CAMBRIA

July 24, 2006

Mr. Jerry Wickham, P.G.
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Response to Agency Comments and Work Plan**
Chiu Property
800 Franklin Street
Oakland, California
Fuel Leak Case No. RO0000196
Cambria Project No. 589-1000

Dear Mr. Wickham:

On behalf of Mr. Tommy Chiu, Cambria Environmental Technology, Inc. (Cambria) has prepared this *Response to Agency Comments and Work Plan* (Work Plan) for the above-referenced site. This work plan is in response to your letter dated April 7, 2006.

If you have any questions or comments regarding this work plan, please call Matt Meyers at (510) 420-3314 or Mark Jonas at (510) 420-3307.

Sincerely,
Cambria Environmental Technology, Inc.

Matthew A. Meyers
Project Geologist

Attachment: *Response to Agency Comments and Work Plan*

cc: Ms. Anny Chiu, P.O. Box 28194, Oakland, California 94606

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Cambria Environmental Technology, Inc.

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CAMBRIA

RESPONSE TO AGENCY COMMENTS AND WORK PLAN

Chiu Property
800 Franklin Street
Oakland, California 94607
Fuel Leak Case No. RO0000196
Cambria Project No. 589-1000

July 24, 2006

Prepared for:
Mr. Tommy Chiu
P.O. Box 28194
Oakland, California 94606

Prepared by:
Cambria Environmental Technology, Inc.
5900 Hollis Street, Suite A
Emeryville, California 94608

Written by:

Matthew A. Meyers
Project Geologist

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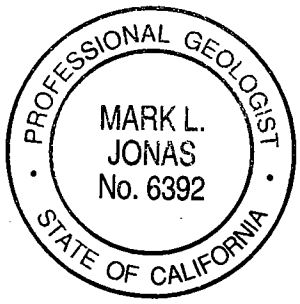
I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Mark Jonas, P.G.
Senior Project Manager



CAMBRIA

RESPONSE TO AGENCY COMMENTS AND WORK PLAN

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RESPONSE TO AGENCY COMMENTS AND WORK PLAN

Chiu Property
800 Franklin Street
Oakland, California 94607
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Cambria Project No. 589-1000

July 24, 2006

1.0 INTRODUCTION

On behalf of Mr. Tommy Chiu, Cambria Environmental Technology, Inc. (Cambria) has prepared this *Response to Agency Comments and Work Plan* (Work Plan) for the above-referenced site. In a letter dated April 11, 2006, Mr. Jerry Wickham of Alameda County Health Care Services Agency, Environmental Health Services (ACEH) requested additional information and a work plan to rebuild monitoring well MW-3 (Appendix A). These requests were based on discussions during a meeting on April 4, 2006 with Mr. Chiu, Mr. Wickham, Ms. Donna Drogos of ACEH, and Mr. Matt Meyers and Mr. Mark Jonas of Cambria. The site background, previous work, response to agency comments, proposed scope of work, reporting, and schedule are described below.

2.0 SITE BACKGROUND

2.1 Site Description

The site is located in a commercial area at the eastern corner of the intersection of 8th and Franklin Streets in Oakland, California (Figure 1). Its elevation is approximately 35 feet above mean sea level (msl). The site presently has a two story commercial building that occupies the entire lot (Figure 2). Retail stores currently operate on the ground floor: Cathay Chinese Herb's Company, Pacific Seafood Inc., Kim Van Jewelry, and Phoung Jewelry. Commercial offices currently operate on the second floor: Express Tax Service, Trident Financial, Mekong Reality & Mortgage Inc., and Evergreen Travel. The site is bound by commercial properties to the northeast and southeast, 8th Street to the southwest, and Franklin Street to the northwest.

Prior to 1989 the site operated as a gasoline service station. It has been reported that up to five underground storage tanks (USTs) previously existed on site. One of these tanks is said to have been removed prior to 1988 near the vicinity of existing well MW-1. However, no UST removal documentation has been discovered regarding this UST. The other four USTs were reported to have been installed circa 1970 (MES, 1989a). Information on these other four USTs is presented below in Section 3.0 Previous Work.

2.2 Regional and Local Geology

The site is located within the Coast Range geomorphic province of California. In general, the Coast Range province consists of Jurassic eugeosynclinal basement rocks and Cretaceous and Cenozoic sedimentary and volcanic rocks that have been faulted and folded with a northwest-southeast trend. The site lies within the East Bay Plain Basin. Sediments beneath the site consist of coalescing alluvial deposits from the Oakland-Berkeley Hills to the east known as the San Leandro Cone (CRWQCB-SFBR, 1999). According to the United States Geologic Survey (USGS) Professional Paper 943, the site is located on quaternary age alluvial deposits consisting of medium-grained, unconsolidated, moderately sorted, and permeable, fine sand, silt, and clayey silt with thin beds of coarse sand.

Previous investigations for this site and boring logs obtained from Bay Area Rapid Transit District (BART) predominantly identified fine to medium grained sand beneath the site. These sand deposits occasionally have a clay component. Three borings were drilled for BART proximal to the site, to a maximum depth of 70 feet below ground surface (bgs). These boring logs consistently describe a low permeability, hard, silty clay from approximately 40 feet bgs to total depth explored. Groundwater is first encountered at approximately 22 feet bgs. Boring logs are presented as Appendix B.

2.3 Regional and Local Hydrogeology

Major water-bearing zones beneath the East Bay Plain Basin occur at depths ranging from 50 feet to more than 1,000 feet bgs. Groundwater from these zones is presently used largely for irrigation and to a lesser extent industrial purposes. Regionally, groundwater flow is generally from the Oakland-Berkeley Hills toward San Francisco Bay (CRWQCB-SFBR, 1995). The nearest surface water bodies to the site are Oakland Inner Harbor located 2,500 feet to the southwest and Lake Merritt approximately 3,000 feet to the east.

Groundwater use in the East Bay Plain is limited by several factors including existing high salts in shallow bay margin groundwater and contamination in shallow aquifers. In particular, shallow groundwater use is limited in artificial fill and shallow bay margin deposits in Oakland because these units are largely saturated with brackish Bay water (CRWQCB-SFR, 1999).

A water-bearing zone has been observed beneath the site within the maximum explored depth of 70 feet bgs. This water-bearing zone exists from the apparent water table to approximately 40 feet bgs. Since 1989, the depth to groundwater beneath the site typically fluctuates from approximately 20 to 24 feet bgs. The expected natural groundwater flow direction is towards the

Bay to the southwest. However since groundwater monitoring at the site began in 1989 the groundwater flow direction has been predominantly towards the northwest with very little fluctuation (Figure 3). The observed flow direction may be influenced by the BART KBL/KBR Tunnels that run east-west and may be acting as a barrier to groundwater flow. Additionally, nearby groundwater pumping for remediation purposes may also be contributing to the anomalous flow direction.

2.4 Sensitive Receptors

The nearest surface water bodies to the site are Oakland Inner Harbor, located 2,500 feet to the southwest and Lake Merritt approximately 3,000 feet to the east.

Beneficial use wells with in the East Bay Plain are primarily used for non-drinking water purposes (99.6%) and a fraction of a percent are used for municipal supply (0.4%) (CRWQCB-SFBR, 1999). Due to high population density in this urban environment and the significant amount of active Leaking Underground Storage Tank (LUST) sites in the vicinity, impacted shallow groundwater from beneath the site reaching a beneficial use receptor is unlikely.

3.0 PREVIOUS WORK

Several phases of soil and groundwater assessments have been conducted at the site since the USTs were removed in 1989. Soil and groundwater analytical results from these investigations are summarized in Tables 2 and 3, respectively.

May 1988: Frank Lee & Associates performed a soil and foundation investigation for the subject site. The purpose of this investigation was to determine the strength characteristics of the soil as a basis for making site grading and foundation design recommendations for a proposed three story commercial building. Soil beneath the site was observed to consist of generally moist, medium dense, brown silty fine sand to the total explored depth of 28.5 feet bgs. Tank backfill soil was observed to approximately 15.5 feet bgs in B-3 and to a minimum depth of 6 feet bgs in B-4. Frank Lee & Associates recommended excavating the then existing surficial material "to a minimum depth of 2 feet...and recompacted before placement of engineered fill or construction." Soil samples were collected from 1 to 4 feet bgs for analysis for volatile organic compounds (VOCs); low to medium boiling point hydrocarbons; benzene, toluene, ethylbenzene, xylenes (BTEX); and total oil and grease (TOG). None of these analytes were detected above laboratory detection limits (Frank Lee & Associates, 1988). Soil analytical data is summarized in Table 2. See Appendix B for copies of the boring logs.

August 1988: LW Environmental Services, Inc. performed a soil investigation. Gasoline hydrocarbon concentrations were detected in the vicinity of the then existing USTs (MEC, 1989b).

June 1989: The Robert J. Miller Company removed four USTs: two 6,000 gallon gasoline tanks, one 550 gallon waste oil tank, and one 1,000 gallon solvent tank. The Traverse Group Inc. (TGI) collected soil samples from beneath each tank and visually inspected the condition of each tank upon removal. No obvious pitting or corrosion was reported. The two gasoline USTs were removed from one excavation area in the northern corner of the site. The waste oil and solvent USTs were removed from one excavation area in the sidewalk south of the site, along 8th Street. Approximately 10 cubic yards of soil was deemed contaminated by TGI and stockpiled on site. Soil that TGI determined to be clean or only slightly impacted was stockpiled on site. Soil samples from the excavations and stockpiles were analyzed for total petroleum hydrocarbons (TPH) as gasoline (TPHg), as diesel (TPHd), as waste oil (TPHwo), and BTEX. Additionally, samples from the waste oil and solvent UST's excavation were analyzed for purgeable organics and semi-volatile organic compounds (SVOCs). High levels of fuel hydrocarbon contamination were detected in the northeast corner of the northeastern excavation and in the waste oil/solvent UST's excavation. Trace concentrations (less than 1.0 milligrams per kilogram [mg/kg]) of bis(2-ethylhexyl) phthalate, napthalene, and 2-methyl-napthalene were detected. The bis(2-ethylhexyl) phthalate was thought to be a result of cross contamination at the laboratory. The napthalene concentrations were assumed to be an additive of the fuels stored on site (MEC, 1989c).

September – October 1989: Miller Environmental Company (MEC) performed a preliminary investigation to determine whether fuel detected in soil during UST excavation activities impacted groundwater. Two excavation pits were re-excavated to approximately 15 feet bgs and approximately 25 cubic yards of additional contaminated soil was removed. Confirmation soil samples were collected from the overexcavation sidewalls and bottoms. The highest levels detected in the northwestern overexcavated pit were 2.3 mg/kg TPHg, 80 mg/kg TPHwo, 0.05 mg/kg toluene, and 0.14 mg/kg xylenes. TPHd, benzene, and ethylbenzene were not detected above laboratory detection limits in samples collected from the northwestern pit. The highest levels detected in the waste oil/solvent overexcavated pit were 10,000 mg/kg TPHg, 250 mg/kg TPHd, 400 mg/kg TPHwo, 50 mg/kg benzene, 210 mg/kg toluene, 54 mg/kg ethylbenzene, and 270 mg/kg xylenes. Further overexcavation in the waste oil/solvent pit was not possible due to the proximity of 8th Street and interfering utilities along the southern edge of this excavation. An estimated 32 cubic yards of contaminated soil was hauled to a Class I disposal facility. The northwestern pit was backfilled with a combination of clean fill and re-used "uncontaminated soil" from the initial excavation of the two gasoline USTs. This re-used fill was intended to be temporary and to be removed when construction took place on the property. The waste oil/solvent

pit was backfilled with clean fill. In addition, three monitoring wells (MW-1, MW-2, and MW-3) were installed as part of this investigation. Analytical results from these borings and wells indicated soil and groundwater from boring MW-1 was not impacted by hydrocarbons. Impacted soil was detected in offsite borings MW-2 and MW-3, between 20 to 25 feet bgs. Groundwater was first encountered in all boreholes at approximately 25 feet bgs. The groundwater gradient and flow direction were calculated to be 0.006 feet per foot and to the west-northwest, respectively. See Tables 1 and 2 for well construction details and soil analytical results, respectively (MEC, 1989c).

MEC also researched underground fuel leak cases within a ½ mile radius of the site. MEC reported that there were 16 petroleum hydrocarbon fuel leak cases with in this radius and half of these were classified as groundwater problems. Only four of these sites had reported groundwater flow directions. Of these cases groundwater flow directions were reported as towards the north at a Shell Service Station site (461 8th Street), northwest at two sites, and north-northeast at one site. However, later in the same report MEC states that the Shell Service Station, which is the closest in proximity to the site, has a groundwater flow direction to the west, away from the site. Groundwater studies in the area by others were found to be inconsistent MEC reported that a northeasterly flow direction was observed one block away at the intersection of 9th and Webster, but it was anticipated to return to the "natural westerly flow pattern" when their dewatering pumps were shut off (MEC, 1989c).

Early 1991: Construction of the existing building on site began in early 1991. It is reported that the ACEH concurred with MEC's conclusion that soil excavation in the interior portion of the site was successful in removing all but minor residual hydrocarbon contamination. As a result no objections were raised to construction activities on site. Monitoring well MW-1 was preserved in the construction process and remains accessible (MEC, 1992).

September – October 1991: MEC conducted a subsurface investigation to further define the lateral extent of offsite hydrocarbon contamination. On September 11, 1991, one borehole (B-1) was advanced and soil samples were collected. On October 2 and 3, 1991, three boreholes (B-2, MW-4, and MW-5) were advanced, soil samples were collected, and two monitoring wells were constructed (see Table 1). Groundwater was first encountered in all boreholes at approximately 25 feet bgs. No hydrocarbons were detected in soil samples collected to a depth of 20 feet bgs. However, soil samples from 25 feet bgs in boreholes B-1 and B-2 contained TPHg, Total Recoverable Petroleum Hydrocarbons (TRPH), TPHd range hydrocarbons, and toluene (see Table 2). On October 31, 1992, groundwater was sampled from wells MW-1 through MW-5. Approximately 1/8 inches of floating product was observed in well MW-2. Groundwater

analytical results indicated very low to moderate concentrations of TPHg, TPHd, BTEX, and 1,2-dichloroethane (1,2-DCA) in monitoring wells MW-1, MW-2, and MW-3. No TOG was detected above laboratory detection limits in any of the wells. Also detected in well MW-3 were 1,2-dichloropropane at 0.0007 parts per million (ppm) and 1,1,1-trichoroethane (1,1,1-TCE) at 0.0014 ppm. No hydrocarbons were detected in groundwater from off site wells MW-4 and MW-5. However, very low levels of chloroform were detected in off site wells MW-4 and MW-5. See Table 3 for historic groundwater analytical results. The groundwater gradient and flow direction were calculated to be 0.008 feet per foot and to the southwest, respectively (MEC, 1992).

May 1997: On May 15, 1997, Associated Terra Consultants, Inc. (ATC) installed monitoring well MW-6. Soil samples were collected and analyzed. Soil samples had detectable concentrations of TPHd, BTEX, and methyl tertiary butyl ether (MTBE). TPHd was detected in soil at 10 feet bgs. BTEX were detected in soil at 25 feet bgs. MTBE was detected in soil at 30 feet bgs. See Table 2 for soil analytical results. Groundwater was first encountered at approximately 22.5 feet bgs. Boring logs are included in Appendix B. On May 21, 1997 ATC performed groundwater monitoring and sampling activities for all six of the site's monitoring wells. See Table 3 for groundwater monitoring data (ATC, 1997).

Groundwater Monitoring: Groundwater monitoring of site wells was conducted from October 1989 through at least 2000 and then again on a quarterly basis between September 2004 and January 2006. Prior to Cambria becoming the consultant for the subject site (2004), it is known that several documents were prepared but are missing from the client, Cambria, and ACEH's files. Therefore the entire historic monitoring and sampling frequency is currently unknown and some data is likely missing. Free product has been observed from 1/8 to 1/4 inch thickness in well MW-2. As approved by ACEH's letter dated April 7, 2006 groundwater monitoring will be performed on a semi-annual schedule during the first and second quarters beginning in 2006. The known reported historic groundwater elevation and analytical data is summarized in Table 3 and the most recent data is presented in Figure 3.

4.0 RESPONSE TO AGENCY COMMENTS

ACEH's letter dated April 7, 2006 requested further information regarding the building foundation, the additional fifth UST, detected VOCs, hydraulic gradient, off-site receptors, well MW-3, and groundwater monitoring frequency. In order to locate additional information as requested Cambria performed record searches at BART, City of Oakland Fire Department (COFD), City of Oakland Planning and Zoning Department (COPZD), and ACEH. Below are our findings.

4.1 Building Foundation

On site is a two-story (retail ground floor and office/commercial second floor) building that covers the entire parcel. There is no basement beneath this building. The ground-floor has a reinforced concrete slab with perimeter foundation footings and spread footings for columns (see letter from Sue Associates dated April 12, 2006 in Appendix C).

4.2 Additional UST Information

ACEH has requested further information regarding a "fifth" UST that was allegedly removed prior to August 1988. Several reports from previous consultants mention this UST as having been located near existing monitoring well MW-1. During our COPZD records search we discovered a plan approved on June 30, 1971. This plan shows a small UST marked as "to be removed" along the northeast property boundary and approximately 20 feet from the northeast corner of the property. This is fairly close to existing monitoring well MW-1 as previously suggested. This plan suggests that the UST was removed some time after June 30, 1971 prior to construction of the service station. By the size of the UST shown on this plan it suggests it was approximately 550 gallons. Available records do not indicate who removed the UST, its contents, condition, exact date of removal, or soil conditions surrounding this area. See Appendix D for a copy of the plan.

4.3 Potential Vapor Intrusion

Concentrations of benzene detected in monitoring wells MW-2 and MW-3 have exceeded the Environmental Screening Level (ESL) (1,800 micrograms per liter [µg/L]) for potential indoor air vapor intrusion to commercial buildings (CRWQCB-SFBR, 2005). Since the site has a fairly recent reinforced cement slab the likelihood that soil vapors are intruding in to the building are low. However, in order to provide ACEH with soil vapor data and make a conservative assessment of vapor intrusion concerns Cambria recommends collecting soil vapor samples from beneath the sidewalk in the vicinity of monitoring wells MW-2 and MW-3. These locations should provide samples from soil material that was in place prior to removal of the USTs yet proximal to the former source areas. In addition, Cambria recommends collecting soil vapor samples from inside the site building near the reported "fifth" UST and the former 6,000 gallon USTs. These samples should alleviate concerns pertaining to impacted soil material that may or may not have been removed during construction of the building's foundation. See Figure 4 for the proposed soil vapor sampling points. See Section 5.0 Proposed Scopes of Work below for further details on performing this task.

4.4 Volatile Organic Compounds (VOCs)

During a file review at COFD Cambria discovered an ACEH "Hazardous Waste Generator Inspection and Compliance Report" for the subject site. This report mentions that Safety Kleen Parts Cleaner and kerosene were stored on site (see Appendix E). In addition, the site is reported to have had a waste oil UST, solvent UST, and a "fifth" UST of unknown use. As a result, ACEH suggests that additional analyses for volatile organic compounds (VOCs) should be performed on future groundwater samples.

According previous reports that analyzed soil or groundwater for VOCs, the only significant detections were of BTEX, MTBE, 1,2-dichloroethane (1,2-DCA) and chloroform. Additionally gasoline, diesel, and motor oil range hydrocarbons have been detected as well. As a result, we recommend adding TPHd, TPHmo, 1,2-DCA, and chloroform to the potential contaminants of concern. Future samples should be analyzed for these compounds for the purpose of assessing/monitoring concentrations, extent, and rate of degradation. See Tables 2 and 3 for historic analytical data in soil and groundwater, respectively.

4.5 Hydraulic Gradient

Cambria reviewed previous reports (listed in Section 9.0 References) for apparent groundwater flow direction and hydraulic gradient information. With this information we prepared a rose diagram (see Figure 3). The historic apparent groundwater flow direction has predominantly been towards the northwest. This apparent groundwater flow direction is not consistent with the expected natural flow direction which is towards the Bay, to the southwest. ACEH requested Cambria review BART documents to determine potential effects that the local BART tunnels maybe having on groundwater flow.

The BART KBR/KBL tunnels run east-west approximately 8 feet north of the northern corner of the site. These tunnels consist of 18 foot diameter steel tubes that are located approximately 35 feet bgs. Cambria has performed a file review at BART District to examine as-built plans of these BART tunnels. According to the as-built plans and conversations with Mr. Manny Abad, Principal Civil Engineer of BART's Design Engineering Department the tunnels in the vicinity of the site are made of sealed steel tubes that were driven in to the subsurface. As a result, native soil material exists along side the tube that would not induce preferential flow around the tube in any significance that would affect the groundwater flow direction at the site. Farther to the west of the site, beginning at 7th and Broadway, the tunnel ends and a cut-and-cover design begins and continues to the west. In this area the subway was built by excavating to the desired depth and width. According to Mr. Abad typically any void space between the walls of a cut-and-cover

designed subway would be backfilled with cement. As a result, the groundwater flow would not flow preferentially through building materials associated with this design. Therefore, the tunnel and cut-and-cover construction do not allow for significant annular flow but instead act as a barrier to flow. This barrier likely has an affect on local groundwater flow patterns around the BART tunnel. See Appendix F for copies of pertinent BART as-built plans.

In addition, Cambria had discussions with Mr. Bob Simon of BART's maintenance department regarding groundwater flow into the tunnel. Mr. Simon stated that no significant flow occurs within the tunnel. As a result, we believe that the BART tunnel is not acting as a pathway for groundwater migration.

4.6 Off-site Receptors

ACEH has requested that Cambria evaluate the potential of nearby buildings having dewatering systems that maybe causing the anomalous groundwater flow patterns and/or acting as a receptor of impacted groundwater. Mr. Matthew Meyers of Cambria performed a survey of neighboring downgradient properties to inquire in to nearby dewatering systems. Three properties were located with subsurface basements. The building directly northwest of the site has a three level subsurface parking garage. Upon inspection of its lowest level no dewatering system was observed. Two other properties on the block to the west-southwest also have subsurface parking garages. One of them was inspected to be only one level below the ground level. The other was not accessible but is expected to be one level below ground surface due to the small size of the building.

Groundwater in the vicinity of the site has not been less than 19 feet bgs since monitoring began in 1989. Therefore, it is not likely that dewatering systems used in buildings for sumps exist close enough by to affect the groundwater flow pattern and/or be a receptor of impacted groundwater.

4.7 Rebuild Well MW-3

Since 2004 monitoring well MW-3 has been filled with debris and inaccessible. ACEH has requested that this well be decommissioned and rebuilt. See Section 5.0 Proposed Scopes of Work below for further details on performing this task.

4.8 Groundwater Monitoring

Cambria concurs with the ACEH proposal to reduce groundwater monitoring to a semi-annual basis. Cambria will begin monitoring and sampling all site wells including the newly rebuilt well, on a semi-annual schedule. We recommend performing groundwater gauging and sampling during the first and third quarters. Groundwater monitoring reports will also be submitted semi-annually. Groundwater samples will be analyzed for TPHmo and TPHd with silica gel cleanup and TPHg by modified EPA Method 8015; BTEX and MTBE by EPA Method 8021; and 1,2-

DCA and chloroform by EPA Method 8260. Groundwater samples will be submitted to a California-certified analytical laboratory for analysis. See Appendix G for Cambria's standard procedures for groundwater sampling.

5.0 PROPOSED SCOPES OF WORK

5.1 Well MW-3 Rebuild

5.1.1 Objective

Cambria proposes reconstructing existing well MW-3 because it is currently filled with debris and inaccessible. This well will be over-drilled and rebuilt with the same screen interval within the same boring.

5.1.2 Site Health and Safety Plan

A comprehensive site safety plan will be prepared to protect site workers. The plan will be kept onsite during all field activities and signed by each site worker.

5.1.3 Permits

A drilling permit will be obtained from the Alameda County Public Works Agency, and an encroachment permit will be obtained from the City of Oakland Community and Economic Development Agency, as needed.

5.1.4 Utility Clearance

The proposed drilling locations will be marked and Underground Service Alert will be notified of Cambria's activities. A private subsurface utility locating contractor will be used to identify any conflicting subsurface utilities and the well location will be cleared by hand augering or air knifing around the well seal to approximately 8 feet bgs prior to drilling.

5.1.5 Monitoring Well Reconstruction

Cambria will reconstruct monitoring well MW-3 by over-drilling the 2-inch diameter well with 10-inch diameter hollow-stem augers. Over-drilling will be conducted by inserting a pilot drill bit down the center of the well to help guide the augers as they drill out the well. After the total depth of the well is removed, the new 4-inch diameter, 0.010-inch slotted, PVC well casing will be installed. The reconstructed well will be screened from approximately 18 to 35 feet bgs. A filter pack consisting of No. 2/12 sand will be installed to 6 inches above the top of the well screen, overlain by two feet of bentonite, and the remaining annulus filled with bentonite-cement grout to the surface. The well will be protected by a traffic-rated vault and a locking well cap. Cambria's *Standard Field Procedures for Soil Borings and Monitoring Wells* is included as Appendix G.

5.1.6 Well Development

Cambria will develop the rebuilt well by surge block agitation and evacuation. Groundwater evacuation will continue until approximately ten well-casing volumes of water have been removed or the turbidity of water has been significantly reduced.

5.1.7 Well Survey

Following installation, the newly reconstructed well and all the other site wells will be vertically and horizontally surveyed by a professional surveyor to the City of Oakland datum to ensure consistency with all site wells.

5.1.8 Monitoring Well Sampling and Analysis

Following well development activities, Cambria will monitor and sample all site wells, including the newly rebuilt well as part of a semi-annual groundwater monitoring event. See Appendix G for Cambria's standard procedures for groundwater sampling. Groundwater samples will be analyzed for TPHmo and TPHd with silica gel cleanup and TPHg by modified EPA Method 8015; BTEX and MTBE by EPA Method 8021; and 1,2-DCA and chloroform by EPA Method 8260. Groundwater samples will be submitted to a California-certified analytical laboratory for analysis.

5.1.9 Investigation Derived Waste (IDW)

Investigation derived waste (IDW) generated during field activities will be removed the same day as it is generated. Following review of analytical results and disposal profiling, the IDW will be processed for recycling and/or transported to an appropriate facility for disposal.

5.2 Soil Vapor Sampling

This section presents the scope of work for soil and soil vapor sampling for additional site assessment. In summary, it is currently anticipated that four (4) borings will be used to collect soil samples and soil vapor samples at 5 feet bgs. Soil samples will be analyzed for TPHmo and TPHd with silica gel cleanup and TPHg by modified EPA Method 8015; BTEX and MTBE by EPA Method 8021; and 1,2-DCA and chloroform by EPA Method 8260. The soil vapor samples will be analyzed for benzene using EPA Method 8260, TO-15, or TO-14A. Figure 4 presents the proposed soil vapor sampling locations

5.2.1 Sampling Rationale

The sampling rationale is presented in the April 7, 2006 ACEH (Appendix A) letter. Proposed soil samples are to provide verification sampling results adjacent to the former UST excavation. This will help to determine if residual contamination exists in soil beyond the original excavation.

Soil vapor sampling results are to determine if soil gas concentrations of benzene may present a potential vapor intrusion risk.

5.2.2 Pre-Sampling Preparations

Prior to performing on-site sampling activities, regulatory approval will be received for the proposed sampling approach, a site-specific Health and Safety Plan (HSP) will be prepared, utility clearance will be performed, and a boring permit will be submitted (if necessary) and approved.

5.2.3 Regulatory Approval of Sampling Approach

This Work Plan presents the proposed scope of work for the sampling approach. The scope of work shall be approved by the ACEH prior to initiating field activities.

5.2.4 Health and Safety Plan

A site-specific HSP will be prepared for the proposed field activities. The HSP will be maintained on-site during field work.

5.2.5 Utility Clearance

Prior to boring, the proposed boring locations will be marked with white paint and Underground Service Alert (USA) will be notified to perform a utility survey of USA members. Because of the limits of the USA survey, a utility locating service will be subcontracted to also perform an additional utility survey of those areas proposed for borehole sampling. This will help to identify subsurface utilities at boring locations. In addition, during boring a hand auger will be used to clear to a reasonable depth and to collect soil samples.

5.2.6 Permit

Based on regulatory requirements of the local agency, a soil boring permit will be obtained from Alameda County Public Works Agency.

5.2.7 Borings and Sampling Procedures

Proposed borings for soil and soil vapor samples are presented in Figure 4. Actual boring locations may be modified based on subsurface utilities or obstructions. This section presents proposed borings and sampling procedures.

Equipment Decontamination: Prior to use and between sampling events, all downhole equipment will be cleaned with Alconox®, or an appropriate alternative, and deionized or distilled water.

Boring Procedures: After pre-sampling preparations are complete, a field program using a hand auger and a C-57 drilling contractor will be implemented. It is currently anticipated that four (4) boreholes will be drilled to 5 feet bgs. Soil samples will be collected from 5 ft bgs. A hand auger will be used to collect lithologic and analytical samples. It is currently anticipated that soil vapor samples will be collected from 5 feet bgs, assuming that groundwater is below this horizon. After sampling activities are complete the borings will be properly closed with grout and capped with like material as the existing surface.

Standard field procedures for hand auger soil borings and for soil vapor sampling are presented in Appendix G *Standard Field Procedures and Soil Vapor Sampling Diagrams*. These procedures provide general field guidance.

Soil Sampling Procedures: At each boring, soils will be examined for staining and odor and screened using a photoionization detector (PID). Soil samples will be collected from 5 feet bgs using the general protocol presented in Appendix G *Standard Field Procedures and Soil Vapor Sampling Diagrams*. Soil samples will be collected in brass tubes or glass sampling containers with no head-space remaining. Samples will be labeled, placed in a cold iced insulated container for transport to the laboratory under a chain-of-custody record.

Soil Vapor Sampling Procedures: Soil vapor samples will be collected from each soil vapor borehole, if possible (see Figure 4). The protocols presented in Appendix G *Standard Field Procedures and Soil Vapor Sampling Diagrams* provide general guidance for collecting soil vapor samples.

Sample Documentation: Sampling containers will be labeled in the field with the job number, sampling location, date and time of sample, and requested analysis. A chain-of-custody record will be initiated and updated throughout handling of the samples and will accompany the samples to the laboratory.

5.2.8 Soil and Soil Vapor Analysis

Soil and soil vapor samples will be analyzed, as follows:

Soil Analysis: Soil samples will be analyzed for TPHg, TPHmo, TPHd, BTEX, MTBE, 1,2-DCA, and chloroform. The following Table 4-1 presents soil analysis, sampling containers, preservation, detection limit, and holding time:

Table 4-1
Soil Analysis, Sampling Container, Preservative, Detection Limit, & Holding Time

Analysis and Methods	Sampling Containers	Preservatives	Detection Limits	Holding Times
TPHg (EPA Method 8015)	Glass or Tube	Cold	1.0 mg/kg	14 days
TPHd with silica gel cleanup (EPA Method 8015)	Glass or Tube	Cold	1.0 mg/kg	14 days
TPHmo with silica gel cleanup (EPA Method 8015)	Glass or Tube	Cold	5.0 mg/kg	14 days
BTEX & MTBE (EPA Method 8021)	Glass or Tube	Cold	0.005 mg/kg	14 days
1,2-DCA & Chloroform (EPA Method 8260)	Glass or Tube	Cold	0.005 mg/kg	14 days

Soil Vapor Analysis: Soil vapor samples will be analyzed for benzene. The following Table 4-2 presents soil vapor analysis, sampling containers, preservation, detection limit, and holding time:

Table 4-2
Soil Vapor Analysis, Sampling Container, Preservative, Detection Limit, & Holding Time

Analysis and Method	Sampling Containers	Preservatives	Detection Limit	Holding Times
Benzene (TO-15, TO-14A, or 8260)	Summa Canister or On-Site Laboratory	Cold or On-Site Lab	1 ppbV	14 days

5.2.9 Investigation Derived Waste (IDW)

IDW generated during field activities will be removed the same day as it is generated. Following review of analytical results and disposal profiling, the IDW will be processed for recycling and/or transported to an appropriate facility for disposal.

5.2.10 Borehole Locations

Following borehole sampling, sampling locations will be defined based on field measurements from existing structures. Borehole sampling locations will be identified on a scaled figure.

6.0 QUALITY ASSURANCE PROJECT PLAN

This Quality Assurance Project Plan (QAPP) is intended to define procedures to facilitate the acquisition of accurate and reliable data.

6.1 Project Organization

Mr. Chiu is currently responsible for the site. Cambria works for this client to provide consulting and sampling services. Subcontractors would be used for drilling; soil and soil vapor analysis; and independent utility clearance. It is currently anticipated that California-certified McCampbell Analytical Inc. and Air Toxics Ltd. will provide analytical services. ACEH is the lead agency and will provide oversight for sampling activities. Documents will be sent to the client and the lead agency for their consideration. USA will be contacted prior to performing any subsurface activities

Following are principal contacts for organization currently associated with the project:

Client
Mr. Tommy Chiu
(510) 282-7223 phone
(510) 338-0692 fax
6030 Mazuela Drive
Oakland, CA 94611-2208

Facility
Various Commercial Businesses
800 Franklin Street, Oakland, CA 94604

Alameda County Environmental Health
Mr. Jerry Wickham
(510) 567-6791; (510) 337-9335 fax
1131 Harbor Bay Parkway, 2nd Floor
Oakland, California 94502-6577

McCampbell Analytical Inc.
Ms. Angela Rydelius
(877) 252-9262; (925) 252-9269 fax
1534 Willowpass Road, Pittsburg, CA 94565
main@mccampbell.com

Cambria Environmental Technology, Inc.
Mark Jonas, P.G
(510) 420-3307; (510) 420-9170 fax
(510) 385-0022 mobile
mjonas@cambria-env.com
5900 Hollis Street, Suite A
Emeryville, CA 94608

Matt Meyers, P.G.
(510) 420-3314

Alameda County Public Works Agency
James Yoo (for Drilling Permit)
(510) 670-6633; (510) 782-1939 fax
399 Elmhurst Street, Hayward, CA 94544
Jamesy@acpwa.org

Air Toxics Ltd.
180 Blue Ravine Road, Suite B
Folsom, CA 95630
(916) 985-1000

Underground Service Alert
1-800-227-2600

6.2 Quality Assurance Objectives

The overall quality assurance objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting that will provide results that are defensible and reliable. Quality assurance objectives for accuracy, precision, and method detection limits, are as follows:

6.2.1 Accuracy

The criterion for accuracy is a measurement of bias that exists in a measurement system. It refers to the degree of agreement of a measurement, X, with an accepted reference or true value, T, usually expressed as the difference between the two values, X-T. Accuracy can also be assessed by using percent bias and percent recovery information. Accuracy is difficult to measure for the entire data collection activity and specifically the sampling component. The criteria for accuracy is best addressed using laboratory matrix spikes.

6.2.2 Precision

The criterion for precision is a measure of the reproducibility of replicate analyses made under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements as compared to their average value. The overall precision of each data collection activity should take into account both field sampling precision and analytical precision. The specific criterion for precision for each parameter is detailed within the individual analytical test method. If groundwater is sampled, a blind duplicate ground water sample may be collected and assessed as a means of assessing both sampling and analytical reproducibility and as a measure of the data collection activity's precision. The duplicate sample would be analyzed for the same suite of analyses as the original sample. All results will be included in a report.

6.2.3 Method Detection Limits

Anticipated method detection limits are based on a relatively standard sample with a manageable amount of interference. The specific character of a sample with respect to high concentrations of multiple contaminants, can increase the actual detection limit above the anticipated method detection limit

6.2.4 Sampling Procedures

Sampling procedures are presented in Section 5.0 *Proposed Scopes of Work.*

6.2.5 Sample Custody Procedures and Documentation

Chain-of-custody procedures and documentation are covered in Section 5.0 *Proposed Scopes of Work.*

6.2.6 Field and Laboratory Calibration Procedures

Field Calibration Procedures: If a PID is used, it will be calibrated in the office or at an equipment supplier, prior to use in the field.

Laboratory Calibration Procedures: The analytical laboratory has calibration procedures as required by the current EPA Standard Methods and their own laboratory Quality Assurance/Quality Control (QA/QC) plan. The details associated with all the specific laboratory calibration procedures are available from the laboratory upon request.

6.2.7 Analytical Procedures

Analytical methods to be used are presented in Section 5.0 *Proposed Scopes of Work.* Specific laboratory procedures associated with each method are available upon request.

6.2.8 Certified Analytical Laboratory

Pursuant to Health and Safety Code Section 25198, a state-certified laboratory will perform analytical services. For this project it is anticipated that McCampbell Analytical Inc., a California-certified laboratory with Department of Health Services (DHS) License #1644, will perform various soil and groundwater analytical services. If soil vapor is collected for off-site analysis, Air Toxic Ltd (DHS License #02110CA) would perform the analysis. An on-site laboratory may be used to analyze the soil vapor samples.

6.2.9 Data Assessment and Corrective Actions

Data Assessment: Data assessment within the analytical laboratory is defined by the specific requirements for the standard analytical method and the laboratory's QA/QC program. Procedures for analytical accuracy, precision, and completeness are in laboratory documents, available upon request. Accuracy and precision are also discussed in Section 6.2 Quality Assurance Objectives. Completeness of analytical data is a measure of the amount of valid data obtained from the measurement system compared with the amount that was expected under normal conditions.

The analytical laboratories McCampbell Analytical and Air Toxics will submit QC documentation with the analytical results. QC documentation typically includes a case narrative describing conformance; surrogate recoveries; spike amount(s), control limits, accuracy, and precision; calibration summaries; and a GC/MS internal standard summary.

Field data and analytical results will be evaluated by a Professional Geologist.

Corrective Actions: Unacceptable conditions or data, nonconformance with the QA procedures, or other deficiency may require corrective actions. A corrective action may be necessary if the nonconformance is of program significance. If required, the action to correct the nonconformance will be developed, initiated, and implemented.

Corrective action(s) may include:

- Reanalyzing the samples, if holding time permits.
- Resampling and reanalyzing.
- Evaluating and amending the sampling and analytical procedures.
- Accepting the data and acknowledging its level of uncertainty.

Necessary corrective actions will be documented.

6.3 Reporting Procedures

Reporting procedures for measurement of system performance and data quality are part of the laboratory's operating procedures and documentation is available upon request. Quality control documentation will be presented with analytical results from the laboratory.

6.4 Data Management

Laboratory data management, data reduction, and reporting requirements are in the laboratory's QA/QC program and operating procedures. Documentation from the laboratory is available upon request. Independent third-party (outside of McCampbell Analytical and Air Toxics) validation will not be performed. McCampbell Analytical and Air Toxics do perform an internal review of analytical and QC results prior to release of a data package signed by a laboratory representative.

Laboratory results and associated QC documentation will be presented in a report following field activities and sample analysis.

6.5 Internal Quality Control

Quality control is defined as the routine application of procedures for obtaining prescribed standards of performance. The procedures used for field work are discussed throughout this report, under Section 5.0 Proposed Scopes of Work. Standards of performance are discussed in this section of the Work Plan. Laboratory documentation on standard analytical methods and the laboratory's QA/QC program is available upon request.

7.0 REPORTING

Cambria will prepare and submit a *Site Assessment Report* to the ACEH detailing the findings of the above investigation phases. At a minimum, this report will contain:

- Descriptions of the monitoring well rebuild method;
- Descriptions of soil vapor well building methods;
- Descriptions of the soil vapor sampling methods;
- The findings and conclusions of the soil vapor sampling activities;
- Figures depicting site features and a summary of detected concentrations;
- Tabulated soil, groundwater, and soil vapor analytical results;
- Boring logs and well construction diagrams for the rebuilt monitoring well and soil vapor wells;
- Analytical reports and chain-of-custody forms; and
- Soil and groundwater disposal methods.

8.0 SCHEDULE

Upon receiving written work plan approval from the ACEH, Cambria will prepare a project budget and obtain client approval of the proposed activities. Cambria anticipates completing the planned investigation and report within approximately 14 weeks.

9.0 REFERENCES

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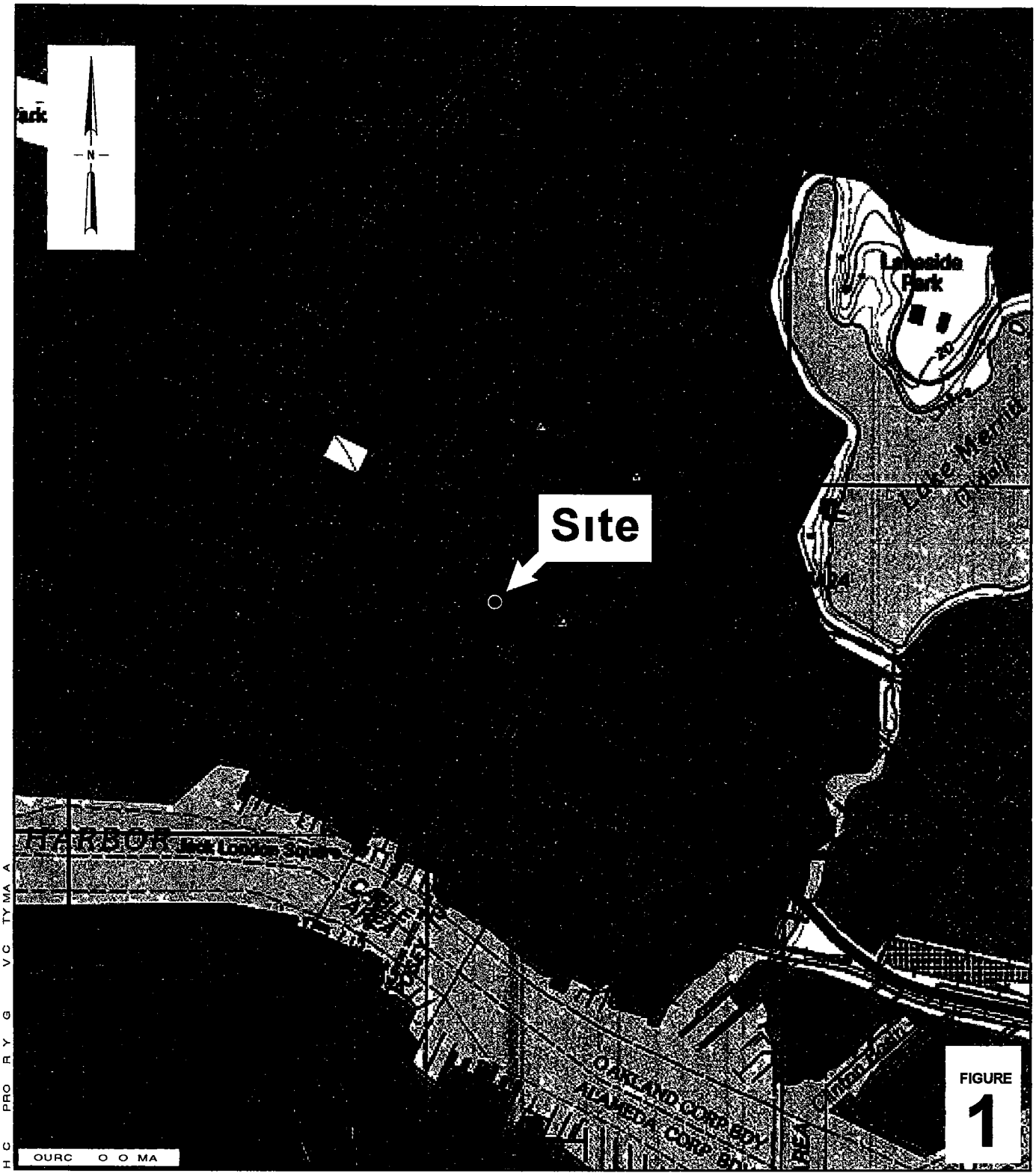
Figures



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SCALE 1 = 1/4 MILE

Chiu Property

800 Franklin Street

Oakland California

CAMBRIA

Vicinity Map

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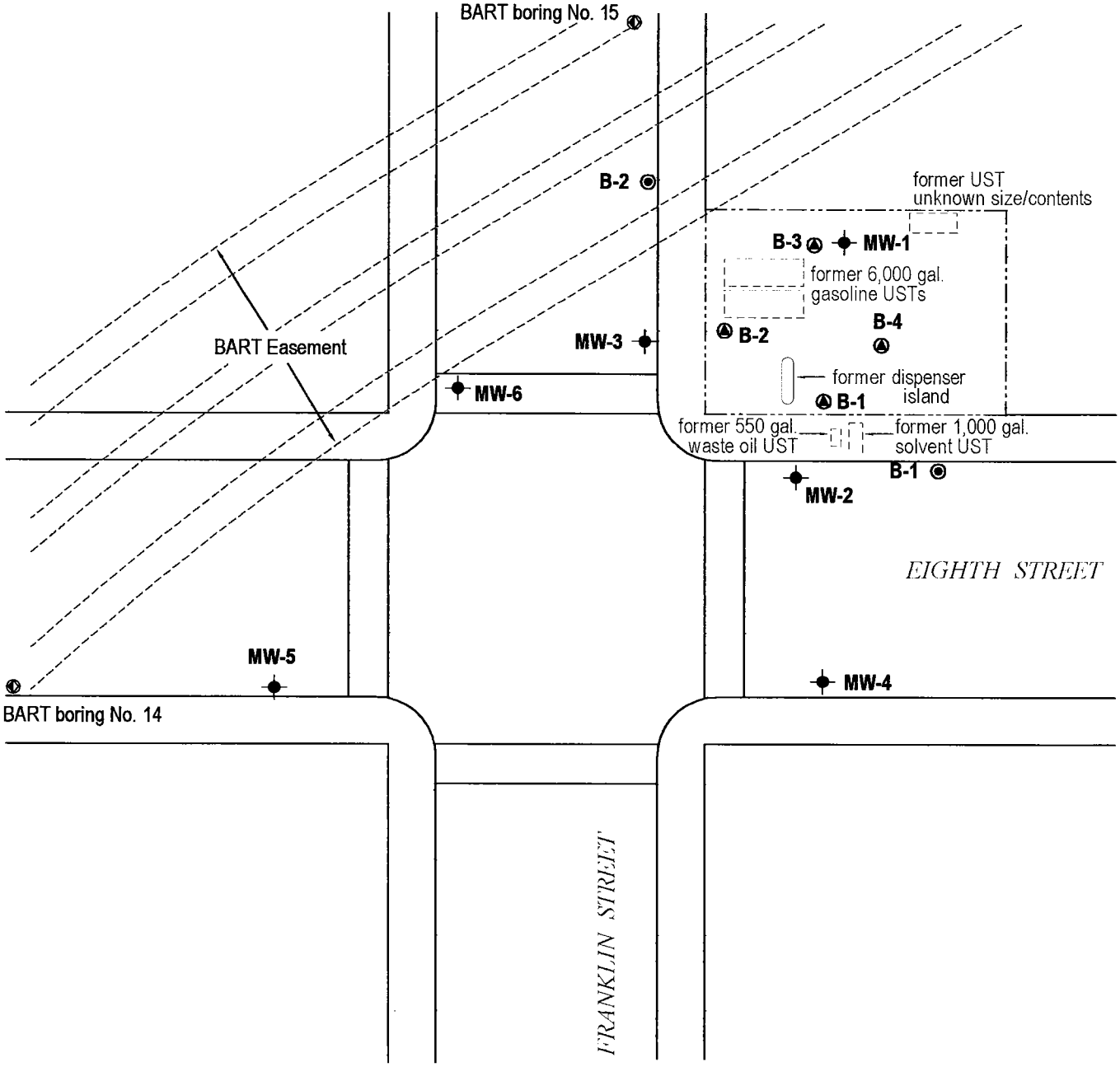

EXPLANATION

MW-1 ⊕	Monitoring well location
B-1 ◭	Soil boring location (Frank Lee & Assoc., 1988)
B-1 ◉	Soil boring location (Miller Environmental Co., 1991)
◐	Approximate BART soil boring location (BART 1963)

N

0 20 40

Scale (ft)

FIGURE

2

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Chiu Property

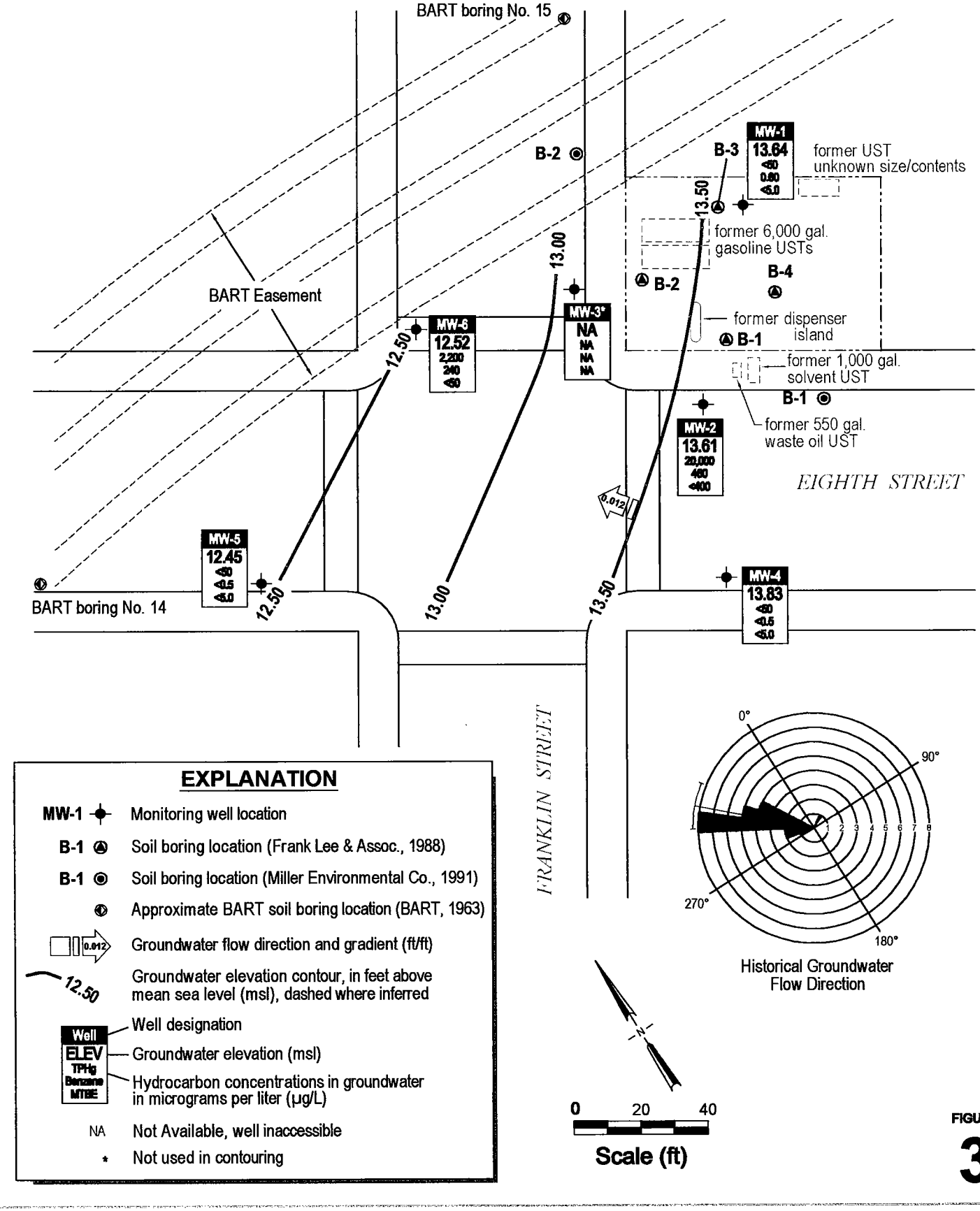
800 Franklin Street

Oakland, California

CAMBRIA

Site Plan

07/20/07



EXPLANATION

- MW-1 — Monitoring well location
- B-1 — Soil boring location (Frank Lee & Assoc., 1988)
- B-1 — Soil boring location (Miller Environmental Co., 1991)
- Approximate BART soil boring location (BART, 1963)
- 0.012 — Groundwater flow direction and gradient (ft/ft)
- 12.50 — Groundwater elevation contour, in feet above mean sea level (msl), dashed where inferred
- Well — Well designation
- ELEV — Groundwater elevation (msl)
- TPHg / Benzene / MTBE — Hydrocarbon concentrations in groundwater in micrograms per liter (µg/L)
- NA — Not Available, well inaccessible
- * — Not used in contouring

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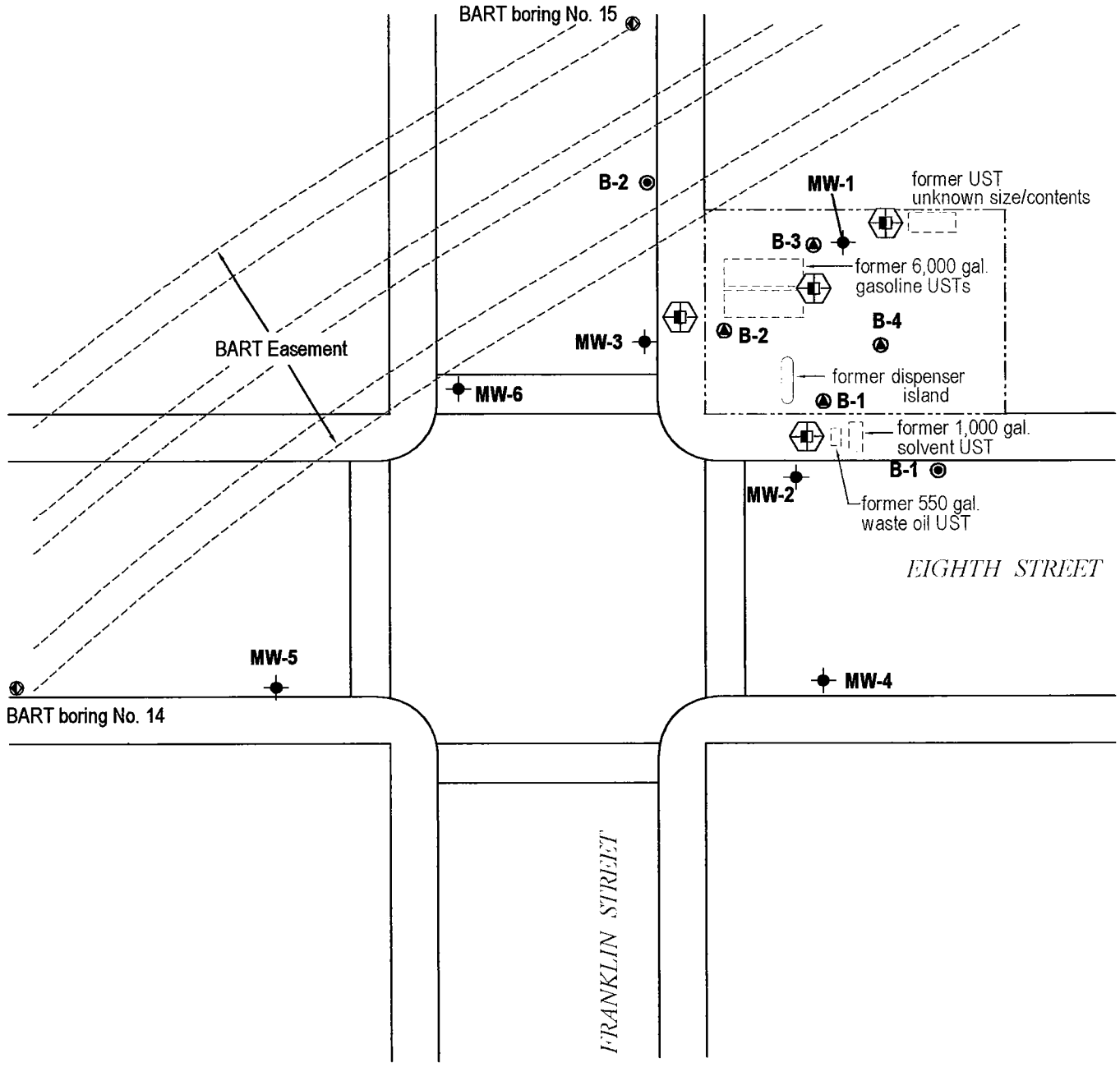
FIGURE
3

Chiu Property
800 Franklin Street
Oakland, California

CAMBRIA

Groundwater Elevation Contour and Hydrocarbon Concentration Map
March 10, 2006

07/20/07



EXPLANATION

- Proposed soil vapor sampling location
- MW-1 — Monitoring well location
- B-1 — Soil boring location (Frank Lee & Assoc., 1988)
- B-1 — Soil boring location (Miller Environmental Co., 1991)
- Approximate BART soil boring location (BART 1963)

N

0 20 40

Scale (ft)

FIGURE

4

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Chiu Property

800 Franklin Street

Oakland, California

CAMBRIA

Proposed Soil-Vapor Sampling Location Plan

Tables

CAMBRIA

Table 1. **Well Completion Data** - Chiu Property, 800 Franklin Street, Oakland, California

Well ID	Installation Date	Boring Diameter (inches)	Borehole Depth (feet bgs)	Well Diameter (inches)	Screen Size (inches)	Well Depth (feet bgs)	Surface Seal (feet bgs)	Sand Pack Interval (feet bgs)	Screened Interval (feet bgs)	First Encountered GW Depth (feet bgs)	TOC Elevation (feet amsl)
MW-1	1989	8	35	2	0.010	35	0-18	18-35	20-35	NA	33.42
MW-2	1989	8	35	2	0.010	35	0-18	18-35	20-35	NA	33.65
MW-3	1989	8	35	2	0.010	35	0-18	18-35	20-35	NA	34.23
MW-4	10/2/1991	8	35	2	0.010	35	0-18	18-35	20-35	25.0	33.64
MW-5	10/3/1991	8	35	2	0.010	35	0-18	18-35	20-35	26.0	33.56
MW-6	5/15/1997	8	35	2	0.010	35	0-14.5	14.5-36.25	14.5-36.25	22.5	33.98

Abbreviations and Notes:
bgs = below ground surface
GW = groundwater
TOC = top of casing
amsl = measured relative to mean sea level
NA = data not available

CAMBRIA

Table 2. Soil Analytical Data - Chiu Property, 800 Franklin Street, Oakland, California

Sample ID	Date Sampled	Depth (ft)	TPHg (mg/kg)	TPHd (mg/kg)	TPHwo (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	SVOCs (mg/kg)	VOCs (mg/kg)	Total Oil & Grease (mg/kg)	TRPH
Soil and Foundation Investigation by Frank Lee & Associates - Soil Borings														
B-1-3	5/3/1988	3	-	-	-	ND<0.1	ND<0.1	ND<0.1	ND<0.1	-	-	ND	ND<30	ND<30
B-2-1	5/3/1988	1	ND<1.0 *	-	-	ND<0.05	ND<0.1	-	ND<0.1	-	-	ND	-	-
B-3-4	5/3/1988	4	ND<1.0 *	-	-	ND<0.05	ND<0.1	-	ND<0.1	-	-	ND	-	-
UST Removal by Robert J. Miller Company														
UST Excavation Compliance Samples - Collected by The Traverse Group, Inc.														
T1 - Gasoline Tank	June-89	-	ND<1.0	ND<6.3	ND<30	0.011	0.0036	ND<0.0025	0.006	-	(1)	ND	-	-
T2 - Gasoline Tank	June-89	-	5.0	ND<6.7	30	0.050	0.044	0.0036	0.023	-	(2)	ND	-	-
T3 - Gasoline Tank	June-89	-	ND<1.0	ND<7.0	ND<30	0.0046	ND<0.0025	ND<0.0025	ND<0.0025	-	(3)	ND	-	-
T4 - Gasoline Tank	June-89	-	3,100	420	1,350	7.5	87	59	290	-	(4)	ND	-	-
W1 - Waste Oil Tank	June-89	-	270	430	4,000	ND<5.0	ND<5.0	ND<5.0	14	-	(5)	ND	-	-
W2A - Waste Oil Tank	June-89	-	2,300	170	50	ND<2.5	3	ND<2.5	12	-	(6)	ND	-	-
S1 - Solvent Tank	June-89	-	1.8	ND<6.0	ND<30	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	(7)	ND	-	-
S2 - Solvent Tank	June-89	-	62	106	ND<30	ND<1.0	ND<1.0	ND<1.0	ND<1.0	-	(8)	ND	-	-
SP1 - Spoils Pile "Contaminated"	June-89	-	184	240	900	ND<5.0	17	19	110	-	(9)	ND	-	-
SP2 - Spoils Pile "Clean"	June-89	-	ND<1.0	ND<6.7	ND<30	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	ND	ND	-	-
SP3 - Spoils Pile "Clean"	June-89	-	120	40	150	ND<1.0	ND<1.0	ND<1.0	2.1	-	(10)	ND	-	-
Subsurface Investigation by Miller Environmental Company														
Over-Excavation Confirmation Samples														
EX1-A	9/7/1989	15	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
EX1-B	9/7/1989	15	ND	ND	40	ND	ND	ND	ND	-	-	-	-	-
EX1-C	9/7/1989	15	2.3	ND	80	ND	0.05	0.14	ND	-	-	-	-	-
EX2-A	9/7/1989	15	10,000	250	400	50	210	270	54	-	-	-	-	-
EX2-B	9/7/1989	15	4.1	ND	ND	ND	ND	0.15	ND	-	-	-	-	-
Well Installation Soil Samples														
MW1-A	9/12-13/1989	6	ND	23	30	ND	ND	ND	ND	-	-	-	-	-
MW1-B	9/12-13/1989	11	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
MW1-C	9/12-13/1989	16	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
MW1-D	9/12-13/1989	21	52	ND	ND	0.12	0.7	0.53	4.5	-	-	-	-	-
MW1-E	9/12-13/1989	26	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
MW2-A	9/12-13/1989	6	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
MW2-B	9/12-13/1989	11	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
MW2-C	9/12-13/1989	16	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
MW2-D	9/12-13/1989	21	1,900	110	50	7.4	51	24	180	-	-	-	-	-
MW2-E	9/12-13/1989	26	7,800	170	30	52	220	77	400	-	-	-	-	-
MW3-A	9/12-13/1989	6	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
MW3-B	9/12-13/1989	11	ND	25	ND	ND	ND	ND	ND	-	-	-	-	-

Table 2. Soil Analytical Data - Chiu Property, 800 Franklin Street, Oakland, California

Sample ID	Date Sampled	Depth (ft)	TPHg (mg/kg)	TPHd (mg/kg)	TPHwo (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	SVOCs (mg/kg)	VOCs (mg/kg)	Total Oil & Grease (mg/kg)	TRPH
MW3-C	9/12-13/1989	16	ND	ND	ND	ND	ND	ND	0.07	-	-	-	-	-
MW3-D	9/12-13/1989	21	2,200	160	40	7	42	16	180	-	-	-	-	-
MW3-E	9/12-13/1989	26	24	ND	ND	0.6	1.1	0.17	1.4	-	-	-	-	-
Additional Subsurface Investigation by Miller Environmental Company														
B1-5	9/11/1991	5	ND<0.20	ND<5.0	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	-	-	-	-	ND<20
B1-10	9/11/1991	10	ND<0.20	ND<5.0	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	-	-	-	-	ND<20
B1-15	9/11/1991	15	ND<0.20	ND<5.0	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	-	-	-	-	ND<20
B1-20	9/11/1991	20	ND<0.20	ND<5.0	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	-	-	-	-	ND<20
B1-25	9/11/1991	25	2,900	160	-	ND<25	60	ND<25	ND<25	-	-	-	-	190
B2-5	10/2/1991	5	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
B2-10	10/2/1991	10	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
B2-15	10/2/1991	15	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
B2-20	10/2/1991	20	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
B2-25	10/2/1991	25	120	83	ND<10	ND<0.0025	0.310	0.210	0.600	-	-	-	ND<50	-
MW4-5	10/2/1991	5	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
MW4-10	10/2/1991	10	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
MW4-15	10/2/1991	15	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
MW4-20	10/2/1991	20	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
MW4-25	10/2/1991	25	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
MW5-5	10/3/1991	5	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
MW5-10	10/3/1991	10	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
MW5-15	10/3/1991	15	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
MW5-20	10/3/1991	20	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
MW5-25	10/3/1991	25	ND<1	ND<1	ND<10	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	-	-	-	ND<50	-
Additional Subsurface Investigation by Associated Terra Consultants, Inc.														
B6-1 (MW-6)	5/15/1997	5	ND<1.0	ND<1.0	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	-	-	ND<50	-
B6-2 (MW-6)	5/15/1997	10	ND<1.0	9.1	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	-	-	ND<50	-
B6-3B (MW-6)	5/15/1997	15	ND<1.0	ND<1.0	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	-	-	ND<50	-
B6-4B (MW-6)	5/15/1997	20	ND<1.0	ND<1.0	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	-	-	ND<50	-
B6-5B (MW-6)	5/15/1997	25	ND<1.0	ND<1.0	-	0.050	0.011	0.023	0.099	ND<0.0050	-	-	ND<50	-
B6-6B (MW-6)	5/15/1997	30	ND<1.0	ND<1.0	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	0.0050	-	-	ND<50	-
B6-11 (MW-6)	5/15/1997	35	ND<1.0	ND<1.0	-	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	-	-	ND<50	-

Table 2. Soil Analytical Data - Chiu Property, 800 Franklin Street, Oakland, California

Sample ID	Date Sampled	Depth (ft)	TPHg (mg/kg)	TPHd (mg/kg)	TPHwo (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	SVOCs (mg/kg)	VOCs (mg/kg)	Total Oil & Grease (mg/kg)	TRPH

Abbreviations and Analyses:

ND<0.5 = Not Detected (ND) above laboratory detection limit.
ft = Measured in feet
TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015
TPHwo = Total petroleum hydrocarbons as waste oil by modified EPA Method 8015
Benzene, ethylbenzene, toluene and xylenes by EPA Method 8020.
SVOCs = Semi-volatile organics by EPA Method 8270.
VOCs = Volatile organics by EPA Method 8240.
TRPH = Total Recoverable Petroleum Hydrocarbons by EPA Method 418.1
Organic Lead by DHS Method
Total Lead by EPA Method 7420
Cadmium Chromium, nickel, and zinc by Method 6010.
mg/kg = Milligrams per kilogram
- = Not sampled, not analyzed, or not applicable
* = Analyzed for "low to medium boiling point hydrocarbons" by EPA Method 8015.
WO1 sampled on 1/17/1991 was also analyzed for Total Petroleum Fuel Hydrocarbons by EPA Method 8015 (ND<1.0 mg/kg).
WO1 sampled on 1/17/1991 was also analyzed for Halogenated Volatile Organics by EPA Method 8010 (all analytes were ND).

Notes:

(1) = 0.20 mg/kg bis (2-ethylhexyl) phthalate. Other SVOCs were ND.
(2) = 0.24 mg/kg bis (2-ethylhexyl) phthalate. Other SVOCs were ND.
(3) = 0.42 mg/kg bis (2-ethylhexyl) phthalate. Other SVOCs were ND.
(4) = 28 mg/kg naphthalene; 23 mg/kg 2-methyl-naphthalene. Other SVOCs were ND.
(5) = 0.37 mg/kg bis (2-ethylhexyl) phthalate. Other SVOCs were ND.
(6) = 6.4 mg/kg naphthalene; 4.1 mg/kg 2-methyl-naphthalene. Other SVOCs were ND.
(7) = 0.50 mg/kg bis (2-ethylhexyl) phthalate. Other SVOCs were ND.
(7) = 0.50 mg/kg bis (2-ethylhexyl) phthalate. Other SVOCs were ND.
(8) = 2.4 mg/kg naphthalene; 1.9 mg/kg 2-methyl-naphthalene. Other SVOCs were ND.
(9) = 27 mg/kg naphthalene; 13 mg/kg 2-methyl-naphthalene. Other SVOCs were ND.
(10) = 1.6 mg/kg naphthalene; 2.0 mg/kg 2-methyl-naphthalene. Other SVOCs were ND.

WO1 sampled on 1/17/1991 was also analyzed for Semi-Volatile Organics by EPA Method 8270. The following analytes were detected: benzo(a)pyrene at 0.10 mg/kg, fluoranthene at 0.11 mg/kg, and pyrene at 0.15 mg/kg (all other analytes were ND).

Table 3. Groundwater Analytical and Elevation Data: Petroleum Hydrocarbons - Chiu Property, 800 Franklin Street, Oakland, California

Well ID *TOC Elevation* (ft amsl)	Date Sampled	Depth to Water (ft below TOC)	Groundwater Elevation (feet amsl)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
				← µg/L →						
		ESLs for a potential drinking water resource:		100	1.0	40	30	20	5.0	
MW-1	10/12/1989 †	22.87	10.55	ND	ND	ND	ND	ND	--	(1)
33.42	10/31/1991	--	--	630	3.2	ND<0.5	ND<0.5	130	--	(4)
34.89	10/21/1992	23.48	11.41	520	78	38	ND<0.5	120	--	
	2/25/1993	22.51	12.38	1,600	160	190	34	350	--	
	4/27/1993	22.36	12.53	380	5.2	ND<0.5	ND<0.5	74	--	
	10/7/1993	--	12.10	1,000	81	150	47	230	--	
33.98	3/28/1994	--	11.91	460	14	25	14	39	--	
	4/29/1994	--	--	--	--	--	--	--	--	
	6/10/1994	--	11.66	--	--	--	--	--	--	
	7/8/1994	--	11.62	--	--	--	--	--	--	
	7/26/1994	--	11.48	--	--	--	--	--	--	
	8/25/1994	--	11.47	--	--	--	--	--	--	
	10/27/1994	22.51	11.47	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	
	1/6/1995	--	12.08	--	--	--	--	--	--	
	2/1/1995	--	12.79	--	--	--	--	--	--	
	3/29/1995	--	12.75	--	--	--	--	--	--	
	10/31/1995	--	12.48	1,400	15	38	49	510	19	
	5/21/1997	--	12.49	150	2.9	1.5	8.6	26	ND<5.0	
	8/10/2004	23.35	10.63	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	9/28/2004 +	--	--	--	--	--	--	--	--	
	12/21/2004	22.93	11.05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	3/11/2005 +	--	--	--	--	--	--	--	--	
	6/16/2005	20.68	13.30	ND<50	0.64	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	9/1/2005	20.74	13.24	ND<50	1.2	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	12/16/2005	20.95	13.03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	3/10/2006	**20.34**	**13.64**	**ND<50**	**0.60**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<5.0**	

Table 3. Groundwater Analytical and Elevation Data: Petroleum Hydrocarbons - Chiu Property, 800 Franklin Street, Oakland, California

Well ID *TOC Elevation* (ft amsl)	Date Sampled	Depth to Water (ft below TOC)	Groundwater Elevation (feet amsl)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
				← µg/L →						
		ESLs for a potential drinking water resource:		100	1.0	40	30	20	5.0	
MW-2	10/12/1989†	23.25	10.40	38,000	1,300	1,200	ND	4,700	--	(2)
33.66	10/31/1991	--	--	10,000	1,800	1,200	270	960	--	(5)
	11/6/1991	24.02	9.64	--	--	--	--	--	--	
	10/21/1992	22.42	11.24	270,000	9,700	4,500	9,600	56,000	--	
	2/25/1993	21.50	12.16	49,000	4,300	11,000	1,300	9,100	--	
	4/27/1993	21.26	12.40	39,000	1,400	4,000	220	5,200	--	
	10/7/1993	--	12.04	50,000	2,700	8,100	940	7,800	--	
	3/28/1994	--	11.88	20,000	360	1,300	220	1,800	--	
	4/29/1994	--	11.87	--	--	--	--	--	--	
	6/10/1994	--	11.44	--	--	--	--	--	--	
	7/8/1994	--	11.42	--	--	--	--	--	--	
	7/26/1994	--	11.22	--	--	--	--	--	--	
	8/25/1994	--	11.01	--	--	--	--	--	--	
	10/27/1994	22.66	11.00	21,000	1,200	3,700	600	4,300	--	
	1/6/1995	--	11.66	--	--	--	--	--	--	
	2/1/1995	--	12.21	--	--	--	--	--	--	
	3/29/1995	--	12.66	--	--	--	--	--	--	
	10/31/1995	--	11.51	45,000	3,100	8,800	1,200	8,400	810	
	5/21/1997	--	12.65	18,000	1,400	4,200	680	3,600	370	
	8/10/2004	21.03	12.63	47,000 (a)	4,200	4,900	1,400	6,000	ND<500	
	9/28/2004	22.95	10.71	--	--	--	--	--	--	
	12/21/2004	20.91	12.75	13,000 (a)	500	310	34	1600	ND<100	
	3/11/2005	11.35	22.31	32,000 (a)	970	2,400	890	4,200	ND<1,000	
	6/16/2005	20.50	13.16	43,000 (a,i)	1,500	3,400	1,200	5,400	ND<1,200	
	9/1/2005	20.60	13.06	20,000 (a)	640	1,700	460	2,200	ND<200	
	12/16/2005	20.83	12.83	32,000 (a,i)	1,000	3,100	760	3,800	ND<500	
	3/10/2006	**20.05**	**13.61**	**20,000 (a)**	**460**	**1,900**	**440**	**2,400**	**ND<400**	

Table 3. Groundwater Analytical and Elevation Data: Petroleum Hydrocarbons - Chiu Property, 800 Franklin Street, Oakland, California

Well ID *TOC Elevation* (ft amsl)	Date Sampled	Depth to Water (ft below TOC)	Groundwater Elevation (feet amsl)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
				← µg/L →						
		ESLs for a potential drinking water resource:		100	1.0	40	30	20	5.0	
MW-3	10/12/1989†	24.02	10.21	87,000	3,200	8,800	ND	6,500	--	(3)
34.23	10/31/1991	--	--	310,000	9,300	25,000	5,600	27,000	--	(6)
	11/6/1991	23.52	10.71	--	--	--	--	--	--	
	10/21/1992	23.32	10.91	22,000	10,000	4,300	790	2,100	--	
	2/25/1993	22.51	11.72	29,000	8,400	5,400	1,300	3,300	--	
	4/27/1993	22.37	11.86	50,000	8,200	8,700	1,000	5,400	--	
	10/7/1993	--	14.19	1,700	3,100	3,700	400	1,700	--	
	3/28/1994	--	11.52	53,000	3,900	4,600	710	2,500	--	
	4/29/1994	--	11.34	--	--	--	--	--	--	
	6/10/1994	--	11.13	--	--	--	--	--	--	
	7/8/1994	--	11.09	--	--	--	--	--	--	
	7/26/1994	--	10.94	--	--	--	--	--	--	
	8/25/1994	--	10.80	--	--	--	--	--	--	
	10/27/1994	23.56	10.67	8,500	2,700	2,700	490	2,000	--	
	1/6/1995	--	11.33	--	--	--	--	--	--	
	2/1/1995	--	11.79	--	--	--	--	--	--	
	3/29/1995	--	12.10	--	--	--	--	--	--	
	10/31/1995	--	11.23	19,000	4,400	4,600	720	2,900	410	
	5/21/1997	--	11.68	4,000	810	840	190	690	ND<100	
	9/28/2004			*Well is damaged. Unable to measure depth to water or collect sample.*						
	12/21/2004			*Well is damaged. Unable to measure depth to water or collect sample.*						
	3/11/2005			*Well is damaged. Unable to measure depth to water or collect sample.*						
	6/16/2005			*Well is damaged. Unable to measure depth to water or collect sample.*						
	9/1/2005			*Well is damaged. Unable to measure depth to water or collect sample.*						
	12/16/2005			*Well is damaged. Unable to measure depth to water or collect sample.*						
	3/10/2006			***Well is damaged. Unable to measure depth to water or collect sample.***						

Table 3. Groundwater Analytical and Elevation Data: Petroleum Hydrocarbons - Chiu Property, 800 Franklin Street, Oakland, California

Well ID *TOC Elevation* (ft amsl)	Date Sampled	Depth to Water (ft below TOC)	Groundwater Elevation (feet amsl)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
				← µg/L →						
		ESLs for a potential drinking water resource:		100	1.0	40	30	20	5.0	
MW-4	10/31/1991	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	(7)
33.64	11/6/1991	23.32	10.32	--	--	--	--	--	--	
	10/21/1992	22.10	11.54	410	3.1	29	6.8	47	--	
	2/25/1993	21.13	12.51	170	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	
	4/27/1993	20.74	12.90	100	ND<0.5	ND<0.5	ND<0.5	0.9	--	
	10/7/1993	--	12.52	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	
	3/28/1994	--	12.34	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	
	4/29/1994	--	11.33	--	--	--	--	--	--	
	6/10/1994	--	11.55	--	--	--	--	--	--	
	7/8/1994	--	11.54	--	--	--	--	--	--	
	7/26/1994	--	11.30	--	--	--	--	--	--	
	8/25/1994	--	11.09	--	--	--	--	--	--	
	10/27/1994	22.69	10.95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	
	1/6/1995	--	11.70	--	--	--	--	--	--	
	2/1/1995	--	12.34	--	--	--	--	--	--	
	3/29/1995	--	12.76	--	--	--	--	--	--	
	10/31/1995	--	11.61	80	ND<0.5	0.6	ND<0.5	1.0	ND<0.5	
	5/21/1997	--	12.08	ND<50	11	120	27	180	ND<5.0	
	9/28/2004	22.72	10.92	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	12/21/2004	20.65	12.99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	3/11/2005	20.20	13.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	6/16/2005	20.38	13.26	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	9/1/2005	20.48	13.16	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	12/16/2005	20.78	12.86	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	3/10/2006	**19.81**	**13.83**	**ND<50**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<5.0**	

Table 3. Groundwater Analytical and Elevation Data: Petroleum Hydrocarbons - Chiu Property, 800 Franklin Street, Oakland, California

Well ID *TOC Elevation* (ft amsl)	Date Sampled	Depth to Water (ft below TOC)	Groundwater Elevation (feet amsl)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
				← µg/L →						
		ESLs for a potential drinking water resource:		100	1.0	40	30	20	5.0	
MW-5	10/31/1991	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	(8)
33.51	11/6/1991	24.00	9.51	ND	ND	ND	ND	ND	--	
	10/21/1992	23.24	10.27	840	17	120	39	180	--	
33.56	2/25/1993	22.40	11.16	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	
	4/27/1993	22.15	11.41	260	53	19	1.2	2.4	--	
	10/7/1993	--	11.06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	
	3/28/1994	--	10.95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	
	4/29/1994	--	10.91	--	--	--	--	--	--	
	6/10/1994	--	10.68	--	--	--	--	--	--	
	7/8/1994	--	10.60	--	--	--	--	--	--	
	7/26/1994	--	10.45	--	--	--	--	--	--	
	8/25/1994	--	10.28	--	--	--	--	--	--	
	10/27/1994	23.50	10.06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	
	1/6/1995	--	10.78	--	--	--	--	--	--	
	2/1/1995	--	11.25	--	--	--	--	--	--	
	3/29/1995	--	11.63	--	--	--	--	--	--	
	10/31/1995	--	10.64	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	
	5/21/1997	--	11.04	260	2.4	33	7.7	56	ND<5.0	
	9/28/2004	23.70	9.86	ND<50	ND<0.5	ND<0.5	ND<0.5	1.5	ND<5.0	
	12/21/2004	21.40	12.16	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	3/11/2005	21.40	12.16	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	6/16/2005	21.63	11.93	ND<50 (i)	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	9/1/2005	21.65	11.91	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	12/16/2005	21.94	11.62	ND<50 (i)	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	3/10/2006	**21.11**	**12.45**	**ND<50**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<5.0**	

Table 3. Groundwater Analytical and Elevation Data: Petroleum Hydrocarbons - Chiu Property, 800 Franklin Street, Oakland, California

Well ID *TOC Elevation* (ft amsl)	Date Sampled	Depth to Water (ft below TOC)	Groundwater Elevation (feet amsl)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
				← µg/L →						
		ESLs for a potential drinking water resource:		100	1.0	40	30	20	5.0	
MW-6	5/21/1997	--	11.26	760	2.5	1.7	ND<0.50	25	10	
33.98	9/28/2004	24.00	9.98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	12/21/2004	21.61	12.37	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	
	3/11/2005	21.60	12.38	340 (a)	1.9	2.6	0.68	0.61	ND<5.0	
	6/16/2005	21.81	12.17	1,300 (a)	58	8.3	6.1	4.0	ND<25	
	9/1/2005	21.82	12.16	1,900 (a)	150	19	18	76	ND<12	
	12/16/2005	22.03	11.95	3,600 (a,i)	560	63	33	230	ND<50	
	3/10/2006	**21.46**	**12.52**	**2,200 (a)**	**240**	**10**	**20**	**87**	**ND<50**	

Abbreviations:

ND<5.0 = Not detected above detection limit.

-- = Not available, not analyzed, or does not apply

TOC = Top of casing

ft = Measured in feet

amsl = Above mean sea level

µg/L = Micrograms per liter

TPHg = Total petroleum hydrocarbons as gasoline by EPA Method SW8015C.

Benzene, toluene, ethylbenzene, and xylenes by EPA Method SW8021B.

MTBE = Methyl tertiary-butyl ether by EPA Method SW8021B.

Notes:

(a) = unmodified or weakly modified gasoline is significant

(i) = liquid sample that contains ~1 vol. % sediment

(1) = (8.6 µg/L) 1,2 Dichloroethane, (0.8 µg/L) chloroform

(2) = (3,900 µg/L) TPH as waste oil

(3) = (70.0 µg/L) 1,2 Dichloroethane, (4,500 µg/L) TPH as waste oil

(4) = (9.8 µg/L) 1,2 Dichloroethane, (1,700 µg/L) TPH as waste oil, (960 µg/L) TPH as diesel

(5) = (170 µg/L) 1,2 Dichloroethane, (1,500 µg/L) TPH as diesel

(6) = (58 µg/L) 1,2 Dichloroethane, (25,000 µg/L) TPH as diesel

(7) = (2.6 µg/L) Chloroform

(8) = (1.1 µg/L) Chloroform

ESLs = Environmental Screening Levels from the San Francisco Bay Regional Water Quality Control Board's *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater,* Volume 1, Summary Tier 1 Lookup Tables, Interim Final February 2005.

† = Groundwater elevation calculated using survey data from October 11, 1989. TOC elevations were 33.42 ft amsl for MW-1, 33.65 ft amsl for MW-2, and 34.23 ft amsl for MW-3.

+ = Unable to access well due to denial by current tenant or tenant business closed.

Data collected prior to August 10, 2004 is from previous consultant's reports.

Appendix A

Agency Correspondence

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

April 7, 2006

Mr. Tommy Chiu
P.O. Box 28194
Oakland, CA 94606

Subject: Fuel Leak Case No. RO0000196, Bill Louie's Auto Service, 800 Franklin Street, Oakland, CA

Dear Mr. Chiu:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the subject site. In addition, Jerry Wickham and Donna Drogos of ACEH met with you and Matt Meyers and Mark Jonas of Cambria Environmental Technology, Inc. on April 4, 2006 to discuss the status of the case. Based on the case file review and meeting, we have the following requests for information and technical comments. We request that you address the following request for information and technical comments, and send us the reports described below.

REQUEST FOR INFORMATION

As discussed during our April 4, 2006 meeting, ACEH's case files appear to be incomplete. We request that you provide copies of historic documents that are not in ACEH files and are relevant to the fuel leak case. The list below identifies documents currently in the ACEH case files. In addition, we have also identified several documents that are referenced in the available reports but are not found in ACEH case files. We request that you submit copies of the missing reports or other documents you have documenting additional investigation activities or other work related to this fuel leak case/site.

Documents Currently in ACEH Files:

Miller Environmental Company. 1990. "Workplan for Continuing Investigation at 800 Franklin," June 6, 1990

Miller Environmental Company. 1989. "Workplan for Subsurface Investigation and Remediation of Contaminated Soil," August 24, 1989.

Miller Environmental Company. 1989. "Amendment to Workplan for Subsurface Investigation and Remediation of Contaminated Soil," September 1, 1989.

Robert J. Miller Company. 1989. "Laboratory Results for S2, W1, W2a, SP1, SP3, and T4," July 14, 1989.

KDM Environmental, Inc. 1992. "Quarterly Monitoring of Wells – Third Quarter 1992," November 13, 1992

KDM Environmental, Inc. 1993. "Quarterly Monitoring of Wells – Fourth Quarter 1992," March 8, 1993.

KDM Environmental, Inc. 1993. "Quarterly Monitoring of Wells – First Quarter 1993," June 16, 1993.

Frank Lee and Associates. 1993. "Workplan for Active Fuel Leak Investigation and Remediation," September 15, 1993.

Frank Lee and Associates. 1993. "Transmittal of Testing Results," October 22, 1993.

KDM Environmental, Inc. 1992. "Quarterly Monitoring of Wells – Third Quarter 1992," November 13, 1992

Associated Terra Consultants, Inc. 1994. "Environmental Monitoring Report – Second Quarter 1994," July 15, 1994.

Associated Terra Consultants, Inc. 1994. "Report of Sampling and Testing Results, Third Quarter 1994," November 17, 1994.

Associated Terra Consultants, Inc. 1995. "Environmental Monitoring Report – Fourth Quarter 1994," March 29, 1995.

Associated Terra Consultants, Inc. 1995. "Environmental Monitoring Report – October 1995," November 30, 1995.

Associated Terra Consultants, Inc. 1995. "Work Plan, Environmental Remediation Work," July 24, 1995.

Associated Terra Consultants, Inc. 1997. "Environmental Monitoring Report – May 1997," October 10, 1997.

Cambria. 2004. "Groundwater Monitoring Report – Third Quarter 2004," October 28, 2004.

Cambria. 2005. "Groundwater Monitoring Report – Fourth Quarter 2004," February 1, 2005.

Cambria. 2005. "Groundwater Monitoring Report – First Quarter 2005," March 23, 2005.

Cambria. 2005. "Groundwater Monitoring Report – Second Quarter 2005," July 8, 2005.

Cambria. 2006. "Groundwater Monitoring Report – Fourth Quarter 2005," January 24, 2006.

Missing Data or Reports:

November 3, 1989 Report with Soil Sample Results from September 7, 1989 Overexcavation

Results from Soil Borings

TECHNICAL COMMENTS

1. **Building Foundation.** Based on our discussions during the April 4, 2006 meeting, the on-site building covers nearly the entire property parcel. Please provide any available information on the construction of the building foundation. This information is particularly relevant with regard to the removal of contaminated soil, which may act as a long-term source of contamination, and the potential for indoor vapor intrusion. We have attached correspondence dated December 18, 1989 from ACEH files, which indicates that the planned foundation would extend to depths of 11 to 14 feet below grade. Please indicate whether the information with regard to the planned foundation is accurate. Please also provide any other relevant additional information on the foundation construction that will help evaluate the potential for indoor vapor intrusion of volatile organic compounds from the underlying soil and groundwater. This includes the observed soil conditions during the foundation construction. The June 6, 1990 Workplan for Continuing Investigation at 800 Franklin describes the removal of two underground storage tanks (USTs) from the central portion of the site and removal of two USTs from the sidewalk along Franklin Street. A fifth UST is suspected to have been removed from the north central portion of the site prior to August 1988 but no information is presented in the 1990 Workplan regarding the contents or removal of the UST. Please provide any historical information on the history or removal of this UST or the observed conditions in the vicinity of the UST during foundation construction.

2. **Potential Vapor Intrusion.** The concentration of benzene detected in groundwater samples collected from monitoring well MW-3 historically has exceeded the Environmental Screening Level (1,800 micrograms per liter) for potential indoor air vapor intrusion to commercial buildings (San Francisco Bay Regional Water Quality Control Board February 2005). Based on review of the information regarding soil removal and the building foundation construction requested in technical comment 1 above, please present recommendations and supporting information in the Response to Agency Comments requested below regarding the need for further evaluation of potential vapor intrusion.

3. **Volatile Organic Compounds.** The only analytical data for volatile organic compounds (VOCs) other than BTEX and MTBE appear to be for soil samples collected during the tank removals. Due to the presence of a solvent tank, waste oil tank, and tank of unknown use, analyses of groundwater for VOCs will be required. Please provide any additional VOC analytical data not in the ACEH files and present recommendations for future sampling for VOCs and other analytes based on the site history. Please present these recommendations in the Response to Agency Comments requested below.

4. **Hydraulic Gradient and Off-site Receptors.** The hydraulic gradient for the site has been consistently to the northwest based on historic water level data from the existing monitoring wells. This apparent hydraulic gradient is not consistent with the regional groundwater flow direction, which is expected to be to the south or southwest. We request that you evaluate the potential for preferential pathways or man-made drainage features to locally affect the hydraulic gradient. Specifically, we request that you obtain information on the potential for the submerged BART tube immediately northwest of the site to locally affect groundwater flow direction. In addition, please review the potential for any nearby building foundation dewatering systems to extract groundwater and potentially affect the hydraulic gradient. If any of these potential preferential pathways or man-made drainage features are identified,

please obtain information on where the water is discharged. Please present this information in the Response to Agency Comments requested below.

5. **Well MW-3.** Well MW-3 should be properly decommissioned. Please present plans to decommission and replace well MW-3 in the Response to Agency Comments requested below.

6. **Groundwater Monitoring.** Groundwater monitoring is to be conducted in all existing wells on a semi-annual basis. Please present plans and a schedule in the Response to Agency Comments requested below to conduct semi-annual groundwater monitoring at the site.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Mr. Jerry Wickham), according to the following schedule:

- **June 30, 2006** – Response to Agency Comments and Work Plan to Replace Monitoring Well MW-3

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

Submission of reports to the Alameda County ftp site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

In order to facilitate electronic correspondence, we request that you provide up to date electronic mail addresses for all responsible and interested parties. Please provide current electronic mail

addresses and notify us of future changes to electronic mail addresses by sending an electronic mail message to me at jerry.wickham@acgov.org.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

If you have any questions, please call me at (510) 567-6791.

Sincerely,

Jerry Wickham

Jerry Wickham, P.G.
Hazardous Materials Specialist

Attachment: December 18, 1989 Correspondence from Miller Environmental Company

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Matt Meyer
Cambria Environmental Technology, Inc.
5900 Hollis Street, Suite A
Emeryville, CA 94608

Mark Jonas
Cambria Environmental Technology, Inc.
5900 Hollis Street, Suite A
Emeryville, CA 94608

Donna Drogos, ACEH
Jerry Wickham, ACEH
File

ENVIRONMENTAL ENGINEERING • HYDROGEOLOGY • SITE ASSESSMENTS
• REMEDIATION OF CONTAMINATED SOIL AND GROUNDWATER •

MILLER ENVIRONMENTAL COMPANY

631 MARINA WAY SOUTH
RICHMOND, CALIFORNIA 94804
(415) 233-9068
FAX (415) 233-0140

December 18, 1989

Dennis Byrne
Division of Hazardous Materials
Alameda County Health Services Agency
80 Swan Way Room 200
Oakland, CA 94621

Re: Building Permit/Response to Subsurface Investigation
800 Franklin St., Oakland, CA

Dear Mr. Byrne,

Approximately three weeks ago I spoke with you regarding our clients intention to construct a retail/office building at 800 Franklin in Oakland. At your request I have enclosed a preliminary drawing and brief description of the proposed building that was provided by Sue Associates, the architects for the site.

As you are aware, Miller Environmental Company has performed subsurface investigation and remediation work at the site which included excavation and disposal of contaminated soil.

Our "Report on Subsurface Investigation and Remediation of Contaminated Soil" was forwarded to you November 9, 1989. The source of contamination within the borders of the property has been effectively removed, based on results of soil sampling and field observations. However, subsurface contamination downgradient of the site does exist.

Because of the advance planning and considerable expense involved, our client would like to know as soon as possible whether the remediation performed to date is sufficient to permit building at the site. It is the professional opinion of Miller Environmental Company that the soil within the site is sufficiently remediated to allow construction at the site. The foundation construction shall be at an approximate depth of 14 feet. Groundwater, existing at an approximate depth of 23 feet, will not be encountered during construction.

As of yet our client has not received a written response to the investigation report. They are aware that additional

investigation will likely be required in order to assess the full extent of downgradient contamination. Please issue a written response to the report which includes your requirements for continued monitoring, along with a response to the building permit inquiry.

If you have any questions regarding this site please do not hesitate to call me at 233-9068.

Sincerely,
MILLER ENVIRONMENTAL COMPANY

Jeff Caton
Environmental Engineer

cc: Tai-Ling Tsou
James Stanford
File 89-1003

SUE ASSOCIATES
ARCHITECTURE & PLANNING

812 FIFTH AVENUE
OAKLAND. CA 94606
415.834.2400

December 13, 1989

Mr. Jeff Caton
Miller Environment Inc.
631 Marina Way South
Richmond, CA 94804

RE: 800 FRANKLIN STREET

Dear Mr. Caton:

Reference to your enquiry, the above proposed project is a three story, 10,000 sq. ft., retail/office builing at 800 Franklin Street, Oakland, California. It has a basement with 11 feet in height. The foundation consist of concrete footings at the interior columns and concrete slab floor. The foundation construction is at an approximate depth of 14 feet below pavement level. Within the property line, some adjacent underpinning may be required to the same depths.

If there are any questions or comments regarding the above, please do not hesitate to contact me at this office.

Sincerely,

Tian Feng
Project Designer

TF:kl

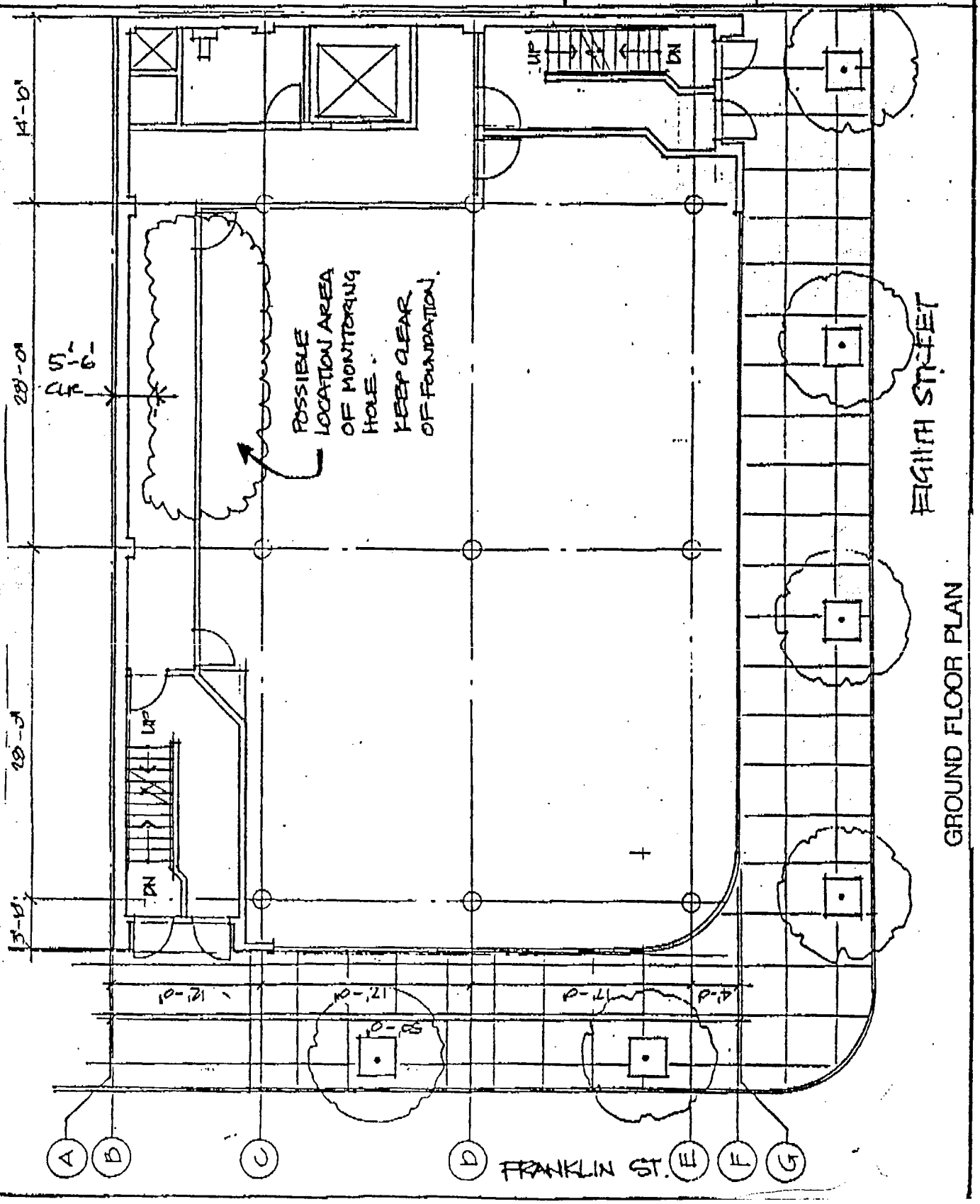
cc: Tommy Chiu

SUE ASSOCIATES

PLANNING • ARCHITECTURE (415) 834-2400

800 FRANKLIN STREET
OAKLAND, CALIFORNIA

DATE 8-18-89	JOB No.:
DESIGNED BY	SHEET No.
APPROVED	



Appendix B

Soil Boring Logs and Well Construction Details

BORING LOG B-1

JOB NO: 8854-S1

DATE DRILLED: 5-3-88

JOB NAME: 800 Franklin St., Oakland

SURFACE ELEV.: Approx. 35'

EQUIPMENT: DRILLING 6" cont. flight auger

DATUM MSL

SAMPLER TYPE	DRIVE WEIGHT-LB	HEIGHT OF FALL-IN
California Modified	140	30

Sample	Blows per ft	Moisture Content %	Dry Unit Weight pcf	Depth in feet	USCS Classification	Description
					SM	Silty fine sand, mottled yellowish-brown and brown, moist, loose.
B-1-1	7	10.4	98.8			Medium dense.
						Color changes to yellowish-brown.
				5		
B-1-2	45	12.8	106.4			Dense.
				10		
						Boring terminated at 10 feet deep. No free ground water encountered.

FILE

BORING LOG B-2

JOB NO: 8864-S1 DATE DRILLED: 5-3-88

JOB NAME: 800 Franklin Street, Oakland SURFACE ELEV.: Approx. 35'

EQUIPMENT: DRILLING 6" cont. flight auger DATUM: MSL

SAMPLER TYPE	DRIVE WEIGHT-LB	HEIGHT OF FALL-IN
California Modified	140	30

Sample	Blows per ft	Moisture Content %	Dry Unit Weight pcf	Depth in feet	USCS Classification	Description
					SM	Silty sand, brown, moist, medium dense.
				5		Color changes to yellowish-brown.
				10		
B-2-1	45			15		Less fines.
B-2-2	50/9"	13.7	96.3	20		Some silt.
						Boring terminated at 20 feet deep. No free ground water encountered

BORING LOG B-3

JOB NO: 8864-S1

DATE DRILLED: 5-3-88

JOB NAME: 800 Franklin Street, Oakland

SURFACE ELEV.: Approx. 35'

EQUIPMENT: DRILLING 6" cont. flight auger

DATUM MSL

SAMPLER TYPE	DRIVE WEIGHT - LB	HEIGHT OF FALL - IN
California Modified	140	30

Sample	Blows per ft	Moisture Content %	Dry Unit Weight pcf	Depth in feet	USCS Classification	Description
B-3-1	8	11.6	107.0		SM	Silty sand with some gravel, brown, moist, stiff: baserock.
						Some clay, gray, green and brown: tank backfill?
B-3-2	12	17.9	102.6	5		
					ML	Sandy silt, dark gray, moist, low plasticity, firm to stiff: tank backfill?
B-3-3	50	11.8	110.4	10	SM	Silty fine sand, grayish-green, moist, dense: tank backfill?
						Slight petroleum odor?
B-3-4	45	13.3	114.2	15		Slight petroleum odor?
						End of backfill 15½ feet?
						Color changes to yellowish-brown.
B-3-5	50 6"	15.1	108.9	20		

FILE

BORING LOG B-3 (cont.)

JOB NO.: 8864-S1

JOB NAME: 800 Franklin Street, Oakland

SHEET 2 OF 2

DEPTH 20 TO 28½ FT.

Sample	Blows per ft.	Moisture Content %	Dry Unit Weight p.c.f.	Depth in feet	USCS Classification	
				20		
B-3-6	50/6"			25		Petroleum odor? Partial recovery.
				30		Boring terminated at 28½ feet deep. Free ground water encountered at 28 feet deep. Boring backfilled with cement grout to 23½ feet.

FILE

FRANK LEE & ASSOCIATES

BORING LOG B-4

COB NO: 8864-S1

DATE DRILLED: 5-3-88

JOB NAME: 800 Franklin Street, Oakland

SURFACE ELEV.: Approx. 35'

EQUIPMENT: DRILLING 8" cont. flight auger

DATUM: MSL

SAMPLER TYPE	DRIVE WEIGHT - LB	HEIGHT OF FALL - IN
California Modified	140	30

Sample	Blows per ft	Moisture Content %	Dry Unit Weight pcf	Depth in feet	USCS Classification	Description
B-4-1	8	13.1	111.7		ML	Silt, brown, moist, low plasticity, soft: artificial fill? Some sand and gravel.
B-4-2	11			5	CL	Sandy clay, mottled light and dark brown, moist, low plasticity; metal objects: artificial fill, old tank removal backfill.
				10		Boring terminated at 6 feet deep due to refusal (obstruction in fill). No free ground water encountered.

FILE

BORING LOG

PROJECT NO: 90-1008	PROJECT NAME: CHIU	BORING NO: B1
LOCATION: 800 FRANKLIN ST., OAKLAND, CA		DATE: 09/11/91
GEOLOGIST: REINHARD RUHMKE		PAGE 1 OF 1
GROUND WATER DEPTH: 25 FEET		DRILLER: HEW
DRILLING METHODS: HOLLOW-STEM AUGER		

DEPTH	SAMPLE	RECOVERY	BLOWS	DESCRIPTION	USCS	GRAPHIC SYMBOL	WELL CONSTRUCTION
0				8 INCHES CONCRETE			
5	B1-5	18"	10 13 16	LIGHT BROWN FINE SAND; LOOSE; DRY.	SP		
10	B1-10	18"	9 11 11	GRAYISH-GREEN FINE SAND; LOOSE; DRY; ODOR	SP		
15	B1-15	8"	6 10 14				
20	B1-20	18"	7 13 18	OLIVE-GRAY BROWN FINE SAND; MOTTLED; ODOR; DRY.	SP		
25	B1-25	18"	7 21 28	DARK GRAY FINE SAND; WET; ODOR; END OF BORING.			

REMARKS

BOREHOLE WAS BACKFILLED WITH NEAT CEMENT

MILLER ENVIRONMENTAL COMPANY
RICHMOND, CA

BORING LOG

PROJECT NO: 90-1008	PROJECT NAME: CHIU	BORING NO: B2
LOCATION: 800 FRANKLIN ST., OAKLAND, CA		DATE: 10/02/91
GEOLOGIST: REINHARD RUHMKE		PAGE 1 OF 1
GROUND WATER DEPTH: 26 FEET		DRILLER: HEW
DRILLING METHODS: HOLLOW-STEM AUGER		

DEPTH	SAMPLE	RECOVERY	BLOWS	DESCRIPTION	USCS	GRAPHIC SYMBOL	WELL CONSTRUCTION
0				8 INCHES CONCRETE			
1–4				LIGHT BROWN FINE SAND; LOOSE; DRY.			
5	B2-5	18"	7, 11, 14	A LITTLE CLAY.	SP		
6–9				NO CLAY.			
10	B2-10	14"	10, 12, 15	BROWN FINE SAND; LOOSE; DRY.			
11–14							
15	B2-15	4"	6, 12, 14	MOIST	SP		
16–19							
20	B2-20	18"	14, 18, 19	OLIVE-GRAY FINE SAND; SLIGHT ODOR; DRY	SP		
21–24							
25	B2-25	2"	7, 7, 10	DARK GRAY FINE SAND; WET; ODOR; END OF BORING			
26–30							

REMARKS

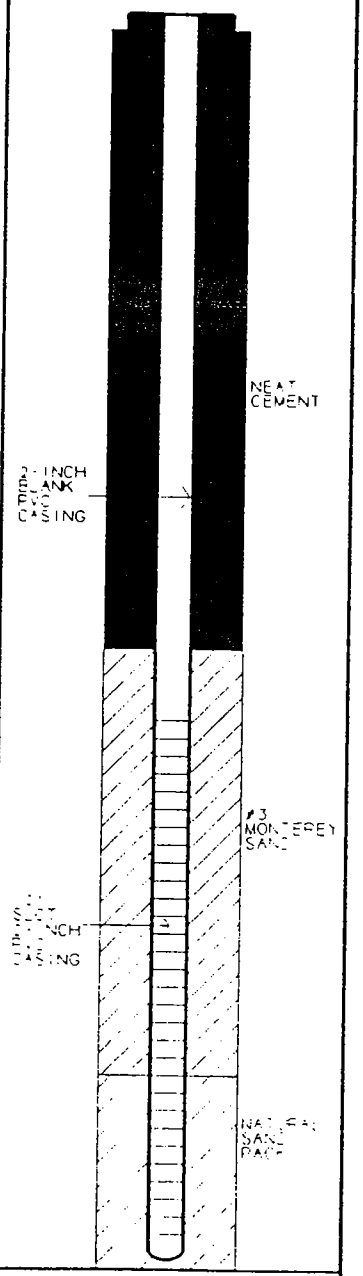
BOREHOLE WAS BACKFILLED WITH NEAT CEMENT

MILLER ENVIRONMENTAL COMPANY
RICHMOND, CA

BORING LOG

PROJECT NO: 90-1008	PROJECT NAME: CHIU	BORING NO: MW4
LOCATION: 800 FRANKLIN ST., OAKLAND, CA		DATE: 10/02/91
GEOLOGIST: REINHARD RUHMKE		PAGE 1 OF 1
GROUND WATER DEPTH: 25 FEET		DRILLER: HEW
DRILLING METHODS: HOLLOW-STEM AUGER		

DEPTH	SAMPLE	RECOVERY	BLOWS	DESCRIPTION	USCS	GRAPHIC SYMBOL	WELL CONSTRUCTION
0				8 INCHES CONCRETE			
5	MW4-5	18"	4 4 5	BROWN FINE SAND: LOOSE. DRY	SP		
10	MW4-10	14"	12 15 16				
15	MW4-15	14"	5 6 9				
18				GRAY FINE SAND: LOOSE: DRY: ODOR	SP		
20	MW4-20	12"	12 18 21				
25	MW4-25		13 24 25	WET	SP		
35				END OF BORING			



REMARKS

A NATURAL FILTER PACK WAS GENERATED DUE TO FLOWING SANDS

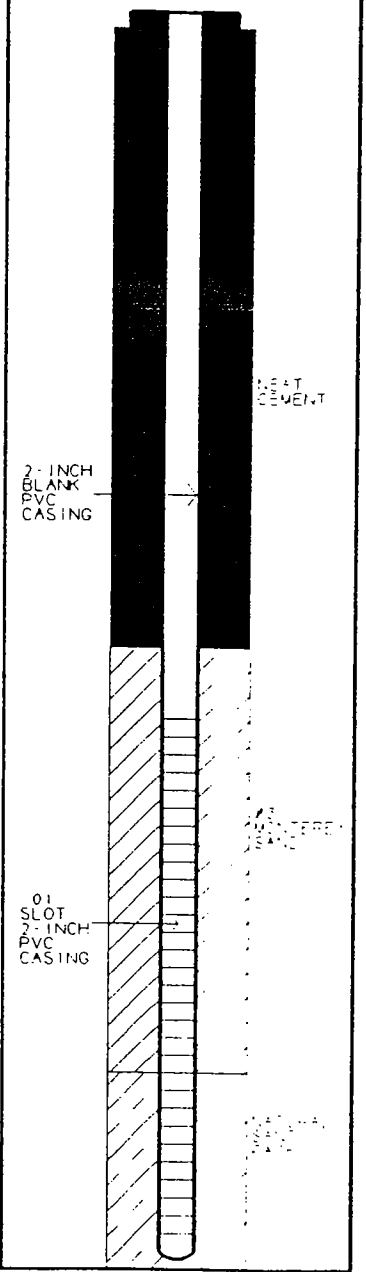
MILLER ENVIRONMENTAL COMPANY
RICHMOND, CA

BORING LOG

PROJECT NO: 90-1008	PROJECT NAME: CHIU	BORING NO: MW5
LOCATION: 800 FRANKLIN ST., OAKLAND, CA		DATE: 10/03/91
GEOLOGIST: REINHARD RUHMKE		PAGE 1 OF 1
GROUND WATER DEPTH: 26 FEET		DRILLER: HEW
DRILLING METHODS: HOLLOW-STEM AUGER		

DEPTH	SAMPLE	RECOVERY	BLOWS	DESCRIPTION	USCS	GRAPHIC SYMBOL	WELL CONSTRUCTION
0				8 INCHES CONCRETE			
5	MW5-5	10"	12 12 13				
7				RUSTY BROWN SILTY FINE SAND: LOOSE: DRY	SP		
10	MW5-10	18"	10 12 14	A LITTLE CLAY			
13				NO CLAY OR SILT			
15	MW5-15	8"	5 8 11				
18					SP		
20	MW5-20	8"	13 19 23	A LITTLE CLAY			
23				NO CLAY			
25	MW5-25	8"	12 19 34	WET			
30					SP		
35				END OF BORING			

WELL CONSTRUCTION



REMARKS

A NATURAL FILTER PACK WAS GENERATED DUE TO FLOWING SANDS

MILLER ENVIRONMENTAL COMPANY
RICHMOND, CA

File No: 124575

LOG OF MONITORING WELL - MW-6

Client: Chiu
Site: 800 Franklin St.
Drillers: Kvilhaug
Drill Rig: B-61
Auger Type/Size: 8" hollow stem
Top of Casing Elevation: 33 (Local Datum)

Logged By: RH
Approved By:
Date Completed: May 15, 1997
Casing Diameter: 2 in.
Screen Size: .010
Filter pack: #3 sand

Symbols used explained on "Key to Boring Logs"

Sample Number	Sampler	Blows per foot	F.I.D. Reading (ppm)	Dry Unit Weight p.c.f.	Well Data	Depth in feet	U.S. C.S.	Surface Conditions: Concrete Description
						0		**Concrete Slab.**
								Baserock, grayish-brown crushed rock.
								Sand, medium-grained, brown, slightly damp to damp, dense; no odor.
								Some clay
B6-1		48				5		
								Easy drilling.
						10		No odor.
B6-2		24						
								Increased sand, decreased clay, moisture change to wet.
						15		**Clayey sand,** medium-grained, grayish-green, damp, dense; some petroleum hydrocarbon odor.
B6-3A B6-3B		42						
								Sand, medium- to coarse-grained, greenish-gray, damp, dense.
						20		

File No: 124575

LOG OF MONITORING WELL MW- 6 (Continued)

Sample Number	Sampler	Blows per foot	F.I.D. Reading (ppm)	Dry Unit Weight p.c.f.	Well Data	Depth in feet	U.S. C.S.	Description
B6-4A B6-4B		42				20		
						▽		Color change to gray.
						25		
B6-5A B6-5B		97						
						30		Change color to grayish-green.
B6-6A B6-6B		50						
						35		
B6-11		14						
								Bottom of hole at 36-1/4 ft. Free groundwater encountered at 22-1/2 ft.
						40		
						45		

KEY TO BORING LOGS

BORING LOG SYMBOL

—	Geologic contact line
═	Termination of boring
▽	Water level, preliminary measurement
▼	Water level, stabilized

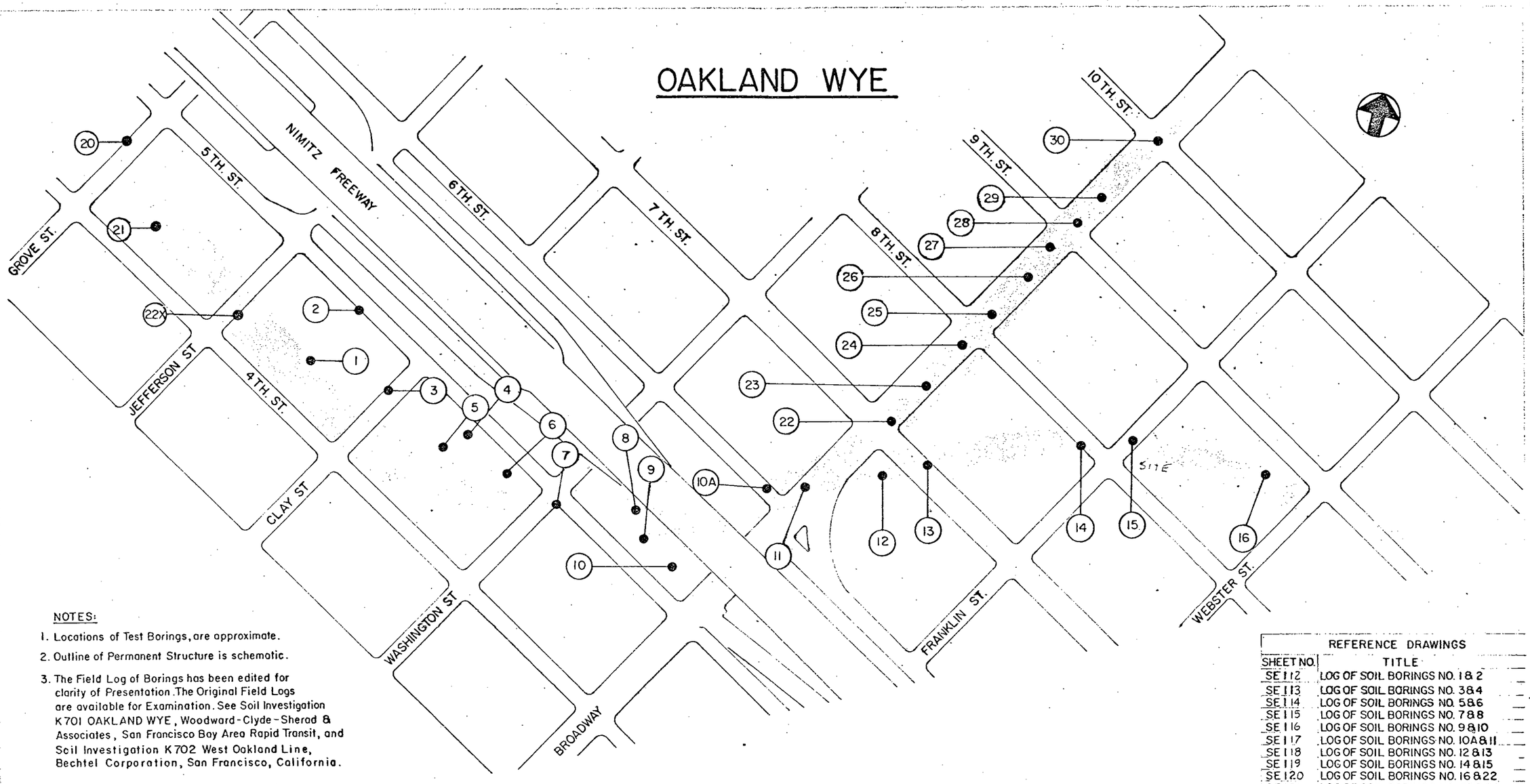
SAMPLE RECOVERY

■	Undisturbed sample, retained for lab testing
▯	Sampler drive distance, sample examined in the field
☒	No sample recovered
SPT	Standard Penetration Test

SOIL SAMPLE TYPE

C	California
CM	California Modified
HS	Driven manual Hand Sampler
NQ	NQ Wireline
P	Piston
PB	Pitcher Barrel
SS	Split Spoon (Terzaghi)

OAKLAND WYE



NOTES:

1. Locations of Test Borings, are approximate.
2. Outline of Permanent Structure is schematic.
3. The Field Log of Borings has been edited for clarity of Presentation. The Original Field Logs are available for Examination. See Soil Investigation K701 OAKLAND WYE, Woodward-Clyde-Sherad & Associates, San Francisco Bay Area Rapid Transit, and Soil Investigation K702 West Oakland Line, Bechtel Corporation, San Francisco, California.

REFERENCE DRAWINGS	
SHEET NO.	TITLE
SE112	LOG OF SOIL BORINGS NO. 1 & 2
SE113	LOG OF SOIL BORINGS NO. 3 & 4
SE114	LOG OF SOIL BORINGS NO. 5 & 6
SE115	LOG OF SOIL BORINGS NO. 7 & 8
SE116	LOG OF SOIL BORINGS NO. 9 & 10
SE117	LOG OF SOIL BORINGS NO. 10A & 11
SE118	LOG OF SOIL BORINGS NO. 12 & 13
SE119	LOG OF SOIL BORINGS NO. 14 & 15
SE120	LOG OF SOIL BORINGS NO. 16 & 22
SE121	LOG OF SOIL BORINGS NO. 23 & 24
SE122	LOG OF SOIL BORINGS NO. 25 & 26
SE123	LOG OF SOIL BORING NO. 27
SE124	LOG OF SOIL BORINGS NO. 28 & 29
SE125	LOG OF SOIL BORING NO. 30
SE126	LOG OF SOIL BORING NO. 20 & 21
SE127	LOG OF SOIL BORING NO. 22X

AS-BUILT

W. Mc MAHON
I. A. BROWNE
F. J. KORP
A. J. BIRKMYER
27 JUN 1967

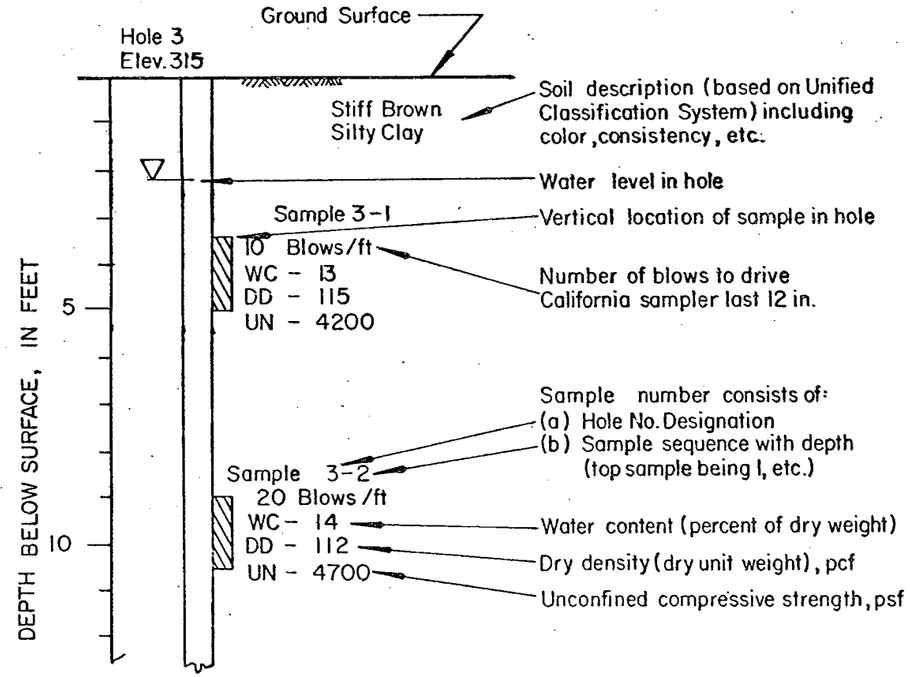
REGISTERED CIVIL ENGINEER
J. GEORGE THOR
NO. 8397
STATE OF CALIFORNIA

BECHTEL CORPORATION
ENGINEERS
SAN FRANCISCO

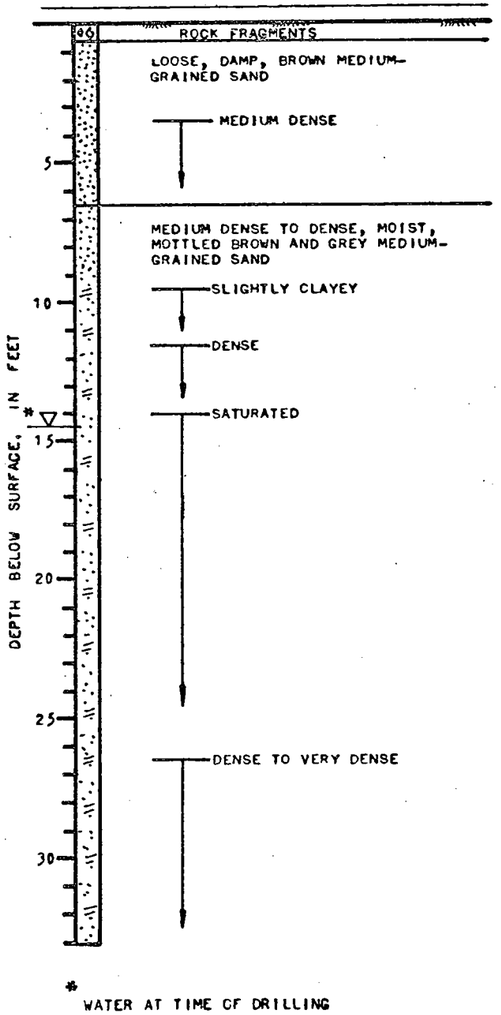
J. G. Thor F. R. Kunst

OAKLAND DOWNTOWN
LOGS OF SOIL BORINGS IK0061-K006
LOCATION PLAN SE111-C 183

190

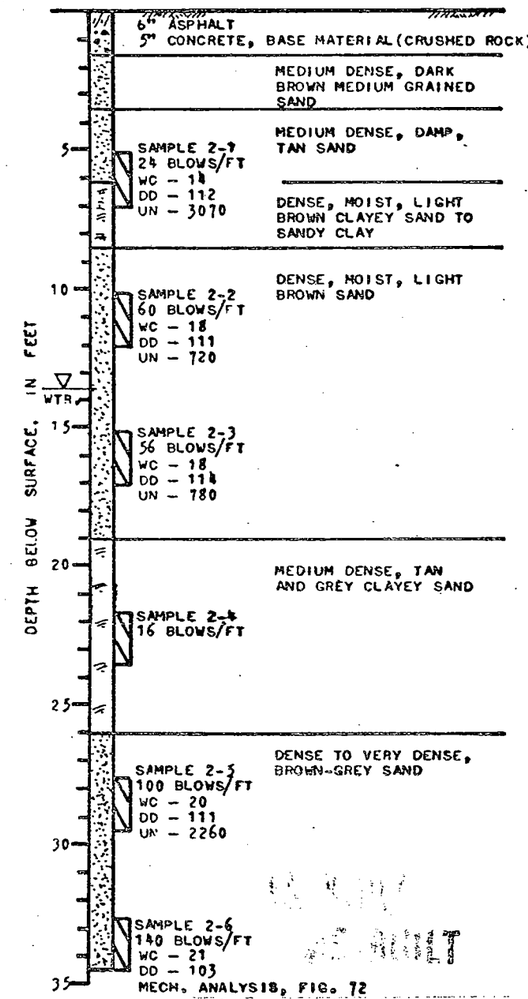


BORING NUMBER: K001 - 1
LOCATION: 100' NORTH OF 4TH STREET 162' WEST OF CLAY STREET
DATE DRILLED: 10-19-63
ELEVATION: +16
TYPE OF BORING: 6" AUGER
PROPOSED GRADE OF LOWER RAIL: +13.5
REMARKS: BACKFILLED 10-22-63



* WATER AT TIME OF DRILLING

BORING NUMBER: K001 - 2
LOCATION: 5TH ST., 160' W. OF CLAY ST
DATE DRILLED: 10-10-63
ELEVATION: +16
TYPE OF BORING: WASH
PROPOSED GRADE OF LOWER RAIL: +13.5
REMARKS: BACKFILLED 10-25-63



SEE Location of Soil Borings SHEET NO. TITLE TERRENCE DRAWINGS

REV.	DATE	BY	SUB	APP	DESCRIPTION	REV.	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY
DRAWN BY K.REPROBATION
CHECKED BY
IN CHARGE A.J. SINKMYER
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER J. GEORGE THOB NO. 8397 STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SIGNATURE

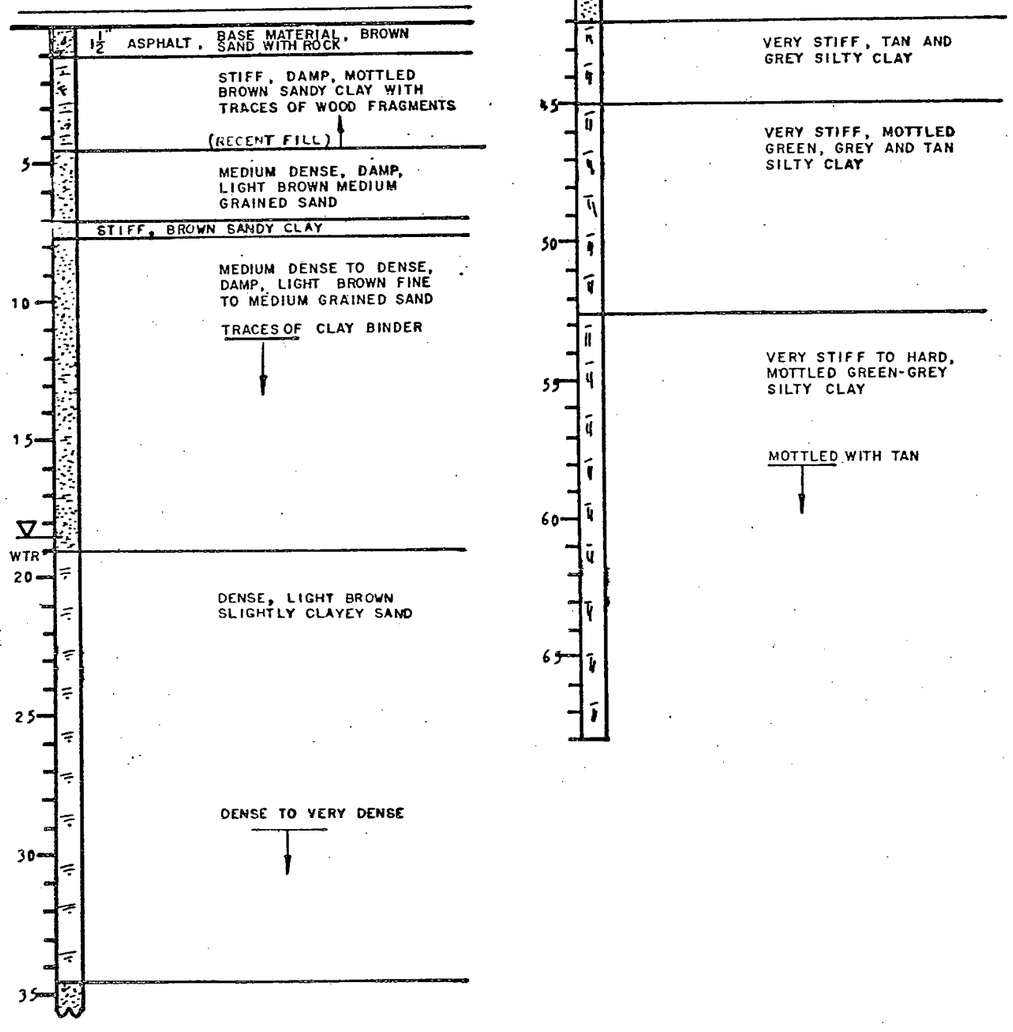
PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN

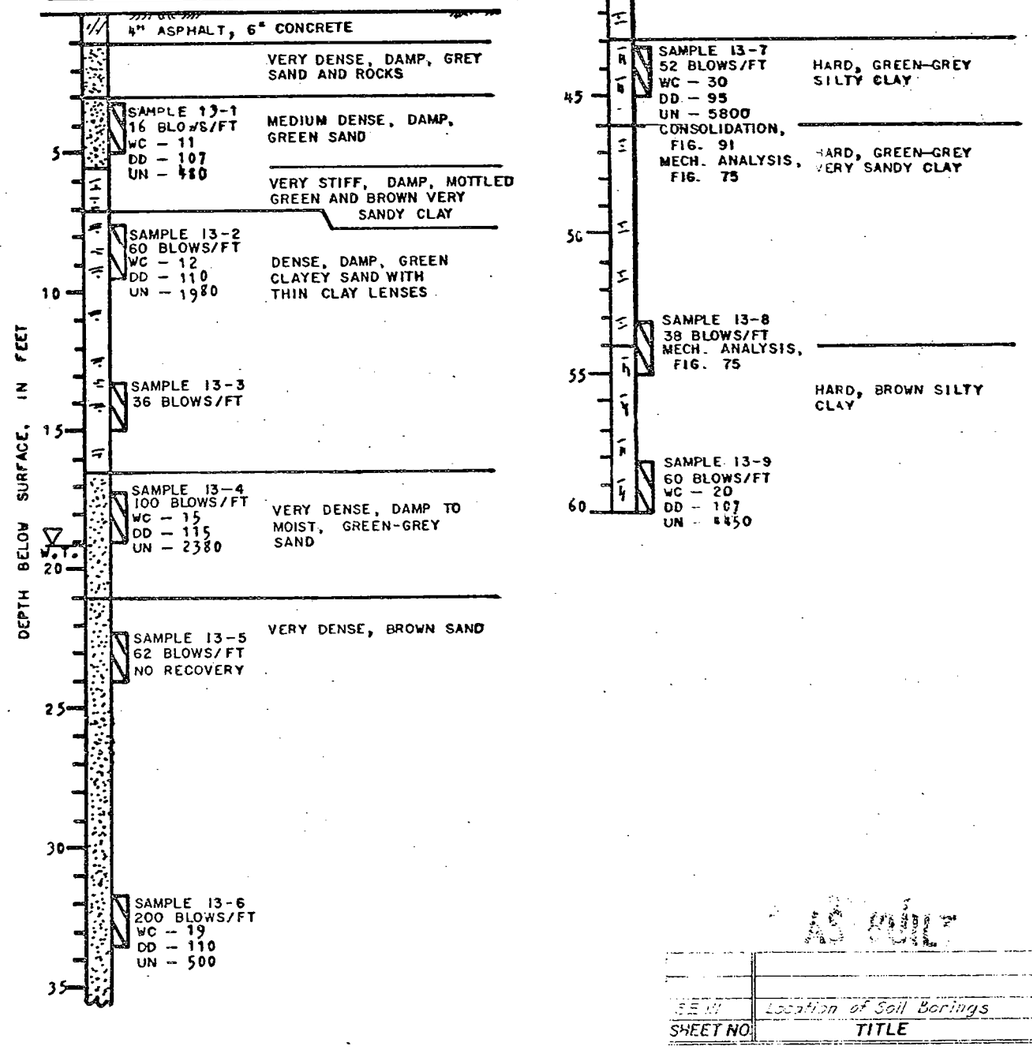
LOG OF SOIL BORINGS
BORINGS 1 AND 2

SCALE NONE
CONTRACT - PACKAGE IK0061-K006
SHEET NO. - REV. SE112-C
PAGE NO. 184

BORING NUMBER: K001 - 12
LOCATION: CHEVRON STATION - BROADWAY
DATE DRILLED: 10-29-63
ELEVATION: +29
TYPE OF BORING: 6" AUGER
PROPOSED GRADE OF LOWER RAIL: -19
REMARKS: BACKFILLED 11-1-63



BORING NUMBER: K001 - 13
LOCATION: ON 7TH ST. 90' E. OF BROADWAY
DATE DRILLED: 10-8-63
ELEVATION: +30
TYPE OF BORING: 6" AUGER
PROPOSED GRADE OF LOWER RAIL: -16.5
REMARKS: 1½" PIEZOMETER INSTALLED



AS BUILT

DRAWING NO.	Location of Soil Borings
SHEET NO.	TITLE

REFERENCE DRAWINGS

NO.	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY
DRAWN BY REITZ/DICTSON
CHECKED BY
IN CHARGE A.J. BIKEMYER
DATE 21 JUN 1967

REGISTERED CIVIL ENGINEER J. GEORGE THOR NO. 8397 CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

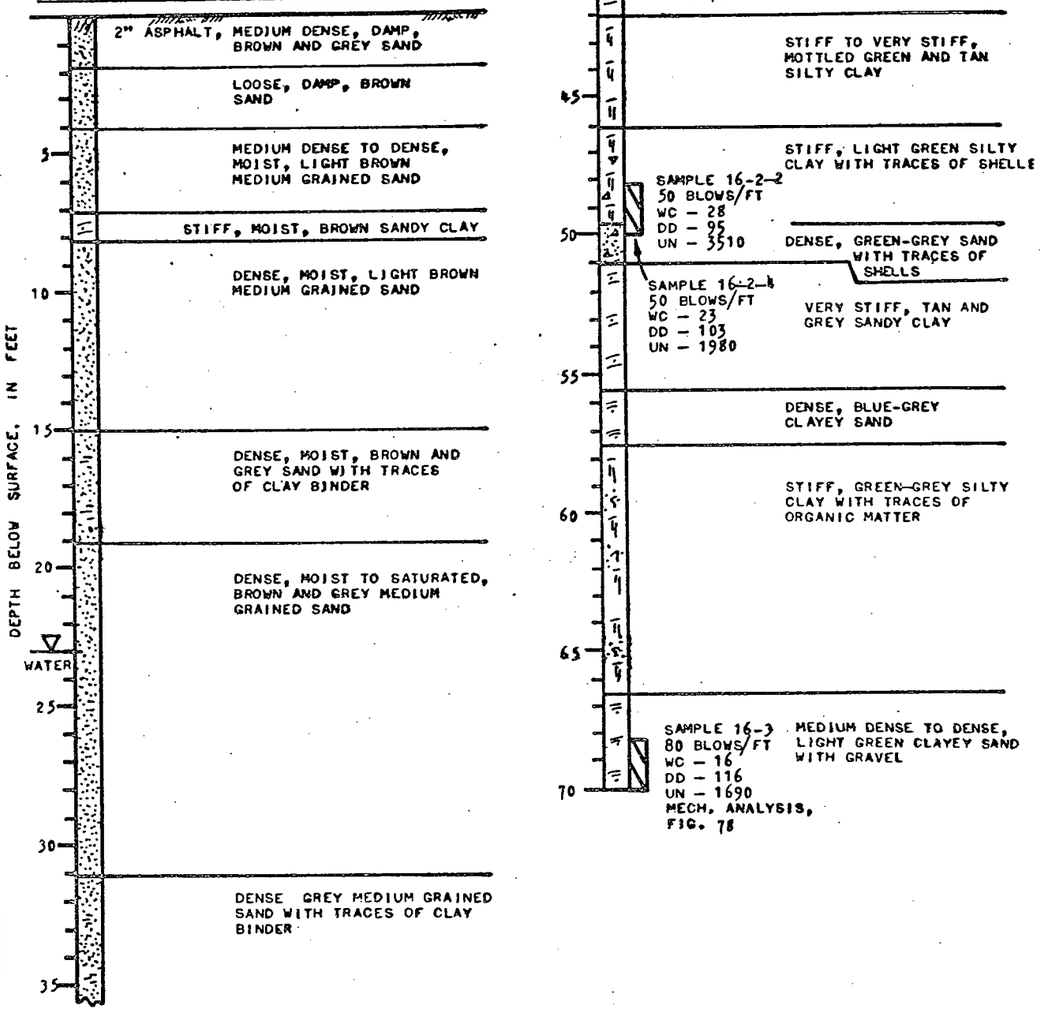
BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED
PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN

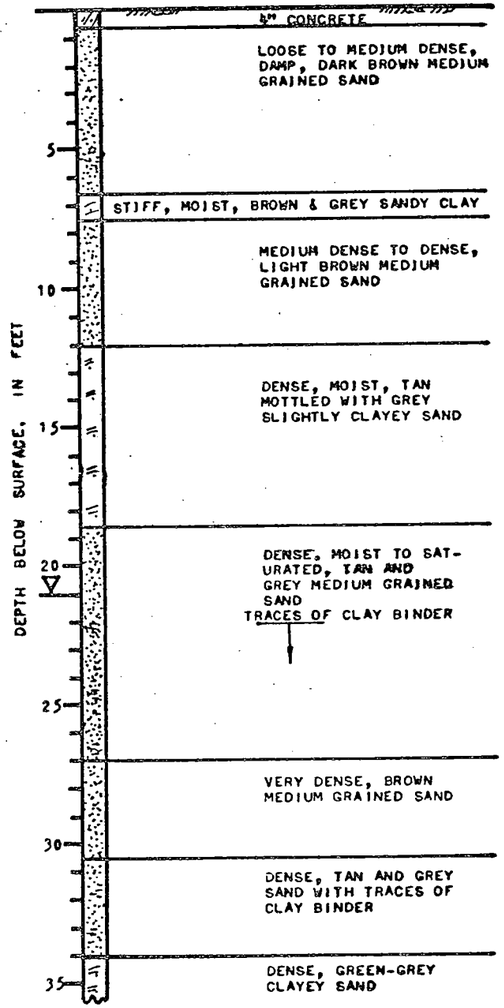
LOG OF SOIL BORINGS
BORINGS 12 AND 13

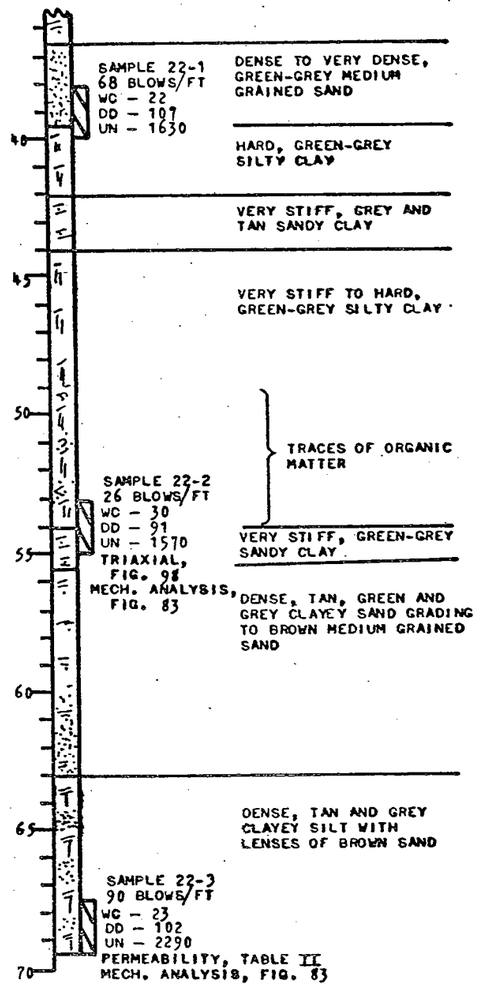
SCALE NONE
CONTRACT - PACKAGE IK0061-K006
SHEET NO. - REV. SE118-C
PAGE NO. 190

BORING NUMBER: K001 - 16
LOCATION: PARKING LOT, 50' S. OF 9TH ST. & 110' W. OF WEBSTER ST.
DATE DRILLED: 10-28-63
ELEVATION: +36.5
TYPE OF BORING: 6" AUGER
PROPOSED GRADE OF LOWER RAIL: -5
REMARKS: BACKFILLED IMMEDIATELY AFTER DRILLING



BORING NUMBER: K001 - 22
LOCATION: ON BROADWAY, 15' N. OF 7TH ST.
DATE DRILLED: 11-1-63
ELEVATION: +30.5
TYPE OF BORING: 6" AUGER
PROPOSED GRADE OF LOWER RAIL: -18.5
REMARKS: BACKFILLED 11-6-63





AS-BUILT

SE III	Location of Soil Borings
SHEET NO.	TITLE

REFERENCE DRAWINGS

DIV.	DATE	BY	SUB.	APP.	DESCRIPTION

DESIGNED BY
DRAWN BY REPRODUCTION
CHECKED BY
IN CHARGE A.T.E. KRUYER
DATE 21 JUN 1967

REGISTERED CIVIL ENGINEER J. GEORGE THOR NO. 8397 STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED J. G. Thor

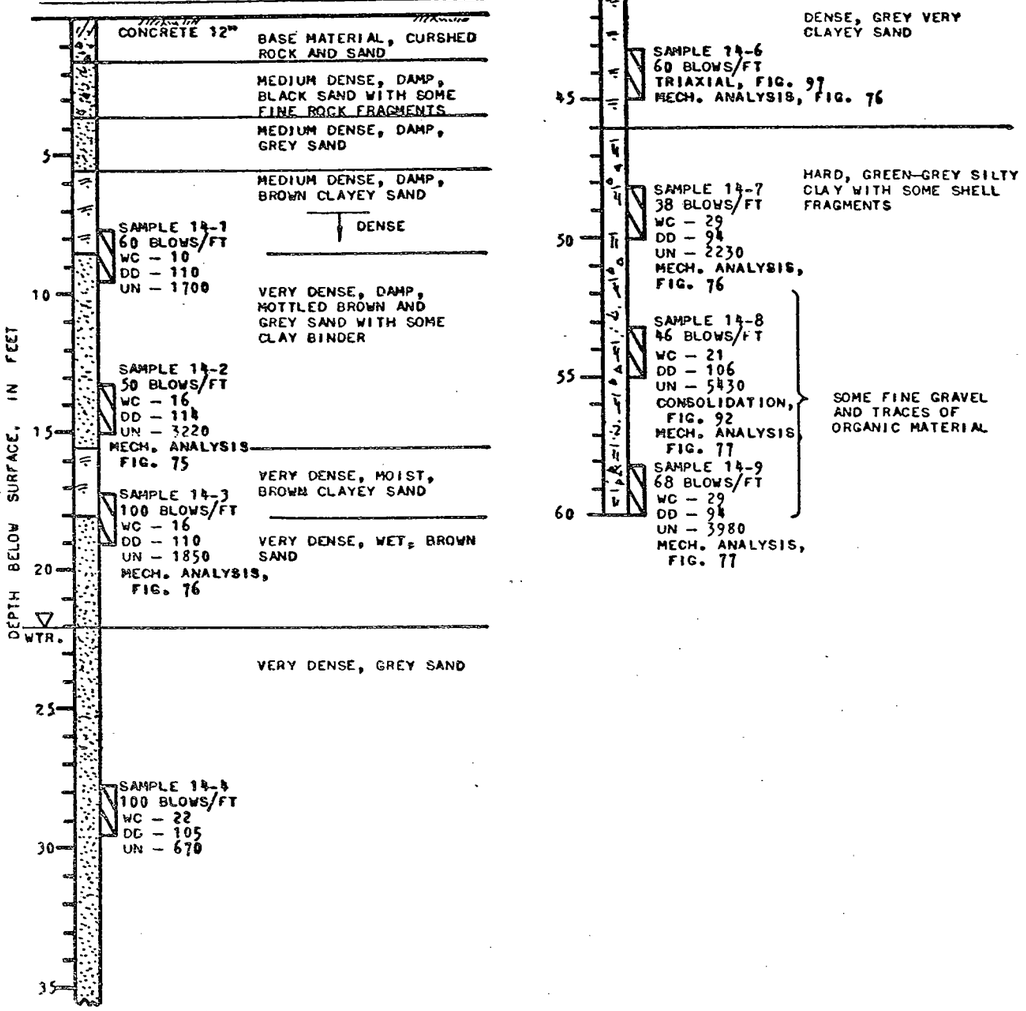
PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED E. R. Kuesel

OAKLAND DOWNTOWN

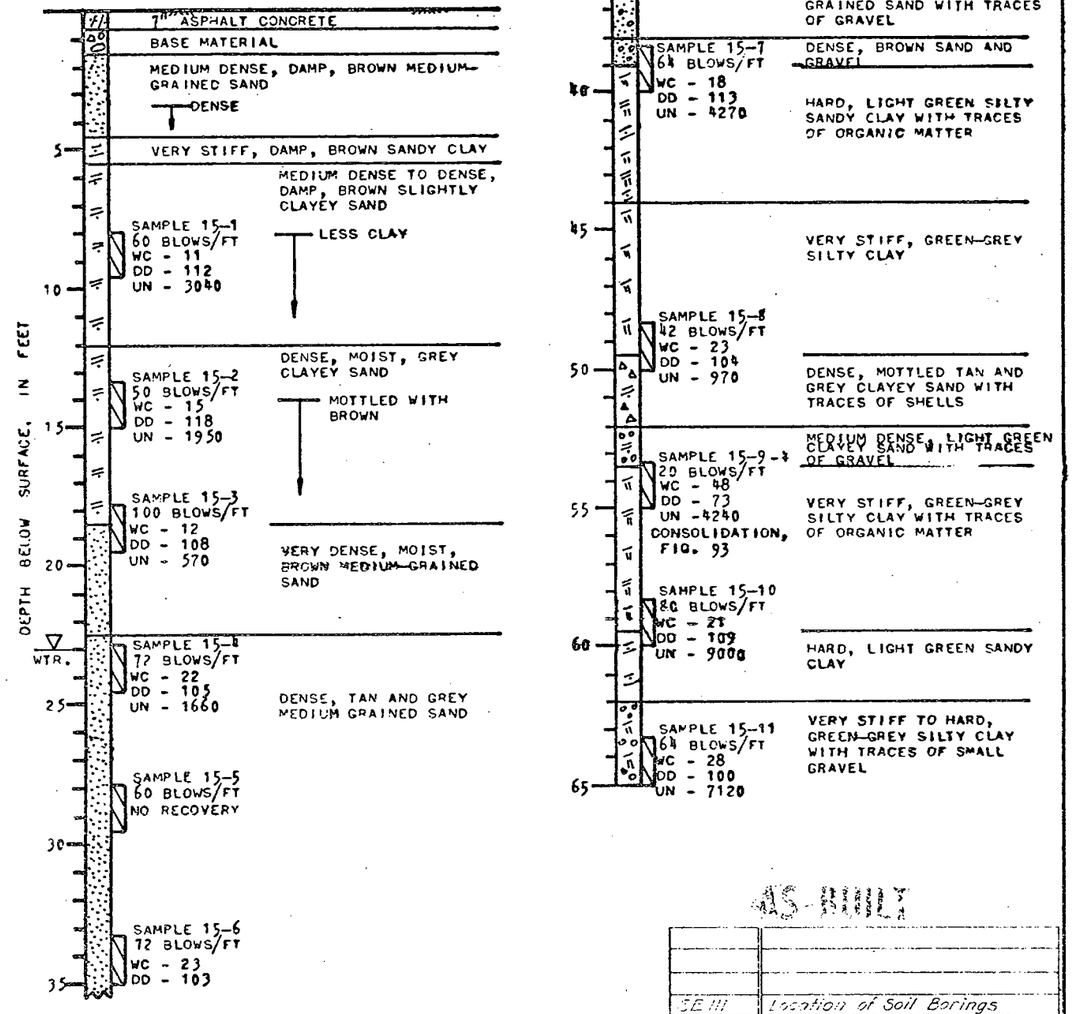
LOG OF SOIL BORINGS
BORINGS 16 AND 22

SCALE NONE
CONTRACT - PACKAGE IK0061-K006
SHEET NO. - REV. SE120-C
PAGE NO. 192

BORING NUMBER: K001 - 14
LOCATION: 8TH ST., 60' W. OF FRANKLIN
DATE DRILLED: 10-9-10 & 10-10-63
ELEVATION: +35
TYPE OF BORING: 6" AUGER
PROPOSED GRADE OF LOWER RAIL: -3
REMARKS: 1½" PIEZOMETER INSTALLED



BORING NUMBER: K001 - 15
LOCATION: ON FRANKLIN STREET, 50' NORTH OF 8TH STREET
DATE DRILLED: 10-17-63
ELEVATION: +36
TYPE OF BORING: 6" AUGER
PROPOSED GRADE OF LOWER RAIL: -2
REMARKS: BACKFILLED 10-22-63



AS-BUILT

SE III	Location of Soil Borings
SHEET NO.	TITLE

REFERENCE DRAWINGS

NO.	DATE	BY	SUB.	APP.	DESCRIPTION

DESIGNED BY
DRAWN BY M.P. PRODUCTION
CHECKED BY
IN CHARGE A.J. BIRKMYER
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER J. GEORGE THOR NO. 8397 STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED

PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN

LOG OF SOIL BORINGS
BORINGS 14 AND 15

SCALE NONE
CONTRACT - PACKAGE IK0061-K006
SHEET NO. - REV. SE119-0
PAGE NO. 191

Appendix C

Building Construction Letter from Sue Associates

SUE ASSOCIATES

ARCHITECTURE & PLANNING

500 East Eighth Street
Oakland, CA 94606
Tel. 510-834-2400
Fax. 510-834-6810

Attn: Mr. Tommy Chiu
Fax: (510) 338-0692

April 12, 2006

Sir,

Re: Eighth and Franklin Street Project

Reference to enquiry regarding the above mentioned building

1. Our remembrance of the project was that you had hired the Contractor and that we provided the design for the purpose of obtaining the Planning approval and the Building Permit.

2. As for records of the Building design, Records of designs are not kept beyond ten years. The building was finished more than fifteen years ago, and none of the records are Available.

In answer to your questions as far as can be recalled:

3. Building Type was Type III One hour construction.

4. Ground Floor Slab and Foundation was reinforced concrete.

5. Structure was wood stud construction.

6. Footings were perimeter foundation with spread footings for columns.

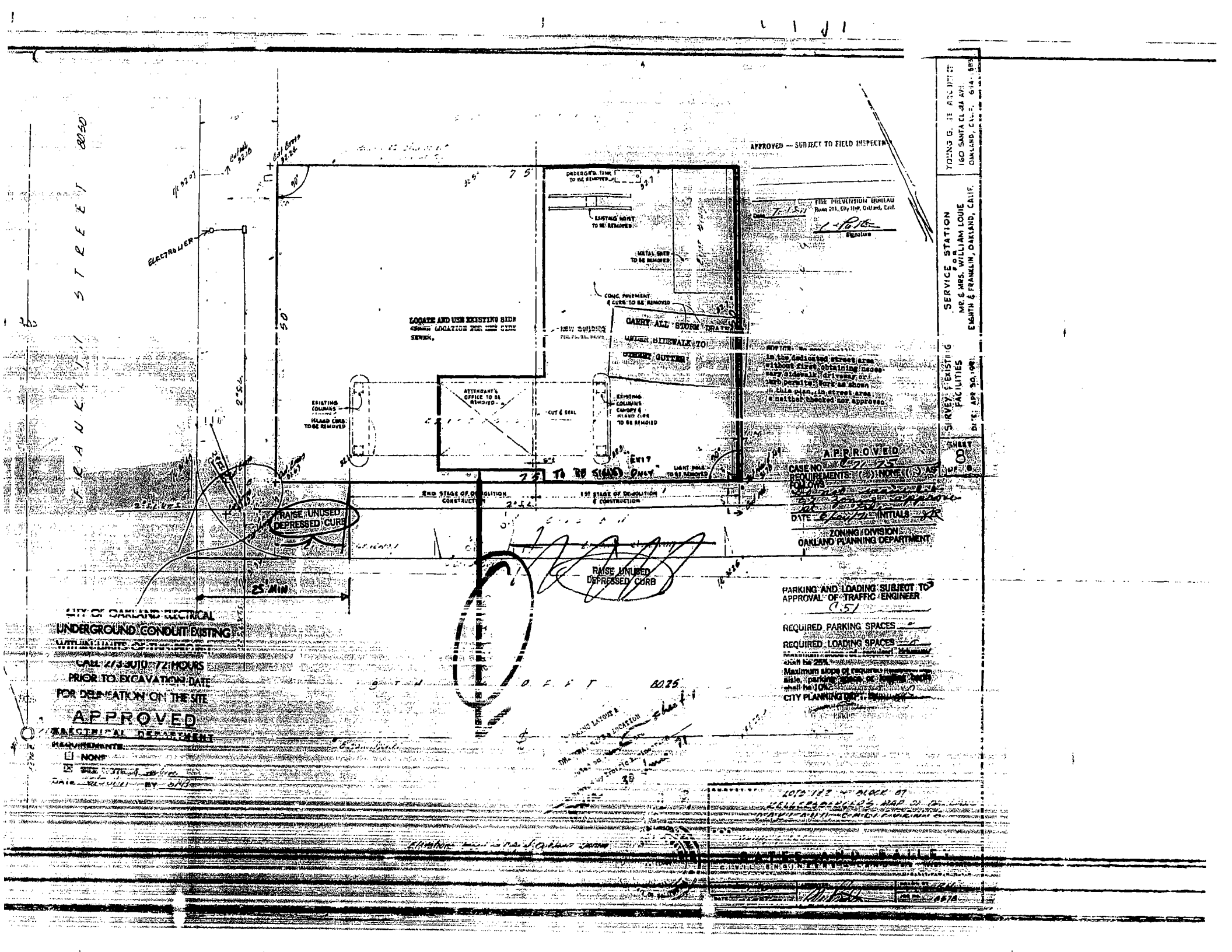
7. The building is two stories without a basement.
Ground floor retail and upper floor for office and commercial use.

Sincerely,

Sue Associates

Appendix D

Building Plan Suggesting Location of "Fifth" UST


FRANKLIN STREET
APPROVED — SUBJECT TO FIELD INSPECTION
FIRE PREVENTION BUREAU
Room 201, City Hall, Oakland, Calif.
Signature
SERVICE STATION
for
MR. & MRS. WILLIAM LOUIE
EIGHTH & FRANKLIN, OAKLAND, CALIF.
YOUNG G. [illegible] ARCHITECT
160 SANTA CLARA AVE.
OAKLAND, CALIF.
SURVEY OF EXISTING FACILITIES
DATE APR 30, 1961
SHEET
OF
ELECTROLIER
LOCATE AND USE EXISTING SIDE SEWER LOCATION FOR NEW SIDE SEWER.
NEW BUILDING
CARRY ALL STORM WATER
GUTTER & SIDEWALK TO STREET GUTTER
CONC. PAVEMENT & CURB TO BE REMOVED
UNDERGROUND TANK TO BE REMOVED
EXISTING VENT TO BE REMOVED
METAL SIGN TO BE REMOVED
ATTENDANT'S OFFICE TO BE REMOVED
CUT & SEAL
EXISTING COLUMNS CANOPY & ISLAND CURB TO BE REMOVED
EXISTING COLUMNS
ISLAND CURB TO BE REMOVED
EXIT
LIGHT POLE TO BE REMOVED
75 TO BE ISLAND ONLY
END STAGE OF DEMOLITION CONSTRUCTION
1ST STAGE OF DEMOLITION & CONSTRUCTION
RAISE UNUSED DEPRESSED CURB
RAISE UNUSED DEPRESSED CURB
25' MIN
CITY OF OAKLAND ELECTRICAL
UNDERGROUND CONDUIT EXISTING
CALL 415-3010 72 HOURS
PRIOR TO EXCAVATION DATE
FOR DELINEATION ON THE SITE
APPROVED
ELECTRICAL DEPARTMENT
REQUIREMENTS:
NONE
DATE BY
APPROVED
CASE NO. [illegible]
REQUIREMENTS: (X) NONE ( ) AS FOLLOWS
DATE INITIALS
ZONING DIVISION
OAKLAND PLANNING DEPARTMENT
PARKING AND LOADING SUBJECT TO APPROVAL OF TRAFFIC ENGINEER
REQUIRED PARKING SPACES
REQUIRED LOADING SPACES
CITY PLANNING DEPT.
LOTS 182 & 183 BLOCK 87
KELLERSBERGER'S MAP OF
ELEVATION

Appendix E

ACEH "Hazardous Waste Generator Inspection and Compliance Report"

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
CARL N. LESTER, Agency Director

470-27th Street, Third Floor
Oakland, California 94612
(415) 874-7237

HAZARDOUS WASTE GENERATOR INSPECTION AND COMPLIANCE REPORT

EPA I.D. # _____ DATE 7-29-86

GENERATOR NAME/ADDRESS
Bill Louie's Auto Svc
802 Franklin St.
Oakland 94607 (XT MOD)

CONTACT PERSON Bill Louie
PHONE NUMBER 444-5032
PERSONS PRESENT _____

AVERAGE GENERATION RATE (MONTHLY) _____

OBSERVATIONS: 2 underground tanks gas/me 6,000 ea, No leak monitoring equipment on tanks. Waste oil in 500 gal tank under the sidewalk on 8th St.

Receipts of waste removal must be kept available for 3 years.
Safety Kleen Parts Cleaner - dirty solvent is exchanged by them.
Kerosene sold for heater fuel.

Samples Taken[1]: Yes[] No [] Plan of correction necessary: Yes [] Due Date _____ No []

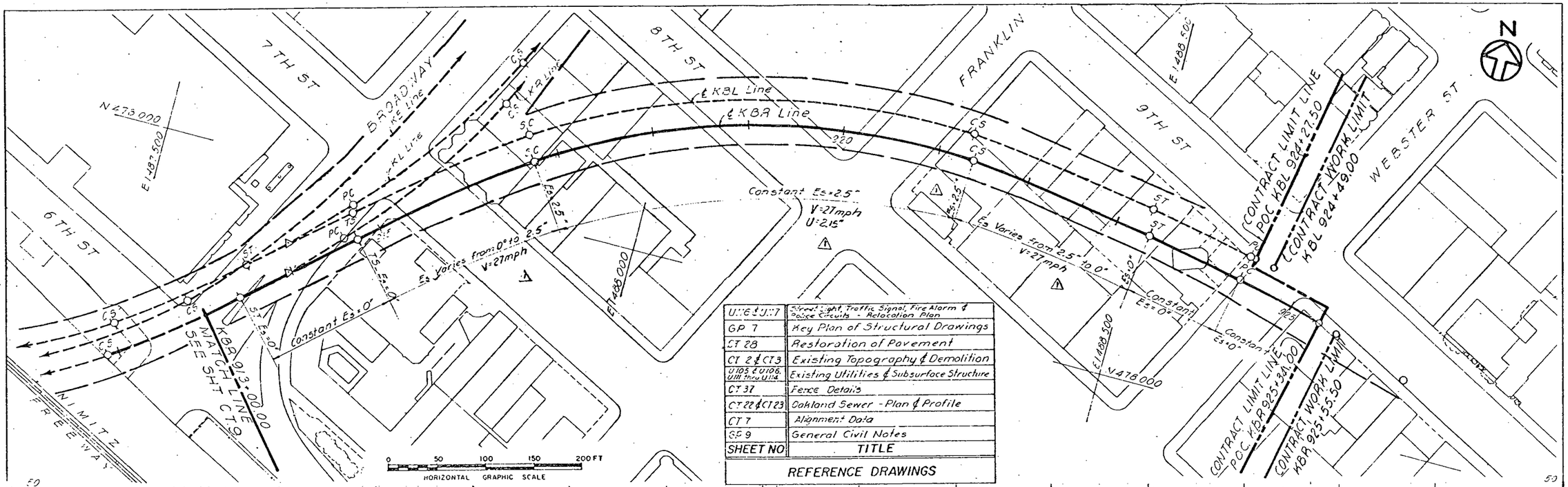
Authorized Representative of Firm:
Name Bill Louie
Title Owner
Signature Bill Louie
Date 7-29-86

Authorized Representative of Alameda County:
Name Thomas Peacock
Phone Number 874-7237
Signature Thomas Peacock
Date 7-29-86

[1]All samples will be taken in accordance with Section 25185, California Administrative Code, Division 20, Chapter 6.5

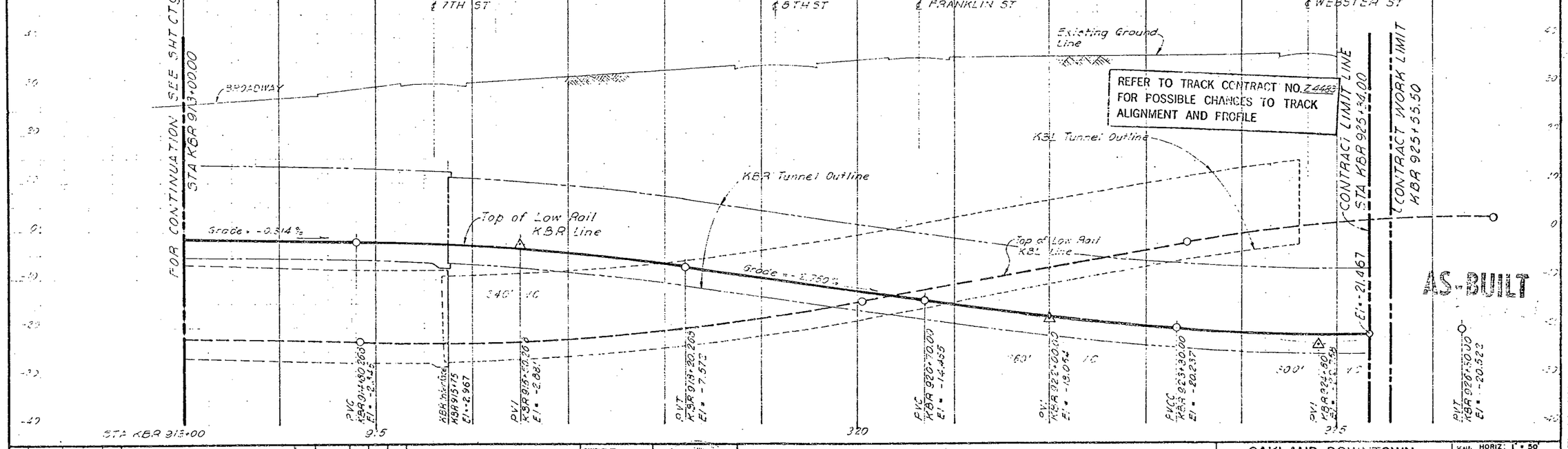
Appendix F

BART Tunnel As-built Plans



U116 & U117	Street Light, Traffic Signal, Fire Alarm & Police Circuits - Relocation Plan
GP 7	Key Plan of Structural Drawings
CT 28	Restoration of Pavement
CT 2 & CT 3	Existing Topography & Demolition
U105 & U106, U111 thru U114	Existing Utilities & Subsurface Structure
CT 37	Fence Details
CT 22 & CT 23	Oakland Sewer - Plan & Profile
CT 7	Alignment Data
GP 9	General Civil Notes
SHEET NO	TITLE

REFERENCE DRAWINGS



REV.	DATE	BY	SUB	APP	DESCRIPTION
1	6-14-68	AMM	JJ		Rev Superelev. Added V & U Values

DESIGNED BY C. FITZPATRICK
DRAWN BY F. GLASMACHER
CHECKED BY C. EVERS JR.
IN CHARGE J. BIGMAYER
DATE 27 JUN '67

REGISTERED CIVIL ENGINEER No. 9291 STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED

PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN

KBR LINE PLAN & PROFILE

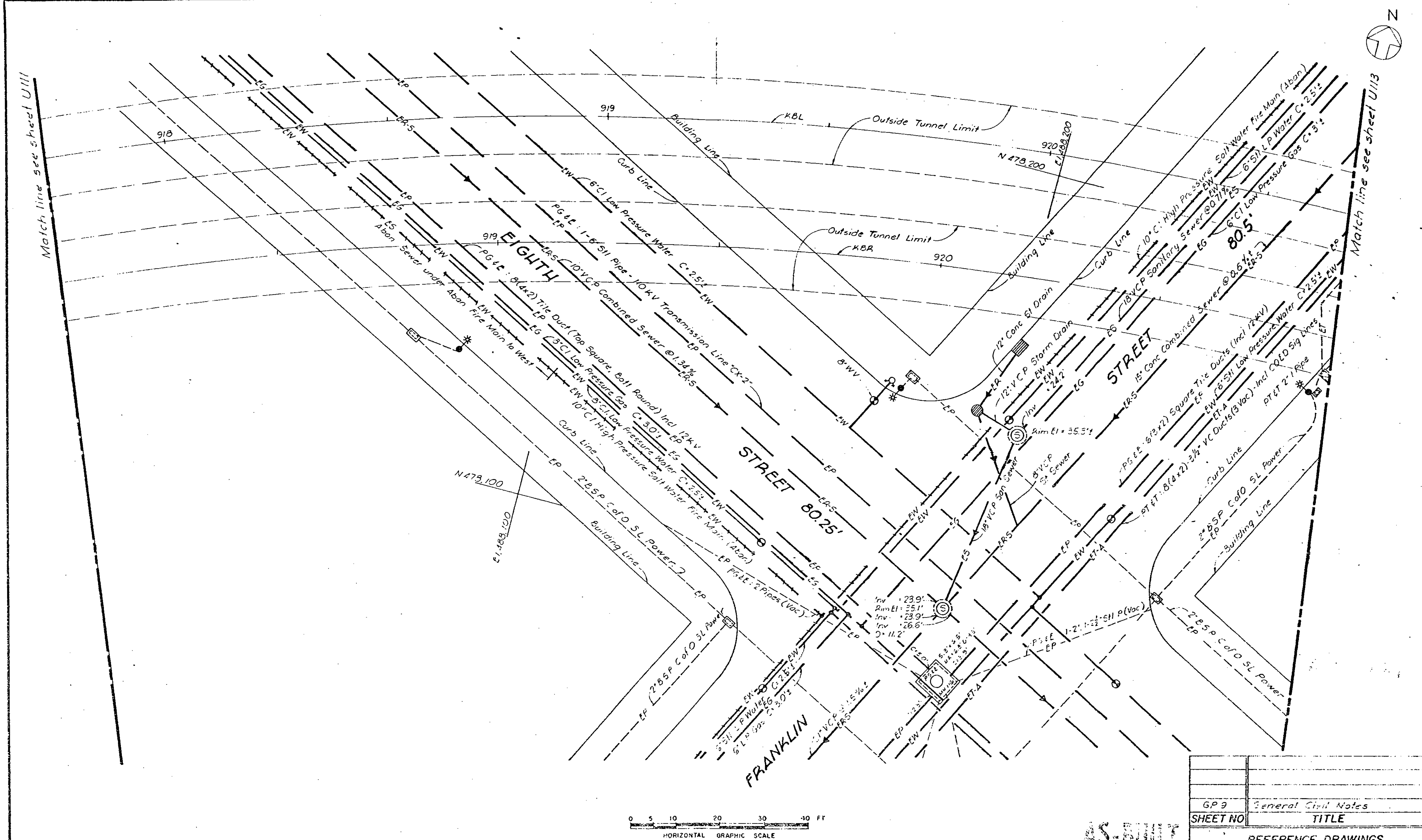
KBR 913+00 TO 925+34

SCALE: HORIZ: 1" = 50' VERT: 1" = 10'

CONTRACT - PACKAGE IK0061-K006

SHEET NO - REV. CT10-1 | PAGE NO. 23

30



GP 9	General Civil Notes
SHEET NO	TITLE

REFERENCE DRAWINGS

DESIGNED BY W. DRISCOLL
DRAWN BY A. ULRICH
CHECKED BY W. DRISCOLL
IN CHARGE J. BIRKMYER
DATE 27 JUN 67

REGISTERED CIVIL ENGINEER A. GEORGE THON NO. 8397 STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BECHTEL CORPORATION
ENGINEERS
SAN FRANCISCO

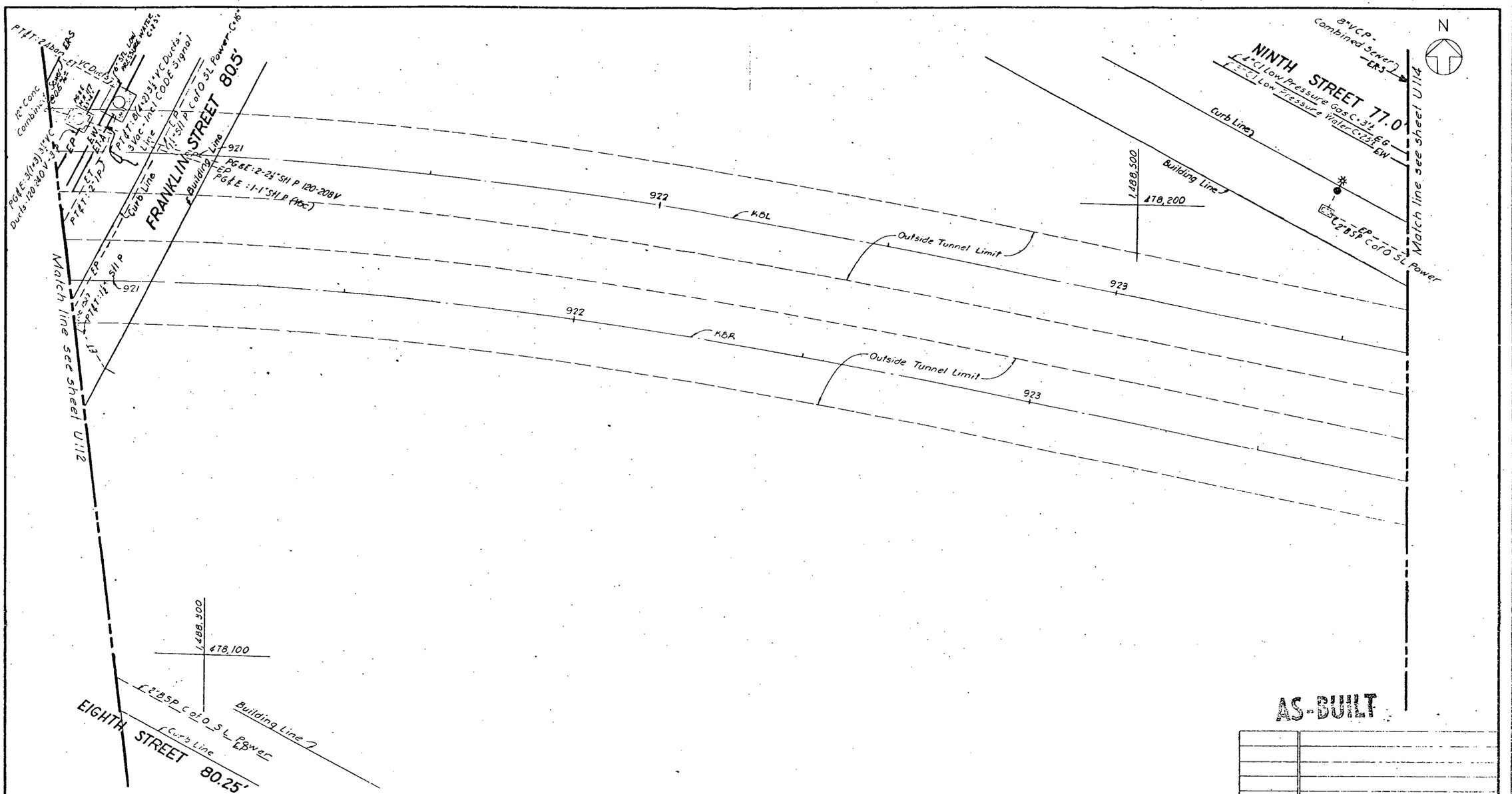
PARSONS BRINCKERHOFF-TUDOR-BECHTEL
GENERAL ENGINEERING CONSULTANTS

SUBMITTED
APPROVED

OAKLAND DOWNTOWN EXISTING UTILITIES & SUB-SURFACE STRUCTURES

SCALE 1" = 10'
CONTRACT - PACKAGE 1K0061-K006
SHEET NO. - REV. U112-0
PAGE NO. 64

71



AS-BUILT

GP 9	General Civil Notes
SHEET NO	TITLE

REFERENCE DRAWINGS

REV.	DATE	BY	SUB	APP	DESCRIPTION
REV.	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY W.DRISCOLL
DRAWN BY A.ULPICH
CHECKED BY W.DRISCOLL
IN CHARGE J.BIRKMYER
DATE 27 JUN 67

REGISTERED CIVIL ENGINEER — GEORGE THON NO. 8397 — STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

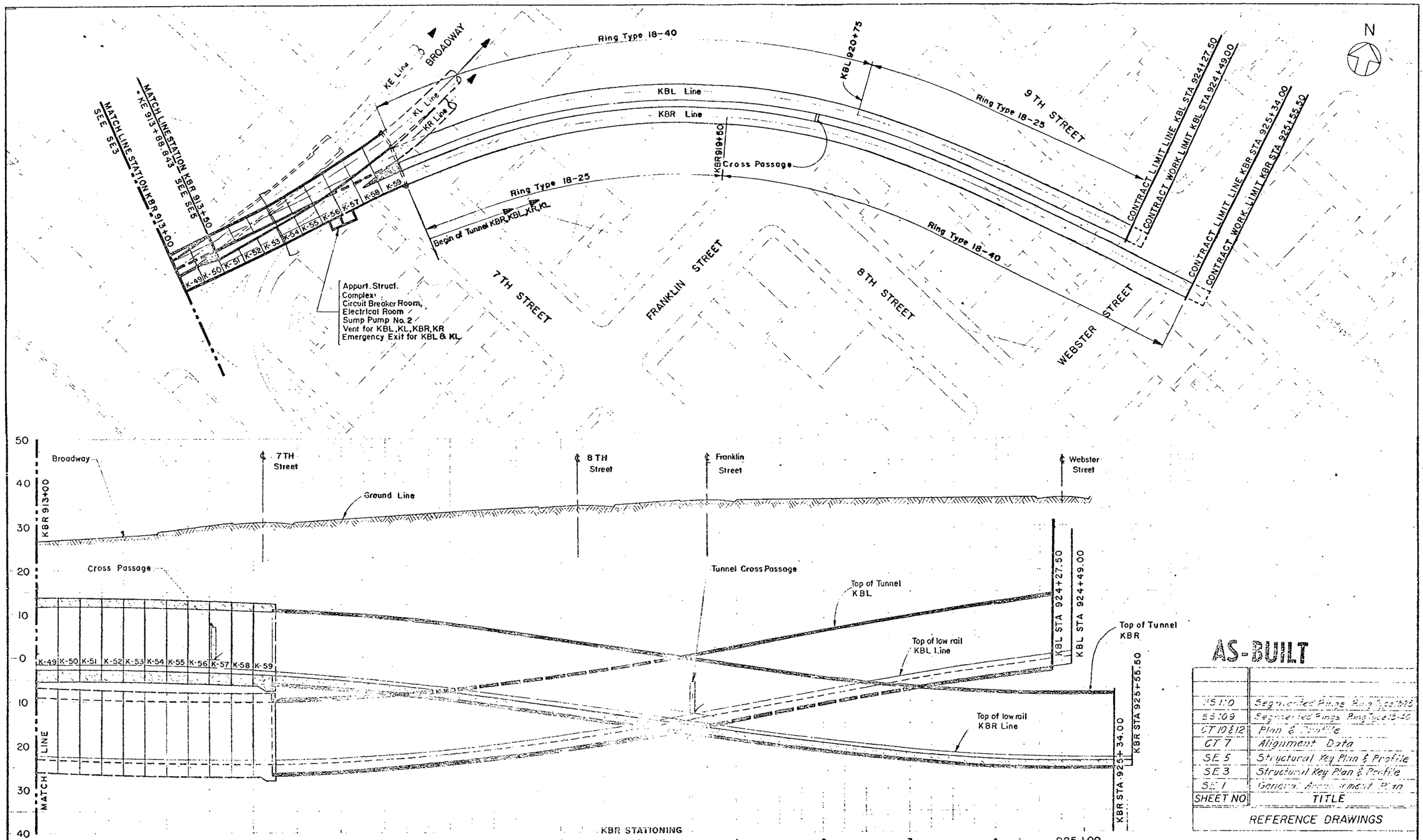
BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED

PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN EXISTING UTILITIES & SUB-SURFACE STRUCTURES

SCALE 1" = 10'
CONTRACT - PACKAGE IK0061 - K006
SHEET NO. - REV. U113-0
PAGE NO. 65

72



AS-BUILT

SHEET NO.	TITLE
	REFERENCE DRAWINGS
BS 1.0	Segmented Rings Plan Type 18-40
BS 1.09	Segmented Rings Plan Type 18-25
CT 10 & 12	Plan & Profile
CT 7	Alignment Data
SE 5	Structural Key Plan & Profile
SE 3	Structural Key Plan & Profile
SE 1	General Arrangement Plan

DESIGNED BY W. MCMAHON
DRAWN BY I. BROWNE
CHECKED BY J. KORP
IN CHARGE J. STRUYER
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER J. GEORGE THOR NO. 8397 STATE OF CALIFORNIA

SUBMITTED

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

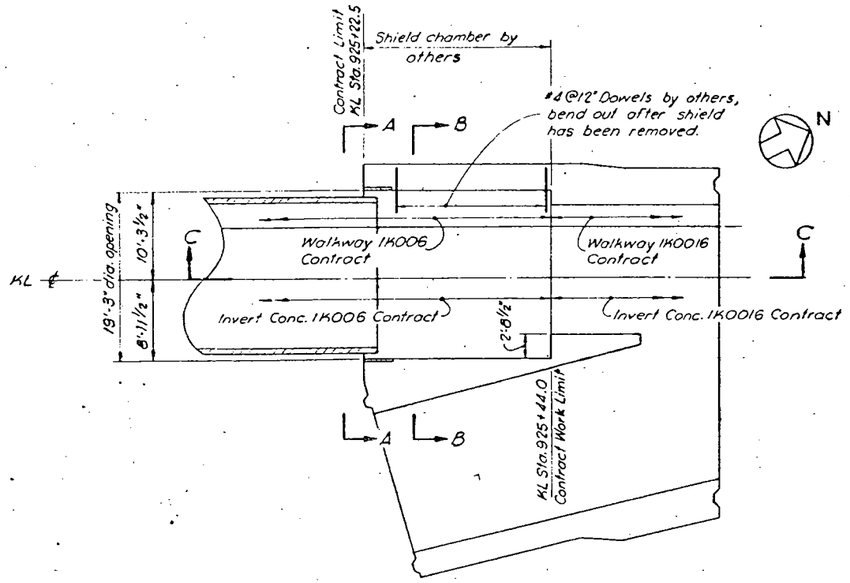
BECHTEL CORPORATION ENGINEERS SAN FRANCISCO

PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS

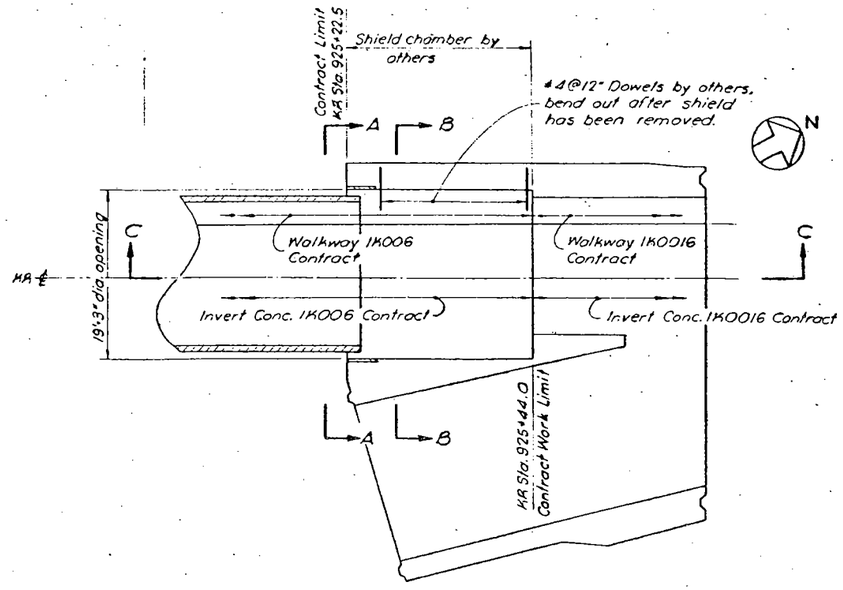
APPROVED

OAKLAND DOWNTOWN STRUCT. KEY PLAN & PROFILE KBR, KE, KBL, KR AND KL LINES FROM KBR 913+00 TO KBR 925+34.00

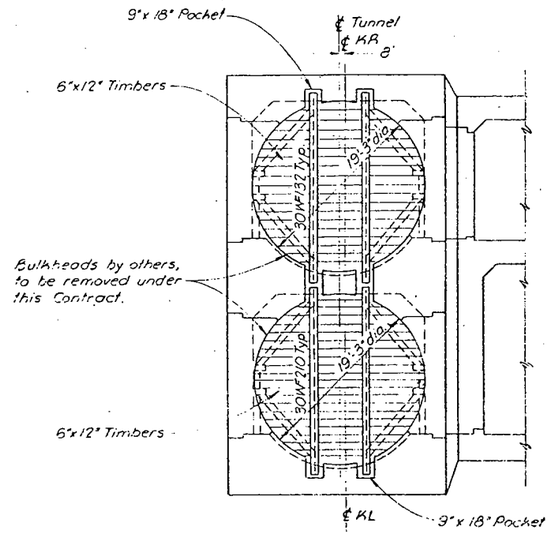
SCALE: HORIZ 1" = 50' VERT 1" = 10'
CONTRACT - PACKAGE IK0061-K006
SHEET NO. SE 4 - 0
PP. 79



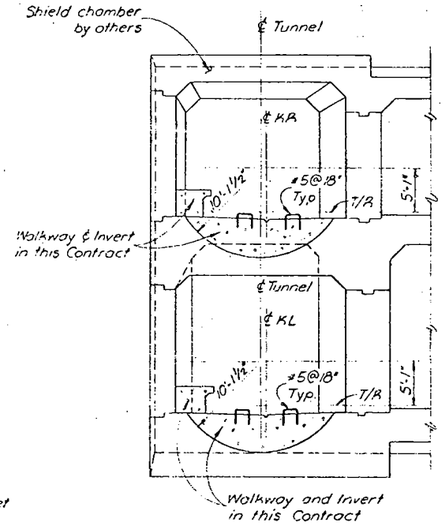
PLAN OF KL LINE



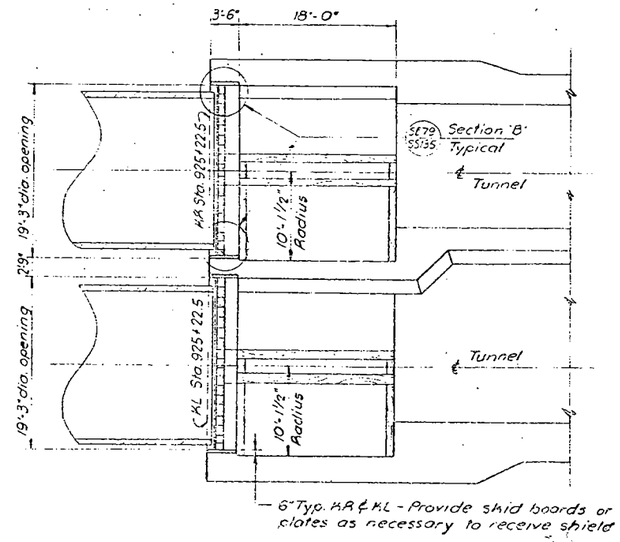
PLAN OF KR LINE



SECTION A



SECTION B



SECTION C

NOTES:

1. For Key Plan, see dwg. SE-80
2. For arrangement of U-bars, see dwg SE-24.
3. Arrangement of embedded conduits in walkways to match conduits in existing walkways.

SHEET NO.	TITLE
SE-25	Exist Roadways
SE-5	Structural Key Plan & Profile
SE-19	Structural Alignment
SE-24	Reinforcement Details
SE-86	Walkways - Vertical & Horiz. Control
SE-89	Misc Walkway & Invert Conc Details
SE-92	Invert Concrete - Vertical Control
SS-135	Conc Invert Details under Bridging Beam
SE-161	General Struct Notes, Symbols & Abbrev.

REFERENCE DRAWINGS

AS-BUILT

REV.	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY J. FLANNIGAN
DRAWN BY A. ULRICH
CHECKED BY F. J. KORP
IN CHARGE A. J. BICKMYER
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER — J. GEORGE THON — NO 8367 — STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

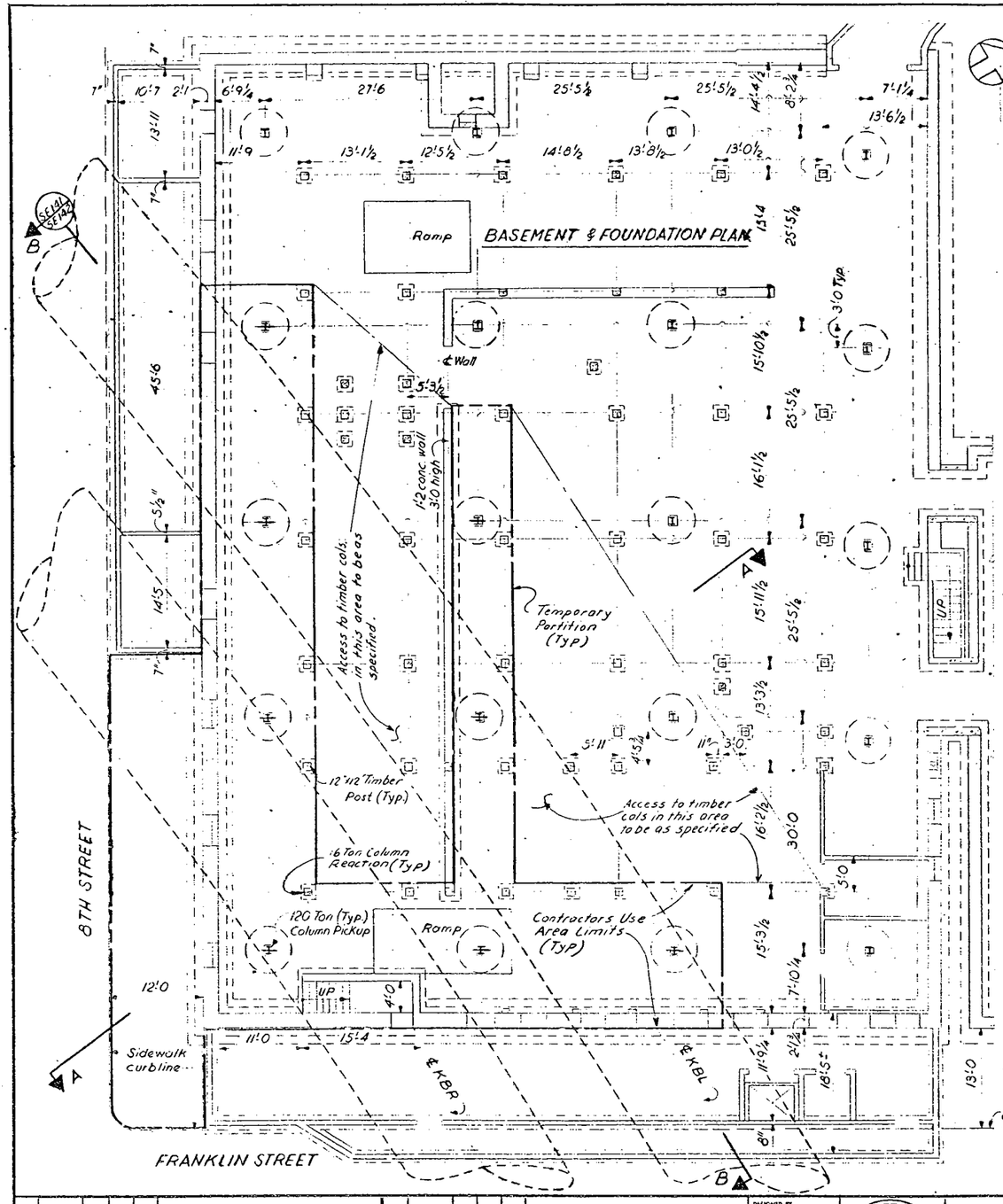
BECHTEL CORPORATION, ENGINEERS, SAN FRANCISCO — SUBMITTED J. h. Thon

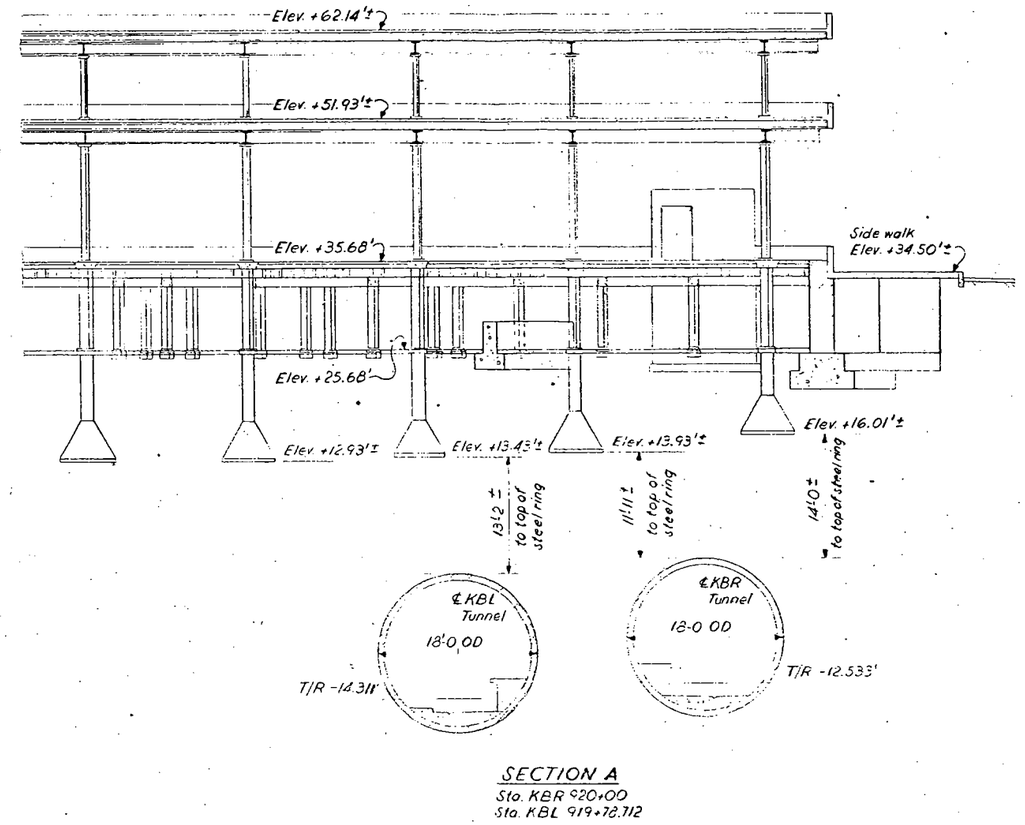
PARSONS BRINCKERHOFF-TUDOR-BECHTEL, GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN CONCRETE OUTLINES
INTERFACE WITH EXISTING SUBWAY STRUCTURE KL AND KR LINES

SCALE: 1/8" = 1'-0"
CONTRACT - PACKAGE: IK0061-K006
SHEET NO. - REV. PAGE NO.: SE79-0 154

161





SECTION A
Sta. KBR 920+00
Sta. KBL 919+78.712

NOTE:

Building information shown hereon is gathered from various sources. It is not complete and may not reflect changes, remodeling or internal conditions. It therefore is not guaranteed, but is presented as the best information immediately available. It must be verified and/or revised as necessary by the contractor in the field.

SHEET NO	TITLE
SE 142	Building Data Sections
SE 129	Existing Structures, Key Plan sht 2

REFERENCE DRAWINGS

AS-BUILT

REV	DATE	BY	SUB	APP	DESCRIPTION
4	8/4/67	WMM	JB		General revisions to contractors use area.

DESIGNED BY H. MUCHLINSKI
DRAWN BY J.K. GOETZ
CHECKED BY F.J. KORP
IN CHARGE A.J. BIRKMYER
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER J. GEORGE THOR NO. 8397 STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

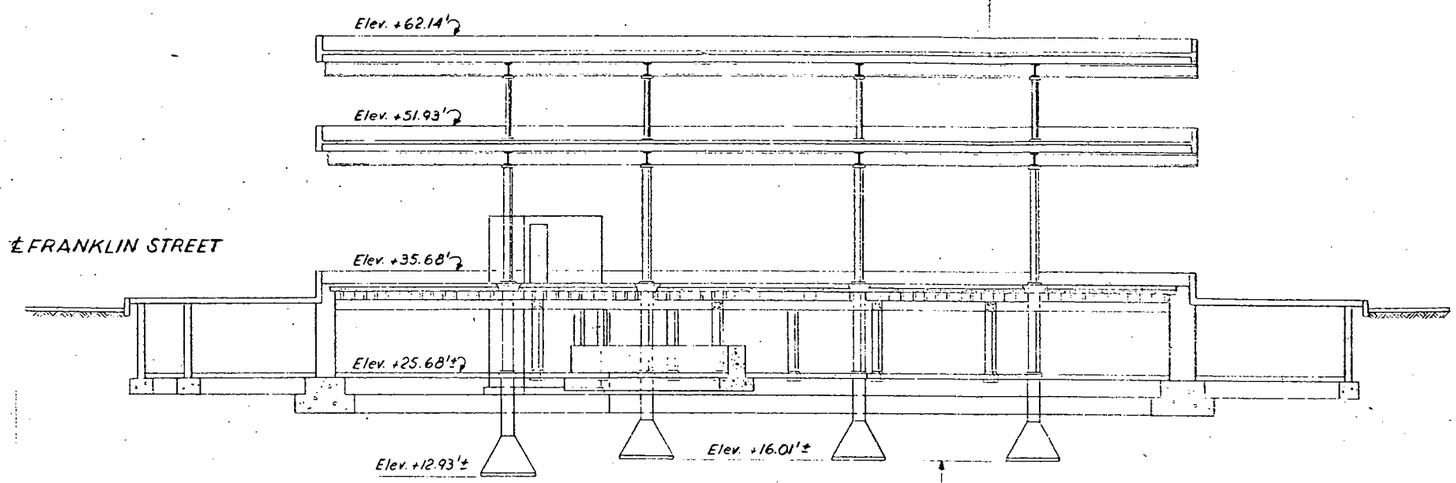
BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED

PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN
BUILDING DATA
PARCEL - 0-K029
SIMON AUTO PARKING STRUCTURE
PLAN & SECTION

SCALE 1/8"-1'-0" CONTRACT - PACKAGE 1K0061 K006
SHEET NO - REV. PAGE NO SE141-1 213

220



SECTION B (ST.141 ST.142)

NOTE:
For notes see sheet SE141

SHEET NO	TITLE
SE 141	Building Data, Plan & Sections
SE 123	Existing Structures, Key Plan sht. 2

REFERENCE DRAWINGS

REV.	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY H.SUCHLINSKI
DRAWN BY J.K.SOETZ
CHECKED BY F.J. KORP
IN CHARGE A.J. BIRKHYER
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER J. GEORGE THOR NO. 8397 STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

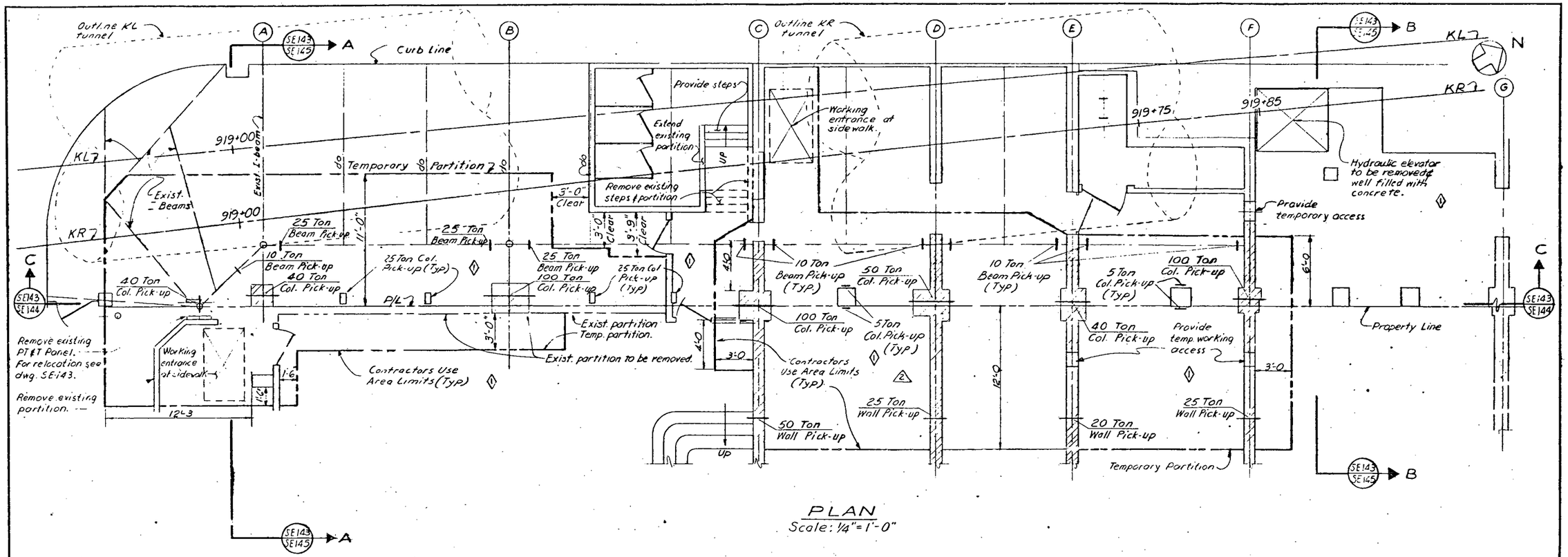
BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED J.G. Thor

PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED T.K. Brunel

OAKLAND DOWNTOWN
BUILDING DATA
PARCEL - O-K029
SIMON AUTO PARKING STRUCTURE
SECTION

SCALE 1/8" = 1'-0"
CONTRACT - PACKAGE IK0061-K006
SHEET NO. - REV. - PAGE NO. SE142-0-214

M-E



PLAN
Scale: 1/4"=1'-0"

NOTE;
Building information shown hereon is gathered from various sources. It is not complete and may not reflect changes, remodeling or internal conditions. It therefore is not guaranteed but is presented as the best information available. It must be verified and/or revised as necessary by the contractor in the field.

SHEET NO.	TITLE
SE 145	Building Data, Sections, Sheet 2
SE 144	Building Data, Sections, Sheet 1
SE 129	Existing Structures, Key Plan, Sheet 2

REFERENCE DRAWINGS

AS-BUILT

MK	DATE	BY	SUB	APP	DESCRIPTION
2	5-6-68	WWH	JPB		Added column & beam Pick-ups
1	8-4-67	WWH	JPB		Clarified notes on Contractors Use Area added col. pick-up loads & elevator note

DESIGNED BY H. MUCHLINSKI
DRAWN BY A. YEE
CHECKED BY F. KORP
IN CHARGE A.J. BIRKMYER
DATE 21 JUN 1967

REGISTERED CIVIL ENGINEER J. GEORGE THON NO. 8397 CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

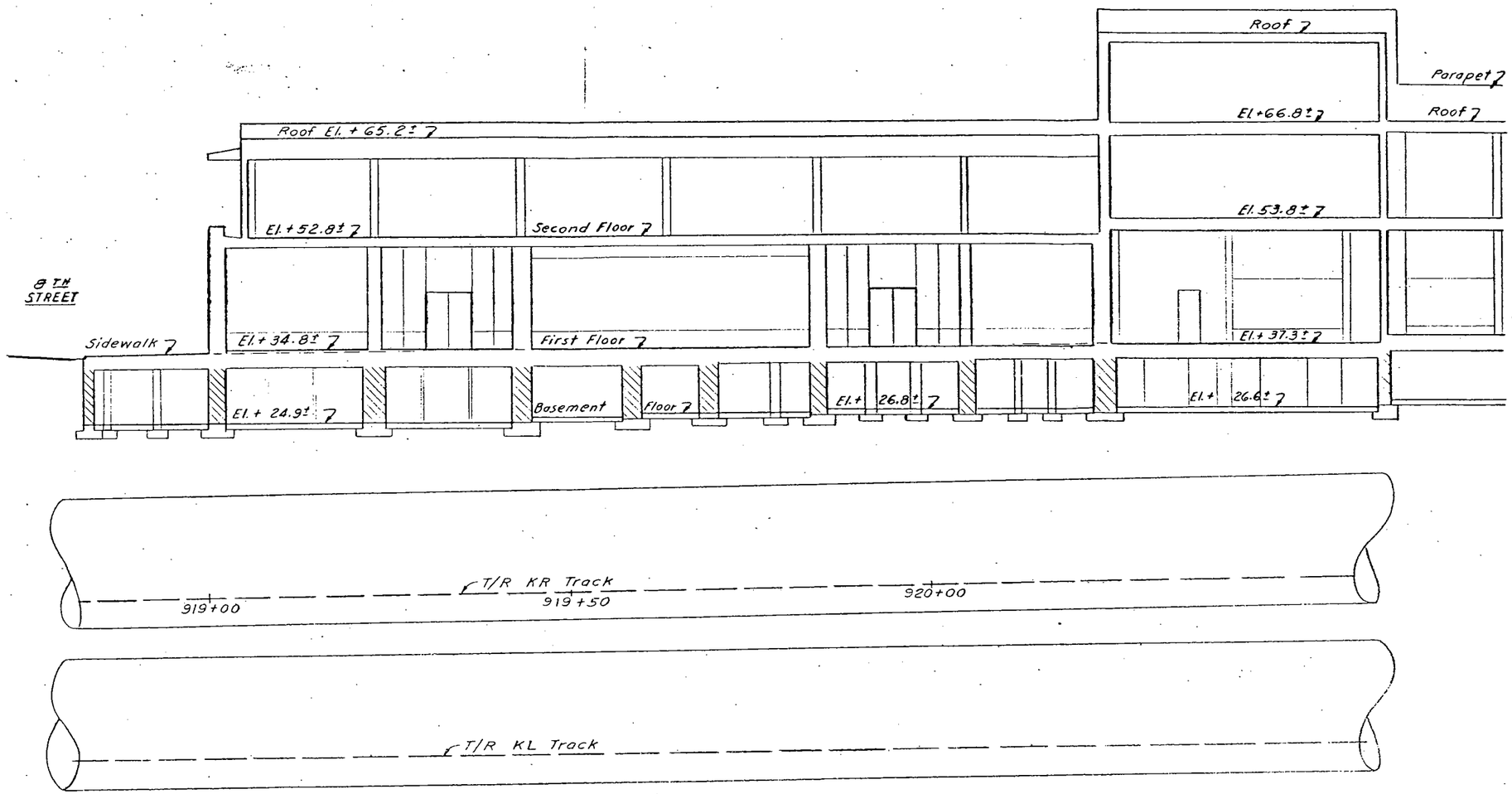
BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED

PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN
BUILDING DATA
PARCEL – O-K029
SIMON HARDWARE STORE BLDG
PLAN

SCALE: AS NOTED
CONTRACT – PACKAGE: IK0061-K006
SHEET NO. – DIV.: SE 143-2
PAGE NO.: 215

222



NOTE:
For notes see sheet SE143

SECTION C (SE143) (SE144)
Scale: 1/8" = 1'-0"

SHEET NO.	TITLE
SE145	Building Data, Sections, Sheet 2
SE143	Building Data - Plan
SE129	Existing Structures, Key Plan, Sht 2

REFERENCE DRAWINGS

REV.	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY H. MUCHLINSKI
DRAWN BY J. HRINKO
CHECKED BY F.J. KORP
IN CHARGE J.J. BIRKMYER
DATE 27JUN 1967

REGISTERED CIVIL ENGINEER — J. GEORGE THOM — NO. 8397 — STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

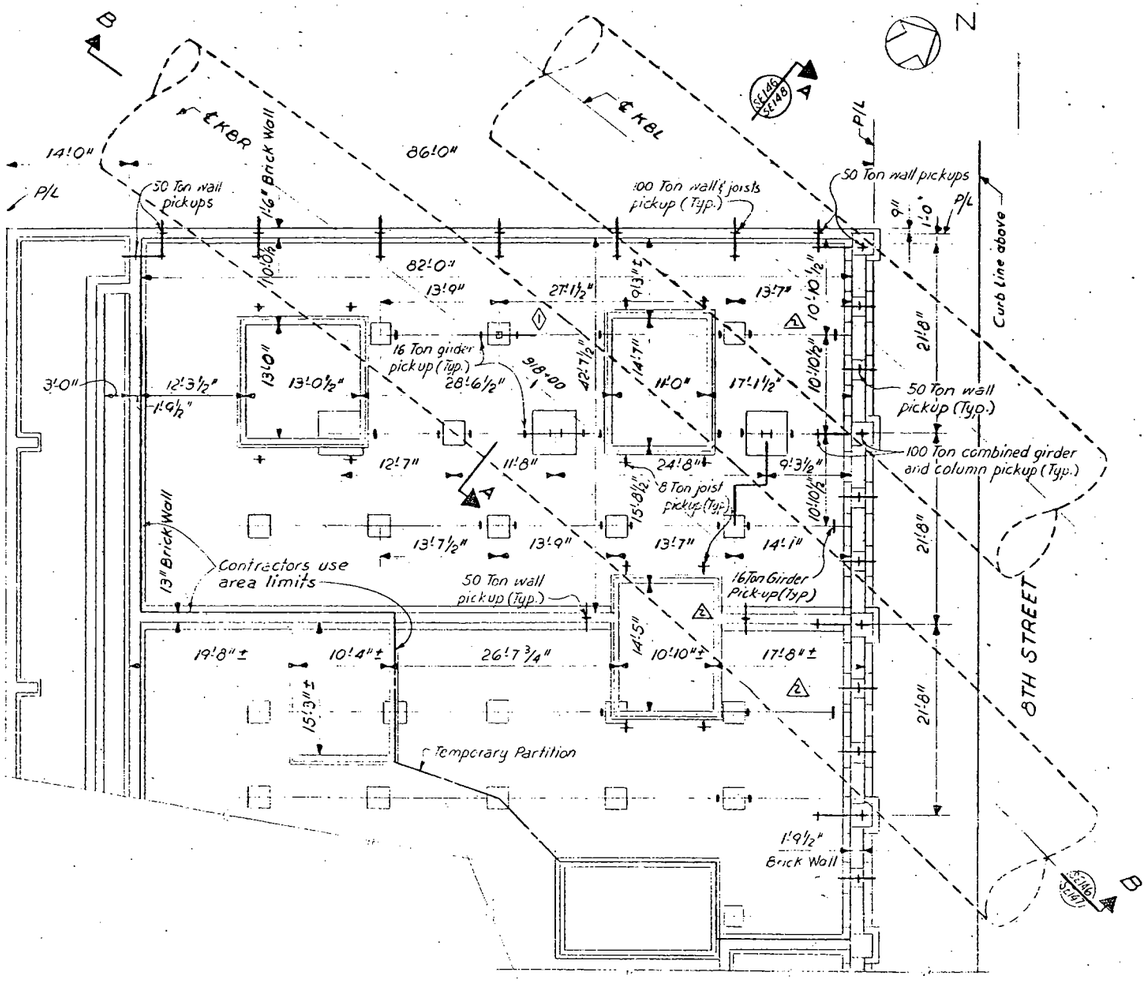
BECHTEL CORPORATION
ENGINEERS
SAN FRANCISCO
SUBMITTED J.h. Thom

PARSONS BRINCKERHOFF-TUDOR-BECHTEL
GENERAL ENGINEERING CONSULTANTS
APPROVED R.K. Kuest

OAKLAND DOWNTOWN
BUILDING DATA
PARCEL - O-K029
SIMON HARDWARE STORE BLDG.
SECTIONS SHT. 1

SCALE: 1/8" = 1'-0"
CONTRACT - PACKAGE: IK0061-K006
SHEET NO. - REV. / PAGE NO.: SE144-0 216

223



BASEMENT PLAN
Scale: 1/8"=1'-0"

NOTE:
1) Building information shown hereon is gathered from various sources. It is not complete and may not reflect changes, remodeling or internal conditions. It therefore is not guaranteed, but is presented as the best information immediately available. It must be verified and/or revised as necessary by the contractor in the field.

SHEET NO	TITLE
SE-129	Existing Structures - Key Plan
SE-148	Building Data - Sections
SE-147	Building Data - Sections

REFERENCE DRAWINGS

REV	DATE	BY	SUB	APP	DESCRIPTION
2	3-6-68	MMM	JJB		Added Girder Pick-up Points
1	3-4-67	MMM	JJB		Clarified Pick-Up Points

DESIGNED BY W.MUCHINSKI
DRAWN BY J.K.GOETZ
CHECKED BY F.J.KORP
IN CHARGE A.J.BIRKMYER
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER — J. GEORGE THOM — NO. 8397 — STATE OF CALIFORNIA

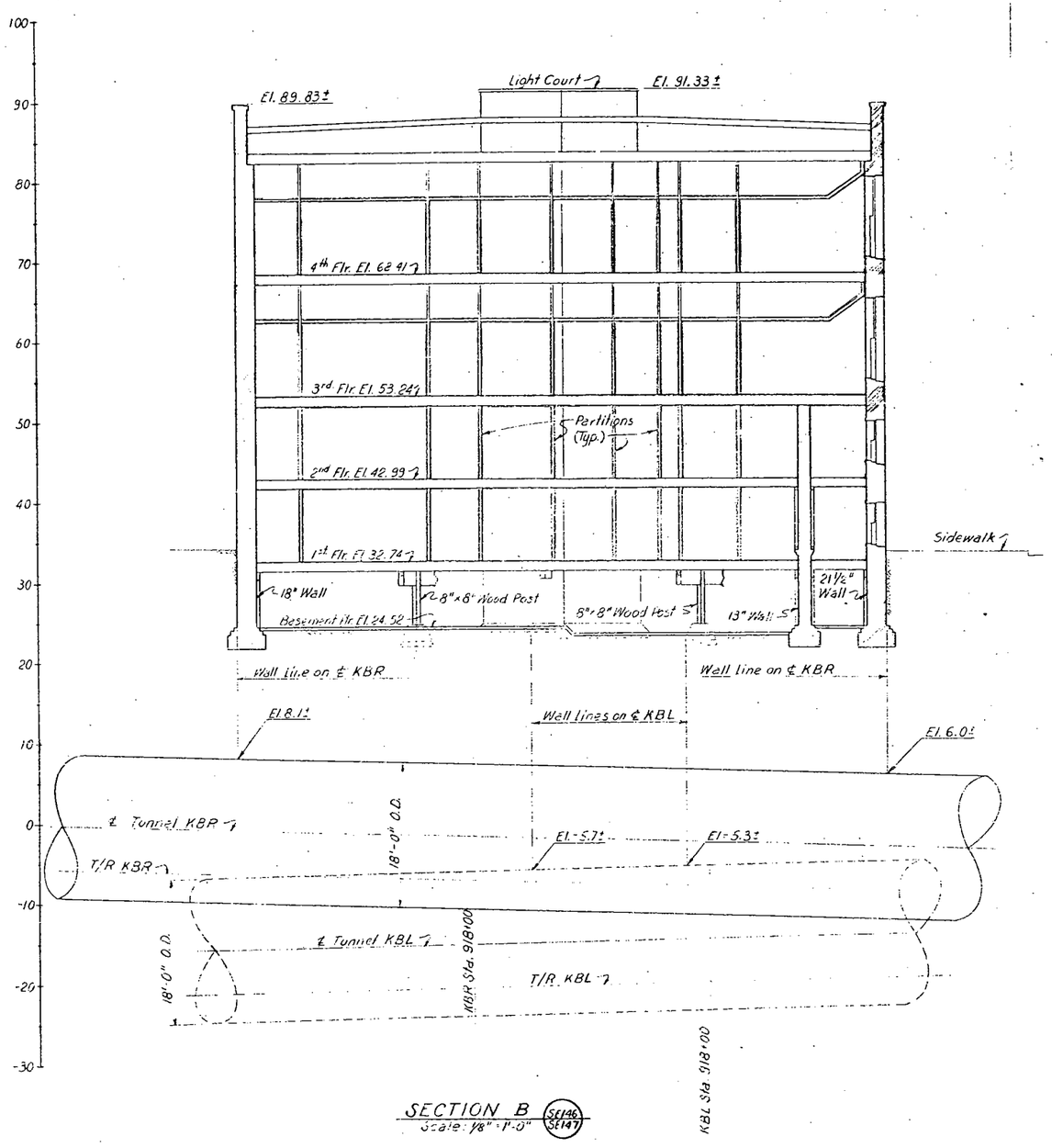
SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BECHTEL CORPORATION, ENGINEERS, SAN FRANCISCO — SUBMITTED J.G. Thom

PARSONS BRINCKERHOFF-TUDOR-BECHTEL, GENERAL ENGINEERING CONSULTANTS — APPROVED E.K. Emmet

OAKLAND DOWNTOWN
BUILDING DATA
PARCEL - O-K022
APART. BLDG. 717 FRANKLIN ST.
PLAN AND DETAILS

SCALE: AS NOTED
CONTRACT - PACKAGE: IK0061-K006
SHEET NO. - REV. | PAGE NO.: SE 146-2 218



SECTION B (SE146) (SE147)
Scale: 1/8" = 1'-0"

Note:
For notes see sheet SE 146

AS-BUILT

SHEET NO	TITLE
SE 148	Building Data. Sections
SE 146	Building Data. Plan.
SE 129	Existing Structures, Key Plan.

REFERENCE DRAWINGS

REV.	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY W. Mc Mahon
DRAWN BY J. Dizenzo
CHECKED BY F.T. CORP
IN CHARGE J.J. Strikmyer
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER
J. GEORGE THOM
NO. 8397
STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

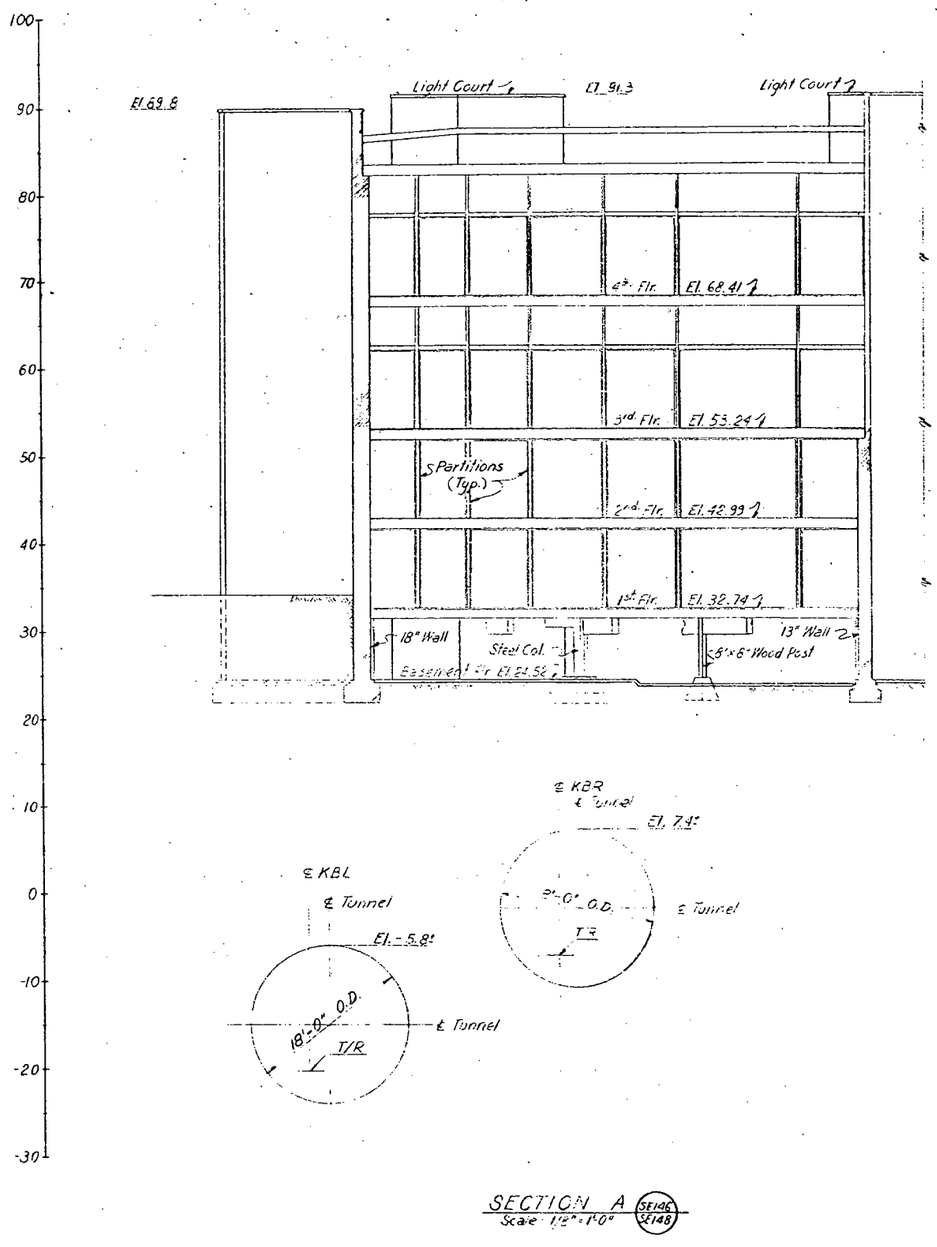
BECHTEL CORPORATION
ENGINEERS
SAN FRANCISCO
SUBMITTED

PARSONS BRINCKERHOFF-TUDOR-BECHTEL
GENERAL ENGINEERING CONSULTANTS
APPROVED

OAKLAND DOWNTOWN
BUILDING DATA
PARCEL - 0-K022
APART. BLDG. 717 FRANKLIN ST.
SECTIONS SHT. 1

SCALE: As Noted
CONTRACT - PACKAGE
IK0061-K006
SHEET NO. - REV. PAGE NO.
SE 147-0 219

226



SECTION A (SE146, SE148)
Scale 1/2" = 1'-0"

Notes:
For notes see sheet SE 146

SE 147	Building Data, Sections
SE 146	Building Data, Plan.
SE 129	Existing Structures, Key Plan.
SHEET NO.	TITLE

REFERENCE DRAWINGS

AS-BUILT

REV.	DATE	BY	SUB.	APP.	DESCRIPTION	REV.	DATE	BY	SUB.	APP.	DESCRIPTION

DESIGNED BY W.Mc Mahon
DRAWN BY J. Dwornik
CHECKED BY E.W. KOPP
IN CHARGE J. Gartmyer
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER — J. GEORGE THON — NO. 8397 — STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

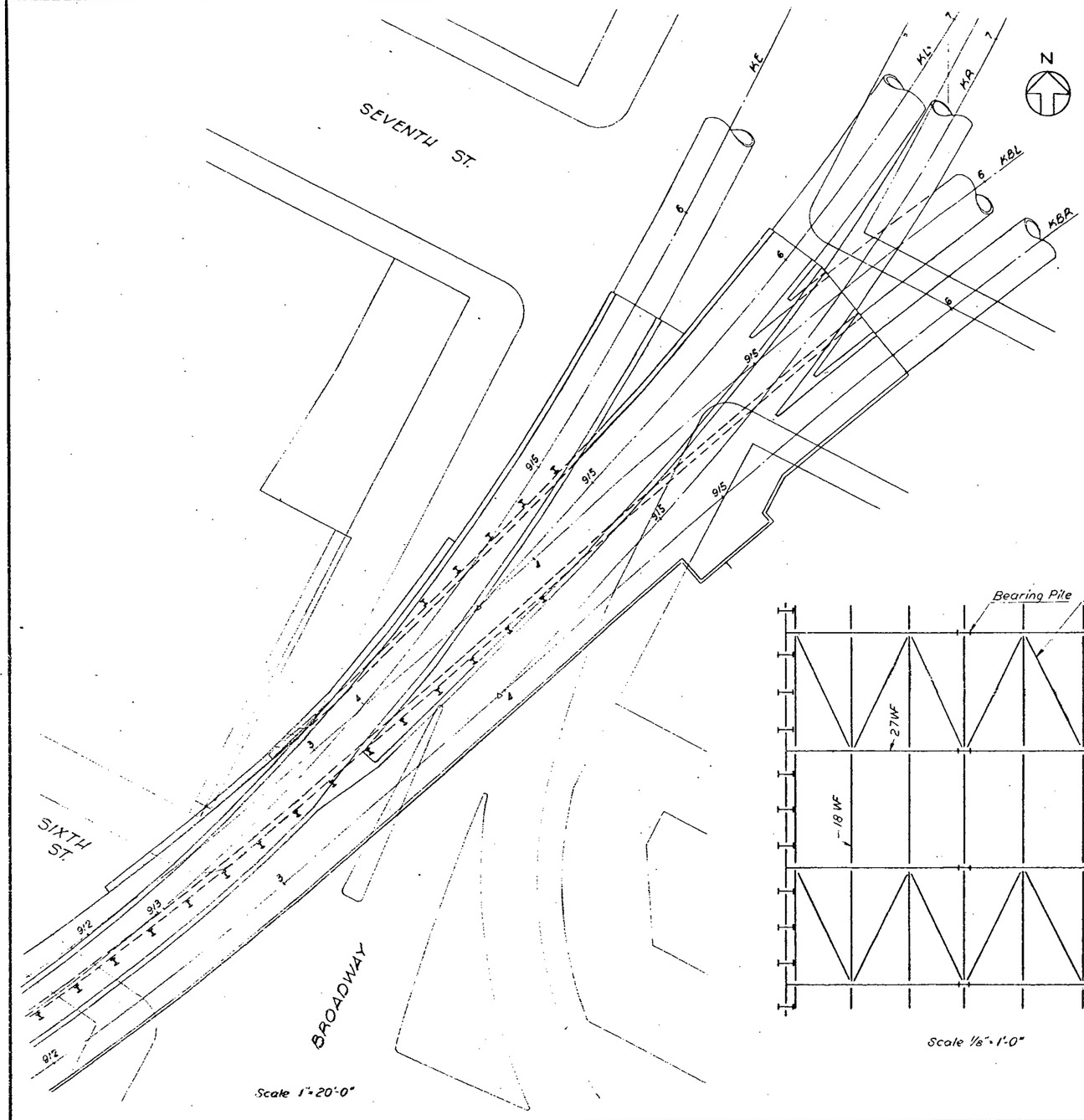
BECHTEL CORPORATION, ENGINEERS, SAN FRANCISCO — SUBMITTED J. Thon

PARSONS BRINCKERHOFF-TUDOR-BECHTEL, GENERAL ENGINEERING CONSULTANTS — APPROVED E. R. Kinsel

OAKLAND DOWNTOWN
BUILDING DATA
PARCEL - O-K022
APART. BLDG. 717 FRANKLIN ST.
SECTION

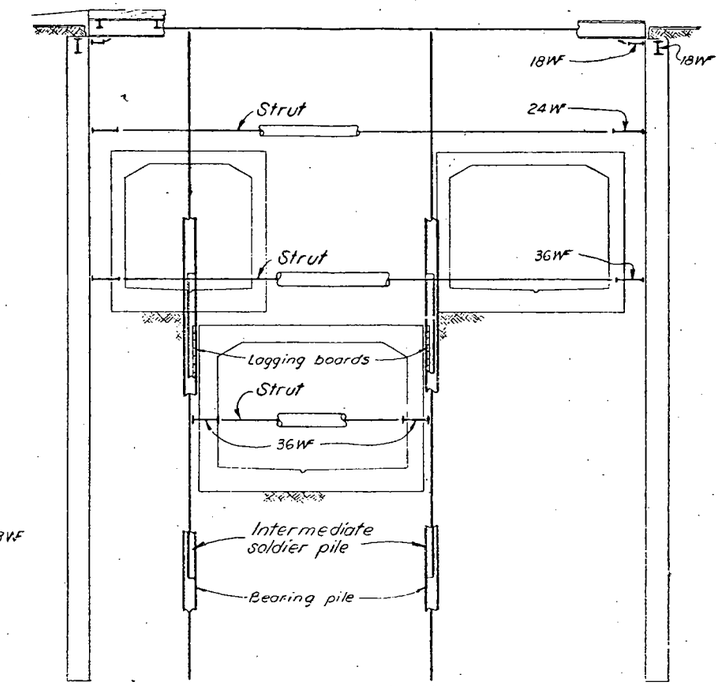
SCALE: As Noted
CONTRACT - PACKAGE: IK0061-K006
SHEET NO. - REV. - PAGE NO.: SE 148-0 220

227



Scale 1"=20'-0"

Scale 1/8"=1'-0"



SECTION AT KBR STATION 914+50
Scale 1/8"=1'-0"

SHEET NO.	TITLE
SE 151	Temporary Structures
SE 150	Temporary Structures
SE149	Temporary Decking
SE 161	General Structural Notes

REFERENCE DRAWINGS

AS-BUILT

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY J. FLANNIGAN
DRAWN BY A. ULRICH
CHECKED BY F. J. KORP
IN CHARGE A. J. BIRKMYER
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER — J. GEORGE THOR — NO. 8397 — STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

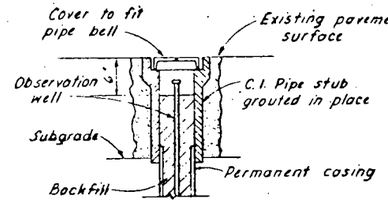
BECHTEL CORPORATION — ENGINEERS — SAN FRANCISCO — SUBMITTED J. G. Thor

PARSONS BRINCKERHOFF-TUDOR-BECHTEL — GENERAL ENGINEERING CONSULTANTS — APPROVED E. R. Kinnel

OAKLAND DOWNTOWN TEMPORARY STRUCTURES SUPPORT OF EXCAVATION CROSS SECTIONS AND TYPICAL DECKING PLAN

SCALE:
CONTRACT - PACKAGE: IK0061-K006
SHEET NO. - REV. - PAGE NO.: SE 153-0 225

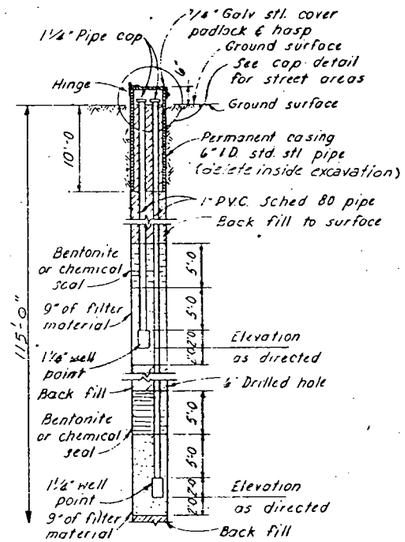
HE



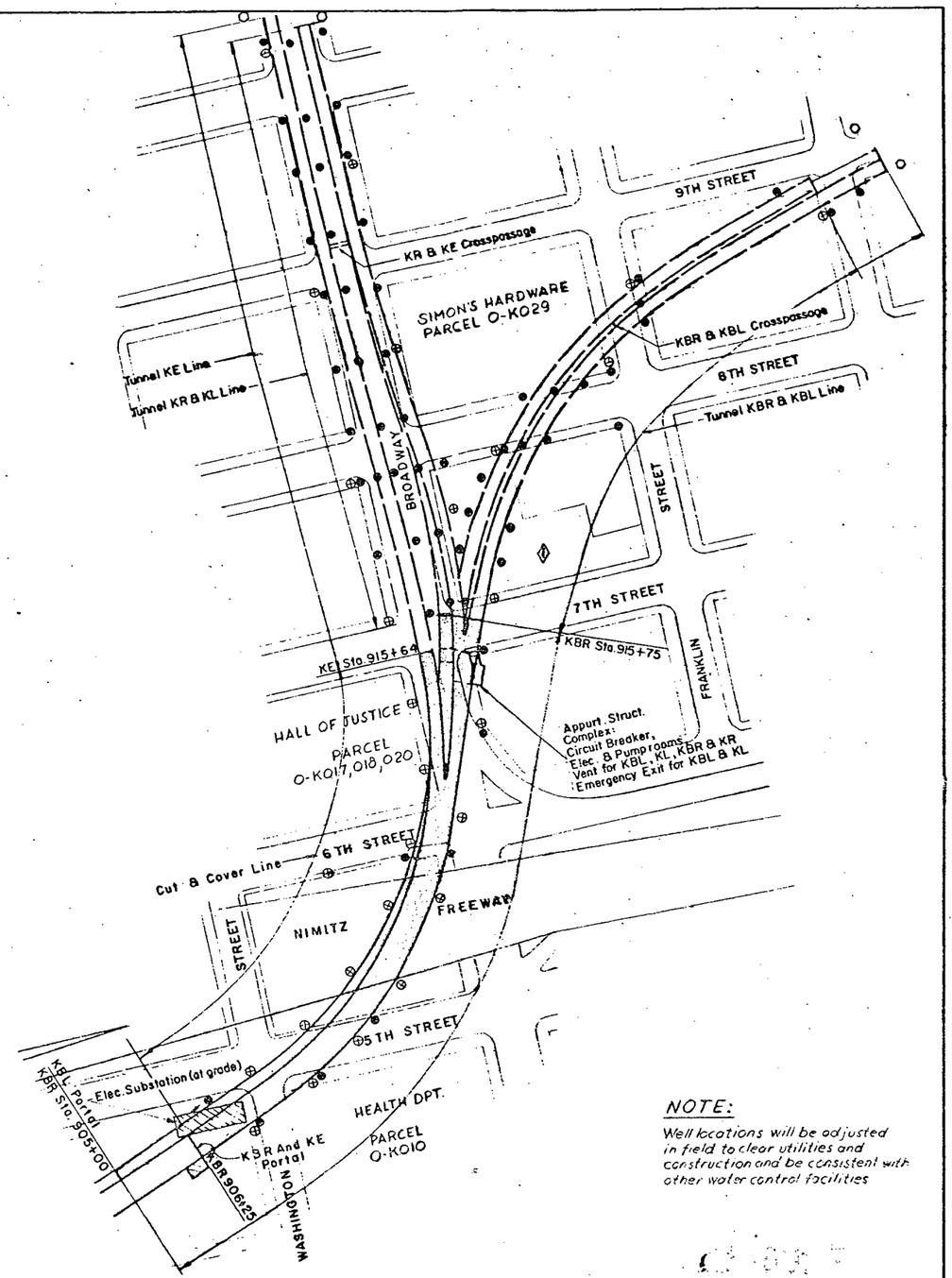
OBSERVATION WELL
CAP DETAIL IN STREET AREAS
N.T.S.

LEGEND

- ● Settlement Point
- ⊕ Type II Observation Well
- ○ Existing Observation Wells



OBSERVATION WELL
TYPE II
N.T.S.



NOTE:
Well locations will be adjusted in field to clear utilities and construction and be consistent with other water control facilities

REV.	DATE	BY	SUB	APP	DESCRIPTION
1	8-11-67	WHW			Accencum #4 Added settlement points

DESIGNED BY R. HARLAN
DRAWN BY A. ULRICH
CHECKED BY F. KORP
IN CHARGE A. J. BIRLMYER
DATE 27 JUN 1967

REGISTERED CIVIL ENGINEER — J. GEORGE THOR — NO. 8397 — STATE OF CALIFORNIA

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED

PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN
GROUND WATER CONTROL DATA
PLAN & DETAILS

SCALE NONE
CONTRACT—PACKAGE IK0061-K006
SHEET NO.—REV. SE154-1
PAGE NO. 226

233

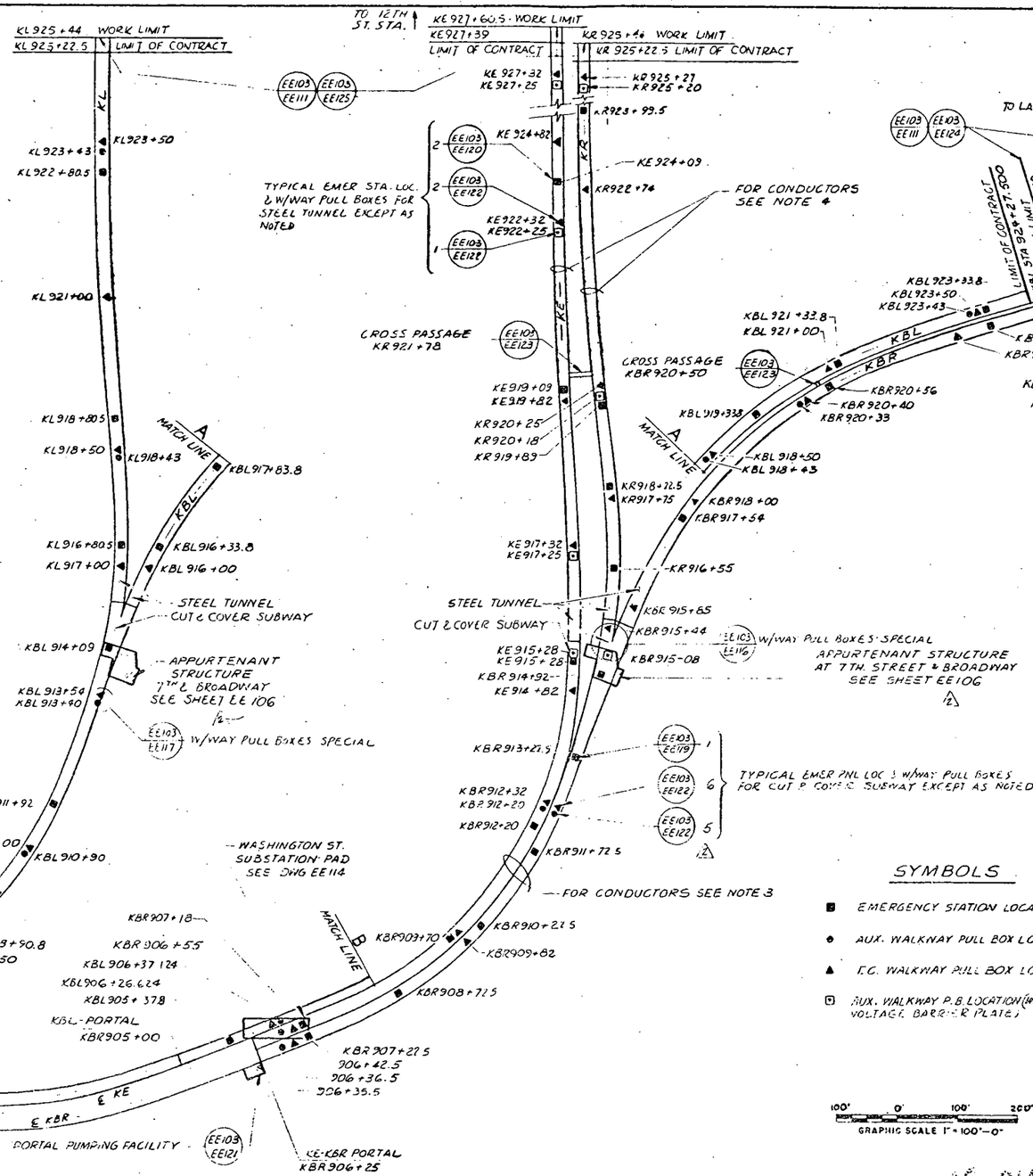
MATERIAL LIST * - MAJOR ITEMS

Conduit Size	Approx. Length(ft)	GRD Wire	Approx. Length(ft)
4 Non-Met.	54 5.00	#6	40
4" GS	350	#4	180
3" "	220	#2	120
2-1/2" "	200	#1/0	60
2" "	1,700	#2/0	8755
1-1/2" "	530	#4/0	435
1-1/4" "	70		
1" "	16,665		
3/4" "	16,460		

Cable 600V	Cable 5KV	Approx. Length(ft)	Walkway Type	P. Box Quantity
#12	-	3330	T/C	56
#10	-	62200		
# 6	-	30	Aux.	20
#2/0	-	6640		
500MCM	-	100		
	#6	7000		

Quantity *	Misc. Items
1	Transf., 300 KVA 4160/480V., 3 ϕ
1	Transfer SW. 400 A, 4160 V.
2	Dist. Pan., 400 A, 480V, 3 ϕ- 3W.
3	Transf. Max. 30KVA., 480-120/240V.
4	Lighting Panels 120/240V.
1	Transfer SW. 200 A, 600 V, 3PDT.
173	Subway Ltg. Fixtures (District Furn.)
8	Incand. Ltg. Fixtures Type A1
12	" " Ltg. Fixtures Type A2
16	" " Ltg. Fixtures Type A4
2	Fluor. Ltg. Fixtures F1
21	Fluor. Ltg. Fixtures F2

*Note: All quantities to be verified by contractor



NOTES

1. CONDUIT SYSTEM FOR EMERGENCY PANELS IS TO BE RUN EXPOSED ON TUNNEL WALLS ON SUPPORTS.
2. SEE TABULATION FOR APPROX LENGTHS OF EMERGENCY STATION BLUE LIGHT CIRCUITS
3. THE NON-METALLIC CONDUIT SYSTEM FOR THE AUXILIARY POWER & TRAIN CONTROL (3-4" EACH) IS TO BE INSTALLED IN THE WALKWAYS. TWO OF THE ABOVE CONDUITS IN TUNNELS KBR & KE (ONE IN EACH TUNNEL) BETWEEN THE 7TH & BROADWAY STRUCTURE AND THE PORTAL PUMPING FACILITY (APPROX 500') ARE TO HAVE 3-1/C #2/0 600V WIRES FOR 480V POWER.
4. THE 2160V POWER FOR THE 7TH & BROADWAY STRUCTURE WILL BE SUPPLIED FROM THE 12TH STREET STATION. INSTALL 3-1/C #6-5KV CABLES (APPROX. LENGTH ONE WAY 1100') BETWEEN 7TH & BROADWAY STRUCTURE AND P.BOX NEAREST LIMIT OF CONTRACT. SEE ALSO NOTE 1 ON DWG. EE104.
5. FOR GROUNDING SEE TABULATION AND APPLICABLE DRAWINGS FOR THE VARIOUS STRUCTURES.
6. IN KE TUNNEL INSTALL 2" GRS CONDUIT FROM NORTH END OF AUX PULLBOX @ KE 917+32 (CLOSE TO CONDUIT # (2)). REF ST# EE122, DETS. 1 & 2)

SYMBOLS

- EMERGENCY STATION LOCATION
- AUX. WALKWAY PULL BOX LOCATION
- T.C. WALKWAY PULL BOX LOCATION
- AUX. WALKWAY P.B. LOCATION (WITH HIGH VOLTAGE BARRIER PLATE)

GRAPHIC SCALE 1" = 100'-0"

AS-BUILT

ES103	WALKWAY PULL BOXES
SE105	PULL BOX DETAILS
SE1	GEN. ARRGMT PLAN
EE 27	LIGHTING & GROUNDING PLAN - WASHINGTON ST. SUBSTATION
EE126	LIGHTING TEMPORARY TRANSP. BLDG, ELEC. RACEWAYS @ KBR 903+90 & FENCE BRDG
EE125	ELECTRICAL RACEWAYS IN WALKWAYS - INTERFACE
EE124	ELECTRICAL RACEWAYS IN WALKWAYS - INTERFACE
EE123	CROSS PASSAGE CONDUITS - LIGHTING
EE122	MISCELLANEOUS ELECTRICAL DETAILS
EE121	POWER, GROUNDING & LIGHTING @ PORTAL PUMPING FACILITY
EE120	SUBWAY TUNNEL LIGHTING - TYPICAL SECTION & DETAILS
EE119	CUT & COVER SUBWAY LIGHTING, TYPICAL SECTION & DETAILS
EE113	SUBWAY LIGHTING STATIONING PLAN
EE117	ELECTRICAL RACEWAYS IN KL & KBL WALKWAYS - DETAILS
EE116	ELECTRICAL RACEWAYS IN KR & KBR WALKWAYS - DETAILS
EE115	ELECTRICAL RACEWAYS @ WASHINGTON ST. SUBSTATION
EE114	ELEC. RACEWAYS @ WASHINGTON ST. SUBSTATION.
EE113	ELEC. RACEWAYS TRANSITION FROM SUBWAY TO PORTAL KBR 906+25
EE112	GROUNDING PLAN @ APPURT. STRUCT. COMPLEX BROADWAY & 7TH ST.
EE111	SUBWAY LIGHTING INTERFACE PLAN
EE110	LIGHTING-EMER. STATIONS & INSERTS-KL & KBL SUBWAYS
EE109	LIGHTING, EMER. STATIONS & INSERTS KR, KBR & KE SUBWAYS
EE108	ELECTRICAL RACEWAYS - KL & KBL LEVELS APPURT. STRUCT. BROADWAY & 7TH ST.
EE107	ELEC. RACEWAYS, KR, KBR & KE LEVELS @ APPURT. STRUCT. BROADWAY & 7TH ST.
EE 106	ELECTRICAL RACEWAYS @ APPURTENANT STRUCT. BROADWAY & 7TH ST.
EE105	LIGHTING PLAN-APPURTENANT STRUCT. COMPLEX BROADWAY & 7TH ST.
EE104	SINGLE LINE DIAGRAM & CONDUIT SCHEMATIC
ES102	DIAGRAM SYMBOLS
ES101	PLAN LEGEND
GP-1	INDEX OF DRAWINGS
SHEET NO.	REFERENCE DRAWINGS

REV.	DATE	BY	SUB	APP	DESCRIPTION
2	21 JUL 67	FQ	HM	PM	CORRELATE CONTRACT LIMIT STATIONING DCN D-10 & DCN 35 INCORPORATED ADDENDUM #4
1	8-11-67	FQ	HM	PM	CHANGED QTY SUBWAY LTG FIXT 167 TO 173 REVISED 4 GRS LENGTH FROM 210 TO 350'

DESIGNED BY F. QUAN
DRAWN BY V. REBANE
CHECKED BY P. MEIDELL
IN CHARGE A. E. CORNES
DATE 27 JUN 67

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BECHTEL CORPORATION ENGINEERS SAN FRANCISCO — SUBMITTED

PARSONS BRINCKERHOFF-TUDOR-BECHTEL GENERAL ENGINEERING CONSULTANTS — APPROVED

OAKLAND DOWNTOWN
JEFFERSON ST. TO OAKLAND WYE
GENERAL LOCATION AND PLOT PLAN

SCALE: 1" = 100'
CONTRACT - PACKAGE: IK0061-K006
SHEET NO. - REV. | PAGE NO.: EE103-2 | 254

Appendix G

Standard Field Procedures and Soil Vapor Sampling Diagrams

CAMBRIA

STANDARD FIELD PROCEDURES FOR SOIL BORING AND MONITORING WELL INSTALLATIONS

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling groundwater monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

SOIL BORINGS

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4° C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and groundwater depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The groundwater samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Groundwater monitoring wells are installed to monitor groundwater quality and determine the groundwater elevation, flow direction and gradient. Well depths and screen lengths are based on groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 ft below and 5 ft above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three ft thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of groundwater surging and extraction. Surging agitates the groundwater and dislodges fine sediments from the sand pack. After about ten minutes of surging, groundwater is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of groundwater are extracted and the sediment volume in the groundwater is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Groundwater Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of groundwater are purged prior to sampling. Purging continues until groundwater pH, conductivity, and temperature have stabilized. Groundwater samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

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STANDARD FIELD PROCEDURES FOR HAND-AUGER SOIL BORINGS

This document describes Cambria Environmental Technology's standard field methods for drilling and sampling soil borings using a hand-auger. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist or engineer working under the supervision of a California Professional Geologist (PG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Boring and Sampling

Hand-auger borings are typically drilled using a hand-held bucket auger to remove soil to the desired sampling depth. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments beyond the bottom of the augered hole. The vertical location of each soil sample is determined using a tape measure. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

Augering and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

Duplicates and Blanks

Blind duplicate water samples are collected usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also be analyzed if non-dedicated sampling equipment is used.

Grouting

The borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are stored onsite in sealed 55-gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Disposal of the water is based on the analytic results for the well samples. The water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.

Cambria

STANDARD FIELD PROCEDURES SOIL VAPOR SAMPLING DIRECT PUSH AND VAPOR POINT METHODS

This document describes Cambria Environmental Technology's standard field methods for soil vapor sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil vapor samples are collected and analyzed to assess whether vapor-phase subsurface contaminants pose a threat to human health or the environment.

Direct Push Method for Soil Vapor Sampling

The direct push method for soil vapor sampling uses a hollow vapor probe, which is pushed into the ground, rather than augured, and the stratigraphy forms a vapor seal between the surface and subsurface environments ensuring that the surface and subsurface gases do not mix. Once the desired soil vapor sampling depth has been reached, the field technician installs disposable polyethylene tubing with a threaded adapter that screw into the bottom of the rods. The screw adapter ensures that the vapor sample comes directly from the bottom of the drill rods and does not mix with other vapor from inside the rod or from the ground surface. In addition, hydrated bentonite is placed around the sampling rod and the annulus of the boring to prevent ambient air from entering the boring. The operator then pulls up on the rods and exposes the desired stratigraphy by leaving an expendable drive point at the maximum depth. The required volume of soil vapor is then purged through the polyethylene tubing using a standard vacuum pump. The soil vapor can be sampled for direct injection into a field gas chromatograph, pumped into inert tedlar bags using a "bell jar" sampling device, or allowed to enter a Summa vacuum canister. Once collected, the vapor sample is transported under chain-of-custody to a state-certified laboratory. The ground surface immediately adjacent to the boring is used as a datum to measure sample depth. The horizontal location of each boring is measured in the field relative to a permanent on-site reference using a measuring wheel or tape measure. Drilling and sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent. Once the sampling is completed, the borings are filled to the ground surface with neat cement.

Shallow Soil Vapor Point Method for Soil Vapor Sampling

The shallow soil vapor point method for soil vapor sampling utilizes a hand augur to advance a boring for the installation of a soil vapor sampling point. Once the boring is hand augered to the final depth, a half a foot of number 2/16 filter sand is placed at the base of the boring (Figure A). One, ¼-inch inner-diameter Teflon™ tube of known length is placed into the boring. The tube is fitted with a stainless steel screen and barbed brass fitting to prevent sand from clogging the tube and is capped at the top with another barbed brass fitting. Another half a foot of number 2/16 filter sand is placed above the bottom of the tubing creating a one foot zone of filter sand with the end of the tubing in the middle. A 2-inch layer of unhydrated bentonite chips is placed on top of the filter pack. Next pre-hydrated bentonite gel is then poured into the hole to approximately 0.5 fbg. Another 2-inch layer of unhydrated bentonite chips is placed on top of the bentonite gel. The tube is coiled and placed within a wellbox finished flush to the surface. Soil vapor samples will be collected no sooner than one week after installation of the soil-vapor points to allow adequate time for representative soil vapors to

accumulate. Soil vapor sample collection will not be scheduled until after a minimum of three consecutive precipitation-free days and irrigation onsite has ceased. Figure B shows the soil vapor sampling apparatus. A measured volume of air will be purged from the tubing using a hand-held purge pump and a tedlar bag. Immediately after purging, soil-vapor samples will be collected over an approximate 30-minute period using 6-liter Summa canisters and capillary air-flow controllers. The soil-vapor points will be preserved until they are no longer needed for risk evaluation purposes. At that time, they will be destroyed by extracting the tubing, hand augering to remove the sand and bentonite, and backfilling the boring with neat cement. The boring will be patched with asphalt or concrete, as appropriate.

Vapor Sample Storage, Handling, and Transport

Samples are stored out of direct sunlight in coolers or boxes and transported under chain-of-custody to a state-certified analytic laboratory.

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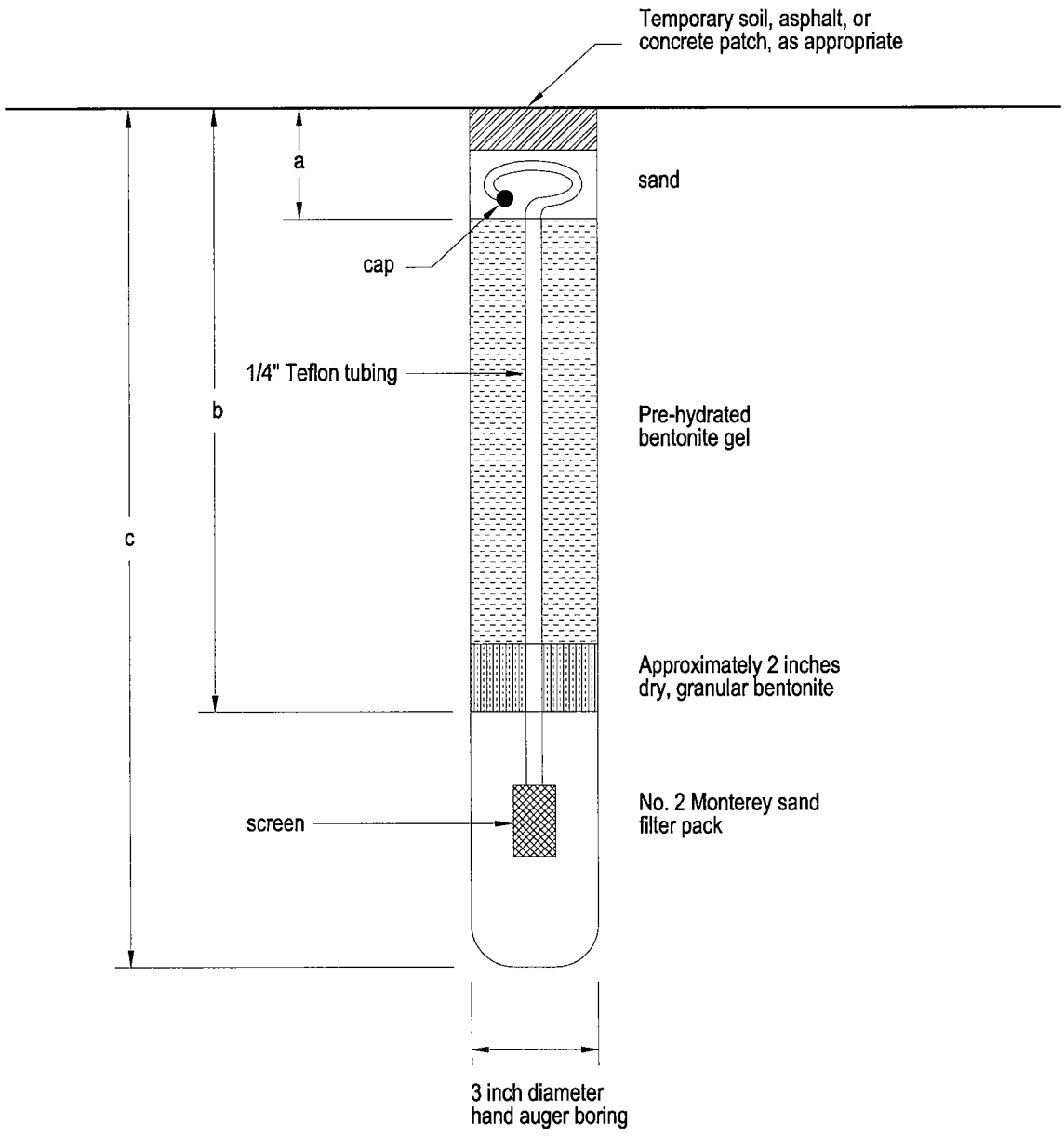

Schematic Not to Scale

FIGURE

A

Soil Vapor Point

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S:\0-TEXACO\TEX-SITES\211273\FIGURES\VAPOR-POINT.DWG

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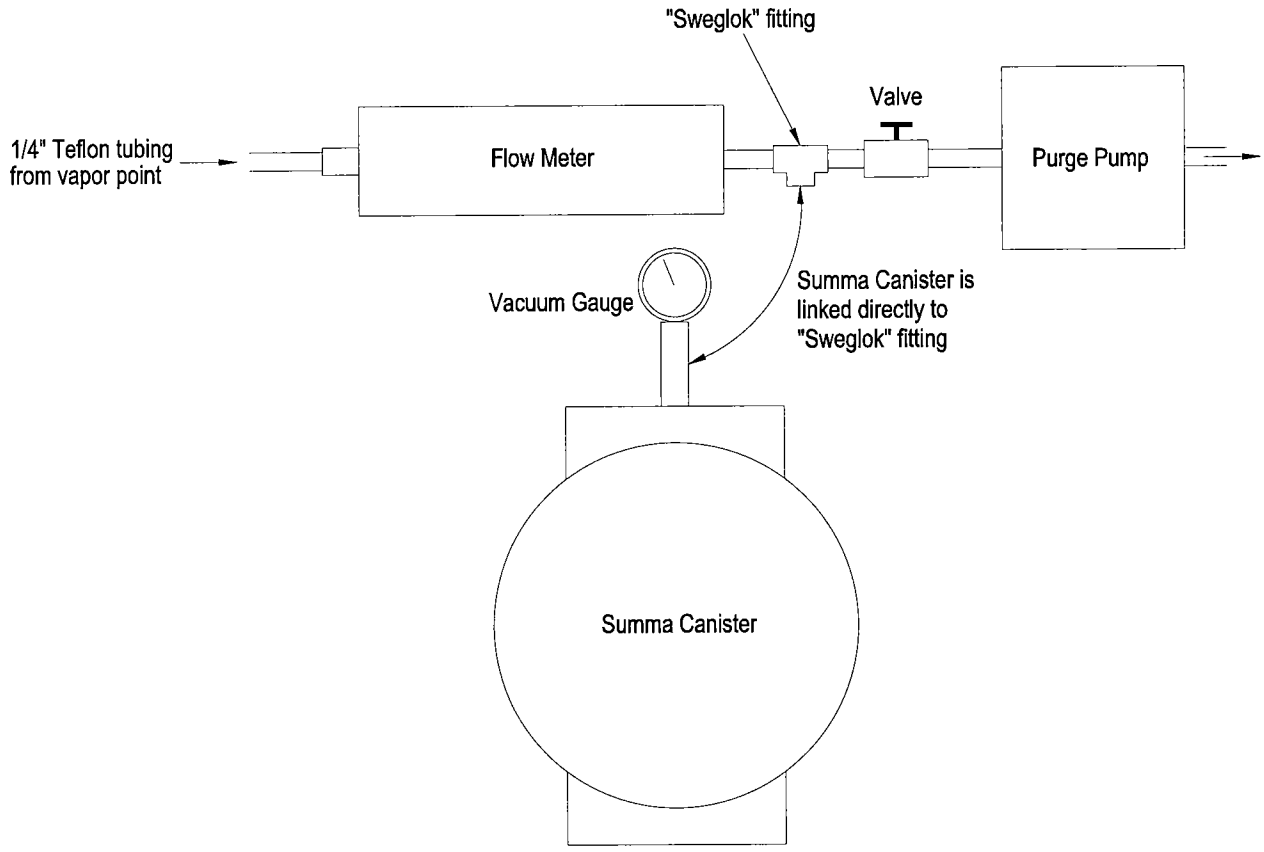

FIGURE

B

Schematic Not to Scale

S:\10-TEXACO\TEX-SITES\211273\FIGURES\VAPOR-DIAG.DWG

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Soil Vapor Sampling Apparatus Diagram