



California Regional Water Quality Control Board

San Francisco Bay Region



Alan C. Lloyd, Ph.D.
Agency Secretary

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
<http://www.waterboards.ca.gov/sanfranciscobay>

Arnold Schwarzenegger
Governor

Environmental Fact Sheet

Screening Level Risk Assessment and Remedial Action Plan

Theatre Square, Petaluma, CA

April 25, 2005

Site Description

The Theatre Square property (the "Site") covers a block of approximately 1.4 acres located between C and D Streets and between 2nd Street and Petaluma Boulevard South in downtown Petaluma, California. The Site is located within a commercial, residential and light industrial area of Petaluma, Sonoma County.

History

Various portions of the Site have been used in the past for vehicle maintenance, repair, painting and fueling. Gasoline stations were located at the southwestern corner and the southeastern corners of the Site in the past. Three offsite gasoline stations were located on corners opposite the Site to the south. As a result of historic onsite and offsite activities, soils and groundwater at the Site have been impacted by organic and inorganic chemicals including total petroleum hydrocarbons (TPH) as gasoline (TPHg) and diesel (TPHd), volatile organic compounds (VOCs), principally benzene, and lead.

The Site has been the subject of extensive soil, groundwater and soil vapor investigations in the last fifteen years. The underground storage tanks (USTs) and accessible contaminated soil around the gasoline station in the southwestern portion of the Site have been excavated and removed. A waste oil UST was removed from the northern portion of the Site, and a small volume of associated contaminated soil was found and removed. A gasoline UST was removed from the northern portion of the Site. Sampling and analysis in the vicinity of this gasoline UST indicated that no significant contamination by petroleum-related compounds occurred, and no additional soils were removed.

Proposed Redevelopment

Basin Street Properties (Petaluma Theatre Square, LLC) is planning to redevelop the Site as a commercial and residential complex, with commercial premises on the first (ground) floor, and residential apartments on the second and third floors. The proposed complex comprises three buildings, with a total footprint of approximately 41,800 square feet. Site redevelopment will result in the entire Site surface being covered with a combination of buildings and hardscape,

Preserving, enhancing, and restoring the San Francisco Bay Area's waters for over 50 years

with the exception of small tree wells, which will be covered by imported fill and heavy metal grates.

Scope of the Screening Level Risk Assessment and Remedial Action Plan

In order to assess whether the proposed redevelopment is appropriate for conditions at the Site, the Regional Water Quality Control Board (Water Board) requested the preparation of a Screening Level Risk Assessment and Remedial Action Plan (SLRA/RAP). The objectives of this Screening Level Risk Assessment and RAP were to:

- Assess human health risks associated with conditions at the Site, both under an unrestricted residential land use scenario, and for the proposed commercial and upper floor residential development;
- Describe the remedial action that would be appropriate for the management of potential human health risks; and
- Obtain Water Board approval for the proposed SLRA/RAP.

Findings of the Screening Level Risk Assessment

Residual petroleum hydrocarbon-related compounds are present in soil and groundwater at the Site. The areas of impacted soil and groundwater are principally in the western portion of the Site and in the southeastern corner of the Site. TPHg, TPHd, benzene and lead were the only chemicals detected in on-site soils at elevated concentrations. TPHg and benzene were detected in groundwater at elevated concentrations in some locations. The presence of volatile compounds in soil and groundwater has impacted soil vapor in the southeastern corner and western portion of the Site. The key contaminants reported in soil vapor are TPHg and benzene. Soils at the Site are relatively moist and impermeable, and so inhibit the movement of soil vapor.

The screening level risk assessment was conducted by comparing the concentrations detected to relevant Environmental Screening Levels (ESLs) for direct contact exposure and inhalation of indoor air, as set forth by the Water Board. The significant findings and conclusions of the screening level risk assessment are as follows:

- Concentrations of TPH-g, and benzene are present in soil across portions of the Site at levels that exceed the residential direct contact ESLs. Concentrations of benzene are present in soil across portions of the Site at levels that exceed the commercial direct contact ESL. Because the development plans for the Site will result in a complete covering of the soils, principally with buildings and hardscape, direct contact with the soils will not occur. Thus, the

development will effectively mitigate any potential risks associated with direct contact pathways.

- Concentrations of benzene in groundwater are lower than the ESLs for impacts to residential indoor air at all locations except one, in the southeastern corner of the Site. Concentrations of benzene in groundwater are lower than the ESLs for impacts to commercial indoor air at all locations. There is no ESL for impacts to indoor air from TPH-g in groundwater.
- Concentrations of TPH-g and benzene are present in soil vapor across the south-eastern and western portion of the Site at levels that exceed ESLs for impacts to residential and commercial indoor air. Residential units will be located on the second and third floors and constructed with separate HVAC (Heating Ventilation Air Conditioning) systems. As a result, actual health risks to future on-site residents from vapor intrusion into indoor air would be significantly reduced. Elevated concentrations of benzene in soil vapor could pose a small threat to indoor air in the commercial ground-floor spaces. To minimize concerns for all future occupants, it was considered prudent to incorporate certain design elements into the construction of the buildings to mitigate the potential for future migration of vapors from the subsurface into the buildings, as outlined in the RAP (below). Once the mitigation measures outlined in the RAP have been implemented, the health risks to future on-site occupants from vapor intrusion into indoor air would be reduced to acceptable levels.

Proposed Remedial Action Plan

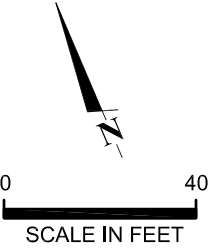
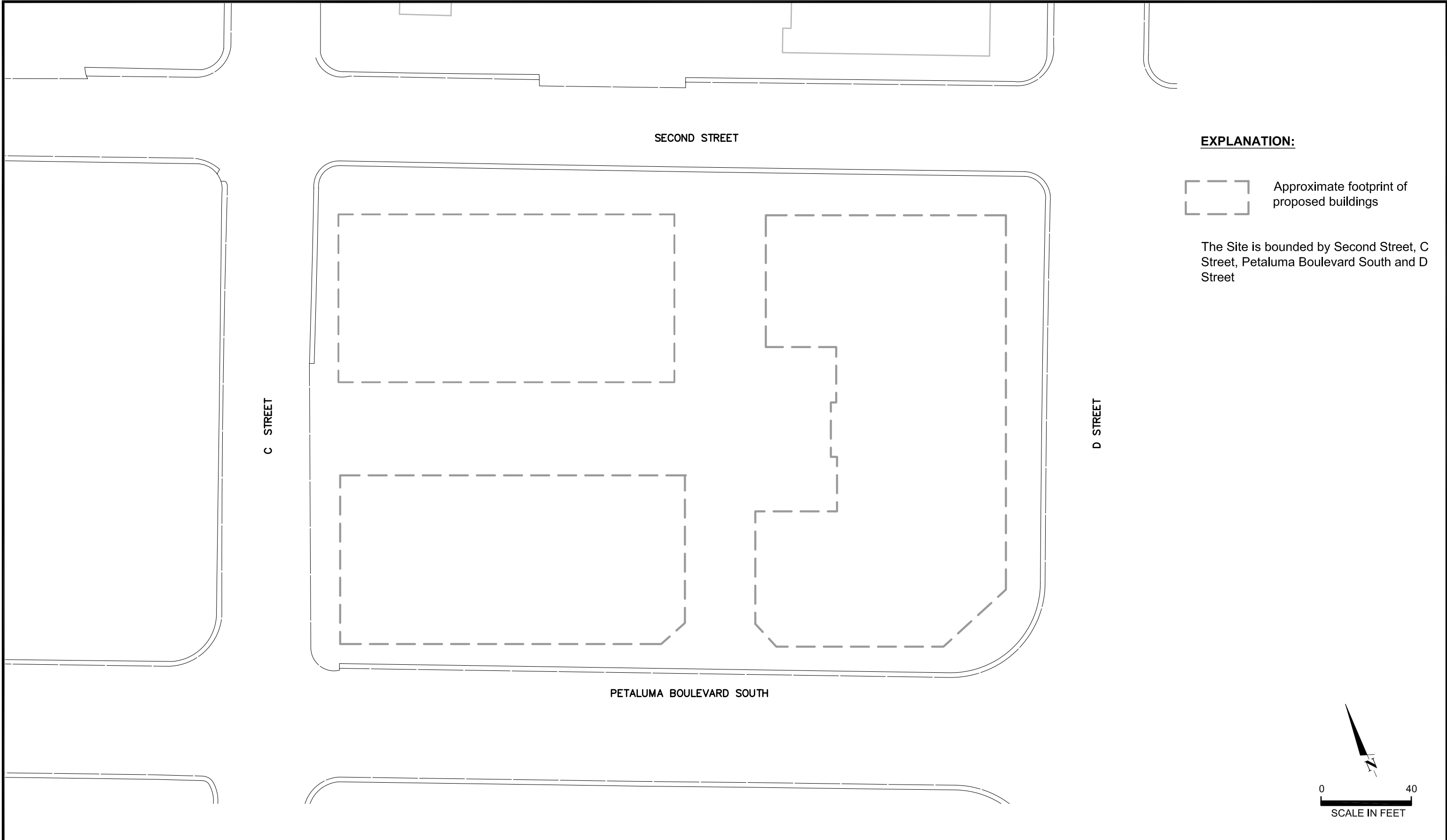
The following actions are proposed to ensure that contact with and exposure to the residual concentrations of compounds left in soil, groundwater, and soil vapor at the Site will be controlled in a safe and thorough manner:

- When the Theatre Square project is developed, the surface of the Site will be entirely covered with buildings and associated hardscape. Only in the tree wells, which will be covered with heavy metal grates, will there be soils exposed at the surface. The top layer of soil in the tree wells will consist of imported horticultural fill placed around the trees.
- The entire ground floor of the Theatre Square development will be reserved for commercial use.
- Special protective measures are to be undertaken at the Theatre Square development to limit the potential for migration of vapors from the subsurface into future Site buildings. A Liquid Boot® membrane/liner will be installed beneath the slabs of all buildings constructed at the Site to act as a barrier preventing vapors from entering the buildings. This membrane / liner comprises a continuous layer of asphalt-like emulsion which is sprayed onto geo-textile, and has been widely used in other redevelopment projects. Additionally, a Liquid Boot® GeoVent system will be incorporated beneath the slab of

the building in the eastern portion of the Site where more elevated concentrations of vapors have been detected. GeoVent comprises a passive vapor collection and venting system. Vapors are collected by a network of trenches and conduits and directed toward a venting pipe which discharges the vapors high above the ground surface and any potentially sensitive receptors.

- Restrictions are to be placed on the deed of the property. Specifically, the presence of the Liquid Boot® membrane/liner and Liquid Boot® GeoVent will be disclosed, requirements for ongoing maintenance of these systems will be stipulated, and a prohibition against the extraction or use of groundwater at the Site will be instituted to prevent contact with contaminated groundwater. The deed restriction will also incorporate a Risk Management Plan (RMP). The RMP identifies activities where residual contaminants may be encountered, provides a notification procedure for those activities, outlines procedures to ensure the integrity of the remedial controls, and outlines health and safety procedures to ensure safe and proper handling of the impacted soil and groundwater.

Site map attached



I:\Petaluma\draftera\Fact Sheet Fig 1.dwg

IRIS ENVIRONMENTAL
 1615 Broadway, Suite 1003
 Oakland, California 94612
 Ph. (510) 834-4747 Fax: (510) 834-4199

Site Location and Proposed Building Footprint
 Theatre Square
 Petaluma, California

Figure
1

Drafter: EBH

Date: 4/22/05

Contract Number: 04-333-E