

Head Royce School Planned Unit Development Permit (PUD) Project

Draft Environmental Impact Report
Technical Appendices 8A through 16B

SCH #2019029032

November 2021

Lead Agency:
City of Oakland

Prepared by:
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Geotechnical Investigation to Support Due Diligence Evaluation, Lincoln Child Center at 4368 Lincoln Avenue

Rockridge Geotechnical, May 2012

"Administrative Draft-Not for Public Review"

ROCKRIDGE GEOTECHNICAL

Prepared for **The Head-Royce School**

GEOTECHNICAL INVESTIGATION TO SUPPORT DUE DILIGENCE EVALUATION
LINCOLN CHILD CENTER
4368 LINCOLN AVENUE
OAKLAND, CALIFORNIA

May 7, 2012
Project No. 12-412

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ROCKRIDGE
GEOTECHNICAL

May 7, 2012
Project No. 12-412

Mr. Dennis Malone, CFO
The Head-Royce School
4315 Lincoln Avenue
Oakland, California 94602

Subject: Final Report
Geotechnical Investigation to
Support Due Diligence Evaluation
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

Dear Mr. Malone,

We are pleased to present the results of our geotechnical investigation, dated May 7, 2012, to support the due diligence evaluation for the Lincoln Child Center property located at 4368 Lincoln Avenue in Oakland, California. Our services were provided in accordance with our proposal, dated April 3, 2012.

The site is on the southeast side of Lincoln Avenue between Alida Street and Perkins Road, across the street from The Head-Royce School. We understand The Head-Royce School is considering acquiring the subject property and potentially using all or a portion of the property to expand their campus facilities. The objectives of our geotechnical services were to evaluate the condition of the existing improvements, including buildings and parking lots, from a geotechnical perspective and to evaluate whether there are any geotechnical-related conditions at the property that may result in unacceptable future building performance and/or may adversely impact future site development.

Based on the results of our research, field investigation, laboratory testing, and engineering analyses, we conclude there are no major geotechnical issues that would preclude safe operation of the existing facilities and/or further development of this site. The primary geotechnical issues to be considered include:

1) The presence of moderately to highly expansive near-surface soil at the site, which is subject to volume changes resulting from changes in moisture content. These volume changes can cause cracking of slabs, pavements, below-grade walls, and foundations supported on these soils. The existing pavements and

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concrete flatwork at the site show evidence of expansive subgrade soils and mismanaged drainage.

2) The need for better management of surface and subsurface drainage throughout the site. Recommended improvements include:
    - hard-piping downspouts at all buildings
    - providing positive slopes around buildings to promote proper drainage
    - installing better drainage controls at the top and bottom of the slope on the south side of Building 9 to increase static and seismic stability and reduce the ongoing erosion observed in this area
3) The presence of undocumented fills of highly varying thickness across the site. Existing buildings generally appear to be performing well with respect to long term settlement. The design of future improvements should consider the cut-fill transitions.

These and other geotechnical issues are discussed in greater detail in the attached report.

The conclusions and recommendations presented in this report are intended to assist the due diligence evaluation for the property and are not intended for final design of a particular project. Our conclusions and recommendations are based on limited visual inspection, subsurface exploration, and laboratory testing programs. Consequently, variations between expected and actual soil conditions may be found in localized areas. Prior to final design of any new improvements, we should be retained to provide a final geotechnical report based on the proposed project scope and a supplemental field investigation, if needed. At that time, we can prepare final foundation and grading recommendations specific to the proposed project.

We appreciate the opportunity to provide our services to you on this project. If you have any questions, please call.

Sincerely yours,
ROCKRIDGE GEOTECHNICAL, INC.

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TO SUPPORT DUE DILIGENCE EVALUATION
LINCOLN CHILD CENTER
4368 LINCOLN AVENUE
Oakland, California

1.0 INTRODUCTION

This report presents the results of the geotechnical investigation performed by Rockridge Geotechnical to support the due diligence evaluation for the Lincoln Child Center property located at 4368 Lincoln Avenue in Oakland, California. We understand The Head-Royce School is considering acquiring the subject property and potentially using all or a portion of the property to expand their campus facilities. The site is on the southeast side of Lincoln Avenue between Alida Street and Perkins Road, across the street from The Head-Royce School, as shown on Figure 1 (Site Location Map).

2.0 SCOPE OF SERVICES

The objectives of our geotechnical services were to evaluate the condition of the existing improvements, including buildings and parking lots, from a geotechnical perspective and to evaluate whether there are any geotechnical-related conditions at the property that may result in unacceptable future building performance and/or may adversely impact future site development. Our investigation was performed in accordance with our proposal, dated April 3, 2012. Our scope of work consisted of:

- Reviewing readily available published geologic and geotechnical maps and geotechnical reports for the site vicinity
- performing a review of historic aerial photographs for the site vicinity
- performing a reconnaissance of the site, which included a visual examination of the site geology, as well as the condition of the existing buildings and other site improvements
- evaluating subsurface conditions at the site by drilling seven test borings
- performing laboratory testing on selected soil samples from our borings

- performing engineering analyses to develop preliminary conclusions and recommendations regarding:
    - geotechnical and/or geological constraints that may impact site development
    - site seismicity and geologic hazards.

3.0 SITE EVALUATION AND GEOTECHNICAL INVESTIGATION

3.1 Review of Existing Documents

We reviewed available geology and fault maps for the site vicinity. We also reviewed existing subsurface information available for the Lincoln Child Center site and the surrounding area. These included borings, test pit logs, and laboratory test results from the following reports:

- *Geotechnical Investigation for Parking Lot Expansion, Lincoln Child Center, Oakland, California*, prepared by Kleinfelder, dated March 25, 2003.
- *Drilled Pier Installation Observation and Reinforcement and Concrete Placement Inspection, Group Home, Lincoln Child Center, 4368 Lincoln Avenue, Oakland, California*, prepared by Consolidated Engineering Laboratories, dated December 9, 1999.
- *Geotechnical Engineering Study, Residential Home Building, Lincoln Child Center, 4368 Lincoln Avenue, Oakland, California*, prepared by Consolidated Engineering Laboratories, dated October 9, 1998.
- *Geotechnical Feasibility Investigation, Proposed Lincoln Child Center, Congregate Housing, Oakland, California*, prepared by Kleinfelder, dated October 19, 1987.
- *Drainage Study, Lincoln Home for Children, 4368 Lincoln Avenue, Oakland, California*, prepared by Woodward-Clyde and Associates, dated July 12, 1957.
- *Drainage Study, Lincoln Home for Children, 4368 Lincoln Avenue, Oakland, California*, prepared by Woodward-Clyde and Associates, dated June 20, 1957.
- *Soil investigation for the proposed Bushel Cottage, Lincoln Home for Children, Oakland, California*, prepared by Woodward-Clyde and Associates, dated October 7, 1957.

Consolidated Engineering Laboratories' (CEL's) 2009 investigation included five borings within the approximate footprint of Building 9. Kleinfelder's (KF's) 2003 investigation included eight borings, four of which were performed in the lower parking lot in the northwest corner of the site and four of which were performed in the former Perkins Road area along the north edge of the site. Woodward-Clyde & Associate's (WCA's) 2009 investigation included three borings, two of which were drilled in the approximate location of Building 6 and one of which was drilled in the location of Building 7.

The approximate locations of the previous borings performed by others are shown on the Site Plan, Figure 2. Logs of borings performed for previous projects at the Lincoln Child Center are presented in Appendix C. The results of laboratory testing performed as part of the previous investigations are presented on the boring logs and in Appendix C.

In addition to reviewing existing geotechnical and geologic data for the site, we reviewed individual and stereo-paired historical aerial photographs at Pacific Aerial Surveys in Emeryville to look for evidence of past grading and landslides, and to provide a limited history of past land use. We reviewed 15 sets of stereo-paired aerial photographs covering the site vicinity that dated from 1947 to 2005. We used standard photogrammetric techniques to identify significant geologic features on the site such as lineaments, meander channels, tonal contrast, evidence of poor drainage conditions, and distorted slopes indicative of slope instability. The specific aerial photos reviewed are listed in the references at the end of this report. Details regarding the results of our aerial photo review are presented in Section 4.2.

3.2 Field Investigation

We further investigated the subsurface conditions at the site on April 13, 2012 by drilling seven test borings, designated as B-1 through B-7, at the approximate locations shown on Figure 2. Prior to beginning our field investigation, we obtained a drilling permit from the Alameda County Public Works Agency (ACPWA) and contacted Underground Service Alert (USA) to notify them of our work, as required by law. We also retained Precision Locating, LLC, a private utility locator, to check that the boring locations were clear of existing utilities.

The test borings were drilled to practical refusal in bedrock at depths ranging from approximately 2-1/2 to 19 feet below the ground surface (bgs) by Exploration Geoservices of San Jose, California. The borings were drilled using a truck-mounted Mobile B-53 drill rig equipped with six-inch-outside-diameter, hollow-stem flight augers. During drilling, our engineer and engineering geologist logged the soil and rock encountered and obtained representative samples for visual classification and laboratory testing. The logs of the borings are presented on Figure A-1 through A-7 in Appendix A. The soil encountered in the borings was classified in accordance with the classification chart shown on Figure A-8. Bedrock encountered in the borings was classified in accordance with the physical properties criteria for rock descriptions presented on Figure A-9.

Soil samples were obtained using the following samplers:

- Sprague and Henwood (S&H) split-barrel sampler with a 3.0-inch outside diameter and 2.5-inch inside diameter, lined with 2.43-inch inside diameter brass tubes
- Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside and 1.5-inch inside diameter, without liners.

The SPT and S&H samplers were driven with a 140-pound, downhole, safety hammer falling approximately 30 inches. The blow counts required to drive the S&H sampler the final 12 inches of an 18-inch drive were converted to approximate SPT N-values using a conversion factor of 0.6 and are shown on the boring logs. Where the SPT sampler was used, the actual blow counts are shown on the boring logs. Upon completion of drilling, the borings were backfilled with neat cement grout under the observation of the ACPWA inspector. Soil cuttings from the borings were left on-site in landscaped areas.

3.3 Laboratory Testing

We re-examined each soil and rock sample obtained from our borings to confirm the field classifications and select representative samples for laboratory testing. In the laboratory, soil samples were tested to measure moisture content, dry density, fines content (i.e., particles passing the No. 200 sieve), and Atterberg limits (plasticity index). The Atterberg limits test is an indirect measurement of the expansion potential of soil. The results of the laboratory tests are presented on the boring logs and in Appendix B.

3.4 Site Reconnaissance

We performed a limited geologic reconnaissance of the site and a visual inspection of the exteriors of the existing buildings and other site improvements. The purpose of our reconnaissance was to look for evidence of slope instability, significant settlement-related damage, drainage issues, and other geotechnical issues with the site. Our evaluation of potential site geologic hazards is presented in Section 6.0 of this report. Our observations regarding geotechnical-related issues affecting the existing buildings is presented in Section 7.3 of this report.

4.0 SITE AND SUBSURFACE CONDITIONS

Descriptions of the site development history and the current surface and subsurface conditions at the site are presented in the following sections.

4.1 Surface Conditions

The Lincoln Child Center property is an approximately seven-acre site that slopes gently down to the south/southwest, with approximately 50 feet of vertical relief over a horizontal distance of 500 feet. The site consists of a series of cut-fill pads and is currently occupied by nine buildings constructed between 1929 and 1999. The three older buildings, which occupy the southwest portion of the property, were built during the original site development in 1929. Existing site improvements also include asphalt-paved parking lots, asphalt- and concrete-paved playgrounds, grass fields, and landscaping.

4.2 Aerial Photograph Review and Site History

Our engineering geologist reviewed 15 sets of stereo-paired aerial photographs covering the site vicinity at the Pacific Aerial Surveys office in Emeryville, California. Photographs viewed ranged between the years 1947 to 2005 as noted in the reference list at the end of the report. We observed progressive site development throughout the years that was demonstrated by light colored tonal contrasts and areas of obvious ground alteration. Most photographs showed unchanged conditions from previous years so we are summarizing the findings for years in which significant alterations or events were observed.

The oldest set of photographs available for viewing, from 1947, showed pad grading and fill placed on the south side of the spur ridge (currently the upper parking lot) and in the swale along the southern boundary of the site. A south-facing fill slope was constructed on the south side of the spur ridge, in the current location of Building 9. Buildings currently designated as 0, 1 and 2 had been constructed on the northwest corner of the site prior to the 1947 photographs.

In the 1950 photo set, we observed 2 broad landslide scars on the south-facing fill slope noted above. The landslide scars extended behind the top of slope and were not visible in the 1957 set suggesting the slope had been reworked. At that time, the area was used as a play field, and therefore the landslide repair may not have been engineered. The landslides were located on the slope at about the current location of Building 9.

Only minor site modifications, parking lot construction and building construction were observed in subsequent photo sets. These include construction of Building 6 between 1957 and 1959, construction of a previous building in the location of Building 8 prior to 1971, parking lot improvements performed prior to 1996, and construction of Building 9 prior to 2002.

4.3 Subsurface Conditions

The site is underlain by artificial fill placed over native soils and bedrock of the Franciscan Complex. Brief descriptions of the subsurface materials encountered during the course of this investigation are listed below in order from youngest to oldest. Detailed descriptions of the various materials are provided on the boring logs presented in Appendix A.

<u>Artificial fill</u>

Artificial fill is material that has been selectively borrowed and placed by man. At the site, fill consisted of aggregate base rock beneath the parking areas and driveways overlying stiff to very stiff clay fills with varying amounts of sand and native rock fragments. In general, the fill was found to be moderately to well-compacted. Because the site was constructed on a series of cut-fill terraces, the fill thickness varies substantially from one location to another.

In the lower parking lot area in the northwest corner of the site, the fill thickness ranged from about 2-1/2 feet at boring KF-4 to about 16-1/2 feet at boring B-1. The thick fill encountered at boring B-1 is likely part of an older fill placed during original construction of the site, the limits of which were not detected by this study. At the location of boring B-2, no fill was encountered, which indicates this portion of the parking lot was constructed over a cut.

In the northern portion of the site (upper parking lot and Perkins Road area) borings B-5, B-6, KF-7, and KF-8 indicate predominantly cut, which provides further evidence of the spur ridge that was removed during previous site grading. Borings KF-5 and KF-6 indicate that 3 and more than 6-1/2 feet of fill is present at these locations, respectively.

A significant amount of artificial fill was placed along the southern side of the former spur ridge and in a former swale along the southern boundary of the site. The area of fill placed in the swale is now the grassy play field and orchard area and was not evaluated as part of this investigation. The fill placed along the south side of the spur ridge created a south-facing fill slope. The fill was investigated by CEL in their 1998 study for Building 9. The 1998 CEL report indicates that the fill is composed of soft to very stiff clay with varying sand and gravel content and is underlain by native colluvium overlying bedrock. We were not able to locate plans of the original fill placement showing possible keyways, subdrains or engineering control.

Colluvial Soils

Colluvial soils are generated by the downslope accumulation of soil and weathered bedrock materials. Typical colluvial soils at this site consist of brown to dark brown clayey soils with a moderate to high expansion potential. Colluvium forms relatively thick soil deposits in swales and along the toes of slopes. Although not directly encountered in our investigation, based on review of regional geologic maps and previous geotechnical reports for the site, we understand there are two main areas of colluvium at the site: 1) A broad swale along the southern site boundary that was partially buried by artificial fill as discussed above, and 2) In borings CEL-1 and CEL-2, where 3 to 4 feet of dark brown colluvial soil underlies the fill slope below Building 9, as discussed in the 1998 CEL report.

Bedrock

Bedrock materials encountered in borings drilled as part of this investigation include sandstone, siltstone, and shale of the Franciscan Complex. The siltstone and sandstone were found to be fine-to medium-grained, weak to moderately strong, moderately to deeply weathered and highly fractured. The shale is thinly laminated and highly weathered. Based on our observations of several outcrops in the neighborhood surrounding the site, bedrock structure generally trends to the northwest and dips to the southwest (downslope) at inclinations between about 45 and 65 degrees.

Groundwater

Groundwater was not encountered in borings drilled as part of this investigation, with the exception of boring B-1, likely due to the relatively shallow depth of investigation. In boring B-1, we encountered water at about 6-1/2 feet bgs during drilling. The water encountered in B-1 is likely a localized perched wet layer within the fill. No groundwater was encountered in the borings drilled by CEL in September, 1998 and by Kleinfelder in December 2002. Groundwater levels are expected to undergo seasonal changes due to rainfall and local irrigation practices. Based on our discussion with Lincoln Child Center personnel, we understand there are seasonal springs in portions of the property. We did not observe any active springs during our site reconnaissance.

5.0 REGIONAL GEOLOGY AND SEISMICITY

The site is located within the Coast Ranges Geomorphic Province of California, which is characterized by northwest-southeast trending series of folded and faulted mountain ranges and valleys. Folding, faulting and tectonic uplift of the region is the result of right–lateral and oblique elative motions between the Pacific and North American tectonic plates which has deformed the region for the past several million years. The San Andreas fault is the generally accepted boundary between these plates.

The site is situated on the west flank of the Oakland-Berkeley hills which is a northwest-trending band of uplifted bedrock units forming steep hillsides bordering the east side of the San Francisco Bay plain. According to regional geologic maps prepared by the U.S. Geological Survey (Graymer, 2000; Graymer et al, 1995, and Radbruch, 1969) several bedrock units have been tectonically juxtaposed against each other. In general, in the site vicinity, sedimentary bedrock units of the Franciscan Complex are located on the west side of the Hayward fault, while several slivers of volcanic, metamorphic and sedimentary rocks are located to the east of the fault. A portion of the 2000 regional geologic map by Graymer is provided on Figure 3.

Bedrock underlying the site is part of an undivided portion of the Franciscan Complex which is generally composed of a series of sea floor sediments deposited during the Jurassic and Cretaceous periods of geologic time, roughly 65 to 205 million years before present. Regional geologic maps depict a northwest trend and variable dip of the bedrock layers that have been distorted by folding. Locally, based on our observation of several bedrock outcrops in the site vicinity, this portion of the Franciscan Complex consists of thinly bedded layers of sandstone, siltstone, and shale that dip to the southwest at inclinations between about 45 to 65 degrees; these observations are generally consistent with the regional geologic maps.

The site is located in a region of relatively high seismicity given the close proximity to several active faults. In the San Francisco Bay Area, strain and fault motions are distributed across a network of subparallel right-lateral strike slip faults. Active traces of the Hayward fault are located about 1,500 feet east from the eastern site boundary. Other major faults in the area include but are not limited to the 1906 rupture segment of the San Andreas fault located about 18 miles to the west, the northern section of the Calaveras fault located about 11 miles southwest, the Greenville-Marsh Creek section of the Greenville fault is located about 21 miles to the northeast and the Rodgers Creek fault located about 28 miles to the north of the site. These and other active faults within the Bay Area are shown on Figure 4.

The U.S. Geological Survey's 2007 Working Group on California Earthquake Probabilities has compiled the earthquake fault research for the San Francisco Bay area in order to estimate the probability of fault segment rupture. They have determined that the overall probability of moment magnitude 6.7 or greater earthquake occurring in the San Francisco Bay Region during the next 30 years is 63 percent. The highest probabilities are assigned to the Hayward/Rodgers Creek Fault and the northern segment of the San Andreas Fault. These probabilities are 31 and 21 percent, respectively (USGS, 2008).

6.0 GEOLOGIC HAZARDS

Because the project site is in a seismically active region, we evaluated the potential for earthquake-induced geologic hazards including ground shaking, ground surface rupture, liquefaction,[1] lateral spreading,[2] and cyclic densification[3]. In addition, we evaluated the potential for landsliding under static and seismic conditions. The results of our evaluation are presented in the following sections.

6.1 Ground Shaking

The seismicity of the site is governed by the activity of the Hayward Fault, although ground shaking from future earthquakes on other faults, including the Calaveras, San Andreas and Mt. Diablo Faults, will also be felt at the site. The intensity of earthquake ground motion at the site

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1 Liquefaction is a phenomenon where loose, saturated, cohesionless soil experiences temporary reduction in strength during cyclic loading such as that produced by earthquakes.

2 Lateral spreading is a phenomenon in which surficial soil displaces along a shear zone that has formed within an underlying liquefied layer. Upon reaching mobilization, the surficial blocks are transported downslope or in the direction of a free face by earthquake and gravitational forces.

3 Cyclic densification is a phenomenon in which non-saturated, cohesionless soil is compacted by earthquake vibrations, causing ground-surface settlement.

will depend upon the characteristics of the generating fault, distance to the earthquake epicenter, and magnitude and duration of the earthquake. We judge that very strong to violent shaking could occur at the site during a large earthquake on one of the nearby faults.

6.2 Liquefaction and Associated Hazards

When a saturated, cohesionless soil liquefies, it experiences a temporary loss of shear strength created by a transient rise in excess pore pressure generated by strong ground motion. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Flow failure, lateral spreading, differential settlement, loss of bearing strength, ground fissures and sand boils are evidence of excess pore pressure generation and liquefaction.

The project site is not within an area that has been mapped as a designated liquefaction hazard zone, as shown on the map titled *State of California Seismic Hazard Zones, Oakland East and Part of the Las Trampas Ridge Quadrangles*, prepared by the California Geological Survey (CGS), dated 14 February 2003 (see Figure 5, Seismic Hazards Zone Map). This map was prepared in accordance with the Seismic Hazards Mapping Act of 1990.

The on-line interactive liquefaction susceptibility maps provided by the Association of Bay Area governments (ABAG) show the site to have a “low” susceptibility to liquefaction. Groundwater was not encountered in the majority of the borings performed at this site, most of which extended to bedrock. The soil encountered in boring B-1 below groundwater is generally sufficiently cohesive (contains substantial amount of clay) and consequently, we conclude the potential for liquefaction and associated hazards is low.

6.3 Cyclic Densification

Cyclic densification (also referred to as differential compaction) of non-saturated sand (sand above groundwater table) can occur during an earthquake, resulting in settlement of the ground surface and overlying improvements. Loose, clean sand was not encountered above the water table in our borings. Therefore, we conclude the likelihood of cyclic densification impacting the structures at this site is very low.

6.4 Fault Rupture

Historically, ground surface displacements closely follow the trace of geologically young faults. The site is not within an Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act, and no known active faults exist on the site. The State of California considers a fault active if it has demonstrated movement within Holocene time (within the past about 11,000 years). The closest fault considered active by the State of California is the northern segment of the Hayward fault which is located about 1,500 feet east of the site. A portion of the State of California designated Earthquake Fault Zone Map is provided on Figure 6.

Regional geologic maps by Graymer (2000, 1995), Herd (1978), Radbruch-Hall (1974), and Radbruch (1969, 1967a) show a fault passing the western boundary of the site. This fault trace has been considered a possible Pleistocene active feature that has not demonstrated Holocene activity. Therefore, the subject fault trace west of the site is not considered active by the State of California and therefore is not zoned in accordance with the Alquist-Priolo Act. Geologic maps focused on identifying features indicative of active faulting along the Hayward fault do not indicate activity along this trace. Additionally, the 1987 Kleinfelder report references having discussions with State Geologist Mr. Earl Hart, that confirmed the fault trace along the western site boundary is not considered active.

We therefore conclude the risk of fault offset at the site from a known active fault is low. In a seismically active area, the remote possibility exists for future faulting in areas where no faults previously existed; however, we conclude the risk of surface faulting and consequent secondary ground failure from previously unknown faults is also low.

6.5 Slope Stability

The project site is not within an area that has been mapped as a designated earthquake-induced landslide hazard zone, as shown on the map titled *State of California Seismic Hazard Zones, Oakland East and Part of the Las Trampas Ridge Quadrangles*, prepared by the California

Geological Survey (CGS), dated 14 February 2003 (see Figure 5, Seismic Hazards Zone Map). The cut slope above the north/northeastern boundary of the site, adjacent to the former Perkins Road, is mapped as potentially susceptible to earthquake-induced landsliding by the State of California, as shown on Figure 5. This slope is not within the subject site boundary. We did not observe evidence of past slope instability in this location during our site reconnaissance or during our historic aerial photo review. The 2003 Kleinfelder report addressed earthquake-induced landslide potential for this slope and concluded that the slope is composed of bedrock at shallow depths and that the potential for earthquake-induced landsliding of this slope is low.

The fill slope along the south side of the Building 9 was constructed upon native soils and has shown signs of past shallow instability. The fill was likely placed without engineering control and may not meet current geotechnical engineering standards. Therefore, the fill prism on the slope may be prone to earthquake-induced landsliding or deformation during a strong earthquake event. However, we understand that the building is supported on drilled piers extending into bedrock to account for possible downslope movement of the fill, as noted in the 1998 CEL report. If new improvements are proposed in the vicinity of this slope, additional investigation should be performed. As discussed in more detail in Section 7.0 of this report, there is evidence of past erosion and shallow slope failures on this slope face. These instabilities appear to be associated with inadequate drainage. Provided the drainage issues discussed in Section 7.0 are addressed, based on the historic performance of the slope, we conclude stability of the slope under static conditions should be satisfactory.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our research, field investigation, laboratory testing, and engineering analyses, we conclude there are no major geotechnical issues that would preclude safe operation of the existing facilities and/or further development of this site. The primary geotechnical issues to be considered include: 1) the presence of moderately to highly expansive near-surface soil at the site, 2) the need for better management of surface and subsurface drainage, and 3) the presence of undocumented fills of highly varying thickness across the site. Our preliminary conclusions and recommendations regarding these issues and a summary of our observations during reconnaissance of the existing facilities are presented in the remainder of the report.

7.1 Expansive Soil

Expansive soil is subject to high volume changes resulting from changes in moisture content. These volume changes can cause cracking of slabs, pavements, below-grade walls, and foundations supported on these soils. Both long-term and seasonal shrinking and/or swelling of the underlying soil can potentially cause distress to future improvements constructed at this site. Near the edges of pavements, flatwork or building pads, especially where they are adjacent to landscaped areas, the expansive clay subgrade may be subjected to seasonal fluctuations in moisture content, which could result in cyclic shrinking and swelling. These cyclic volume changes can be exacerbated near free slope faces, where there is a lack of lateral confinement, and can result in a long-term phenomenon referred to as creep. Evidence of expansive soil is apparent in the observed distress of existing pavements and concrete flatwork at this site; this distress is discussed in greater detail in Section 7.3.

In general, the effects of expansive soil can be mitigated by moisture-conditioning the expansive soil subgrade, providing select, non-expansive fill below pavements and concrete flatwork and behind retaining walls. In addition, on expansive soil sites, it is critical to properly manage surface and subsurface drainage to prevent water from collecting beneath pavements. Water should not be allowed to collect beneath pavements or flatwork or behind below-grade walls.

7.2 Site Fills

Building 0 was constructed across a substantial cut-fill transition in the northeast-southwest direction, as evidenced by the approximately 16-1/2 feet of fill encountered in boring B-1. Based on our review of the available foundation drawings for this building, we understand the building is supported on shallow spread footings. Despite the highly variable subgrade condition beneath this building, based on visual examination of the building exterior and limited floor level elevation measurements performed inside, it appears the building has undergone minimal differential settlement. Other buildings at the site appear to be performing similarly with respect to differential settlement, as discussed further below. During the design of any future buildings planned for this site, it will be important to evaluate the cut-fill transitions beneath the proposed building footprints.

The fill slope on the south side of Building 9 has displayed indications of minor instability since its construction. The fill was placed in the mid to late 1940's and was likely placed without engineering control such as ground preparation, adequate compaction, subdrainage and a proper keyway. Two broad landslide scars were observed on the slope in the 1950 aerial photographs that appear to have occurred just after fill placement. The 1998 CEL report for the Building 9 indicated that the fill prism may be subject to downslope movement during earthquake events and designed the piers to extend into bedrock to protect the building from distress. Currently, the slope is slightly hummocky and shows signs of settlement, erosion and shallow surficial landsliding. Surface water around the building and from roof gutter downspouts is currently allowed to free flow onto the ground surface and down the slope face. Small erosion gullies on the slope can be traced directly to surface water around Building 9. Additionally, there are shallow slide scars on the slope at about the same location as observed in the 1950 aerial photographs that may be failure of fill placed in the larger 1950 scars.

The following are preliminary recommended measures for improving the performance of this slope:

- Surface area drains could be installed to intercept and collect surface water before flowing over the slope causing erosion or potentially saturating and destabilizing the fill.

- Building 9 downspouts currently discharge water onto slope, adversely impacting slope performance. Downspout water should be collected closed pipes and directed to a storm drain or other suitable outlet away from the fill slope and building.

- Erosion gullies and the shallow landslide scars observed below Building 9 are prone to regressive failure that can cause loss of ground at the top of slope. Simple ways to mitigate this condition could be installation of short below-grade retaining walls upslope of the erosion scar to stop upslope migration or placement of rip-rap in the scars to reduce erosion.

- Groundwater seepage from the face or toe of the slope reduces stability, especially during earthquake events. To help dewater the slope, we recommend installing subdrains along the top and the toe of the slope.

7.3 Performance of Existing Facilities

This section presents our geotechnical-related observations during visual examination of the existing buildings, pavements, and flatwork at the site.

<u>Building 0 – Junior Alliance Middle School</u>

- 1929 – 2 stories; west wing constructed at-grade; east wing over basement
- Supported on spread footings
- Minor diagonal cracking in stucco at window and door openings
- Downspouts drain adjacent to building at asphalt (AC) and concrete surfaces
- Damaged AC pavement near northwest corner of building due to roots from former tree and potential issues with expansive subgrade

- Portions of the building do not have gutters/downspouts, causing roof to drain into landscaped areas adjacent to building
- Concrete flatwork adjacent to landscaped areas on north side of building has experienced severe rotation (presumably) due to expansive soil subgrade; large vertical offsets at construction joints have been planed flat
- No areal drain present between toe-of-slope and basement wall on east side of building; slight horizontal separation/cracking where building wall meets footing/basement wall

<u>Building 1 – Crocker</u>

- 1929 – 2 stories; mostly at-grade; with small basement area
- Supported on spread footings
- Minor diagonal cracking in stucco at window and door openings
- On west side of building, downspouts drain into landscaping immediately adjacent to foundation/basement wall; ground surface slopes toward building
- On east (uphill) side of building downspouts appear to be hard-piped and areal drains are present to manage surface water

<u>Building 2 – Trevor</u>

- 1929 – 2 stories; partially over basement; partially over crawl space
- Supported on spread footings
- Minor diagonal cracking in stucco at window and door openings; generally better condition than Buildings 0 and 1
- On west side of building, downspouts drain into landscaping immediately adjacent to foundation/basement wall; ground surface slopes toward building in many areas
- On east (uphill) side of building downspouts appear to be hard-piped and areal drains are present to manage surface water

<u>Building 3 – Portable</u>

- 1990 – single-story modular building apparently on slab-on-grade
- Moisture damage and rot observed in siding due to inadequate footing stick-up
- Downspouts drain to ground surface adjacent to building
- Inadequate areal drainage adjacent to uphill slopes
- Flatwork around building exhibiting tilting and vertical offsets at joints

Building 4 – Linnet

- 1995 – single-story over crawl space
- Downspouts drain to ground surface adjacent to building
- Inadequate areal drainage adjacent to uphill slopes

Building 5 – Maintenance

- Single-story with slab-on-grade
- Supported on shallow spread footings
- Newer stucco performing well
- Downspouts drain onto concrete surfaces that slope to area drains
- Poor areal drainage on east (uphill) side, between toe-of-slope and partial below-grade building wall

Building 6 – Bushell

- 1958 – single-story over crawl space
- No obvious structural distress; very minor vertical cracking in foundation stem wall, presumably due to concrete shrinkage
- Downspouts hard-piped, but some are corroded and leaking at joints, requiring minor servicing
- Building appears to be set back adequately from top-of-slope on west side, but areal drainage could be improved by providing positive slope away from foundation
- No apparent areal drainage on east (uphill) side of building at toe-of-slope

Building 7 – Main Kitchen

- 1958 – single-story with slab-on-grade
- Downspouts drain onto AC and concrete surfaces that adequately slope away from building, with the exception of on the east side, at the toe-of-slope, where some ponding of surface water occurs before flowing to drain inlet
- Adjacent slope, which appears to be a weathered rock cut slope, has relatively gentle inclination and appears to be performing well

Building 8 – Holmgren House

- 1994 – single-story with slab-on-grade
- No obvious distress to stucco siding or concrete flatwork around building
- Downspouts on west side of building drain into open-ended pipes, but some of the connections could be improved
- Downspouts on south side of building drain into landscaped areas with inadequate slope away from building and poor areal drainage
- North and east sides of building not accessible at time of our investigation

Building 9 – Champlin House

- 1999 – single-story with slab-on-grade
- Drilled cast-in-place concrete pier foundation
- Stucco siding, exposed portions of the foundation, and exterior concrete flatwork appear to be performing well; no obvious distress
- Downspouts on all sides of building drain into landscaping immediately adjacent to building
- On south side of building, erosion gullies have developed where downspout drainage flows over side of adjacent slope, which appears to be connected with shallow, surficial slumps have occurred on face of slope
- At a minimum, all downspouts should be hard-piped and not allowed to drain onto adjacent slope
- Performance of the fill slope on the south side of the building can be improved by installing subsurface drains at the top- and toe-of-slope

Building 10 – Building J

- 1990 – single-story with slab-on-grade, partially below grade
- No obvious distress in stucco
- Drainage appears adequate due to positive slope in ground surface around building

Play Areas East of Buildings 1 and 2

- Concrete flatwork exhibiting moderate to severe rotating and cracking in many locations, apparently due to:
  - settlement of underlying retaining wall backfill and/or rotation of wall

  - complex area drainage due to highly varying surface slope; some areas not adequately drained
  - wood placed at construction joints/transitions between slab sections has degraded, allowing for surface water infiltration and potential expansion of the subgrade soil
- Area drains (DI's, slotted drain, etc.) require servicing to remove debris such as leaves and needles to improve drainage

<u>Parking Lot to the North of Building 9</u>

- AC pavement and concrete sidewalks performing well
- Surface gradients and drain inlets appear to be functioning; areal drainage appears adequate

7.4 Site Drainage

From a geotechnical standpoint, proper management of surface and subsurface water will help improve the future performance of existing facilities at the site, as well as any future improvements. Providing controlled drainage throughout the site will help mitigate the effects of expansive near-surface soil, as well as reduce the potential slope instability and settlement of fills.

Positive surface drainage should be provided around all buildings to direct surface water away from foundations and below-grade walls. To reduce the potential for water ponding adjacent to buildings, we recommend the ground surface within a horizontal distance of five feet from the buildings slope down away from the buildings with a surface gradient of at least two percent in unpaved areas and one percent in paved areas. In addition, roof downspouts should be discharged into controlled drainage facilities to keep the water away from the foundations, below-grade walls, pavements, and concrete flatwork. The use of water-intensive landscaping around the perimeter of the building should be avoided to reduce the amount of water introduced to the expansive clay subgrade. To minimize the potential for subsurface water to collect in the aggregate base (AB) courses beneath new pavements and pedestrian walkways are immediately adjacent to landscape beds, they should be constructed with thickened concrete edges that extend though the AB and into the underlying clay subgrade.

If storm water treatment systems (infiltration basins, rain gardens, bio-retention systems, vegetated swales, flow-through planters, etc.) are considered in future improvements to the site, they should be provided with underdrains, as well as impermeable liners. Due to the low permeability of the near-surface soil and rock, these systems should not be designed for exfiltration in to the subgrade.

8.0 ADDITIONAL GEOTECHNICAL SERVICES

The conclusions and recommendations presented in this report are intended to assist the due diligence evaluation for the property and are not intended for final design of a particular project. Prior to final design of any new improvements, we should be retained to provide a final geotechnical report based on the proposed project scope and a supplemental field investigation, if needed. At that time, we can prepare final foundation and grading recommendations specific to the proposed project. Prior to construction, we should review the project plans and specifications to check their conformance with the intent of our final recommendations. During construction of any new improvements, we should observe site preparation, foundation installation, and the placement and compaction of fill. These observations will allow us to compare the actual with the anticipated soil and rock conditions and to check if the contractor's work is in conformance with the geotechnical aspects of the plans and specifications.

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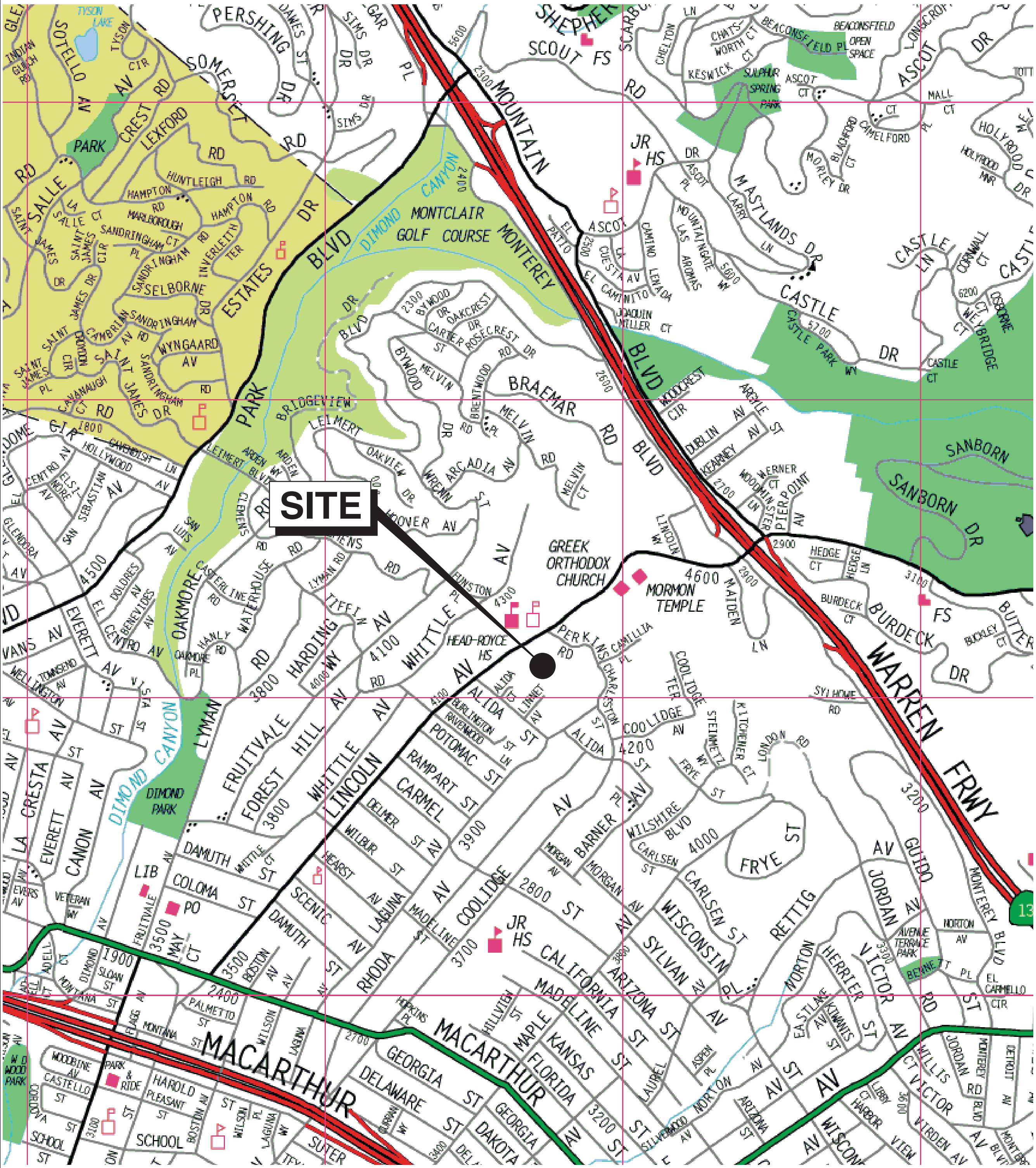
AERIAL PHOTOGRAPHS

FILM ID	FLIGHT LINE	FRAME(S)	NOMINAL SCALE	DATE
KAV9010	44	13/14	1:10,000	03-09-2005
AV 8202	11	25/26	1:12,000	07-10-2002
AV 5200	112	25/26	1:12,000	08-16-1996
AV 3845	11	30/31	1:12,000	06-12-1990
AV 2640	8	25/26	1:12,000	05-15-1985
AV 2040	8	24/26	1:12,000	06-13-1981
AV 1377	7	26/27	1:12,000	07-07-1977
AV 1193	8	22/23	1:12,000	05-06-1975
AV 995	6	25/26	1:12,000	05-18-1971
AV 858	3	27/28	1:12,000	07-02-1968
AV 710	10	28/29	1:36,000	04-20-1966
AV 337	9	31/32	1:9,600	07-08-1959
AV 253	11	29/30	1:12,000	05-04-1957
AV 28	19	14/15	1:7,200	04-14-1950
AV 11	3	15/16	1:20,000	03-24-1947

ROCKRIDGE GEOTECHNICAL

FIGURES



Base map: The Thomas Guide
Alameda County
1999

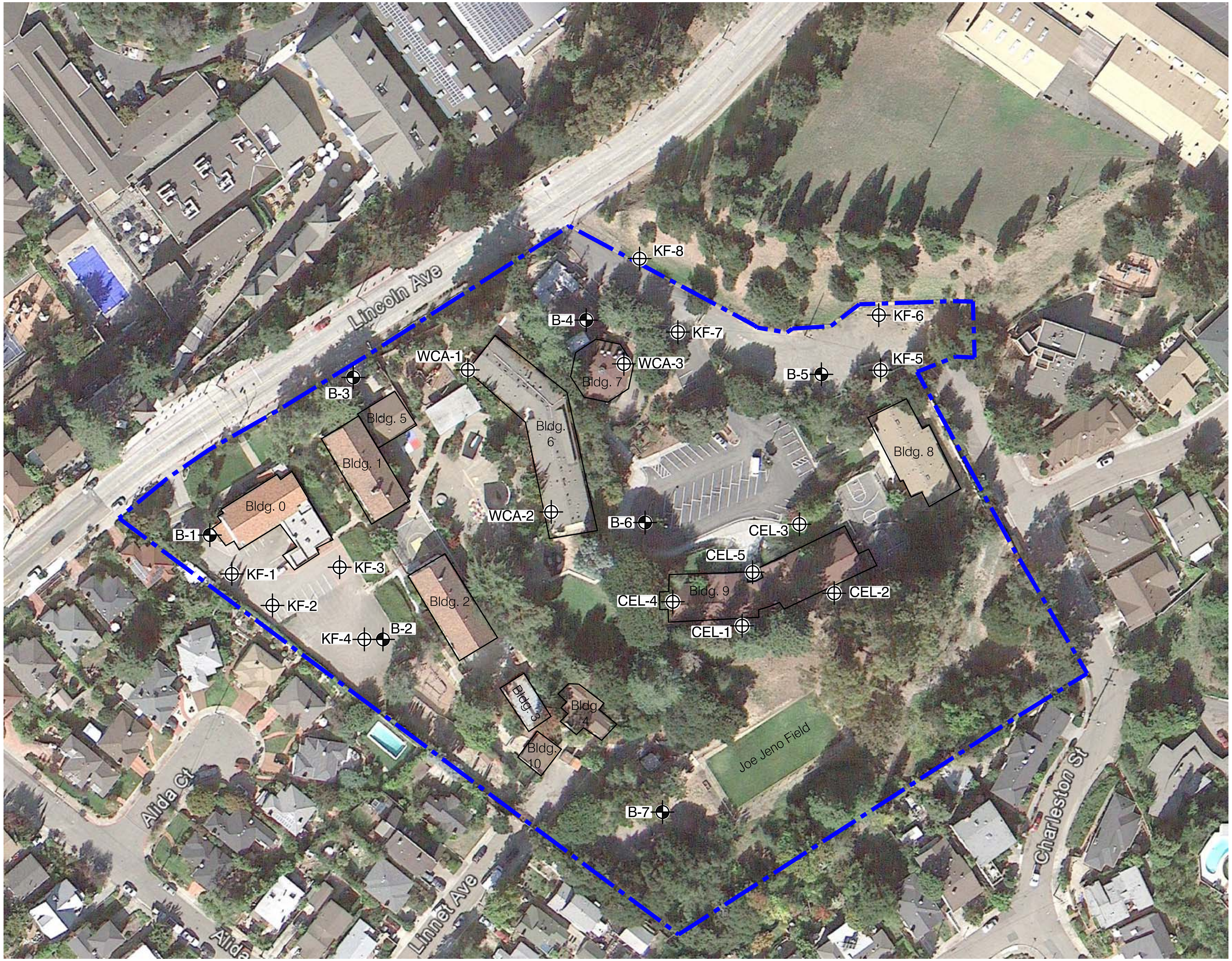
0 1/4 1/2 Mile
Approximate scale

4368 LINCOLN AVENUE
Oakland, California

ROCKRIDGE GEOTECHNICAL

SITE LOCATION MAP

Date 04/19/12	Project No. 12-412	Figure 1



Base map: Google Earth Pro, 2012.

EXPLANATION

B-1 Approximate location of exploratory boring by Rockridge Geotechnical, Inc., April 2012

CEL-1 Rough location of exploratory boring by Consolidated Engineering Laboratories, September 1998

KF-1 Approximate location of exploratory boring by Kleinfelder, December 2002

WCA-1 Rough location of exploratory boring by Woodward, Clyde and Associates, 1957

Approximate existing building footprint

Approximate limits of subject property

0 100 Feet

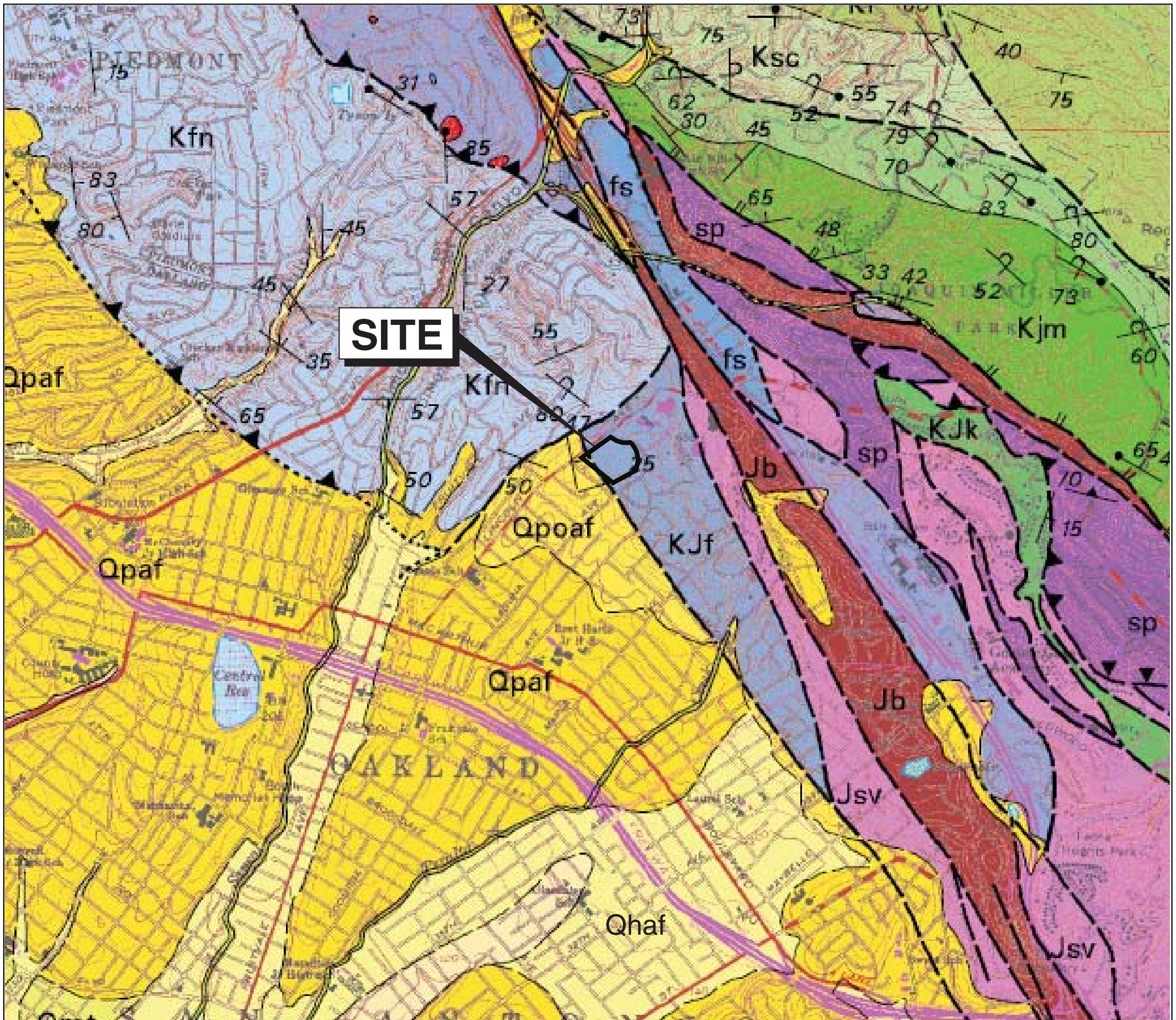
Approximate scale

4368 LINCOLN AVENUE
Oakland, California

SITE PLAN

Date 04/30/12	Project No. 12-412	Figure 2

ROCKRIDGE GEOTECHNICAL



Base map: USGS MF 2342, Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California (Graymer, 2000).

EXPLANATION

Contact - Depositional or intrusive contact, dashed where approximately located, dotted where concealed

Fault - Dashed where approximately located, small dashed where inferred, dotted where concealed, queried where locations is uncertain

Reverse or thrust fault - Dotted where concealed

Anticline -Shows fold axis, dotted where concealed

Syncline

35 Strike and dip of bedding

Overturned bedding

Flat bedding

Vertical bedding

35 Strike and dip of foliation

Vertical foliation

35 Strike and dip of joints in plutonic rocks

Vertical joint

0 1/4 1/2 Mile

Approximate scale

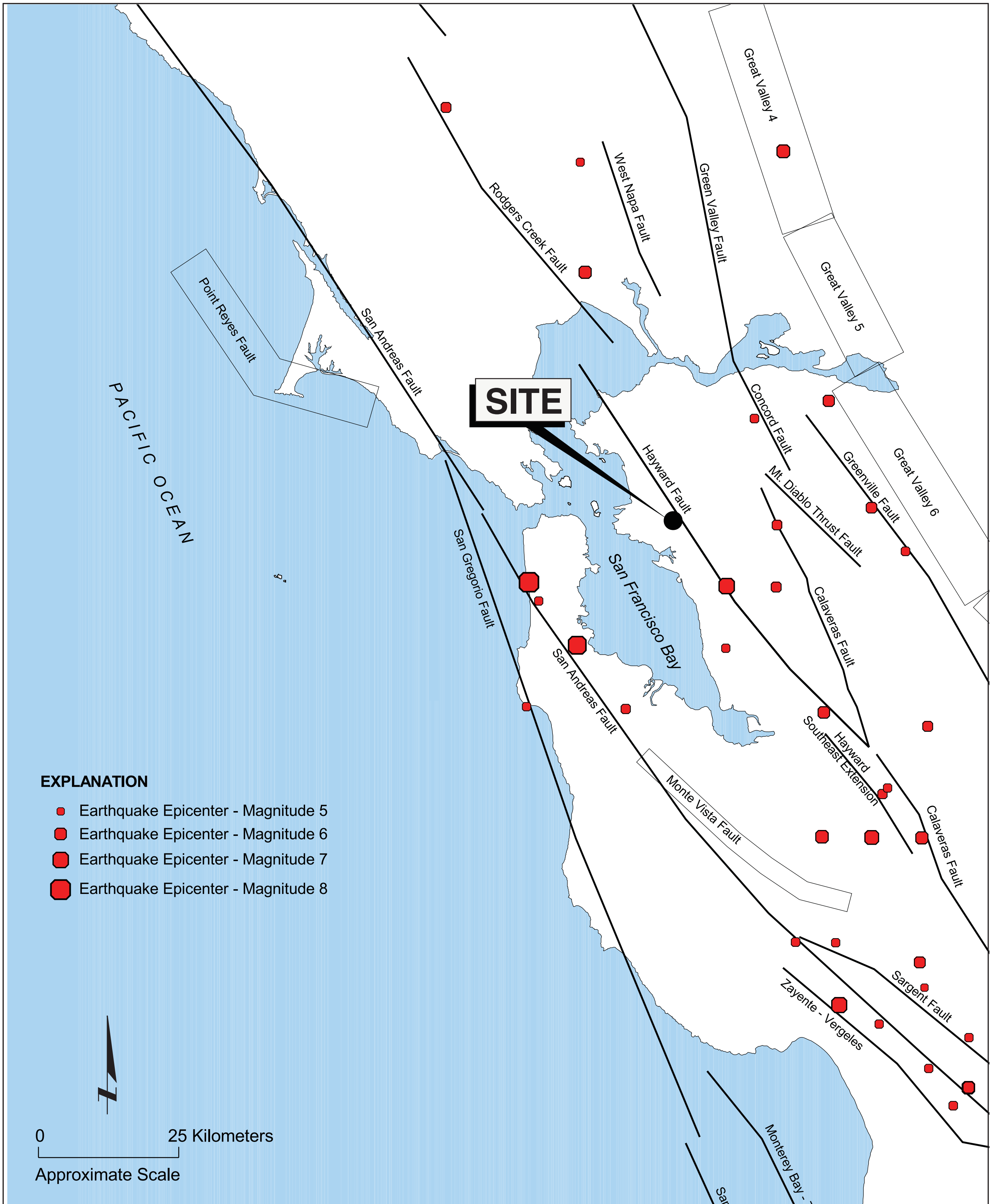
Qhaf	Alluvial fan and fluvial deposits (Holocene)
Qpaf	Alluvial fan and fluvial deposits
Qpaf1	Alluvial terrace deposits (Pleistocene)
Qpoaf	Older alluvial fan deposits (Pleistocene)
Ksc	Shephard Creek Formation (Late Cretaceous, Cenomanian)
Kjm	Joaquin Miller Formation (Late Cretaceous, Cenomanian)
Jsv	Keratophyre and quartz keratophyre (Late Jurassic)
Jb	Massive basalt and diabase
KJf	Undivided Franciscan complex rocks (Cretaceous and Jurassic)
Kfn	Sandstone of the Novato Quarry terrane of Blake and others (1984) (Late Cretaceous)
KJfm	Franciscan complex, melange (Cretaceous Late Jurassic), includes mapped locally:
fs	Graywacke and meta-graywacke blocks
sp	Chert blocks

4368 LINCOLN AVENUE
Oakland, California

ROCKRIDGE GEOTECHNICAL

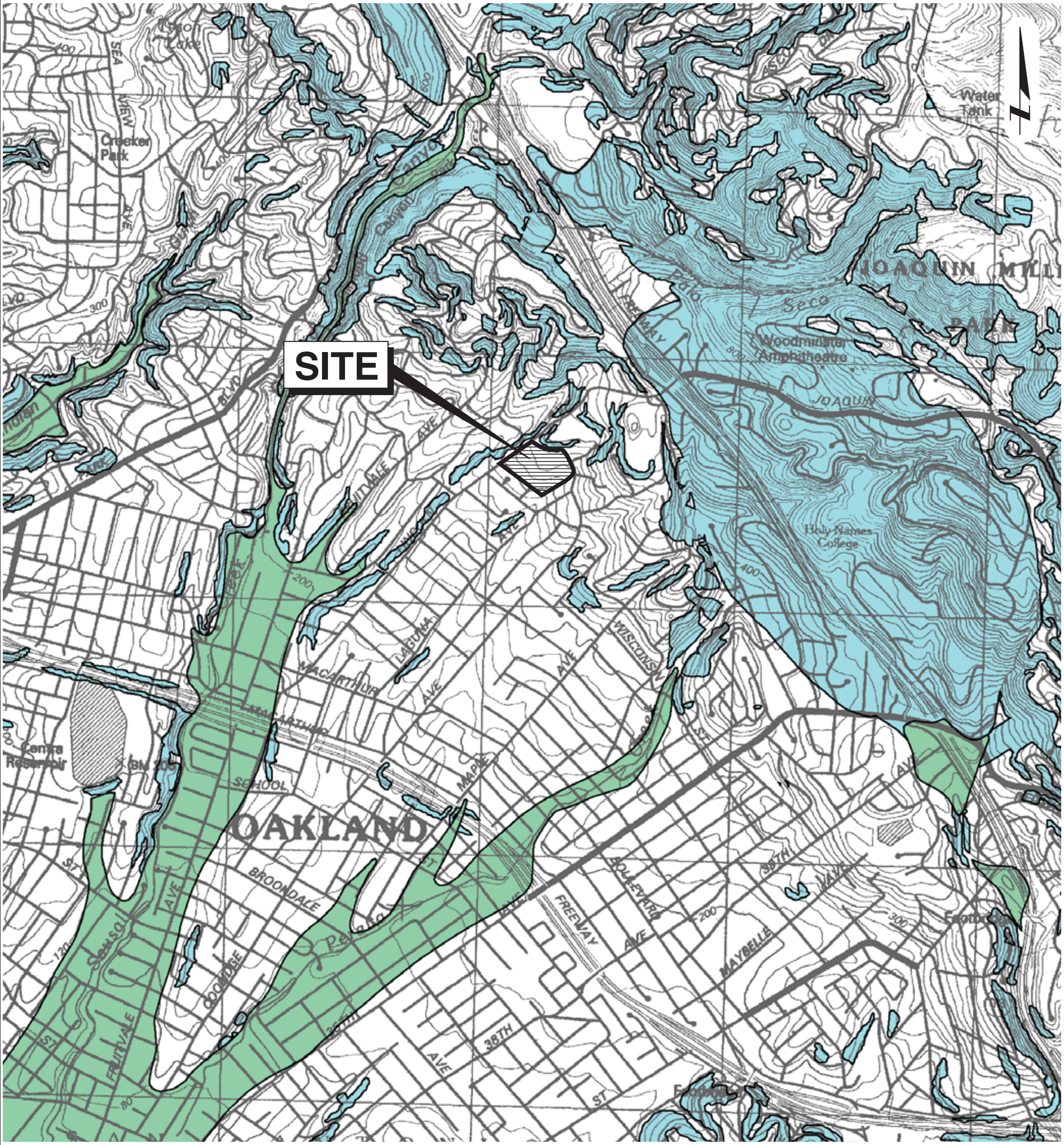
REGIONAL GEOLOGIC MAP

Date 04/30/12 | Project No. 12-412 | Figure 3



NOTES:
Digitized data for fault coordinates and earthquake catalog was developed by the California Department of Conservation Division of Mines and Geology. The historic earthquake catalog includes events from January 1800 to December 2000.

4368 LINCOLN AVENUE Oakland, California	**MAP OF MAJOR FAULTS AND EARTHQUAKE EPICENTERS IN THE SAN FRANCISCO BAY AREA**
ROCKRIDGE GEOTECHNICAL	Date 04/18/12 · Project No. 12-412 · Figure 4



EXPLANATION

Liquefaction; Areas where historic occurence of liquefaction, or local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements.

Earthquake-Induced Landslides; Areas where previous occurence of landslide movement, or local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements.

0 2,000 4,000 Feet

Approximate scale

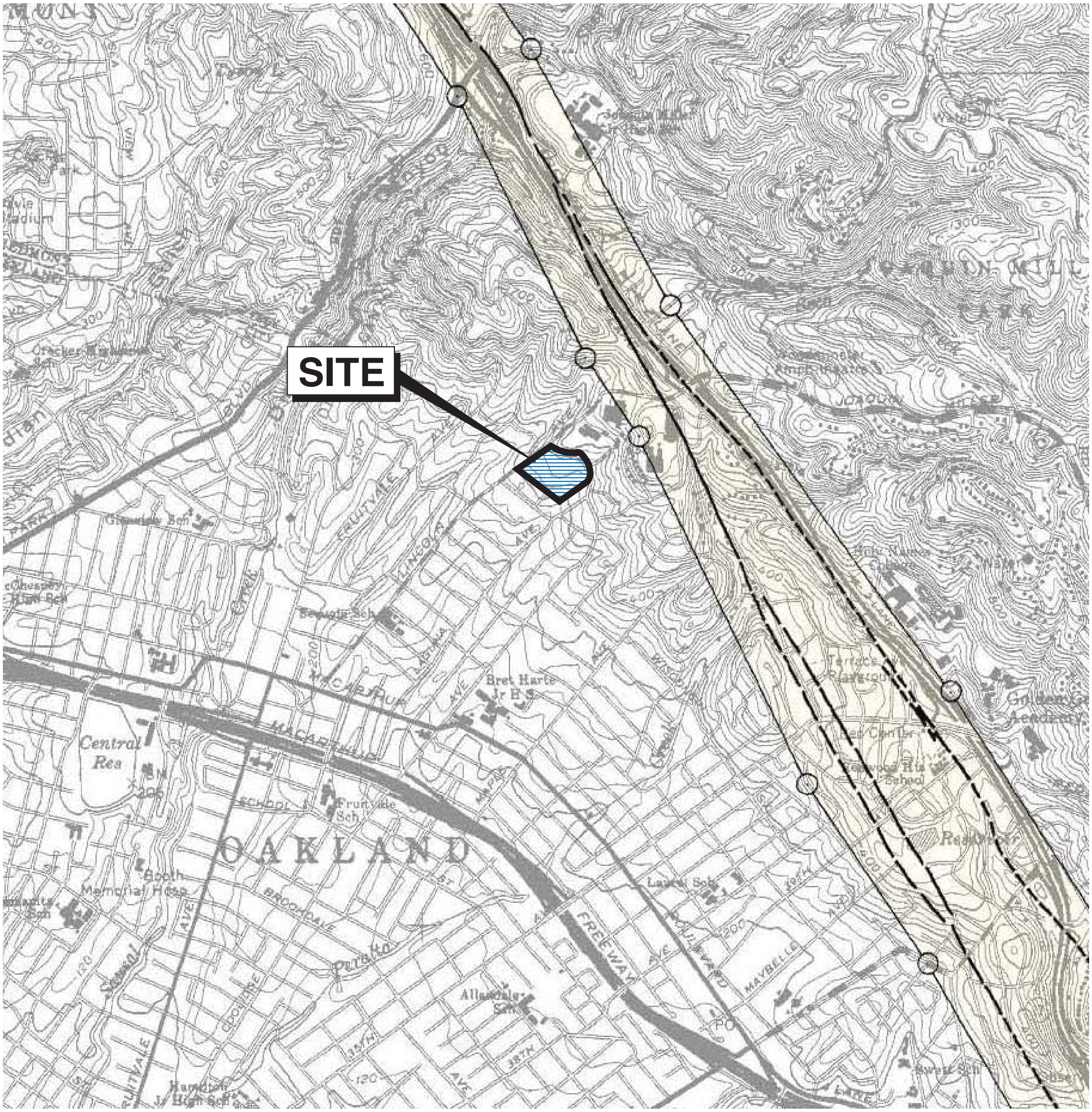
Reference:
State of California "Seismic Hazard Zones"
Oakland East Quadrangle.
Released on February 14, 2003

4368 LINCOLN AVENUE
Oakland, California

ROCKRIDGE GEOTECHNICAL

SEISMIC HAZARDS ZONE MAP

Date 04/19/12 | Project No. 12-412 | Figure 5



MAP EXPLANATION

Potentially Active Faults

1906 C

Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect encircled turning points so as to define special studies zone segments.

Seaward projection of zone boundary.

0 2,000 4,000 Feet

Approximate scale

Reference:
State of California "Special Studies Zones"
Oakland East Quadrangle.
Revised Official Map
Released on January 1, 1982

4368 LINCOLN AVENUE
Oakland, California

ROCKRIDGE GEOTECHNICAL

ALQUIST PRIOLO EARTHQUAKE FAULT ZONE MAP

Date 04/30/12	Project No. 12-412	Figure 6

APPENDIX A
Logs of Test Borings

Log of Boring B-1

PAGE 1 OF 1

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Boring location: See Site Plan, Figure 2
Date started: 4/13/12 | Date finished: 4/13/12
Drilling method: Hollow-Stem Auger
Hammer weight/drop: 140 lbs./30 inches | Hammer type: Downhole Wireline
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)
Logged by: L. Medeiros

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0					5-inches Asphalt Concrete (AC)						
0.5–3.3				CL	CLAY with SAND (CL) olive-brown, medium stiff to stiff, moist, occasional rock fragments LL = 48, PI = 30; see Appendix B						
2	S&H	5, 7, 7	8		yellow-brown					24.1	89
2.8						PP		1,800			
3	S&H	7, 10, 13	14								
3.3–11				SC	CLAYEY SAND (SC) yellow-brown, medium dense, moist				47		
6.5					▽ (4/13/12; 10:30 AM)						
7	S&H	4, 10, 12	13		olive mottled with yellow-brown, medium dense, moist, occasional sandstone fragments				47	22.3	102
9	S&H	9, 6, 9	9		loose to medium dense, wet						
11–16.5					SILTSTONE and SANDSTONE (interbedded) yellow-brown to gray, highly weathered, fractures infilled with sandy clay, wet						
13	SPT	15, 16, 19	35								
16.5–19					SILTSTONE dark gray-brown, moderately hard to hard, weak, moderately weathered, with thin red deeply weathered SANDSTONE interbeds						
19	SPT	50/5"	50/5"								

FILL (0.5 to 16.5 feet)

Boring terminated at a depth of 19 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 6.5 feet during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412 | Figure: A-1

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Log of Boring B-2

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: L. Medeiros

Date started: 4/13/12 | Date finished: 4/13/12

Drilling method: Hollow-Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Downhole Wireline

Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

LABORATORY TEST DATA

DEPTH (feet)	SAMPLES: Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–2	S&H		19 29 46	45	CL	CLAY (CL) mixed with SILTSTONE fragments yellow-brown mottled with light olive, brown to dark brown rock fragments, stiff clay matrix, moist						
2–4.5	SPT		21 26 26	52	CL	SANDSTONE yellow-brown, low hardness, friable, deeply weathered, fine- to medium-grained, moist						
4.5–6.5	SPT		50/6"	30/6"		SILTSTONE dark olive-gray, moderately hard, moderately strong, moderately weathered, moist						

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Boring terminated at a depth of 6.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412 | Figure: A-2

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Log of Boring B-3

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2
Date started: 4/13/12 | Date finished: 4/13/12
Drilling method: Hollow-Stem Auger
Hammer weight/drop: 140 lbs./30 inches | Hammer type: Downhole Wireline
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: L. Medeiros

LABORATORY TEST DATA

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0					7-inches Concrete						
1–2	S&H	5 10 16	16	CL	SANDY CLAY (CL) yellow-brown, very stiff, moist						
3–4	S&H	11 16 17	20	CL	yellow-brown mottled with olive LL = 33, PI = 18; see Appendix B					16.5	113
5				SC	CLAYEY SAND (SC) light olive-brown mottled with yellow-brown, dense, moist, residual soil						
6–7	S&H	9 22 45	40	SC							
7					SANDSTONE light yellow-brown and olive, low hardness, highly weathered, moderately strong, fine- to medium-grained						
9	SPT	50/4"	50/4"								

Depth scale: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Boring terminated at a depth of 9.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412 | Figure: A-3

Log of Boring B-4

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Boring location: See Site Plan, Figure 2	Logged by: L. Medeiros
Date started: 4/13/12	Date finished: 4/13/12
Drilling method: Hollow-Stem Auger	
Hammer weight/drop: 140 lbs./30 inches	Hammer type: Downhole Wireline
Sampler: Sprague & Henwood (S&H)	

DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–1.75	S&H	■	10 50/4"	30/4"	GC	CLAYEY GRAVEL with SAND (GC) dark olive-gray, medium dense, moist FILL						
1.75–2.5	S&H	■	50/4"	50/4"		SANDSTONE yellow-brown, low hardness, highly weathered, moderately strong, fine- to medium-grained, moist						

Boring terminated at a depth of 2.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412

Figure: A-4

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Log of Boring B-5

PAGE 1 OF 1

Boring location:	See Site Plan, Figure 2
Date started: 4/13/12	Date finished: 4/13/12
Drilling method:	Hollow-Stem Auger
Hammer weight/drop: 140 lbs./30 inches	Hammer type: Downhole Wireline
Sampler:	Sprague & Henwood (S&H)
Logged by:	K. Ryan

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–0.5					6-inches Aggregate Base (AB)						
0.5–1.7	S&H	30 50/4"	30/4"	CL	CLAY (CL) brown, very stiff, dry						
1.7–5	S&H	13 15 18	20		SANDSTONE orange-brown, deeply weathered, weak, moderately fractured, fine-grained						
	S&H	50/6"	30/6"								

LABORATORY TEST DATA

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412

Figure: A-5

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Log of Boring B-6

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2	Logged by: K. Ryan
Date started: 4/13/12	Date finished: 4/13/12
Drilling method: Hollow-Stem Auger	
Hammer weight/drop: 140 lbs./30 inches	Hammer type: Downhole Wireline
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)	

DEPTH (feet)	SAMPLES: Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION
					5.5-inches Asphalt Concrete (AC)
					6-inches Aggregate Base (AB)
1–2	S&H	4, 6, 9	9	CL	CLAY (CL) gray-brown, stiff, moist, trace pebbles and coarse grained sand (FILL)
2				CL	CLAY (CL) yellow-brown, stiff, moist, some fine-grained sand
2.5–3				CL	SANDY CLAY (CL) yellow-brown, very stiff, moist, residual sandstone
3–4	S&H	11, 32, 41	44		SANDSTONE yellow-brown, deeply weathered, weak, thinly bedded with gray shale, fine- to medium- grained
5–6	SPT	30, 50/6"	50/6"		

LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft

Boring terminated at a depth of 6 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412 | Figure: A-6

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Log of Boring B-7

Boring location:	See Site Plan, Figure 2
Date started:	4/13/12
Date finished:	4/13/12
Drilling method:	Hollow-Stem Auger
Hammer weight/drop:	140 lbs./30 inches
Hammer type:	Downhole Wireline
Sampler:	Sprague & Henwood (S&H), Standard Penetration Test (SPT)
Logged by:	K. Ryan

DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0						3-inches Asphalt Concrete (AC)						
0–1					CL	CLAY (CL) brown, medium stiff to stiff, moist						
1–2	S&H		4 6 7	8		mottled yellow-brown and gray, stiff, trace fine-grained sand, oxidized root tracks						
3	S&H		5 6 25	19		LL = 47, PI = 30; see Appendix B mottled dark yellow-brown and gray, very stiff					23.5	99
4–5	SPT		28 30 40	70		SHALE dark gray, deeply weathered, weak, thinly laminated						

Boring terminated at a depth of 6 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412

Figure: A-7

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size	Gravels (More than half of coarse fraction > no. 4 sieve size)	GW	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	Silts and Clays LL = < 50	ML	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	MH	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		PT	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes: U.S. Standard Sieve Size	Range of Grain Sizes: Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.075
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.075
Silt and Clay	Below No. 200	Below 0.075

Unstabilized groundwater level

Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered

Classification sample taken with Standard Penetration Test sampler

Undisturbed sample taken with thin-walled tube

Disturbed sample

Sampling attempted with no recovery

Core sample

Analytical laboratory sample

Sample taken with Direct Push sampler

Sonic

SAMPLER TYPE

- C — Core barrel
- CA — California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter
- D&M — Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube
- O — Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube
- PT — Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube
- S&H — Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter
- SPT — Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter
- ST — Shelby Tube (3.0-inch outside diameter, thin-walled tube)

I FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

II HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carved easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

III STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few heavy hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

IV WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

D. **Deep** - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.

M. **Moderate** - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.

L. **Little** - no megascopic decomposition of minerals; little of no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.

F. **Fresh** - unaffected by weathering agents. No disintegration of discoloration. Fractures usually less numerous than joints.

ADDITIONAL COMMENTS:

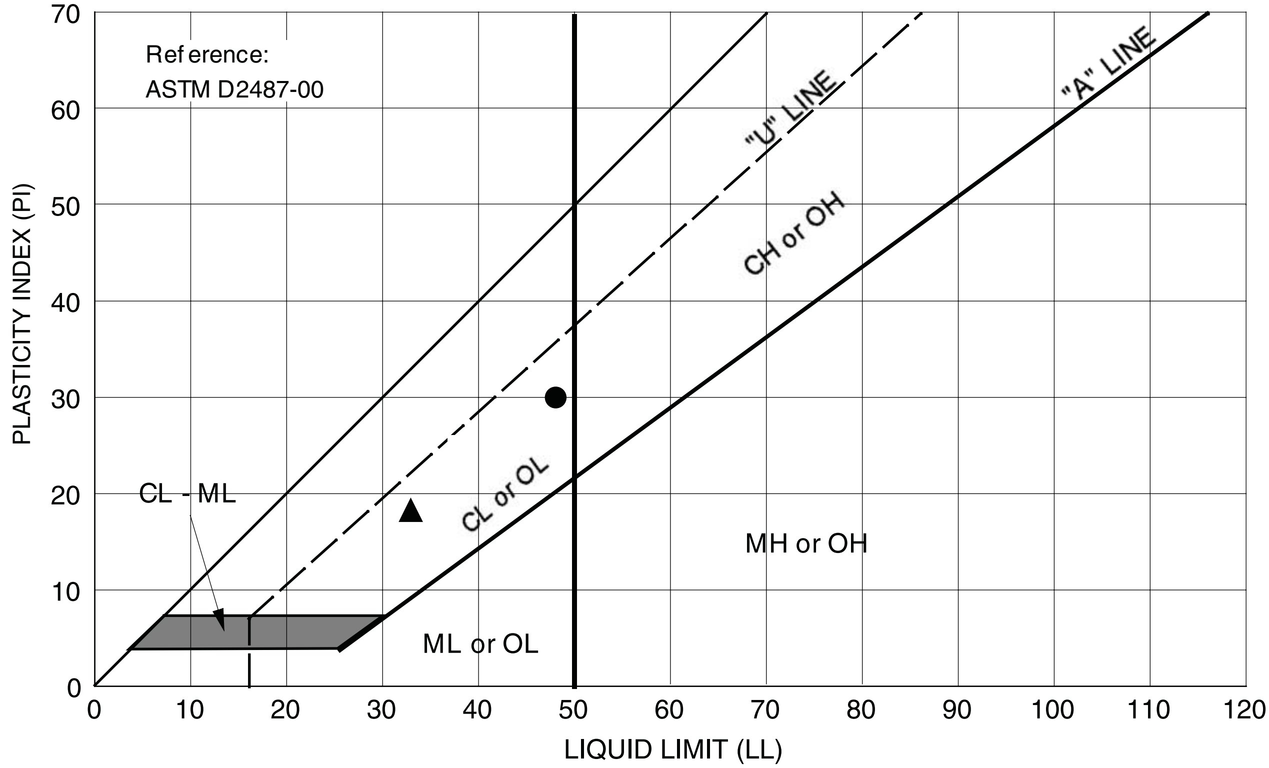
V CONSOLIDATION OF SEDIMENTARY ROCKS: usually determined from unweathered samples. Largely dependent on cementation.

U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

VI BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

APPENDIX B
Laboratory Test Results



Symbol	Source	Description and Classification	Natural M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-1 at 1.25 feet	CLAY with SAND (CL), olive-brown	24.1	48	30	--
▲	B-3 at 3.5 feet	SANDY CLAY (CL), yellow-brown mottled with olive	16.5	33	18	--
■	B-7 at 3.0 feet	CLAY (CL), mottled dark yellow-brown and gray	23.5	47	30	--

4368 LINCOLN AVENUE
Oakland, California

ROCKRIDGE GEOTECHNICAL

PLASTICITY CHART

Date 04/30/12 | Project No. 12-412 | Figure B-1

ROCKRIDGE GEOTECHNICAL

APPENDIX C
Boring Logs and Laboratory Test Results
By Others

Date Completed:	12/31/02	*Sampler:*	Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	*Method:*	6" Hollow Stem Auger
Total Depth:	5.5 ft	*Hammer Wt:*	140 lbs., 30" drop

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION — *Surface Elevation:* Estimated feet (MSL)
						R-Value = 13		ASPHALT
								Dark brown, **SANDY LEAN CLAY (CL)**, moist, stiff, some fine to medium gravel (FILL)
		14						Olive-brown, **LEAN CLAY (CL)**, moist, stiff, some sand, trace fine gravel (FILL)
5		14						Red-brown, **CLAYEY SAND (SC)**, moist, medium dense (FILL)
								End of Boring No groundwater encountered Boring backfilled with grout Note: Bulk sample taken from 1 to 4 feet
10								
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-1
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A2

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

Date Completed:	12/31/02	Sampler:	Modified California Sampler 2.5 inch O.D., 2.0 inch I.D., Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	Method:	6" Hollow Stem Auger
Total Depth:	13.5 ft	Hammer Wt:	140 lbs., 30" drop

Surface Elevation: Estimated feet (MSL)

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION
								ASPHALT
								Gray-brown, **SANDY LEAN CLAY (CL)**, moist, stiff, medium plasticity, some red mottling (FILL)
	◣	14		10				
5	■	8					0.50	Olive-brown, **SANDY LEAN CLAY (CL)**, moist to wet, medium stiff, some red inclusions, (FILL)
10	◣	58						Gray to gray-brown, **SANDSTONE**, friable (R6), slightly moist, very dense
	◣	50/1"						-weak to moderately strong (R4-R5)
								End of Boring No groundwater encountered Boring backfilled with grout
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-2
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A3

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

Date Completed:	12/31/02	*Sampler:*	Modified California Sampler 2.5 inch O.D., 2.0 inch I.D., Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	*Method:*	6" Hollow Stem Auger
Total Depth:	14.0 ft	*Hammer Wt:*	140 lbs., 30" drop

Depth, ft	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION (*Surface Elevation:* Estimated feet (MSL))
							ASPHALT
							Red-brown, **CLAYEY SAND (SC)**, moist (FILL)
	18	112	18			0.75	Gray-brown to red-brown, **SANDY LEAN CLAY (CL)**, moist, stiff, medium plastic (FILL)
5						1.25	
	24		17		LL=34; PI=18	3.75	Gray-brown, **SANDY LEAN CLAY (CL)**, moist, very stiff to hard
	45						
10	50/5"						Gray-brown, **SHALE**, slightly moist
							Gray-brown, **SANDSTONE**, slightly moist to dry, weak to moderately strong (R4-R5)
	50/2"						
15							**End of Boring** No groundwater encountered Boring backfilled with grout
20							
25							

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-3
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A4

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

Date Completed:	12/31/02	Sampler:	Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	Method:	6" Hollow Stem Auger
Total Depth:	5.5 ft	Hammer Wt:	140 lbs., 30" drop

Depth,ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION (Surface Elevation: Estimated feet (MSL))
								Gray-brown, **SANDY LEAN CLAY (CL)**, moist, very stiff (FILL)
		50/5"						Gray-brown, **SANDSTONE**, moist, friable (R6)
5		50/4'						
								End of Boring No groundwater encountered Boring backfilled with grout Note: Bulk sample taken from 1 to 4 feet
10								
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-4
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A5

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

Date Completed: 12/31/02

Logged By: M. GIBSON

Total Depth: 13.5 ft

Sampler: Modified California Sampler 2.5 inch O.D., 2.0 inch I.D., Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.

Method: 6" Hollow Stem Auger

Hammer Wt: 140 lbs., 30" drop

Depth, ft	FIELD: Sample / Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION (Surface Elevation: Estimated feet (MSL))
							Brown, **POORLY GRADED SAND (SP)**, moist, some fine to medium gravel (FILL)
					42% fines	>4.0	Brown, **SILTY SAND (SM)**, moist, medium dense (FILL)
	7					0.50	Gray-brown, **SANDY LEAN CLAY (CL)**, moist, medium stiff
5		121	18			1.75	
	39						Red-yellow, **SANDSTONE**, moist, weak (R5)
	50/2"						-becoming less weathered
10							
	50/1"						
							End of Boring No groundwater encountered Boring backfilled with grout
15							
20							
25							

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-5
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A6

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

Date Completed:	12/31/02	*Sampler:*	Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	*Method:*	6" Hollow Stem Auger
Total Depth:	6.5 ft	*Hammer Wt:*	140 lbs., 30" drop

Depth,ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION (*Surface Elevation:* Estimated feet (MSL))
								Dark brown, **POORLY GRADED SAND (SP)**, moist, some fines (FILL)
							1.50	Light gray-brown, **CLAYEY SAND (SC)**, moist, medium dense, fine sand (FILL)
		11		16		LL=27; PI=12		Gray-brown, **SANDY LEAN CLAY (CL)**, moist, stiff, fine sand (FILL)
5		24					2.75	-becoming darker
								End of Boring No groundwater encountered Boring backfilled with grout Note: Bulk sample from 1 to 4 feet
10								
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-6
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A7

H:\24689 LINCOLN CHILD CENTREBORINGS.GPJ

Date Completed:	12/31/02	Sampler:	Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	Method:	6" Hollow Stem Auger
Total Depth:	3.3 ft	Hammer Wt:	140 lbs., 30" drop

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION (Surface Elevation: Estimated feet (MSL))
						R-Value = 10		Dark gray-brown, **SANDY LEAN CLAY (CL)**, moist, stiff (FILL)
		56/7"						
								Red-yellow, **SANDSTONE**
								End of Boring
								No groundwater encountered
5								Boring backfilled with grout
								Note: Bulk sample from 1 to 3 feet
10								
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-7
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A8

Date Completed:	12/31/02	Sampler:	Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	Method:	6" Hollow Stem Auger
Total Depth:	6.5 ft	Hammer Wt:	140 lbs., 30" drop

Depth, ft	FIELD Sample	FIELD Blows/ft	LABORATORY Dry Density pcf	LABORATORY Moisture Content %	LABORATORY Compress. Strength tsf	LABORATORY Other Tests	Pen, tsf	DESCRIPTION — *Surface Elevation:* **Estimated feet (MSL)**
0–2								Dark gray-brown, **SANDY LEAN CLAY (CL)**, moist
2–6.5		69		19				Yellow-brown, **SANDSTONE**, slightly moist, friable (R6)
5		70						
								End of Boring No groundwater encountered Boring backfilled with grout
10								
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-8
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE **A9**

PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA
Drilling Method: 5 1/2" Flight Auger

Date Drilled: 9/18/98
Logged By: LP

BORING 1

DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass										
Dark brown Lean Clay with rock fragments to ½" (Fill)	Moist	Soft	CL	0						0
Brown to yellow brown Gravelly Lean Clay with gravel to 1 ½" and rootlets (Fill)	Moist	Stiff	CL			15	2.5	100.3	18.9	
Dark brown Gravelly Lean Clay with gravel to 3/4" (Fill)	Moist	Stiff	CL	5		10	1.0			5
Brown Sandy Clay	Moist	Stiff	CL	10		45/ 12"				10
Yellow brown Clayey fine Sand with thin gray lean clay streaks, highly weathered sandstone	Moist	Dense	SC				3.6			
Boring terminated at 14.2 feet. No groundwater encountered.						40/2"				
				15						15
				20						20
				25						25

CONSOLIDATED ENGINEERING LABORATORIES

CEL No.G13134 Figure A-2

PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA

BORING 2

Drilling Method: 5 1/2" Flight Auger
Date Drilled: 9/18/98
Logged By: LP

DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass				0						0
Dark brown Sandy Lean Clay with local ½" gravel (Fill)	Moist	Soft	CL							
Grayish brown Sandy Lean Clay with local pockets of fat clay (Fill)	Moist	Stiff	CL			15	1.5	111.6	15.8	
				5						5
Grayish brown mottled with reddish brown Sandy Lean Clay with rock fragments (Fill)	Moist	V.Stiff	CL			24	1.0			
Gray brown Clayey Gravel rocky zone (Fill)	Moist	Dense	GC							
Dark brown to grayish brown Sandy Clay mottled with reddish brown fat clay, rock fragments (Fill)	Moist	Stiff	CL							
				10		15	1.0 0.7 1.2			10
Dark gray to greenish gray Sandy Lean Clay	Moist	Stiff	CL							
				15		34	2.0 2.5 3.0			15
Grayish green very fine Sandy Lean Clay completely weathered sandstone	Moist	V.Stiff	CL							
Grayish green friable highly weathered Sandstone	Moist	Med. Dense								
Boring terminated at 19 feet. No groundwater encountered.				20						20
				25						25

PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA
Drilling Method: 5 1/2" Flight Auger
Date Drilled: 9/18/98
Logged By: LP

BORING 3

DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass				0						0
Dark brown fine Sandy Clay with fine gravel (Fill)	Moist	Soft	CL							
Brown Sandy Lean Clay (Fill)	Moist to Wet	Stiff	CL			14	1.5 >0.25	108.2	10.9	
Brown weak to friable highly weathered Sandstone, joint surface discolored dark to reddish brown (Bedrock)	Moist	Dense		5		30/4"				5
Boring terminated at 8.5 feet. No groundwater encountered.										
				10						10
				15						15
				20						20
				25						25

PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA
Drilling Method: 5 1/2" Flight Auger

Date Drilled: 9/18/98
Logged By: LP

BORING 4

DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass				0						0
Dark brown fine Sand Lean Clay (Fill)	Moist	Stiff	CL			32	2.8	70.0	28.2	
Brown completely weathered Sandstone in lean clay matrix, rocky (Fill)	Moist	Dense to V.Stiff	GC to CL							
Dark gray brown fine Silty Sand	Moist	Dense	SM	5						5
Brown to yellow brown weak to friable highly weathered fine grained Sandstone (Bedrock)	Moist	Dense				45/ 15"				
Boring terminated at 8.5 feet due to refusal. No groundwater encountered.				10						10
				15						15
				20						20
				25						25

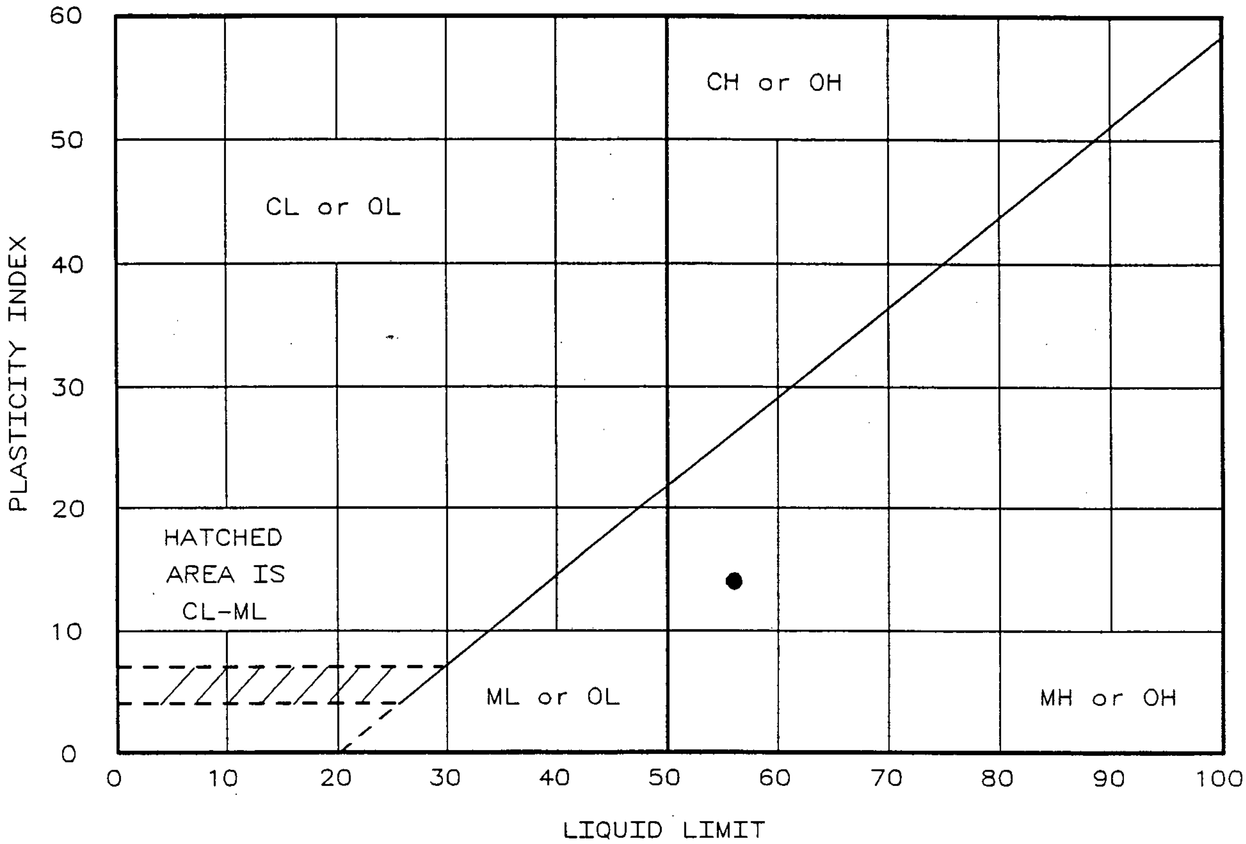
PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA
Drilling Method: 5 1/2" Flight Auger

Date Drilled: 9/18/98
Logged By: LP

BORING 5

DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass				0						0
Dark brown Sandy Lean Clay (Fill)	Moist	Stiff	CL							
Grayish brown fine grained Silty Sand	Moist	Med. Dense	SM							
Brown completely weathered firm to friable fine grained Sandstone						32				
				5						5
Brown to yellowish brown with zones of reddish brown clay						20	3.2			
				10						10
Boring terminated at 12 feet due to refusal. No groundwater encountered.										
				15						15
				20						20
				25						25

LIQUID AND PLASTIC LIMITS TEST REPORT



	Location + Description	LL	PL	PI	-200	ASTM D 2487-90
●	LINCOLN CHILD CENTER	56	42	14		

Project No.: G13134
Project: LINCOLN CHILD CENTER

Client: LINCOLN CHILD CENTER
Location:

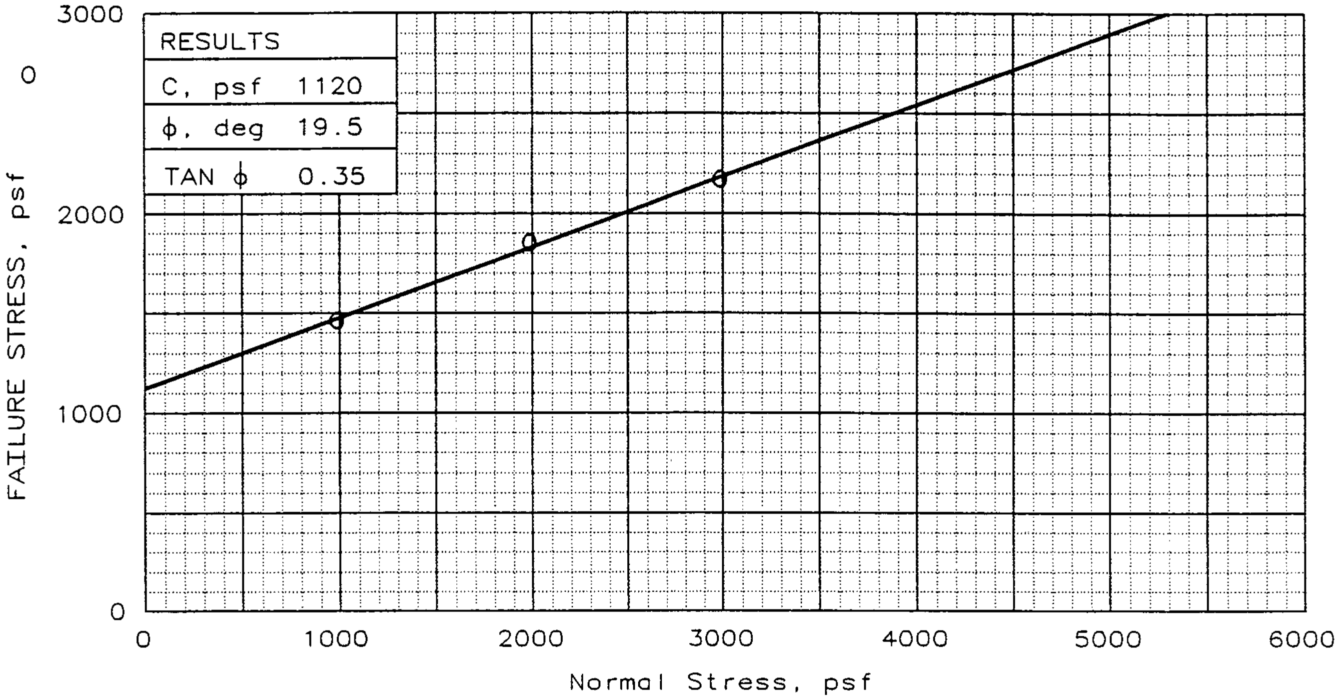
Date: 9-22-98

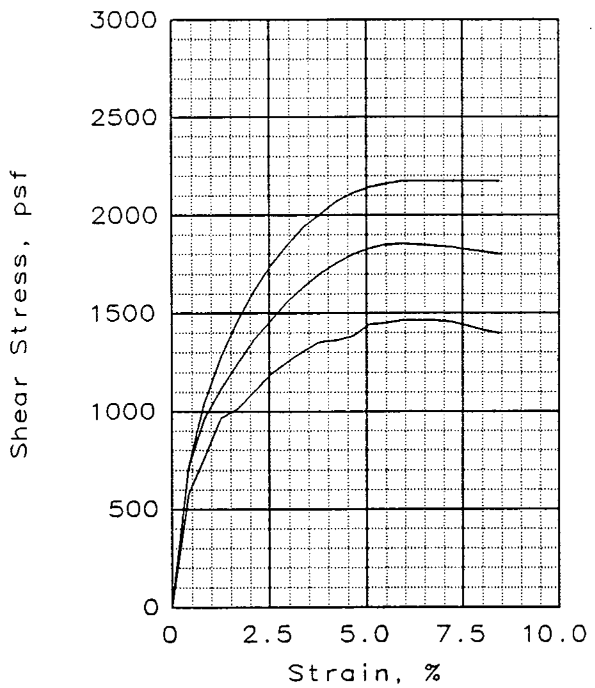
LIQUID AND PLASTIC LIMITS TEST REPORT

Consolidated Engineering Laboratories

Remarks:
COMPOSITE OF UPPER 18
INCHES IN BORINGS

Fig. No. B1





SAMPLE NO.:		1	2	3
INITIAL	WATER CONTENT, %	19.6	18.6	16.5
	DRY DENSITY, pcf	17.7	17.1	15.8
	SATURATION, %	6.2	5.7	4.6
	VOID RATIO	8.354	8.668	9.481
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	20.8	20.7	19.3
	DRY DENSITY, pcf	17.7	17.1	15.8
	SATURATION, %	6.6	6.3	5.4
	VOID RATIO	8.354	8.668	9.481
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
NORMAL STRESS, psf		1000	2000	3000
FAILURE STRESS, psf		1462	1856	2172
STRAIN, %		5.9	5.9	5.9
ULTIMATE STRESS, psf				
STRAIN, %				
Strain rate, %/min		0.25	0.25	0.25

SAMPLE TYPE: MOD. CAL.
DESCRIPTION: BRN SANDY CLAY

ASSUMED SPECIFIC GRAVITY= 2.65
REMARKS: SAMPLE #B1-3

Fig. No. B2

CLIENT:

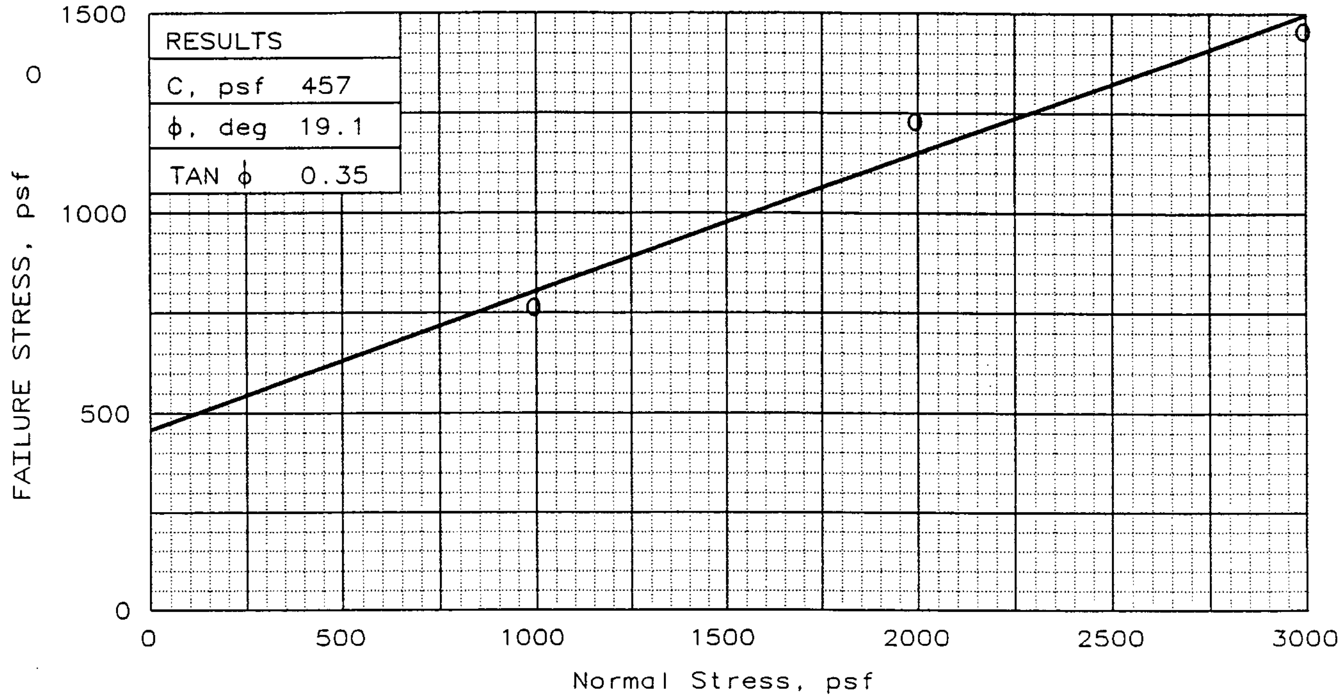
PROJECT: LINCOLN CHILD CENTER

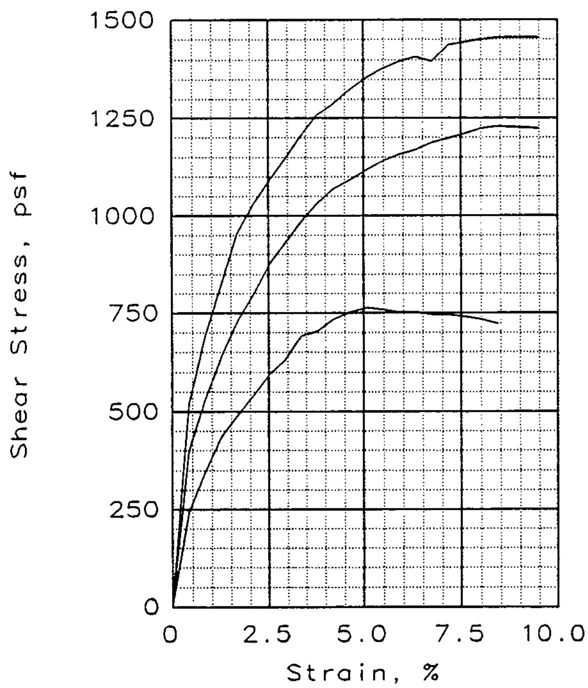
SAMPLE LOCATION: BORING 1, DEPTH 10.5-11
SANDSTONE

PROJ. NO.: G13134 DATE: 9-23

DIRECT SHEAR TEST REPORT

Consolidated Engineering Laboratories





SAMPLE NO.:		1	2	3
INITIAL	WATER CONTENT, %	16.8	18.3	19.6
	DRY DENSITY, pcf	15.3	16.2	17.0
	SATURATION, %	4.5	5.3	6.0
	VOID RATIO	9.811	9.205	8.707
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	19.0	20.5	152.1
	DRY DENSITY, pcf	15.3	16.2	17.0
	SATURATION, %	5.1	5.9	46.3
	VOID RATIO	9.811	9.205	8.707
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
NORMAL STRESS, psf		1000	2000	3000
FAILURE STRESS, psf		764	1229	1456
STRAIN, %		5.1	8.4	8.4
ULTIMATE STRESS, psf				
STRAIN, %				
Strain rate, %/min		0.25	0.25	0.25

SAMPLE TYPE: MOD. CAL.
DESCRIPTION: BRN SANDY CLAY

ASSUMED SPECIFIC GRAVITY= 2.65
REMARKS: SAMPLE #B2-2-1

CLIENT:

PROJECT: LINCOLN CHILD CENTER

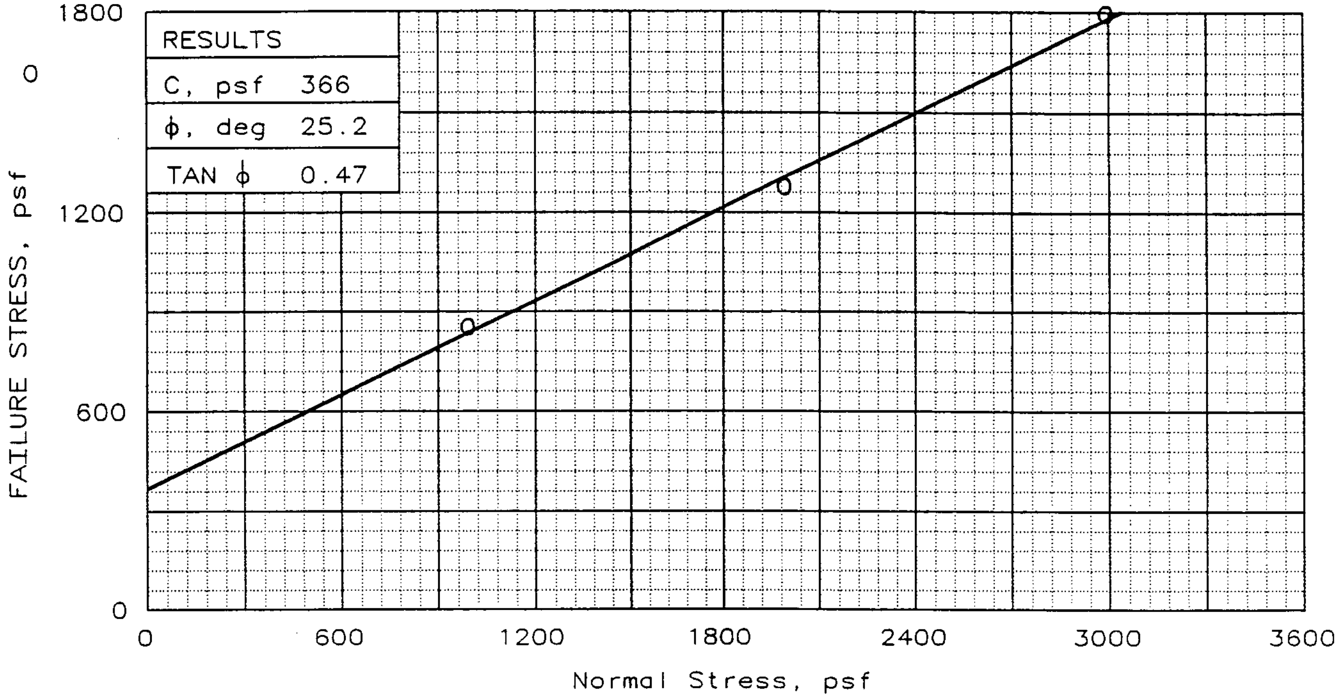
SAMPLE LOCATION: BORING 2, DEPTH 6-6.5 FILL

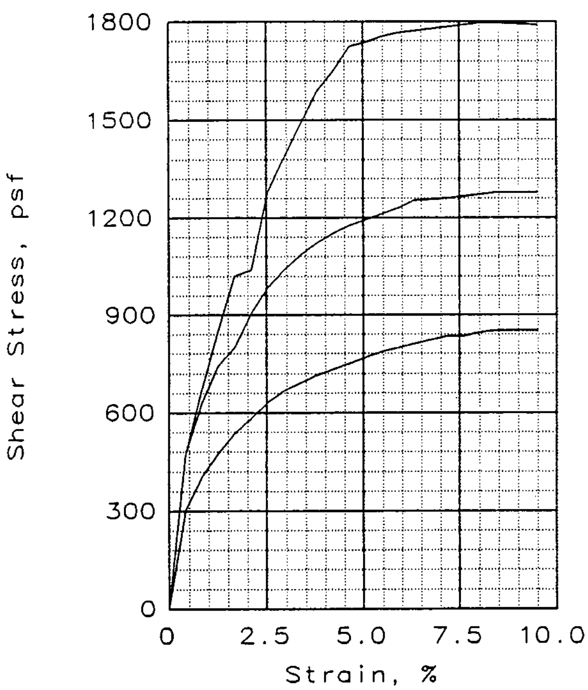
PROJ. NO.: G13134 DATE: 9-23

DIRECT SHEAR TEST REPORT

Consolidated Engineering Laboratories

Fig. No. B3





SAMPLE NO.:		1	2	3
INITIAL	WATER CONTENT, %	16.7	18.1	15.7
	DRY DENSITY, pcf	15.7	16.6	15.0
	SATURATION, %	4.6	5.3	4.1
	VOID RATIO	9.548	8.967	10.025
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	18.5	19.8	17.4
	DRY DENSITY, pcf	15.7	16.6	15.0
	SATURATION, %	5.1	5.8	4.6
	VOID RATIO	9.548	8.967	10.025
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
NORMAL STRESS, psf		1000	2000	3000
FAILURE STRESS, psf		853	1277	1796
STRAIN, %		8.4	8.4	8.0
ULTIMATE STRESS, psf				
STRAIN, %				
Strain rate, %/min		0.25	0.25	0.25

SAMPLE TYPE: MOD. CAL.
DESCRIPTION: BRN SANDY CLAY

ASSUMED SPECIFIC GRAVITY= 2.65
REMARKS: SAMPLE #B2-2-2

Fig. No. B4

CLIENT:

PROJECT: LINCOLN CHILD CARE

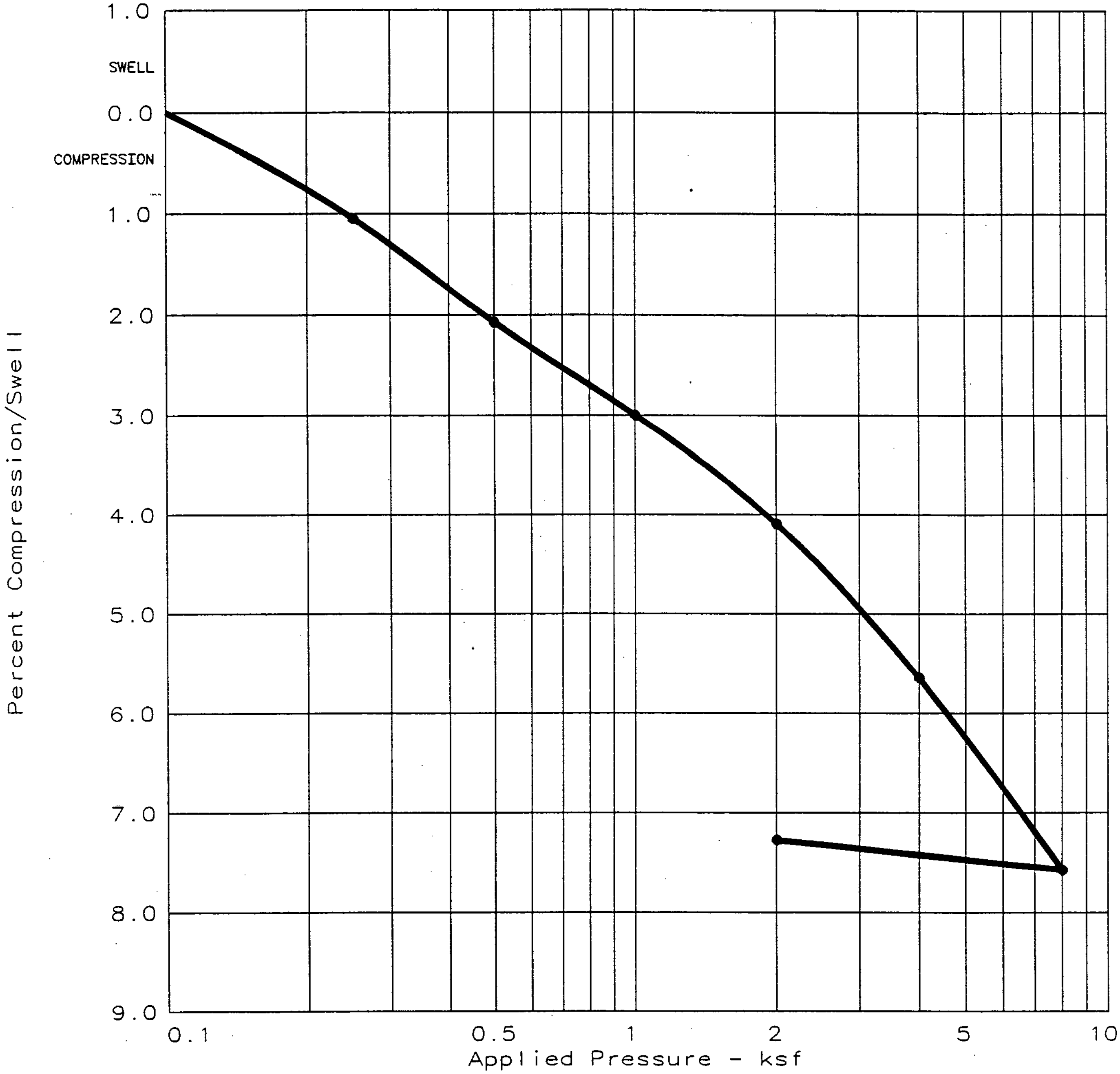
SAMPLE LOCATION: BORING 2, DEPTH 6.5-7
FILL

PROJ. NO.: G13134 DATE: 9-23

DIRECT SHEAR TEST REPORT

Consolidated Engineering Laboratories

CONSOLIDATION TEST REPORT



Natural Saturation	Natural Moisture	Dry Dens. (pcf)	LL	PI	Sp.Gr.	Initial void ratio
72.9 %	18.9 %	109.1			2.650	0.6878

TEST RESULTS	MATERIAL DESCRIPTION
	BRN LEAN CLAY W/GRAVEL

Project No.: G13134
Project: LINCOLN CHILD CARE
Location: BORING 1, DEPTH 6-6.5

Date: 9-21-98

CONSOLIDATION TEST REPORT

Consolidated Engineering Laboratories

Remarks:

SAMPLE BORING 1, AT A DEPTH OF 5 FEET, FILL

Fig. No. B5

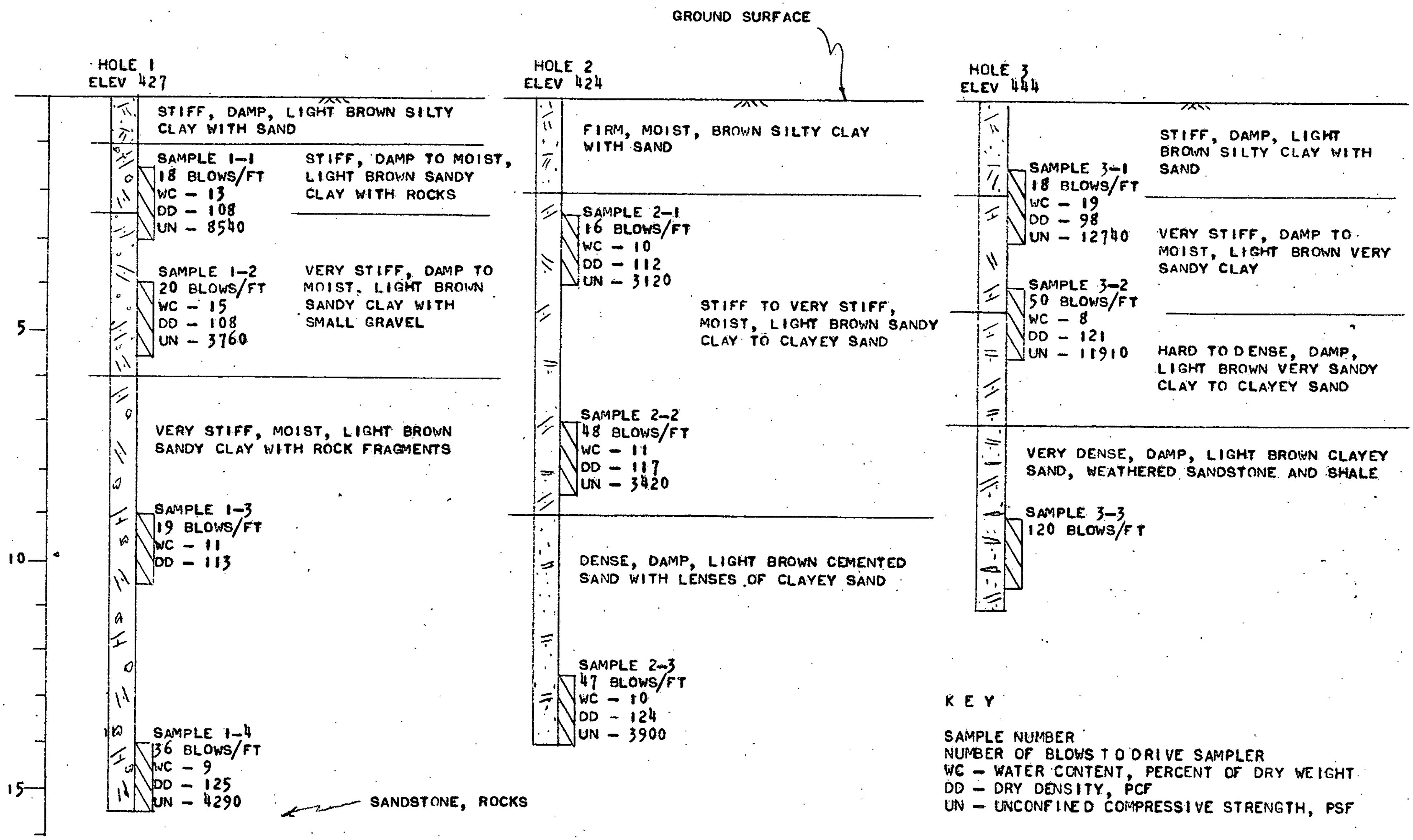


FIG. 2 - LOGS OF BORINGS

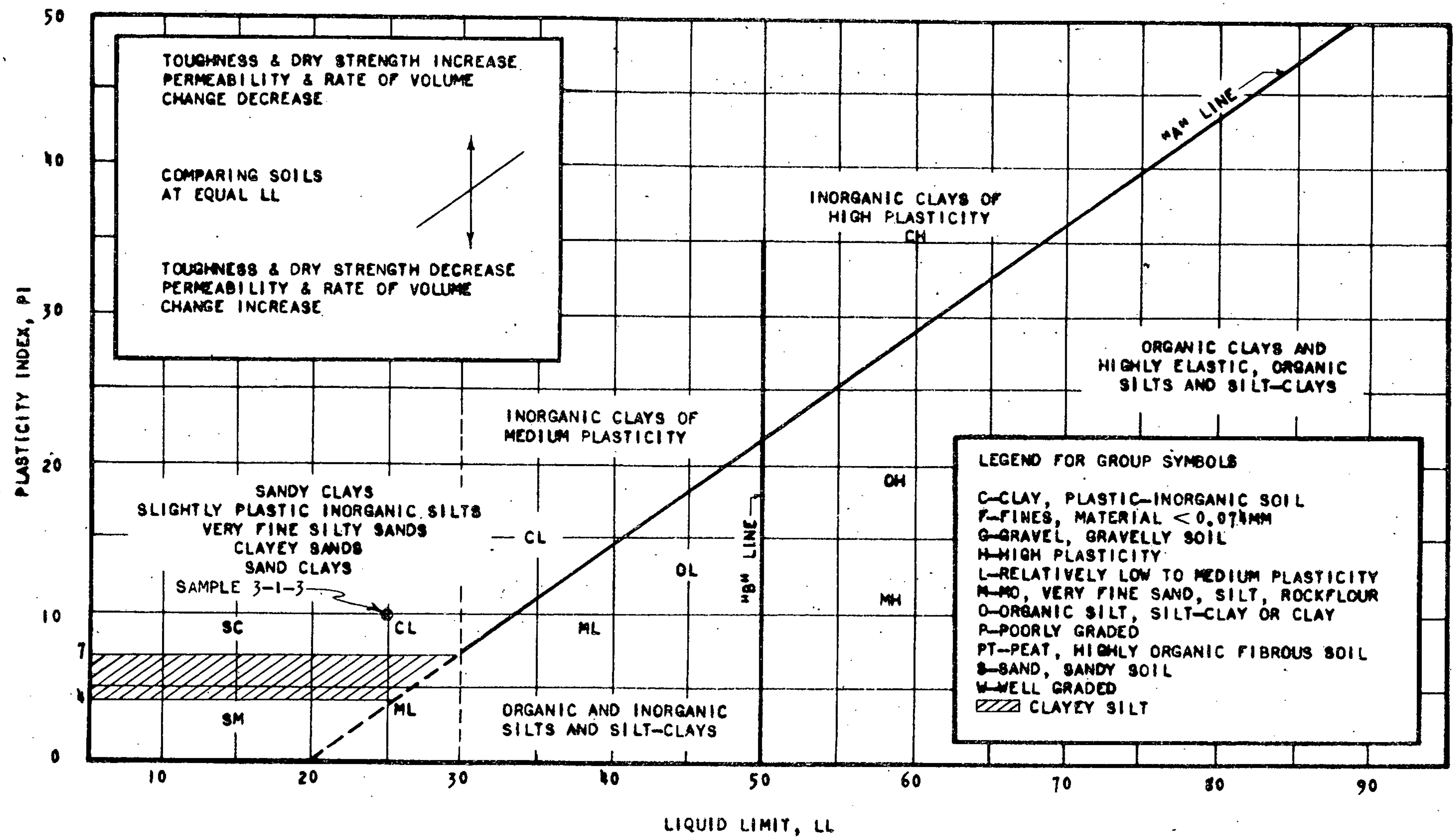


FIG. 3 – PLASTICITY CHART

Appendix 8B

Geotechnical Data Report, Proposed Pedestrian Tunnel

Rockridge Geotechnical, May 31, 2017

ROCKRIDGE GEOTECHNICAL

May 31, 2017
Project No.: 17-1281

Mr. Dennis Malone
The Head-Royce School
4315 Lincoln Avenue
Oakland, California 94602

c/o: Mr. Josh Leibowitz – Cahill Contractors

SUBJECT: Geotechnical Data Report
Proposed Pedestrian Tunnel
The Head-Royce School
4315 and 4368 Lincoln Avenue
Oakland, California

Rockridge Geotechnical is pleased to present this Geotechnical Data Report for the field exploration and laboratory testing performed to support the design of the proposed pedestrian tunnel to be constructed beneath Lincoln Avenue and connecting the existing school campuses at 4315 and 4368 Lincoln Avenue in Oakland, California. Our services were provided in accordance with our proposal dated March 6, 2017.

PROJECT DESCRIPTION

The site of the proposed tunnel is located beneath Lincoln Avenue, approximately 550 to 600 feet northeast of its intersection with Alida Street, as presented on the attached Site Location Map (Figure 1). The existing Head-Royce School campus is located on the north side of the street at 4315 Lincoln Avenue and the recently acquired Lincoln Child Center property is located on the south side of the street at 4368 Lincoln Avenue.

Based on our review of the draft *Head-Royce School Pedestrian Undercrossing, Conceptual Design Report*, prepared by McMillen Jacobs Associates, dated March 8, 2017, we understand the approximately 140- to 160-foot-long tunnel will have an invert of roughly Elevation 396 feet and 388 feet at the south and north portals, respectively. The tunnel structure will have a relatively small amount of cover below street grades. We understand two different tunnel design/construction alternatives are being considered: 1) Jacked box method, and 2) Mined sequential excavation method.

FIELD INVESTIGATION

Our field investigation was performed in general conformance (where applicable) with the recommendations for tunnel geotechnical investigations prepared by McMillan Jacobs Associates (MJA), the project tunnel design engineer, as presented in their draft memorandum, dated February 22, 2017. Our field investigation consisted of drilling two exploratory borings, performing geotechnical laboratory testing, installing one vibrating wire piezometer, and collecting groundwater level data.

Prior to drilling our borings, we contacted Underground Service Alert (USA) to notify them of our work, as required by law, and retained Precision Locating, LLC, a private utility locator, to check that the boring locations were clear of underground utilities. We also obtained a drilling permit from Alameda County Public Works Agency (ACPWA) and an encroachment permit from the City of Oakland Department of Public Works for the boring drilled within the public right-of-way. Details of our field exploration are described in the remainder of this section.

Field Exploration

Two exploratory borings, designated B-1 and B-2, were drilled by Pitcher Drilling Company of East Palo Alto, California at the approximate locations shown on the attached Site Plan (Figure 2). The borings were drilled on March 24 and 25, 2017 using a track-mounted Fraste XL-81 drill rig equipped with rotary-wash drilling equipment. Borings B-1 and B-2 were drilled to depths of about 51-1/2 and 40 feet, respectively. During drilling, our field engineer logged the soil and rock encountered and obtained representative samples for visual classification and laboratory testing. Boring logs were developed based on laboratory test data and the conditions recorded on the field logs and are presented on Figures A-1 and A-2 in Appendix A. The soil encountered in the borings was classified in accordance with the Classification Chart shown on Figure A-3. The rock encountered in the borings was classified in accordance with the Physical Properties Criteria for Rock Descriptions presented on Figure A-4.

Samples of soil and deeply weathered rock that was not adequately recovered using coring methods were obtained using the following samplers:

- Sprague and Henwood (S&H) split-barrel sampler with a 3.0-inch outside diameter and 2.5-inch inside diameter, lined with 2.43-inch inside diameter stainless steel tubes,

- Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside and 1.5-inch inside diameter, without liners,

The type of sampler used was selected based on soil type and the desired sample quality for laboratory testing. In general, the S&H sampler was used to obtain samples in medium stiff to very stiff cohesive soil and the SPT sampler was used to evaluate the relative density of granular soils and recover weak, deeply weathered rock.

The S&H and SPT samplers were driven with a 140-pound, automatic-trip hammer falling about 30 inches per drop. The sampler was driven up to 18 inches and the hammer blows required to drive the samplers were recorded every six inches and are presented on the boring logs. A "blow count" is defined as the number of hammer blows per six inches of penetration or 50 blows for six inches or less of penetration. The blow counts required to drive the S&H and SPT samplers were converted to approximate SPT N-values using factors of 0.84 and 1.44, respectively, to account for sampler type, approximate hammer energy (previously measured by drilling subcontractor), and the fact that the SPT sampler was designed to accommodate liners, but liners were not used. The blow counts used for this conversion were the last two 6-inch blow counts or the last one blow count if the sampler was driven more than six inches but less than 12 inches. The converted SPT N-values are presented on the boring logs.

When competent rock was encountered during drilling, triple barrel (HQ3) diamond coring equipment, with a 2.4-inch inside diameter and 5-foot core run length, was used in an effort to obtain continuous rock core samples. The rock cores were logged by our field engineer, including visual classification, recovery percentage, and calculation of rock quality designation (RQD). The rock cores were placed in cardboard core boxes and photographed in the field. Select photographs of the rock cores are presented in Appendix D. More detailed photographs are also available in our files for future reference, if needed. In some instances, highly fractured and deeply weathered shale mélange was encountered and resulted in poor to no recovery using the core barrel—in these cases drive samplers were used to recover samples in the rock, as noted on the boring logs.

Upon completion of drilling, the boreholes were backfilled with cement grout to the ground surface in accordance with ACPWA requirements. The pavement at the location of boring B-1 was patched with quick-set concrete. Prior to grouting boring B-2, vibrating wire piezometer equipment was installed in the borehole and a Christy box to house the datalogger was installed flush with the pavement.

The drilling fluid and soil cuttings resulting from the drilling operation were placed in 55-gallon drums and removed from the site by the drilling subcontractor. Following analytical testing on the drum contents, which indicated they were non-hazardous, they were disposed of at a landfill by the drilling subcontractor.

Laboratory Testing

Geotechnical laboratory testing was performed on select samples of soil and rock collected from our borings. Laboratory tests were performed to evaluate moisture content, Atterberg Limits, particle size distribution (gradation), and point load strength index (PLI). The results of the laboratory testing are presented on the boring logs and on Figures B-1 through B-6 in Appendix B.

Instrumentation

On March 24, 2017, prior to grouting boring B-2, vibrating wire piezometer equipment was installed in the borehole to collect groundwater level measurements over time. The equipment, which was supplied by Durham Geo Slope Indicator (DGSI), consists of two vibrating wire piezometers, installed at depths of about 15 feet and 38 feet bgs, and a VW Minilogger datalogger placed inside a 12-inch-diameter concrete Christy box, which was installed flush with the concrete pavement. The data logger was programmed to read and record water levels every four hours. Piezometer data collected between March 26 and May 1, 2017 are presented on the plot on Figure C-1. Daily precipitation records reported by NOAA for the Piedmont Weather Station are also presented on Figure C-1.

ENCLOSURES

The following enclosures complete this report:

Figures

Figure 1 – Site Location Map
Figure 2 – Site Plan

Appendix A – Logs of Borings

Figures A-1 and A-2 – Logs of Borings B-1 and B-2
Figure A-3 – Soil Classification Chart
Figure A-4 – Physical Properties Criteria for Rock Classifications

Appendix B – Laboratory Test Results

Figure B-1 – Plasticity Chart
Figures B-2 and B-3 – Particle Size Distribution Reports
Figures B-4 through B-6 – Point Load Strength Index Tests

Appendix C – Groundwater Monitoring Data

Figure C-1 – Groundwater Level Readings in B-2 & Rainfall Data

Appendix D – Select Photos of Rock Cores

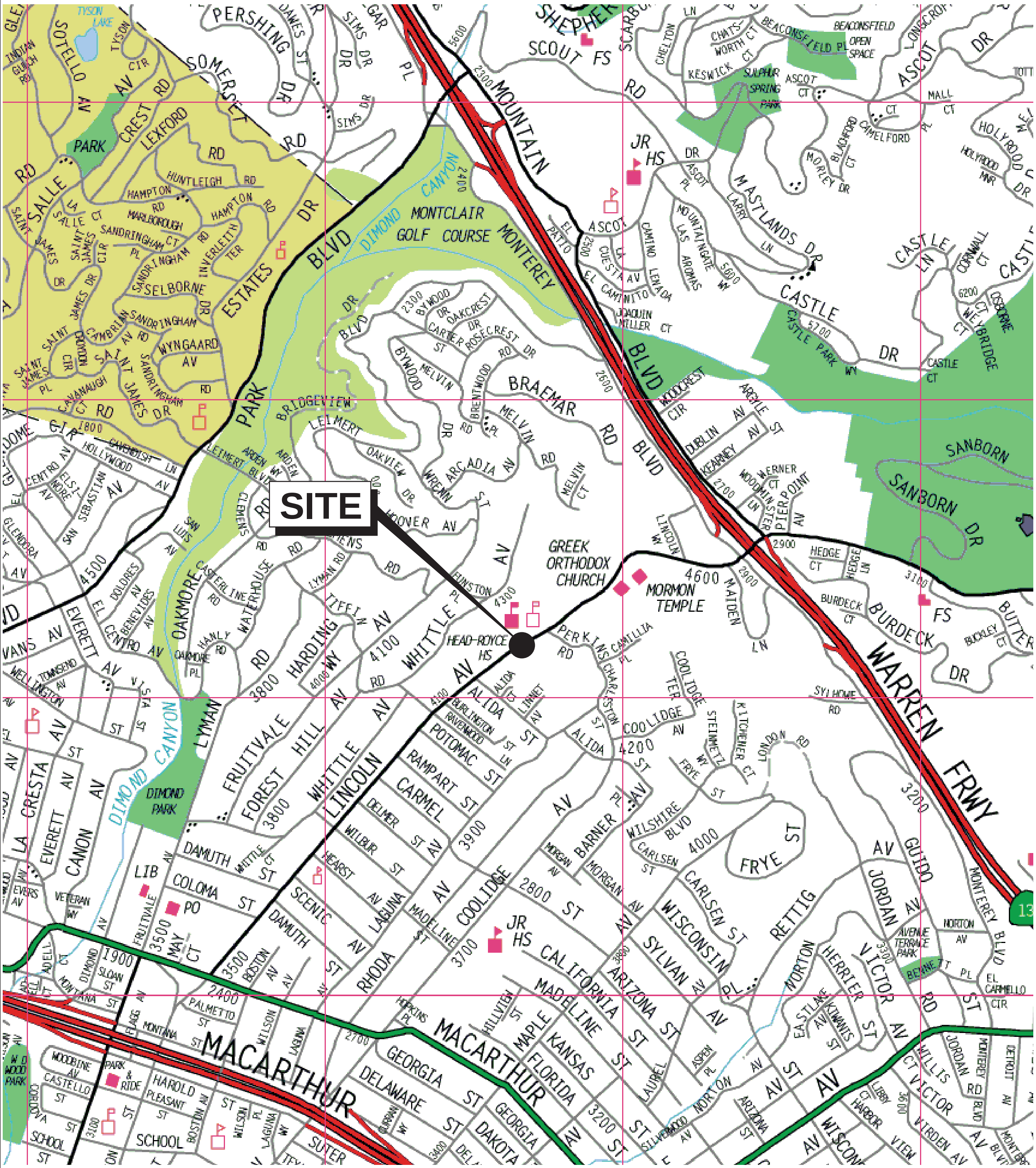
We trust this letter provides the information you need at this time. We appreciate the opportunity to provide our services to you on this project. If you have any questions, please call.

Sincerely yours,
ROCKRIDGE GEOTECHNICAL, INC.

Logan D. Medeiros, P.E., G.E.
Senior Engineer

ROCKRIDGE GEOTECHNICAL

FIGURES



Base map: The Thomas Guide
Alameda County
2002

0 1/4 1/2 Mile

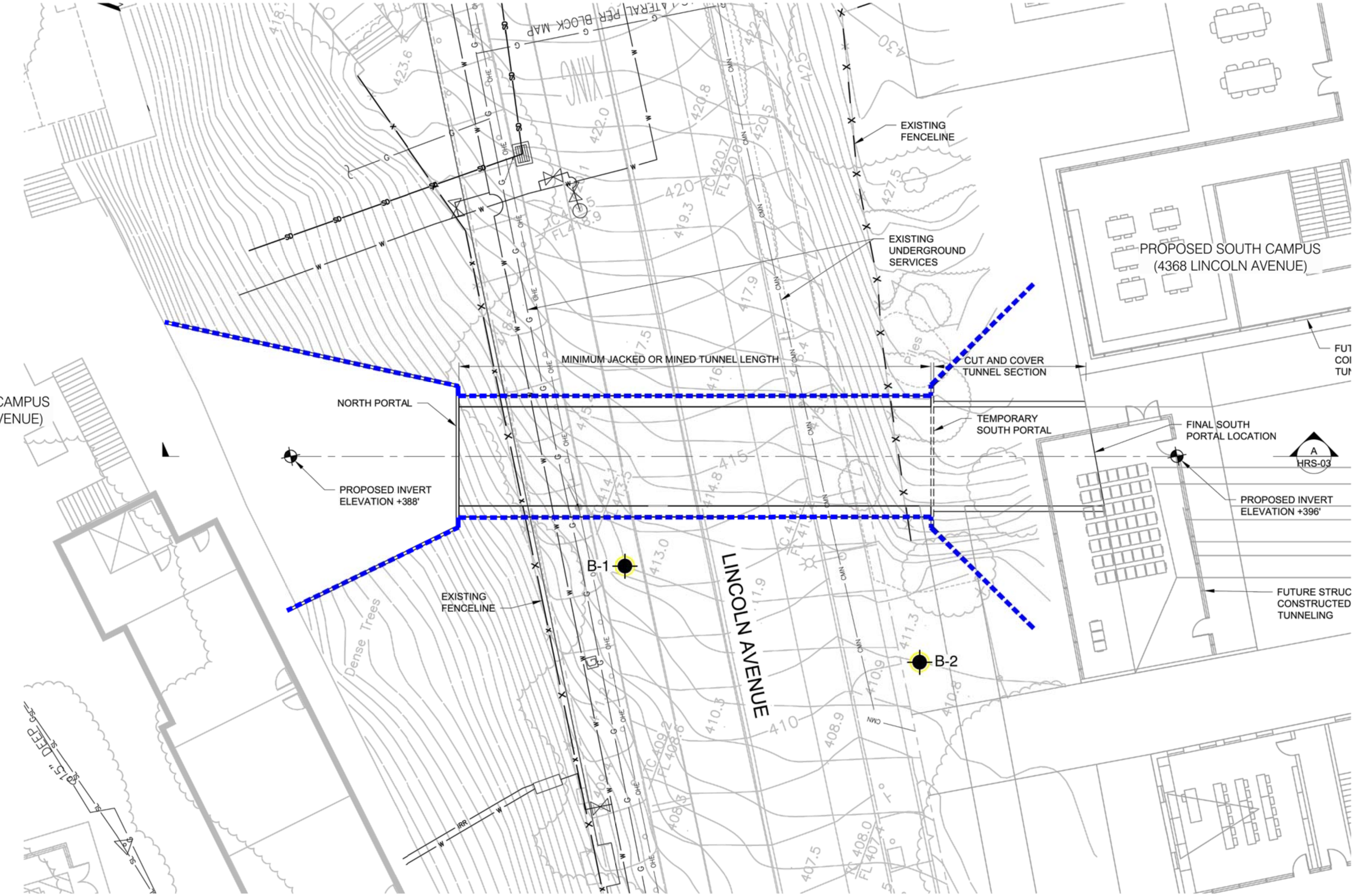
Approximate scale

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

SITE LOCATION MAP

Date 04/28/17	Project No. 17-1281	Figure 1



EXPLANATION

B-1 Approximate location of boring/rock core by Rockridge Geotechnical Inc., March 25, 2017

Approximate alignment of proposed tunnel and portal structures, based on preliminary conceptual design (subject to change during final design and procurement).

Reference: Base map from a drawing titled "Tunnel Plan", by McMillen Jacobs Associates, dated March 2017 (preliminary conceptual design).

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

SITE PLAN

Date 05/31/17	Project No. 17-1281	Figure 2

ROCKRIDGE GEOTECHNICAL

ROCKRIDGE GEOTECHNICAL

APPENDIX A
Logs of Borings

PROJECT: **HEAD-ROYCE TUNNEL EXPLORATION**
Oakland, California

Log of Boring B-1

Boring location:	See Site Plan, Figure 2
Date started:	3/25/17
Date finished:	3/25/17
Drilling method:	Rotary Wash - Triple Barrel Core
Hammer weight/drop:	140 lbs./30 inches
Hammer type:	Automatic Hammer
Sampler:	Sprague & Henwood (S&H), Standard Penetration Test (SPT), Rock Core
Logged by:	S. Magallon

Ground Surface Elevation: 413.5 feet[2]

DEPTH (feet)	SAMPLES: Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %
								9 inches of concrete				
1								CLAYEY SAND (SC) yellow-brown with mottling yellow, loose, moist, fine-grained, trace fine and angular gravel				
2												
3			8	83								
4								CLAYEY SAND with GRAVEL (SC) brown with yellow-brown, medium dense, wet, trace rootlets, fine-grained sand				
5												
6			12	67							39	14.6
7								yellow-brown to orange sandstone fragments SHALE MELANGE olive-brown with yellow-brown and orange to dark orange oxidation staining, closely to intensely fractured low hardness, friable to weak, deeply to moderately weathered, soft and plastic matrix, occasional interbedded deeply weathered sandstone LL = 37, PI = 18; see Appendix B				
8												
9			35	83							21	15.2
10												
11												
12												
13			60	83				LL = 39, PI = 22; see Appendix B				
14												
15												
16			39	83							19	13.2
17												
18												
19												
20								gray and olive-brown				
21			60	83								11.9
22												
23												
24			84	83				LL = 28, PI = 11; see Appendix B				
25								gray to olive-gray with dark orange oxidation staining, closely fractured, moderate hard to hard, moderate strong to strong, moderate to little weathering, soft and plastic matrix				
26												
27												
28	1			14	0	5.6						
29												
30												

PROJECT: **HEAD-ROYCE TUNNEL EXPLORATION**
Oakland, California

Log of Boring B-1

DEPTH (feet)	Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	Dip, Degrees	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %
30–31	2			0	0	--		SHALE MELANGE (continued)				
32–33	3		56	83				gray to olive-gray with yellow-brown and orange oxidation staining, intensely fractured, low to moderately hard, weak to moderate strong, deeply to moderate weathered, with zones that are soft and plastic, typically deeply weathered				5.1
35	4		72/6"	80								
36								with interbedded siltstone, dark gray with white calcite veins				
38	5			25	0	1						
45			72/6"	50				SHALE gary to dark gray, intensely fractured, moderately hard, weak to moderately strong, moderately to little weathering				
51			72	33								

Depth scale: 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60

Boring terminated at a depth of 51.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater level obscured by rotary wash drilling method.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.84 and 1.44, respectively, to account for sampler type and hammer energy.
[2] Elevation based on topographic information on Tunnel Concept drawing prepared by Sherwood Design Engineers, dated February 2017.

ROCKRIDGE GEOTECHNICAL

Project No.: 17-1281 | Figure: A-1b

ROCKRIDGE ROCK GRAPHIC 17-1281.GPJ GEO ROCK 370501.GPJ 5/2/17

PROJECT:	HEAD-ROYCE TUNNEL EXPLORATION Oakland, California	Log of Boring B-2 PAGE 1 OF 2

Boring location: See Site Plan, Figure 2		Logged by: S. Magallon
Date started: 3/24/17	Date finished: 3/24/17	
Drilling method: Rotary Wash - Triple Barrel Core		
Hammer weight/drop: 140 lbs./30 inches	Hammer type: Automatic Hammer	
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT), Rock Core		

Ground Surface Elevation: 411 feet[2]

DEPTH (feet)	Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	MATERIAL DESCRIPTION	Dip, Degrees	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %
0							7 inches of asphalt concrete				
							5 inches of aggregate base				
1							SANDY CLAY (CL) yellow-brown, stiff, moist, fine-grained sand, fine and angular to subangular gravel				
3		S&H	10	100							19.6
6		S&H	18	100			yellow-brown to brown with red specks, very stiff, occasional coarse and subrounded gravel			54	
8		S&H	19	83			wet			69	
10							CLAYEY SAND (SC) yellow with mottling yellow-brown and olive, medium dense, wet, fine-grained, with pockets of olive clay LL = 44, PI = 29; see Appendix B				
11		S&H	25	67							
13		SPT	42	83			dense			47	
16		SPT	45	83			olive with mottling yellow-brown, with weathered sandstone gravel, angular, slight blocky structure				
20							SANDSTONE olive with mottling yellow-brown and orange oxidation staining, low hardness, friable to weak, deeply weathered in clayey matrix, moderate blocky structure, with angular clasts that are weak, fine-grained				
21		SPT	72	83						17	
24		SPT	72/3"	100			olive to olive-gray, low hardness with moderately hard zones, weak with moderately strong zones, deeply to moderately weathered, fine- to medium-grained				
25	1	Rock Core		73	27	--	Point Load Strength Index Test; see Appendix B				
26							olive-gray to gray, moderately fractured, hard, moderately strong, little weathering, with healed fracturing, occasional orange oxidation staining along fractures	F50			
27							closely to intensely fractured, low to moderately hard, weak to moderate strong, moderately weathered, clay in filled fractures with orange oxidation				
28	2	Rock Core		91	0	8.3		F45			
29							Point Load Strength Index Test; see Appendix B with interbedded siltstone	B55 F55			
30	3	Rock Core		67	0	--	SILTSTONE				

PROJECT:	HEAD-ROYCE TUNNEL EXPLORATION Oakland, California	Log of Boring B-2

DEPTH (feet)	Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)
30.5	3			67	0	--
33	4			50	13	10
35.5	5			0	0	7
38	6			40	0	7
39	7			100	0	--

MATERIAL DESCRIPTION

dark gray to black, closely to intensely fractured, moderately hard, moderately strong, moderately to little weathering, with clay infilled fractures, occasional bedding
closely fractured
intensely to very intensely fractured, moderate hard, moderately strong, little weathering

SILTSTONE with interbedded SANDSTONE
31- 31.3': intensely fractured to crushed
31.3- 32.1': closely fractured

SILTSTONE
dark gray to black, moderately hard to hard, weak to moderately strong, little weathering
Point Load Strength Index Test; see Appendix B
32.1- 33.1': intensely fractured
36.4- 36.6': with white calcite veins, frequent orange oxidation staining

SHALE MELANGE with SILTSTONE fragments
gray with black, crushed matrix with intensely fractured fragments, low hardness with medium hard fragments, friable, deeply weathered

TEST DATA

Dip, Degrees	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %
F45			
F30			
B40			
F45			
F30			
F40			
F40			
		11	

Depth scale: 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

Boring terminated at a depth of 40 feet below ground surface.
Boring backfilled with cement grout.
Groundwater level obscured by rotary wash drilling method.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.84 and 1.44, respectively, to account for sampler type and hammer energy.
[2] Elevation based on topographic information on Tunnel Concept drawing prepared by Sherwood Design Engineers, dated February 2017.

ROCKRIDGE GEOTECHNICAL

Project No.: 17-1281 | Figure: A-2b

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size)	Gravels (More than half of coarse fraction > no. 4 sieve size)	**GW**	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	**SW**	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	Silts and Clays LL = < 50	**ML**	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	**MH**	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		**PT**	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes: U.S. Standard Sieve Size	Range of Grain Sizes: Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel coarse fine	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
Sand coarse medium fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.075 4.76 to 2.00 2.00 to 0.420 0.420 to 0.075
Silt and Clay	Below No. 200	Below 0.075

▽ Unstabilized groundwater level

▼ Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

- Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered
- Classification sample taken with Standard Penetration Test sampler
- Undisturbed sample taken with thin-walled tube
- Disturbed sample
- Sampling attempted with no recovery
- Core sample
- Analytical laboratory sample
- Sample taken with Direct Push sampler
- Sonic

SAMPLER TYPE

C	Core barrel
CA	California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter
D&M	Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube
O	Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube
PT	Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube
S&H	Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter
SPT	Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter
ST	Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

SOIL CLASSIFICATION CHART

Date 05/02/17 | Project No. 17-1281 | Figure A-3

I FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

II HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carved easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

III STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few heavy hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

IV WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

D. Deep - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.

M. Moderate - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.

L. Little - no megascopic decomposition of minerals; little of no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.

F. Fresh - unaffected by weathering agents. No disintegration of discoloration. Fractures usually less numerous than joints.

ADDITIONAL COMMENTS:

V CONSOLIDATION OF SEDIMENTARY ROCKS: usually determined from unweathered samples. Largely dependent on cementation.

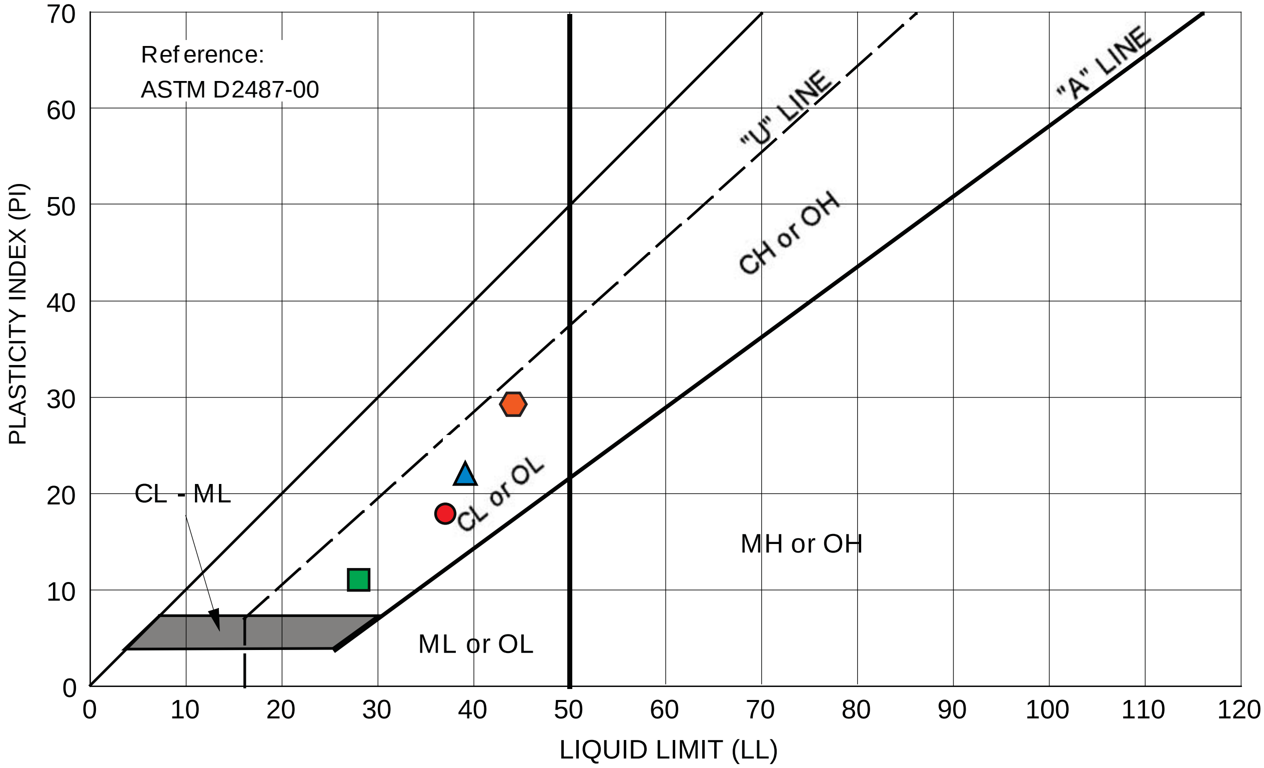
U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

VI BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

ROCKRIDGE GEOTECHNICAL

APPENDIX B
Laboratory Test Results



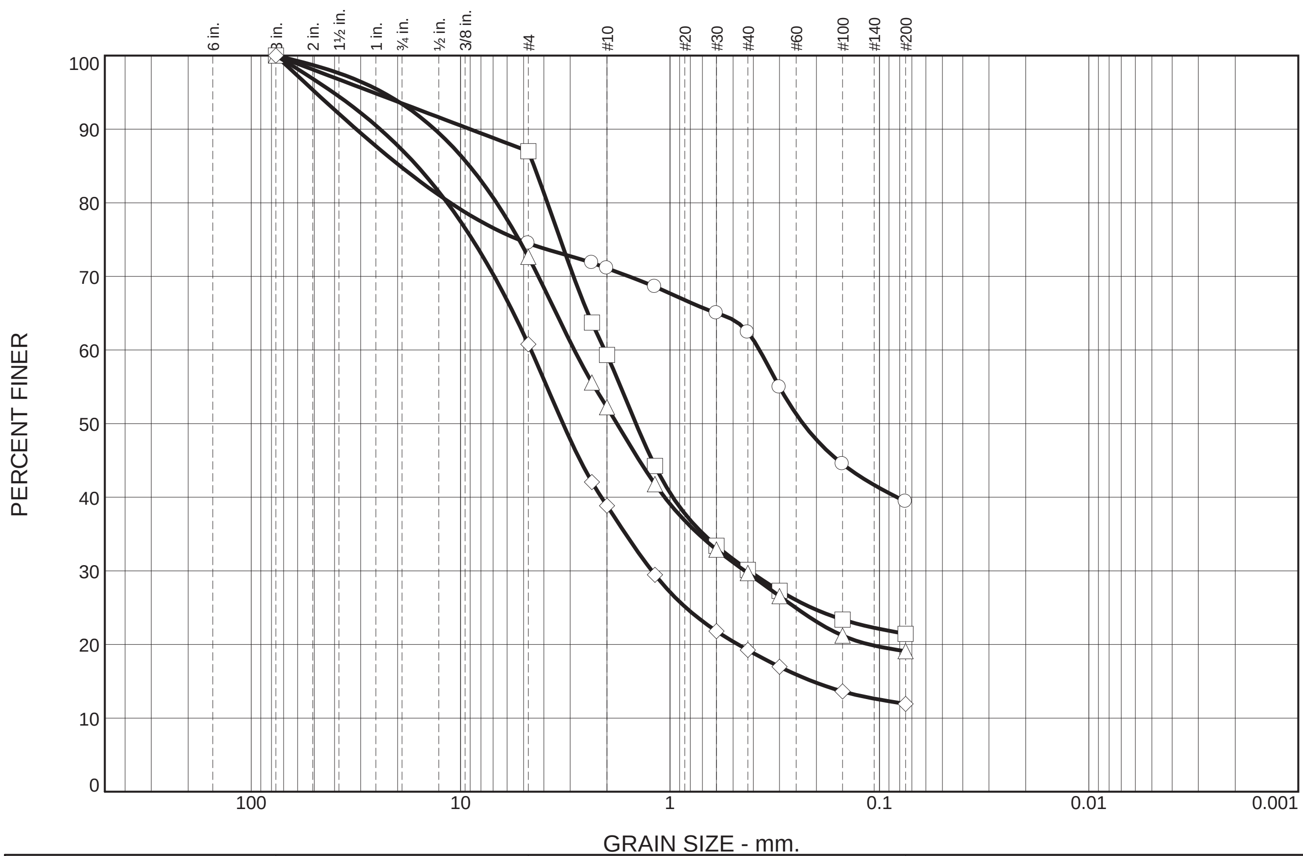
Symbol	Source	Description and Classification	Natural M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-1 at 8.0 feet	SHALE MELANGE olive-brown with yellow-brown and orange to dark orange oxidation staining	15.2	37	18	21
▲	B-1 at 12.5 feet	SHALE MELANGE olive-brown with yellow-brown and orange to dark orange oxidation staining	--	39	22	--
■	B-1 at 23.5 feet	SHALE MELANGE, gray and olive-brown	--	28	11	--
⬢	B-2 at 11.0 feet	CLAYEY SAND (SC), yellow with mottling yellow-brown and olive	--	44	29	--

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

PLASTICITY CHART

Date 05/02/17 | Project No. 17-1281 | Figure B-1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

MATERIAL DATA

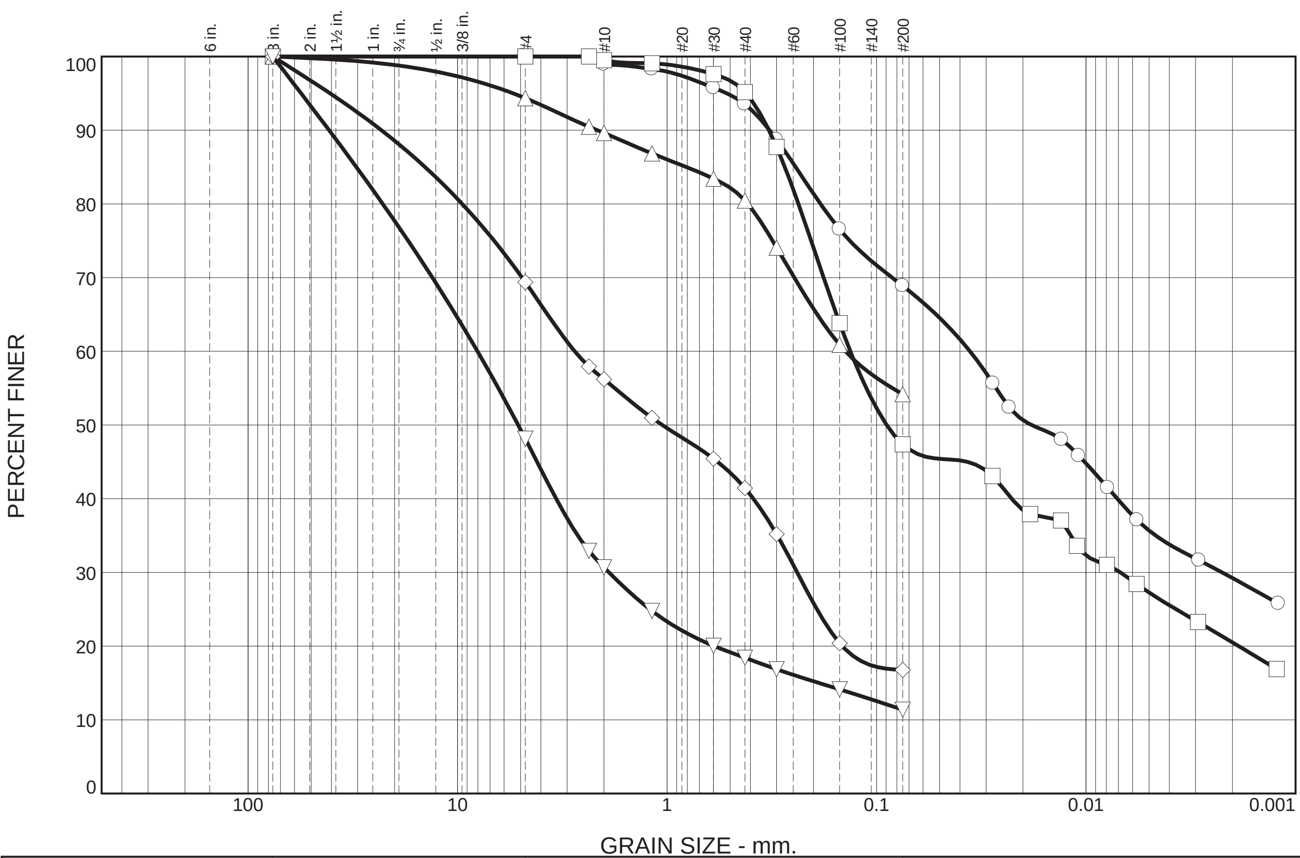
SYMBOL	SOURCE	DEPTH (ft.)	Material Description	USCS
○	B-1	5.5 - 6.0'	CLAYEY SAND with GRAVEL, brown with yellow-brown	SC
□	B-1	8.0 - 9.3'	SHALE MELANGE, olive-brown with yellow-brown and orange to dark orange oxidation staining	
△	B-1	15.0 - 16.3	SHALE MELANGE, olive-brown with yellow-brown and orange to dark orange oxidation staining	
◇	B-1	32.0 - 33.3'	SHALE MELANGE, gray to olive-gray with yellow-brown and orange oxidation staining	

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

PARTICLE SIZE DISTRIBUTION REPORT

Date 05/02/17 | Project No. 17-1281 | Figure B-2



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

MATERIAL DATA

SYMBOL	SOURCE	DEPTH (ft.)	Material Description	USCS
○	B-2	8.5 - 9.0'	SANDY CLAY, yellow-brown to brown with red specks	CL
□	B-2	12.5 - 13.8'	CLAYEY SAND, yellow with mottling yellow-brown and olive	SC
△	B-2	6.0 - 6.5'	SANDY CLAY, yellow-brown to brown with red specks	CL
◇	B-2	20.0 - 21.3'	SANDSTONE, olive with mottling yellow-brown and orange oxidation staining	
▽	B-2	39.0 - 40.0'	SHALE MELANGE with SILTSTONE fragments, gray with black	

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

PARTICLE SIZE DISTRIBUTION REPORT

Date 05/02/17 | Project No. 17-1281 | Figure B-3

Boring:	B-2				
Sample:	R-1				
Depth, ft:	24.5-26				
Visual Description:	SANDSTONE, olive to olive-gray				
Test Type	Diametral				
Test Type ID	1				
FOR ANISOTROPIC ROCK:					
Bedding Angle Relative to Axis	None				
Loading Orientation Rel. to Bedding	N/A				
SAMPLE DIMENSIONS					
Width Perpendicular to loading, W, in	2.4				
Length Perpendicular to Loading, L, in	1.1				
Diameter Parallel to Loading, D, in	2.4				
Diameter at Failure, D', in	2.3				
STRENGTH DATA					
Peak Load, P, kN	0.338				
Peak Load, P, lbs	76.0				
Uncorr. Pt. Load Strength Index, I_s, MPa	0.095				
Uncorr. Pt. Load Strength Index, I_s, psi	13.8				
Size Correction Factor, F	1.08				
Corr. Pt. Load Strength Index, $I_{s(50)}$, Mpa	0.10				
Corr. Pt. Load Strength Index, $I_{s(50)}$, psi	15				
MOISTURE CONTENT DATA					
Moisture Condition of Specimen	As Received				
Pan No.					
Pan wt. (g)	19.49				
Total wet wt. (g)	153.89				
Total dry wt (g)	152.64				
Moisture Content, %	0.9				
Comments:	Invalid test. Did not fail through both loading points.				

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

POINT LOAD STRENGTH INDEX TESTS (ASTM D 5731)

Date 05/02/17 | Project No. 17-1281 | Figure B-4

Boring:	B-2	B-2			
Sample:	R-2	R-2			
Depth, ft:	26-29.5	26-29.5			
Visual Description:	SANDSTONE, olive to olive-gray with occasional orange oxidation staining	SANDSTONE, olive to olive-gray with occasional orange oxidation staining			
Test Type	Diametral	Diametral			
Test Type ID	1	1			
FOR ANISOTROPIC ROCK:					
Bedding Angle Relative to Axis	None	None			
Loading Orientation Rel. to Bedding	N/A	N/A			
SAMPLE DIMENSIONS					
Width Perpendicular to loading, W, in	2.4	2.4			
Length Perpendicular to Loading, L, in	1.9	1.9			
Diameter Parallel to Loading, D, in	2.4	2.4			
Diameter at Failure, D', in	2.3	2.3			
STRENGTH DATA					
Peak Load, P, kN	0.215	0.215			
Peak Load, P, lbs	48.3	48.3			
Uncorr. Pt. Load Strength Index, I_S, MPa	0.060	0.061			
Uncorr. Pt. Load Strength Index, I_S, psi	**8.7**	**8.8**			
Size Correction Factor, F	1.09	1.08			
Corr. Pt. Load Strength Index, $I_{S(50)}$, Mpa	0.06	0.07			
Corr. Pt. Load Strength Index, $I_{S(50)}$, psi	**9**	**10**			
MOISTURE CONTENT DATA					
Moisture Condition of Specimen	As Received	As Received			
Pan No.					
Pan wt. (g)	21.41	21.41			
Total wet wt. (g)	129.11	129.11			
Total dry wt (g)	126.48	126.48			
Moisture Content, %	**2.5**	**2.5**			
Comments:	Invalid test. Did not fail through both loading points.	Invalid test. Did not fail through both loading points.			

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

POINT LOAD STRENGTH INDEX TESTS (ASTM D 5731)

Date 05/02/17 | Project No. 17-1281 | Figure B-5

Boring:	B-2				
Sample:	R-4				
Depth, ft:	31-35				
Visual Description:	SILTSTONE, dark gray to black				
Test Type	Diametral				
Test Type ID	1				
FOR ANISOTROPIC ROCK:					
Bedding Angle Relative to Axis	60°				
Loading Orientation Rel. to Bedding	Perpendicular				
SAMPLE DIMENSIONS					
Width Perpendicular to loading, W, in	2.4				
Length Perpendicular to Loading, L, in	1.2				
Diameter Parallel to Loading, D, in	2.4				
Diameter at Failure, D', in	2.3				
STRENGTH DATA					
Peak Load, P, kN	0.745				
Peak Load, P, lbs	167.5				
Uncorr. Pt. Load Strength Index, I_S, MPa	0.207				
Uncorr. Pt. Load Strength Index, I_S, psi	**30.0**				
Size Correction Factor, F	1.09				
Corr. Pt. Load Strength Index, $I_{S(50)}$, Mpa	0.22				
Corr. Pt. Load Strength Index, $I_{S(50)}$, psi	**33**				
MOISTURE CONTENT DATA					
Moisture Condition of Specimen	As Received				
Pan No.					
Pan wt. (g)	22.26				
Total wet wt. (g)	127.89				
Total dry wt (g)	124.89				
Moisture Content, %	**2.9**				
Comments:					

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

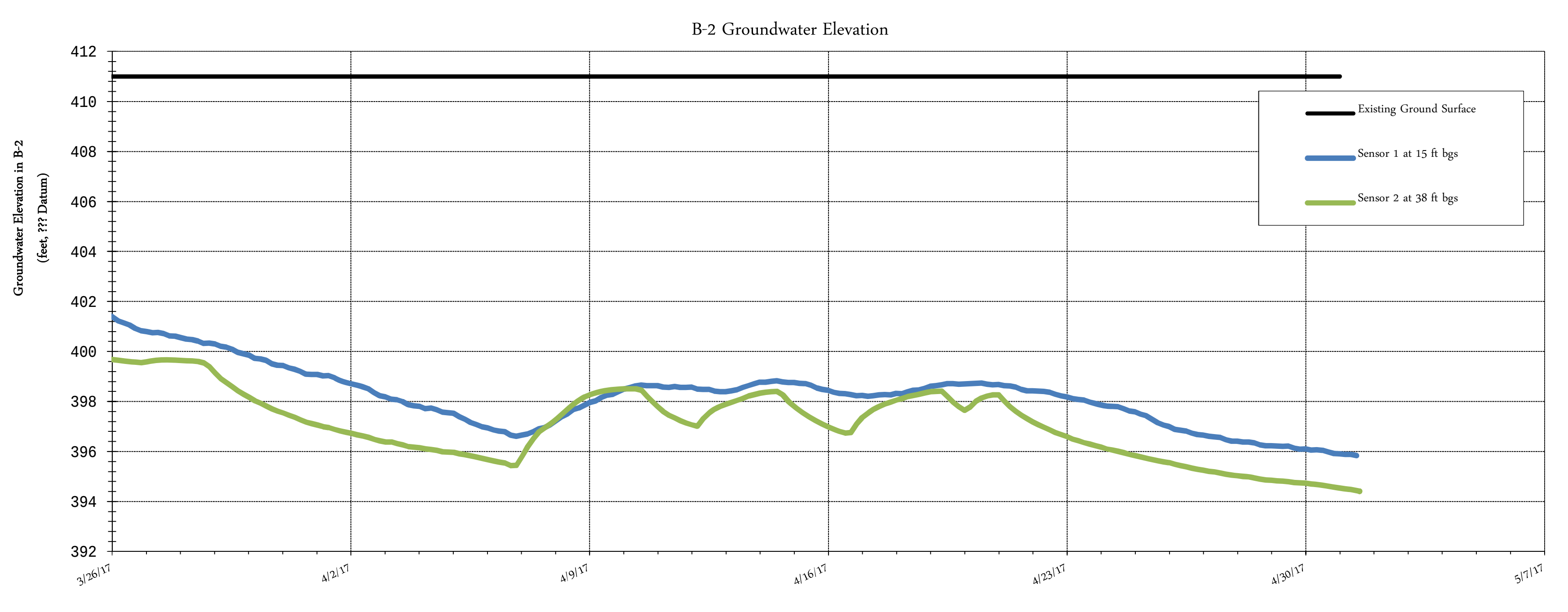
ROCKRIDGE GEOTECHNICAL

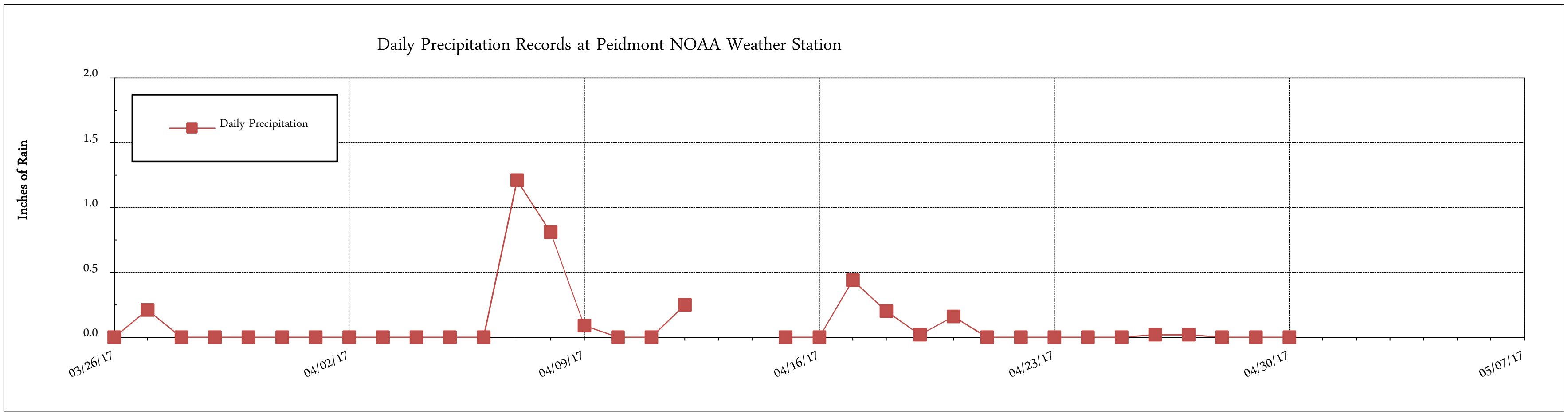
POINT LOAD STRENGTH INDEX TESTS (ASTM D 5731)

Date 05/02/17 | Project No. 17-1281 | Figure B-6

ROCKRIDGE GEOTECHNICAL

APPENDIX C
Groundwater Monitoring Data



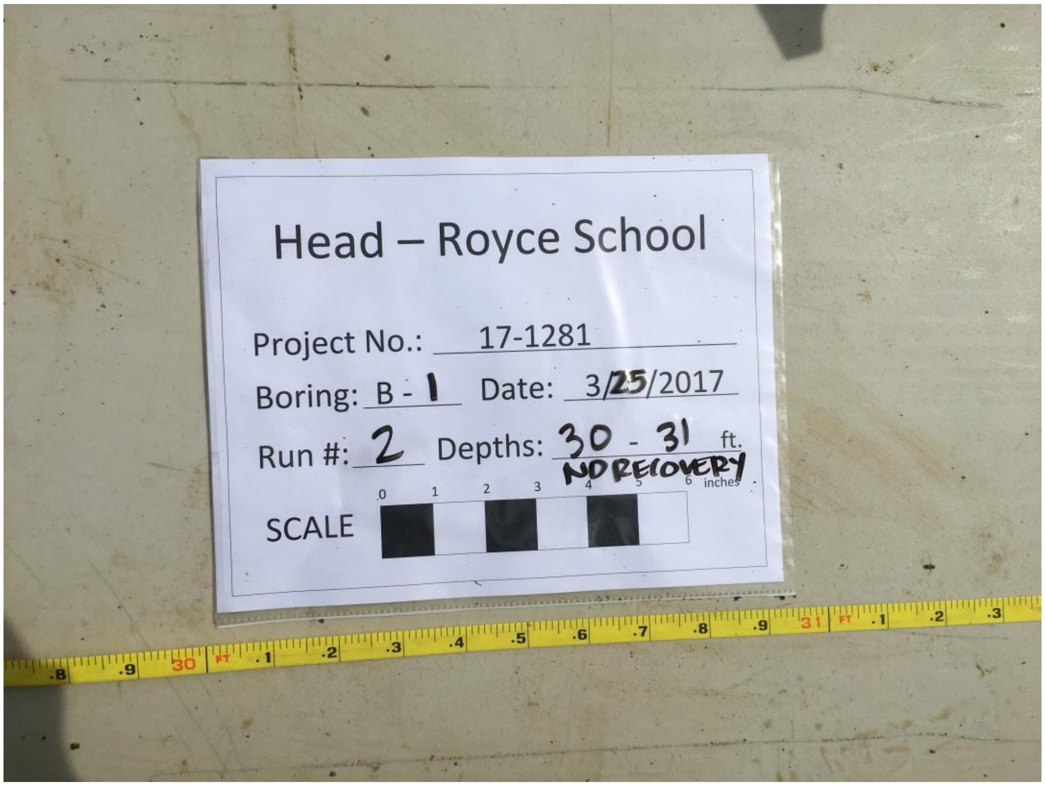


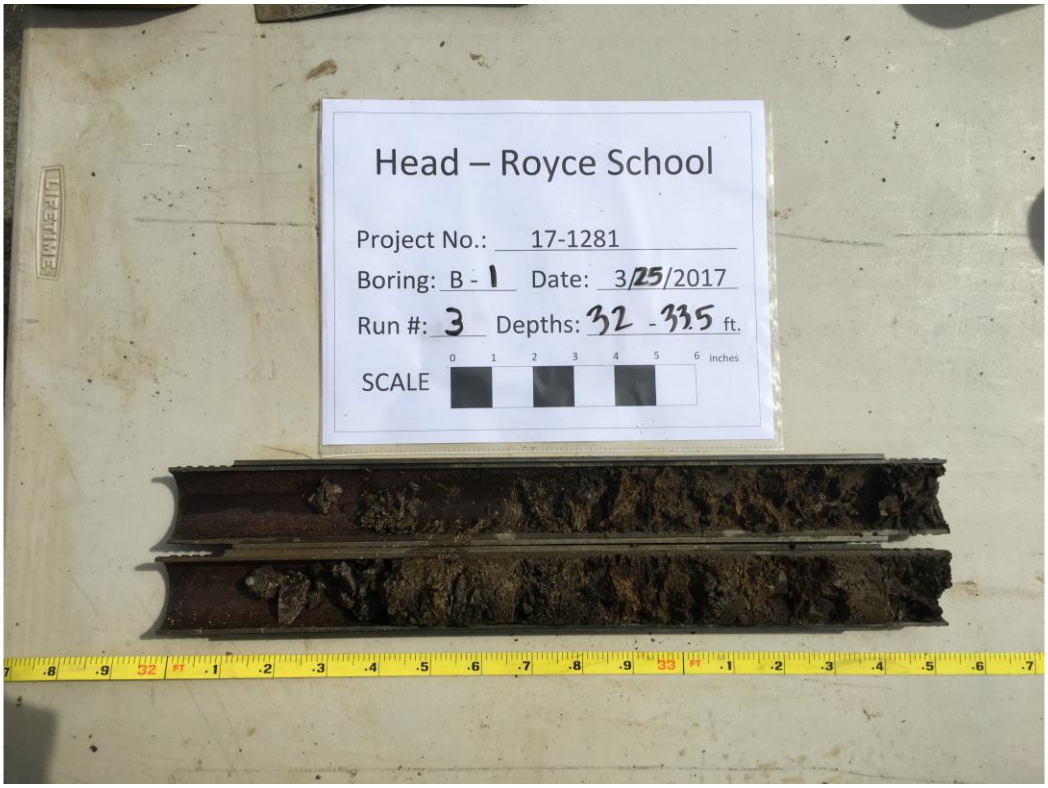
HEAD-ROYCE TUNNEL EXPLORATION		GROUNDWATER LEVEL READINGS IN B-2 & RAINFALL DATA		
Oakland, California				
ROCKRIDGE GEOTECHNICAL		Date: 05/01/17	Project: 17-1281	Figure C-1

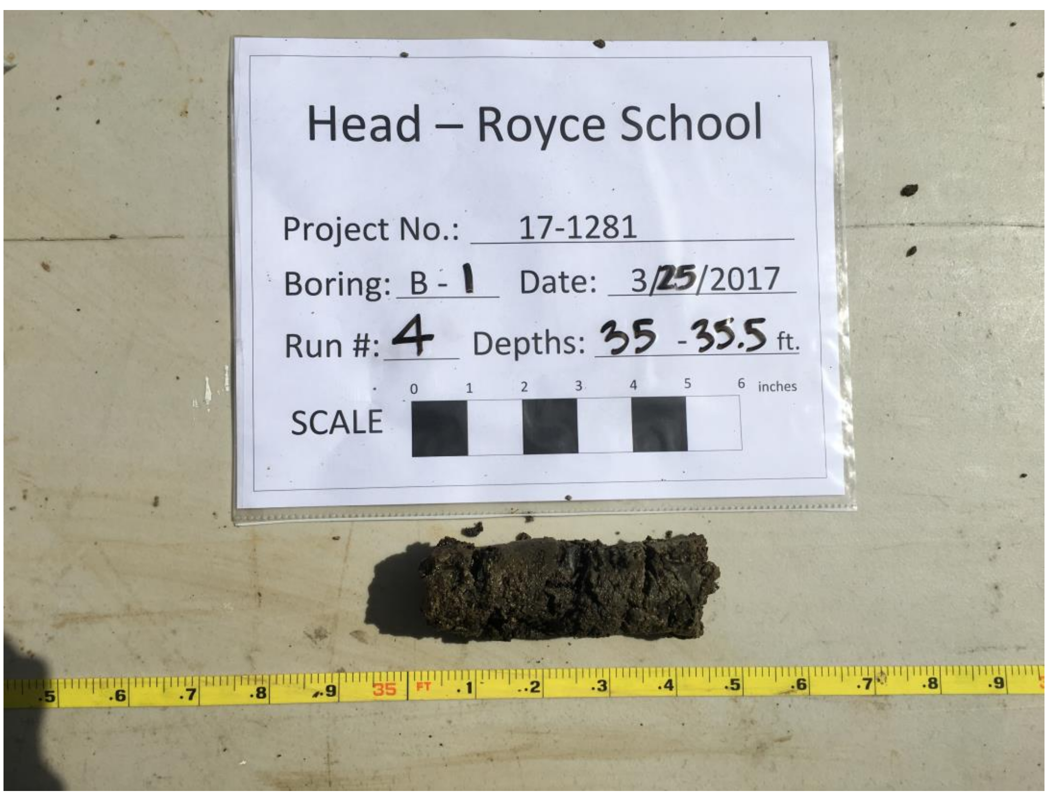
ROCKRIDGE GEOTECHNICAL

APPENDIX D
Select Photos of Rock Cores

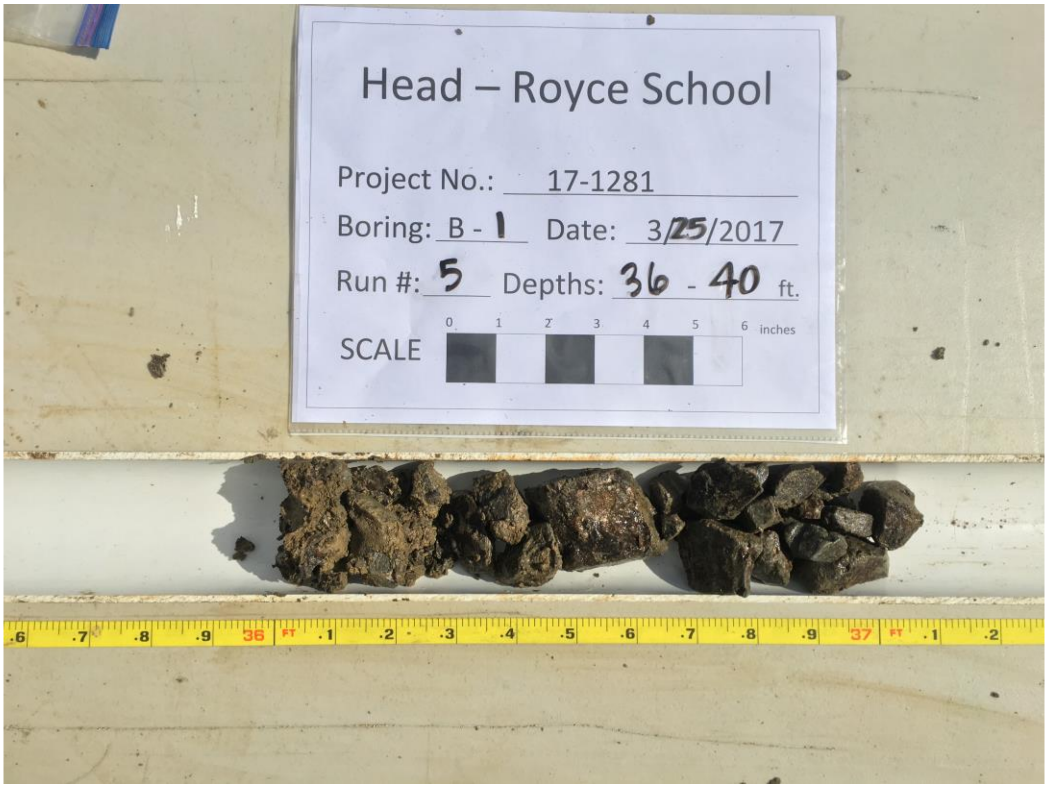

Head – Royce School
Project No.: 17-1281
Boring: B - 1 Date: 3/25/2017
Run #: 1 Depths: 25 - 30 ft.
0 1 2 3 4 5 6 inches
SCALE

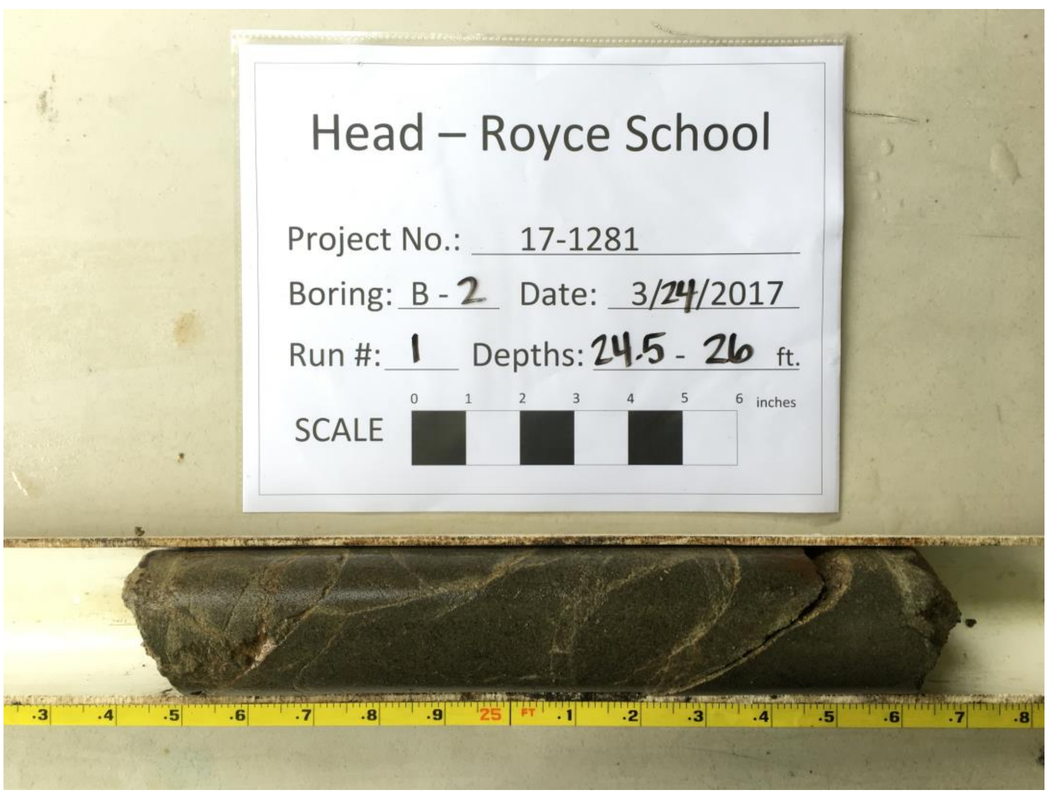

Head – Royce School
Project No.: 17-1281
Boring: B - 1 Date: 3/25/2017
Run #: 2 Depths: 30 - 31 ft.
NO RECOVERY
0 1 2 3 4 5 6 inches
SCALE


Head – Royce School
Project No.: 17-1281
Boring: B - 1 Date: 3/25/2017
Run #: 3 Depths: 32 - 33.5 ft.
SCALE
0 1 2 3 4 5 6 inches

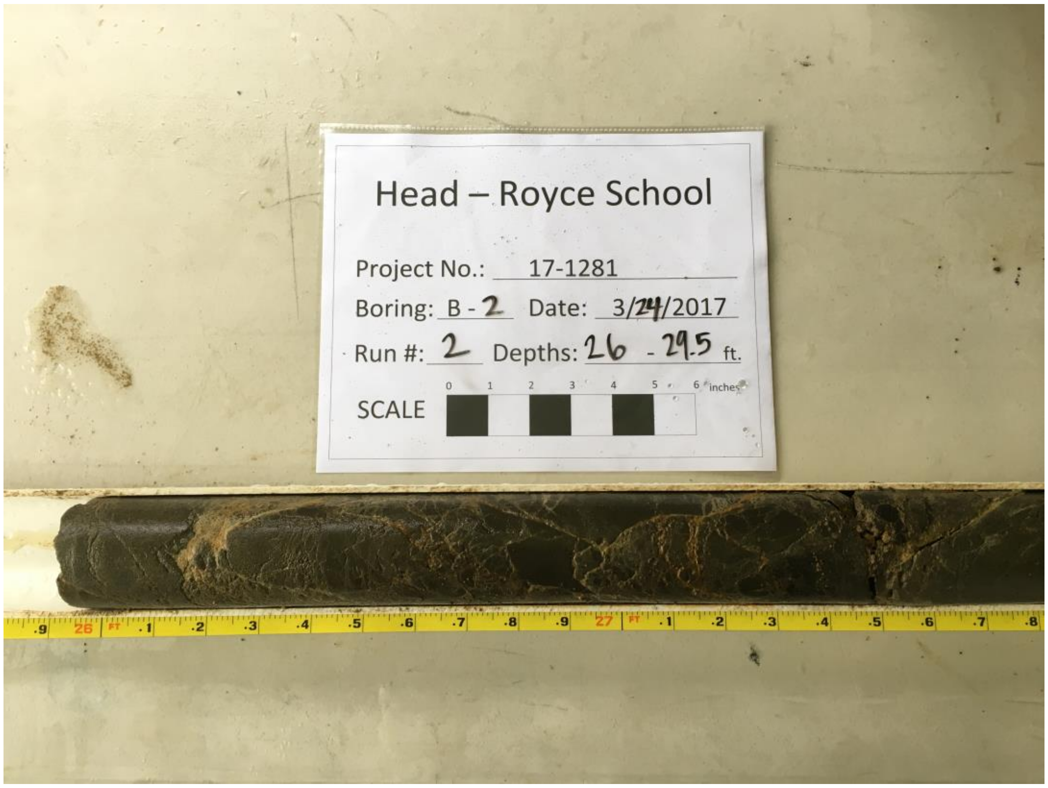

Head – Royce School
Project No.: 17-1281
Boring: B - 1 Date: 3/25/2017
Run #: 4 Depths: 35 - 35.5 ft.
SCALE
0 1 2 3 4 5 6 inches

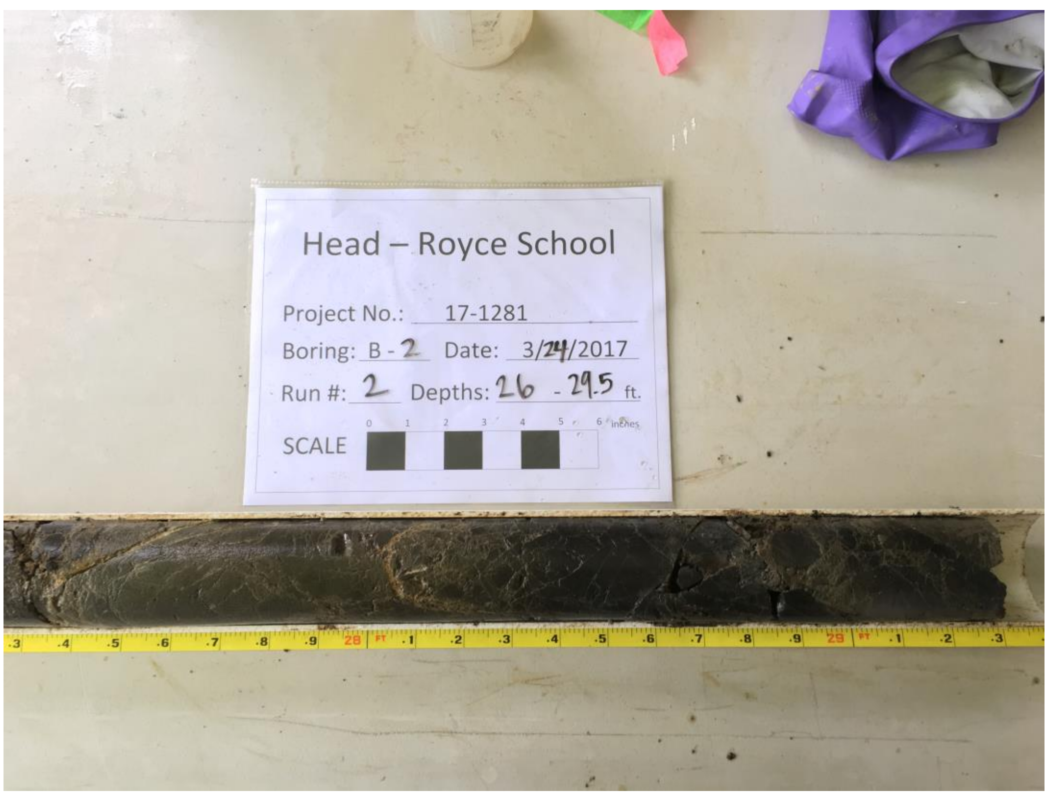
ROCKRIDGE GEOTECHNICAL



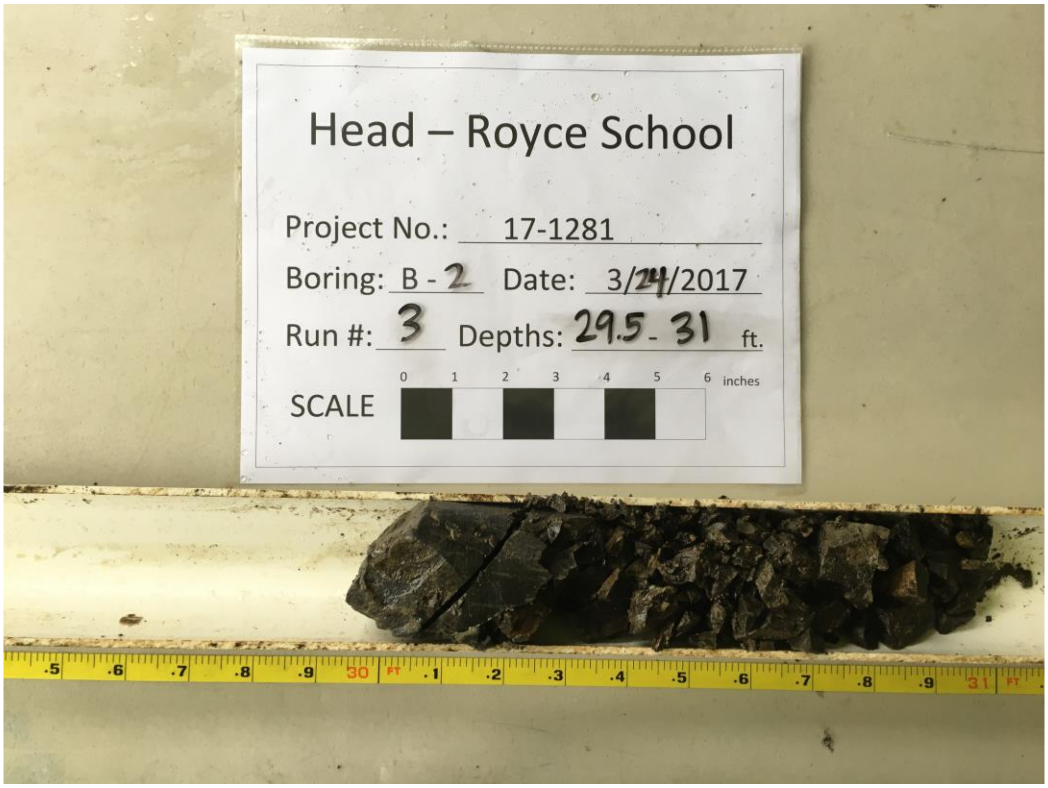


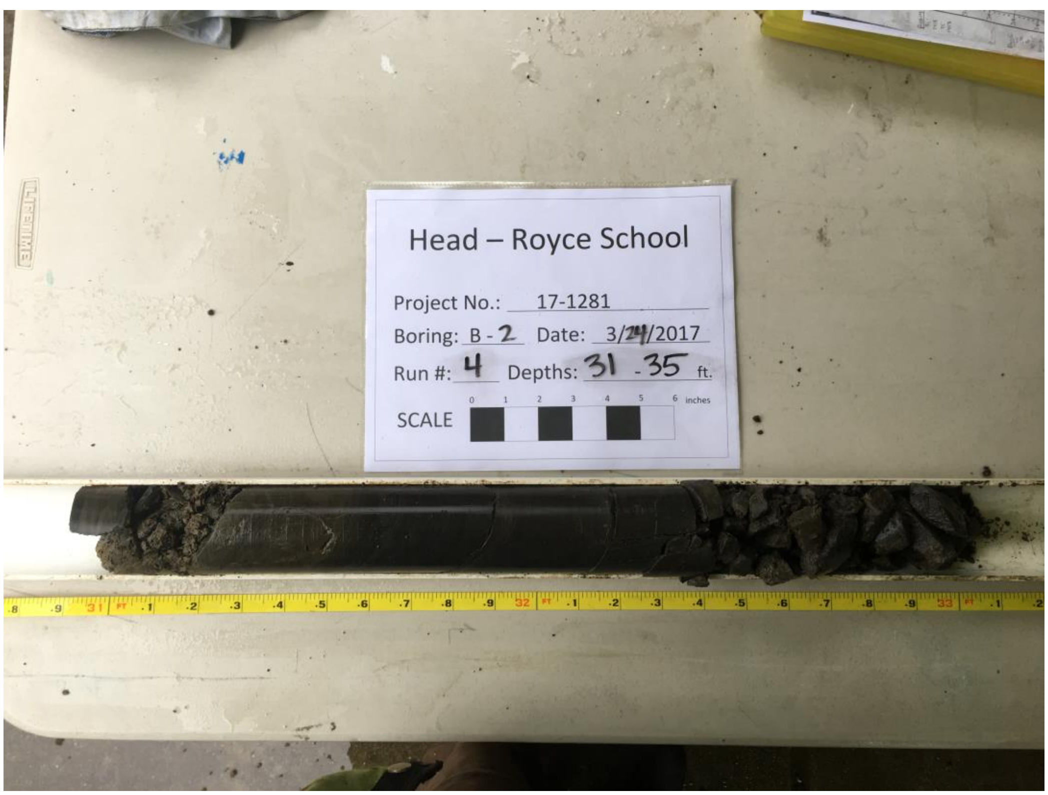
ROCKRIDGE GEOTECHNICAL

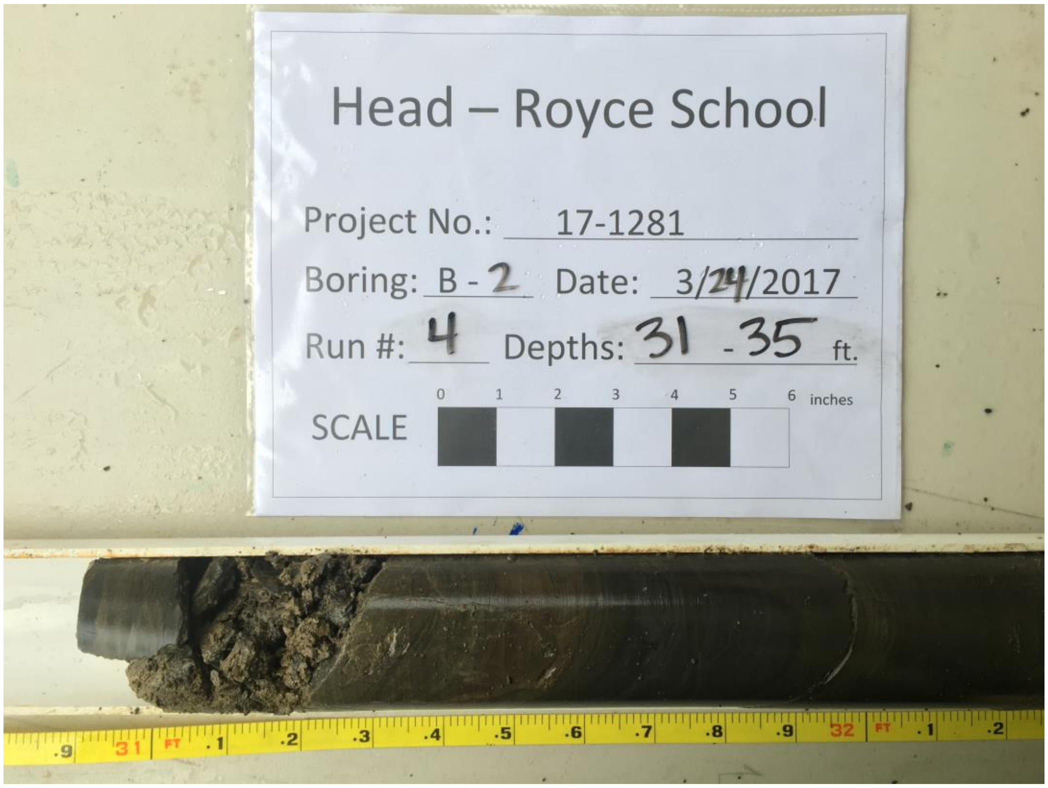


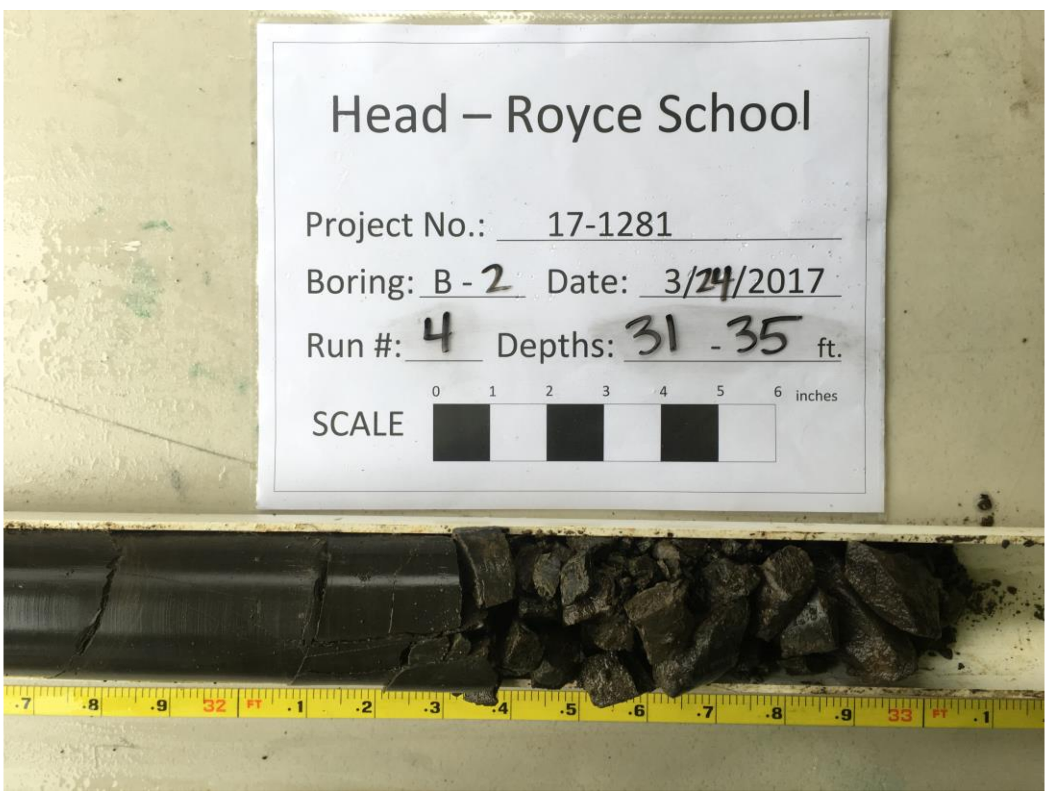


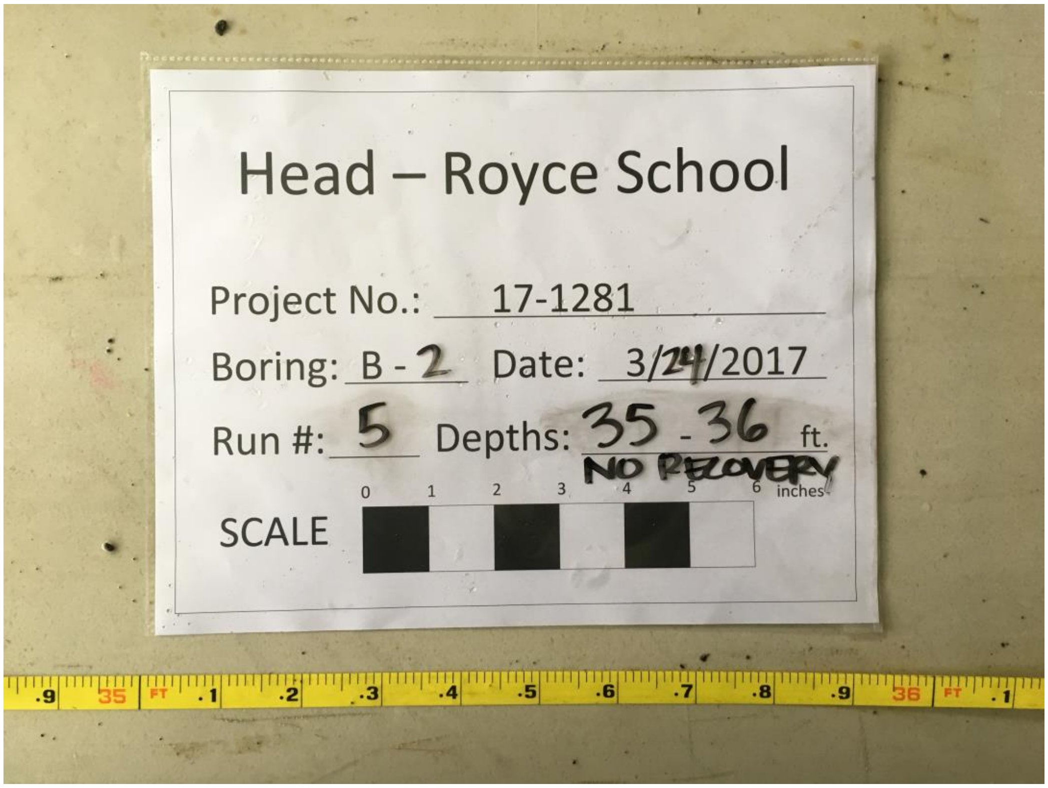
ROCKRIDGE GEOTECHNICAL





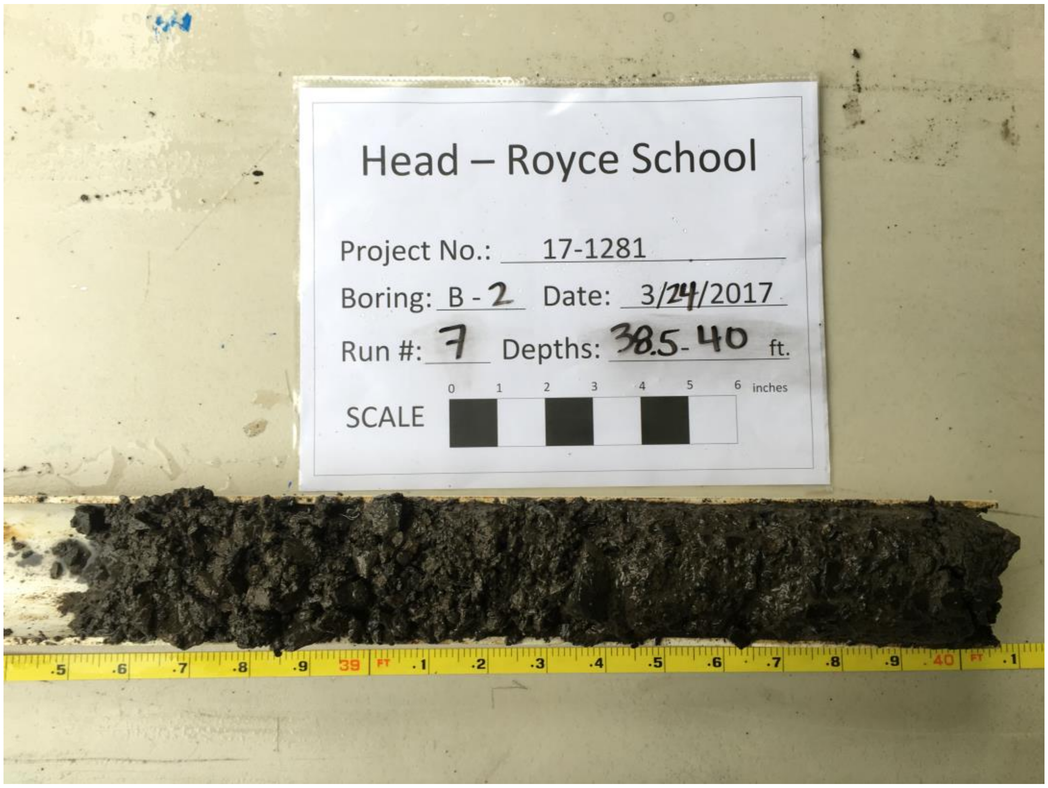

Head – Royce School
Project No.: 17-1281
Boring: B - 2 Date: 3/24/2017
Run #: 4 Depths: 31 - 35 ft.
SCALE
0 1 2 3 4 5 6 inches


Head – Royce School
Project No.: 17-1281
Boring: B - 2 Date: 3/24/2017
Run #: 4 Depths: 31 - 35 ft.
SCALE
0 1 2 3 4 5 6 inches


Head – Royce School
Project No.: 17-1281
Boring: B - 2 Date: 3/24/2017
Run #: 5 Depths: 35 - 36 ft.
NO RECOVERY
0 1 2 3 4 5 6 inches
SCALE


Head – Royce School
Project No.: 17-1281
Boring: B - 2 Date: 3/24/2017
Run #: 6 Depths: 36 - 38.5 ft.
0 1 2 3 4 5 6 inches
SCALE

ROCKRIDGE GEOTECHNICAL



ROCKRIDGE GEOTECHNICAL

ROCKRIDGE GEOTECHNICAL

Appendix 8C

Response to Geotechnical Peer Review Comments

Rockridge Geotechnical, January 6, 2020

January 6, 2020
Project No.: 17-1281

Mr. Josh Leibowitz
Cahill Contractors
1111 Broadway, Suite 1340
Oakland, California 94607

Subject: Response to Geotechnical Peer Review Comments
Proposed Pedestrian Tunnel and Site Improvements
The Head-Royce School
4315 and 4368 Lincoln Avenue
Oakland, California

Dear Mr. Leibowitz,

This letter presents our responses to the Geotechnical and Tunnel Review Comments presented in the letter prepared by ENGEO Incorporated, dated November 20, 2019, for proposed improvements to be constructed at the Head-Royce School on Lincoln Avenue in Oakland, California. ENGEO's scope included reviewing the following documents prepared by Rockridge Geotechnical, Inc.:

1. *Final Report, Geotechnical Investigation to Support Due Diligence Evaluation, Lincoln Child Center, 4368 Lincoln Avenue, Oakland, California*, dated May 7, 2012.

2. *Geotechnical Data Report, Proposed Pedestrian Tunnel, The Head-Royce School, 4315 and 4368 Lincoln Avenue, Oakland, California*, dated May 31, 2017.

Our responses to the two comments by ENGEO resulting from their review of the above documents are presented below.

ENGEO Comment #1: *The Rockridge Geotechnical Report identifies the slope on the south side of Building 9 as a fill slope constructed before 1947 and reworked between 1950 and 1957. The slope was likely not constructed to current engineering standards and has shown past shallow instability. The Rockridge report notes that the slope may be prone to earthquake induced landsliding and says that "If new improvements are proposed in the vicinity of this slope, additional investigation should be performed". The civil plans show improvements to the slope below Building 9 including a 2-foot high wall, a 1:1 (horizontal:vertical) graded slope, a walking path, loop road, stairs, and the new performing arts building. The geotechnical engineer of record should evaluate the current civil plans and make recommendations as necessary. It would be helpful for the geotechnical engineer to provide a geologic map of the project site. This map should clearly define the limits of the fill slope that it considers unstable.*

Rockridge Geotechnical Response: The objective of the geotechnical investigation we performed in 2012, as stated in our May 7, 2012 report, was to evaluate whether there are any geotechnical-related conditions at the property that may result in unacceptable future building performance and/or may adversely impact future site development. At the time we performed our investigation, potential future improvements were not known. Accordingly, only preliminary recommendations to address potential geotechnical issues as they related to existing buildings and potential future improvements were presented in the report, along with preliminary recommendations to mitigate the potential issues. In Section 8.0 of our report, we state that "prior to final design of any new improvements, we should be retained to provide a final geotechnical report based on the proposed project scope and a supplemental field investigation, if needed".

Regarding the slope comprised of undocumented fill on the south side of Building 9, we provided preliminary recommendations for surface and subsurface drainage improvements at the top and bottom of the fill slope to reduce the potential for future slope instability. Considering the civil drawings prepared by Sherwood Design Engineers, dated December 10, 2019, show proposed improvements on and at the bottom of this fill slope, an additional subsurface investigation should be performed and design-level recommendations provided to mitigate the potential impacts of the fill slope on the existing and proposed improvements. It should be noted, however, that none of the currently proposed improvements on and at the toe of the fill slope (walking path, two-foot-high retaining wall, stairs, and loop road) would be expected to have a significant impact on the stability of the slope. The final geotechnical investigation will also include a geologic map showing the limits of the fill slope, an evaluation of the impact on slope stability of the excavation planned at the toe of the fill slope for the proposed Performing Arts Building, and recommendations to mitigate potential adverse impacts on slope stability.

ENGEO Comment #2: *The Rockridge Geotechnical Report recommends measures for improving the performance of the fill slope including installing surface drains, installing short below grade retaining walls, and installing subdrains along the top and toe of the slope. None of these recommendations are shown in the improvement plans.*

Rockridge Geotechnical Response: It is our understanding the improvement plans prepared by Sherwood Design Engineers are for planning purposes and are not intended to be construction documents. Our recommendations for addressing the stability of the fill slope, which may be revised during a final geotechnical investigation, will be incorporated into the final civil plans.

We appreciate the opportunity to provide our services to you on this project. If you have any questions, please call.

Sincerely yours,
ROCKRIDGE GEOTECHNICAL, INC.

REGISTERED PROFESSIONAL ENGINEER
CRAIG S. SHIELDS
GE2116
3/31/21
GEOTECHNICAL
STATE OF CALIFORNIA

Craig S. Shields, P.E., G.E.
Principal Geotechnical Engineer

Appendix 8D

Head-Royce School Pedestrian Undercrossing Conceptual Design and Constructability Evaluation

Cahill and McMillen Jacobs Associates, April 23, 2019

Head-Royce School Pedestrian Undercrossing

Conceptual Design and Constructability Evaluation

Revision No. 0

April 23, 2019

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Appendix A: Tunnel Conceptual Design Drawings

Distribution

To:	Josh Leibowitz Cahill Contractors, LLC
From:	Tom Pennington, PE McMillen Jacobs Associates
Prepared By:	Jakob Walter, EIT McMillen Jacobs Associates
Reviewed By:	Mark Lawrence, PE McMillen Jacobs Associates

Revision Log

Revision No.	Date	Revision Description
0	April 23, 2019	Final Submittal

1.0 Introduction

This report summarizes the concept design and feasibility study conducted for the proposed Head-Royce School Pedestrian Undercrossing project. It is understood that the Head-Royce School (HRS) intends to expand its campus onto the recently acquired Lincoln Child Center property located immediately south of the current campus. The two campuses would be separated by Lincoln Avenue, and the proposed undercrossing would serve as an unobstructed pedestrian passageway connecting the two campuses below the roadway.

To serve as the basis of concept design, we have been provided with the following relevant documents:

1. Geotechnical Investigation Report for the Lincoln Child Center, located at 4368 Lincoln Avenue, Oakland, CA: Prepared by Rockridge Geotechnical, dated May 7, 2012 (Project No: 12-412).
2. ALTA/ACSM Land Title Survey for the 4368 Lincoln Child Center: Prepared by SANDIS, dated May 7, 2012, (Drawing No: 612018).
3. Geotechnical Investigation Report for the new Head-Royce Additions, Oakland, CA: Prepared by Treadwell & Rollo, dated June 5, 2006 (Project No: 4337.01).
4. Head-Royce School: Tunnel Feasibility Study: Prepared by SANDIS, dated March 17, 2014 (Project No: 612018).
5. Topographic Survey for 4233, 4309, 4315, and 4465 Lincoln Avenue: Prepared by SANDIS, dated March 25, 2014, (Drawing No: 612018)
6. Architectural Concept Rendering: Prepared by Skidmore, Owings & Merrill LLP 2016 (Project No: 214043).
7. Updated Topographic Survey for Proposed South Campus: Prepared by SANDIS (March 27, 2017; transmitted to McMillen Jacobs Associates May 9, 2017.
8. Geotechnical Data Report for the Proposed Pedestrian Tunnel, The Head-Royce School, 4315 and 4368 Lincoln Avenue, Oakland, California: Prepared by Rockridge Geotechnical, dated May 31, 2017 (Project No. 17-1281).

2.0 Site Location and Conditions

The existing HRS campus is located at 4315 Lincoln Avenue in Oakland, CA, and is bounded by Lincoln Avenue on its southeast perimeter. On the south side of Lincoln Avenue, HRS acquired the former Lincoln Child Center property, located at 4368 Lincoln Avenue, which will serve as the location for the future expansion of the Head-Royce campus. The proposed tunnel undercrossing links the two campuses below Lincoln Avenue. Figure 1 illustrates the proposed tunnel alignment relative to the existing and new campuses. The concept design assumes tunnel invert elevations of approximately 396 feet and 388 feet at the south and north portals, respectively. The tunnel crosses below Lincoln Avenue at an approximate slope of 4.8%. The alignment terminates approximately 15 feet below grade at its south end. Based on the anticipated internal tunnel dimensions of 12 feet tall by 18 feet wide, the minimum anticipated cover below Lincoln Avenue is approximately 7 feet.

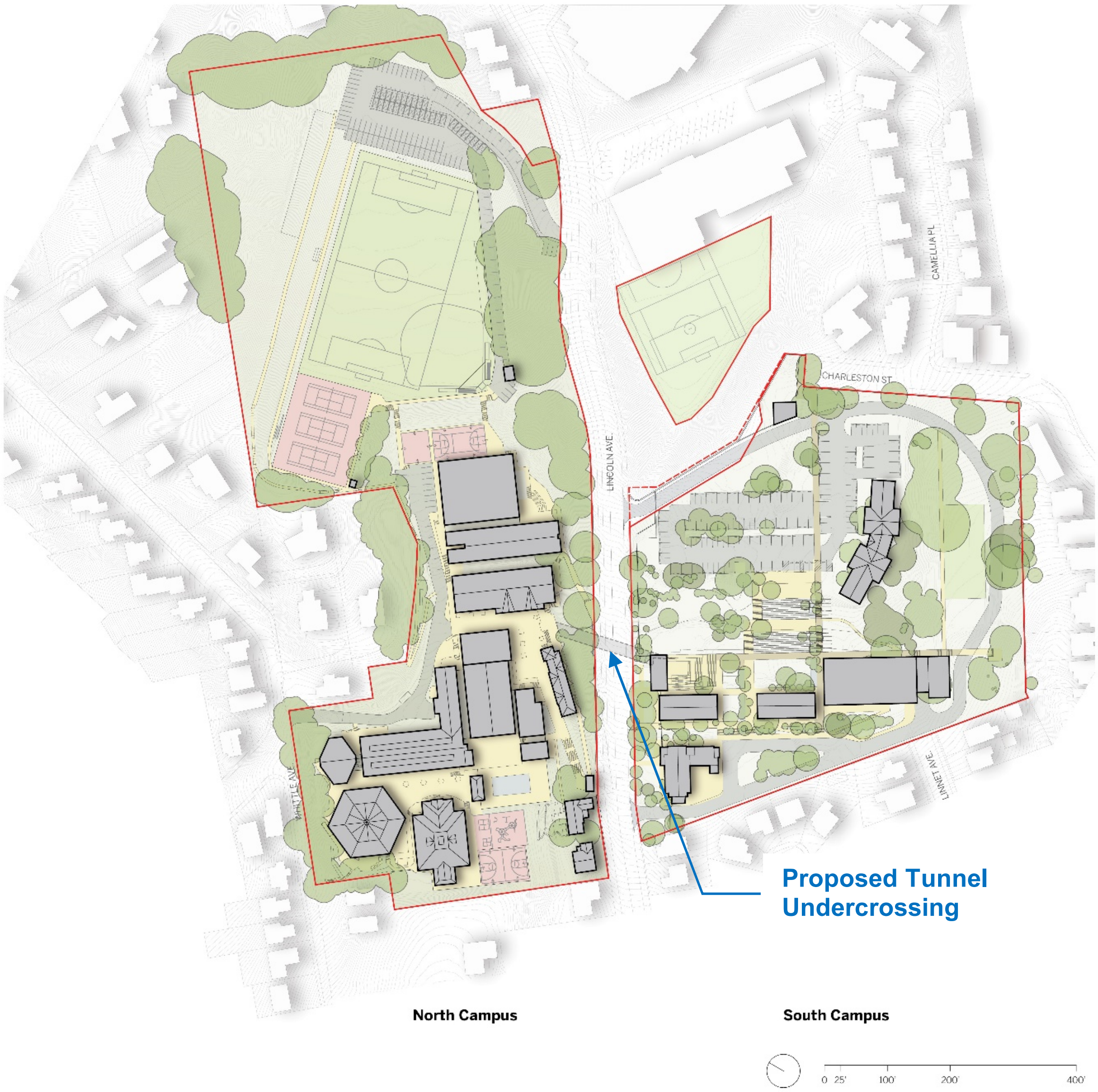


Figure 1. Site Plan

3.0 Utilities

There are several utilities underlying Lincoln Avenue. Based on the available information, there is an East Bay Municipal Utility District (EBMUD) water main and a City of Oakland storm drain located east of the tunnel alignment. These two lines connect into the HRS campus just north of the proposed tunnel alignment. As shown on Drawing HRS-02 in Appendix A, these lines turn north, perpendicular to Lincoln Avenue, and thus do not conflict with the proposed tunnel location. Utilities that do cross the proposed alignment consist of gas, water, electric (overhead and underground), and telecommunications. Based on the latest survey provided by Sandis (2017), the elevations of gas, water and telecommunications lines correspond to approximately 414 feet, 413 feet, and 412 feet respectively. Assuming a 12-foot tall jacked box with 24-inch thick invert and crown, this leaves a minimum of 8 feet of clearance between the top of the tunnel and the nearest utility. Any presupport installed prior to tunneling would reduce this clearance. Note these elevations are estimated at the center of the tunnel alignment. The elevation of the underground electric line was not provided at the time of this report and is assumed to be at about the same elevation as the telecommunications line. The exact locations of these utilities and other below-grade structures should be confirmed as part of design development process.

4.0 Site Geology and Subsurface Conditions

As part of conceptual design study for the tunnel, two borings were performed in 2017 by Rockridge Geotechnical. The results of these borings are provided separately in the Tunnel Geotechnical Data Report (Rockridge Geotechnical, 2017). Based on these borings, and on available geotechnical information at the two neighboring HRS sites, the tunnel site is generally underlain by variable artificial fill consisting of fine- to coarse-grained material, gravel pieces and organic matters; stiff to very stiff clay fills with varying amounts of sand and native rock fragments; and bedrock consisting of sandstone, siltstone, and shale mélange and shale of the Franciscan Complex. The utilities crossing the tunnel alignment are anticipated to be within the layer of artificial fill below the ground surface. The bedrock is noted to be extremely weak to medium strong, moderately to deeply weathered, and highly fractured. Areas of colluvial deposits of varying thicknesses and consisting of dark brown clayey soils with high expansive potential were also noted, although none appeared to be present in the borings closest to the tunnel alignment.

Groundwater was encountered in the borings along the tunnel alignment and in borings performed at the two neighboring HRS sites and is anticipated to be above the proposed tunnel invert.

Based on the available test hole information, it is anticipated that bedrock could be encountered between 5 feet and 15 feet below existing grade in the areas around the proposed tunnel alignment.

5.0 Tunnel Design

Conceptual design drawings indicate a tunnel length of approximately 115 feet from the north to south portal locations. Additionally, the initial internal space proofing requires a clear internal height of 12 feet and a horizontal width of 12 feet to 20 feet. It is understood that a wider tunnel is preferred; however, depending on the selected construction approach, the maximum tunnel width feasible to construct may be less than 20 feet.

The tunnel invert at the north portal is proposed to be about Elevation 388 feet. Temporary shoring will be required at the portal to provide a smooth transition from existing grade to the invert elevation of the tunnel. However, significant excavation is not anticipated.

The invert elevation at the south portal is about 396 feet, resulting in a tunnel slope of approximately 4.8%. The elevation at the south portal is approximately 15 feet below the final proposed grade. Thus, a deep excavation will be required for portal construction and to achieve the final grading plan. The amount of excavation will be controlled by the final grading plan and access requirements for the undercrossing.

5.1 Tunnel Design Alternatives

Three design alternatives were screened as part of the conceptual design and constructability evaluations. The alternatives include: 1) jacked box, 2) jacked shield, and 3) mined sequential excavation method (SEM) tunnel. The advantages and disadvantages of these alternatives are summarized in Table 1. Detailed discussion of each alternative is presented in Sections 6 and 7.

Table 1. Tunnel Design Advantages and Disadvantages

Alternative	Advantages	Disadvantages
Jacked Box	▪ Shortest probable construction schedule ▪ Tunnel excavation and lining in one sequence	▪ Requires large construction footprint for launch slab, casting, and laydown. ▪ Face support (shotcrete, face dowels, breasting) and presupport (ground freezing and/or canopy tubes) required ▪ Available jacking reaction loads will limit the feasible length of tunnel constructed using this method.
Jacked Shield	▪ Similar to jacked box but uses steel sets in lieu of a concrete box ▪ Requires lower jacking loads and smaller construction footprint	▪ Requires a temporary and permanent ground support (lining) ▪ Face support (shotcrete, face dowels, breasting) and presupport (ground freezing and/or canopy tubes) required ▪ Method better suited for soft ground
Mined SEM	▪ Requires smaller construction easement ▪ Easier to control alignment	▪ May require split heading for larger tunnel openings ▪ Requires more intensive support of the tunnel face ▪ More costly than jacked methods

6.0 Jacked Box

6.1 Description

The jacked box method involves advancing a precast/cast-on-site concrete box along the proposed alignment by “pushing” it into the ground with hydraulic jacks. The box structure is typically open faced with a beveled steel cutting shield at the front end. As the box is advanced into the ground, excavated muck is removed from inside the box. If large blocks or boulders are encountered, overcutting ahead of the box can be implemented to remove potential obstructions and aid in reducing jacking loads.

The box jacking method typically requires a relatively large area for storage and construction operations. Because of the limited space around the north portal, it is anticipated that jacking operations will have to be carried out from the south end of the tunnel alignment.

6.2 Construction Sequence

The actual construction sequence will be determined by the design engineer-of-record (EOR) and construction contractor; however, it is anticipated construction will follow the general sequence listed below:

1. Excavate and support portals to the proposed tunnel invert elevation.
2. Construct a concrete launch pad and a backstop capable of mobilizing enough passive resistance to the required jacking loads.
3. Prior to jacking, it will be necessary to presupport the ground along the alignment to control potential ground settlements and ground loss. Soil freezing, and/or a grouted pipe canopy are considered two feasible options.
4. Construct box structure on a greased concrete launch slab.
5. Advance box into the ground using hydraulic jacks placed along the backstop.
6. For each push, excavate material from inside the box using a small excavator with a hoe ram or roadheader.
7. Continue steps 5 and 6 until the tunnel/box terminus is reached.
8. Install tunnel finishes, including waterproofing, utilities, etc.

6.3 Design and Construction Considerations

The following design and construction considerations are anticipated for the jacked box method:

1. Due to the size of the tunnel, design of a jacked box will have to assume a relatively simple geometry and an internal clear width not to exceed 18 feet. Note this clearance does not include any internal finishes, such as lighting, architectural finishes, waterproofing, etc.
2. For stiff/dense soil and rock conditions, overcut may be needed ahead of the box to facilitate advancing the box. Steel sheeting on the box roof and bentonite slurry lubricant will be required to minimize friction and maintain jacking forces.
3. Depending on rock strength and the presence of soil and mixed face ground within the tunnel profile, temporary face support measures may be required to prevent ground loss. Options for face support will likely consist of sloping of the face, and installation of fiberglass face bolts, face shotcrete, or breasting.
4. Settlements commonly occur as a result of tunnel excavation, primarily due to migration of ground (ground loss) towards the tunnel opening. Ground loss during excavation and jacking operations could result in settlement of overlying road and/or utilities. While this phenomenon is common in shallow tunnels, the design will require that specific mitigation and protection measures be implemented to minimize the adverse effects of settlement on overlying structures. By incorporating these preventative measures, we anticipate that total settlement above the tunnel should be limited to 1 to 2 inches. Settlement of the overlying roadway can be repaired with an equivalent level of complexity as routine pavement repair. Settlement of existing utilities overlying the tunnel can likely be addressed through exposing and providing structural strengthening or by providing temporary bypass across the tunnel zone of influence. During final

design, a detailed evaluation of overcutting, advance lengths, and settlement should be carried out once the construction approach is finalized. Specific measures anticipated for this project to address settlement include installation of presupport measures such as a grouted pipe canopy, or ground freezing, prior to excavation, application of face support measures, and monitoring of overlying structures during construction to confirm no unanticipated ground movements have developed as a result of tunnel excavation.

5. Construction of a jacked box is not anticipated to produce vibration levels that would adversely impact nearby residential or HRS campus structures. The jacking processes would involve slow advancement of the tunnel using hydraulic equipment. Excavation of the ground in front of the advancing box will be by hydraulic excavator-type equipment. Vibrations from this equipment would be similar to those generated from typical roadway construction.

7.0 Alternative Construction Methods

7.1 Jacked Shield

Jacked shield tunneling is similar to the jacked box alternative, but with steel set supports used to support the ground and provide reaction to advance the tunnel heading instead of a full concrete box. The approach involves jacking a prefabricated steel shield to advance the tunnel. The ground encountered within the shield is then mined, leaving a berm in place to support the face. Steel sets and lagging are then erected under the shield to provide a fully supported opening. Once the ground is supported, the shield is advanced another round to progress the tunnel. The steel sets typically need to be shimmed or jacked into place to maintain full support of the ground, control ground movements, and provide adequate reaction for thrust from the advancing shield. Contact grouting is required to ensure each steel set is uniformly supporting the tunnel profile and to minimize settlement. Compared to the jacked box alternative, shield tunneling has a few advantages, including much smaller jacking loads and reduced construction laydown area. This method would require a final concrete lining and waterproofing. The shield also may require expandable breasting plates, mounted at the front of the shield, to provide face support that may potentially be required.

7.2 Mined SEM Tunnel

A mined tunnel is also considered a possible option for the proposed project. The SEM approach involves advancing the tunnel excavation in short lengths with the use of excavators or roadheaders. The short advances are shielded by presupport measures (i.e., canopy tubes) with the surrounding ground supported by shotcrete and steel sets. The final concrete lining and waterproofing would be constructed after the completion of tunneling. The primary advantage of the SEM method over the jacked box and shield alternatives are that the tunnel length is not limited by the achievable jacking forces, a much smaller construction footprint is required, and the method is more adaptable to the observed ground conditions. In addition, where rock conditions are encountered, SEM methods may allow for faster construction since there is less constricted access to the face and the excavation dimensions can be more readily modified to suit a wider range of construction equipment. The primary disadvantage is that more intensive support of the tunnel face and/or smaller heading/bench excavations may be needed to maintain stability and minimize ground movements, especially where highly fractured rock and/or unstable soil conditions are present.

8.0 Excavation Support for Portal Areas

Vertically shored excavations will be required at the portal locations. The actual extent of shoring will be dependent on the presence of nearby utilities, structures, construction methods/sequencing, and final grading requirements. An anchored shotcrete wall is likely the most economical means of supporting vertical cuts for both temporary and permanent conditions. If rock conditions are encountered, tieback lengths are anticipated to be on the order of 25 to 35 feet. Tiebacks would be drilled in 3 to 4-inch holes, fully grouted, and staggered at a pattern spacing of about 6-foot vertical by 6-foot horizontal.

For soil conditions, anchor lengths/loads will be larger with a tighter spacing. Shotcrete facing will also be required for temporary and permanent shoring. For permanent walls, anchors will need to be double corrosion protected (DCP) and designed for seismic conditions.

If encroachment limitations prevent the use of anchors for temporary walls, the system can be internally braced using steel struts and soldier piles. If the shored material consists of soil in this case, soldier piles may be required.

In all cases, shoring walls should be designed for drained conditions and incorporate weep holes, or strip/mat drains behind the facing.

9.0 Construction Monitoring

To protect existing facilities from the effects of tunnel and portal construction, installation of monitoring instruments along Lincoln Avenue will be required to monitor ground/utility movements and surface settlement. Prior to commencing excavation, utility monitoring points and surface settlement arrays should be installed within the influence zone of the tunnel and portal excavations. Monitoring of these points should be performed on a regular basis during construction (daily or more frequently). Baseline readings will need to be taken to establish elevations prior to construction. Following completion of tunneling, monitoring should continue until readings stabilize or until such time that construction activities no longer warrant active monitoring.

Actual monitoring locations will need to be determined after utility locations have been verified. Settlement thresholds and corrective actions will need to be established as part of the final design and prior to starting construction.

10.0 Summary

This report discusses the feasibility of the proposed Head-Royce School Pedestrian Undercrossing project using various tunneling approaches. Based on the current alignment and our understanding of the design requirements, a jacked box tunnel concept is recommended given its simplified construction approach. Some key considerations for the jacked box alternative are as follows:

- The jacked box alternative will require presupport of the ground prior to commencing excavation.

- A large laydown area is likely needed to allow construction of the box prior to tunneling. The jacked box will also require the construction of a soldier pile wall to aid in mobilizing passive reaction forces for jacking.
- The alignment of the tunnel should be selected such that the length of the jacked box is minimized to reduce required jacking loads as much as possible. This can be accomplished by constructing the portals as close to the property lines as feasible.
- Surface settlements are unavoidable for any tunnel project; however, the magnitude and extent of settlements are highly dependent on the ability for construction contractors to control ground losses. Lowering the tunnel invert and providing face support and continuous presupport measures will help reduce the impact of ground losses and potential settlements to a degree that repairs will be similar to routine pavement repair. Additional consideration may needed for addressing settlement impacts to the existing utilities beneath the road but this work is anticipated to be similar to routine utility construction.
- Close monitoring of existing facilities should be carried out to monitor ground movements, settlements, and minimizing impacts to surface structures and utilities.

We note that the above considerations are considered typical for a tunnel constructed in an urban area. With proper planning, design, and implementation of tunnel construction, a jacked box approach can be implemented successfully, especially since there are no adjacent above-ground structures.

11.0 References

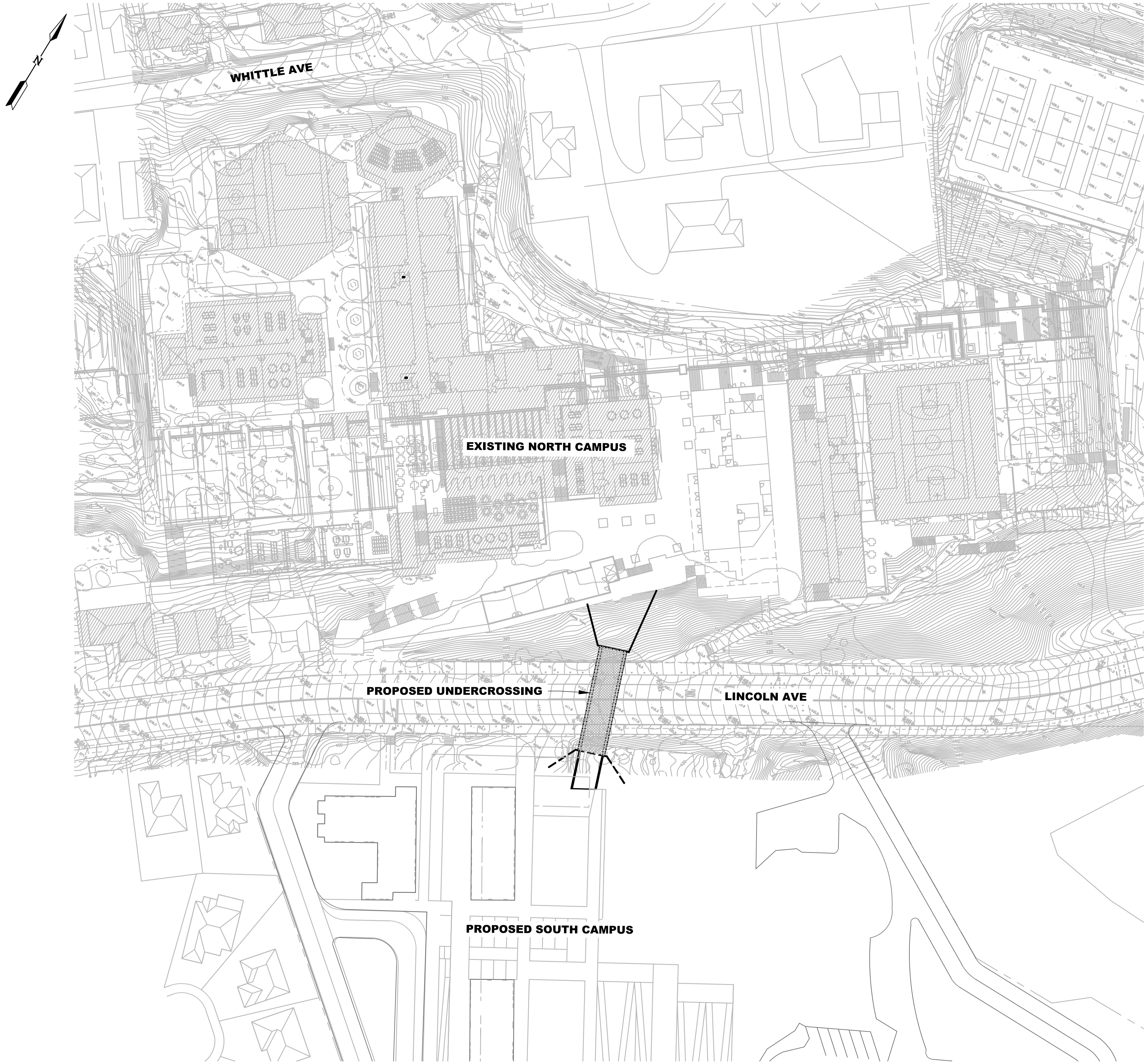
Rockridge Geotechnical. 2012. Geotechnical Investigation to Support Due Diligence Evaluation, Lincoln Child Center. Project No. 12-412.

Rockridge Geotechnical. 2017. Geotechnical Data Report for the Proposed Pedestrian Tunnel, The Head-Royce School, 4315 and 4368 Lincoln Avenue, Oakland, California. Project No. 17-1281.

SANDIS. 2014. Head Royce School – Tunnel Feasibility Study. Project No. 2014.

Treadwell & Rollo. 2006. Geotechnical Investigation: Head-Royce School – New Additions. Project No.4337.01.

Appendix A: Tunnel Conceptual Design Drawings



SITE LOCATION PLAN

50 0 50 100

FEET

GENERAL NOTES:

1. SITE LOCATION: HEAD-ROYCE SCHOOL
   4315 LINCOLN AVE
   OAKLAND, CALIFORNIA
2. DESIGN AND CONSTRUCTION APPROACH PRESENTED HEREIN IN IS CONCEPTUAL AND SHALL BE CONFIRMED DURING DETAILED DESIGN EVALUATIONS.

APPLICABLE CODES AND SPECIFICATIONS:

1. AMERICAN CONCRETE INSTITUTE (ACI) 318-14
2. AISC MANUAL AND SPECIFICATIONS (14TH EDITION)
3. CALIFORNIA BUILDING CODE (2016)
4. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE/SEI 7-16)

INDEX OF SHEETS:

NO	REVISION	BY	CHK	APP	DATE
A	ISSUED FOR COMMENTS				

DESIGNED	J. WALTER
DRAWN	S.MORRISON
CHECKED	T.PENNINGTON
APPROVED	M.LAWRENCE

CONCEPT DESIGN
NOT FOR CONSTRUCTION

McMILLEN JACOBS ASSOCIATES

HEAD-ROYCE SCHOOL UNDERCROSSING

SITE LOCATION PLAN
AND GENERAL NOTES

DATE:	MARCH 2019
SCALE:	AS SHOWN
JOB NO:	5619.0
DWG NO:	HRS-01
REVISION	A
SHT NO:	1 OF 6

TUNNEL PLAN

10 0 10 20

FEET

NOTES:

1. UTILITY LOCATIONS ARE INDICATIVE ONLY. AS-BUILT LOCATIONS AND DEPTHS OF ALL UTILITIES SHOULD BE VERIFIED PRIOR TO PERFORMING EXCAVATION.
2. ELEVATION CONTOURS SHOWN REPRESENT EXISTING GRADE AND NOT THE FINAL GRADING PLAN. ELEVATIONS SHOWN ARE EXISTING ELEVATIONS UNLESS OTHERWISE NOTED.
3. ALL TEMPORARY OR PERMANENT STRUCTURE ENCROACHMENT WITHIN THE LINCOLN AVE R.O.W. IS SUBJECT TO CITY OF OAKLAND PERMITTING.

NO	REVISION	BY	CHK	APP	DATE
A	ISSUED FOR COMMENTS				

DESIGNED	J. WALTER
DRAWN	S.MORRISON
CHECKED	T.PENNINGTON
APPROVED	M.LAWRENCE

CONCEPT DESIGN
NOT FOR CONSTRUCTION

McMILLEN JACOBS ASSOCIATES

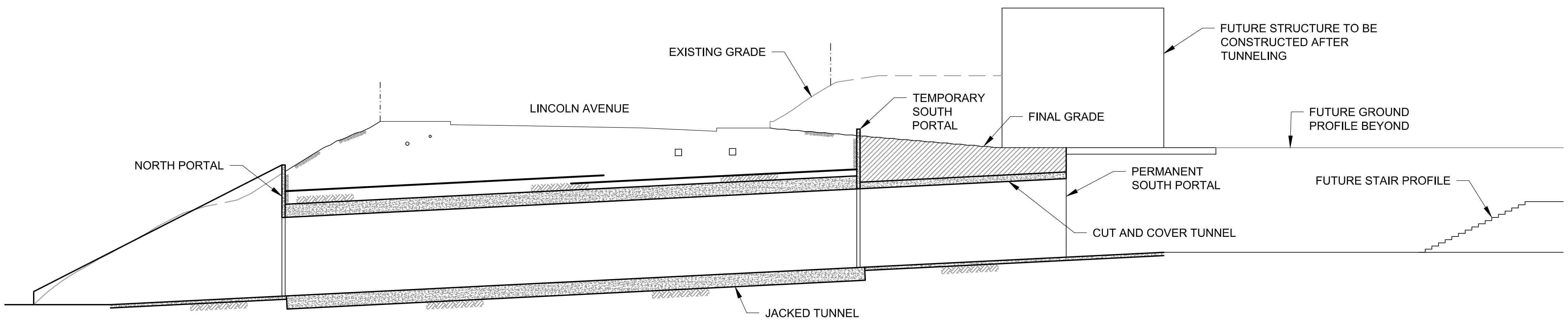
HEAD-ROYCE SCHOOL UNDERCROSSING

TUNNEL PLAN

DATE:	MARCH 2019
SCALE:	AS SHOWN
JOB NO:	5619.0
DWG NO:	HRS-02
REVISION	A
SHT NO:	2 OF 6

NOTES:

1. SECTION SHOWN THROUGH CENTERLINE OF TUNNEL ALIGNMENT AND DOES NOT REPRESENT MINIMUM COVER CONDITION.
2. GROUND IMPROVEMENT ZONES AND FACE SUPPORT NOT SHOWN FOR CLARITY.



SECTION A HRS-02

SCALE: 1" = 10'

NOTE: CONSTRUCTION SEQUENCE FOR JACKED OPTION SHOWN ON DRAWING HRS-06

NO	REVISION	BY	CHK	APP	DATE
A	ISSUED FOR COMMENTS				

DESIGNED	J. WALTER
DRAWN	S.MORRISON
CHECKED	T.PENNINGTON
APPROVED	M.LAWRENCE

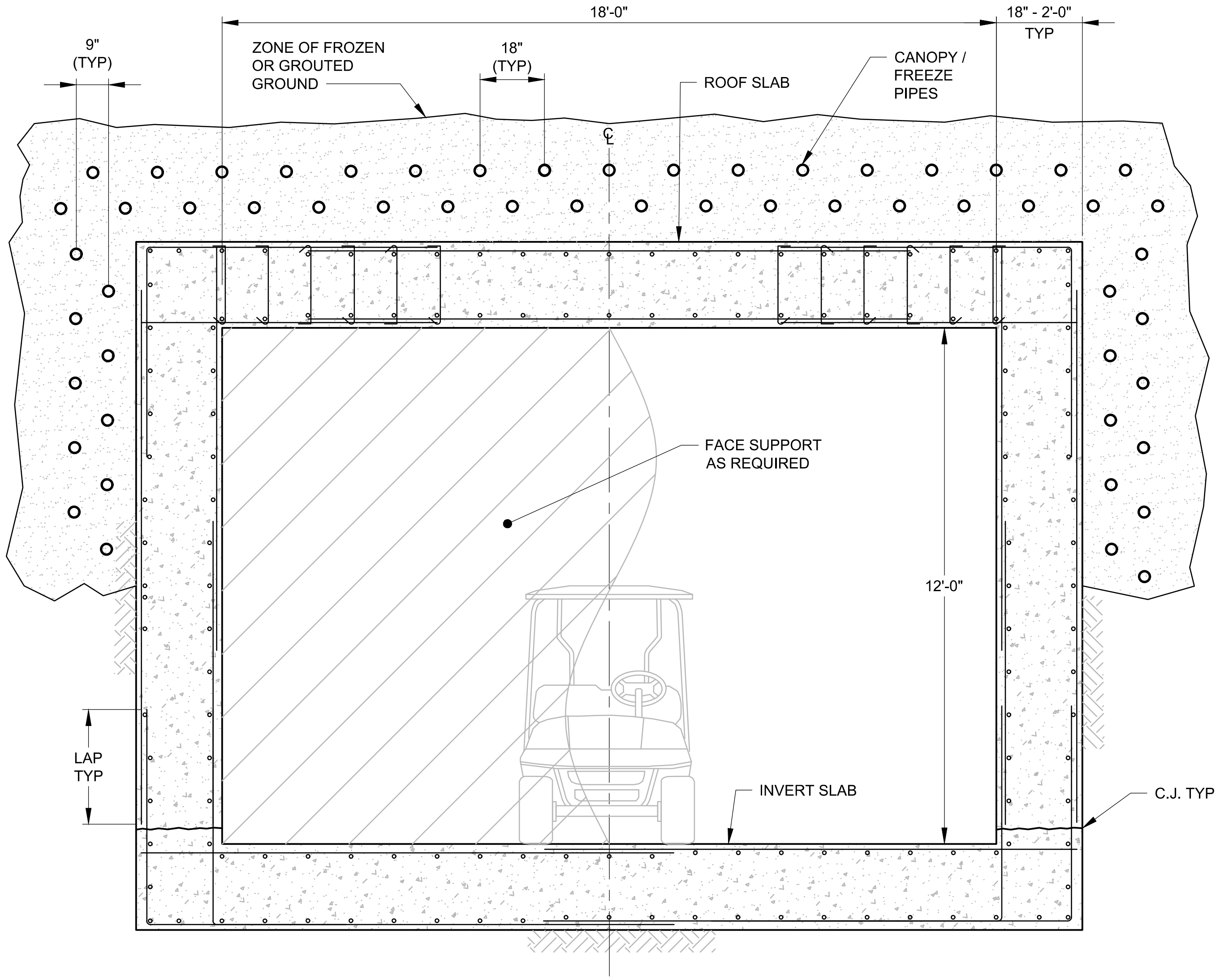
CONCEPT DESIGN
NOT FOR CONSTRUCTION

McMILLEN JACOBS ASSOCIATES

HEAD-ROYCE SCHOOL UNDERCROSSING

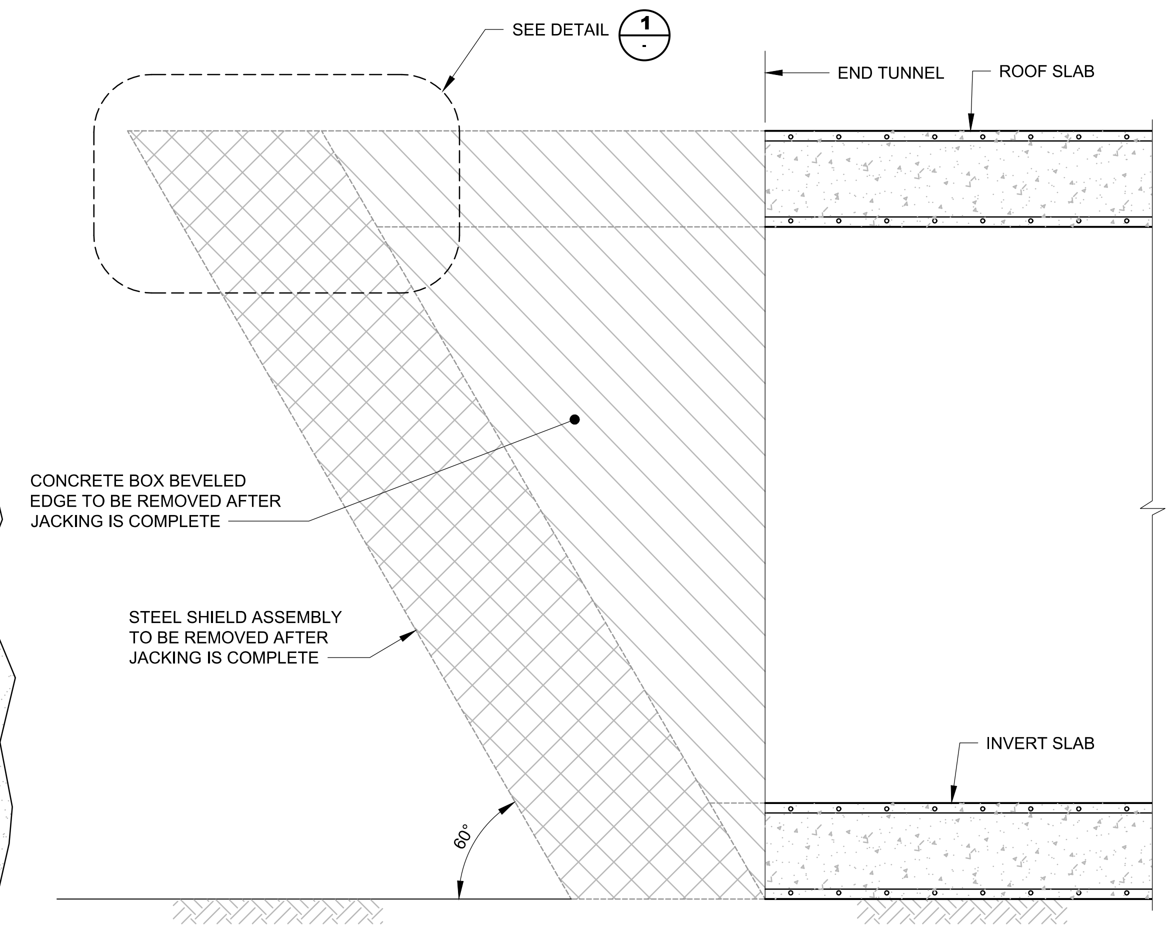
TUNNEL LONG SECTIONS

DATE:	MARCH 2019
SCALE:	AS SHOWN
JOB NO:	5619.0
DWG NO:	HRS-03
REVISION	A
SHT NO:	3 OF 6



SECTION C HRS-02

SCALE: 1/2" = 1'-0"

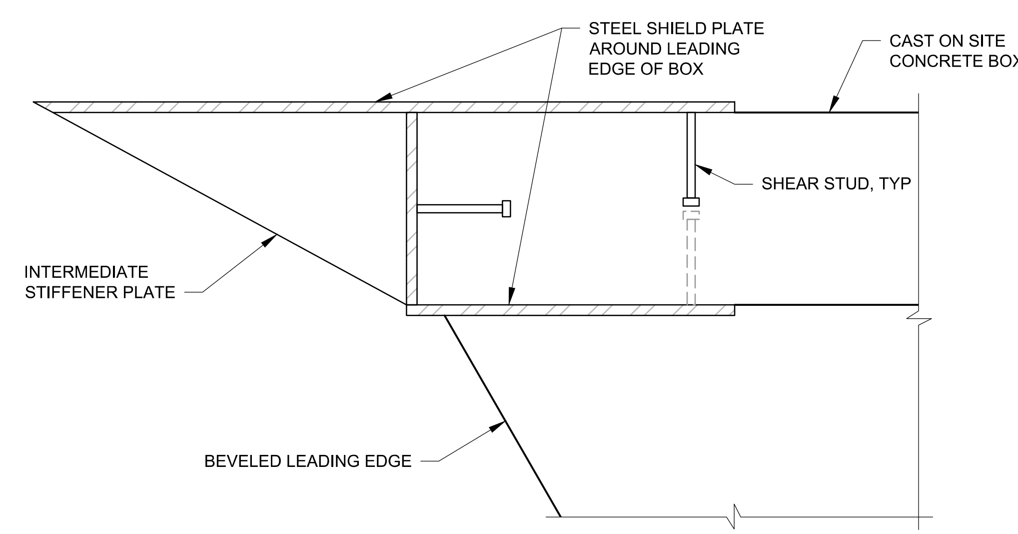


TYPICAL LEAD END SECTION

SCALE: 1/2" = 1'-0"

NOTE:

1. DIMENSIONS INDICATED TO BE CONFIRMED DURING DETAILED DESIGN EVALUATIONS.



DETAIL 1 -

SCALE: 1" = 1'-0"

NO	REVISION	BY	CHK	APP	DATE
A	ISSUED FOR COMMENTS				

DESIGNED	J. WALTER
DRAWN	S.MORRISON
CHECKED	T.PENNINGTON
APPROVED	M.LAWRENCE

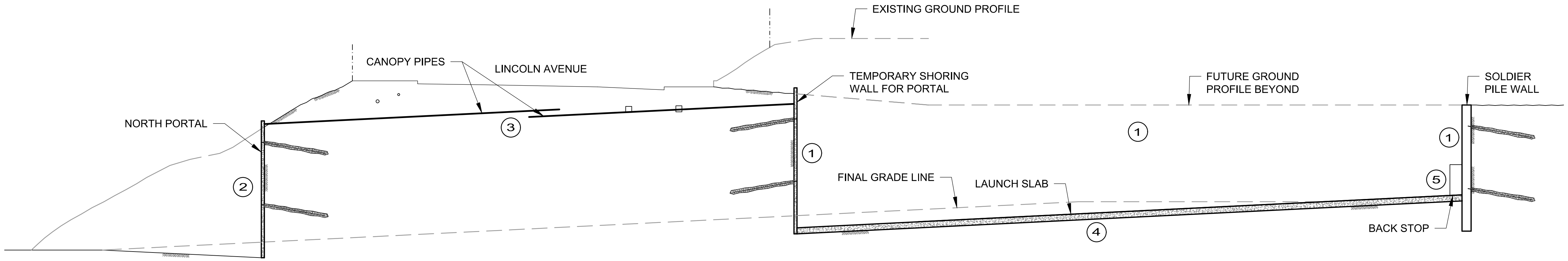
CONCEPT DESIGN
NOT FOR CONSTRUCTION

McMILLEN JACOBS ASSOCIATES

HEAD-ROYCE SCHOOL UNDERCROSSING

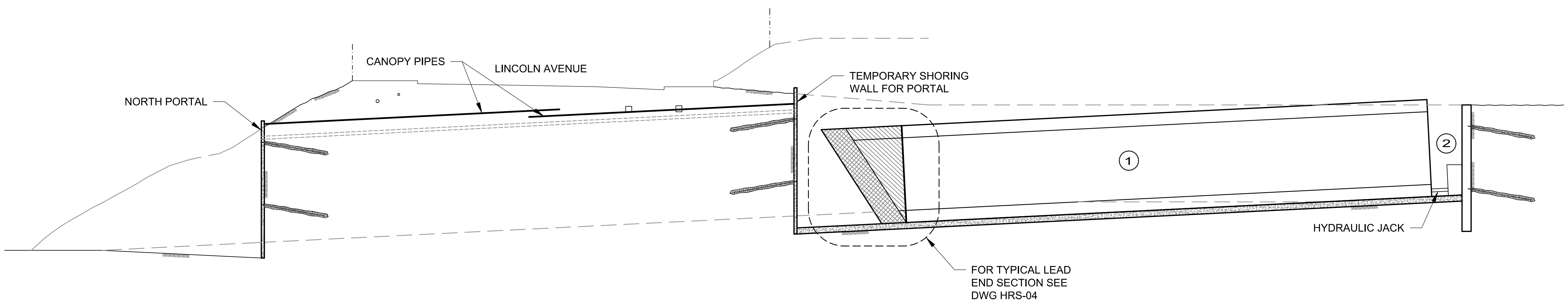
CROSS SECTIONS AND DETAILS
JACKED BOX OPTION

DATE:	MARCH 2019
SCALE:	AS SHOWN
JOB NO:	5619.0
DWG NO:	HRS-04
REVISION	A
SHT NO:	4 OF 6



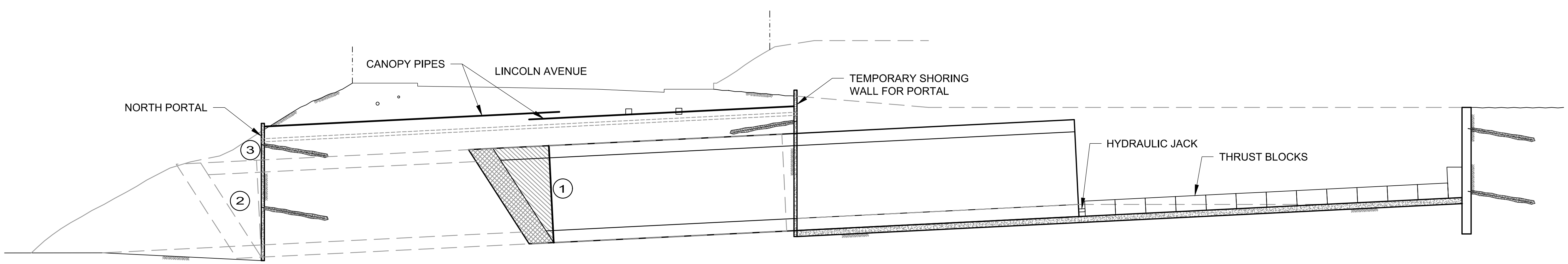
STAGE 1

1. CONSTRUCT SHORING WALLS AT SOUTH PORTAL
2. CONSTRUCT SHORING WALL AT NORTH PORTAL
3. INSTALL GROUND IMPROVEMENT PIPES AND CARRY OUT GROUND TREATMENT OPERATIONS
4. CONSTRUCT LAUNCH SLAB
5. CONSTRUCT BACK STOP



STAGE 2

1. CONSTRUCT CONCRETE BOX AND ASSEMBLE LEAD END SHIELD
2. INSTALL JACKING AND THRUST BLOCKS



STAGE 3

1. JACK CONCRETE BOX ALONG THE ALIGNMENT AND EXCAVATE GROUND FROM FACE
   A. FACE SUPPORT SUCH AS BREASTING PLATES, SHOTCRETE AND FACE DOWELS MAY BE REQUIRED
   B. INJECT BENTONITE LUBRICANT INTO ANNULUS OF BOX TO REDUCE FRICTION THROUGHOUT JACKING
2. REMOVE STEEL SHIELD AND BEVELED CONCRETE END FROM CONCRETE BOX
3. CONSTRUCT HEADWALL AND PERMANENT PORTAL

NO	REVISION	BY	CHK	APP	DATE
A	ISSUED FOR COMMENTS				

DESIGNED	J. WALTER
DRAWN	S.MORRISON
CHECKED	T.PENNINGTON
APPROVED	M.LAWRENCE

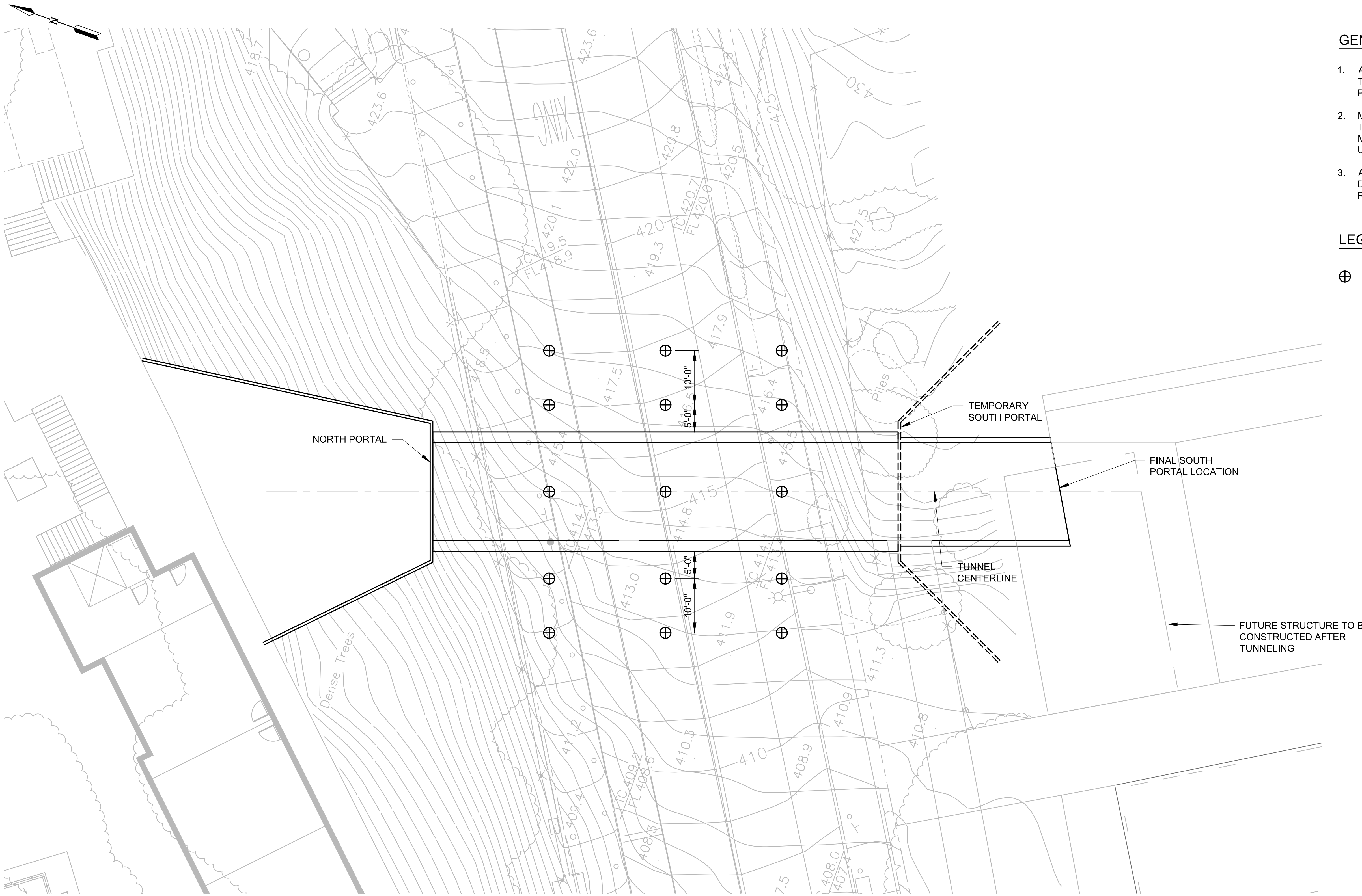
CONCEPT DESIGN
NOT FOR CONSTRUCTION

McMILLEN JACOBS ASSOCIATES

HEAD-ROYCE SCHOOL UNDERCROSSING

CONSTRUCTION SEQUENCE
JACKED BOX OPTION

DATE:	MARCH 2019
SCALE:	NOT TO SCALE
JOB NO:	5619.0
DWG NO:	HRS-05
REVISION	A
SHT NO:	5 OF 6



MONITORING PLAN

10 0 10 20

FEET

GENERAL NOTES:

1. A MINIMUM OF TWO BASELINE LINE READINGS TAKEN NO CLOSER THAN ONE WEEK APART ARE REQUIRED AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION.
2. MONITORING OF SURFACE POINTS TO OCCUR DAILY WHEN THE TUNNEL FACE IS WITHIN 20 FEET OF THE POINT. THE MONITORING FREQUENCY IS OTHERWISE TWICE PER WEEK, UNLESS DIRECTED OTHERWISE.
3. APPROACH TO UTILITY MONITORING TO BE CONFIRMED DURING DETAILED DESIGN AND IN COORDINATION WITH UTILITY OWNER REQUIREMENTS.

LEGEND:

⊕ SURFACE MONITORING POINT

NO	REVISION	BY	CHK	APP	DATE
A	ISSUED FOR COMMENTS				

DESIGNED	J. WALTER
DRAWN	S.MORRISON
CHECKED	T.PENNINGTON
APPROVED	M.LAWRENCE

CONCEPT DESIGN
NOT FOR CONSTRUCTION

McMILLEN JACOBS ASSOCIATES

HEAD-ROYCE SCHOOL UNDERCROSSING

MONITORING PLAN

DATE:	MARCH 2019
SCALE:	AS SHOWN
JOB NO:	5619.0
DWG NO:	HRS-06
REVISION	A
SHT NO:	6 OF 6

Appendix 8E

Responses to Geotechnical and Tunnel Peer Review Comments on Conceptual Design Evaluation

McMillen Jacobs Associates, December 6, 2019

SENT VIA EMAIL

December 6, 2019

Josh Liebowitz
Cahill Contractors
1111 Broadway, Suite 1340
Oakland, CA 94607

Subject: Head-Royce School Pedestrian Undercrossing, Project No. 5619.0
Re: Responses to Geotechnical and Tunnel Review Comments on Conceptual Design Evaluation

Dear Mr. Liebowitz:

McMillen Jacobs Associates (McMillen Jacobs) is in receipt of review comments dated November 20, 2019 regarding the geotechnical studies and conceptual tunnel design for the Head-Royce School Redevelopment project. With respect to comments that pertain to the tunnel design for the subject project, we provide the following responses:

> *ENGEO Comment #3: The Tunnel Report is a conceptual level report and does not provide specific design recommendations, including recommendations for seismic design due to the proximity to the Hayward Fault. A general discussion of this hazard and how the design and construction will address it should be provided as part of the design-level evaluation.*
>
> McMillen Jacobs Response: The proposed tunnel is in close proximity to the Hayward Fault and therefore will be susceptible to strong ground shaking generated during earthquakes on this fault, as well as nearby faults. Ground motions induced by a seismic event are typically characterized by a value of peak ground acceleration (PGA) which is expressed as a fraction (or multiple) of the acceleration of gravity (g). Either deterministic or probabilistic methods are typically used to estimate the level of shaking that can be expected at a project site.
>
> The proposed tunnel will be designed in accordance with the requirements of California Building Code (CBC) Section 1613 and ASCE 7-16. Based on the probabilistic hazard model, the PGA for the project is anticipated to be on the order of 1.0g. This ground acceleration is calculated for a Site Class D, or 'Stiff Soil' site. The proposed tunnel will therefore need to be designed to withstand seismic shaking and temporary increases in lateral earth pressure (earthquake load). Development of seismic loading will be determined as part of the project final design evaluations.
>
> *ENGEO Comment #4: The Tunnel Report notes that groundwater is anticipated to be above the tunnel invert. The report does not identify shallow groundwater as a hazard and does not recommend any measures to control groundwater during construction or state that groundwater should be accounted for in the tunnel design. We recommend that McMillen Jacobs provide a discussion of the groundwater hazard and mitigation as part of the design-level evaluation.*
>
> McMillen Jacobs Response: Perched groundwater is anticipated to be encountered during construction of the tunnel. While the quantity of groundwater assumed to be encountered is not

expected to be significant, localized drainage measures such as drainage holes and removal of groundwater collected at the heading of the tunnel excavation will be required during tunnel construction. Detailed groundwater considerations including estimates of groundwater quantities to be encountered will be further evaluated during final design evaluations. Specific measures to implemented during construction will be established by the construction contractor.

ENGEO Comment #5: An estimate of the amount of tunneled material to be removed and hauled offsite should be provided for use in the EIR evaluation.

McMillen Jacobs Response: The quantity of tunneled material to be removed and hauled offsite is approximately 1,300 CY. This quantity assumes a tunnel dimension of 100-feet long by 22-feet wide by 16-feet high. Actual quantities will depend on the final tunnel alignment and excavation dimensions.

Please do not hesitate to contact us should you have any questions or require additional information.

Sincerely,

Tom Pennington, PE
Senior Associate

cc: File, Ken Dupee – TMG Partners

Appendix 8F

Geotechnical And Geological Evaluation Stability Of Slope Below Building 9

Rockridge Geotechnical, August 5, 2020

ROCKRIDGE GEOTECHNICAL

Prepared for **Head-Royce School**

GEOTECHNICAL AND GEOLOGICAL EVALUATION
STABILITY OF SLOPE BELOW BUILDING 9
HEAD-ROYCE SCHOOL
4368 LINCOLN AVENUE
OAKLAND, CALIFORNIA

August 5, 2020
Project No. 20-1863

August 5, 2020
Project No. 20-1863

Mr. Jerry Mullaney
Head-Royce School
4315 Lincoln Avenue
Oakland, California 94602

Subject: Geotechnical and Geological Evaluation
Stability of Slope below Building 9
Head-Royce School
4368 Lincoln Avenue
Oakland, California

Dear Mr. Mullaney,

The attached report presents the results of the geotechnical and geological evaluation of the existing slope below Building 9 at the Head-Royce School campus at 4368 Lincoln Avenue in Oakland, California. Our geotechnical investigation was performed in accordance with our proposal dated April 29, 2020.

We previously performed a geotechnical investigation to support a due diligence evaluation of the 4368 Lincoln Avenue property (formerly occupied by the Lincoln Child Center) and presented the results in a report titled Geotechnical Investigation to Support Due Diligence Evaluation – Lincoln Child Center – 4368 Lincoln Avenue, Oakland, California, dated May 7, 2012. For our evaluation, we also reviewed subsurface data presented in previous geotechnical reports prepared by Woodward Clyde and Associates (WCA), Kleinfelder, and Consolidated Engineering Laboratories (CEL). After Head-Royce School acquired the subject property, we performed a geotechnical investigation for the proposed Head-Royce School Pedestrian Tunnel, the results of which were presented in our report titled Geotechnical Data Report – Proposed Pedestrian Tunnel – The Head-Royce School – 4315 and 4368 Lincoln Avenue, Oakland, California, dated May 31, 2017.

Head-Royce School is planning improvements to the property at 4368 Lincoln Avenue which will include constructing a new performing arts building and a link pavilion that will connect the 4368 Lincoln Avenue property to the main school grounds via a tunnel below Lincoln Avenue. Additional proposed site improvements include new retaining walls up to eight feet in height, bioretention areas, utilities, roadways, and general site grading, including slope stabilization, as necessary.

ENGEO, Inc. reviewed the above-referenced Rockridge Geotechnical reports. ENGEO's review comments were presented in a letter dated November 20, 2019. The objective our current investigation is to address ENGEO's peer review comments and to provide final design recommendations to address the stability of the slope below Building. 9.

Based on our current and past investigations, we recommend the surface drainage at the rear of Building 9 be improved and the slope below Building 9 below partially reconstructed to mitigate the potential for future slope instability under static and seismic conditions. Our recommendations for the proposed mitigation measures are presented in the attached report.

The recommendations contained in our report are based on a limited subsurface exploration. Consequently, variations between expected and actual subsurface conditions may be found in localized areas during construction. Therefore, we should be engaged to observe site grading and foundation installations during which time we may make changes in our recommendations, if deemed necessary.

We appreciate the opportunity to provide our services to you on this project. If you have any questions, please call.

Sincerely yours,
ROCKRIDGE GEOTECHNICAL, INC.

REGISTERED PROFESSIONAL ENGINEER
CRAIG S. SHIELDS
GE2116
3/31/21
GEOTECHNICAL
STATE OF CALIFORNIA

Craig S. Shields, P.E., G.E.
Principal Geotechnical Engineer

Enclosure

ROCKRIDGE GEOTECHNICAL

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GEOTECHNICAL AND GEOLOGICAL EVALUATION
STABILITY OF SLOPE BELOW BUILDING 9
HEAD-ROYCE SCHOOL
4368 LINCOLN AVENUE
Oakland, California

1.0 INTRODUCTION

This report presents the results of our geotechnical and geological evaluation of the stability of the existing slope below Building 9 at the Head-Royce School campus at 4368 Lincoln Avenue in Oakland, California. The site is on the southeastern side of Lincoln Avenue between Alida Street and Perkins Road, as shown on Figure 1 (Site Location Map).

We previously performed a geotechnical investigation to support a due diligence evaluation of the 4368 Lincoln Avenue property (formerly occupied by the Lincoln Child Center) and presented the results in a report titled *Geotechnical Investigation to Support Due Diligence Evaluation – Lincoln Child Center – 4368 Lincoln Avenue, Oakland, California*, dated May 7, 2012. For our evaluation, we also reviewed subsurface data presented in previous geotechnical reports prepared by Woodward Clyde and Associates (WCA), Kleinfelder, and Consolidated Engineering Laboratories (CEL). After Head-Royce School acquired the subject property, we performed a geotechnical investigation for the proposed Head-Royce School Pedestrian Tunnel, the results of which were presented in our report titled *Geotechnical Data Report – Proposed Pedestrian Tunnel – The Head-Royce School – 4315 and 4368 Lincoln Avenue, Oakland, California,* dated May 31, 2017.

Head-Royce School is planning improvements to the property at 4368 Lincoln Avenue which will include constructing a new performing arts building and a link pavilion that will connect the 4368 Lincoln Avenue property to the main school grounds via a tunnel below Lincoln Avenue. Additional proposed site improvements include new retaining walls up to eight feet in height, bioretention areas, utilities, roadways, and general site grading, including slope stabilization, as necessary.

ENGEO, Inc. reviewed the above-referenced Rockridge Geotechnical reports. ENGEO's review comments were presented in a letter dated November 20, 2019. The two geotechnical-related comments in ENGEO's November 20, 2019 letter, both of which pertain to the stability of the slope below the existing Building 9, are as follows:

ENGEO Comment #1: The Rockridge Geotechnical Report identifies the slope on the south side of Building 9 as a fill slope constructed before 1947 and reworked between 1950 and 1957. The slope was likely not constructed to current engineering standards and has shown past shallow instability. The Rockridge report notes that the slope may be prone to earthquake induced landsliding and says that "If new improvements are proposed in the vicinity of this slope, additional investigation should be performed". The civil plans show improvements to the slope below Building 9 including a 2-foot high wall, a 1:1 (horizontal:vertical) graded slope, a walking path, loop road, stairs, and the new performing arts building. The geotechnical engineer of record should evaluate the current civil plans and make recommendations, as necessary. It would be helpful for the geotechnical engineer to provide a geologic map of the project site. This map should clearly define the limits of the fill slope that it considers unstable.

ENGEO Comment #2: The Rockridge Geotechnical Report recommends measures for improving the performance of the fill slope including installing surface drains, installing short below grade retaining walls, and installing subdrains along the top and toe of the slope. None of these recommendations are shown in the improvement plans.

The objective our current investigation is to address the above comments and provide final design recommendations to address the stability of the slope below Building. 9.

2.0 PREVIOUS INVESTIGATIONS

In addition to the two previous geotechnical investigations that we performed at the site, which are referenced above, we reviewed data presented in the following reports prepared by others:

- *Geotechnical Investigation for Parking Lot Expansion, Lincoln Child Center, Oakland, California*, prepared by Kleinfelder, dated March 25, 2003.
- *Drilled Pier Installation Observation and Reinforcement and Concrete Placement Inspection, Group Home, Lincoln Child Center, 4368 Lincoln Avenue, Oakland, California*, prepared by Consolidated Engineering Laboratories, dated December 9, 1999.
- *Geotechnical Engineering Study, Residential Home Building, Lincoln Child Center, 4368 Lincoln Avenue, Oakland, California*, prepared by Consolidated Engineering Laboratories, dated October 9, 1998.

- *Geotechnical Feasibility Investigation, Proposed Lincoln Child Center, Congregate Housing, Oakland, California*, prepared by Kleinfelder, dated October 19, 1987.
- *Drainage Study, Lincoln Home for Children, 4368 Lincoln Avenue, Oakland, California*, prepared by Woodward-Clyde and Associates, dated July 12, 1957.
- *Drainage Study, Lincoln Home for Children, 4368 Lincoln Avenue, Oakland, California*, prepared by Woodward-Clyde and Associates, dated June 20, 1957.
- *Soil investigation for the proposed Bushel Cottage, Lincoln Home for Children, Oakland, California*, prepared by Woodward-Clyde and Associates, dated October 7, 1957.

Consolidated Engineering Laboratories' (CEL's) 2009 investigation included five borings within the approximate footprint of Building 9. Kleinfelder's (KF's) 2003 investigation included eight borings, four of which were performed in the lower parking lot in the northwestern corner of the site and four of which were performed in the former Perkins Road area along the north edge of the site. Woodward-Clyde & Associate's (WCA's) 2009 investigation included three borings, two of which were drilled in the approximate location of Building 6 and one of which was drilled in the location of Building 7.

The approximate locations of the previous borings by others are shown on the Site Plan and Geology Map, Figure 2. Logs of borings drilled for previous projects at the Lincoln Child Center, including logs of the borings we drilled in 2012, are presented in Appendix C. The results of laboratory testing performed as part of the previous investigations are presented on the boring logs and in Appendix C.

In addition to reviewing existing geotechnical and geologic data for the site, we reviewed individual and stereo-paired historical aerial photographs at Pacific Aerial Surveys in Emeryville to look for evidence of past grading and landslides, and to provide a limited history of past land use. We reviewed 15 sets of stereo-paired aerial photographs covering the site vicinity that dated from 1947 to 2005. We used standard photogrammetric techniques to identify significant geologic features on the site such as lineaments, meander channels, tonal contrast, evidence of poor drainage conditions, and distorted slopes indicative of slope instability. The specific aerial photos reviewed are listed in the references at the end of this report. Details regarding the results of our aerial photo review are presented in Section 4.2.

3.0 SCOPE OF SERVICES

Our investigation was performed in accordance with our proposal dated April 29, 2020. Our scope of services consisted of researching and reviewing available publications and reports regarding the geological conditions in the site, reviewing stereo-paired historical aerial photographs of the site and vicinity to document the site history and to check for historic drainages and fills, performing a geologic reconnaissance, supplementing the existing subsurface data at the site by drilling three test borings, laboratory testing on selected soil samples, and performing engineering analyses to develop conclusions and recommendations regarding:

- site seismicity and seismic hazards, including the potential for liquefaction, liquefaction-induced ground failure, and cyclic densification
- stability of natural, cut, and fill slopes under static and seismic conditions
- measures to address potential slope instability, if warranted
- the most appropriate foundation type(s) for the proposed civil improvements, including the stairs and retaining wall
- design criteria for the recommended foundation type(s), including vertical and lateral capacities
- estimates of static and seismically induced foundation settlement
- subgrade preparation for walkways and pavement areas
- site grading and excavation, including criteria for fill quality and compaction
- construction considerations.

4.0 FIELD INVESTIGATION AND LABORATORY TESTING

Subsurface conditions at the site were explored by drilling three test borings and performing laboratory testing on selected soil samples. Prior to our field exploration, we obtained a drilling permit from the Alameda County Public Works Agency (ACPWA) and contacted Underground

Service Alert (USA) to notify them of our work, as required by law. Details of the field investigation and laboratory testing are described below.

4.1 Test Borings

Three borings, designated B-1 through B-3, were drilled on May 29, 2020 by Benevent Building of Concord, California at the approximate locations shown on the Site Plan, Figure 2. The borings were drilled to refusal in bedrock at depths ranging from 10.4 to 19.8 feet below the ground surface (bgs) using a limited-access drill rig equipped with solid-stem, continuous flight augers. During drilling, our field engineer logged the soil and bedrock encountered and obtained representative samples for visual classification and laboratory testing. The logs of the borings are presented on Figures A-1 through A-3 in Appendix A. The soil and bedrock encountered in the borings were classified in accordance with the classification charts shown on Figures A-4 and A-5, respectively. Soil and bedrock samples were obtained using the following samplers:

- Sprague and Henwood (S&H) split-barrel sampler with a 3.0-inch outside diameter and 2.5-inch inside diameter, lined with 2.43-inch inside diameter stainless-steel tubes.
- Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside and 1.5-inch inside diameter; sampler was designed to accommodate liners but liners were not used.

The samplers were driven with an above-ground, 140-pound safety hammer falling about 30 inches per drop utilizing a rope-and-cathead system. The samplers were driven up to 18 inches and the hammer blows required to drive the samplers were recorded every six inches and are presented on the boring logs. A "blow count" is defined as the number of hammer blows per six inches of penetration or 50 blows for six inches or less of penetration. The blow counts required to drive the S&H and SPT samplers were converted to approximate SPT N-values using factors of 0.7 and 1.2, respectively, to account for sampler type and approximate hammer energy and the fact that the SPT sampler was driven without liners but was sized to accommodate them. The blow counts used for this conversion were: (1) the last two blow counts if the sampler was driven more than 12 inches, (2) the last one blow count if the sampler was driven more than six inches but less than 12 inches, and (3) the only blow count if the sampler was driven six inches or less. The converted SPT N-values are presented on the boring logs.

Upon completion of drilling, the boreholes were backfilled with cement grout in accordance with ACPWA standards. The soil cuttings generated by the borings were hauled off site.

4.2 Laboratory Testing

We re-examined the soil samples obtained from our borings to confirm the field classifications and selected representative samples for laboratory testing. Soil samples were tested to determine in-situ moisture content, dry density, and particle size distribution. The results of the laboratory tests are presented on the boring logs and on Figures B-1 and B-2 in Appendix B.

4.3 Site Reconnaissance

We performed a geologic reconnaissance of the site and a visual inspection of the exterior of Building 9. The purpose of our reconnaissance was to look for evidence of slope instability, significant settlement-related damage, drainage issues, and other geotechnical and geological issues with the site. Our evaluation of potential site geologic hazards is presented in Section 6.0 of this report.

5.0 SITE AND SUBSURFACE CONDITIONS

Descriptions of the site development history and the current surface and subsurface conditions at the site are presented in the following sections.

5.1 Surface Conditions

The subject property is an approximately seven-acre site that slopes gently down to the south/southwest, with approximately 50 feet of vertical relief over a horizontal distance of 500 feet. The site consists of a series of cut-fill pads and is currently occupied by nine buildings constructed between 1929 and 1999. The three older buildings, which occupy the southwestern portion of the property, were built during the original site development in 1929. Existing site improvements also include asphalt-paved parking lots, asphalt- and concrete-paved playgrounds, grass fields, and landscaping.

Building 9 is a one-story wood-framed building constructed in 1999-2000. A drawing titled *Grading and Drainage Plan* prepared by Sherwood Engineers, dated December 10, 2019, indicates the finished floor for Building 9 is at Elevation 441 feet (datum not shown on plan). It is constructed on a fill pad near the top of a fill slope. The 1998 geotechnical report prepared by CEL calls for the building to be supported on drilled, cast-in-place concrete piers taking support through skin friction in the bedrock below the fill. A December 9, 1999 letter report prepared by CEL, which documents installation of the drilled pier foundations for the building, indicates the depth to bedrock at the drilled pier locations varied from 2 to 16 feet and the pier lengths range from 10 to 21 feet. During our reconnaissance, we observed no evidence of building settlement. There are four roof drain downspouts, however, that discharge onto the ground surface along the rear of the building. The two easternmost downspouts discharge onto the ground surface above the portion of the slope where shallow landslides have occurred.

The elevation contours shown on the above-referenced Grading and Drainage Plan prepared by Sherwood Design Engineers indicate the fill slope adjacent to the rear of Building 9 is about 25 to 30 feet high. The average inclination of the slope ranges from about 2.5:1 (horizontal:vertical) to 3.5:1; however, the upper portion of the slope below the eastern portion of Building 9 is locally as steep as approximately 1.7:1. The slope inclination is as steep as approximately 1:1 where it wraps around the southwestern corner of the Building 9; however, the slope is only about 8 to 10 feet high in this area and the area at the base of the slope is relatively level. The horizontal distance from the rear of Building 9 to the top of the fill slope is generally at least 10 feet, except at the southwestern corner of the building where it is within about eight feet from the corner of the building.

5.2 Aerial Photograph Review and Site History

Our engineering geologist reviewed 15 sets of stereo-paired aerial photographs covering the site vicinity at the Pacific Aerial Surveys office formerly located in Emeryville, California. Photographs viewed ranged between the years 1947 to 2005 as noted in the reference list at the end of the report. We observed progressive site development throughout the years that was demonstrated by light-colored tonal contrasts and areas of obvious ground alteration. Most photographs showed unchanged conditions from previous years so we are summarizing the findings for years in which significant alterations or events were observed.

The oldest set of photographs available for viewing, from 1947, showed pad grading and fill placed on the southern side of the spur ridge (currently the upper parking lot) and in the swale along the southern boundary of the site. A south-facing fill slope was constructed on the southern side of the spur ridge, in the current location of Building 9. Buildings currently designated as 0, 1 and 2 had been constructed on the northwestern corner of the site prior to the 1947 photographs.

In the 1950 photo set, we observed two broad landslide scars on the south-facing fill slope noted above. The landslide scars extended behind the top of slope and were not visible in the 1957 set suggesting the slope had been reworked. At that time, the area was used as a play field and, therefore, the landslide repair may not have been engineered. The landslides were located on the slope at about the current location of Building 9.

Only minor site modifications, parking lot construction and building construction were observed in subsequent photo sets. These include construction of Building 6 between 1957 and 1959, construction of a previous building in the location of Building 8 prior to 1971, parking lot improvements performed prior to 1996, and construction of Building 9 prior to 2002.

5.3 Subsurface Conditions

The site is underlain by artificial fill placed over native soils and bedrock of the Franciscan Complex. Brief descriptions of the are listed below in order from youngest to oldest. Detailed descriptions of the subsurface materials encountered during this investigation are provided on the boring logs presented in Appendix A. General descriptions are provided below.

Artificial fill

Artificial fill is material that has been selectively borrowed and placed by man. At the site, fill consisted of aggregate base beneath the parking areas and driveways overlying stiff to very stiff clay fills with varying amounts of sand and native rock fragments. In general, the fill was found to be moderately to well-compacted. Because the site was constructed on a series of cut-fill terraces, the fill thickness varies substantially from one location to another. Areas of the site underlain by more than about two feet of fill are shown on the attached Site Plan and Geology Map, Figure 2 by the Map Symbol, "Qaf". Road and parking lot fills less than two feet are generally neglected. There may be other minor areas of fill at the site that were not detected by the many borings drilled at the site.

In the lower parking lot area in the northwestern corner of the site, the fill thickness ranged from about 2-1/2 feet at boring KF-4 to about 11-1/2 feet at boring B-1. The thick fill encountered at boring B-1 in 2012 is likely part of an older fill placed during original construction of the site, the limits of which were not detected by this study. At the location of our 2012 boring B-2, no fill was encountered, which indicates this portion of the parking lot was constructed over a cut.

In the northern portion of the site (upper parking lot and Perkins Road area), our 2012 borings B-5, B-6 and in KF-7, and KF-8 indicate predominantly cut, which provides further evidence of the spur ridge that was removed during previous site grading. Borings KF-5 and KF-6 indicate that 3 and more than 6-1/2 feet of fill are present at these locations, respectively.

A significant amount of artificial fill was placed along the southern side of the former spur ridge and in a former swale along the southern boundary of the site. The area of fill placed in the swale is now the grassy play field and orchard area. The fill placed along the southern side of the spur ridge created a south-facing fill slope. The fill was investigated by CEL in their 1998 investigation for Building 9. The 1998 CEL report indicates that the thickness of the fill encountered in their borings varied from 5 to 16 feet. The fill consisted of stiff to very stiff clay with sand and gravel and some lenses of dense sand and gravel. In the three borings we drilled recently behind Building 9 and at the top of the fill slope, we encountered about 10 to 10-1/2 feet of fill overlying native soil or bedrock. The fill consists of stiff to hard sandy clay and loose to medium dense clayey sand and silty sand. The fill was dry to moist at the time of our investigation.

Colluvial Soils

Colluvial soils are generated by the downslope accumulation of soil and weathered bedrock materials. Typical colluvial soils at this site consist of brown to dark brown clayey soils with a moderate to high expansion potential. Colluvium forms relatively thick soil deposits in swales and along the toes of slopes. Based on our review of regional geologic maps and previous geotechnical reports for the site, we understand there are two main areas of colluvium at the site: 1) a broad swale along the southern site boundary that was partially buried by artificial fill as discussed above, and 2) in borings CEL-1 and CEL-2 and our recent boring B-3, where 3 to 4 feet of dark brown colluvial soil consisting of medium dense silty sand and stiff sandy clay underlies the fill slope below Building 9. Areas of the site underlain by colluvium are shown on the attached Geologic Map, Figure 2 by the Map Symbol, "Qc".

Bedrock

Bedrock materials encountered in borings drilled as part of this investigation include sandstone, siltstone, and shale of the Franciscan Complex. The siltstone and sandstone were found to be fine-to medium-grained, friable to moderately strong, moderately to deeply weathered and highly fractured. The shale is thinly laminated and highly weathered. Based on our observations of several outcrops in the neighborhood surrounding the site, bedrock structure generally trends to the northwest and dips to the southwest (downslope) at inclinations between about 45 and 65 degrees.

Shallow Landslides

We mapped five areas of shallow landslides on the fill slope below Building 9. The shallow landslides range in depth from about 2 to 4 feet. The landslides are characterized by convergent depressions in the upper portions of the slope with small deposits near the toe. The landslide deposits pose little threat to site improvements; however, scarp regression near the top of the hill could eventually impact the Building 9 foundation. The shallow landslides are shown the Site Plan and Geology Map, Figure 2.

Groundwater

Groundwater was not encountered in borings drilled as part of this current investigation and the soil encountered was dry to moist with no free water in the pore spaces. During our previous investigation in 2012, we encountered groundwater at about 6-1/2 feet bgs during drilling of boring B-1 (2012). The water encountered in B-1 is likely a localized perched wet layer within the fill. No groundwater was encountered in the borings drilled by CEL in September 1998 and by Kleinfelder in December 2002. Groundwater levels are expected to undergo seasonal changes due to rainfall and local irrigation practices. Based on our previous discussions with Lincoln Child Center personnel, we understand there are seasonal springs in portions of the property. We did not observe any active springs during our site reconnaissance in 2012 or our recent reconnaissance in June 2020.

6.0 REGIONAL GEOLOGIC CONDITIONS

6.1 Regional Geology

The site is located within the Coast Ranges Geomorphic Province of California, which is characterized by northwest-southeast trending series of folded and faulted mountain ranges and valleys. Folding, faulting and tectonic uplift of the region are the result of right–lateral and oblique relative motions between the Pacific and North American tectonic plates which has deformed the region for the past several million years. The San Andreas fault is the generally accepted boundary between these plates.

The site is situated on the western flank of the Oakland-Berkeley hills which is a northwest-trending band of uplifted bedrock units forming steep hillsides bordering the eastern side of the San Francisco Bay plain. According to regional geologic maps prepared by the U.S. Geological Survey (Dibblee and Minch, 2005; Graymer, 2000; Graymer et al, 1995, and Radbruch, 1969) several bedrock units have been tectonically juxtaposed against each other. In general, in the site vicinity, sedimentary bedrock units of the Franciscan Complex are located west of the Hayward fault, while several slivers of volcanic, metamorphic and sedimentary rocks are located to the east of the fault.

Bedrock underlying the site is part of an undivided portion of the Franciscan Complex which is generally composed of a series of sea floor sediments deposited during the Jurassic and Cretaceous periods of geologic time, roughly 65 to 205 million years before present. Regional geologic maps depict a northwest trend and variable dip of the bedrock layers that have been distorted by folding. Locally, based on our observation of several bedrock outcrops in the site vicinity, this portion of the Franciscan Complex consists of thinly bedded layers of sandstone, siltstone, and shale that dip to the southwest at inclinations between about 45 to 65 degrees; these observations are generally consistent with the regional geologic maps. A portion of the 2000 regional geologic map by Graymer is provided on Figure 3.

6.2 Earthquake Faults and Seismicity

The site is located in the Coast Ranges geomorphic province of California that is characterized by northwest-trending valleys and ridges. These topographic features are controlled by folds and faults that resulted from the collision of the Farallon plate and North American plate and subsequent strike-slip faulting along the San Andreas fault system. The San Andreas fault is more than 600 miles long from Point Arena in the north to the Gulf of California in the south. The Coast Ranges province is bounded on the east by the Great Valley and on the west by the Pacific Ocean.

The major active faults in the area are the Hayward, San Andreas, and Calaveras faults. These and other faults in the region are shown on Figure 4. Numerous damaging earthquakes have occurred along these faults in recorded time. For these and other active faults within a 50-kilometer radius of the site, the distance from the site and estimated characteristic moment magnitude[1] [Petersen et al. (2014) & Thompson et al. (2016)] are summarized in Table 1. These references are based on the Third Uniform California Earthquake Rupture Forecast (UCERF3), prepared by Field et al. (2013).

TABLE 1
Regional Faults and Seismicity

Fault Segment	Approximate Distance from Site (km)	Direction	Characteristic Moment Magnitude
Total Hayward + Rodgers Creek (RC+HN+HS+HE)	0.3	East	7.58
Hayward (North, HN)	0.3	East	6.90
Hayward (South, HS)	3.8	Southeast	7.00
Total Calaveras (CN+CC+CS+CE)	15	East	7.43
Calaveras (North, CN)	15	East	6.86
Mount Diablo Thrust	16	East	6.67
Mount Diablo Thrust North CFM	17	Northeast	6.72
Concord	21	East	6.45
Mount Diablo Thrust South	27	East	6.50
Green Valley	28	Northeast	6.30
Clayton	28	Northeast	6.57
Total North San Andreas (SAO+SAN+SAP+SAS)	30	Southwest	8.04
North San Andreas (Peninsula, SAP)	30	Southwest	7.38
Greenville (North)	30	East	6.86
San Gregorio (North)	36	West	7.44
Great Valley 05 (Pittsburg - Kirby Hills alt1)	36	Northeast	6.60
Monte Vista - Shannon	38	Southwest	7.14
Great Valley 05 (Pittsburg - Kirby Hills alt2)	39	Northeast	6.66
West Napa	40	North	6.97
Las Positas	41	East	6.50
North San Andreas (North Coast, SAN)	42	West	7.52
Rodgers Creek - Healdsburg	45	Northwest	7.19

Active faults are defined as faults that have demonstrated activity within the Holocene Epoch of geologic time, within the past 11,700 years. Potentially active faults are faults with Quaternary displacement (within the past 1.6 million years) but do not show evidence for Holocene activity;

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1 Moment magnitude (M_w) is an energy-based scale and provides a physically meaningful measure of the size of a faulting event. Moment magnitude is directly related to average slip and fault rupture area.

these faults are considered Pre-Holocene faults and do not meet the criteria for zoning under the Alquist-Priolo (A-P) Act. Some faults in this category may be active with a smaller role in the tectonic setting or with a larger recurrence interval than would not be detected under the A-P Act or simply have not been adequately characterized to date. Potentially active faults near the site include the Chabot fault located about 3/4 mile to the east, the Wildcat fault about 1-1/2 miles to the north, the Moraga fault about 3 miles to the east, the South Hampton fault about 6 miles to the east, the Pinole fault about 7 miles to the north and the Franklin fault about 8 miles to the northeast. Additionally, an ancestral Quaternary splay of the Hayward fault is shown near the western site boundary, similar to the faulted contact shown on the Graymer (2000) geologic map.

Since 1800, four major earthquakes have been recorded on the North San Andreas fault. In 1836, an earthquake with an estimated maximum intensity of VII on the Modified Mercalli (MM) scale occurred east of Monterey Bay on the San Andreas fault (Toppozada and Borchardt 1998). The estimated moment magnitude (M_w) for this earthquake is about 6.25. In 1838, an earthquake occurred with an estimated intensity of about VIII-IX (MM), corresponding to an M_w of about 7.5. The San Francisco Earthquake of 1906 caused the most significant damage in the history of the Bay Area in terms of loss of lives and property damage. This earthquake created a surface rupture along the San Andreas fault from Shelter Cove to San Juan Bautista approximately 470 kilometers in length. It had a maximum intensity of XI (MM), an M_w of about 7.9, and was felt 560 kilometers away in Oregon, Nevada, and Los Angeles. The Loma Prieta Earthquake of October 17, 1989 had an M_w of 6.9 and occurred about 91 kilometers south of the site.

In 1868, an earthquake with an estimated maximum intensity of X on the MM scale occurred on the southern segment (between San Leandro and Fremont) of the Hayward fault. The estimated M_w for the earthquake is 7.0. In 1861, an earthquake of unknown magnitude (estimated M_w of about 6.5) was reported on the Calaveras fault. The most recent significant earthquake on this fault was the 1984 Morgan Hill earthquake (M_w = 6.2).

As a part of the UCERF3 project, researchers estimated that the probability of at least one $M_w \geq 6.7$ earthquake occurring in the greater San Francisco Bay Area during a 30-year period (starting in 2014) is 72 percent. The highest probabilities are assigned to sections of the Hayward (South), Calaveras (Central), and the North San Andreas (Santa Cruz Mountains) faults. The respective probabilities are approximately 25, 21 , and 17 percent.

7.0 GEOLOGIC HAZARDS

Because the project site is in a seismically active region, we evaluated the potential for earthquake-induced geologic hazards including strong ground shaking, surface fault rupture, liquefaction,[2] lateral spreading,[3] and cyclic densification[4]. In addition, we evaluated the potential for landsliding under static and seismic conditions. The results of our evaluation are presented in the following sections.

7.1 Ground Shaking

The seismicity of the site is governed by the activity of the Hayward Fault, although ground shaking from future earthquakes on other Bay Area faults, will also be felt at the site. The intensity of earthquake ground motion at the site will depend upon the characteristics of the generating fault, distance to the earthquake epicenter, and magnitude and duration of the earthquake. We judge that very strong to violent shaking could occur at the site during a large earthquake on one of the nearby faults.

7.2 Surface Fault Rupture

Historically, ground surface displacements closely follow the trace of geologically young faults. The site is not within an Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake

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2 Liquefaction is a phenomenon where loose, saturated, cohesionless soil experiences temporary reduction in strength during cyclic loading such as that produced by earthquakes.

3 Lateral spreading is a phenomenon in which surficial soil displaces along a shear zone that has formed within an underlying liquefied layer. Upon reaching mobilization, the surficial blocks are transported downslope or in the direction of a free face by earthquake and gravitational forces.

4 Cyclic densification is a phenomenon in which non-saturated, cohesionless soil is compacted by earthquake vibrations, causing ground-surface settlement.

Fault Zoning Act, and no known active faults exist on the site. The closest fault considered active by the State of California is the northern segment of the Hayward fault which is located about 1,500 feet east of the site, as shown on Figure 5.

Regional geologic maps by Dibblee and Minch (2005), Graymer (2000, 1995), Herd (1978), Radbruch-Hall (1974), and Radbruch (1969, 1967a) show a fault passing the western boundary of the site. This fault trace has been considered a Quaternary feature that has not demonstrated Holocene activity. Therefore, the subject fault trace west of the site is not considered active by the State of California and, therefore, is not zoned in accordance with the A-P Act. Geologic maps focused on identifying features indicative of active faulting along the Hayward fault do not indicate activity along this trace. Additionally, the 1987 Kleinfelder report references having discussions with Mr. Earl Hart, the State Geologist at that time, that confirmed the fault trace along the western site boundary is not considered active.

Considering the site is not within an Earthquake Fault Zone, we conclude the risk of fault offset at the site from a known active fault is very low. In a seismically active area, the remote possibility exists for future faulting in areas where no faults previously existed; however, we conclude the risk of surface faulting and consequent secondary ground failure from previously unknown faults is also very low.

7.3 Slope Stability

The project site is not within an area that has been mapped as a designated earthquake-induced landslide hazard zone, as shown on the map titled *State of California Seismic Hazard Zones, Oakland East and Part of the Las Trampas Ridge Quadrangles*, prepared by the California Geological Survey (CGS), dated 14 February 2003 (see Figure 5, Seismic Hazards Zone Map). The cut slope above the north/northeastern boundary of the site, adjacent to the former Perkins Road, is mapped as potentially susceptible to earthquake-induced landsliding by the State of California, as shown on Figure 5. This slope is not within the subject site boundary. We did not observe evidence of past slope instability in this location during our site reconnaissance or during our historic aerial photo review. The 2003 Kleinfelder report addressed earthquake-induced landslide potential for this slope and concluded that the slope is composed of bedrock at shallow depths and that the potential for earthquake-induced landsliding of this slope is low.

The fill slope on the southern side of Building 9 has displayed indications of minor instability since its construction. The fill was placed in the mid to late 1940's and was likely placed without engineering control such as ground preparation, adequate compaction, subdrainage and a proper keyway. Two broad landslide scars were observed on the slope in the 1950 aerial photographs that appear to have occurred just after fill placement. The 1998 CEL report for the Building 9 indicates that the fill prism may be subject to downslope movement during earthquake events and designed the piers to extend into bedrock to protect the building from distress related to slope movement. Currently, the slope is slightly hummocky and shows signs of settlement, erosion and shallow surficial landsliding. Surface water around the building and from roof gutter downspouts is currently allowed to free flow onto the ground surface and down the slope face. Small erosion gullies on the slope can be traced directly to surface water around Building 9. Additionally, there are shallow landslide scars on the slope at about the same location as observed in the 1950 aerial photographs that may be failure of fill placed in the larger 1950 scars.

Based on our investigation, we conclude the fill prism on the slope may be prone to earthquake-induced deformation during a strong earthquake. Further, there is potential for additional localized shallow slope instability near the top of the slope due to discharge of roof water onto the top of the slope and the presence of locally over-steepened slope areas. Because the available documents indicate the southern end of Building 9 is supported on drilled piers extending at least 10 feet into bedrock, we conclude it is unlikely static or seismically induced slope instability will adversely impact the building; however, it is possible future shallow sliding will gradually reduce the relatively level area between the building and the top of the slope. Slope instability may also impact future improvements constructed on and at the base of the slope. Consequently, we conclude the surface drainage behind the building should be improved and the eastern portion of the fill slope should be partially reconstructed during construction of future site improvements in this portion of the campus. Recommendations for surface drainage improvements and slope reconstruction are presented below in Section 8.0. Provided these recommendations are incorporated into the project plans and implemented during construction, we conclude the potential for future slope instability at the site would be low.

7.4 Liquefaction and Associated Hazards

When a saturated, cohesionless soil liquefies, it experiences a temporary loss of shear strength created by a transient rise in excess pore pressure generated by strong ground motion. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Flow failure, lateral spreading, differential settlement, loss of bearing strength, ground fissures and sand boils are evidence of excess pore pressure generation and liquefaction.

The project site is not within an area that has been mapped as a designated liquefaction hazard zone, as shown on the map titled *State of California Seismic Hazard Zones, Oakland East and Part of the Las Trampas Ridge Quadrangles*, prepared by the California Geological Survey (CGS), dated 14 February 2003 (see Figure 5, Seismic Hazards Zone Map). This map was prepared in accordance with the Seismic Hazards Mapping Act of 1990.

The on-line interactive liquefaction susceptibility maps provided by the Association of Bay Area governments (ABAG) show the site to have a "low" susceptibility to liquefaction. Groundwater was not encountered in the majority of the borings performed at this site, most of which extended to bedrock. The soil encountered in boring B-1 (drilled in 2012) below groundwater is generally sufficiently cohesive (contains substantial amount of clay) and consequently, we conclude the potential for liquefaction and associated hazards is low.

7.5 Cyclic Densification

Cyclic densification (also referred to as differential compaction) of non-saturated sand (sand above groundwater table) can occur during an earthquake, resulting in settlement of the ground surface and overlying improvements. Loose, clean sand was not encountered above the water table in our borings or the previous borings by others. Therefore, we conclude the potential for cyclic densification impacting the existing structures at this site is low.

8.0 RECOMMENDATIONS

Based on our current and past investigations, we recommend the surface drainage at the rear of Building 9 be improved and the slope below Building 9 below partially reconstructed to mitigate the potential for future slope instability under static and seismic conditions. Our recommendations for the proposed mitigation measures are presented in the following sections.

8.1 Surface Drainage Improvements

As discussed above, the four roof drain downspouts at the rear of Building 9 currently discharge onto the ground surface adjacent to the building. Based on our observations during a site reconnaissance, we conclude the two easternmost roof drains may have contributed to slope instability and, therefore, should be connected to solid buried pipes that discharge near the base of the reconstructed slope behind the building. The end of the discharge pipes should be designed with a “T” plus a gravel pad to mitigate the potential for ground-surface erosion. Although the two westernmost downspouts also discharge onto the ground, we did not observe any erosion or slope instability near these two downspouts and, therefore, we conclude it is not necessary to connect these downspouts to a solid pipe.

The ground surface behind the easternmost 80 feet is currently uneven with some areas sloping toward the building, some areas being relatively level, and some areas sloping away from the building. To reduce the potential for ponding and concentrated surface flow onto the slope face, we recommend this area be regraded so that the ground surface slopes down away from the building towards the top of the slope at a consistent gradient of five percent. Although the ground surface behind the remainder (i.e., western portion) of Building 9 is generally relatively level, it does not appear to have caused any slope instability or other issues and, therefore, we conclude it is not necessary to regrade that area.

Much of the slope below Building 9 has been recently cleared and is covered with wood chips. To mitigate the potential for surface erosion after construction of the proposed improvements, we recommend the final graded slopes, where not currently covered with erosion-resistant vegetation, be planted with deep-rooted vegetation to reduce the potential for surface erosion. The slopes should be covered with an erosion control blanket to minimize surface erosion until the vegetation matures.

8.2 Slope Reconstruction

We recommend the fill slope below the easternmost 80 feet of Building 9, as well as the 80-foot-long section of fill slope east of Building 9, be reconstructed as an engineered fill slope during construction of the proposed future site improvements. The inclination of the final slope should not exceed 2:1 (horizontal:vertical) unless reinforced with geogrid. A geogrid-reinforced slope as steep as 1.5:1 is feasible; however, installation of geogrid reinforcement would require significantly more cutting into the existing slope than for reconstruction of an unreinforced slope. For planning purposes, it should be assumed the outer 10 feet of the current slope consists of non-engineered fill that should be excavated and then replaced as engineered fill after installation of a keyway and subdrains; however, several test pits should be excavated into the slope face prior to site grading to further investigate the existing fill thickness.

Reconstruction of the slope should consist of excavating the existing fill from the slope face; however, if the fill extends behind a line inclined at 1:1 from the top of the slope, it may be left in place since it will be buttressed with the engineered fill. The excavation at the top of the slope should extend no closer than 10 horizontal feet from the rear of Building 9 and should be inclined no steeper than 1:1. A keyway that is at least 10 feet wide and extends at least four feet into competent bedrock or very stiff/dense native soil should be excavated as the projected toe of the engineered fill slope. The base of the keyway should be sloped back into the hillside at an inclination of at least two percent.

Below Building 9, subdrains should be installed at the back of the keyway, within 10 feet (vertically) from the top of the slope, and at approximately mid slope. East of Building 9, subdrains should be installed in the keyway and within 10 feet (vertically) from the top of the slope. Subdrain pipes should consist of four-inch-diameter, perforated Schedule 40 PVC pipes (perforations placed down). The pipes should be surrounded by and underlain by at least 12 inches of Class 2 "Permeable Material" as defined by Section 68-1.025 of the California Standard Specifications (Current Edition). Subdrains should discharge water via solid pipe to a suitable downslope discharge point. Although we expect minimal water will be discharged from the subdrain pipes, the ground surface at the discharge location should be protected from erosion with a gravel blanket.

The engineered fill placed to repair the slope should be keyed and benched into competent native soil and/or bedrock with benches being about eight feet wide. The soil and bedrock materials encountered at the site are suitable for reuse as engineered fill provided they are free of significant organics, rocks or lumps larger than four inches in greatest dimension, and organic material. If imported fill is required, it should consist of material that is free of hazardous substances, contain no rocks larger than four inches in greatest dimension, and have a plasticity index (PI) not exceeding 12. Fill should be placed in horizontal lifts not exceeding eight inches in uncompacted thickness, moisture-conditioned to above optimum moisture content, and compacted to at least 90 percent relative compaction. The finished surface of the slope should be track-walked and protected from erosion by deep-rooted, fast-growing vegetation prior to winter. The surface should be covered with appropriate erosion control material to minimize surface erosion prior to maturation of the plants.

8.3 Retaining Walls

Current plans call for installation of low retaining walls as part of the site improvements. Permanent retaining walls should be designed to resist lateral earth pressure imposed by the retained soil and surcharge pressure, where appropriate. Where permanent walls will be restrained from movement at the top and/or sides, they should be designed for at-rest conditions.

Walls that retain soil and are not restrained from rotation may be designed for the active pressures presented in Table 2. The recommended design pressures are appropriate for walls that are fully drained. Walls that retain more than six feet of soil should be designed for the more critical loading condition of static or seismic conditions.

TABLE 2
Lateral Earth Pressures for Retaining Wall Design

Soil Backfill Inclination	Active Static Condition (Unrestrained)	At-Rest Static Condition (Restrained)	Seismic Condition
Level	35 pcf	55 pcf	35 pcf + 22 pcf
4:1	41 pcf	64 pcf	41 pcf + 26 pcf
3:1	43 pcf	68 pcf	43 pcf + 27 pcf
2:1	51 pcf	80 pcf	51 pcf + 32 pcf

1. Equivalent fluid weight (triangular distribution); pcf = pounds per cubic foot.

If there will be any loads imposed above a “zone-of-influence” line extending up from the base of a retaining wall at an inclination of 1.5:1 (horizontal: vertical), the wall should be designed for a surcharge pressure. We can provide surcharge pressure upon request if this condition exists.

The recommended lateral earth pressures are applicable to walls that are backdrained above the water table to prevent the buildup of hydrostatic pressure. One acceptable method for backdraining the walls is to place a prefabricated drainage panel (Miradrain 6000 or equivalent) against the back of the walls. The drainage panel should extend down to a four-inch-diameter perforated PVC collector pipe at the base of the walls. The pipe should be surrounded on all sides by at least four inches of Caltrans Class 2 permeable material (see Caltrans Standard Specifications Section 68-1.025) or 3/4-inch drain rock wrapped in filter fabric (Mirafi 140NC or equivalent). The pipe should be connected to a suitable discharge point that will not cause erosion of the slope. We should check the manufacturer’s specifications regarding the proposed prefabricated drainage panel material to verify it is appropriate for its intended use.

If backfill is required behind a retaining wall, the wall should be braced, or hand compaction equipment used, to prevent unacceptable surcharges on walls (as determined by the structural engineer).

Retaining walls should be supported on spread footings bearing on engineered fill, stiff native soil and/or bedrock. On level ground, footings should be embedded at least 18 inches below the lowest adjacent grade. On or adjacent to sloping ground, the footings should be embedded such that there at least seven feet of horizontal distance between the bottom of the footing (measured at the front) and the face of the slope; however, the minimum embedment should be at least 24 inches. Footings may be designed using an allowable bearing pressure of 2,500 pounds per square foot (psf) for dead-plus-live loads; this allowable bearing pressure may be increased by one-third for total design loads, which include wind or seismic forces. The recommended allowable pressures for dead-plus-live and total design loads include factors of safety of at least 2.0 and 1.5, respectively.

Lateral loads may be resisted by a combination of passive pressure on the vertical face of the footing and friction between the bottom of the footing and the supporting soil or bedrock. Assuming there is at least four feet of horizontal ground in front of the footing, the passive pressure may be computed using an equivalent fluid weight of 280 pcf. The upper one foot of soil should be ignored in computing passive resistance unless the ground surface in front of the wall is paved. The allowable passive pressure on sloping ground will depend on the inclination of the slope in front of the wall. For slope inclinations between 3:1 and 2:1 below the wall, passive pressure should be computed using equivalent fluid weights of 225 and 175 pcf, respectively. For footings founded on slopes inclined at 3:1 and 2:1, the upper 18 and 24 inches of soil, respectively, should be ignored in computing passive resistance.

Frictional resistance should be computed using a base friction coefficient of 0.3 in soil and 0.5 in bedrock. The passive pressure and frictional resistance values include a factor of safety of at least 1.5 and may be used in combination without reduction.

Footing excavations should be free of standing water, debris, and weak and disturbed materials prior to placing concrete. Where weak or loose soil is encountered at the bottom of footing excavations, the material should be removed to expose bedrock. The deepened portion of the footing excavation may be filled with structural concrete or controlled low-strength material (CLSM) with an unconfined compressive strength of at least 50 pounds per square inch (psi). The bottoms and sides of the footing excavations should be maintained in a moist condition until concrete is placed. We should check footing excavations prior to placement of reinforcing steel.

9.0 GEOTECHNICAL SERVICES DURING CONSTRUCTION

Prior to construction, Rockridge Geotechnical should review the project plans and specifications to verify that they conform to the intent of our recommendations. During construction, our field engineer should provide on-site observation and testing during site preparation, placement and compaction of fill, and installation of foundations. These observations will allow us to compare actual with anticipated soil conditions and to verify that the contractor's work conforms to the geotechnical aspects of the plans and specifications.

10.0 LIMITATIONS

This geotechnical study has been conducted in accordance with the standard of care commonly used as state-of-practice in the profession. No other warranties are either expressed or implied. The recommendations made in this report assume that the subsurface conditions do not deviate appreciably from those disclosed in the test borings described herein. If any variations or undesirable conditions are encountered during construction, we should be notified so that additional recommendations can be made. The foundation recommendations presented in this report are developed exclusively for the proposed development described in this report and are not valid for other locations and construction in the project vicinity.

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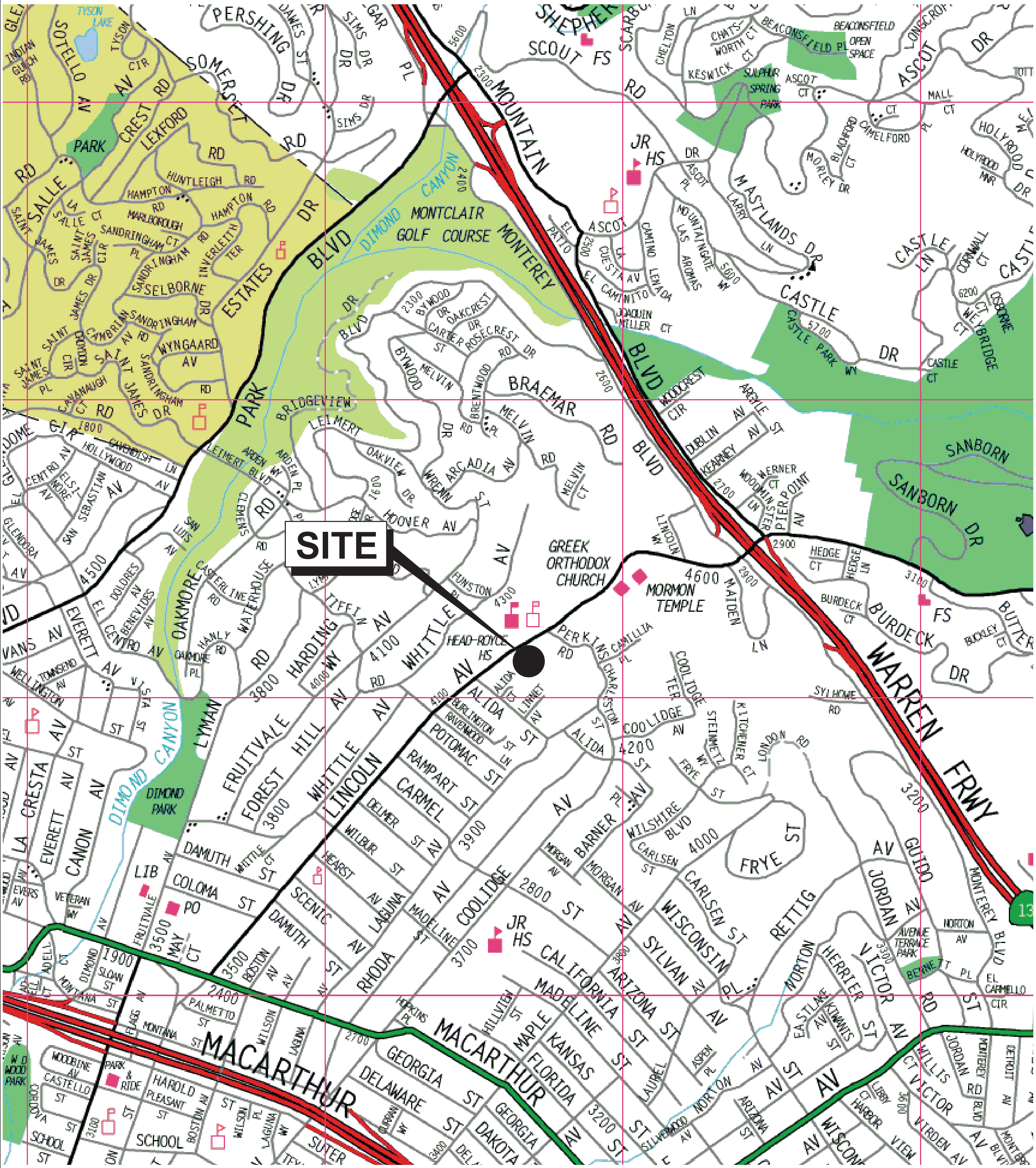
AERIAL PHOTOGRAPHS

FILM ID	FLIGHT LINE	FRAME(S)	NOMINAL SCALE	DATE
KAV9010	44	13/14	1:10,000	03-09-2005
AV 8202	11	25/26	1:12,000	07-10-2002
AV 5200	112	25/26	1:12,000	08-16-1996
AV 3845	11	30/31	1:12,000	06-12-1990
AV 2640	8	25/26	1:12,000	05-15-1985
AV 2040	8	24/26	1:12,000	06-13-1981
AV 1377	7	26/27	1:12,000	07-07-1977
AV 1193	8	22/23	1:12,000	05-06-1975
AV 995	6	25/26	1:12,000	05-18-1971
AV 858	3	27/28	1:12,000	07-02-1968
AV 710	10	28/29	1:36,000	04-20-1966
AV 337	9	31/32	1:9,600	07-08-1959
AV 253	11	29/30	1:12,000	05-04-1957
AV 28	19	14/15	1:7,200	04-14-1950
AV 11	3	15/16	1:20,000	03-24-1947

ROCKRIDGE GEOTECHNICAL

FIGURES



Base map: The Thomas Guide
Alameda County
2002

0 1/4 1/2 Mile

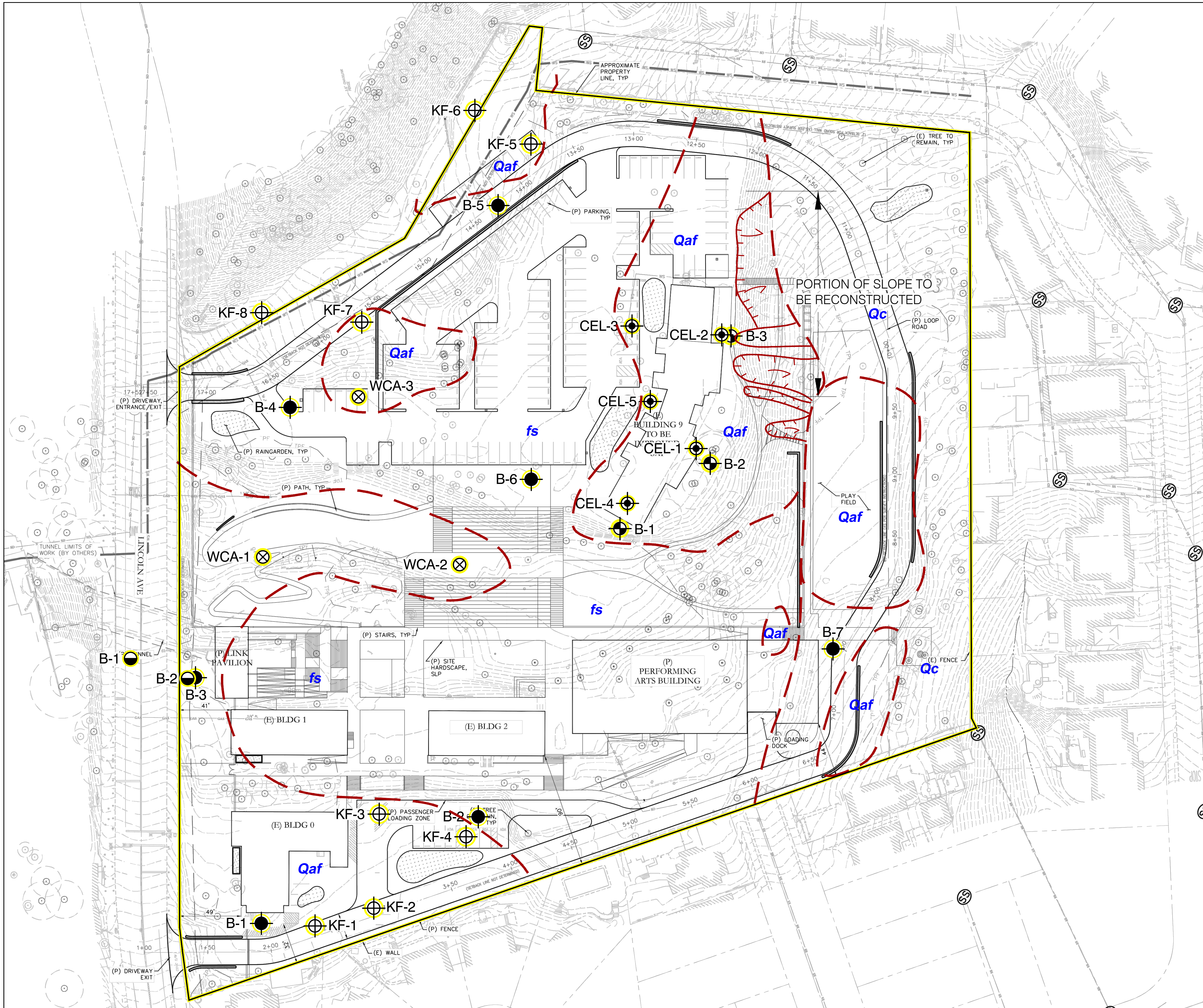
Approximate scale

HEAD-ROYCE SCHOOL BUILDING 9
SLOPE STABILITY EVALUATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

SITE LOCATION MAP

Date 07/16/20	Project No. 20-1863	Figure 1



EXPLANATION

B-1 — Approximate location of boring by Rockridge Geotechnical Inc., May 29, 2020

B-1 — Approximate location of boring by Rockridge Geotechnical Inc., 2017

B-1 — Approximate location of boring by Rockridge Geotechnical Inc., April 2012

KF-8 — Approximate location of exploratory boring by Kleinfelder, December 2002

CEL-5 — Approximate location of exploratory boring by Consolidated Engineering Laboratories, September 1998

WCA-3 — Approximate location of exploratory boring by Woodward, Clyde and Associates, 1957

Project limits

GEOLOGIC UNITS

Shallow landslide scar 2-4 feet deep (typ)

Geologic contact, dashed where approximate, queried where uncertain

Qaf Artificial Fill

Qc Colluvium

fs Franciscan Complex Sandstone and Shale

0 80 Feet

Approximate scale

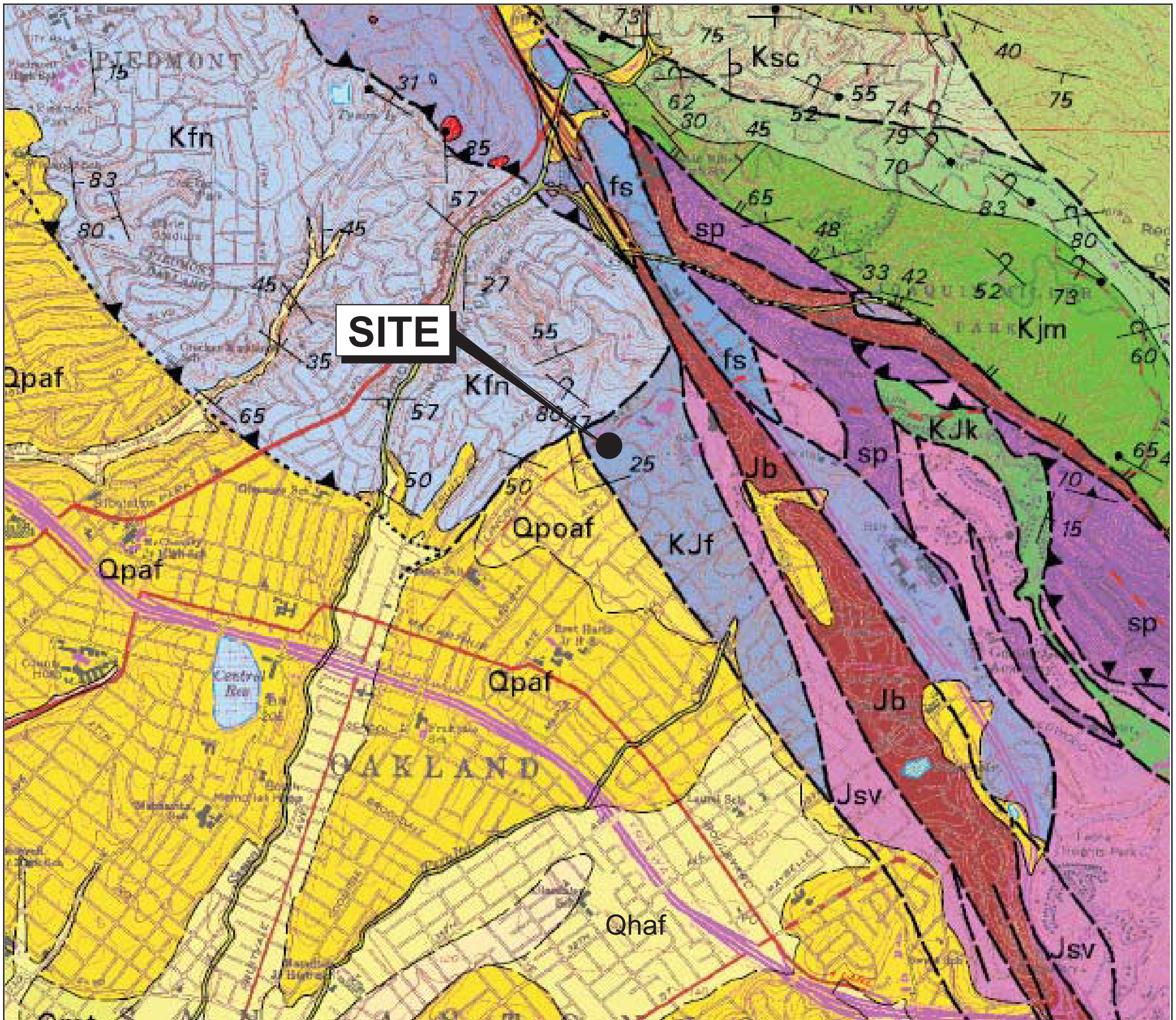
Reference: Base map from a drawing titled "Site Plan", by Sherwood Design Engineers, dated December 10, 2019.

HEAD-ROYCE SCHOOL BUILDING 9
SLOPE STABILITY EVALUATION
Oakland, California

SITE PLAN AND GEOLOGY MAP

Date 08/05/20	Project No. 20-1863	Figure 2

ROCKRIDGE GEOTECHNICAL



Base map: USGS MF 2342, Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California (Graymer, 2000).

EXPLANATION

Contact - Depositional or intrusive contact, dashed where approximately located, dotted where concealed

Fault - Dashed where approximately located, small dashed where inferred, dotted where concealed, queried where locations is uncertain

Reverse or thrust fault - Dotted where concealed

Anticline -Shows fold axis, dotted where concealed

Syncline

35 Strike and dip of bedding

Overturned bedding

Flat bedding

Vertical bedding

35 Strike and dip of foliation

Vertical foliation

35 Strike and dip of joints in plutonic rocks

Vertical joint

0 1/4 1/2 Mile

Approximate scale

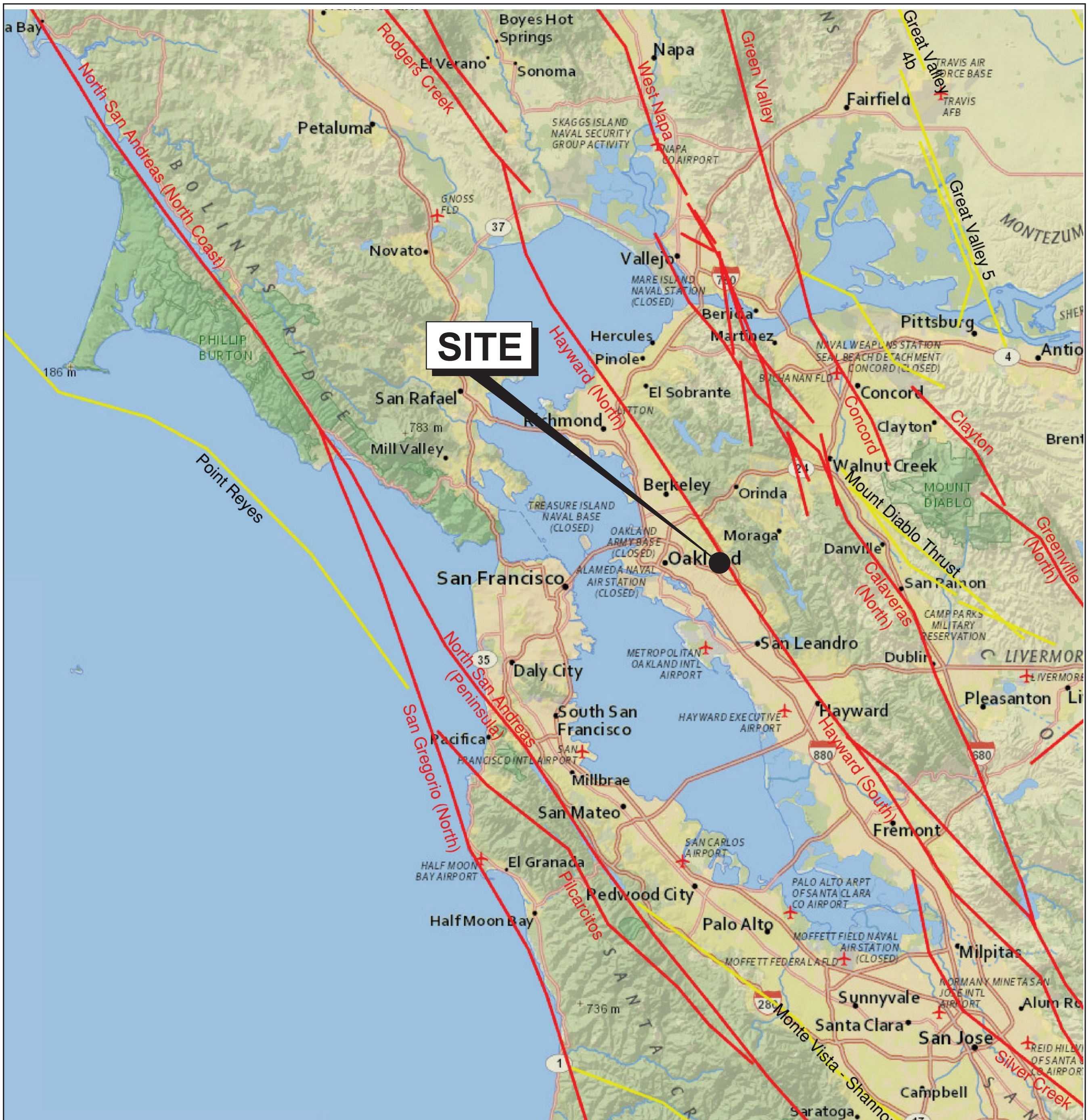
Qhaf	Alluvial fan and fluvial deposits (Holocene)
Qpaf	Alluvial fan and fluvial deposits
Qpaf1	Alluvial terrace deposits (Pleistocene)
Qpoaf	Older alluvial fan deposits (Pleistocene)
Ksc	Shephard Creek Formation (Late Cretaceous, Cenomanian)
Kjm	Joaquin Miller Formation (Late Cretaceous, Cenomanian)
Jsv	Keratophyre and quartz keratophyre (Late Jurassic)
Jb	Massive basalt and diabase
KJf	Undivided Franciscan complex rocks (Cretaceous and Jurassic)
Kfn	Sandstone of the Novato Quarry terrane of Blake and others (1984) (Late Cretaceous)
KJfm	Franciscan complex, melange (Cretaceous Late Jurassic), includes mapped locally:
fs	Graywacke and meta-graywacke blocks
sp	Chert blocks

HEAD-ROYCE SCHOOL BUILDING 9
SLOPE STABILITY EVALUATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

REGIONAL GEOLOGIC MAP

Date 07/16/20 | Project No. 20-1863 | Figure 3



Base Map: U.S. Geological Survey (USGS), National Seismic Hazards Maps - Fault Sources, 2014.

EXPLANATION

Strike slip

Thrust (Reverse)

0 5 10 Miles

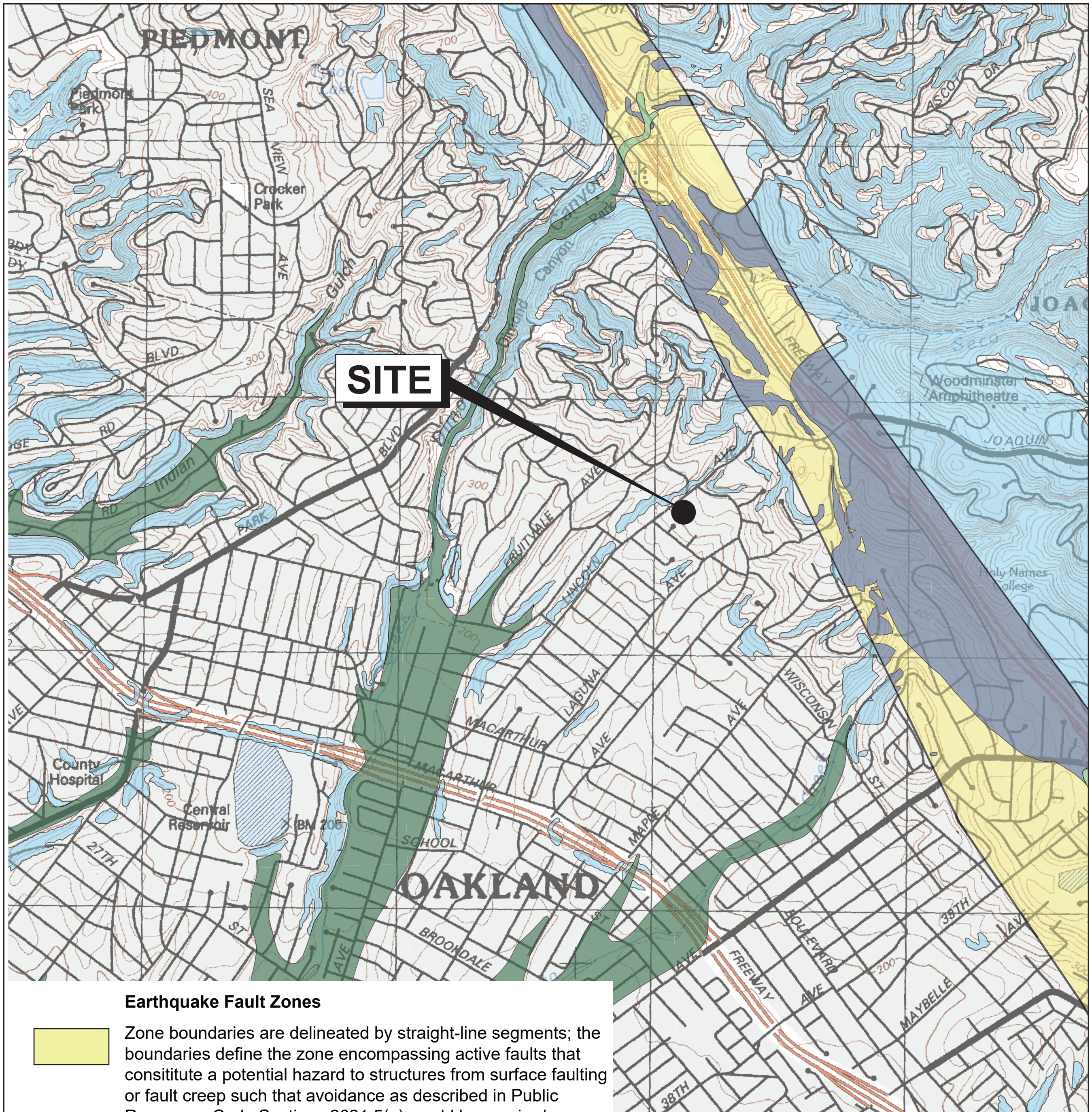
Approximate scale

HEAD-ROYCE SCHOOL BUILDING 9
SLOPE STABILITY EVALUATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

REGIONAL FAULT MAP

Date 08/05/20	Project No. 20-1863	Figure 4



Earthquake Fault Zones

Zone boundaries are delineated by straight-line segments; the boundaries define the zone encompassing active faults that consititute a potential hazard to structures from surface faulting or fault creep such that avoidance as described in Public Resources Code Sections 2621.5(a) would be required.

Liquefaction Zones

Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslide Zones

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Reference:
Earthquake Zones of Required Investigation
Oakland East Quadrangle
California Geological Survey
Released February 14, 2003

0 2,000 4,000 Feet

Approximate scale

HEAD-ROYCE SCHOOL BUILDING 9 SLOPE STABILITY EVALUATION Oakland, California	EARTHQUAKE ZONES OF REQUIRED INVESTIGATION MAP		
ROCKRIDGE GEOTECHNICAL	Date 08/05/20	Project No. 20-1863	Figure 5

APPENDIX A

Logs of Test Borings

PROJECT: **HEAD-ROYCE SCHOOL BUILDING 9**
SLOPE STABILITY EVALUATION
Oakland, California

Log of Boring B-1

Boring location: See Site Plan, Figure 2
Date started: 05/29/2020 | Date finished: 05/29/2020
Drilling method: 4-inch-diameter Solid-Stem Flight Auger
Hammer weight/drop: 140 lbs./30 inches | Hammer type: Safety; Rope & Cathead
Sampler: Standard Penetration Test (SPT)

Logged by: W. Gozali
Drilled by: Benevent Building, LLC
Rig: Limited Access Rig

DEPTH (feet)	SAMPLES: Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–1.5					SM	SILTY SAND (SM) dark brown, loose, dry (TOPSOIL) — FILL						
1.5–10					CL	SANDY CLAY (CL) brown, stiff to hard, dry to moist, some angular rock framents — FILL						
3	SPT		18 30 20	60								
5						brown						
6	SPT		8 11 12	26								
10	SPT		50/5"	60/5"		SANDSTONE light brown, low hardness, friable to weak, deeply weathered						

Boring terminated at a depth of 10.4 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] SPT blow counts for the last two increments were converted to SPT N-Values using factors of 1.2 to account for sampler type and hammer energy.

ROCKRIDGE GEOTECHNICAL

Project No.: 20-1863
Figure: A-1

Log of Boring B-2

PROJECT: **HEAD-ROYCE SCHOOL BUILDING 9 SLOPE STABILITY EVALUATION**
Oakland, California

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Date started: 05/29/2020 | Date finished: 05/29/2020

Drilling method: 4-inch-diameter Solid-Stem Flight Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Safety; Rope & Cathead

Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: W. Gozali
Drilled by: Benevent Building, LLC
Rig: Limited Access Rig

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION		Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–2				SM	SILTY SAND (SM) dark brown, loose, dry (TOPSOIL)	FILL						
2–10.5	S&H (2.0–3.5)	9 / 17 / 16	23	CL	SANDY CLAY (CL) brown, very stiff to hard, dry, some angular rock fragments; LL = 41, PI = 16; see Figure B-1	FILL					14.9	113
5	SPT (5.0–6.5)	9 / 14 / 16	36	CL	olive brown	FILL						
10	SPT (10.0–11.5)	9 / 11 / 10	25	CL	light-brown	FILL						
10.5–15					SHALE dark brown with olive brown, soft, friable, deeply weathered, hightly fractured	BEDROCK						
15–15.8	SPT (15.0–15.8)	22 / 50/4"	60/4"		SANDSTONE light brown, low hardness, friable to weak, deeply weathered	BEDROCK						

Boring terminated at a depth of 15.8 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.8 and 1.2, respectively, to account for sampler type and hammer energy.

ROCKRIDGE GEOTECHNICAL

Project No.: 20-1863 | Figure: A-2

Log of Boring B-3

PROJECT: **HEAD-ROYCE SCHOOL BUILDING 9**
SLOPE STABILITY EVALUATION
Oakland, California

Boring location: See Site Plan, Figure 2
Date started: 05/29/2020 | Date finished: 05/29/2020
Drilling method: 4-inch-diameter Solid-Stem Flight Auger
Hammer weight/drop: 140 lbs./30 inches | Hammer type: Safety; Rope & Cathead
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: W. Gozali
Drilled by: Benevent Building, LLC
Rig: Limited Access Rig

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Unit	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0				SC	CLAYEY SAND with GRAVEL (SC) olive-brown, loose, dry	FILL						
2–3.5	S&H	4 5 6	8	SC	moist LL = 48, PI = 21; see Figure B-1 Particle Size Distribution; see Appendix B	FILL				28	16.3	100
5				CL	SANDY CLAY (CL) olive-brown, stiff, dry	FILL						
5–6.5	S&H	4 7 9	11	SM	SILTY SAND (SM) olive-brown, medium dense, dry Particle Size Distribution; see Appendix B	FILL				28	9.9	109
10–11.5	S&H	12 19 20	20	SM	SILTY SAND (SM) light olive-brown, medium dense, dry Particle Size Distribution; see Appendix B					35	9.1	117
13					SANDSTONE gray-brown, low hardness, friable, deeply weathered	BEDROCK						
15–16.5	SPT	9 17 15	38			BEDROCK						
19–19.8	SPT	16 50/4"	60/4"		very light brown	BEDROCK						

Boring terminated at a depth of 19.8 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.8 and 1.2, respectively, to account for sampler type and hammer energy.

ROCKRIDGE GEOTECHNICAL

Project No.: 20-1863
Figure: A-3

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size)	Gravels (More than half of coarse fraction > no. 4 sieve size)	**GW**	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	**SW**	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	Silts and Clays LL = < 50	**ML**	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	**MH**	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		**PT**	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes: U.S. Standard Sieve Size	Range of Grain Sizes: Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.075
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.075
Silt and Clay	Below No. 200	Below 0.075

Unstabilized groundwater level

Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered

Classification sample taken with Standard Penetration Test sampler

Undisturbed sample taken with thin-walled tube

Disturbed sample

Sampling attempted with no recovery

Core sample

Analytical laboratory sample

Sample taken with Direct Push sampler

Sonic

SAMPLER TYPE

C	Core barrel
CA	California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter
D&M	Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube
O	Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube
PT	Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube
S&H	Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter
SPT	Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter
ST	Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

I FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

II HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carved easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

III STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few heavy hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

IV WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

D. Deep - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.

M. Moderate - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.

L. Little - no megascopic decomposition of minerals; little of no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.

F. Fresh - unaffected by weathering agents. No disintegration of discoloration. Fractures usually less numerous than joints.

ADDITIONAL COMMENTS:

V CONSOLIDATION OF SEDIMENTARY ROCKS: usually determined from unweathered samples. Largely dependent on cementation.

U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

VI BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

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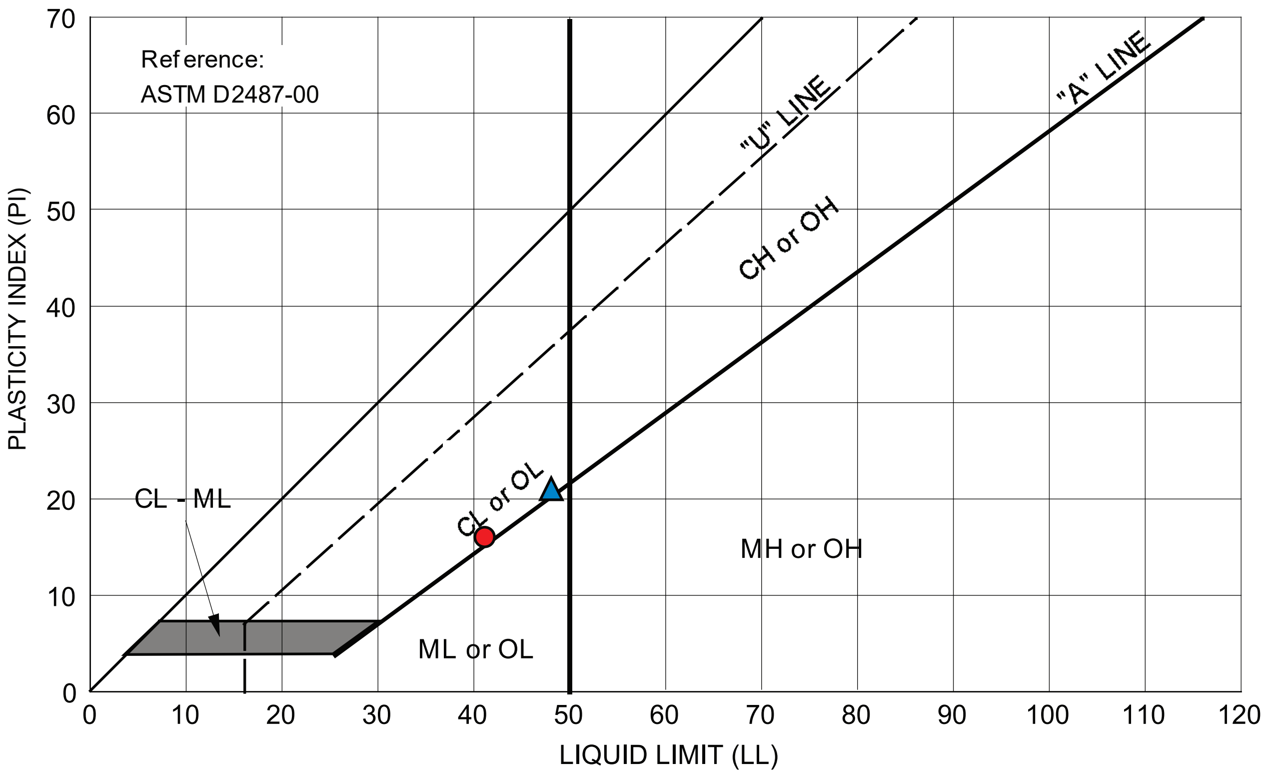
APPENDIX B

Laboratory Test Results



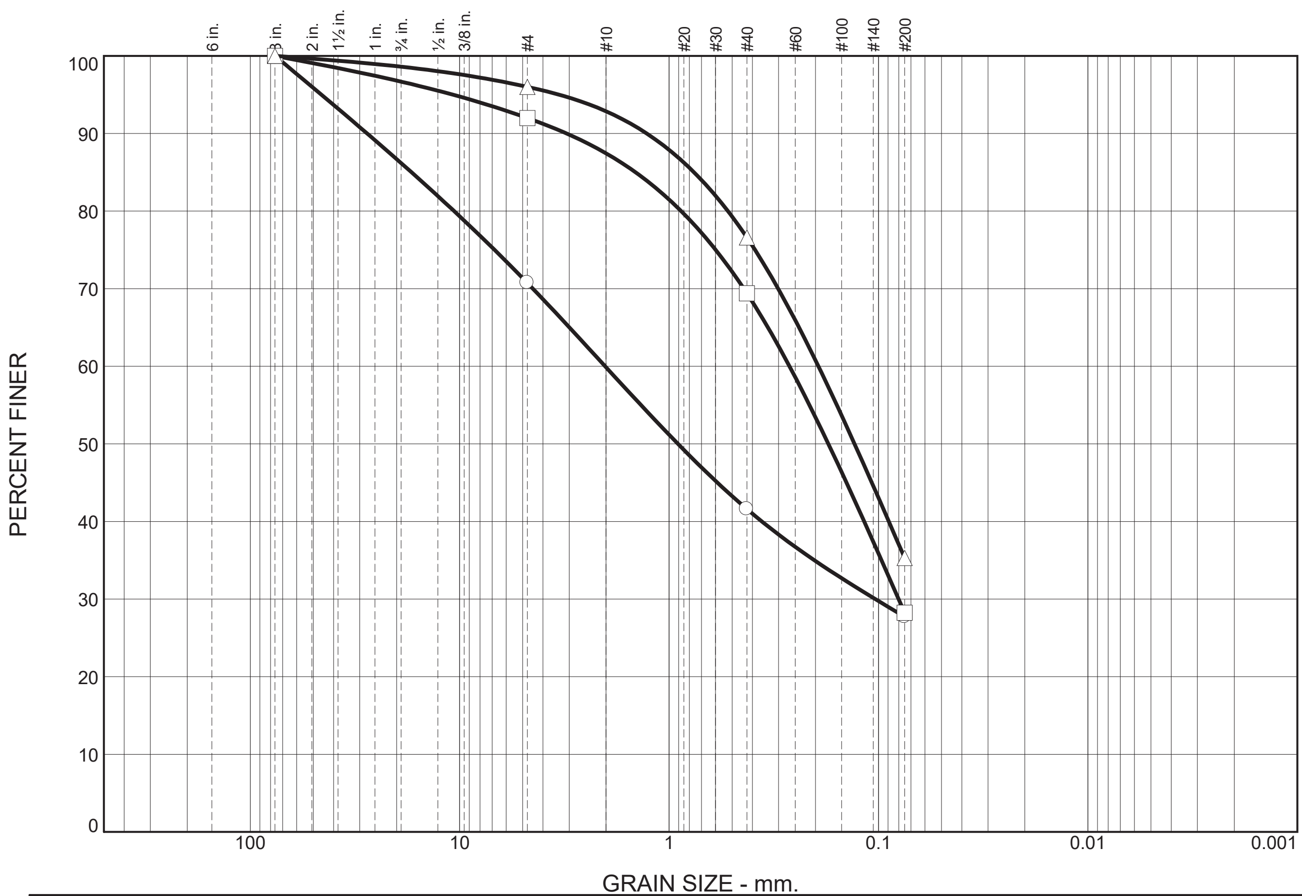
Symbol	Source	Description and Classification	Natural M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-2 at 2.0 feet	SANDY CLAY (CL), brown	14.9	41	16	--
▲	B-3 at 3.0 feet	CLAYEY SAND with GRAVEL (SC), olive-brown	16.3	48	21	27.7

HEAD-ROYCE SCHOOL BUILDING 9
SLOPE STABILITY EVALUATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

PLASTICITY CHART

Date 07/16/20 | Project No. 20-1863 | Figure B-1



	% +3"	% Gravel	% Sand	% Silt	% Clay
○	0.0	29.3	43.0	27.7	
□	0.0	8.0	63.8	28.2	
△	0.0	4.0	60.7	35.3	

SOIL DATA

SYMBOL	SOURCE	DEPTH (ft.)	Material Description	USCS
○	B-3	3.0'	CLAYEY SAND with GRAVEL, olive-brown	SC
□	B-3	5.5'	SILTY SAND, olive-brown	SM
△	B-3	11.0'	SILTY SAND, light olive-brown	SM

HEAD-ROYCE SCHOOL BUILDING 9
SLOPE STABILITY EVALUATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

PARTICLE SIZE DISTRIBUTION REPORT

Date 07/16/20 | Project No. 20-1863 | Figure B-2

APPENDIX C

Boring Logs and Laboratory Test Results by Others

Log of Boring B-1

PROJECT: **HEAD-ROYCE TUNNEL EXPLORATION**
Oakland, California

Boring location: See Site Plan, Figure 2
Date started: 3/25/17 | Date finished: 3/25/17
Drilling method: Rotary Wash - Triple Barrel Core
Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic Hammer
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT), Rock Core

Logged by: S. Magallon

Ground Surface Elevation: 413.5 feet[2]

DEPTH (feet)	Run Number	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	MATERIAL DESCRIPTION	Dip, Degrees	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %
0						9 inches of concrete				
1						CLAYEY SAND (SC) yellow-brown with mottling yellow, loose, moist, fine-grained, trace fine and angular gravel				
3		8	83							
4						CLAYEY SAND with GRAVEL (SC) brown with yellow-brown, medium dense, wet, trace rootlets, fine-grained sand				
6		12	67						39	14.6
7						yellow-brown to orange sandstone fragments				
7						SHALE MELANGE olive-brown with yellow-brown and orange to dark orange oxidation staining, closely to intensely fractured low hardness, friable to weak, deeply to moderately weathered, soft and plastic matrix, occasional interbedded deeply weathered sandstone				
9		35	83						21	15.2
10						LL = 37, PI = 18; see Appendix B				
13		60	83			LL = 39, PI = 22; see Appendix B				
16		39	83						19	13.2
20						gray and olive-brown				
21		60	83							11.9
24		84	83			LL = 28, PI = 11; see Appendix B				
25						gray to olive-gray with dark orange oxidation staining, closely fractured, moderate hard to hard, moderate strong to strong, moderate to little weathering, soft and plastic matrix				
28	1		14	0	5.6					
30										

ROCKRIDGE GEOTECHNICAL

Project No.: 17-1281 | Figure: A-1a

Log of Boring B-1

PROJECT: **HEAD-ROYCE TUNNEL EXPLORATION**
Oakland, California

DEPTH (feet)	Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	Dip, Degrees	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %
30-31	2			0	0	--		SHALE MELANGE (continued)				
32-34	3		56	83				gray to olive-gray with yellow-brown and orange oxidation staining, intensely fractured, low to moderately hard, weak to moderate strong, deeply to moderate weathered, with zones that are soft and plastic, typically deeply weathered				5.1
35	4		72/6"	80								
36								with interbedded siltstone, dark gray with white calcite veins				
38	5			25	0	1						
45			72/6"	50				SHALE gary to dark gray, intensely fractured, moderately hard, weak to moderately strong, moderately to little weathering				
51			72	33								

Boring terminated at a depth of 51.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater level obscured by rotary wash drilling method.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.84 and 1.44, respectively, to account for sampler type and hammer energy.
[2] Elevation based on topographic information on Tunnel Concept drawing prepared by Sherwood Design Engineers, dated February 2017.

ROCKRIDGE GEOTECHNICAL

Project No.: 17-1281

Figure: A-1b

PROJECT:	HEAD-ROYCE TUNNEL EXPLORATION Oakland, California	Log of Boring B-2

PAGE 1 OF 2

Boring location: See Site Plan, Figure 2
Date started: 3/24/17 Date finished: 3/24/17
Drilling method: Rotary Wash - Triple Barrel Core
Hammer weight/drop: 140 lbs./30 inches Hammer type: Automatic Hammer
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT), Rock Core
Logged by: S. Magallon

Ground Surface Elevation: 411 feet[2]

DEPTH (feet)	Run Number	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	MATERIAL DESCRIPTION	Dip, Degrees	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %
0						7 inches of asphalt concrete				
0.6						5 inches of aggregate base				
1						SANDY CLAY (CL) yellow-brown, stiff, moist, fine-grained sand, fine and angular to subangular gravel				
3.5		10	100							19.6
6		18	100			yellow-brown to brown with red specks, very stiff, occasional coarse and subrounded gravel			54	
8.5		19	83			wet			69	
10						CLAYEY SAND (SC) yellow with mottling yellow-brown and olive, medium dense, wet, fine-grained, with pockets of olive clay LL = 44, PI = 29; see Appendix B				
11		25	67							
13.5		42	83			dense			47	
16		45	83			olive with mottling yellow-brown, with weathered sandstone gravel, angular, slight blocky structure				
20						SANDSTONE olive with mottling yellow-brown and orange oxidation staining, low hardness, friable to weak, deeply weathered in clayey matrix, moderate blocky structure, with angular clasts that are weak, fine-grained				
21		72	83						17	
24		72/3"	100			olive to olive-gray, low hardness with moderately hard zones, weak with moderately strong zones, deeply to moderately weathered, fine- to medium-grained				
25.5	1		73	27	--	Point Load Strength Index Test; see Appendix B				
26						olive-gray to gray, moderately fractured, hard, moderately strong, little weathering, with healed fracturing, occasional orange oxidation staining along fractures	F50			
27.5						closely to intensely fractured, low to moderately hard, weak to moderate strong, moderately weathered, clay in filled fractures with orange oxidation				
28	2		91	0	8.3		F45			
29						Point Load Strength Index Test; see Appendix B with interbedded siltstone	B55 F55			
30	3		67	0	--	SILTSTONE				

PROJECT: **HEAD-ROYCE TUNNEL EXPLORATION**
Oakland, California

Log of Boring B-2

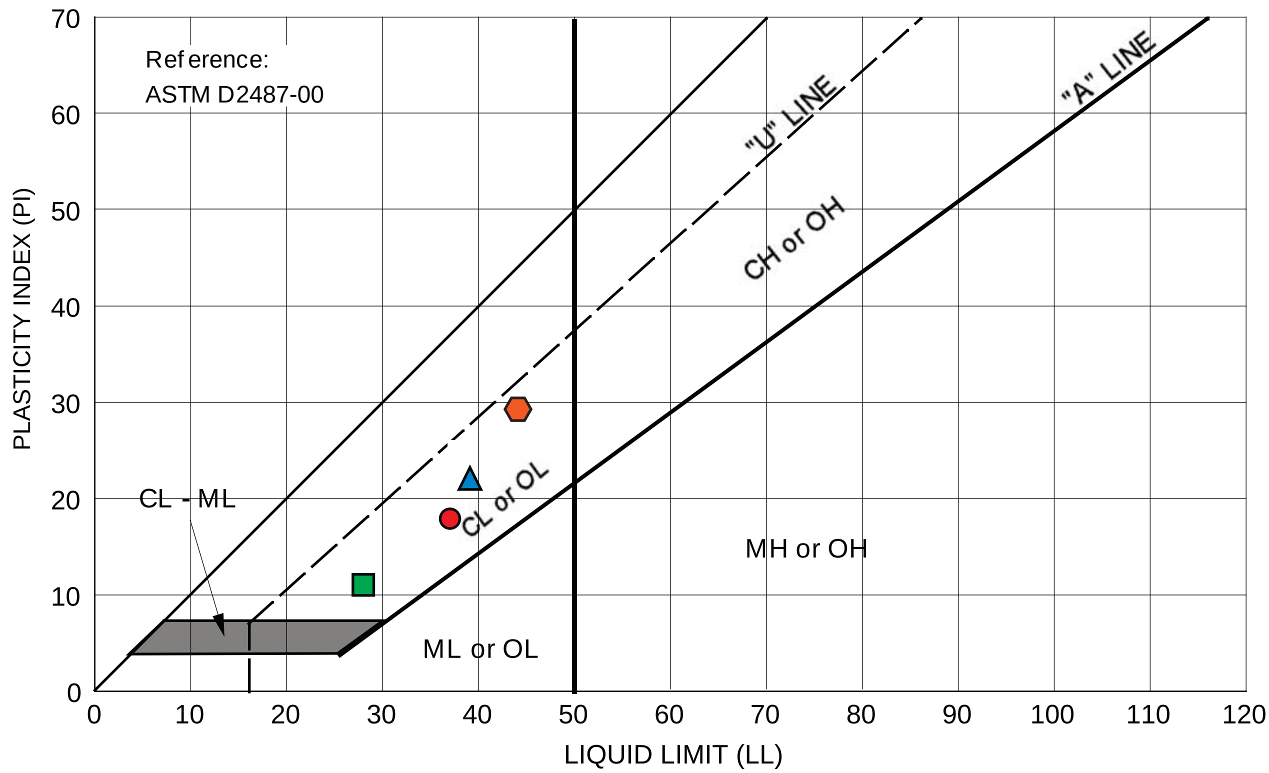
DEPTH (feet)	Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	MATERIAL DESCRIPTION	Dip, Degrees	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %
	3			67	0	--	dark gray to black, closely to intensely fractured, moderately hard, moderately strong, moderately to little weathering, with clay infilled fractures, occasional bedding	F45			
31							closely fractured	F30			
32							intensely to very intensely fractured, moderate hard, moderately strong, little weathering	B40			
33	4			50	13	10	SILTSTONE with interbedded SANDSTONE 31- 31.3': intensely fractured to crushed 31.3- 32.1': closely fractured	F45 F30			
34											
35	5			0	0	7	SILTSTONE dark gray to black, moderately hard to hard, weak to moderately strong, little weathering Point Load Strength Index Test; see Appendix B				
36											
37							32.1- 33.1': intensely fractured 36.4- 36.6': with white calcite veins, frequent orange oxidation staining	F40 F40			
38	6			40	0	7					
39	7			100	0	--	SHALE MELANGE with SILTSTONE fragments gray with black, crushed matrix with intensely fractured fragments, low hardness with medium hard fragments, friable, deeply weathered			11	
40											
41–60											

Boring terminated at a depth of 40 feet below ground surface.
Boring backfilled with cement grout.
Groundwater level obscured by rotary wash drilling method.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.84 and 1.44, respectively, to account for sampler type and hammer energy.
[2] Elevation based on topographic information on Tunnel Concept drawing prepared by Sherwood Design Engineers, dated February 2017.

ROCKRIDGE GEOTECHNICAL

Project No.: 17-1281
Figure: A-2b



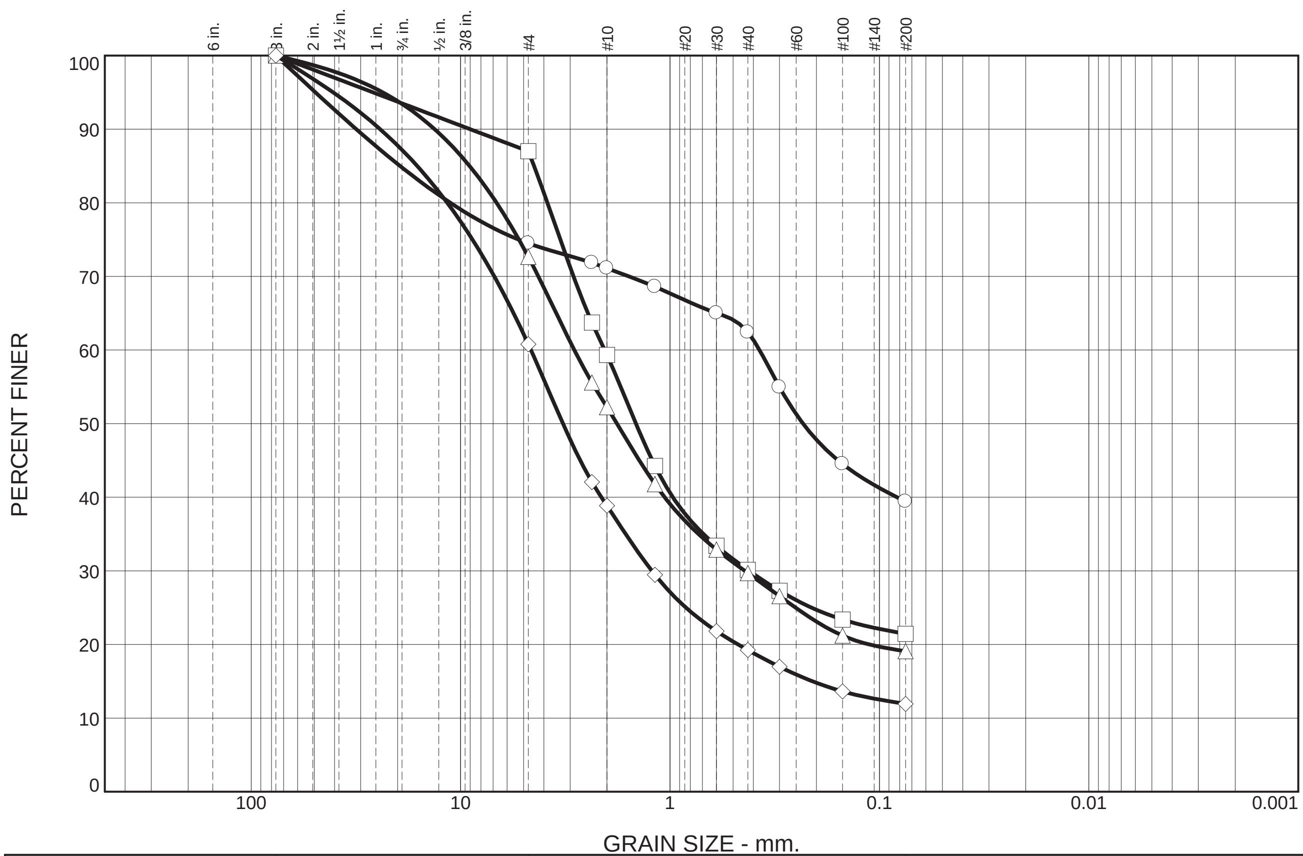
Symbol	Source	Description and Classification	Natural M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-1 at 8.0 feet	SHALE MELANGE olive-brown with yellow-brown and orange to dark orange oxidation staining	15.2	37	18	21
▲	B-1 at 12.5 feet	SHALE MELANGE olive-brown with yellow-brown and orange to dark orange oxidation staining	--	39	22	--
■	B-1 at 23.5 feet	SHALE MELANGE, gray and olive-brown	--	28	11	--
⬢	B-2 at 11.0 feet	CLAYEY SAND (SC), yellow with mottling yellow-brown and olive	--	44	29	--

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

PLASTICITY CHART

Date 05/02/17 | Project No. 17-1281 | Figure B-1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

MATERIAL DATA

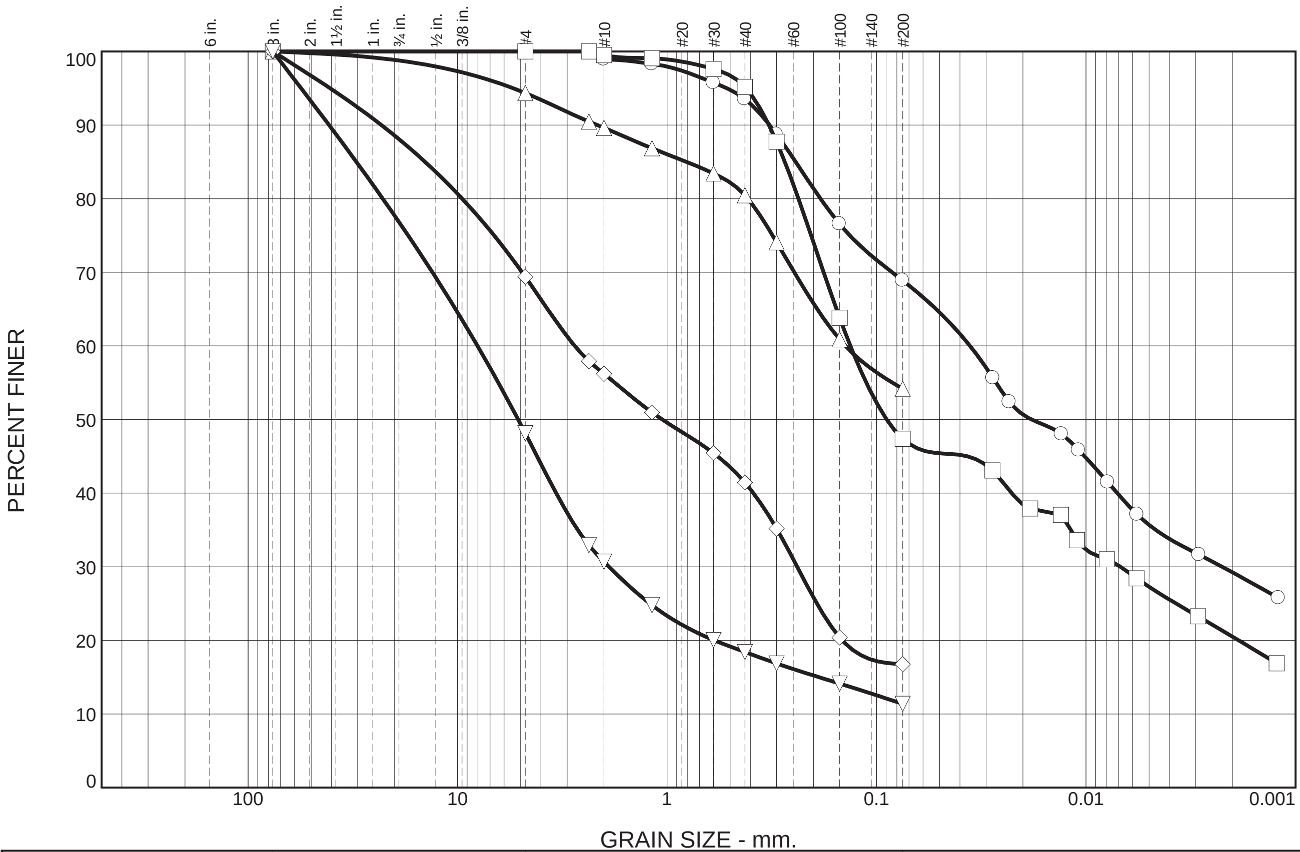
SYMBOL	SOURCE	DEPTH (ft.)	Material Description	USCS
○	B-1	5.5 - 6.0'	CLAYEY SAND with GRAVEL, brown with yellow-brown	SC
□	B-1	8.0 - 9.3'	SHALE MELANGE, olive-brown with yellow-brown and orange to dark orange oxidation staining	
△	B-1	15.0 - 16.3	SHALE MELANGE, olive-brown with yellow-brown and orange to dark orange oxidation staining	
◇	B-1	32.0 - 33.3'	SHALE MELANGE, gray to olive-gray with yellow-brown and orange oxidation staining	

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

PARTICLE SIZE DISTRIBUTION REPORT

Date 05/02/17 | Project No. 17-1281 | Figure B-2



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

MATERIAL DATA

SYMBOL	SOURCE	DEPTH (ft.)	Material Description	USCS
○	B-2	8.5 - 9.0'	SANDY CLAY, yellow-brown to brown with red specks	CL
□	B-2	12.5 - 13.8'	CLAYEY SAND, yellow with mottling yellow-brown and olive	SC
△	B-2	6.0 - 6.5'	SANDY CLAY, yellow-brown to brown with red specks	CL
◇	B-2	20.0 - 21.3'	SANDSTONE, olive with mottling yellow-brown and orange oxidation staining	
▽	B-2	39.0 - 40.0'	SHALE MELANGE with SILTSTONE fragments, gray with black	

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

PARTICLE SIZE DISTRIBUTION REPORT

Date 05/02/17 | Project No. 17-1281 | Figure B-3

Boring:	B-2				
Sample:	R-1				
Depth, ft:	24.5-26				
Visual Description:	SANDSTONE, olive to olive-gray				
Test Type	Diametral				
Test Type ID	1				
FOR ANISOTROPIC ROCK:					
Bedding Angle Relative to Axis	None				
Loading Orientation Rel. to Bedding	N/A				
SAMPLE DIMENSIONS					
Width Perpendicular to loading, W, in	2.4				
Length Perpendicular to Loading, L, in	1.1				
Diameter Parallel to Loading, D, in	2.4				
Diameter at Failure, D', in	2.3				
STRENGTH DATA					
Peak Load, P, kN	0.338				
Peak Load, P, lbs	76.0				
Uncorr. Pt. Load Strength Index, I_s, MPa	0.095				
Uncorr. Pt. Load Strength Index, I_s, psi	13.8				
Size Correction Factor, F	1.08				
Corr. Pt. Load Strength Index, $I_{s(50)}$, Mpa	0.10				
Corr. Pt. Load Strength Index, $I_{s(50)}$, psi	15				
MOISTURE CONTENT DATA					
Moisture Condition of Specimen	As Received				
Pan No.					
Pan wt. (g)	19.49				
Total wet wt. (g)	153.89				
Total dry wt (g)	152.64				
Moisture Content, %	0.9				
Comments:	Invalid test. Did not fail through both loading points.				

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

POINT LOAD STRENGTH INDEX TESTS (ASTM D 5731)

Date 05/02/17 | Project No. 17-1281 | Figure B-4

Boring:	B-2	B-2			
Sample:	R-2	R-2			
Depth, ft:	26-29.5	26-29.5			
Visual Description:	SANDSTONE, olive to olive-gray with occasional orange oxidation staining	SANDSTONE, olive to olive-gray with occasional orange oxidation staining			
Test Type	Diametral	Diametral			
Test Type ID	1	1			
FOR ANISOTROPIC ROCK:					
Bedding Angle Relative to Axis	None	None			
Loading Orientation Rel. to Bedding	N/A	N/A			
SAMPLE DIMENSIONS					
Width Perpendicular to loading, W, in	2.4	2.4			
Length Perpendicular to Loading, L, in	1.9	1.9			
Diameter Parallel to Loading, D, in	2.4	2.4			
Diameter at Failure, D', in	2.3	2.3			
STRENGTH DATA					
Peak Load, P, kN	0.215	0.215			
Peak Load, P, lbs	48.3	48.3			
Uncorr. Pt. Load Strength Index, I_S, MPa	0.060	0.061			
Uncorr. Pt. Load Strength Index, I_S, psi	**8.7**	**8.8**			
Size Correction Factor, F	1.09	1.08			
Corr. Pt. Load Strength Index, $I_{S(50)}$, Mpa	0.06	0.07			
Corr. Pt. Load Strength Index, $I_{S(50)}$, psi	**9**	**10**			
MOISTURE CONTENT DATA					
Moisture Condition of Specimen	As Received	As Received			
Pan No.					
Pan wt. (g)	21.41	21.41			
Total wet wt. (g)	129.11	129.11			
Total dry wt (g)	126.48	126.48			
Moisture Content, %	**2.5**	**2.5**			
Comments:	Invalid test. Did not fail through both loading points.	Invalid test. Did not fail through both loading points.			

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

POINT LOAD STRENGTH INDEX TESTS (ASTM D 5731)

Date 05/02/17 | Project No. 17-1281 | Figure B-5

Boring:	B-2				
Sample:	R-4				
Depth, ft:	31-35				
Visual Description:	SILTSTONE, dark gray to black				
Test Type	Diametral				
Test Type ID	1				
FOR ANISOTROPIC ROCK:					
Bedding Angle Relative to Axis	60°				
Loading Orientation Rel. to Bedding	Perpendicular				
SAMPLE DIMENSIONS					
Width Perpendicular to loading, W, in	2.4				
Length Perpendicular to Loading, L, in	1.2				
Diameter Parallel to Loading, D, in	2.4				
Diameter at Failure, D', in	2.3				
STRENGTH DATA					
Peak Load, P, kN	0.745				
Peak Load, P, lbs	167.5				
Uncorr. Pt. Load Strength Index, I_S, MPa	0.207				
Uncorr. Pt. Load Strength Index, I_S, psi	**30.0**				
Size Correction Factor, F	1.09				
Corr. Pt. Load Strength Index, $I_{S(50)}$, Mpa	0.22				
Corr. Pt. Load Strength Index, $I_{S(50)}$, psi	**33**				
MOISTURE CONTENT DATA					
Moisture Condition of Specimen	As Received				
Pan No.					
Pan wt. (g)	22.26				
Total wet wt. (g)	127.89				
Total dry wt (g)	124.89				
Moisture Content, %	**2.9**				
Comments:					

HEAD-ROYCE TUNNEL EXPLORATION
Oakland, California

ROCKRIDGE GEOTECHNICAL

POINT LOAD STRENGTH INDEX TESTS (ASTM D 5731)

Date 05/02/17 | Project No. 17-1281 | Figure B-6

PROJECT: **4368 LINCOLN AVENUE** Oakland, California

Log of Boring B-1

Boring location:	See Site Plan, Figure 2	Logged by:	L. Medeiros
Date started: 4/13/12	Date finished: 4/13/12		
Drilling method:	Hollow-Stem Auger		
Hammer weight/drop: 140 lbs./30 inches	Hammer type: Downhole Wireline		
Sampler:	Sprague & Henwood (S&H), Standard Penetration Test (SPT)		

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0					5-inches Asphalt Concrete (AC)						
1–2	S&H	5 7 7	8	CL	CLAY with SAND (CL) olive-brown, medium stiff to stiff, moist, occasional rock fragments LL = 48, PI = 30; see Appendix B yellow-brown					24.1	89
2.5						PP		1,800			
3	S&H	7 10 13	14	SC	CLAYEY SAND (SC) yellow-brown, medium dense, moist				47		
6.5–7	S&H	4 10 12	13		▽ (4/13/12; 10:30 AM) olive mottled with yellow-brown, medium dense, moist, occasional sandstone fragments				47	22.3	102
9	S&H	9 6 9	9		loose to medium dense, wet						
11–13	SPT	15 16 19	35		SILTSTONE and SANDSTONE (interbedded) yellow-brown to gray, highly weathered, fractures infilled with sandy clay, wet						
16.5–19	SPT	50/5"	50/5"		SILTSTONE dark gray-brown, moderately hard to hard, weak, moderately weathered, with thin red deeply weathered SANDSTONE interbeds						

FILL (0.5 to 16.5 feet)

Boring terminated at a depth of 19 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 6.5 feet during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412

Figure: A-1

PROJECT:	**4368 LINCOLN AVENUE** Oakland, California	**Log of Boring B-2** PAGE 1 OF 1

Boring location: See Site Plan, Figure 2
Logged by: L. Medeiros
Date started: 4/13/12 | Date finished: 4/13/12
Drilling method: Hollow-Stem Auger
Hammer weight/drop: 140 lbs./30 inches | Hammer type: Downhole Wireline
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–2	S&H	19 29 46	45	CL	CLAY (CL) mixed with SILTSTONE fragments yellow-brown mottled with light olive, brown to dark brown rock fragments, stiff clay matrix, moist						
2–4.5	SPT	21 26 26	52	CL	SANDSTONE yellow-brown, low hardness, friable, deeply weathered, fine- to medium-grained, moist						
4.5–6.5	SPT	50/6"	30/6"		SILTSTONE dark olive-gray, moderately hard, moderately strong, moderately weathered, moist						

Boring terminated at a depth of 6.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412
Figure: A-2

Log of Boring B-3

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Boring location:	See Site Plan, Figure 2
Date started:	4/13/12
Date finished:	4/13/12
Drilling method:	Hollow-Stem Auger
Hammer weight/drop:	140 lbs./30 inches
Hammer type:	Downhole Wireline
Sampler:	Sprague & Henwood (S&H), Standard Penetration Test (SPT)
Logged by:	L. Medeiros

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0					7-inches Concrete						
1–2	S&H	5 10 16	16	CL	SANDY CLAY (CL) yellow-brown, very stiff, moist						
3–4	S&H	11 16 17	20	CL	yellow-brown mottled with olive LL = 33, PI = 18; see Appendix B					16.5	113
5–6				SC	CLAYEY SAND (SC) light olive-brown mottled with yellow-brown, dense, moist, residual soil						
7–9	S&H	9 22 45	40		SANDSTONE light yellow-brown and olive, low hardness, highly weathered, moderately strong, fine- to medium-grained						
9	SPT	50/4"	50/4"								

Boring terminated at a depth of 9.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412
Figure: A-3

PROJECT: **4368 LINCOLN AVENUE** Oakland, California

Log of Boring B-4

Boring location:	See Site Plan, Figure 2	Logged by:	L. Medeiros
Date started:	4/13/12	Date finished:	4/13/12
Drilling method:	Hollow-Stem Auger		
Hammer weight/drop:	140 lbs./30 inches	Hammer type:	Downhole Wireline
Sampler:	Sprague & Henwood (S&H)		

DEPTH (feet)	SAMPLES: Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–1.75					GC	CLAYEY GRAVEL with SAND (GC) dark olive-gray, medium dense, moist (FILL)						
1	S&H		10 50/4"	30/4"								
1.75–2.5						SANDSTONE yellow-brown, low hardness, highly weathered, moderately strong, fine- to medium-grained, moist						
2	S&H		50/4"	50/4"								

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Boring terminated at a depth of 2.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412

Figure: A-4

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Log of Boring B-5

Boring location:	See Site Plan, Figure 2
Date started:	4/13/12
Date finished:	4/13/12
Drilling method:	Hollow-Stem Auger
Hammer weight/drop:	140 lbs./30 inches
Hammer type:	Downhole Wireline
Sampler:	Sprague & Henwood (S&H)
Logged by:	K. Ryan

DEPTH (feet)	SAMPLES: Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
						6-inches Aggregate Base (AB)						
1	S&H		30 50/4"	30/4"	CL	CLAY (CL) brown, very stiff, dry						
2–3	S&H		13 15 18	20		SANDSTONE orange-brown, deeply weathered, weak, moderately fractured, fine-grained						
5	S&H		50/6"	30/6"								

LABORATORY TEST DATA

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412
Figure: A-5

PROJECT: **4368 LINCOLN AVENUE**
Oakland, California

Log of Boring B-6

Boring location:	See Site Plan, Figure 2
Date started:	4/13/12
Date finished:	4/13/12
Drilling method:	Hollow-Stem Auger
Hammer weight/drop:	140 lbs./30 inches
Hammer type:	Downhole Wireline
Sampler:	Sprague & Henwood (S&H), Standard Penetration Test (SPT)
Logged by:	K. Ryan

DEPTH (feet)	SAMPLES: Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
					5.5-inches Asphalt Concrete (AC)						
					6-inches Aggregate Base (AB)						
1				CL	CLAY (CL) FILL gray-brown, stiff, moist, trace pebbles and coarse grained sand						
2	S&H	4 6 9	9	CL	CLAY (CL) yellow-brown, stiff, moist, some fine-grained sand						
3	S&H	11 32 41	44	CL	SANDY CLAY (CL) yellow-brown, very stiff, moist, residual sandstone						
4					SANDSTONE yellow-brown, deeply weathered, weak, thinly bedded with gray shale, fine- to medium- grained						
5											
6	SPT	30 50/6"	50/6"								

Boring terminated at a depth of 6 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412

Figure: A-6

PROJECT: **4368 LINCOLN AVENUE** Oakland, California

Log of Boring B-7

Boring location: See Site Plan, Figure 2

Logged by: K. Ryan

Date started: 4/13/12 | Date finished: 4/13/12

Drilling method: Hollow-Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Downhole Wireline

Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
						3-inches Asphalt Concrete (AC)						
1					CL	CLAY (CL) brown, medium stiff to stiff, moist						
2	S&H		4 6 7	8		mottled yellow-brown and gray, stiff, trace fine-grained sand, oxidized root tracks						
3	S&H		5 6 25	19		LL = 47, PI = 30; see Appendix B mottled dark yellow-brown and gray, very stiff					23.5	99
4						SHALE dark gray, deeply weathered, weak, thinly laminated						
5	SPT		28 30 40	70								
6												

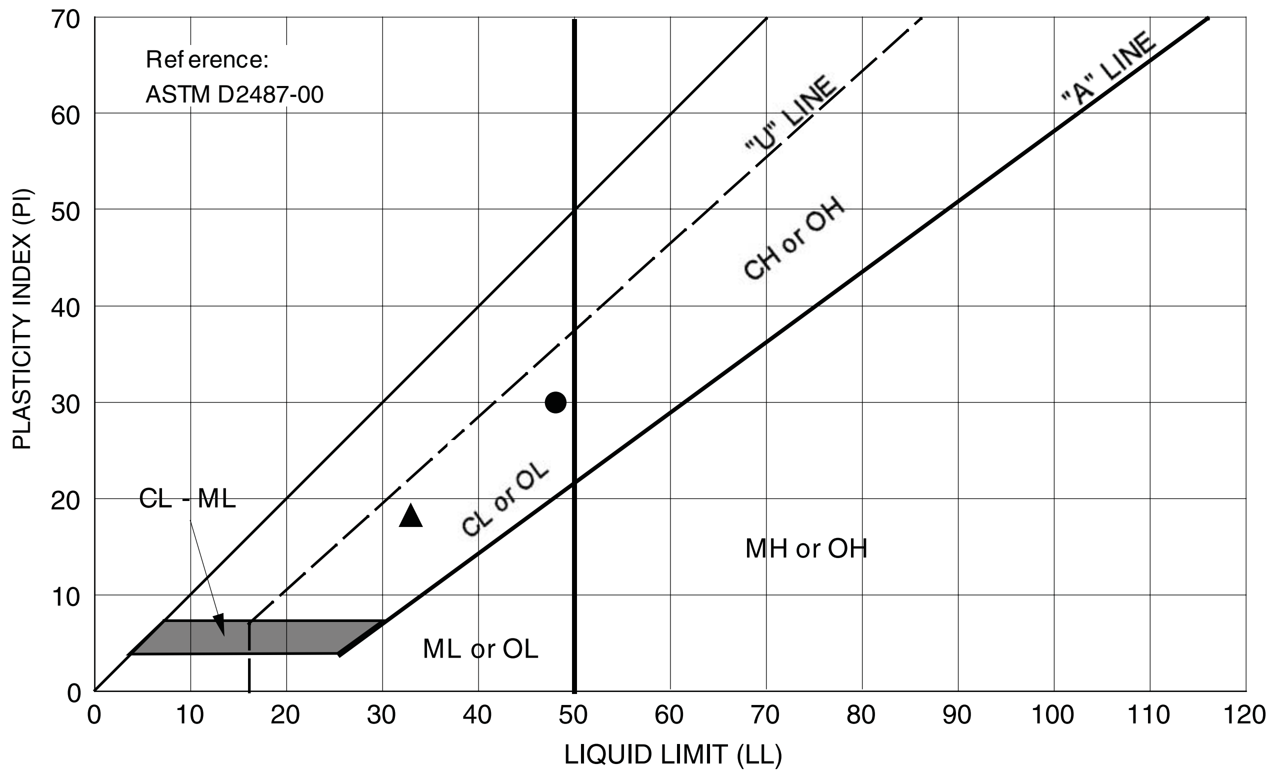
Boring terminated at a depth of 6 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.6, to account for sampler type.

ROCKRIDGE GEOTECHNICAL

Project No.: 12-412

Figure: A-7



Symbol	Source	Description and Classification	Natural M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-1 at 1.25 feet	CLAY with SAND (CL), olive-brown	24.1	48	30	--
▲	B-3 at 3.5 feet	SANDY CLAY (CL), yellow-brown mottled with olive	16.5	33	18	--
■	B-7 at 3.0 feet	CLAY (CL), mottled dark yellow-brown and gray	23.5	47	30	--

4368 LINCOLN AVENUE
Oakland, California

ROCKRIDGE GEOTECHNICAL

PLASTICITY CHART

Date 04/30/12 | Project No. 12-412 | Figure B-1

Date Completed:	12/31/02	Sampler:	Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	Method:	6" Hollow Stem Auger
Total Depth:	5.5 ft	Hammer Wt:	140 lbs., 30" drop

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION (Surface Elevation: Estimated feet (MSL))
								ASPHALT
	Bulk					R-Value = 13		Dark brown, **SANDY LEAN CLAY (CL)**, moist, stiff, some fine to medium gravel (FILL)
	SPT	14						Olive-brown, **LEAN CLAY (CL)**, moist, stiff, some sand, trace fine gravel (FILL)
5	SPT	14						Red-brown, **CLAYEY SAND (SC)**, moist, medium dense (FILL)
								End of Boring No groundwater encountered Boring backfilled with grout Note: Bulk sample taken from 1 to 4 feet
10								
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-1
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A2

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

Date Completed:	12/31/02
Logged By:	M. GIBSON
Total Depth:	13.5 ft
Sampler:	Modified California Sampler 2.5 inch O.D., 2.0 inch I.D., Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Method:	6" Hollow Stem Auger
Hammer Wt:	140 lbs., 30" drop

Depth,ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION — *Surface Elevation:* Estimated feet (MSL)
0								**ASPHALT**
		14		10				Gray-brown, **SANDY LEAN CLAY (CL)**, moist, stiff, medium plasticity, some red mottling (FILL)
5		8					0.50	Olive-brown, **SANDY LEAN CLAY (CL)**, moist to wet, medium stiff, some red inclusions, (FILL)
10		58						Gray to gray-brown, **SANDSTONE**, friable (R6), slightly moist, very dense
		50/1"						-weak to moderately strong (R4-R5)
								End of Boring No groundwater encountered Boring backfilled with grout
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-2
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A3

Date Completed:	12/31/02		Sampler:	Modified California Sampler 2.5 inch O.D., 2.0 inch I.D., Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON		Method:	6" Hollow Stem Auger
Total Depth:	14.0 ft		Hammer Wt:	140 lbs., 30" drop

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION (Surface Elevation: Estimated feet (MSL))
								ASPHALT
								Red-brown, **CLAYEY SAND (SC)**, moist (FILL)
		18	112	18			0.75	Gray-brown to red-brown, **SANDY LEAN CLAY (CL)**, moist, stiff, medium plastic (FILL)
5							1.25	
		24		17		LL=34; PI=18	3.75	Gray-brown, **SANDY LEAN CLAY (CL)**, moist, very stiff to hard
		45						
		50/5"						Gray-brown, **SHALE**, slightly moist
10								Gray-brown, **SANDSTONE**, slightly moist to dry, weak to moderately strong (R4-R5)
		50/2"						
								End of Boring No groundwater encountered Boring backfilled with grout
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-3
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A4

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

Date Completed:	12/31/02	*Sampler:*	Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	*Method:*	6" Hollow Stem Auger
Total Depth:	5.5 ft	*Hammer Wt:*	140 lbs., 30" drop

Depth,ft	FIELD		LABORATORY				Pen, tsf	DESCRIPTION
	Sample	Blows/ft	Dry Density pcf	Moisture Content %	Compress. Strength tsf	Other Tests		*Surface Elevation:* Estimated feet (MSL)
								Gray-brown, **SANDY LEAN CLAY (CL)**, moist, very stiff (FILL)
		50/5"						Gray-brown, **SANDSTONE**, moist, friable (R6)
5		50/4'						
								End of Boring No groundwater encountered Boring backfilled with grout Note: Bulk sample taken from 1 to 4 feet
10								
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-4
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE **A5**

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

Date Completed:	12/31/02	Sampler:	Modified California Sampler 2.5 inch O.D., 2.0 inch I.D., Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	Method:	6" Hollow Stem Auger
Total Depth:	13.5 ft	Hammer Wt:	140 lbs., 30" drop

Depth, ft	FIELD Sample	FIELD Blows/ft	LABORATORY Dry Density pcf	LABORATORY Moisture Content %	LABORATORY Compress. Strength tsf	LABORATORY Other Tests	Pen, tsf	DESCRIPTION — Surface Elevation: Estimated feet (MSL)
								Brown, **POORLY GRADED SAND (SP)**, moist, some fine to medium gravel (FILL)
						42% fines	>4.0	Brown, **SILTY SAND (SM)**, moist, medium dense (FILL)
		7					0.50	Gray-brown, **SANDY LEAN CLAY (CL)**, moist, medium stiff
5			121	18			1.75	
		39						Red-yellow, **SANDSTONE**, moist, weak (R5)
		50/2"						-becoming less weathered
10								
		50/1"						
15								**End of Boring** No groundwater encountered Boring backfilled with grout
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-5
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A6

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

Date Completed:	12/31/02	Sampler:	Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	Method:	6" Hollow Stem Auger
Total Depth:	6.5 ft	Hammer Wt:	140 lbs., 30" drop

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION — Surface Elevation: Estimated feet (MSL)
								Dark brown, **POORLY GRADED SAND (SP)**, moist, some fines (FILL)
							1.50	Light gray-brown, **CLAYEY SAND (SC)**, moist, medium dense, fine sand (FILL)
		11		16		LL=27; PI=12		Gray-brown, **SANDY LEAN CLAY (CL)**, moist, stiff, fine sand (FILL)
5		24					2.75	-becoming darker
								End of Boring No groundwater encountered Boring backfilled with grout Note: Bulk sample from 1 to 4 feet
10								
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-6
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A7

H:24689 LINCOLN CHILD CENTREBORINGS.GPJ

Date Completed:	12/31/02	*Sampler:*	Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	*Method:*	6" Hollow Stem Auger
Total Depth:	3.3 ft	*Hammer Wt:*	140 lbs., 30" drop

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION (*Surface Elevation:* Estimated feet (MSL))
								Dark gray-brown, **SANDY LEAN CLAY (CL)**, moist, stiff (FILL)
						R-Value = 10		
		56/7"						
								Red-yellow, **SANDSTONE**
								End of Boring No groundwater encountered Boring backfilled with grout Note: Bulk sample from 1 to 3 feet
5								
10								
15								
20								
25								

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-7
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE **A8**

Date Completed:	12/31/02	Sampler: Standard Penetration Split Spoon Sampler 2.0 inch O.D., 1.4 inch I.D.
Logged By:	M. GIBSON	Method: 6" Hollow Stem Auger
Total Depth:	6.5 ft	Hammer Wt: 140 lbs., 30" drop

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION — Surface Elevation: Estimated feet (MSL)
0								Dark gray-brown, **SANDY LEAN CLAY (CL)**, moist
2	▲	69		19				Yellow-brown, **SANDSTONE**, slightly moist, friable (R6)
5	▲	70						
6.5								**End of Boring** No groundwater encountered Boring backfilled with grout
10								
15								
20								
25								

KLEINFELDER

PROJECT NO. 24689

LOG OF BORING NO. B-8
LINCOLN CHILD CENTER
OAKLAND, CA

PLATE A9

H:\24689 LINCOLN CHILD CENTRE\BORINGS.GPJ

PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA

BORING 1

Drilling Method: 5 1/2" Flight Auger
Date Drilled: 9/18/98
Logged By: LP

DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass				0						0
Dark brown Lean Clay with rock fragments to ½" (Fill)	Moist	Soft	CL							
Brown to yellow brown Gravelly Lean Clay with gravel to 1 ½" and rootlets (Fill)	Moist	Stiff	CL			15	2.5	100.3	18.9	
Dark brown Gravelly Lean Clay with gravel to 3/4" (Fill)	Moist	Stiff	CL	5		10	1.0			5
Brown Sandy Clay	Moist	Stiff	CL	10		45/ 12"				10
Yellow brown Clayey fine Sand with thin gray lean clay streaks, highly weathered sandstone	Moist	Dense	SC				3.6			
Boring terminated at 14.2 feet. No groundwater encountered.				15		40/2"				15
				20						20
				25						25

PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA

Drilling Method: 5 1/2" Flight Auger

Date Drilled: 9/18/98
Logged By: LP

BORING 2

DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass				0						0
Dark brown Sandy Lean Clay with local ½" gravel (Fill)	Moist	Soft	CL							
Grayish brown Sandy Lean Clay with local pockets of fat clay (Fill)	Moist	Stiff	CL	5		15	1.5	111.6	15.8	5
Grayish brown mottled with reddish brown Sandy Lean Clay with rock fragments (Fill)	Moist	V.Stiff	CL			24	1.0			
Gray brown Clayey Gravel rocky zone (Fill)	Moist	Dense	GC							
Dark brown to grayish brown Sandy Clay mottled with reddish brown fat clay, rock fragments (Fill)	Moist	Stiff	CL	10		15	1.0 0.7 1.2			10
Dark gray to greenish gray Sandy Lean Clay	Moist	Stiff	CL	15						15
Grayish green very fine Sandy Lean Clay completely weathered sandstone	Moist	V.Stiff	CL			34	2.0 2.5 3.0			
Grayish green friable highly weathered Sandstone	Moist	Med. Dense								
Boring terminated at 19 feet. No groundwater encountered.				20 25						20 25

PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA
Drilling Method: 5 1/2" Flight Auger

Date Drilled: 9/18/98
Logged By: LP

BORING 3

DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass				0						0
Dark brown fine Sandy Clay with fine gravel (Fill)	Moist	Soft	CL							
Brown Sandy Lean Clay (Fill)	Moist to Wet	Stiff	CL			14	1.5 >0.25	108.2	10.9	
Brown weak to friable highly weathered Sandstone, joint surface discolored dark to reddish brown (Bedrock)	Moist	Dense		5		30/4"				5
Boring terminated at 8.5 feet. No groundwater encountered.				10						10
				15						15
				20						20
				25						25

PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA
Drilling Method: 5 1/2" Flight Auger

Date Drilled: 9/18/98
Logged By: LP

BORING 4

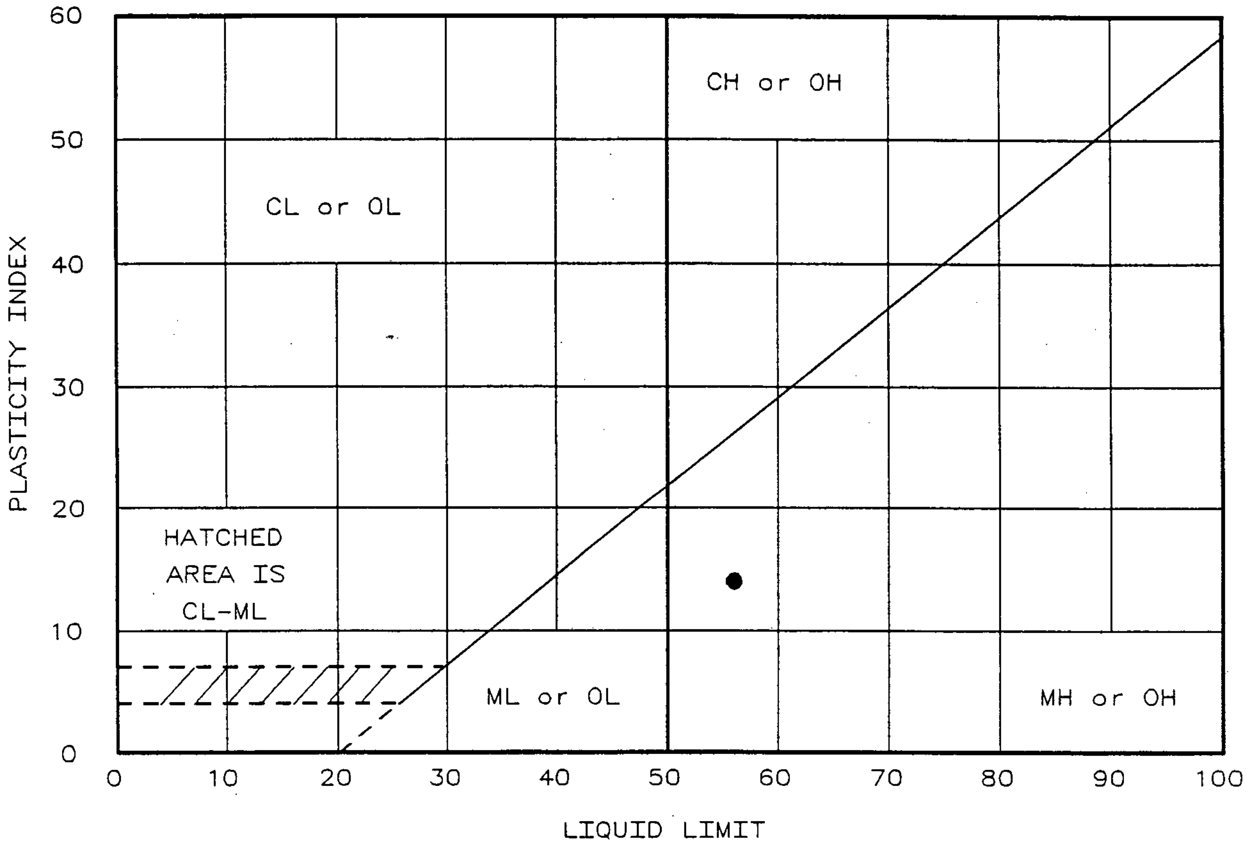
DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass				0						0
Dark brown fine Sand Lean Clay (Fill)	Moist	Stiff	CL			32	2.8	70.0	28.2	
Brown completely weathered Sandstone in lean clay matrix, rocky (Fill)	Moist	Dense to V.Stiff	GC to CL							
Dark gray brown fine Silty Sand	Moist	Dense	SM	5						5
Brown to yellow brown weak to friable highly weathered fine grained Sandstone (Bedrock)	Moist	Dense				45/ 15"				
Boring terminated at 8.5 feet due to refusal. No groundwater encountered.				10						10
				15						15
				20						20
				25						25

PROJECT NAME: Lincoln Child Center
LOCATION: 4368 Lincoln Avenue, Oakland, CA
Drilling Method: 5 1/2" Flight Auger
Date Drilled: 9/18/98
Logged By: LP

BORING 5

DESCRIPTION AND REMARKS	Moisture Condition	Consistancy	USCS Soil Classifcation	Depth (ft)	Sample Symbol	Penet. Resist (Blows/ft)	Pocket Pen (TSF)	Dry Density (PCF)	Moisture Content (%)	Water Level
Grass										
Dark brown Sandy Lean Clay (Fill)	Moist	Stiff	CL	0						0
Grayish brown fine grained Silty Sand	Moist	Med. Dense	SM							
Brown completely weathered firm to friable fine grained Sandstone						32				
				5						5
Brown to yellowish brown with zones of reddish brown clay						20	3.2			
				10						10
Boring terminated at 12 feet due to refusal. No groundwater encountered.										
				15						15
				20						20
				25						25

LIQUID AND PLASTIC LIMITS TEST REPORT



	Location + Description	LL	PL	PI	-200	ASTM D 2487-90
●	LINCOLN CHILD CENTER	56	42	14		

Project No.: G13134
Project: LINCOLN CHILD CENTER

Client: LINCOLN CHILD CENTER
Location:

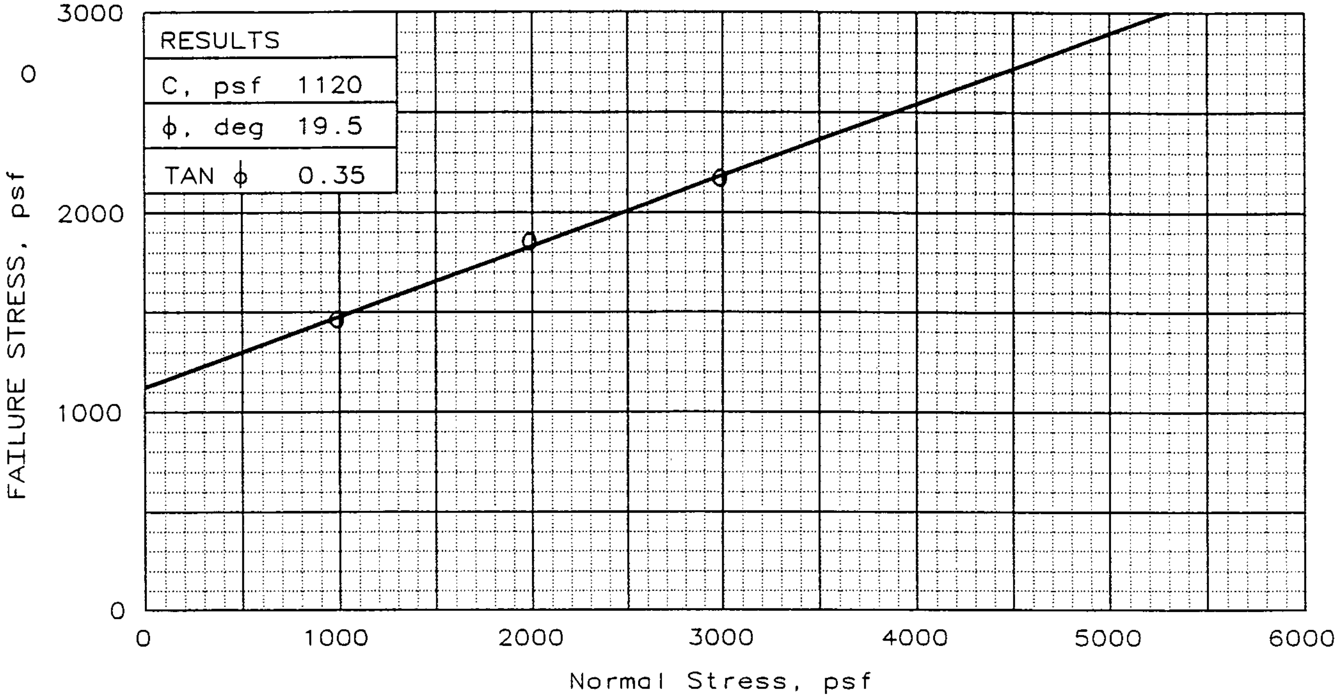
Date: 9-22-98

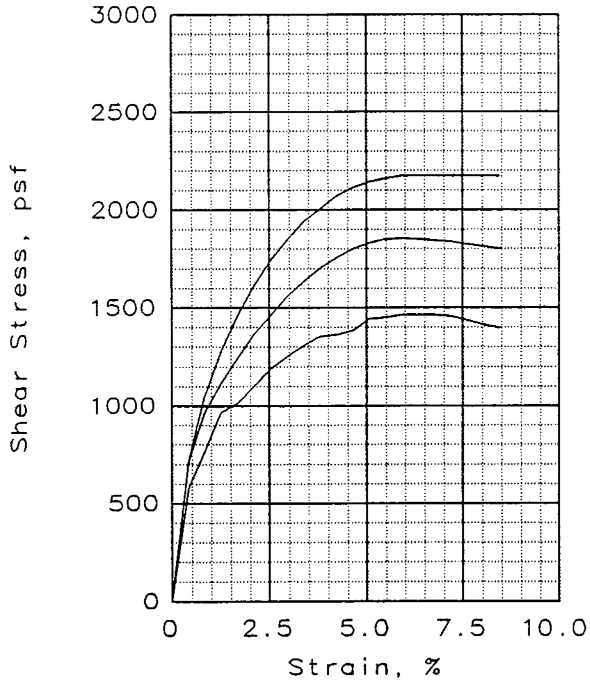
Remarks:
COMPOSITE OF UPPER 18 INCHES IN BORINGS

LIQUID AND PLASTIC LIMITS TEST REPORT

Consolidated Engineering Laboratories

Fig. No. B1





SAMPLE NO.:		1	2	3
INITIAL	WATER CONTENT, %	19.6	18.6	16.5
	DRY DENSITY, pcf	17.7	17.1	15.8
	SATURATION, %	6.2	5.7	4.6
	VOID RATIO	8.354	8.668	9.481
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	20.8	20.7	19.3
	DRY DENSITY, pcf	17.7	17.1	15.8
	SATURATION, %	6.6	6.3	5.4
	VOID RATIO	8.354	8.668	9.481
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
NORMAL STRESS, psf		1000	2000	3000
FAILURE STRESS, psf		1462	1856	2172
STRAIN, %		5.9	5.9	5.9
ULTIMATE STRESS, psf				
STRAIN, %				
Strain rate, %/min		0.25	0.25	0.25

SAMPLE TYPE: MOD. CAL.
DESCRIPTION: BRN SANDY CLAY

ASSUMED SPECIFIC GRAVITY= 2.65
REMARKS: SAMPLE #B1-3

Fig. No. B2

CLIENT:

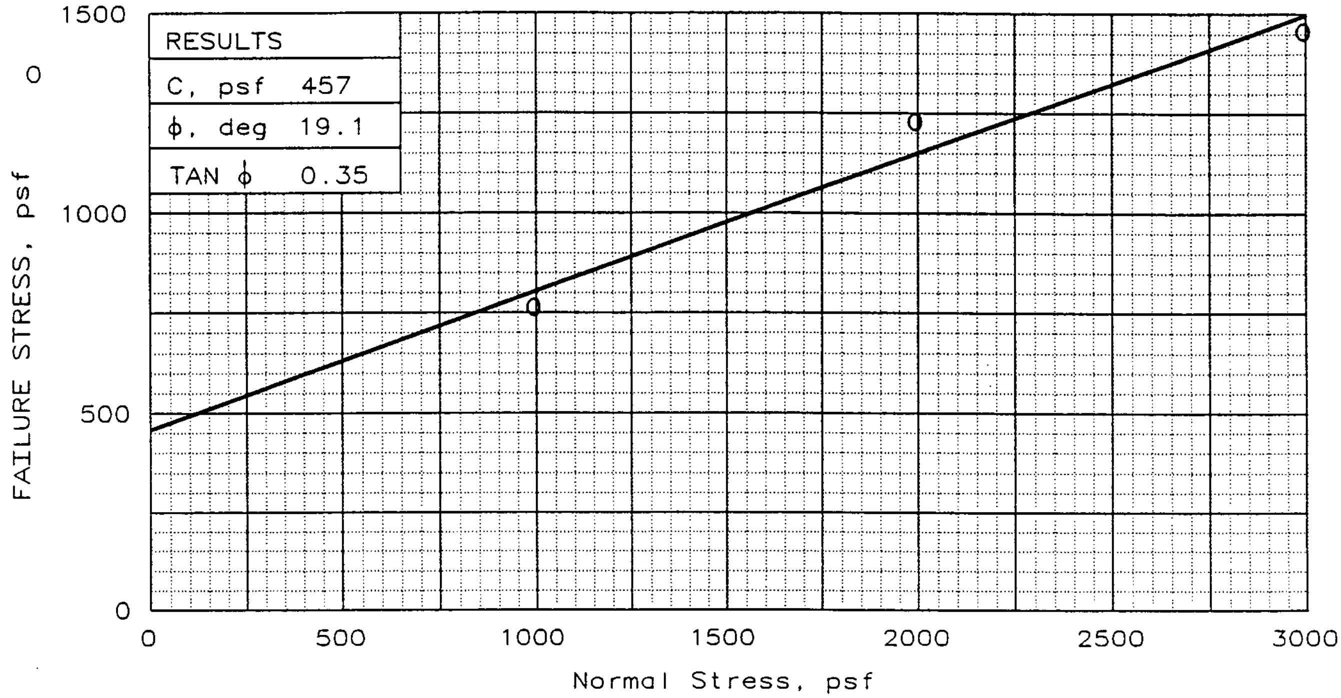
PROJECT: LINCOLN CHILD CENTER

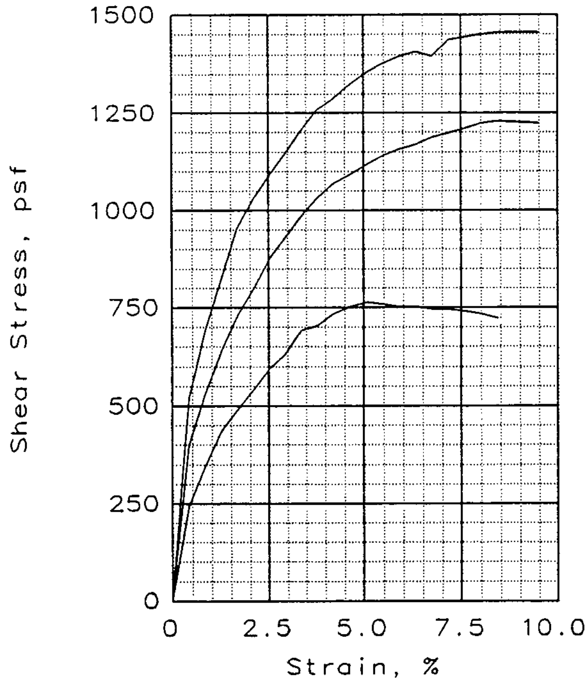
SAMPLE LOCATION: BORING 1, DEPTH 10.5-11
SANDSTONE

PROJ. NO.: G13134 DATE: 9-23

DIRECT SHEAR TEST REPORT

Consolidated Engineering Laboratories





SAMPLE NO.:		1	2	3
INITIAL	WATER CONTENT, %	16.8	18.3	19.6
	DRY DENSITY, pcf	15.3	16.2	17.0
	SATURATION, %	4.5	5.3	6.0
	VOID RATIO	9.811	9.205	8.707
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	19.0	20.5	152.1
	DRY DENSITY, pcf	15.3	16.2	17.0
	SATURATION, %	5.1	5.9	46.3
	VOID RATIO	9.811	9.205	8.707
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
NORMAL STRESS, psf		1000	2000	3000
FAILURE STRESS, psf		764	1229	1456
STRAIN, %		5.1	8.4	8.4
ULTIMATE STRESS, psf				
STRAIN, %				
Strain rate, %/min		0.25	0.25	0.25

SAMPLE TYPE: MOD. CAL.
DESCRIPTION: BRN SANDY CLAY

ASSUMED SPECIFIC GRAVITY= 2.65
REMARKS: SAMPLE #B2-2-1

CLIENT:

PROJECT: LINCOLN CHILD CENTER

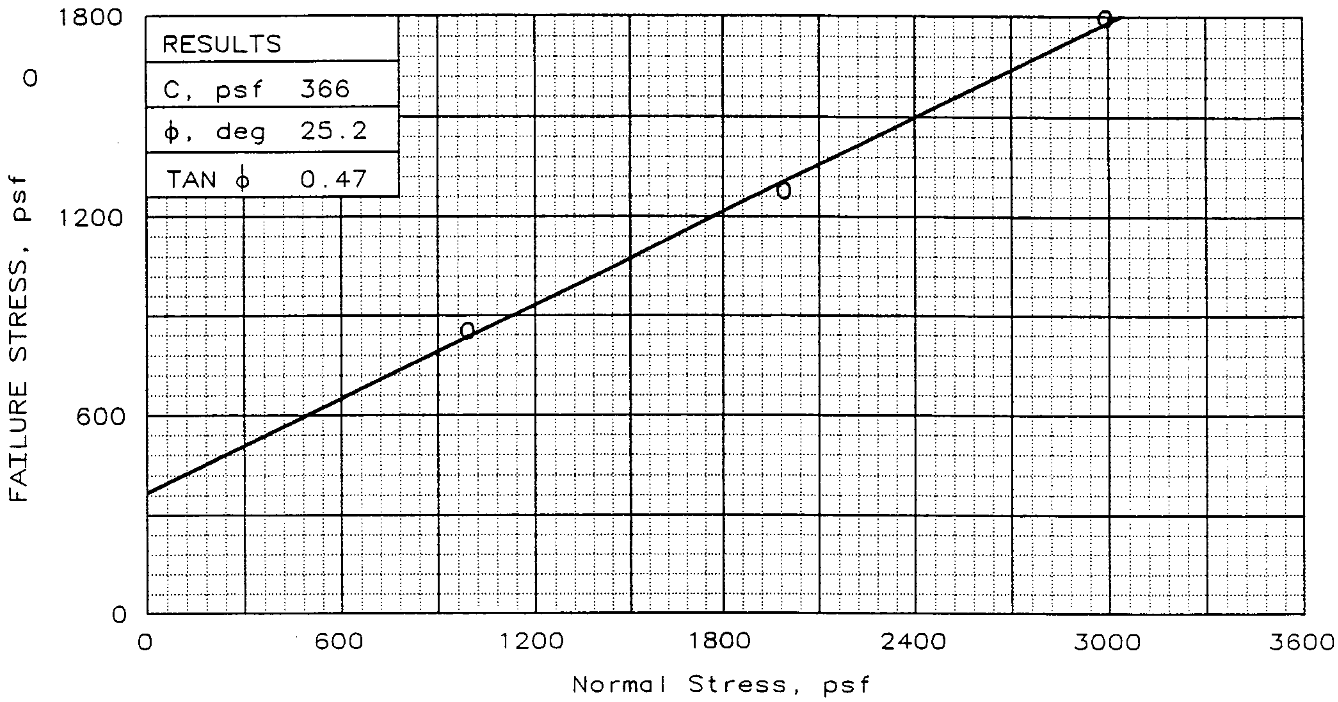
SAMPLE LOCATION: BORING 2, DEPTH 6-6.5
FILL

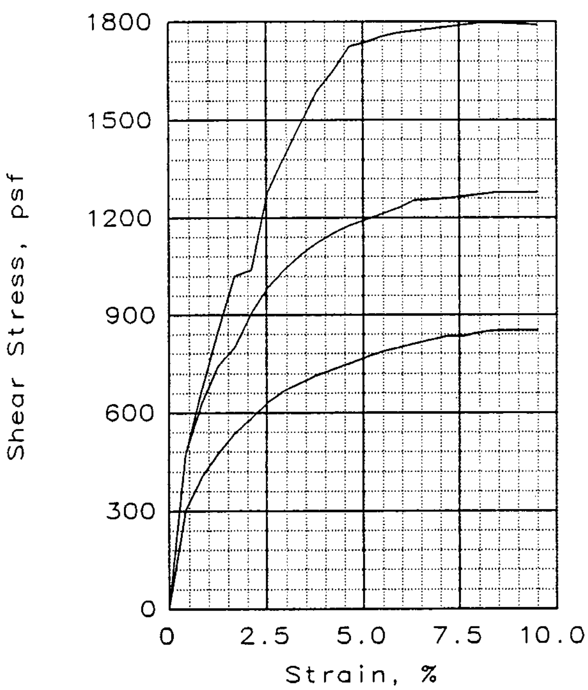
PROJ. NO.: G13134 DATE: 9-23

DIRECT SHEAR TEST REPORT

Consolidated Engineering Laboratories

Fig. No. B3





SAMPLE NO.:		1	2	3
INITIAL	WATER CONTENT, %	16.7	18.1	15.7
	DRY DENSITY, pcf	15.7	16.6	15.0
	SATURATION, %	4.6	5.3	4.1
	VOID RATIO	9.548	8.967	10.025
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	18.5	19.8	17.4
	DRY DENSITY, pcf	15.7	16.6	15.0
	SATURATION, %	5.1	5.8	4.6
	VOID RATIO	9.548	8.967	10.025
	DIAMETER, in	2.37	2.37	2.37
	HEIGHT, in	1.00	1.00	1.00
NORMAL STRESS, psf		1000	2000	3000
FAILURE STRESS, psf		853	1277	1796
STRAIN, %		8.4	8.4	8.0
ULTIMATE STRESS, psf				
STRAIN, %				
Strain rate, %/min		0.25	0.25	0.25

SAMPLE TYPE: MOD. CAL.
DESCRIPTION: BRN SANDY CLAY

ASSUMED SPECIFIC GRAVITY= 2.65
REMARKS: SAMPLE #B2-2-2

Fig. No. B4

CLIENT:

PROJECT: LINCOLN CHILD CARE

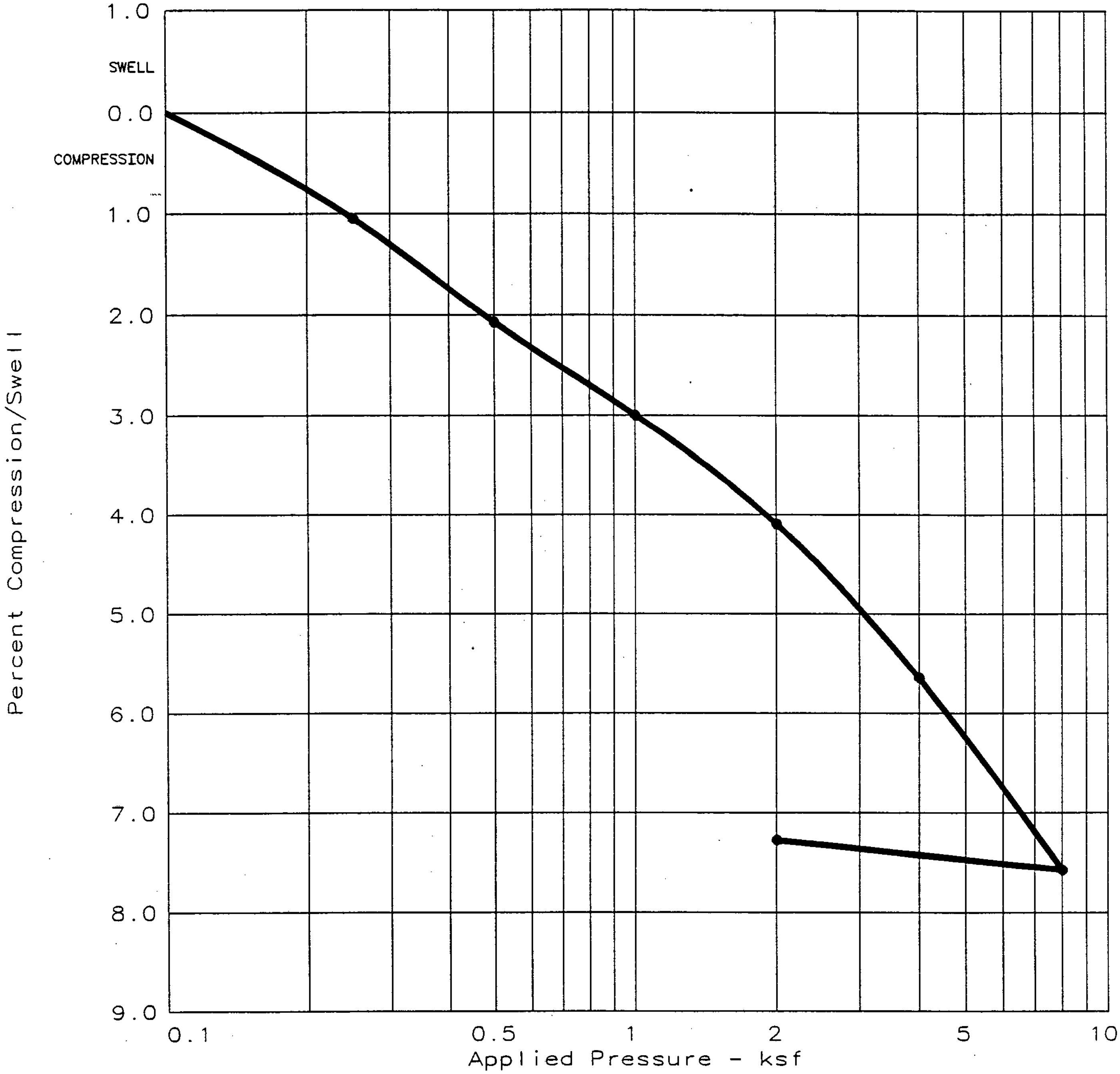
SAMPLE LOCATION: BORING 2, DEPTH 6.5-7
FILL

PROJ. NO.: G13134 DATE: 9-23

DIRECT SHEAR TEST REPORT

Consolidated Engineering Laboratories

CONSOLIDATION TEST REPORT



Natural Saturation	Natural Moisture	Dry Dens. (pcf)	LL	PI	Sp.Gr.	Initial void ratio
72.9 %	18.9 %	109.1			2.650	0.6878

TEST RESULTS	MATERIAL DESCRIPTION
	BRN LEAN CLAY W/GRAVEL

Project No.: G13134
Project: LINCOLN CHILD CARE
Location: BORING 1, DEPTH 6-6.5

Date: 9-21-98

CONSOLIDATION TEST REPORT

Consolidated Engineering Laboratories

Remarks:

SAMPLE BORING 1, AT A DEPTH OF 5 FEET, FILL

Fig. No. B5

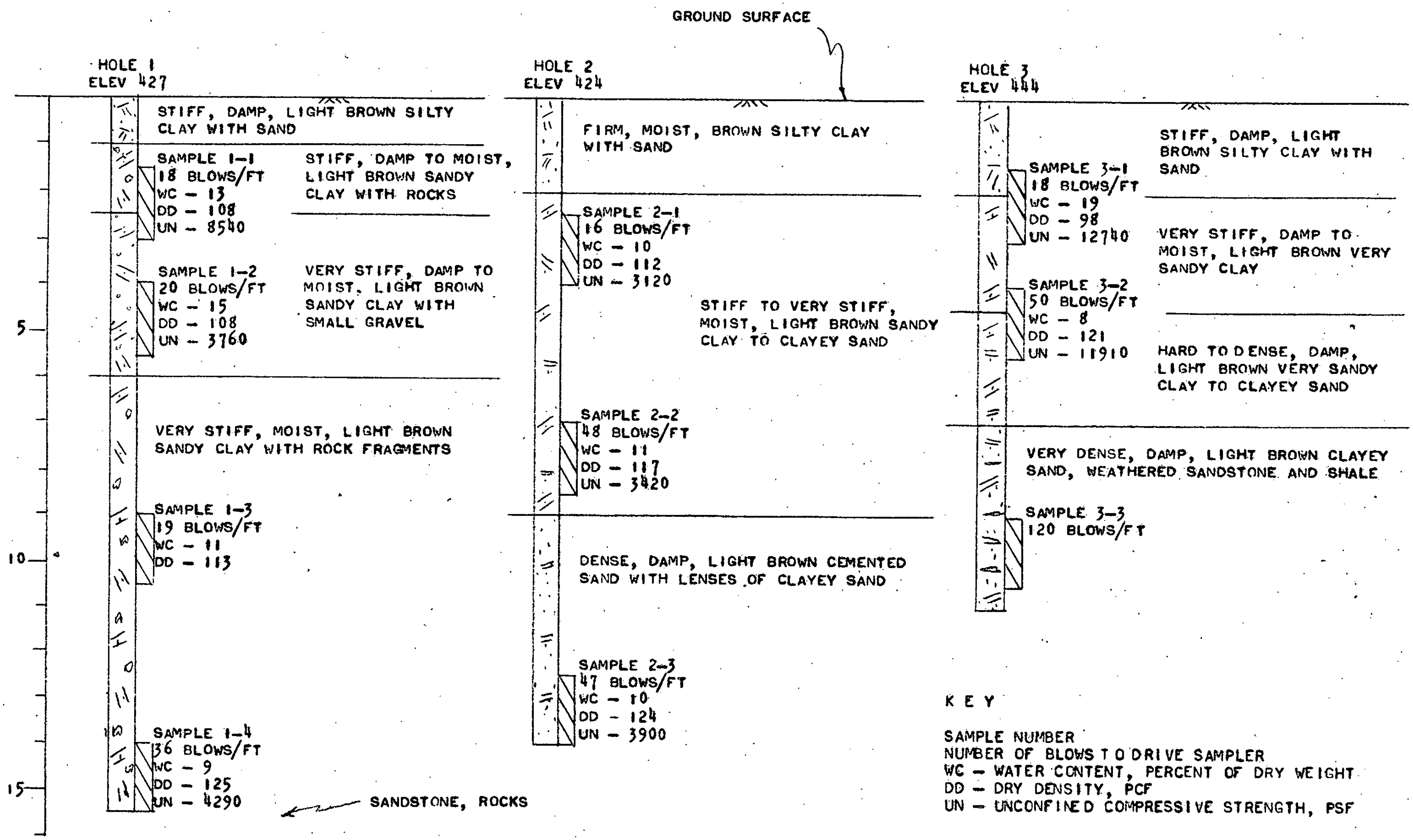


FIG. 2 – LOGS OF BORINGS

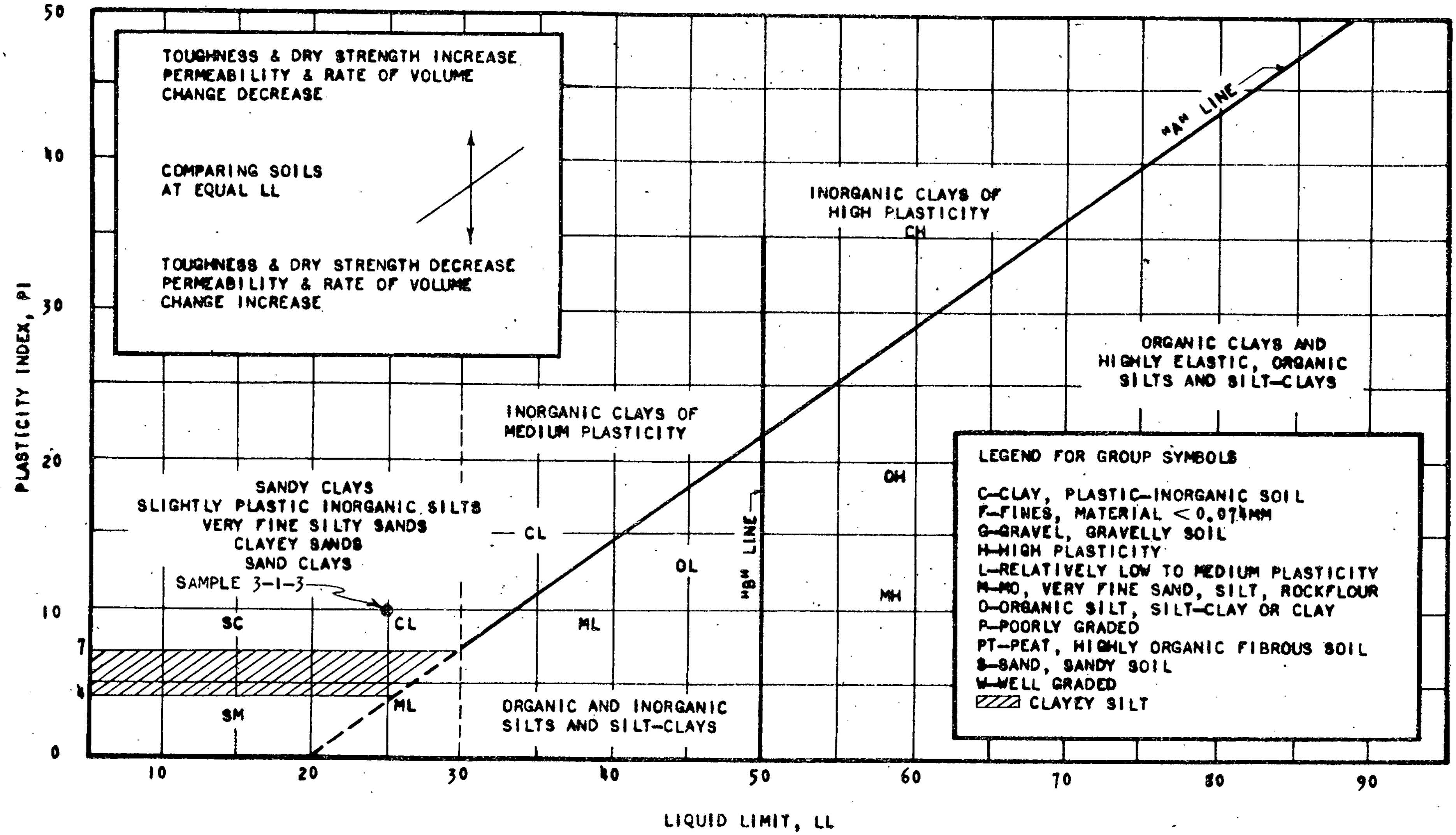


FIG. 3 — PLASTICITY CHART

Appendix 9

ECAP Consistency Checklist

Head-Royce School, February 2021

CITY OF OAKLAND

Equitable Climate Action Plan Consistency Checklist

250 Frank H. Ogawa Plaza, Suite 2114, Oakland, CA 94612-2031
Zoning Information: 510-238-3911
https://www.oaklandca.gov/topics/planning

The purpose of this Equitable Climate Action Plan Consistency Review Checklist is to determine, for purposes of compliance with the California Environmental Quality Act (CEQA), whether a development project complies with the City of Oakland Equitable Climate Action Plan (ECAP) and the City of Oakland's greenhouse gas (GHG) emissions reduction targets. CEQA Guidelines require the analysis of GHG emissions and potential climate change impacts from new development.

- If a development project completes this Checklist and can qualitatively demonstrate compliance with the Checklist items as part of the project's design, or alternatively, demonstrate to the City's satisfaction why the item is not applicable, then the project will be considered in compliance with the City's CEQA GHG Threshold of Significance.
- If a development project cannot meet all of the Checklist items, the project will alternatively need to demonstrate consistency with the ECAP by complying with the City of Oakland GHG Reduction Plan Condition of Approval.
- If the project cannot demonstrate consistency with the ECAP in either of those two ways, the City will consider the project to have a significant effect on the environment related to GHG emissions.

Application Submittal Requirements

1. The ECAP Consistency Checklist applies to all development projects needing a CEQA GHG emissions analysis, including a specific plan consistency analysis.
2. If required, the ECAP Consistency Review Checklist must be submitted concurrently with the City of Oakland Basic Application.

Application Information

Applicant's Name/Company: Jerry Mullaney / CFO, Head Royce School

Property Address: 4368 Lincoln Ave, Oakland, CA 94602

Assessor's Parcel Number: 029 100900600

Phone Number: 510.531.1300

E-mail: jmullaney@headroyceschool.org

Checklist Item (Check the appropriate box and provide explanation for your answer).			
Transportation & Land Use			
1. Is the proposed project substantially consistent with the City's over-all goals for land use and urban form, and/or taking advantage of allowable density and/or floor area ratio (FAR) standards in the City's General Plan? (TLU1)	**Yes**	**No**	**N/A**
	x		
Please explain how the proposed project is substantially consistent with the City's General Plan with respect to density and FAR standards, land use, and urban form. The Project would redevelop an existing institutional campus for school uses, consistent with the Project site's General Plan Land Use designation of Institutional. The Project's FAR is within the allowable FAR (8.0) set by the General Plan.			
2. For developments in "Transit Accessible Areas" as defined in the Planning Code, would the project provide: i) less than half the maximum allowable parking, ii) the minimum allowable parking, or iii) take advantage of available parking reductions? (TLU1)	**Yes**	**No**	**N/A**
			x
Please explain how the proposed project meets this action item.			
3. For projects including structured parking, would the structured parking be designed for future adaptation to other uses? (Examples include, but are not limited to: the use of speed ramps instead of sloped floors.). (TLU1)	**Yes**	**No**	**N/A**
	x		
Please explain how the proposed project meets this action item. Structured parking is proposed in Phase 4 of the Project. The structured parking would use speed ramps rather than sloped floors to allow future adaptation.			
4. For projects that ***are*** subject to a Transportation Demand Management Program, would the project include transit passes for employees and/or residents? (TLU1)	**Yes**	**No**	**N/A**
	x		
Please explain how the proposed project meets this action item. The existing TDM plan, which would apply to the Project, includes subsidized busing for students.			

Item	Yes	No	N/A
5. For projects that are ***not*** subject to a Transportation Demand Management Program, would the project incorporate one or more of the optional Transportation Demand Management measures that reduce dependency on single-occupancy vehicles? (Examples include but are not limited to transit passes or subsidies to employees and/or residents; carpooling; vanpooling; or shuttle programs; on-site carshare program; guaranteed ride home programs) (TLU1 & TLU8)			x

Please explain how the proposed project meets this action item.

Item	Yes	No	N/A
6. Does the project comply with the Plug-In Electric Vehicle (PEV) Charging Infrastructure requirements (Chapter 15.04 of the Oakland Municipal Code), if applicable? (TLU2 & TLU-5)	x		

Please explain how the proposed project meets this action item.

The Project will comply with PEV Charging Infrastructure requirements in the Oakland Municipal Code and EV chargers will be provided as part of the Project, as required.

Item	Yes	No	N/A
7. Would the project reduce or prevent the direct displacement of residents and essential businesses? (For residential projects, would the project comply with SB 330, if applicable? For projects that demolish an existing commercial space, would the project include comparable square footage of neighborhood serving commercial floor space.) (TLU3)			x

Please explain how the proposed project meets this action item.

The Project site has been used for parking, storage and occasional special events by Head Royce School since approximately 2017, when the Lincoln Child Center moved its operations to downtown Oakland. The Project would not displace residents or essential businesses.

	Yes	No	N/A
8. Would the project prioritize sidewalk and curb space consistent with the City's adopted Bike and Pedestrian Plans? (The project should not prevent the City's Bike and Pedestrian Plans from being implemented. For example, do not install a garage entrance where a planned bike path would be unless otherwise infeasible due to Planning Code requirements, limited frontage or other constraints.) (TLU7)	x		

Please explain how the proposed project meets this action item.

The Project will prioritize sidewalk and curb space by minimizing curb cuts and would not prevent the implementation of City's Bike and Pedestrian Plans.

Buildings

	Yes	No	N/A
9. Does the project not create any new natural gas connections/hook-ups? (B1 & B2)	x		

Please explain how the proposed project meets this action item.

The Project would not create any new natural gas connections or hookups.

	Yes	No	N/A
10. Does the project comply with the City of Oakland Green Building Ordinance (Chapter 18.02 of the Oakland Municipal Code), if applicable? (B4)	x		

Please explain how the proposed project meets this action item.

The Project is designed to meet the Green Building Ordinance. The Project would be designed to meet LEED Gold standards for the renovation of existing Buildings 0, 1 and 2, and to meet LEED Gold certification or equivalent for new construction of the Performing Arts Center and Link Pavilion. Strategies that would be incorporated to meet these goals include using natural light, renewable energy, and rainwater harvesting.

	Yes	No	N/A
11. For retrofits of City-owned or City-controlled buildings: Would the project be all-electric, eliminate gas infrastructure from the building, and integrate energy storage wherever technically feasible and appropriate? (B5)			x

Please explain how the proposed project meets this action item.

Material Consumption & Waste			
12. Would the project reduce demolition waste from construction and renovation and facilitate material reuse in compliance with the Construction Demolition Ordinance (Chapter 15.34 of the Oakland Municipal Code)? (MCW6)	**Yes**	**No**	**N/A**
	x		
Please explain how the proposed project meets this action item. The Project would comply with the Construction Demolition Ordinance by requiring the Project contractor reduces demolition waste and facilitates material reuse where appropriate.			

City Leadership			
13. For City projects: Have opportunities to eliminate/minimize fossil fuel dependency been analyzed in project design and construction? (CL2)	**Yes**	**No**	**N/A**
			x
Please explain how the proposed project meets this action item.			

Adaptation			
14. For new projects in the Designated Very High Wildfire Severity Zone: Would the project incorporate wildfire safety requirements such creation of defensible space around the house, pruning, clearing and removal of vegetation, replacement of fire resistant plants, as required in the Vegetation Management Plan? (A4)	**Yes**	**No**	**N/A**
	x		
Please explain how the proposed project meets this action item. The Project would comply with the school's existing Vegetation Management Plan, which includes requirements for pruning, clearing, and removal of vegetation and other measures to mitigate the risk of wildfire hazards.			

Carbon Removal			
15. Would the project replace a greater number of trees than will be removed in compliance with the Tree Preservation Ordinance (Chapter 12.36 of the Oakland Municipal Code) and Planning Code if applicable and feasible given competing site constraints? (CR-2)	**Yes**	**No**	**N/A**
	x		
Please explain how the proposed project meets this action item. The Project will replace a greater number of trees in accordance with the Tree Preservation Ordinance.			
16. Does the project comply with the Creek Protection, Stormwater Management and Discharge Control Ordinance (Chapter 13.16 of the Oakland Municipal Code), as applicable? (CR-3)	**Yes**	**No**	**N/A**
	x		
Please explain how the proposed project meets this action item. Construction improvements near an off-site creek will be managed to avoid erosion and sedimentation, including construction fencing with a silt fence near the property line, wattles on contour spaced appropriately on the slope between the improvements and the construction fence. Channelized drainage and point surface run-off will be managed with on-site check dams and sediment basins. The Project will comply with the City's Creek Protection, Stormwater Management and Discharge Control Ordinance.			

I understand that answering ***yes*** to all of these questions, means that the project ***is in compliance with*** the City's Energy and Climate Action Plan as adopted on to July 28, 2020 and requires that staff apply the Project Compliance with the Equitable Climate Action Plan (ECAP) Consistency Checklist Condition of Approval as adopted by the Planning Commission on December 16, 2020 and all Checklist items must be incorporated into the project

I understand that answering ***no*** to any of these questions, means that the project ***is not in compliance*** with the City's Energy and Climate Action Plan as adopted on to July 28, 2020 and requires that staff apply the Greenhouse Gas (GHG) Reduction Plan Condition of Approval as adopted by the Planning Commission on December 16, 2020 which will require that the applicant prepare a quantitative GHG analysis and GHG Reduction Plan for staff's review and approval. The GHG Reduction Plan and all GHG Reduction measures shall be incorporated into the project and implemented during construction and after construction for the life of the project.

______________________________________ ____________

Name and Signature of Preparer Date

Appendix 10

Phase I Environmental Site Assessment, Lincoln Child Care Center

PES Environmental, Inc., May 2012

PES Environmental, Inc.
Engineering & Environmental Services

A Report Prepared for:

"Administrative Draft-Not for Public Review"

Head-Royce School
4315 Lincoln Avenue
Concord, California 94602

PHASE I
ENVIRONMENTAL SITE ASSESSMENT
LINCOLN CHILD CENTER
4368 LINCOLN AVENUE
OAKLAND, CALIFORNIA

MAY 7, 2012

By:

Julie L. Turnross, R.E.A.
Senior Environmental Scientist

William W. Mast, P.G.
Associate Engineer

1314.001.01.001

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EXECUTIVE SUMMARY

PES Environmental, Inc. (PES) conducted a Phase I Environmental Site Assessment (ESA) of the property located at 4368 Lincoln Avenue in Oakland, California (subject property or site). The Phase I ESA was prepared on behalf of Head-Royce School (HRS). PES was retained by HRS to compile and evaluate available information to assess for Recognized Environmental Conditions (RECs) associated with the site.

The subject property is comprised of eleven buildings containing approximately 44,039 square feet of floor space, and associated outbuildings, play areas, and landscaped and paved parking areas. The site is located on one approximately 7.5-acre parcel identified by Alameda County Assessor's Parcel Number 29-1009-6. The site is bounded to the north by the Cerebral Palsy Center, to the east and south by residences, and to the northwest by Lincoln Avenue.

At the time of the site inspection, the subject property was occupied by Lincoln Child Center, a provider of day-time child services. Hazardous material use is limited to relatively small quantities of paints, adhesives, cleaners, lubricants, insecticides, and drain treatment. No concerns regarding hazardous material use or storage were identified at the site.

Historical research for this ESA indicates that in 1897 the subject property was undeveloped land. Buildings were first constructed on the site in 1929 and additional buildings were added from 1955 through 1999. Since construction of the original buildings, the site has been used as an orphanage until 1951, when the site was converted for providing children's services. The site was used as a residential facility for children until 2001. The facility has operated under the names of West Oakland Home, Lincoln Home for Children, and Lincoln Child Center. Agency records do not indicate that hazardous material have been used at the site.

Historical investigations have identified the presence of asbestos-containing material (ACM) at the site. Some ACM has been removed from the site. An ACM Operations and Maintenance Manual has been prepared for ACM remaining in place at the site. Based on building construction dates, PCB-containing ballasts and lead-based paint may also be present at the site.

The subject property is listed on the HAZNET and FINDS environmental databases as a result of manifested offsite disposal of asbestos-containing wastes. Based on a review of environmental databases and regulatory agency records, no offsite sources of environmental concern were identified.

Conclusions

This assessment revealed no Recognized Environmental Conditions in connection with the subject property.

The following noteworthy observations were made during the performance of this ESA:

- Based on prior information and building construction dates, asbestos-containing materials, lead-based paint and materials, and PCB-containing ballasts and construction materials may be present at the site. A comprehensive survey for these materials is recommended prior to significant renovation or demolition activities so that these materials, if present, can be properly managed.

1.0 INTRODUCTION

1.1 Purpose and Scope of Work

This report presents the results of a Phase I Environmental Site Assessment (ESA) of the Lincoln Child Center located at 4368 Lincoln Avenue in Oakland, California (the site or subject property). The site location is shown on Plate 1. PES Environmental, Inc. (PES) performed the Phase I ESA on behalf of Head-Royce School (HRS) to compile and evaluate available information on existing environmental issues to assess for Recognized Environmental Conditions[1] (RECs) associated with the subject property. PES understands that HRS is evaluating purchase of the property, and that this ESA is a component of its due diligence.

The ESA was performed pursuant to our proposal (Reference No. 1314.001.01.P01) dated April 2, 2012, the Service Agreement between PES and HRS of the same date (Agreement), and in general accordance with ASTM International guidelines for Phase I Environmental Site Assessments (ASTM E 1527-05). The following tasks were conducted during this ESA:

- Federal, State and local agency databases were reviewed to identify nearby sites which have reported the use, storage, or release of hazardous materials;
- Regulatory agency records regarding the site and adjacent properties were reviewed;
- Historical information such as aerial photographs, Sanborn Fire Insurance maps, and historical topographic maps of the site and surrounding area were obtained and reviewed to evaluate prior land uses;
- Previous environmental reports prepared for the subject property were reviewed;
- Individuals with knowledge of the site were interviewed;
- An inspection of the site and a reconnaissance of surrounding properties were performed to assess the potential for contamination of the site from on-site or off-site sources. The site inspection was conducted by an environmental professional with qualifying experience; and
- This report was prepared to present the results of the ESA investigation.

---

[1] A REC is defined in the American Society for Testing and Materials guidelines for Phase I Environmental Site Assessments (ASTM E 1527-05) as *"the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property on into the ground, groundwater, or surface water of the property. The term is not intended to include de minimus conditions that generally do not present a threat to human health or the environment and that generally would not be subject of an enforcement action if brought to the attention of appropriate government agencies."*

1.2 Special Terms and Conditions

The ESA activities were conducted in general accordance with ASTM E1527-05. Chain-of-title documentation was not provided or obtained for this ESA. There are no special terms or conditions for this project.

1.3 Limitations and Exceptions

This Phase I ESA was performed in accordance with practices and procedures generally accepted in the consulting environmental engineering field at the time they were performed. The findings, opinions, conclusions, and recommendations expressed herein are applicable as of the date the services were provided. Our professional judgment to assess the potential for contamination is based on limited data; no warranty is given or implied.

The Phase I ESA was prepared at the request of HRS as part of its due diligence for acquisition of the subject property and may be relied on only by HRS. No other party may rely on this report without the express written permission of HRS and PES.

2.0 SITE DESCRIPTION

2.1 Site Location and Description

The subject property is comprised of eleven buildings containing approximately 44,039 square feet of floor space, and associated outbuildings, play areas, and landscaped and paved parking areas. The site consists of one legal parcel covering approximately 7.5 acres and identified by Alameda County Assessor's Parcel Number (APN) 29-1009-6. The site has a street address of 4368 Lincoln Avenue, Oakland, California. The site is bounded to the north by the Cerebral Palsy Center, to the east and south by residences, and to the west by Lincoln Avenue.

2.2 Site and Vicinity Characteristics

The site is zoned as an Institutional General Plan Land Use and is located in a mixed institutional (schools and churches) and residential area of the City of Oakland and County of Alameda.

According to the United States Geological Survey (USGS) *Oakland East, California* Quadrangle 7.5-minute series topographic map produced in 1980 (photorevised from 1959), the site vicinity is situated at an average elevation of approximately 430 feet above mean sea level. The site slopes to the southwest, from elevations of approximately 460 to 400 feet above mean sea level.

2.3 Local Geology and Hydrogeology

Based on a geotechnical investigation previously performed on the subject property, the site is underlain by clayey fill soils extending up to 9 feet below ground surface (bgs), which is underlain by weathered claystone or sandstone bedrock (Kleinfelder, 2003). Groundwater was not encountered on the subject property during the investigation in borings up to 14 feet bgs. At a site located approximately 2,000 feet northwest of the subject property, groundwater was encountered at depths ranging from approximately 21 to 29 feet bgs, although pockets of perched groundwater were encountered at shallower depths (Soma, 2012). Based on topography, and the results of groundwater monitoring at the site northwest of the subject property, groundwater flow to the southwest is expected.

The nearest surface water is Peralta Creek, located approximately ½ mile southeast of the subject property.

Branches of the Hayward Fault run approximately ¼ mile northeast and southwest of the subject property.

2.4 Descriptions of Existing On-Site Structures and Improvements

2.4.1 Structures and Current Use

The subject property consists of three two-story and eight single-story buildings and associated storage sheds, a covered play/eating area, two-story climbing/storage structure, playgrounds, playing fields, and associated landscaped and paved parking area. Building information including size, age, and current use is summarized on Table 1.

2.4.2 Other Improvements

Electricity and natural gas are supplied by Pacific Gas & Electric (PG&E). Water and sewer services are provided by East Bay Municipal Utilities District.

2.5 Current Uses of Adjoining Properties

A reconnaissance of the surrounding area was conducted to assess whether neighboring sites represent a potential environmental condition that could affect the subject property. The current uses of the adjoining properties as observed during PES' reconnaissance are summarized below.

Properties to the North

The site is bounded to the north by the Cerebral Palsy Center. Farther north is Ascension Greek Orthodox Church.

Properties to the West

The site is bounded to the northwest by Lincoln Avenue. Farther west across Lincoln Avenue is Head-Royce School.

Properties to the South

The site is bounded to the south by single-family residences.

Properties to the East

The site is bounded to the east by single-family residences.

2.6 Past Uses of Property and Adjoining Properties

Historical site use information was obtained through a review of aerial photographs, Sanborn Fire Insurance Maps, historical topographic maps, city directories, regulatory agency records, and the results of previous environmental investigations (see list of references in Section 10.0).

2.6.1 Historical Sources

- **Aerial Photographs** - Aerial photographs were obtained from Environmental Data Resources, Inc. (EDR) of Milford, Connecticut. Photos for the following years were obtained and reviewed: 1939, 1946, 1958, 1965, 1975, 1982, 1993, 1998, and 2005. Copies of the photographs are presented in Appendix A. A summary of the aerial photograph review and copies of the photographs are presented in Appendix A;

- **Sanborn Fire Insurance Maps** - Sanborn Fire Insurance Maps were not available for the subject property vicinity. A copy of the EDR Sanborn Fire Insurance Map search report is presented in Appendix B;

- **Topographic Maps** - EDR provided the USGS *Oakland East, California* Quadrangle 7.5-minute series topographic maps produced in 1949, 1959, and 1968, 1973, and 1980 photorevised from 1959, and USGS *Concord, California* Quadrangle 15-minute series topographic maps produced in 1897, 1915, 1948 and 1959. A summary of the topographic maps review and copies of these maps are included in Appendix C;

- **City Directories** - A search of city directories was performed by EDR for the years 1925 through 2006 in approximately 5-year intervals. A summary of the city directories review and copies of the directory listings are presented in Appendix D;

- **City of Oakland Records** - Oakland Building Department (OBD) were reviewed by PES at Oakland City Hall to evaluate historical uses at the subject property. Because historical building references are not consistent with current building designations, and because the OBD records are incomplete, it was not possible to determine/verify building construction dates. Records were evaluated for information suggesting the presence of historical underground storage tanks or other hazardous material use. Oakland Fire Department (OFD) did not have any hazardous material files for the subject property.

2.6.2 Historical Review Summary

Subject Property

The following provides historical use information for the subject property based on available historical resources listed in the previous section and owner-supplied information.

The earliest records from 1897 show the subject property as undeveloped land. Buildings were first constructed on the site in 1929 and additional buildings were added from 1955 through 1999. Building construction dates are listed on Table 1. Since construction of the original buildings, the site has been used as an orphanage until 1951, when the site was converted for providing children's services. The site was used as a residential facility for children until 2011. The facility has operated under the names of West Oakland Home, Lincoln Home for Children, and Lincoln Child Center.

Subject Property Vicinity

The subject property was primarily undeveloped land until residential development of the area south of the subject property began in the 1940s. Commercial and church development of the area north and northeast of the subject property began in the 1950s. A school was constructed west of the subject property across Lincoln Avenue in the 1960s. There have been no significant changes to the residential, church, school and commercial (Cerebral Palsy Center) use of the subject property vicinity since the 1960s.

2.6.3 Interviews

Mr. Spencer, Lincoln Child Center Director of Facilities, was interviewed on April 20, 2012 for this ESA. Mr. Spencer indicated that he has been associated with the subject property for approximately 5 years. Mr. Spencer indicated that he is unaware of any underground storage tanks (USTs) located on the subject property, and that hazardous material use and storage is limited to materials stored in the maintenance building (Building 5). Mr. Spencer stated that, to his knowledge, there are no environmental concerns associated with the subject property.

3.0 PREVIOUS ENVIRONMENTAL DOCUMENTS

Previous environmental reports prepared for prior asbestos investigations and activities at the subject property and provided by KSD Group were reviewed by PES. This information is summarized below, and pertinent reports are listed in References, Section 10.0. Copies of the environmental documents discussed below are provided on CD-ROM in Appendix E.

Asbestos survey reports (although not all asbestos reports were provided to PES), indicate that asbestos containing material (ACM) has been identified in buildings at the subject property, and has been removed from several areas of the buildings. An asbestos Operations & Maintenance (O&M) Manual was prepared for ACM remaining at the subject property in 2001. A 2008 6-Month Periodic Surveillance Report prepared for the subject property (conducted in accordance with the O&M Manual) indicated that ACM and/or suspect ACM remain in Buildings 0, 1, 2 and 6 (CTL, 2008).

No other prior documents of environmental significance were identified for the subject property.

4.0 RECORDS REVIEW

4.1 Environmental Liens

Based on review of an environmental database search conducted by EDR, there are no Federal Superfund (National Priority List [NPL]) liens or State deed restrictions associated with the subject property.

4.2 Standard Environmental Record Sources

The discussion presented in this section is based on available information provided by government agencies and various databases. An EDR report dated April 6, 2012 contains listings of sites located within a 1-mile radius, which were selected in accordance with ASTM E-1527-05 standards. This information is obtained from computerized databases of Federal, State, and local records. The EDR database report is included on CD-ROM as Appendix F.

The following regulatory agency databases were searched and reported in the EDR report:

- U.S. Environmental Protection Agency (U.S. EPA) – Comprehensive Environmental Response Compensation, and Liability Information System (CERCLIS);
- U.S. EPA – CERCLA NPL;
- U.S. EPA – CERCLA Proposed NPL;
- U.S. EPA – Superfund (CERCLA) Consent Decrees (CONSENT);
- U.S. EPA – CERCLA Records of Decision (ROD);
- U.S. EPA – CERCLA NPL Deletions;

- U.S. EPA – CERCLA No Further Remedial Action Planned Site (CERC-NFRAP);
- U.S. EPA - Facility Index System (FINDS);
- U.S. EPA – Emergency Response Notification System (ERNS);
- U.S. EPA– Hazardous Materials Information Reporting System (HMIRS);
- U.S. EPA – Material Licensing Tracking System (MLTS);
- U.S. EPA – Mines Master Tracking Index File (MINES);
- U.S. EPA – Federal Superfund Liens (NPL Liens);
- U.S. EPA – PCB Activity Database System (PADS);
- U.S. EPA – RCRA Administrative Action Tracking System (RAATS);
- U.S. EPA – Section 7 Tracking Systems (SSTS);
- U.S. EPA – Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA)/Toxic Substance Control Act (TSCA) Tracking System (FTTS);
- U.S. EPA – Toxic Substances Control Act (TSCA);
- U.S. EPA – Resource Conservation and Recovery Information System (RCRAInfo), Treatment, Storage, or Disposal (TSD) facilities, and Small Quantity and Large Quantity Generators (SQG and LQG) of hazardous waste;
- U.S. EPA – Emergency Response Notification System (ERNS);
- U.S. EPA RCRA Corrective Action Report (CORRACTS);
- U.S. EPA Facility Index System (FINDS);
- U.S. EPA Toxic Chemical Release Inventory System (TRIS);
- California State Water Resources Control Board (SWRCB) – Leaking Underground Storage Tank Listing (LUST) sites including Indian Land;
- SWRCB UST;
- SWRCB – Voluntary Cleanup Sites (VCP); and
- SWRCB – Solid Waste Facilities (SWF/LF).

4.2.1 Subject Property Records

Database Listings

Lincoln Child Center is listed on the HAZNET and FINDS databases. The HAZNET database lists manifested offsite disposal of asbestos-containing waste in 1995, 1997, 1999, 2000, 2002, and 2006. The FINDS database is a reference database that appears to point to point to Lincoln Child Center's listing on the HAZNET database.

Regulatory Agency Records

PES searched the following agency websites for environmental records related to the subject property:

- California State Water Resources Control Board's GeoTracker website located at http://geotracker.swrcb.ca.gov/; and
- Department of Toxic Substances Control's (DTSC) EnviroStor website located at http://www.envirostor.dtsc.ca.gov/public/default.asp.

The subject property was not listed on the referenced websites.

4.2.2 Surrounding Area

Several sites in the subject property vicinity are listed on hazardous materials release and/or storage databases. The properties listed in the surrounding area in the databases are not expected to present significant environmental conditions to the subject property based on one or more of the following: (1) the listed property has received case closure by the appropriate regulatory agency; (2) the listed property is either cross gradient or down gradient of the subject property with respect to the inferred regional groundwater flow direction; (3) the listed property is a soils-only affected case; and (4) the listed property is located at too great a distance to represent a significant environmental condition with respect to the subject property.

4.3 Additional Environmental Record Sources

Supplemental databases and proprietary records (e.g., above ground storage tanks [ASTs], Coal Gasification Plants, DRYCLEANERS, and Waste Discharge System databases) are reported in the EDR report to provide a more robust search of possible sources of contaminated site information in California. There are a total of 26 supplemental database listings for nearby properties, although some properties may be listed on multiple supplemental databases. Many of these listings duplicate information provided on the standard databases or are historical databases that have not recently been updated. For instance, the HIST UST and SWEEPS UST are historical databases of sites that had USTs. Sites on these databases are also listed on the LUST database and where applicable, are discussed above. There were no additional listings in the supplemental databases that require further discussion. No environmental concerns to the subject property were identified based on sites listed only in the supplemental databases.

5.0 SITE INSPECTION

5.1 Methods

An inspection of the subject property and site vicinity was conducted on April 20, 2012 by Julie Turnross of PES. Site photographs are presented on Plates 3 through 24.

5.2 General Site Setting

The subject property consists of three two-story and eight single-story buildings and associated storage sheds, a covered play/eating area, a two-story climbing/storage structure, playgrounds, playing fields, and associated landscaped and paved parking area. Building configurations and current uses are listed on Table 1. Noteworthy observations concerning buildings are discussed below.

Building 0

The basement in Building 0 is used for storage of toys and furniture, and houses heating and water supply equipment. Minor leakage from water pipes was observed on the basement floor (Plate 4, Photo 1).

Building 1

A basement in Building 1 housed a natural-gas fueled boiler and related heating equipment. Floor drains were present in the basement. Water was observed on the basement floor which appeared to be leaking from equipment (Plate 5, Photo 2).

Building 2

A basement beneath Building 2 was used for storage of miscellaneous building supplies and unused equipment. Stored materials included roofing and ceiling tiles which may contain asbestos (Plate 7, Photos 1 and 2). Two 5-gallon containers of paint and one 5-gallon container of adhesive were also present in the basement. Minor staining was observed beneath the adhesive container (Plate 8, Photo 1) that may have been the result of moisture accumulation.

A rectangular bricked frame was also observed in the basement floor (Plate 8, Photo 2). The bricks framed a concrete area slightly lower than the rest of the basement floor. The use of the area is unknown. No piping was observed in the vicinity of the framed area, but much of the area was covered with stored materials.

Building 4

An open-ended pipe was observed extending from the ground surface on the southwest side of Building 4 (Plate 11, Photo 1). The pipe had been cut off, and appears to be a former water line. No odors (e.g., sewage, petroleum hydrocarbons) were observed at the cut-off pipe.

Building 5

Building 5 is the maintenance shed which is used for storage, performing equipment repairs, and general maintenance. Materials stored included over twenty 5-gallon containers and four 1-gallon containers of paint, adhesive, and a boric acid/sugar solution mix (for cockroach control) stored on mezzanine wood flooring, the concrete floor or shelving (Plate 12). Minor paint staining was observed on the concrete floor.

Two flammable cabinets were present in the maintenance building. One cabinet contained aerosol spray cans of paints, adhesives and lubricants, a 5-gallon container of adhesive, a 1-gallon container of methyl ethyl ketone, a partially-full 5-gallon container of gasoline, and 1-gallon and 1-quart containers of lubricants, adhesives and cleaners (Plate 13, Photo 2 and Plate 14, Photo 1). The other cabinet contained ten 1-gallon containers of drain opener, six 1-quart containers of insect spray, seven aerosol cans of insect powder, two insect spray containers, and 1-quart and 1-pint containers of sealants, slug bait, and cleaners (Plate 16, Photo 2). No staining or evidence of leaks or spills was observed in the vicinity of the flammable cabinets.

Additional supplies were stored in metal storage cabinets. Stored materials included aerosol cans of paints, lubricants, sealants; and cleaners; a 1-pint container of mineral spirits; two 1-gallon containers of cleaners; and 1-quart or less containers of miscellaneous paints, adhesives, lubricants, cleaners, and other maintenance supplies (Plate 14, Photo 2; Plate 15, Photo 1; and Plate 16, Photo 1). No staining or evidence of leaks or spills was observed in the vicinity of the metal cabinets.

Eight 5-gallon containers of wood sealant, six 1-gallon containers of paint, and four 1-gallon containers of cleaners were observed stored on shelving (Plate 15, Photo 2). No staining or evidence of leaks or spills was observed in the vicinity of the shelving.

Some water staining was observed in a corner of the maintenance area that appeared to be seepage from the exterior (Plate 13, Photo 1).

Building 6

Building 6 includes a kitchen. A grease trap (Plate 17, Photo 2) and two floor drains (Plate 18, Photo 1) are present in the kitchen area. According to Mr. Spencer, the grease trap is cleaned by an outside contractor.

A metal cage was present in the storage shed area used to contain small propane containers used for barbeque grills (Plate 18, Photo 2). No concerns were identified regarding propane storage.

Three storage sheds are present outside of the kitchen area that are used to store cooking supplies and cleaning supplies (Plate 19, Photo 1). All cleaning materials are stored in factory packaging on shelving. No concerns were identified regarding cleaning supply storage in the Building 6 sheds.

Building 8

Two 55-gallons drums of drain treatment (Mega Bac Plus) were observed stored on the concrete floor in a covered patio area at the rear (northeast side) of Building 8 (Plate 22, Photo 1). The drain treatment does not contain any hazardous components. No staining was observed in the vicinity of the drums. According to Mr. Spencer, the drain treatment was used when there was a laundry facility associated with the residential program, but the laundry facility was discontinued in 2011 when the residential program was terminated. The drain treatment has not been used since that time. Mr. Spencer reported that there were no dry cleaning facilities at the site.

Two exterior storage units are present within the Building 8 compound. The units are used for storage of camping supplies and toys.

5.3 Chemical Use and Storage

Other than the materials discussed above in Section 5.2, no chemicals were observed stored or used on the site.

5.4 Underground and Aboveground Storage Tanks

No evidence of former or existing USTs or ASTS was identified during the site inspection.

5.5 Back-Up Generators

No generators are present at the site.

5.6 Elevators

No elevators are present at the site.

5.7 Hydraulic Trash Compactors

No trash compactors are present at the site.

5.8 Indications of Polychlorinated Biphenyls (PCBs)

No transformers were observed on the site. Subsurface transformers are present along Lincoln Avenue. Fluorescent lighting is present in most buildings. Based on the age of some of the site buildings, PCB-containing light ballasts and construction materials (e.g., window caulk) may be present.

5.9 Other Conditions

5.9.1 Asbestos

An assessment of asbestos-containing building materials was not conducted as part of this Phase I ESA. Standards set by the Occupational Safety and Health Administration (OSHA) require building owners to presume that thermal system insulation (TSI) and surfacing asbestos containing material (ACM) found in buildings constructed before 1981, and floor tile installed in buildings through 1981, are asbestos containing, unless demonstrated to be less than 1 percent asbestos through sampling.

As discussed in Sections 3.0 and 4.2.1, previous asbestos surveys and abatement activities have been performed at the site. An asbestos O&M Manual has been prepared for the site.

5.9.2 Radon

The National Radon Database includes radon information from U.S. EPA/State Residential Radon Surveys conducted between 1986 and 1992. The database includes test results from 23 sites within the subject property zip code. The average value for radon level reported in this region was 1.000 pico curies per liter (pCi/L) of air for the basement area. This is lower than the U.S. EPA's recommended action level of 4 pCi/L.

The survey indicates that it is unlikely that radon levels in buildings on the subject property area are above the EPA action level; no radon gas testing is deemed necessary for the subject property.

5.9.3 Solid Waste

Solid wastes are stored in metal containers prior to offsite disposal by Waste Management. No concerns regarding solid wastes were identified at the site.

5.9.4 Lead in Paint

An assessment of lead in paint was not performed as part of the scope of this Phase I ESA. Based on the pre-1982 construction dates of several subject property buildings, lead-based paint may be present.

6.0 SUMMARY AND CONCLUSIONS

The subject property is comprised of eleven buildings containing approximately 44,039 square feet of interior space, and associated outbuildings, play areas, and landscaped and paved parking areas. The approximately 7.5-acre site, which has a street address of 4368 Lincoln Avenue, Oakland, California, is bounded to the north by the Cerebral Palsy Center, to the east and south by residences, and to the west by Lincoln Avenue.

At the time of the site inspection, the subject property was occupied by Lincoln Child Center, a provider of day-time child services. Hazardous material use is limited to relatively small quantities of paints, adhesives, cleaners, lubricants, insecticides, and drain treatment. No concerns regarding hazardous material use or storage were identified at the site.

Historical research for this ESA indicates that in 1897 the subject property was undeveloped land. Buildings were first constructed on the site in 1929 and additional buildings were added from 1955 through 1999. Since construction of the original buildings, the site has been used as an orphanage until 1951, when the site was converted for providing children's services. The site was used as a residential facility for children until 2001. The facility has operated under the names of West Oakland Home, Lincoln Home for Children, and Lincoln Child Center. Agency records from indicate that no hazardous material are used at the site.

Historical investigations have identified the presence of asbestos-containing material (ACM) at the site. Some ACM has been removed from the site. An O&M Manual has been prepared for ACM remaining in place at the site. Based on building construction dates, PCB-containing ballasts and lead-based paint may be present at the site.

The subject property is listed on the HAZNET and FINDS databases as a result of manifested offsite disposal of asbestos containing waste. Based on a review of environmental databases and regulatory agency records, no offsite sources of environmental concern were identified.

We have performed a *Phase I Environmental Site Assessment* in conformance with the scope and limitations of ASTM Practice E 1527-05 of the property located at 4368 Lincoln Avenue in Oakland, California, *the subject property*. Any exceptions to, or deletions from, this practice are described in Sections 1.2 and 1.3 of this report. This assessment has revealed no evidence of RECs in connection with the subject property.

The following noteworthy observations were made during the performance of this ESA:

- Based on prior information and building construction dates of the site buildings, asbestos in building materials, lead-based paint and materials, and PCB-containing ballasts and materials may be present at the site. A comprehensive survey for these materials is recommended prior to significant renovation or demolition activities so that these materials, if present, can be properly managed.

7.0 DATA GAPS

No significant data gaps that may have affected our ability to identify RECs associated with the subject property were identified.

8.0 ADDITIONAL SERVICES

No additional services were provided during the preparation of this Phase I ESA.

9.0 ENVIRONMENTAL PROFESSIONAL STATEMENT

We declare that to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312.

We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquires in conformance with the standards and practices set forth in 40 CFR Part 312.

Resumes of the Environmental Professionals signing this report are presented in Appendix G.

10.0 REFERENCES

AHERA Operations & Maintenance Manual, Lincoln Child Care Center, 4368 Lincoln Avenue, Oakland, CA. 2001.

CTL Environmental Services, 2006. *Clearance Air Sampling, Trevor Building – Basement, Oakland, California*. December 14.

CTL Environmental Services, 2008. *6-Month Periodic Surveillance Report, Lincoln Child Center, 4368 Lincoln Avenue, Oakland, CA*. February 5.

Kleinfelder, Inc. (AGI), Inc., 2003. *Geotechnical Investigation for Parking Expansion, Lincoln Child Center, Oakland, California*. March 25.

Protech Consulting & Engineering, 2004. *Asbestos Survey and Evaluation, Bushnell Building, Lincoln Child Center, 4368 Lincoln Avenue, Oakland, CA*. June.

Soma Environmental Engineering, Inc. (Soma), 2012. *Further Soil and Groundwater Investigation Report and Interim Source Removal Workplan, 2844 Mountain Boulevard, Oakland, California*. March 29.

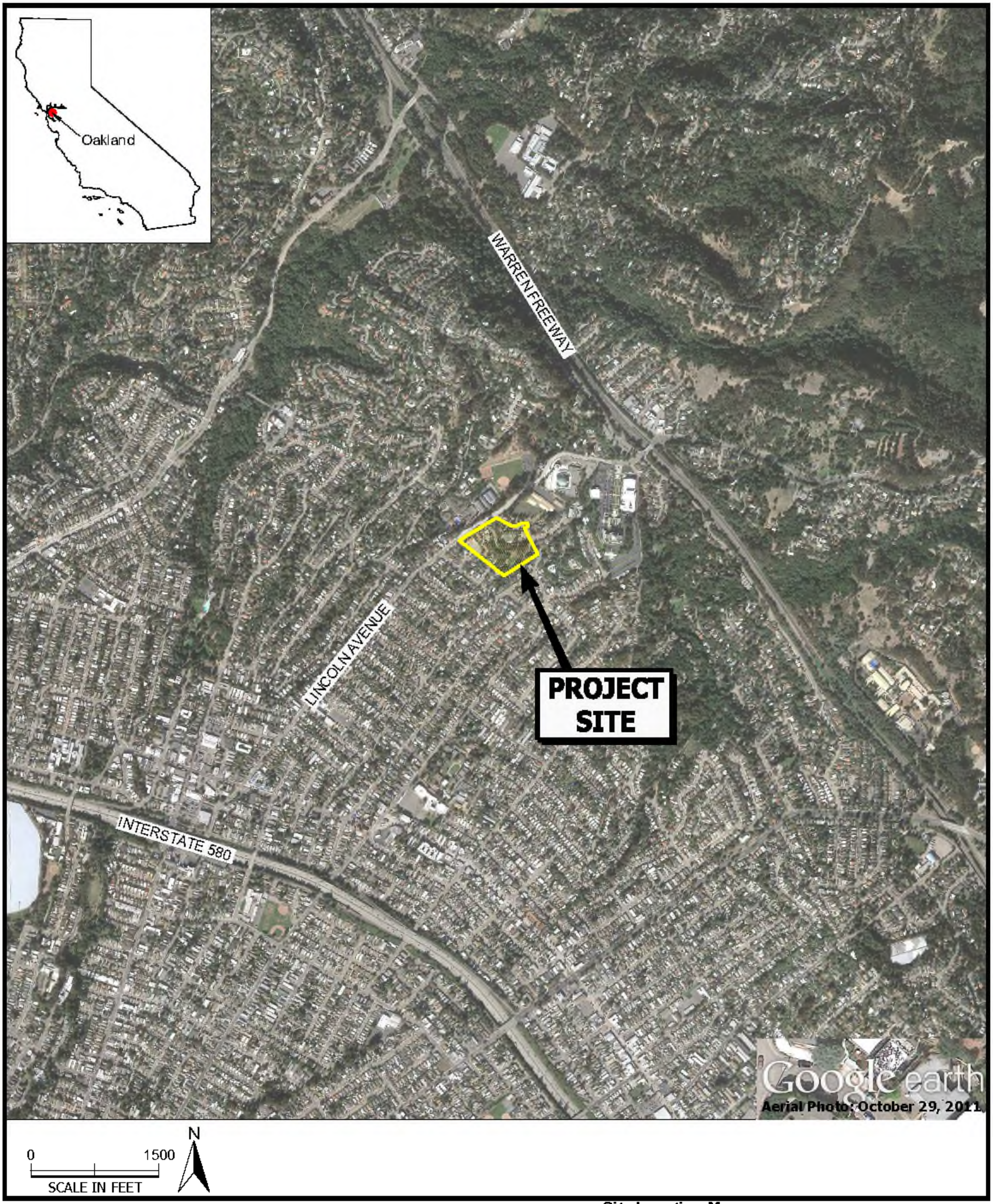
TABLES

Table 1.
Building Details
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

Building Number	Building Name	Year Built	Size (sq. ft.)	Building Use
0	Junior Alliance Middle School	1929	6,100	Classrooms, offices, auditorium. Basement used for storage and building systems. Two stories with basement.
1	Crocker	1929	7,171	Offices. Basement used for storage and building systems. Two stories with basement.
2	Trevor	1929	6,502	Classrooms. Basement used for supply and furniture storage. Two stories with basement.
3	Portables	1990	845	Classrooms. Single story.
4	Linnet	1955	2,077	Offices, computer room. Single story.
5	Maintenance Shed	~1990	1,251	Maintenance supply storage, workshop. Single story with mezzanine.
6	Bushnell	~1958	8,740*	Kitchen, offices, library. Three exterior storage sheds contain food and cleaning supplies. Single story.
7	Dining Hall	~1959		Dining Hall. Single story.
8	Holmgren House	~1960	3,537	Offices and meeting room. Two exterior storage sheds contain camping supplies and toys. Single story.
9	Champlin House	1999	6,996	Currently unused. Some furniture storage. Single story.
10	Building J	1990	820	Classrooms. Single story.

* Square footage shown is combined total for Buildings 6 and 7.

ILLUSTRATIONS



PES Environmental, Inc.
Engineering & Environmental Services

Site Location Map
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
1

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1314.001.01.001	131400101001_1-2	WM	5/12

PES Environmental, Inc.
Engineering & Environmental Services

Site Plan
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
2

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1314.001.01.001	131400101001_1-2	WM	5/12

Photo 1.
View of southwest side of Building 0.

Photo 2.
Typical interior of Building 0.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
3

1314.001.01.001	131400101001_photos	WM	5/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Photo 1.
Basement area of Building 0.

Photo 2.
View of southwest side of Building 1.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
4

1314.001.01.001	131400101001_photos	WM	5/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Photo 1.
Typical interior of Building 1.

Photo 2.
Water leakage in basement of Building 1.

Photo 1.
View of southwest side of Building 2.

Photo 2.
Typical interior of Building 2.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
6

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1314.001.01.001	131400101001_photos	WM	5/12

Photo 1.
Material storage in Building 2 basement.

Photo 2.
Material storage in Building 2 basement.

Photo 1.
Adhesive storage in Building 2 basement.

Photo 2.
Unknown bricked enclosure in Building 2 basement.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
8

1314.001.01.001	131400101001_photos	WM	5/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Photo 1.
View of northwest side of Building 3.

Photo 2.
Typical interior of Building 3.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
9

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1314.001.01.001	131400101001_photos	WM	5/12

Photo 1.
Entrance to Building 4.

Photo 2.
Typical interior of Building 4.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
10

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1314.001.01.001	131400101001_photos	WM	5/12

Photo 1.
Exposed pipe on southwest side of Building 4. Cut-off pipe appears to be unused water pipe (refer to text).

Photo 2.
View of southwest side of Building 5.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
11

1314.001.01.001	131400101001_photos	*WM*	5/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Photo 1.
Maintenance supply storage in Building 5.


Photo 2.
Maintenance supply storage in Building 5.

Photo 1.
Water seepage in Building 5.

Photo 2.
Hazardous material storage in Building 5.

Photo 1.
Hazardous material storage inside flammables cabinet in Building 5.

Photo 2.
Hazardous material storage inside flammables cabinet in Building 5.

Photo 1.
Maintenance supply storage in metal storage cabinet in Building 5.

Photo 2.
Maintenance supply storage in metal storage cabinet in Building 5.

Photo 1.
Maintenance supply storage in Building 5.

Photo 2.
Hazardous material storage inside flammables cabinet in Building 5.

Photo 1.
Building 6 kitchen.

Photo 2.
Building 6 kitchen.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
17

1314.001.01.001	131400101001_photos	WM	5/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Photo 1.
Floor drain in Building 6 kitchen.

Photo 2.
Propane storage outside of Building 6.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
18

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1314.001.01.001	131400101001_photos	WM	5/12

Photo 1.
Cleaning supply storage in storage unit on southwest side of Building 6.

Photo 2.
Meeting room in Building 6.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
19

1314.001.01.001	131400101001_photos	WM	5/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Photo 1.
View of southeast side of Building 7.


Photo 2.
View of interior of Building 7.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
20

1314.001.01.001	131400101001_photos	WM	5/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Photo 1.
View of southwest side of Building 8.

Photo 2.
Typical interior of Building 8.

PES Environmental, Inc.
Engineering & Environmental Services

Site Photographs
Phase I Environmental Site Assessment
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PLATE
21

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1314.001.01.001	131400101001_photos	WM	5/12

Photo 1.
Drums of drain treatment at rear of Building 8.

Photo 2.
Rear (northeast side) of Building 8.

Photo 1.
View of northwest side of Building 9.

Photo 2.
Typical interior of Building 9.

Photo 1.
View of northwest side of Building 10.

Photo 2.
Typical interior of Building 10.

APPENDIX A

AERIAL PHOTOGRAPHS

Appendix A
Historical Aerial Photographs Review
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

Subject Property

Date	Photo Quality	Comments
1939	Good	Buildings 0, 1 and 2 are present on the subject property. The remainder of the site is undeveloped and covered with trees and grassland.
1946	Good	A cleared area, which appears to be a playing field, is present in the northeast portion of the site.
1958	Good	Buildings 4 and 6 are now present on the subject property. A small building or shed is present in the current location of Building 8.
1965	Good	Building 7 is present, and Building 8 is present in its current configuration.
1975	Poor	Due to poor photograph resolution, subject property features are not clear.
1982	Fair	Due to the scale of the photograph, site features are not identifiable.
1993	Good	Building 5 is visible adjacent to Building 1. The known presence of Buildings 3 and 10 is obscured by trees.
1998	Good	There are no significant changes to the property compared to the 1993 photograph.
2005	Good	Building 9 is present on the subject property. The site appears as currently existing.

Adjacent Properties

Date	Photo Quality	Comments
1939	Good	The subject property vicinity is primarily undeveloped grassland.
1946	Good	Increased residential development is apparent south and southwest of the subject property.
1958	Good	Increased residential development is apparent east and west of the subject property. Construction of comercial/church buildings is visible north and northeast of the site. Warren Miller Freeway (Highway 13) is under construction farther north of the site.
1965	Good	Additional construction of comercial/church buildings is visible north and northeast of the site. Head-Royce School has been constructed west of the site across Lincoln Avenue.
1975	Poor	Due to poor photograph resolution, subject property vicinity features are not clear.
1982	Fair	There are no significant changes to the adjacent properties compared to the 1965 photograph.
1993	Good	The subject property vicinity is developed with residential and church/commercial buildings as currently existing.
1998	Good	There are no significant changes to the adjacent properties compared to the 1993 photograph.
2005	Good	There are no significant changes to the adjacent properties compared to the 1998 photograph.

4368 Lincoln Ave.

4368 Lincoln Ave.

Oakland, CA 94602

Inquiry Number: 3297903.5

April 10, 2012

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography April 10, 2012

Target Property:

4368 Lincoln Ave.
Oakland, CA 94602

Year	***Scale***	***Details***	***Source***
1939	Aerial Photograph. Scale: 1"=555'	Flight Year: 1939	Fairchild
1946	Aerial Photograph. Scale: 1"=655'	Flight Year: 1946	Jack Ammann
1958	Aerial Photograph. Scale: 1"=555'	Flight Year: 1958	Cartwright
1965	Aerial Photograph. Scale: 1"=333'	Flight Year: 1965	Cartwright
1975	Aerial Photograph. Scale: 1"=550'	Flight Year: 1975 Best Copy Available from original source	NASA
1982	Aerial Photograph. Scale: 1"=690'	Flight Year: 1982	USGS
1993	Aerial Photograph. Scale: 1"=500'	/Composite DOQQ - acquisition dates: 1993	EDR
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR


INQUIRY #: 3297903.5
YEAR: 1939
= 555'
N


INQUIRY #: 3297903.5
YEAR: 1946
N
= 655'


INQUIRY #: 3297903.5
YEAR: 1958
= 555'
N


INQUIRY #: 3297903.5
YEAR: 1965
= 333'
N


INQUIRY #: 3297903.5
YEAR: 1975
= 550'
N


INQUIRY #: 3297903.5
YEAR: 1982
= 690'
N


INQUIRY #: 3297903.5
YEAR: 1993
= 500'
N

INQUIRY #: 3297903.5
YEAR: 1998
= 666'
N


INQUIRY #: 3297903.5
YEAR: 2005
= 500'
N

APPENDIX B

SANBORN FIRE INSURANCE MAPS

Appendix B
Historical Sanborn Fire Insurance Maps Review
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

Subject Property

Date	Comments
None	No Sanborn Maps of the site or surround properties were identified by EDR.

4368 Lincoln Ave.

4368 Lincoln Ave.

Oakland, CA 94602

Inquiry Number: 3297903.3

April 06, 2012

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

4/06/12

Site Name:
4368 Lincoln Ave.
4368 Lincoln Ave.
Oakland, CA 94602

EDR Inquiry # 3297903.3

Client Name:
PES Environmental, Inc.
1682 Novato Boulevard
Novato, CA 94947

Contact: Julie Turnross

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by PES Environmental, Inc. were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: 4368 Lincoln Ave.
Address: 4368 Lincoln Ave.
City, State, Zip: Oakland, CA 94602
Cross Street:
P.O. # NA
Project: 1314.110.10.001
Certification # FA86-401B-A91F

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

THE SANBORN LIBRARY LLC Sanborn SEAL OF AUTHORITY ™

Sanborn® Library search results
Certification # FA86-401B-A91F

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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APPENDIX C

HISTORICAL TOPOGRAPHIC MAPS

Appendix C
Historical Topographic Maps Review
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

Subject Property

Date	Comments
1897	The map shows the site as undeveloped.
1915	The map shows the site as undeveloped.
1948	Three buildings are shown on the subject property.
1949	The subject property is shown in a developed area with no building footprints indicated.
1959	The subject property is shown in a developed area with no building footprints indicated.
1968	The subject property is shown in a developed area with no building footprints indicated.
1973	The subject property is shown in a developed area with no building footprints indicated.
1980	The subject property is shown in a developed area with no building footprints indicated.

Adjacent Properties

Date	Comments
1897	The map shows the site vicinity as primarily undeveloped.
1915	The map shows the site vicinity as primarily undeveloped.
1948	Several residences are present south and southwest of the site.
1949	The subject property vicinity is shown in a developed area with no building footprints indicated.
1959	Additional church and commercial buildings are shown northeast of the site.
1968	There are no significant changes from the 1959 map.
1973	There are no significant changes from the 1968 map.
1980	There are no significant changes from the 1973 map.

4368 Lincoln Ave.

4368 Lincoln Ave.

Oakland, CA 94602

Inquiry Number: 3297903.4

April 06, 2012

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

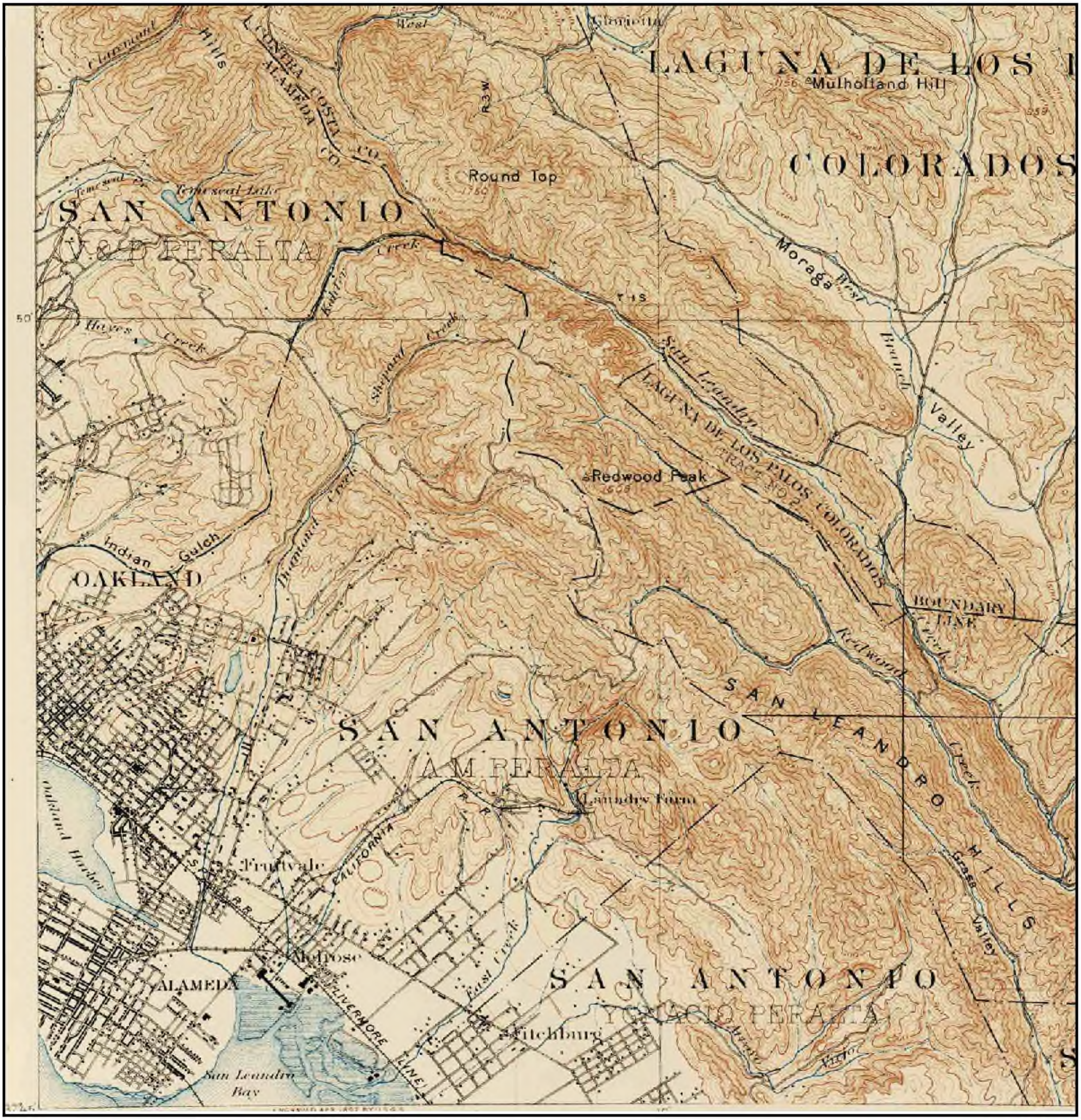
440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

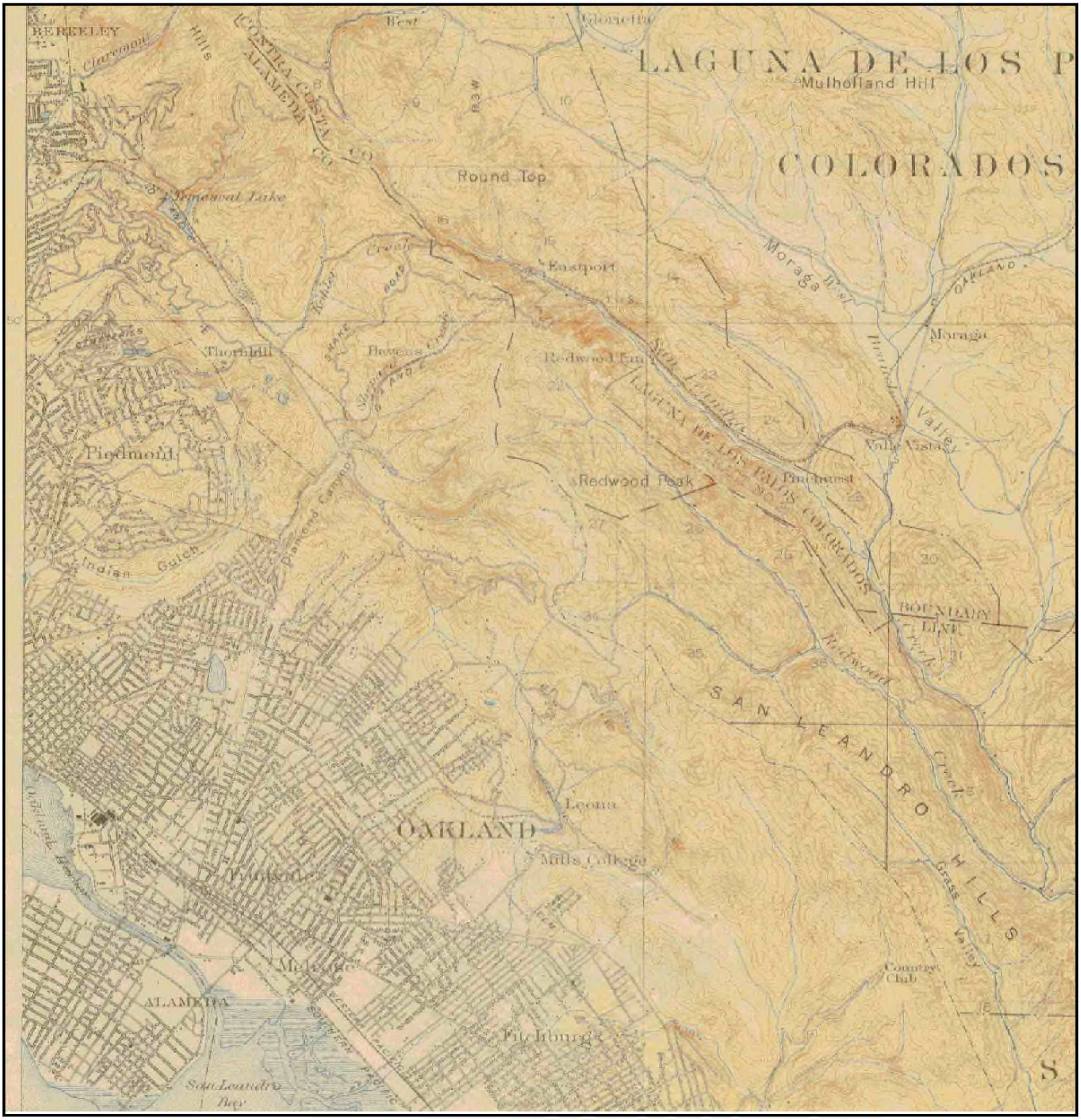
Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map



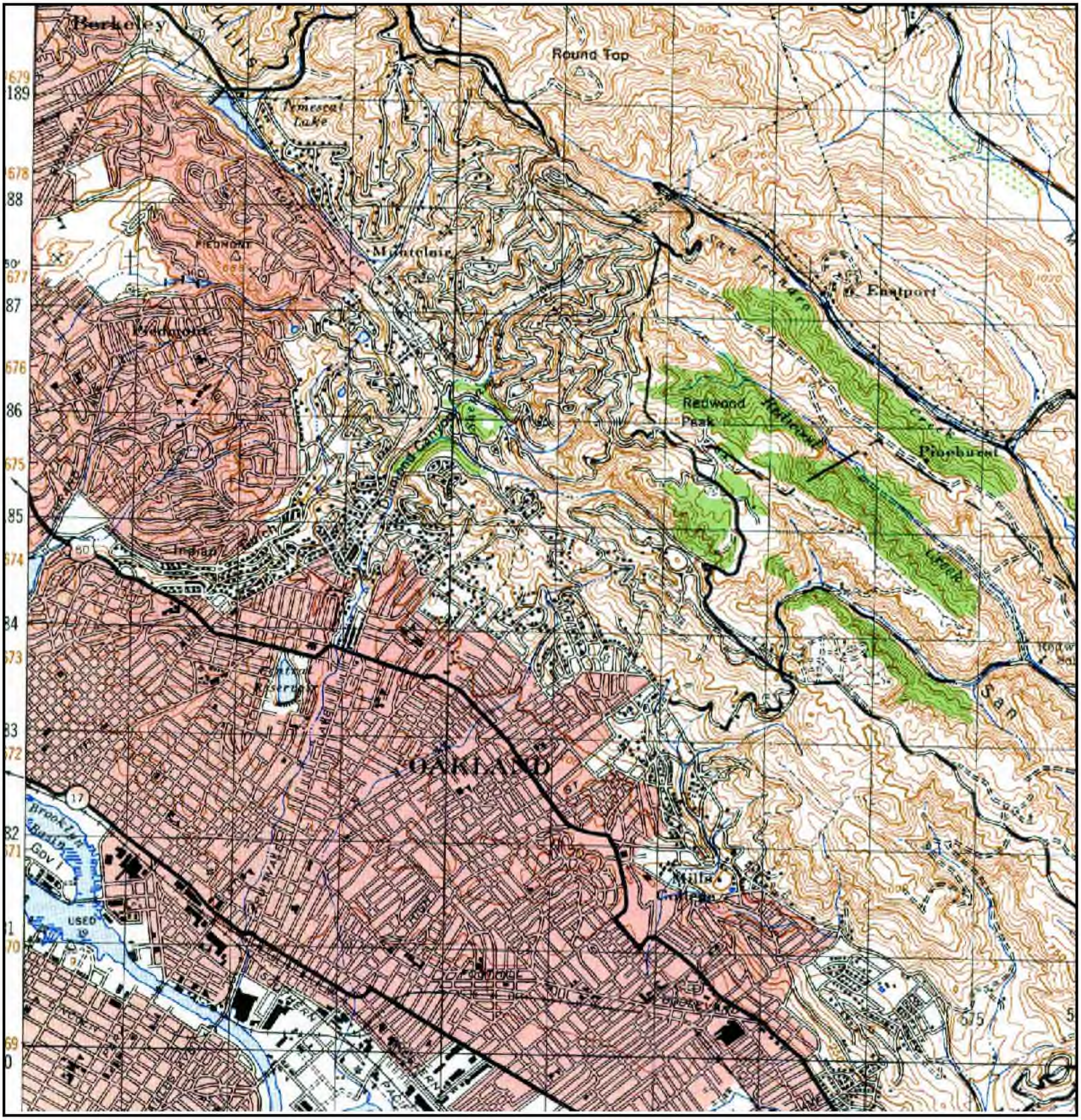
N	TARGET QUAD NAME: CONCORD MAP YEAR: 1897 SERIES: 15 SCALE: 1:62500	SITE NAME: 4368 Lincoln Ave. ADDRESS: 4368 Lincoln Ave. Oakland, CA 94602 LAT/LONG: 37.8084 / -122.2026	CLIENT: PES Environmental, Inc. CONTACT: Julie Turnross INQUIRY#: 3297903.4 RESEARCH DATE: 04/06/2012

Historical Topographic Map



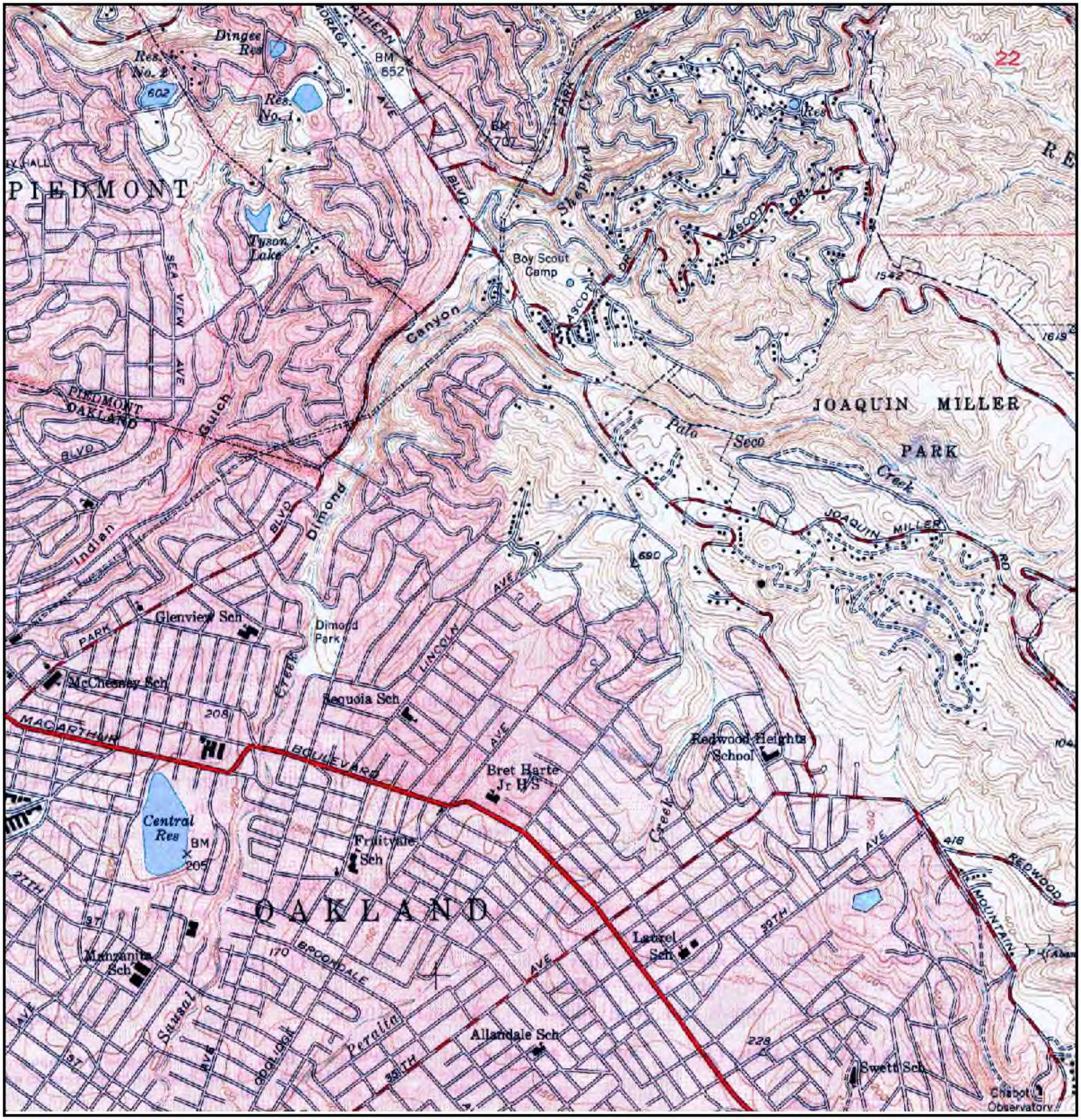
N ↑	TARGET QUAD NAME: CONCORD MAP YEAR: 1915 SERIES: 15 SCALE: 1:62500	SITE NAME: 4368 Lincoln Ave. ADDRESS: 4368 Lincoln Ave. Oakland, CA 94602 LAT/LONG: 37.8084 / -122.2026	CLIENT: PES Environmental, Inc. CONTACT: Julie Turnross INQUIRY#: 3297903.4 RESEARCH DATE: 04/06/2012

Historical Topographic Map



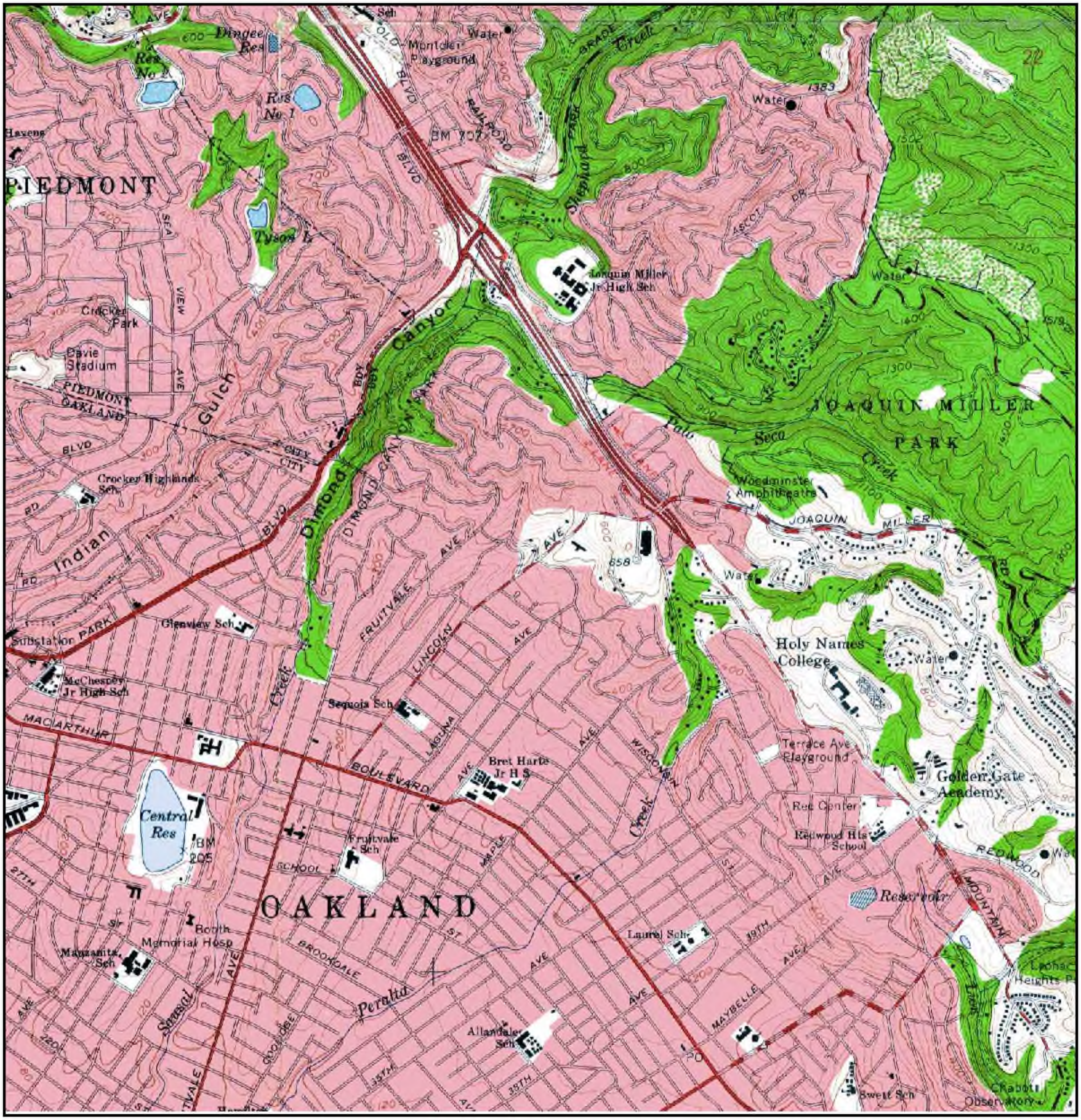
N	TARGET QUAD		SITE NAME:	4368 Lincoln Ave.	CLIENT:	PES Environmental, Inc.
	NAME:	CONCORD	ADDRESS:	4368 Lincoln Ave.	CONTACT:	Julie Turnross
	MAP YEAR:	1948		Oakland, CA 94602	INQUIRY#:	3297903.4
			LAT/LONG:	37.8084 / -122.2026	RESEARCH DATE:	04/06/2012
	SERIES:	15				
	SCALE:	1:50000				

Historical Topographic Map



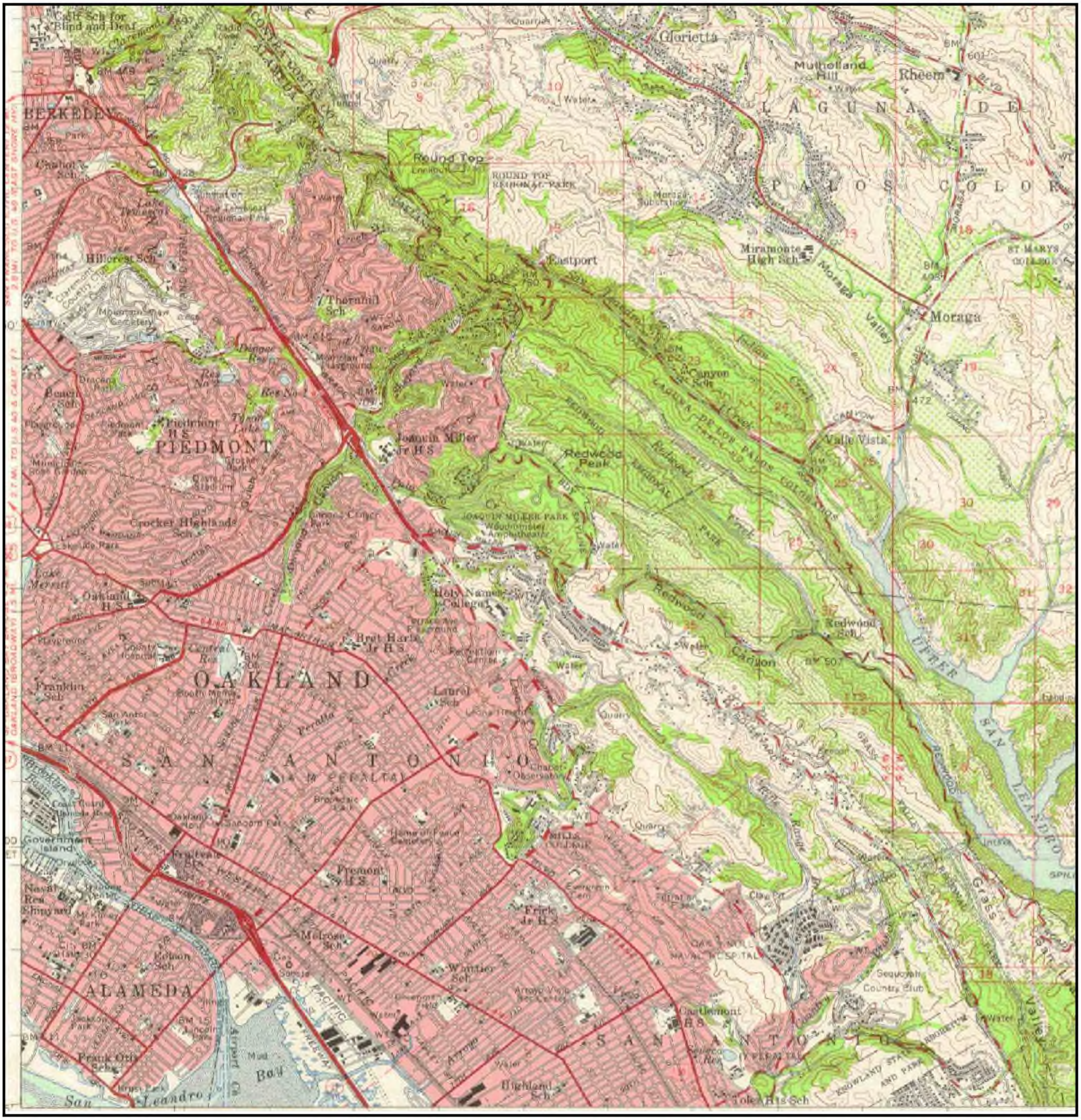
N	TARGET QUAD NAME: OAKLANDEAST MAP YEAR: 1949 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 4368 Lincoln Ave. ADDRESS: 4368 Lincoln Ave. Oakland, CA 94602 LAT/LONG: 37.8084 / -122.2026	CLIENT: PES Environmental, Inc. CONTACT: Julie Turnross INQUIRY#: 3297903.4 RESEARCH DATE: 04/06/2012

Historical Topographic Map



N ↑	TARGET QUAD NAME: OAKLANDEAST MAP YEAR: 1959 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 4368 Lincoln Ave. ADDRESS: 4368 Lincoln Ave. Oakland, CA 94602 LAT/LONG: 37.8084 / -122.2026	CLIENT: PES Environmental, Inc. CONTACT: Julie Turnross INQUIRY#: 3297903.4 RESEARCH DATE: 04/06/2012

Historical Topographic Map



N

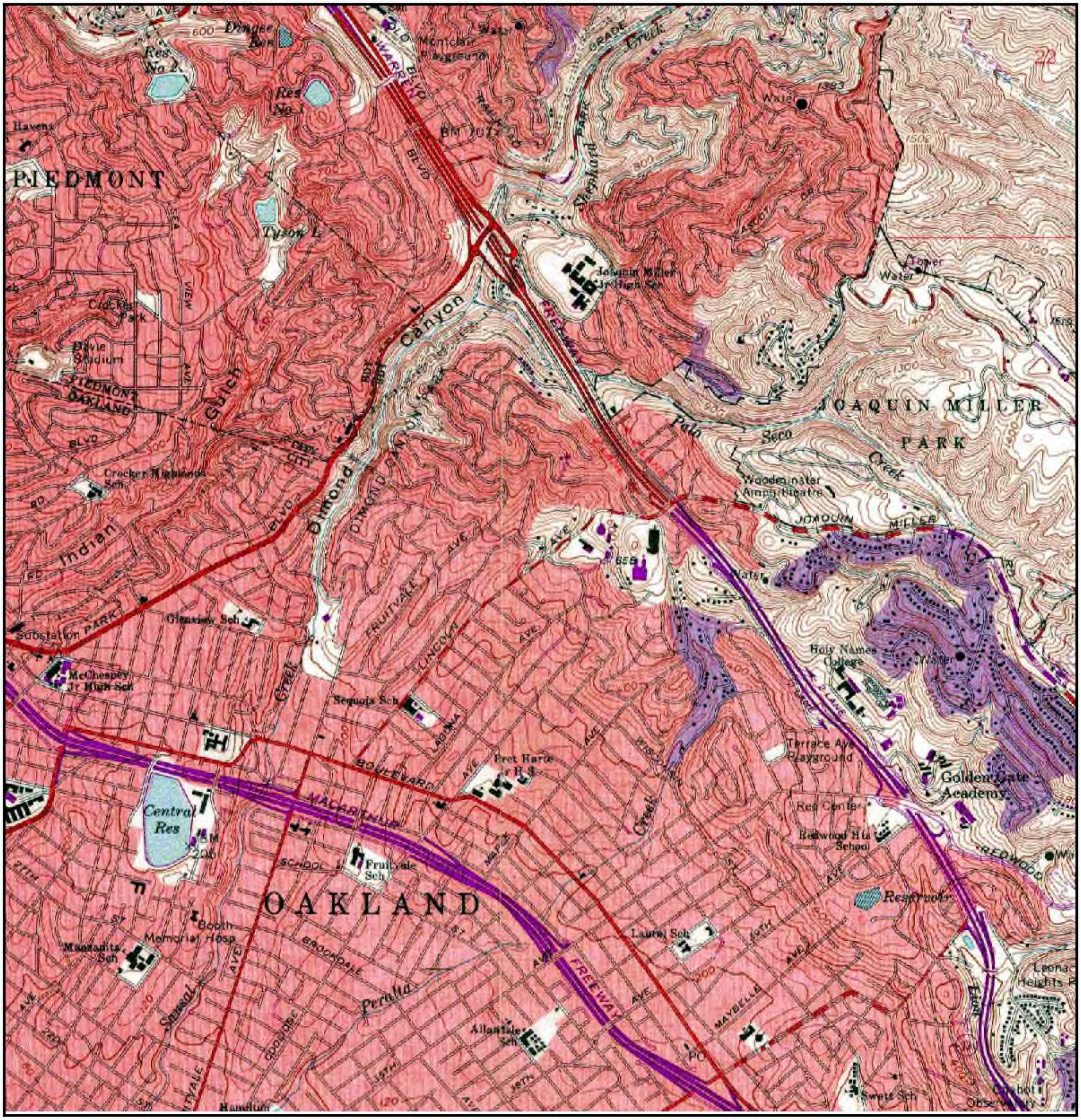
TARGET QUAD
NAME: CONCORD
MAP YEAR: 1959

SERIES: 15
SCALE: 1:62500

SITE NAME: 4368 Lincoln Ave.
ADDRESS: 4368 Lincoln Ave.
Oakland, CA 94602
LAT/LONG: 37.8084 / -122.2026

CLIENT: PES Environmental, Inc.
CONTACT: Julie Turnross
INQUIRY#: 3297903.4
RESEARCH DATE: 04/06/2012

Historical Topographic Map



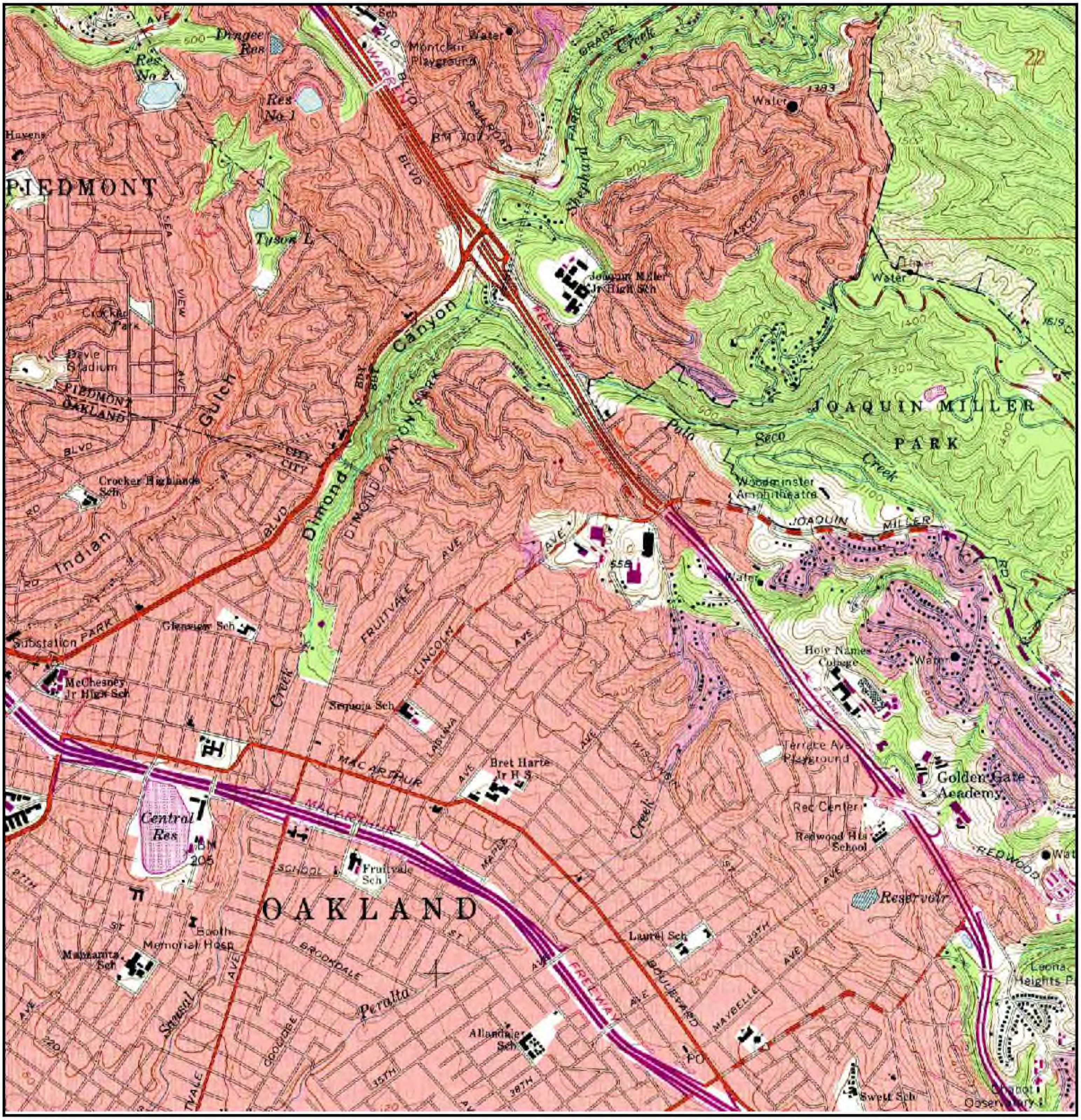
N

TARGET QUAD
NAME: OAKLANDEAST
MAP YEAR: 1968
PHOTOREVISED FROM :1959
SERIES: 7.5
SCALE: 1:24000

SITE NAME: 4368 Lincoln Ave.
ADDRESS: 4368 Lincoln Ave.
Oakland, CA 94602
LAT/LONG: 37.8084 / -122.2026

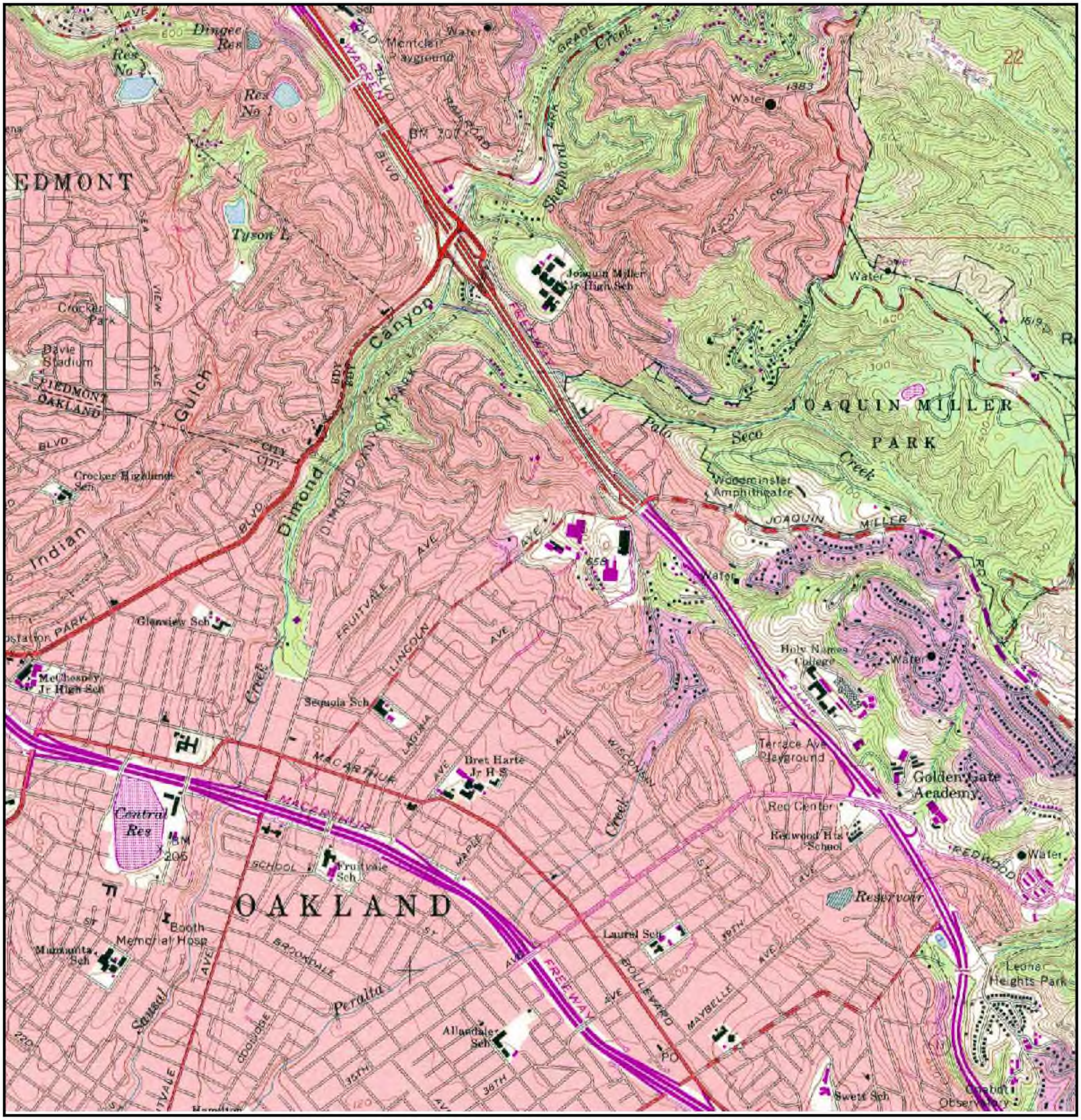
CLIENT: PES Environmental, Inc.
CONTACT: Julie Turnross
INQUIRY#: 3297903.4
RESEARCH DATE: 04/06/2012

Historical Topographic Map



N		
TARGET QUAD NAME: OAKLANDEAST MAP YEAR: 1973 PHOTOREVISED FROM :1959 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 4368 Lincoln Ave. ADDRESS: 4368 Lincoln Ave. Oakland, CA 94602 LAT/LONG: 37.8084 / -122.2026	CLIENT: PES Environmental, Inc. CONTACT: Julie Turnross INQUIRY#: 3297903.4 RESEARCH DATE: 04/06/2012

Historical Topographic Map



N	TARGET QUAD NAME: OAKLANDEAST MAP YEAR: 1980 PHOTOREVISED FROM :1959 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 4368 Lincoln Ave. ADDRESS: 4368 Lincoln Ave. Oakland, CA 94602 LAT/LONG: 37.8084 / -122.2026	CLIENT: PES Environmental, Inc. CONTACT: Julie Turnross INQUIRY#: 3297903.4 RESEARCH DATE: 04/06/2012

APPENDIX D

CITY DIRECTORY ABSTRACT

Appendix D
Historical City Directories Review
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

Historical and Current Subject Property Addresses

Date	Listed Occupants Description
3001 Orchard Parkway	
1933 - 2006	West Oakland Home, Lincoln Home for Children, Lincoln Child Center

Adjacent Properties Listings of Environmental Interest

Date	Listed Occupants Description
4315 Lincoln Avenue	
1967 - 2006	Head-Anna or Head-Royce School
4500 Lincoln Avenue	
1962 - 2006	Cerebral Palsy Center

4368 Lincoln Ave.

4368 Lincoln Ave.
Oakland, CA 94602

Inquiry Number: 3297903.6
April 06, 2012

The EDR-City Directory Abstract

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

<u>**SECTION**</u>

Thank you for your business.
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with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1920 through 2006. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	*Source*	*TP*	*Adjoining*	*Text Abstract*	*Source Image*
2006	Haines Company, Inc.	X	X	X	-
2002	R. L. Polk & Co.	-	-	-	-
2000	Pacific Bell	X	X	X	-
1996	PACIFIC BELL DIRECTORY	X	X	X	-
1993	Pacific Bell	-	-	-	-
1992	PACIFIC BELL DIRECTORY	X	X	X	-
1991	PACIFIC BELL WHITE PAGES	X	X	X	-
1986	PACIFIC BELL WHITE PAGES	X	X	X	-
1984	Pacific Bell	-	-	-	-
1982	Pacific Telephone	-	-	-	-
1980	Pacific Telephone	X	X	X	-
1979	Pacific Telephone	-	-	-	-
1976	Pacific Telephone	-	-	-	-
1975	Pacific Telephone	-	X	X	-
1973	Pacific Telephone	-	-	-	-
1970	Pacific Telephone Directory	X	X	X	-
1967	R. L. Polk & Co.	X	X	X	-
1965	Pacific Telephone	-	-	-	-
1962	Pacific Telephone	X	X	X	-
1960	Pacific Telephone	-	-	-	-
1959	R. L. Polk & Co.	-	-	-	-
1956	Pacific Telephone	-	-	-	-
1955	The Pacific Telephone & Telegraph Co.	X	X	X	-
1954	R. L. Polk & Co. of California	-	-	-	-
1951	R. L. Polk & Co.	-	-	-	-
1950	The Pacific Telephone & Telegraph Co.	X	X	X	-

EXECUTIVE SUMMARY

Year	*Source*	*TP*	*Adjoining*	*Text Abstract*	*Source Image*
1946	R. L. Polk & Co.	-	-	-	-
1945	The Pacific Telephone & Telegraph Co.	X	X	X	-
1943	R. L. Polk & Co.	X	X	X	-
1940	R. L. Polk & Co.	-	-	-	-
1938	Pacific Telephone	X	X	X	-
1933	R. L. Polk & Co.	X	X	X	-
1932	R. L. Polk & Co. of California	-	-	-	-
1928	R.L. Polk and Co of California	-	X	X	-
1926	R. L. Polk & Co.	-	-	-	-
1925	R. L. Polk & Co. of California	-	X	X	-
1920	R. L. Polk & Co. of California	-	-	-	-

EXECUTIVE SUMMARY

MAP INFORMATION

The Overview Map provides information on nearby property parcel boundaries. Properties on this map that were selected for research are listed below the map.

SELECTED ADDRESSES

The following addresses were selected by the client. Detailed findings are contained in the findings section. An "X" indicates where information was identified.

Address	***Type***	***Findings***
4368 Lincoln Ave.	Map ID: 1	X
4500 LINCOLN AVE	Map ID: 50	X

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

4368 Lincoln Ave.
Oakland, CA 94602

MapID: 1

FINDINGS DETAIL

Target Property research detail.

Year	*Uses*	*Source*
2006	CENTER	Haines Company, Inc.
	UNCOLN CHILD	Haines Company, Inc.
	CENTER	Haines Company, Inc.
	UNCOLN CHILD	Haines Company, Inc.
2000	LINCOLN CHILD CENTER	Pacific Bell
	LINCOLN CHILD CENTER DONATIONS	Pacific Bell
	LINCOLN CHILD CENTER	Pacific Bell
	LINCOLN CHILD CENTER DONATIONS	Pacific Bell
1996	LINCOLN CHILD CENTER	PACIFIC BELL DIRECTORY
	LINCOLN CHILD CENTER	PACIFIC BELL DIRECTORY
1992	LINCOLN CHILD CENTER	PACIFIC BELL DIRECTORY
	LINCOLN CHILD CENTER FOUNDATION	PACIFIC BELL DIRECTORY
	LINCOLN CHILD CENTER	PACIFIC BELL DIRECTORY
	LINCOLN CHILD CENTER FOUNDATION	PACIFIC BELL DIRECTORY
1991	Lincoln Child Center	PACIFIC BELL WHITE PAGES
	Lincoln Child Center Foundation	PACIFIC BELL WHITE PAGES
	Lincoln Child Center	PACIFIC BELL WHITE PAGES
	Lincoln Child Center Foundation	PACIFIC BELL WHITE PAGES
1986	Lincoln Child Center	PACIFIC BELL WHITE PAGES
	Lincoln Child Center Foundation	PACIFIC BELL WHITE PAGES
	Lincoln D	PACIFIC BELL WHITE PAGES
	Lincoln Child Center	PACIFIC BELL WHITE PAGES
	Lincoln Child Center Foundation	PACIFIC BELL WHITE PAGES
	Lincoln D	PACIFIC BELL WHITE PAGES
1980	Lincoln Child Center	Pacific Telephone
	Lincoln Child Center	Pacific Telephone
1970	LINCOLN CHILD CENTER	Pacific Telephone Directory
	LINCOLN CHILD CENTER	Pacific Telephone Directory
1967	LINCOLN CHILD CENTER CHILD	R. L. Polk & Co.

FINDINGS

Year	***Uses***	***Source***
1967	LINCOLN CHILD CENTER CHILD	R. L. Polk & Co.
1962	Lincoln Child Center	Pacific Telephone
	Lincoln Child Center	Pacific Telephone
1955	CHILDREN S FOSTER CARE SERVICES	The Pacific Telephone & Telegraph Co.
	LINCOLN HOME FOR CHILDREN	The Pacific Telephone & Telegraph Co.
	CHILDREN S FOSTER CARE SERVICES	The Pacific Telephone & Telegraph Co.
	LINCOLN HOME FOR CHILDREN	The Pacific Telephone & Telegraph Co.
1950	LINCOLN HOME FOR CHILDREN	The Pacific Telephone & Telegraph Co.
	LINCOLN HOME FOR CHILDREN	The Pacific Telephone & Telegraph Co.
1945	HALL KATHLEEN R	The Pacific Telephone & Telegraph Co.
	WEST OAKLAND HOME	The Pacific Telephone & Telegraph Co.
	COLE PAUL D R	The Pacific Telephone & Telegraph Co.
	HALL KATHLEEN R	The Pacific Telephone & Telegraph Co.
	WEST OAKLAND HOME	The Pacific Telephone & Telegraph Co.
	COLE PAUL D R	The Pacific Telephone & Telegraph Co.
1943	CARY Eliz Mrs childrens home	R. L. Polk & Co.
	Flinn Cath Mrs executive West Oakland Home h	R. L. Polk & Co.
	CARY Eliz Mrs childrens home	R. L. Polk & Co.
	Flinn Cath Mrs executive West Oakland Home h	R. L. Polk & Co.
1938	WEST OAKLAND HOME	Pacific Telephone
	WEST OAKLAND HOME	Pacific Telephone
1933	BENEFIEL WM H (MINNIE) GDNR WEST OKLD HOME H	R. L. Polk & Co.
	BROWN JESSIE MRS SMSTRS R	R. L. Polk & Co.
	CHASE FLORENCE MRS HOUSE MOTHER WEST OAKLAND HOME R	R. L. Polk & Co.
	CURRIER GRACE SUPT WEST OAKLAND HOME H	R. L. Polk & Co.
	JAECKEL MABEL MRS NURSE WEST OAKLAND HOME R	R. L. Polk & Co.
	SELLS LOTTIE MRS R	R. L. Polk & Co.

FINDINGS

Year	***Uses***	***Source***
1933	WEST OAKLAND HOME GRACE CURRIER SUPT (ORPHANAGE)	R. L. Polk & Co.
	BENEFIEL WM H (MINNIE) GDNR WEST OKLD HOME H	R. L. Polk & Co.
	BROWN JESSIE MRS SMSTRS R	R. L. Polk & Co.
	CHASE FLORENCE MRS HOUSE MOTHER WEST OAKLAND HOME R	R. L. Polk & Co.
	CURRIER GRACE SUPT WEST OAKLAND HOME H	R. L. Polk & Co.
	JAECKEL MABEL MRS NURSE WEST OAKLAND HOME R	R. L. Polk & Co.
	SELLS LOTTIE MRS R	R. L. Polk & Co.
	WEST OAKLAND HOME GRACE CURRIER SUPT (ORPHANAGE)	R. L. Polk & Co.

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

ALIDA CT

1 ALIDA CT

Year	***Uses***	***Source***
2006	MORRIS Randy	Haines Company, Inc.
1970	MEIER FRANK	Pacific Telephone Directory
1967	EAST OF LINCOLN AV	R. L. Polk & Co.
	MEIER ROSE MRS	R. L. Polk & Co.
1955	MEIER FRANK R	The Pacific Telephone & Telegraph Co.
1950	MEIER FRANK R	The Pacific Telephone & Telegraph Co.
1945	MEIER FRANK R	The Pacific Telephone & Telegraph Co.

14 ALIDA CT

Year	***Uses***	***Source***
2006	SIMON Kathadne	Haines Company, Inc.
1975	EDVALSON JOS	Pacific Telephone
1970	RULEY RICHARD F	Pacific Telephone Directory
1967	RULEY RICHD F	R. L. Polk & Co.
1962	Ruley Richard F	Pacific Telephone
1950	NELSON B J R	The Pacific Telephone & Telegraph Co.
1945	NELSON B J R	The Pacific Telephone & Telegraph Co.

15 ALIDA CT

Year	***Uses***	***Source***
2006	NISHIJas G	Haines Company, Inc.
2000	NISHI JAS G	Pacific Bell
1996	NISHI JAS G	PACIFIC BELL DIRECTORY
1992	NISHI JAS G	PACIFIC BELL DIRECTORY
1991	Nishi Jas G	PACIFIC BELL WHITE PAGES
1986	Nishi Jas G	PACIFIC BELL WHITE PAGES
1980	Nishi Jas G	Pacific Telephone
1970	NISHI JAS G	Pacific Telephone Directory
1967	NISHI JAMES G	R. L. Polk & Co.

FINDINGS

Year	Uses	Source
1962	Goodwin V W	Pacific Telephone
1955	ROWE WALTEN	The Pacific Telephone & Telegraph Co.
1945	AHBOLIN R L R	The Pacific Telephone & Telegraph Co.

2 ALIDA CT

Year	Uses	Source
2006	LEWIS Sharon	Haines Company, Inc.
1996	CROSIER KENNETH I	PACIFIC BELL DIRECTORY
1992	CROSIER KENNETH I	PACIFIC BELL DIRECTORY
1991	i Crosier Kenneth I	PACIFIC BELL WHITE PAGES
1986	Crosier Kenneth I	PACIFIC BELL WHITE PAGES
1970	CROSIER KENNETH I	Pacific Telephone Directory
1967	CROSIER RUBY M MRS	R. L. Polk & Co.
1955	GROSS BETTY MRS R	The Pacific Telephone & Telegraph Co.
1950	GROSS BETTY MRS R	The Pacific Telephone & Telegraph Co.
1945	HOGG W N R	The Pacific Telephone & Telegraph Co.

20 ALIDA CT

Year	Uses	Source
2006	CRANE Bemard	Haines Company, Inc.
	KOHBODMILLER	Haines Company, Inc.
	Gayte	Haines Company, Inc.
1992	KOHBOD G	PACIFIC BELL DIRECTORY
1991	Kohbod G	PACIFIC BELL WHITE PAGES
1980	Amold Lopez	Pacific Telephone
1970	GROELLE MARVIN C	Pacific Telephone Directory
1967	GROELLE MARVIN C	R. L. Polk & Co.
1962	Groelle Marvin C	Pacific Telephone
1955	GROELLE MARVIN C	The Pacific Telephone & Telegraph Co.
1950	WREN JIRNIMIE R	The Pacific Telephone & Telegraph Co.
1945	WREN JIMMIE R	The Pacific Telephone & Telegraph Co.

21 ALIDA CT

Year	Uses	Source
2006	HANSON Grant W	Haines Company, Inc.

FINDINGS

Year	*Uses*	*Source*
2000	HANSON GRANT W	Pacific Bell
1996	HANSON GRANT W	PACIFIC BELL DIRECTORY
1992	HANSON GRANT W	PACIFIC BELL DIRECTORY
1991	Hanson Grant W	PACIFIC BELL WHITE PAGES
1986	Hanson Harvey F	PACIFIC BELL WHITE PAGES
	Hanson Harvey & Barbara	PACIFIC BELL WHITE PAGES
	Hanson Grant W	PACIFIC BELL WHITE PAGES
1970	CHRISTENSEN J FRANKLIN	Pacific Telephone Directory
1967	CHRISTENSEN CLARA N MRS	R. L. Polk & Co.
1962	Christensen J Franklin	Pacific Telephone
1955	CHRISTENSEN J FRANKLIN R	The Pacific Telephone & Telegraph Co.
1950	CHRISTENSEN J FRANKLIN R	The Pacific Telephone & Telegraph Co.
1945	ROGERS CARROLL A R	The Pacific Telephone & Telegraph Co.

26 ALIDA CT

Year	*Uses*	*Source*
2006	SIGARS J	Haines Company, Inc.
2000	SIGARS J	Pacific Bell
1980	Doolan R G	Pacific Telephone
1975	LIPKA MILTON	Pacific Telephone
1970	DOOLAN R G	Pacific Telephone Directory
	LIPKA MILTON	Pacific Telephone Directory
1967	DOOLAN ROBT G	R. L. Polk & Co.
1962	Doolan G R r	Pacific Telephone
	Lipka Milton	Pacific Telephone
1955	DOOLAN G R R	The Pacific Telephone & Telegraph Co.
	LIPKA L MRS R	The Pacific Telephone & Telegraph Co.
1950	DOOSAN G R R	The Pacific Telephone & Telegraph Co.
	LIPKA L MRS R	The Pacific Telephone & Telegraph Co.
1945	DOOLAN G R R	The Pacific Telephone & Telegraph Co.
	LIPKA L MRS R	The Pacific Telephone & Telegraph Co.
1943	Stolowitz Isadore dept mgr HCC Co r	R. L. Polk & Co.

FINDINGS

27 ALIDA CT

Year	Uses	Source
2006	SPAPPAoex	Haines Company, Inc.
1967	PAPP ALEX G	R. L. Polk & Co.
1962	Gilmore Frank I	Pacific Telephone
1955	RYAN DAN M MRS R	The Pacific Telephone & Telegraph Co.
1950	RYAN DAN M MRS R	The Pacific Telephone & Telegraph Co.
1945	RYAN DAN M MRS R	The Pacific Telephone & Telegraph Co.

8 ALIDA CT

Year	Uses	Source
2006	FLORO Roger	Haines Company, Inc.
1996	CHANEY MATTHEW & ELIZABETH	PACIFIC BELL DIRECTORY
1992	CHANEY MATTHEW & ELIZABETH	PACIFIC BELL DIRECTORY
1967	MAC NEILL JOHN P	R. L. Polk & Co.
1955	MACNEILL J P LT COL R	The Pacific Telephone & Telegraph Co.
1950	MACLEILL J P LT COL R	The Pacific Telephone & Telegraph Co.
1945	MACNEILL J P LIEUT COL R	The Pacific Telephone & Telegraph Co.

9 ALIDA CT

Year	Uses	Source
2006	No Current Listing	Haines Company, Inc.
1975	CORONFLY RAYMOND	Pacific Telephone
1970	CORONFLY RAYMOND	Pacific Telephone Directory
1967	MACDONALD LARRY K	R. L. Polk & Co.
1955	HILL HENRIETTA M R	The Pacific Telephone & Telegraph Co.
1950	HILL HENRIETTA M R	The Pacific Telephone & Telegraph Co.
1945	HILL HENRIETTA M R	The Pacific Telephone & Telegraph Co.

ALIDA ST

2425 ALIDA ST

Year	Uses	Source
2006	CARLEY L	Haines Company, Inc.
	WELLMANAM	Haines Company, Inc.

FINDINGS

Year	Uses	Source
1975	FERREIRA ROBT	Pacific Telephone
1970	PERRY JOHN	Pacific Telephone Directory
1967	WADE LEONA MRS	R. L. Polk & Co.
1962	Peacock J Paul	Pacific Telephone

2427 ALIDA ST

Year	Uses	Source
2006	No Current Listing	Haines Company, Inc.
1986	Sealy Eloise	PACIFIC BELL WHITE PAGES
	Seaworks Incorporated	PACIFIC BELL WHITE PAGES
1980	Seaworks Construction	Pacific Telephone
1970	WADE LEONA	Pacific Telephone Directory
1967	SINGLETON CHARLES	R. L. Polk & Co.
1962	Singleton Chuck	Pacific Telephone
1955	PHILLIPS ANTHONY S	The Pacific Telephone & Telegraph Co.
1950	HAINLINE GLENN R	The Pacific Telephone & Telegraph Co.
1945	LARSEN HOLGER R	The Pacific Telephone & Telegraph Co.
	MCCONNELL ALEX R	The Pacific Telephone & Telegraph Co.
1943	Franse Julius A Sarah carp h	R. L. Polk & Co.
1938	FRANSE LINCOLN R	Pacific Telephone
1933	FRANSE JULIUS A (SARAH F) CARP H	R. L. Polk & Co.
	FRANSE LINCOLN CARP R	R. L. Polk & Co.
1928	Liermann John Emma lab R	R.L. Polk and Co of California

2433 ALIDA ST

Year	Uses	Source
2006	SMITH R	Haines Company, Inc.
	a PARVIZIAN Mehdl	Haines Company, Inc.
1986	Allen John J	PACIFIC BELL WHITE PAGES
1980	Allen John J	Pacific Telephone
1970	ALLEN JOHN J	Pacific Telephone Directory
1967	ALLEN JOHN J	R. L. Polk & Co.
1962	Allen John J	Pacific Telephone
1955	QUIGLEY DONALD A R	The Pacific Telephone & Telegraph Co.
1950	MIADDIOX JAS R R	The Pacific Telephone & Telegraph Co.

FINDINGS

Year	*Uses*	*Source*
1945	HELZER HARRY R	The Pacific Telephone & Telegraph Co.
1943	Helzer Harry H Margt mech International Harvester Co h	R. L. Polk & Co.
	Hilzer Margt L clk MW & Co r	R. L. Polk & Co.
1938	ALLEN R J R	Pacific Telephone

2439 ALIDA ST

Year	*Uses*	*Source*
2006	a MATANKYJam I	Haines Company, Inc.
1986	Trenery Doug	PACIFIC BELL WHITE PAGES
	Craig Adrienne	PACIFIC BELL WHITE PAGES
	Craig A L	PACIFIC BELL WHITE PAGES
	Craig	PACIFIC BELL WHITE PAGES
1970	KOYAMA BEN T	Pacific Telephone Directory
1967	MATLOCK JAMES A	R. L. Polk & Co.
1962	Eddington Walter r	Pacific Telephone
	Woodward Phyllis R	Pacific Telephone
1955	EDDINGTON WALTER R	The Pacific Telephone & Telegraph Co.
1950	EDDINGTON WALTER R	The Pacific Telephone & Telegraph Co.
1945	EDDINGTON WALTER R	The Pacific Telephone & Telegraph Co.
1943	Eddington Walter Rose carp h	R. L. Polk & Co.
	Eddington Lotus clk MW & Co r	R. L. Polk & Co.

2443 ALIDA ST

Year	*Uses*	*Source*
2006	STREET Stacay	Haines Company, Inc.
	ANNIBALLI Jason	Haines Company, Inc.
1970	EDDINGTON DALE	Pacific Telephone Directory
1967	EDDINGTON DALE G	R. L. Polk & Co.
1962	Eddington Dale r	Pacific Telephone
1955	EDDINGTON DALE R	The Pacific Telephone & Telegraph Co.
1950	EDDLINGTON DALE R	The Pacific Telephone & Telegraph Co.

2451 ALIDA ST

Year	*Uses*	*Source*
2006	LOWE Peter J	Haines Company, Inc.

FINDINGS

Year	*Uses*	*Source*
2000	LOWE PETER J & CAROL	Pacific Bell
1996	LOWE PETER J & CAROL	PACIFIC BELL DIRECTORY
1992	LOWE PETER J & CAROL	PACIFIC BELL DIRECTORY
1991	Jeung Matthew Lowell	PACIFIC BELL WHITE PAGES
1986	Lowe Peter J & Carol	PACIFIC BELL WHITE PAGES
	Schefline Cheryl	PACIFIC BELL WHITE PAGES
1980	Cote Donald G	Pacific Telephone
1975	COTE DONALD G	Pacific Telephone
1967	WOLFE LOIS V MRS	R. L. Polk & Co.
1962	Wolfe Eugene R Rev	Pacific Telephone
1955	WALLER GORDON R	The Pacific Telephone & Telegraph Co.
1950	MARR PRESTON L R	The Pacific Telephone & Telegraph Co.
1945	TAFURI ANTHONY R	The Pacific Telephone & Telegraph Co.
1943	Tafuri Anthony P hostler h	R. L. Polk & Co.
1933	TRUEMAN AUBREY (ETSEL) H	R. L. Polk & Co.
1928	Franske Julius A Sarah F bldr H	R.L. Polk and Co of California
	Franske Lincoln R auto mech H	R.L. Polk and Co of California
	Mashburn Jos B embalmor R	R.L. Polk and Co of California

2456 ALIDA ST

Year	*Uses*	*Source*
2006	a SINGER Jeffrey	Haines Company, Inc.
2000	FORREST SANDRA L	Pacific Bell
1980	Nunn Wm H	Pacific Telephone
1975	NUNN WM H	Pacific Telephone
1970	NUNN WM H	Pacific Telephone Directory
1967	REED MARY J MRS	R. L. Polk & Co.
1962	Reed Walter E r	Pacific Telephone
1955	REED WALTER E R	The Pacific Telephone & Telegraph Co.
1950	REED WALTER E R	The Pacific Telephone & Telegraph Co.
1943	Reed Walter E Mary J mdser MW&Co h	R. L. Polk & Co.
1933	VAUGHN GEO B (MATTIE L) FTR PG & ECO R	R. L. Polk & Co.
	VAUGH GEO B (MATTIE) PIPEFTR H	R. L. Polk & Co.

FINDINGS

2457 ALIDA ST

Year	Uses	Source
2006	WHEELER Susan	Haines Company, Inc.
1970	MUIR RUBY E	Pacific Telephone Directory
1967	MUIR RUBY E MRS	R. L. Polk & Co.
1962	Muir Ruby E r	Pacific Telephone
1955	MUIR RUBY E R	The Pacific Telephone & Telegraph Co.
1950	MUIR RUBY E R	The Pacific Telephone & Telegraph Co.
1943	Nelson Carl F Violet clk h	R. L. Polk & Co.
1938	NELSON CARL F R	Pacific Telephone
1933	AITKEN WM (ELIZ) GDNR H	R. L. Polk & Co.
	AITKEN WM JR GDNR R	R. L. Polk & Co.
1928	California Violet stdt R	R.L. Polk and Co of California
	Grove David Ehz H	R.L. Polk and Co of California

2461 ALIDA ST

Year	Uses	Source
2006	WIDRICKEdsel	Haines Company, Inc.
1975	CHRISTOPOULOS ULYSSES	Pacific Telephone
1967	GURULE MIKE M	R. L. Polk & Co.
1962	Richards D E	Pacific Telephone
1950	KIZER HARRY E R	The Pacific Telephone & Telegraph Co.
1945	KIZER HARRY E R	The Pacific Telephone & Telegraph Co.
1933	KIZER HARRY E (MYRTLE) WHOL PAINTS	R. L. Polk & Co.
	LEWIS LAURA R	R. L. Polk & Co.
1928	N Oscar J Marle H	R.L. Polk and Co of California
1925	CUNNINGHAM O J R	R. L. Polk & Co. of California

2464 ALIDA ST

Year	Uses	Source
2006	COX Alexander	Haines Company, Inc.
1975	HERRMANN H	Pacific Telephone
1970	HERRMANN HANNELORE	Pacific Telephone Directory
1967	HERRMANN HORST	R. L. Polk & Co.
1962	Brinkman Danl	Pacific Telephone
1950	MORGAN J E R	The Pacific Telephone & Telegraph Co.

Year	Uses	Source
1945	MORGAN J E R	The Pacific Telephone & Telegraph Co.
1943	Morgan Jas E Maude L h	R. L. Polk & Co.
1938	MORGAN J E R	Pacific Telephone
1933	MORGAN JAS E DRUGS	R. L. Polk & Co.
	MORGAN EVERETT (MAUDE) PHARM H	R. L. Polk & Co.
1928	h Jas E Maud slsmn H	R.L. Polk and Co of California
1925	GREEN H F R	R. L. Polk & Co. of California

2465 ALIDA ST

Year	Uses	Source
2006	a AJARI Megumi	Haines Company, Inc.
1967	PERRY VIOLA 0 MRS	R. L. Polk & Co.
1962	Perry Viola	Pacific Telephone
1955	NEUENDORF ARTHUR H R	The Pacific Telephone & Telegraph Co.

27 ALIDA ST

Year	Uses	Source
1943	Ryan Diana typist r	R. L. Polk & Co.

LINCOLN AVE

4200 LINCOLN AVE

Year	Uses	Source
2006	o BLANC	Haines Company, Inc.
1986	I Cordon Lee CPA	PACIFIC BELL WHITE PAGES
1970	DE FOE F A	Pacific Telephone Directory
1967	DE FOE FLORENCE A	R. L. Polk & Co.
1962	De Foe Florence	Pacific Telephone
1955	DEFOE E H	The Pacific Telephone & Telegraph Co.
1950	DE FOE E HOMER R	The Pacific Telephone & Telegraph Co.
1945	DE FOE E HOMER R	The Pacific Telephone & Telegraph Co.
1943	Defoe E Homer Florence purch agt GWPCo h	R. L. Polk & Co.

4201 LINCOLN AVE

Year	Uses	Source
2006	No Current Listing	Haines Company, Inc.
2000	WILLIAMS WILBERT	Pacific Bell

FINDINGS

Year	Uses	Source
1996	APPLICATIONS SOFTWARE	PACIFIC BELL DIRECTORY
	WILLIAMS WILBERT	PACIFIC BELL DIRECTORY

4207 LINCOLN AVE

Year	Uses	Source
2006	e HUMEMaror le	Haines Company, Inc.
1975	HUME EARL S	Pacific Telephone
1970	HUME EARL S	Pacific Telephone Directory
1967	HUME EARL S S	R. L. Polk & Co.
1955	FRAVEGA JOE R	The Pacific Telephone & Telegraph Co.
1950	FRAVEGA JOE R	The Pacific Telephone & Telegraph Co.
1945	FRAVEGA JOE R	The Pacific Telephone & Telegraph Co.
1943	Fravega Jos Kath shipydwkr h	R. L. Polk & Co.
1933	FRAVEGA GIOVANNI (KATH) H	R. L. Polk & Co.
	FRAVEGA ANTONE SLSMN R	R. L. Polk & Co.
1928	Pravega Jos Cath lab H	R.L. Polk and Co of California
	Pravega Antone clk R	R.L. Polk and Co of California

4208 LINCOLN AVE

Year	Uses	Source
2006	KATSON KA	Haines Company, Inc.
	LENNEARJT	Haines Company, Inc.
2000	KATSON K A	Pacific Bell
1996	KATSON K A	PACIFIC BELL DIRECTORY
1992	KATSON K A	PACIFIC BELL DIRECTORY
1991	Katson KA	PACIFIC BELL WHITE PAGES
	Lennear J T	PACIFIC BELL WHITE PAGES
1986	Katson K A	PACIFIC BELL WHITE PAGES
	Lennear J T	PACIFIC BELL WHITE PAGES
1980	Lennear J T	Pacific Telephone
	Katson K A	Pacific Telephone
1967	GARIBALDI ACHILLES J S	R. L. Polk & Co.
1962	Garibaldi A J	Pacific Telephone
1955	GARIBALDI A J R	The Pacific Telephone & Telegraph Co.
1950	GARIBALDI A J R	The Pacific Telephone & Telegraph Co.

FINDINGS

4215 LINCOLN AVE

Year	Uses	Source
2006	o PAWEK Mark L	Haines Company, Inc.
1975	DAVISON TRAVIS	Pacific Telephone
1970	LEWIS RALPH MICHAEL	Pacific Telephone Directory
1967	STEPHENS KEITH L	R. L. Polk & Co.
1962	Stephens Keith L	Pacific Telephone
1955	GORDON ROBT E	The Pacific Telephone & Telegraph Co.
1950	NAYLOR DONALDC R	The Pacific Telephone & Telegraph Co.
1933	TODD ARTH J (BLANCHE) COND SPCO H	R. L. Polk & Co.
1928	Todd Arth J Blanche cond H	R.L. Polk and Co of California

4216 LINCOLN AVE

Year	Uses	Source
2006	MCCALLA Vernon	Haines Company, Inc.
	LLOSA Mab I	Haines Company, Inc.
1970	STONE SYLVIA R	Pacific Telephone Directory
1967	STONE FRED W	R. L. Polk & Co.
1962	Hutchinson Produce Co	Pacific Telephone
1955	HUTCHINSON PRODUCE CO	The Pacific Telephone & Telegraph Co.
1950	DUFFY A F R	The Pacific Telephone & Telegraph Co.
1945	DUFFY A F R	The Pacific Telephone & Telegraph Co.
1943	Duffy Aloysius F Dorothy slsmn h	R. L. Polk & Co.

4224 LINCOLN AVE

Year	Uses	Source
2006	THIERIOT Josh	Haines Company, Inc.
1986	Harrington D R	PACIFIC BELL WHITE PAGES
	Harrington Chas	PACIFIC BELL WHITE PAGES
1980	Harrington Chas	Pacific Telephone
1975	HARRINGTON CHAS	Pacific Telephone
	BERRY TERRIE	Pacific Telephone
1970	HARRINGTON CHAS	Pacific Telephone Directory
1967	POULSEN NORMAN A S	R. L. Polk & Co.
1962	Poulsen Norman A r	Pacific Telephone
1955	POULSEN NORMAN A R	The Pacific Telephone & Telegraph Co.

FINDINGS

Year	Uses	Source
1950	POULSEN NORMAN A R	The Pacific Telephone & Telegraph Co.
1945	POULSEN NORMAN A R	The Pacific Telephone & Telegraph Co.
1943	POULSEN Norman A Isabelle stmftr h	R. L. Polk & Co.

4225 LINCOLN AVE

Year	Uses	Source
1970	PAWEK ROBT	Pacific Telephone Directory
1967	PAWLK ROBT S	R. L. Polk & Co.
1962	Pawek Robt	Pacific Telephone
1955	MCCRACKEN WM J	The Pacific Telephone & Telegraph Co.

4232 LINCOLN AVE

Year	Uses	Source
2006	THOMPSON Rodney	Haines Company, Inc.
1970	RICHARD WM P	Pacific Telephone Directory
1967	RICHARD WM E	R. L. Polk & Co.
1962	Richard Wm P r	Pacific Telephone
1955	RICHARD WM P R	The Pacific Telephone & Telegraph Co.
1950	RICHARD WIN P R	The Pacific Telephone & Telegraph Co.
1945	RICHARD WM P R	The Pacific Telephone & Telegraph Co.

4233 LINCOLN AVE

Year	Uses	Source
2006	o POPP Tirnothy	Haines Company, Inc.
1970	SANBORN FREDERICK W	Pacific Telephone Directory
1967	SANBORN FREDK W	R. L. Polk & Co.
1962	Sanbom Frederick W	Pacific Telephone
1955	SANBORN FREDERICK W R	The Pacific Telephone & Telegraph Co.
1950	LYONS M J R	The Pacific Telephone & Telegraph Co.
1945	TODD A J R	The Pacific Telephone & Telegraph Co.
1943	Todd Arth J Blanche sta opr C A Breilh h	R. L. Polk & Co.

FINDINGS

4246 LINCOLN AVE

Year	Uses	Source
1938	LEADER WM R	Pacific Telephone

4309 LINCOLN AVE

Year	Uses	Source
1980	Cecil Forrest S	Pacific Telephone
1975	CECIL FORREST S	Pacific Telephone
1970	CECIL FORREST S	Pacific Telephone Directory
1967	CECIL FORREST S	R. L. Polk & Co.
1962	Cecil Forrest S	Pacific Telephone
1955	CECIL FORREST S	The Pacific Telephone & Telegraph Co.

4314 LINCOLN AVE

Year	Uses	Source
1991	Stover Robt T	PACIFIC BELL WHITE PAGES
	i Stover Robt C	PACIFIC BELL WHITE PAGES
	Stover Susan	PACIFIC BELL WHITE PAGES

4315 LINCOLN AVE

Year	Uses	Source
2006	HEAD ROYCE	Haines Company, Inc.
	AUCTION	Haines Company, Inc.
	HEAD ROYCE	Haines Company, Inc.
	AFTER SC PRGRM	Haines Company, Inc.
	HEAD ROYCE	Haines Company, Inc.
	SCHOOL	Haines Company, Inc.
2000	HEAD-ROYCE AFTER SCHOOL PROGRAM THE	Pacific Bell
	HEAD ROYCE SCHOOL SPORTS INFORMATION	Pacific Bell
	HEAD ROYCE SCHOOL	Pacific Bell
	HEAD ROYCE AUCTION	Pacific Bell
1996	HEAD-ROYCE AFTER SCHOOL PROGRAM THE	PACIFIC BELL DIRECTORY
	HEAD-ROYCE AUCTION	PACIFIC BELL DIRECTORY
	HEAD-ROYCE SCHOOL	PACIFIC BELL DIRECTORY
	HEAD-ROYCE SCHOOL SPORTS INFORMATION	PACIFIC BELL DIRECTORY
1992	HEAD-ROYCE AFTER SCHOOL PROGRAM THE	PACIFIC BELL DIRECTORY

FINDINGS

Year	Uses	Source
1992	HEAD-ROYCE SCHOOL SPORTS INFORMATION	PACIFIC BELL DIRECTORY
	HEAD-ROYCE SCHOOL	PACIFIC BELL DIRECTORY
	HEAD-ROYCE AUCTION	PACIFIC BELL DIRECTORY
1991	Head Royce After School Program The	PACIFIC BELL WHITE PAGES
	Head Royce Auction	PACIFIC BELL WHITE PAGES
	HE AD ROYCE S CHOOL	PACIFIC BELL WHITE PAGES
	Head Royce School Summer Program	PACIFIC BELL WHITE PAGES
1986	HE AD ROYCE S CHOOL	PACIFIC BELL WHITE PAGES
1980	HEAD ROYCE SCHOOL	Pacific Telephone
	Royce School The	Pacific Telephone
1975	ANNA HEAD SCHOOL THE	Pacific Telephone
	HEAD-ROYCE SCHOOLS	Pacific Telephone
	NELSON CHRIS	Pacific Telephone
1970	ANNA HEAD SCHOOL THE	Pacific Telephone Directory
1967	HEAD ANNA SCHOOL THE	R. L. Polk & Co.

4345 LINCOLN AVE

Year	Uses	Source
1945	BOLLA P R	The Pacific Telephone & Telegraph Co.
1943	Bolla Jas J USA r	R. L. Polk & Co.
	Bolla Peter Emma gdnr h	R. L. Polk & Co.
1933	BOLLA ANDW CLK R	R. L. Polk & Co.
	BOLLA ALBT BR MGR PIGGLY WIGGY R	R. L. Polk & Co.

4360 LINCOLN AVE

Year	Uses	Source
1986	Beacon Day School	PACIFIC BELL WHITE PAGES
1970	EPISCOPAL CHURCH OF OUR SAVIOR	Pacific Telephone Directory
1967	EPISCOPAL CHURCH OF OUR SAVIOR	R. L. Polk & Co.
1945	HASSTEDT H J R	The Pacific Telephone & Telegraph Co.

4381 LINCOLN AVE

Year	Uses	Source
1986	Head Royce Auction	PACIFIC BELL WHITE PAGES
1970	O LEARY ARTHUR B	Pacific Telephone Directory
1967	DWORCH PATRICIA A MRP	R. L. Polk & Co.
1962	Piccardo L D	Pacific Telephone

FINDINGS

Year	Uses	Source
1955	PICCARDO JACK R	The Pacific Telephone & Telegraph Co.
1950	PICCARDO JACK R	The Pacific Telephone & Telegraph Co.
	HUPMANA C W R	The Pacific Telephone & Telegraph Co.
1945	PICCARDO JACK R	The Pacific Telephone & Telegraph Co.
	MILLER A R R	The Pacific Telephone & Telegraph Co.
1943	Piccardo Jack E mech eng h	R. L. Polk & Co.
	Piccardo Marie B bkpr ACN Bank r	R. L. Polk & Co.

4381 1/2 LINCOLN AVE

Year	Uses	Source
1955	KIRSCHNER MELVIN H	The Pacific Telephone & Telegraph Co.

4383 LINCOLN AVE

Year	Uses	Source
1967	JONES MICHL B	R. L. Polk & Co.
1962	White John R	Pacific Telephone
	Ross Donald G	Pacific Telephone
1955	WHITE JOHN R	The Pacific Telephone & Telegraph Co.
1945	HENDRYX MARGARET R	The Pacific Telephone & Telegraph Co.

4384 LINCOLN AVE

Year	Uses	Source
1967	TRAMMELL BURTON A	R. L. Polk & Co.

4417 LINCOLN AVE

Year	Uses	Source
1933	BULLOCK ANNIE E (WID F H) H	R. L. Polk & Co.

4419 LINCOLN AVE

Year	Uses	Source
1950	IVALDI E R	The Pacific Telephone & Telegraph Co.
1945	IVALDI E R	The Pacific Telephone & Telegraph Co.

FINDINGS

4420 LINCOLN AVE

Year	Uses	Source
1967	YOUNG WINIFRED MRS	R. L. Polk & Co.
1962	Young Womens Christian Assn	Pacific Telephone
	Young Winifred Mrs	Pacific Telephone
1955	YOUNG WINIFRED MRS	The Pacific Telephone & Telegraph Co.
1950	YOUNG WINIFRED MRS R	The Pacific Telephone & Telegraph Co.
1943	Watz Harold T exp and storage	R. L. Polk & Co.
1933	IVALDI EMELIO H	R. L. Polk & Co.

4421 LINCOLN AVE

Year	Uses	Source
1938	IVALDI E R	Pacific Telephone

4465 LINCOLN AVE

Year	Uses	Source
1975	DIMEN ALAN MANTA PRODUCTS	Pacific Telephone
1967	LINCOLN HEIGHTS RECREATION	R. L. Polk & Co.
1962	Thomas Chas S	Pacific Telephone
	Thomas Janet A	Pacific Telephone
1955	ORCUTT BRUCE	The Pacific Telephone & Telegraph Co.
1950	MC NAMEE JOHN R	The Pacific Telephone & Telegraph Co.
1945	MCNAMEE JOHN R	The Pacific Telephone & Telegraph Co.
1943	Mc Namee John Marx L h	R. L. Polk & Co.
1938	MCNAMEE JOHN R	Pacific Telephone

4500 LINCOLN AVE

Map ID: 50

Year	Uses	Source
2006	CEREBRAL PALSY	Haines Company, Inc.
	CNTR MAIUNG SV	Haines Company, Inc.
	CEREBRAL PALSY	Haines Company, Inc.
	CT FOR BAY AREA	Haines Company, Inc.
2000	CEREBRAL PALSY CENTER FOR THE BAY AREA	Pacific Bell
1996	CEREBRAL PALSY CENTER FOR THE BAY AREA	PACIFIC BELL DIRECTORY
1992	CEREBRAL PALSY CENTER FOR THE BAY AREA	PACIFIC BELL DIRECTORY

Year	Uses	Source
1991	Main Ofc	PACIFIC BELL WHITE PAGES
	Cerebral Palsy Workshop	PACIFIC BELL WHITE PAGES
1986	Main Ofc	PACIFIC BELL WHITE PAGES
	Cerebral Palsy Workshop	PACIFIC BELL WHITE PAGES
1980	Main Ofc	Pacific Telephone
	Cerebral Palsy Workshop	Pacific Telephone
1975	CEREBRAL PALSY CENTER FOR THE BAY AREA	Pacific Telephone
	CEREBRAL PALSY CENTER FOR THE BAY AREA	Pacific Telephone
1970	CEREBRAL PALSY CENTER FOR THE BAY AREA	Pacific Telephone Directory
	CEREBRAL PALSY CENTER FOR THE BAY AREA	Pacific Telephone Directory
1967	CEREBRAL PALSY ASSN	R. L. Polk & Co.
1962	UNITED CEREBRAL PALSY ASSN OF ALAMEDA COUNTY	Pacific Telephone
	CEREBRAL PALSY ASSN OF ALAMEDA COUNTY	Pacific Telephone

4511 LINCOLN AVE

Year	Uses	Source
2006	REZZONICORobert	Haines Company, Inc.
1980	White Paul	Pacific Telephone
	White Paul	Pacific Telephone
	White Paul	Pacific Telephone

4537 LINCOLN AVE

Year	Uses	Source
2006	DIDONNATh lerry	Haines Company, Inc.
	NGUYEN Chau	Haines Company, Inc.
2000	NGUYEN CHAU	Pacific Bell
1996	NGUYEN CHAU	PACIFIC BELL DIRECTORY
1992	NGUYEN CHAU	PACIFIC BELL DIRECTORY
1991	Nguyen Chau	PACIFIC BELL WHITE PAGES

4549 LINCOLN AVE

Year	Uses	Source
2006	e TOBEY Terry 00 e	Haines Company, Inc.
1970	TOBEY EARL J	Pacific Telephone Directory
1967	TOBEY EARL J	R. L. Polk & Co.
1962	Tobey Earl J r	Pacific Telephone

FINDINGS

Year	Uses	Source
1955	TOBEY EARL J R	The Pacific Telephone & Telegraph Co.
	TIEMAN FRED	The Pacific Telephone & Telegraph Co.
1950	TOBEY EARL J R	The Pacific Telephone & Telegraph Co.
	DE EET N B) R	The Pacific Telephone & Telegraph Co.
1945	HOLMAN ROY L R	The Pacific Telephone & Telegraph Co.
1933	HOLMAN ROY GAS STA	R. L. Polk & Co.
	STRYKER HENRY C SURVEYOR BD OF FIRE UNDERWRITERS OF THE PAC R	R. L. Polk & Co.

LINCOLN ST

4208 LINCOLN ST

Year	Uses	Source
1943	Browning Howard h	R. L. Polk & Co.

4215 LINCOLN ST

Year	Uses	Source
1938	TODD A J R	Pacific Telephone

4232 LINCOLN ST

Year	Uses	Source
1943	Richard Wm P Henrietta electn h	R. L. Polk & Co.

4345 LINCOLN ST

Year	Uses	Source
1943	Bolla Andw J Bollas Market r	R. L. Polk & Co.
1938	BOLLA P R	Pacific Telephone

4381 LINCOLN ST

Year	Uses	Source
1938	PICCARDO JACK R	Pacific Telephone
	RATTI VICTOR R	Pacific Telephone

4425 LINCOLN ST

Year	Uses	Source
1950	WALKER EMMA C R	The Pacific Telephone & Telegraph Co.

4549 LINCOLN ST

Year	Uses	Source
1938	HOLMAN ROY L R	Pacific Telephone
	STRYKER HENRY R	Pacific Telephone

LINNET AVE

4245 LINNET AVE

Year	Uses	Source
1970	MANN JAS R	Pacific Telephone Directory
1967	MANN JAMES R	R. L. Polk & Co.
1962	League of Women Voters of Oakland	Pacific Telephone
	Mann Jas R	Pacific Telephone

WHITTLE AVE

4220 WHITTLE AVE

Year	Uses	Source
2006	AVERY Bradley	Haines Company, Inc.
1992	CANNING GEO O	PACIFIC BELL DIRECTORY
1980	Canning Geo O	Pacific Telephone
1970	CANNING GEO O	Pacific Telephone Directory
1967	CANNING GEO	R. L. Polk & Co.
1962	Cox Dillard J	Pacific Telephone

4221 WHITTLE AVE

Year	Uses	Source
2006	FROST Usa	Haines Company, Inc.
1980	Ziebach D R	Pacific Telephone
1970	ZIEBACH DOROTHY R	Pacific Telephone Directory
1967	ZIEBACH DOROTHY R	R. L. Polk & Co.
1962	Ziebach Dorothy R	Pacific Telephone
1955	ZIEBACH DOROTHY R R	The Pacific Telephone & Telegraph Co.
1950	ZIEBACH DOROTHY R R	The Pacific Telephone & Telegraph Co.
1945	ZIEBACH DOROTHY R R	The Pacific Telephone & Telegraph Co.
1943	Zieback Dorothy R tchr Pub Sch h	R. L. Polk & Co.

FINDINGS

4226 WHITTLE AVE

Year	Uses	Source
2006	TIN KELENBERG Bart	Haines Company, Inc.
1970	RATTI VICTOR	Pacific Telephone Directory
1967	RATTI VICTOR G	R. L. Polk & Co.
1962	Ratti Victor r	Pacific Telephone
1955	RATTI VICTOR R	The Pacific Telephone & Telegraph Co.
1950	RATTI VICTOR R	The Pacific Telephone & Telegraph Co.
1945	RATTI VICTOR R	The Pacific Telephone & Telegraph Co.
1943	Ratti Olga I fctywkr r	R. L. Polk & Co.
	Ratti Olga I fctywkr r	R. L. Polk & Co.
	Ratti Victor Dina mech h	R. L. Polk & Co.

4229 WHITTLE AVE

Year	Uses	Source
2006	HANSEN Matthew	Haines Company, Inc.
	SCHULTZ Robert	Haines Company, Inc.
1992	SHAIKH MOINUDDIN	PACIFIC BELL DIRECTORY
1991	Shaikh Moinuddin	PACIFIC BELL WHITE PAGES
1986	Marquez Baines C	PACIFIC BELL WHITE PAGES
1980	Dunn Ashley	Pacific Telephone
1970	INT-VEEN J	Pacific Telephone Directory
1967	JUDA EUG M	R. L. Polk & Co.
1962	Juda E M Mrs r	Pacific Telephone
1955	JUDA E M MRS R	The Pacific Telephone & Telegraph Co.
1943	Hechtman Jas H Hilda E dentist h	R. L. Polk & Co.

4256 WHITTLE AVE

Year	Uses	Source
1962	Barbieri Louis	Pacific Telephone
1955	BOLLA P R	The Pacific Telephone & Telegraph Co.
1950	BOLLA P R	The Pacific Telephone & Telegraph Co.

4271 WHITTLE AVE

Year	Uses	Source
2006	No Current Listing	Haines Company, Inc.
2000	BAY AREA TREE SERVICE	Pacific Bell

Year	Uses	Source
1996	BAY AREA TREE SERVICE	PACIFIC BELL DIRECTORY
1992	BAY AREA TREE SERVICE	PACIFIC BELL DIRECTORY
1980	Barker Chas M	Pacific Telephone
	Cotter Marty J	Pacific Telephone
1967	ASCENCIO MANUEL S	R. L. Polk & Co.

4274 WHITTLE AVE

Year	Uses	Source
2006	HAGAN Jeffrey	Haines Company, Inc.
1980	Mendelsohn Steven	Pacific Telephone
	Mendelsohn Sharon	Pacific Telephone
1967	SILVESTER MEL	R. L. Polk & Co.
1962	Bolla Emma	Pacific Telephone
1955	BOLLA JAS J	The Pacific Telephone & Telegraph Co.
1950	BELLA JAS J MRS R	The Pacific Telephone & Telegraph Co.

4277 WHITTLE AVE

Year	Uses	Source
2006	OKUMURA Robert	Haines Company, Inc.
1970	BOROVICKA G G	Pacific Telephone Directory
1967	BOROVICKA GEO G	R. L. Polk & Co.
1962	Borovicka G G	Pacific Telephone

4282 WHITTLE AVE

Year	Uses	Source
2006	PICCARDO Kathleen	Haines Company, Inc.
1975	BOZINA PIETRO	Pacific Telephone
1970	BOZINA PIETRO	Pacific Telephone Directory
1967	BOZINA PIETRO	R. L. Polk & Co.

4284 WHITTLE AVE

Year	Uses	Source
2006	VELCICH Joseph	Haines Company, Inc.
2000	VELCICH JOSEPH & ANGELA	Pacific Bell
1996	VELCICH JOSEPH & ANGELA	PACIFIC BELL DIRECTORY
1992	VELCICH JOSEPH & ANGELA	PACIFIC BELL DIRECTORY
1991	Velcich Joseph & Angela	PACIFIC BELL WHITE PAGES
1986	Velcich Joseph & Angela	PACIFIC BELL WHITE PAGES
	Velco Inc	PACIFIC BELL WHITE PAGES

FINDINGS

Year	Uses	Source
1980	Velcich Joseph & Angela	Pacific Telephone
1975	PICCARDO PETER	Pacific Telephone
1970	PICCARDO PETER	Pacific Telephone Directory
1967	PICCARDO LEONARD	R. L. Polk & Co.

4285 WHITTLE AVE

Year	Uses	Source
2006	UPSITZ Dean	Haines Company, Inc.
1970	BECKER BARBARA	Pacific Telephone Directory
1967	CARNAHAN JOHN W	R. L. Polk & Co.
1962	Murray Chas	Pacific Telephone
1955	FIRTH MILTON N	The Pacific Telephone & Telegraph Co.
1950	PIAZZA JOS W R	The Pacific Telephone & Telegraph Co.

4286 WHITTLE AVE

Year	Uses	Source
2006	o WLEY Susan	Haines Company, Inc.
1975	PICCARDO JACK E	Pacific Telephone
1970	PICCARDO JACK E	Pacific Telephone Directory
1967	PICCARDO JACK E	R. L. Polk & Co.
1962	Piccardo Jack E	Pacific Telephone

4293 WHITTLE AVE

Year	Uses	Source
2006	COOK Stephen	Haines Company, Inc.
	KGOS 9 TSILEIpeleng	Haines Company, Inc.
1986	Guder Remzi	PACIFIC BELL WHITE PAGES
1980	Guder Remzi	Pacific Telephone
1975	GCDER REMZI	Pacific Telephone
1970	GUDER REMZI	Pacific Telephone Directory
1967	ERICKSON PAUL V	R. L. Polk & Co.
1962	Adams Sylvia	Pacific Telephone
	Adams Calvin	Pacific Telephone
1955	PEOPLES LESLIE C R	The Pacific Telephone & Telegraph Co.
1950	PEOPLES LESLIE C R	The Pacific Telephone & Telegraph Co.

FINDINGS

4300 WHITTLE AVE

Year	Uses	Source
2006	MORGAN Robert	Haines Company, Inc.

4301 WHITTLE AVE

Year	Uses	Source
2006	LINERO inma	Haines Company, Inc.
	BRECHER Jos	Haines Company, Inc.
	BRECHER Joseph	Haines Company, Inc.
2000	BRECHER JOS	Pacific Bell
1996	BRECHER JOS	PACIFIC BELL DIRECTORY
1992	BRECHER JOS	PACIFIC BELL DIRECTORY
1991	ineso	PACIFIC BELL WHITE PAGES
	Linert Patricia	PACIFIC BELL WHITE PAGES
	Linero Inma	PACIFIC BELL WHITE PAGES
	Res	PACIFIC BELL WHITE PAGES
1986	Lines Dana L	PACIFIC BELL WHITE PAGES
	Lnert P	PACIFIC BELL WHITE PAGES
	Linero Inma	PACIFIC BELL WHITE PAGES
	Res	PACIFIC BELL WHITE PAGES
1980	Linero Inma	Pacific Telephone
	Res	Pacific Telephone
1970	TUCK JOHN	Pacific Telephone Directory
1967	TUCK JOHN F	R. L. Polk & Co.
1962	Baldwin Richard L	Pacific Telephone
1955	CLUNE FRANK R	The Pacific Telephone & Telegraph Co.
1950	CLIUNE FRANK R	The Pacific Telephone & Telegraph Co.

4309 WHITTLE AVE

Year	Uses	Source
2006	BRAKEMAN J	Haines Company, Inc.
	BRAKEMAN P	Haines Company, Inc.
2000	CAULFIELD TIMOTHY O	Pacific Bell
1986	Bibbero Richard V	PACIFIC BELL WHITE PAGES
1980	Buckley Michael J	Pacific Telephone
1975	PERCY ALAN	Pacific Telephone
1967	PERCY MICHL P	R. L. Polk & Co.
1962	Mills Richard F	Pacific Telephone

Year	Uses	Source
1955	KNOWLES E C R	The Pacific Telephone & Telegraph Co.
1950	KNOWLES DOROTHY P R	The Pacific Telephone & Telegraph Co.

4314 WHITTLE AVE

Year	Uses	Source
2006	STRUNIN Harold	Haines Company, Inc.
1967	HOPPER ORLAND W	R. L. Polk & Co.
1955	HOPPER ORLAND W	The Pacific Telephone & Telegraph Co.
1950	HOPPER ORLAND W R	The Pacific Telephone & Telegraph Co.

4315 WHITTLE AVE

Year	Uses	Source
2006	FITZGERALD Keith	Haines Company, Inc.
1996	BENNETT PAUL	PACIFIC BELL DIRECTORY
1991	Breeden Adam	PACIFIC BELL WHITE PAGES

4323 WHITTLE AVE

Year	Uses	Source
2006	TRUEBLOOD Nathan 00 e	Haines Company, Inc.
2000	ZEPHYR C	Pacific Bell

4324 WHITTLE AVE

Year	Uses	Source
2006	o JURATOVAC Unda	Haines Company, Inc.
1991	Hammill Glenn	PACIFIC BELL WHITE PAGES
	Hammett Wm R	PACIFIC BELL WHITE PAGES
1986	Hammett Wm R	PACIFIC BELL WHITE PAGES
1980	Hammett Wm R	Pacific Telephone
1975	HAMMETT WM R	Pacific Telephone
1970	HAMMETT WM R	Pacific Telephone Directory
1967	HAMMETT WM R	R. L. Polk & Co.

4326 WHITTLE AVE

Year	Uses	Source
1967	SMITHSON CARL	R. L. Polk & Co.

FINDINGS

4336 WHITTLE AVE

Year	***Uses***	***Source***
2006	No Current Listing	Haines Company, Inc.
1967	SVITEK JOSEPH F	R. L. Polk & Co.

4337 WHITTLE AVE

Year	***Uses***	***Source***
2006	a STEMPEL Cad	Haines Company, Inc.
1970	ANDERSON JAS C	Pacific Telephone Directory
1967	ANDERSON JAMES C	R. L. Polk & Co.
1962	Anderson J C	Pacific Telephone

4343 WHITTLE AVE

Year	***Uses***	***Source***
2006	TAYLOR Warren	Haines Company, Inc.

4345 WHITTLE AVE

Year	***Uses***	***Source***
1980	Elia Jos	Pacific Telephone
1975	CHRISTY JAS	Pacific Telephone
1970	CHRISTY WM	Pacific Telephone Directory
1967	CHRISTY WM	R. L. Polk & Co.
1955	CLARK GALE DR R	The Pacific Telephone & Telegraph Co.

4350 WHITTLE AVE

Year	***Uses***	***Source***
2006	o ZAKColin	Haines Company, Inc.
2000	ZAK COLIN & RACHEL	Pacific Bell
1996	ZAK COLIN & RACHEL	PACIFIC BELL DIRECTORY
1992	SATTERLEE R	PACIFIC BELL DIRECTORY
1991	Greenlee Wm P	PACIFIC BELL WHITE PAGES
	Greenlees G	PACIFIC BELL WHITE PAGES
	Greenler S A	PACIFIC BELL WHITE PAGES
1986	Greenlee Wm P	PACIFIC BELL WHITE PAGES
	Greenler S A	PACIFIC BELL WHITE PAGES
	Greenless G	PACIFIC BELL WHITE PAGES
	Greenlow F	PACIFIC BELL WHITE PAGES
1980	Greenlee Wm P	Pacific Telephone
1975	GREENLEE WM P	Pacific Telephone
1970	GREENLEE WM P	Pacific Telephone Directory

FINDINGS

Year	Uses	Source
1967	GREENLEE WM PAUL	R. L. Polk & Co.
1962	Allen Harris	Pacific Telephone
1955	GREENLEE WM PAUL	The Pacific Telephone & Telegraph Co.
1950	SIMMIS RICHARD R	The Pacific Telephone & Telegraph Co.
1943	Cox John F Dailen linemn PG & ECo r	R. L. Polk & Co.
1938	ALSING R W R	Pacific Telephone
1928	Haun Lloyd G Ethel carp H	R.L. Polk and Co of California

4351 WHITTLE AVE

Year	Uses	Source
2006	BIRKHEAD David 00 a	Haines Company, Inc.
1992	COMPTON RICHARD N	PACIFIC BELL DIRECTORY
1991	Compton Richard N	PACIFIC BELL WHITE PAGES
	Schmitz Dan J	PACIFIC BELL WHITE PAGES
1986	Compton Richard N	PACIFIC BELL WHITE PAGES
1980	Compton Richard N	Pacific Telephone
1975	COMPTON RICHARD N	Pacific Telephone
1970	COMPTON RICHARD N	Pacific Telephone Directory
1967	COMPTON RICHD N	R. L. Polk & Co.
1962	Compton Richard N	Pacific Telephone
1955	COMPTON RICHARD N	The Pacific Telephone & Telegraph Co.
1950	COMPTON RICHARD N R	The Pacific Telephone & Telegraph Co.
1943	JOHNSON Mary Indy wkr r	R. L. Polk & Co.
1933	JOHNSON JAS W (FLORA M) CARP H	R. L. Polk & Co.
	WYNN MARY SLSWN R	R. L. Polk & Co.
1928	IN Jas W Flora M carp H	R.L. Polk and Co of California

4362 WHITTLE AVE

Year	Uses	Source
2006	o STONE Edw P	Haines Company, Inc.
	STONE Edward	Haines Company, Inc.
2000	STONE EDW P	Pacific Bell
1996	STONE EDW P	PACIFIC BELL DIRECTORY
1992	STONE EDW P	PACIFIC BELL DIRECTORY
1991	Stone Edw P	PACIFIC BELL WHITE PAGES
1986	Stone Edw P	PACIFIC BELL WHITE PAGES
1980	Stone Edw P	Pacific Telephone

Year	Uses	Source
1970	STONE ALISON	Pacific Telephone Directory
	STONE DENISE	Pacific Telephone Directory
	STONE EDW P	Pacific Telephone Directory
1967	STONE EDW P	R. L. Polk & Co.
1962	Stone Edw P	Pacific Telephone

4368 WHITTLE AVE

Year	Uses	Source
2006	NIKOLAOU Gorgos	Haines Company, Inc.

4370 WHITTLE AVE

Year	Uses	Source
2006	LONERGAN Mathew	Haines Company, Inc.
1992	PENDERGRAFT KEVIN	PACIFIC BELL DIRECTORY
1991	Pendergraft Kevin	PACIFIC BELL WHITE PAGES
	Pendergrass	PACIFIC BELL WHITE PAGES

4371 WHITTLE AVE

Year	Uses	Source
2006	Newm AN Eugene	Haines Company, Inc.
1991	Gray P	PACIFIC BELL WHITE PAGES
	Hryciuk S	PACIFIC BELL WHITE PAGES
1980	Kollias Tony	Pacific Telephone
1975	KOLLIAS TONY	Pacific Telephone
1970	KOLLIAS TONY	Pacific Telephone Directory
1967	ZUUR REMY G	R. L. Polk & Co.
1962	Zuur Remy G Mrs	Pacific Telephone
1955	ZUUR REMY G MRS	The Pacific Telephone & Telegraph Co.

4374 WHITTLE AVE

Year	Uses	Source
2006	No Current Listing	Haines Company, Inc.
1970	UHLIG H F	Pacific Telephone Directory
1967	UHLIG HELMUTH F	R. L. Polk & Co.
1962	Uhlig H F	Pacific Telephone
	Uhlig Geraldine G	Pacific Telephone

FINDINGS

4379 WHITTLE AVE

Year	Uses	Source
2006	ALTOBELLITURCH	Haines Company, Inc.
1970	ALLEN GLADYCE	Pacific Telephone Directory
1967	ALLEN JOHN S	R. L. Polk & Co.
1962	Allen Gladyce	Pacific Telephone

4390 WHITTLE AVE

Year	Uses	Source
2006	SADOVAL Felipe	Haines Company, Inc.
1996	GOLD JONATHAN S	PACIFIC BELL DIRECTORY
1992	FREEDLAND MICHAEL	PACIFIC BELL DIRECTORY
1980	Steele Robt	Pacific Telephone
	Fitschen Gary	Pacific Telephone
1975	GREEN L G	Pacific Telephone
1970	BURLEY MARIAN D	Pacific Telephone Directory
1967	BURLEY MARIAN D	R. L. Polk & Co.
1962	Burley Marian D	Pacific Telephone
1955	SHINKLE HORACE	The Pacific Telephone & Telegraph Co.
1950	SHINKLE HORACE R	The Pacific Telephone & Telegraph Co.

4399 WHITTLE AVE

Year	Uses	Source
2006	BEELER Janet	Haines Company, Inc.
1975	ANDERSON MELVIN R	Pacific Telephone
1967	ROBINSON ALBERT M	R. L. Polk & Co.
1955	OAKES L K	The Pacific Telephone & Telegraph Co.
1950	HACKETT W W R	The Pacific Telephone & Telegraph Co.
1943	OConnell Edw L inspr Pittsburgh EM Co r	R. L. Polk & Co.
1938	O CONNELL EDWARD R	Pacific Telephone
1928	Harvard John G Mary E carp H	R.L. Polk and Co of California

4400 WHITTLE AVE

Year	Uses	Source
2006	o MORRIS Peg	Haines Company, Inc.
1980	De Vore Dennis E	Pacific Telephone
1975	BAKER BONNIE J	Pacific Telephone
1970	BAKER BONNIE J	Pacific Telephone Directory

Year	Uses	Source
1967	BAKER ALF F	R. L. Polk & Co.
1962	Douglas Patty S Mrs	Pacific Telephone
	Douglas Billy R	Pacific Telephone
1943	Brusco Gloria E clk r	R. L. Polk & Co.

4406 WHITTLE AVE

Year	Uses	Source
2006	BUNGERShaun	Haines Company, Inc.
	ROUSE Daniel	Haines Company, Inc.
2000	ROUSE DANIEL	Pacific Bell
1970	VALLADAO KENNETH L	Pacific Telephone Directory
1967	VALLADAO KENNETH L	R. L. Polk & Co.

WHITTLE CT

4229 WHITTLE CT

Year	Uses	Source
1945	ALAUX ROGER L MRS R	The Pacific Telephone & Telegraph Co.

4350 WHITTLE CT

Year	Uses	Source
1933	ALSING RUDOLPH W (DIMOND GARAGE)	R. L. Polk & Co.

4351 WHITTLE CT

Year	Uses	Source
1945	JOHNSON JAMES W R	The Pacific Telephone & Telegraph Co.
1938	JOHNSON JAMES W R	Pacific Telephone

4400 WHITTLE CT

Year	Uses	Source
1955	BRUSCO GEO R	The Pacific Telephone & Telegraph Co.
1950	BRUSCO GEO R	The Pacific Telephone & Telegraph Co.
	BURINK WOS R	The Pacific Telephone & Telegraph Co.
1945	BRUSCO GEO R	The Pacific Telephone & Telegraph Co.
1938	BRUSCO GEO R	Pacific Telephone

FINDINGS

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
4368 Lincoln Ave.	2002, 1993, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1932, 1928, 1926, 1925, 1920

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
1 ALIDA CT	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
14 ALIDA CT	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
15 ALIDA CT	2002, 1993, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1950, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
2 ALIDA CT	2002, 2000, 1993, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
20 ALIDA CT	2002, 2000, 1996, 1993, 1986, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
21 ALIDA CT	2002, 1993, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
2425 ALIDA ST	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
2427 ALIDA ST	2002, 2000, 1996, 1993, 1992, 1991, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1932, 1926, 1925, 1920
2433 ALIDA ST	2002, 2000, 1996, 1993, 1992, 1991, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1933, 1932, 1928, 1926, 1925, 1920
2439 ALIDA ST	2002, 2000, 1996, 1993, 1992, 1991, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
2443 ALIDA ST	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
2451 ALIDA ST	2002, 1993, 1984, 1982, 1979, 1976, 1973, 1970, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1932, 1926, 1925, 1920
2456 ALIDA ST	2002, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1940, 1938, 1932, 1928, 1926, 1925, 1920
2457 ALIDA ST	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1940, 1932, 1926, 1925, 1920
2461 ALIDA ST	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1970, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1946, 1943, 1940, 1938, 1932, 1926, 1920
2464 ALIDA ST	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1946, 1940, 1932, 1926, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
2465 ALIDA ST	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1965, 1960, 1959, 1956, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
26 ALIDA CT	2002, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
27 ALIDA CT	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
27 ALIDA ST	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4200 LINCOLN AVE	2002, 2000, 1996, 1993, 1992, 1991, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4201 LINCOLN AVE	2002, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4207 LINCOLN AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1932, 1926, 1925, 1920
4208 LINCOLN AVE	2002, 1993, 1984, 1982, 1979, 1976, 1975, 1973, 1970, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4208 LINCOLN ST	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4215 LINCOLN AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1932, 1926, 1925, 1920
4215 LINCOLN ST	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1933, 1932, 1928, 1926, 1925, 1920
4216 LINCOLN AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4220 WHITTLE AVE	2002, 2000, 1996, 1993, 1991, 1986, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4221 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4224 LINCOLN AVE	2002, 2000, 1996, 1993, 1992, 1991, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4225 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4226 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4229 WHITTLE AVE	2002, 2000, 1996, 1993, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1950, 1946, 1945, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4229 WHITTLE CT	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4232 LINCOLN AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
4232 LINCOLN ST	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4233 LINCOLN AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4245 LINNET AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4246 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1933, 1932, 1928, 1926, 1925, 1920
4256 WHITTLE AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4271 WHITTLE AVE	2002, 1993, 1991, 1986, 1984, 1982, 1979, 1976, 1975, 1973, 1970, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4274 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1979, 1976, 1975, 1973, 1970, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4277 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4282 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4284 WHITTLE AVE	2002, 1993, 1984, 1982, 1979, 1976, 1973, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4285 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4286 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4293 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4300 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4301 WHITTLE AVE	2002, 1993, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4309 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4309 WHITTLE AVE	2002, 1996, 1993, 1992, 1991, 1984, 1982, 1979, 1976, 1973, 1970, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4314 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4314 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
4315 LINCOLN AVE	2002, 1993, 1984, 1982, 1979, 1976, 1973, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4315 WHITTLE AVE	2002, 2000, 1993, 1992, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4323 WHITTLE AVE	2002, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4324 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1984, 1982, 1979, 1976, 1973, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4326 WHITTLE AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4336 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4337 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4343 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4345 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1940, 1938, 1932, 1928, 1926, 1925, 1920
4345 LINCOLN ST	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1940, 1933, 1932, 1928, 1926, 1925, 1920
4345 WHITTLE AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1979, 1976, 1973, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4350 WHITTLE AVE	2002, 1993, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1940, 1933, 1932, 1926, 1925, 1920
4350 WHITTLE CT	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1932, 1928, 1926, 1925, 1920
4351 WHITTLE AVE	2002, 2000, 1996, 1993, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1940, 1938, 1932, 1926, 1925, 1920
4351 WHITTLE CT	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1943, 1940, 1933, 1932, 1928, 1926, 1925, 1920
4360 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4362 WHITTLE AVE	2002, 1993, 1984, 1982, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4368 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4370 WHITTLE AVE	2002, 2000, 1996, 1993, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4371 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1986, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
4374 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4379 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4381 1/2 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4381 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4381 LINCOLN ST	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1933, 1932, 1928, 1926, 1925, 1920
4383 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1965, 1960, 1959, 1956, 1954, 1951, 1950, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4384 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4390 WHITTLE AVE	2002, 2000, 1993, 1991, 1986, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4399 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1970, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1940, 1933, 1932, 1926, 1925, 1920
4400 WHITTLE AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4400 WHITTLE CT	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1933, 1932, 1928, 1926, 1925, 1920
4406 WHITTLE AVE	2002, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4417 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1932, 1928, 1926, 1925, 1920
4419 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4420 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1945, 1940, 1938, 1932, 1928, 1926, 1925, 1920
4421 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1933, 1932, 1928, 1926, 1925, 1920
4425 LINCOLN ST	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4465 LINCOLN AVE	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1970, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1940, 1933, 1932, 1928, 1926, 1925, 1920
4500 LINCOLN AVE	2002, 1993, 1984, 1982, 1979, 1976, 1973, 1965, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
4511 LINCOLN AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4537 LINCOLN AVE	2002, 1993, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
4549 LINCOLN AVE	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1965, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1938, 1932, 1928, 1926, 1925, 1920
4549 LINCOLN ST	2006, 2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1967, 1965, 1962, 1960, 1959, 1956, 1955, 1954, 1951, 1950, 1946, 1945, 1943, 1940, 1933, 1932, 1928, 1926, 1925, 1920
8 ALIDA CT	2002, 2000, 1993, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1975, 1973, 1970, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920
9 ALIDA CT	2002, 2000, 1996, 1993, 1992, 1991, 1986, 1984, 1982, 1980, 1979, 1976, 1973, 1965, 1962, 1960, 1959, 1956, 1954, 1951, 1946, 1943, 1940, 1938, 1933, 1932, 1928, 1926, 1925, 1920

APPENDIX E

ENVIRONMENTAL DOCUMENTS
(PROVIDED ON CD-ROM)

6-MONTH PERIODIC SURVEILLANCE REPORT

Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

Prepared for:

Lincoln Child Center
4368 Lincoln Avenue
Oakland, California 94602

Prepared by:

24404 South Vermont Avenue, Suite 307
Harbor City, California 90710
(310) 530-5006

February 5, 2008
CTL Project No. 107-0442

TABLE OF CONTENTS

EXECUTIVE SUMMARY

TABLES/APPENDICES

EXECUTIVE SUMMARY

CTL Environmental Services

24404 South Vermont Avenue, Suite 307 • Harbor City, CA 90710 • TEL: (310) 530-5006 • FAX: (310) 530-0792

REPORTED: February 5, 2008 **CTL PROJECT NO.:** 107-0442

CLIENT: Lincoln Child Center
4368 Lincoln Avenue
Oakland, California 94602

ATTENTION: Mr. Michael Boe

REF: **6-Month Periodic Surveillance Report**
Lincoln Child Center
4368 Lincoln Avenue
Oakland, California

PROJECT SUMMARY

CTL Environmental Services (CTL) conducted a 6-month periodic surveillance of identified asbestos-containing materials at Lincoln Child Center located in Oakland, California. Craig Heidig, a Cal-OSHA Certified Asbestos Consultant and EPA-accredited Building Inspector employed by CTL, conducted the inspection on January 3, 2008.

FIELD AND ANALYTICAL METHODOLOGY

The inspection was conducted in accordance with protocol set forth in the Asbestos Hazard Emergency Response Act (AHERA) *40 CFR 763 Subpart E.*

Information in this report is based on the original AHERA inspection conducted in fulfillment of the requirements of *40 CFR 763 Subpart E.*

The periodic surveillance activities included the following elements.

- Visual inspection of known ACM (friable and non-friable) and suspect ACM not previously identified or sampled
- Identification of friable and non-friable ACM including ACM not previously identified or sampled
- Assessment of friable and damaged non-friable ACM, including ACM not previously identified or sampled
- For each suspect material not assumed ACM, the inspection will include the collection, submission, and analysis of bulk samples as outlined in *40 CFR 763 Subpart E*

RESULTS

Please refer to the AHERA 3-year re-inspection material inventories located in Appendix A.

RECOMMENDATIONS

Asbestos-containing materials should be monitored and maintained as part of the school's operations and maintenance program until renovation or demolition activities require removal, or until material becomes significantly damaged, or the hazard potential changes. Remove or repair these items when practical and cost effective in conjunction with an EPA-accredited Project Designer.

ASSUMPTIONS AND LIMITATIONS

This report has been prepared for the exclusive use of Lincoln Child Center. In performing our professional services, we have applied present engineering and scientific judgment and used a level of effort consistent with the standard of practice measured on the date of work in the locale of the project site for similar type studies.

CTL has relied in good faith upon representations and information furnished by individuals with respect to operations and existing property conditions to the extent that they have not been contradicted by data obtained from other sources. Accordingly, CTL accepts no responsibility for any deficiencies, omissions, misrepresentations, or fraudulent acts of persons interviewed. In addition, CTL will not accept liability for any loss, injury, claim, or damage arising directly or indirectly from any use or reliance on this report. CTL makes no warranty, expressed or implied.

If you have any questions regarding the information contained herein, please call the undersigned at 310-530-5006.

Respectfully submitted by,
CTL Environmental Services

Eric Fleming, CAC
Project Manager, Workplace Health & Safety
Cal-OSHA Cert. #00-2816

Reviewed by,
CTL Environmental Services

Marie Tullai

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Cal-OSHA Cert. #92-0218

THE AMERICAN BOARD OF INDUSTRIAL HYGIENE
INCORPORATED
PENNSYLVANIA 1960
MARIE ANN TULLAI, C.I.H.
EXPIRES 6-1-2009

MT/mrw

APPENDIX A

MATERIAL INVENTORIES

6-MONTH PERIODIC SURVEILLANCE

CLIENT: Lincoln Child Care Center
PROJECT NO: 107-0442
PROJECT NAME: Lincoln Child Care Center

Building 001 - Trevor

MATERIAL CLASS (1)	MATERIAL	MATERIAL LOCATION	CURRENT ASSESSMENT (2)	FRIABLE (Y OR N)	APPROX. QTY.	RESULTS (3) OR SAMPLE#	RECOMMENDATIONS/ RESPONSE ACTION (4)
M	12"x12" white/brown floor tile & mastic	1st floor, SW room against south wall	ND	N	24 sq. ft.	Pos (01, 02)	5 (maintain)
M	9"x9" gray/olive floor tile & mastic	2nd floor hallway, kitchen - some rooms may have tile under carpeting	ND	N	1,200 sq. ft.	Pos (03, 04, 05, 06)	5 (repair & maintain)
M	9"x9" olive w/ green floor tile & mastic	1st floor NE room, NE office, west room 2nd floor SE therapy office & restroom	ND	N	1,000 sq. ft.	Pos (07, 08, 09, 10)	5 (maintain)
M	9"x9" pink floor tile & mastic	Computer room	ND	N	200 sq. ft.	Pos (11, 12)	5 (maintain)
S	Spray-on acoustic	2nd floor, SE room	NA	NA	NA	Neg (23, 24, 25)	NA
M	Window putty	Exterior	NA	NA	50 sq. ft.	Neg (26)	NA
M	Green linoleum	Stairway	NA	NA	100 sq. ft.	Neg (27)	NA
M	Baseboard mastic	Not specified	NA	NA	100 sq. ft.	Neg (29)	NA
S	Stucco wall	Exterior	ND	N	4,000 sq. ft.	Neg (30)	This material was not sampled as per AHERA protocol; sample prior to any disturbance
S	Plaster wall	Not specified	ND	N	900 sq. ft.	Assumed - 2	This material was not sampled as per AHERA protocol; sample prior to any disturbance
TSI	Pipe & elbow insulation	Crawlspace	ND	Y	415 ln. ft. (100 elbows)	Pos (A001, A001A)	5 (maintain)
M	9"x9" yellow floor tile & mastic	1st floor, NW room	ND	N	200 sq. ft.	Pos (13, 14)	5 (maintain)
M	Ceiling tile mastic	1st floor NW room, 2nd floor SE room	ND	N	2,700 sq. ft.	Pos (A001B) (Assumed)	5 (maintain)
TSI	Beige insulation	Crawlspace	ND	Y	NA	Neg (LCC-PLM-1)	Removed

6-MONTH PERIODIC SURVEILLANCE

CLIENT: Lincoln Child Care Center
PROJECT NO: 107-0442
PROJECT NAME: Lincoln Child Care Center

Building 001 - Trevor

MATERIAL CLASS (1)	MATERIAL	MATERIAL LOCATION	CURRENT ASSESSMENT (2)	FRIABLE (Y OR N)	APPROX. QTY.	RESULTS (3) OR SAMPLE#	RECOMMENDATIONS/ RESPONSE ACTION (4)
M	Asbestos cement panels	Art rooms	ND	N	1,000 sq. ft.	Pos (T7032)	5 (maintain)

(1) S-surfacing, TSI-thermal system insulation, M-miscellaneous
(2) ND-not damaged, D-damaged, SD-significantly damaged
(3) POS-previously identified as positive, NEG-previously identified as negative, ASSUMED-1 = new material, not sampled, assumed asbestos-containing; ASSUMED-2 = not enough samples collected, material is assumed asbestos-containing
(4) For response actions 1-8 refer to "Response Action Ratings Sheet"

6-MONTH PERIODIC SURVEILLANCE

CLIENT: Lincoln Child Care Center
PROJECT NO: 107-0442
PROJECT NAME: Lincoln Child Care Center

Building 002 - Crocker

MATERIAL CLASS (1)	MATERIAL	MATERIAL LOCATION	CURRENT ASSESSMENT (2)	FRIABLE (Y OR N)	APPROX. QTY.	RESULTS (3) OR SAMPLE#	RECOMMENDATIONS/ RESPONSE ACTION (4)
S	Drywall/Drywall mud	Not specified	NA	NA	4,900 sq. ft.	Neg (60, 61, 62, 63, 64)	NA
M	White diamond linoleum	1st floor rooms 9 & 12, 2nd floor stairwell & room 3	NA	NA	200 sq. ft.	Neg (65, 66)	NA
S	Plaster wall	Not specified	NA	NA	950 sq. ft.	Neg (67, 68, 69)	NA
M	Ceiling tile mastic	1st & 2nd floor hallways	NA	NA	3,000 sq. ft.	Neg (71)	NA
M	Leveling compound	Not specified	NA	NA	1,000 sq. ft.	Neg (73)	NA
S	Stucco wall	Exterior	ND	N	12,000 sq. ft.	Neg (74)	This material was not sampled as per AHERA protocol; sample prior to any disturbance
M	Ceiling tile mastic	Bathrooms, upstairs office & copy room	ND	N	2,800 sq. ft.	Pos (A002) (Assumed)	5 (maintain)
TSI	Pipe & elbow insulation	Crawlspace and basement	ND	Y	544 ln. ft. (85 elbows)	Pos (A002B)	5 (maintain)
M	Asbestos cement panels	1st floor - SE rooms on walls	ND	N	500 sq. ft.	Pos (T002)	5 (maintain)

(1) S-surfacing, TSI-thermal system insulation, M-miscellaneous
(2) ND-not damaged, D-damaged, SD-significantly damaged
(3) POS-previously identified as positive, NEG-previously identified as negative, ASSUMED-1 = new material, not sampled, assumed asbestos-containing; ASSUMED-2 = not enough samples collected, material is assumed asbestos-containing
(4) For response actions 1-8 refer to "Response Action Ratings Sheet"

6-MONTH PERIODIC SURVEILLANCE

CLIENT: Lincoln Child Care Center
PROJECT NO: 107-0442
PROJECT NAME: Lincoln Child Care Center

JA Building

MATERIAL CLASS (1)	MATERIAL	MATERIAL LOCATION	CURRENT ASSESSMENT (2)	FRIABLE (Y OR N)	APPROX. QTY.	RESULTS (3) OR SAMPLE#	RECOMMENDATIONS/ RESPONSE ACTION (4)
S	Drywall/Mud	Not specified	NA	N	900 sq. ft.	Neg (36, 37, 38)	NA
S	Stucco wall	Exterior	NA	N	5,000 sq. ft.	Neg (39)	This material was not sampled as per AHERA protocol; sample prior to any disturbance
M	2'x4' white ceiling panel	Southernmost classrooms hallways	NA	NA	1,000 sq. ft.	Neg (41)	NA
M	Ceiling tile mastic	Center classroom & westernmost classrooms	NA	NA	2,000 sq. ft.	Neg (42)	NA
M	12"x12" white/brown floor tile & mastic	Southernmost portion of hallway	NA	NA	50 sq. ft.	Neg (43, 44)	NA
M	Baseboard mastic	Not specified	NA	NA	50 sq. ft.	Neg (45)	NA
M	9"x9" brown pebble pattern floor tile	SW most room	NA	NA	60 sq. ft.	Neg (46, 47)	NA
M	12"x12" white/blue floor tile & mastic	Westernmost classrooms & center east	NA	NA	1,500 sq. ft.	Neg (48, 49, 50, 51)	NA
M	Ceramic tile grout	Restrooms	NA	NA	200 sq. ft.	Neg (52)	NA
S	Plaster wall	Not specified	NA	NA	900 sq. ft.	Neg (53, 54, 55)	NA
S	Plaster wall white lower layer	Not specified	NA	NA	900 sq. ft.	Neg (56, 57, 58)	NA
M	Window putty	Exterior	NA	NA	50 sq. ft.	Neg (59)	NA
TSI	Pipe & elbow insulation	Crawlspace	Damaged - <25% localized; debris near hatch	Y	710 ln. ft. (68 elbows)	Pos (A003, A003F)	5 (repair & maintain), jacket delaminated - exposed lagging - no debris - approx. 25 ft. rewrap - northwest crawlspace Repaired 1/3/08

6-MONTH PERIODIC SURVEILLANCE

CLIENT: Lincoln Child Care Center
PROJECT NO: 107-0442
PROJECT NAME: Lincoln Child Care Center

JA Building

MATERIAL CLASS (1)	MATERIAL	MATERIAL LOCATION	CURRENT ASSESSMENT (2)	FRIABLE (Y OR N)	APPROX. QTY.	RESULTS (3) OR SAMPLE#	RECOMMENDATIONS/ RESPONSE ACTION (4)
TSI	Pipe & elbow insulation	Basement	ND	Y	80 ln. ft. (12 elbows)	Pos (A003G)	5 (maintain)

(1) S-surfacing, TSI-thermal system insulation, M-miscellaneous
(2) ND-not damaged, D-damaged, SD-significantly damaged
(3) POS-previously identified as positive, NEG-previously identified as negative, ASSUMED-1 = new material, not sampled, assumed asbestos-containing; ASSUMED-2 = not enough samples collected, material is assumed asbestos-containing
(4) For response actions 1-8 refer to "Response Action Ratings Sheet"

6-MONTH PERIODIC SURVEILLANCE

CLIENT: Lincoln Child Care Center
PROJECT NO: 107-0442
PROJECT NAME: Lincoln Child Care Center

JA Building

MATERIAL CLASS (1)	MATERIAL	MATERIAL LOCATION	CURRENT ASSESSMENT (2)	FRIABLE (Y OR N)	APPROX. QTY.	RESULTS (3) OR SAMPLE#	RECOMMENDATIONS/ RESPONSE ACTION (4)
TSI	Pipe & elbow insulation	Basement	ND	Y	80 ln. ft. (12 elbows)	Pos (A003G)	5 (maintain)

(1) S-surfacing, TSI-thermal system insulation, M-miscellaneous
(2) ND-not damaged, D-damaged, SD-significantly damaged
(3) POS-previously identified as positive, NEG-previously identified as negative, ASSUMED-1 = new material, not sampled, assumed asbestos-containing; ASSUMED-2 = not enough samples collected, material is assumed asbestos-containing
(4) For response actions 1-8 refer to "Response Action Ratings Sheet"

6-MONTH PERIODIC SURVEILLANCE

CLIENT: Lincoln Child Care Center
PROJECT NO: 107-0442
PROJECT NAME: Lincoln Child Care Center

Building 004 - Bushell

MATERIAL CLASS (1)	MATERIAL	MATERIAL LOCATION	CURRENT ASSESSMENT (2)	FRIABLE (Y OR N)	APPROX. QTY.	RESULTS (3) OR SAMPLE#	RECOMMENDATIONS/ RESPONSE ACTION (4)
M	Asbestos cement panel	North, south, & central wings, mud room, stairs to kitchen	ND	N	14,240 sq. ft.	Pos (B01)	5 (maintain)
S	Drywall/Mud	North, south, & central wings, mud room, stairs to kitchen	NA	NA	4,780 sq. ft.	Neg (B02, B03, B04, B05, B06)	NA
S	Drywall/Mud (old)	North, south, & central wings, mud room, stairs to kitchen	NA	NA	2,440 sq. ft.	Neg (B07, B08, B09)	NA
S	Drywall/Mud (new)	Kitchen/Dining room	NA	NA	3,100 sq. ft.	Neg (B10, B11, B12)	This material was not sampled as per AHERA protocol; sample prior to any disturbance
M	9"x9" orange floor tile & mastic	North, south, & central wings (removed from medicine room & laundry room) - tile is present under carpet in bedrooms	ND	N	4,275 sq. ft.	Pos (B13, B14, B15, B16, B17, B18)	5 (repair & maintain), central hall - remove closet - damaged tiles - broken/loose tiles
M	12"x12" off-white w/ gold floor tile & mastic	South & central wings	ND	N	220 sq. ft.	Pos (B23, B24, B25)	5 (maintain)
M	12"x12" off-white w/ black floor tile & mastic	North, south, & central wings	NA	NA	562 sq. ft.	Neg (B19, B20, B21)	NA
M	Brown pebbled linoleum	North, south, & central wings	NA	NA	880 sq. ft.	Neg (B22)	NA
M	Light brown squares linoleum	North wing	NA	NA	60 sq. ft.	Neg (B29)	NA
M	Yellow squares linoleum	North wing	NA	NA	40 sq. ft.	Neg (B30)	NA
M	9"x9" red floor tile & mastic	South & central wings	ND	N	20 sq. ft.	Pos (B31, B32)	5 (maintain)
M	Ceramic tile mastic	Mud room & stairs to kitchen	NA	NA	100 sq. ft.	Neg (B34)	NA
M	Pipe	Exterior	NA	NA	1 each	Neg (B35)	NA
M	Drywall	Kitchen storage shed	NA	NA	300 sq. ft.	Neg (B36)	NA
M	Roofing mastic	Removed	NA	NA	NA	NA	NA
M	Roofing shingles	Kitchen storage shed	NA	NA	200 sq. ft.	Neg (B38)	NA

6-MONTH PERIODIC SURVEILLANCE

CLIENT: Lincoln Child Care Center
PROJECT NO: 107-0442
PROJECT NAME: Lincoln Child Care Center

Building 004 - Bushell

MATERIAL CLASS (1)	MATERIAL	MATERIAL LOCATION	CURRENT ASSESSMENT (2)	FRIABLE (Y OR N)	APPROX. QTY.	RESULTS (3) OR SAMPLE#	RECOMMENDATIONS/ RESPONSE ACTION (4)
TSI	Elbow insulation	Crawlspace	ND	Y	75 elbows	Pos (B40, B41, B42)	5 (maintain)

(1) S-surfacing, TSI-thermal system insulation, M-miscellaneous
(2) ND-not damaged, D-damaged, SD-significantly damaged
(3) POS-previously identified as positive, NEG-previously identified as negative, ASSUMED-1 = new material, not sampled, assumed asbestos-containing; ASSUMED-2 = not enough samples collected, material is assumed asbestos-containing
(4) For response actions 1-8 refer to "Response Action Ratings Sheet"

APPENDIX B

RESPONSE ACTION RATINGS

RESPONSE ACTION RATINGS
THERMAL SYSTEM INSULATION (TSI-ACM)

Response Action Priorities

1) Isolate area and restrict access. Immediate removal is mandatory; contact an Accredited Project Designer (APD).

2) Isolate area and restrict access. Repair or remove immediately; contact an APD. If ACBM remains following response action, follow-up with O&M; restrict access to reduce disturbance potential.

3) Continue O&M. Limit access to reduce disturbance potential. Schedule repair or removal on a priority basis; contact an APD. If ACBM remains following response action, follow-up with O&M; limit access to reduce disturbance potential.

4) Continue O&M. Limit access to reduce disturbance potential. Schedule repair or removal when practical and cost effective; contact an APD.

5) Continue O&M. Schedule repair or removal when practical and cost effective; contact an APD.

6) Same as 5 (lower priority basis).

7) Continue O&M. Reduce disturbance potential where practical. Remove when practical and cost effective; contact an APD.

8) Continue O&M until major renovation/demolition requires removal under NESHAPs or until hazard potential changes. Remove when practical and cost effective; contact an APD.

RESPONSE ACTION RATINGS
SURFACING MATERIALS (SURFACING - ACBMs)

Response Action Priorities

1) Isolate area and restrict access. Immediate removal is mandatory; contact an Accredited Project Designer (APD).

2) Isolate area and restrict access. Repair or remove immediately; contact an APD. If ACBM remains following response action, follow-up with O&M; restrict access to reduce disturbance potential.

3) Continue O&M. Limit access to reduce disturbance potential. Schedule repair or remove on a priority basis; contact an APD. If ACBM remains following response action, follow-up with O&M; limit access to reduce disturbance potential.

4) Continue O&M. Limit access to reduce disturbance potential. Schedule repair or remove when practical and cost effective; contact an APD.

5) Continue O&M. Schedule repair or remove when practical and cost effective; contact an APD.

6) Same as 5 (lower priority basis).

7) Continue O&M. Reduce disturbance potential where practical. Remove when practical and cost effective; contact an APD.

8) Continue O&M until major renovation/demolition requires removal under NESHAPs or until hazard potential changes. Remove when practical and cost effective; contact an APD.

RESPONSE ACTION RATINGS
MISCELLANEOUS MATERIALS (MISC. - ACBMs)

Response Action Priorities

1) Isolate area and restrict access. Immediate removal is mandatory; contact an Accredited Project Designer (APD).

2) Isolate area and restrict access. Repair, encapsulate, or remove immediately; contact an APD. If ACBM remains following response action, follow-up with O&M; restrict access to reduce disturbance potential.

3) Continue O&M. Limit access to reduce disturbance potential. Schedule repair, encapsulate, or remove on a priority basis; contact an APD. If ACBM remains following response action, follow-up with O&M; limit access to reduce disturbance potential.

4) Continue O&M. Limit access to reduce disturbance potential. Schedule repair, encapsulate, or remove when practical and cost effective; contact an APD.

5) Continue O&M. Schedule repair, encapsulate, or remove when practical and cost effective; contact an APD.

6) Same as 5 (lower priority basis).

7) Continue O&M. Reduce disturbance potential where practical. Remove when practical and cost effective; contact an APD.

8) Continue O&M until major renovation/demolition requires removal under NESHAPs or until hazard potential changes. Remove when practical and cost effective; contact an APD.

APPENDIX C

ASSESSMENTS

ASSESSMENT SHEET

Functional Space Number: ____
Homogeneous Area Letter: ____

SAMPLE 1= A001A001A
SCHOOL # ____
BUILDING = 001

FUNCTIONAL SPACE DESCRIPTION: CRAWLSPACE
SCHOOL NAME: LINCOLN CHILD CENTER
BUILDING NAME: TREVOR

1. FRIABLE MATERIAL: X

2. NONFRIABLE MATERIAL: ____

3. DAMAGE RATING:
(A) NO DAMAGE:
(B) MODERATE DAMAGE:
(1) <= 10% Distributed ____
(2) <= 25% Localized ____
(C) SIGNIFICANT DAMAGE:
(1) > 10% Distributed ____
(2) > 25% Localized ____

(4) TYPE OF DAMAGE:
(1) Deterioration ____
(2) Water Damage ____
(3) Air Erosion ____
(4) Vandalism ____
(5) Other ____

5. DESCRIPTION OF DAMAGE:
(1) Blisters
(2) Buckling
(3) Crumbling
(4) Crushed Insulation
(5) Debris on Floor
(6) Delamination
(7) Dislodged/Missing Pieces
(8) Gouges
(9) Punctures
(10) Ripped/Missing Jackets
(11) Scrape Marks
(12) Stains/Discoloration
(13) Torn/Dislodged
(14) Water Damage

6. DISTURBANCE POTENTIAL:
A. POTENTIAL FOR CONTACT:
(1) Very Unlikely X
(2) Accidental Contact Possible ____
(3) Small Disturbance Likely ____
(4) Large Disturbance Likely ____
(> 3 sq. or linear ft.)

B. POSSIBLE CONTACT FACTORS:
(1) Near Systems Requiring Repair/Maint. X
(2) High Traffic Area ____
(3) Within Reach of Students/Workers ____
(4) Other ____

C. OCCUPANCY:
(1) Maintenance Workers ____
(2) Students/Teachers ____
(3) Public ____
(4) Area Not Normally Entered X

(1) 1/Day Approx. Hours ____
(2) 1/Wk. Approx. Hours ____
(3) 1/Mo. Approx. Hours 1

D. INFLUENCE OF VIBRATION
(0) None X
(1) Low ____
(2) Moderate ____
(3) High ____

E. SOURCE OF VIBRATION
(1) Athletic Events ____
(2) Mechanical Equipment ____
(3) Sound Waves ____
(4) Other: ____

F. POTENTIAL FOR AIR EROSION:
(0) None X
(1) Low ____
(2) Moderate ____
(3) High ____

G. SOURCE OF AIR EROSION:
(1) Air Plenum ____
(2) Air Shaft ____
(3) Elevator Shaft ____
(4) Other: ____

H. PREVENTATIVE MEASURES:
(1) Restrict Access ____
(2) Other: ____

7. REMOVAL OF ACM MANDATORY (REPAIR NOT POSSIBLE) : ____
(Do not check above without giving reasons below.)
REASONS FOR RECOMMENDING REMOVAL: ____

(A) Remodeling/Renovation Planned ____
(B) Demolition Planned ____

COMMENTS: MANAGE IN PLACE

8. SAMPLES COLLECTED BY:
(1) CRAIG HEIDIG / [signature]
(Print Name/ Signature)
(2) ____ / ____

DATE: 1/3/08

ASSESSMENT SHEET

Functional Space Number: ____
Homogeneous Area Letter: ____

SAMPLE 1-# A002B
SCHOOL # ____
BUILDING # 002

FUNCTIONAL SPACE DESCRIPTION: CRAWLSPACE
SCHOOL NAME: LINCOLN CHILD CARE CENTER
BUILDING NAME: CROCKER

1. FRIABLE MATERIAL: X
2. NONFRIABLE MATERIAL: ____

3. DAMAGE RATING:
(A) NO DAMAGE:
(B) MODERATE DAMAGE:
(1) <= 10% Distributed ____
(2) <= 25% Localized ____
(C) SIGNIFICANT DAMAGE:
(1) > 10% Distributed ____
(2) > 25% Localized ____

(4) TYPE OF DAMAGE:
(1) Deterioration ____
(2) Water Damage ____
(3) Air Erosion ____
(4) Vandalism ____
(5) Other ____

5. DESCRIPTION OF DAMAGE:
(1) Blisters
(2) Buckling
(3) Crumbling
(4) Crushed Insulation
(5) Debris on Floor
(6) Delamination
(7) Dislodged/Missing Pieces
(8) Gouges
(9) Punctures
(10) Ripped/Missing Jackets
(11) Scrape Marks
(12) Stains/Discoloration
(13) Torn/Dislodged
(14) Water Damage

6. DISTURBANCE POTENTIAL:
A. POTENTIAL FOR CONTACT:
(1) Very Unlikely X
(2) Accidental Contact Possible ____
(3) Small Disturbance Likely ____
(4) Large Disturbance Likely ____
(> 3 sq. or linear ft.)

B. POSSIBLE CONTACT FACTORS:
(1) Near Systems Requiring Repair/Maint. ____
(2) High Traffic Area ____
(3) Within Reach of Students/Workers ____
(4) Other ____

C. OCCUPANCY:
(1) Maintenance Workers ____
(2) Students/Teachers ____
(3) Public ____
(4) Area Not Normally Entered X

(1) 1/Day Approx. Hours ____
(2) 1/Wk. Approx. Hours ____
(3) 1/Mo. Approx. Hours ____

D. INFLUENCE OF VIBRATION:
(0) None X
(1) Low ____
(2) Moderate ____
(3) High ____

E. SOURCE OF VIBRATION:
(1) Athletic Events ____
(2) Mechanical Equipment ____
(3) Sound Waves ____
(4) Other: ____

F. POTENTIAL FOR AIR EROSION:
(0) None X
(1) Low ____
(2) Moderate ____
(3) High ____

G. SOURCE OF AIR EROSION:
(1) Air Plenum ____
(2) Air Shaft ____
(3) Elevator Shaft ____
(4) Other: ____

H. PREVENTATIVE MEASURES:
(1) Restrict Access ____
(2) Other: ____

7. REMOVAL OF ACM MANDATORY (REPAIR NOT POSSIBLE) : ____
(Do not check above without giving reasons below.)
REASONS FOR RECOMMENDING REMOVAL: ____

(A) Remodeling/Renovation Planned ____
(B) Demolition Planned ____

COMMENTS: MANAGE IN PLACE

I. SAMPLES COLLECTED BY:
(1) CRAIG HEIDIG / [signature]
(Print Name/ Signature)
(2) ____ / ____

DATE: 1/3/08

ASSESSMENT SHEET

Functional Space Number: ____
Homogeneous Area Letter: ____

SAMPLE 1* A003, A003F
SCHOOL # ____
BUILDING # 003

FUNCTIONAL SPACE DESCRIPTION: CRAWLSPACE
SCHOOL NAME: LINCOLN CHILD CARE CENTER
BUILDING NAME: 5A BUILDING

1. FRIABLE MATERIAL: X

2. NONFRIABLE MATERIAL: ____

3. DAMAGE RATING:
- (A) NO DAMAGE:
- (B) MODERATE DAMAGE:
  - (1) <= 10% Distributed ____
  - (2) <= 25% Localized ____
- (C) SIGNIFICANT DAMAGE:
  - (1) > 10% Distributed ____
  - (2) > 25% Localized ____

(4) TYPE OF DAMAGE:
- (1) Deterioration ____
- (2) Water Damage ____
- (3) Air Erosion ____
- (4) Vandalism ____
- (5) Other ____

5. DESCRIPTION OF DAMAGE:
- (1) Blisters
- (2) Buckling
- (3) Crumbling
- (4) Crushed Insulation
- (5) Debris on Floor
- (6) Delamination
- (7) Dislodged/Missing Pieces
- (8) Gouges
- (9) Punctures
- (10) Ripped/Missing Jackets
- (11) Scrape Marks
- (12) Stains/Discoloration
- (13) Torn/Dislodged
- (14) Water Damage

6. DISTURBANCE POTENTIAL:

A. POTENTIAL FOR CONTACT:
- (1) Very Unlikely X
- (2) Accidental Contact Possible ____
- (3) Small Disturbance Likely ____
- (4) Large Disturbance Likely ____ (> 3 sq. or linear ft.)

B. POSSIBLE CONTACT FACTORS:
- (1) Near Systems Requiring Repair/Maint. ____
- (2) High Traffic Area ____
- (3) Within Reach of Students/Workers ____
- (4) Other ____

C. OCCUPANCY:
- (1) Maintenance Workers ____
- (2) Students/Teachers ____
- (3) Public ____
- (4) Area Not Normally Entered X

- (1) 1/Day Approx. Hours ____
- (2) 1/Wk. Approx. Hours ____
- (3) 1/Mo. Approx. Hours ____

D. INFLUENCE OF VIBRATION
- (0) None X
- (1) Low ____
- (2) Moderate ____
- (3) High ____

E. SOURCE OF VIBRATION
- (1) Athletic Events ____
- (2) Mechanical Equipment ____
- (3) Sound Waves ____
- (4) Other: ____

F. POTENTIAL FOR AIR EROSION:
- (0) None X
- (1) Low ____
- (2) Moderate ____
- (3) High ____

G. SOURCE OF AIR EROSION:
- (1) Air Plenum ____
- (2) Air Shaft ____
- (3) Elevator Shaft ____
- (4) Other: ____

H. PREVENTATIVE MEASURES:
- (1) Restrict Access X
- (2) Other: ____

7. REMOVAL OF ACM MANDATORY (REPAIR NOT POSSIBLE): ____
(Do not check above without giving reasons below.)
REASONS FOR RECOMMENDING REMOVAL: ____

(A) Remodeling/Renovation Planned ____ (B) Demolition Planned ____

COMMENTS: DAMAGED JACKETS REPAIRED 1/3/08

I. SAMPLES COLLECTED BY: (1) CRAIG HEIDIG, [signature] (Print Name/ Signature)
(2) ____ / ____

DATE: 1/3/08

ASSESSMENT SHEET

Functional Space Number: ____
Homogeneous Area Letter: ____

SAMPLE 1= B40,B41,B42
SCHOOL # ____
BUILDING # 004

FUNCTIONAL SPACE DESCRIPTION: CRAWLSPACE
SCHOOL NAME: LINCOLN CHILD CARE CENTER
BUILDING NAME: BUSHELL

1. FRIABLE MATERIAL: X

2. NONFRIABLE MATERIAL: ____

3. DAMAGE RATING:
(A) NO DAMAGE:
(B) MODERATE DAMAGE:
(1) <= 10% Distributed ____
(2) <= 25% Localized ____
(C) SIGNIFICANT DAMAGE:
(1) > 10% Distributed ____
(2) > 25% Localized ____

(4) TYPE OF DAMAGE:
(1) Deterioration ____
(2) Water Damage ____
(3) Air Erosion ____
(4) Vandalism ____
(5) Other ____

5. DESCRIPTION OF DAMAGE:
(1) Blisters
(2) Buckling
(3) Crumbling
(4) Crushed Insulation
(5) Debris on Floor
(6) Delamination
(7) Dislodged/Missing Pieces
(8) Gouges
(9) Punctures
(10) Ripped/Missing Jackets
(11) Scrape Marks
(12) Stains/Discoloration
(13) Torn/Dislodged
(14) Water Damage

6. DISTURBANCE POTENTIAL:
A. POTENTIAL FOR CONTACT:
(1) Very Unlikely X
(2) Accidental Contact Possible ____
(3) Small Disturbance Likely ____
(4) Large Disturbance Likely ____
(> 3 sq. or linear ft.)

B. POSSIBLE CONTACT FACTORS:
(1) Near Systems Requiring Repair/Maint. ____
(2) High Traffic Area ____
(3) Within Reach of Students/Workers ____
(4) Other ____

C. OCCUPANCY:
(1) Maintenance Workers ____
(2) Students/Teachers ____
(3) Public ____
(4) Area Not Normally Entered X

(1) 1/Day Approx. Hours ____
(2) 1/Wk. Approx. Hours ____
(3) 1/Mo. Approx. Hours ____

D. INFLUENCE OF VIBRATION:
(0) None X
(1) Low ____
(2) Moderate ____
(3) High ____

E. SOURCE OF VIBRATION:
(1) Athletic Events ____
(2) Mechanical Equipment ____
(3) Sound Waves ____
(4) Other: ____

F. POTENTIAL FOR AIR EROSION:
(0) None X
(1) Low ____
(2) Moderate ____
(3) High ____

G. SOURCE OF AIR EROSION:
(1) Air Plenum ____
(2) Air Shaft ____
(3) Elevator Shaft ____
(4) Other: ____

H. PREVENTATIVE MEASURES:
(1) Restrict Access ____
(2) Other: ____

7. REMOVAL OF ACM MANDATORY (REPAIR NOT POSSIBLE) : ____
(Do not check above without giving reasons below.)
REASONS FOR RECOMMENDING REMOVAL: ____

(A) Remodeling/Renovation Planned ____
(B) Demolition Planned ____

COMMENTS: MANAGE IN PLACE

8. SAMPLES COLLECTED BY:
(1) CRAIG HEIDIG, [signature]
(Print Name/ Signature)
(2) ____

DATE: 1/3/08

ASSESSMENT SHEET

Functional Space Number: ____
Homogeneous Area Letter: ____

SAMPLE #: B13-18
SCHOOL #
BUILDING #: 004

FUNCTIONAL SPACE DESCRIPTION: CENTRAL WING HALL CLOSET
SCHOOL NAME: LINCOLN CHILD CARE CENTER
BUILDING NAME: BUSHELL

1. FRIABLE MATERIAL: ____
2. NONFRIABLE MATERIAL: X

3. DAMAGE RATING:
(A) NO DAMAGE:
(B) MODERATE DAMAGE:
(1) <= 10% Distributed ____
(2) <= 25% Localized ____
(C) SIGNIFICANT DAMAGE:
(1) > 10% Distributed X
(2) > 25% Localized ____

(4) TYPE OF DAMAGE:
(1) Deterioration ____
(2) Water Damage ____
(3) Air Erosion ____
(4) Vandalism ____
(5) Other ____

5. DESCRIPTION OF DAMAGE:
(1) Blisters
(2) Buckling
(3) Crumbling
(4) Crushed Insulation
(5) Debris on Floor
(6) Delamination
(7) Dislodged/Missing Pieces
(8) Gouges
(9) Punctures
(10) Ripped/Missing Jackets
(11) Scrape Marks
(12) Stains/Discoloration
(13) Torn/Dislodged
(14) Water Damage

6. DISTURBANCE POTENTIAL:
A. POTENTIAL FOR CONTACT:
(1) Very Unlikely
(2) Accidental Contact Possible X
(3) Small Disturbance Likely ____
(4) Large Disturbance Likely ____
(> 3 sq. or linear ft.)

B. POSSIBLE CONTACT FACTORS:
(1) Near Systems Requiring Repair/Maint. ____
(2) High Traffic Area
(3) Within Reach of Students/Workers X
(4) Other ____

C. OCCUPANCY:
(1) Maintenance Workers ____
(2) Students/Teachers ____
(3) Public ____
(4) Area Not Normally Entered X

(1) 1/Day Approx. Hours ____
(2) 1/Wk. Approx. Hours ____
(3) 1/Mo. Approx. Hours ____

D. INFLUENCE OF VIBRATION
(0) None X
(1) Low ____
(2) Moderate ____
(3) High ____

E. SOURCE OF VIBRATION
(1) Athletic Events ____
(2) Mechanical Equipment ____
(3) Sound Waves ____
(4) Other: ____

F. POTENTIAL FOR AIR EROSION:
(0) None X
(1) Low ____
(2) Moderate ____
(3) High ____

G. SOURCE OF AIR EROSION:
(1) Air Plenum ____
(2) Air Shaft ____
(3) Elevator Shaft ____
(4) Other: ____

H. PREVENTATIVE MEASURES:
(1) Restrict Access ____
(2) Other: ____

7. REMOVAL OF ACM MANDATORY (REPAIR NOT POSSIBLE): X
(Do not check above without giving reasons below.)
REASONS FOR RECOMMENDING REMOVAL: TILES ARE BROKEN AND NOT ATTACHED TO THE FLOOR. (APPROX. 10 SQUARE FEET)
(A) Remodeling/Renovation Planned ____
(B) Demolition Planned ____

COMMENTS: REMOVE BROKEN AND LOOSE TILES PRIOR TO OCCUPYING THE CLOSET. MASTIC CAN BE MANAGED IN PLACE.

I. SAMPLES COLLECTED BY:
(1) CRAIG HEIDIG / [signature]
(Print Name/ Signature)
(2) ____ / ____

DATE: 1/3/08

APPENDIX D

CTL EMPLOYEE CERTIFICATIONS

State of California
Division of Occupational Safety and Health

Certified Asbestos Consultant

Craig W Heidig
Name

Certification No. **97–2210**

Expires on **08/20/08**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code

M&C Environmental Training

Asbestos Inspector
Refresher Training Course

Craig Heidig

has successfully completed the Asbestos Inspector Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7 Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training, Inc., 1619 Beverly Place, Berkeley, California 94707. Tel. #(510) 525 - 1388

Course Approval Number: CA-003-06

Location: **Oakland, California** Expiration: **January 17, 2009**

Dates: **January 17, 2008**

Director of Training: **John McGinnis**
John McGinnis

Certificate Number **23695 IR**

M&C Environmental Training

Asbestos Contractor/Supervisor
Refresher Training Course

Craig Heidig

has successfully completed the Asbestos Contractor/Supervisor Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7 Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training, Inc., 1619 Beverly Place, Berkeley, California 94707. Tel. #(510) 525 - 1388

Course Approval Number: CA-003-04

Location: **Oakland, California** Expiration: **January 18, 2009**

Dates: **January 18, 2008**

Director of Training: **John McGinnis**
John McGinnis

Certificate Number **23736 SR**

M&C Environmental Training

Asbestos Management Planner
Refresher Training Course

Craig Heidig

has successfully completed the Asbestos Management Planner Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7 Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training, Inc., 1619 Beverly Place, Berkeley, California 94707. Tel. #(510) 525 - 1388

Course Approval Number: CA-003-08

Location: **Oakland, California** Expiration: **May 24, 2008**

Dates: **May 24, 2007**

Director of Training: **John McGinnis**

John McGinnis

Certificate Number **22633 PR**

M&C Environmental Training

Asbestos Project Designer
Refresher Training Course

Craig Heidig

has successfully completed the Asbestos Project Designer Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7 Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training, Inc., 1619 Beverly Place, Berkeley, California 94707. Tel. #(510) 525 - 1388

Course Approval Number: CA-003-10

Location: **Oakland, California** Expiration: **May 23, 2008**

Dates: **May 23, 2007**

Director of Training: **John McGinnis**

John McGinnis

Certificate Number **22601 DR**

APPENDIX F

REGULATORY AGENCY DATABASE REPORT
(PROVIDED ON CD-ROM)

4368 Lincoln Ave.
4368 Lincoln Ave.
Oakland, CA 94602

Inquiry Number: 3297903.2s
April 06, 2012

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION **PAGE**

GEOCHECK ADDENDUM

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

4368 LINCOLN AVE.
OAKLAND, CA 94602

COORDINATES

Latitude (North):	37.8084000 - 37° 48' 30.24''
Longitude (West):	122.2026000 - 122° 12' 9.36''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	570193.7
UTM Y (Meters):	4184651.2
Elevation:	498 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	37122-G2 OAKLAND EAST, CA
Most Recent Revision:	1980

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	2009, 2010
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
1X LINCOLN CHILD CENTER 4368 LINCOLN AVE OAKLAND, CA 94602	HAZNET	N/A
LINCOLN CHILD CENTER 4368 LINCOLN AVE OAKLAND, CA 94602	FINDS HAZNET	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL________________________ National Priority List
Proposed NPL______________ Proposed National Priority List Sites
NPL LIENS__________________ Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL______________ National Priority List Deletions

Federal CERCLIS list

CERCLIS___________________ Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY_________ Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP_______________ CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS_________________ Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF________________ RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG_________________ RCRA - Large Quantity Generators
RCRA-CESQG_______________ RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS_________ Engineering Controls Sites List
US INST CONTROL_________ Sites with Institutional Controls

Federal ERNS list

ERNS_______________________ Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE_________________ State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR______________ EnviroStor Database

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

SWF/LF____________________ Solid Waste Information System

State and tribal leaking storage tank lists

SLIC______________________ Statewide SLIC Cases
INDIAN LUST_______________ Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

AST_______________________ Aboveground Petroleum Storage Tank Facilities
INDIAN UST________________ Underground Storage Tanks on Indian Land
FEMA UST__________________ Underground Storage Tank Listing

State and tribal voluntary cleanup sites

VCP_______________________ Voluntary Cleanup Program Properties
INDIAN VCP________________ Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS___________ A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9___________ Torres Martinez Reservation Illegal Dump Site Locations
ODI_______________________ Open Dump Inventory
WMUDS/SWAT_______________ Waste Management Unit Database
SWRCY____________________ Recycler Database
HAULERS__________________ Registered Waste Tire Haulers Listing
INDIAN ODI________________ Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL____________________ Clandestine Drug Labs
HIST Cal-Sites_____________ Historical Calsites Database
SCH_______________________ School Property Evaluation Program
Toxic Pits_________________ Toxic Pits Cleanup Act Sites
CDL_______________________ Clandestine Drug Labs
US HIST CDL_______________ National Clandestine Laboratory Register

Local Land Records

LIENS 2___________________ CERCLA Lien Information
LUCIS_____________________ Land Use Control Information System
LIENS_____________________ Environmental Liens Listing
DEED______________________ Deed Restriction Listing

Records of Emergency Release Reports

HMIRS_____________________ Hazardous Materials Information Reporting System

EXECUTIVE SUMMARY

LDS_________________________ Land Disposal Sites Listing
MCS_________________________ Military Cleanup Sites Listing

Other Ascertainable Records

DOT OPS____________________ Incident and Accident Data
DOD________________________ Department of Defense Sites
FUDS_______________________ Formerly Used Defense Sites
CONSENT____________________ Superfund (CERCLA) Consent Decrees
ROD________________________ Records Of Decision
UMTRA______________________ Uranium Mill Tailings Sites
MINES______________________ Mines Master Index File
TRIS_______________________ Toxic Chemical Release Inventory System
TSCA_______________________ Toxic Substances Control Act
SSTS_______________________ Section 7 Tracking Systems
ICIS_______________________ Integrated Compliance Information System
PADS_______________________ PCB Activity Database System
MLTS_______________________ Material Licensing Tracking System
RADINFO____________________ Radiation Information Database
RAATS______________________ RCRA Administrative Action Tracking System
CA BOND EXP. PLAN__________ Bond Expenditure Plan
WDS________________________ Waste Discharge System
Cortese____________________ "Cortese" Hazardous Waste & Substances Sites List
DRYCLEANERS________________ Cleaner Facilities
WIP________________________ Well Investigation Program Case List
ENF________________________ Enforcement Action Listing
EMI________________________ Emissions Inventory Data
INDIAN RESERV______________ Indian Reservations
SCRD DRYCLEANERS___________ State Coalition for Remediation of Drycleaners Listing
COAL ASH EPA_______________ Coal Combustion Residues Surface Impoundments List
PROC_______________________ Certified Processors Database
HWT________________________ Registered Hazardous Waste Transporter Database
HWP________________________ EnviroStor Permitted Facilities Listing
COAL ASH DOE_______________ Sleam-Electric Plan Operation Data
PCB TRANSFORMER____________ PCB Transformer Registration Database
FINANCIAL ASSURANCE________ Financial Assurance Information Listing
MWMP_______________________ Medical Waste Management Program Listing

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants_____ EDR Proprietary Manufactured Gas Plants
EDR Historical Auto Stations__ EDR Proprietary Historic Gas Stations

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 11/10/2011 has revealed that there are 2 RCRA-SQG sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PACIFIC BELL	***2810 MOUNTAIN BOULEVARD***	***NE 1/4 - 1/2 (0.324 mi.)***	***12***	***19***

Lower Elevation	Address	Direction / Distance	Map ID	Page
MAURICE J OBRIEN TRUCKING	3028 JORDAN RD	ESE 1/4 - 1/2 (0.470 mi.)	E17	32

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 01/20/2012 has revealed that there are 3 LUST sites within approximately 0.75 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DESERT PETROLEUM #796 Status: Open - Site Assessment	***2844 MOUNTAIN***	***NE 1/4 - 1/2 (0.326 mi.)***	***D13***	***25***
FIRE STATION #25 Status: Completed - Case Closed	***2795 BUTTERS***	***E 1/2 - 1 (0.649 mi.)***	***19***	***35***
EMERGENCY OPERATIONS CENTER Status: Completed - Case Closed	***3304 JOAQUIN MILLER***	***E 1/2 - 1 (0.739 mi.)***	***20***	***36***

Alameda County CS: A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

A review of the Alameda County CS list, as provided by EDR, and dated 01/12/2012 has revealed that there is 1 Alameda County CS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DESERT PETROLEUM #796	***2844 MOUNTAIN***	***NE 1/4 - 1/2 (0.326 mi.)***	***D13***	***25***

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, and dated 01/20/2012 has revealed that there are 2 UST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PACIFIC BELL	***2810 MOUNTAIN BOULEVARD***	***NE 1/4 - 1/2 (0.324 mi.)***	***12***	***19***
MONTCLAIR GASOLINE	2844 MOUNTAIN BLVD	NE 1/4 - 1/2 (0.326 mi.)	D14	31

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there are 2 CA FID UST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PACIFIC BELL	***2810 MOUNTAIN BOULEVARD***	***NE 1/4 - 1/2 (0.324 mi.)***	***12***	***19***
DESERT PETROLEUM #796	***2844 MOUNTAIN***	***NE 1/4 - 1/2 (0.326 mi.)***	***D13***	***25***

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PACIFIC BELL	***2810 MOUNTAIN BOULEVARD***	***NE 1/4 - 1/2 (0.324 mi.)***	***12***	***19***
GASCO SERVICE STATION 796	2844 MOUNTAIN BLVD	NE 1/4 - 1/2 (0.326 mi.)	D15	31

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 2 SWEEPS UST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PACIFIC BELL	***2810 MOUNTAIN BOULEVARD***	***NE 1/4 - 1/2 (0.324 mi.)***	***12***	***19***
DESERT PETROLEUM #796	***2844 MOUNTAIN***	***NE 1/4 - 1/2 (0.326 mi.)***	***D13***	***25***

EXECUTIVE SUMMARY

Records of Emergency Release Reports

CHMIRS: The California Hazardous Material Incident Report System contains information on reported hazardous material incidents, i.e., accidental releases or spills. The source is the California Office of Emergency Services.

A review of the CHMIRS list, as provided by EDR, and dated 12/31/2010 has revealed that there is 1 CHMIRS site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	4200 WHITTLE AVENUE	W 1/8 - 1/4 (0.234 mi.)	9	16

Other Ascertainable Records

RCRA-NonGen: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA-NonGen list, as provided by EDR, and dated 11/10/2011 has revealed that there is 1 RCRA-NonGen site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
PATRICK OBRIEN TRUCKING	***3028 JORDAN RD***	***ESE 1/4 - 1/2 (0.470 mi.)***	***E18***	***33***

FTTS: FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act) over the previous five years. To maintain currency, EDR contacts the Agency on a quarterly basis.

A review of the FTTS list, as provided by EDR, and dated 04/09/2009 has revealed that there is 1 FTTS site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BEACON DAY SCHOOL	***4360 LINCOLN AVE***	***W 0 - 1/8 (0.089 mi.)***	***B5***	***11***

HIST FTTS: A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

A review of the HIST FTTS list, as provided by EDR, and dated 10/19/2006 has revealed that there is 1 HIST FTTS site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BEACON DAY SCHOOL	***4360 LINCOLN AVE***	***W 0 - 1/8 (0.089 mi.)***	***B5***	***11***

EXECUTIVE SUMMARY

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 10/23/2011 has revealed that there is 1 FINDS site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BEACON DAY SCHOOL	***4360 LINCOLN AVE***	***W 0 - 1/8 (0.089 mi.)***	***B5***	***11***

NPDES: A listing of NPDES permits, including stormwater.

A review of the NPDES list, as provided by EDR, and dated 02/20/2012 has revealed that there is 1 NPDES site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
HEADD ROYCE SCHOOL	***4315 LINCOLN AVE***	***WSW 0 - 1/8 (0.125 mi.)***	***B6***	***12***

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there is 1 HIST CORTESE site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DESERT PETROLEUM #796	***2844 MOUNTAIN***	***NE 1/4 - 1/2 (0.326 mi.)***	***D13***	***25***

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

A review of the Notify 65 list, as provided by EDR, and dated 10/21/1993 has revealed that there are 5 Notify 65 sites within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FIRE STATION #25	***2795 BUTTERS***	***E 1/2 - 1 (0.649 mi.)***	***19***	***35***
UNOCAL SERVICE STATION #5269	***2240 MOUNTAIN***	***NNW 1 - 2 (1.026 mi.)***	***23***	***39***

Lower Elevation	Address	Direction / Distance	Map ID	Page
NONE	2801 MAC ARTHUR	SSW 1/2 - 1 (0.813 mi.)	21	38
NONE	***3432 MACARTHUR***	***S 1/2 - 1 (0.983 mi.)***	***22***	***38***
UNOCAL SERVICE STATION	***3420 35TH***	***S 1 - 2 (1.107 mi.)***	***24***	***41***

HAZNET: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency

A review of the HAZNET list, as provided by EDR, and dated 12/31/2010 has revealed that there are 6 HAZNET sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARGARET REIS	4511 LINCOLN AVE	NNE 0 - 1/8 (0.077 mi.)	4	10
GREEK ORTHODOX CHURCH OF THE A	4700 LINCOLN AVE	NE 1/8 - 1/4 (0.179 mi.)	C7	14
CHURCH OF JESUS CHRIST OF LATT	4770 LINCOLN AVE	NE 1/8 - 1/4 (0.207 mi.)	C8	14
LDS CHURCH	4780 LINCOLN AVE	ENE 1/8 - 1/4 (0.238 mi.)	10	17

Lower Elevation	Address	Direction / Distance	Map ID	Page
LINCOLN CHILD CENTER	2545 CHARLESTON ST.	SSE 0 - 1/8 (0.059 mi.)	3	10
HEADD ROYCE SCHOOL	***4315 LINCOLN AVE***	***WSW 0 - 1/8 (0.125 mi.)***	***B6***	***12***

EDR PROPRIETARY RECORDS

EDR Proprietary Records

EDR Historical Cleaners: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

A review of the EDR Historical Cleaners list, as provided by EDR, has revealed that there are 2 EDR Historical Cleaners sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WOOOMINISTER CLEANERS	5036 WOODMINSTER LN	NE 1/4 - 1/2 (0.360 mi.)	D16	32

Lower Elevation	Address	Direction / Distance	Map ID	Page
ACME WINDOW CLEANING CO	4140 LAGUNA AVE	SSW 1/4 - 1/2 (0.257 mi.)	11	18

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 20 records.

Site Name	Database(s)
CALAVERAS RD/MI MARKER 5.70 @	CDL
BRANN STREET MERCURY	CERCLIS
LEONA HEIGHTS SULPHUR MINE	CERCLIS,FINDS
AL KNOWLE	HAZNET
ALA COUNTY STORM WATER TRTMT SYS P	RCRA-LQG
E 7TH ST AND FRUITVALE AVE	ERNS
MILE POST 12.6 85TH AVE	ERNS
HWY 880 SOUTH OF 10TH AVE	ERNS
NEXT TO 791 66TH AVE OAKLAND ESTUA	ERNS
OAKLAND ESTUARY 1295 EMBARCADERO A	ERNS
CHEVERON GAS STATION 191 98 AVE	ERNS
3431 FRUTIVALE AVE	ERNS
3431 FRUTIVALE AVE	ERNS
GRAND AVE AND HARRISON STREET	ERNS
SB HWY 880 S OF 23RD AVE	ERNS
NEAR THE 50TH AVE CROSSING	ERNS
UNKNOWN SHEEN INCIDENT LAKE MERRIT	ERNS
MORAGA AVE DISPOSAL SITE	FINDS
OAKLAND TERMINAL RAILWAY PROPERTY	SLIC REGION 2
CAL DEPT OF TRANS- STATE RTE 4	WDS

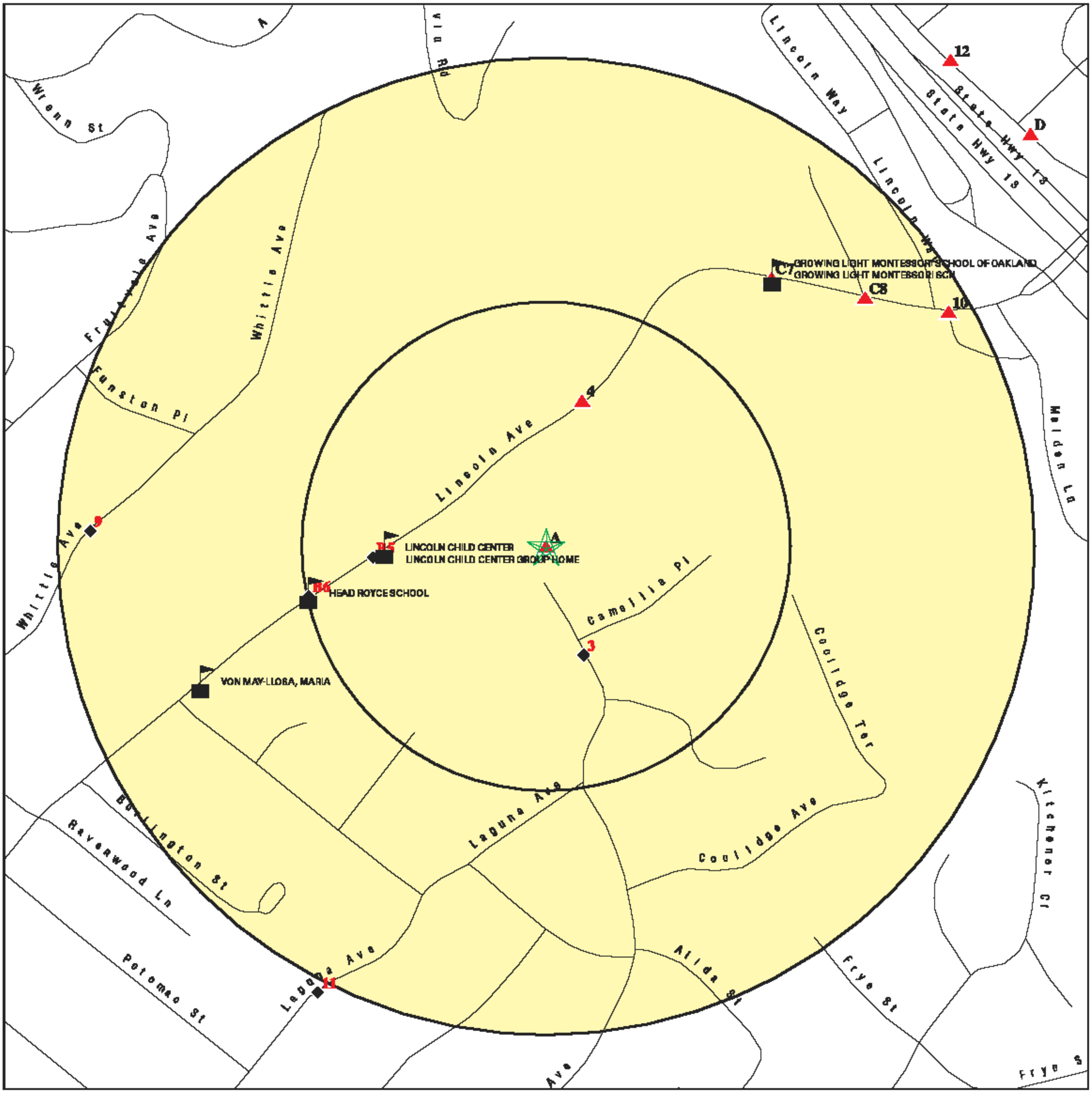
OVERVIEW MAP - 3297903.2s

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	4368 Lincoln Ave.	CLIENT:	PES Environmental, Inc.
ADDRESS:	4368 Lincoln Ave. Oakland CA 94602	CONTACT:	Julie Turnross
		INQUIRY #:	3297903.2s
LAT/LONG:	37.8084 / 122.2026	DATE:	April 06, 2012 1:20 pm

DETAIL MAP - 3297903.2s



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 4368 Lincoln Ave.	CLIENT: PES Environmental, Inc.
ADDRESS: 4368 Lincoln Ave. Oakland CA 94602	CONTACT: Julie Turnross
	INQUIRY #: 3297903.2s
LAT/LONG: 37.8084 / 122.2026	DATE: April 06, 2012 1:21 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.250		0	0	0	0	0	0
Proposed NPL	1.250		0	0	0	0	0	0
NPL LIENS	0.250		0	0	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.250		0	0	0	0	0	0
Federal CERCLIS list								
CERCLIS	0.750		0	0	0	0	NR	0
FEDERAL FACILITY	1.250		0	0	0	0	0	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.750		0	0	0	0	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.250		0	0	0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.750		0	0	0	0	NR	0
Federal RCRA generators list								
RCRA-LQG	0.500		0	0	0	NR	NR	0
RCRA-SQG	0.500		0	0	2	NR	NR	2
RCRA-CESQG	0.500		0	0	0	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.750		0	0	0	0	NR	0
US INST CONTROL	0.750		0	0	0	0	NR	0
Federal ERNS list								
ERNS	0.250		0	0	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.250		0	0	0	0	0	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.250		0	0	0	0	0	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.750		0	0	0	0	NR	0
State and tribal leaking storage tank lists								
LUST	0.750		0	0	1	2	NR	3
SLIC	0.750		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Alameda County CS	0.500		0	0	1	NR	NR	1
INDIAN LUST	0.750		0	0	0	0	NR	0
State and tribal registered storage tank lists								
UST	0.500		0	0	2	NR	NR	2
AST	0.500		0	0	0	NR	NR	0
INDIAN UST	0.500		0	0	0	NR	NR	0
FEMA UST	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.750		0	0	0	0	NR	0
INDIAN VCP	0.750		0	0	0	0	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.750		0	0	0	0	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.750		0	0	0	0	NR	0
ODI	0.750		0	0	0	0	NR	0
WMUDS/SWAT	0.750		0	0	0	0	NR	0
SWRCY	0.750		0	0	0	0	NR	0
HAULERS	0.250		0	0	NR	NR	NR	0
INDIAN ODI	0.750		0	0	0	0	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	0.250		0	0	NR	NR	NR	0
HIST Cal-Sites	1.250		0	0	0	0	0	0
SCH	0.500		0	0	0	NR	NR	0
Toxic Pits	1.250		0	0	0	0	0	0
CDL	0.250		0	0	NR	NR	NR	0
US HIST CDL	0.250		0	0	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.500		0	0	2	NR	NR	2
HIST UST	0.500		0	0	2	NR	NR	2
SWEEPS UST	0.500		0	0	2	NR	NR	2
Local Land Records								
LIENS 2	0.250		0	0	NR	NR	NR	0
LUCIS	0.750		0	0	0	0	NR	0
LIENS	0.250		0	0	NR	NR	NR	0
DEED	0.750		0	0	0	0	NR	0
Records of Emergency Release Reports								
HMIRS	0.250		0	0	NR	NR	NR	0
CHMIRS	0.250		0	1	NR	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LDS	0.250		0	0	NR	NR	NR	0
MCS	0.250		0	0	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen	0.500		0	0	1	NR	NR	1
DOT OPS	0.250		0	0	NR	NR	NR	0
DOD	1.250		0	0	0	0	0	0
FUDS	1.250		0	0	0	0	0	0
CONSENT	1.250		0	0	0	0	0	0
ROD	1.250		0	0	0	0	0	0
UMTRA	0.750		0	0	0	0	NR	0
MINES	0.500		0	0	0	NR	NR	0
TRIS	0.250		0	0	NR	NR	NR	0
TSCA	0.250		0	0	NR	NR	NR	0
FTTS	0.250		1	0	NR	NR	NR	1
HIST FTTS	0.250		1	0	NR	NR	NR	1
SSTS	0.250		0	0	NR	NR	NR	0
ICIS	0.250		0	0	NR	NR	NR	0
PADS	0.250		0	0	NR	NR	NR	0
MLTS	0.250		0	0	NR	NR	NR	0
RADINFO	0.250		0	0	NR	NR	NR	0
FINDS	0.250	1	1	0	NR	NR	NR	2
RAATS	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.250		0	0	0	0	0	0
NPDES	0.250		1	0	NR	NR	NR	1
WDS	0.250		0	0	NR	NR	NR	0
Cortese	0.750		0	0	0	0	NR	0
HIST CORTESE	0.500		0	0	1	NR	NR	1
Notify 65	1.250		0	0	0	3	2	5
DRYCLEANERS	0.500		0	0	0	NR	NR	0
WIP	0.500		0	0	0	NR	NR	0
ENF	0.250		0	0	NR	NR	NR	0
HAZNET	0.250	1	3	3	NR	NR	NR	7
EMI	0.250		0	0	NR	NR	NR	0
INDIAN RESERV	1.250		0	0	0	0	0	0
SCRD DRYCLEANERS	0.750		0	0	0	0	NR	0
COAL ASH EPA	0.750		0	0	0	0	NR	0
PROC	0.750		0	0	0	0	NR	0
HWT	0.500		0	0	0	NR	NR	0
HWP	1.250		0	0	0	0	0	0
COAL ASH DOE	0.250		0	0	NR	NR	NR	0
PCB TRANSFORMER	0.250		0	0	NR	NR	NR	0
FINANCIAL ASSURANCE	0.250		0	0	NR	NR	NR	0
MWMP	0.500		0	0	0	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants	1.250		0	0	0	0	0	0
EDR Historical Auto Stations	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Historical Cleaners	0.500		0	0	2	NR	NR	2

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

A1 **1X LINCOLN CHILD CENTER** **HAZNET** **S102805901**
Target **4368 LINCOLN AVE** **N/A**
Property **OAKLAND, CA 94602**

Site 1 of 2 in cluster A

Actual:
498 ft.

HAZNET:

Year:	1995
Gepaid:	CAC001202264
Contact:	WEST OAKLAND HOME INC
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	4368 LINCOLN AVE
Mailing City,St,Zip:	OAKLAND, CA 946020000
Gen County:	1
TSD EPA ID:	CAL000027741
TSD County:	5
Waste Category:	Asbestos containing waste
Disposal Method:	D80
Tons:	2.5284
Facility County:	1

A2 **LINCOLN CHILD CENTER** **FINDS** **1004444591**
Target **4368 LINCOLN AVE** **HAZNET** **N/A**
Property **OAKLAND, CA 94602**

Site 2 of 2 in cluster A

Actual:
498 ft.

FINDS:

Registry ID: 110011460294

Environmental Interest/Information System
NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

HAZNET:

Year:	2006
Gepaid:	CAC002610968
Contact:	MIKE BOE
Telephone:	5104857104
Mailing Name:	Not reported
Mailing Address:	4368 LINCOLN AVE
Mailing City,St,Zip:	OAKLAND, CA 946020000
Gen County:	Alameda
TSD EPA ID:	CAD982042475
TSD County:	Solano
Waste Category:	Asbestos containing waste
Disposal Method:	H13
Tons:	0.84
Facility County:	1

Year:	2002
Gepaid:	CAC002193161
Contact:	MIKE BOE

LINCOLN CHILD CENTER (Continued) **1004444591**

Telephone: 5105313111
Mailing Name: Not reported
Mailing Address: 4368 LINCOLN AVE
Mailing City,St,Zip: OAKLAND, CA 946020000
Gen County: Alameda
TSD EPA ID: Not reported
TSD County: Solano
Waste Category: Asbestos containing waste
Disposal Method: D80
Tons: 1.68
Facility County: Not reported

Year: 2000
Gepaid: CAC002193161
Contact: WEST OAKLAND HOME INC
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 4368 LINCOLN AVE
Mailing City,St,Zip: OAKLAND, CA 946020000
Gen County: 1
TSD EPA ID: CAD982042475
TSD County: Solano
Waste Category: Asbestos containing waste
Disposal Method: D80
Tons: 2.5284
Facility County: 1

Year: 1999
Gepaid: CAC001323168
Contact: LINCOLN CHILD CENTER
Telephone: 5105313111
Mailing Name: Not reported
Mailing Address: 4368 LINCOLN AVE
Mailing City,St,Zip: OAKLAND, CA 946020000
Gen County: 1
TSD EPA ID: CAD982042475
TSD County: Solano
Waste Category: Asbestos containing waste
Disposal Method: Not reported
Tons: 0.8428
Facility County: 1

Year: 1997
Gepaid: CAC000744440
Contact: LINCOLN CHILD CENTER
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 4368 LINCOLN AVE
Mailing City,St,Zip: OAKLAND, CA 946020000
Gen County: 1
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Waste Category: Other organic solids
Disposal Method: H01
Tons: .4214
Facility County: 1

LINCOLN CHILD CENTER (Continued) **1004444591**

Click this hyperlink while viewing on your computer to access
additional CA_HAZNET: detail in the EDR Site Report.

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3 **SSE** **< 1/8** **0.059 mi.** **309 ft.**	**LINCOLN CHILD CENTER** **2545 CHARLESTON ST.** **OAKLAND, CA 94602**	**HAZNET**	**S102803934** **N/A**

Relative: **Lower**

Actual: **447 ft.**

HAZNET:

Year:	1995
Gepaid:	CAC001048032
Contact:	LINCOLN CHILD CENTER
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	4368 LINCOLN AVE.
Mailing City,St,Zip:	OAKLAND, CA 946020000
Gen County:	1
TSD EPA ID:	CAL000027741
TSD County:	5
Waste Category:	Asbestos containing waste
Disposal Method:	D80
Tons:	.8428
Facility County:	1

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4 **NNE** **< 1/8** **0.077 mi.** **406 ft.**	**MARGARET REIS** **4511 LINCOLN AVE** **OAKLAND, CA 94602**	**HAZNET**	**S111081108** **N/A**

Relative: **Higher**

Actual: **523 ft.**

HAZNET:

Year:	2010
Gepaid:	CAC002660145
Contact:	MARGARET REIS
Telephone:	5104822385
Mailing Name:	Not reported
Mailing Address:	4250 PIEDMONT AVE
Mailing City,St,Zip:	OAKLAND, CA 94611
Gen County:	Not reported
TSD EPA ID:	CAD982042475
TSD County:	Not reported
Waste Category:	Asbestos containing waste
Disposal Method:	LANDFILL OR SURFACE IMPOUNDMENT THAT WILL BE CLOSED AS LANDFILL(TO INCLUDE ON-SITE TREATMENT AND/OR STABILIZATION)
Tons:	0.8
Facility County:	Alameda

B5 **BEACON DAY SCHOOL** **FTTS** **1004443972**
West **4360 LINCOLN AVE** **HIST FTTS** **N/A**
< 1/8 **OAKLAND, CA 94602** **FINDS**
0.089 mi.
472 ft. **Site 1 of 2 in cluster B**

Relative:
Lower

Actual:
434 ft.

FTTS:

Case Number:	Not reported
Docket Number:	09-90-0066
Complaint Issue Date:	08/17/90
Abatement Amount:	0.0000
Proposed Penalty:	4000.0000
Final Assessment:	0.0000
Final Order Date:	11/15/90
Close Date:	11/15/90
Violations(s):	AHERA LEA, Failure to Submit/Include/Update Management Plan

FTTS INSP:

Inspection Number:	19900116R090529
Region:	09
Inspection Date:	01/16/90
Inspector:	MANCUS
Violation occurred:	Yes
Investigation Type:	AHERA, Enforcement, SEE Conducted
Investigation Reason:	For Cause, Violation
Legislation Code:	TSCA
Facility Function:	User

HIST FTTS:

Case Number:	Not reported
Docket Number:	09-90-0066
Complaint Issue Date:	08/17/1990
Abatement Amount:	0.0000
Proposed Penalty:	4000.0000
Final Assessment:	0.0000
Final Order Date:	11/15/1990
Close Date:	11/15/1990
Violations(s):	AHERA LEA, Failure to Submit/Include/Update Management Plan

HIST FTTS INSP:

Inspection Number:	19900116R090529
Region:	09
Inspection Date:	Not reported
Inspector:	MANCUS
Violation occurred:	Yes
Investigation Type:	AHERA, Enforcement, SEE Conducted
Investigation Reason:	For Cause, Violation
Legislation Code:	TSCA
Facility Function:	User

FINDS:

Registry ID: 110011656154

Environmental Interest/Information System

BEACON DAY SCHOOL (Continued) **1004443972**

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

B6
WSW
< 1/8
0.125 mi.
658 ft.

HEADD ROYCE SCHOOL
4315 LINCOLN AVE
OAKLAND, CA 94602

NPDES **S104571395**
HAZNET **N/A**

Site 2 of 2 in cluster B

Relative:
Lower

Actual:
419 ft.

NPDES:

Npdes Number:	CAS000002
Facility Status:	Terminated
Agency Id:	0
Region:	2
Regulatory Measure Id:	314297
Order No:	2009-0009-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported
WDID:	2 01C344451
Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	11/14/2006
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	11/16/2009
Discharge Name:	Head Royce School
Discharge Address:	4315 Lincoln Ave
Discharge City:	Oakland
Discharge State:	California
Discharge Zip:	94602

HAZNET:

Year:	2008
Gepaid:	CAL000319170
Contact:	JASON HASSARD
Telephone:	5105311300
Mailing Name:	Not reported
Mailing Address:	4315 LINCOLN AVE
Mailing City,St,Zip:	OAKLAND, CA 946020000
Gen County:	Alameda
TSD EPA ID:	CAD981382732
TSD County:	Alameda
Waste Category:	Asbestos containing waste
Disposal Method:	Not reported
Tons:	1.8
Facility County:	Alameda

Year:	2008
Gepaid:	CAL000319170
Contact:	JASON HASSARD
Telephone:	5105311300
Mailing Name:	Not reported
Mailing Address:	4315 LINCOLN AVE
Mailing City,St,Zip:	OAKLAND, CA 946020000

HEADD ROYCE SCHOOL (Continued) **S104571395**

Gen County:	Alameda
TSD EPA ID:	CAD028409019
TSD County:	Los Angeles
Waste Category:	Liquids with mercury >= 20 Mg./L
Disposal Method:	STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons:	0.005
Facility County:	Alameda
Year:	2008
Gepaid:	CAL000319170
Contact:	JASON HASSARD
Telephone:	5105311300
Mailing Name:	Not reported
Mailing Address:	4315 LINCOLN AVE
Mailing City,St,Zip:	OAKLAND, CA 946020000
Gen County:	Alameda
TSD EPA ID:	CAD981382732
TSD County:	Alameda
Waste Category:	Asbestos containing waste
Disposal Method:	LANDFILL OR SURFACE IMPOUNDMENT THAT WILL BE CLOSED AS LANDFILL(TO INCLUDE ON-SITE TREATMENT AND/OR STABILIZATION)
Tons:	33.2
Facility County:	Alameda
Year:	2006
Gepaid:	CAC002604926
Contact:	DENNIS MALONE
Telephone:	5105311000
Mailing Name:	Not reported
Mailing Address:	4315 LINCOLN AVE
Mailing City,St,Zip:	OAKLAND, CA 946020000
Gen County:	Alameda
TSD EPA ID:	CAD982042475
TSD County:	Solano
Waste Category:	Asbestos containing waste
Disposal Method:	D80
Tons:	7.58
Facility County:	1
Year:	2003
Gepaid:	CAC002179153
Contact:	STEVE DAVIS
Telephone:	5105311300
Mailing Name:	Not reported
Mailing Address:	4315 LINCOLN AVE
Mailing City,St,Zip:	OAKLAND, CA 946020000
Gen County:	Alameda
TSD EPA ID:	CAD982042475
TSD County:	Alameda
Waste Category:	Asbestos containing waste
Disposal Method:	D80
Tons:	79.22
Facility County:	1

HEADD ROYCE SCHOOL (Continued) **S104571395**

Click this hyperlink while viewing on your computer to access
2 additional CA_HAZNET: record(s) in the EDR Site Report.

C7 **GREEK ORTHODOX CHURCH OF THE ACENSION** **HAZNET** **S106089495**
NE **4700 LINCOLN AVE** **N/A**
1/8-1/4 **OAKLAND, CA 94602**
0.179 mi.
947 ft. **Site 1 of 2 in cluster C**

Relative:
Higher

Actual:
603 ft.

HAZNET:

Year:	2002
Gepaid:	CAC002557656
Contact:	MIKE HEATH
Telephone:	9259080309
Mailing Name:	Not reported
Mailing Address:	4700 LINCOLN AVE
Mailing City,St,Zip:	BERKELEY, CA 94602
Gen County:	Alameda
TSD EPA ID:	Not reported
TSD County:	Alameda
Waste Category:	Asbestos containing waste
Disposal Method:	D80
Tons:	0.84
Facility County:	Not reported

C8 **CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS - OAKLAND TEMPLE** **HAZNET** **S111078942**
NE **4770 LINCOLN AVE** **N/A**
1/8-1/4 **OAKLAND, CA 94602**
0.207 mi.
1090 ft. **Site 2 of 2 in cluster C**

Relative:
Higher

Actual:
634 ft.

HAZNET:

Year:	2010
Gepaid:	CAC002655314
Contact:	FRED DELA ROSA X 188
Telephone:	5105313200
Mailing Name:	Not reported
Mailing Address:	4770 LINCOLN AVE
Mailing City,St,Zip:	OAKLAND, CA 946022535
Gen County:	Not reported
TSD EPA ID:	CAD981382732
TSD County:	Not reported
Waste Category:	Asbestos containing waste
Disposal Method:	LANDFILL OR SURFACE IMPOUNDMENT THAT WILL BE CLOSED AS LANDFILL(TO INCLUDE ON-SITE TREATMENT AND/OR STABILIZATION)
Tons:	1.6
Facility County:	Alameda

Year:	2010
Gepaid:	CAC002655314
Contact:	FRED DELA ROSA X 188
Telephone:	5105313200
Mailing Name:	Not reported
Mailing Address:	4770 LINCOLN AVE
Mailing City,St,Zip:	OAKLAND, CA 946022535
Gen County:	Not reported

CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS - OAKLAND TEMPLE (Continued) **S111078942**

TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Other inorganic solid waste
Disposal Method: STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons: 0.075
Facility County: Alameda

Year: 2010
Gepaid: CAC002655314
Contact: FRED DELA ROSA X 188
Telephone: 5105313200
Mailing Name: Not reported
Mailing Address: 4770 LINCOLN AVE
Mailing City,St,Zip: OAKLAND, CA 946022535
Gen County: Not reported
TSD EPA ID: CAD981382732
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: LANDFILL OR SURFACE IMPOUNDMENT THAT WILL BE CLOSED AS LANDFILL(TO INCLUDE ON-SITE TREATMENT AND/OR STABILIZATION)
Tons: 4
Facility County: Alameda

Year: 2010
Gepaid: CAC002655314
Contact: FRED DELA ROSA X 188
Telephone: 5105313200
Mailing Name: Not reported
Mailing Address: 4770 LINCOLN AVE
Mailing City,St,Zip: OAKLAND, CA 946022535
Gen County: Not reported
TSD EPA ID: MOD981123391
TSD County: Not reported
Waste Category: Liquids with pH <= 2
Disposal Method: STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons: 0.015
Facility County: Alameda

Year: 2010
Gepaid: CAC002655314
Contact: FRED DELA ROSA X 188
Telephone: 5105313200
Mailing Name: Not reported
Mailing Address: 4770 LINCOLN AVE
Mailing City,St,Zip: OAKLAND, CA 946022535
Gen County: Not reported
TSD EPA ID: TXD077603371
TSD County: Not reported
Waste Category: Waste oil and mixed oil
Disposal Method: FUEL BLENDING PRIOR TO ENERGY RECOVERY AT ANOTHER SITE
Tons: 0.15
Facility County: Alameda

CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS - OAKLAND TEMPLE (Continued) **S111078942**

Click this hyperlink while viewing on your computer to access
3 additional CA_HAZNET: record(s) in the EDR Site Report.

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9 **CHMIRS** **S109039185**
West **4200 WHITTLE AVENUE** **N/A**
1/8-1/4 **OAKLAND, CA**
0.234 mi.
1235 ft.

Relative:
Lower

Actual:
358 ft.

CHMIRS:

OES Incident Number:	07-2311
OES notification:	4/14/2007 04:56:56 PM
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	Not reported
Waterway:	Unknown Creek
Spill Site:	Not reported
Cleanup By:	Unknown/Substance not yet identified
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	2007

(Continued) **S109039185**

Agency:	Oakland Fire Department
Incident Date:	4/14/2007 12:00:00 AM
Admin Agency:	City of Oakland Fire Department
Amount:	Not reported
Contained:	Yes
Site Type:	Waterways
E Date:	Not reported
Substance:	Unknown White Milky Cloudy Substance
Quantity Released:	Not reported
BBLS:	0
Cups:	0
CUFT:	0
Gallons:	0.000000
Grams:	0
Pounds:	0
Liters:	0
Ounces:	0
Pints:	0
Quarts:	0
Sheen:	0
Tons:	0
Unknown:	0
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	There is a white milky cloudy substance in the water, unknown source. Engine on scene requested haz mat unit. The name of the creek is not known at this time.

---

10 **LDS CHURCH** **HAZNET** **S102800180**
ENE **4780 LINCOLN AVE** **N/A**
1/8-1/4 **OAKLAND, CA 94602**
0.238 mi.
1259 ft.

Relative: Higher

Actual: 657 ft.

HAZNET:

Year:	2007
Gepaid:	CAC002614448
Contact:	DAVID BUCK/DIR OF H&S
Telephone:	8012403547
Mailing Name:	Not reported
Mailing Address:	50 E NORTH TEMPLE
Mailing City,St,Zip:	SALT LAKE CITY, UT 841500002
Gen County:	Alameda
TSD EPA ID:	CAD028409019
TSD County:	Los Angeles
Waste Category:	Asbestos containing waste
Disposal Method:	STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons:	0.33
Facility County:	Alameda

Year:	2006
Gepaid:	CAC002598314
Contact:	BRENT BIGALOW
Telephone:	8012405434
Mailing Name:	Not reported
Mailing Address:	50 E NORTH TEMPLE

LDS CHURCH (Continued) **S102800180**

Mailing City,St,Zip: SALT LAKE CITY, UT 841500002
Gen County: Alameda
TSD EPA ID: CAD982042475
TSD County: Solano
Waste Category: Asbestos containing waste
Disposal Method: D80
Tons: 2.52
Facility County: 1

Year: 1994
Gepaid: CAC000982816
Contact: LDS CHURCH
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 61 E NORTH TEMPLE
Mailing City,St,Zip: SALT LAKE CITY, UT 841500000
Gen County: 1
TSD EPA ID: CAD982042475
TSD County: Solano
Waste Category: Asbestos containing waste
Disposal Method: Not reported
Tons: 7.5852
Facility County: 1

Year: 1994
Gepaid: CAC000966416
Contact: LDS CHURCH
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 61 E NORTH TEMPLE
Mailing City,St,Zip: SALT LAKE CITY, UT 841500000
Gen County: 1
TSD EPA ID: CAD982042475
TSD County: Solano
Waste Category: Asbestos containing waste
Disposal Method: D80
Tons: 50.5680
Facility County: 1

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11 **SSW** **1/4-1/2** **0.257 mi.** **1355 ft.**	**ACME WINDOW CLEANING CO** **4140 LAGUNA AVE** **OAKLAND, CA**	**EDR Historical Cleaners**	**1009216287** **N/A**

Relative:
Lower

Actual:
325 ft.

EDR Historical Cleaners:
Name: ACME WINDOW CLEANING CO
Year: 1967
Type: WINDOW CLEANERS

12 **NE** **1/4-1/2** **0.324 mi.** **1709 ft.** **Relative:** **Higher** **Actual:** **683 ft.**	**PACIFIC BELL** **2810 MOUNTAIN BOULEVARD** **OAKLAND, CA 94602**	**RCRA-SQG** **FINDS** **CA FID UST** **UST** **HIST UST** **SWEEPS UST** **HAZNET** **EMI**	**1000250824** **CAT080015498**

RCRA-SQG:

Date form received by agency: 09/01/1996
Facility name: PACIFIC BELL
Facility address: 2810 MOUNTAIN BOULEVARD
OAKLAND, CA 94602
EPA ID: CAT080015498
Mailing address: 220 MONTGOMERY STREET RM 1051
SAN FRANCISCO, CA 94104
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name: THE PACIFIC TEL & TEL COMPANY
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No

PACIFIC BELL (Continued) **1000250824**

Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/09/1981
Facility name: PACIFIC BELL
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110002947189

Environmental Interest/Information System
The NEI (National Emissions Inventory) database contains information on stationary and mobile sources that emit criteria air pollutants and their precursors, as well as hazardous air pollutants (HAPs).

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

CA FID UST:
Facility ID: 01002757
Regulated By: UTNKA
Regulated ID: CAT080015
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 4155227324
Mail To: Not reported
Mailing Address: 2600 CAMINO RAMON
Mailing Address 2: Not reported
Mailing City,St,Zip: OAKLAND 94602
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported

PACIFIC BELL (Continued) **1000250824**

EPA ID: Not reported
Comments: Not reported
Status: Active

UST:
Facility ID: 5899
Latitude: 37.81202
Longitude: -122.19877

HIST UST:
Region: STATE
Facility ID: 00000057565
Facility Type: Other
Other Type: SIC 4800
Total Tanks: 0001
Contact Name: E.J. KOEHLER
Telephone: 4155426758
Owner Name: PACIFIC BELL
Owner Address: 370 THIRD STREET
Owner City,St,Zip: SAN FRANCISCO, CA 94107

Tank Num: 001
Container Num: 1
Year Installed: 1965
Tank Capacity: 00001500
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: Not reported
Leak Detection: None

SWEEPS UST:
Status: A
Comp Number: 57565
Number: 1
Board Of Equalization: 44-031914
Ref Date: 04-06-93
Act Date: 12-15-93
Created Date: 02-29-88
Tank Status: A
Owner Tank Id: 151
Swrcb Tank Id: 01-000-057565-000001
Actv Date: 04-06-93
Capacity: 2000
Tank Use: PETROLEUM
Stg: P
Content: DIESEL
Number Of Tanks: 1

HAZNET:
Year: 2009
Gepaid: CAT080015498
Contact: EH & S RECORDKEEPER-RRC
Telephone: 8005669347
Mailing Name: Not reported
Mailing Address: 1 AT&T WAY RM 2C140

PACIFIC BELL (Continued) **1000250824**

Mailing City,St,Zip: BEDMINSTER, NJ 079210000
Gen County: Alameda
TSD EPA ID: CAD981382732
TSD County: Alameda
Waste Category: Asbestos containing waste
Disposal Method: LANDFILL OR SURFACE IMPOUNDMENT THAT WILL BE CLOSED AS LANDFILL(TO INCLUDE ON-SITE TREATMENT AND/OR STABILIZATION)
Tons: 1.2
Facility County: Alameda

Year: 2005
Gepaid: CAT080015498
Contact: SHARON BAYLE/STAFF ASSOC
Telephone: 9258239833
Mailing Name: Not reported
Mailing Address: PO BOX 5095 3E000
Mailing City,St,Zip: SAN RAMON, CA 945830995
Gen County: Alameda
TSD EPA ID: CAD009452657
TSD County: San Mateo
Waste Category: Unspecified aqueous solution
Disposal Method: R01
Tons: 0.01
Facility County: Not reported

Year: 1998
Gepaid: CAC001494640
Contact: PACIFIC BELL
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 2810 MOUNTAIN BLVD
Mailing City,St,Zip: OAKLAND, CA 946120000
Gen County: 1
TSD EPA ID: CAD059494310
TSD County: Santa Clara
Waste Category: Unspecified organic liquid mixture
Disposal Method: Not reported
Tons: .2293
Facility County: 1

Year: 1998
Gepaid: CAC001494640
Contact: PACIFIC BELL
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 2810 MOUNTAIN BLVD
Mailing City,St,Zip: OAKLAND, CA 946120000
Gen County: 1
TSD EPA ID: CAD059494310
TSD County: Santa Clara
Waste Category: Not reported
Disposal Method: D99
Tons: .0000
Facility County: 1

EMI:
Year: 2002

PACIFIC BELL (Continued) **1000250824**

County Code:	1
Air Basin:	SF
Facility ID:	13497
Air District Name:	BA
SIC Code:	4813
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2003
County Code:	1
Air Basin:	SF
Facility ID:	13497
Air District Name:	BA
SIC Code:	4813
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2004
County Code:	1
Air Basin:	SF
Facility ID:	13497
Air District Name:	BA
SIC Code:	4813
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.007
Reactive Organic Gases Tons/Yr:	0.0058569
Carbon Monoxide Emissions Tons/Yr:	0.019
NOX - Oxides of Nitrogen Tons/Yr:	0.085
SOX - Oxides of Sulphur Tons/Yr:	0.001
Particulate Matter Tons/Yr:	0.006
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0.005856

Year:	2005
County Code:	1
Air Basin:	SF
Facility ID:	13497
Air District Name:	BA
SIC Code:	4813
Air District Name:	BAY AREA AQMD

PACIFIC BELL (Continued) **1000250824**

Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: .007
Reactive Organic Gases Tons/Yr: .0058569
Carbon Monoxide Emissions Tons/Yr: .019
NOX - Oxides of Nitrogen Tons/Yr: .085
SOX - Oxides of Sulphur Tons/Yr: .001
Particulate Matter Tons/Yr: .006
Part. Matter 10 Micrometers & Smllr Tons/Yr: .005856

Year: 2006
County Code: 1
Air Basin: SF
Facility ID: 13497
Air District Name: BA
SIC Code: 4813
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: .006
Reactive Organic Gases Tons/Yr: .0050202
Carbon Monoxide Emissions Tons/Yr: .016
NOX - Oxides of Nitrogen Tons/Yr: .075
SOX - Oxides of Sulphur Tons/Yr: .001
Particulate Matter Tons/Yr: .005
Part. Matter 10 Micrometers & Smllr Tons/Yr: .00488

Year: 2007
County Code: 1
Air Basin: SF
Facility ID: 13497
Air District Name: BA
SIC Code: 4813
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: .006
Reactive Organic Gases Tons/Yr: .0050202
Carbon Monoxide Emissions Tons/Yr: .016
NOX - Oxides of Nitrogen Tons/Yr: .075
SOX - Oxides of Sulphur Tons/Yr: .001
Particulate Matter Tons/Yr: .005
Part. Matter 10 Micrometers & Smllr Tons/Yr: .00488

Year: 2007
County Code: 1
Air Basin: SF
Facility ID: 13497
Air District Name: BA
SIC Code: 4813
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: .004
Reactive Organic Gases Tons/Yr: .0033468
Carbon Monoxide Emissions Tons/Yr: .01
NOX - Oxides of Nitrogen Tons/Yr: .048

PACIFIC BELL (Continued) **1000250824**

SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	.003
Part. Matter 10 Micrometers & Smllr Tons/Yr:	.002928

D13
NE
1/4-1/2
0.326 mi.
1720 ft.

DESERT PETROLEUM #796
2844 MOUNTAIN
OAKLAND, CA 94602

Site 1 of 4 in cluster D

HIST CORTESE
LUST
CA FID UST
Alameda County CS
SWEEPS UST
HAZNET

S101579942
N/A

Relative:
Higher

Actual:
686 ft.

CORTESE:

Region:	CORTESE
Facility County Code:	1
Reg By:	LTNKA
Reg Id:	01-0098

LUST:

Region:	STATE
Global Id:	T0600100090
Latitude:	37.811656
Longitude:	-122.196867
Case Type:	LUST Cleanup Site
Status:	Open - Site Assessment
Status Date:	07/25/1990
Lead Agency:	ALAMEDA COUNTY LOP
Case Worker:	JTW
Local Agency:	ALAMEDA COUNTY LOP
RB Case Number:	01-0098
LOC Case Number:	RO0000276
File Location:	Stored electronically as an E-file
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Gasoline
Site History:	Soil contamination was identified during the replacement of product lines in March 1989. In July 1989, contaminated soil was excavated and disposed from the area of the southern UST. Further site investigation including installation of monitoring wells was conducted in May 1990. Soil vapor extraction began in June 1991 and groundwater remediation began in October 1991. Remediation was suspended in 1992 apparently due to the responsible parties' financial problems. Underground storage tanks and piping were removed from the site on August 9, 2011. Additional investigation is currently planned for the site. In addition, remedial action will be required in the tank pit area for source removal.

Click here to access the California GeoTracker records for this facility:

LUST:

Global Id:	T0600100090
Contact Type:	Regional Board Caseworker
Contact Name:	Cherie McCaulou
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY STREET, SUITE 1400
City:	OAKLAND
Email:	cmccaulou@waterboards.ca.gov
Phone Number:	Not reported
Global Id:	T0600100090

DESERT PETROLEUM #796 (Continued) **S101579942**

Contact Type:	Local Agency Caseworker
Contact Name:	JERRY WICKHAM
Organization Name:	ALAMEDA COUNTY LOP
Address:	1131 HARBOR BAY PARKWAY
City:	ALAMEDA
Email:	Not reported
Phone Number:	5105676791

LUST:

Global Id:	T0600100090
Action Type:	ENFORCEMENT
Date:	02/28/2011
Action:	Staff Letter - #20110228
Global Id:	T0600100090
Action Type:	ENFORCEMENT
Date:	07/24/2009
Action:	Staff Letter - #20090724
Global Id:	T0600100090
Action Type:	REMEDIATION
Date:	01/01/1950
Action:	Soil Vapor Extraction w/GAC
Global Id:	T0600100090
Action Type:	ENFORCEMENT
Date:	06/18/2009
Action:	Notice to Comply - #20090618
Global Id:	T0600100090
Action Type:	RESPONSE
Date:	09/15/2010
Action:	Clean Up Fund - 5-Year Review Summary
Global Id:	T0600100090
Action Type:	RESPONSE
Date:	07/29/2009
Action:	Other Report / Document
Global Id:	T0600100090
Action Type:	RESPONSE
Date:	07/29/2009
Action:	Soil and Water Investigation Workplan
Global Id:	T0600100090
Action Type:	RESPONSE
Date:	04/30/2011
Action:	Electronic Reporting Submittal Due
Global Id:	T0600100090
Action Type:	RESPONSE
Date:	05/31/2011
Action:	Soil and Water Investigation Workplan
Global Id:	T0600100090
Action Type:	ENFORCEMENT
Date:	07/03/2008

DESERT PETROLEUM #796 (Continued) **S101579942**

Action:	Technical Correspondence / Assistance / Other - #20080703
Global Id:	T0600100090
Action Type:	ENFORCEMENT
Date:	03/29/2011
Action:	Notice of Violation - #20110329
Global Id:	T0600100090
Action Type:	Other
Date:	01/01/1950
Action:	Leak Discovery
Global Id:	T0600100090
Action Type:	ENFORCEMENT
Date:	11/28/2011
Action:	Staff Letter - #20111128
Global Id:	T0600100090
Action Type:	Other
Date:	01/01/1950
Action:	Leak Reported
Global Id:	T0600100090
Action Type:	RESPONSE
Date:	03/29/2012
Action:	Soil and Water Investigation Report

LUST REG 2:

Region:	2
Facility Id:	01-0098
Facility Status:	Pollution Characterization
Case Number:	851
How Discovered:	Tank Closure
Leak Cause:	Structure Failure
Leak Source:	Tank
Date Leak Confirmed:	Not reported
Oversight Program:	LUST
Prelim. Site Assesment Wokplan Submitted:	Not reported
Preliminary Site Assesment Began:	Not reported
Pollution Characterization Began:	6/1/1991
Pollution Remediation Plan Submitted:	Not reported
Date Remediation Action Underway:	Not reported
Date Post Remedial Action Monitoring Began:	Not reported

CA FID UST:

Facility ID:	01000215
Regulated By:	UTNKA
Regulated ID:	00009196
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	5105308125
Mail To:	Not reported
Mailing Address:	P O BOX
Mailing Address 2:	Not reported
Mailing City,St,Zip:	OAKLAND 94602

DESERT PETROLEUM #796 (Continued) **S101579942**

Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

Alameda County CS:
Status: Leak Confirmation
Record Id: RO0000276
PE: 5602

Status: Preliminary Site Assessment Workplan Submitted
Record Id: RO0000276
PE: 5602

Status: Preliminary Site Assessment Underway
Record Id: RO0000276
PE: 5602

Status: Pollution Characterization
Record Id: RO0000276
PE: 5602

SWEEPS UST:
Status: A
Comp Number: 9196
Number: 2
Board Of Equalization: 44-030652
Ref Date: 09-14-93
Act Date: 04-26-94
Created Date: 02-29-88
Tank Status: A
Owner Tank Id: 1
Swrcb Tank Id: 01-000-009196-000001
Actv Date: 09-14-93
Capacity: 10000
Tank Use: M.V. FUEL
Stg: P
Content: REG UNLEADED
Number Of Tanks: 4

Status: A
Comp Number: 9196
Number: 2
Board Of Equalization: 44-030652
Ref Date: 09-14-93
Act Date: 04-26-94
Created Date: 02-29-88
Tank Status: A
Owner Tank Id: 2
Swrcb Tank Id: 01-000-009196-000002
Actv Date: 09-14-93
Capacity: 4000
Tank Use: M.V. FUEL

DESERT PETROLEUM #796 (Continued) **S101579942**

Stg: P
Content: LEADED
Number Of Tanks: Not reported

Status: A
Comp Number: 9196
Number: 2
Board Of Equalization: 44-030652
Ref Date: 09-14-93
Act Date: 04-26-94
Created Date: 02-29-88
Tank Status: A
Owner Tank Id: 3
Swrcb Tank Id: 01-000-009196-000003
Actv Date: 09-14-93
Capacity: 3000
Tank Use: M.V. FUEL
Stg: P
Content: PRM UNLEADED
Number Of Tanks: Not reported

Status: A
Comp Number: 9196
Number: 2
Board Of Equalization: 44-030652
Ref Date: 09-14-93
Act Date: 04-26-94
Created Date: 02-29-88
Tank Status: A
Owner Tank Id: 4
Swrcb Tank Id: 01-000-009196-000004
Actv Date: 09-14-93
Capacity: 280
Tank Use: OIL
Stg: W
Content: WASTE OIL
Number Of Tanks: Not reported

HAZNET:
Year: 1996
Gepaid: CAL000005067
Contact: DESERT PETROLEUM INC
Telephone: 8056548084
Mailing Name: Not reported
Mailing Address: PO BOX 1601
Mailing City,St,Zip: OXNARD, CA 930321601
Gen County: 1
TSD EPA ID: CAD980887418
TSD County: 1
Waste Category: Waste oil and mixed oil
Disposal Method: R01
Tons: 5.1082
Facility County: 1

Year: 1995
Gepaid: CAL000005067
Contact: DESERT PETROLEUM INC

DESERT PETROLEUM #796 (Continued) **S101579942**

Telephone:	8056548084
Mailing Name:	Not reported
Mailing Address:	PO BOX 1601
Mailing City,St,Zip:	OXNARD, CA 930321601
Gen County:	1
TSD EPA ID:	CAD083166728
TSD County:	Stanislaus
Waste Category:	Unspecified oil-containing waste
Disposal Method:	R01
Tons:	.5421
Facility County:	1

Year:	1994
Gepaid:	CAL000005067
Contact:	DESERT PETROLEUM INC
Telephone:	8056548084
Mailing Name:	Not reported
Mailing Address:	PO BOX 1601
Mailing City,St,Zip:	OXNARD, CA 930321601
Gen County:	1
TSD EPA ID:	CAD980675276
TSD County:	Kern
Waste Category:	Contaminated soil from site clean-up
Disposal Method:	D80
Tons:	26.5700
Facility County:	1

Year:	1994
Gepaid:	CAL000005067
Contact:	DESERT PETROLEUM INC
Telephone:	8056548084
Mailing Name:	Not reported
Mailing Address:	PO BOX 1601
Mailing City,St,Zip:	OXNARD, CA 930321601
Gen County:	1
TSD EPA ID:	CAD009466392
TSD County:	7
Waste Category:	Other empty containers 30 gallons or more
Disposal Method:	Not reported
Tons:	.1400
Facility County:	1

Year:	1994
Gepaid:	CAL000005067
Contact:	DESERT PETROLEUM INC
Telephone:	8056548084
Mailing Name:	Not reported
Mailing Address:	PO BOX 1601
Mailing City,St,Zip:	OXNARD, CA 930321601
Gen County:	1
TSD EPA ID:	CAD083166728
TSD County:	Stanislaus
Waste Category:	Unspecified oil-containing waste
Disposal Method:	R01
Tons:	2.5020
Facility County:	1

DESERT PETROLEUM #796 (Continued) **S101579942**

Click this hyperlink while viewing on your computer to access
2 additional CA_HAZNET: record(s) in the EDR Site Report.

D14 **MONTCLAIR GASOLINE** **UST** **U003804888**
NE **2844 MOUNTAIN BLVD** **N/A**
1/4-1/2 **OAKLAND, CA 94602**
0.326 mi.
1720 ft. **Site 2 of 4 in cluster D**

Relative:
Higher

Actual:
686 ft.

UST:
Facility ID: 4696
Latitude: 37.81147
Longitude: -122.19807

D15 **GASCO SERVICE STATION 796** **HIST UST** **U001599041**
NE **2844 MOUNTAIN BLVD** **N/A**
1/4-1/2 **OAKLAND, CA 94602**
0.326 mi.
1720 ft. **Site 3 of 4 in cluster D**

Relative:
Higher

Actual:
686 ft.

HIST UST:
Region: STATE
Facility ID: 00000009196
Facility Type: Gas Station
Other Type: Not reported
Total Tanks: 0004
Contact Name: ARCHULETA, NEDDIE
Telephone: 4155309808
Owner Name: DESERT PETROLEUM, INC.
Owner Address: POST OFFICE BOX 1601
Owner City,St,Zip: OXNARD, CA 93032

Tank Num: 001
Container Num: #1
Year Installed: Not reported
Tank Capacity: 00010000
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Tank Construction: 1/4 inches
Leak Detection: Stock Inventor

Tank Num: 002
Container Num: #2
Year Installed: Not reported
Tank Capacity: 00003000
Tank Used for: PRODUCT
Type of Fuel: PREMIUM
Tank Construction: 1/4 inches
Leak Detection: Stock Inventor

Tank Num: 003
Container Num: #3
Year Installed: Not reported
Tank Capacity: 00004000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED

GASCO SERVICE STATION 796 (Continued) **U001599041**

Tank Construction: 1/4 inches
Leak Detection: Stock Inventor

Tank Num: 004
Container Num: #4
Year Installed: Not reported
Tank Capacity: 00000280
Tank Used for: WASTE
Type of Fuel: WASTE OIL
Tank Construction: 1/4 inches
Leak Detection: None

D16 **WOOOMINISTER CLEANERS** **EDR Historical Cleaners** **1009140000**
NE **5036 WOODMINSTER LN** **N/A**
1/4-1/2 **OAKLAND, CA**
0.360 mi.
1899 ft. **Site 4 of 4 in cluster D**

Relative: **Higher**

Actual: **697 ft.**

EDR Historical Cleaners:
Name: WOOOMINISTER CLEANERS
Year: 1967
Type: CLEANERS AND DYERS

E17 **MAURICE J OBRIEN TRUCKING** **RCRA-SQG** **1000360987**
ESE **3028 JORDAN RD** **CAD982511727**
1/4-1/2 **OAKLAND, CA 94602**
0.470 mi.
2480 ft. **Site 1 of 2 in cluster E**

Relative: **Lower**

Actual: **409 ft.**

RCRA-SQG:
Date form received by agency: 09/01/1996
Facility name: MAURICE J OBRIEN TRUCKING
Facility address: 3028 JORDAN RD
OAKLAND, CA 94602
EPA ID: CAD982511727
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: MAURICE JOSEPH OBRIEN
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private

MAURICE J OBRIEN TRUCKING (Continued) **1000360987**

Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 06/29/1989
Facility name: MAURICE J OBRIEN TRUCKING
Classification: Large Quantity Generator

Violation Status: No violations found

E18 **PATRICK OBRIEN TRUCKING** **RCRA-NonGen** **1000593523**
ESE **3028 JORDAN RD** **FINDS** **CAD982446718**
1/4-1/2 **OAKLAND, CA 94602**
0.470 mi.
2480 ft. **Site 2 of 2 in cluster E**

Relative:
Lower

Actual:
409 ft.

RCRA-NonGen:
Date form received by agency: 04/05/1991
Facility name: PATRICK OBRIEN TRUCKING
Facility address: 3028 JORDAN RD
OAKLAND, CA 94602
EPA ID: CAD982446718
Mailing address: JORDAN RD
OAKLAND, CA 94602
Contact: ENVIRONMENTAL MANAGER
Contact address: 3028 JORDAN RD
OAKLAND, CA 94602
Contact country: US
Contact telephone: (415) 531-1642
Contact email: Not reported

PATRICK OBRIEN TRUCKING (Continued) **1000593523**

EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: PATRICK OBRIEN
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110009547231

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

19 East 1/2-1 0.649 mi. 3428 ft.	**FIRE STATION #25 2795 BUTTERS OAKLAND, CA 92626**	**HIST CORTESE LUST Alameda County CS Notify 65**	**S100226720 N/A**

Relative: Higher

Actual: 856 ft.

CORTESE:

Region:	CORTESE
Facility County Code:	1
Reg By:	LTNKA
Reg Id:	01-0629

LUST:

Region:	STATE
Global Id:	T0600100579
Latitude:	37.8092445
Longitude:	-122.1908639
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	09/08/1999
Lead Agency:	ALAMEDA COUNTY LOP
Case Worker:	JS
Local Agency:	ALAMEDA COUNTY LOP
RB Case Number:	01-0629
LOC Case Number:	RO0000861
File Location:	Stored electronically as an E-file
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

LUST:

Global Id:	T0600100579
Contact Type:	Regional Board Caseworker
Contact Name:	Cherie McCaulou
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY STREET, SUITE 1400
City:	OAKLAND
Email:	cmccaulou@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0600100579
Contact Type:	Local Agency Caseworker
Contact Name:	JULIET SHIN
Organization Name:	ALAMEDA COUNTY LOP
Address:	1131 HARBOR BAY PARKWAY
City:	ALAMEDA
Email:	Not reported
Phone Number:	Not reported

LUST:

Global Id:	T0600100579
Action Type:	Other
Date:	01/01/1950
Action:	Leak Reported

FIRE STATION #25 (Continued) **S100226720**

LUST REG 2:
Region: 2
Facility Id: 01-0629
Facility Status: Case Closed
Case Number: 4267
How Discovered: Tank Closure
Leak Cause: Structure Failure
Leak Source: Tank
Date Leak Confirmed: 8/22/1996
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

Alameda County CS:
Status: Case Closed
Record Id: RO0000861
PE: 5602

Notify 65:
Date Reported: Not reported
Staff Initials: Not reported
Board File Number: Not reported
Facility Type: Not reported
Discharge Date: Not reported
Incident Description: 92626

20
East
1/2-1
0.739 mi.
3900 ft.

EMERGENCY OPERATIONS CENTER
3304 JOAQUIN MILLER
OAKLAND, CA 94602

HIST CORTESE
LUST
Alameda County CS
SWEEPS UST

U003713563
N/A

Relative: Higher

Actual: 931 ft.

CORTESE:
Region: CORTESE
Facility County Code: 1
Reg By: LTNKA
Reg Id: 01-1715

LUST:
Region: STATE
Global Id: T0600101586
Latitude: 37.8094117
Longitude: -122.1878528
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 11/14/1996
Lead Agency: ALAMEDA COUNTY LOP
Case Worker: DK
Local Agency: Not reported
RB Case Number: 01-1715
LOC Case Number: RO0000957
File Location: Stored electronically as an E-file

EMERGENCY OPERATIONS CENTER (Continued) **U003713563**

Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

LUST:

Global Id:	T0600101586
Contact Type:	Regional Board Caseworker
Contact Name:	Cherie McCaulou
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY STREET, SUITE 1400
City:	OAKLAND
Email:	cmccaulou@waterboards.ca.gov
Phone Number:	Not reported

LUST:

Global Id:	T0600101586
Action Type:	REMEDIATION
Date:	01/01/1950
Action:	Excavate and Dispose
Global Id:	T0600101586
Action Type:	Other
Date:	01/01/1950
Action:	Leak Reported

LUST REG 2:

Region:	2
Facility Id:	01-1715
Facility Status:	Case Closed
Case Number:	4005
How Discovered:	Tank Closure
Leak Cause:	UNK
Leak Source:	UNK
Date Leak Confirmed:	7/15/1993
Oversight Program:	LUST
Prelim. Site Assesment Wokplan Submitted:	Not reported
Preliminary Site Assesment Began:	Not reported
Pollution Characterization Began:	Not reported
Pollution Remediation Plan Submitted:	Not reported
Date Remediation Action Underway:	Not reported
Date Post Remedial Action Monitoring Began:	Not reported

Alameda County CS:

Status:	Case Closed
Record Id:	RO0000957
PE:	5602

SWEEPS UST:

Status:	Not reported
Comp Number:	304005
Number:	Not reported
Board Of Equalization:	44-000568
Ref Date:	Not reported

EMERGENCY OPERATIONS CENTER (Continued) **U003713563**

Act Date:	Not reported
Created Date:	Not reported
Tank Status:	Not reported
Owner Tank Id:	Not reported
Swrcb Tank Id:	01-000-304005-000001
Actv Date:	Not reported
Capacity:	1000
Tank Use:	M.V. FUEL
Stg:	PRODUCT
Content:	DIESEL
Number Of Tanks:	1

21
SSW
1/2-1
0.813 mi.
4292 ft.

NONE
2801 MAC ARTHUR
OAKLAND, CA 92626

Notify 65 **S100179093**
N/A

Relative:
Lower

Actual:
204 ft.

Notify 65:

Date Reported:	Not reported
Staff Initials:	Not reported
Board File Number:	Not reported
Facility Type:	Not reported
Discharge Date:	Not reported
Incident Description:	92626

22
South
1/2-1
0.983 mi.
5192 ft.

NONE
3432 MACARTHUR
OAKLAND, CA 94602

HIST CORTESE **S100179787**
Notify 65 **N/A**

Relative:
Lower

Actual:
226 ft.

CORTESE:

Region:	CORTESE
Facility County Code:	1
Reg By:	LTNKA
Reg Id:	01-0410

Notify 65:

Date Reported:	Not reported
Staff Initials:	Not reported
Board File Number:	Not reported
Facility Type:	Not reported
Discharge Date:	Not reported
Incident Description:	94602

23 **UNOCAL SERVICE STATION #5269** **HIST CORTESE** **S100179229**
NNW **2240 MOUNTAIN** **LUST** **N/A**
> 1 **OAKLAND, CA 92626** **Alameda County CS**
1.026 mi. **SWEEPS UST**
5417 ft. **Notify 65**

Relative: Higher

Actual: 545 ft.

CORTESE:

Region:	CORTESE
Facility County Code:	1
Reg By:	LTNKA
Reg Id:	01-1582

LUST:

Region:	STATE
Global Id:	T0600101457
Latitude:	37.8230069
Longitude:	-122.207523
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	04/18/1993
Lead Agency:	ALAMEDA COUNTY LOP
Case Worker:	SH
Local Agency:	ALAMEDA COUNTY LOP
RB Case Number:	01-1582
LOC Case Number:	RO0000538
File Location:	Stored electronically as an E-file
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

LUST:

Global Id:	T0600101457
Contact Type:	Regional Board Caseworker
Contact Name:	Cherie McCaulou
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY STREET, SUITE 1400
City:	OAKLAND
Email:	cmccaulou@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0600101457
Contact Type:	Local Agency Caseworker
Contact Name:	SUSAN HUGO
Organization Name:	ALAMEDA COUNTY LOP
Address:	1131 HARBOR BAY PARKWAY
City:	ALAMEDA
Email:	Not reported
Phone Number:	Not reported

LUST:

Global Id:	T0600101457
Action Type:	REMEDIATION
Date:	01/01/1950
Action:	Excavate and Dispose

Global Id:	T0600101457
Action Type:	Other

UNOCAL SERVICE STATION #5269 (Continued) **S100179229**

Date: 01/01/1950
Action: Leak Reported

LUST REG 2:
Region: 2
Facility Id: 01-1582
Facility Status: Case Closed
Case Number: 1150
How Discovered: Tank Closure
Leak Cause: Structure Failure
Leak Source: Tank
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 10/18/1989
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

Alameda County CS:
Status: Case Closed
Record Id: RO0000538
PE: 5602

SWEEPS UST:
Status: A
Comp Number: 228
Number: 2
Board Of Equalization: 44-000051
Ref Date: 11-15-92
Act Date: 11-22-93
Created Date: 03-18-91
Tank Status: A
Owner Tank Id: 5169-WO-1
Swrcb Tank Id: 01-000-000228-000001
Actv Date: 11-15-92
Capacity: 500
Tank Use: OIL
Stg: W
Content: WASTE OIL
Number Of Tanks: 3

Status: A
Comp Number: 228
Number: 2
Board Of Equalization: 44-000051
Ref Date: 11-15-92
Act Date: 11-22-93
Created Date: 03-18-91
Tank Status: A
Owner Tank Id: 5169-RU-1
Swrcb Tank Id: 01-000-000228-000002
Actv Date: 11-15-92
Capacity: 12000

UNOCAL SERVICE STATION #5269 (Continued) **S100179229**

Tank Use: M.V. FUEL
Stg: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: A
Comp Number: 228
Number: 2
Board Of Equalization: 44-000051
Ref Date: 11-15-92
Act Date: 11-22-93
Created Date: 03-18-91
Tank Status: A
Owner Tank Id: 5169-SU-1
Swrcb Tank Id: 01-000-000228-000003
Actv Date: 11-15-92
Capacity: 12000
Tank Use: M.V. FUEL
Stg: P
Content: PRM UNLEADED
Number Of Tanks: Not reported

Notify 65:
Date Reported: Not reported
Staff Initials: Not reported
Board File Number: Not reported
Facility Type: Not reported
Discharge Date: Not reported
Incident Description: 92626

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24 **UNOCAL SERVICE STATION** **HIST CORTESE** **S100179293**
South **3420 35TH** **LUST** **N/A**
> 1 **OAKLAND, CA 92626** **Alameda County CS**
1.107 mi. **SWEEPS UST**
5845 ft. **Notify 65**

Relative:
Lower

Actual:
188 ft.

CORTESE:
Region: CORTESE
Facility County Code: 1
Reg By: LTNKA
Reg Id: 01-1590

LUST:
Region: STATE
Global Id: T0600101465
Latitude: 37.792388494728
Longitude: -122.202408313751
Case Type: LUST Cleanup Site
Status: Open - Site Assessment
Status Date: 02/05/1990
Lead Agency: ALAMEDA COUNTY LOP
Case Worker: BJJ
Local Agency: ALAMEDA COUNTY LOP
RB Case Number: 01-1590
LOC Case Number: RO0000058
File Location: Stored electronically as an E-file
Potential Media Affect: Other Groundwater (uses other than drinking water)

UNOCAL SERVICE STATION (Continued) **S100179293**

Potential Contaminants of Concern: Gasoline
Site History: Two 10,000-gallon gasoline underground storage tanks (USTs) and one 550-gallon waste-oil UST were excavated and removed from the site September 11, 1989. The cause of the release is listed on the unauthorized release form as unknown. Maximum petroleum hydrocarbon concentrations of 690 milligrams per kilogram (mg/Kg) total petroleum hydrocarbons as gasoline (TPHg) and 3.2 mg/Kg benzene were detected from initial piping soil samples collected during the tank removal. Groundwater monitoring wells were installed in December 1989 and subsequent borings and wells were installed at the site. In November 2003 a due diligence investigation discovered 2,100 |g/L MTBE in groundwater. Currently evaluating the lateral and vertical extent of contamination in coordination with the adjacent Exxon.

Click here to access the California GeoTracker records for this facility:

LUST:
Global Id: T0600101465
Contact Type: Regional Board Caseworker
Contact Name: Cherie McCaulou
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY STREET, SUITE 1400
City: OAKLAND
Email: cmccaulou@waterboards.ca.gov
Phone Number: Not reported

Global Id: T0600101465
Contact Type: Local Agency Caseworker
Contact Name: BARBARA JAKUB
Organization Name: ALAMEDA COUNTY LOP
Address: 1131 HARBOR BAY PARKWAY
City: ALAMEDA
Email: Not reported
Phone Number: 5106391287

LUST:
Global Id: T0600101465
Action Type: ENFORCEMENT
Date: 07/06/2009
Action: Staff Letter - #20090706

Global Id: T0600101465
Action Type: ENFORCEMENT
Date: 09/17/2009
Action: Staff Letter - #20090917

Global Id: T0600101465
Action Type: ENFORCEMENT
Date: 07/24/2009
Action: Staff Letter - #20090724

Global Id: T0600101465
Action Type: RESPONSE
Date: 11/06/2009
Action: Soil and Water Investigation Report

UNOCAL SERVICE STATION (Continued) **S100179293**

Global Id:	T0600101465
Action Type:	REMEDIATION
Date:	01/01/1950
Action:	Excavate and Dispose
Global Id:	T0600101465
Action Type:	ENFORCEMENT
Date:	12/30/2008
Action:	Staff Letter - #20081230
Global Id:	T0600101465
Action Type:	Other
Date:	01/01/1950
Action:	Leak Stopped
Global Id:	T0600101465
Action Type:	Other
Date:	01/01/1950
Action:	Leak Discovery
Global Id:	T0600101465
Action Type:	RESPONSE
Date:	09/22/2008
Action:	Soil and Water Investigation Workplan
Global Id:	T0600101465
Action Type:	ENFORCEMENT
Date:	06/20/2008
Action:	Staff Letter - #20080620
Global Id:	T0600101465
Action Type:	Other
Date:	01/01/1950
Action:	Leak Reported
Global Id:	T0600101465
Action Type:	RESPONSE
Date:	12/17/2009
Action:	Soil and Water Investigation Report

LUST REG 2:

Region:	2
Facility Id:	01-1590
Facility Status:	Preliminary site assessment underway
Case Number:	518
How Discovered:	Tank Closure
Leak Cause:	Structure Failure
Leak Source:	Tank
Date Leak Confirmed:	Not reported
Oversight Program:	LUST
Prelim. Site Assesment Wokplan Submitted:	Not reported
Preliminary Site Assesment Began:	12/12/1989
Pollution Characterization Began:	Not reported
Pollution Remediation Plan Submitted:	Not reported
Date Remediation Action Underway:	Not reported
Date Post Remedial Action Monitoring Began:	Not reported

UNOCAL SERVICE STATION (Continued) **S100179293**

Alameda County CS:

Status:	Leak Confirmation
Record Id:	RO0000058
PE:	5602
Status:	Preliminary Site Assessment Underway
Record Id:	RO0000058
PE:	5602
Status:	Pollution Characterization
Record Id:	RO0000058
PE:	5602

SWEEPS UST:

Status:	A
Comp Number:	21124
Number:	2
Board Of Equalization:	44-000051
Ref Date:	11-18-93
Act Date:	11-22-93
Created Date:	02-29-88
Tank Status:	A
Owner Tank Id:	6129-RU-1
Swrcb Tank Id:	01-000-021124-000001
Actv Date:	11-18-90
Capacity:	12000
Tank Use:	M.V. FUEL
Stg:	P
Content:	REG UNLEADED
Number Of Tanks:	6
Status:	A
Comp Number:	21124
Number:	2
Board Of Equalization:	44-000051
Ref Date:	11-18-93
Act Date:	11-22-93
Created Date:	02-29-88
Tank Status:	A
Owner Tank Id:	6129-SU-1
Swrcb Tank Id:	01-000-021124-000002
Actv Date:	11-18-90
Capacity:	12000
Tank Use:	M.V. FUEL
Stg:	P
Content:	PRM UNLEADED
Number Of Tanks:	Not reported
Status:	A
Comp Number:	21124
Number:	2
Board Of Equalization:	44-000051
Ref Date:	11-18-93
Act Date:	11-22-93
Created Date:	02-29-88
Tank Status:	A

UNOCAL SERVICE STATION (Continued) **S100179293**

Owner Tank Id: 6129-WO-1
Swrcb Tank Id: 01-000-021124-000003
Actv Date: 11-18-92
Capacity: 600
Tank Use: OIL
Stg: W
Content: WASTE OIL
Number Of Tanks: Not reported

Status: A
Comp Number: 21124
Number: 2
Board Of Equalization: 44-000051
Ref Date: 11-18-93
Act Date: 11-22-93
Created Date: 02-29-88
Tank Status: A
Owner Tank Id: 6129-1-1
Swrcb Tank Id: 01-000-021124-000004
Actv Date: 07-01-85
Capacity: 10000
Tank Use: M.V. FUEL
Stg: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: A
Comp Number: 21124
Number: 2
Board Of Equalization: 44-000051
Ref Date: 11-18-93
Act Date: 11-22-93
Created Date: 02-29-88
Tank Status: A
Owner Tank Id: 6129-2-1
Swrcb Tank Id: 01-000-021124-000005
Actv Date: 07-01-85
Capacity: 10000
Tank Use: M.V. FUEL
Stg: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: A
Comp Number: 21124
Number: 2
Board Of Equalization: 44-000051
Ref Date: 11-18-93
Act Date: 11-22-93
Created Date: 02-29-88
Tank Status: A
Owner Tank Id: 6129-4-1
Swrcb Tank Id: 01-000-021124-000006
Actv Date: 07-01-85
Capacity: 550
Tank Use: OIL
Stg: W

UNOCAL SERVICE STATION (Continued) **S100179293**

Content: WASTE OIL
Number Of Tanks: Not reported

Notify 65:
Date Reported: Not reported
Staff Initials: Not reported
Board File Number: Not reported
Facility Type: Not reported
Discharge Date: Not reported
Incident Description: 92626

Count: 20 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
OAKLAND	1001404270	LEONA HEIGHTS SULPHUR MINE	END OF MCDONNELL AVE NEAR	94619	CERCLIS,FINDS
PIEDMONT	1006833076	MORAGA AVE DISPOSAL SITE	CANYON NORTH OF MORAGA AVENUE	94611	FINDS
OAKLAND	1010313504	ALA COUNTY STORM WATER TRTMT SYS P	ROUTE 80	94619	RCRA-LQG
	1014915220	BRANN STREET MERCURY	6408 BRANN STREET		CERCLIS
OAKLAND	2007323873	GRAND AVE AND HARRISON STREET	GRAND AVE AND HARRISON STREET		ERNS
OAKLAND	2008898783	3431 FRUTIVALE AVE	3431 FRUTIVALE AVE		ERNS
OAKLAND	2009898783	3431 FRUTIVALE AVE	3431 FRUTIVALE AVE		ERNS
OAKLAND	2009923631	NEAR THE 50TH AVE CROSSING	NEAR THE 50TH AVE CROSSING		ERNS
OAKLAND	2010930458	CHEVERON GAS STATION 191 98 AVE	CHEVERON GAS STATION 191 98 AV		ERNS
OAKLAND	2010930999	MILE POST 12.6 85TH AVE	MILE POST 12.6 85TH AVE		ERNS
OAKLAND	2010932849	NEXT TO 791 66TH AVE OAKLAND ESTUA	NEXT TO 791 66TH AVE OAKLAND E		ERNS
OAKLAND	2010934331	UNKNOWN SHEEN INCIDENT LAKE MERRIT	UNKNOWN SHEEN INCIDENT LAKE ME		ERNS
OAKLAND	2010946571	OAKLAND ESTUARY 1295 EMBARCADERO A	OAKLAND ESTUARY 1295 EMBARCADE		ERNS
OAKLAND	8874337	SB HWY 880 S OF 23RD AVE	SB HWY 880 S OF 23RD AVE		ERNS
OAKLAND	94415628	E 7TH ST AND FRUITVALE AVE	E 7TH ST AND FRUITVALE AVE		ERNS
OAKLAND	96518842	HWY 880 SOUTH OF 10TH AVE	HWY 880 SOUTH OF 10TH AVE		ERNS
	S105256196	CAL DEPT OF TRANS - STATE RTE 4	HWY 4 CONTRA COSTA COUNTY	0	WDS
OAKLAND	S106234893	OAKLAND TERMINAL RAILWAY PROPERTY	HWY 80/HWY 580 INTERCHANGE S O		SLIC REGION 2
	S107537953		CALAVERAS RD/MI MARKER 5.70 @		CDL
OAKLAND	S108197014	AL KNOWLE	154 MORGAN AVE	94611	HAZNET

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 09/07/2011
Date Data Arrived at EDR: 10/12/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 141

Source: EPA
Telephone: N/A
Last EDR Contact: 04/05/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/07/2011
Date Data Arrived at EDR: 10/12/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 141

Source: EPA
Telephone: N/A
Last EDR Contact: 04/05/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 09/07/2011
Date Data Arrived at EDR: 10/12/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 141

Source: EPA
Telephone: N/A
Last EDR Contact: 04/05/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/27/2011
Date Data Arrived at EDR: 02/27/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 14

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 04/05/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/13/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/28/2011
Date Data Arrived at EDR: 02/27/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 14

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 04/05/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 08/19/2011
Date Data Arrived at EDR: 08/31/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 132

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 11/10/2011
Date Data Arrived at EDR: 01/05/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/04/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/10/2011
Date Data Arrived at EDR: 01/05/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/04/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 11/10/2011
Date Data Arrived at EDR: 01/05/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/04/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/10/2011
Date Data Arrived at EDR: 01/05/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/04/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/30/2011
Date Data Arrived at EDR: 12/30/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/30/2011
Date Data Arrived at EDR: 12/30/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 10/03/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/03/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites
Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 03/14/2012
Date Data Arrived at EDR: 03/15/2012
Date Made Active in Reports: 04/02/2012
Number of Days to Update: 18

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/15/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database
The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 03/14/2012
Date Data Arrived at EDR: 03/15/2012
Date Made Active in Reports: 04/02/2012
Number of Days to Update: 18

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/15/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/20/2012
Date Data Arrived at EDR: 02/20/2012
Date Made Active in Reports: 03/29/2012
Number of Days to Update: 38

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/20/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 01/20/2012
Date Data Arrived at EDR: 01/20/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 32

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/21/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004	Source: California Regional Water Quality Control Board Los Angeles Region (4)
Date Data Arrived at EDR: 09/07/2004	Telephone: 213-576-6710
Date Made Active in Reports: 10/12/2004	Last EDR Contact: 09/06/2011
Number of Days to Update: 35	Next Scheduled EDR Contact: 12/19/2011
	Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008	Source: California Regional Water Quality Control Board Central Valley Region (5)
Date Data Arrived at EDR: 07/22/2008	Telephone: 916-464-4834
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 07/01/2011
Number of Days to Update: 9	Next Scheduled EDR Contact: 10/17/2011
	Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003	Source: California Regional Water Quality Control Board Central Coast Region (3)
Date Data Arrived at EDR: 05/19/2003	Telephone: 805-542-4786
Date Made Active in Reports: 06/02/2003	Last EDR Contact: 07/18/2011
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/31/2011
	Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005	Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Date Data Arrived at EDR: 06/07/2005	Telephone: 760-241-7365
Date Made Active in Reports: 06/29/2005	Last EDR Contact: 09/12/2011
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001	Source: California Regional Water Quality Control Board North Coast (1)
Date Data Arrived at EDR: 02/28/2001	Telephone: 707-570-3769
Date Made Active in Reports: 03/29/2001	Last EDR Contact: 08/01/2011
Number of Days to Update: 29	Next Scheduled EDR Contact: 11/14/2011
	Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005	Source: California Regional Water Quality Control Board Santa Ana Region (8)
Date Data Arrived at EDR: 02/15/2005	Telephone: 909-782-4496
Date Made Active in Reports: 03/28/2005	Last EDR Contact: 08/15/2011
Number of Days to Update: 41	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 01/20/2012
Date Data Arrived at EDR: 01/20/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 32

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/21/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 12/14/2011
Date Data Arrived at EDR: 12/15/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 26

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Semi-Annually

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/07/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/03/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 11/01/2011
Date Data Arrived at EDR: 11/21/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 50

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 25

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 01/20/2012
Date Data Arrived at EDR: 01/20/2012
Date Made Active in Reports: 02/22/2012
Number of Days to Update: 33

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 03/21/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 01/23/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/03/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/01/2011
Date Data Arrived at EDR: 11/21/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 50

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/28/2011	Source: EPA Region 9
Date Data Arrived at EDR: 11/29/2011	Telephone: 415-972-3368
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 42	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/18/2011	Source: EPA Region 8
Date Data Arrived at EDR: 08/19/2011	Telephone: 303-312-6137
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 12/14/2011	Source: EPA Region 4
Date Data Arrived at EDR: 12/15/2011	Telephone: 404-562-9424
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 26	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 07/01/2011	Source: EPA Region 5
Date Data Arrived at EDR: 08/26/2011	Telephone: 312-886-6136
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 18	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 01/16/2012
Number of Days to Update: 55	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 03/14/2012	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 03/15/2012	Telephone: 916-323-3400
Date Made Active in Reports: 04/02/2012	Last EDR Contact: 03/15/2012
Number of Days to Update: 18	Next Scheduled EDR Contact: 05/21/2012
	Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 08/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/03/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/27/2011
Date Data Arrived at EDR: 06/27/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 04/03/2012
Next Scheduled EDR Contact: 07/09/2012
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 03/26/2012
Next Scheduled EDR Contact: 07/09/2012
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 12/12/2011
Date Data Arrived at EDR: 12/19/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 31

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/21/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 01/20/2012
Date Data Arrived at EDR: 01/24/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 28

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 04/02/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/06/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 10/07/2011
Date Data Arrived at EDR: 12/09/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 32

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/06/2012
Next Scheduled EDR Contact: 06/18/2012
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 03/14/2012
Date Data Arrived at EDR: 03/15/2012
Date Made Active in Reports: 04/02/2012
Number of Days to Update: 18

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/15/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/14/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 04/02/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 12/05/2012
Next Scheduled EDR Contact: 06/18/2012
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 09/09/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

LUCIS: Land Use Control Information System
LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 04/03/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Varies

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 03/12/2012
Date Data Arrived at EDR: 03/13/2012
Date Made Active in Reports: 04/02/2012
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/12/2012
Date Data Arrived at EDR: 03/13/2012
Date Made Active in Reports: 04/02/2012
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/13/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/03/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 05/03/2011
Date Made Active in Reports: 06/15/2011
Number of Days to Update: 43

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 01/20/2012
Date Data Arrived at EDR: 01/20/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 32

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/21/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 01/20/2012
Date Data Arrived at EDR: 01/20/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 32

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/21/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Quarterly

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 11/10/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/05/2012	Telephone: (415) 495-8895
Date Made Active in Reports: 03/12/2012	Last EDR Contact: 04/04/2012
Number of Days to Update: 67	Next Scheduled EDR Contact: 07/16/2012
	Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/29/2011	Source: Department of Transporation, Office of Pipeline Safety
Date Data Arrived at EDR: 08/09/2011	Telephone: 202-366-4595
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 02/07/2012
Number of Days to Update: 94	Next Scheduled EDR Contact: 05/21/2012
	Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 01/20/2012
Number of Days to Update: 62	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 08/12/2010	Telephone: 202-528-4285
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 03/12/2012
Number of Days to Update: 112	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/01/2011	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 01/25/2012	Telephone: Varies
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 04/02/2012
Number of Days to Update: 36	Next Scheduled EDR Contact: 07/16/2012
	Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/28/2011	Source: EPA
Date Data Arrived at EDR: 12/14/2011	Telephone: 703-416-0223
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 03/14/2012
Number of Days to Update: 27	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/28/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Varies

MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 09/08/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 21

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/07/2012
Next Scheduled EDR Contact: 06/18/2012
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 09/01/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 131

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/28/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/28/2012
Next Scheduled EDR Contact: 07/09/2012
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/27/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/27/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 03/26/2012
Next Scheduled EDR Contact: 07/09/2012
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 07/15/2011	Telephone: 301-415-7169
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 03/12/2012
Number of Days to Update: 60	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/10/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/12/2012	Telephone: 202-343-9775
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 01/12/2012
Number of Days to Update: 49	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/23/2011	Source: EPA
Date Data Arrived at EDR: 12/13/2011	Telephone: (415) 947-8000
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 03/13/2012
Number of Days to Update: 79	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009	Source: EPA/NTIS
Date Data Arrived at EDR: 03/01/2011	Telephone: 800-424-9346
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 02/27/2012
Number of Days to Update: 62	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 02/20/2012	Source: State Water Resources Control Board
Date Data Arrived at EDR: 02/20/2012	Telephone: 916-445-9379
Date Made Active in Reports: 03/29/2012	Last EDR Contact: 02/20/2012
Number of Days to Update: 38	Next Scheduled EDR Contact: 06/04/2012
	Data Release Frequency: Quarterly

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/20/2007	Telephone: 916-341-5227
Date Made Active in Reports: 06/29/2007	Last EDR Contact: 02/27/2012
Number of Days to Update: 9	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 01/03/2012	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 01/03/2012	Telephone: 916-323-3400
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 04/03/2012
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/16/2012
	Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/22/2009	Telephone: 916-323-3400
Date Made Active in Reports: 04/08/2009	Last EDR Contact: 01/22/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993	Source: State Water Resources Control Board
Date Data Arrived at EDR: 11/01/1993	Telephone: 916-445-3846
Date Made Active in Reports: 11/19/1993	Last EDR Contact: 03/26/2012
Number of Days to Update: 18	Next Scheduled EDR Contact: 07/09/2012
	Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 01/19/2012
Date Data Arrived at EDR: 01/19/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 33

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 04/02/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 08/15/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 10/03/2011
Number of Days to Update: 41

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/20/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 07/19/2011
Date Made Active in Reports: 08/16/2011
Number of Days to Update: 28

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 10/18/2010
Number of Days to Update: 19

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/30/2012
Next Scheduled EDR Contact: 07/09/2012
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/06/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: N/A

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/22/2012
Date Data Arrived at EDR: 02/24/2012
Date Made Active in Reports: 04/04/2012
Number of Days to Update: 40

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/20/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 06/01/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 28

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 02/03/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 02/03/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/16/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/18/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Varies

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/09/2010
Date Data Arrived at EDR: 08/11/2010
Date Made Active in Reports: 08/20/2010
Number of Days to Update: 9

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/02/2011
Next Scheduled EDR Contact: 03/12/2012
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/18/2012
Date Data Arrived at EDR: 01/18/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/18/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/12/2011
Date Data Arrived at EDR: 12/19/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 31

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/21/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 02/24/2012
Date Data Arrived at EDR: 03/13/2012
Date Made Active in Reports: 04/02/2012
Number of Days to Update: 20

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/12/2012
Date Data Arrived at EDR: 01/13/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 39

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/02/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/12/2012
Date Data Arrived at EDR: 01/13/2012
Date Made Active in Reports: 02/24/2012
Number of Days to Update: 42

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/02/2012
Next Scheduled EDR Contact: 07/16/2012
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/28/2011
Date Data Arrived at EDR: 11/29/2011
Date Made Active in Reports: 12/13/2011
Number of Days to Update: 14

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 02/07/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 03/16/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/26/2012
Next Scheduled EDR Contact: 07/09/2012
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 09/29/2011
Date Data Arrived at EDR: 12/15/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 35

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 10/17/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/23/2012
Date Data Arrived at EDR: 01/24/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 28

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/24/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 11/17/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 12/29/2011	Source: Community Health Services
Date Data Arrived at EDR: 02/02/2012	Telephone: 323-890-7806
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 01/23/2012
Number of Days to Update: 19	Next Scheduled EDR Contact: 05/07/2012
	Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/23/2012	Source: City of El Segundo Fire Department
Date Data Arrived at EDR: 01/25/2012	Telephone: 310-524-2236
Date Made Active in Reports: 02/22/2012	Last EDR Contact: 01/23/2012
Number of Days to Update: 28	Next Scheduled EDR Contact: 04/06/2012
	Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003	Source: City of Long Beach Fire Department
Date Data Arrived at EDR: 10/23/2003	Telephone: 562-570-2563
Date Made Active in Reports: 11/26/2003	Last EDR Contact: 03/05/2012
Number of Days to Update: 34	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/16/2012	Source: City of Torrance Fire Department
Date Data Arrived at EDR: 01/18/2012	Telephone: 310-618-2973
Date Made Active in Reports: 02/22/2012	Last EDR Contact: 01/16/2012
Number of Days to Update: 35	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 01/13/2012	Source: Public Works Department Waste Management
Date Data Arrived at EDR: 01/24/2012	Telephone: 415-499-6647
Date Made Active in Reports: 02/22/2012	Last EDR Contact: 01/09/2012
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011	Source: Napa County Department of Environmental Management
Date Data Arrived at EDR: 12/06/2011	Telephone: 707-253-4269
Date Made Active in Reports: 02/07/2012	Last EDR Contact: 03/05/2012
Number of Days to Update: 63	Next Scheduled EDR Contact: 06/18/2012
	Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 12/05/2012
Next Scheduled EDR Contact: 06/18/2012
Data Release Frequency: No Update Planned

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 02/01/2012
Date Data Arrived at EDR: 02/17/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 4

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/01/2012
Date Data Arrived at EDR: 02/17/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 4

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/01/2012
Date Data Arrived at EDR: 02/17/2012
Date Made Active in Reports: 04/03/2012
Number of Days to Update: 46

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/19/2012
Date Data Arrived at EDR: 03/19/2012
Date Made Active in Reports: 04/04/2012
Number of Days to Update: 16

Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/18/2012
Date Data Arrived at EDR: 01/26/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 26

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/21/2011
Next Scheduled EDR Contact: 04/09/2012
Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 01/18/2012	Source: Department of Environmental Health
Date Data Arrived at EDR: 01/26/2012	Telephone: 951-358-5055
Date Made Active in Reports: 02/24/2012	Last EDR Contact: 12/21/2011
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/26/2012
	Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/02/2011	Source: Sacramento County Environmental Management
Date Data Arrived at EDR: 10/12/2011	Telephone: 916-875-8406
Date Made Active in Reports: 11/08/2011	Last EDR Contact: 01/13/2012
Number of Days to Update: 27	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/02/2011	Source: Sacramento County Environmental Management
Date Data Arrived at EDR: 10/14/2011	Telephone: 916-875-8406
Date Made Active in Reports: 11/08/2011	Last EDR Contact: 01/13/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 03/01/2012	Source: San Bernardino County Fire Department Hazardous Materials Division
Date Data Arrived at EDR: 03/01/2012	Telephone: 909-387-3041
Date Made Active in Reports: 03/27/2012	Last EDR Contact: 02/13/2012
Number of Days to Update: 26	Next Scheduled EDR Contact: 05/28/2012
	Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/09/2010	Source: Hazardous Materials Management Division
Date Data Arrived at EDR: 09/15/2010	Telephone: 619-338-2268
Date Made Active in Reports: 09/29/2010	Last EDR Contact: 03/16/2012
Number of Days to Update: 14	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 12/13/2011
Number of Days to Update: 39

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 01/18/2012
Date Data Arrived at EDR: 01/18/2012
Date Made Active in Reports: 02/22/2012
Number of Days to Update: 35

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/26/2012
Next Scheduled EDR Contact: 07/09/2012
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 01/17/2012
Date Data Arrived at EDR: 01/17/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 35

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/19/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/15/2011
Date Data Arrived at EDR: 12/15/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 35

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/19/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/05/2012
Date Data Arrived at EDR: 03/07/2012
Date Made Active in Reports: 03/27/2012
Number of Days to Update: 20

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 03/05/2012
Next Scheduled EDR Contact: 06/18/2012
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/16/2012
Date Data Arrived at EDR: 02/17/2012
Date Made Active in Reports: 02/21/2012
Number of Days to Update: 4

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 12/19/2011
Date Data Arrived at EDR: 01/06/2012
Date Made Active in Reports: 01/27/2012
Number of Days to Update: 21

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/19/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 12/19/2011
Date Data Arrived at EDR: 01/17/2012
Date Made Active in Reports: 02/24/2012
Number of Days to Update: 38

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/19/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/05/2011	Source: Department of Health Services
Date Data Arrived at EDR: 04/06/2011	Telephone: 707-565-6565
Date Made Active in Reports: 05/12/2011	Last EDR Contact: 04/02/2012
Number of Days to Update: 36	Next Scheduled EDR Contact: 07/16/2012
	Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 03/12/2012	Source: Sutter County Department of Agriculture
Date Data Arrived at EDR: 03/13/2012	Telephone: 530-822-7500
Date Made Active in Reports: 04/03/2012	Last EDR Contact: 03/12/2012
Number of Days to Update: 21	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 02/03/2012	Source: Ventura County Environmental Health Division
Date Data Arrived at EDR: 02/22/2012	Telephone: 805-654-2813
Date Made Active in Reports: 03/29/2012	Last EDR Contact: 02/20/2012
Number of Days to Update: 36	Next Scheduled EDR Contact: 06/04/2012
	Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011	Source: Environmental Health Division
Date Data Arrived at EDR: 12/01/2011	Telephone: 805-654-2813
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 01/09/2012
Number of Days to Update: 49	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008	Source: Environmental Health Division
Date Data Arrived at EDR: 06/24/2008	Telephone: 805-654-2813
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 02/20/2012
Number of Days to Update: 37	Next Scheduled EDR Contact: 06/04/2012
	Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/27/2011	Source: Ventura County Resource Management Agency
Date Data Arrived at EDR: 02/03/2012	Telephone: 805-654-2813
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 18	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/19/2011
Date Made Active in Reports: 01/17/2012
Number of Days to Update: 29

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/21/2012
Next Scheduled EDR Contact: 07/02/2012
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/28/2011
Date Data Arrived at EDR: 01/06/2012
Date Made Active in Reports: 01/17/2012
Number of Days to Update: 11

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/26/2012
Next Scheduled EDR Contact: 07/09/2012
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 02/20/2012
Date Data Arrived at EDR: 02/20/2012
Date Made Active in Reports: 03/15/2012
Number of Days to Update: 24

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/20/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 07/20/2011
Date Made Active in Reports: 08/11/2011
Number of Days to Update: 22

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/10/2012
Date Data Arrived at EDR: 02/09/2012
Date Made Active in Reports: 03/09/2012
Number of Days to Update: 29

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/09/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2009	Source: Department of Environmental Protection
Date Data Arrived at EDR: 01/26/2012	Telephone: 717-783-8990
Date Made Active in Reports: 03/06/2012	Last EDR Contact: 01/23/2012
Number of Days to Update: 40	Next Scheduled EDR Contact: 05/07/2012
	Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2010	Source: Department of Environmental Management
Date Data Arrived at EDR: 06/24/2011	Telephone: 401-222-2797
Date Made Active in Reports: 06/30/2011	Last EDR Contact: 02/27/2012
Number of Days to Update: 6	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2010	Source: Department of Natural Resources
Date Data Arrived at EDR: 08/19/2011	Telephone: N/A
Date Made Active in Reports: 09/15/2011	Last EDR Contact: 03/19/2012
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/02/2012
	Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

4368 LINCOLN AVE.
4368 LINCOLN AVE.
OAKLAND, CA 94602

TARGET PROPERTY COORDINATES

Latitude (North):	37.8084 - 37° 48' 30.24"
Longitude (West):	122.2026 - 122° 12' 9.36"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	570193.7
UTM Y (Meters):	4184651.2
Elevation:	498 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	37122-G2 OAKLAND EAST, CA
Most Recent Revision:	1980

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

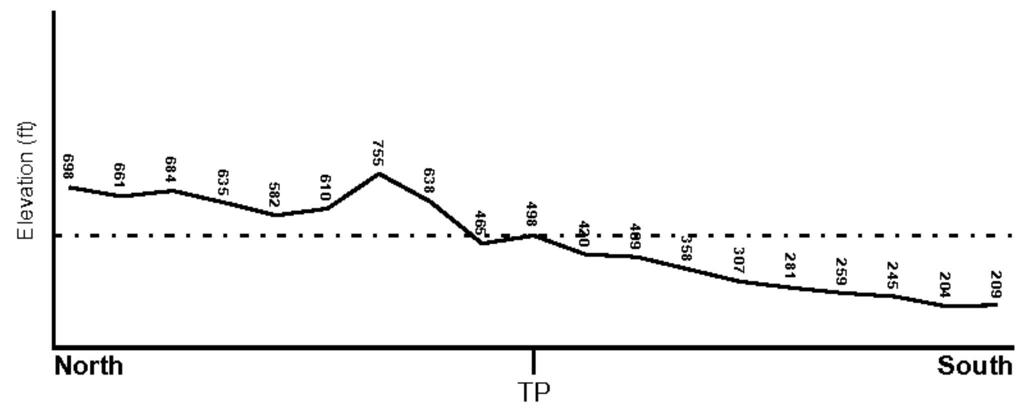
TOPOGRAPHIC INFORMATION

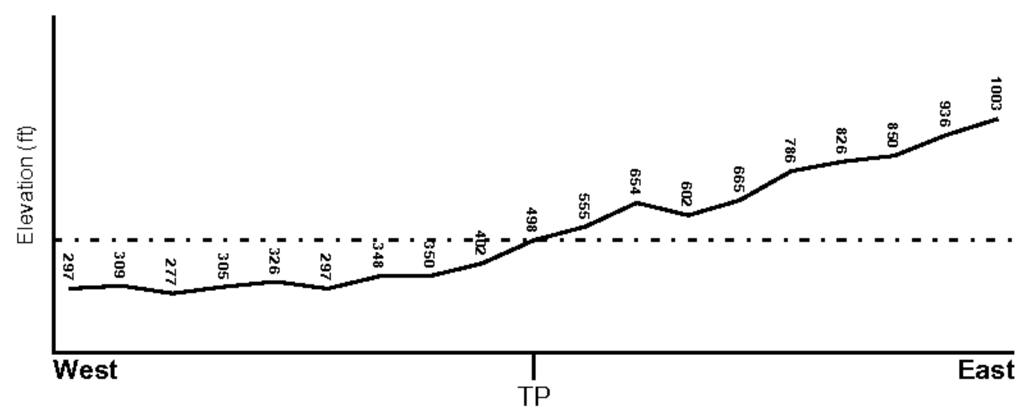
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

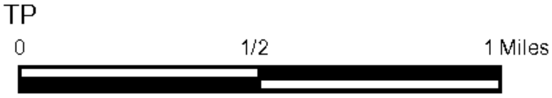
General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 498 ft.



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
ALAMEDA, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06001C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
OAKLAND EAST	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data**:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
1	1/4 - 1/2 Mile NE	Varies
3	1/2 - 1 Mile West	Varies

For additional site information, refer to Physical Setting Source Map Findings.

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

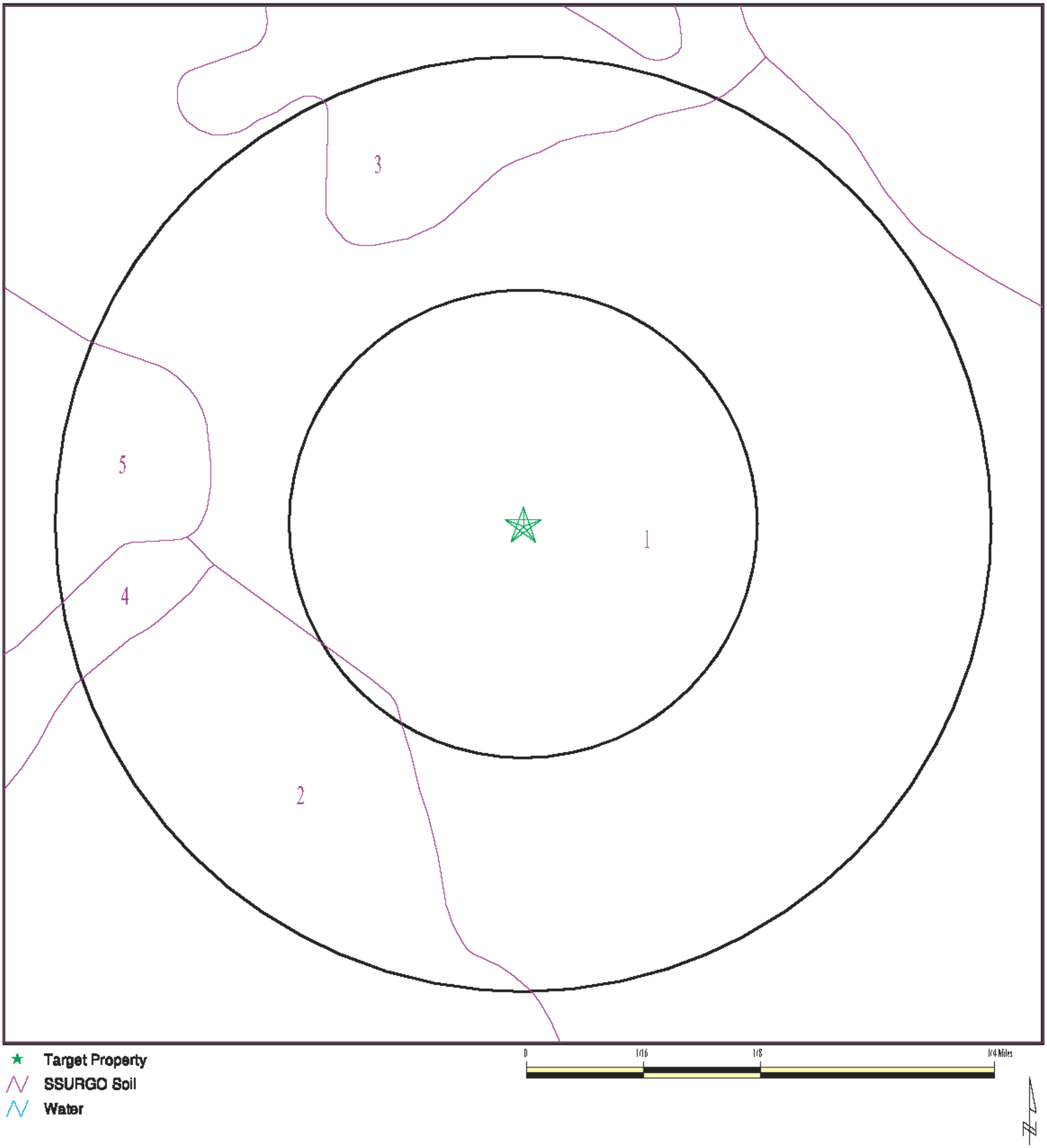
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3297903.2s



SITE NAME:	4368 Lincoln Ave.	CLIENT:	PES Environmental, Inc.
ADDRESS:	4368 Lincoln Ave. Oakland CA 94602	CONTACT:	Julie Turnross
		INQUIRY #:	3297903.2s
LAT/LONG:	37.8084 / 122.2026	DATE:	April 06, 2012 1:22 pm

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Xerorthents

Soil Surface Texture: silt loam

Hydrologic Group: Not reported

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 51 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 5.6

Soil Map ID: 2

Soil Component Name: Tierra

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 5.6
2	11 inches	31 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 5.6
3	31 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 5.6

Soil Map ID: 3

Soil Component Name: Maymen

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 48 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0 Min: 0	Max: Min:
2	18 inches	22 inches	unweathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0 Min: 0	Max: Min:

Soil Map ID: 4

Soil Component Name: Tierra

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 5.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	11 inches	31 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 5.6
3	31 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 5.6

Soil Map ID: 5

Soil Component Name: Xerorthents

Soil Surface Texture: material

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	material	Not reported	Not reported	Max: Min:	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

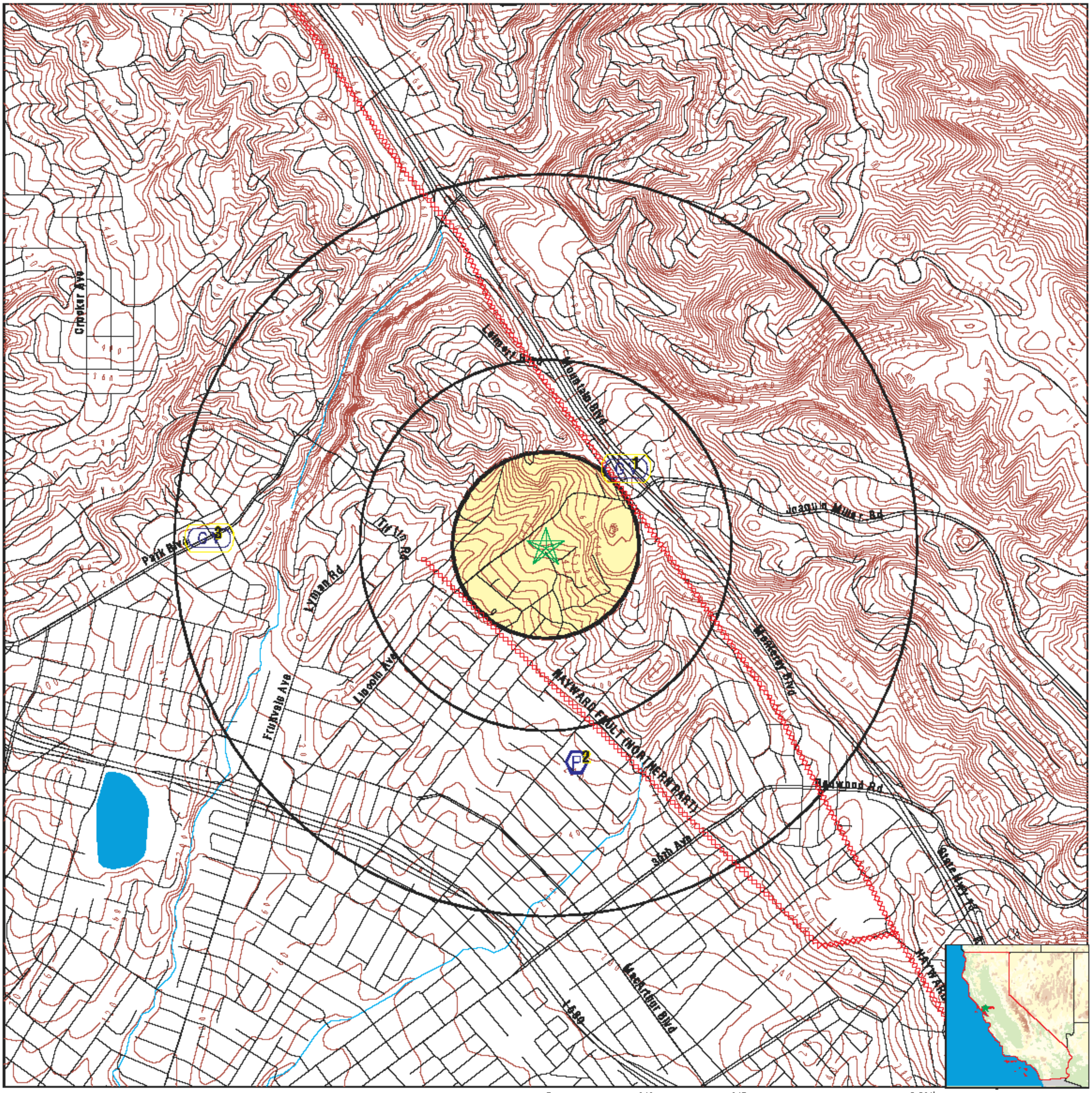
MAP ID	WELL ID	LOCATION FROM TP
2	CA4800555	1/2 - 1 Mile South

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 3297903.2s



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Closest Hydrogeological Data
Oil, gas or related wells

SITE NAME:	4368 Lincoln Ave.	CLIENT:	PES Environmental, Inc.
ADDRESS:	4368 Lincoln Ave. Oakland CA 94602	CONTACT:	Julie Turnross
		INQUIRY #:	3297903.2s
LAT/LONG:	37.8084 / 122.2026	DATE:	April 06, 2012 1:22 pm

Map ID Direction Distance Elevation			Database	EDR ID Number
1 **NE** **1/4 - 1/2 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	01-0098 Varies 4.01 22.11 Not Reported 02/27/1997	**AQUIFLOW**	**64084**
2 **South** **1/2 - 1 Mile** **Lower**			**FRDS PWS**	**CA4800555**

PWS ID:	CA4800555		
Date Initiated:	Not Reported	Date Deactivated:	Not Reported
PWS Name:	RIVERBANK MOBILE HOME RIO VISTA, CA 94571		
Addressee / Facility:	System Owner/Responsible Party TJOMAS SCHULTE P O BOX 603 PALO ALTO, CA 94306		
Facility Latitude:	37 48 00	Facility Longitude:	122 12 00
City Served:	Not Reported		
Treatment Class:	Untreated	Population:	52

Violations information not reported.

ENFORCEMENT INFORMATION:

System Name:	RIVERBANK MOBILE HOME		
Violation Type:	MCL, Monthly (TCR)		
Contaminant	COLIFORM (TCR)		
Compliance Period:	1994-09-01 - 1994-09-30		
Violation ID:	9404001		
Enforcement Date:	1994-09-29	Enf. Action:	State Violation/Reminder Notice

System Name:	RIVERBANK MOBILE HOME		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant	LEAD & COPPER RULE		
Compliance Period:	1993-07-01 - 2000-04-04		
Violation ID:	95V0001		
Enforcement Date:	2000-04-04	Enf. Action:	State Compliance Achieved

System Name:	RIVERBANK MOBILE HOME		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant	LEAD & COPPER RULE		
Compliance Period:	1993-07-01 - 2000-04-04		
Violation ID:	95V0001		
Enforcement Date:	2000-04-04	Enf. Action:	State Compliance Achieved

System Name:	RIVERBANK MOBILE HOME		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant	LEAD & COPPER RULE		
Compliance Period:	1993-07-01 - 2015-12-31		
Violation ID:	95V0001		
Enforcement Date:	Not Reported	Enf. Action:	Not Reported

ENFORCEMENT INFORMATION:

System Name:	RIVERBANK MOBILE HOME		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant	LEAD & COPPER RULE		
Compliance Period:	7/1/1993 0:00:00 - 4/4/2000 0:00:00		
Violation ID:	95V0001		
Enforcement Date:	4/4/2000 0:00:00	Enf. Action:	State Compliance Achieved

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3 **West** **1/2 - 1 Mile** **Lower**	Site ID:	01-0145	
	Groundwater Flow:	Varies	**AQUIFLOW 51881**
	Shallow Water Depth:	Not Reported	
	Deep Water Depth:	Not Reported	
	Average Water Depth:	20 ft	
	Date:	09/09/1991	

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94602	23	0

Federal EPA Radon Zone for ALAMEDA County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 94602

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.000 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

APPENDIX G

RESUMES OF ENVIRONMENTAL PROFESSIONALS

JULIE TURNROSS

Senior Hydrogeologist

Ms. Turnross has over 26 years experience serving in technical and management capacities on a variety of projects in the areas of groundwater hydrogeology and geophysics. Her projects have included Phase I environmental site assessments, remedial investigations, feasibility studies, risk characterizations, and implementation of remedial alternatives at RCRA, CERCLA, and other facilities with soil, groundwater, surface water, and air contamination. Contaminants of concern have included organic solvents, petroleum hydrocarbons, metals, and explosives.

Ms. Turnross has provided litigation support and peer review for a wide variety of cases, and has served as an expert witness. She has also worked extensively with regulatory agencies throughout California and the west coast.

EDUCATION

University of California, Berkeley: M.S., Engineering Geoscience, 1984
University of Arizona, Tucson: B.S., Geoscience, 1982

EXPERIENCE

2005 – present	PES Environmental, Inc., Novato, California
1995 - present	JTEC Environmental, Sebastopol, California
1991 - 1995	Treadwell and Rollo, San Francisco, California
1984 - 1991	Harding Lawson Associates, Novato, California
1982 - 1984	U.S. Geological Survey, Denver, Colorado & Berkeley, California
1983	Laurence Berkeley Laboratory, Berkeley, California
1981	ARCO Exploration Company, Lafayette, Louisiana

REGISTRATION

California Registered Environmental Assessor No. 7862

REPRESENTATIVE PROJECTS

Naval Air Station: Performed review of remedial investigation, risk characterization, remedial alternative selection, remediation, and remediation verification for a Naval facility. Contaminants of concern included ordnance, solvents, metals, and petroleum hydrocarbons.

Litigation Support: Provided peer review of soil and groundwater investigation and remediation in support of lawsuit resulting from incomplete site cleanup. Analyzed investigation design and procedures, remedial alternative evaluation, cleanup methods, and confirmation testing.

Phase I Environmental Site Assessments: Performed or reviewed over 250 Phase I Environmental Site Assessments using ASTM standards. Clients have included lending institutions, real estate developers, insurance companies, law firms, and property owners. Properties assessed have included manufacturing facilities, office buildings, industrial sites, residential properties, and shopping centers.

Navy Shipyard: Provided technical review of Navy investigation and remedial activities and support for developer of former Navy shipyard. Site contaminants included metals, solvents, PCBs, and radiological material. Remediation included innovative technologies and implementation of land use controls.

Explosives Manufacturing Facility: Project manager for demolition of former explosives manufacturing facility, soil and groundwater investigation, and preparation of remedial investigation report. Project included development of facility use history, preparation of bid specifications, and coordination and documentation of demolition, and hazardous waste identification and disposal process.

Semiconductor Facility: Project manager for remedial investigation and feasibility study at CERCLA facility in Mountain View, California. Investigations included soil gas surveys, geophysical surveys, and soil, groundwater, and air sampling. Soil vapor extraction and groundwater extraction and treatment were used as interim remedial measures. Monitored effectiveness of 100-foot-deep, 3400-foot-perimeter slurry wall to be used to isolate contaminant source to allow dewatering and subsequent remediation by soil vapor extraction.

Chemical Facility: Project manager for remedial field investigation and corrective measures study for highly contaminated RCRA facility in Oregon. Contamination included presence of numerous free-phase and dissolved chemicals. Investigation included soil gas survey, soil borings, monitoring well installations, and air monitoring. Part of the investigation was conducted in Level B protection.

Geothermal Investigation: Performed integrated analysis of geophysical, hydrogeologic, and geologic data to develop conceptual model for geothermal basin. Designed geophysical field program using prototype equipment to evaluate geothermal reserve.

Water Supply Study: Provided water supply evaluation for proposed 300-family development with golf course and conference facility. Project included investigation of groundwater resources and water quality, and aquifer testing.

Oil Refinery: Served as technical advisor for remedial investigation and cleanup at oil refinery in southern California. Tasks included aquifer testing, investigating potential of supplying water supply well, estimating effects of saltwater intrusion on contaminant movement, and designing groundwater extraction system.

Groundwater Flow Modeling: Used three-dimensional finite-difference groundwater flow model to optimize groundwater extraction well locations and to evaluate extraction system efficiency at electronics facility in Santa Clara, California. The site was comprised of multiple discontinuous aquifers with considerable variances in thickness and hydraulic conductivity.

WILLIAM W. MAST, P.G.

Associate Engineer

Mr. Mast is a hydrogeologist/civil engineer with 24 years of experience in soil and groundwater investigations and remediation, and hazardous and solid waste management. He has been the task manager responsible for development, implementing, and reporting the results of site investigations and Remedial Investigations. He has a wide variety of experience on private and government sites including federal Superfund sites, municipal landfills, litigation support, underground storage tanks, and preliminary site assessments. He specializes in the characterization and management of complex soil and groundwater quality problems, remedial site investigations, evaluation of soil gas, soil, and groundwater data, and data management.

EDUCATION

M.S., Civil Engineering, Colorado State University, Fort Collins, Colorado, 1988.

B.A., Geology, Carleton College, Northfield, Minnesota, 1981.

SAFETY TRAINING

Health and Safety training courses following EPA and OSHA requirements. Courses included training in physical, chemical, and toxicological properties of hazardous materials; hazard evaluation and control; selection and use of personal protective equipment; sampling and monitoring techniques and equipment; site entrance and decontamination procedures; and safety plan development. Has completed an 8-hour hazardous materials supervisory course.

EXPERIENCE

1996 - Present:	PES Environmental, Inc., Novato, California
1989 - 1996:	Harding Lawson Associates, Novato, California
1987 - 1988:	National Park Service, Water Resources Division, Fort Collins, Colorado
1984 - 1986:	Darwin Myers Associates, Martinez, California
1983 - 1984:	U.S. Geological Survey, Water Resources Division, Vancouver, Washington

REGISTRATION

Professional Geologist - California 1993, No. 5647

Engineer In Training - California 1990, No. XE079299

REPRESENTATIVE PROJECTS

Site Investigations – Arizona, California, Colorado, Connecticut, Delaware, Illinois, Maryland, Minnesota, Nevada, New Jersey, North Carolina, Oregon, Pennsylvania, South Carolina, Texas, Utah, Virginia, Washington D.C., Washington, and Wisconsin: Conducted Phase I ESAs and Phase II Subsurface Investigations at more than 300 commercial properties as part of due diligence for property transactions. These properties included retail/commercial shopping centers, high-rise office buildings, agricultural, multi-family residential sites, and brownfields redevelopment projects. Tasks completed include historical property and surrounding site use research, site and offsite inspections, review of other consultants' reports, regulatory agency file review, assessment of hazardous materials/ hazardous waste handling practices, interviews, soil, soil gas, and groundwater sampling, and report preparation. Provided opinions in support of addressing environmental aspects of the business transactions including environmental indemnity agreements, environmental insurance, and cost recovery. Estimated future investigation and/or remediation costs to assist client with negotiating environmental offsets and escrow accounts. Oversaw asbestos and indoor air quality sampling at various sites. Environmental issues discovered at some of these sites included onsite chlorinated solvent contamination from dry-cleaning facilities or other industrial processes, petroleum hydrocarbon contamination from fueling facilities, residual pesticides in soil, and groundwater contamination resulting from offsite sources. Clients: Confidential Real Estate Investment Trusts and Developers

Investigation and Remediation of Former Paper Mills, Antioch, California – Project Manager for investigation and remediation of soil and groundwater impacted with chlorinated hydrocarbons, petroleum hydrocarbons, metals, PCBs, and dioxins from operations and demolition activities at former paperboard manufacturing facilities. Managed remedial investigations, preparation of Remedial Action Workplans for soil and groundwater remediation, and oversaw implementation of soil remediation projects totaling 19,400 tons, and groundwater remediation using injection of permanganate for in-situ chemical oxidation treatment of chlorinated hydrocarbons. Responsible for managing ongoing monitoring activities, as well as interfacing with regulatory agencies. Client: Confidential

Investigation and Remediation of Volatile Organic Compounds, San Leandro, California – Project Manager for investigation and remediation of soil and groundwater impacted with chlorinated hydrocarbons from former dry-cleaning operations at a 25-acre retail shopping center. Managed preparation of Remedial Action Plan, and oversaw implementation consisting of excavating 1,500 cubic yards of soil inside occupied building and treatment of groundwater with HRC® injection. Responsible for managing ongoing monitoring activities, as well as interfacing with regulatory agencies. Client: Confidential

Lead and petroleum hydrocarbon contamination in soil, Oakland, California – Project manager for the implementation of a Remedial Action Workplan to remove soil affected with lead, petroleum hydrocarbons, and PCBs at a former truck dismantling yard. Acted as site engineer on behalf of client to direct remediation contractor to excavate and dispose approximately 3,000 tons of soil so site could be redeveloped for residential use. Client: East Bay Habitat For Humanity.

Hydrogeologic Evaluations, Healdsburg, California - Task manager and technical consultant for implementation of hydrogeologic evaluations at three properties along the middle reach of the Russian River (Westside Farms, Lazy "W" Ranch and the former Kaiser Sand & Gravel Company quarry). Responsibilities included: coordinating planning activities on behalf of client with property owners; installation of observation wells, minipiezometers, test wells, and staff gauges; and performed infiltration testing to assess river/aquifer interaction. The results of these studies were used to assist evaluation of various diversion facilities alternatives to meet projected future water-supply demands. Client: Sonoma County Water Agency

Pesticide contamination in soil capping project, Richmond, California - Task manager for implementation of upland capping project at EPA-led Superfund site. Coordinated subcontractors, negotiated cleanup protocol with EPA, and oversaw project performance standards. Planned and implemented remedial actions involving construction of temporary waste piles, installing synthetic membranes and concrete cap, and removing and transporting contaminated soils and debris. Client: Levin Richmond Terminal Corporation

Interim Remedial Measures, Van Nuys, California - Project manager for soil remediation program performed at former can manufacturing facility. Prepared and implemented work plan consisting of excavating approximately 800 cubic yards of material adjacent to active warehouse structure. Coordinated project review and approval by geotechnical and structural engineers, property owner, and regulatory agencies. Client: Crown Cork & Seal

Lead and petroleum hydrocarbon contamination in soil, Richmond, California – Task manager for the implementation of a Remedial Action Workplan for the removal of lead-bearing soil at a former railyard/shipyard support area and on-site containment of removed soils beneath buildings and parking lots. Coordinated remediation with contractor to relocate approximately 30,000 cubic yards of lead-bearing soil and dispose of 300 cubic yards of soil with lead in excess of remediation goals. Managed geophysical survey and subsequent anomaly investigation, removed an underground storage tank, and destroyed monitoring wells to prepare for soil relocation program. Client: Confidential

Risk evaluation, remediation oversight, and site closure at a petroleum hydrocarbon release - Provided construction oversight during placement of bioremediated fill, performed confirmation soil sampling to document final conditions, and implemented monitoring well destruction to achieve regulatory case closure for the site. Client: Berglund Family Vineyards

Soil and storm drain remediation, Simi Valley, California – After a Phase I/Phase II investigation indicated a PCE release at a dry cleaner, prepared a remediation workplan and negotiated with regulatory agency to gain approval of the workplan. Removed PCE-affected sediment and water from storm drain system, and excavated 80 cubic yards of PCE-affected soil for offsite disposal. Performed confirmation soil and groundwater sampling, and modeled results to demonstrate no significant impact to human health or the environment. Gained regulatory case closure with no continued monitoring required. Client: Confidential

Groundwater monitoring and risk management program, Oakland, California - Project manager responsible for developing and implementing a groundwater investigation and risk management program at a former dry cleaner. Demonstrated that an innovative risk-based approach to volatile organic compounds in groundwater was an acceptable alternative to traditional pump-and-treat. Acted as primary contact with regulatory agencies to gain their support for the technical approach. Currently overseeing quarterly groundwater monitoring program. Client: Confidential

Remedial investigation (RI), Federal Superfund Site, Hunters Point Shipyard, San Francisco, California - Task manager for site inspection (SI) and RI programs. Managed multidisciplinary team investigating complex soil and groundwater contamination. Developed data presentation techniques to assist project review by regulatory agencies. Participated in agency technical presentations and community information meetings. Prepared SI report and portions of RI/FS report for Parcel B. Evaluated former oil recovery ponds (IR-3) with regard to migration of free-phase oil present at water table to San Francisco Bay. Supervised investigations of 17 sites including storm drains, sanitary sewers, steamlines, fuel lines, underground storage tanks, solvent sumps, storage yards, transformers, and industrial buildings. Supervised steamline and storm drain video surveys and inspections. Monitored progress and quality of work performed by Contract Laboratory Program (CLP) laboratories. Client: PRC Environmental Management and U.S. Navy, Engineering Field Activity West

Natural gas distribution system, Central Valley, California - Assisted in development of an approach to investigate and remediate gas gathering and distribution facilities where releases of solvents and natural gasoline had potentially occurred. Prepared preliminary cost estimates to implement investigation and remediation by ranking approximately 70 sites based on age of facility, historical operations, and equipment. Client: Pacific Gas & Electric

Municipal Landfills, California - Task manager for investigating and evaluating inactive sanitary landfills in regard to generation and migration of leachate and methane, assessing potential impact of landfill on future development, solid waste assessment test reporting, and implementation of quarterly surface water and groundwater reporting. Clients: City of Alameda; City of Burlingame; U.S. Army Corps of Engineers, Fort Hunter Liggett

Remedial Investigation (RI), Superfund Site, Santa Clara, California - Project manager responsible for offsite groundwater characterization to evaluate presence and direction of migration of dissolved organic solvents from point sources. Implemented quarterly groundwater monitoring program and assisted in preparation of RI report. Client: National Semiconductor

MEMBERSHIPS

California Groundwater Association
Association of Ground Water Scientists and Engineers

TRAINING

Characterization and Remediation of Dense, Immiscible Phase Liquid Contaminants (DNAPLs) in Porous and Fractured Media. Waterloo Centre for Groundwater Research, 1992.

Municipal Landfills and Groundwater Quality. University of California, Berkeley - Extension, 1992.

OSHA 40-Hour Hazardous Materials Health and Safety Training, 1989

OSHA 8-Hour Hazardous Materials Health and Safety Training Refresher Course (current)

OSHA 24-Hour Supervisory Hazardous Substances/Waste Health and Safety Training, 1990

DISTRIBUTION

PHASE I
ENVIRONMENTAL SITE ASSESSMENT
LINCOLN CHILD CENTER
4368 LINCOLN AVENUE
OAKLAND, CALIFORNIA

MAY 7, 2012

COPY NO. _____

		Copy No.
2 Copies	Head-Royce School 4315 Lincoln Avenue Oakland, California 94602 Attention: Mr. Dennis Malone	1 - 2
1 Copy	KSD Group Inc. 1200 Concord Avenue, Suite 170 Concord, California 94520 Attention: Mr. Vic Santana	3
1 Copy	PES Job Files	4
1 Copy	Unbound Original	5

QUALITY CONTROL REVIEWER

Robert S. Creps, P.E.
Principal Engineer

Appendix 11A

City of Oakland Stormwater Supplemental form for Head-Royce School

Sherwood Design Engineers, April 9, 2019

EXHIBIT E

CITY OF OAKLAND

CITY OF OAKLAND
STORMWATER SUPPLEMENTAL FORM

This form must be submitted with all Planning and Zoning applications for projects defined as Regulated Projects by Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES). Regulated Projects are:

- *Projects that create or replace 10,000 square feet or more of new or existing impervious surface area; and*
- *Since December 1, 2011, the following projects that create or replace 5,000 square feet or more of new or impervious surface area:*
  - *Auto servicing, auto repair, and gas stations;*
  - *Restaurants (full service, limited service, and fast-food); and*
  - *Uncovered parking lots (including stand-alone parking lots, parking lots serving an activity, and uncovered portions of parking structures unless drainage from the uncovered portion of the parking structure is connected to the sanitary sewer system).*

Regulated Projects do not include individual single-family dwellings (that are not part of a larger multi-unit development) or routine maintenance activities. For more information about the C.3 stormwater requirements, please refer to the City of Oakland's Overview of Provision C.3 and the website of the Alameda Countywide Clean Water Program: http://www.cleanwaterprogram.org/

GENERAL INFORMATION

1. Project Name (if applicable): Head Royce School

2. Project Address (including cross street): 4368 Lincoln Ave, Oakland, CA 94602

3. Assessor's Parcel Number(s): 29-1009-6

4. Applicant's Name: Head Royce School

5. Applicant's Address: 4315 Lincoln Ave, Oakland, CA 94602

6. Applicant's Phone: ____________ **Email:** ____________

7. Project Type (check all that apply): ☐ Residential ☒ Commercial ☐ Industrial ☐ Mixed Use ☐ Streets/Roads[1]

8. Project Description (Also note any past or future phases of project):

Head-Royce School is a K-12 private school located South of Hwy 13 along Lincoln Ave in Oakland. The Head-Royce School campus is bisected by Lincoln Ave into a North and South Campus. The proposed project is a redevelopment of the existing South Campus, including demolition of seven of the existing buildings, site paving, and landscaping features and construction of a new facility and additions or remodels of four existing buildings that are being retained, new landscaping features, and new paved walkways, driveway, and parking. The proposed project will create and/or replace greater than 10,000 square feet of impervious surface, and is thus a C.3. Regulated Project per the Alameda Countywide Clean Water Program Requirements.

9. Slope on Site: 15.5 %

10: Project Watershed:[2] Sausal Creek Watershed

11. Total Site Area (acres): 7.6 acres

12: Total Land Area Disturbed[3] **(acres)** 3.8 acres

Special Projects Worksheet Completed by:

4/9/19

Signature **Date**

DREW C. NORTON, PRINCIPAL

Print or Type Name

To Be Completed By City Staff:

Date Application Submitted: ____________

Case Number(s): ____________

➢ Note to Staff: Please route a copy of this form to the stormwater coordinator in the Planning and Zoning Division.

1 Roadway projects that replace existing impervious surface are subject to C.3 requirements only if one or more lanes of travel are added.

2 Project Watershed information is available via the following link. http://acfloodcontrol.org/resources/explore-watersheds

3 Includes clearing, grading, excavating and stockpiling.

SUPPLEMENTAL PROJECT INFORMATION

1. Type of Development (check one): ❑ Development on previously undeveloped land
☒ Development on previously developed land

2. Site Calculations:

Type of Impervious Surface	**Pre-Project Impervious Surface (sq.ft.)**	**Existing Impervious Surface to be Replaced[7] (sq.ft.)**	**New Impervious Surface to be Created[7] (sq.ft.)**	**Post-project pervious surface (sq.ft.)**
Roof area(s) – excluding any portion of the roof that is vegetated ("green roof")	43,249	6,281	8,747	N/A
Impervious[5] sidewalks, patios, paths, driveways	74,473	29,691	33,660	
Impervious[5] uncovered parking[6]	35,378	20,509	6,273	
Streets (public)	-			
Streets (private)	-			
Totals:	153,100	56,481	48,680	193,419
Area of Existing Impervious Surface to remain in place	32,476	N/A		
Total New Impervious Surface *(sum of totals for columns b and c)*:	105,161			

Impervious Surface = Any surface that cannot be effectively (easily) penetrated by water. Permeable paving (such as permeable concrete and interlocking pavers) underlain with permeable soil or permeable storage material, and green roofs with a minimum of three inches of planting media, are not considered impervious surfaces.

	Yes	No
3. Does the total amount of Replaced impervious surface equal 50 percent or more of the Pre-Project Impervious Surface? If YES, stormwater treatment requirements apply to the whole site; if NO, these requirements apply only to the impervious surface created and/or replaced.	❑	☒
4. Is the project installing a total of 3,000 sq. ft. or more (excluding private-use patios in single family homes, townhomes, or condominiums) of new pervious pavement systems? (Pervious pavement systems include pervious concrete, pervious asphalt, pervious pavers and grid pavers etc. and are described in the C3 Technical Guidance at www.cleanwaterprogram.org) If YES, stormwater treatment system inspection requirements (C.3.h) apply[4]; If NO, inspection requirements only apply if there are other treatment systems installed on the project.	☒	❑
5. Is the site a "Hillside Site" that disturbs 5,000 sq. ft. or more, but less than 1.0 acre (43,560 sq.ft.) of land? "Hillside Sites" in the City of Oakland are sites with a footprint slope of greater than 20%.[5]	❑	☒

[4] Planning staff to notify Inspection staff that O&M inspections are required.
[5] Planning staff to notify Inspection staff that storm water inspections are required during the wet weather season (October 1 through April 30) and other times as appropriate.

APPLICABILITY OF C.3 REQUIREMENTS TO PROJECT

This section of the form will determine which requirements of Provision C.3 apply to the project.

SITE DESIGN MEASURES

Site design measures are site planning techniques that conserve natural spaces and/or limit the amount of impervious surface in development projects in order to minimize the amount of stormwater runoff.

10. Site Design Measures. The following site design measures are required for all C.3 Regulated Projects as applicable; Projects that create and/or replace 2,500 - 10,000 sq. ft. of impervious surface, and stand-alone single family homes that create/replace 2,500 sq. ft. or more of impervious surface, must include one of Site Design Measures a through g.i through g.vi (check "Applicable" if the measure is applicable to the project; check "Not Applicable" if the measure is not applicable):

	Applicable	Not Applicable
a. Minimize land disturbance and impervious surfaces (especially parking lots).	☒	☐
b. Maximize permeability by clustering development and preserving open space.	☒	☐
c. Use micro-detention, including distributed landscape based detention	☒	☐
d. Protect sensitive areas, including wetland and riparian areas, and minimize changes to natural topography.	☒	☐
e. Use self-treating or self-retaining areas[6]	☒	☐
f. Plant or preserve receptor trees.[7]	☒	☐
g. Minimize stormwater runoff by implementing one or more of the following site design measures (check "Applicable" for at least one measure below):		
i. Direct roof runoff into cisterns or rain barrels and reuse for irrigation or other non-potable use.	☒	☐
ii. Direct roof runoff onto vegetated areas.	☒	☐
iii. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.	☒	☐
iv. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.	☒	☐
v. Construct sidewalks, walkways, and/or patios with permeable surfaces.[8]	☒	☐
vi. Construct driveways, bike lanes, and/or uncovered parking lots with permeable surfaces.[9]	☒	☐

[6] Use the specifications in the C3 Technical Guidance (Version 4.1) (Sections 4.1 and 4.2)
[7] Use the specifications in the C3 Technical Guidance (Version 4.1) (Section 4.5)
[8] Use the specifications in the C3 Technical Guidance (Version 4.1) or for small projects see the BASMAA Pervious Paving Factsheet. www.cleanwaterprogram.org and click on "Resources."
[9] See Footnote 5.

SOURCE CONTROL MEASURES

Source control measures are structural and operational measures that aim to prevent stormwater runoff pollution by reducing contact between runoff and the source of pollution.

11. Source Control Measures. The following source control measures are required for all projects as applicable (check "Applicable" if the measure is applicable to the project; check "Not Applicable" if the measure is not applicable):

	Applicable	Not Applicable
a. Install stenciling at storm drain inlets, such as "No Dumping – Drains to Bay."	☒	☐
b. Plumb interior floor drains to sanitary sewer	☒	☐
c. Plumb interior parking garage floor drains to sanitary sewer.	☒	☐
d. Cover and enclose trash/recycling storage areas and design these areas to prevent storm water run-on and run-off into the trash area. Connect any drains to sanitary sewer.	×	
e. Cover outdoor equipment and material storage area or design to avoid pollutant contact with stormwater runoff. Locate area only on paved and contained areas.	☒	☐
f. Cover and/or grade to minimize run-on to and runoff from the loading area. Position downspouts to direct stormwater away from the loading area. Drain water from loading docks to the sanitary sewer. Install door skirts between the trailers and the building.	☒	☐
g. Provide sink or other area for restaurant and food service equipment cleaning, which is: connected to a grease interceptor prior to sanitary sewer discharge and large enough for the equipment to be cleaned. Clean indoors or outdoors in a roofed area designed to prevent stormwater run-on and run-off, and signed to require washing in this area.	☒	☐
h. Perform outdoor process activities including machine shops, auto repair, industries with pretreatment facilities either indoors or in roofed outdoor area, designed to prevent stormwater run-on and runoff, and to drain to the sanitary sewer.	☐	☒
i. Commercial car wash facilities shall discharge to the sanitary sewer. Roofed, pave and berm vehicle equipment wash area to prevent stormwater run-on and runoff and sign as wash area.	☐	☒
j. Designate vehicle repair/maintenance area indoors, or an outdoors area designed to prevent stormwater run-on and runoff and provide secondary containment. Do not install drains in the secondary containment areas. No floor drains unless pretreated prior to discharge to the sanitary sewer. Connect parts cleaning areas to sanitary sewer.	☐	☒
k. Discharge swimming pool water to on-site vegetated areas or to the sanitary sewer.	☐	☒
l. Discharge fire sprinkler test water to on-site vegetated areas or to the sanitary sewer if discharge to on-site vegetated areas is not feasible.	☒	☐
m. Incorporate sustainable landscaping practices, retain existing vegetation, use efficient irrigation systems to minimize runoff, promote surface infiltration, minimize the use of pesticides and fertilizers, and other practices of Bay Friendly Landscaping.[10]	☒	☐
n. Discharge architectural copper rinse water to sanitary sewer, or collect and dispose offsite.	☐	☒
o. Drain air conditioning unit water to landscaping or discharge to the sanitary sewer. Drain roofs to unpaved area where practicable. Drain boiler drain lines, roof top equipment, all wash water to sanitary sewer.	☒	☐
p. Fuel dispensing areas shall have impermeable surface that is graded to prevent ponding and separated from the rest of the site by a grade break. Canopies shall extend at least 10' in each direction from pumps and drain away from fueling area.	☐	☒

[10] More information about Bay Friendly Landscaping is available on the StopWaste.Org website: http://www.stopwaste.org/home/index.asp?page=8

SPECIAL PROJECTS

Provision C.3 requires development projects to incorporate stormwater treatment measures into the project in order to remove pollutants from stormwater runoff. Since December 1, 2011, only Low Impact Development (LID) treatment measures are allowed. LID treatment measures are rainwater harvesting, infiltration, evapotranspiration, and biotreatment. Non-LID treatment measures include high flowrate tree well filters and mechanical vault-type media filters. Non-LID treatment measures are only allowed for Special Projects as defined by Provision C.3. This section of the form will determine if the project qualifies as a Special Project and non-LID treatment measures are allowed.

12. Density (check one):
- ☐ Residential Project – Dwelling Units (DU) per Acre: ______
- ☒ Nonresidential Project – Floor Area Ratio (FAR): 1:8
- ☐ Mixed-Use Project: Indicate either DU or FAR above.

Special Project Category "A"

13. Does the project have ALL the following characteristics?

	Yes	No
a. Located in a CBD, D-BV1, D-BV-2, D-LM-2, CN-1, CN-2, CN-3, RU-5, or S-15 zone; or Located in a Retail, Dining, and Entertainment district in Jack London Square on the City's General Plan map; or Located in a City-designated historic district (either an Area of Primary Importance or an Area of Secondary Importance); or Located on a site listed on the City's Local Register of Historical Resources (as defined by the Oakland Planning Code)?	☐	☒
b. Create and/or replaces 0.5 acres or less of impervious surface?	☐	☒
c. Include no surface parking, except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones?	☐	☒
d. Have at least 85% lot coverage by permanent structures?	☐	☒

- ➢ If you checked "yes" for all of the above questions, the project qualifies as a Category "A" Special Project.
- ➢ If you checked "no" for any of the above questions, the project is not a Category "A" Special Project.

Special Project Category "B"

14. Does the project have ALL the following characteristics?

	Yes	No
a. Located in a CBD, D-BV-1, D-BV-2, D-LM-2, CN-1, CN-2, CN-3, RU-5, or S-15 zone; or Located in a Retail, Dining, and Entertainment district in Jack London Square on the City's General Plan map; or Located in a City-designated historic district (either an Area of Primary Importance or an Area of Secondary Importance); or Located on a site listed on the City's Local Register of Historical Resources (as defined by the Oakland Planning Code)?	☐	☒
b. Create and/or replace more than 0.5 acres of impervious surface but no more than 2.0 acres of impervious surface?	☒	☐
c. Include no surface parking, except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones?	☐	☒
d. Have at least 85% lot coverage by permanent structures?	☐	☒
e. Have a minimum Gross Density (GD)[11] of 50 dwelling units per acre (for residential projects) or a floor area ratio (FAR)[12] of 2.0 (for commercial projects)? Either criterion may be used for mixed-use projects[13].	☐	☒

- If you checked "yes" for all of the above questions, the project qualifies as a Category "B" Special Project.
- If you checked "no" for any of the above questions, the project is not a Category "B" Special Project.

Special Project Category "C"

15. Does the project have ALL the following characteristics?

	Yes	No
a. At least 50% of the project area is located within ½ mile of an existing or planned transit hub;[14] or 100% of the project is located within a planned Priority Development Area (PDA)?[15]	☐	☒
b. Characterized as a non-auto-related project?[16]	☒	☐
c. Have a minimum Gross Density of 25 dwelling units per acre (for residential projects) or a floor area ratio (FAR) of 2.0 (for nonresidential projects)? Either criterion may be used for mixed-use projects.	☐	☒

- If you checked "yes" for all of the above questions, the project qualifies as a Category "C" Special Project.
- If you checked "no" for any of the above questions, the project is not a Category "C" Special Project.

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[11] Gross Density (GD) is the total number of residential units divided by the acreage of the entire site area, including land occupied by public right-of-ways, recreational, civic, commercial, and other non-residential uses.

[8] Floor Area Ratio (FAR) is the ratio of the total floor area on all floors of all buildings at a project site (except structures, floors, or floor areas dedicated to parking) to the total project site area.

[13] Mixed-use project is the development or redevelopment of property to be used for two or more different uses, all intended to be harmonious and complementary.

[14] A transit hub is a rail station, ferry terminal, or bus transfer station served by three or more bus routes. (A bus stop with no supporting services does not qualify.)

[15] A planned PDA is an infill development area formally designated by the Association of Bay Area Governments (ABAG). A map of the planned PDAs in Oakland is attached to this form (see Attachment A).

[16] Category "C" Special Projects excludes auto-related uses including stand-alone surface parking lots, car dealerships, auto and truck rental facilities with on-site surface vehicle storage, fast-food restaurants, activities with drive-through facilities, gas stations, car wash facilities, auto servicing, auto repair, and other auto-related uses.

16. Calculate the amount of stormwater runoff that can be treated with non-LID treatment measures by using the worksheet below. If the project does not quality as a Special Project, skip this step and go to no. 17 and check "no."

Check the Special Project Category(ies) the project qualifies for based on the information from pages 3-4 and circle the Treatment Reduction Credit amount that corresponds to the project's characteristics.

	Treatment Reduction Credit
❑ **Category "A" Special Project**	
All Category "A" Special Projects	100%
❑ **Category "B" Special Project**	
≥ 50 dwellings per acre (residential); or ≥ 2.0 floor area ratio (FAR) (nonresidential)	50%
≥ 75 dwellings per acre (residential); or ≥ 3.0 floor area ratio (FAR) (nonresidential)	75%
≥ 100 dwellings per acre (residential); or ≥ 4.0 floor area ratio (FAR) (nonresidential)	100%
❑ **Category "C" Special Project**[17]	
a. Location	
Within ¼ mile of existing transit hub	50%
Between ¼ mile and ½ mile of existing transit hub	25%
Within Planned PDA	25%
b. Density	
≥ 30 units per acre (residential); or ≥ 2.0 floor area ratio (FAR) (nonresidential/mixed-use)	10%
≥ 60 units per acre (residential); or ≥ 4.0 floor area ratio (FAR) (nonresidential/mixed-use)	20%
≥ 100 units per acre (residential); or ≥ 6.0 floor area ratio (FAR) (nonresidential/mixed-use)	30%
c. Parking	
Surface parking occupies ≤ 10% of total post-project impervious surface	10%
No surface parking (except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones)	20%
Total Category "C" (sum of location, density, and parking treatment reduction credits):	____________

17. Does the project qualify as a Special Project (check one)?

☒ No

❑ Yes:

a. Special Project Category (A, B, or C): [18] ______________

b. LID Treatment Reduction Credit: ______________ %

c. Maximum Impervious Surface Area Allowed to be Treated with Non-LID Treatment Measures (multiply the amount in [b] by the Total Post-Project Impervious Surface Area [see no. 9 on page 1]): [19] ______________ sq. ft.

[17] Category "C" Special Projects are only allowed to claim one location credit, one density credit, and one parking credit even if the project qualifies for more than one.

[18] If the project qualifies for more than one category of Special Projects, the project applicant may choose which category applies to the project.

[19] The remaining stormwater runoff requiring treatment must be treated with LID treatment measures. The project applicant may choose to treat stormwater runoff with LID treatment measures even if non-LID treatment measures are allowed.

HYDROMODIFICATION MANAGEMENT

Changes to the timing and volume of stormwater runoff from a site are known as "hydrograph modification" or "hydromodification." Provision C.3 requires certain development projects to incorporate measures to manage hydromodification. This section of the form will determine if hydromodification management measures are required for the project.

24. Does the project have the following characteristics?

	Yes	No
a. Create and/or replace one acre or more of impervious surface?	☒	☐
b. The total post-project amount of impervious surface would exceed the amount of existing/pre-project impervious surface?	☐	☒
c. Located in a susceptible area on the Hydromodification Susceptibility Map?[20]	☐	☒

- If you checked "no" for any of the questions above, hydromodification management measures are not required. Go to no. 25 and check "no."
- If you checked "yes" for all of the questions above, hydromodification management measures are required. Go to no. 25 and check "yes."

25. Are Hydromodification Management Measures Required (check one)?

☒ No

☐ Yes. Hydromodification management measures must be designed to meet the following standard:

Hydromodification Management Standard

Hydromodification management measures shall be designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations from 10% of the pre-project two-year peak flow up to the pre-project 10-year peak flow.

To assist in the design of hydromodification management measures, the Alameda Countywide Clean Water Program, in collaboration with other clean water agencies, has developed a computer software program called the Bay Area Hydrology Model (BAHM). The BAHM is available at www.bayareahyrologymodel.com. Please refer to the "C.3 Stormwater Technical Guidance" manual available on the Alameda Countywide Clean Water Program's website http://www.cleanwaterprogram.org/ for more information about the BAHM and hydromodification management measures.

Hydraulic calculations for hydromodification management measures are not required to be submitted with applications for Planning and Zoning permits/approvals. However, adequate area for hydromodification management measures must be provided in the project drawings submitted with applications for Planning and Zoning permits/approvals.

[20] The Hydromodification Susceptibility Map is a tool created by the Alameda Countywide Clean Water Program to locate areas susceptible to hydromodification. The Hydromodification Susceptibility Map is attached to this form (see Attachment B) and is located on the Alameda Countywide Clean Water Program's website: http://www.cleanwaterprogram.org.

PROPOSED STORMWATER MANAGEMENT MEASURES

Use this section to identify the stormwater measures that will be incorporated into the project to comply with Provision C.3.

26. Proposed Site Design Measures. List the required measures from page 2 along with any other proposed site design measures:

Minimize land disturbance and impervious surfaces. Maximize permeability by clustering development and preserving open space. Use micro-detention, including distributed landscape-based detention. Protect sensitive areas and minimize changes to natural topography. Use self-treating and self-retaining areas. Plant and preserve receptor trees. Direct roof runoff into cisterns and reuse for non-potable demands. Direct runoff to vegetated areas. Construct with permeable pavement. Direct runoff to bioinfiltration areas.

27. Proposed Source Control Measures. List the required measures from pages 2 and 3 along with any other proposed source control measures:

Install stenciling at storm drain inlets, prevent stormwater from contacting trash/recycling storage areas. Position downspouts to direct stormwater away from loading areas. Install grease inceptors. Retain existing vegetation, use efficient irrigation system, promote surface infiltration, minimize use of pesticides and fertilizers, use Bay Friendly Landscaping practices.

28. Proposed Non-LID Treatment Measures. Non-LID treatment measures are only allowed for Special Projects (see pages 3 to 5) AND if it is infeasible to incorporate 100% LID treatment. Are non-LID treatment measures proposed (check one)?

☒ No

☐ Yes (describe):

____

____

a. If both non-LID and LID treatment proposed, percentage of drainage area treated with non-LID treatment: ______

b. Non-LID treatment measures must meet minimum design criteria published by a government agency or be certified by a government agency. Identify the government agency and the applicable criteria/certification:

____

c. If non-LID treatment measures are proposed, provide a discussion explaining why it is infeasible to incorporate 100% LID treatment in the project (attach additional sheets if necessary) as described in Attachment C.[21] Technical Guidance document attached. Select a treatment measure certified for "Basic" General Use Level Designation (GULD) by the Washington State Department of Ecology's Technical Assessment Protocol – Ecology (TAPE). Guidance is provided in Section Appendix J of the C.3 Technical Guidance (download at www.cleanwaterprogram.com – excerpt attached).[22]

____

____

____

[21] Both technical and economic factors may be considered in the discussion of the feasibility of 100% LID treatment.
[22] TAPE certification is used in order to satisfy Special Project's reporting requirements in the MRP.

30. Proposed Biotreatment Measures. Biotreatment measures may be used to treat stormwater runoff requiring LID treatment. Are biotreatment measures proposed (check one)?

❑ No

☒ Yes (describe):

We are proposing 13 bioinfiltration areas that treat stormwater runoff from adjacent hardscape and act as visual amenities throughout the property. These areas will incorporate biotreatment soils that meet the BASMAA Biotreatment Soil Specification.

31. Numeric Sizing for Stormwater Treatment Measures. Stormwater treatment measures—both non-LID treatment measures and LID treatment measures (including rainwater harvesting and biotreatment)—must be designed to capture a specified amount of stormwater runoff using one of the design criteria in Provision C.3. Indicate the method to be used to size the proposed stormwater treatment measures (check one):[23]

a. Volume Hydraulic Design Basis – Treatment measures whose primary mode of action depends on *volume capacity*:

❑ i. The maximized stormwater capture volume for the area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients set forth in Urban Runoff Quality Management, WEF Manual of Practice No. 23 / ASCE Manual of Practice No 87 (1998), pages 175-178 (e.g., approximately the 85^{th} percentile 24-hour storm runoff event);

❑ ii. The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Section 5 of the California Stormwater Quality Association's Stormwater Best Management Practice Handbook, New Development and Redevelopment (2003), using local rainfall data;

b. Flow Hydraulic Design Basis – Treatment measures whose primary mode of action depends on *flow capacity*:

❑ i. 10 percent of the 50-year peak flowrate;

❑ ii. The flow of runoff produced by a rain event equal to at least two times the 85^{th} percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths;

☒ iii. The flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity; or

c. ❑ Combination Flow and Volume Design Basis – Treatment measures using a combination of flow and volume capacity sized to treat at least 80 percent of the total runoff over the life of the project, using local rainfall data.

32. Proposed Hydromodification Management Measures. Hydromodification management measures are required for certain projects (see page 9). Are hydromodification management measures proposed (check one)?

☒ No

❑ Yes (describe):

[23] Hydraulic calculations for proposed stormwater treatment measures are not required to be submitted with applications for Planning and Zoning permits/approvals. However, Provision C.3 requires that the *preliminary* proposed hydraulic sizing method be identified with the Planning and Zoning application.

SUBMITTAL REQUIREMENTS

This section of the form identifies the stormwater-related information required to be submitted with the project application.

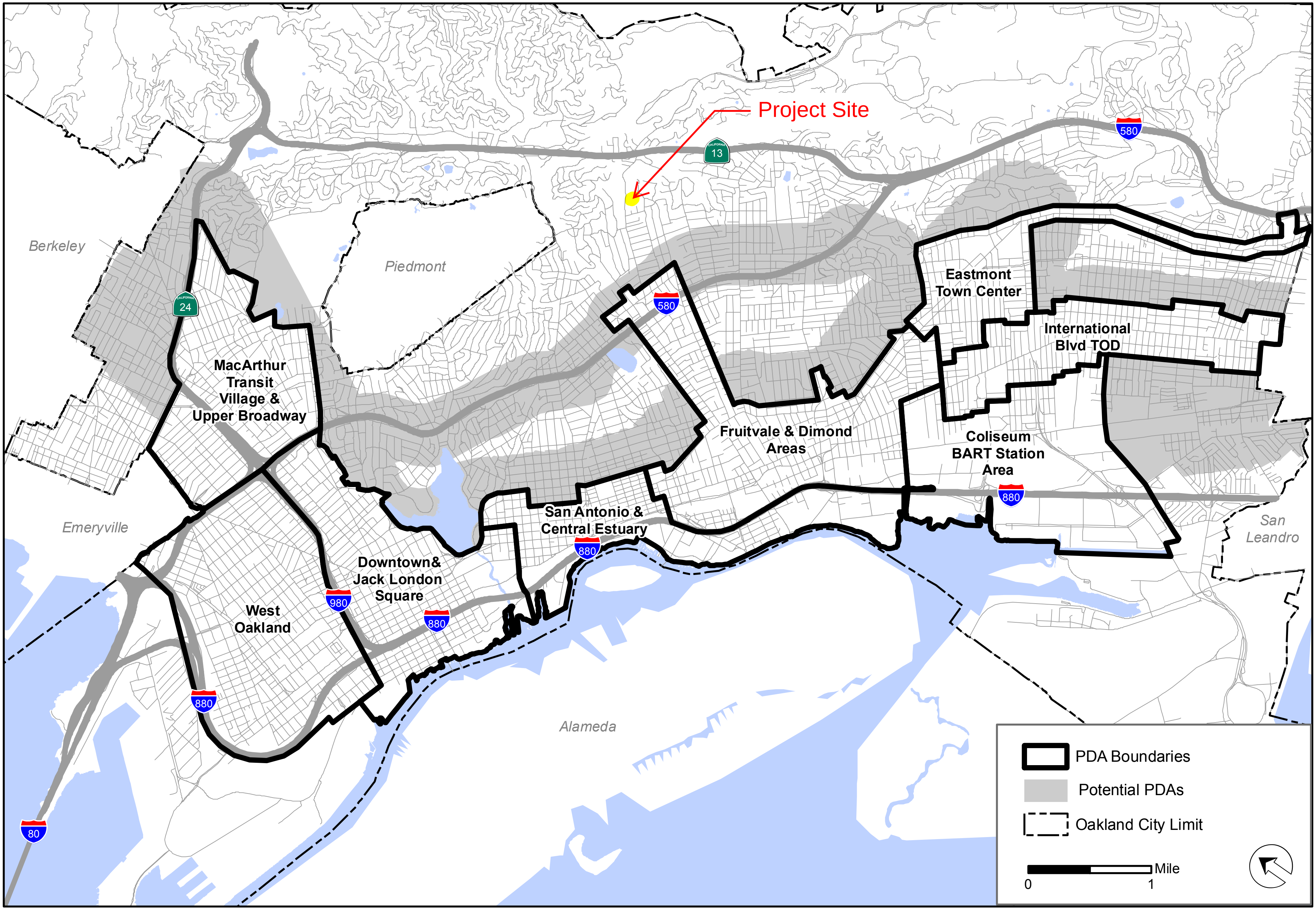
33. Submittal Requirements. The following materials/information must be submitted with the application for Planning and Zoning permit(s)/approval:

- ☒ **a. Stormwater Supplemental Form** – A completed copy of this form.
- ☒ **b. Preliminary Post-Construction Stormwater Management Plan** – A project drawing containing the following information (shown and labeled):
  - ❑ Location and size of new and replaced impervious surface;
  - ❑ Directional surface flow of stormwater runoff;
  - ❑ Location of proposed on-site storm drain lines;
  - ❑ Preliminary type and location of proposed site design measures;
  - ❑ Preliminary type and location of proposed source control measures;
  - ❑ Preliminary type and location of proposed stormwater treatment measures; and
  - ❑ Preliminary type and location of proposed hydromodification management measures (if applicable).

ATTACHMENT A

MAP OF OAKLAND PLANNED PRIORITY DEVELOPMENT AREAS (PDAS)

EXHIBIT E



CITY OF OAKLAND

Department of Planning and Building
December 2015

Priority Development Areas (PDAs)

ATTACHMENT B

HYDROMODIFICATION SUSCEPTIBILITY MAP

Map Instructions

Use the map on the following pages to determine if the project is located in a susceptible area. The map is divided into three areas:

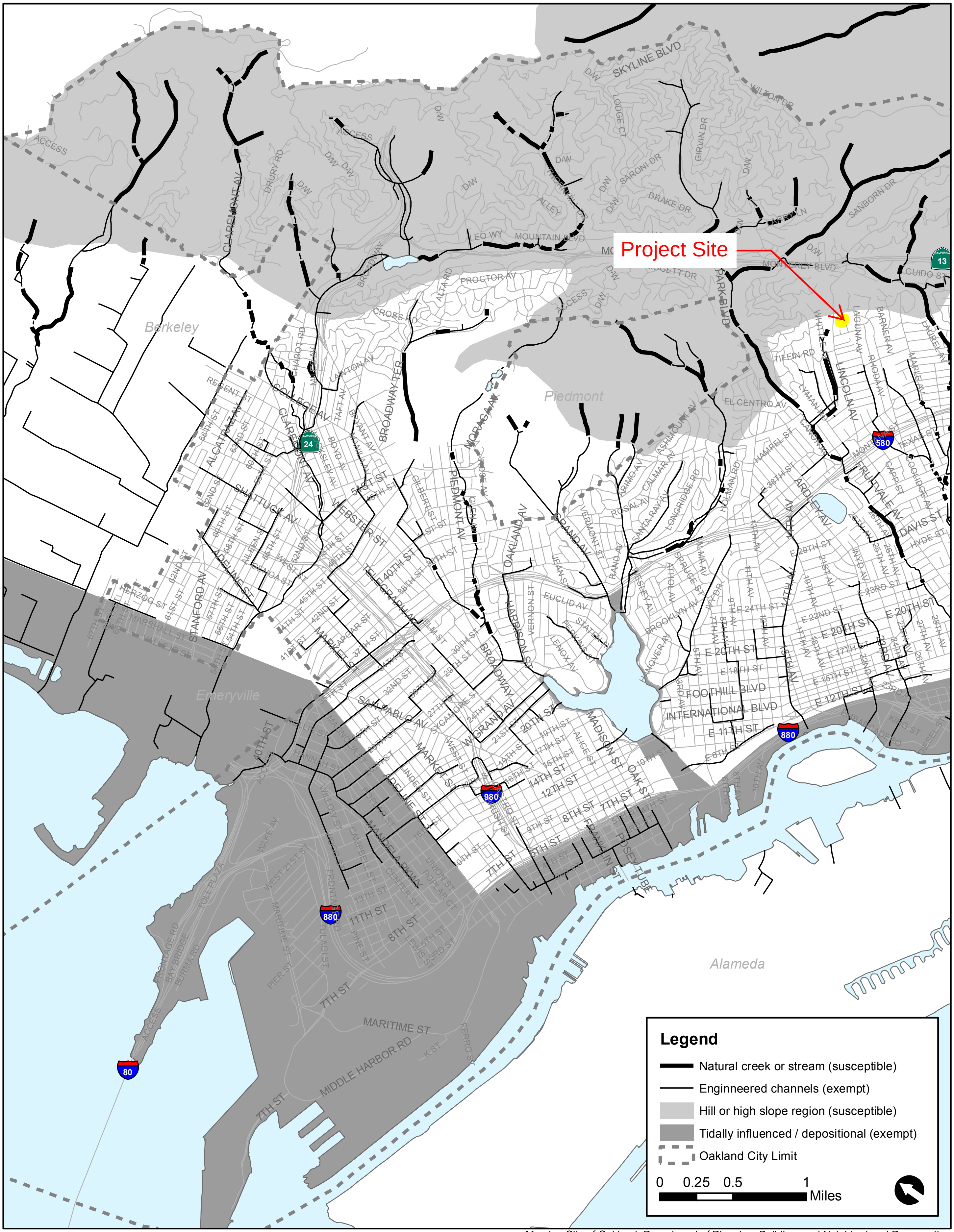
High Susceptibility Area (Light Grey) – This area generally consists of steep slopes. Applicable projects in this area are required to incorporate hydromodification management measures.

Potential Susceptibility Area (White) – This area is located between the hills and the tidal zone of San Francisco Bay. This area may be susceptible to hydromodification depending upon the nature of the drainage system. Applicable projects in this area are required to incorporate hydromodification management measures *unless* project stormwater runoff will flow through fully hardened, engineered channels from the project site to the tidal zone. If stormwater runoff from the project site will flow through a natural creek or stream (shown as a thick black line on the map), hydromodification management measures are required.

Tidal Influence / Depositional Area (Dark Grey) – This area is located in the tidal zone of San Francisco Bay. Creeks in this area are generally tidally influenced or primarily depositional. Projects in this area are exempt from hydromodification management measures.

ATTACHMENT C

EXHIBIT E

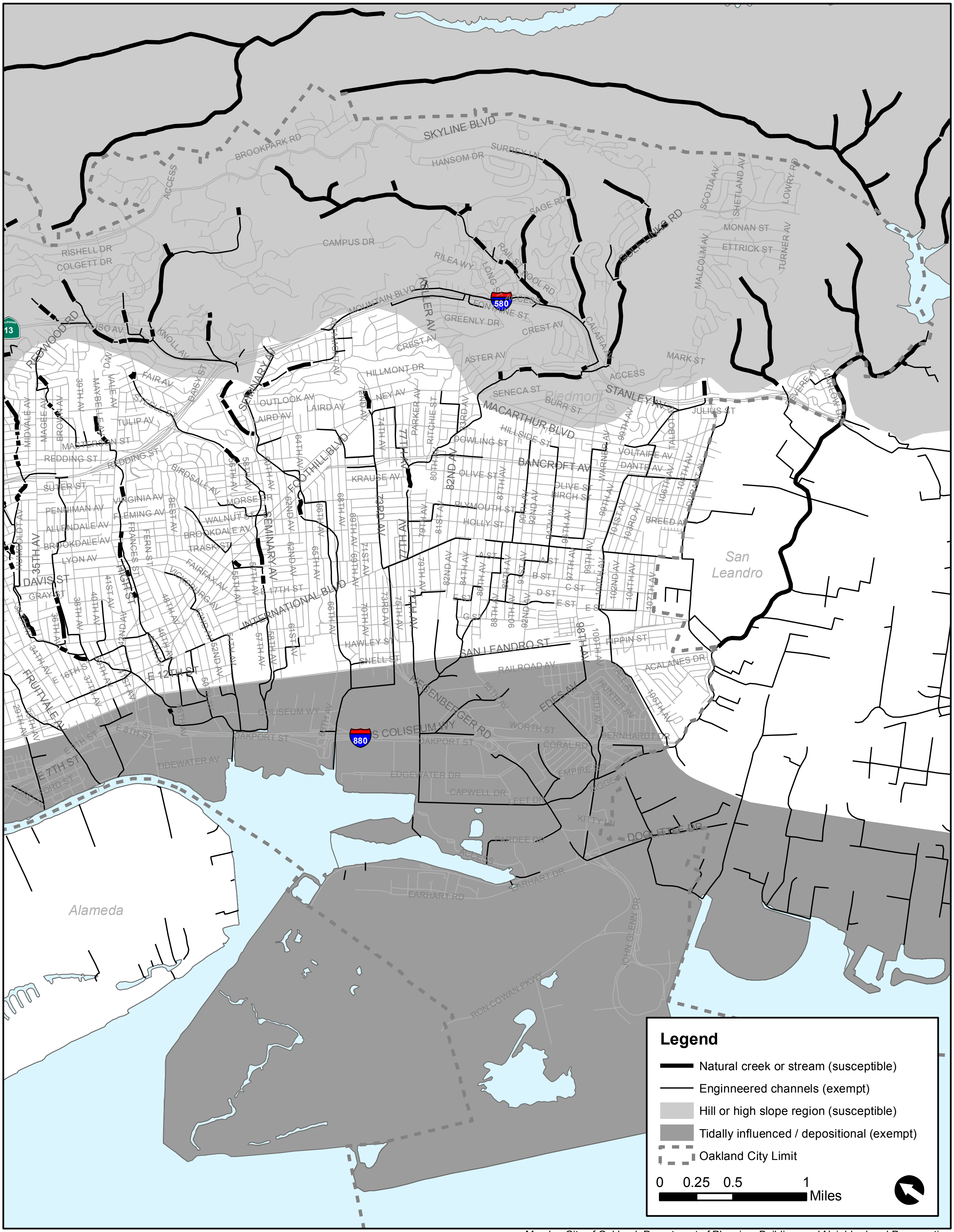


Map by: City of Oakland, Department of Planning, Building, and Neighborhood Preservation
Source: Alameda Countywide Clean Water Program
March 2012

CITY OF OAKLAND

CITY OF OAKLAND
Hydromodification Susceptibility Map - West

EXHIBIT E



Map by: City of Oakland, Department of Planning, Building, and Neighborhood Preservation
Source: Alameda Countywide Clean Water Program
March 2012

CITY OF OAKLAND
CITY OF OAKLAND
Hydromodification Susceptibility Map - East

LOW IMPACT DEVELOPMENT INFEASIBILITY

EXCERPTS FROM APPENDIX J OF THE C.3 TECHNICAL GUIDANCE

J.6 LID Infeasibility Requirement for Special Projects

In order to be considered a Special Project, in addition to documenting that all applicable criteria for one of the above-described Special Project categories have been met, the applicant must provide a narrative discussion of the feasibility or infeasibility of using 100 percent LID treatment onsite, offsite, or at a Regional Project. The narrative discussion is required to address the following:

1. The infeasibility of treating 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with LID treatment measures onsite;
2. The infeasibility of treating 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with LID treatment measures offsite or paying in-lieu fees to treat 100% of the Provision C.3.d runoff with LID treatment measures at an offsite or Regional Project; and
3. The infeasibility of treating 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with some combination of LID treatment measures onsite, offsite, and/or paying in-lieu fees towards at an offsite or Regional Project.

The discussion is required to contain enough technical and/or economic detail to document the basis of any infeasibility that is determined.

J.6.1 On-site LID Treatment

The narrative discussion should describe how the routing of stormwater runoff has been optimized to route as much runoff as possible to LID treatment measures. A discussion should also be provided for each area of the site for which runoff must be treated with non-LID treatment measures, and should include the following:

1. Uses of impervious surfaces that preclude the use of LID treatment; and
2. Technical constraints that preclude the use of any landscaped areas for LID treatment, such as:
   a. Inadequate size to accommodate bio-treatment facilities that meet the sizing requirements for the drainage area;
   b. Slopes too steep to terrace;
   c. Proximity to an unstable bank or slope;
   d. Environmental constraints (e.g., landscaped area is within riparian corridor);
   e. High groundwater or shallow bedrock;
   f. Conflict with subsurface utilities;
   g. Cap over polluted soil or groundwater;
   h. Lack of head or routing path to move collected runoff to the landscaped area or from the landscaped area to the disposal point;
   i. Other conflicts or required uses that preclude use for stormwater treatment (explain).

J.6.2 Off-site LID Treatment.

The applicant must demonstrate to the municipality performing the project review that it is infeasible to provide LID treatment of an equivalent amount of runoff offsite either by paying in-lieu fees to a regional project or on other property owned by the project proponent in the same watershed (in other words, that alternative compliance, as described in Chapter 9, is infeasible).

Check with the local municipality to determine if there are any regional projects available for alternative compliance purposes (at the time of completion of this Appendix, there were none in Alameda County). These considerations should be documented in the narrative discussion of the feasibility and infeasibility of providing 100% LID treatment.

J.6.3 Combination of On-site and Off-site LID Treatment

The applicant must also demonstrate to the municipality performing the project review that it is infeasible to provide LID treatment of 100% of the amount of runoff specified in Provision C.3.d with some combination of LID measures on-site, offsite, and or paying in-lieu fees to a regional project.

After determining the extent to which stormwater runoff can be optimized to route as much runoff as possible to LID treatment measures, if that amount is less than 100%, and if there are no options to provide LID treatment off-site on a property owned by the project proponent in the same watershed, check with the municipality to determine if there are any regional projects available for alternative compliance purposes for the remainder of the C.3.d amount of runoff. These considerations should be documented in the narrative discussion of the feasibility and infeasibility of providing 100% LID treatment.

.J.7 Select Non-LID Treatment Measures Certified by a Government Agency

MRP Provision C.3.e.vi.(3)(i) requires municipalities to report to the Regional Water Board, for each non-LID treatment measure that the municipality approves, "whether the treatment system either meets minimum design criteria published by a government agency or received certification issued by a government agency, and reference the applicable criteria or certification."

For Special Projects that are allowed to use non-LID treatment measures, applicants are advised to use treatment measures that have been certified by the Washington State Department of Ecology's Technical Assessment Protocol – Ecology (TAPE), under General Use Level Designation (GULD) for Basic Treatment.24 You can identify proprietary media filters and high flow rate tree well filters currently holding this certification at the following link: http://www.ecy.wa.gov/programs/wq/stormwater/newtech/technologies.html.

The municipality may require that any non-LID treatment measures used in a Special Project be TAPE-certified, or the municipality may allow the use of non-LID treatment measures certified by another governmental program.

If the TAPE system is used, treatment measures must be sized based on the hydraulic sizing criteria specified in MRP Provision C.3.d and the design operating rate for which the product received TAPE GULD certification for Basic Treatment. If a different certification program is used, specify the design operating rate for which the product received the relevant certification.

[24] "General Use" is distinguished from a pilot or conditional use designation. "Basic Treatment" is distinguished from treatment effectiveness for phosphorus removal. Basic treatment is intended to achieve 80 percent removal of total suspended solids (TSS) for influent concentrations from 100 mg/L to 200 mg/L TSS and achieve 20 mg/L TSS for less heavily loaded influents.

HEAD ROYCE SCHOOL

4315 Lincoln Ave
Oakland, CA 94602

Architect:

SOM

SKIDMORE, OWINGS & MERRILL LLP
ONE FRONT STREET SAN FRANCISCO, CA 94111

Consultants:

SHERWOOD DESIGN ENGINEERS
58 Maiden Lane, Third Floor
San Francisco, CA 94108
sherwoodengineers.com

Seal & Signature:

Issued For:

No.:	Description:	Date:
1	PDP APP	2/15/2019

Key Plan

North

Sheet Name:

EXHIBIT H
PRELIMINARY POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

Project No.: 214043
Drawn By: DF/JG
Checked By: DN
Scale: 1":30'
Sheet No.: B

P:\2013\13-274_Head_Royce\04_Design\02_South Campus Phase 1\Preliminary Post Construction Stormwater Management Plan\Preliminary Post Construction Stormwater Management Plan.dwg,B Preliminary Post Construction Stormwater Management Plan,David Fradelizio,2/15/2019 3:19:45 PM,ARCH full bleed E (36.00 x 48.00 Inches),1:1

Appendix 11B

Peer Review of Stormwater Control Plan as prepared by SOM and Sherwood Design Engineers

ENGEO, February 4, 2020

Project No.
16781.000.000

February 4, 2020

Mr. Scott Gregory
Lamphier-Gregory
1944 Embarcadero
Oakland, CA 94606

Subject: Head-Royce School Expansion
Oakland, California

REVIEW OF STORMWATER CONTROL PLAN

Dear Mr. Gregory:

At your request and with your authorization, we performed a water resources third-party review of the Stormwater Control Plan for the Head-Royce School Expansion project. The purpose of our third-party review was to confirm that the project submittals include an appropriate assessment of existing conditions regarding runoff volumes and direction of flow (including flows entering the City storm drain system and flows entering into an off-site drainage channel). Our peer review also evaluated the proposed hydrology conditions, including an assessment of proposed drainage sub-basins, modifications of peak discharge flow rates, and surface water treatment measures.

The project would mitigate impacts associated with surface water hydrology and water runoff quality if it does the following:

- Reduces post-project peak runoff flow rates to pre-project levels at points of discharge.
- Conforms to current water quality standards as defined by Provision C.3 of the San Francisco Bay Municipal Regional Permit (Order No. R2-2015-0049) (MRP) as administered by the City of Oakland and the Alameda County Clean Water Program.

We reviewed the following with regard to this project:

- SOM and Sherwood Design Engineers; Civil Engineering Plan Set; Head-Royce School; Oakland, California; August 16, 2019.
- SOM and Sherwood Design Engineers; Preliminary Post Construction Stormwater Management Plan; Head Royce School; Oakland, California; February 15, 2019.
- City of Oakland; Stormwater Supplemental Form; Head-Royce School; Oakland, California; April 19, 2019.

The review of the geotechnical report and the feasibility report for the proposed tunnel will be submitted in a separate letter.

PROJECT DESCRIPTION

The project proposes to integrate the existing Head-Royce School, or “North Campus,” with a new “South Campus” and create a unified, 22-acre school. The Project proposes an underground link between the campuses below Lincoln Avenue; an internal pick-up and drop-off road; the rehabilitation and reuse of four existing buildings, three of which retain historical character-defining features; demolition of eight non-historic structures; construction of a 1,500-square-foot Link Pavilion; construction of a 15,900-square-foot multi-use Performing Arts Center with up to 450 seats; and the addition of 61 parking spaces to total 344 on-site parking spaces on the Head-Royce Campus.

SUMMARY OF STORMWATER DESIGN

Applicability of NPDES Permit Provision C.3. Requirements

According to the Stormwater Supplemental Form, there is a total of 153,100 square feet (sf) of existing impervious surface with a total new impervious surface of 105,161 sf. Since 105,161 sf is greater than the C.3 threshold of 10,000 sf, the C.3 source control, site design, and treatment requirements do apply to this project. Per Provisions C.3.c.i (1) and (2), the project must include site design measures and source controls.

Furthermore, the Hydromodification Susceptibility Map published by the Alameda County Clean Water Program indicates that the subject project is in a “Potential Susceptibility Area” locality. However, the project does not increase the total impervious surface over pre-project conditions; therefore, it is our opinion that the subject project is not subject to the Hydromodification Management Measures stipulated within the referenced ACCWP handbook. This is in conformance with Section 7.2 of the referenced ACCWP handbook, which discusses the applicability of projects to the Hydrograph Modification Management Plan requirements.

Proposed Hydrologic and Stormwater Measures

The drainage management areas (DMA) are defined in the plans in both a pre-project and post-project scenario. The design discharge values from these DMAs were determined using the rational method with rainfall intensities selected from the NOAA Rainfall data for the site for a 10-year storm event. The hydrology sheets included in the civil plan set (Sheets C4.0 – 4.1) show the sizes of the drainage sub-basins as well as the selected runoff coefficients that were used to determine design discharge values in the pre- and post-project conditions. The time of concentration for the DMAs was not provided in the submitted plans. The stormwater control plan shows the paths of the flow and the destination of flow between the City storm drain system and the off-site drainage channel.

The proposed stormwater treatment measures consist of 12 drainage management areas (DMAs). Eight of these DMAs will be treated by 13 bioswale treatment areas, located adjacent to the proposed hardscape. Further, four DMAs will have permeable paving that flows into an underdrain that drains to bioswale treatment areas. Comments on the treatment measure selection and design are provided below:

a. The bioswale treatment areas were sized on a flow hydraulic design basis. The bioswales were sized so that they would have a capacity equal to the flow of runoff from the site resulting from a rain event equal to at least 0.2 inch per hour intensity. This meets the intent of water quality requirements outlined in Provision C.3 of the MRP. However, the calculations and sizes of the bioswale treatment areas were not provided for review.

b. The pervious paver detail was not provided in the plans for review. However, DMAs that incorporate pervious pavers appear to be in general conformance with requirements outlined in Provision C.3 of the MRP.

CONCLUSIONS AND COMMENTS

It is our opinion that the prepared civil drainage plan includes an appropriate assessment of existing conditions regarding the runoff volumes and general direction of flow from the drainage management areas, including flows entering the City storm drain system and flows entering into an off-site drainage channel. The plan indicates that 10-year peak flows will be reduced to pre-project levels at points of discharge. This requirement is intended to reduce the risk of flooding in downstream receiving waters.

Based on our review of the stormwater documents, it is our opinion that the post-construction stormwater treatment facilities provided for the subject property are also in general conformance with Alameda County Clean Water Program and Provision C.3 of the MRP. These requirements are intended to reduce impacts associated with new development on downstream receiving water regarding surface water quality.

CLOSURE

This review presents our opinions specific to the Stormwater Control Plan for the proposed development known as Head-Royce School. If changes occur in the nature or design of the project, we should be allowed to review this letter and provide additional comments as appropriate. We strived to perform our professional peer review services in accordance with generally accepted engineering principles and practices currently employed in the area; there is no warranty either express or implied.

If you have any questions or comments regarding this letter, please call.

Sincerely,

ENGEO Incorporated

Matt Sasaki, EIT
ms/jb/jaf/jf

Jonathan Buck, GE

REGISTERED PROFESSIONAL ENGINEER
JONATHAN BUCK
No. 2958
GEOTECHNICAL
STATE OF CALIFORNIA

Attachment: List of Selected References

LIST OF SELECTED REFERENCES

1. California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region; Municipal Regional Stormwater NPDES Permit, Order R2-2015-0049; November 2015.

2. Alameda County Clean Water Program; C.3 Stormwater Technical Guidance; October 31, 2017.

Appendix 12

Final Head-Royce Conditions of Approval, Case File: Rev13-003

City of Oakland, June 7, 2016

FINAL HEAD ROYCE CONDITIONS OF APPROVAL
CASE FILE: REV13-003

Redlined version – June 7, 2016

Modifications to the conditions of approval as directed by the City Planning Commission at the **November 4, 2015** are indicted in underlined type for additions and ~~cross out~~ type for deletions. Modifications made as part a resolution between Head Royce School and the Neighborhood Steering Committee withdrawing Appeal REV13-003-A01 on June 6, 2016 and subsequent administrative approval of the modifications (revised conditions of approval) by the Development Planning Manager on **June 7, 2016,** are indicted in underlined type for additions and ~~cross out~~ type for deletions.

1. **Approved Use.**
   Ongoing
   The project shall be constructed and operated in accordance with the authorized use as described in the application materials, attached staff report, the preliminary PUD plans approved January 4, 2006, final PUD approved plans dated October 29, 2007, the approved plans dated July 28, 2009, and the plans submitted on September 11, 2014 to correct striping and make other minor improvements on existing parking spaces. Any additional uses or facilities other than those approved with this permit, as described in the project description and the approved plans, will require a separate application and approval.

   a) The action by the City Planning Commission (PUDF07-520) which includes:

      i. Approval of a Final Planned Unit Development ("FPUD") for the Head Royce Master Plan PUD, under Oakland Municipal Code Section 17.140.
      ii. Approval of a Conditional Use Permit for 20 tandem parking spaces on the parking level extension.

   b) The action by the City Planning staff (DS09-224) approving construction of parking improvements to the existing east parking lot at the Head Royce School to accommodate 126 parking spaces (including restriping, paving, grading, and construction of retaining walls, and construction of a drilled pier supported retaining wall for tandem parking approved by the Planning Commission as part of PUDF07-520).

   c) The action by Building Permit PZ1400021 to provide an additional 31parking spaces on campus for a total of 157 spaces.

   d) This action by the City ("this Approval") (REV13-0003) includes the amendments to the PUD and the Conditions of Approval set forth below which includes but is not limited to clarifications for:

      i. School Enrollment
      ii. Hours of Academic and Childcare Operation
      iii. Summer Program Enrollment / Operations
      iv. Number of Special Events / Days and Hours of Operation, and
      v. Implementation of a Transportation Demand Management Program.

e) This approval does not permit Community Assembly or Group Assembly uses as defined in the planning code or use of the school facilities as a venue for hire by outside organizations. Notwithstanding the foregoing, this prohibition does not include, and the school shall be entitled to use of the school facilities for, all of the following: (i) any events in the normal operation of a school that include students, prospective students, parents, prospective parents, faculty, administration, staff and/or alumni; (ii) any school-related events in which outside organizations are invited to participate with members of the school community, such as league athletic events, shared testing days, school dances, performances, counseling or instruction by outside organizations for the school community, educational meetings for faculty or staff, neighborhood safety meetings, professional faculty and staff development, alumni events, fund raising events, or similar normal and customary school-related events, (iii) any shared use of the school's parking lots, field or gymnasium by the school's institutional neighbors (limited only to the Greek Orthodox Church, the Church of Latter Day Saints, all located on Lincoln Avenue), and (iv) use of school facilities on the weekends by neighbors with key cards.

f) The Conditions of Approval for REV13-003 supersede the previous Conditions of Approval for PUD04-400, PUDF07-520 and DS09-224.

2. **Effective Date, Expiration.**
Ongoing
Unless a different termination date is prescribed, this Approval shall expire two years from the approval date, unless within such period the authorized activities have commenced. Upon written request and payment of appropriate fees submitted no later than the expiration date of this permit, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body.

3. **Scope of This Approval; Major and Minor Changes.**
Ongoing
The project is approved pursuant to the Planning Code only. Minor changes to approved plans, conditions of approval, facilities or use may be approved administratively by the Director of City Planning or designee. Major changes to approved plans, conditions of approval, facilities or use shall be reviewed by the City Planning Commission as a revision to the PUD. Major changes shall include increases in the academic or summer program enrollment, number of summer program sessions or merger of residential lots with the campus. The Planning Director or designee shall, in his or her discretion, determine whether other proposed changes in conditions, facilities or uses constitutes a minor or major change upon submission of an application for such change. A determination of whether a change is minor or major is subject to appeal pursuant to the Oakland Planning Code.

4. **Conformance to Approved Plans; Modification of Conditions or Revocation.**
Ongoing
a) Site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within 60 days of approval, unless an earlier date is specified elsewhere, or the

applicant demonstrates to the satisfaction of the Planning Director that abatement requires more than 60 days to implement.

b) Violation of any term, Conditions/ Mitigation Measures or project description relating to the Approvals is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approvals or alter these Conditions/ Mitigation Measures if it is found that there is violation of any of the Conditions/ Mitigation Measures or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it, limit in any manner whatsoever the ability of the City to take appropriate enforcement actions, including but not limited to the imposition of financial penalties. The project applicant shall be responsible for paying fees in accordance with the City's Master Fee Schedule for inspections conducted by the City or a City-designated third-party to investigate alleged violations of the Conditions of Approval.

5. **Signed Copy of the Conditions/Mitigation Measures.**
With submittal of a demolition, grading, and building permit
A copy of the approval letter and Conditions/ Mitigation Measures shall be signed by the property owner, notarized, and submitted with each set of permit plans to the appropriate City agency for this project.

6. **Compliance with Conditions of Approval.**
Ongoing
The project applicant shall be responsible for compliance with the recommendations in any submitted and approved technical report and all the Conditions of Approval and in all applicable adopted mitigation measures set forth below at its sole cost and expense, and subject to review and approval of the City of Oakland.

7. **Indemnification.**
Ongoing
a) To the maximum extent permitted by law, the applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, Oakland City Council, the Oakland City Planning Commission and its respective agents, officers, and employees (hereafter collectively called City) from any liability, damages, claim, judgment, loss, (direct or indirect) action, causes of action, or proceeding (including legal costs, attorneys' fees, expert witness or consultant fees, City Attorney or staff time, expenses or costs) **(collectively called "Action"**) against the City to attack, set aside, void or annul, (1) this approval or (2) implementation of this approval. The City shall promptly notify the project applicant of any claim, action or proceeding. The City may elect, in its sole discretion, to participate in the defense of said Action and the applicant shall reimburse the City for its reasonable legal costs and attorney's fees.

b) Within ten (10) calendar days of the filing of any Action as specified in subsection a above, the applicant shall execute a Letter Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Letter of Agreement shall survive termination, extinguishment or invalidation of the approval. Failure to timely execute the Letter Agreement does not relieve the applicant of any of the obligations contained in this condition or other requirements or conditions of approval that may be imposed by the City.

8. **Severability.**
Ongoing
Approval of the project would not have been granted but for the applicability and validity of each and every one of the specified conditions and/or mitigations, and if one or more of such conditions and/or mitigations is found to be invalid by a court of competent jurisdiction this Approval would not have been granted without requiring other valid conditions and/or mitigations consistent with achieving the same purpose and intent of such Approval.

9. **Subsequent Conditions or Requirements.**
Ongoing
This approval shall be subject to the conditions of approval contained in any subsequent Tentative Tract Map, Tentative Parcel Map or mitigation measures contained in the approved environmental document for this project.

10. **Compliance Review and Matrix**
Within 1 year of implementation of the revised Conditions.
Planning staff shall submit a compliance status report to the Planning Commission one year after implementation of the revised Conditions with the exact date to be agreed upon between the two parties (School and neighborhood).
Ongoing. On October 1 of each year, the project applicant shall submit to the Planning and Zoning Division and the Building Services Division a Conditions/ Mitigation Measures compliance matrix that lists each condition of approval and mitigation measure, including those addressing the summer program, the City agency or division responsible for review, and how/when the project applicant has met or intends to meet the conditions and mitigations. The applicant will sign the Conditions of Approval attached to the approval letter and submit that with the compliance matrix for review and approval.

11. **Mitigation Monitoring and Reporting Program.**
Ongoing
The following mitigation measures shall be incorporated into the project. The measures are taken from the Mitigated Negative Declaration for the Head Royce Master Plan Project (2006). In addition, the applicant has proposed other measures as part of a Transportation Demand Management Plan. For each measure, this Mitigation Monitoring and Reporting Program (MMRP) indicates the entity (generally, an agency or department within the City of Oakland) that is responsible for carrying out the measure **("Responsible Implementing Entity");** the actions necessary to ensure compliance with the applicable measure **("Monitoring Action(s)")** and the entity responsible for monitoring this compliance **("Monitoring Responsibility")**; and the time frame during which monitoring must occur **("Monitoring Timeframe")**.

TRAFFIC AND CIRCULATION
Impact T1: The increase in enrollment at the completion of the 2006 Master Plan could result in extension of the parking queue (defined as the cars waiting curb-side along Lincoln) during the morning drop-off and the after-school pickup period.

Mitigation T1: The project sponsor shall monitor the morning drop-off and afternoon pick-up queue during the school year as well as during any summer program operations. The procedures and monitoring forms are included in the TDM Plan. The project sponsor shall implement the monitoring procedures by either: 1) retaining a qualified independent traffic consultant to monitor the extent of the queue along Lincoln Avenue or 2) hire a qualified independent traffic consultant, approved by the Bureau of Planning, to train at least two (2) supervising monitors to implement and supervise the monitoring procedures. Any new supervising monitor must be trained directly by the independent traffic consultant. If the school's drop-off or pick-up queue extends for more than 60 seconds in any single monitoring period (excluding delays due to extenuating circumstances such as a traffic accident) past the school's upper driveway and the red "no parking" zone above the driveway along the north side of Lincoln Avenue and extending into the "Keep Clear" zone, the school shall implement as many of the following actions and continue to implement these actions as would be necessary to accomplish the necessary reduction in the length of the queue:

- Implement staggered morning drop-off and afterschool pickup times.

- Stagger the afterschool bus pick-up times so that the buses are loaded and leave prior to the start of pickup.

- Discourage early arrival for pickup within the Transportation Policy Guide and during an annual back to school traffic presentation.

- Increase public and private bus ridership in addition to those already in effect at the time of the queueing violation.

- If the previous measures do not reduce the queue, work with the City to restrict on-street parking during morning drop-off and afternoon pickup on Lincoln Avenue to allow for a longer queue. The School shall retain a qualified traffic consultant to prepare an analysis of the queue extension for review by the City's Transportation Services and Oakland Police Department Traffic Safety Divisions. The School shall pay any required review fee. The City may decline to restrict on-street parking to allow a longer queue, in which case other measures noted above must be pursued.

Responsible Implementing Entity: Bureau of Planning and Public Works Agency, Traffic Engineering Division

Monitoring Action(s): Monitoring and reporting shall take place for four one-week periods, once at the beginning of each School semester, and once at the beginning of each Summer Program session. After 2017, the number of monitoring sessions and the duration of the monitoring period for each school year shall be determined by the City of Oakland's Transportation Services Division, Oakland Traffic Safety Division and Bureau of Planning based in part of the school's performance in reducing the queue. In accordance with the TDM, either a qualified independent traffic consultant or two (2) trained monitors shall monitor the Lincoln Avenue queues during after-school pick-up (3:00 to 3:45 p.m.) and morning drop-off (7:55 to 8:30 a.m.) by recording observations of the length of the each queue, reporting on the number of vehicles in the queue every 15 minutes, and the maximum number of vehicles in the queue during the daily monitoring period using the form provided as an appendix to the TDM. The monitoring persons shall also note the number of buses in the queue at each monitoring time. The Director of Operations shall prepare a report at the end of every week during each monitoring period based on the information gathered, sign the report, and submit to the Bureau of Planning. In addition to monitoring forms, the School shall also submit video documentation of the queue during the time periods referenced above eight (8) days each year (two days during each of the four (4) monitoring weeks) for a total of sixteen (16) video clips.

If the results of any of the monitoring periods show that the queue of vehicles extends for a period of 60 seconds or more during each monitoring period past the school's upper driveway, the School shall consult with Bureau of Planning, Transportation Services Division, and Oakland Police Department Safety Division and determine which of the above actions shall be implemented in what order to reduce the length of the queue.

Monitoring and reporting shall continue for an additional three (3) weeks following implementation of each of the above actions and shall continue as long as the City deems necessary to show that it has been effective in reducing the length of the queue.

Monitoring and Reporting Responsibility: Head Royce School
Monitoring and Reporting Review: Bureau of Planning

12. **School Grades/Enrollment / Verification.**
Ongoing
    a) Head Royce School is permitted to operate a K-12 Community Education Facility.
    b) The School is permitted to increase its enrollment to 875 students with this approval. Enrollment may increase by up to 15 students each year The City met with the School in 2010 and agreed to stay enforcement proceedings if the School would come into compliance with its conditions of approval and submit a TDM program. The School hired a traffic consultant in 2011 to look at ways it could implement improvements to drop off and pick up operations and develop a TDM program. The maximum school enrollment at Head Royce School is 906 students. No enrollment fluctuation resulting in enrollment above 906 students is allowed.
    c) The school shall submit the enrollment numbers to the Bureau of Planning no later than October 15th each year.
    d) In accordance with state law, the school shall also submit its enrollment figures to the California Department of Education no later than October 15th of each year.

13. **Special Inspector/Inspections, Independent Technical Review, Project Coordination and Management.**
Ongoing
The project applicant may be required to cover the full costs of independent technical review and other types of peer review, monitoring and inspection, including without limitation, inspections of violations of Conditions of Approval. The project applicant shall establish a deposit with the Building Services Division, as directed by the Building Official, Director of City Planning or designee.

14. **Hours of Operations (Academic, Childcare and After School Program).**
Ongoing
Head Royce School's hours of operation, which include academic, childcare and afterschool programs, are from 7:00 a.m. to 6:30 p.m. Monday through Friday. Athletic practices, including outdoor practices, may commence at 6:30 a.m. on weekdays. Outdoor athletic practices and games shall end by 7:30 p.m. or sundown, whichever is earlier. Indoor activities involving only School students, faculty, staff and members of the board of trustees such as play rehearsals, standardized testing, band practices, and meetings of student organizations, faculty committees

and meetings of the board of trustees are not considered Special Events as defined in Condition 16 and may occur after 6:30 p.m. on weekdays and between 8:00 a.m. and 6:00 p.m. on weekends. No field-wide lighting may be installed on the athletic field.

15. Summer Program Enrollment / Operations.
Ongoing

a) Summer Program hours are from 7:30 a.m. to 6:00 p.m. over the summer from Monday through Friday only.
b) Summer Program includes two, three (3) week sessions spanning six weeks, generally beginning the third week in June through the last week in July.
c) The Summer Program may have evening or weekend Special Events. However, those Special Events will be included in the maximum number of Special Events listed below.
d) The maximum Summer Program enrollment is 780 children per session. The Director of Operations shall submit the enrollment numbers to the Planning and Zoning Division 2 weeks prior to each session of the Summer Program.
e) The playing fields or pool shall not be used prior to 9:00 AM.
f) The School shall operate the Summer Program and shall not lease, partner, or loan the Summer Program to another operator or organization.
g) Unless otherwise noted, all Conditions of Approval that apply to School operations apply to the Summer Program.

16. Number of Special Events / Days and Hours of Operation.
Ongoing

The School and the Summer Program shall be permitted to hold Special Events at the Head Royce School campus subject to the following:

a) A “Special Event” is defined as a gathering in which visitors (including parents) are invited to the campus in conjunction with a School or Summer Program-sponsored event or activity such as a Back to School night, a performance (play or musical), athletic event, dance, walk-a-thon, guest speaker, school fair, Admissions Open House, promotion or graduation ceremony, associated and carried out by the school (not hosted by an outside group or organization) and for which 50 or more visitor vehicles are expected. If more than one Special Event occurs on a single day, each Special Event shall count as a separate event. Parking rules for Special Events are outlined in Condition 23. A Special Event does NOT include indoor activities involving only School students, faculty, staff and members of the board of trustees such as play rehearsals, standardized testing, band practices, and meetings of student organizations, faculty committees and meetings of the board of trustees. In addition, neighborhood meetings required or requested to be held on campus as a condition of this permit or otherwise by the City are not considered to be Special Events.
b) The school shall post an annual calendar on its website and provide the website link to the Neighborhood Committee described in Condition 24 at the beginning of the School year listing all Special Events and the anticipated number of visitor vehicles that will be generated for each event. The School is permitted an additional ten (10) total weekday evening events that are not on identified on the annual calendar, provided that the Neighborhood Committee is provided a 30-day notice of such addition and those events shall not take place during weekends or the summer.
c) During school academic, childcare and afterschool program hours of operation, Mondays through Fridays, the School is permitted an unlimited number of Special Events. However, those events for which 50 or more visitor vehicles are expected must follow Condition 23 procedures for Special Events.

d) The school shall be permitted a maximum of 85 evening Special Events per school year during the hours of 7:00 p.m. -9:30 p.m. All Special Event participants shall have left the campus and the lot locked by 10:00 p.m. School dances shall end by 10:30 p.m. with all participants leaving by 11:00 p.m.
e) The school shall be permitted a maximum of 55 Saturday daytime Special Events per school year during the hours of 9:00 a.m. to 6:00 and 10 Saturday evening Special Events per school year during the hours of 6:00 p.m. to 9:30 p.m. The school shall be permitted a maximum of ~~ten (10)~~ eight (8) Sunday Special Events per school year during the hours of 9:00 a.m. - 6:00 p.m. The school shall be permitted a maximum of ten (10) single day summer Special Events during the hours of 9:00 a.m. - 6:00 p.m. ~~and only on weekdays~~. One summer Special Event may take place on Saturday. There shall be no Sunday summer Special Events.
f) No events shall be held that have not been published on the school calendar or a 30 day in advance or emailed to immediate neighbors one month in advance. The school is not permitted to rent or loan out any of its facilities.
g) All Special Events shall be monitored by the School per the Condition of Approval.

17. Total Number of Employees.
Ongoing
a) The Project Applicant shall submit the total number of employees to the Bureau of Planning no later than October 15th each year.
b) In accordance with state law, the school shall also submit their employee numbers to the California Department of Education no later than October 15th of each year.

18. Master Plan May Be Required for Student Enrollment Increase or "Future Construction".
Ongoing
The Project Applicant shall apply for a new or amended Planned Unit Development Permit for any student enrollment increase over 906 students on the Head Royce campus site, including but not limited to any physical expansion of Head Royce School's operations at 4315 Lincoln Avenue or any other "Future Construction" associated with increasing Head Royce School's operations. The City may require preparation of a campus-wide Master Plan for any such expansion. Future Construction is defined for purposes of this condition as: new, wholly reconstructed, or relocated school buildings, any expansion of floor area (as defined by Planning Code), new enclosed buildings or portions of buildings (i.e., storage shed, garage, attic on an existing building). For purposes of this condition, future construction does not include features such as unenclosed decks/balconies, stairs, walkways, patios, courtyards, fences, walls and retaining walls, trellises or other landscape features, interior remodeling of an existing building, or repair of existing building features. Any future Master Plan shall address, at a minimum, an adequate on-site pick-up and drop-off area, how the school will accommodate additional student growth, a comprehensive development plan for the entire School, including addressing all on-site parking, events, sports fields (if applicable) and traffic-related and vehicle access issues. The last enrollment and staffing form submitted to the California Department of Education shall be required as part of the application documents.

19. Operational Noise General.
Ongoing
Noise levels from the activity, property, or any mechanical equipment on site or as a result of school operations shall comply with the performance standards of Section 17.120 of the Oakland Planning Code and Section 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction

measures have been installed and compliance verified by the Planning and Zoning Division and Building Services. No outdoor amplified sound equipment shall be used on the campus without a permit from the City Manager's office. For the purposes of this permit, "amplified sound equipment" includes bull horns, air horns, or loud speakers.

20. Parking Requirement and Shared Parking

At maximum enrollment (906 students), the School shall provide a minimum of 157 off-street parking spaces and in all cases shall, at a minimum, maintain sufficient off-street parking to meet Oakland Planning Code section 17.116.070(C). These spaces may be provided either at 4315 or 4368 Lincoln Avenue, provided that the spaces used at 4368 Lincoln Avenue are not already allocated to the existing use permit governing uses at that site. The School may use surplus parking at 4368 Lincoln Avenue, the Greek Orthodox Church, Cerebral Palsy Center, Mormon Temple or other off-site locations for additional parking, provided that use of these facilities for parking is not in fulfillment of the School's obligation to provide 157 off-street parking spaces at maximum enrollment and are not required or needed for the uses governing those sites.

21. Whittle and Lincoln Avenue Properties.

Ongoing

The properties located at 4200, 4220, ~~and~~ 4180 and 4286 Whittle Avenue and 4233 Lincoln Avenue shall be limited solely to permitted residential uses as defined in the Oakland Planning Code and the School will not merge the lot without obtaining an amendment to the PUD as a Major Change. The school shall maintain the residential character and uses of these houses and ensure that the houses maintain their structural integrity. These properties shall not be used for additional School parking, School staging of materials or equipment, School storage (including storage of maintenance equipment) or school deliveries or student pick-up or drop-off. The gate in the existing fence between 4200 and 4220 Whittle and the School property shall be posted with a No Trespassing sign and locked (with keys provided only to residents of these properties), except a push bar or similar unlatching system may be installed on the School side of the gate only to allow for exit in an emergency.

22. Whittle Gate Access.

Ongoing

Access to the school through Whittle Gate shall be limited as follows: Deliveries to the School shall be directed to Whittle Gate in accordance with Condition 25. The project applicant may provide *pedestrian* card access to the Whittle Gate to students or employees who walk or bike to School and to neighbors who have been given card access keys. The 20 School employees that parked on Clemons Avenue are prohibited from receiving pedestrian access cards for the Whittle Gate. The School may provide up to 22 *vehicle* access cards to faculty, staff or disabled visitors to park in the parking spaces in the School's lower parking lot. Disabled students may be dropped off at Whittle gate. Each year, the School shall deactivate the cards and issue new cards. Monitoring of Whittle Gate shall take place in accordance with Condition 23, below. The number of pedestrian and vehicle passes distributed each year shall be submitted to the Planning and Zoning Division. The School shall install signs identifying the appropriate access points and access restrictions, if any, to the School.

23. Transportation Demand Management.

Ongoing

The applicant shall maintain a TDM plan attached as Exhibit A to these conditions during both the regular school year and during the Summer Program. Among other things, the TDM implements Conditions 23 a-g as set forth below. The Conditions are the governing and enforceable conditions of approval.

a) Traffic Circulation and Management

The School shall continue to implement policies to ensure that 1) the drop-off and pick-up process is managed effectively and efficiently; 2) to minimize traffic on neighborhood streets; and to 3) encourage safe driving behaviors. These policies include:

i. Continuation of before and after-school childcare programs to reduce the number of peak vehicles arriving and departing the campus.

ii. Maintenance of detailed, written instructions of the vehicle pick-up and drop-off process for the purpose of increasing efficiency in the pick-up and drop-off operation. These procedures, which will be incorporated into a Transportation Policy Guide (Guide), shall include, but are not limited to, how to access the vehicle drop-off/pick-up lane from each direction ~~(loops)~~, a map showing the specific area where vehicle drop-off and pick-up is permitted, rules regarding safe practices for entering and exiting vehicles, and the area that queue cannot exceed. The School shall actively discourage and communicate the dangers of picking-up students on streets other than the designated drop-off area, as part of the Guide, parent meetings, Back to School nights and other means. The Guide shall specifically discourage early arrival for afternoon pickup. The summer program shall follow the Transportation Policy Guide.

iii. Compliance with Mitigation Measure Mitigation T1 and Condition 11.

iv. Mormon Temple Staging Area and Alternative: If the Mormon Temple Staging Area becomes unavailable for use during the pick up or drop off process, the School shall promptly institute one of the alternative means of maintaining the queue in compliance with these conditions as set forth in Condition 11. If an off-site staging area continues to be the preferred method to control the queue, the School shall institute that alternative within 30 days of the unavailability of the Mormon Temple in consultation with City staff. Alternative potential staging areas could include the parking lot of the Greek Orthodox Church, the Cerebral Palsy Center and/or the School's property at 4368 Lincoln,

v. Circulation Assistants: During morning drop-off and afternoon pick-up periods, the project applicant shall assign 5 adults in the morning and 8 adults in the afternoon to assist with the efficient flow of pick-up and drop-off traffic in approximately the locations listed below, subject to refinement per discussion with the City planning staff. The circulation assistants shall be distinct from the traffic safety monitors.

Morning assistants:

1. One circulation assistant at the Lincoln Avenue crosswalk in front of the Gatehouse.
2. One circulation assistant at the bus loading zone on the north side of Lincoln.
3. One circulation assistant at the middle school gate above the bus loading zone on the north side of Lincoln.
4. One circulation assistant for the student drop off area zone on the south side of Lincoln

5. One circulation assistant at the top of queue on the north side of Lincoln

Afternoon circulation assistants:
Same as morning with additional circulation assistants as follows:

6. One circulation assistant at the top of the main gate stairs matching parent vehicles to waiting students for pick-up.
7. One circulation assistant at the upper driveway to manage the queue.
8. One circulation assistant at staging area in the Church's overflow parking lot (or alternative)

The school shall have a sufficient number of qualified alternates on campus during every morning and afternoon drop-off time to ensure that the minimum number of traffic personnel is always met. All traffic assistants shall wear colored safety vests. The summer program shall have at least as many circulation assistants as the school year program.

b) Parking management strategies
The School shall implement parking management strategies to ensure that 1) the School minimizes parking in the neighborhood; 2) school-related parking does not disrupt traffic; and provides incentives to reduce single occupancy vehicles.

i. Through its TDM and Transportation Policy Guide, the School's policy shall be to direct staff, students and visitors to park in the School's 157 off-street spaces, in the lot at 4368 Lincoln Avenue and on Lincoln Avenue above the Gatehouse and direct them not to park on the side streets in the neighborhood.

ii. The School shall continue to pay for a Residential Permit Parking program on Alida Avenue, Alida Court and Linette Court through the City of Oakland unless the neighbors on these streets withdraw their request to maintain this permit program.

iii. Staff who contract with the school to carpool shall be given on-site priority spaces relative to non-carpooling staff in order to reduce single occupancy vehicles,

iv. Students shall be directed by the School to park in off-street parking on campus or on Lincoln Avenue above the Gate house. Students that contract with the school to carpool shall be given on-site priority spaces in order to reduce single occupancy vehicles.

v. The School shall maintain the required number of parking spaces per Section 17.116.070(C) at all times, including the Summer Program (one (1) space for each three employees plus one space for each 10 high school students of planned capacity.) An increase in employees or high school students could require additional parking spaces to be provided to meet the Planning Code. Required parking may be provided either on the Head Royce campus itself, unless prohibited by other Conditions of Approval, or at 4368 Lincoln Avenue or at other off-street locations. Surplus parking spaces are defined as those spaces above and beyond the requirements of the Planning Code for the permitted use. City staff shall use the School staff and student enrollment information submitted to the State of California Department of Education to determine compliance with parking ratios.

vi. In its Transportation Policy Guide, the School shall define “single occupancy vehicle” as a vehicle with the one driver and one non-driving student or child.

c) Auto Trip Reduction Program

The School shall discourage single-student and single parent/student driving in the Transportation Policy Guide and implement policies with a goal of reducing single occupant vehicles arriving or departing the School. The Auto Trip Reduction Program shall be included in the TDM and address all four modes of transportation (pedestrian, bicycle, carpooling/vanpooling, and transit), including:

i. The project applicant shall continue to sponsor and provide private buses (or an equivalent service and capacity as existing conditions).

ii. The project applicant shall continue to subsidize an AC Transit bus pass to students and faculty as long as AC Transit bus service is available. The project applicant shall assign a transportation coordinator who will provide carpooling and ridematching services to parents who are interested in carpooling.

iii. The School shall commit to maintain an average of 27% of its school-year student enrollment traveling to school by modes other than single occupancy vehicles (e.g. driving or being driven alone) as long as AC Transit maintains the bus routes that serve the School. However, once the School achieves a maximum student enrollment of 906 students, the School shall commit to maintain an average of 30% of its school-year student enrollment traveling by modes other than single occupancy vehicles. A survey of alternative travel modes shall occur during each of the two independent monitoring periods carried out during the school year pursuant to Condition 23(g) and the counts shall be averaged over the two (2) monitoring periods. However, the School may elect to conduct additional third-party monitoring and the counts shall be averaged overall additional academic year monitoring periods. Alternative travel modes shall include walking, biking, carpooling or taking a bus. If AC Transit chooses to discontinue one or more of the routes that service the School, the average required by this condition will be lowered by the percent of students who used the discontinued transit line. The School and the City will then work together to determine transportation alternatives and a new, appropriate percentage of students that should be traveling to school by means other than single-occupancy vehicles.

d) Special Events

i. The project applicant shall establish transportation procedures for Special Events to 1) ensure that Special Events are managed efficiently and effectively; and 2) minimize traffic and parking in the neighborhood. The project sponsor shall anticipate the attendance of Special Events and note this on the school’s calendar. At least two weeks prior to a Special Event, the School shall confirm the anticipated number of vehicles and distribute the appropriate parking locations and restrictions to the attendees and Neighborhood Liaison Committee. For all Special Events, the school shall direct visitors not to park on neighborhood streets and instead encourage them to park in off-street lots or on either side of Lincoln Avenue above the gatehouse.

ii. For single or cumulative Special Events on the same day that will generate between 50 and150 people, the School shall provide sufficient parking either at the main campus, 4368 Lincoln Ave. or Lincoln Ave. above the gatehouse. For single events or cumulative events on the same day expected to be between 150 and 400 people, the School shall provide sufficient parking on-site, at 4368 Lincoln Avenue, on Lincoln Avenue above the gatehouse, the Mormon Temple, the Greek Orthodox Church and/or Cerebral Palsy Center. For events exceeding 400 people, an off-site alternative, with a shuttle or valet system, is required.

iii. Traffic Monitors during Special Events: The purpose of traffic monitors during Special Events is to direct cars away from neighborhood streets and into off-street parking or onto Lincoln Avenue above the gatehouse. Single or cumulative events with 50 or fewer visitor vehicles people are not considered Special Events per Condition 16 and do not require a traffic monitor. However, parking signs shall be posted along Lincoln Avenue. Single or cumulative events with 50-150 people shall require one monitor along Lincoln Avenue at the corner of Lincoln and Alida and another monitor at the Whittle Gate. Single or cumulative events between 50 and 200 people shall require four (4) monitors. Monitors will be stationed at the following streets to direct cars to parking provided for the event: Whittle Gate, Lincoln Avenue south of the gate house, Alida Street between Lincoln and Laguna Avenue, and Alida Court. Single or cumulative events over 200 people shall require six (6) monitors, unless an off-site shuttle service is used. In addition to the streets listed above, the monitors will be stationed at the following streets: Tiffin Avenue between Whittle and Lincoln Avenue, and Burlington Street.

The traffic monitors shall wear a colored safety vest, carry digital cameras, and provide adequate information to the school in order to identify the Special Event parking violators and for the school to implement the enforcement policy. Monitors shall be in the neighborhoods 15 minutes prior to any event.

The project applicant shall provide a live hotline number to reach an event manager during Special Events to be used to report violations or complaints. Enforcement of violations of Traffic Safety Rules (see subsection (f) below) observed during Special Events shall be handled in the manner set forth in subsection f below and the TDM.

e) Communication

The project applicant shall establish communication protocols to 1) institutionalize and encourage good neighbor parking and driving behavior; 2) ensure that the School community drives in a safe manner; and 3) ensures the rules are clearly communicated, including:

i. Traffic Safety Rules: The TDM contains a list of Traffic Safety Rules that are designed specifically to increase safety of the school community and the neighborhood. The TDM also includes a list of “Good Neighbor Rules” designed to decrease impacts to neighbors.

ii. The project applicant shall continue to maintain a Transportation Policy Guide. The Guide shall include, but not be limited to the following: Vehicle drop-off and pick-up procedures designed to promote an efficient operation; bus loading procedures; Traffic Safety Rules; “Good Neighbor Rules” including blocking driveways, u-turns in neighbor's driveways; Transit Subsidy Program; Special Event Traffic and Parking Rules; and consequences for violations. If necessary to reflect the updated TDM Plan, the Transportation Policy Guide shall be submitted to Bureau of Planning, Transportation Services Divisions, and OPD-Traffic Safety for review. The project applicant shall distribute the Transportation Policy Guide to each student's parent/guardian. Each student's parent/guardian will need to provide written acknowledgement of receipt of the Policy Guide, and acceptance of its policies as a condition of enrollment. The School shall submit a record of each family's acknowledgement of receipt in a form acceptable to the City if requested. The project applicant shall hold a parent meeting at the beginning of each school year to discuss the traffic and parking. If rules change significantly, as determined by the Director of the Bureau of Planning, after the beginning of the school year, the project applicant shall hold another meeting. A City staff member may attend. The project applicant shall annually review the Transportation Policy Guide and submit the Transportation Policy Guide for review by the Bureau of Planning, Transportation Services Division, and OPD-Traffic Safety staff.

f) Enforcement of Traffic Safety Rules and Event Traffic and Parking

i. The School shall implement and maintain a system to identify and track persons who violate the School's Traffic Safety Rules as set forth in the TDM. Good Neighbor Rules as set forth in the TDM shall not be considered Traffic Safety Rules subject to enforcement by the Bureau of Planning. Violations of the Vehicle Code are enforced by the Oakland Police Department.

ii. During the pick-up and drop-off periods: The School shall assign four (4) traffic monitors to implement and monitor the Traffic Safety Rules. The monitors shall be placed at:

- Whittle Gate,
- ~~On the westbound loop (e.g. the intersection of Laguna and Alida)~~
- ~~Two~~ Three traffic monitors for Lincoln Ave between the main entrance and upper driveway.

The traffic safety rule monitors shall wear a safety vest, carry digital cameras, and provide adequate information to the school in order to identify the rule violators and for the school to implement the traffic safety rule enforcement policy. Monitors shall be in the neighborhoods 15 minutes prior to scheduled pick-up and drop-off times.

g) Compliance Reporting

i. The project applicant shall hire a qualified traffic consultant, (based on at least three recommendations from the Bureau of Planning), approved by the Director of Planning or designee, to monitor compliance with the traffic-related conditions in the Conditions of Approval and the approved TDM. Specifically, the independent monitors shall verify compliance by:

- Counting the number of traffic assistants and monitors present during drop-off and pick-up periods.
- Observing the drop-off and pick-up traffic flow and recommending measures to ensure smooth operations to the City.
- Reviewing the length of the queue and check if it extends above the upper driveway.
- Collecting the number of violations that have been reported from Head Royce's database and recommending measures to reduce violations.

- Recording parking occupancy in all Head Royce parking lots.
- Monitoring Whittle Avenue and Alida for School –related parking.
- Auto Trip Reduction Program and related documents as determined satisfactory by the Director of Planning, to meet the alternative transportation mode percentage.

ii. The independent monitor (which shall be chosen by the School based on at least three recommendations from the Bureau of Planning), shall monitor the school's compliance with the traffic-related conditions of approval as implemented by the TDM four times per year: once each semester, once during the Summer Program and once during a Special Event involving over 100 cars. The independent traffic consultant shall submit a written report within two weeks of the monitoring summarizing the results of the monitoring session. The reports shall include recommendations to remedy potential infractions of the traffic-related conditions of approval, if appropriate to the Bureau of Planning. Such measures proposed by the independent traffic consultant must be approved by the City of Oakland prior to implementation. The City of Oakland shall have one week to review and approve the submitted measures. Upon City of Oakland approval of enhanced or additional TDM measures, the project applicant shall be given four weeks after the approval to implement the recommended measures.

iii. The School shall have one semester to cure any traffic-related violations of the conditions of approval. If after invoking enhanced or additional TDM measures the School still does not meet its traffic-related conditions of approval based on the independent monitors reports submitted to the City of Oakland, the Bureau of Planning may refer the matter to the City of Oakland Planning Commission for scheduling of a compliance hearing to determine whether the School's approvals should be revoked, altered, or additional conditions of approval imposed. This could include a permanent reduction in enrollment. The City of Oakland can also impose penalties on a per infraction fee pursuant to the City's Master Fee Schedule based on the observations of city officials, the Oakland Police Department, or the independent monitors. In determining whether reduced enrollment or other remedies are appropriate, the City of Oakland shall consider if the School has demonstrated a good faith effort to comply with the traffic-related conditions of approval. It will be up to the School to provide evidence to the City of Oakland of good faith efforts for review.

24. Neighborhood Liaison Committee /Point of Contact/Complaints.
Ongoing
The School shall invite interested representatives from the surrounding neighborhood streets, including but not limited to, Upper Lincoln, Lower Lincoln, Alida Court and Whittle Avenue neighborhood (Neighborhood Committee) to meet with a representative from the School administration, the Director of Neighborhood Relations (or his or her designee) and a member of the board of trustees, in order to resolve conflicts and maintain communications between the school and the surrounding neighborhoods. The School shall convene the Neighborhood Committee at least twice a year, with one meeting held at the end of the school year prior to the start of the Summer Program. The date/time/location shall be mutually agreed to by the Neighborhood Committee and the School. Invitations to the meeting with a written agenda shall be mailed at least 10 days prior to the scheduled meeting to the Neighborhood Committee, the City Council's office for district 4, the planning director or designee, and all residents immediately abutting and adjacent to the School. The School shall increase the number of

meetings if determined to be necessary by City Bureau of Planning staff. School shall provide notice of these meetings to City staff who may attend.

No later than 30 days after this approval and ongoing
The Project Applicant shall designate a representative, or series of representatives, on site, to act as the primary point(s) of contact and as a complaint manager. The procedures and protocols to track and timely respond and resolve complaints/concerns raised by neighbors, or others relating to the school's operations, including but not limited to traffic, noise, etc. are contained in the TDM Plan. One of the purposes of this condition is to have the project applicant timely respond and resolve complaints prior to involvement by Building Services Code Compliance Division, unless the complaint is related to imminent threats to public health or safety. The School shall provide neighbors with a daytime and evening contact number for the complaint manager. Complaints will be responded to within 48 hours. In addition, the School shall provide neighbors with a 24-hour emergency hotline number for use in the event of an emergency.

25. Deliveries.
Ongoing
All deliveries, except US Mail, Fed-Ex and UPS trucks and a once a year mulch delivery to the playground area, must access the School via the Whittle Gate or the upper parking lot area. Except as noted above, no deliveries are permitted along Lincoln Avenue. Deliveries must be scheduled for 9 a.m. to 5 p.m. on weekdays, except for deliveries to the café which may commence at 7 a.m. on weekdays operation hours only and no overnight parking or idling is permitted. The School shall provide a live daytime and evening contact number for the complaint manager.

26. Emergency Management Plan.
Prior to the start of the next semester after Planning Approvals and Ongoing
The project applicant shall develop an Emergency Management Plan ("EMP"), and submit to Planning and Zoning Division, Transportation Services Division, OPD-Traffic Safety, and the Fire Marshall, for review and consultation. The Applicant shall implement the final EMP. The EMP shall include at least the following components:

a) Fire Protection Bureau Occupancy Review
Ongoing
The School shall cooperate and coordinate with the Fire Services Department to conduct yearly occupancy and fire safety inspections of the school, fire drills and unannounced future site visits. The resulting Fire Department report(s), and any follow-ups, shall be sent to the Planning and Zoning Division for review.

b) Emergency Preparedness Plan
With 6 months and Ongoing
The School shall submit an Emergency Preparedness Plan, within 6 months after this approval. The completed plan shall be submitted to the Planning and Zoning Division and the Fire Protection Bureau for review and consultation. The plan shall discuss emergency evacuation procedures that will facilitate emergency vehicle access to the neighborhood during School pick-up and drop-off operations. The plan shall be implemented.

c) Fire Department Site Visits
The project applicant shall coordinate with the Oakland Fire Marshal's Office to make periodic unannounced visits to the school (the frequency, timing, and types of visits should be

at the Fire Marshal's discretion based on need for visits and compliance by the school) to verify that adequate emergency vehicle access is being maintained during peak pick-up and drop-off periods. The Fire Marshal should consult with the School to identify modifications to the circulation rules, if emergency access problems are identified.

Applicant and/or Contractor Statement

I have read and accept responsibility for the Conditions of Approval, as approved by Planning Commission actions on ______ and all previous actions. I agree to abide by and conform to these conditions, as well as to all provisions of the Oakland Zoning Code and Municipal Code pertaining to the project.

___________________________________ ______________________________

Signature of Owner/Applicant: (date)

Appendix 13

Head-Royce School Noise and Vibration Assessment

Illingworth & Rodkin, Inc., July 23, 2020

Appendix 13B Measured Noise Levels at 2019 Graduation Event, Salter Associates, December 2019

Appendic 13C RGD Acoustics, Peer Review of Noise from Graduation Events in the Commons, October 14, 2021

Appendix 13D Memo - Adjusted Calculations for Graduation Event, Illingworth & Rodkin, Inc., October 15, 2021

HEAD-ROYCE SCHOOL
NOISE AND VIBRATION ASSESSMENT

Oakland, California

August 4, 2020

Prepared for:

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Project:19-221

INTRODUCTION

This report assesses potential noise and vibration impacts resulting from the construction and operation of the Head-Royce School Project proposed in Oakland, California. The project proposes to integrate the existing Head-Royce School located north of Lincoln Avenue (North Campus) with new facilities located at the site of the former Lincoln Child Center located south of Lincoln Avenue (South Campus). The project would connect the two campuses via an underground tunnel below Lincoln Avenue and with at-grade pedestrian crossing across Lincoln Avenue.

No construction or changes in land use are proposed for the North Campus. On the South Campus, the project proposes to demolish eight of the twelve existing buildings. The three existing buildings to remain, which are identified as historic resources, would be rehabilitated and re-purposed for classroom and administrative use with no significant changes to the exterior. Three additional buildings would be constructed on the South Campus to include a Performing Arts Center, a pavilion, and a maintenance building. On-street drop-off and pick-up of students would be moved from Lincoln Avenue and Alida Street to an internal one-way circulation loop driveway on the South Campus.

This report evaluates the project's potential to result in significant impacts with respect to applicable California Environmental Quality Act (CEQA) guidelines. The report is divided into three sections: 1) the Setting Section provides a brief description of the fundamentals of environmental noise and groundborne vibration, summarizes applicable regulatory criteria, and discusses the ambient noise environment in the project vicinity; 2) the General Plan Consistency – Noise and Land use Compatibility section discusses noise and land use compatibility utilizing policies in the City's General Plan; and, 3) the Impacts and Mitigation Measures Section describes the significance criteria used to evaluate project impacts, provides a discussion of each project impact, and presents mitigation measures, where necessary, to mitigate the identified impacts to a less-than-significant level.

SETTING

Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its *loudness*. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (*frequency*) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA).* This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This *energy-equivalent sound/noise descriptor* is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level* (*CNEL*) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level* (*DNL* or L_{dn}) is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

TABLE 1 Definition of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e. g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), California Department of Transportation, September 2013.

Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One method is the Peak Particle Velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. In this report, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table 3 displays the reactions of people and the effects on buildings that continuous or frequent intermittent vibration levels produce. The guidelines in Table 3 represent syntheses of vibration criteria for human response and potential damage to buildings resulting from construction vibration.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related groundborne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to cause damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as paint flaking or minimal extension of cracks in building surfaces; minor, including limited surface cracking; or major, that may threaten the structural integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher. The damage criteria presented in Table 3 include several categories for ancient, fragile, and historic structures, the types of structures most at risk to damage. Most buildings are included within the categories ranging from “Historic and some old buildings” to “Modern industrial/commercial buildings”. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

The annoyance levels shown in Table 3 should be interpreted with care since vibration may be found to be annoying at lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

TABLE 3 Reaction of People and Damage to Buildings from Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Threshold at which there is a risk of damage to fragile buildings with no risk of damage to most buildings
0.25	Strongly perceptible to severe	Threshold at which there is a risk of damage to historic and some old buildings.
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential structures
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to new residential and modern commercial/industrial structures

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013.

Regulatory Background – Noise

Noise-related regulations, plans, and policies established by the State of California and the City of Oakland are applicable in this assessment of the proposed project. These planning documents are implemented during the environmental review process to limit noise exposure at existing and proposed noise sensitive land uses.

State CEQA Guidelines. The California Environmental Quality Act (CEQA) contains guidelines to evaluate the significance of effects of environmental noise attributable to a proposed project. Under CEQA, noise impacts would be considered significant if the project would result in:

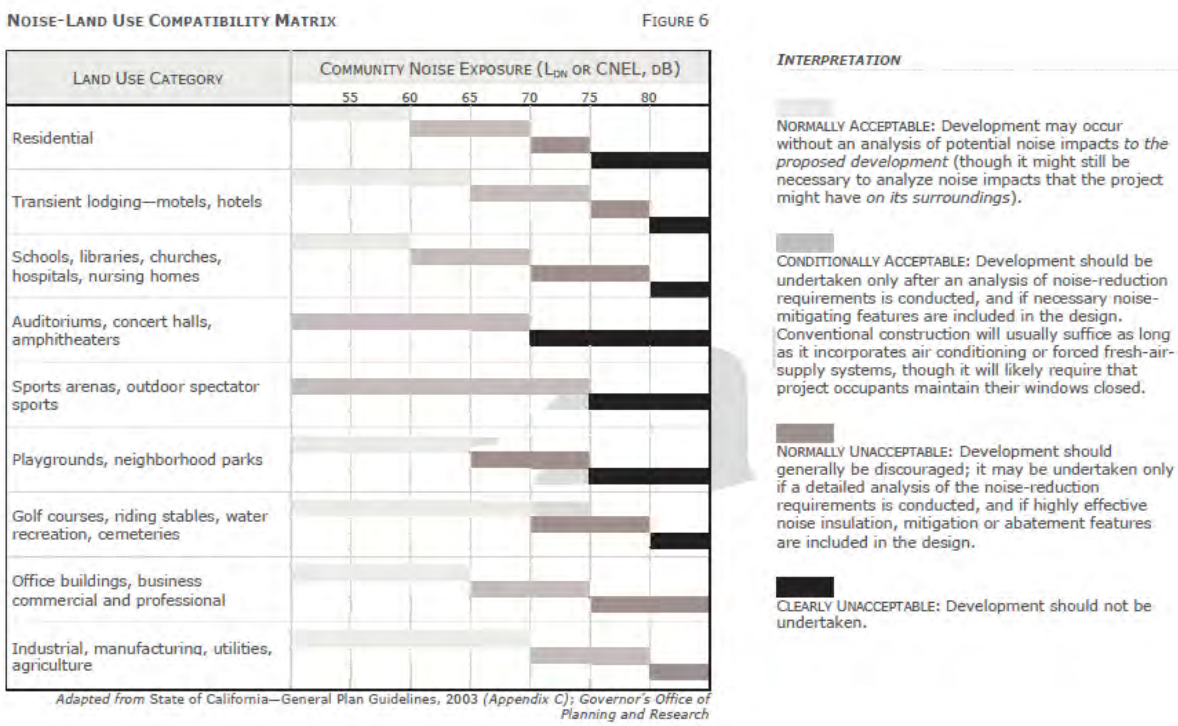
(a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

(b) Generation of excessive groundborne vibration or groundborne noise levels;

(c) For a project located within the vicinity of a private airstrip or 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, if the project would expose people residing or working in the project area to excessive noise levels.

Checklist items (a) and (b) are applicable to the proposed project. The project is not located within the vicinity of a private airstrip or a public airport and would not expose people residing or working in the project area to excessive aircraft noise levels; therefore, item (c) is not carried further in this analysis.

City of Oakland General Plan Noise Element. Table NOI-3 (below) categorizes a noise level of up to 60 dBA L_{dn}/CNEL as "acceptable", from 60 to 70 dBA L_{dn}/CNEL as "conditionally acceptable", from 70 to 80 dBA L_{dn}/CNEL as "normally unacceptable", and a noise level of 80 dBA L_{dn}/CNEL or higher as "clearly unacceptable".



City of Oakland Planning Code. The noise performance standards of the Oakland Planning Code set out to control operational and construction noise levels. These policies were further clarified in the City of Oakland CEQA Thresholds of Significance Guidelines, dated October 17, 2016. The following policies are applicable to the project:

<u>Section 17.120.050 G, Temporary Construction and Demolition Noise:</u> Table Oakland-1, below, specifies the maximum noise level allowable at receiving uses during short and long term construction or demolition projects. The City allows for an exemption if an acoustical analysis is performed that identifies recommend measures to reduce potential impacts.[1]

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[1] The acoustical analysis must identify, at a minimum, (a) the types of construction equipment expected to be used and the noise levels typically associated with the construction equipment and (b) the surrounding land uses including any sensitive land uses (e.g., schools and childcare facilities, health care and nursing homes, public open space). If sensitive land uses are present, the acoustical analysis must recommend measures to reduce potential impacts.

TABLE Oakland-1 City of Oakland Construction Noise Standards at Receiving Property Line, dBA[1]		
Receiving Land Use	Maximum Allowable Noise Level (dBA)	
	Weekdays 7 a.m.-7 p.m.	Weekends 9 a.m.-8 p.m.
Less than 10 days		
Residential	80	65
Commercial, Industrial	85	70
More than 10 Days		
Residential	65	55
Commercial, Industrial	70	60
Notes: 1) If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.		

Section 8.18.020, Persistent Noises a Nuisance: The persistent maintenance or emission of any noise or sound produced by human, animal or mechanical means, between the hours of nine p.m. and seven a.m., which, by reason of its raucous or nerve-racking nature, shall disturb the peace or comfort, or be injurious to the health of any person shall constitute a nuisance.

Failure to comply with the following provisions shall constitute a nuisance.

A. All construction equipment powered by internal combustion engines shall be properly muffled and maintained.

B. Unnecessary idling of internal combustion engines is prohibited.

C. All stationary noise-generating construction equipment such as tree grinders and air compressors are to be located as far as is practical from existing residences.

D. Quiet construction equipment, particularly air compressors, are to be selected whenever possible.

E. Use of pile drivers and jack hammers shall be prohibited on Sundays and holidays, except for emergencies and as approved in advance by the Building Official.

Section 17.120.050 A-F, Operational Noise: Table Oakland-2, below, specifies the maximum noise level allowable at receiving uses during new project operations.

TABLE Oakland-2 City of Oakland Operational Noise Standards at Receiving Property Line, dBA[1]			
Receiving Land Use	**Cumulative No. of Minutes in 1-Hr Period[2]**	**Maximum Allowable Noise Level (dBA)**	
		Daytime 7 a.m.-10 p.m.	**Nighttime 10 p.m.-7 a.m.**
Residential and Civic[3]	20 (L_{33})	60	45
	10 ($L_{16.7}$)	65	50
	5 ($L_{8.3}$)	70	55
	1 ($L_{1.7}$)	75	60
	0 (L_{max})	80	65
		Anytime	
Commercial	20 (L_{33})	65	
	10 ($L_{16.7}$)	70	
	5 ($L_{8.3}$)	75	
	1 ($L_{1.7}$)	80	
	0 (L_{max})	85	
Manufacturing, Mining, and Quarrying	20 (L_{33})	70	
	10 ($L_{16.7}$)	75	
	5 ($L_{8.3}$)	80	
	1 ($L_{1.7}$)	85	
	0 (L_{max})	90	

Notes:
1) These standards are reduced 5 dBA for simple tone noise, noise consisting primarily of speech or music, or recurring impact noise. If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.
2) L_x represents the noise level that is exceeded X percent of a given period. L_{max} is the maximum instantaneous noise level.
3) Legal residences, schools and childcare facilities, health care or nursing home, public open space, or similarly sensitive land uses.

Existing Noise Environment

The Head-Royce School is located at 4315 Lincoln Avenue in Oakland, California, approximately 0.4 miles south of Highway 13 and 0.9 miles north of I-580. It is generally below the Ascension Greek Orthodox Cathedral in the Lincoln Highlands/Oakmore/Dimond neighborhood and is surrounded by residences to the east, west, and south.

The Project Area includes four separate properties, three of which are owned by Head-Royce School and a fourth under separate agreement with a third party:

- The South Campus is the former Lincoln Child Center at 4368 Lincoln Avenue. The South Campus is the primary property involved as part of the Project, to be redeveloped, rehabilitated and integrated with the current North Campus.

- The North Campus is the existing Head-Royce School campus and includes two properties at 4315 and 4465 Lincoln Avenue. 4315 Lincoln Avenue is the existing academic campus, and 4465 Lincoln Avenue contains the School's outdoor athletic fields and other outdoor activity space.

- The property at 4500 Lincoln Avenue is used under an agreement with Ability Now Bay Area (the property owner) for non-exclusive use of an existing playfield. The 4500 Lincoln Avenue property is a part of the Project Area in that it is associated with the Head-Royce School, but the Project proposes no changes for the ownership or use of this adjacent property.

Noise monitoring was conducted by Salter[2] from Friday, June 7, 2019 to Monday, June 10, 2019. The noise monitoring included a long-term measurement (LT-1) in the North Campus Upper Parking lot, approximately 180 feet from the centerline of Lincoln Avenue, as shown in Figure 1. The primary noise sources at this location were parking lot activities and traffic along Lincoln Avenue. Upper class graduation took place on Saturday, June 8, 2019 inside the existing campus gymnasium. Daytime noise levels at LT-1 ranged from 48 to 60 dBA L_{eq} on weekdays and from 45 to 54 dBA L_{eq} on weekend days, including periods during graduation. The day-night average noise level at this location was 51 dBA L_{dn} on Saturday, June 8, 2019, including graduation, and 52 dBA L_{dn} on Sunday, June 9, 2019. Using a combination of the data from June 7 and June 10, 2019, weekday day-night noise levels are calculated to be 53 dBA L_{dn}. Daytime background noise levels (L_{90}), which would be representative of background noise levels in the surrounding residential areas, ranged from 40 to 45 dBA L_{90} on weekdays, and from 37 to 47 dBA L_{90} on weekend days. The results of the long-term measurements are shown in Figures 2, 3, 4, and 5.

Traffic noise modeling was conducted using the Federal Highway Administration's Traffic Noise Model (TNM version 2.5) to confirm the results of the noise monitoring. Traffic volume inputs were based on the project's traffic study[3]. Based on noise modeling using traffic volume inputs from the project's traffic study, traffic noise levels at 50 feet from the center of Lincoln Avenue

2 Measurement data provided by Salter.

3 Head-Royce School Expansion – Preliminary Transportation Assessment, Fehr & Peers, April 30, 2020.

are calculated to be 61 dBA L_{dn} under existing conditions. Noise levels would drop off at a rate of approximately 4.5 dBA per doubling of distance from the roadway. At a distance of 180 feet, noise levels would be 53 dBA L_{dn}. This is consistent with the measured data, as described above.

FIGURE 1 Site Aerial and Noise Measurement Location

FIGURE 2 Long-term Measurement Data, June 7, 2019

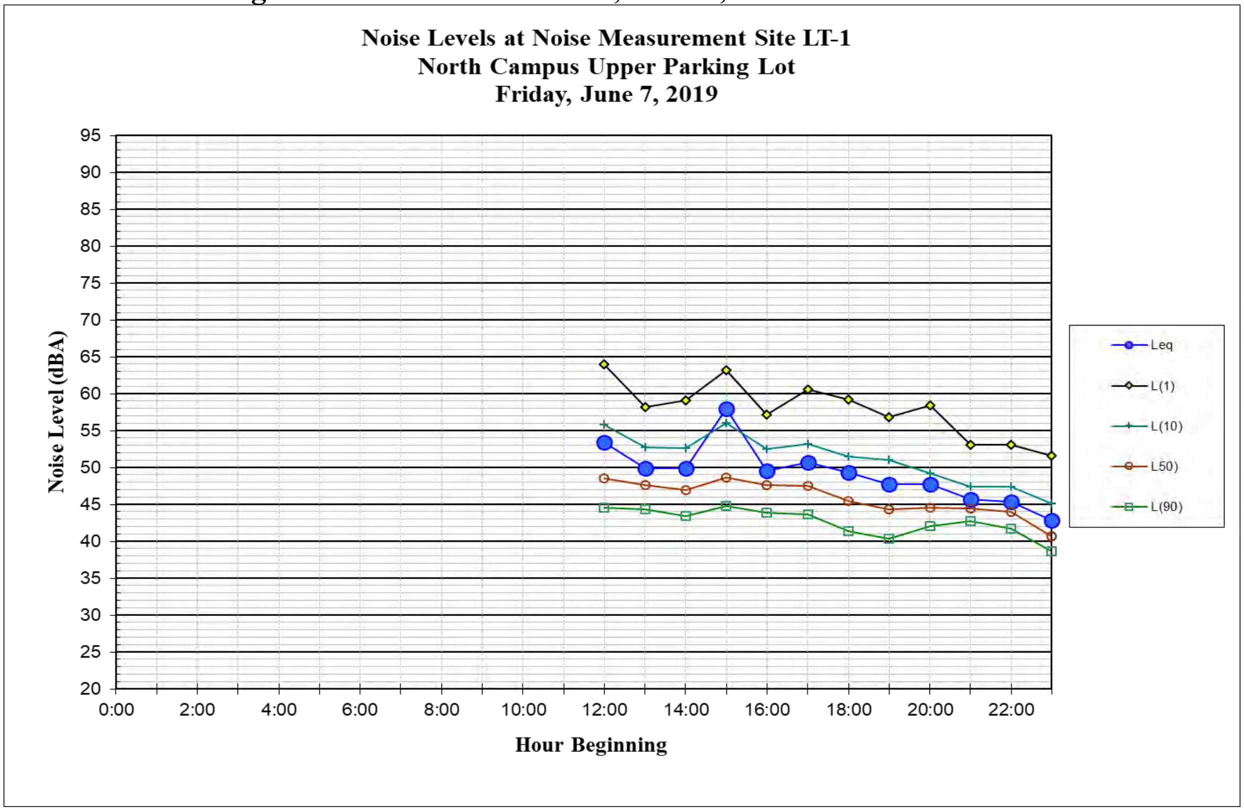


FIGURE 3 Long-term Measurement Data, June 8, 2019

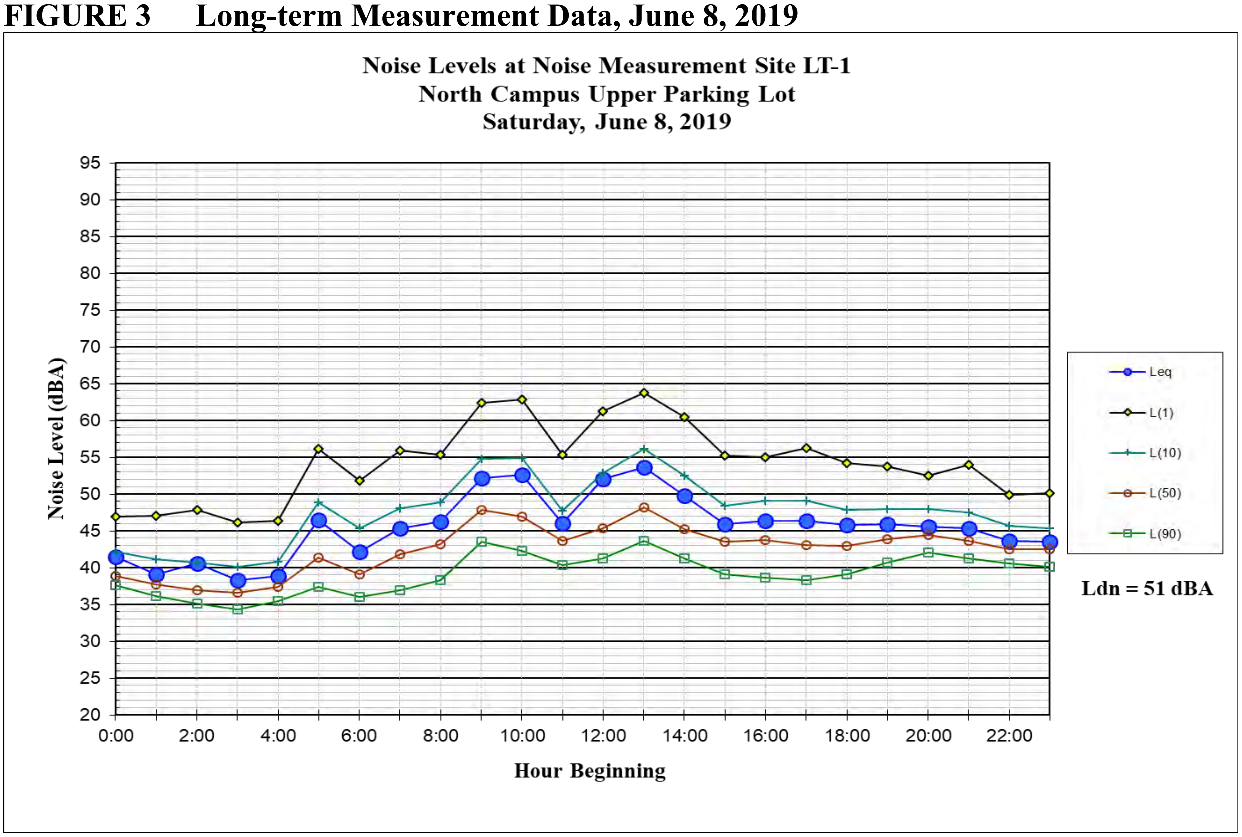


FIGURE 4 Long-term Measurement Data, June 9, 2019

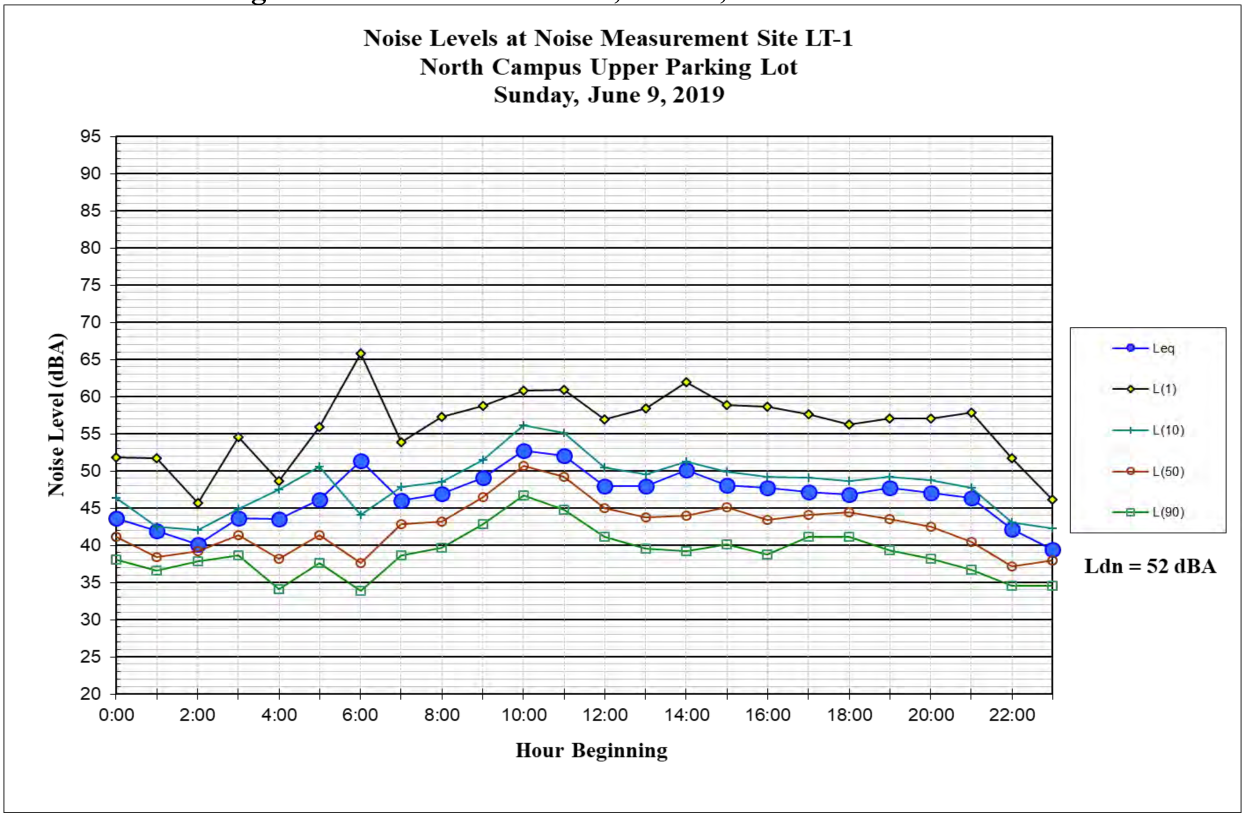
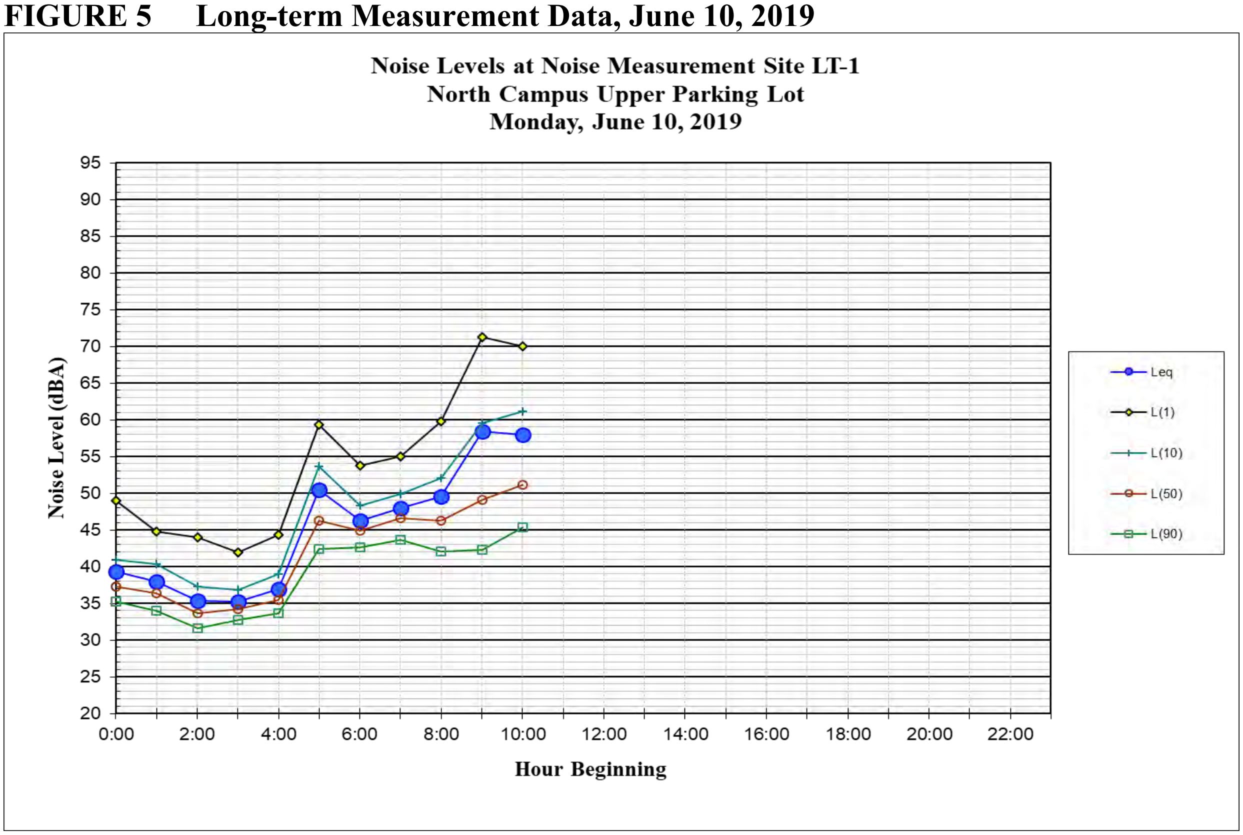


FIGURE 5 Long-term Measurement Data, June 10, 2019



GENERAL PLAN CONSISTENCY ANALYSIS

The impacts of site constraints such as exposure to excessive levels of noise and vibration are not considered under CEQA. This section addresses Noise and Land Use Compatibility for consistency with the policies set forth in the Oakland General Plan.

Noise and Land Use Compatibility

The applicable General Plan policies were presented in detail in the Regulatory Background section and are summarized below:

- The Oakland General Plan specifies a 'normally acceptable' exterior noise level of 60 dBA L_{dn} for school land uses.

Future exterior noise levels at the project site would continue to result primarily from local and distant traffic and on-site activities. As described in the Existing Noise Environment section of this document, the noise environment at the site is anticipated to range from 51 to 53 dBA L_{dn} is areas adjacent to Lincoln Avenue, with lower environmental noise levels in areas that are further and/or shielded from roadways. Noise levels are not anticipated to exceed 60 dBA L_{dn} at any proposed exterior use areas and would be considered 'normally acceptable' throughout the site. An acceptable exterior noise environment would yield acceptable interior noise levels assuming standard construction methods.

NOISE IMPACTS AND MITIGATION MEASURES

This section describes the significance criteria used to evaluate project impacts under CEQA, provides a description of each project impact, and presents mitigation measures, where necessary, to provide a compatible project in relation to adjacent noise-sensitive land uses.

Significance Criteria

The following criteria were used to evaluate the significance of environmental noise resulting from the project:

1. **Temporary or Permanent Noise Increases in Excess of Established Standards:** A significant impact would be identified in the following cases:

    a. Operational Noise in Excess of Standards. A significant impact would be identified if project operations were to exceed the noise level standards specified in Table Oakland-2, adjusted down by 5 dBA to account for noise sources consisting primarily of speech or music.

    b. Permanent Noise Increase. A significant permanent noise increase would occur if a) the noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater.

c. Temporary Noise Increase. Construction noise impacts would be considered significant if project construction were to exceed the City of Oakland's Construction (or Demolition) Noise Performance Standards for activities that occur for more than 10 days (70 dBA at commercial uses and 65 dBA at residential uses during weekday daytime hours).

2. **Generation of Excessive Groundborne Vibration:** A significant impact would be identified if the construction of the project would expose persons to excessive vibration levels. Groundborne vibration levels exceeding 0.3 in/sec PPV would have the potential to result in cosmetic damage to older residential buildings.

Impact 1: **Operational Activity and Event Noise in Excess of Established Standards.** Noise levels during graduation and other large outdoor events held at the Commons and during nighttime informal outdoor gatherings after Performing Arts Center events could exceed City noise level standards. All other proposed school activities are anticipated to meet City noise standards. **This is a potentially significant impact.**

The school anticipates the following noise generating outdoor activities throughout the South Campus: outdoor classes, social gatherings, school graduation, promotion events, truck loading, informal gatherings after indoor Performing Arts Center events, and outdoor recess. Indoor events are not anticipated to be audible off-site. There are no nighttime (10:00 pm to 7:00 am) outdoor events proposed for the site.

A significant impact from project operations would be identified if project operations were to generate noise levels that would exceed the noise level standards specified in Table Oakland-2. For noise sources that consist primarily of speech or music with discernable meaning, the limits would be adjusted down by 5 dBA.

Events Held in the Commons

The school proposes to occasionally use the Commons for school graduation and promotion events. The school's largest such event is upper school graduation, held in midday during a weekend in June. Approximately 800-1000 people attend upper school graduation. Lower and middle school promotion ceremonies have significantly lower attendance than that of upper school graduation ceremonies. Amplified speech at the Commons is anticipated to use compact directional line array speakers. The model for the amplified speaker array for the graduation event is directed at three points in the audience – a pair for the front, middle, and back, affixed one foot below the height of the Building 2 and set to reach a level of 75 dBA at the back of the audience.

Based on measurements made at various sporting events and ceremonies at Bay Area high schools, the variation in spectator noise primarily depends upon the attendance and level of excitement generated by the event. Otherwise, noise levels generated by the speaker system would be about the same regardless of the number of people in attendance. Football games would be anticipated to generate noise levels of about 67 dBA L_{eq} with 1,000 spectators at an distance of 225 feet from the center of the stands, not taking shielding from structures or terrain into account. The surrounding residences are shielded from the Commons by existing and proposed buildings. SoundPLAN Version V8.2 was used to calculate noise contours for an upper school graduation event, utilizing the topography of the site and surrounding area. SoundPLAN is a sophisticated three-dimensional noise mapping software that takes the characteristics of the noise source and the geometry of the receivers, surrounding terrain, and any intervening structures into account. The model was calibrated assuming 1,000 spectators and the specifications of the speaker system given above. The resulting L_{eq} noise contours are shown in Figure 6. Ambient noise levels at these same receptors during daytime hours are typically below 50 dBA L_{eq}.

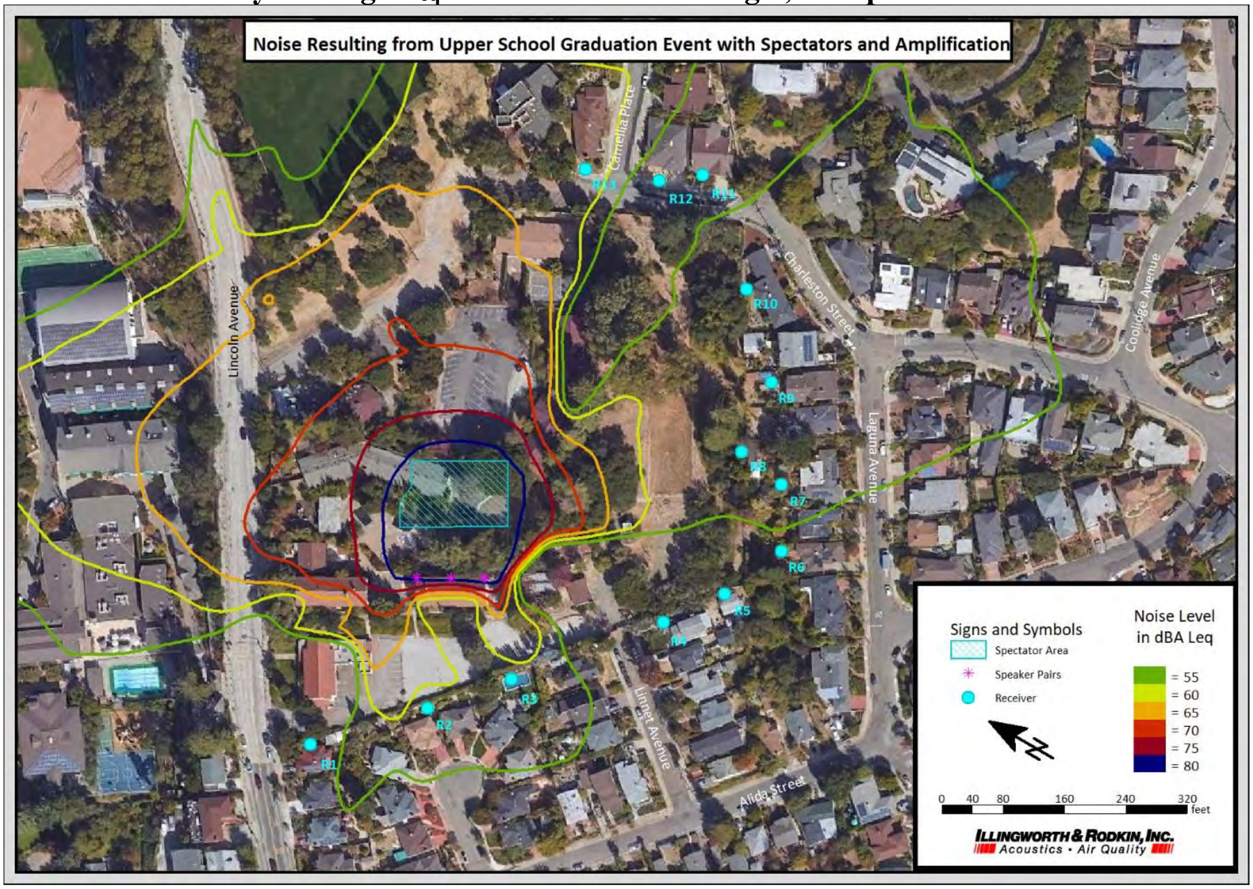
Based on noise monitoring conducted for the HRS upper school indoor graduation event on June 8, 2019 in the North Campus and monitoring conducted during a varsity football game between Santa Teresa High School and Oak Grove High School in San Jose, California in October 2012[4], which had an estimated attendance of approximately 1,600 people and included amplified speech and music, L_{33}, L_{17}, L_8, L_2, and L_{max} values were on average 2 dB lower, similar to, 3 dB higher, 7 dB higher, and 16 dB higher, respectively, than the L_{eq}. The calculated parameter values for a 1,000 spectator events are summarized in Table 4, along with the applicable Oakland Standards, which were adjusted down by 5 dBA to account for the speech and music content of the activity. Exceedances are highlighted in orange. Receptor locations are shown in Figure 6.

TABLE 4: Calculated Noise Parameters during 1,000 Spectator Graduation Event

Location	**Worst Hour Noise Levels, dBA**				
	L_{33}	**L_{17}**	**L_8**	**L_2**	**L_{max}**
R1: Residence on Lincoln Avenue	43	45	48	52	61
R2: Residence on Alida Court	56	58	61	65	74
R3: Residence on Alida Court	56	58	61	65	74
R4: Residence on Linnet Avenue	42	44	47	51	60
R5: Residence on Linnet Avenue	39	41	44	48	57
R6: Residence on Laguna Avenue	52	54	57	61	70
R7: Residence on Laguna Avenue	56	58	61	65	74
R8: Residence on Laguna Avenue	57	59	62	66	75
R9: Residence on Laguna Avenue	58	60	63	67	76
R10: Residence on Charleston Street	58	60	63	67	76
R11: Residence on Charleston Street	49	51	54	58	67
R12: Residence on Charleston Street	48	50	53	57	66
R13: Residence on Charleston Street	61	63	66	70	79
Adjusted Daytime Residential Standards	*55*	*60*	*65*	*70*	*75*

4 Santa Teresa High School Stadium Lighting Project, Environmental Noise Assessment, Illingworth & Rodkin, Inc., September 12, 2013.

FIGURE 6: Hourly Average L_{eq} Noise Contours during 1,000 Spectator Graduation Event



As shown in Table 4, noise levels generated during upper school graduation with 1,000 spectators would exceed the Adjusted Maximum Allowable Noise Level Standards specified by the City of Oakland for daytime periods (7:00 am to 10:00 pm) at residences to the north, east and south of the South Campus. As described above, this noise exposure would be anticipated to occur during upper school graduation, which would be held only once per year, in June. Noise levels generated during lower attendance events would be lower and generally follow a relationship of 3 dBA reduction in level for each halving of attendance. Assuming an attendance of 500 spectators for middle and lower school promotion, noise levels would only be anticipated to exceed the Adjusted Noise Level Standards at one residence to the north along Charleston Street (R13).

Noise levels generated during large events held in the commons would be anticipated to exceed the adjusted daytime thresholds established by the City of Oakland at some nearby residences. Given that only three of these events are proposed per year and all events are proposed during daytime hours, scheduling and advance notice to residences in the surrounding areas should substantially reduce the potential for residential annoyance attributable to these events (see Mitigation Measure 1a). This is a **potentially significant** impact.

Performing Arts Center (PAC) Events

Performing Arts Center (PAC) classes and events would be held indoors during daytime and evening hours. There are no nighttime (10:00 pm to 7:00 am) events, classes, or activities proposed for the PAC.

Daily use of the facility would include band, orchestra, dance, and choir practice without amplification. It is anticipated that 25 classes would be held in the facility per day, spread between 5 classrooms, each having 30 to 40 students and a teacher. Special events, where visitors and parents are invited to attend, are scheduled throughout the school year. These would include up to 43 evening special events (7:00 pm to 9:30 pm), 27 daytime Saturday events (9:00 am to 6:00 pm), 5 evening Saturday events (6:00 pm to 9:30 pm), 5 daytime Sunday events (9:00 am to 6:00 pm), and 5 single-day weekday summer events (9:00 am to 6:00 pm), for a total of 85 events per year. A maximum attendance of 450 persons is anticipated at these events, based on the seating capacity of the Performing Arts Center. Amplification would be used inside the facility but would not be anticipated to be audible at off-site locations.

Noise levels from indoor events have been documented by Illingworth and Rodkin, Inc. in past projects. These events included b'nai mitzvah, a theatre performance, and a large amplified evening event with 250 to 300 people in attendance. Noise levels were monitored at locations adjacent to the facility and in the surrounding neighborhoods. In all cases, indoor activities were not perceivable at the nearest residential property lines and did not affect the measured noise levels in quiet residential areas.

However, it is anticipated that informal gatherings of up to 400 people may occur outside the Performing Arts Center entrance for up to 1 hour following each special event, as performers and attendees socialize and discuss the event. Therefore, although events would take place during daytime and evening hours, ending by 9:30 pm), the informal gatherings could potentially extend to 10:30 pm. These informal gatherings would not include any amplification or formal entertainment (e.g., music).

Noise modeling was conducted using SoundPLAN, assuming a noise source calibrated to a moderate sized outdoor event with raised group conversation level of 64 dBA L_{eq} at 50 feet and spectral content similar to that measured for the June 8, 2019 graduation event held on the North Campus. Noise levels at the closest residences to the south of the post event gathering area are calculated to range from 35 to 45 dBA L_{eq} during periods of excited conversation. Based on noise monitoring conducted for the HRS upper school indoor graduation event on June 8, 2019 in the North Campus, L_{33}, L_{17}, L_8, L_2, and L_{max} values were on average 2 dB lower, similar to, 3 dB higher, 7 dB higher, and 16 dB higher, respectively, than the L_{eq}. The day-night levels would be 2 dBA lower than the L_{eq}. Noise levels are summarized in Table 5, along with the applicable Oakland noise standards, which were adjusted down by 5 dBA to account for the speech and music content of the activity. Nighttime exceedances are highlighted in purple. The L_{eq} noise contours and receptor locations are shown graphically in Figure 7.

TABLE 5: Calculated Noise Parameters during Gatherings After PAC events

Location	Worst Hour Noise Levels, dBA				
	L_{33}	L_{17}	L_8	L_2	L_{max}
R1: Residence on Lincoln Avenue	20	22	25	29	38
R2: Residence on Alida Court	35	37	40	44	53
R3: Residence on Alida Court	43	45	48	52	61
R4: Residence on Linnet Avenue	22	24	27	31	40
R5: Residence on Linnet Avenue	18	20	23	27	36
R6: Residence on Laguna Avenue	16	18	21	25	34
R7: Residence on Laguna Avenue	25	27	30	34	43
R8: Residence on Laguna Avenue	26	28	31	35	44
R9: Residence on Laguna Avenue	28	30	33	37	46
R10: Residence on Charleston Street	27	29	32	36	45
R11: Residence on Charleston Street	15	17	20	24	33
R12: Residence on Charleston Street	17	19	22	26	35
R13: Residence on Charleston Street	33	35	38	42	51
Adjusted Daytime Residential Standards	*55*	*60*	*65*	*70*	*75*
Adjusted Nighttime Residential Standards	*40*	*45*	*50*	*55*	*60*

FIGURE 7: Hourly Average L_{eq} Noise Contours during Gatherings After PAC Events

Noise levels would be similar to or lower in level than existing daytime noise levels at these residences and would be below the adjusted daytime thresholds established by the City of Oakland. However, noise levels could exceed the nighttime limits and adjusted nighttime limits for any activity occurring after 10:00 pm at residences on Alida Court and Linnet Avenue (R-3). This is a **potentially significant** impact. Simply limiting outdoor activity to no later than 10:00 pm would reduce the significance of this impact (see Mitigation Measure 1a).

Building 0 Deck

A deck is proposed on the west side of Building 0 which could be used for indoor/outdoor social gatherings of 50 to 100 people. One gathering per month is anticipated for approximately 2 hours during the school day (8:30 am to 3:30 pm).

Noise modeling was conducted using the SoundPLAN model, assuming a noise source calibrated to a 'raised conversation' level of 67 dBA L_{eq} at 3 feet and spectral content similar to that measured for the June 8, 2019 graduation event held on the north campus. Assuming a drop off rate of 6 dBA per doubling of distance, this would equate to 43 dBA at a distance of 50 feet, 21 dBA lower than the level assumed for the gatherings after PAC events. A lower noise source level is assumed for the Building 0 social gatherings than for outdoor gatherings after the PAC events due to the smaller size of the gatherings and the anticipation that, since the Building 0 events are meant to be informational events as opposed to social events, participants would be less likely to raise their voices for conversation.

Noise levels at the closest residences to the south of Building 0 are calculated to range from 39 to 47 dBA L_{eq} during periods when attendees are utilizing the outdoor deck area. Based on noise monitoring conducted for the HRS upper school indoor graduation event on June 8, 2019 in the North Campus, L_{33}, L_{17}, L_8, L_2, and L_{max} values were on average 2 dB lower, similar to, 3 dB higher, 7 dB higher, and 16 dB higher, respectively, than the L_{eq}. The day-night levels would be 2 dBA lower than the L_{eq}. Noise levels are summarized in Table 6, along with the applicable Oakland noise standards, which were adjusted down by 5 dBA to account for the speech and music content of the activity. The L_{eq} noise contours and receptor locations are shown graphically in Figure 8. As indicated in Table 6, no noise exceedances are anticipated to occur during Indoor/Outdoor Social Gatherings held in the Building 0 deck.

Noise levels would be similar to or lower in level than existing daytime noise levels at these residences and would be below the adjusted daytime thresholds established by the City of Oakland. This is a **less-than-significant** impact.

TABLE 6: Calculated Noise Parameters during Building 0 Social Gatherings

Location	Worst Hour Noise Levels, dBA				
	L_{33}	L_{17}	L_8	L_2	L_{max}
R1: Residence on Lincoln Avenue	43	45	48	52	61
R2: Residence on Alida Court	45	47	50	54	63
R3: Residence on Alida Court	37	39	42	46	55
R4: Residence on Linnet Avenue	23	25	28	32	41
R5: Residence on Linnet Avenue	14	16	19	23	32
R6: Residence on Laguna Avenue	12	14	17	21	30
R7: Residence on Laguna Avenue	5	7	10	14	23
R8: Residence on Laguna Avenue	5	7	10	14	23
R9: Residence on Laguna Avenue	4	6	9	13	22
R10: Residence on Charleston Street	3	5	8	12	21
R11: Residence on Charleston Street	1	3	6	10	19
R12: Residence on Charleston Street	2	4	7	11	20
R13: Residence on Charleston Street	7	9	12	16	25
Adjusted Daytime Residential Standards	*55*	*60*	*65*	*70*	*75*

FIGURE 8: Hourly Average L_{eq} Noise Contours during Building 0 Social Gatherings

Outdoor Classroom

The School anticipates allowing faculty to hold certain classes outdoors either at the Commons or in the existing grove of trees in the southeastern portion of the site (Outdoor Classroom). Activities in the Outdoor Classroom would involve one teacher and up to 15 students speaking at normal voice levels during school hours (8:30 am to 3:30 pm). Approximately five one-hour long classes per day are anticipated.

Noise modeling was conducted using the SoundPLAN model, assuming a noise source calibrated to a 'normal conversation' level of 60 dBA L_{eq} at 3 feet. Resulting noise levels are below 30 dBA at all surrounding land uses. Outdoor classroom activity noise would be lower in level than existing noise levels generated on local roadways and residential activities and would be below the daytime threshold established by the City of Oakland. This is a **less-than-significant** impact.

Daily Commons Use

Daily use of the Commons would be similar to that of the Outdoor Classroom, with up to two classes occurring simultaneously. With two classes, activities would involve two teachers and up to 30 total students speaking at normal voice levels during school hours (8:30 am to 3:30 pm). Again, approximately five one-hour long periods of classes per day are anticipated, with two classes occurring simultaneously during all periods.

Noise modeling in SoundPLAN, assuming four noise sources calibrated to a 'normal conversation' level of 60 dBA L_{eq} at 3 feet, resulted in noise levels below 20 dBA at all surrounding land uses. Outdoor classroom activity occurring in the Commons would be below existing noise levels and below the daytime threshold established by the City of Oakland. This is a **less-than-significant** impact.

Recess Activities

Informal play, such as recess, would be held in the east field. Recess would involve an average of 30, and no more than 40 students on the field with up to 4 adults. Five one-hour recess periods are scheduled per day during school hours (8:30 am to 3:30 pm).

Based on noise monitoring at other schools in the Bay Area, a noise level of 59 dBA at a distance of 50 feet from the center of activities was assumed for recess activities. Noise modeling in SoundPLAN calculated noise levels of 15 to 53 dBA L_{eq} at surrounding residences, with noise levels of 40 to 53 dBA L_{eq} experienced at the closest residences to the east and southeast. Based on noise monitoring conducted during recess at other Bay Area schools, L_{33}, L_{17}, L_8, L_2, and L_{max} values were on average 1 dB lower, similar to, 3 dB higher, 8 dB higher, and 14 dB higher, respectively, than the L_{eq}. The day-night levels would be 2 dBA lower than the L_{eq}. The day-night levels would be 2 dBA lower than the L_{eq}. Noise levels are summarized in Table 7, along with the applicable Oakland noise standards, which were adjusted down by 5 dBA to account for the speech content of the activity. The L_{eq} noise contours and receptor locations are shown graphically in Figure 9. As indicated in Table 7, no noise exceedances are anticipated to occur during recess.

Noise levels would be similar in level to existing daytime noise levels and below the adjusted daytime thresholds established by the City of Oakland. This is a **less-than-significant** impact.

TABLE 7: Calculated Noise Parameters during Recess

Location	Worst Hour Noise Levels, dBA				
	L_{33}	L_{17}	L_8	L_2	L_{max}
R1: Residence on Lincoln Avenue	14	15	18	23	29
R2: Residence on Alida Court	17	18	21	26	32
R3: Residence on Alida Court	20	21	24	29	35
R4: Residence on Linnet Avenue	39	40	43	48	54
R5: Residence on Linnet Avenue	45	46	49	54	60
R6: Residence on Laguna Avenue	44	45	48	53	59
R7: Residence on Laguna Avenue	48	49	52	57	63
R8: Residence on Laguna Avenue	52	53	56	61	67
R9: Residence on Laguna Avenue	49	50	53	58	64
R10: Residence on Charleston Street	48	49	52	57	63
R11: Residence on Charleston Street	43	44	47	52	58
R12: Residence on Charleston Street	43	44	47	52	58
R13: Residence on Charleston Street	42	43	46	51	57
Adjusted Daytime Residential Standards	*55*	*60*	*65*	*70*	*75*

FIGURE 9: Hourly Average L_{eq} Noise Contours during Recess

Dust Collector

The School proposes to develop a shop/maker space for instructional purposes in Building 2, necessitating the need to install a dust collection system on the interior of the building. The dust collector would be installed on the interior of Building 2, near the east side. Door and window openings would be located near the dust collector, but all doors and windows would be closed during operation of the dust collector. Indoor operation of the duct collector with windows and doors closed is not anticipated to be audible off-site. This is a **less-than-significant** impact.

Cumulative School Hour Activities and Events

Some school events could potentially take place simultaneously during school hours. This includes daily outdoor classroom, outdoor commons, and recess activities, operation of the dust collector (which would be indoors and not audible off-site) and Building 0 deck gatherings, which are proposed once per month. Noise levels potentially generated during the simultaneous occurrence of all of these school hour activities/events are summarized in Table 8, along with the applicable Oakland noise standards, which were adjusted down by 5 dBA to account for the speech content of the activities. The L_{eq} noise contours and receptor locations are shown graphically in Figure 10.

Comparison of Table 8 to Tables 6 and 7 and Figure 10 to Figures 8 and 9 indicates that the cumulative noise generated by simultaneous school hour activities and events is the same as that generated by each of these events/activities individually. As indicated in Table 8, no noise exceedances are anticipated to occur during school hour events and activities. Noise levels would be similar to or lower in level than existing daytime noise levels at these residences and would be below the adjusted daytime thresholds established by the City of Oakland. This is a **less-than-significant** impact.

TABLE 8: Calculated Noise Parameters with All School Hour Events and Activities Occurring Simultaneously

Location	Worst Hour Noise Levels, dBA				
	L_{33}	L_{17}	L_8	L_2	L_{max}
R1: Residence on Lincoln Avenue	43	45	48	52	61
R2: Residence on Alida Court	45	47	50	54	63
R3: Residence on Alida Court	37	39	42	46	55
R4: Residence on Linnet Avenue	39	40	43	48	54
R5: Residence on Linnet Avenue	45	46	49	54	60
R6: Residence on Laguna Avenue	44	45	48	53	59
R7: Residence on Laguna Avenue	48	49	52	57	63
R8: Residence on Laguna Avenue	52	53	56	61	67
R9: Residence on Laguna Avenue	49	50	53	58	64
R10: Residence on Charleston Street	48	49	52	57	63
R11: Residence on Charleston Street	43	44	47	52	58
R12: Residence on Charleston Street	43	44	47	52	58
R13: Residence on Charleston Street	42	43	46	51	57
Adjusted Daytime Residential Standards	*55*	*60*	*65*	*70*	*75*

FIGURE 10: Hourly Average L_{eq} Noise Contours with All School Hour Events and Activities Occurring Simultaneously

Mitigation Measure 1a:

- **Ensure that all evening events at the Performing Arts Center are completed by 9:00 pm, with all post event gatherings, event traffic, and exterior clean-up activities completed by 10:00 pm.**

- **Notify residences in the surrounding area of any large outdoor events, including upper school graduation and lower and middle school promotion. Notification should be given at the time of the release of the annual school calendar and again within a few weeks of the event.**

Impact 1b: Noise Impacts from Project Traffic, Parking, and On-Site Circulation. Traffic noise levels would not substantially increase as a result of the project and on-site parking and circulation would not exceed City standards. However, loading dock activities could exceed City noise standards at some residences. **This is a potentially significant impact.**

Vehicular access to the school will remain from Lincoln Avenue. No vehicular access to the site will be allowed from Charleston Street or Linnet Avenue. A new internal loop road running within the perimeter of the South Campus will provide approximately 1,000 feet of on-campus, off-street queuing space and create distinct drop-off and pick-up points for the Upper School and the Lower and Middle Schools. During the peak periods on school days, primary pick-up and drop-off activities (except for bus loading and unloading) will occur on the South Campus. Access to the South Campus will be controlled by a new signalized intersection at the northeast corner of the South Campus along Lincoln Avenue. The Lincoln Avenue right-of-way will be reconfigured to accommodate a downhill left turn pocket and an uphill right turn pocket. Parallel parking spaces along the south side of Lincoln Avenue will be removed to accommodate this modification. Egress from the South Campus will be controlled by a signalized intersection at the northwest corner of the South Campus. This signal will replace the signal that currently controls the pedestrian crosswalk at the Head-Royce Gatehouse. The traffic signal location at the entrances to the Head-Royce east parking lot and Ability Now Bay Area will be maintained. The loading zones for both AC Transit and private buses will be maintained on Lincoln Avenue due to the narrow width of the proposed internal loop road. However, the internal loop road will be sized to accommodate emergency vehicles.

Ambient noise levels in the area are generally below 60 dBA L_{dn}; therefore, a significant traffic noise increase would be identified if the project were to generate noise resulting in a 5-dBA permanent increase in ambient noise levels in the project vicinity above levels existing without the project. A significant impact from on-site circulation and parking activities would be identified if project operations were to generate noise levels that would exceed the noise level standards specified in Table Oakland-2.

Project Generated Traffic Along the Roadway Network

Based on November 2018 data supplied by Fehr & Peers, the School currently has 894 students and 158 faculty and staff for a total population of 1,052. The project would increase the population to a maximum enrollment of 1,250 students and 189 faculty and staff, for a total population of 1,439, which is about 37 percent higher than the current population. With an increase in students and staff, school generated traffic volumes would also increase. Existing traffic volumes were provided at seven intersections along Lincoln Avenue. Based on the project's preliminary transportation assessment,[5] the project is estimated to generate 270 additional morning peak hour trips, 108 additional afternoon peak hour trips, and an additionally 600 daily trips. All trips are anticipated to be along Lincoln Avenue. Existing traffic volumes along Lincoln Avenue range from 706 to 1347 during the morning peak hour, depending on location along the corridor, and from 601 to 1141 during the afternoon peak hour. A comparison between Existing and Existing plus Project traffic volumes, assuming a conservative worst-case analysis with all peak hour trips

5 Head-Royce School Expansion – Preliminary Transportation Assessment, Fehr & Peers, April 30, 2020.

traveling the entire Lincoln Avenue corridor from east of Mountain Boulevard to west of Potomac Street, traffic noise levels are calculated to increase by 1 dBA over Existing conditions.

Project traffic is not anticipated to result in noise increases of 5 dBA or more along the existing roadway network. This is a **less-than-significant** impact.

On-Site Circulation

In addition to accommodating the increased enrollment, the redevelopment of the South Campus would also modify access and circulation for the School. The primary change would consist of the development of a clockwise Loop Road along the perimeter of the South Campus and the construction of an underground pedestrian tunnel below Lincoln Avenue to connect the North and South Campuses and reduce at-grade pedestrian crossings at Lincoln Avenue. The provision of the Loop Road within the South Campus would eliminate the drop-offs and pick-ups by parents along Lincoln Avenue and also eliminate the need for parents to use Alida Street and Maiden Lane to turn around.

Residences adjoin the proposed location of the Loop Road to the southwest and are located as close as about 50 feet to the south and 70 feet to the northeast. The project proposes to construct a 6-foot high wall along the property line separating the Loop Road from these residences. Based on the information provided by Fehr & Peers, 385 student drop-offs and 385 pick-ups are anticipated to utilize the Loop Road each school day. Of these trips, approximately 343 would occur during the morning peak hour and 135 would occur during the afternoon peak hour. Speeds along this roadway are anticipated to be below 20 mph. Traffic noise modeling was conducted using the Federal Highway Administration's Traffic Noise Model (TNM). Based on the traffic noise modeling results, hourly average traffic noise levels of 52 dBA and 48 dBA L_{eq} would be anticipated during the morning (8:00 to 9:00 am) and afternoon (3:15 to 4:15 pm) peak hours, respectively, at a distance of 50 feet, not taking shielding from the proposed wall into account. Traffic noise levels during periods for after-school pick-ups (4:15 to 5:15 pm) and sports/clubs pick-ups (5:15 to 6:15 pm) would be about 47 dBA L_{eq} at 50 feet. Traffic noise levels for periods of early arrivals (7:00 to 8:00 am) and Kindergarten pick-up (2:15 to 3:15 pm) would be 43 dBA L_{eq} at 50 feet. Noise levels during other periods during the day and during evening and nighttime hours would be negligible. Assuming the 6-foot high of the wall is relative to the ground elevation of the Loop Road, the wall would be anticipated to provide 5 to 6 dBA of noise reduction to shielded residences.

Noise levels generated by vehicle circulation along the Loop Road would be similar or lower in level than existing noise levels and would be below the daytime threshold established by the City of Oakland. Additionally, use of the Loop Road would eliminate vehicle trips along Alida Street and Maiden Lane, resulting in lower traffic noise levels along these residential streets. This is a **less-than-significant** impact.

Parking

The project would increase in the on-campus parking supply from 283 to 344 parking spaces. The additional parking spaces would be located adjacent to existing spaces on the South Campus, with the closest spaces located about 100 feet from the nearest existing residence to the northeast and about 200 feet to the nearest residence to the southeast. The project proposes to construct an 8-foot high wall on the north side of the proposed parking lot; however, the nearest residences are elevated above the parking lot by 5 to 15-feet, reducing the effectiveness of the wall for noise reduction purposes.

Noise sources associated with the use of the parking lots include vehicular circulation, engines, car alarms, squealing tires, door slams, and human voices. The sound of engines starting, doors slam closing, and people talking in the parking lot typically reach maximum levels of 50 to 60 dBA L_{max} at a distance of 50 feet. Parking lot noise would generate maximum noise levels in the range of 46 to 56 dBA L_{max} at a distance of 100 feet and 40 to 50 dBA L_{max} at 200 feet, not taking shielding from terrain into account. The cumulative duration of noise from these intermittent maximum sounds would be more than five minutes, but less than 15 minutes in any hour, therefore, the L_{17} would be the applicable regulatory threshold used in the analysis. The hourly average noise level resulting from all these noise-generating activities in a small parking lot would be anticipated to reach 40 dBA L_{eq} at a distance of 50 feet from the parking area.

Maximum and average noise levels generated in the parking lot would be lower in level than existing levels and would be below the daytime thresholds established by the City of Oakland. During peak drop off/pick up hours (8:00 to 9:00 am and 3:15 to 4:15 pm), parking lot noise would not measurably contribute to noise generated by these same vehicles traveling along the Loop Road. This is a **less-than-significant** impact.

Audible Crosswalk Signal

There are currently two audible crosswalk signals for pedestrian crossings of Lincoln Avenue along the school boundary. With the project, the existing westernmost crossing signal would be replaced with signals at the entrance and exit of the proposed Loop Road. The new westernmost crossing signal would be located as close as 30 feet from the nearest residence along Lincoln Avenue. These devices typically include volume control options and noise levels generated by these signals would be well below the Table Oakland-2 limits. However, due to the tonal and repetitive nature of such sounds, the crosswalk signal may be annoying to residents, even if the overall noise level is below the noise level generated by traffic along Lincoln Avenue. Therefore, the following good neighbor practices, as developed under the sponsorship of the National Cooperative Highway Research Program (NCHRP) and following the requirements of Section 4E of the Manual on Uniform Traffic Control Devices (MUTCD), are recommended for installation of the audible pedestrian crosswalk signals.

Installers of audible pedestrian crosswalk signals should set volume levels according to the following guidance:

- The WALK indication must be audible from the beginning of the associated crosswalk.

- The pushbutton locator tones must be responsive to ambient sound levels and audible at a distance of 6 to 12 feet from the pushbutton, or to the building line, whichever is less.

- The audible pedestrian crossing signal microphone should be mounted as close as possible to the position of the pedestrian who is waiting to cross the associated street.
- Manufacturers typically set a default maximum and minimum output level on signal devices. The settings should be checked.

- At no time should sound be more than 5 dB above ambient sound (except by special actuation for audible beaconing).

- The sound level of the crosswalk signal speakers must be carefully set and evaluated at the time of installation, and then checked at a time with different traffic volumes to assure that settings are correct. It is better to install pedestrian signals with volumes that may be too low and adjust upwards as needed. If volumes are set too high initially, problems can arise with neighboring residents.

- Audible pedestrian crosswalk signals that respond to ambient sound are available. However, pre-set automatic volume adjustment or automatic gain controls cannot assure that the volume meets the criterion above. With the selection of signals that respond to ambient sound, the above practices should be undertaken at several time during the daytime and nighttime period to ensure that the response is appropriate to meet the needs of the pedestrians, while not causing conflicts with adjacent neighbors.

With implementation of the above best practices this would be a **less-than-significant** impact.

Loading Dock Activity

A loading dock for the school's Performing Arts Center is proposed to be located southeast of the PAC building. Noise levels anticipated at the loading dock include back-up alarms as well as truck engine noise. Deliveries are anticipated to be by trucks no greater than 26 feet in length, and more commonly pickup trucks, with no more than one delivery per day on average between 9:00 a.m. and 5:00 p.m., Monday through Saturday. It is assumed that noise from back-up alarms will be transient and occur for fewer than 5 cumulative minutes in any hour.

A delivery truck would be anticipated to generate a noise level of about 75 dBA L_{eq} at a distance of 50 feet, as the truck maneuvers through the loading dock area and is unloaded. Maximum noise levels would be about 14 dBA higher (see Table 11). Noise modeling in SoundPLAN calculated noise levels of 29 to 67 dBA L_{eq} at surrounding residences, with noise levels of 50 to 67 dBA L_{eq} experienced the closest residences to the south (R3, R4, and R5). Noise levels are summarized in Table 9, along with the applicable daytime Oakland Standards. Exceedances are highlighted in orange. The L_{eq} noise contours and receptor locations are shown graphically in Figure 11.

TABLE 9: Calculated Noise Parameters during PAC Loading Dock Activity

Location	Worst Hour Noise Levels, dBA				
	L_{33}	L_{17}	L_8	L_2	L_{max}
R1: Residence on Lincoln Avenue	41	42	45	50	56
R2: Residence on Alida Court	35	36	39	44	50
R3: Residence on Alida Court	55	56	59	64	70
R4: Residence on Linnet Avenue	66	67	70	75	81
R5: Residence on Linnet Avenue	49	50	53	58	64
R6: Residence on Laguna Avenue	36	37	40	45	51
R7: Residence on Laguna Avenue	33	34	37	42	48
R8: Residence on Laguna Avenue	34	35	38	43	49
R9: Residence on Laguna Avenue	31	32	35	40	46
R10: Residence on Charleston Street	28	29	32	37	43
R11: Residence on Charleston Street	30	31	34	39	45
R12: Residence on Charleston Street	30	31	34	39	45
R13: Residence on Charleston Street	30	31	34	39	45
Daytime Residential Standards	*60*	*65*	*70*	*75*	*80*

FIGURE 11: Hourly Average L_{eq} Noise Contours during PAC Loading Dock Activity

Noise levels generated during loading dock activities at the PAC would be anticipated to exceed the daytime thresholds established by the City of Oakland at some nearby residences to the south. Noise reducing strategies are provided to reduce annoyance to residents (see Mitigation Measure 1b). This is a **potentially significant** impact.

Mitigation Measure 1b: The following measured are recommended to reduce noise generated during loading dock activities:

- **Prohibit unnecessary idling of delivery vehicles**
- **Avoid noise generating events, such as the slamming of gates and loading doors and the dropping of materials.**

Impact 1c: **Temporary Noise Increase from Construction.** With the implementation of Oakland's standard controls, and recognizing that noise generated by construction activities would occur over a temporary period, the temporary increase in ambient noise levels would be **less-than-significant**.

Construction of the project is anticipated to last approximately 13 months, from April 2021 through May 2022 and would include demolition of existing development, site preparation, grading and excavation, trenching and foundation, building construction, paving, and construction of the pedestrian undercrossing. Pile driving is not anticipated for project construction. Tunnel excavation will be conducted using a jacked box (jack and bore) methodology and will not include the use of explosives. The North Campus will continue to operate during construction at the South Campus. Due to funding, it is likely that the Performing Arts Building will be constructed after the other elements of the project.

Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, the distance between construction noise sources and noise-sensitive receptors, any shielding provided by intervening structures or terrain, and ambient noise levels. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), when construction occurs in areas immediately adjoining noise-sensitive land uses, or when construction durations last over extended periods of time.

Each construction phase would include a different mix of equipment operating. The highest noise levels are typically generated during the demolition of existing structures when impact tools are used (e.g., jackhammers, hoe rams). Site grading and excavation activities would also generate high noise levels as these phases often require the simultaneous use of multiple pieces of heavy equipment, such as dozers, excavators, scrapers, and loaders. Lower noise levels result from construction activities when less heavy equipment is required to complete the tasks.

Typical construction noise levels at a distance of 50 feet are shown in Tables 10 and 11. Table 10 illustrates the average noise level range by typical construction phase type and Table 11 shows the maximum noise level range for different construction equipment. Table 11 levels are consistent with construction noise levels calculated for the project in the Federal Highway Administration

(FHWA) Roadway Construction Noise Model, including the anticipated equipment that would be used for each phase of the project. Most demolition and construction noise is in the range of 80 to 90 dBA at a distance of 50 feet from the source.

TABLE 10 Typical Ranges of Noise Levels at 50 Feet from Construction Sites (dBA L_{eq})

	Domestic Housing		**Office Building, Hotel, Hospital, School, Public Works**		**Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station**		**Public Works Roads & Highways, Sewers, and Trenches**	
	I	II	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.
Source: United States Environmental Protection Agency, 1973, Legal Compilation on Noise, Vol. 1, p. 2-104.

TABLE 11 Construction Equipment Noise Emission Levels (at 50 feet)

Equipment Category	L_{max} Level (dBA)[1,2]	Impact/Continuous*
Arc Welder	73	Continuous
Auger Drill Rig	85	Continuous
Backhoe	80	Continuous
Bar Bender	80	Continuous
Boring Jack Power Unit	80	Continuous
Chain Saw	85	Continuous
Compressor[3]	70	Continuous
Compressor (other)	80	Continuous
Concrete Mixer	85	Continuous
Concrete Pump	82	Continuous
Concrete Saw	90	Continuous
Concrete Vibrator	80	Continuous
Crane	85	Continuous
Dozer	85	Continuous
Excavator	85	Continuous
Front End Loader	80	Continuous
Generator	82	Continuous
Generator (25 KVA or less)	70	Continuous
Gradall	85	Continuous
Grader	85	Continuous
Grinder Saw	85	Continuous
Horizontal Boring Hydro Jack	80	Continuous
Hydra Break Ram	90	Impact
Impact Pile Driver	105	Impact
Insitu Soil Sampling Rig	84	Continuous
Jackhammer	85	Impact
Mounted Impact Hammer (hoe ram)	90	Impact
Paver	85	Continuous
Pneumatic Tools	85	Continuous
Pumps	77	Continuous
Rock Drill	85	Continuous
Scraper	85	Continuous
Slurry Trenching Machine	82	Continuous
Soil Mix Drill Rig	80	Continuous
Street Sweeper	80	Continuous
Tractor	84	Continuous
Truck (dump, delivery)	84	Continuous
Vacuum Excavator Truck (vac-truck)	85	Continuous
Vibratory Compactor	80	Continuous
Vibratory Pile Driver	95	Continuous
All other equipment with engines larger than 5 HP	85	Continuous

Notes:
*Impact activities impact the ground or construction surface, such as pile driving, while continuous activities emit more constant noise, such as construction vehicles.
[1]Measured at 50 feet from the construction equipment, with a "slow" (1 sec.) time constant.
[2]Noise limits apply to total noise emitted from equipment and associated components operating at full power while engaged in its intended operation.
[3]Portable Air Compressor rated at 75 cfm or greater and that operates at greater than 50 psi.
Source: FHWA

The City of Oakland's Construction (or Demolition) Noise Performance Standards for activities that occur for more than 10 days, or any repetitively scheduled and relatively long-term construction or demolition operation, is 70 dBA at commercial uses and 65 dBA at residential uses during weekday daytime hours.

Table 12 shows project specific construction noise levels calculated using the Federal Highway Administration (FHWA) software - Roadway Construction Noise Model (RCNM). Pile driving is not anticipated as a construction method for this project.

TABLE 12 Calculated Construction Noise Levels for Each Stage of Well Construction

Construction Phase		At Distance of 50 ft.	
		L_{eq}, dBA	L_{max}, dBA
South Campus	Demolition (20 days)	86	90
	Site Preparation (5 days)	84	84
	Grading & Excavation (8 days)	85	85
	Trenching & Foundation (8 days)	78	81
	Building – Exterior (130 days)	82	82
	Paving (18 days)	85	90
Pedestrian Undercrossing	Site Preparation (1 day)	83	85
	Grading & Excavation (2 days)	85	90
	Trenching & Foundation (2 days)	79	81
	Tunnel Construction (100 days)	83	83
	Paving (5 days)	85	90

The project does not propose the use of any "extreme" noise generators (i.e. equipment that would generate noise levels greater than 90 dBA at a distance of 50 feet) under typical construction conditions at nominal distances of 50 feet or greater from the equipment. At 50 feet from the noise source, maximum instantaneous noise levels generated by project construction equipment are calculated to range from 81 to 90 dBA L_{max} and hourly average noise levels are calculated to range from 78 to 86 dBA L_{eq}. Noise levels would typically drop off at a rate of about 6 decibels per doubling of distance from the construction noise source. Shielding by terrain would be anticipated to reduce construction noise levels by 5 to 20 dBA, depending on the location of the receptor and of the construction. Noise controls on construction equipment have been found to reduce noise levels by 5 to 10 dBA.

Residences adjoin the south campus project site to the northeast, east, southeast, south, and southwest and are located as close as about 130 feet from construction of the pedestrian undercrossing. Due to the area topography and existing structures, acoustical shielding would be provided to residences in some areas during much of construction, while in other areas The topography of the site is such that some nearby noise sensitive locations are shielded by existing terrain and structures, while other locations are unshielded and would not be easily shielded from major construction activities by temporary noise barriers constructed at the project perimeter.

As indicated in Table 12, construction noise would exceed the Oakland noise performance standard (65 dBA at residential properties) when located within 500 feet of unshielded residences. With the use of noise controls (assuming a noise reduction of 8 dBA), construction other than concrete saws would be anticipated to meet the 65 dBA performance threshold at distances of 200 feet or greater or when located in shielded areas. Construction noise would also be well above daytime ambient noise levels at these residences.

The City allows for an exemption if an acoustical analysis is performed that identifies measures to reduce potential impacts. The following standard controls, consistent with the Oakland Municipal Code, are assumed to be included in the project:

- Limit all exterior construction activities to within the hours of 7:00 am and 7:00 pm on Weekdays, with no construction occurring on Sundays or federal holidays. Use of the concrete saw shall be limited to the hours between 8:00 am and 4:00 pm on weekdays. Interior construction would also be allowed from 9:00 am and 5:00 pm on Saturdays.

- Work with adjoining properties to determine the best days and times to conduct heavy construction located within 50 feet of shared property lines.

- Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds), wherever feasible.

- Except as provided herein, impact tools (e.g., jackhammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.

- Use temporary power poles instead of generators where feasible.

- Locate stationary noise sources as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction.

- Stage large equipment, compressors, or generators at least 25 feet from the site perimeters when work is not being done near these uses.

- The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.

- Construction activities should be conducted in a manner that minimizes the noise impact at the adjacent property boundaries wherever possible. Construction equipment shall be positioned as far from noise sensitive receptors as possible.

- Prohibit unnecessary idling of internal combustion engines.

- Erect temporary plywood noise barriers around the construction site when construction is located adjacent to property lines shared with residential uses.

- Utilize noise control blankets on the building structures as the buildings are erected.

- Conduct a preconstruction meeting with the City of Oakland and Contractor to identify potential sources of noise and how to mitigate them.

- Notify property owners and occupants located within 300 feet of construction activities at least 14 calendar days prior to commencement of construction.

- Designate an on-site construction complaint and enforcement manager for the project.

- Post a large on-site sign near the public right-of-way containing permitted construction days/hours, complaint procedures and phone numbers for the complaint manager and City Code Enforcement unit.

- Maintain a complaint log that records received complaints and how complaints were addressed, which shall be submitted to the City for review upon the City's request.

- Construction noise monitoring should be undertaken if reliable noise complaints are received during demolition, excavation, and/or construction activities. Noise levels should be monitored representative of ground level outdoor use areas and/or the worst-case ground level façade window exposure at the location from which the noise complaints originated by a qualified acoustical professional. Integrated average (L_{eq}) noise level measurements on an hourly basis should be made of activities representative of those that generated the complaint. If the measured noise levels during this test are found to exceed the City's construction noise performance standards, an acoustical professional should be retained to specify additional noise attenuation measures to reduce noise levels to City Standards. These measures may include operational considerations, the use of additional ground level noise barriers or noise control blanketing of the building structure.

Implementation of the above standard controls would reduce construction noise levels emanating from the site, limit construction hours, and minimize disruption and annoyance. With the implementation of these controls and recognizing that noise generated by construction activities would occur over a temporary period, the temporary increase in ambient noise levels would be **less-than-significant**.

Mitigation Measure 1c: None Required

Impact 2: Generation of Excessive Groundborne Vibration due to Construction. Construction-related vibration levels are not anticipated to exceed 0.3 in/sec PPV at off-site structures. **This is a less-than-significant impact.**

Construction activities associated with the project would include demolition of existing site improvements, site preparation, grading and excavation, trenching and foundation work, new building construction, paving, and construction of the underground pedestrian crossing using a jacked box methodology. Pile driving, which typically produces the highest vibration levels, would not be used for project construction. Likewise, explosive will not be uses for excavation of the pedestrian undercrossing or any other component of the project.

Demolition and construction activities required for construction often generate perceptible vibration and levels that could affect nearby structures when heavy equipment or impact tools (e.g. jackhammers, pile drivers, hoe rams) are used in the vicinity of nearby sensitive land uses. Building damage generally falls into three categories. Cosmetic damage (also known as threshold damage) is defined as hairline cracking in plaster, the opening of old cracks, the loosening of paint or the dislodging of loose objects. Minor damage is defined as hairline cracking in masonry or the loosening of plaster. Major structural damage is defined as wide cracking or the shifting of foundation or bearing walls.

Due to the short-term nature of construction, the primary concern is the potential to damage a structure. The City of Oakland does not establish a vibration limit for construction. As shown in Table 3, the California Department of Transportation recommends a vibration limit of 0.25 in/sec PPV to minimize the potential for cosmetic damage to sensitive historic structures and 0.3 in/sec PPV as the threshold at which there is a risk of damage to older residential structures. There are no off-site historic properties located near the project site. Therefore, groundborne vibration levels exceeding 0.3 in/sec PPV would have the potential to result in a significant vibration impact to off-site structures. On-site Buildings 0, 1, and 2 are described in Oakland’s historic building rating system as Potentially Designated Historic Properties (PDHPs) with a rating of C3, meaning they are of “secondary importance” and not located in an historic district. Although impacts to on-site properties would not normally be considered under CEQA, this analysis uses the 0.25 in/sec PPV threshold to make recommendations to minimize damage to on-site historic structures.

Construction could be located as close as 30 feet from residential structures to the southwest, 50 feet from residential structures to the southeast, and 70 feet from residential structures to the north. Construction would also be located adjacent to on-site historic structures. Table 13 presents construction vibration levels at a reference distance of 25 feet and at various distances from the construction equipment representative of nearby structures. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. Vibration levels are highest close to the source, and then attenuate with increasing distance at the rate $(D_{ref}/D)^{1.1}$, where D is the distance from the source in feet and D_{ref} is the reference distance of 25 feet.

TABLE 13 Vibration Levels for Construction Equipment at Various Distances

Equipment		PPV at 10 ft. (in/sec)	PPV at 25 ft. (in/sec)	PPV at 50 ft. (in/sec)	PPV at 70 ft. (in/sec)
Clam shovel drop		0.553	0.202	0.094	0.065
Hydromill (slurry wall)	0.022	0.008	0.004	0.003	0.003
	0.047	0.017	0.008	0.006	0.006
Vibratory Roller		0.575	0.210	0.098	0.068
Hoe Ram		0.244	0.089	0.042	0.029
Large bulldozer		0.244	0.089	0.042	0.029
Caisson drilling		0.244	0.089	0.042	0.029
Loaded trucks		0.208	0.076	0.035	0.024
Jackhammer		0.096	0.035	0.016	0.011
Small bulldozer		0.008	0.003	0.001	0.001

Source: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006, modified by Illingworth & Rodkin, Inc., June 2020.

Based on the constructability evaluation conducted for the pedestrian undercrossing, construction of a jacked box is not anticipated to produce vibration levels that would adversely impact nearby residential or campus structures. The jacking processes would involve slow advancement of the tunnel using hydraulic equipment. Excavation of the ground in front of the advancing box will be by hydraulic excavator-type equipment. Vibrations from this equipment would be similar to those generated from typical roadway construction, as shown in Table 13.

Heavy construction located within 25 feet of on-site structures would have the potential to exceed the historic structure vibration threshold of 0.25 in/sec PPV and heavy construction located within 18 feet of structures would have the potential to exceed the normal conventional construction threshold of 0.3 in/sec PPV. There are no off-site structures located within these threshold distances. Vibration levels would be lower as construction moves away from nearby structures or when lower-vibration construction equipment and methods are used. Vibration generated by construction activities would at times be perceptible inside nearby structures, however, would not be expected to result in "architectural" damage to these buildings. This is a **less-than-significant** impact.

On-site historic structures could be exposed to vibration levels exceeding the 0.25 in/sec PPV vibration threshold for historic structures when construction is located within 25 feet. This would include on-site Buildings 0, 1, and 2. Although impacts to on-site properties would not normally be considered under CEQA, it is recommended that the following practices be followed to minimize damage to these on-site historic structures.

- Avoid the use of vibratory rollers and other heavy construction equipment within 20 feet of on-site Buildings 0, 1, and 2.
- Use smaller equipment to minimize vibration levels below the limits.
- Select demolition methods not involving impact tools.

- Avoid dropping heavy objects or materials near on-site Buildings 0, 1, and 2.

Mitigation Measure 2: **None Required**

Head-Royce School Noise and Vibration Assessment

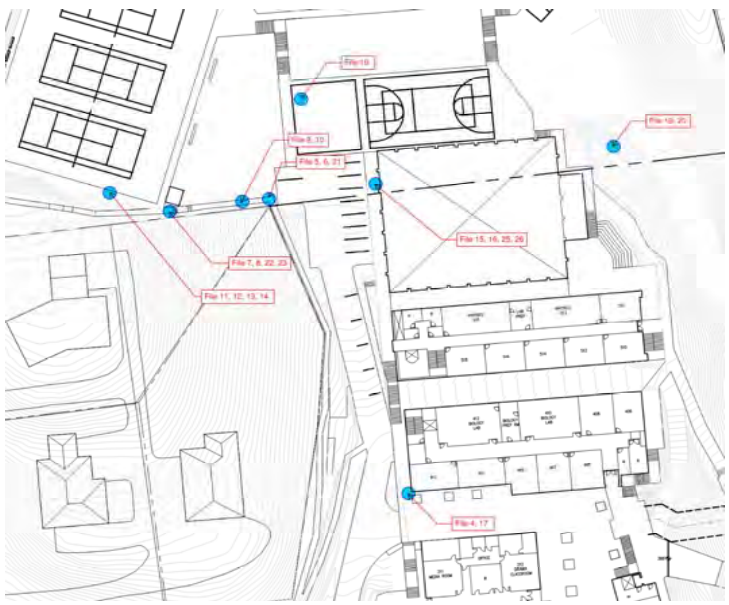
Appendix 13B Measured Noise Levels at 2019 Graduation Event, Salter Associates, December 2019

Appendic 13C RGD Acoustics, Peer Review of Noise from Graduation Events in the Commons, October 14, 2021

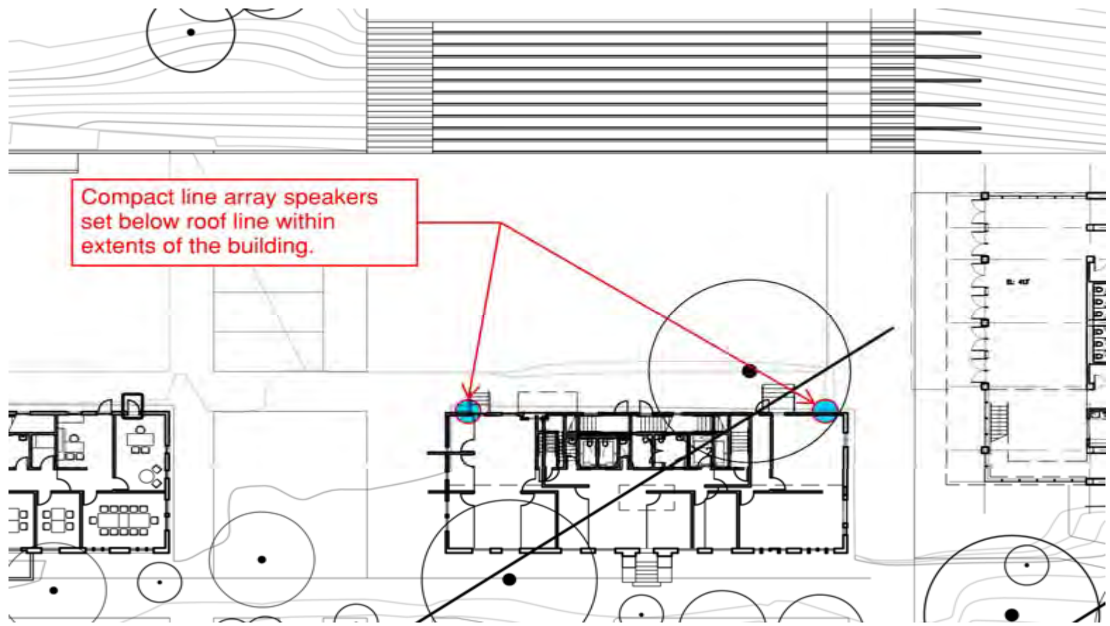
Appendix 13D Memo - Adjusted Calculations for Graduation Event, Illingworth & Rodkin, Inc., October 15, 2021

Meas Date 6/24/2019
Project # 19-0353
Project Name Head Royce School
Project Location Oakland
Engineer(s) MDH/PNS
Notes Measurements taken during upper class graduation with gym doors open.

File ID	Date	Time	Comments	dBA	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Auto_0004.rnh	6/8/2019	10:50:02	Outside SW Corner of building 413; regular speech.	44	58	53	52	54	59	59	56	46
Auto_0005.rnh	6/8/2019	10:55:44	60 feet NW from NW doors at gym; regular speech.	40	62	55	49	49	55	53	52	42
Auto_0006.rnh	6/8/2019	10:56:50	60 feet NW from NW doors at gym; regular speech.	32	55	50	45	47	49	46	42	34
Auto_0007.rnh	6/8/2019	10:58:45	145 feet NW from NW doors at gym; regular speech.	30	52	52	48	45	47	43	37	31
Auto_0008.rnh	6/8/2019	11:01:35	145 feet NW from NW doors at gym; regular speech.	33	54	54	52	50	47	45	45	38
Auto_0009.rnh	6/8/2019	11:02:47	85 feet NW from NW door at gym; music playing.	32	54	48	44	47	46	44	43	38
Auto_0010.rnh	6/8/2019	11:03:51	85 feet NW from NW door at gym; cheering registered at 60 dBA.	39	55	54	54	52	52	55	49	40
Auto_0011.rnh	6/8/2019	11:07:01	185 feet NW from NW door at gym cheering registered at 50-53 dBA.	34	56	52	44	44	46	50	45	39
Auto_0012.rnh	6/8/2019	11:09:30	185 feet NW from NW door at gym; regular speech.	32	55	52	47	42	45	48	40	29
Auto_0013.rnh	6/8/2019	11:10:37	185 feet NW from NW door at gym; regular speech.	29	51	50	44	43	43	45	37	27
Auto_0014.rnh	6/8/2019	11:11:54	185 feet NW from NW door at gym; regular speech.	30	54	50	45	43	42	46	40	31
Auto_0015.rnh	6/8/2019	11:16:26	At open NW Doors at gym; sound meter placed at entrance; regular speech.	40	56	52	48	53	52	53	54	43
Auto_0016.rnh	6/8/2019	11:17:31	At open NW Doors at gym; sound meter placed at entrance; regular speech.	35	54	50	44	49	48	48	48	39
Auto_0017.rnh	6/8/2019	11:20:06	Outside SW Corner of building 413; ambient, regular speech.	26	53	52	50	43	39	37	32	28
Auto_0018.rnh	6/8/2019	11:24:57	85 feet from NW doors, at basketball court; ambient, regular speech.	26	54	47	43	40	39	40	35	28
Auto_0019.rnh	6/8/2019	11:27:33	25 feet from E doors at gym (closed); speech inaudible.	31	57	54	53	48	45	44	39	33
Auto_0020.rnh	6/8/2019	11:29:01	25 feet from E doors at gym (closed); speech inaudible.	29	57	50	52	47	43	40	35	29
Auto_0021.rnh	6/8/2019	11:45:18	60 feet from NW doors at gym; choir singing.	28	54	48	47	46	44	41	35	26
Auto_0022.rnh	6/8/2019	11:46:21	145 feet from NW doors at gym; applaud/cheering.	43	53	48	43	44	49	56	56	47
Auto_0023.rnh	6/8/2019	11:59:09	145 feet from NW doors at gym; regular speech.	33	56	52	47	44	46	49	41	31
Auto_0024.rnh	6/8/2019	12:00:16	N/A	39	53	56	60	59	54	54	46	33
Auto_0025.rnh	6/8/2019	12:17:39	At open NW Doors at gym; sound meter placed at entrance; regular speech.	58	56	52	52	57	68	75	68	59
Auto_0026.rnh	6/8/2019	12:18:39	At open NW Doors at gym; sound meter placed at entrance; final applaud/cheering.	57	68	70	65	61	69	74	67	59



Comments	dBA	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Recess, hour average at 6.6 feet from existing campus playground	57	59	60	60	54	59	65	60
Crowd Gathering, typical human speech spectrum adjusted to measured noise levels during post-event crowd gathering 63.5 dBA at 50 feet	41	48	48	52	54	47	40	38
Reverse beeper with truck engine noise, measured at 125 feet	57	65	59	57	52	52	45	65
Dust collector, measured at 3.3 feet	87	94	95	91	88	89	93	92
Audience applaud, measured noise levels during graduation event at approximately 50 feet from acoustic center:	67	76	56	52	52	57	68	75
Loud speaker, spectrum only. Compact line array speakers (basis: JBL VLA) three per side directed to the front, middle and back of the audience. Set slightly below roof line within the extents of the building.	67	62.2	69.5	65	70	68.1	64.2	57
Traffic noise DNL from parking lot, measured noise levels during on-site measurements. Night traffic is based on 25% of peak day traffic data.	Day	Night						
Upper Loop Road	57	51	DNL					
Lower Loop Road	57	48	DNL					
Drop-Off Area	57	48	DNL					



Appendix 13

Head-Royce School Noise and Vibration Assessment

Illingworth & Rodkin, Inc., July 23, 2020

Appendix 13B Measured Noise Levels at 2019 Graduation Event, Salter Associates, December 2019

Appendix 13C RGD Acoustics, Peer Review of Noise from Graduation Events in the Commons, October 14, 2021

Appendix 13D Memo - Adjusted Calculations for Graduation Event, Illingworth & Rodkin, Inc., October 15, 2021

14 October 2021

Scott Gregory
Lamphier - Gregory
4100 Redwood Highway, Suite 20A-#601
Oakland, CA 94619

Subject: Noise from Graduation Events in the Commons
Project: Head-Royce School
RGD #: 21-044

Dear Scott:

We have completed our review of the Head-Royce School Noise and Vibration Assessment with respect to noise from graduation events held in the Commons. Our review included discussions with the author, Illingworth and Rodkin (I&R) and representatives of Salter Associates (Salter). Salter is assisting the school and has provided some additional noise measurement data (source noise levels) for use by I&R in a possible revision to their noise study.

The purpose of our review is to determine the appropriate source noise level to use in the assessment of potential impacts from graduation events held in the Commons. This letter summarizes our findings.

Illingworth and Rodkin data (Head-Royce School Noise and Vibration Assessment, 4 August 2020)

This I&R report assesses the impact of noise from construction and operation of the proposed project. For events at the Commons, the report uses the following:

- Source noise levels for graduation are L_{eq} 67 dBA at 225 feet (1,000 spectators) plus a public address (PA) sound level of 75 dBA at the back of audience.
- I&R data based on measurements of crowd noise at high school football games.
- The "L_n" statistical noise descriptor distribution used in the analysis is based on measurements of a football game at another high school and the Head Royce indoor graduation measured by Salter.

Salter Measurement Data and proposed edits to the EIR Noise and Vibration Section

- Measured graduation event in the gymnasium of the Head Royce School on 24 June 2019.
- Concludes that the graduation event outdoors would generate lower noise levels than the I&R assumptions and suggests reducing the sound levels in Table 13-11 of the EIR Noise and Vibration Section by 4 dBA.

RGD Review

- The noise level for football games used by I&R is comparable to that measured by RGD for similar events.
- RGD has not measured noise from high school graduations, but would expect them to be, in general, somewhat less noisy than football games.
- The 4 dBA difference identified by Salter is not large compared to the range of normal variation in football noise measurements after correcting for crowd size.
- The Salter measurements were of very short duration (less than two minutes) and not necessarily appropriate for assessing a highly time-varying noise source against the Oakland Noise Ordinance standard that uses an hour-long measurement. However, given the relatively short measurement duration, the analysis technique used by Salter is reasonable.

Conclusions

- RGD prefers to estimate the noise from a particular event based on measurements of events that are as similar as possible. Therefore, RGD would lean toward use of the noise data measured at the Head Royce graduation by Salter rather than the football games used in the I&R report.
- There were some discrepancies in the Salter analysis but these tend to indicate that use of a 4 dBA difference is slightly conservative (actual difference may be greater) when adjusting the source noise data for use in the I&R report.
- RGD expects that the crowd noise during the graduation will tend to be relatively brief and that the PA sound will dominate the noise level during a majority of the graduation.
- Reducing the noise levels used by I&R by 4 dBA seems appropriate but this would only apply to the crowd noise and not the PA system. Therefore, RGD does not necessarily concur with Salter's suggested approach of reducing the overall noise (crowd and PA system) by 4 dBA without performing some additional analysis as explained below:
    - The calculated noise levels from a 1,000 spectator graduation event in Table 4 of the I&R report (Table 13-11 of the admin draft EIR) are based on the noise contours presented in Figure 6 of the I&R report which are the combined noise from crowd and PA system.
    - In order to determine extent of the potential noise impact with crowd noise reduced by 4 dBA, the noise modeling used by I&R to generate Figure 6 would need to be re-run with the crowd noise alone reduced by 4 dB and the PA system noise level set to the same level (75 dBA) as was used in the original analysis.
    - Once the model is re-run, a determination can be made as to the extent of any future impact and the dominant noise source whether crowd or PA system. Appropriate noise control measures such as property line noise level limits for the PA system can then be implemented, if needed.

* * *

Sincerely,

Alan T. Rosen

Alan Rosen
Principal

Appendix 13

Head-Royce School Noise and Vibration Assessment

Illingworth & Rodkin, Inc., July 23, 2020

Appendix 13B Measured Noise Levels at 2019 Graduation Event, Salter Associates, December 2019

Appendic 13C RGD Acoustics, Peer Review of Noise from Graduation Events in the Commons, October 14, 2021

Appendix 13D Memo - Adjusted Calculations for Graduation Event, Illingworth & Rodkin, Inc., October 15, 2021

Steve Deines

Fri, Oct 15, 11:28 AM (11 days ago)

Hi Scott,

The tables below and attached figure should give you what you're looking for. The figure shows noise contours with the PA system as-is and crowd noise reduced by 4 dBA.

Audience only -4 dBA:

Location	Worst Hour Noise Levels, dBA				
	L_{33}	L_{17}	L_8	L_2	L_{max}
R1: Residence on Lincoln Avenue	37	39	42	46	55
R2: Residence on Alida Court	51	53	56	60	69
R3: Residence on Alida Court	52	54	57	61	70
R4: Residence on Linnet Avenue	35	37	40	44	53
R5: Residence on Linnet Avenue	33	35	38	42	51
R6: Residence on Laguna Avenue	48	50	53	57	66
R7: Residence on Laguna Avenue	52	54	57	61	70
R8: Residence on Laguna Avenue	52	54	57	61	70
R9: Residence on Laguna Avenue	51	53	56	60	69
R10: Residence on Charleston Street	49	51	54	58	67
R11: Residence on Charleston Street	44	46	49	53	62
R12: Residence on Charleston Street	43	45	48	52	61
R13: Residence on Charleston Street	49	51	54	58	67
Adjusted Daytime Residential Standards	*55*	*60*	*65*	*70*	*75*

Audience only -4 dBA + PA System:

Location	Worst Hour Noise Levels, dBA				
	L_{33}	L_{17}	L_8	L_2	L_{max}
R1: Residence on Lincoln Avenue	41	43	46	50	59
R2: Residence on Alida Court	52	54	57	61	70
R3: Residence on Alida Court	53	55	58	62	71
R4: Residence on Linnet Avenue	40	42	45	49	58
R5: Residence on Linnet Avenue	36	38	41	45	54
R6: Residence on Laguna Avenue	48	50	53	57	66
R7: Residence on Laguna Avenue	52	54	57	61	70
R8: Residence on Laguna Avenue	53	55	58	62	71
R9: Residence on Laguna Avenue	**56**	58	61	65	74
R10: Residence on Charleston Street	**57**	59	62	66	75
R11: Residence on Charleston Street	46	48	51	55	64
R12: Residence on Charleston Street	46	48	51	55	64
R13: Residence on Charleston Street	**60**	**62**	65	69	**78**
Adjusted Daytime Residential Standards	*55*	*60*	*65*	*70*	*75*

Thank you,

Steve Deines | Staff Consultant

sdeines@illingworthrodkin.com
Direct: 720-645-2985
Office: 720-306-8322 (ext. 108)

Noise Resulting from Upper School Graduation Event with Spectators and Amplificatior
Lincoln Avenue
Camellia Place
Charleston Street
Coolidge Avenue
Laguna Avenue
Linnet Avenue
Alida Street
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
Signs and Symbols
Spectator Area
Speaker Pairs
Receiver
Noise Le
in dBA L
= 55
= 60
= 65
= 70
= 75
= 80
0
40
80
160
240
320
ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

Appendix 14

Head-Royce School Expansion – Transportation Assessment

Fehr & Peers, April 30, 2020 (amended as Chapter 14 of this EIR)

FEHR PEERS

Draft Memorandum

Date: April 30, 2020

To: Scott Gregory, Lamphier-Gregory

From: Corwin Bell and Sam Tabibnia, Fehr & Peers

Subject: Head-Royce School Expansion – Preliminary Transportation Assessment

OK18-0287.00

This memorandum summarizes the preliminary transportation impact review conducted by Fehr & Peers for the proposed Head-Royce School expansion in Oakland. Based on our analysis:

- The proposed School Expansion Project is estimated to generate 270 morning peak hour, 108 afternoon peak hour trips, and 600 daily trips.
- Considering the unique uses of the project, the City of Oakland's typical screening criteria or analysis methodologies cannot be used for the project vehicle miles traveled (VMT) analysis. Therefore, we recommend the following threshold of significance to be used in the project environmental report:
    - The School Expansion Project would cause substantial additional VMT if it exceeds the existing VMT per Total School Population minus 15 percent

  The memorandum provides a detailed estimate of the VMT generated by the existing Head-Royce School and the proposed School Expansion project. Using the threshold of significance described above, the School Expansion Project would have a significant VMT impact, which can be mitigated by expanding the existing Transportation Demand Management (TDM) Plan.
- According to the City of Oakland's Transportation Impact Review (TIRG, April 2017), a Transportation Impact Report (TIR) and a Transportation Demand Management (TDM) Plan are required for the proposed project because the project would generate more than 50 net new vehicle trips during a single peak hour.

The remainder of this memorandum describes the existing site and the proposed project, estimates the trip generation for the project, selects the study intersections for further analysis, assess the VMT impact of the project, and presents the scope of work for the next tasks in more detail.

1. Project Description

Head-Royce School is an independent K-12 school located at 4315 Lincoln Avenue between State Route (SR) 13 and Interstate (I)-580 in the Lincoln Highlands/Oakmore/Dimond neighborhood of Oakland. The existing school is on the north side of Lincoln Avenue and is referred to the North Campus. The project would consist of redeveloping the properties on the south side of Lincoln Avenue (South Campus) and integrating it with the existing North Campus.

Table 1 summarizes the School population under current conditions and at project buildout. Based on November 2018 data, the School currently has 894 students and 158 faculty and staff for a total population of 1,052. The project would increase the population to a maximum enrollment of 1,250 students and 189 faculty and staff, for a total population of 1,439, which is about 37 percent higher than the current population. This analysis defines the project as the increase between the current population and the maximum enrollment at project buildout, which would consist of 356 students and 31 faculty and staff for a total population of 387

Currently, School starts at 8:25 AM for all students and ends at 2:00 PM for the kindergarten classes and 3:20 for all other classes. The School also offers before-school activities, which start at 7:30 AM and after-school activities which mostly end between 5:00 and 6:00 PM. About 40 students are in the before-school activities and about 390 students are in the after-school activities. The School is expected to have the same hours with similar proportion of students in before- and after-school activities after the completion of the project.

Table 1: Enrollment and Employment Growth

Population Group	Existing (2018)	Project Buildout (Maximum Enrollment)	School Expansion Project	
			Population	Percent
Students	894	1,250	356	40%
Faculty/Staff	158	189	31	20%
Total	**1,052**	**1,439**	**387**	**37%**

Source: Head-Royce School, November 2018.

Existing Access and Circulation

Currently, the frontage along Lincoln Avenue is used for morning drop offs and afternoon pick-ups. Morning drop offs are allowed on both sides of the street; however, afternoon pick-ups by private vehicles are only allowed on the northside of the street. Passenger loading for private buses occur at a designated space on the north side of Lincoln Avenue adjacent to the main gate. AC Transit bus stops are provided on both sides of the street. A midblock signal on Lincoln Avenue adjacent to the main gate allows for protected pedestrian crossing of the street.

Parents wishing to turn around on Lincoln Avenue before or after dropping off or picking-up their students are directed to use the "Loops" east and west of the School. Drivers on westbound Lincoln Avenue (downhill) who wish to return to eastbound Lincoln Avenue towards SR 13 are directed to turn left on Alida Street, then right on Laguna Street, right on Potomac Street and then right on Lincoln Avenue to head eastbound (uphill). Drivers on eastbound Lincoln Avenue (uphill) who wish to return to westbound Lincoln Avenue towards I-580 are directed to turn right on Maiden Lane, then left on Monterey Boulevard before turning left on westbound (downhill) Lincoln Avenue.

Head-Royce School currently provides 283 off-street parking spaces in the following facilities:

- Lots A through C are in the South Campus and accessed through a stop-controlled driveway on Lincoln Avenue north of the main gate. The three lots combined provide 57 spaces which are mostly assigned to faculty and staff, with limited spaces available for visitors.
- Lot D is in the South Campus and accessed through a stop-controlled driveway on Lincoln Avenue south of the main gate. It provides 62 spaces which are designated for faculty and staff.
- Lot E is in the North Campus and accessed through Whittle Avenue, which is a residential street on the north side of the North Campus. It provides 20 spaces which are assigned to faculty and staff.
- Lot F is in the North Campus and accessed through a signalized intersection on Lincoln Avenue on the east side of the School. It provides 134 spaces which are assigned to faculty and staff and also used by students and visitors

Head-Royce School is required to maintain a Transportation Demand Management (TDM) plan to (1) ensure effective and efficient drop off/pick-up processes, (2) implement parking management strategies to minimize parking on the adjacent residential streets, and (3) reduce single-student and single parent/student driving trips.

Proposed Access and Circulation

In addition to accommodating the increased enrollment, the redevelopment of the South Campus would also modify access and circulation for the School. The primary changes would consist of:

- Provide a clockwise Loop Road along the perimeter of the South Campus with an inbound driveway on Lincoln Avenue along the east side of the South Campus and an outbound driveway along the west side. Both driveways on Lincoln Avenue would be signalized. The Loop Road would provide access to new parking facilities and would accommodate the designated drop off and pick-up areas for all parents.

- The provision of the Loop Road within the South Campus would eliminate the drop offs and pick-ups by parents along Lincoln Avenue. However, passenger loading for both public and private buses would remain on Lincoln Avenue. The provision of the Loop Road would also eliminate the need for parents to use the Alida Street and Maiden Lane loops to turnaround on Lincoln Avenue.
- Construct an underground pedestrian tunnel below Lincoln Avenue to connect the North and South Campuses and reduce at-grade pedestrian crossings across Lincoln Avenue.
- Increase the on-campus parking supply to 344 parking spaces by reconfiguring the parking facilities in the south Campus

2. Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the local roadway network. Trip generation for the project is estimated by first estimating the mode share for the existing Head-Royce School and then estimating the existing trip generation for the School and applying it to the proposed School expansion.

Mode Share

The current travel mode shares for Head-Royce School students and faculty/staff were estimated based on data provided by Head-Royce School, recorded observations by the School traffic monitor in November 2018, data collected by Fehr & Peers along the School frontage in November 2019, and Alameda-Contra Costa Transit (AC Transit) stop-level ridership in Spring 2019. **Table 2** summarizes the mode share for students, faculty/staff, and the overall population of the School.

Currently, about 41 percent of students use either a private or public bus, about 41 percent are dropped off and picked-up, about 13 percent drive and park on-site, and about three percent walk or bike. About 93 percent of the faculty and staff drive and park in either single-occupant or carpool vehicles, with the rest using buses, walking or biking to and from the School.

This analysis assumes the commute mode shares for students and faculty/staff after project buildout would remain the same as existing conditions.

Table 2: Student and Faculty/Staff Travel Mode Shares

Mode	Students		Faculty/Staff		Combined	
	Percent	Persons	Percent	Persons	Percent	Persons
Drop off/Pick-up (Carpool)[1]	21%	190	0%	-	18%	190
Drop off/Pick-up (SOV)[1]	20%	179	0%	-	17%	179
On-site Parking (Carpool)[2]	5%	44	20%	32	7%	76
On-site Parking (SOV)[3]	8%	68	72%	114	17%	182
Private Bus[4]	34%	308	1%	1	29%	309
Public Bus[5]	9%	80	1%	1	8%	81
Bike[1]	1%	6	3%	4	1%	10
Walk[1]	2%	19	4%	6	2%	25
Total	**100%**	**894**	**100%**	**158**	**100%**	**1052**

Notes:
SOV = Single Occupant Vehicle
1. Based on the Head-Royce School traffic monitor observations in November 2018 and confirmed by count data collected in November 2019
2. Based on the number of students and faculty/staff carpool parking permits provided by Head-Royce School
3. Based on data provided by Head-Royce School and the available parking supply
4. Based on data provided by Head-Royce School in November 2018
5. Based on the Head-Royce School traffic monitor observations and confirmed by AC Transit stop-level ridership data

Source: Fehr & Peers 2020.

Existing Automobile Trip Generation

The automobile trip generation for the existing Head-Royce School is estimated based on the mode shares described in Table 2 and the School operating conditions described in Project Description subsection of this memorandum. **Table 3** summarizes the existing automobile trip generation for the Head-Royce School. Automobile trip generation on a typical weekday for the School consists of parents dropping off and picking up their students, faculty/staff and a limited number of students driving and parking at the School, the private buses serving the School, and other trips, such as deliveries and visitors, which are assumed to be about five percent of the total trips generated by the School. The morning peak hour is from 8:00 to 9:00 AM and the afternoon peak hour is from 3:15 to 4:15 PM. Within each peak hour, most of the trips are concentrated around the School bell times, which are at 8:25 AM and 3:25 PM, respectively, for most students.

The Head-Royce School currently generates about 758 morning peak hour, 323 afternoon peak hour, and 1,650 daily automobile trips on a typical weekday. Note that the afternoon peak hour trips are less than the morning peak hour trips because although most of the students arrive during the morning peak hour, some, such kindergarten students, leave before the afternoon bell time and many stay after the afternoon bell time because they participate in after-school activities.

Table 3: Existing Automobile Trip Generation

Travel Mode	AM Peak Hour (8:00 AM to 9:00 AM)			Afternoon Peak Hour (3:15 PM to 4:15 PM)			Daily Trips
	In	Out	Total	In	Out	Total	
School Population							
Drop offs/Pick-ups	245	245	490	97	97	193	1,100
On-Site Parking	221	0	221	0	105	105	450
Private Buses	5	5	10	5	5	10	20
Subtotal	471	250	721	102	206	308	1,570
Others (deliveries, visitors, etc)[1]	24	13	37	5	10	15	80
Total	**495**	**263**	**758**	**107**	**216**	**323**	**1,650**

Notes:
1. Assumed to be five percent of the project trips
Source: Fehr & Peers, 2020.

Project Buildout Automobile Trip Generation

Table 4 summarizes the automobile trip generation at project buildout based on the number of students and faculty/staff at maximum enrollment. The trip generation assumes the School would have similar operating conditions (such as similar bell times and similar number of students in before- and after-school activities, etc.), and students and faculty/staff would have similar mode shares. It is estimated that at buildout, the Head-Royce School would generate about 1,028 morning peak hour, 431 afternoon peak hour, and 2,250 daily automobile trips on a typical weekday.

Table 5 presents the net new trips that would be generated by the project by subtracting the existing trip generation from the buildout trip generation. It is estimated that the project would result in net new 270 morning peak hour, 108 afternoon peak hour, and 600 daily automobile trips on a typical weekday.

Table 4: Project Buildout Automobile Trip Generation

Travel Mode	AM Peak Hour (8:00 AM to 9:00 AM)			Afternoon Peak Hour (3:15 PM to 4:15 PM)			Daily Trips
	In	Out	Total	In	Out	Total	
School Population							
Drop offs/Pick-ups	343	343	685	135	135	270	1,540
On-Site Parking	283		283		130	130	580
Private Buses	5	5	10	5	5	10	20
Subtotal	631	348	979	140	270	410	2,140
Others (deliveries, visitors, etc)[1]	32	17	49	7	14	21	110
Total	**663**	**365**	**1,028**	**147**	**284**	**431**	**2,250**

Notes:
1. Assumed to be five percent of the project trips
Source: Fehr & Peers, 2020.

Table 5: Project Trip Generation

Automobile Trips	Morning Peak Hour (8:00 AM to 9:00 AM)			Afternoon Peak Hour (3:15 PM to 4:15 PM)			Daily
	In	Out	Total	In	Out	Total	
Existing[1]	495	263	758	107	216	323	1,650
Buildout[2]	663	365	1,028	147	284	431	2,250
School Expansion Project	**168**	**102**	**270**	**40**	**68**	**108**	**600**

Notes:
1. See Table 3 for details
2. See Table 4 for details
Source: Fehr & Peers, 2020.

Non-Automobile Trip Generation

Consistent with the City of Oakland TIRG, **Table 6** presents the person trip generation estimates for the various travel modes based on the existing mode shares and operating conditions described above.

Table 6: Person Trip Generation by Travel Mode

Travel Mode	Morning Peak Hour (8:00 AM to 9:00 AM)			Afternoon Peak Hour (3:15 PM to 4:15 PM)			Daily		
	Existing	Buildout	Project	Existing	Buildout	Project	Existing	Buildout	Project
Automobile	589	796	207	251	332	82	1,270	1,720	450
Private Bus	301	421	120	301	420	120	600	840	240
Public Bus	81	113	32	81	113	32	160	230	70
Bike	10	13	3	3	8	5	20	30	10
Walk	24	32	8	8	21	13	50	70	20
Total	**1,005**	**1,374**	**370**	**644**	**894**	**251**	**2,100**	**2,890**	**790**

Source: Fehr & Peers, 2020.

3. Trip Distribution, Assignment, and Study Intersection Selection

The trip distribution and assignment process is used to estimate how the vehicle trips generated by a project site would be distributed across the roadway network. Based on current home ZIP code data for students and faculty/staff provided by the Head-Royce School, **Figure 1** shows the geographic distribution of students and faculty/staff homes by ZIP code. The ZIP codes nearest to Head-Royce School have the highest percentage of students and staff. About 50 percent of students and faculty/staff live within 10 miles of the Head-Royce School, while over 80 percent live within 20miles, and all live within 30 miles.

Route assignments between home ZIP codes and the Head-Royce School were calculated using a network analysis in Geographic Information System (GIS) software. The network analysis finds the shortest path along the roadway between an origin and a destination. The shortest paths were aggregated to calculate the percentage of the population using the major access roadways.

Figure 2 shows the trip distribution for the Head-Royce School based on the network analysis completed in GIS. It is estimated that more than half the population uses SR 13 North to access the School. This analysis assumes that most trips would approach and leave the School site from the same general direction.

This analysis assumes the students and faculty at project buildout would have a similar geographic distribution as current students and would have similar trip distribution as shown on Figure 2.

Study Intersection Selection

According to the City of Oakland's TIRG, the criteria for selecting study intersections include:

- All intersection(s) of streets adjacent to project site;
- All signalized intersection(s), all-way stop-controlled intersection(s) or roundabouts where 100 or more peak hour trips are added by the project;
- All signalized intersection(s) with 50 or more project-related peak hour trips and existing LOS D-E-F; and
- Side-street stop-controlled intersection(s) where 50 or more peak hour trips are added by the project to any individual movement other than the major-street through movement.

Following these criteria, the following seven intersections are selected for evaluation in the study due to being adjacent to the project site, project adding 50 or more peak hour trips to the intersection, or being used as part of the designated loop for drop off/pick-up traffic to change direction:

1. Lincoln Avenue/Potomac Street
2. Lincoln Avenue/Alida Street
3. Lincoln Avenue/United Cerebral Palsy Driveway/Head-Royce Lot F Driveway
4. Lincoln Avenue/Lincoln Way/Oakland Mormon Temple Driveway
5. Lincoln Avenue/Maiden Lane
6. Lincoln Avenue – Joaquin Miller Road/Monterey Boulevard
7. Joaquin Miller Road/SR 13 Northbound Off-Ramp – Mountain Boulevard

Fehr & Peers collected intersection turning movement, pedestrian, and bicycle volumes at the seven study intersections on Thursday, November 14, 2019, when Head-Royce School, as well as local schools were in normal session. Fehr & Peers also collected crossing data at the signalized mid-block crossing and the pick-up/drop off areas adjacent to the School. The data was collected from 7:00 AM to 9:00 AM and from 2:00 PM to 6:00 PM. Based on the collected data, the morning peak hour is from 7:45 AM to 8:45 AM and the afternoon peak hour is from 3:15 PM to 4:15 PM. **Figure 3** shows the existing morning and afternoon peak hour volumes at the seven study intersections.

4. Vehicle Miles Traveled

This section describes the VMT assessment for the project. It starts by recommending a threshold of significance, presents the total VMT estimated for the existing School as well as the School at project buildout, and evaluates the VMT impact of the project.

Recommended Threshold of Significance

Based on City of Oakland's TIRG, a VMT assessment is typically completed using a screening analysis based on project location, type, transit access, and other factors to determine if the project can be presumed to have a less-than-significant impact on VMT. Since the proposed project is an independent school in a somewhat suburban setting with students from a large geographic area, the City of Oakland's screening process is not applicable to the project. Thus, this analysis provides a full evaluation of the project's VMT impact.

The City of Oakland uses the following thresholds of significance to determine if a project would generate substantial additional VMT and have a significant VMT impact:

- For residential projects, a project would cause substantial additional VMT if it exceeds existing regional household VMT per capita minus 15 percent.
- For office projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.
- For retail projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.

Similar to the screening criteria, these thresholds are not applicable to the project. Thus, we propose the following threshold to be used for the proposed Head-Royce School Expansion Project:

- The School Expansion Project would cause substantial additional VMT if it exceeds the existing VMT per Total School Population minus 15 percent

Where the Total School Population is defined as the total number of students and faculty and staff and the School Expansion Project is defined as the net increase in School population from existing to buildout conditions (total of 387 people consisting of 356 additional students plus 31 additional faculty and staff). Note that the threshold only applies to the CEQA project which is the net increase in School population; it does not apply to the existing school.

VMT Estimation

Typically, a travel demand model, such as the Alameda County Transportation Commission (CTC) Travel Demand Model, is used to estimate VMT for development projects. Due to its unique use and characteristics, the Alameda CTC Model cannot be used to estimate VMT for the Head-Royce School. Thus, the existing VMT for the Head-Royce School is estimated based on the current mode share and home ZIP code data described earlier in this memorandum, and assumes that VMT for project buildout conditions would be based on similar mode shares, operating conditions at the School, and similar geographic distribution of the student and faculty/staff home locations.

Table 7 presents the key VMT related metrics for both Existing and Buildout conditions. The table starts by estimating the person trips by travel mode and distance from the School, converts the person trips to Person Miles Traveled (PMT) and then VMT, as described below.

Table 7: Existing and Buildout Daily Travel Metrics

Mode	Existing					Project Buildout (Maximum Enrollment)				
	5-Mile	10-Mile	20-Mile	30-Mile	Total	5-Mile	10-Mile	20-Mile	30-Mile	Total
Person Trips										
Drop off/Pick-up	63	131	400	147	741	77	179	563	207	1,025
On-site Parking	45	94	287	105	531	52	120	377	139	687
Private Bus	240	270	90	-	600	336	378	126	-	840
Public Bus	128	30	-	-	158	184	44	-	-	228
Bike	20	-	-	-	20	30	-	-	-	30
Walk	50	-	-	-	50	70	-	-	-	70
Total	546	525	777	252	**2,100**	749	720	1,066	346	**2,880**
Person Miles Traveled										
Drop off/Pick-up	310	1,250	7,500	4,440	13,500	390	1,710	10,550	6,260	18,910
On-site Parking	230	890	5,370	3,180	9,670	260	1,140	7,060	4,190	12,650
Private Bus	1,200	2,580	1,690	-	5,470	1,680	3,610	2,360	-	7,650
Public Bus	640	290	-	-	930	920	420	-	-	1,340
Bike	100	-	-	-	100	150	-	-	-	150
Walk	250	-	-	-	250	350	-	-	-	350
Total	2,730	5,010	14,560	7,620	**29,920**	3,750	6,880	19,970	10,450	**41,050**
Vehicle Mile Traveled										
Drop off/Pick-up	460	1,860	11,140	6,590	20,050	580	2,540	15,670	9,300	28,090
On-Site Parking	200	760	4,580	2,710	8,250	220	970	6,020	3,570	10,780
Total	660	2,620	15,720	9,300	**28,300**	800	3,510	21,690	12,870	**38,870**

Source: Fehr & Peers, 2020.

Travel mode allocations were based on the availability of travel modes for each ZIP code. For example, all the walk and bike trips were allocated to the ZIP codes within five miles of the Head-Royce School. The bus trips were allocated based on the overlap between the private and public bus service areas and the home ZIP code locations, with most bus trips allocated to ZIP codes within 10 miles of the Head-Royce School. All ZIP codes outside of a reasonable walk or bike distance and with no bus stops were allocated to either drop off/pick-up or on-site parking trips based on their respective mode shares.

Person trips were converted to PMT using the network distances calculated for the route assignments as described earlier in this memorandum. PMT was converted to VMT using an average vehicle occupancy of 1.3 for all vehicle trips, which assumes that all carpool trips have two students or faculty/staff in the vehicle, which is consistent with our observations at the site. Drop off/pick-up trips were assumed to have twice the VMT as on-site parking trips since this analysis assumes that these vehicles would return home after drop off in the morning and would travel from home to school for pick-ups in the afternoons and evenings.

As shown in Table 7, the total daily VMT under existing conditions is estimated to be about 27,740. The total daily VMT for Project Buildout is estimated to increase by 38 percent to 38,870.

VMT Impact Analysis

Table 8 summarizes the VMT per population for existing and project buildout conditions based on the total VMT estimates presented in Table 7 and the total population presented in Table 1. Table 8 also presents the VMT per population for the School Expansion Project. The VMT per population for the School Expansion Project is slightly higher than the existing because the School Expansion Project includes a higher proportion of students than faculty and staff and students have higher VMT because the student drop off/pick-up trips ae assumed to have twice the VMT as on-site parking trips as described above.

Table 8: VMT per Population Summary

Scenario	Total VIMT	Total School Population	VMT per Population
Existing Condition	28,300	1,052	26.9
Project Buildout (Maximum Enrollment)	38,870	1,439	27.0
School Expansion Project	**10,570**	**387**	**27.3**

Source: Fehr & Peers, 2020.

As described earlier, the threshold of significance for the project is recommended to be 15 percent below the existing VMT per population. Since the existing VMT per population is 26.9, the recommended threshold is 22.9. The VMT generated by the School Expansion Project is 27.3. Thus, the VMT generated by the School Expansion Project is considered a significant impact.

The significant impact can be mitigated by expanding the existing TDM Plan at the School. The expanded TDM Plan would need to reduce the VMT per population for the School Expansion Project from 27.3 to 22.9, which corresponds to about 19 percent reduction to mitigate the impact. Since the TDM Plan would not just target the new population but the entire population at the School, it would need to reduce the overall VMT per population by about five percent at project buildout to mitigate the impact.

5. Next Steps

On City approval of the methodology and results of this memorandum, we will proceed with the following tasks, which are the same as the tasks in our approved scope of work.

Intersection Forecasts

We will develop morning and afternoon peak hour forecasts at the seven study intersections for Existing plus Project, 2040 No Project, and 2040 Plus Project scenarios for the air quality and noise analyses of the project. We will use the Alameda CTC Travel Demand Model to establish the 2040 volume forecasts. We will review the model and establish an adjustment factor that will be applied to the existing traffic volumes to establish 2040 volume forecasts. We will develop "Plus Project" forecasts by adding the trips generated by the project as shown in Table 5 and assigned to the street network based on the distribution shown on Figure 2, to the "no project" scenarios.

Intersection Operations Analysis

Although City of Oakland no longer evaluates intersection traffic operations for CEQA documents, we will conduct intersection operations analysis for the streets serving the project site to ensure that the surrounding street system can serve the proposed project. We will evaluate the peak hour operations at the seven study intersections listed above.

We will prepare Synchro models for the morning and afternoon peak hours with the traffic volumes developed above to analyze intersection operations under the following scenarios:

- Existing Conditions
- Existing Plus Project Conditions

In addition, Fehr & Peers will also prepare a VISSIM simulation model for the Existing Plus Project conditions to simulate traffic conditions with the proposed project accounting for the completion of the Loop Road and the expected increase in student enrollment. The VISSIM simulation would be completed for the morning and afternoon peak hours and would consist of Lincoln Avenue along the school frontage and the proposed Loop Road. The simulation would include drop offs and pick-ups along the designated areas on the Loop Road, as well as bus drop offs and pick-ups and pedestrian crossings on Lincoln Avenue and the Loop Road. The VISSIM model would visualize traffic conditions and allow for a more accurate and detailed analysis.

Based on the above, we will determine the adequacy of the roadway modifications proposed by the project and whether the proposed plans to alleviate the existing traffic congestion on Lincoln Avenue caused by cars and buses dropping off and picking-up students will be effective, or if these plans coupled with increased enrollment and additional turn lanes and signals on Lincoln Avenue, will result in additional traffic congestion or queuing along Lincoln Avenue. Based on this analysis, Fehr & Peers will determine if additional changes to the street system should be considered. Potential changes may be new signals, modifications to existing signals, and/or changes to street configurations.

Site Evaluation

Fehr & Peers will review the project site plan and the existing street network adjacent to the project site to evaluate safety for motorists, bicyclists, pedestrians in the context of the site access and circulation. Specifically, we will review the site plan for the project in terms of:

- Site access for automobiles, deliveries, bicyclists, and pedestrians, including access to bus stops serving the School
- On-site circulation for various modes and potential conflicts between the modes
- Pedestrian facilities, such as crosswalk treatments, signal equipment, sidewalk widths and ADA considerations adjacent to the project site and to the nearest transit stops, including an assessment of at-grade crossing of Lincoln Avenue, especially if a tunnel cannot be provided under Lincoln Avenue.
- Sight distance for pedestrians and automobiles at the new project driveways and the at-grade crossings of Lincoln Avenue
- Connections the nearest bicycle facilities
- Location, type, and amount of bicycle parking
- Estimated project automobile parking demand and the adequacy of parking supply
- Adequacy of bus stop infrastructure serving the site transit users
- Bicycle, pedestrian, and transit impacts due to construction as well as expected truck routes

Collision History

Fehr & Peers will review five years of collision history (vehicle, pedestrian, and bicycle) at the seven study intersections where intersection counts were collected as well as Lincoln Avenue adjacent to the project site.

Fehr & Peers will review the collision data for all modes and identify if there are any crash patterns by collision type, severity, primary collision factor, and movement. We will also develop predicted crash frequencies for each study location based on Part C of the Highway Safety Manual. These predicted crash frequencies will be compared against the observed crash frequencies to identify if any of the study locations experience a higher than predicted number of collisions.

Based on the project's trip assignment, we will determine if the added traffic would contribute to a study location with a higher than predicted number of collisions, and if so we will identify potential treatments. There may be multiple potential treatment options. We will document the Crash Modification Factor (CMF) for each treatment option (along with the CMF's standard error and quality rating). The analysis will focus on 4- and 5-star quality CMFs with 3-star quality applied under limited circumstances. CMF sources will include Part D of the Highway Safety Manual and the CMF Clearinghouse. We will provide a list of treatments at locations to address the higher than predicted number of collisions for the City to consider. If a treatment would affect intersection operations, we will evaluate the potential impact using the Synchro software.

Consistency with Plans

Fehr & Peers will review the City of Oakland's adopted Plans and Policies pertaining to transportation and to what extent the project is consistent with them. The City of Oakland TIRG identifies the documents that will be reviewed.

Peer Review of the Transportation and Parking Demand Management (TDM) Plan

Since the project would generate more than 50 peak hour trips, a Transportation and Parking Management (TDM) Plan for the project will be required, consistent with the City of Oakland's TIRG. We understand that the Head-Royce School (via their consultants Nelson|Nygaard) will be providing an updated Head-Royce School TDM Plan that will include identified expansion of existing infrastructure improvements and on-going operational strategies that would increase non-automobile mode share by the project. Fehr & Peers will peer review this updated TDM Plan and assess the effectiveness of each strategy in reducing vehicle trips.

Documentation and Meetings

Fehr & Peers will prepare and submit the following to Lamphier-Gregory and the City of Oakland staff for review and approval:

- Transportation section of the EIR
- Memorandum summarizing the non-CEQA tasks
- TDM peer-review memorandum

Consistent with City of Oakland's Guidelines for Environmental Consultant Contracts Concerning Private Development Projects, this scope conservatively assumes the preparation of three administrative drafts, a screen check draft, and a final document. If the comments raise issues that are not included in the scope of work or require additional quantitative analysis, Fehr & Peers will consult with City staff and the project team to determine necessary adjustments to the scope of work.

Fehr & Peers will prepare for and attend three meetings and/or public hearings at part of this scope of work. This scope of work also includes up to 16 hours for responding to public comments on the draft environmental documentation.

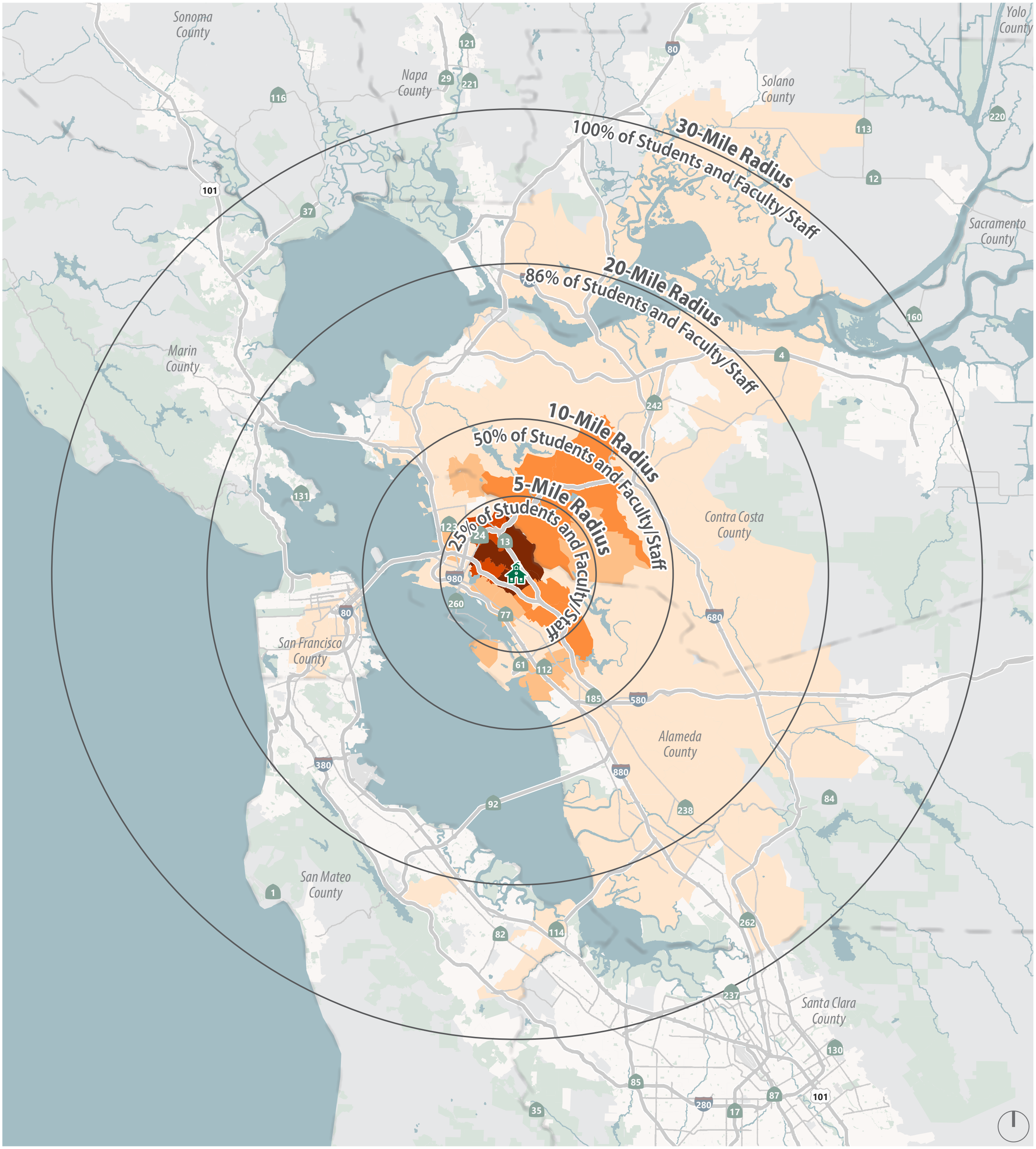
Please contact Sam Tabibnia (stabibnia@fehrandpeers.com or 510.835.1943) or Corwin Bell (cbell@fehrandpeers.com or 206.453.1613) with questions or comments.

Attachments:

Figure 1: Student and Faculty/Staff Home Locations by Zip Code

Figure 2: Project Trip Distribution

Figure 3: Existing Conditions Peak Hour Traffic Volumes and Lane Configurations



Head Royce School

5-, 10-, 20-, 30-Mile Radius

Number of Students and Faculty/Staff by ZIP Code

0% - 1%

1% - 2.5%

2.5% - 5%

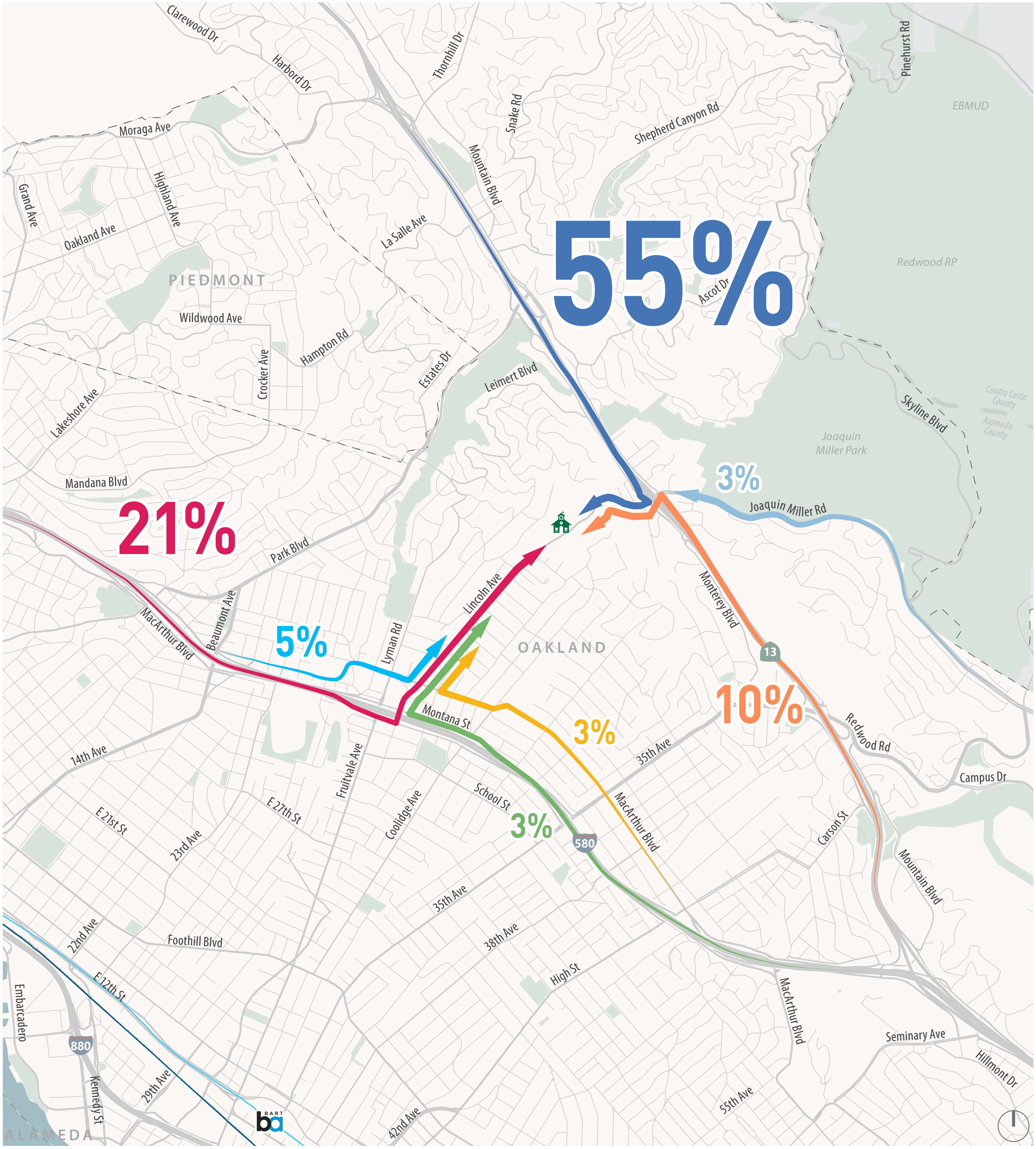
5% - 10%

10% - 20%

Figure 1

Student and Faculty/Staff Home Locations by ZIP Code

OK18-0287_2_ZipCodeDistro



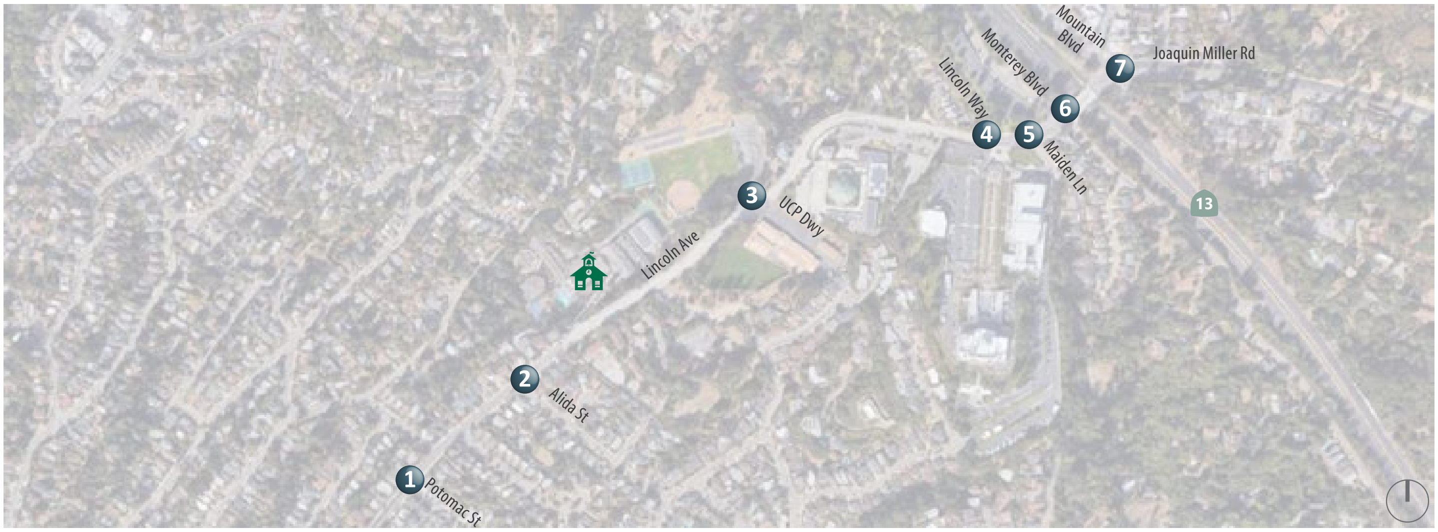
Head Royce School

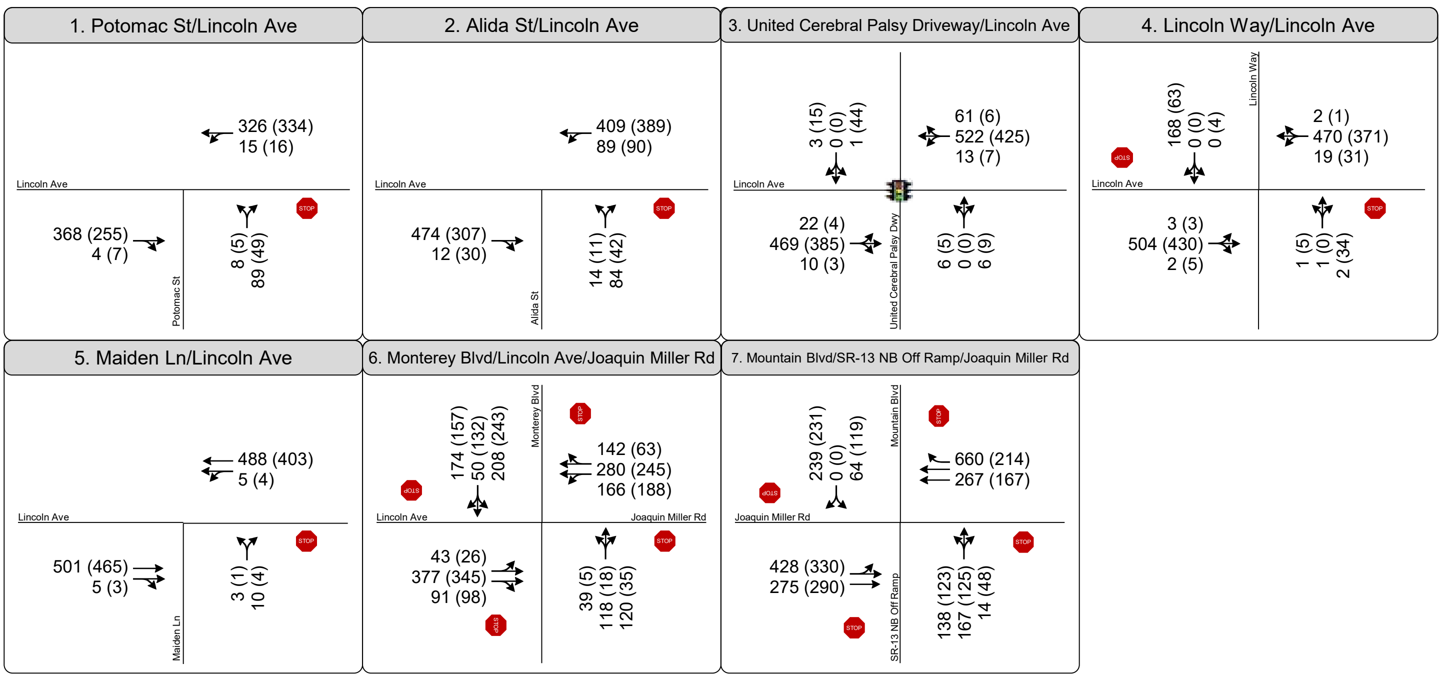
#% Project Trip Distribution

Figure 2

Project Trip Distribution

OK18-0287_2_TripDistro





XX (YY) Morning (Afternoon) Peak Hour Traffic Volume

Lane Configuration

Stop Sign

Signalized Intersection

Head Royce School

Study Intersection

Figure 3

Existing Conditions
Peak Hour Traffic Volumes and Lane Configurations

OK18-0287_3_VolEx

Appendix 16A

Vegetation Management Plan and Fire Safety Phasing Plan for Defensible Space of the Head-Royce School

Wildland Res. Mgt., November 2020

VEGETATION MANAGEMENT PLAN

and

FIRE SAFETY PHASING PLAN

for the Defensible Space of the

HEAD-ROYCE SCHOOL

4315 and 4368 Lincoln Avenue, Oakland

A. STATEMENT OF PURPOSES

In response to comments received as part of the EIR Notice of Preparation, this plan provides an enhanced level of safety from wildfire through meeting defensible space requirements. As described below, this plan includes the following elements:

1. A map depicting the fuel management area on an aerial-photo base-map which details the locations of the fuel management zones in a manner that illustrates the locations of different vegetation treatments required in the plan. Protected creek banks are also depicted on this map.
2. A list of treatment performance standards within each fuel management zone.
3. A list of recommendations for implementing treatments, including sufficient information to provide clear instructions to contractors performing the fuel management work. Details regarding spacing, pruning heights and volumes of litter/chips are provided.
4. Diagrams that document fuel types present on the lot and current vegetation condition, as well as images needed to support specific treatment recommendations (for example, depicting sensitive habitat to be retained).

In addition, it includes a recommendation to perform vegetative treatments on residential properties owned by Head-Royce School and adjacent property when it lies within the Defensible Space Zone.

Because the South Campus will be the site of construction, most landscaping will be new. Thus, a section on fire-resistant landscaping is offered. Vegetation management of current vegetation is guided through a vegetation management plan.

The plan shall be considered current for three years after initial creation, then every ten years thereafter, unless significant changes to the site occur (such as a heavy weed infestation or significant die-back of trees or woody shrubs). At the end of three years, this plan should be reviewed, considering the effectiveness of the treatments to abate fire hazards, and simultaneous protection of sensitive species and habitats. Each update must be submitted for approval by the Oakland Fire Department.

B. Existing Conditions

1. Location

The parcels are located on the west of Highway 13, at 4315 Lincoln Ave., Oakland, CA 94619. The combined 22-acre Project Area is located below the Ascension Greek Orthodox Cathedral and in the Lincoln Highlands/Oakmore neighborhood. The southern parcel is where the Lincoln Child Center existed. The northern parcel contains a school site, with large outdoor sport facilities such as playing fields, tennis courts and a swimming pool, large gymnasium and several buildings for instruction and administration as well as residential structures that house faculty. All of the buildings in the southern parcel (South Campus were built before the building codes required consideration of wildfire, whereas buildings constructed since 2007 are generally ignition-resistant.

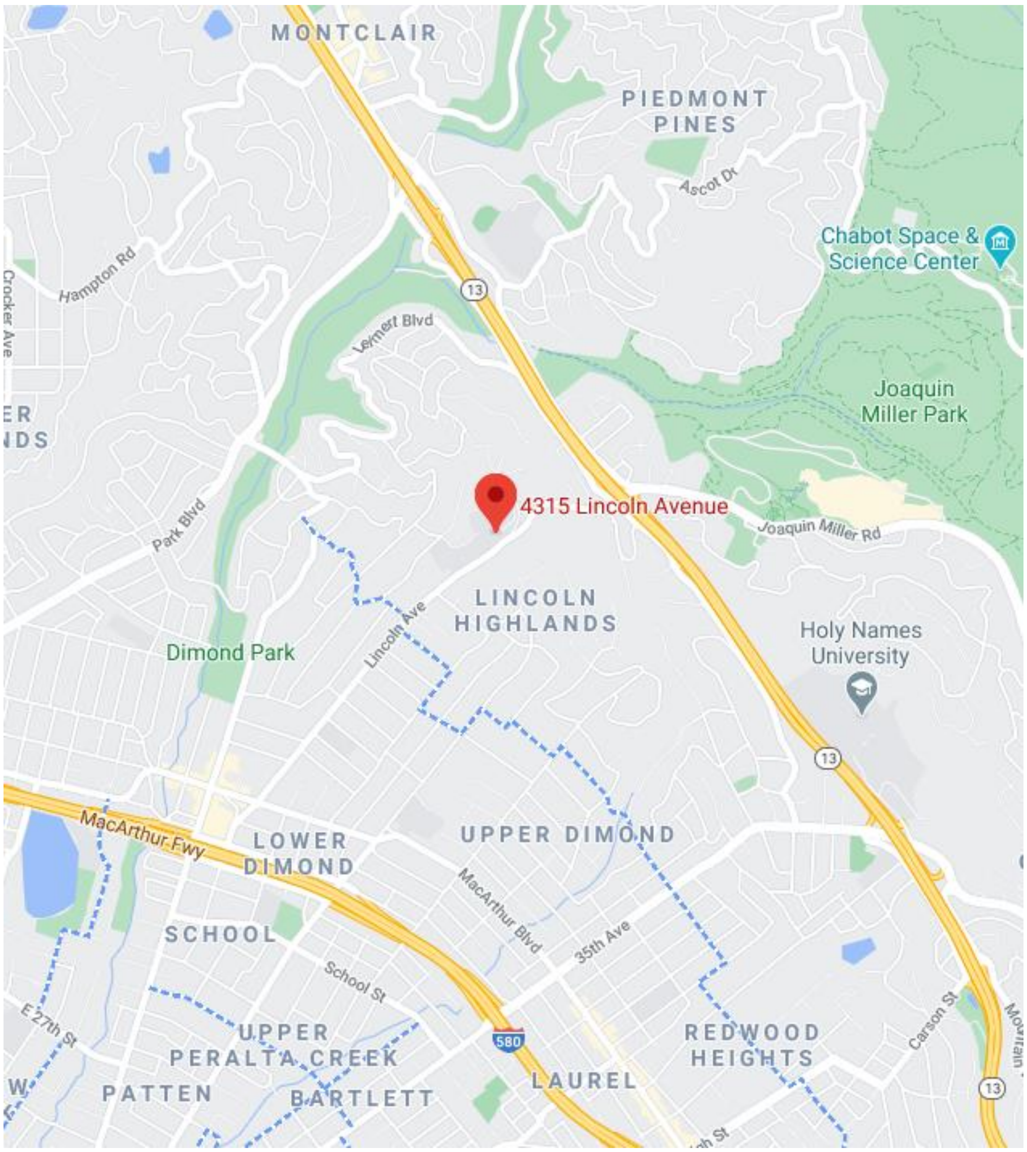


Figure 1. Location of the Head-Royce School

Figure 2. Landownership, pattern of development of neighborhood of Head-Royce Schools

Figure 3 Parcel boundaries of Head-Royce School campus

Figure 4. Residential parcels owned by Head-Royce Schools

2. Regulatory Context – Wildfire

The City of Oakland's Fire Department inspects properties annually for compliance with its locally-adopted defensible space standards.

These standards require a minimum of 30-feet defensible space, as measured from the outside of all structures. An additional 70-feet of defensible space may be required on properties, depending on the slope steepness, fuel volume, and type of vegetation. Because the Head-Royce School is located in a Very High Fire Hazard Severity Zone, 100-feet of defensible space would be required.

Within the zones of defensible space, dry grass needs to be cut to a maximum of 6-inch height, and trees pruned of low branches, to a height of 6 to 15 feet from the ground. Shrubs need to be removed under trees. All dead or dying vegetation adjacent to or over buildings, and from porches, decks, and stairways need to be removed. All portions of trees within 10-ft of a chimney and/or stovepipe also needs to be removed.

Additionally, all roofs and gutters are to be free of leaves, needles, and dead or dying vegetation.

Vegetation within 10-feet of both sides of roads need to be kept as defensible space, and more may be required. Because of the high volume of traffic, it is prudent for the school to maintain a fire-safe zone of 15 feet on both sides of all roads. Vegetation over the road may be no lower than 13.5 feet above the roadbed.

3. Wildland Fire Hazard

Fire hazards are influenced by weather, topography and fuels. The local weather in conducive to wildfires for at last six months of each year, with the greatest risk occurring during the fall, when school is in full operation.

The project area is located on a west-facing slope below Highway 13 mid-slope of the Oakland Hills. On a smaller-scale, the site sits in a topographic bowl, or bottom of a canyon. The southwest-facing slopes in the northeast portion of the site are the steepest, at greater than 30% slope.

The site of the north campus itself is fairly flat, and the playing fields, pool and tennis courts completely so. Many of the instructional buildings and the Gymnasium are at the base of the bowl, while the administrative buildings site higher on the site, at Lincoln Ave. The south campus site is generally flat; the topography poses no particular hazard.

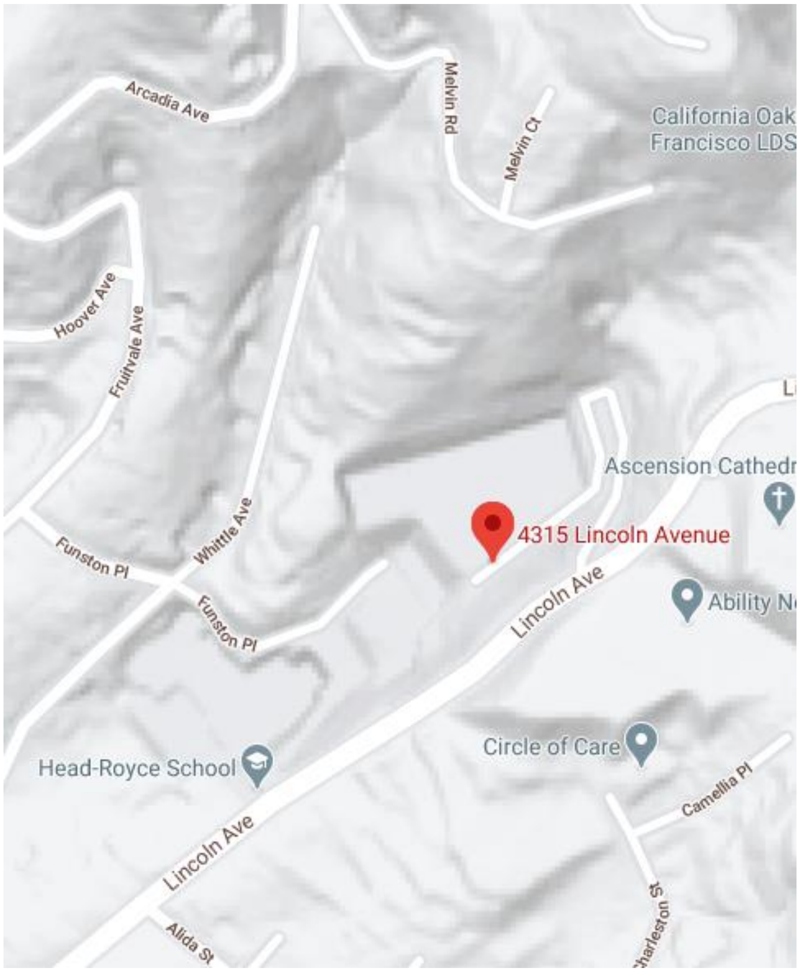


Figure 5 Terrain in immediate vicinity of Head-Royce School

The vegetation on the school is a mixture of landscaping and areas north of the playing fields that can be characterized as wildlands. School landscaping is located closer to structures, whereas the wildlands encircle the school and extent to its outer boundaries. Landscaping is generally a mix of lawn and tended trees, with some shrubs used as visual barriers.

This vegetation management plan addresses the landscaping; as well as the wildlands because, the biggest perceived threat to the school is the wildlands and not the landscaping. However, the vegetation nearest the structures may be the biggest risk.

Each vegetation type burns differently during a wildfire. Grasses ignite easily, burn will little total heat output, but with long flame lengths and high rates of spread. The scrub vegetation types are not easily ignited, but burn with great intensity (typically with flame longer than 20 feet), and the woodlands and bay forests produce fairly benign fire behavior under all except extreme conditions. The most hazardous, by far, are the non-native forest, comprised of eucalyptus. The trees produce the greatest volume of dead material, which can be ignited year-round. This fuel volume is arranged throughout the tree height, which promotes torching. When a tree torch, the fire defies containment, and spreads embers for thousands of feet and can cause countless new ignitions. In addition to the threat caused by torching, these trees produce high levels of heat, and often at the same plane as those attempting access or egress. The riparian forest is usually not hazardous, however under extremely dry conditions, the high volume of fuel in this forest type can burn with great intensity.

Weather at the Head-Royce School is typical of the East Bay Hills. Temperatures are moderately hot during the summer, and rain ceases in May, to return only five to six months later. Fire season is at least six months long, and recently, has extended to December.

Moist winds normally blow from the west. However, occasionally, dry, hot northeast winds blow in parallel with Highway 13 and more rarely, winds blow from the east over the East Bay Hills. These winds are associated with extreme fire danger, and high ignition potential, and conditions where fires burn intensity and spread rapidly. These winds may also funnel down the canyon in which the school is located.

The property is located within a Very High Fire Hazard Severity Zone as mapped by CAL FIRE and as adopted by the Oakland Fire Department.

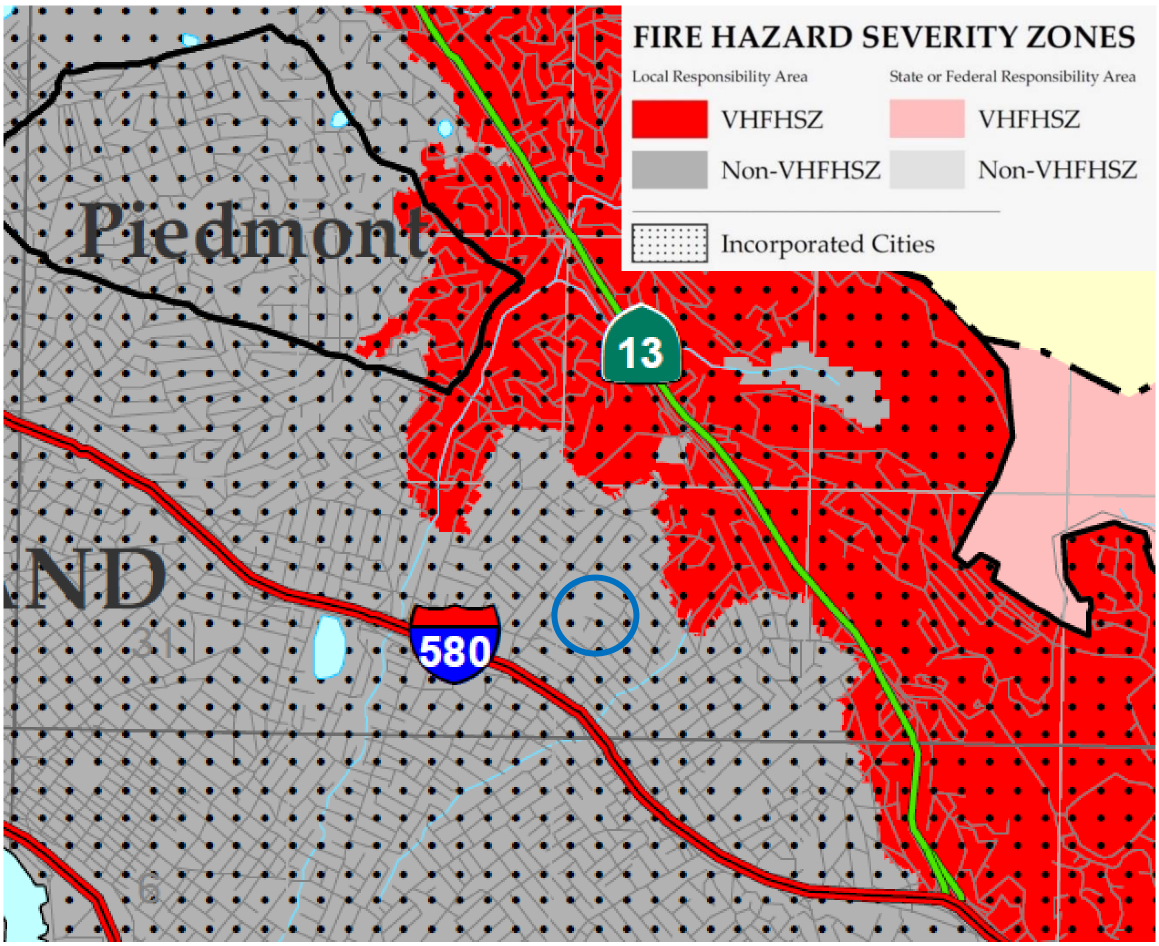
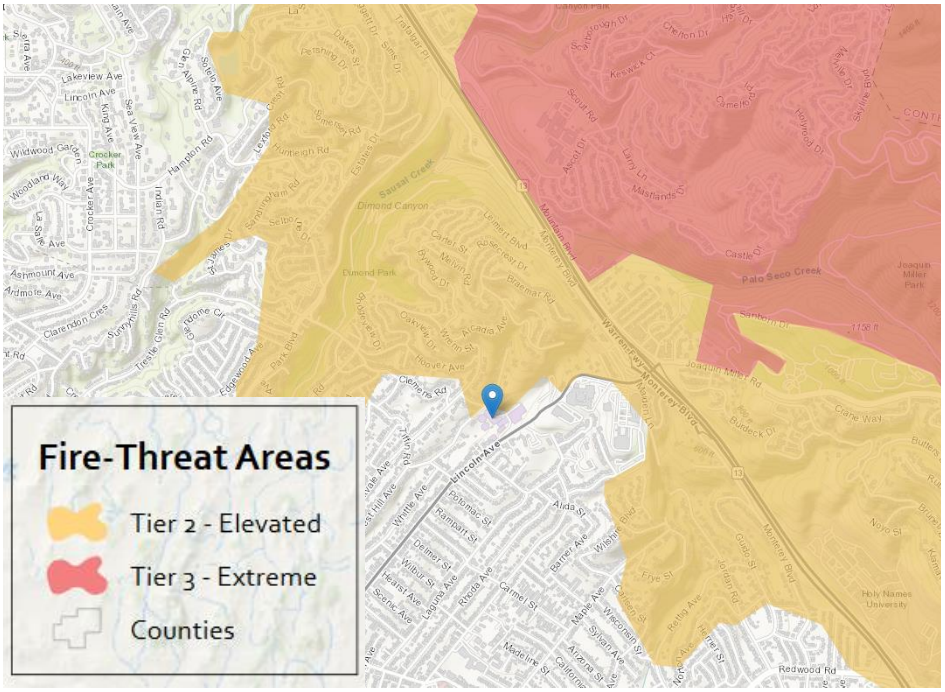


Figure 4. Map of Fire Hazard Zones as mapped by CAL FIRE and adopted by Oakland Fire Department. Red = Very High Fire Hazard Severity Zone.



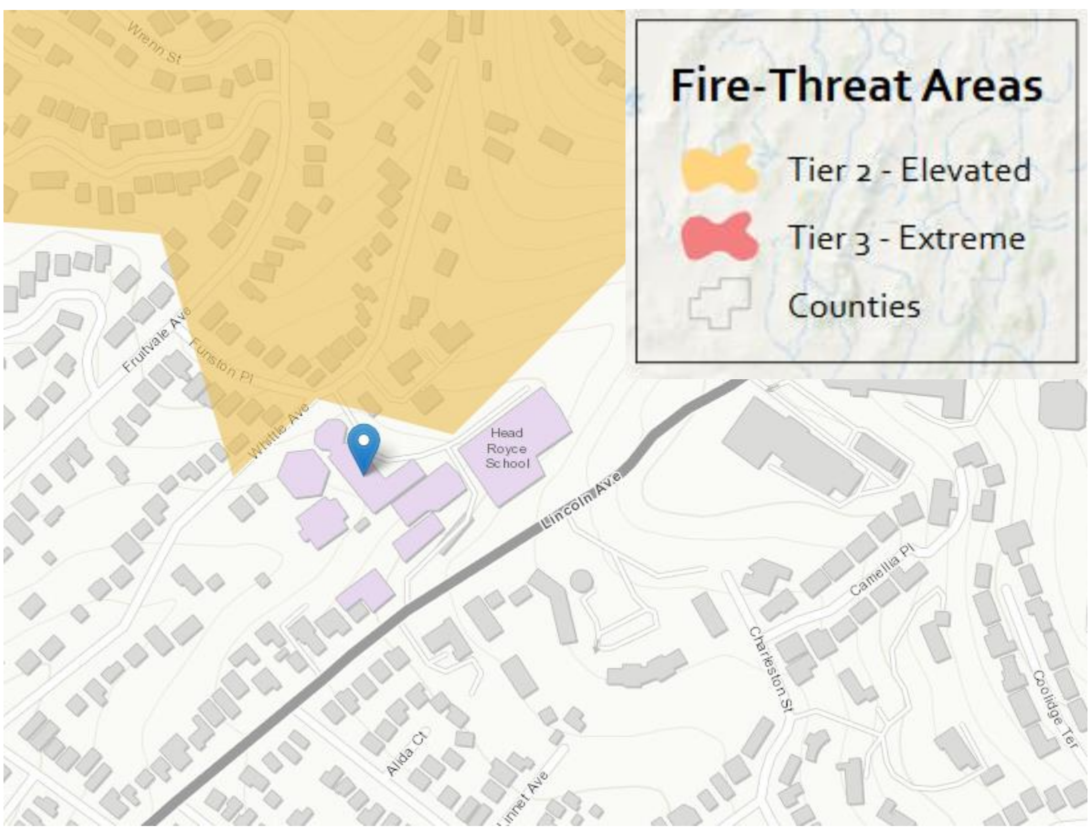


Figure 5. Map of California Public Utilities Commission (CPUC) Fire Threat Map (2018). The CPUC Fire-Threat Map depicts areas where enhanced fire safety regulations found will apply.

C. FIRE RESISTANT LANDSCAPING

Many projects incorporate the use of fire-safe plants as a way to reduce fire risk to structures. Although there have been relatively few research results on the fire resistance of landscape plants, several important generalities are obvious. First, the spacing and design of the garden is more critical than the species planted. Leaving horizontal spaces between planting masses, specimen trees, and structures helps create a fire-safe landscape. Similarly, leaving vertical and horizontal spaces between tree branches, shrubs, ground cover is important in fire-resistant landscapes.

Second, good maintenance requires removing dead material and maintaining the vertical and horizontal spaces that create a fire-safe design. The significance of proper plant and landscape maintenance cannot be overemphasized. Design landscapes to discourage the creation of "fuel ladders"—a continuous fuel path by which a fire can climb from the ground to a shrub, to a tree, and ultimately to the structure. Removal of any potential fuel ladders needs to be part of routine landscape maintenance. Poorly maintained landscapes can easily become fire hazards, even if many of the plants are favorably recommended for fire performance.

Third, fire resistant landscaping involves using appropriate types of plants. Desirable landscaping plant species have a low fuel volume and high foliar moisture and do not have a tendency to produce and "hold" dead wood. They also have a proper growth form: for example, ground covers or fruit trees (which inherently have adequate vertical spacing or branches). A searchable database of plants can be found at http://www.diablofiresafe.org/04_vegetati.htm. For further information about characteristics of firewise plants see materials developed by the University of Florida
www.edis.ifas.ufl.edu/TOPIC_SERIES_Fire_in_the_Wildland_Urban_Interface.

In a University of Nevada study, composted wood chips possessed the least hazardous combustion characteristics and are better choices. Because they are combustible materials and can spread fore across the site it is not recommended to use mulch in a widespread or continuous manner. Separate areas with hardscaping.

Some common landscape species are explosive and can exhibit dramatic fire behavior. For example, a juniper that is 6 sq ft in area can produce flames over 15 ft in length. Eucalyptus trees, such as those in the northeast portion of the site, can be pruned to comply with defensible space standards, however annual clean-up must be strictly adhered to so that highlight flammable leaf litter, and bark does not pose a hazard. The trees themselves are highly prone to torching so the area within 10 feet of the canopy and under the tree should be kept nearly free of all dead material.

Factors that must be considered in selecting species of plants include:

- Total volume. The greater the volume of plant material (potential fuel) present, the greater the fire hazard.
- Moisture content. The moisture content of plants is an important consideration; high levels of plant moisture can both lower fire risk and act as a heat sink if a fire occurs, reducing its intensity and spread.

- Amount and distribution of dead material. The amount of dead material in a given plant influences the total amount of water in the overall plant; the dead material is usually much drier than living tissue. Whereas dead material rarely has a moisture content higher than 25%, live foliage moisture content ranges from 60 to 80% for chaparral species in xeric conditions to a high of 200 to 400% for succulent plants or plants under irrigation.
- Size of leaves, twigs, and branches. Materials with large surface areas (such as needles, twigs, or large flat leaves) dry more rapidly under fire conditions than materials with lower surface ratios (such as branches and fleshy leaves).
- Geometry and arrangement of the plant (overall spatial distribution of the biomass). The shape of a plant and the way in which the biomass is distributed throughout the plant is important because this bulk density affects the air flow and heat transfer through the plant. The arrangement of material within the plant affects its fuel continuity and its tendency to undergo preheating and promote fire spread.
    - Hedges should be of minimal volume, done by trimming the sides and bottom two feet of foliage, and spacing bushes to create a visual barrier and remain thin and wispy. Remove dead branches leaves, and leaf litter as part of regular maintenance.

All of the above-mentioned plant characteristics are related to maintenance issues. Plants with a higher moisture content generally have a lower fire risk. For example, the moisture content of a plant is absolutely influenced by regular and proper irrigation, and large amounts of dead material lower the plant's overall moisture content. To increase the plant's overall moisture content, it is important to remove and properly dispose of dead material. In addition, regular fire-prevention maintenance should include thinning or pruning to reduce fuel volume and improve plant geometry.

An appropriately landscaped and maintained defensible space will reduce the fire hazard and the fire risk to structures. A landscape environment that is inconsistently or improperly maintained does not function as defensible space, and it contributes to the fire hazard.

D. Fuel Management Standards for Defensible Space Zones

The following vegetation treatments are required within the Fuel Management Zones described in this section, as required, to create sufficient defensible space. Fuel treatments for areas in proximity to all structures (including the properties for faculty housing) span the Non-combustible Zone, the Landscaping Zone, and the Roadway Zone. The type(s) of plant communities present influences the management actions required. For the purposes of this section, seven 'fuel management zones' are categorized according to proximity to roads, structures and depending on the vegetation type. Four general vegetative life forms are addressed in this plan because of their presence in the Fuel Management Zones: grasses, shrubs/bushes, woodlands with shrubs underneat and riparian woodland, as defined further below.

In circumstances where slope, vegetation cover, building materials of existing buildings, or other circumstances beyond the control of the landowner, the width of the relevant Fuel Management Zone may be expanded to address increased risk factors. In such cases, strategies other than vegetation removal should also be considered and incorporated to the extent feasible.

	Fuel Management Zone:	**Zone Area:**
1	Non-Combustible Zone	5 feet from structures
2	Landscaping Zone	entire site
7	Riparian Woodland	20-feet from top of creekbank

1. Non-Combustible Zone – to a distance of 5 feet from structures

A non-combustible zone should be maintained within in a 5-foot buffer around structures.

Hardscape surfaces (such as patios, gravel, and bare soil), and landscape materials (such as lawn and succulent herbaceous plants) are examples of non-combustible surfaces. Wood mulch is not considered non-combustible. Landscape architects are encouraged to make liberal use of hardscaping within 5 feet of structures. Care should be taken in the design phase to ensure there is adequate room for such treatments.

Keep plants away from windows and vents. Minimize plant volume under roof eaves. Vines or climbing plats should be removed from structures.

2. Landscaping Zone

Approved landscaping must be designed and maintained to minimize flammability.

Ornamental landscaping often results in large amounts of shrubby flammable vegetation being planted near structures. Many commonly used landscape plants, such as conifers, flammable woody shrubs, and tall ornamental grasses, should be avoided because they may create a fire threat to a building that would otherwise be fire safe. All plant material that is removed from the landscaping must be composted or removed and disposed of properly.

3. Grassy Fuels

Grasses must be mowed at least once annually in late spring or early summer.

Because non-irrigated grasses dry and become flammable at the start of every summer, grasses need annual attention, typically by mowing prior to the beginning of each summer. By mowing in late spring, native grasses and wildflowers are retained and may contribute in a lower-hazard condition. Invasive, non-native species such as Acacia, French broom, poison hemlock, and thistles must be completely removed annually.

a. All annual grassland areas should be mowed in early summer to maintain a minimum height of 4 inches during the summer.

b. Native perennial grasses and wildflower stands should not be mowed more frequently than 60 days, ideally shortly after they have set seed. This may require a delayed mowing schedule in wetter years to maintain their density.

4. Trees with a shrubby understory

Grass must be mowed, understory plants must be kept short, and small lower tree branches must be removed.

The understory of trees, such as oaks or landscaping trees, includes shade tolerant shrubs and grasslands. The goal of this standard is to maintain an existing oak woodland with a short-statured understory of herbaceous plants and shrubs, and a tree canopy at least 8 feet above the ground. An initial treatment will be required to prune smaller branches of trees up to 8 feet above the ground and to reduce density and stature of understory shrubs. After the initial treatment, annual maintenance will be needed to cut back shrub sprouts in order to maintain a maximum height of 2.5 feet.

Eucalyptus trees pose a particular hazard and a special set of prescriptions are required.

Mowing grass under and around trees reduces fire intensity and rate of spread of fire to an acceptable level and diminishes the possibility that fire can climb into the tree canopy. Pruning the small lower tree branches, as noted below, will reduce the possibility that fire can spread into the tree crowns.

Prescriptions for removing dead wood on the ground:

a. Throughout the site, remove all dead branches on the ground smaller than 8-inch diameter.

b. Large dead material may be removed or relocated. Dead limbs larger than 8 inches in diameter, should remain on the site if isolated from dead material that is smaller than 4 inches in diameter, if not under a tree canopy, or if moved at least 100 feet from the structure. Large woody material <u>by itself</u> does not ignite readily and does not produce long flames. Retaining these features in open areas serves a beneficial purpose of retaining soil moisture and supports important wildlife, including native pollinators. Once dead logs become rotted through and friable, they should be removed or scattered in the general area to avoid a concentration of lighter fuels.

c. Mow ivy and remove dead leaf litter.

d. Firewood, compost or combustible materials must be further than 30 feet form any structure.

e. Keep leaf litter depth at a depth of 4 inches or less.

Prescriptions for understory maintenance:

a. Within 30 feet from structures, at the beginning of each summer, ensure that the herbaceous understory is maintained at a maximum height of 4 inches.

b. Understory vegetation should not be completely removed, with the exception of invasive exotic species. Instead, selectively remove flammable species like coyote brush, and prune-back and remove dead branches from less-flammable desirable landscaping species such as roses, camelias, azaleas, rhododendrons, coffee berry,.

c. Understory shrubs are to be kept free of dead branches and no more than 2.5 feet in height.

Prescriptions for tree pruning:

a. All branches, living or dead, less than 3 inches in diameter and less than either 8 feet from the ground or three times the height of any understory shrubs whichever is greater, shall be removed (Figure 6).

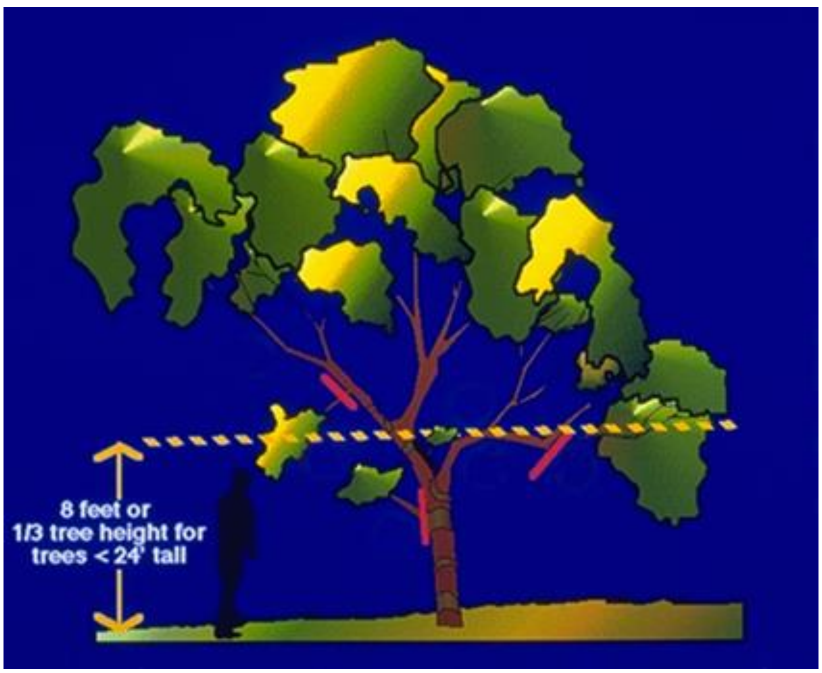


Figure 6. *Create vertical spacing under lower tree branches, by removing small tree branches from the bottom 8 feet of the tree, or from the bottom one-third of the tree, whichever is less.*

b. Living branches that are greater than 3 inches in diameter but lower than 8 feet in height can be retained, provided that the area within the drip-line of trees is maintained. Oaks with live limbs resting on the ground need not be removed, but all ground debris around and beneath the limbs must be removed to reduce fire risk.

c. Dead limbs less than 8 feet in height shall be removed.

d. In landscaped areas, healthy tree branches less than 3 inches in diameter or 8 inches diameter if split or diseased, should be removed to provide vertical clearance of 3 times the height of the understory plants, or 8 feet above understory plants, whichever is greater.

e. For trees shorter than 24 inches in height, remove lower 1/3 of branches smaller than 3 inches in diameter, or alternatively, treat as a shrub grouping.

f. Once initial pruning is accomplished, tree pruning is likely to be needed infrequently, on an interval of about once every 3 to 5 years.

g. <u>Do not thin or prune the tree canopy</u>, as this will promote more understory shrub growth as well as growth on lower parts of the tree, and will result in increased risk that fire will spread to the tree canopy.

h. Sometimes small trees may need to be cut to the ground in order to achieve the separation of the ground level from the tree canopy, or because mowing equipment cannot avoid the small trees.

i. Trees should be pruned to create a space of at least five feet form structure roof and walls.

Prescriptions for eucalyptus trees:

1. While the general pruning prescriptions are applicable, the height to which the bottom branches should be pruned is 10 feet, not eight.
2. Shrubs under eucalyptus trees should be no higher than 2.5 feet, even though the tree branches are higher.
3. The trees themselves are highly prone to torching so the area *within* 10 feet of the canopy and under the tree should be kept nearly free of all dead material.

5. Shrubs not under tree canopies

All shrubs need to be kept free of dead material, and separated into groups.

Shrubs can burn with great intensity and pose a high fire hazard to adjacent structures. Many shrubs (especially native species) will stump-sprout vigorously when mowed or burned, bushes will need to be retreated on a regular basis. Many landscaping shrubs are fire-resistant in nature (see section on fire-resistant landscaping); these types of plants should be preferred throughout. Defensible space is created by maintaining well-spaced shrubs with succulent young vegetation, and no dead branches. Reducing shrub height and creating groupings lessen the fuel volume and continuity, and reduces fire intensity, and slows the spread of fire.

a. In open areas away from trees, within 100 feet of structures, change the pattern into discontinuous groups of shorter, younger, more succulent shrubs and ensure the distance between groups of shrubs is at least 2 times the height of the shrub patch (see Figure 2).

b. In coyote brush dominated stands, if other shrub species are present, retain them at the expense of coyote brush. Retain less-flammable desirable shrubs, such as toyon, currant, coffee berry, native rose, and sticky monkey flower.

c. It is not necessary to eliminate coyote brush within the fuel management zone. Instead, change the pattern into discontinuous groups of shorter, younger, more succulent shrubs.

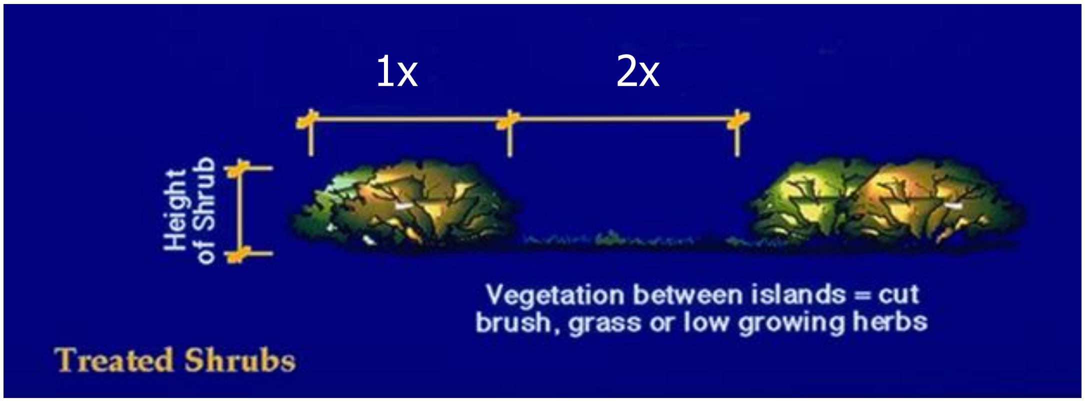


Figure 7*. Create groups of shrub groupings to provide horizontal separation between shrubs. Each group of shrubs should be no wider than 2 times its height, or less than 120 square feet in area. The space between shrub groups should be at least two times the height of the shrubs, or a distance of 10 feet, whichever is greater.*

d. Remove all dead branches from less-flammable desirable shrubs, such as ceanothus, currant, coffee berry, native rose, and sticky monkey flower.

e. All healthy trees should be retained. As trees increase within shrubs, they provide a long-term reduction in shrub cover and fire hazard.

Figure 8. *Create horizontal spacing between trees and shrubs, by removing shrubs from around trees within a radius that extends 3 feet from the tree's drip line. For trees taller than 6 feet, remove shrubs within a distance of 6 feet from the tree's drip line.*

f. Trees growing up through shrubs should be encouraged by removing shrubs from within an area around the tree as shown in Figure 8.

- When the tree is shorter than 6 feet high, all shrubs should be removed from within a distance of 3 feet from the tree's drip line.
- When a tree is taller than 6 feet high, all shrubs should be removed from within a distance of 6 feet from tree crown edge.

6. Roadway Zone – 15 feet from edge of roadway pavement

Safe ingress and egress must be maintained along the roadway.

The Roadway Zone is important to allow for safe passage and to provide a location where firefighter resources can travel and engage in fire response. The treatments required correspond to vegetation type.

a. Grasses, and the shrubby understory vegetation should be mowed within 15 feet from the pavement edges.

b. All tree branches extending over roadway surfaces should be pruned to ensure 15 feet of vertical clearance. Whenever possible, healthy overhanging branches higher than 15 feet should be left in place to shade roadway areas and thereby reduce weed and understory growth.

c. Every structure has a dedicated fire hydrant and a hammerhead or other safe turnaround for fire equipment access. Vegetation around these facilities must be maintained as needed to ensure visibility and access. Vegetation must be cleared three feet around each fire hydrant.

7. Riparian Zone –within 20 feet from top of creekbank

The Riparian Zone is the area twenty feet either side of the top of bank and within the banks of the creekbed. Riparian woodland is designated as a sensitive habitat by the California Department of Fish and Wildlife (CDFW). In these areas special care should be taken not to trample riparian vegetation or alter the creek alignment or banks.

No fuel management should be performed inside the bank of the creek. Hand labor must be used to treat fuels within 20 feet of the top of bank of the creek.

Treatments for fire safety in the Riparian Zone are limited by concerns for wildlife habitat. Fortunately, foliage of vegetation in this area generally has higher moisture and can act to dampen fire intensity and spread. Fire management treatments that concentrate on dead material can enhance fire safety without compromising wildlife habitat.

The following actions are to be taken in the Riparian Zone:

- Remove dead vegetation, vines, and dry fuels such as dead lower branches of trees.
- Remove all invasive non-native plants such as acacia, French broom, yellow star thistle, and Italian thistle.
- Living trees and shrubs may not be removed or pruned.

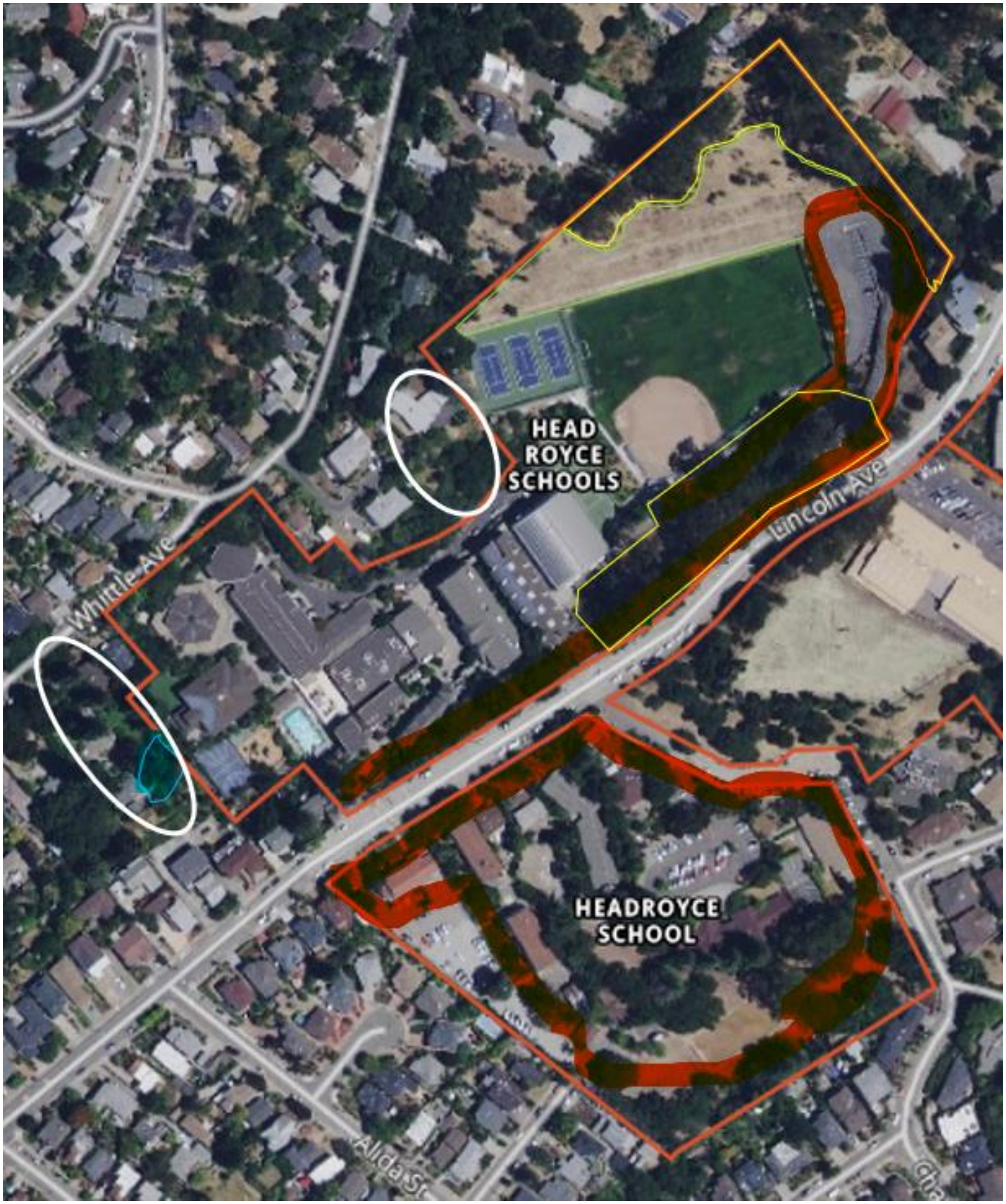


Figure 9. Fuel management zones. Red highlight indicates roadway fuel management zone, turquoise indicates riparian zone. Green outlines areas where annual grass mowing is to occur, and yellow outlines locations where eucalyptus prescription is to be followed. While circles indicate residential parcels where defensible space standards should be applied

E. Fire Safe Phasing

1. Sequence and schedule

- Initial vegetation management actions will be completed before construction begins if construction takes place between June 15 and November 1.

- All required grass cutting and other vegetation management will be completed before June 1 of each year. Mowing must begin as soon as 30% of the grass has cured. Should rains occur late in the season and produce more grass growth, the grass may need to be treated again. Pruning of tree branches should occur prior to February to avoid nesting season and minimize spread of fungus and insect pests. Shortening or cutting shrubs to ground can be done at any time of year, but as long as it is complete prior to June 1, and best done before February to avoid impact to nests.

- Grass cuttings and clippings will be removed the day they are cut. No clippings are permitted to remain in piles or scattered.

- All brush piles and tree clippings are to be removed within one week of cutting. No brush or clippings are permitted to remain in piles.

- Annual vegetation management measures include:
    i. removal of all combustible vegetation along roadways, driveways, access roads, and trails according to stated standards
    ii. maintenance of the emergency-access easement
    iii. maintenance of the defensible space around structures according to stated standards for the various Zones.

Frequency of Vegetation Management

Grass will need to be mowed annually

Shrubs and removal of seedlings below the tree canopy is to be done annually as well. Shrubs need to be pruned of dead wood, shortened, shrub groupings minimized in size, or new shrubs/ tree seedlings removed under tree canopies.

Initial pruning of lower small branches will be a substantial effort. Because trees typically grow from the top and ends of branches, subsequent pruning needs to occur only every five years to ten years, depending on the rate of growth, and significant events which may cause dead wood to develop or breakage to occur.

Removal of a litter layer deeper than the standards is expected to be necessary annually.

2. Summary of Frequency of Vegetation Management
Annual management
- Mow or graze grass near structures and under trees and shrubs
- Monitor site for weed and shrub encroachment
- Inspect trees and large shrubs for deadwood, vertical clearances

- Re-establish 16 feet above pavement and vertical clearance between ground and tree branches as in Figure 6 in Defensible Space Zone
- Remove or shorten understory shrubs
- Remove weeds, all dead material in Defensible Space Zone, remove leaf litter build-up

Management that will occur every 3 - 5 years

- Thin shrubs into groupings when the shrubs are more than 100-feet from structures
- Prune trees of lower branches to re-establish vertical separation

F. RECOMMENDED TREATMENT METHODS

Suggested treatments would rely mostly hand labor. Mechanical equipment, such as mowers, chippers or - on the northeastern slopes – masticators and targeted grazing (by goats, for example) are also suitable treatment methods.

Mowing or otherwise cutting grass is preferred to discing or clearing to bare ground. The resulting bare ground can result in erosion and establishment of invasive weeds that are easily ignited in the fire season.

G. HEAD-ROYCE ROLE IN PROMOTING WILDLAND FIRE SAFETY

1. The entire school campus can be a demonstration garden of defensible space. This could include interpretive signs in places that show, for example:
    - Appropriate separation below trees and ground
    - Fire-resistant landscaping
    - Absence of wood mulch within five-feet of structures
    - Pruning of trees five feet away from structure
    - Retention of riparian corridor
    - Best practices for environmental protection
    - Wildlife habitat and aesthetics with defensible space

2. Similarly, the Head-Royce School could showcase the ignition-resistance of new construction, with messaging for the parents and alumni as to the features that make the new buildings safe. Retrofitting measures of existing structures (including faculty housing and storage facilities) could serve a valuable lessons as to how neighbors can make their residences more fire-safe. Retrofitting projects could be articles in the Head-Royce newsletter.

2. Through school newsletters, Head-Royce School could communicate tips and techniques regarding wildfire safety. The newsletter could have

- A set of actions to be done throughout the year to maintain defensible space, with one offered with every newsletter.
- Checklist for evacuation readiness, actions and items to take
- Suggestions for notification

3. Through the process defined in the Emergency Preparedness Plan, notification of emergencies would come from Head-Royce School. Of course, notification would come form other sources, but this would mirror and amplify the notifications through emergency channels. During the 2020 wildfires, informal cell phone trees or automated notification systems were important channels of information that eased evacuation process.

4. Work with adjacent neighbors to create defensible space on north and east side of exiting campus, such that eucalyptus trees and untended vegetation are managed for wildfire safety. The process of reaching out, finding funding and execution on borders could be shared in an anonymous way as a lessons-learned article in the school newsletter. This is a common issue in the Oakland Hills, and of value to the community.

APPENDIX A

Best Management Practices for Fuel Management

This document incorporates expert recommendations that are intended to meet or exceed California State standards while minimizing the environmental impacts of fuel management treatments potentially associated with creating sufficient defensible space and providing safe access and egress. The following are recommended best management practices:

1. **Conduct treatments in the appropriate season.** Treatment scheduling must be planned for times of the year which maximize effectiveness and minimize environmental impacts.
    - Trees should be pruned between November and April to avoid attracting pathogens. Pruning is best performed before February 1 to avoid nesting season. Pruning and limbing of oak trees in May through October is strongly discouraged.
    - Grasslands should be mowed in late spring /early summer as grasses begin to dry. Mowing after June increases wildfire ignition risks, may promote the spread of noxious weeds that increase fuel loads over time, and is strongly discouraged. Mowing outside of fuel management areas increases impacts to sensitive resources, including perennial native grasses that promote fire-resilience.
    - Timing of mowing affects the species composition in subsequent years; too frequent mowing or mowing at inappropriate times of year changes species composition to nonnative grasses and forbs, and increases fire hazard. Mowing too early in the fire season can result in regrowth of fire fuels, which may lead to additional mowing being required. This should be avoided if possible to reduce impacts to desirable native plants and wildlife.
    - In areas where desirable wildflowers, native grasses, or protected species are present, special timing and/or frequency of mowing may be identified. Desirable annual wildflowers should not be mowed until after they have set seed, provided doing so does not compromise fire safety.
    - Mowing within 15 feet of roadways and 30 feet of a structure, property boundary, whichever is shorter, may occur as needed to maintain a grass height of 4 inches during fire season, and shall be conducted in consultation with a biologist to protect ground-nesting birds.
2. **Native vegetation** shall be retained to the greatest extent possible while still achieving sufficient defensible space and safe access to protect watershed functions and scenic values. Shaded roadways shall be preserved through limbing of trees to a height of 15 feet, taking care to retain healthy branches over that height and managing ladder fuels as provided in these Standards.
3. **Perform surveys for sensitive resources**.
4. **Avoid creekbeds.** As described in the Defensible Space Standards, vegetation treatments will avoid creekbeds and a 20-feet width from the creekbank edge.
5. **Mowing must not occur when it is hot and dry**, and in no case shall occur when Red Flag Days and Red Flag Warnings are in place.

6. **Bare soil** encourages woody weed invasion and should be minimized outside of the 'non-combustible zone,' with care taken to ensure no single bare patch will be larger than 15 square feet. Native grass seed must be sowed if large patches of bare soil are exposed.
7. **Vegetation disposal** must be conducted in a manner that does not impact the natural vegetation, spread invasive weeds or increase flammability. Woody plant material can be composted or removed to an approved offsite location. In no case may unprocessed plant material be left, other than mowed grasses and annual forbs, which can remain in place. All clearing and hauling activities must ensure the ground is protected from erosion, rainfall runoff is dispersed, and appropriate native grass seed sowed if bare patches of soil are exposed.
8. **Large dead material** located within the fuel management zone may be removed or relocated. Dead limbs larger than 8 inches in diameter, should remain on the site if isolated from dead material that is smaller than 4 inches in diameter, if not under a tree canopy, or if moved at least 100 feet from the structure. Large woody material by itself does not ignite readily and does not produce long flames. Retaining these features in open areas serves a beneficial purpose of retaining soil moisture and supports important wildlife, including native pollinators. Once dead logs become rotted through and friable, they should be removed or scattered in the general area to avoid a concentration of lighter fuels.
9. **Invasive weeds** shall be removed as part of annual vegetation management. Noxious weeds which act as a ladder fuel or have the potential to intensify fire behavior such as Acacia, French broom, yellow star thistle, and poison hemlock should be targeted for eradication using a variety of removal techniques, including mowing, hand removal and the use of herbicide (which must be applied by a qualified licensed applicator).

Appendix 16B

Evacuation Planning Recommendations for Head-Royce School

Stephen Wong, November 2, 2020

Memo: Evacuation Planning Recommendations for Head-Royce School

To: Scott Gregory, Lamphier-Gregory

From: Stephen Wong

Date: November 2, 2020

Summary

This memo documents important observations and recommendations for Head-Royce School to improve their evacuation plan for wildfires. Ahead of many of its peers, the Head-Royce School has made several important steps in developing an evacuation plan to safeguard its students. The plan is a strong first draft but several items need to be addressed including the identification of egress points, the infeasibility of shelter-in-place in most wildfire situations, the loss of power and communication with officials and parents, and the route and destination of an evacuation from campus.

Disclaimer

Recommendations, while improving the safety of students, are not guaranteed to reduce all injuries/fatalities to zero in a catastrophic and unpredictable wildfire. Moreover, new research on wildfires and evacuations may uncover improved strategies while rejecting recommendations provided in this memo. Head-Royce School must continuously update their evacuation plan based on best practices in the field and guidance from emergency managers and transportation professionals.

Background

Head-Royce School is a K-12 private school in the Oakmore neighborhood of Oakland, California. Located on Lincoln Avenue near Highway 13, Head-Royce is nestled in a canyon surrounded by a residential neighborhood, a community-based organization for people with disabilities, and two large churches. With 880 students and approximately 200 staff and faculty, the school plays a major role in the surrounding community. The idyllic setting of Head-Royce on the edge of the Oakland Hills also increases its risk of being impacted by wildfires. The campus lies within the Very High Fire Hazard Zone, as defined by the California Department of Forestry and Fire Protection. [1] Nearby regional parks (i.e., Joaquin Miller Park, Roberts Regional Recreation Area, and Reinhard Redwood Regional Park) pose a significant wildfire threat for Head-Royce. Moreover, Highway 13, while traditionally providing a fire break, will unlikely stop a rapid wildfire event. Recent research on California wildfires found that in most cases, wildfires spread quicker than expected, overwhelming officials, communication systems, and evacuation processes.[2] The Camp Fire, which at one point consumed a football field per second, started in Pulga, CA and reached Paradise,

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[1] Cal Fire (2020). California Fire Hazard Severity Zone Viewer. https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414

[2] Wong, S. D., Broader, J. C., & Shaheen, S. A. (2020). Review of California Wildfire Evacuations from 2017 to 2019. https://escholarship.org/uc/item/5w85z07g

CA in just an hour and half, almost six miles away.[3] With a high Diablo wind event and favorable fire conditions (including long-range fire spotting), a wildfire that begins in the Oakland Hills could reach Head-Royce within 15-30 minutes.

To prepare for a possible wildfire evacuation of campus, Head-Royce proactively developed an Emergency Preparedness Plan with a dedicated section for an Evacuation Plan. This concerted effort to define and outline key communication processes and protective actions within an evacuation plan is commendable, especially since many cities in California and the United States do not have a public-facing evacuation plan. Head-Royce is an important exemplar for other schools in high fire risk zones along the Wildland-Urban Interface (WUI) in their preparation for wildfires (including in their work to reduce vegetation and create defensible space). However, some changes will need to be made to the plan and campus facilities to increase student safety in the event of an extreme wildfire event. This memo documents observations of the Head-Royce evacuation plan and campus facilities. While a worst-case scenario is somewhat unlikely, it is important for Head-Royce is consider any catastrophic situation that could severely endanger their students.

Campus Layout and Egress

The Head-Royce School campus is located in a small canyon, bounded by Lincoln Avenue to the south and Whittle Avenue to the north. Consequently, nearly all campus buildings are located below surrounding roadways. The Lower School is located down the hill towards the east. The Middle School, followed by the Upper School, are located further uphill towards the west. The gymnasium, baseball field, and tennis courts are located at the western most point of campus. The following egress point were identified:

<u>1) Main Gate:</u> Located off Lincoln Ave., a series of wide steps ascend from campus to the roadway. This egress point is a primary exit in an evacuation of campus, especially for the lower and middle schools. The gate is locked at most times and has a push bar exit.

- Major Issues: Stairs inhibit the evacuation of those with a physical disability.

<u>2) Middle Gate:</u> Located off Lincoln Ave., a series of narrow steps ascend from campus to the roadway. This egress point is a secondary exit in an evacuation of campus, especially for the middle and upper schools. The gate is locked at most times and has a push bar exit.

- Major Issues: Stairs inhibit the evacuation of those with a physical disability. The path has significant vegetation along it which could be a fire hazard.

<u>3) Upper Gate:</u> Located off Lincoln Ave., a narrow roadway ascends from the primary parking lot, with about 60 spaces, to the roadway. This egress point is a primary exit in an evacuation of campus, especially for the upper school and gymnasium. An electronic swing gate opens inward to campus for vehicles.

- Major Issues: The electronic swing gate relies on power to open, which may not be available in a wildfire or public safety power shutoff (PSPS) event. This would not allow individuals to evacuate campus from this gate. The gate also cannot be opened from the inside, unless a vehicle passes over the loop detectors on the ground. An evacuation on foot would not be feasible, severely

[3] Almukhtar, S., Griggs, T., Johnson, K., Patel, J. K., Singhvi, A., & Watkins, D. (2018, November 18). 'Hell on Earth': The First 12 Hours of California's Deadliest Wildfire. The New York Times. https://www.nytimes.com/interactive/2018/11/18/us/california-camp-fire-paradise.html

increasing risks to people on campus. Finally, the roadway is too steep for mobility devices for those with a physical disability.

4) Solar Panel Stairs: Located on the northern part of the campus, a series of stairs leads past the solar panels towards the top of the canyon.

- Major Issues: Since the egress point goes uphill towards a likely wildfire, it is not recommended for a wildfire evacuation and would only serve as an egress of last resort.

5) Tennis Court Exit: Located on the northern part of the campus, a series of stairs leads past the tennis courts. A gate to the left allows egress to a spur of Whittle Avenue next to a home owned by Head-Royce. This egress is a primary exit in and evacuation of campus if a wildfire is coming from the south or east.

- Major Issues: Stairs inhibit the evacuation of those with a physical disability. This spur of Whittle Avenue and the rest of Whittle Avenue does not have sidewalks.

6) Funston Place Exit: Located on the northern part of the campus, the Funston Place roadway ascends to Whittle Avenue. This would be a primary exit for an evacuation on foot and for any vehicles required to evacuate people with disabilities. An electronic swing gate opens for vehicles. A push-bar exist is available for pedestrians.

- Major Issues: The electronic swing gate relies on power to open, which may not be available in a wildfire or public safety power shutoff (PSPS) event. This would not allow vehicles to evacuate campus from this gate and would slow a pedestrian evacuation.

7) Side Funston Place Exit: Located close to the Funston Place exit, a dirt path around the lower school leads past the community hall to Funston Place. This would be a primary exit for an evacuation on foot.

- Major Issues: The current gate is locked with a chain that requires a key, requiring students to go to a different exit.

8) Basketball Court Exit: Located at the lower end of campus, a path exits campus towards several homes that are owned by Head-Royce. This exit would be a secondary evacuation egress, perhaps a primary exit for the lower school. The exit leads down a dirt path and eventually leads to Whittle Avenue.

- Major Issues: Vegetation may block the egress and small stairs inhibits those with a physical disability.

9) Main Gate Side Stairs: Located near the main gate, a series of stairs ascends from near the basketball court to Lincoln Avenue. The stairs would be a secondary evacuation egress point for the lower school.

- Major Issues: The location of the stairs is difficult to find and are steeper than the main stairs heading to the main gate.

Recommendations

1) Head-Royce needs a plan to evacuate people with disabilities. In some cases, changes to egress points may be necessary. Faculty/staff may need to assist students and visitors with a physical disability during the evacuation. It is also recommended that the plan provide vehicular evacuation of people disabilities, as nearby streets are too steep for mobility devices.

2) Head-Royce has been proactive in clearing vegetation. Additional vegetation cut backs are needed for multiple egress points across campus.

3) A new system is needed for the upper gate. This system must be functional without electricity and be operational for people on foot and inside campus. Similarly, the Funston Place gate requires battery backup in the case of power failure.

4) The side exit for Funston Place requires a push-bar exit that swings outward, but still inhibits people to enter campus from the outside for security reasons.

5) All possible egress points must be communicated to staff/faculty in the event of an evacuation. Since the fire direction is unknown, all egress points should be considered and made viable for a walking and/or vehicular evacuation.

Transportation and Evacuation from the Neighborhood

A pedestrian evacuation is most likely, given that most students do not have access to a vehicle. Approximately one-third of students come to campus via bus, around 8% drive to campus, and under 5% ride a bike or walk to campus. The majority of students are dropped off by vehicle each day (over 50%). The following observations related to transportation and an evacuation were made:

<u>1) Pedestrian Evacuation:</u> A pedestrian evacuation is likely to be faster than other types of evacuations in most situations, given that Lincoln Avenue will see an increase in congestion from evacuees from neighborhoods near Joaquin Miller Park. Evacuees may also exit Highway 13 onto Lincoln Avenue if they see fire ahead or are blocked by downed trees.

- Major Issues: If a wildfire is particularly close, heat and smoke could make an evacuation on foot dangerous. While Lincoln Avenue has dedicated sidewalks, Whittle Avenue does not, making it dangerous for people to walk on the roadway. Fruitvale Avenue has sidewalks but is further away from campus.

2) Bus Evacuation: A bus evacuation will likely be a safe option when there is adequate time to evacuate. Evacuating by bus would be a high-capacity option that would reduce the need to walk without adding significantly to congestion in the neighborhood. It should be assumed that AC Transit buses would not be readily available in a wildfire.

- Major Issues: Loading the buses will take time. Moreover, this boarding process cannot conflict with vehicles on the roadway (e.g., Lincoln Avenue). Head-Royce would also need to ensure bus drivers are available and allowed to operate the vehicles. Buses would also only be able to take a portion of the student, necessitating at least some pedestrian evacuations.

3) Vehicular Evacuation: A vehicular evacuation from campus would only be advised if there is substantial time to evacuate *and* if congestion is low on the surrounding roadways. Students with vehicles (approximately 50) and faculty/staff with vehicles (approximately 150) would likely be sufficient space for all students, staff, faculty, and visitors.

- Major Issues: This option would require considerable preplanning as students would have to drive other students via carpools and faculty/staff would also be responsible for driving students. This could lead to liability concerns and would add significant congestion to the evacuation.

4) Cycling Evacuation: A small percentage of student ride bikes to school, which could be used in an evacuation. A downhill route (e.g., Lincoln, Whittle, Fruitvale) could be easily established.

- Major Issues: There are only a few bikes on campus, evacuating just a handful of students. Cycling could also be dangerous due to other vehicles on the roadway.

Recommendations:

1) Head-Royce is recommended to conduct a pedestrian evacuation in the event of a major wildfire, if they have enough time to move people away from campus (e.g., at least 10 minutes). A pedestrian evacuation is likely to be more efficient, safer, and less impactful on the neighborhood than a vehicular evacuation.

2) In cases where time permits, a bus evacuation is recommended for campus. Head-Royce's access to six long buses would facilitate an evacuation of approximately 1/3 of students. Students and visitors with a disability should be prioritized, followed by younger students that may have difficulty walking long distances. Buses may be able to take Whittle and Fruitvale Avenue both up and down the hill to evacuate more students. It is not recommended for buses to take Lincoln Avenue since it is expected to be a main thoroughfare for evacuees going downhill and emergency vehicles going uphill. Six buses will not cause significant congestion for the neighborhood and will efficiently use road capacity for evacuations. AC Transit buses should not be assumed to be a frequent and reliable option. However, if an AC Transit bus running down Lincoln Avenue has space, some students and faculty/staff could evacuate in this way.

3) A vehicular evacuation is generally not recommended since it would likely cause additional congestion on surrounding roadways. However, vehicles may be necessary to transport people with disabilities and those who are unable to walk to safety. Older students, faculty, and staff who drive to campus should be dissuaded to evacuate with their own vehicles, especially since they would be expected to facilitate the evacuation of campus.

Current Evacuation Plan

This section contains specific observations on the current Head-Royce evacuation plan. It should be noted that multiple parts of the plan are well-developed and clear. However, several issues arise, particularly related to the shelter-in-place procedure, communication procedures, possible destinations for an evacuation, and worst-case scenario planning. The following observations were made:

<u>1) Use of Gymnasium:</u> The gymnasium is composed primarily of concrete, stone, and steel with some glass windows. However, it is attached to a building with wood siding, though the wood has been treated with fire resistant paint. While materials would indicate that the gym would be able to withstand a wildfire, heat and smoke from the wildfire could be more problematic, especially if the ventilation system or windows were to break.

- Major Issues: It is unclear if the gym would be able to survive an extreme wildfire event. Moreover, other risk factors from wildfires (e.g., heat, smoke) could be harmful to students. The gym is also located uphill on campus, which is not an advisable direction given a wildfire encroaching from the east. Shelter-in-place actions and/or defending actions taken in wildfires have been a primary cause of fatalities or have significantly increased risks for late evacuees (e.g., 2009 Australian Black Saturday Bushfires which killed 173 people).[4]

2) Shelter-in-Place Plans: The Head-Royce plan notes that people on campus would be expected to stay in the designated shelter-in-place and the reunification would only begin as directed by authorities. People on campus are expected to shelter-in-place at the assembly area until the immediate danger has subsided. The plan does not provide a decision-making process for initiating an evacuation.

- Major Issues: While Head-Royce would likely listen to local authorities before initiating an evacuation, the City of Oakland does not have a specific evacuation plan and it unknown how local authorities would contact school officials or the incident commander. Moreover, recent wildfires have spread so rapidly that local authorities did not have time issue mandatory or voluntary evacuation orders.[5] Without planning guidance, the Incident Commander would likely choose to continue sheltering-in-place, which may not be the safest option in a wildfire.

3) Communication with Authorities: As noted previously, the current evacuation plan only notes that reunification would begin after guidance from local authorities. The plan does not provide other communication with key authorities.

- Major Issues: In an extreme wildfire event, it is highly unlikely that local officials will provide guidance to the school or Incident Commander. Consequently, the Incident Commander must make decisions for the school, even without official input. The plan must address this uncertainty and set possible perimeters for when to evacuate.

4) Evacuation Routing and Destination: The current evacuation plan does not explicit call out specific pedestrian routes to reach possible destinations. Moreover, the provided destinations are very different: AbilityNow is across the street while the Farmer Joe's parking lot is about 0.75 miles downhill.

- Major Issues: While fire behavior and direction are highly variable, it is generally advised that people evacuate downhill, especially since fire generally moves slower downhill compared to uphill. Moreover, the uphill area east of campus is a more likely ignition point for a wildfire. A lack of designated routes and destinations – including preference of these routes/destinations based on possible fire directions – may lead to confusion during the evacuation. Moreover, concerned parents may not know where to reunify with their children, causing additional panic and probable congestion.

5) Power Loss: The current evacuation plan does not have any clear procedures or preparedness plans if power is unavailable. A lack of power can affect multiple evacuation procedures including the opening of gates, the use of mobile phones, and the ability to communicate with parents.

- Major Issues: A power loss event, whether deliberate or wildfire-induced, could severely reduce the ability of the campus to evacuate. First, electronic gates and other electric systems would be

[4] Whittaker, J., Haynes, K., Handmer, J., & McLennan, J. (2013). Community safety during the 2009 Australian 'Black Saturday'bushfires: an analysis of household preparedness and response. International journal of wildland fire, 22(6), 841-849.
[5]Wong, S. D., Broader, J. C., & Shaheen, S. A. (2020). Review of California Wildfire Evacuations from 2017 to 2019. https://escholarship.org/uc/item/5w85z07g

unworkable. Second, power loss is often associated with a loss in cell tower signals (unless nearby towers have backup generators). Finally, without cell service or data, any form of communication to parents or officials other than face-to-face encounter would be unfeasible.

Recommendations:

1) Head-Royce is recommended to create a decision-making protocol within the evacuation plan that favors an evacuation action over a shelter-in-place action. The gymnasium should be a shelter-of-last-resort in the event of a catastrophic wildfire with little to no time to evacuate. It should be noted that long-range spotting can occur in high wind events, sparking new blazes beyond the fire front. Given these unpredictable circumstances, it is recommended that Head-Royce proceed with an evacuation of campus as soon as possible if a wildfire is detected.

2) Head-Royce is recommended to develop a mechanism to communicate directly with local officials including a way to talk with Incident Commanders without access to power. One option Head-Royce could explore is the purchasing of a satellite radio that is compatible with Oakland emergency radios. In this way, Head-Royce could also be used for information gathering for the Oakland Emergency Management Services Division, the Oakland Police Department, and the Oakland Fire Department.

3) The evacuation plan is recommended to include a primary destination for an evacuation of campus. It is recommended that Head-Royce strongly consider the parking lot near Farmer Joe's and CVS Pharmacy. This destination is recommended because it is located near multiple access points (i.e., Interstate 580, MacArthur Blvd., Fruitvale Blvd.) that will reduce congestion for parents during the reunification process. Moreover, the major thoroughfares can provide access to AC Transit in the event that a second evacuation is necessary. It is also unlikely (but not improbable) that a wildfire would reach this destination. Ultimately, the evacuation location is deemed the safest location within a mile radius of campus from a wildfire and an easy location to travel to and from. Moreover, the locations is downhill from the school and Lincoln Avenue has sidewalks on both sides of the street for a safe pedestrian evacuation.

4) Head-Royce is recommended is provide secondary options and routes for an evacuation in the event that the Farmer Joe's destination is inaccessible or blocked by a wildfire. Destination options include (but are not limited to): Sequoia Elementary School (on Lincoln Ave.); Bret Harte Middle School (on Coolidge Ave.); and Corpus Christi School (on Park Blvd.). Another option that should be considered is going uphill to the Oakland Temple and Ascension Cathedral which will likely serve as a staging point for firefighting operations. However, this should only be conducted with direct orders from local authorities (in particular fire or police), as this decision would likely move students closer to a wildfire event.

5) Routing and destination information is recommended to be added directly to the plan and communicated with parents beforehand. As noted in the current evacuation plan, reunification on Lincoln Avenue would cause considerable congestion for both evacuees and emergency vehicles. A strong decision-making process and rationale within the plan will elevate parental concerns. Moreover, the school needs a mechanism to notify parents in the events of lost power and cell signal. Head-Royce is recommended to tell all parents to go directly to the Farmer Joe's parking lot ***first*.** Parents will then receive updates (if possible) to come up to campus if it is deemed safe to do so. Otherwise, students will be evacuating downhill and will reunify with their parents at the Farmer Joe's parking lot.

Additional Notes and Observations

As of October 2020, the city of Oakland does not have a publicly facing evacuation plan or emergency response plan, despite notes in multiple plans for the needs to improve evacuation procedures in the Oakland 2016-2021 Local Hazard Mitigation Plan[6] and the Oakland Safety Plan.[7] This lack of planning specifically for evacuation response and preparedness indicates that Head-Royce will likely have to be its own decision-maker in a wildfire and conduct actions that will protect its students, without recommendations or advice from authorities. If Oakland provides an evacuation plan or emergency response plan, Head-Royce will need to review these materials and modify their plan as needed.

In an Annex for Oakland to the 2010 Association of Bay Area Governments Local Hazard Mitigation Plan, several mitigation strategies on page 35 provide steps that should be taken by Oakland Unified School District to prepare for a major disaster (see Table 1 below)[8]. Head-Royce should consider these mitigation strategies as applicable for their school.

Table 1: Specific Mitigation Strategies for Education Actions Related to Disaster Preparedness and Recovery Planning

Mitigation Strategy	Oakland Priority	Responsible Agencies
EDUC-c-1 Encourage employees of schools to have family disaster plans and conduct mitigation activities in their own homes.	Not applicable for a city	Oakland Unified School District (OUSD)
EDUC-c-2 Develop plans, in conjunction with fire jurisdictions, for evacuation or sheltering in place of school children during periods of high fire danger, thereby recognizing that overloading of streets near schools by parents attempting to pick up their children during these periods can restrict access by fire personnel and equipment.	Not applicable for a city	OUSD
EDUC-c-3 Offer the 20-hour basic CERT training to teachers and after-school personnel.	Not applicable for a city	OUSD; Office of Emergency Services (OES)
EDUC-c-4 Offer the 20-hour basic Student Emergency Response Training (SERT, rather than CERT) training to middle school and/or high school students as a part of the basic science or civics curriculum, as an after school club, or as a way to earn public service hours.	Not applicable for a city	OUSD/OES
EDUC-c-5 Offer the 20-hour basic CERT training course through the Adult School system and/or through the Community College system (either using instructors with teaching credentials or by making facilities available for classes not run by school personnel themselves).	Not applicable for a city	OUSD/OES

[6] City of Oakland (2016). City of Oakland 2016-2021 Local Hazard Mitigation Plan. http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak058455.pdf

[7] City of Oakland (2012). The Safety Element. http://www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD009020

[8] City of Oakland (2012). Annex to 2010 Association of Bay Area Governments Local Hazard Mitigation Plan. http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak058455.pdf

EDUC-c-6 Develop and maintain the capacity for schools to take care of the students for the first 48 hours after a disaster, and notify parents that this capacity exists.	Not applicable for a city	OUSD
EDUC-c-7 Develop a continuity of operations and disaster recovery plan using models such as that developed by the University of California Berkeley[9]. (The American Red Cross has a role in promoting this activity, as well, in schools that they plan to use as shelters.)	Not applicable for a city	OUSD

While research and resources on how to evacuate schools in wildfires has been minimal, some work has been done to begin consolidating lessons learned through evacuation resource guides by the Readiness and Emergency Management for Schools (REMES) Technical Assistance (TA) Center.[10] When crafting its evacuation plan, Head-Royce should briefly review applicable documents for its school.

Finally, all evacuation plans developed by Head-Royce should be practiced regularly at least twice per school year. This exercising will be critical for the Incident Commander and faculty/staff to find key issues and problems with the evacuation plan. An exercise could also be conducted in concert with the Oakland Fire Department to practice an emergency response. The role of exercises cannot be understated in preparing the campus for a wildfire.

[9] University of California, Berkeley (2020). Emergency Operations Plan. https://oem.berkeley.edu/campus-response/emergency-operations-plan-eop

[10] Readiness and Emergency Management for Schools (REMES) Technical Assistance (TA) Center (2020). https://rems.ed.gov/