

October 20, 2015

Risk Management Plan

Property Identification:

Lucasey Manufacturing Site 2744 East Eleventh Street Oakland, California

AEI Project No.345989

Prepared for: Risa Investments, LLC

Prepared by:

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October 16, 2015

Mr. Jerry Wickham Alameda County Environmental Health 1131 Harbor Parkway Alameda, California 94502

Subject: Transmittal, Risk Management Plan Lucasey Manufacturing Site 2744 East Eleventh Street, Oakland, California

Dear Mr. Wickham:

On behalf of Risa Investments, LLC, AEI Consultants (AEI) appreciates the opportunity to submit the enclosed Risk Management Plan for the redevelopment of the Lucasey Manufacturing Site located at 2744 East Eleventh Street in Oakland, California ("the Site"). The Site is currently in the planning stages of redevelopment for residential use of the existing buildings. This document describes the known environmental conditions associated with a release of petroleum hydrocarbons present at the Site and our proposed approach to manage the potential associated risks that may be encountered during redevelopment or long term residential use of the Site.

AEI appreciates working with the Alameda County Environmental Health to move this project forward and trust that this document meets with your approval. If you have any questions or comments, do not hesitate to contact Mr. Trent A. Weise, P.E. at (408) 559-7600 or tweise@aeiconsultants.com.

Sincerely,

AEI Consultants

Trent A. Weise, P.E. (C64480) Vice President

Copies: Mr. Paul Dicarlo – Risa Investments, LLC

Enclosures

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Lucasey Manufacturing Site 2744 East Eleventh Street, Oakland, California

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FIGURES

Figure 1	Site Vicinity Map
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SIGNATURES

This document was prepared by, or under the direction of, the undersigned:

Trent A. Weise, P.E. Vice President

LIMITATIONS

Contractors and subcontractors are responsible for review of this document prior to commencing work at the Site and for the health and safety of their own employees and subcontractors. The owner is responsible for review of the provisions of this document and for incorporating its guidelines into their project planning and specifications. This document was prepared for the use and benefit of Risa Investments, LLC and its contractors at the Site. Where information prepared by others has been provided, AEI cannot be responsible for its accuracy or completeness or for the availability of all information that may be relevant to the preparation of this document.



1. INTRODUCTION

On behalf of Risa Investments, LLC, AEI Consultants (AEI) has prepared this *Risk Management Plan (RMP)* for the redevelopment of the former Lucasey Manufacturing Site located at 2744 East Eleventh Street in Oakland, California ("the Site"). The Site is currently in the planning stages of redevelopment as residential units within the existing buildings. This document describes the known environmental conditions associated with a release of petroleum hydrocarbons present at the Site and our proposed approach to manage potential risks associated with the known conditions that may be encountered during redevelopment or long term residential use of the Site.

The purpose of this RMP is to communicate the presence of chemicals of concern (COCs) in soil and groundwater at the Site so that appropriate safety measures can be implemented to protect persons doing invasive site-work. This RMP is intended to provide for the proper management of soil and groundwater encountered and/or disturbed during any excavation, maintenance, construction, utility work, landscaping, building renovation, site redevelopment or other work that may expose residual COCs at the Site. This RMP presents guidelines for appropriate health and safety precautions for workers who may encounter soil and/or groundwater. This RMP also provides for appropriate notifications related to the handling of impacted materials and discovery of unknown conditions.

This RMP is not intended to replace federal, state, or local regulations dictating the handling of media containing petroleum hydrocarbons or regulations addressing worker exposure including, but not limited to, Federal and California Occupational Safety and Health Administration (OSHA) training and worker protection rules and regulations, Code of Federal Regulations (CFR) Title 29, Part 1910.120 and California Code of Regulations (CCR) Title 8, § 5192. It is the responsibility of the Property Owner to ensure that all workers, tenants, contractors, and subcontractors are made aware of the existing conditions, specifically the known presence and magnitude of COCs so that the appropriate protective measures are implemented.

2. BACKGROUND

The Site comprises approximately 2.32 acres and is located in an urban mixed use area of Oakland, California, consisting of commercial, residential, and industrial uses. The Site is currently developed with a 104,008 square-foot building built between 1920 and 1922 that is currently used for manufacturing, warehousing, and office space and a four-story tower.

The Site is underlain by generally discontinuous layers of fine-grained deposits comprised of gravely-silt, silty-sands and clay. Two water-yielding horizons have been identified at the Site. First encountered water is observed in an upper unconfined to semi-confined zone present to a depth of approximately 21 feet below ground surface (bgs). A deeper confined zone is present from 24 feet bgs to an unknown depth, which is comprised of clayey-sands.

Petroleum hydrocarbons were released to the subsurface at the Site presumably from a fuel oil tank formerly located in what is now a parking lot located in the southern corner of the Site. Residual petroleum hydrocarbons in Site media include:



- Soil vapor samples collected on-site in June 2009 yielded benzene at a maximum concentration of 22 micrograms per cubic meter (µg/m³) in the soil vapor sample collected from ASV-7. Elevated concentrations of benzene and ethylbenzene were detected in soil vapor samples collected from off-site locations ASV-3 and ASV-4 at maximum concentrations of 740 micrograms per cubic meter (µg/m³) and 2,600 µg/m³, respectively. Naphthalene was not detected in soil vapor samples collected and analyzed at or above laboratory method detection limits.
- The maximum concentration of petroleum hydrocarbons in soil were observed in the soil sample collected from soil boring BH-2 at a depth of 12 feet bgs and included concentrations of total petroleum hydrocarbons as gasoline (TPHg) of 700 milligrams per kilogram (mg/kg), total petroleum hydrocarbons as motor oil (TPHmo) of 8,900 mg/kg, and total petroleum hydrocarbons as diesel (TPHd) of 7,500 mg/kg. Generally, soils greater than 11-feet bgs in the vicinity of the former UST contain residual petroleum hydrocarbons, identified as weathered fuel oil, down to a depth of 25-feet bgs. Visible product was present in some soil samples, however it was determined that the product was not mobile. Benzene was not observed in soil samples collected and analyzed.
- The maximum concentration of TPHg was observed in groundwater collected from soil boring SB-4 at a concentration of 3,800 micrograms per liter (µg/L). The maximum concentrations of TPHd and TPHmo were observed in groundwater collected from SB-13 at concentrations of 5,800,000 and 3,000,000 µg/L, respectively. Benzene was not observed in groundwater samples collected and analyzed.

The fuel release case (RO0002902) was granted closure by ACEH in a letter dated July 31, 2014. The case was granted closure under Scenario 4 of the Low-Threat Underground Storage Tank Closure Policy (LTCP). The Site Management Requirements of the Case Closure Summary includes that "[b]ased on the depth and type of petroleum hydrocarbons, the potential for exposure is low and the contamination does not appear to present a risk unless exposed by excavation. Therefore, case closure is granted for the current commercial land use." The conclusion section of the Case Closure Summary notes that "...re-evaluation of this case is required if any excavation takes place below a depth of 8 feet bgs."

3. EVALUATION OF PROPOSED DEVELOPMENT

Since the Site is being considered for redevelopment that will include residential use, a revaluation of the environmental data is warranted relative to this change in use. For a risk to exist from the identified petroleum hydrocarbons present in the subsurface, there must be a potential for exposure above a minimum dose (concentration over time). Exposure pathways are means through which a receptor may come into contact with a chemical. These pathways are determined by the environmental conditions at the Site, the potential for a chemical to move from one medium to another, and the potential receptor's activities. Although several potential pathways may exist, usually only a few of these potential pathways contribute significantly to total exposure.



Risk Management Plan

The proposed development includes converting the existing building at the Site to work/live lofts. The Site is currently completely covered with either the building or asphalt parking areas, which prevents direct contract with affected soils by human receptors. The proposed development maintains this general arrangement, with landscaped areas added in on upper levels, which are not connected to Site soils. The Site is currently served by city-provided water. Therefore, the only potentially complete exposure route would be vapor intrusion, through the volatilization of chemicals from petroleum hydrocarbon impacts in soil and groundwater into soil vapor, and the potentially chemically impacted soil vapor migrating into the indoor air of the building.

In June 2009 and May 2010, soil vapor samples were collected at and in the vicinity of the Site, including:

- Eight soil vapor samples were collected on-site (ASV-6 through ASV-13),
- Five soil vapor samples were collected within the street adjacent to the Site (ASV-1 through ASV-5), and
- Two soil vapor samples were collected on the adjacent residential property (ASV-14 and ASV-15).

ERM prepared a memorandum entitled *Human Health Risk Assessment/Evaluation* (HHRA) dated March 2, 2012 that evaluated the potential risk to hypothetical human receptors at or in the vicinity of the Site to petroleum hydrocarbons identified in the subsurface, which included residential receptors. The HHRA included an evaluation of the maximum detected concentration of chemicals selected from all soil vapor samples including ASV-3, ASV-4, ASV-5, ASV-14, and ASV-15. The analysis calculated a hazard index of 0.058, which is less than the target value of 1.0. The analysis calculated an incremental lifetime cancer risk of 4 x 10^{-6} , which is slightly above the current target of 1 x 10^{-6} .

The ACEH provided comments to the HHRA in a letter dated November 2, 2012 that noted that the HHRA did not consider basements or subgrade structures, and no other comments were provided. The existing building does not have basements nor subgrade structures. Therefore, the HHRA remains applicable to the proposed new development, in light of this comment.

Assuming that the soil vapor samples collected within the adjacent street are representative of soil vapor concentrations present beneath the existing on-site building, there is a potential for vapor intrusion that could pose an unacceptable risk to a potential future resident at the Site. Therefore, as a precautionary measure to ensure that indoor air quality is protected, AEI understands that Risa Investments, LLC plans to install an engineered vapor barrier to the finished ground-floor surface and appropriately seal penetrations to limit the potential for vapor intrusion in the new work/live development, which is described in Section 6.

5. CONTROL OF POTENTIAL EXPOSURE DURING CONSTRUCTION

The presence of COCs in the subsurface means that there is the potential for exposure to the COCs, and therefore the potential for exposure will need to be controlled. If COC-affected soils



and/or groundwater are encountered during construction, the requirements of this section will be followed.

Compliance with this RMP will ensure that all Contractors and other workers at the Site are made aware of the existing conditions, specifically the known presence and magnitude of COCs, prior to any work being conducted.

5.1 Contractor Safety Requirements

Extensive investigations have been performed at the Site, and soils to a depth of less than 20feet bgs have not shown significant concentrations of petroleum hydrocarbons. Although not likely, if petroleum hydrocarbon impacted soils are encountered during construction activities, applicable safety requirements and the need for a site-specific health and safety plan (HSP) will be reviewed and prepared if necessary. The HSP will describe the activities and identify safe work practices and personal protective equipment health and safety considerations for each task. All work shall comply with applicable federal, state, and local regulations and codes relating to health and safety. Contractors and other persons performing work shall comply with California Occupational Safety and Health Administration (Cal OSHA) regulations contained in CCR Title 8 as they apply to the Site activities. Applicable requirements of CCR Title 8 may include, but are not limited to, the following:

- Injury and Illness Prevention Program (§1509 and §3202),
- Hazardous Waste Operations and Emergency Response (§5192),
- Hazard Communication (§5194),
- Personal Protective Equipment (§10),
- Respiratory Protective Equipment (8 CCR 5144),
- Control of Noise Exposure (§5095-5100), and
- Excavations (§1503 and §1539-1547).

Additional applicable requirements may include, but are not limited to, the following:

- Regulations of the Bay Area Air Quality Management District, including those for excavation and stockpiling of soil,
- Department of Transportation (DOT) regulations, and
- California and federal RCRA hazardous waste regulations.

It is the responsibility of the Contractor or other person performing work covered by this RMP to ensure that these standards and required safe work practices are implemented throughout the course of the intrusive work at the Site.

5.2 Pre-Construction Planning and Notification

Prior to the start of any construction activity that involves below ground work (e.g. slab removal or excavation), a copy of this RMP will be provided to the contractors for their review. In addition, AEI recommends that each contractor provide such information to its subcontractors.



5.3 Exposure to Potentially Impacted Soil

This section presents the management protocols recommended for the handling, moving, stockpiling, and sampling potentially COC-affected soils at the Site. Construction and utility workers may disturb the subsurface through digging in Site soils and therefore may be potentially exposed to COC-affected soils. During construction activities, workers who may directly contact soil at the Site will conduct the work in accordance with the site-specific HSP and all applicable safety regulations. Construction workers or other workers involved in activities that disrupt soil may also encounter previously unknown structures or areas of affected soil. The information provided in this RMP may be used to communicate the location and potential concentration of COCs to contractors.

5.3.1 Soil Disturbance Activities

Activities that may cause soil disturbance at the site include: site grading; grubbing; removing/installing underground utilities and utility pipeline repair activities; planting trees/landscaping; excavating elevator shaft pits; installing foundations, underground shelters, garages, or basements; and performing other construction activities. If these or other subsurface activities are performed, this RMP will be followed.

5.3.2 Site Control

Work area control procedures will be implemented by contractor(s) to control the flow of personnel, vehicles, and materials in and out of the work area while working with potentially contaminated materials. In addition, work area control measures will help control the spread of COPCs from the Site. The work area perimeter will be fenced by the contractor. Access and egress will be controlled at selected locations. Signs will be posted at all work area entrances by the contractor, instructing visitors to sign in at the project support area.

5.3.3 Equipment Decontamination

Decontamination procedures will be established and implemented by contractor(s) while working with potentially impacted soils to reduce the potential for construction equipment and vehicles to transfer potentially impacted soil onto public roadways or other off-Site areas. At a minimum, gravel will be placed at all Site access points by the contractor and excess soil will be removed from construction equipment using dry methods (e.g., brushing or scraping) prior to moving the equipment to off-site locations.

5.3.4 Personal Protective Equipment

Appropriate Personal Protective Equipment (PPE) will be used to isolate workers from COCs and physical hazards while working with potentially impacted soils. The minimum level of protection for workers coming into direct contact with potentially contaminated materials is OSHA Level D PPE. The level of PPE will be evaluated by the contractor(s) on a continuing basis and modified if warranted based upon conditions encountered in the work area and/or type of work activity in accordance with their own HSP.

5.3.5 Dust Control

Dust generation will be controlled during construction activities. Dust control can be performed through proper watering; sweeping streets, sidewalks, and paths; and covering soil stockpiles. If additional dust control efforts are necessary, other measures will be put in place as appropriate.



5.3.6 Stormwater Management

The site-specific Stormwater Pollution Prevention Plan (SWPPP) will be followed during construction activities. In additional to the SWPPP Best Management Practices (BMPs), effort will be made so that petroleum hydrocarbon impacted soils do not come into contact with storm water, such as covering stockpiles of petroleum hydrocarbon-impacted soils with plastic sheeting.

5.3.7 Stockpile Management

Soil generated from construction activities should be stockpiled on site. The stockpiles will be placed on and covered with polyethylene sheeting, unless in use, to prevent off-site soil migration due to wind and rain erosion. Soils placed in stockpiles will be separated between soils excavated from areas of known COC-impacts and areas of no impact or unknown impact. Regulations of the Bay Area Air Quality Management District, including those for excavation and stockpiling of soil will also be followed.

Mitigation procedures to prevent wind erosion from an active stockpile will include applying sufficient water or other accepted material to keep the soil slightly damp, but not enough to create run-off from oversaturation. Stockpiles will not be piled excessively high to further prevent airborne transport of stockpile material.

Inactive stockpiles will also be protected from potential run-off due to rain using plastic sheeting. In addition, a berm made of straw-wattles, hay bales or another accepted material will be placed around each stockpile to capture any potential run-off from the stockpile. The stockpiles will be placed on polyethylene sheeting, away from storm drains and surface-water drainage courses.

5.4 Exposure to Groundwater

Exposure to groundwater is not anticipated during the proposed construction activities. Groundwater is present beneath the Site a depth of approximately 20 feet bgs. However, if encountered, it will be managed in accordance with this section. Groundwater at the Site is not currently used for drinking or irrigation, and its use for such is not permitted.

Contractors and other persons performing work covered by this RMP shall include in their sitespecific HSP a summary of safe work practices (including personal protective equipment) necessary for any exposure to groundwater. This includes, but is not limited to, the following measures. Workers who may be exposed to groundwater will be trained in accordance with CFR Title 29, Part 1910.120 and CCR Title 8, § 5192 requirements. If groundwater is encountered appropriate personal protective equipment (PPE) will be worn during sampling activities including, but not limited to, protective eye wear and nitrile gloves. Collected groundwater is to be stored in appropriately labeled, California Department of Transportation-(DOT-) approved 55-gallon drums or larger vessels pending profiling and proper disposal. At no time will collected groundwater be discharged to the Site soils, Site wells, or sanitary or storm sewers without proper regulatory approval.

5.5 Encountering Unknown Conditions

The Owner and environmental consultant will be notified immediately by any contractor(s) or worker(s) if any of the following are encountered:



- Previously unidentified features of concern, such as underground storage tanks (USTs), sumps, clarifiers, or similar features of potential environmental concern; and
- Areas of suspected contaminated soils as deemed appropriate by the environmental consultant or as reported by the contractor.

If a UST is discovered, work will be suspended in its immediate vicinity until the environmental consultant has approved continuation of the work.

5.6 Characterization of Excavated Soil and Groundwater

Excavated soils and groundwater will be appropriately sampled and characterized/profiled prior to reuse or disposal. The State of California's hazardous waste regulations, the Resource Conservation and Recovery Act, and other applicable waste management regulations have requirements and procedures for the handling of waste. The regulations regarding land disposal of waste are overseen in California by the Department of Toxic Substances Control (DTSC) and the Water Board.

Generated wastes, soil and/or groundwater, will be adequately characterized to ensure proper waste management and disposal. The waste will be characterized by using State or Fedwarlly approved testing methods. Any proposed testing must be provided to the Owner and no analysis will be performed without written approval of the Owner.

5.6.1 Soil Characterization

Stockpile sampling will consist of, at a minimum, collection of a four-point composite sample for approximately every 500 cubic yard (cy). In addition to the analysis of petroleum hydrocarbons, off-site disposal facilities may require additional samples or analyses of the waste stream before accepting the waste. The profiling of the waste for the off-site disposal facility is necessary to determine proper disposal methods, verify that the waste meets all acceptance criteria of the disposal facility, and ensure compliance with all federal, state, and local regulations. Characterization information will be documented on a waste profile form provided by the off-site facility. Waste characterization samples will be collected within 30 days of the waste accumulation start date.

5.6.2 Groundwater Characterization

Collected groundwater will be characterized prior to proper disposal in accordance with California and federal RCRA hazardous waste regulations and DOT requirements for transport. In addition to the analysis of petroleum hydrocarbons, off-site disposal facilities may require additional samples or analyses of the waste stream before accepting the waste. The profiling of the waste for the off-site disposal facility is necessary to determine proper disposal methods, verify that the waste meets all acceptance criteria of the disposal facility, and ensure compliance with all federal, state, and local regulations. Characterization information will be documented on a waste profile form provided by the off-site facility. Waste characterization samples will be collected within 30 days of the waste accumulation start date.

At no time will collected groundwater be discharged to the Site soils, or sanitary or storm sewers without proper regulatory approval.



5.7 Import Fill

An evaluation of import fill materials will be conducted prior to the import of any fill materials to ensure such fill meets the geotechnical and environmental requirements for the proposed redevelopment activities. To minimize the potential introduction of contaminated fill onto the Site, AEI recommends that selected sources of import fill have adequate documentation or certification to verify that the fill source is appropriate for the Site. Documentation should include detailed information on previous land use of the fill source, any Phase I Environmental Site Assessments performed and the results of any analytical testing performed. If no documentation is available, the documentation is inadequate or if no analytical testing has been performed, AEI recommends that samples of the potential fill material be collected and analyzed prior to delivery of such soil to the Site. The analyses selected should be based on the fill source and knowledge of the previous land use as determined by the Environmental Consultant. AEI recommends that the sample frequency for potential fill material be conducted in accordance with that outlined in the technical document titled, "Information Advisory on Clean Imported Fill Material" (Department of Toxic Substances Control, October 2001). The Environmental Consultant will provide guidance to the Contractor regarding acceptability of imported fill; no fill material will be accepted if contaminant levels exceed current commercial environmental screening goals and/or regional background concentrations.

6. CONTROL OF POTENTIAL RESIDENTIAL EXPOSURE

As a protective measure, a vapor intrusion mitigation system is proposed to prevent the migration of soil vapor into the newly renovated building at the Site. The proposed vapor intrusion mitigation system will include a barrier system specifically designed and applied to the concrete floor of the building and penetrations through the floor will be sealed.

The October 2011 *Vapor Intrusion Mitigation Advisory, Revision 1, Final* (VIMA) issued by the DTSC that provides the general requirements for the design, implementation, and long term operation and maintenance of vapor mitigation systems and will be used to guide the final design of the proposed vapor mitigation system as described further below.

6.1 Design Basis

The purpose of the vapor intrusion mitigation system is to prohibit the intrusion of petroleum hydrocarbon-affected soil vapor, if present, from the subsurface into the renovated building at the Site at concentrations that may pose a risk to human health. The barrier system includes a very low permeability layer applied to the building floor slabs and foundations and sealing around each penetration.

The final design of the vapor mitigation system will be performed by a State of Californialicensed Professional Engineer with the appropriate experience and knowledge in the design of vapor mitigation systems.

6.2 Construction Quality Assurance and Quality Control

The vapor intrusion mitigation design will include construction QA/QC requirements to be implemented during the installation of the systems, including:

• Appropriately qualified and certified contractors will be used with experience installing the specified barrier products.



- A pre-installation meeting will be held including the contractor, owner, architect/engineer, and other trades that may be affected by the installation of the systems, or must know to protect the systems during the performance of their activities.
- Installation materials will be purchased from a single manufacturer to ensure compatibility and conformity of the products. The manufacturer will provide certification-testing documentation that the materials specified meet or exceed the minimum design requirements.
- Field sampling will be performed as needed to ensure that the proper thickness of the materials is applied and the integrity of the vapor barrier.
- Testing procedures for ensuring that the installed venting system operates as designed.
- Testing procedures to ensure that the vapor barrier system has been installed in accordance with the design and manufacturer recommendations and without defects.

Upon completion of the final vapor intrusion mitigation system installation, a report will be prepared documenting that the installation was performed in accordance with the design and manufacturer specifications and that the specific construction QA/QC procedures were performed and yielded satisfactory results. The report will also include a signed and stamped record drawing set documenting the 'as-built' construction of the vapor intrusion mitigation system, including necessary field changes to the design.

6.3 Long-term Operation and Maintenance

Because the vapor mitigation system is an engineered protection for the building from potential vapor intrusion of petroleum hydrocarbon-affected soil vapor, proper operation and maintenance (O&M) is required to ensure that the systems are not damaged and remain operational over the life of the building. Therefore, as part of the design of the vapor mitigation system, a long-term O&M plan will be prepared that at a minimum will include:

- Written procedures for the evaluation of the integrity of the floor systems, including visual observations for damage or activities that may have damaged the systems.
- A schedule for when to perform the inspections, who is qualified to perform the inspections, and the protocol for how to consider modifications to the schedule as warranted.
- Notification to the property owners that alteration or removal of the vapor mitigation systems is prohibited.
- Written procedures, processes, and conditions under which the long-term O&M of the VIMS can be terminated.

Because the vapor mitigation system will be an integral part of the building, long-term O&M of the systems will be the responsibility of the building owner

A draft of the long-term O&M Plan will be submitted to ACEH for review and comment prior to finalizing the document.



7. DELIVERABLES

The following is a list of deliverables noted in this document that will be generated as work progresses at the Site:

- Vapor Intrusion Mitigation System Design
- Vapor Intrusion Mitigation System Long-Term O&M Plan
- Vapor Intrusion Mitigation System Installation Report

8. REFERENCES

The regulatory record for this Site can be found on the State of California GeoTracker Website at http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0600133151.

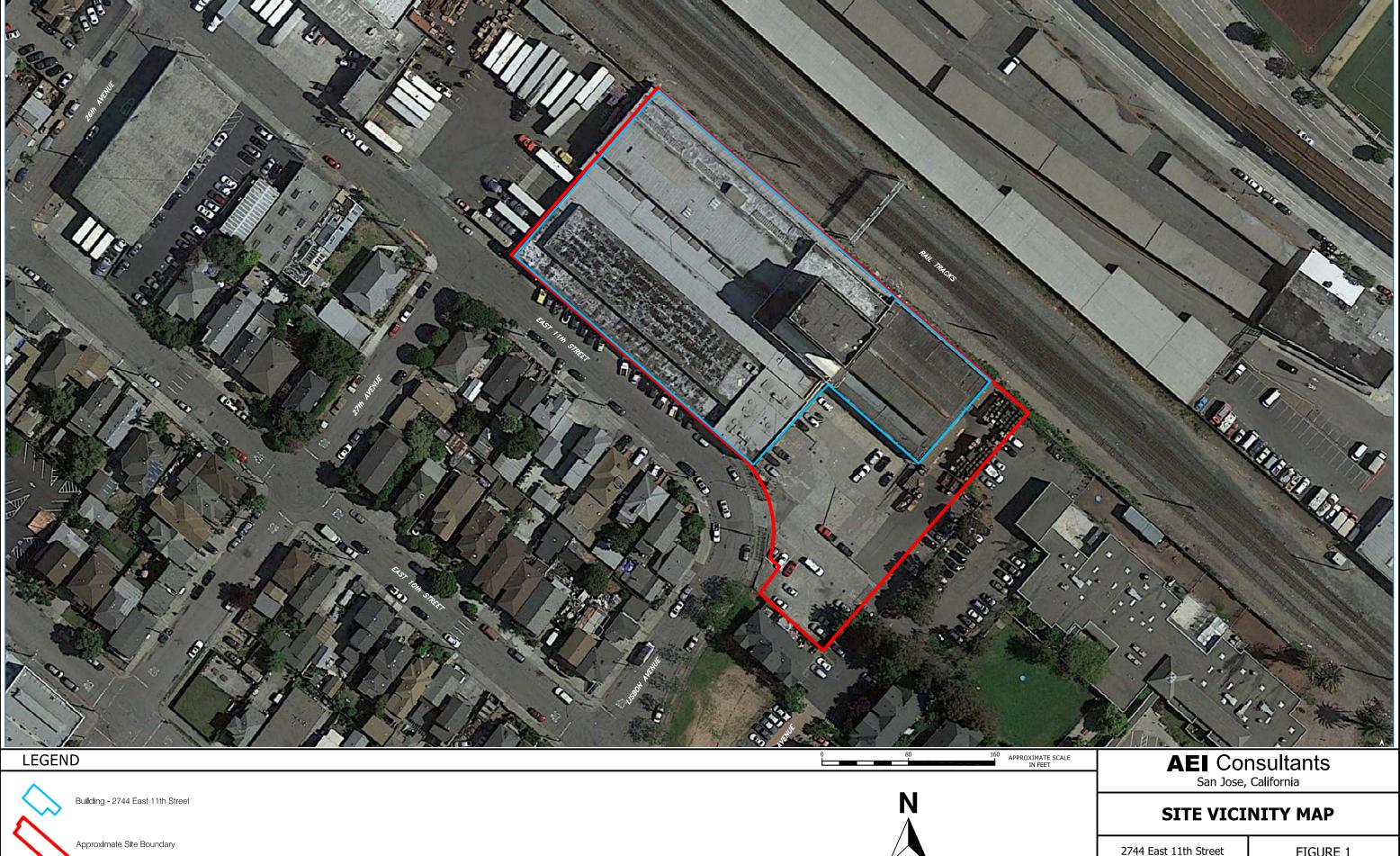
California Department of Toxic Substances Control (DTSC). 2011. Vapor Intrusion Mitigation Advisory, Revision 1, Final (VIMA)

California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board). 2013. User's Guide: Derivation and Application of Environmental Screening Levels – Interim Final. December.

FIGURES







2744 East 11th Street Oakland, California

FIGURE 1 Project No. 345989

