves a pilot testing program to evaluate the feasibility of the degree to which impacted shallow soils to a depth of 10 feet below grade surface (bgs) and the concrete reservoir bases (slabs) located at approximately 10 feet bgs beneath portions of the former locations of the oil storage reservoirs can be effectively removed, including beneath residential houses. A further purpose of the excavations to expose the concrete reservoir slabs is to observe the nature and condition of the concrete where exposed. If it is established that certain excavation methods cannot completely remove contaminated shallow soils within the upper 10 feet, the pilot test will evaluate what degree of removal can effectively be accomplished using

different excavation methods. Additionally, the pilot test will evaluate the feasibility of conducting surgical excavations in areas with limited access, such as back yards of residences, and methods for moving excavated soils from back yards to the front of the residences for management and disposal. The pilot testing program will also develop information regarding the feasibility of specific in-situ remedial options to treat impacted soils including treatment beneath hardscaped areas and beneath residential houses.

Project Location:

The former Kast Tank Farm Property (Site) presently consists of the Carousel residential neighborhood and city streets. The Site is located between Marbella Avenue on the west and Panama Avenue on the east and between East 244th Street on the north and East 249th Street to the south, in the City of Carson, County of Los Angeles, California. A map of the Site is included in the Initial Study.

While the Site as a whole consists of approximately 44 acres, only an area approximately the size of 1 acre (or 45,000 square feet) will be remediated during pilot testing. The proposed pilot testing identifies a number of properties or combinations of properties as suitable candidates for the proposed work from among the Carousel homes.

MITIGATION MEASURES:

The Initial Study did not identify any potentially significant impacts. The project as proposed by the Project Sponsor includes measures designed to avoid or reduce any potential impacts to the environment. Therefore, the project does not require any additional mitigation measures.

FINDING OF NO SIGNIFICANT EFFECT ON THE ENVIRONMENT:

Based on the analysis and conclusions found in the attached Initial Study, the Regional Board finds that there is no substantial evidence, in light of the whole record before the agency, that the project as proposed may have a significant effect on the environment.

Samuel Unger, PE
Executive Officer
Los Angeles Regional Water Quality Control Board

Date

Attachment: Initial Study



Matthew Rodriquez
Secretary for
Environmental Protection

California Regional Water Quality Control Board Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
(213) 576-6600 • FAX (213) 576-6640
<http://www.waterboards.ca.gov/losangeles>



Edmund G. Brown Jr.
Governor

DRAFT
CALIFORNIA ENVIRONMENTAL QUALITY ACT
INITIAL STUDY
FOR
PILOT TESTING AT
FORMER KAST TANK FARM PROPERTY
CAROUSEL TRACT RESIDENTIAL NEIGHBORHOOD
CARSON, CALIFORNIA
(File No. 97-043)

The information and analysis in this Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA) as provided for in Public Resources Code Section 21000 *et seq.* and California Code of Regulations, Title 14, Section 15000 *et seq.* The analysis in this document assumes that, unless otherwise stated, the project will be implemented in accordance with all applicable laws, regulations, ordinances, and permits from other agencies.

PROJECT DESCRIPTION:

1. Project title: Remedial Excavation and In-Situ Treatment Pilot Testing, Former Kast Tank Farm Property, Carousel Tract Residential Neighborhood, Carson, California
2. Lead agency name and address: California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013
3. Lead agency contact person and phone number: Teklewold Ayalew (Ph.D., PG)
Project Manager
(213) 576-6739
4. Project location: No street address has yet been found for the former Kast Tank Farm Property (Site). The Site is located between Marbella Avenue on the west and Panama Avenue on the east and between East 244th Street on the north and East 249th Street to the south, in the City of Carson, County of Los Angeles, California, in Zip Code 90745 (Latitude 33°48'06" N, Longitude 118°16'09.75" W). The Site is located on the Torrance Plain of the West Coast Basin of the Los Angeles Coastal Plain, four miles north of the Long Beach Harbor and San Pedro Bay. The Site is located in Section 29 of Township 4 South, Range 13 West of the San Bernardino Base and Meridian.

The Site presently consists of the Carousel residential neighborhood and city streets (Figure 1). The Site is relatively flat, with a gradual slope to the northwest. No surface water bodies are on the Site.

5. Project sponsor's
name and address:

Shell Oil Products US
20945 S. Wilmington Avenue
Carson, CA 90810

6. Project sponsor's
contact name, address,
and phone number:

Edward E. Freed
Shell Oil Products US
Environmental Services
20945 S. Wilmington Avenue
Carson, CA 90810
(818) 991-5556

Roy H. Patterson, PG
Vice President and Principal Geologist
URS Corporation
2020 East First Street, Suite 400
Santa Ana, CA 92705
(714) 714-433-7699

7. General plan
designation:

Low Density Residential

8. Zoning:

Residential Single-Family (RS)

9. Description of
project (Describe the
whole action
involved, including
but not limited to
later phases of the
project, and any
secondary, support,
or off-site features
necessary for its
implementation):

The project involves the pilot remediation of shallow soils in the Carousel Community residential neighborhood tract.

The Site is a former petroleum storage facility that was owned and operated by Shell Oil Company from the mid-1920s to the mid-1960s that was redeveloped as the Carousel Community residential housing tract in the late 1960s (Figures 2 and 3). Under the oversight of the Los Angeles Regional Water Quality Control Board (Regional Board), Shell Oil Products US (SOPUS) on behalf of Shell Oil Company (Discharger) is investigating and remediating soil and groundwater impacts at the 44-acre Site. On March 11, 2011, the Regional Board issued Cleanup and Abatement Order (CAO) No. R4-2011-0046 requiring the Discharger to cleanup and abate the effects of petroleum hydrocarbon compounds and other contaminants of concern discharged to soil and groundwater at the Site. Among other requirements, the CAO required the Discharger to develop a pilot testing work plan to be approved by the Regional Board's Executive Officer that included: 1) evaluation of the

feasibility of removing impacted soils to 10 feet and removal of contaminated shallow soils and reservoir concrete slabs encountered within the uppermost 10 feet, including areas beneath residential houses; 2) remedial options that can be carried out where site characterization (including indoor air testing) is completed; and 3) plans for relocation of residents during soil removal activities, plans for management of excavated soil on-site, and plans to minimize odors and noise during soil removal. Upon approval of the Pilot Test Work Plan by the Executive Officer, the Discharger must implement the Pilot Test Work Plan and submit a Pilot Test Report that includes the findings, conclusions, and recommendations drawn from the pilot testing within 120 days of the issuance of the approval of the Pilot Test Work Plan. The implementation of this project is anticipated to begin in October 2011 and be completed in late 2011 or early 2012.

The proposed project activities are detailed in the Discharger's Pilot Test Work Plan that consists of the following documents: 1) *Pilot Test Work Plan, Remedial Excavation and In-Situ Treatment Pilot Testing* dated May 10, 2011, prepared by URS Corporation and Geosyntec Consultants; 2) *Addendum to Pilot Test Work Plan, Remedial Excavation and In-Situ Treatment Pilot Testing*, dated August 15, 2011, prepared by URS Corporation and Geosyntec Consultants, and 3) *Addendum 2 to Pilot Test Work Plan, Remedial Excavation and In-Situ Treatment Pilot Testing*, dated August 26, 2011, prepared by URS Corporation. Collectively, these three documents are hereinafter referred to as the "Work Plan." Pursuant to the CAO, the Discharger has submitted the Work Plan to the Regional Board for approval. The Work Plan can be viewed at the Regional Board's office located at 320 West 4th Street, Suite 200, Los Angeles, California 90013, as well as the Regional Board's website at: <http://www.waterboards.ca.gov/losangeles> under "Announcements".

The Work Plan evaluates the feasibility of the degree to which impacted shallow soils to a depth of 10 feet below ground surface (bgs) and the concrete reservoir bases (slabs) located at approximately 10 feet bgs beneath portions of the former locations of the soil storage reservoirs can be effectively removed, including beneath residential houses. The Work Plan provides an overview of potential pilot test locations, the remedial approach, a description of excavation methods to be pilot tested, a description of oxidants proposed to be injected and bioventing technology, as well as mitigation measures designed to avoid or mitigate significant effects on the environment.

Pilot Test Locations

While the Site as a whole consists of approximately 44 acres, only an area approximately the size of 1 acre (or 45,000 square feet) will be remediated during pilot testing.

The proposed pilot testing identifies a number of properties or combinations of properties as suitable candidates for the proposed work from among the Carousel homes (Figures 4 through 7 designated as B-1 through B-4). No more than seven properties or combinations of properties will be used to conduct the proposed remedial excavation pilot testing. An additional eight properties will be used to conduct the proposed in-situ treatment pilot testing. The affected areas will be landscaped per original conditions or as agreed to with the property owners. The Work Plan includes provisions for the temporary relocation of residents of the affected properties during soil removal activities, plans for management of excavated soil on-site, and plans to minimize odors and noise during soil removal.

Excavation Pilot Testing

The Discharger proposes a number of excavation approaches to evaluate the technical feasibility and effectiveness of excavating shallow soils to approximately 10 feet bgs from the Site and removing the underlying concrete reservoir slabs. The following methods of excavation/shoring will be evaluated in the pilot test: large unshored excavation to approximately 10 feet bgs with sloped sidewalls, unshored slot trenches to approximately 10 feet bgs, slide-rail shored excavation to approximately 10 feet bgs, trench-box shored excavation to approximately 10 feet bgs, and unshored surgical excavations to less than 10 feet bgs. Surgical excavations will be conducted in areas with limited access, such as backyards of residences. Multiple methods for moving excavated soils from back yards to the front yard of the residences for transport and disposal will be evaluated.

Impacted soil will be excavated using a 30,000 pound (lb) track-mounted excavator with a smooth bucket. Various size excavation equipment and buckets will be utilized based on specific area needs. The smooth bucket will eliminate the "soil tilling" effect, which can cross-contaminate underlying clean soil with impacted soil from above. The smooth-edge bucket also will allow for any residual soil or debris to be "scraped" away from the underlying concrete reservoir slab. To the extent possible, excavated soil will

be direct-loaded into onsite dump trucks staged parallel to the length of the excavation. Impacted soil that cannot be direct-loaded (using the excavator) into a dump truck will be loaded into 3 cubic yard (cy) wheel loader and transported to the truck loading area. To minimize the risk of cross-contamination and/or offsite "tracking" of impacted soil, waste haulers will be loaded on plastic and will be kept on specified project haul routes to and from the soil stockpile staging area. In the unlikely event that it is necessary to temporarily stockpile onsite before loading, soils will either be placed upon Visqueen plastic sheeting and covered with plastic, or they will be temporarily placed in a covered bin. This approach for temporarily stockpiling soils onsite, if necessary, applies to all excavation types that will be pilot tested.

In addition, if and when concrete reservoir bases are exposed at the bottom of the excavations, a number of methods may be field tested to penetrate and remove the slab exposed in the excavations, including breaking the slab using the excavator or backhoe bucket, using a hydraulic ram affixed to the excavator/backhoe arm and concrete saws to break the slab into pieces that can be removed.

The Discharger has proposed several mitigation measures as part of its Work Plan to avoid or mitigate significant effects on the environment. These mitigation measures include: traffic control; monitoring and mitigation of dust, vapors, and odors; noise monitoring during excavation; vibration monitoring of homes during excavation activities; monitoring of stability of excavation walls and adjacent and nearby structures; and site landscape restoration.

In-Situ Remediation Pilot Testing

The Discharger proposes to implement in-situ chemical oxidation (ISCO) pilot testing to treat shallow soils at the Site, including areas beneath structures and hardscape (e.g. paved areas). ISCO involves the injection of liquids or gases containing oxidants. An oxidant is a reactive chemical that gains electrons from petroleum hydrocarbons and in the process adds oxygen to the chemical. This process transforms the chemical of concern into more benign compounds. The Discharger proposes to conduct two pilot tests, one for liquid injection of sodium persulfate and the other for gas injection of ozone. The pilot test can be conducted in areas planned for excavation to allow trenching and visual inspection/photography to document the lateral distribution and delivery of the injected fluids. The proposed in-situ treatment pilot testing meets the coverage under the Regional Board's General

Waste Discharge Requirements Order No. R4-2007-0019 (*General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites*) and will be enrolled as such.

Implementation of the liquid test entails installation of a horizontal well via trenching to approximately 3 feet bgs. Following liquid injection, two lateral trenches will be excavated to 10 feet bgs to evaluate the effectiveness of liquid injection testing and drilling of six soil borings to 10 feet bgs for continuous sampling and observation of visual evidence of injected liquid distribution. The ozone pilot test implementation requires installation of an ozone injection well using a hollow-stem auger drilling rig and installation of four clusters of soil gas probes at varying distances from the injection well using a direct-push rig. Vertical extraction wells installed in hand-auger borings and horizontal extraction wells installed in a trench excavated to a depth of approximately 5 feet bgs. Ozone injection locations are expected to be in unpaved areas, as a result daylighting, exposure to ozone and surfacing may result and require monitoring and mitigation.

Bioventing is another in-situ technology potentially applicable to the remediation of petroleum hydrocarbons in shallow soils. In this process, air is extracted or injected into the subsurface to provide oxygen and enhance biodegradation of petroleum compounds. The pilot test will focus only on the effectiveness of this technology through vapor extraction and will require the installation of vertical extraction wells using hand-auger borings and horizontal extraction wells in a trench excavated to a depth of approximately 5 feet bgs.

ISCO involves handling process of chemicals that may have hazardous characteristics. The hazards and controls will be reviewed by local fire officials. A Health and Safety Plan (HASP) addendum (URS, 2011b) outlines air monitoring activities and action levels. If an action level is exceeded, work will stop, and corrective action will be identified and resolved prior to re-starting work. In addition, relocation of residents may be necessary for the ISCO pilot test. Mitigation measures proposed in the Work Plan also include traffic control and monitoring and mitigation of dust, vapors, and odors.

ISCO final locations depend on results of bench-scale testing as discussed in Section 6.1.4 of the May 10, 2011 Pilot Test Work Plan and the August 15, 2011 Addendum to the Pilot Test Work Plan (URS and Geosyntec, 2011c). Following the completion of

bench-scale studies, when pilot test locations are selected, maps will be provided. Therefore, showing exact locations for the in-situ testing using ISCO and bioventing are not currently available.

Relocation of Residents and Security During Pilot Test Activities

The Discharger will provide for temporary relocation of residents at affected properties during intrusive portions of pilot testing. Relocation of residents at adjacent properties to locations where pilot test excavations occur will be provided if determined necessary based on the nature of the excavation work and the potential for interruptions of access to the property, or due to disruptions in utility service to the property.

While residents are temporarily relocated, onsite security will be assigned to each construction area during the hours that the Discharger's consultants are not present onsite.

Later Phases of the Project

This project is designed for pilot remediation of impacted shallow soils at the Site. This effort will remove petroleum hydrocarbon compounds from the vadose zone and will provide source reduction to the shallow groundwater beneath the site. Additional characterization of Site impacts to soil and groundwater are ongoing, and will result in additional remedial actions in the future, which may be implemented on or off the Site.

Upon completion of the Pilot Test Work Plan, the CAO requires the Discharger to prepare a full-scale impacted soil Remedial Action Plan (RAP) for the Site. The Discharger is required to submit the RAP to the Regional Board for review and approval by the Executive Officer no later than 60 days after the date of the Executive Officer's approval of the Pilot Test Report. Information gained from implementation of the pilot testing activities will be used to develop and assess different potential remedial strategies, and will be incorporated into the analysis and recommendations that will be contained in the RAP for the Site. The selection of a final remedy may be subject to additional environmental analysis and documentation prepared in accordance with the California Environmental Quality Act (CEQA).

10. Surrounding land
uses and settings
(Briefly describe the
project's
surroundings):

The proposed project area is situated within the 285 single-family home Carousel Community residential housing tract. The neighborhood was built on the footprints of the approximately 44-acre former Kast Tank Farm Property, a former petroleum storage facility (crude oil and bunker oil) from the mid-1920s to the mid-1960s that was redeveloped as the Carousel Community residential housing tract by others in the late 1960s. The residences are one and two stories and typically wood frame with concrete slab-on-grade and stucco exterior wall construction. Based on available information, there are no activity or land use limitations, such as institutional controls, other than local zoning requirements that are in place on the Site or that have been filed or recorded in a registry.

The Site is located south of the BNSF Railway Company railroad tracks, west of Panama Avenue, east of Marbella Avenue, and north of Lomita Boulevard. A rail-right-of way and commercial properties adjoins the Site on the north, residential properties are located on the east, Lomita Boulevard and Wilmington Middle School are located on the south, and commercial properties and Main Street are located on the west.

11. Other public
agencies whose
approval is required
(e.g., permits,
financing approval,
or participation
agreement):

1) South Coast Air Quality Management District (AQMD) Rule 1166 permit (Volatile Organic Compound Emissions from Decontamination of Soil) and Rule 403 permit (Fugitive Dust Emissions); 2) City of Carson Grading, Sewer, Plumbing, Encroachment, Landscape and Trash Bin/Containers permits; 3) Occupational Safety and Health Administration (OSHA) Trenching Permit; and 4) Los Angeles County Fire Department permit for ozone gas storage

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, as indicated by the checklist on the following pages.

<input checked="" type="checkbox"/> Aesthetics	<input type="checkbox"/> Agricultural Resources	<input checked="" type="checkbox"/> Air Quality
<input type="checkbox"/> Biological Resources	<input type="checkbox"/> Cultural Resources	<input checked="" type="checkbox"/> Geology and Soils
<input checked="" type="checkbox"/> Greenhouse Gas Emission	<input checked="" type="checkbox"/> Hazards/Hazardous Materials	<input checked="" type="checkbox"/> Hydrology/Water Quality
<input type="checkbox"/> Land Use/Planning	<input type="checkbox"/> Mineral Resources	<input checked="" type="checkbox"/> Noise
<input type="checkbox"/> Population and Housing	<input type="checkbox"/> Public Services	<input type="checkbox"/> Recreation
<input checked="" type="checkbox"/> Transportation and Traffic	<input checked="" type="checkbox"/> Utilities and Service Systems	
<input checked="" type="checkbox"/> Mandatory Findings of Significance		

EVALUATION OF ENVIRONMENTAL IMPACTS:

Potential environmental impacts associated with the proposed project are provided below in a checklist format developed pursuant to CEQA Guidelines. The checklist has been used to assess the significance or insignificance of each potential impact. A brief explanation of each impact analysis is provided after the checklists. Mitigation measures, as required, are discussed below each analysis.

Impact classifications used in the checklist are defined as follows:

"Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.

"Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.

"Less Than Significant Impact" applies to an effect that would not be significantly adverse.

"No Impact" applies where the effect occurs without impact.

I. AESTHETICS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				X

Impact Analysis:

The proposed project would take place in a residential neighborhood. There are no scenic vistas or designated state scenic highways in this area. No historic buildings are located onsite. The project activities would result in a temporary change to the visual environment at the Site locations due to the staging of materials and equipment onsite during excavation and in-situ pilot testing activities. The temporary staging of equipment onsite may result in the short-term sources of glare. Equipment that may be used on this project include drill rigs, backhoes, mini-excavators, rubber-tired loaders, water buffalo trailers and soil vapor extraction equipment. This equipment will be staged on city streets, which may necessitate partial lane closures. An Encroachment Permit for equipment staging and operations and a Trash Bin/Containers Permit for roll-off bins will be obtained from the City of Carson. Any heavy equipment that is used in the exclusion zone will remain in that zone until its task is completed.

Excavated impacted soil and concrete debris will be transported offsite by a state-licensed waste hauler for appropriate disposal or recycling. Excavated material will either be direct loaded into trucks or temporarily stockpiled in covered bins or encapsulated in Visqueen plastic sheeting until loading and offsite transport can be coordinated on a daily basis. Stockpiling of excavated soils (if any) on plastic sheeting will be minimized, and if possible excavated soils will be loaded and transported offsite the same day. All non-disposable equipment in contact with wastes and impacted soil will be dry-decontaminated using chisels, scrapers, shovels, brooms and/or hand-held brushes (as necessary). Exposed soils in excavations not backfilled the same day will be covered with Visqueen or clean soil at the close of each workday.

Any landscaping features (fences, patios, etc.) removed or damaged by these activities will be repaired or replaced. The excavated area will be landscaped per original conditions or as agreed to with the property owner.

The duration of the project activities would be limited to approximately 4 months and would not result in a substantial adverse change to the existing visual environment. The limited visibility, scale, and duration of the change to the visual environments would not result in a significant visual impact. Therefore, no significant impact to aesthetics will result.

Mitigation Measures:

The proposed project includes mitigation measures and would not result in any significant impacts to aesthetics. Therefore, no additional mitigation is required.

II. AGRICULTURAL RESOURCES

<i>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

Impact Analysis:

The proposed project location is not within existing zoning for agricultural purposes. Therefore, no significant impact to agricultural resources will result.

Mitigation Measures:

The proposed project would not result in any impacts to agricultural resources. Therefore, no mitigation is required.

III. AIR QUALITY

<i>Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?				X
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				X
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				X
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	

Impact Analysis:

The project as proposed, which includes mitigation measures, would result in a less than significant impact to air quality. The Site is located within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The project will not conflict with or obstruct implementation of the SCAQMD's Air Quality Management Plan.

The proposed project may involve the release of limited volatile organic compound (VOC) emissions and/or dust. Excavation of volatile organic compound (VOC) and semi volatile organic compound (SVOC) impacted soils within the geographic area encompassed by the SCAQMD must be conducted and managed in accordance with the requirements of a SCAQMD Rule 1166 Permit, VOC emissions from excavation activities of impacted soil. Several types of air monitoring will be performed during pilot test operations in accordance with the SCAQMD monitoring and reporting requirements, to assess potential release of VOCs and SVOCs to the atmosphere. In Section 5.9.2 of the May 10, 2011 Pilot Test Work Plan, the SCAQMD air quality notification, monitoring and reporting requirements are addressed,

Monitoring will be performed a distance of not more than 3 inches above the soil surface. Monitoring will be performed at a frequency of not less than one reading for every two cubic yards of soil excavated and not exceeding 15 minutes per monitoring readings. If photoionization detector (PID) readings of 50 parts per million (ppm) or greater are detected for a sustained period of 15 seconds, the SCAQMD will be notified within 24 hours of the first detection of VOC-contaminated soil in accordance with the SCAQMD Rule 1166 Permit and appropriate vapor mitigation measures required per the Permit and described in Section 5.10 of the May 10, 2011 Pilot Test Work Plan will be implemented. If PID measurements of 1,000 ppm or greater are detected for a sustained period of 15 seconds, excavation work will stop and the SCAQMD will be notified within one hour of the detection. Appropriate vapor mitigation measures required per the Permit and described in Section 5.10 of the May 10, 2011 Pilot Test Work Plan and summarized in Item #1 below will be implemented immediately. Once these notification and mitigation measures have been accomplished, work will resume.

Written records of Rule 1166 monitoring will be kept on field forms in a format approved by the SCAQMD. Within 30 days of completion of pilot test excavation, written records of monitoring of VOC contaminated soil, daily inspections of any covered stockpiles of VOC-contaminated soil, and disposal of VOC-contaminated soil will be provided to the SCAQMD by the remedial excavation contractor in accordance with the SCAQMD Rule 1166 Permit.

Dust monitoring will also be conducted during excavation and loading operations to monitor for dust and particulate matter at the excavation site property boundary using a miniRAM™ dust monitor, or equivalent, in accordance with SCAQMD Rule 403 requirements.

The project will not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Air quality emissions resulting from the proposed project activities would be limited primarily to excavation, construction/installation of in-situ injection wells, traffic from trucks or other vehicles and would be temporary in nature. The duration of the project activities would be limited to approximately 4 months. The scale and duration of the activities would not result in a substantial adverse change to the existing air quality.

The project will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). If the SCAQMD Rule 1166 and Rule 403 action levels are exceeded, work will stop and mitigation measures will be implemented prior to re-starting work.

The pilot testing activities have the potential to expose sensitive receptors at the Site to substantial pollutant concentrations. Sensitive receptors include seniors, children, pregnant women, and people suffering from an illness who reside, visit, or work at the Site. These sensitive receptors may be exposed to vapor and dust inhalation, which can pose adverse health risks. In order to reduce the risk for adverse air quality impact, when measured concentrations exceed the SCAQMD action levels, work will stop, and mitigation measures described in Item #5 below will be implemented prior to re-starting work in compliance with the SCAQMD Rule 1166 and Rule 403.

Excavation and in-situ pilot testing activities could utilize materials generally known to cause objectionable odors. Excavation of petroleum hydrocarbon impacted soils gives off an odor. During excavation and loading operations at a frequency of not less than once every 30 minutes, odors will be monitored at the downwind property boundary of the residential property where pilot excavation is occurring. Depending on findings, frequency of monitoring may be increased to hourly. Odors will be qualitatively compared and ranked on a scale of 1 to 5 in accordance with the odor perception scale provided in Section 5.9.3.4. in the May 10, 2011 Pilot Test Work Plan. As stated in that section, if distinct easily noticeable odors (odor value 3) are detected at the downwind property boundary where excavations are being conducted, mitigation measures, such as, periodic watering of the active excavation areas and backfill activities, will be implemented.

The proposed project provides soil management plans to minimize emissions, dust, and odors during soil removal activities. Residents of the properties, where pilot testing is conducted, may be temporarily relocated during excavation work, mitigating effects to residents and sensitive receptors. The proposed project will protect the health and safety of the public and on site workers pursuant to the State of California – Division of Occupational Safety and Health (Cal/OSHA) Hazardous Waste Operations Standards (Title 8 California Code of Regulations [CCR], Section 5192) and Code of Federal Regulations (Title 40 CFR, Section 1910.120).

Several types of air quality monitoring and mitigation will be performed during pilot test operations. The Discharger will comply with SCAQMD monitoring and reporting requirements to assess potential releases of dust and volatile organic compounds (VOCs) to the atmosphere during remedial activities, and also monitor for odors. During excavation activities, the Discharger will implement control measures to mitigate dust, VOCs, and odors. The anticipated approach and methodology to be used for each of these activities include:

1. Monitoring for SCAQMD Rule 1166 and Rule 403 Compliance: Dust monitoring will be conducted during excavation and loading operations to monitor for dust and particulate matter at the excavation site property boundary, in accordance with SCAQMD Rule 403 requirements. Excavated soils and the excavation face will be monitored for VOCs using a photoionization detector (PID) calibrated to hexane in accordance with Rule 1166 monitoring requirements. Monitoring will be performed a distance of not more than 3 inches above the soil surface. Monitoring will be performed at a frequency of not less than one reading for every two cubic yards of soil excavated and not exceeding 15 minutes per monitoring readings. If PID readings of 50 parts per million by volume (ppm) or greater are detected for a sustained period of 15 seconds, the SCAQMD will be notified within 24 hours of the first detection of VOC-contaminated soil in accordance with the contractor's Various Locations Rule 1166 Permit and appropriate vapor mitigation measures required per the Rule 1166 Permit and described in the Pilot Test Work Plan (as described below) will be implemented. Therefore, no adverse impacts are anticipated.

2. Meteorological monitoring will be conducted using a portable meteorological station (met station) to monitor wind speed and direction and temperature at each pilot test location.
3. Upwind and downwind monitoring for VOCs will be conducted by deploying individually laboratory certified six-liter (6-L) Summa canisters for collection of time-weighted samples for laboratory testing.
4. Exposed soils in excavations not backfilled the same day will be covered with Visqueen or clean soil at the close of each workday to minimize odors during non-work hours. If necessary, exposed excavation faces will be sprayed with vapor suppressant foam or HydroSeal vapor suppressant barrier, also manufactured by Kuma Corporation.
5. The work area and excavations will be monitored for potential presence of methane using a FID and a four-gas meter. If methane is detected at a concentration of 20 percent of the lower explosive limit (LEL), which would be approximately one percent, or 10,000 ppm, work will stop and the area will be ventilated using portable fans. Once vapor concentrations have been reduced to less than 10 percent of the LEL, vapor suppressant measures will be implemented as described above.

Dust particulates, vapor and odor control measures will be implemented and evaluated in sequential steps that include: a) application of water spray to the working area and excavated soils; b) spraying the excavation surface and excavated soils with Simple Green™ using a pump sprayer; c) application of a commercial vapor and odor suppressant chemical manufactured by Kuma Corporation and sold under the brand name Odex; and d) application of vapor/odor suppressant foam, if warranted. Odex is an all-natural, biodegradable, odor neutralizing solution made entirely of food-grade products. To mitigate offsite dust migration and resultant impacts to neighboring properties, periodic watering of the active excavation areas will be conducted throughout the excavation and backfill activities. In addition to dust suppression efforts described above, odor suppressants will be used as necessary to mitigate offsite migration of odors from the work area.

Water mist will also be used on soil placed in the transport trucks or bins. Odor suppressants will be applied as necessary to loads. Additionally, after the soil is loaded into the transport trucks, the load will be covered with a tarp to prevent soil distribution or dust generation during transport from the Site to the disposal facility. Soil will be brushed from truck tires and truck bodies. Trucks may also be required to run over rumble strips to remove excess soil before leaving the Site.

6. Weather conditions will also be considered during day-to-day activities. If precipitation occurs, collected rainwater will be pumped from the excavation areas and transferred to an aboveground storage tank or DPT-approved 55-gallon drums. Following analysis of the collected water to evaluate potential chemical impacts, the disposition of the water will be determined. Impacted water will be disposed of in accordance with Federal, State, and Local regulations.

7. If odors cannot be controlled at adjacent properties to below a level 4 odor value (strong decided odor that might make the air very unpleasant), work will be temporarily halted so that alternative odor control methods can be evaluated and implemented. If further odor control measures are not successful in reducing odor levels to below level 4, adjacent residents may be temporarily relocated as described in Section 7.0 of the May 10, 2011 Pilot Test Work Plan. This period of potential relocation is not expected to exceed one week for each property where pilot test excavations are conducted.

The duration of the project activities would be limited to approximately 4 months and would not result in a substantial adverse change to existing air quality. The limited scale and duration of the change to air quality would not result in significant impacts. Therefore, no significant impacts to air quality will result.

Mitigation Measures:

The proposed project includes mitigation measures and would not result in any significant impacts to air quality. Therefore, no additional mitigation is required.

IV. BIOLOGICAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				X
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				X
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Impact Analysis:

The proposed project would not result in any impact to biological resources. The proposed project would take place in a residential neighborhood. The Regional Board is not aware of any species identified as a candidate, sensitive, or special status species on the Site. The Site does not contain riparian habitat, a sensitive natural community, federally protected wetlands, migratory wildlife corridors, or native wildlife nursery sites.

Mitigation Measures:

The proposed project would not result in any impact to biological resources; therefore, no mitigation is required.

V. CULTURAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resources pursuant to §15064.5?				X

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X
d) Disturb any human remains, including those interred outside of formal cemeteries?				X

Impact Analysis:

The proposed project would take place in a residential neighborhood. There are no known historic, archaeological, paleontological or unique geologic resources that exist at the proposed site. According to the findings of a Cultural Resources Investigation Report dated August 19, 2011 prepared by URS in support of the Pilot Test Work Plan, no cultural resources within the project area were identified. Therefore, there would be no known significant cultural resources impacted by the project.

While the project is not anticipated to impact cultural resources, if any suspect object with regards to cultural resources is encountered, work will be temporarily suspended and the Discharger will inform appropriate local authorities. After the find has been appropriately mitigated, if necessary, work in the area will resume.

Mitigation Measures:

The proposed project would not result in any impacts to cultural resources. Therefore, no additional mitigation is required.

VI. GEOLOGY AND SOILS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: (i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X

(ii) Strong seismic ground shaking?				
(iii) Seismic-related ground failure, including liquefaction?				
Landslides?				
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks of life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?				X

Impact Analysis:

The proposed project activities will result in the loss of topsoil. Excavated impacted soil and concrete debris will be transported offsite. Upon completion of the excavation, soil will be backfilled to a current grade and the Site location will be restored to a condition that is agreed to by the homeowner. The backfill soil prior to its import, placement, and compaction at the site will also be approved by a geotechnical engineer.

The proposed project activities have the potential to be located on soil that is unstable. Sidewalls of excavations will be monitored on a regular basis during excavation work and as long as excavations remain open. A geotechnical engineer will make periodic inspection to observe excavations and areas surrounding the excavations for signs of instability. If these observations reveal instability or potential instability, no persons will be allowed in the excavations, and the excavation work will be stopped. A geotechnical engineer will evaluate Site conditions and if appropriate, the excavation will promptly be backfilled.

Mitigation Measures:

The proposed project includes mitigation measures and would not result in any significant impacts to geology and soils. Therefore, no additional mitigation is required.

VII. GREENHOUSE GAS EMISSIONS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

Impact Analysis:

Equipments used in the excavation, loading and transporting of impacted soil, and other vehicle movement during the implementation of the proposed project could generate greenhouse gas emissions, such as, carbon dioxide, carbon monoxide and methane. The potential greenhouse gas emissions will be monitored and mitigated as part of the SCAQMD air monitoring program.

In order to further reduce potential greenhouse gas emissions, the Discharger will develop and implement a Traffic Management Plan. In addition, vapor mitigation measures discussed in Section III (Air Quality) above will also reduce the greenhouse gas emission impact within the perimeter of the proposed project. Therefore, greenhouse gas emissions associated with the proposed project activity would not result in any significant impacts.

The duration of the project activities would be limited to approximately 4 months and would not result in a substantial adverse change. The limited scale and duration would not result in significant impacts to greenhouse gas emissions. Therefore, no significant impacts will result.

Mitigation Measures:

The proposed project includes mitigation measures and would not result in any significant impacts to greenhouse gas emissions. Therefore, no additional mitigation is required.

VIII. HAZARDS AND HAZARDOUS MATERIALS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X
--	--	--	--	---

Impact Analysis:

The proposed project, which includes mitigation measures, would not result in significant hazards and hazardous materials impacts to the public or the environment.

The proposed project activities involve excavation of impacted soil that are or may be considered hazardous. These materials will be transported and used onsite, and then transported and, if necessary, disposed of off-site by a state-licensed waste hauler. During transportation and use, these materials will be properly containerized and secured from the general public. Thus, any hazardous materials will not be accessible by the general public.

During the pilot testing, approximately 650 cubic yards volume of petroleum hydrocarbon-impacted soil will be removed and disposed off-site in accordance with local, state, and federal requirements. All documentation pertaining to waste disposal profiles and waste disposal acceptance will be in place prior to any offsite shipments of waste.

Best management practices will be implemented for project related activities consistent with standard industry practice. Excavated material will either be direct loaded into trucks or temporarily stockpiled in covered bins or encapsulated in Visqueen plastic sheeting until loading and offsite transport can be coordinated on a daily basis. Stockpiling of excavated soils (if any) on plastic sheeting will be minimized, and if possible excavated soils will be loaded and transported offsite the same day. Soils will be sprayed with water mist as they are loaded for dust, vapor and odor control in accordance with SCAQMD Rule 1166 requirements. All transport vehicles will be loaded on plastic sheeting. Loaded trucks will be covered with tarps prior to leaving the site.

Waste manifests will be completed for each load removed from the Site and will accompany the haul truck to the disposal facility. Once at the facility, weigh tickets with the exact tonnage of material per load will be generated by the facility operator. The weigh tickets and accompanying waste manifests will serve as documentation of the proper disposal of the impacted material. URS will maintain a detailed log of waste bin (if used) and truck loading operations. The truck log will include the manifest number and bin or truck identification.

The chemical injection related to the in-situ treatment activity of the Work Plan could present physical (reactive) and chemical (strong tissue irritation) hazards from preparation of the injection solution to the actual injection process. Therefore, only necessary personnel will be permitted in the project area.

In the event that there is a spill of hazardous materials, the Discharger has contingency plans to ensure the immediate response and cleanup of any spilled material. Small spills are immediately reported to the Site Safety Officer (SSO) and are dealt with according to the chemical manufacturer's recommended procedures found on the material safety data sheet (MSDS). Steps will be taken to contain and/or collect small spills for approved storage and disposal. In the unlikely event of a larger release of hazardous materials as a result of project activities, Discharger personnel will help evacuate residents to the pre-designated assembly area. The local Designated Emergency Response Authority (DERA) will be notified by the SSO immediately and appropriate actions will be taken to protect the public health and mitigate the contaminant release. The DERA can be reached through the local police or fire department. Released materials will be removed by appropriate crews with appropriate training, personal protective equipment (PPE), and knowledge of the materials involved. All materials will be prevented from entering waterways to the maximum extent possible. Materials will generally be removed by first collecting and/or sweeping up all solids for appropriate disposal. The Los Angeles County Fire Department's Health Hazardous Materials Division's Emergency Operations Section (EOS) provides 24-hour-a-day response to spills and releases of hazardous materials and wastes throughout the County.

The monitoring and mitigation measures in place would allow Site activities to be temporarily suspended while the underlying hazard is mitigated or controlled. Therefore, the school located within one-quarter of mile of the proposed activity would have less than significant impact.

The Site is not located within an airport land use plan or within two miles of a public airport, nor within the vicinity of a private airstrip.

The relatively small scale of the project activities and project Site locations would not obstruct access to the Site or surrounding areas. A URS staff will provide traffic control (signage, flagman, and barricades, if necessary) during implementation of the pilot testing activities. Thus, the proposed project activities would not impair implementation of an adopted emergency response plan or emergency evacuation plan.

The mitigation measures for keeping hazardous materials away from the public include tasks such as: 1) dust suppression during excavation and loading activities by spraying the soil and work area; 2) appropriate disposal of excavated impacted soil and concrete debris by transporting offsite using state-licensed hauler; 3) ambient air monitoring of methane within the perimeter of the pilot test operations and if fire protection code action levels are exceeded stop work, and identify appropriate mitigation measures and notify the fire department. The proposed project would result in less than significant hazards or hazardous materials impacts, with the mitigation measures implemented as proposed by the Discharger.

Mitigation Measures:

The proposed project includes mitigation measures and would not result in any significant impacts to hazards and hazardous materials. Therefore, no additional mitigation is required.

IX. HYDROLOGY AND WATER QUALITY

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?				X
b) Substantially degrade groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or surface runoff in a manner which would result in flooding on- or offsite?				X
e) Create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?				X
g) Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow?				X

Impact Analysis:

Proposed remedial excavation pilot testing is expected to remove shallow impacted soils to a depth of 10 feet below ground surface (bgs) and residual concrete slabs located at approximately 10 feet bgs beneath the front and backyards of residential houses. Based on results from the groundwater monitoring well installations and sampling performed at the Site, the first encountered groundwater beneath the Site is located at depths ranging from approximately 53 to 64 feet bgs and therefore would not result in any impact water quality. Thus, a violation of a water quality standard or a waste discharge requirement is not anticipated.

The Discharger proposes to conduct two pilot ISCO tests, one for liquid injection of sodium persulfate and the other for gas injection of ozone. Operation of the pilot test is subject to waste discharge requirements from the Regional Board. The proposed in-situ treatment pilot testing meets the coverage under the Regional Board's General Waste Discharge Requirements Order No. R4-2007-0019 (*Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites*) and will be enrolled as such. The Regional Board expects the Discharger to comply with the terms of this permit once enrolled.

The proposed project is being taken to protect and restore groundwater quality in accordance with a Cleanup and Abatement Order issued to the Discharger. The anticipated beneficial impacts resulting from the pilot testing activities would lead to an overall long-term reduction of petroleum and petroleum-related waste in groundwater, thereby improving the current condition of the groundwater.

The proposed project activities involve limited changes to the ground surface resulting from excavation, injection well installation, temporary use of equipment, and vehicles. The limited extent of these activities would not result in a substantial alteration of existing drainage patterns, nor would it increase the rate or amount of surface runoff such that flooding would result.

In the event a rainfall runoff that exceeds the capacity of existing stormwater drainage systems or the soil is over-saturated generating polluted runoff that would need to be managed, care will

be taken that the excavated material is placed in covered bins or encapsulated in Visqueen plastic sheeting until loading and offsite transport can be coordinated. Stockpiling of excavated soils on plastic sheeting will be minimized, and if possible excavated soils will be loaded and transported offsite the same day. Loaded trucks will be covered with tarps prior to leaving the site.

Therefore, the proposed project would not result in any significant impact to hydrology and water quality.

Mitigation Measures:

The proposed project includes mitigation measures and would not result in any significant impacts to hydrology and water quality. Therefore, no additional mitigation is required.

X. LAND USE AND PLANNING

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

Impact Analysis:

The proposed project would not result in any impacts to land use and planning.

Mitigation Measures:

The proposed project would not result in any impacts to land use and planning; therefore, no mitigation is required.

XI. MINERAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Impact Analysis:

The project site has no known mineral resources.

Mitigation Measures:

The proposed project would not result in any impacts to mineral resources; therefore, no mitigation is required.

XII. NOISE

<i>Would the project result in:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
d) A substantially temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

Impact Analysis:

The proposed project will result in temporary changes to noise and vibration levels. The proposed project includes monitoring and mitigation measures to avoid and/or reduce impacts to noise or vibration levels.

Noise

Ambient noise monitoring will be conducted to document noise levels at the Site and to ensure that safe conditions are being maintained for onsite workers and to confirm that noise levels are not excessive at residential homes near the excavation site and in the surrounding community during excavation. Real-time noise monitoring will be conducted during pilot test excavation activities to document noise levels and to assess the need for noise mitigation.

The City of Carson's Noise Control Ordinance Standard No. 1 limits exterior noise levels at residential structures to below 75 dBA for a cumulative period of no more than 15 minutes in any one 30 minute period, and Standard No. 2 limits exterior noise levels to below 80 dBA for a cumulative period of no more than 7.5 minutes in any 30 minute period. Per the City's noise ordinance, the excavation activity would be restricted between the hours of 8:00am and 4:30pm on weekdays and Saturdays, and would be prohibited on Sundays. Thus, during the hours of 8:00am and 4:30pm Monday through Saturday, persons will be exposed to elevated noise levels during the proposed project operation.

Noise producing equipment that may be used over the course of the project includes construction vehicles, excavation equipment and power tools. As described in Addendum 2 to Pilot Test Work Plan dated August 26, 2011 and prepared by URS, the specific equipments that will be used is not known at this time, as a contractor has not yet been selected for the work. Equipment that may be used to support excavation work includes: 30,000-pound track-mounted excavator (a smaller excavator will be used where practical) or a rubber-tire backhoe; small "Bobcat-type" excavator that can traverse side yards of properties; rubber tire front-end loader ("wheel loader"); hydraulic breaker ("stinger"); Sheepsfoot roller attachment for loader to compact soil backfill; geotechnical testing equipment for testing of compacted backfill; slide-rail shoring system or box shoring system; motorized conveyer belt system for materials handling;

portable generator; water truck or water trailer ("water buffalo"); pump(s) and 55-gallon drums or above-ground tank to manage water that may potentially enter excavations; concrete saw; hand tools (shovels, electrical power saws, hammers, nail guns); end dump trucks; soil bins; concrete trucks (for 1-sack slurry backfill); monitoring and sampling equipment (photoionization detector (PIDs), flame ionization detector (FIDs), Summa canisters, personal monitoring/sampling devices, dust meters, noise meters, portable meteorological station, vibration monitoring equipment, hand sampling equipment, and other equipment that may be required); dust and odor suppression equipment (water truck, hoses and sprayer, pump sprayer, etc.); and decontamination equipment (Visqueen sheeting, chisels, scrapers, shovels, brooms/brushes).

Elevated noise levels resulting from the proposed project activities would be temporary in nature. The use of equipment onsite during excavation and in-situ pilot testing activities, as well as the temporary increase in construction vehicles, would only result in a temporary change to the existing noise levels at the Site locations. The duration of the project activities would be limited to approximately 4 months. The limited scale and duration of the activities would not result in a significant impact to noise levels.

With the mitigation measures proposed by the Discharger, the proposed project would result in less than significant noise impacts. Work will be limited to hours permitted by the City of Carson. In addition, noise mitigations will be triggered when noise levels at the perimeter of the site exceed the levels provided in the City of Carson Noise Ordinance. The following noise mitigation measures to avoid or reduce the exceedances are as follows:

1. Contractors performing the pilot test excavation work will be required to utilize well-maintained equipment fitted with properly functioning mufflers. In selecting equipment to be used, contractors will be directed to utilize the smallest, quietest equipment capable of effectively and safely completing planned excavation tasks. If necessary, equipment will be retrofitted with sound damping materials and exhaust and intake mufflers.
2. Truck operators will be directed to shut down engines when trucks are staged or during soil loading if they are stationary for a period of 5 minutes or longer.
3. To the extent practicable and where it can be done safely, sound attenuation barriers or blankets will be used between the area of the property where excavation is conducted and adjacent properties. Sound attenuation barriers may be constructed onsite using wood framing for support and plywood covered with sound absorbing materials, or sound blankets supported on metal frames may be used. Depending on the site physical layout and excavation location, use of such sound attenuation barriers may require modification of excavation areas and layout. Sound attenuation barriers will not be placed between the excavation area and the street due to the need for equipment to operate, excavate, and transfer soil to trucks staged in the street.
4. If noise levels at adjacent residential structures exceed applicable City of Carson or County of Los Angeles noise standards, work will be temporarily halted so that further

noise mitigation measures can be evaluated and implemented. If noise levels cannot be mitigated to a level acceptable to the City of Carson, an alternate noise mitigation approach that may be used is to relocate residents from adjacent properties during periods when excavation and backfill operations are conducted as described in Section 7.0 of the May 10, 2011 Pilot Test Work Plan. This period of potential relocation is not expected to exceed one week for each property where pilot test excavations are conducted.

There are numerous instances during the various phase of the proposed pilot testing activities where noise reduction is not feasible or warranted. In these cases, the Discharger will contact the City of Carson and provide specific details/schedule of the activities and anticipated noise levels. The Discharger will mail notices to all property owners and residents providing details of scheduled activities and anticipated noise levels. If the Discharger cannot provide mailing notices due to legal restrictions, the Discharger will provide the notices to the City of Carson and the City will notify Carousell residents of the upcoming activities.

Vibration

The proposed project, which includes mitigation measures, would result in less than significant vibration impacts.

Vibration monitoring will be performed during pilot testing activities. Vibration monitoring will be conducted to monitor for potentially structural damaging ground vibration associated with excavation, shoring, moving of heavy equipment, and other construction-related activities. Monitoring will be conducted during excavation and backfilling phases of the excavation pilot test. Data will be recorded for peak particle velocity, peak acceleration, peak displacement, and peak vector sum and frequency. These factors will be compared against the U. S. Bureau of Mines (USBM) Report of Investigations 8507 publication *Structure Response and Damage Produced by Ground Vibration from Surface Mine Blasting*, or the Federal Transit Administration guidelines, which are used within the State of California.

If recorded vibration levels exceed USBM vibration damage threshold curves, excavation and materials management procedures will be modified to reduce induced vibrations. The most likely source of vibration that may exceed the USBM standard is breaking of subsurface concrete using an excavator bucket. Alternative methods, such as using a hydraulic breaker, will be used if activities such as this induce potentially damaging vibrations. It should be noted, however, that use of a hydraulic breaker may result in short-term increases in noise levels. If modified excavation and materials management procedures do not result in reductions in vibration levels to below the USBM standard, the element of the work resulting in excessive vibration will be terminated.

Prior to conducting pilot test excavations and after excavation and backfilling is completed, property condition surveys will be conducted at the subject properties, as described in Section 5.13.1 of the May 10, 2011 Pilot Test Work Plan. Existing cracks in hardscape features or structures will be documented and measured. If new cracks develop as a result of project

activities, or existing cracks are expanded, the Discharger will repair the cracks as a mitigation measure.

Mitigation Measures:

The proposed project includes mitigation measures and would not result in any significant impacts to noise. Therefore, no additional mitigation is required.

XIII. POPULATION AND HOUSING

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or directly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Impact Analysis:

The proposed project will not result in any impacts to population or housing. Population growth will not be affected and displacement of housing or people will not occur. The Discharger will provide for temporary relocation of residents at affected properties during intrusive portions of pilot testing. However, this will not require construction of replacement housing.

Mitigation Measures:

The proposed project would not result in any impacts to population or housing; therefore, no mitigation is required.

XIV. PUBLIC SERVICES

<i>Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X

Impact Analysis:

The project activities would not generate an increase in the demand for public services. No new housing would be constructed that would generate a need for additional schools or parks. Local fire and police protection services are currently adequate to serve the Site. The nature and extent of the proposed project activities would not generate a need for any new or physically altered governmental facilities.

Mitigation Measures:

The proposed project would not result in any impacts to public services; therefore, no mitigation is required.

XV. RECREATION

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X
---	--	--	--	----------

Impact Analysis:

The proposed project will not result in any recreation impacts. The proposed project activities do not include recreational facilities, nor new residential or commercial development that would increase the demand in the area for recreational facilities. No increase in the use of existing parks or recreational facilities is expected to occur with implementation of the proposed project activities.

Mitigation Measures:

The proposed project will not result in any recreation impacts; therefore, no mitigation is required.

XVI. TRANSPORTATION AND TRAFFIC

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause an increase in the traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?			X	
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or				X

dangerous intersections) or incompatible uses (e.g., farm equipment)?				
e) Result in inadequate emergency access?			X	
f) Result in inadequate parking capacity?			X	
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X

Impact Analysis:

The proposed project may result in less than significant temporary impacts to transportation and traffic.

The proposed project would take place in a residential neighborhood. The Site is accessible by several surface streets, including Neptune Street, Marbella Street, Ravenna Street, Panama Street, 249th Street, 248th Street, 247th Street, and 244th Street. The roads within the Site are designed to accommodate normal traffic and truck loads. Thus, the proposed project activities will not increase hazards due to design features or incompatible uses.

A traffic control plan and a haul route authorization for export of materials will be required by the City of Carson. As described in Sections 5.3.3.3 and 5.8 of the May 10, 2011 Pilot Test Work Plan, a Traffic Management Plan and traffic control will be provided by a URS subcontractor. The Traffic Management Plan will include traffic control for any street closure, detour, or other disruption to traffic circulation. The plan will identify the routes that construction vehicles will use to access the site, hours of construction traffic, traffic controls, detours and parking along the streets. The plan will also include plans for temporary traffic control, temporary signage and tripping, location points for ingestion and egress of construction vehicles, staging areas, and timing of construction activity which appropriately limits hours during which large construction equipment may be brought on or off site. Potential impacts will also be reduced by limiting or restricting hours of construction so as to avoid peak traffic times and by providing temporary traffic signals and flagging to facilitate traffic movement. The traffic control measures implemented will provide access for emergency vehicles during Pilot Test activities. All main access roads will remain open during the project activities. No road blockage is foreseen as a result of the proposed project. Emergency access would thus not be affected by the proposed project activities.

A URS subcontractor will provide traffic control (signage, flagman, and barricades, if necessary) during implementation of the pilot testing activities. Therefore, the proposed project is not expected to create a significant load to the existing surface street. The pilot testing activities would add frequent and temporary vehicle trips to the Site due to the transport of materials, equipment, and personnel to the Site. At a maximum, up to 80 vehicles trips per day may be

added to local roadways, which would have no significant impact on the existing capacity of the local street system. However, any traffic impacts will be temporary in nature. The duration of the project activities would be limited to approximately 4 months. The limited scale and duration of the activities would not result in a significant impact to traffic and transportation.

Mitigation Measures:

The proposed project includes mitigation measures and would not result in any significant impacts to transportation and traffic. Therefore, no additional mitigation is required.

XVII. UTILITIES AND SERVICE SYSTEMS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the				X

project's solid waste disposal needs?				
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

Impact Analysis:

The proposed project would not result in any impacts related to utilities or service systems. The proposed in-situ treatment pilot testing meets the coverage under the Regional Board's General Waste Discharge Requirements Order No. R4-2007-0019 (*Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites*) and will be enrolled as such. The Regional Board expects the Discharger to comply with the terms of this permit once enrolled.

The project does not involve the construction or expansion of water or wastewater treatment facilities, the construction or expansion of stormwater drainage facilities, or new or expanded entitlements.

Project-related construction activities, including excavation and well drilling activities, would generate contaminated and uncontaminated solid waste. There will be solid waste generated as a result of the excavation operation. This includes green waste materials from existing landscaping, soils and concrete excavated during shallow trenching and/or excavation activities, and process residuals such as spent carbon. During the pilot testing, approximately 650 cubic yards volume of petroleum hydrocarbon-impacted soil will be removed and disposed off-site in accordance with local, state, and federal requirements.

The project-related construction activities, including excavation and well drilling activities would not result in any significant impacts to utilities and service systems.

Mitigation Measures:

The proposed project includes mitigation measures and would not result in any significant impacts to utilities and service systems. Therefore, no additional mitigation is required.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to				X

eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects)				X
c) Does the project have environmental effects which will cause substantially adverse effects on human beings, either directly or indirectly?			X	

The proposed project would not result in any significant impacts to the quality of the environment, nor would it substantially affect biological resources and associated habitats or eliminate important examples of California history or prehistory. The proposed project is being taken to protect and restore groundwater quality in accordance with a Cleanup and Abatement Order issued to the Discharger. The anticipated beneficial impacts resulting from the pilot testing activities would lead to an overall long-term reduction of petroleum and petroleum-related waste in groundwater, thereby improving the current condition of the groundwater quality.

The proposed project would not result in significant cumulative impacts.

The project could cause adverse effects on the affected residents in the Carousel neighborhood during pilot testing activities. However, with the implementation of mitigation measures as proposed by the Discharger in the Work Plan, any effects would be temporary in nature. The duration of the project activities would be limited to approximately 4 months and would not result in a permanent substantial adverse change to the existing environment. The anticipated duration of excavation and backfill for each of the pilot excavation approaches is approximately one week per location. As indicated above, the proposed project is expected to result in positive benefits in protection of human health and of improving groundwater quality.

DETERMINATION OF APPROPRIATE ENVIRONMENTAL DOCUMENT:

On the basis of this initial evaluation:

- ☒ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all the potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Samuel Unger, PE
Executive Officer
Los Angeles Regional Water Quality Control Board

Date

LIST OF RESOURCES

FTA, 2006. Transit Noise and Vibration Impact Assessment. United States Department of Transportation, FTA-VA-90-1003-06. May 2006.

Geosyntec Consultants, 2010. Site Conceptual Model, Former Kast Property, Carson, California, Site Cleanup No. 1230, Site ID 2040330. Appendix A to URS, 2010a, September 29, 2010.

RWQCB, 1996. Interim Site Assessment & Cleanup /Guidebook. California Regional Water Quality Control Board, Los Angeles and Ventura Counties, Region 4. May 1996.

RWQCB, 2009. Technical Report: Subsurface Injection of In-situ Remedial Reagents (ISRRs) within the Los Angeles Regional Water Quality Control Board Jurisdiction. September, 2009.

URS, 2009. Work Plan for Phase II Site Characterization, Former Kast Property, Carson, California, Site Cleanup No. 1230. Prepared for Shell Oil Products US. September 21, 2009.

URS, 2010a. Plume Delineation Report, Former Kast Property, Carson, California, Site Cleanup No. 1230, Site ID 2040330. Prepared for Shell Oil Products US. September 29, 2010.

URS, 2010b. Addendum to the IRAP Further Site Characterization Report and SVE Pilot Test Work Plan, Former Kast Property, Carson, California. Prepared for Shell Oil Products US. April 30, 2010.

URS, 2010c. Soil Vapor Extraction Pilot Test Report, Former Kast Property, Carson, California. Prepared for Shell Oil Products US. September 30, 2010.

URS and Geosyntec, 2011a. Pilot Test Work Plan, Former Kast Property, Carson, California. Prepared for Shell Oil Products US. May 10, 2011.

URS, 2011b, Site Health and Safety Plan, Former Kast Property, Carson, California. Prepared for Shell Oil Products US. June 1, 2011.

URS and Geosyntec, 2011c, Addendum To Pilot Test Work Plan, Former Kast Property, Carson, California. Prepared for Shell Oil Products US. August 15, 2011.

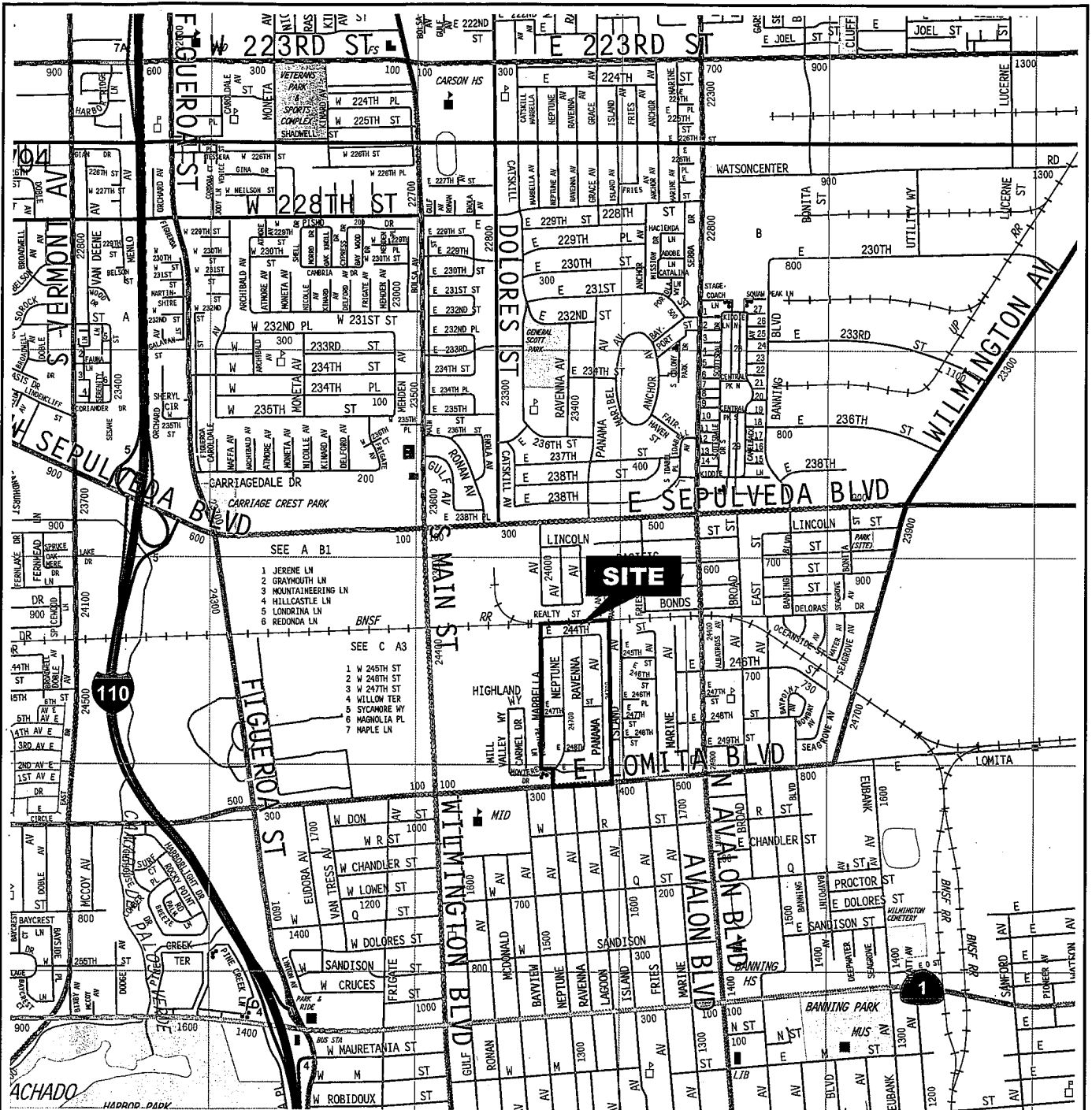
URS, 2011d, Cultural Resources Investigation, Former Kast Property, Carson, California. Prepared for Shell Oil Products US. August 19, 2011.

URS, 2011e, Addendum 2 To Pilot Test Work Plan, Former Kast Property, Carson, California. Prepared for Shell Oil Products US. August 26, 2011.

ATTACHMENTS

- | | |
|----------|--|
| Figure 1 | Regional Location |
| Figure 2 | Project Location |
| Figure 3 | Site Plan with Previous Tank Locations |
| Figure 4 | Potential Pilot Test Locations – B-1 |
| Figure 5 | Potential Pilot Test Locations – B-2 |
| Figure 6 | Potential Pilot Test Locations – B-3 |
| Figure 7 | Potential Pilot Test Locations – B-4 |

FIGURE 1



"Reproduction with permission granted by THOMAS BROS. MAPS. This map is copyrighted by THOMAS BROS. MAPS, 2001. It is unlawful to copy or reproduce all or any thereof, whether for personal use or resale, without permission".

SITE VICINITY MAP

Project No.: 49194314

Date: JUNE 2008

Project: Former KAST Property

Figure 1

URS

FIGURE 2



0 666 1,332



SCALE IN FEET
1" = 666'



Source: Environmental Data Resources

Historical Aerial Photograph - 2002

Project No.: 49194314

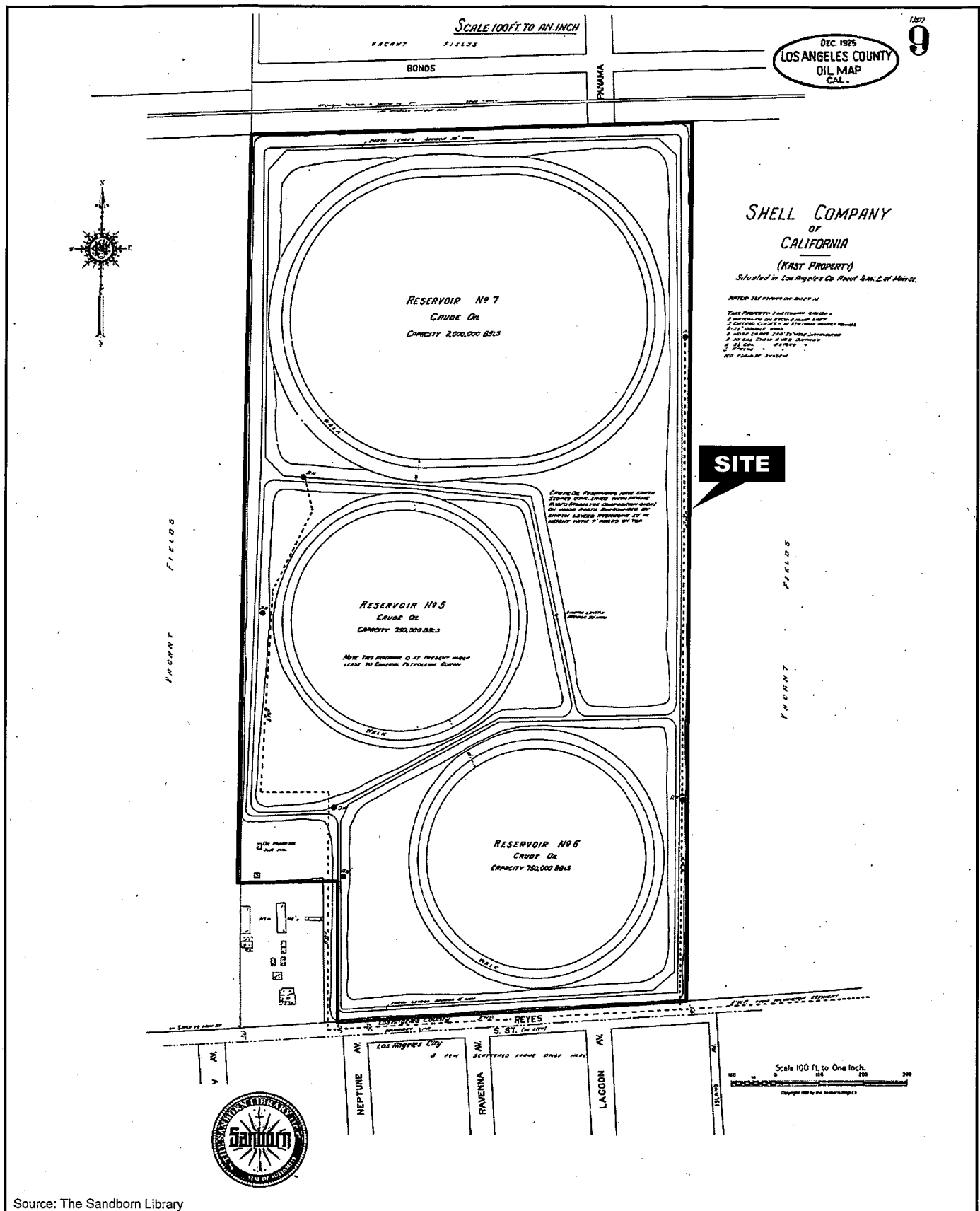
Date: JUNE 2008

Project: Former KAST Property

Figure 2

URS

FIGURE 3



Source: The Sandborn Library

Historical SANDFORD MAP - 1925

Project No.: 49194314

Date: JUNE 2008

Project: Former KAST Property

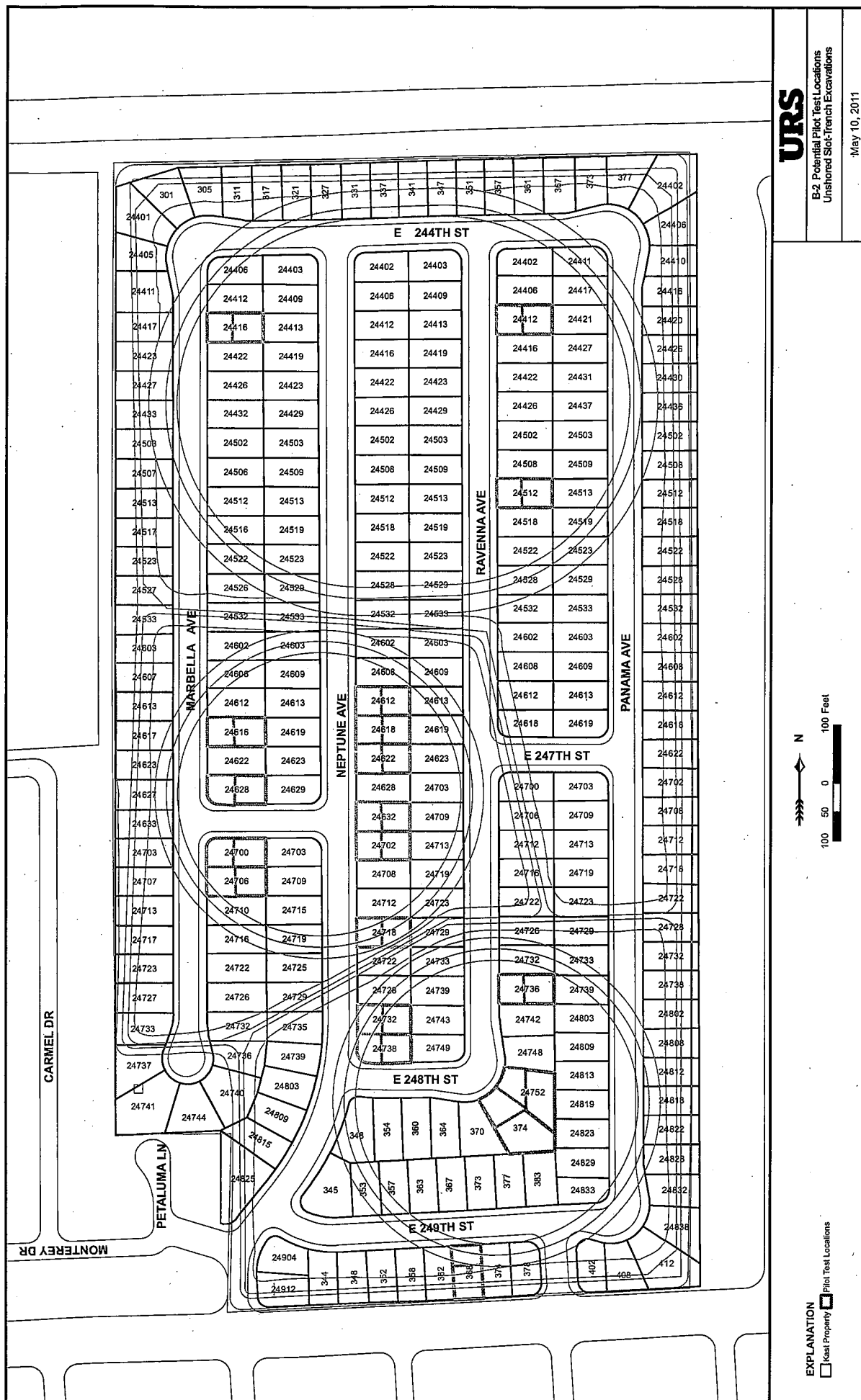
Figure 3

URS

FIGURE 4



FIGURE 5



EXPLANATION

- East Property
- Pilot Test Locations
- Slide-Rail or Trench-Box Shored Excavations

URS

May 10, 2011

B-3 Potential Pilot Test Locations
Slide-Rail or Trench-Box Shored Excavations

**B-3 Potential Pilot Test Locations
Slide-Rail or Trench-Box Shored Excavations**

EXPLANATION		Pilot Test Locations
<input type="checkbox"/>	Kast Property	<input type="checkbox"/>

FIGURE 7

