



February 17, 2017

Project IR15165930

Ms. Elena Joy Pelen, PE
Department of Toxic Substances Control
Brownfields and Environmental Restoration Program
700 Heinz Avenue, Suite 200
Berkeley, California 94710-2721

**Re: Comments on the 2016 Final Remedial Investigation Report
Former Marchant/Whitney (FMW) Site
5679 Horton Street, Emeryville, California**

Dear Ms. Pelen:

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), on behalf of Baker Hostetler LLP, as counsel for Swagelok Company (Swagelok) and Catherine Lennon Lozick (Lozick), has been asked to review reports prepared by Erler & Kalinowski, Inc. (EKI) regarding the Former Marchant/Whitney site (FMW site, Figure 1), including EKI's Final Remedial Investigation Report¹ dated June 30, 2016 (2016 Report). The focus of the review was to evaluate EKI's conclusions regarding the source and migration of trichloroethene (TCE) detected in the subsurface at the FMW site and EKI's attempt to identify the FMW site as a source of TCE detected in groundwater at nearby properties.

We understand that the City of Emeryville (City) has issued notices pursuant to the Gatto Act² to Swagelok and Lozick, in which the City asserts that they are responsible parties with respect to releases associated with the former Whitney Research Tool Company (Whitney) operations at the FMW site. Whitney has been identified as having occupied the FMW site beginning in the mid-1960s. Whitney's tenancy began after Marchant Calculating Machine Company (Marchant), which had occupied the FMW site and the adjoining property for at least 40 years, moved its calculating machine production facilities located on the FMW site and the adjoining property to a site in Berkeley, California (Berkeley Location). Following the move, the buildings occupied by Marchant on the FMW site were demolished and replaced by a new building (Current Building) that was then occupied by Whitney. The location of the Current Building is shown on Figure 1.

¹ Erler & Kalinowski, Inc., Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, June 30, 2016.

² Assembly Bill (AB) 440 (Gatto Act), 2013.



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To summarize the results of the review:

- **Available Information Points to Marchant's Operations, and not Whitney's, as the Source of TCE in the Subsurface**

In a report it issued in 2012 (2012 Report), EKI identified Marchant's operations during its 40-year tenure as the source of TCE detected in the subsurface at the FMW site.³ Then, in the 2016 Report, after the City had issued its Gatto Act notice to Swagelok, EKI for the first time identified the former Whitney operations as a primary source of the TCE.

At the FMW site, the areas of highest TCE concentrations are located where Marchant conducted hardening and plating operations and below the former Marchant building's slab, which appears to have been left in place when the Current Building was constructed. Those operations are ones that would have required cleaning with solvents of the metal parts and covers of the calculating machines that Marchant manufactured. These circumstances, and the TCE contamination at the Berkeley Location to which Marchant moved those manufacturing operations, point to Marchant's operations as the source of the TCE. In contrast, Whitney had a parking lot and offices in that same area.

EKI has attempted to tie Whitney to the TCE in the subsurface by asserting that the TCE is associated with sewer lines on the FMW site. This broad assertion is not supported by the sampling data; TCE concentrations in the subsurface are not consistent with releases from the assumed location of the sewer lines. It is also not supported by evidence of the specific location or condition of the sewer lines or of Whitney's use of those sewer lines, in particular, in those areas of the Current Building in which Whitney may have used chemicals.

- **Groundwater Wells Installed by the City's Consultant as Part of the Site Investigation Across Coarse-Grained Units Have Acted as a Conduit for Downward Migration of TCE**

In the 2016 Report, EKI attributes the presence of TCE in deeper groundwater units to downward migration of TCE from the source zones it identifies. In fact, and as demonstrated below, the presence of TCE in those deeper groundwater units likely has been exacerbated by EKI's installation of groundwater wells in 2012, 2013 and 2015. The screened interval of at least 5 of these wells extends through two or more significant and distinct coarse-grained intervals, including a coarse-grained unit from -6 to -14 feet below mean sea level (msl) that was not identified by EKI in its characterization of subsurface conditions. These coarse-grained intervals have acted and continue to act as a conduit that has allowed high levels of TCE that was previously confined within shallow groundwater units to migrate to deeper units.

³ Erler & Kalinowski, Inc., 2012 Final Subsurface Environmental Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, August.



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- **TCE Contamination Detected in Groundwater at Site B or the South Bayfront Property Is Not Associated With Sources on the FMW Site**

In the 2016 Report, EKI concludes that TCE detected in groundwater at neighboring properties (referred to as Site B and the South Bayfront) is from the FMW site. According to EKI, contaminants are migrating through coarse-grained channel deposits found below the surficial fill at up to 10 feet below msl (referred to as the S10 Unit) and thicker coarse-grained deposits in lower units. EKI's conclusion is based on characterization of the hydrostratigraphy with respect to contaminant transport that is not supported by the available data.

Based on review of the same data, these channels and thicker coarse-grained deposits appear to be an artifact of EKI's interpretation of the data and likely do not exist in the manner depicted by EKI. EKI's conclusion is also inconsistent with current understanding regarding groundwater flow at and in the vicinity of the FMW site. EKI therefore has no basis for concluding that there are off-site impacts associated with TCE sources at the FMW site. There is not a basis for including any presumed downgradient impacts to Site B or even South Bayfront in any remedy for the FMW site.

This letter describes our technical review and the basis for the above conclusions.⁴ It is organized into four main sections:

- 1.0 Background
- 2.0 Overview of the FMW Site and Surrounding Area
 - 2.1 FMW Site
 - 2.2 Surrounding Area
- 3.0 EKI's 2016 Report Findings and Critique of Same
 - 3.1 On-site Source Areas
 - 3.2 Off-site Sources Affecting the FMW Site
 - 3.3 Groundwater Conditions
- 4.0 Conclusions

1.0 Background

EKI conducted remedial investigations (RIs) for the FMW site and neighboring properties from 2009 through 2015. Neighboring properties include Site B⁵ and South Bayfront,⁶ located about 120 feet and about 100 feet, northwest and west, respectively, from the FMW site, on the other side of railroad tracks that run approximately north-south adjacent to the FMW site. The Site B

⁴ The conclusions and analysis described in this letter are based on currently available information and are subject to reevaluation as additional data or other information becomes available.

⁵ 1525 and 1535 Powell Street, and former rail spur property at 5760 and 5770 Shellmound Street, Emeryville, California (EKI, 2016a, Site B).

⁶ 5600 Shellmound Street, Emeryville, California (APNs 049-1038-017 and -018) (EKI, 2015).



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and South Bayfront properties are shown on Figure 1. These properties are located within an area referred to as the Emeryville Horton District (Horton District), which is shown on Figure 1.

EKI submitted reports documenting the RIs at the FMW site in 2012 and Site B in 2011. Additional investigation and other work were subsequently conducted at these two sites, and the results were included in the 2016 Report for the FMW site and in the Final Additional Groundwater Investigation and Groundwater Monitoring Report for Site B (EKI, 2016b).⁷

The 2016 Report for the FMW site presents EKI's findings as to: the history of the FMW site and surrounding area; RIs completed; nature and extent of contamination in soil, soil vapor, and groundwater; and a site conceptual model of the environmental conditions.⁸ The 2016 Report concludes that there is sufficient information to evaluate remedial measures for the soil and groundwater impacts above an elevation of -43 feet msl.

As part of the recent RI, EKI reclassified the unconsolidated sediments (i.e., soil) beneath the FMW site and surrounding area into "units" based on elevation for consistency with the characterization of the subsurface at Site B. The geology, hydrogeology, and nature and extent of chemicals in groundwater are described in relationship to these units. EKI's unit designations as defined by elevation; the S10 Unit was defined as the unit below the surficial fill to an elevation of -10 feet msl, the 1032 Unit was defined as the unit from an elevation of -10 to -32 feet msl, and so on. Our review of the same data indicates the presence of a contiguous gravel and sand unit ranging from an elevation of -6 to -14 feet msl (Sand Unit). This Sand Unit, which was not described by EKI, is important to an understanding of the movement of contaminants in the subsurface and is discussed in Section 3.3 of this letter.

This letter includes an overview of the FMW site and surrounding area, historical use and operations. The overview is based on the information contained in the 2016 Report and supplemented by previous reports prepared by EKI for the FMW site as listed in the references at the end of this letter, and information obtained from the following resources:

- City of Emeryville, Building and Safety and Public Works;
- City of Emeryville, City Attorney's Office;
- Department of Toxic Substances Control (DTSC), including DTSC's online database, EnviroStor;
- Alameda County Department of Environmental Health;
- The online database for the State Water Resources Control Board (GeoTracker);
- Sanborn fire insurance maps (1903, 1911, 1951, 1952, 1967 and 1969) (EDR, 2015); and

⁷ Erler & Kalinowski, Inc., Final Additional Groundwater Investigation and Groundwater Monitoring Report, Site B Project Area, Emeryville, California, June 30, 2016.

⁸ EKI also completed a human health risk assessment in 2016 based on the results of the RI.



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- Aerial photographs (1931, 1939, 1946, 1958, 1959, 1968, 1974, 1980 and later) (EDR, 2015 and online resources).

In addition, this letter contains an analysis of EKI's findings and conclusions regarding groundwater conditions presented in the 2016 Report.

2.0 Overview of the FMW Site and Surrounding Area

2.1 FMW Site

The FMW site is a 1.7-acre parcel that was acquired in 1999 by the Emeryville Redevelopment Agency and is owned by the City. According to the 2016 Report, it was used by the City as a corporation yard until 2012 (EKI, 2016a). The building located on the FMW site (the Current Building) was constructed in the mid-1960s.⁹

Industrial activities associated with the FMW site and surrounding properties date back to the early 1900s (EKI, 2015a¹⁰). Marchant's operations on the FMW site, in which it manufactured electromechanical calculators, began in about 1918 and continued through the late 1950s (EKI, 2016a). Marchant occupied multiple buildings that covered the FMW site and the area to the north, east, and northeast of the FMW site (Marchant Facility; Figure 1), with most of Marchant's manufacturing activities being located on the FMW site (Figures 2 and 3, Sanborn Maps from 1929 and 1949; Figures 2-1a and 2-1d in the 2016 Report). The relationship between the Current Building and the former outline of the Marchant Facility is shown on Figure 1.

The areas and operations associated with the Marchant Facility identified by EKI in the 2016 Report (pages 2-2 and 2-3) included a nickel plating area, an enameling area, a grinding room, a press room, an assembling room, a machine shop, an experimental machine shop, a tool shop, a dressing room, shipping, a store room, storage and service department, a 20,000 gallon water tank filled by an onsite groundwater well, a machine inspection room, a press room, a tool room, bench works, a hardening and plating room, office, and spring department. In the Executive Summary of the 2016 Report (page ES-1), EKI noted a number of areas and operations associated with the Marchant Facility as listed above. EKI did not include in the Executive Summary any reference to the hardening and plating room, although it did refer to it in the body of the 2016 Report. The hardening and plating room is identified on the 1947 Sanborn map (Figure 3), which was identified by EKI as the primary source area in 2012 Report (EKI, 2012, page ES-2 and pages 6-3 and 6-4 in Section 6.2.2, and Figure 6-2a). The hardening and plating room occupied a rectangular area of approximately 27 feet wide (east-west axis) by approximately 110 feet long (north-south axis), and the footprint of the room underlies northeastern corner of the Current Building, and the area just east and north of the Current Building. The approximate location and boundaries of the Marchant hardening and plating room are noted on Figure 3.

⁹ 1963 as-builts titled "Plot Plan" and "Roof and Site Grading Plan" for the FMW site, Appendix A of EKI's 2016 Report.

¹⁰ Erler & Kalinowski, Inc., Phase I Environmental Site Assessment, Horton District, Emeryville, California, January 2015.



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The 2016 Report presents very little information about historical chemical use and waste disposal practices for Marchant's operations. Based on the nature, scale and time period of Marchant's operations at the FMW site, Marchant had a number of operations in which chlorinated solvents and petroleum hydrocarbon products were likely used or stored. Those operations, as identified as on the Sanborn maps, would have included machine shops, a storage and service department, a tool room, a press room and grinding department, a supply room, a machine inspection room, the hardening and plating room, an enameling department, an enameling and spraying room, and a photo department.

As noted in the 2016 Report (Section 2.2.1, page 2-2), by the late 1950s, the Marchant operations had moved to the Berkeley Location.¹¹ The Berkeley Location is currently under DTSC oversight for the assessment and remediation of chlorinated solvent impacts to soil and groundwater, with the primary chemical of concern identified as TCE and its degradation products. A fact sheet for the Berkeley Location notes that the new Marchant facility was constructed between 1956 and 1959, and operations included manufacturing metal parts, soldering circuit boards, washing circuit boards, painting metal, and using a degreaser system with TCE. A copy of the fact sheet is provided in Attachment 1.

In the late 1950s or early 1960s, the Marchant Facility was demolished, but the Marchant Facility's concrete floor slab on the FMW site (old slab) was left in place, as documented in the 2016 Report (page 2-4, Section 2.2.2) and as shown on a 1963 as-built titled "Plot Plan" included in Attachment 2 of this letter (Appendix A, 2016 Report). The Current Building is shown on the 1963 as-built titled "Plot Plan" and Figure 4 (1967 Sanborn map; EKI, 2016a, Figure 2-1h).

EKI encountered the old slab at depths ranging from 0.5 foot to 2 feet below grade (EKI, 2012, page 2-1, Section 2.1 and EKI, 2016a, page 2-4, Section 2.2.2). As seen on the 1963 as-built titled "Plot Plan" (Attachment 2), the old slab remains in place beyond the footprint of the Current Building to the north and east, and its presence was observed by EKI at nine soil vapor sample locations in the parking area around the northeast corner of the Current Building (EKI, 2016, Table 3-6). Up to 2 feet of fill material was placed above the old slab, and a new concrete floor slab was constructed on the fill material during construction of the Current Building. The fill material observed above the old slab reportedly consisted of coarse sand and gravel and backfill material (EKI, 2012, page 4-1). EKI (2012) also indicated that fill was observed below the old slab to a depth of 3 to 5 feet and consisted of silt, sand, and gravel fill (containing concrete and some other debris). As discussed below, the presence of the old slab beneath and outside the footprint of the Current Building is important to understanding the chemical releases at the FMW site.

Whitney (also referred to as "Specialty Tool Factory" on a 1967 Sanborn map) is reported to have begun operations at the FMW site sometime in the mid-1960s. Its operations, which

¹¹ http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=60000410, 6701 San Pablo Avenue. Referred to as Smith-Corona Marchant



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involved the manufacture of valves, apparently continued until the 1990s. The areas and operations identified by EKI in the 2016 Report for Whitney's operations included areas for a grease room, hazardous waste storage area, solvent recovery area, empty drum storage, full drum storage, pallets, chip processor, chip spinner, sanders, bandsaw, scale, shipping, receiving, dumpsters, battery charger, air operator, oven, jet drill line, tool room, inspection department, and lathe department. Based on a 1990 facility layout (Figure 5) and a 1990 "Multiple Dept. Layout" drawing presented in Appendix A of the 2016 Report, the operational areas and features included a grease room, hazardous waste storage, solvent recovery, empty drum storage, full drum storage, metal chip processor, metal chip spinner, sanders, band saw, battery charger, air compressor area, oven, sink, jet drill line, tool room, and lathe department. The hazardous waste storage area, solvent recovery area, empty drum storage area, and full drum storage area were, according to the 1990 facility layout (Figure 5) and 1990 Multiple Dept. Layout (Appendix A, 2016 Report), located in the northwest portion of the Current Building. Offices and locker rooms were located in the northeast corner of the Current Building. EKI (2016a; Section 2.2.2, page 2-4) acknowledged that "[b]ased on field observations made during remedial investigations, the [Current Building] footprint and the former office area were consistent with the 1963 floor plan of the [Whitney] factory building."

The 2016 Report (and earlier 2012 Report) noted that Whitney used TCE based on information presented in a 1999 report prepared by Stellar Environmental Solutions (Stellar, 1999¹²). That report references an interview with a plant manager about chemical use; no transcript is provided.

2.2 Surrounding Area

As noted in Section 2.1 above, the FMW site and surrounding area have been utilized for industrial activities since the early 1900s and are located within an area referred to by the City as the Horton District (Figure 1) (EKI, 2015a). In addition to the FMW site, the Horton District includes a number of properties, including Site B and South Bayfront. At Site B (Figure 1), some of the past operations are reported to include those associated with a Union Oil distribution yard, a metal working/rust proofing shop with painting facilities and drying ovens, Western Carbonic Acid Gas Co. operations, a wax polish and cleaner manufacturing facility, a radiator hose facility, a fiberglass boat fabrication facility, Power Machine Company operations, a machine shop, a fabric treatment research lab, and a lumberyard, and a plaster mix factory. On South Bayfront (Figure 1), past operations are reported to include those associated with the Sherman Williams Insecticide & Spray plant, a machine shop, and a trucking facility.

Some of other historical industrial and manufacturing operations to the north of the FMW site are reported to include a soap disinfectant factory (Michel and Pelton), a tannery (Wright Tanning Co.), Apex Mfg. Co. (with paint spray, machine shop, assembly, and warehouse

¹² Stellar Environmental Solutions, Phase II Site Acquisition Investigation and Documentation Report, Whitney Research Tool Facility, 5679 Landregan Street, Emeryville, California, June 1999. Some subsurface sampling was apparently conducted by Stellar, but the results of that sampling are not referenced in the 2016 Report.



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areas), Apex Machine & Stamping Co. (with paint spray, machine shop, paint room, refuse room, assembly, and warehouse areas), Maryland Pacific Cone Co. (a cone factory with a welding room), sheet metal shop, steel tank and truck body works, a metal weather strip factory, a bulk fueling facility and asphalt testing laboratory, the Chevron Asphalt Plant and Terminal, a Nash Solvent & Thinner facility, and American Bitumals & Asphalt plant (EKI, 2015a).

3.0 EKI's 2016 Report Findings and Critique of Same

In Section 4.4 of the 2016 Report, EKI draws several conclusions as to the source of TCE in the subsurface at the FMW site. EKI's conclusions regarding on-site areas are discussed below in Section 3.1. In Section 4.4 of the 2016 Report, EKI also evaluates potential off-site sources affecting the FMW site, which is discussed below in Section 3.2. EKI also discusses the potential for on-site groundwater to impacts observed on Site B and the South Bayfront properties in Section 4.2.3 of the 2016 Report; EKI's claims in that regard are discussed below in Section 3.3.

As part of the discussion below, we also present a critique of EKI's conclusions from its evaluation of the geologic, hydrogeologic, and chemical distribution data, as well as compound-specific isotope analysis (CSIA) data of TCE in groundwater samples. Our conclusions are based on the same data that EKI relied upon, but differ from EKI's with respect to the sources of TCE and other volatile organic compounds (VOCs) at the FMW site and at Site B and South Bayfront.

It should be noted that some of EKI's 2016 conclusions are inconsistent with those in the 2012 Report. In the 2012 Report, EKI tied the primary source area at the FMW site to Marchant's hardening and plating operations (EKI, 2012, page ES-2, and pages 6-3 and 6-4 in Section 6.2.2). Those operations were located in the area in which the highest concentrations of TCE in all media have been detected in sub-slab vapor, soil vapor, soil, and groundwater (Figure 6). This area is located outside the northeastern corner of the Current Building and below the northeastern corner of the Current Building (an area defined below as the "Northeastern Area"). In the 2016 Report, Marchant's hardening and plating operations is no longer identified as the primary source of the TCE in this area as previously presented in the 2012 Report (EKI, 2012, Figure 6-2a). EKI also seeks to tie TCE in this location to the presence of a sewer line lateral; associated with Whitney's operations, without providing information as to the specific location of such sewer line lateral or its connection to or use by Whitney (EKI, 2016, Section 4.4).

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3.1 On-site Source Areas

In Section 4.4 of the 2016 Report, EKI targeted three on-site areas as the source of the TCE (and other VOCs) at the FMW site. The three on-site areas shown on the inset map to the right (modified from EKI, 2015a) and on Figure 7 are:

- Northeast corner of the FMW site, including the northeast corner of the Current Building (Northeastern Area).
- Northwest corner of the Current Building (Northwestern Area).
- Southern portion of the Current Building (Southern Area).



Below is a summary and critique of certain statements in Section 4.4 of the 2016 Report. This discussion provides the basis for our conclusion that Marchant and not Whitney appears to be the source of TCE and other VOCs detected in the subsurface at the FMW site, and that on-site sources are not associated with groundwater contamination present on Site B or South Bayfront.

3.1.1 Northeastern Area (Northeast Corner of Current Building and Parking Lot)

In its 2016 Report, EKI presented the following general conclusions:

- I. The northeast corner of the Current Building is where Marchant's past operations included hardening and plating, a receiving area, and a store room. Whitney's past use of this area included offices and locker rooms, and there is a sewer lateral connection in this area of the building.
- II. Shallow releases of TCE occurred historically and migrated through shallow groundwater in the S10 Unit and downward into the 1032 Unit.
- III. The presence of separate-phase liquid (SPL) detected in this area indicated a release to soil and/or groundwater as a liquid as a result of spills or leaks from production or waste storage drums and tanks, or via drain lines and leaking sanitary sewer lines.
- IV. Based on the collective data set, the area beneath the northeast corner of the Current Building contributes to a significant portion of the environmental impacts observed at the FMW site and downgradient.

EKI further noted the following with respect to soils and the S10 Unit in this area:

- I. The highest TCE concentrations in soil vapor were observed at sample locations SV8 (32,400,000 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]) and SV-11 (1,450,000 $\mu\text{g}/\text{m}^3$) at



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depths of 4.5 to 5 feet below ground surface (bgs) at locations approximately 40 to 70 feet north of the northeast corner of the Current Building.

- II. The highest TCE concentrations in soil were observed at boring FSB1 at 3.5 to 4 feet bgs (4,270 milligrams per kilogram [mg/kg]), with TCE decreasing with depth. SPL was observed at FSB1 at about 8.5 feet bgs, consisting of 99 percent total extractable petroleum hydrocarbons (TEPH) in the heavy end of the diesel range with trace amounts of TCE.
- III. Elevated response on the Membrane Interface Probe (MIP)-Electron Capture Detector (ECD) were observed in the northeast corner of the Current Building in the upper 10 feet (sample locations PW-O, PW-EE, PW-FF, PW-HH, and PW-II).¹³
- IV. Small beads of SPL and a sheen were noted on water from the soil core from FMW02 at 18 to 19 feet bgs (upper portion of the S10 Unit).

With respect to the 1032 Unit, EKI noted:

- I. SPL was encountered at about 19 to 28 feet at FMW02, after completion of the dual-phase extraction (DPE) pilot test, but not during initial groundwater monitoring.
- II. Elevated MIP-photoionization detector responses observed may correlate to residual SPL (sample location PW-N at 30 to 40 feet bgs).

Comments on EKI's Conclusions Regarding Northeastern Area

EKI describes the northeast corner of the Current Building as the location where the highest concentrations of TCE were detected, and states that the "area beneath the northeast corner of the existing building likely contributes to a significant portion of environmental impacts observed on the FMW Site." A high TCE concentration in soil (FSB1) was observed there, but the highest concentrations of TCE in soil vapor and groundwater were detected in the parking area located outside the Current Building's entrance. This location is approximately 20 to 40 feet north of the building, and in the same area in which Marchant's hardening and plating operations were located. In the area where Marchant's hardening and plating operations were located:

- the highest soil concentrations were observed (FSB1);
- the highest soil vapor concentrations were observed (SV8 and SV11);
- SPL containing TCE was encountered in groundwater (FMW02); and

¹³ The ECD has a membrane interface probe (the MIP, as defined in the text) that can detect volatile compounds in the subsurface and uses multiple detectors in an attempt to differentiate between different types of volatiles.



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- the highest TCE concentration in groundwater was detected (in a grab groundwater sample, PW-O).

Releases to soil, soil vapor, and groundwater in Northeastern Area can clearly be attributed to Marchant's operations but cannot be tied to Whitney's. The reasons why include the following:

- *The highest concentrations of TCE in soil vapor and groundwater were detected in the location of Marchant's hardening and plating operations, outside the footprint of the Current Building in a paved area used by Whitney for parking. Soil and soil vapor concentrations below the old slab are higher than those above it, which provides additional evidence that the releases were associated with Marchant's operations rather than Whitney's.*
- *SPL at monitoring well FMW02 (located adjacent to SV11 outside the Current Building's footprint) was predominantly TCE, and the sample of SPL from FSB1 (located in the far northeast corner of the Current Building footprint approximately 25 feet south of FMW02) was predominantly composed of TEPH in the heavy end of the diesel range. These sampling locations are in the area that was occupied by Whitney's parking area and former offices and locker rooms, and there is no evidence tying the TCE and TEPH to Whitney operations in those locations.*
- *The buildings to the north were once used by Marchant for industrial processes (carpentry and machine shop, paint storage, welding room, and maintenance department) and later by another valve manufacturer may have also been connected to the main sewer line.*
- *EKI's attempt to tie Whitney's operations to the TCE based on the presence of a sewer line and lateral in the Northeastern Area falls short. The pattern of TCE concentrations in locations near and moving away from the assumed location of the sewer lines is not what would be expected if the sewer lines were a source. From information presented by EKI, it is unclear where the sewer line serving the Current Building is located and how if at all Whitney's production areas were connected to it. The sewer line may even be the original sewer line that served the Marchant Facility.*
- *Wells installed across water-bearing units could have exacerbated the migration of the SPL to lower groundwater units (such as well FMW02). Adjacent to well FMW02, a grab groundwater sample was collected in the upper 10 feet (PW-O) and contained TCE at a concentration of 838,000 micrograms per liter (µg/L). Well FMW02 may have acted as a conduit for SPL and contaminant migration between the S10 and 1032 Units. DTSC expressed concern about the screen conditions at this well (letter dated August 7, 2013¹⁴) because "well FMW02, which has been constructed in a manner that has its*

¹⁴ Letter to the City of Emeryville Redevelopment Agency, from the Department of Toxic Substances Control, regarding the review of the June 2013 Treatability Investigation Report, August 7, 2013.



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screen interval between +4.6 to -23.4 feet msl and is cross-screened between the Transitional Estuarine-Alluvial (TEA) and the Coarse Quaternary alluvial (CQa) Units. Separate-phase liquid was identified and sampled in well FMW02 after the DPE pilot test was completed.” In the same letter, DTSC “recommends destroying this well since it is cross-screened between the two units” and further stated that “any replacement extraction wells for future work should limit screened interval to individual water bearing-units.” The well was destroyed and replaced by FMW10. Additional information regarding the wells screens and potential for cross contamination between groundwater units is discussed in Section 3.3.

Discussion Regarding Northeastern Area

The highest TCE vapor concentrations were observed at SV8 and SV11 (Figure 8), outside the northeast corner of the Current Building and where Whitney’s parking lot was located. The area in which SV8 and SV11 are located overlies the northern portion of Marchant’s hardening and plating operations (EKI, 2016a, Figure 2-2f – 1983 Aerial Photograph; Figures 2-1d, 2-1e, and 2-1f – 1949, 1961, and 1952 Sanborn Maps). Marchant likely used and/or stored TCE in this area based on the operations related to the hardening and plating room and Marchant’s use of TCE at its Berkeley Location; by contrast, there is no evidence that Whitney handled TCE in a paved parking area for the facility adjacent to the main entrance to the office area (EKI, 2016a, Figures 2-2d, 2-2e, and 2-2f – 1965, 1971, and 1983 Aerial Photographs, respectively).

The highest TCE concentration detected in shallow soil in the Northeastern Area (4,270 mg/kg) was observed at FSB1 at 3.5 to 4 feet bgs (i.e., in a discrete soil sample collected below the old slab, Figure 9). There were no discrete soil samples collected from above the old slab (Figure 10). In 2012, composite soil samples were collected from above and below the old slab from several sample locations in the Northeastern Area (EKI, 2014). Those composite samples contained much lower TCE concentrations (0.024 to 0.223 mg/kg) than composite soil samples collected in 2012, in locations just below the old slab at depths of 2 to 3.5 feet bgs, where the highest TCE concentration was 39.9 mg/kg in the composite sample from boring FSB1.

SPL observed at soil boring FSB1 at about 8.5 feet bgs was composed of 99 percent TEPH in the heavy end of the diesel range, with trace amounts of TCE. At this sample location, TEPH was also detected at 5,550 mg/kg in soil, and SPL was observed in soil cuttings below the old slab at 2 to 3.5 feet bgs and at 8 to 9 feet bgs. Consistent with the situation with respect to TCE, EKI has no basis for associating the hydrocarbons detected at this location to Whitney’s operations because this area of the Current Building was used by Whitney for offices and locker rooms and the SPL and TEPH detections were below the old slab.

EKI also notes that SPL was detected in soil cores at well location FMW02 in February 2012 from a depth of 19 to 28 feet bgs (an elevation of approximately -7 to -16 feet msl) as small beads or sheen, but was not detected in groundwater at the well after installation. However, approximately 1.5 liters of SPL was recovered from the bottom of this well after completion of a



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DPE pilot test; EKI reports that the SPL was approximately 80 percent TCE and 20 percent TEPH. Because FMW02 was screened between an elevation of +4.6 and -23.4 feet msl (i.e., a 28-foot-long screen), the well likely acted as a conduit for contaminant migration between multiple coarse-grained units, including the S10 and 1032 Units and the Sand Unit (from an elevation of -6 to -14 feet msl). As stated earlier, DTSC was concerned about the screen conditions at this well and the potential for cross-communication between groundwater units (DTSC, 2013¹⁵). The well was destroyed by EKI and replaced with FMW10 in December 2013. The new well, FMW10, was screened from an elevation of -7.3 to -23.3 feet msl. SPL was also recovered from the bottom of well FMW10, and EKI reported that the SPL composition was consistent with the SPL recovered from FMW02. The consistent composition of the SPL and the fact that the screen of new well FMW10 includes the -6 to -14 foot msl Sand Unit further support the potential for downward movement of SPL between multiple coarse-grained units.

SV8 and SV11 are located in the vicinity of the assumed sewer lateral (running north-south) and the existing main sewer line running east-west to Horton Street. The sanitary sewer lateral, main sewer line, and sanitary sewer manhole access located on Horton Street (to the east-northeast) are shown on a 1963 as-built titled "Roof and Site Grading Plan" (EKI, 2016a, Appendix A; Attachment 2 of this letter). EKI asserts that the sewer lateral served as a conduit for releases of TCE associated with Whitney's operations, but provides no supporting documentation as to how if at all Whitney's production areas were connected to it.

High soil vapor concentrations were also detected below the northeastern corner of the Current Building in the area of the presumed sewer line lateral, but at one to two orders of magnitude lower than the concentration observed at SV8 and SV11, which were outside the Current Building's footprint in the area of the presumed sewer lateral (Figures 8 and 9). The northeast corner of the Current Building was the location of Whitney's offices and locker rooms, which likely were connected to the sewer system. Sewer laterals and sewer lines are designed to gravity feed to maintain flow. Therefore, if the sewer lateral was the source point, then similar TCE concentrations would be present in soil vapor along the downgradient extent of the main sewer line. No such TCE concentrations are observed (see Figure 8, sample locations SV9, SV10, and SV14).

The main sewer line identified in the 1963 as-built titled "Roof and Site Grading Plan" may also be the original sewer line for the Marchant Facility, given its location running east-west to Horton Street and its depiction on the 1963 as-built titled "Roof and Site Grading Plan" as an "existing sewer line." EKI has not provided information sufficient to conclude that there are any sources associated with the sewer lateral. It is possible that the sewer lateral servicing the Current Building may overlap the original sewer lateral or sewer line for the Marchant Facility. It is also possible that the buildings just north that were once occupied by Marchant (carpentry and machine shop, paint storage, welding room, and maintenance department) and later by another valve manufacturer were also connected to the main sewer line. Based on the operations

¹⁵ Letter to the City of Emeryville Redevelopment Agency, from the Department of Toxic Substances Control, regarding the review of the June 2013 Treatability Investigation Report, August 7, 2013.



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related to machine shops, paint storage, and maintenance, TCE or similar solvents could have been used and/or stored in these buildings, making these activities through the sewer line a potential source of the TCE.

3.1.2 Northwestern Area (Northwest Corner of the Current Building)

EKI reaches the following conclusions regarding the Northwestern Area:

- I. The northwest corner of the Current Building is where Marchant's past operations included a storage and service department, and Whitney's past operations included a grease room, chip processing area, solvent reclaim, and hazardous waste storage.
- II. Elevated TCE concentrations were detected in groundwater below the northwest area of the Current Building in the S10 Unit at FMW34 and FMW21 and the 1032 Unit at FMW35 and FMW22 (2016 Report, Figures 4-1a and 4-1b).
- III. Figure 4-1a in the 2016 Report (Conceptual Extent of TCE Source Area – S10 Unit) shows the "Approximate Extent of TCE Source Area" extending across the north-central portion of the building because the concentration of TCE in groundwater at sample location PW-F is greater than 100,000 µg/L.

Comments on EKI's Conclusions Regarding Northwestern Area

The source of TCE in groundwater in this area cannot be attributed to Whitney's operations for the following reasons:

- *The Marchant operations in this area were not appropriately analyzed by EKI for purposes of the 2016 Report and actually included operations, such as a portion of a large press and grinding room. Solvents like TCE may have been used for degreasing to support press and grinding room operations.*
- *TCE concentrations in the sub-slab vapor samples collected in this area are one to two orders of magnitude lower than the concentrations observed in the northeastern corner of the Current Building and do not necessarily suggest that the Whitney operations are a source. Furthermore, the detection of TCE in sub-slab vapor in this area may be attributed to vapor movement from the Northeastern Area.*
- *The TCE concentrations in groundwater in this area are also an order of magnitude lower than what was detected in the Northeastern Area. Based on a southwesterly groundwater flow direction, the TCE concentrations detected in groundwater beneath the Northwestern Area likely represent the downgradient extent of groundwater impacts from the Northeastern Area, rather than the past Whitney operations in the northwestern portion of the Current Building.*



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- *The TCE groundwater concentrations associated with the S10 Unit are misinterpreted at PW-F and are actually associated with the deeper 1032 Unit, which reduces the “Approximate Extent of TCE Source Area” defined by EKI in the 2016 Report, and further support the conclusion that the TCE concentrations detected in groundwater beneath the Northwestern Area likely represent the downgradient extent of groundwater impacts from the Northeastern Area.*

Discussion Regarding Northwestern Area

TCE concentrations in the sub-slab vapor samples in the Northwestern Area (Figure 9) ranged from 659 to 6,600 $\mu\text{g}/\text{m}^3$. These concentrations are one to two orders of magnitude lower than the concentrations observed in the Northeastern Area (4,420 to 26,500 $\mu\text{g}/\text{m}^3$). The detection of TCE in sub-slab vapor in this area may be attributed to lateral vapor movement from the Northeastern Area in the zone between the Current Building’s slab and the old slab. The potential for movement and connection of VOCs in sub-slab vapor were acknowledged by EKI (2012, page 6-6), where EKI states, “[t]he sub-slab vapor may be more laterally connected than deeper soil vapor due to the more permeable material that is typically used as a base for foundation construction. Therefore, it would not be surprising to see more disperse VOCs in the sub-slab vapor than in the soil vapor.”

EKI has depicted the “Approximate Extent of TCE Source Area” (Figure 3-1a.2, 2016 Report) in the Northwestern Area as being larger than the data supports. The “source area” was defined by EKI, based on TCE detected in the shallow S10 Unit. The concentration of TCE detected in a grab groundwater sample taken from the S10 Unit at PW-F was less than 100,000 $\mu\text{g}/\text{L}$. The grab groundwater sample taken from PW-F at an elevation of -8.4 to -12.4 feet msl had a higher concentration of TCE, but based on elevation, this data point should be placed in the underlying 1032 Unit on Figure 4-1b of the 2016 Report, rather than in the shallower S10 Unit (this will be discussed further in Section 3.3 of this letter). Taking this correction into consideration (that is, eliminating the PW-F sample results) significantly reduces the extent of the TCE source area as shown on Figure 11. Based on a southwesterly groundwater flow, the TCE concentrations detected in groundwater in the Northwestern Area likely represent the downgradient extent of the groundwater impacts from the Northeastern Area and not a source in this area.

The groundwater sample collected at PW-F at an elevation of -8.4 to -12.4 feet msl was taken from a thick, continuous layer of coarse-grained material present at an elevation of -6 to -14 feet msl, the Sand Unit, that is evident in 38 of the 39 cone penetrometer tests (CPTs) performed at the FMW site. The Sand Unit is also evident in many of the CPTs performed at Site B, at South Bayfront, and throughout the Horton District, but its presence is not noted or described in the EKI reports. This Sand Unit is discussed further in Section 3.3 below with respect to groundwater.



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3.1.3 Southern Area (Southern Corner of Current Building)

EKI has identified a potential additional on-site shallow source of tetrachloroethene (PCE) in the Southern Area. According to EKI:

- I. The prevalence of PCE in sub-slab vapor samples across the Southern Area indicates a secondary release. However, EKI stated that “PCE was not generally detected in groundwater” at the FMW site.
- II. Regarding the presence of TCE in sub-slab vapor at sample location SSV3, Marchant’s past operations included a large machine shop; the Whitney past operations in the vicinity of SSV3 included an assembly area, tool room, and lathe department.
- III. EKI suggests a floor drain network as a potential source for TCE at SSV3 (In the 2016 Report, EKI states “SSV3 is also located in the vicinity of a floor drain network that was related to [Whitney’s] operations”).

Comment on EKI’s Conclusions Regarding Southern Area

The source of PCE and TCE in this area cannot be attributed to Whitney’s operations for the following reasons:

- *The presence of PCE in the sub-slab vapor samples in the Southern Area does not necessarily imply a secondary source. It instead may be that PCE was present in the Northeastern Area (where its presence was masked by the high detection levels required because of the high TCE concentrations in that area) and migrated to the Southern Area.*
- *There is no indication of PCE use by Whitney.*
- *EKI speculated that the floor drains were interconnected and ultimately connect to the sanitary sewer lateral in the northeast corner of the Current Building, without any documentation to support the connection. As stated in the 2016 Report (Section 2.2.2, page 2-6), “A series of floor drains in the central portion of the building, observed during remedial investigations, appear to be remnant structures related to historical [Whitney] operations (Figure 3-5). These drains were not shown on the 1963 architectural drawings. Asbuilt drawings of the [Whitney] building were not available at the City. These drains may also connect into the sanitary sewer lines that run through the northeastern portion of the building.” No utility information was provided for the building interior. EKI also did not appear to have further investigated the floor drains or the condition of the concrete floors associated with Whitney’s operations.*



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Discussion Regarding Southern Area

PCE was detected in the sub-slab vapor samples (68.2 to 540 $\mu\text{g}/\text{m}^3$) in the Southern Area (Figure 9). The presence of PCE in the Southern Area may be the result of migration from the Northeastern Area, where PCE may have been present in sub-slab vapor samples but was not detected. The presence of the PCE may have been masked due to the elevated detection limits¹⁶ resulting from the very high concentrations of TCE; the PCE in both locations therefore could be associated with Marchant's operations.

In cases where PCE was detected in sub-slab vapor samples in the Northeastern Area, PCE (153 to 240 $\mu\text{g}/\text{m}^3$) was detected at similar concentrations to those detected in the Southern Area. The presence of PCE in the sub-slab vapor samples in the Southern Area therefore may be an extension of the vapor plume originating from the Northeastern Area. In any event, EKI has not identified evidence of PCE use by Whitney.

PCE was detected at trace concentrations in only two sub-slab soil samples (1.85 and 2.44 micrograms per kilogram [$\mu\text{g}/\text{kg}$] at SV34 and SV36, respectively, Table 3-4a of the 2016 Report) and in one soil sample below the old slab (1.97 $\mu\text{g}/\text{kg}$ at SV40) in the Southern Area (the location of the sub-slab samples are shown on Figure 12). These trace concentrations do not support a source of PCE in this area. In addition, slightly higher PCE concentrations (2.75 and 9.49 $\mu\text{g}/\text{kg}$ at FMW08 and FSB12, respectively) were detected in soil below the old slab in the northeastern portion of the Current Building (the sample locations are shown on Figure 10), suggesting that PCE could be associated with the former Marchant operations.

Sub-slab soil vapor sample SSV3 (TCE at 18,100 $\mu\text{g}/\text{m}^3$) was noted to be in the vicinity of a floor drain network by EKI. The approximate locations of the three floor drains are shown on Figure 3-5 of the 2016 Report, which depicts the central portion of the Current Building; the approximate locations of the floor drains are also shown on Figure 9 of this letter. Two of the floor drains are 60 and 25 feet southwest and south of SSV3, respectively. Sub-slab vapor samples SSV3, SSV4 and SSV15 are each approximately the same distance from the central floor drain (approximately 30 feet), and sample SSV4 is about 30 feet east of the western floor drain.

The TCE sub-slab vapor concentrations at SSV4 (27 $\mu\text{g}/\text{m}^3$) and SSV15 (201 $\mu\text{g}/\text{m}^3$) are three orders of magnitude lower than the detected concentration at SSV3. This suggests that the floor drains are not the source of the TCE detected at SSV3 (at 18,100 $\mu\text{g}/\text{m}^3$); if the TCE at these three locations were all associated with the floor drain, and given that the three samples are approximately the same distance from the floor drain, one would not expect the order of magnitude difference in concentration that is observed. EKI speculated that the floor drains were interconnected and ultimately connected to the sanitary sewer line in the northeastern

¹⁶ In the Northeast corner of the Current Building, the detection limits for PCE in the sub-slab vapor samples included 67.8 (SSV11), 678 (SSV12), and 1,380 (SSV8) $\mu\text{g}/\text{m}^3$, and the detection limits for PCE in soil vapor samples in the Northeastern Area were much higher (for example, 6,760 (SV28), 13,600 (SV11), and 203,000 (SV8) $\mu\text{g}/\text{m}^3$), thus potentially masking the presence of PCE in these samples.

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corner of the Current Building (as noted above), thus contributing to the TCE impacts in the Northeastern Area. Sub-slab vapor samples collected in this area do not support EKI's theory.

The source of TCE in the sub-slab sample at SSV3 is not clear from the data collected. The source may be attributed to the location of an interior column footing (potential pathway for vapor migration) just north of this sample location, the sub-slab impacts observed to the northeast of this location, or vapor movement through the sub-slab from the Northeastern Area due to the permeable nature of the fill material associated with the sub-slab soil discussed above.

The third floor drain is located near the east wall just south of the Current Building's office area (Figure 9). Sub-slab vapor samples collected about 40 feet north (SSV12) and 40 feet west (SSV10) of this floor drain had TCE concentrations of 21,500 and 7,560 $\mu\text{g}/\text{m}^3$, respectively. The sub-slab vapor concentrations in this area are likely attributed to the higher sub-slab vapor concentrations observed in the Northeastern Area and lateral movement of vapor through the permeable fill material associated with the sub-slab soil.

3.2 Off-site Sources Affecting the FMW Site

EKI also evaluates potential off-site sources affecting the FMW site in Section 4.4 of the 2016 Report in two areas: one just north of the FMW site and the second to the east of the FMW site in the areas noted on the inset map to the right (modified from EKI 2015a).

3.2.1 Potential Off-site Shallow Sources Affecting the FMW Site

According to EKI:



- I. The area to the east of the FMW site was also part of the Marchant Facility and included nickel plating, grinding, enameling, pressing, welding, finishing, hardening, warehouse, storage, photo department, grinding, polishing, paints and oils, and an experimental laboratory. This area was later occupied by a stationery warehouse, stationery distributor, and several pharmaceutical companies.
- II. An underground storage tank (UST) east of the Northeastern Area of the FMW site was removed along Horton Street. Elevated concentrations of TCE above 1,000 $\mu\text{g}/\text{L}$ were detected in groundwater in the S10 Unit along Horton Street north and east of the FMW site and may indicate sources related to the former Marchant operations located to the east of the FMW site or from subsequent occupants of this area.
- III. Buildings just north of the FMW site (at 5677 or 5675 Horton Street) were formerly occupied by Marchant from at least 1918 to 1957 and included a carpentry and machine shop, paint storage, welding room, and maintenance department. These building were later occupied by a valve manufacturer. High concentrations of TCE were detected at



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sample locations NM1 and NM2 under the parking area directly south of 5677 Horton Street and may indicate a potential source area beneath the buildings at 5677 or 5675 Horton Street.

Comment on EKI's Conclusions Regarding Potential Shallow Off-site Sources Affecting the FMW Site

- *Other sources of TCE to groundwater are likely present to the north and east of the FMW site, and the other sources to the north are likely a source of TCE detected in groundwater at Site B. The area to north was occupied by various industrial and manufacturing operations, including Marchant operations for a period of almost 40 years. Any number of these operations may have used solvents, such as TCE.*
- *The origin of the high concentrations of TCE detected under the parking area directly south of 5677 Horton Street (NM1 and NM2) may also have resulted from the construction of well FMW06, as described below in Section 3.3.2.*

Discussion Regarding Off-Site Sources

Other sources of TCE to groundwater are likely present to the north and east of the FMW site, and the other sources to the north are likely a source of TCE detected in groundwater at Site B. As noted in Section 2.2, the area to the north was occupied historically by a number of industrial and manufacturing operations, including Marchant operations for a period of almost 40 years. Any number of these operations may have used solvents, such as TCE, for cleaning or degreasing.

With regard to the UST noted by EKI, it was reportedly removed in June 2015 and consisted of an approximately 1,000-gallon single-walled steel UST discovered in the public right-of-way on Horton Street (EKI, 2015b). The UST was located 50 to 75 feet east of northeast corner of the FMW site. The origin, use, and ownership of the former UST are unknown, but according to EKI (2015b), the UST formerly contained diesel, based on chemical analysis of an SPL sample collected from inside the UST. During the UST removal, excavated soil along the western and southern walls of the excavation was stained and odorous. Approximately 26 cubic yards of soil was excavated and disposed of off-site. The highest detected concentrations of petroleum hydrocarbons in the soil samples were in the diesel range (4,400 mg/kg). Metals, Aroclor 1260, and selected VOCs and semi-volatile organic compounds were also detected in one or more soil samples. TCE was detected in three confirmation soil samples at concentrations ranging from 1.88 to 10 µg/kg (piping area). A grab groundwater sample collected at a depth of 19 to 24 feet bgs (referred to as the TEA Unit at that time, and now likely part of the S10 Unit) north of the UST contained TCE at 1,520 µg/L.

In the closure report for the UST removal, submitted in 2015, EKI (2015b) concluded that the UST was not a source of the chlorinated VOCs detected in groundwater at the FMW site based on groundwater data collected along Horton Street. The detection of TCE in groundwater



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upgradient of the FMW site suggests the presence of other sources of TCE to groundwater in this area, which is also noted in the 2016 Report.

A discussion of the off-site sources in relationship to NM1 and NM2 is provided in Section 3.3 below.

3.3 Groundwater Conditions

The units and subunits EKI identified and used to correlate groundwater conditions between the FMW site and Site B did not recognize the Sand Unit (coarse-grained unit). In addition, EKI's analysis also failed to acknowledge the impact of screening wells across this and other coarse-grained units on downward migration of high concentrations of TCE. Based on our review of the data and findings presented in the 2016 Report, the source of TCE off-site in groundwater at Site B and South Bayfront cannot be attributed to the FMW site or to Whitney's operations. The reasons are summarized below.

3.3.1 Presence of the Sand Unit, a Sand and Gravel Zone from -6 to -14 feet msl, was Ignored by EKI

- *EKI ignored the Sand Unit, an important sand and gravel zone that is continuous across the FMW site, South Bayfront, and Site B between elevations of -6 and -14 feet msl. This coarse-grained zone is an important element of any site conceptual model for the FMW site and recognizing it is necessary to understanding the distribution of TCE in groundwater.*

A continuous sand and gravel zone up to 10 feet thick was interpreted from the CPT logs based on standard correlations related to soil types. At the FMW site, this zone was observed in 38 of 39 CPTs performed, as well as in many of the monitoring well logs in the depth interval 18 to 26 feet bgs (i.e., the interval that corresponds to an elevation of -6 to -14 feet msl), which straddles the S10 and 1032 Units identified by EKI. This sand and gravel zone was also observed in all CPTs performed in the northern portion of South Bayfront (including but not limited to ACPT-A through ACPT-L), and in most CPTs performed in the southern portion of Site B (including but not limited to BCPT20 through BCPT26). This sand and gravel zone appears to be almost continuous across the FMW site, South Bayfront and Site B.

Elevated MIP response (indicating the presence of high concentrations of VOCs) was observed in the Sand Unit at all MIP locations in and near the Northeastern Area.¹⁷ The TCE concentrations in grab groundwater samples collected in and near the Northeastern Area range from 11,600 µg/L in PW-Q to 838,000 µg/L in PW-O. A number of monitoring wells constructed

¹⁷ Including but not limited to PW-F, PW-J, PW-O, PW-N, PW-Q, PW-V, PW-BB, PW-EE, PW-FF, PW-HH, PW-II, PW-JJ, PW-KK, PW-MM, PW-NN and PW-OO.



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by EKI are screened across the Sand Unit and the 1825 Subunit, providing a vertical conduit for elevated concentrations of TCE to migrate between these water-bearing zones.

3.3.2 Monitoring Wells Constructed as Part of the Site Investigation and Screened Across the Sand Unit and Deeper Coarse-Grained Units Provide a Conduit for High Concentrations of TCE to Migrate Downward

- *In 2012, 2013, and 2015, EKI constructed monitoring wells screened across the Sand Unit and the deeper 1825 Subunit. These monitoring wells appear to have acted and are continuing to act as a conduit for high concentrations of TCE to migrate from shallow to deeper zones.*

Many of the monitoring wells installed by EKI at the FMW site are screened across two or more significant coarse-grained intervals (including the Sand Unit), providing a vertical conduit for elevated concentrations of TCE to migrate between intervals, as discussed above. The 2016 Report indicates 17 existing wells at the FMW site are screened in the 1825 Subunit; the screened interval in 14 of these wells¹⁸ also cross a portion of the Sand Unit between elevations of -6 and -14 feet msl, providing a potential conduit for groundwater containing TCE to migrate between the Sand Unit and the 1825 Subunit.

FMW02 was installed in February 2012 in the paved area outside the Current Building in Northeastern Area. The screened interval of Well FMW02, was 28 feet long, crossing multiple coarse-grained intervals. SPL was observed during drilling and after completion of a DPE test conducted on the well. As discussed above in Section 3.1.1, this well was destroyed based on DTSC's concern regarding cross-communication between the coarse-grained units.

High TCE concentrations in grab groundwater samples at NM1 and NM2 (the off-site locations discussed above) could have resulted from elevated concentrations of TCE migrating down the well screen of FMW06 (Figure 13). The stratigraphy, distribution of high TCE concentrations, and timing of sampling indicate that the high concentrations of TCE detected in grab groundwater samples taken from an elevation of -18.6 to -23.6 feet msl in NM1 and NM2 may have originated from high concentrations of TCE in shallower groundwater that migrated down one of the long screened groundwater monitoring wells, and not from TCE migrating to the north or northwest from the Northeastern Area, as EKI concludes.

As shown on Figure 13:

- In August 2011 three grab groundwater samples were collected from sample location PW-M. TCE was detected at 205,000 µg/L in the grab groundwater sample taken from an elevation of -10.2 to -14.2 feet msl (i.e., from within the Sand Unit), and at 51,200

¹⁸ Wells FMW04, FMW06, FMW08, FMW10, FMW12, FMW14, FMW16, FMW18, FMW20, FMW22, FMW24, FMW26, FMW29, and FMW35.



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µg/L and 6,140 µg/L in groundwater grab samples collected from the 1825 Subunit and the 2732 Subunit.

- In February 2012, EKI installed well FMW06 less than 10 feet from PW-M. FMW06 had a screen elevation from -7.7 to -23.7 feet msl (i.e., across both the Sand Unit and the 1825 Subunit). In March 2012, the TCE concentration in a groundwater sample from FMW-06 was 173,000 µg/L, and by August 2013, the TCE concentration had increased to 370,000 µg/L.
- In May 2015, grab groundwater samples were collected at NM1 and NM2, approximately 70 and 30 feet from FMW06, and the concentrations of TCE in the samples from the Sand Unit were 151 and 26,200 µg/L (i.e., at least an order of magnitude lower than those for the same depth interval at PW-M) and between 437,000 and 490,000 µg/L in the 1825 Subunit (i.e., an order of magnitude higher in the 1825 Subunit at PW-M). As shown on Figure 13, the high concentrations of TCE detected in grab groundwater samples from an elevation of -18.6 to -23.6 msl in NM1 and NM2 may have originated from high concentrations of TCE detected in near PW-M that migrated down the well screen of FMW06.

Based on this TCE concentration change over time, the source of TCE detected at NM1 and NM2 is likely attributed to well screens crossing multiple coarse-grained units. The screening of wells across coarse-grained units has exacerbated the extent of the groundwater impacts at the FMW site and west of well FMW06.

3.3.3 The FMW Site is Not a Source of TCE in Groundwater at Site B and South Bayfront

As noted above, in EKI's 2016 investigation reports for FMW site and Site B, EKI identified stratigraphic units based on elevation (S10, 1032, 3243, and 4360 Units), and subunits containing "thick and prevalent sand and gravel intervals" were identified as the 1825 and 2732 Subunits. These units and subunits were used to correlate groundwater conditions between the FMW site and Site B and to support EKI's conclusion that groundwater contamination at Site B and South Bayfront is attributable to sources on the FMW site.

Based on our review of the data and findings presented in the 2016 Report, the source of TCE off-site in groundwater at both Site B and likely South Bayfront cannot be attributed to the FMW site or Whitney's operations, based on:

- Lack of stratigraphic data to support a "south channel" in the S10 Unit.
- Lack of stratigraphic data to support connection of the coarse-grained sediments in the 1032 Unit between the FMW site and Site B and South Bayfront.
- Exacerbation of the groundwater contamination of the FMW site and just north of the FMW site from installed groundwater wells, as discussed above in Section 3.3.2.



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3.3.3.1 Stratigraphic Data Does Not Support the Presence of Any “South Channel” in the S10 Unit (Surface to an Elevation of -10 feet msl)

- *Data from the S10 Unit do not support that the FMW site is a source of TCE in groundwater at Site B or South Bayfront. EKI suggests that a “south channel” exists in the S10 Unit that “significantly influences the downgradient migration of COCs in groundwater” in this depth interval. EKI Figures 3-1a.1 and 3-1a.2 show isoconcentration contours of TCE in groundwater extending from the FMW site to South Bayfront and Site B. The isoconcentration contours are depicted generally along the interpreted “south channel,” indicating the FMW site to be the upgradient source of this off-site contamination.*
- *The “south channel” is an artifact of EKI’s interpretation of the data and likely does not exist. Our interpretation of isoconcentration contours of TCE in groundwater in the S10 Unit is shown on Figure 14. TCE originating at the FMW site is generally confined to the site boundaries except near the Northeastern Area. There is an upgradient source of TCE impacting groundwater at the FMW site. Based on currently available information, there is likely an upgradient source of TCE to Site B, and there is also a relatively limited source of TCE to groundwater on the east side of South Bayfront.*
- *EKI ignored an important sand and gravel zone (the Sand Unit) that is continuous across the FMW Site, South Bayfront, and Site B between elevations of -6 and -14 feet msl. This coarse-grained zone is an important element of any site conceptual model and must be recognized in order to understand the distribution of TCE in groundwater.*

Discussion Regarding the “South Channel” in the S10 Unit

The “south channel” is identified by EKI (2016a) by connecting CPT locations in the S10 Unit where 5 to 10 feet of cumulative thickness of coarse-grained deposits was identified. Our evaluation of the stratigraphic data for the S10 Unit presented in the 2016 Report indicates three relatively distinct subunits from elevation +5 to -1 feet msl, -1 to -6 feet msl and -6 to -14 feet msl. From elevation +5 to -1 feet msl there is a continuous coarse-grained layer in the southern portion of the FMW site, but this layer does not extend to Site B or South Bayfront. Between an elevation -1 and -6 feet msl, discontinuous coarse-grained layers are present at the Subject Site, Site B, and South Bayfront. Based on our evaluation of the data included and referenced in the 2016 Report and the Final Additional Groundwater Investigation and Groundwater Monitoring Report for Site B (EKI, 2016b), the continuous coarse-grained layer in the southern portion of the FMW site from elevation +5 to -1 feet msl and the discontinuous coarse-grained layers at the FMW site, Site B, and South Bayfront from elevation -1 to -6 feet msl do not appear to form a continuous “channel” from the FMW site to either South Bayfront or Site B.

As discussed in Section 3.3.1 above, from elevation -6 to -14 feet msl (i.e., straddling the S10 and 1032 Units identified by EKI), a continuous sand and gravel zone up to 10 feet thick is present across the FMW site, South Bayfront and the southern portion of Site B. The sand and



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gravel zone between elevation -6 and -14 feet msl (Sand Unit) is apparent in 38 of 39 CPTs performed across the FMW site, as well as in many of the monitoring well logs, but was not identified as a separate subunit or water-bearing zone by EKI. The sediments in the Sand Unit between elevation -6 and -14 feet msl appear to be laterally extensive and do not appear to form any sort of channel that would provide a mechanism to control the movement of VOCs in groundwater in a specific direction. We conclude that a south “channel” is not present in the area of the FMW site as described by EKI, and therefore EKI’s argument that the “channel” influences groundwater flow and contaminant movement in groundwater in the S10 Unit is flawed.

On the South Bayfront site, a relatively continuous zone of coarse-grained sediment appears to be present from elevation +5 to -6 feet msl near the grab groundwater sample locations where TCE concentrations as high as 3,360 µg/L (ACPT-I; Figure 14) were detected.¹⁹ This zone of coarse-grained sediment does not appear to be present at CPT locations adjacent to the eastern boundary of South Bayfront (i.e., ACPT-A, ACPT-B, ACPT-C and ACPT-D), although approximately 2 feet thickness of coarser material appears to be present at locations ACPT-C and ACPT-D below approximately elevation -4 feet msl. Based on our review of these data, the zone of coarse-grained sediment between elevation +5 to -6 feet msl containing TCE concentrations as high as 3,360 µg/L appears to be confined to the South Bayfront site. It therefore seems likely that the source of TCE within this sediment is near the eastern property boundary of South Bayfront, either within the railroad property or on South Bayfront rather than from the FMW site.

3.3.3.2 Absence of Coarse-Grained Sediments in 1032 Unit (-10 feet msl to -32 feet msl) with Connection to Site B and South Bayfront Sites and Contradiction of Groundwater Flow

- *EKI developed cumulative thickness “isopach” maps to show that a thicker layer of coarse-grained sediments connects the FMW site with Site B, but the available data and the direction of surface and subsurface water flow support an alternative interpretation.*
- *The depiction of TCE in groundwater in the 1825 and 2732 Subunits of the 1032 Unit as a continuous plume of contaminated groundwater originating from the FMW site and extending onto Site B is not supported by available data.*
- *Compound-specific isotope data indicate the source of TCE detected in groundwater from a Site B monitoring well is near the eastern border of Site B and is not from the FMW site, further supporting the conclusion that the FMW site is not the source of TCE groundwater impacts at Site B.*

¹⁹ Locations ACPT-G, ACPT-H, ACPT-I, ACPT-J, ACPT-K, ACPT-L.



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Discussion Regarding 1032 Unit and Lack of Connection with Site B and South Bayfront

EKI's "isopach" maps of cumulative thickness of coarse-grained deposits are presented for the 1825 and 2732 Subunits (Figures 2-13c and 2-13d of the 2016 Report), purporting to show thicker zones of coarse-grained soil adjacent to thinner zones of coarse-grained soil that influence the direction of groundwater flow so that groundwater originating from the FMW site flows onto the eastern edge of Site B through a thicker zone of coarse-grained soil.

As shown on EKI's figures, there is no stratigraphic data within approximately 100 feet of the western boundary and 200 feet of the northern boundary of the FMW site, so any correlation of stratigraphic information to the level of detail implied in the 2016 Report figures is questionable. In addition, all groundwater elevation data collected in monitoring wells at the FMW site and Site B show that the hydraulic gradient is to the southwest. This southwesterly flow direction is further supported by the "2000 USGS Geologic Map" presented as Figure 2-4 in EKI's 2016 Report, which depicts the alignment of natural levee deposits adjacent to the FMW site trending toward the southwest, indicating that historical surface flow direction is also to the southwest. In reviewing potentiometric surfaces developed for the DPE pilot test, the Geologic Services Unit of DTSC²⁰ noted that the groundwater flow direction "contradicts the assertion that [the FMW site] is an upgradient VOC source to Site B."

Both historical surface water flow and the direction of groundwater flow are to the southwest, so it would be reasonable to expect that coarse-grained material would also be deposited along a generally southwesterly orientation. Using the same data as EKI and assuming a generally southwestern depositional environment, our interpretation of "isopachs" of coarse-grained material in the 1825 and 2732 Subunits is shown on Figures 15 and 16. On these figures, the distribution of coarse-grained deposits appears consistent with surface water and groundwater flow and does not influence the general direction of groundwater flow. We believe these interpretations of the stratigraphic data to be more representative of actual conditions.

In addition to the issues raised above, the concentrations of TCE in monitoring wells and grab groundwater samples at some locations in the southeast portion of Site B indicate a source of TCE near the southeastern border of Site B, as shown on Figure 17. High concentrations of halogenated compounds are indicated in MIP locations directly northeast, or hydraulically upgradient, of these high concentrations of TCE on Site B. MIPs OSN3 through OSN5 show saturated ECD-detector and elevated XSD-detector (halogen specific detector) response at multiple depths, indicating significant potential source mass from an approximate elevation of +5 to -35 feet msl upgradient of Site B.

EKI also relies on isotopic ratios based on a groundwater sample from Site B and wells at the FMW site to support its conclusion. EKI concluded, based on evaluation of the 2D CSIA data presented in the 2016 reports for the FMW site and Site B, that the carbon and chlorine isotope

²⁰ Letter to the City of Emeryville Redevelopment Agency, from the Department of Toxic Substances Control, regarding the review of the June 2013 Treatability Investigation Report, August 7, 2013.



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ratios for the groundwater sample from BDW07 (on Site B) are generally consistent with the range of isotopic ratios from the groundwater samples from wells on the FMW site in which only limited TCE degradation was evident. However, evaluation of the change in carbon isotope ratio versus distance from the presumed source of TCE to groundwater (i.e., the Northeastern Area) shows that the TCE detected in groundwater at Site B most likely originates from a source of TCE to groundwater on Site B that is approximately 200 feet from well BDW07 (Figures 17 and 18). Well BDW07 is approximately 200 feet west of the eastern border of Site B. Contrary to EKI's interpretation of the isotopic data, the CSIA data further supports the conclusion that the FMW site is not the source of TCE groundwater impacts at Site B.

4.0 Conclusions

As described above, EKI has not demonstrated that Whitney is a source of TCE in the subsurface at the FMW site, and the available information all points to Marchant's operations (in particular, its hardening and plating operations located in what was later Whitney's parking lot and office area) as the source of the TCE. Downward migration of the TCE in the subsurface is attributable in significant part to installation of monitoring wells screened across several coarse-grained units, including the Sand Unit, located at -6 to -14 feet msl, that EKI did not acknowledge in its characterization of the subsurface. Finally, there is no basis for EKI's conclusion that the FMW site is the source of TCE detected in groundwater on either Site B or South Bayfront, and the analysis set forth above demonstrates that EKI's conclusions in that regard are not supported by the available data.

Based on the 2016 Report and in light of the comments above, there is not any basis for identifying Whitney as responsible for TCE releases at the FMW site. Nor would there be any basis, should DTSC view there to be sufficient information presented to evaluate remedial alternatives for the FMW site, for adopting a remedy for the FMW site that includes remediation of off-site groundwater at Site B or South Bayfront.

Sincerely yours,
Amec Foster Wheeler Environment & Infrastructure, Inc.

A handwritten signature in blue ink that reads "Linda Conlan".

Linda Conlan, PG
Principal Geologist

A handwritten signature in black ink that reads "Frank Szerdy".

Frank Szerdy, PE
Principal Engineer

Attachments:

Attachment 1 – Fact Sheet for the Berkeley Property
Attachment 2 – 1963 As-builts Titled "Plot Plan" and "Roof and Site Grading Plan"



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Figures:

- Figure 1 Site Location - FMW Site and Surrounding Area
- Figure 2 1929 Sanborn Map - FMW Site and Surrounding Area
- Figure 3 1949 Sanborn Map - FMW Site and Surrounding Area
- Figure 4 1967 Sanborn Map - FMW Site and Surrounding Area
- Figure 5 1990 Facility Diagram of the Former Whitney Facility
- Figure 6 EKI's 2012 Conceptual Extent of Potential TCE Release Area and Extent of Source Zone
- Figure 7 Layout of the FMW Site
- Figure 8 Soil Vapor Sample Results (Below Old Slab)
- Figure 9 Sub-Slab Soil Vapor Results
- Figure 10 Soil Sample Results – Northeastern Area
- Figure 11 Reduction of Area of High TCE Concentrations in Groundwater in S10 Unit
- Figure 12 Soil Sample Results – Southern Area
- Figure 13 Migration of TCE Along Long Screen Intervals
- Figure 14 Revised TCE Isoconcentration Contours in Groundwater in S10 Unit
- Figure 15 Alternative Interpretation of Thickness of Coarse-Grained Sediments in the 1825 Subunit
- Figure 16 Alternative Interpretation of Thickness of Coarse-Grained Sediments in 2732 Subunit
- Figure 17 Reinterpretation of Potential TCE Source Zones in 1825 Subunit
- Figure 18 Carbon 13 Enrichment vs. Distance

References:

Assembly Bill (AB) 440 (Gatto Act), 2013.

Department of Toxic Substances Control, 2013, Letter to the City of Emeryville Redevelopment Agency regarding the review of the June 2013 Treatability Investigation Report, August 7.

Erler & Kalinowski, Inc. (EKI), 2012, Final Subsurface Environmental Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, August.

EKI, 2015a, Phase I Environmental Site Assessment, Horton District, Emeryville, California, January 15.

EKI, 2015b, Underground Storage Tank Closure Report, In Public Right-of-Way on Horton Street adjacent to 5679 Horton Street, Emeryville, California, August 17.

EKI, 2016a, Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, June 30, 2016.



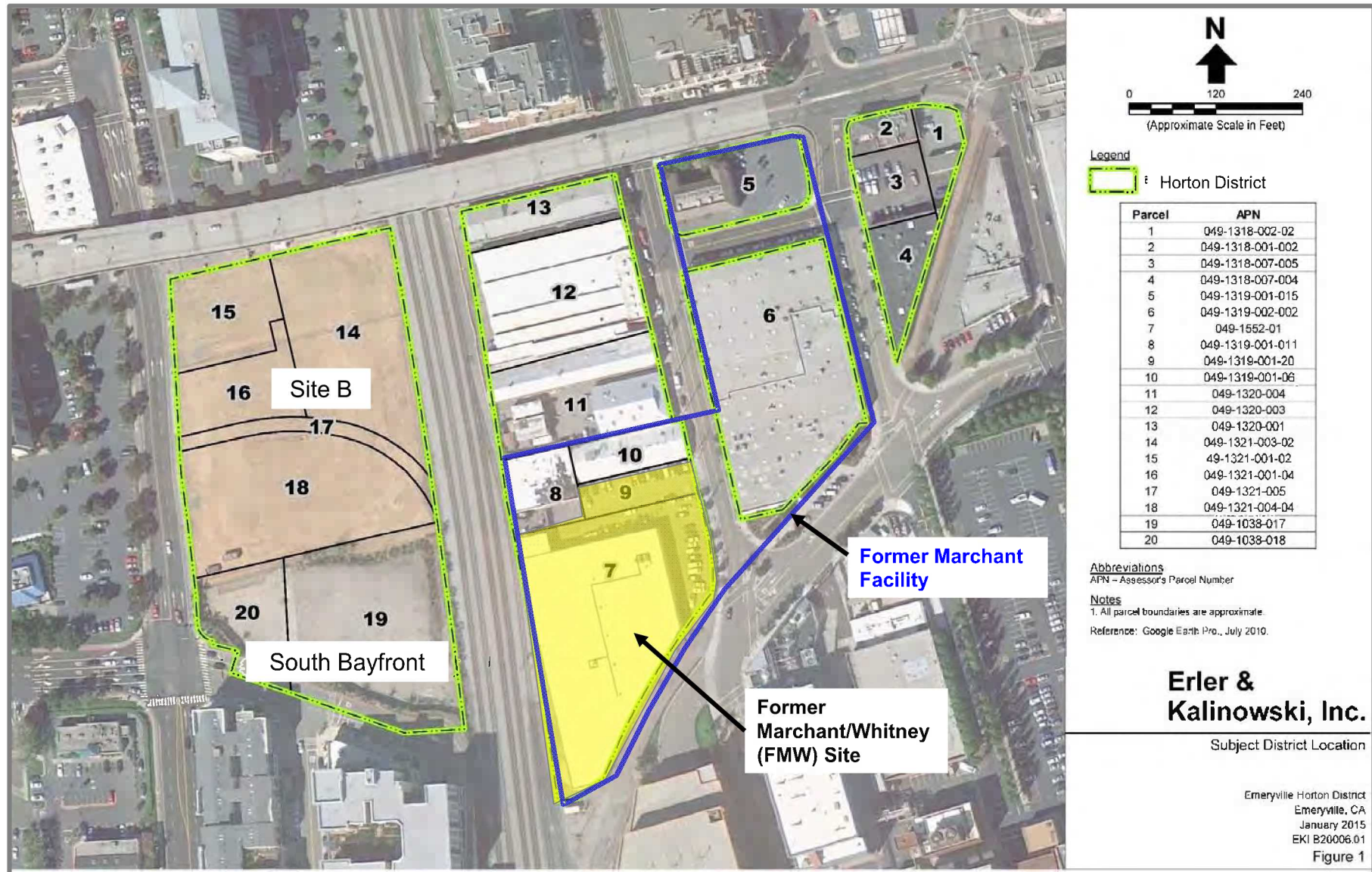
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EKI, 2016b, Final Additional Groundwater Investigation and Groundwater Monitoring Report, Site B Project Area, Emeryville, California, June 30.

Stellar Environmental Solutions (Stellar), 1999, Phase II Site Acquisition Investigation and Documentation Report, Whitney Research Tool Facility, 5679 Landregan Street, Emeryville, California, June.

Figures





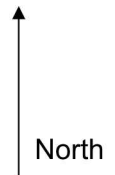
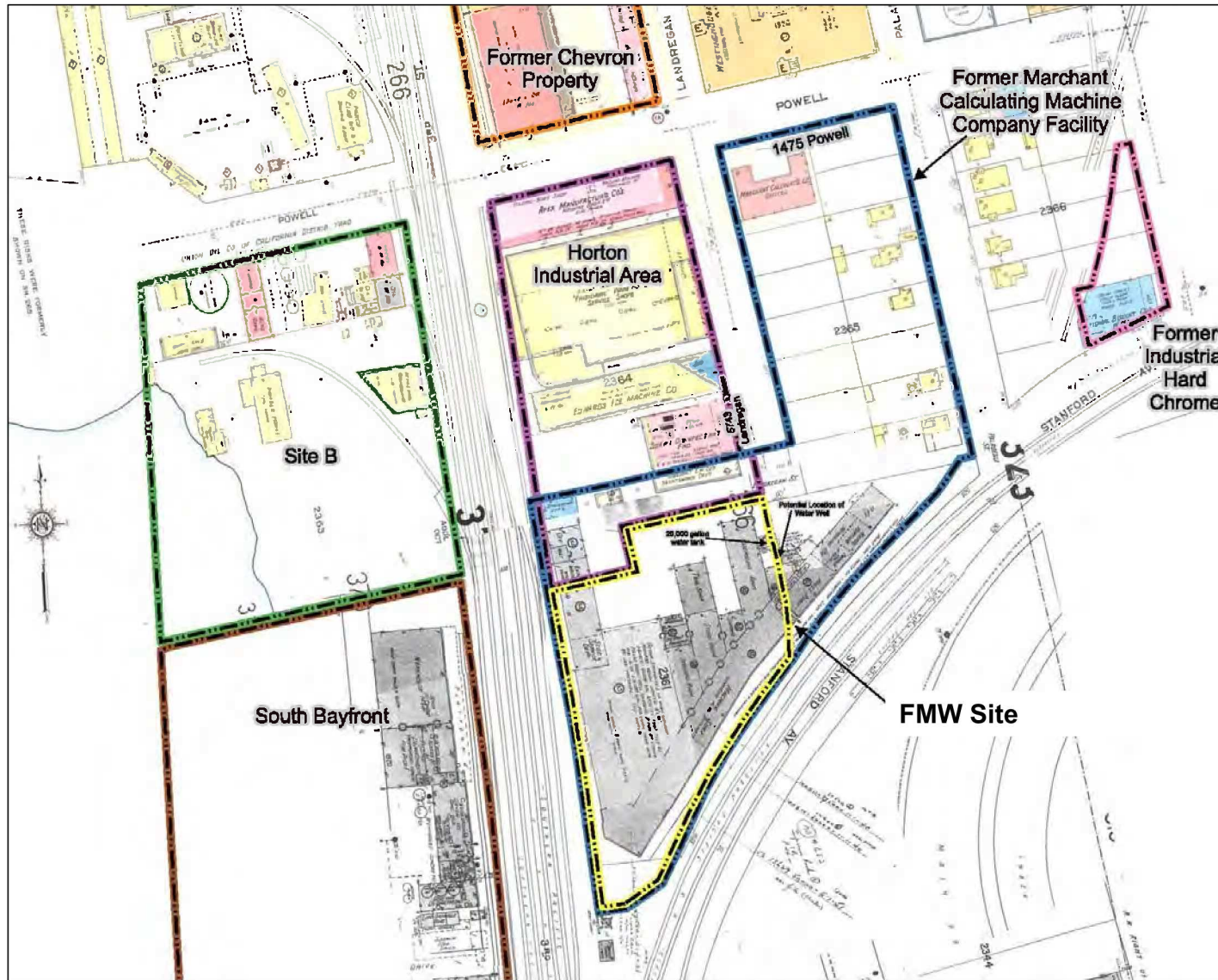
Source: Modified from EKI, 2015, Phase I Environmental Site Assessment, Horton District, Emeryville, California, January, Figure 1



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Figure 1
Site Location
FMW Site and Surrounding Area
5679 Horton Street, Emeryville, California



Not To Scale

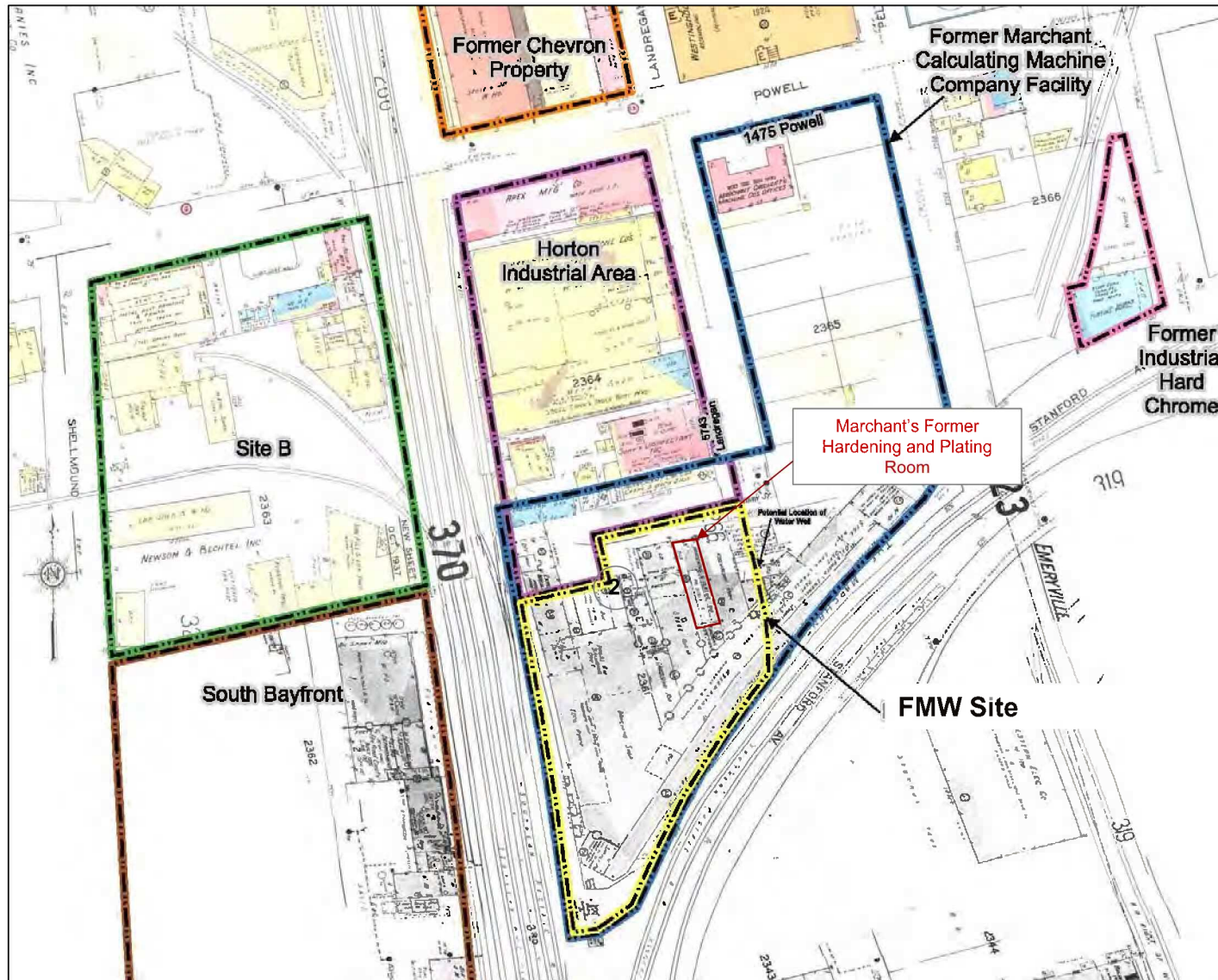
Source: Modified from EKI, 2016, Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, March, Figure 2-1a



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Figure 2
1929 Sanborn Map
FMW Site and Surrounding Area
5679 Horton Street, Emeryville, California



North

Not To Scale

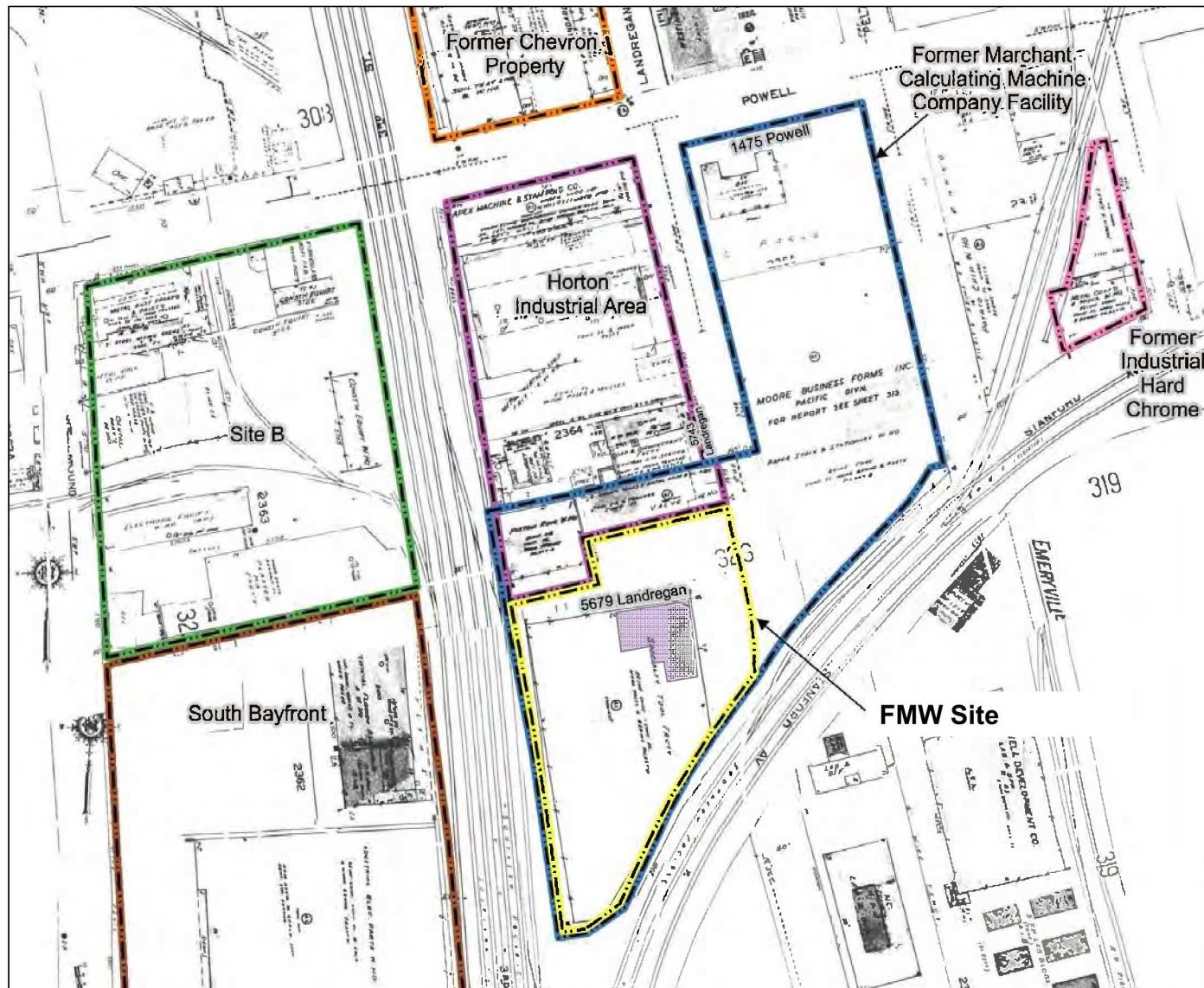
Reference: Modified from EKI, 2016, Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, March, Figure 2-1d



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Figure 3
1949 Sanborn Map
FMW Site and Surrounding Area
5679 Horton Street, Emeryville, California



Reference: Modified from EKI, 2016, Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, March, Figure 2-1h

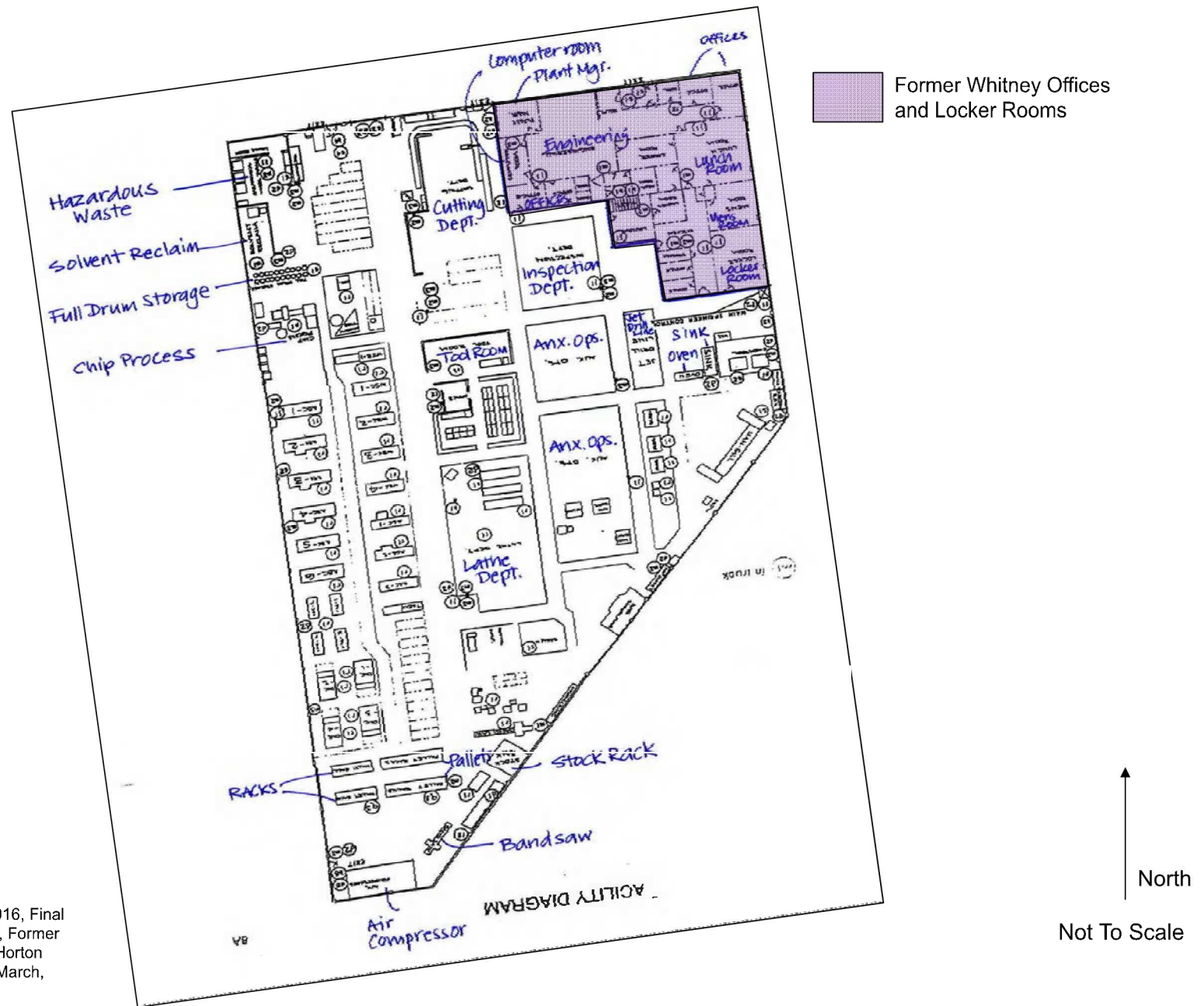
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Figure 4
1967 Sanborn Map
FMW Site and Surrounding Area
5679 Horton Street, Emeryville, California



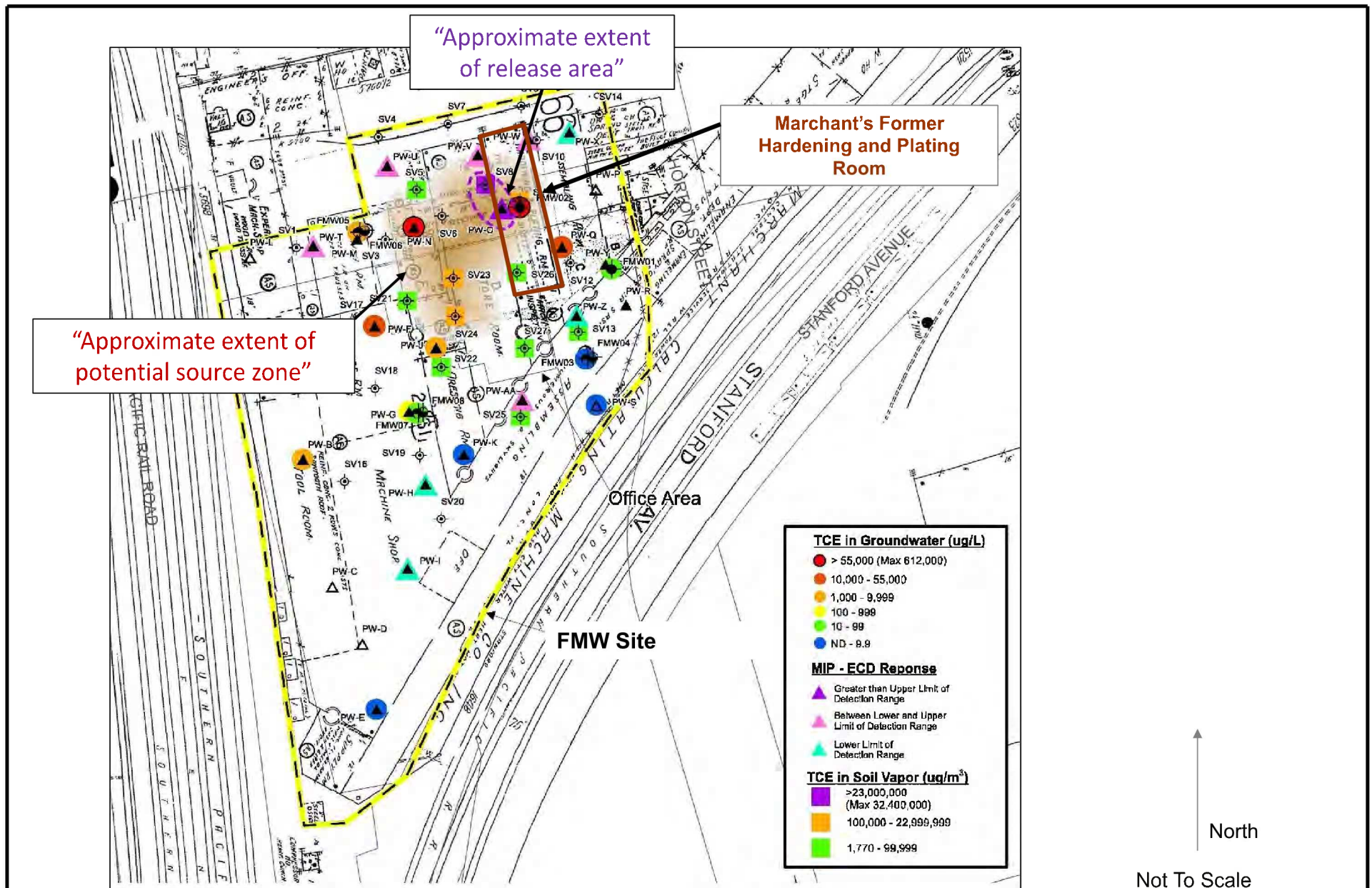
Source: Modified from EKI, 2016, Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, March, Figure 2-1i



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Figure 5
1990 Facility Diagram of the
Former Whitney Facility
5679 Horton Street, Emeryville, California



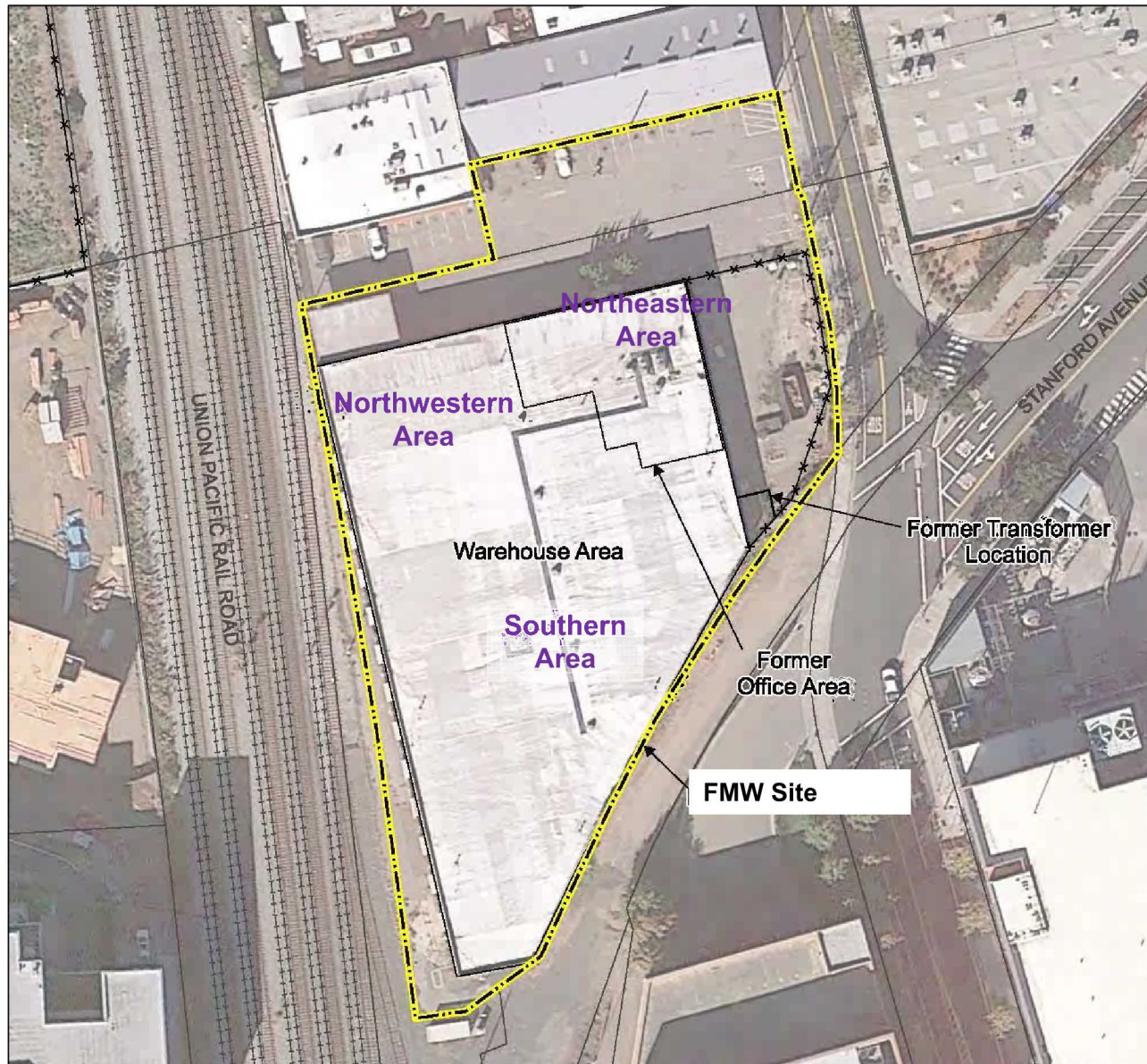
Reference: Modified from EKI, 2012, Final Subsurface Environmental Investigations Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, August, Figure 6-2a



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Figure 6
EKI's 2012 Conceptual Extent of Potential TCE
Release Area and Extent of Source Zone
5679 Horton Street, Emeryville, California



North
Not To Scale

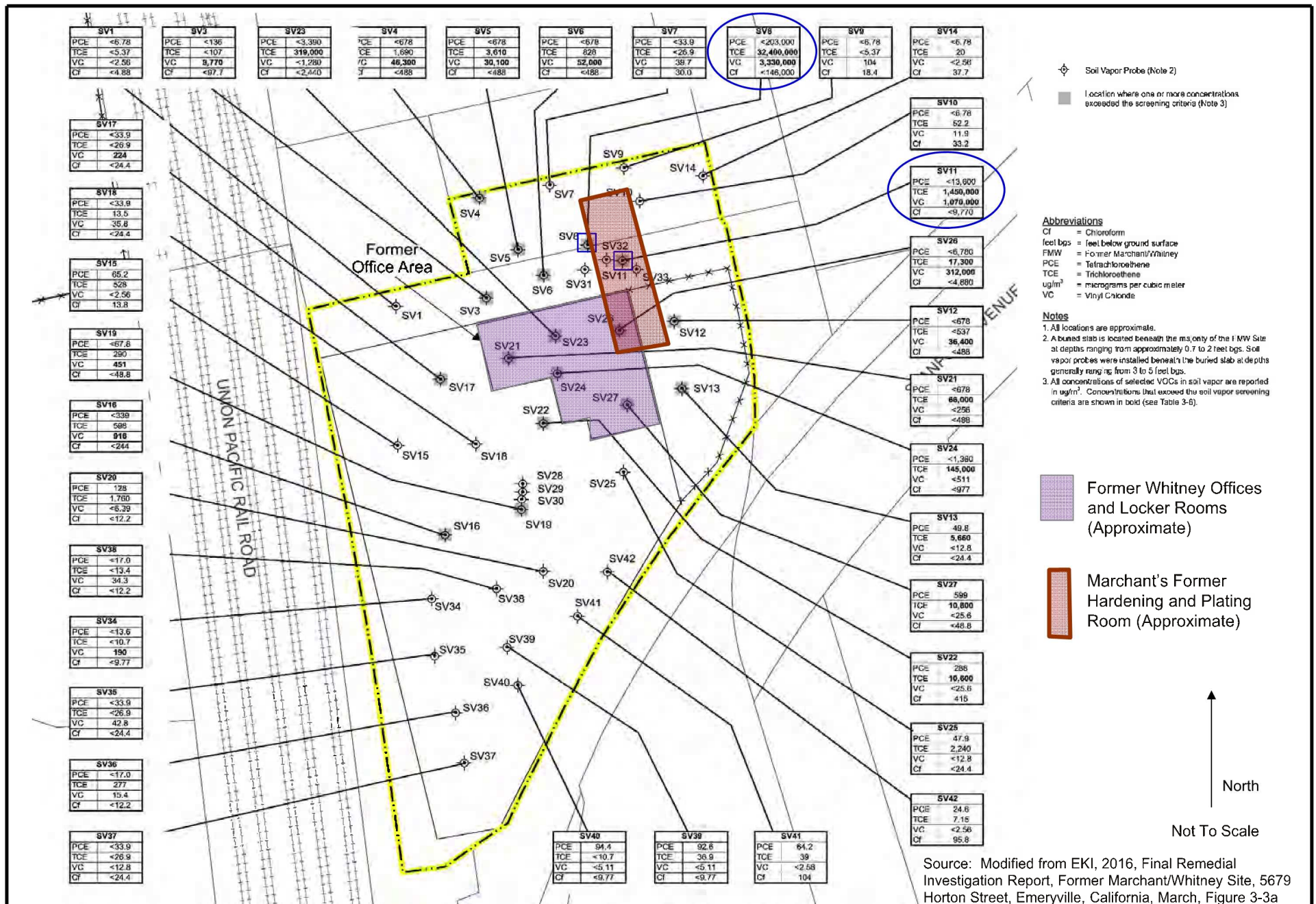
Source: Modified from EKI, 2016, Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, March, Figure 1-2



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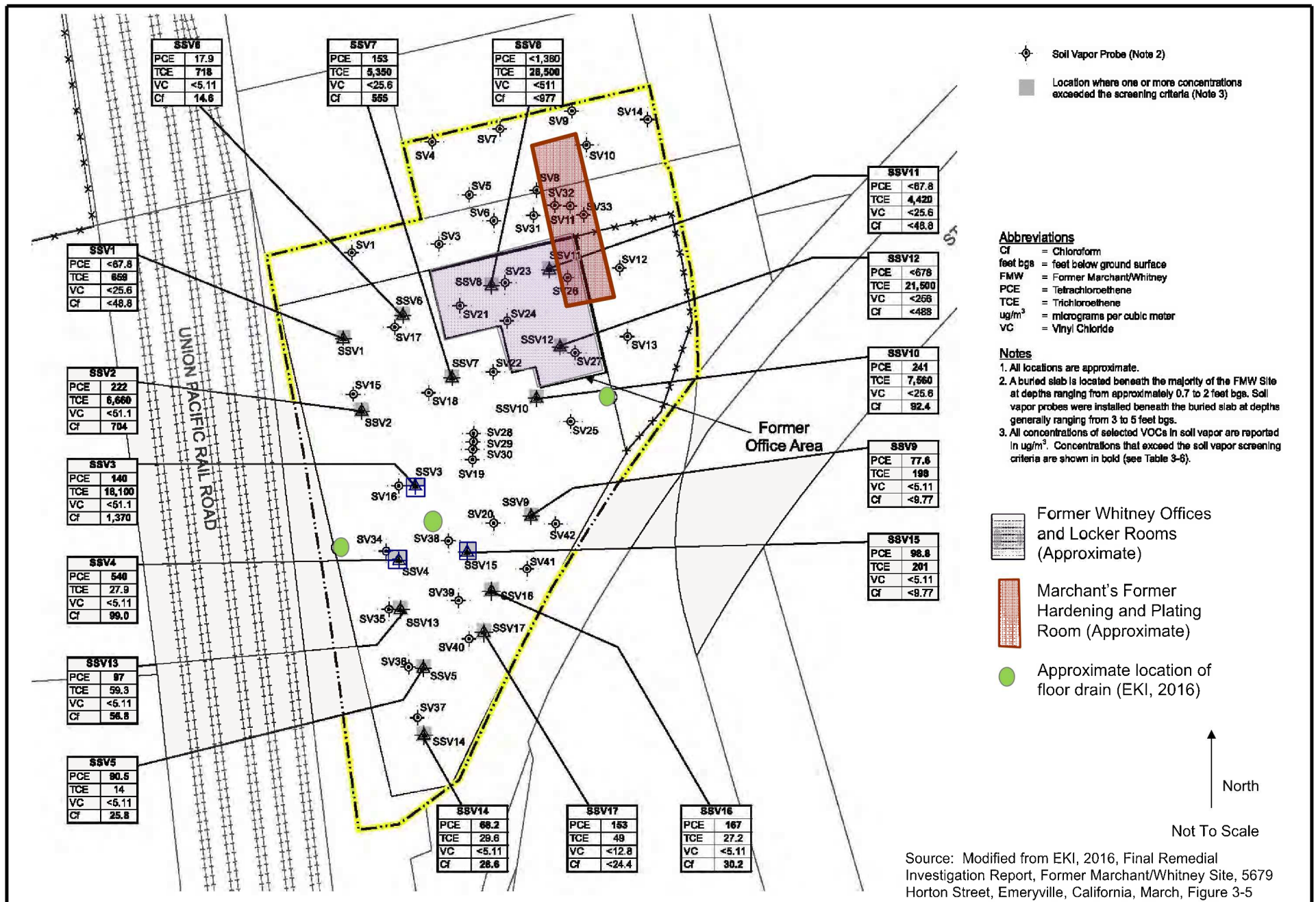
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Figure 7
Layout of the FMW Site
5679 Horton Street, Emeryville, California



Source: Modified from EKI, 2016, Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, March, Figure 3-3a

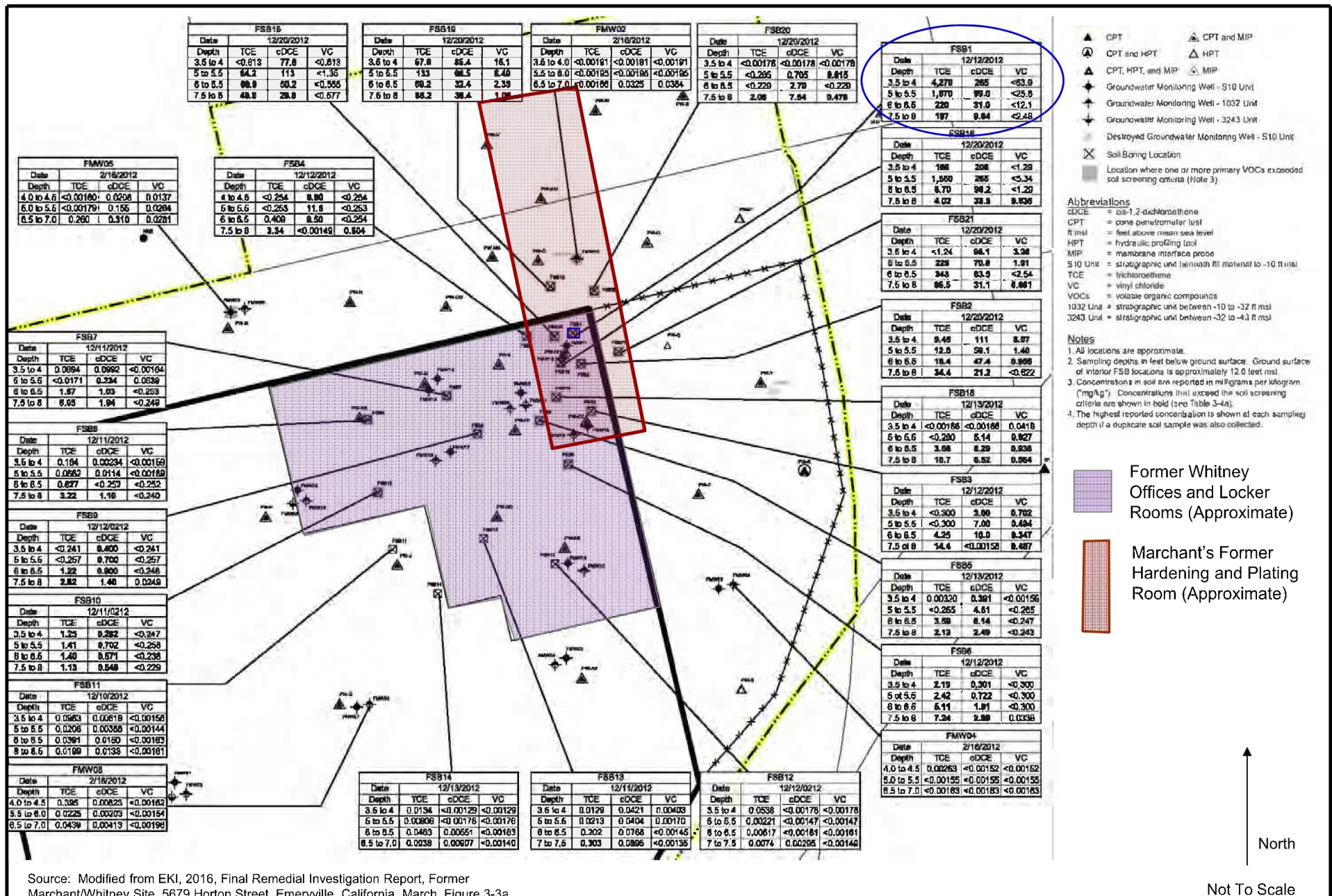
Figure 8
Soil Vapor Sample Results (Below Old Slab)
5679 Horton Street, Emeryville, California



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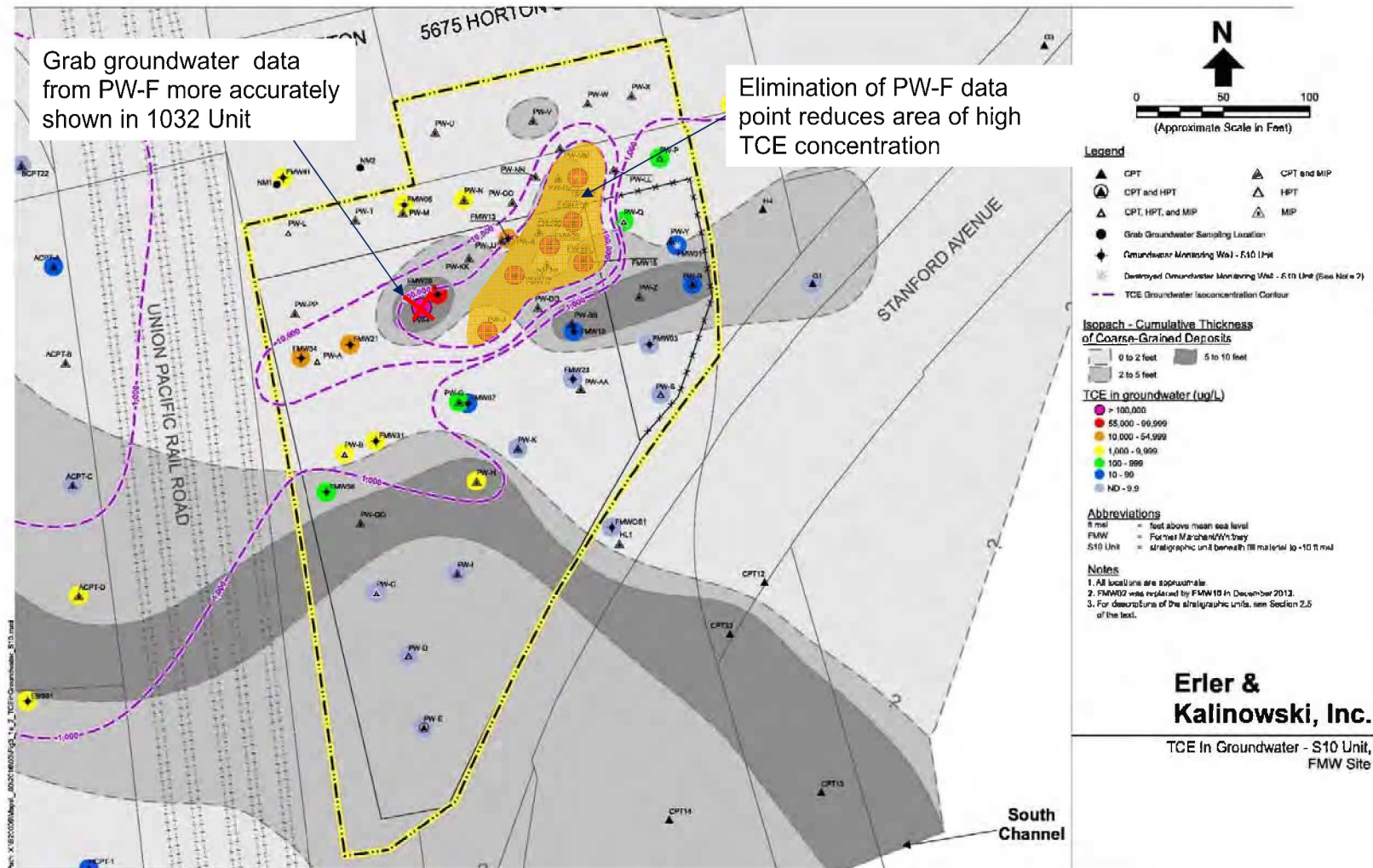
Figure 9
Sub-Slab Soil Vapor Results
 5679 Horton Street, Emeryville, California



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Figure 10
Soil Sample Results – Northeastern Area
5679 Horton Street, Emeryville, California



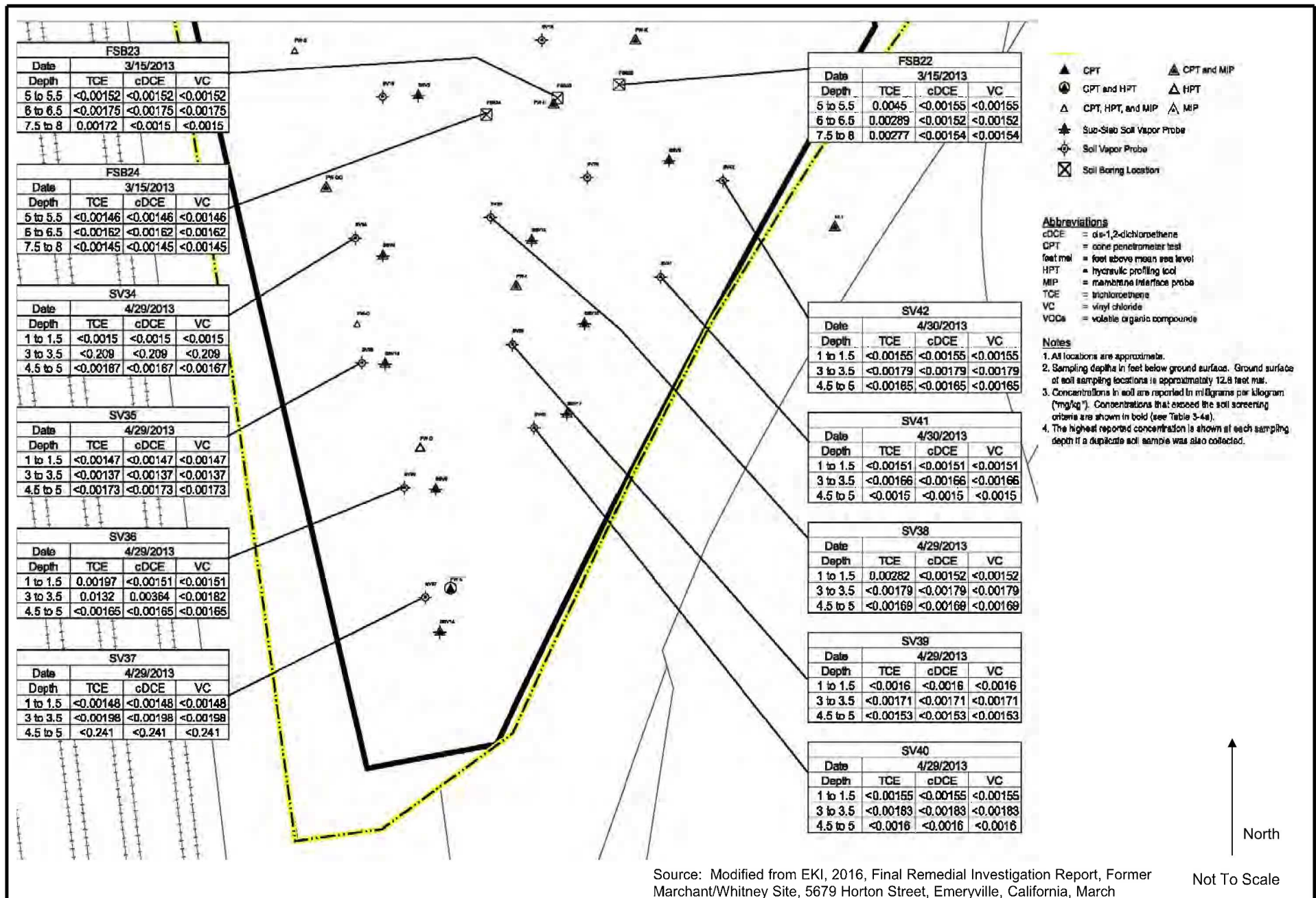
Source: Modified from EKI, 2016, Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, March, Figure 3-1a.2



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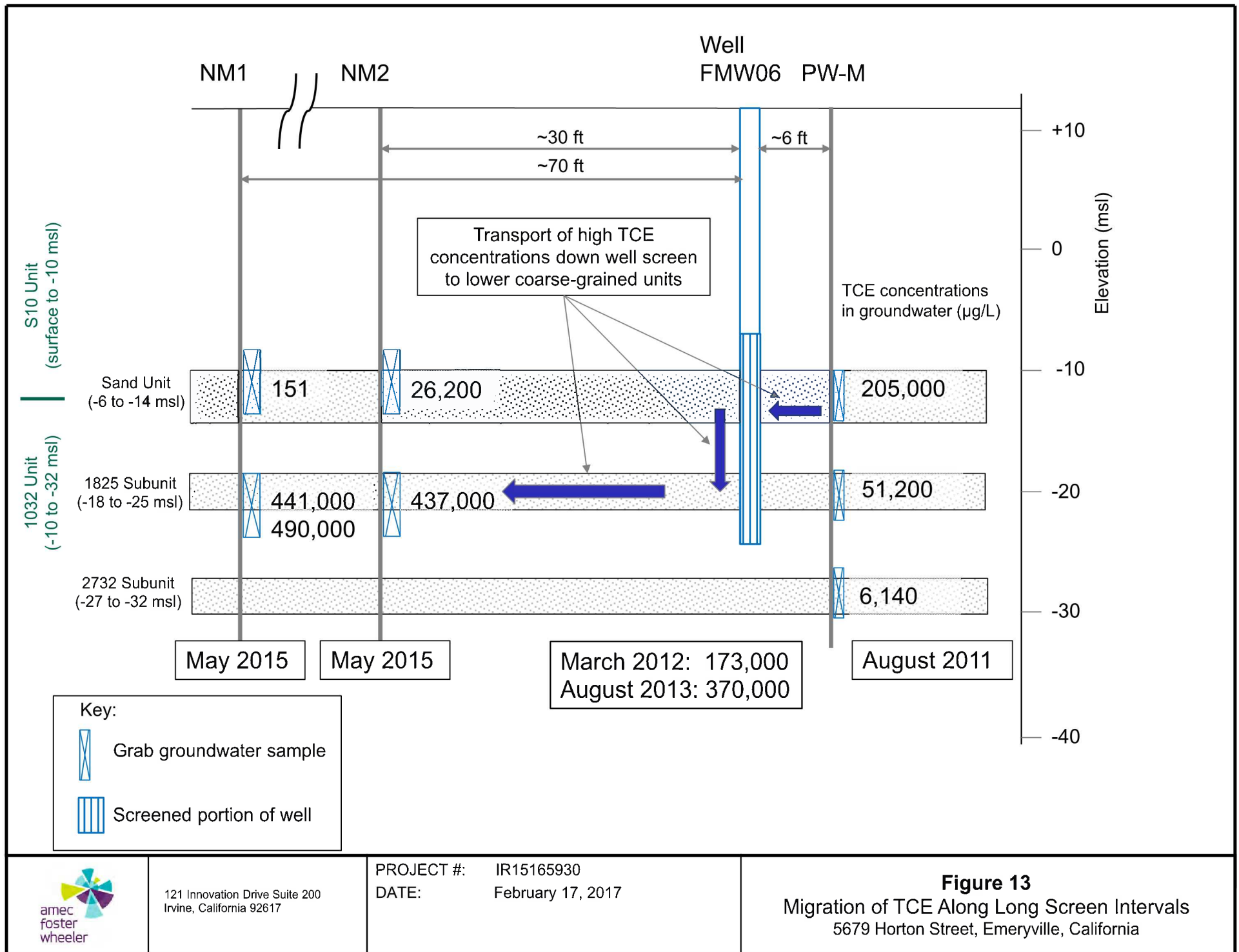
Figure 11
Reduction of Area of High TCE
Concentrations in Groundwater in S10 Unit
5679 Horton Street, Emeryville, California



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Figure 12
Soil Sample Results – Southern Area
5679 Horton Street, Emeryville, California



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Figure 14
Revised TCE Isoconcentration Contours
in Groundwater in S10 Unit
5679 Horton Street, Emeryville, California

	121 Innovation Drive Suite 200 Irvine, California 92617	PROJECT #: IR15165930 DATE: February 17, 2017	Figure 15 Alternative Interpretation of Thickness of Coarse-Grained Sediments in the 1825 Subunit 5679 Horton Street, Emeryville, California
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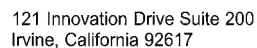
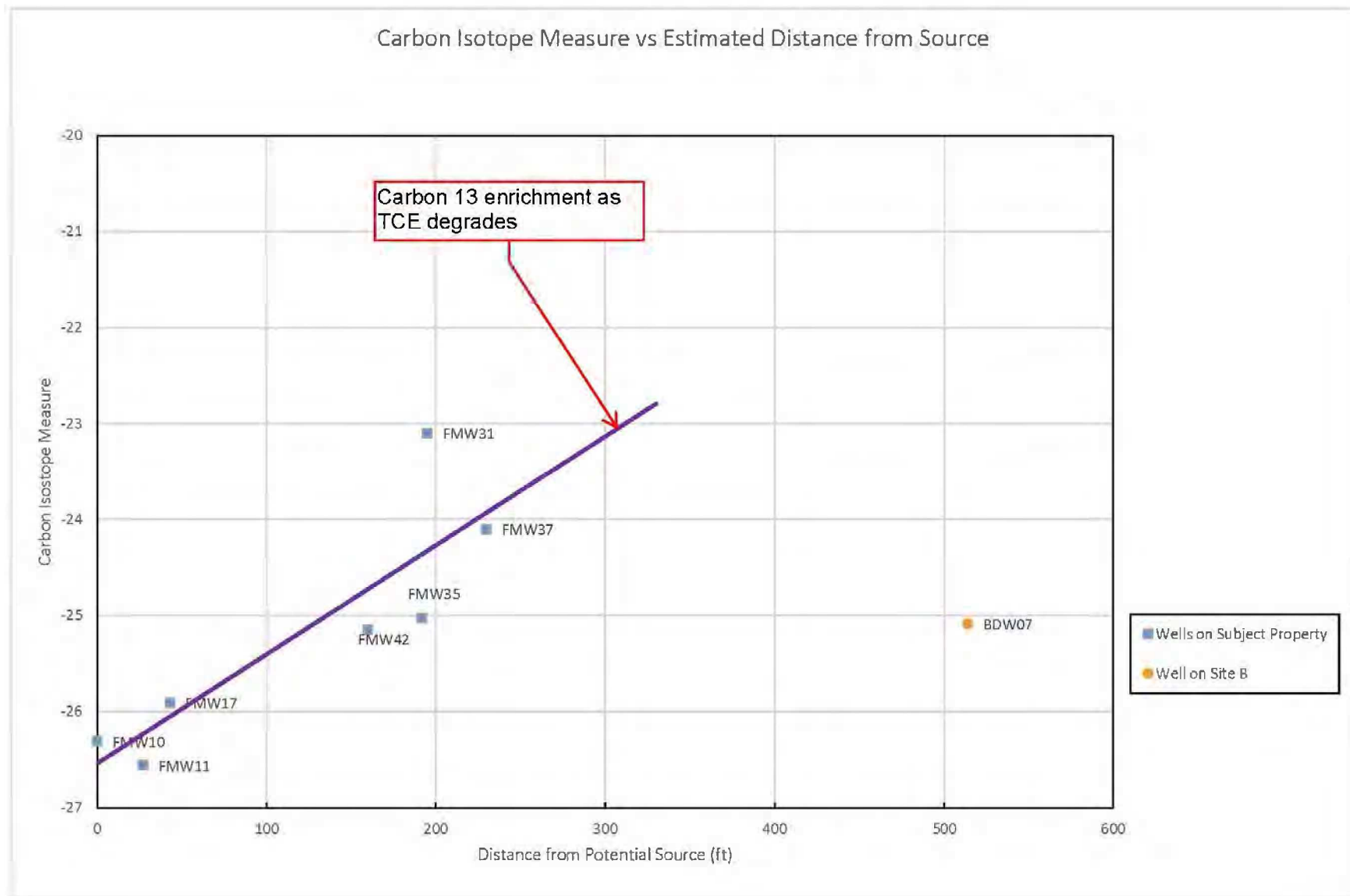


Figure 17
Reinterpretation of Potential TCE Source
Zones in 1825 Subunit
5679 Horton Street, Emeryville, California



Source: CSIA data from EKI, 2016, Final Remedial Investigation Report, Former Marchant/Whitney Site, 5679 Horton Street, Emeryville, California, March



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Figure 18
Carbon 13 Enrichment vs. Distance
5679 Horton Street, Emeryville, California

Attachment 1





Department of
Toxic Substances
Control

*The Mission of the
Department of
Toxic Substances
Control is to
provide the highest
level of safety, and
to protect public
health and the
environment from
toxic harm.*



State of California



California
Environmental
Protection Agency

Fact Sheet, December, 2009

Cleanup Plan for the Former Marchant Building Available For Public Review

A draft plan to remove volatile organic compound or solvent contamination in groundwater at the former Marchant building is available for public review and comment. The draft plan, called a Removal Action Workplan, or RAW, was submitted by the building's owner, the 6701 San Pablo LLC. Marchant comprises the building property located at 6701 San Pablo Avenue, Lot D and Lot C – three non-contiguous properties. The three properties total about 6.5 acres that are located in three cities – Berkeley, Oakland, and Emeryville near the intersection of San Pablo and Ashby Avenues. Please see the map on page two.

This Fact Sheet provides a brief summary of:

- Why Cleanup Is Necessary
- History and Operations at the Site
- Environmental Investigations
- Proposed Cleanup Options
- Safety During Cleanup
- California Environmental Quality Act
- Next Steps
- Where to Find the Documents
- Who to Contact for Information

Why Cleanup Is Necessary

There is no immediate health risk because the public is not exposed to the contaminated groundwater or vapors in the indoor air. However, because exposure to elevated levels of solvents can cause adverse health effects over the long term, DTSC recommends a cleanup plan to cleanup the groundwater to protect the future occupants of the property. DTSC will oversee the cleanup and ensure that it is performed in a manner that does not harm people or the environment.

Public Comment Period: December 4, 2009 to January 4, 2010

DTSC encourages your participation. The draft RAW and other project documents for this site are available for public review and comment at the locations listed on page 4. Please send written comments postmarked by January 4, 2010 or by e-mail before the January 4th to:

Mr. Jacinto Soto, Project Manager, JSoto@dtsc.ca.gov.,
700 Heinz Ave., Berkeley CA 94710





The boxes on the map denote the Marchant site

History and Operations at the Site

The building was built between 1956 and 1959. The Marchant Calculator Company, and later Smith-Corona Marchant Corporation (SCM) occupied the site and the Marchant building from 1956 through 1982. Their operations in the building included manufacturing of metal parts from raw steel, soldering of circuit boards, washing of circuit boards, and painting of metal parts. SCM, according to documents from that period, had a degreaser system installed that used the solvent Trichloroethene or TCE as a degreaser

fluid. TCE, we believe, was stored in a fluid bulk storage tank located in the basement. The Regents of the University of California at Berkeley (UCB) acquired the property in 1982. Since then, UCB uses the space primarily as a warehouse, a library book bindery, and for office space. Their printing operations started on the first floor of the building in 2003 and continue today. UCB sold the property in 2007 but continues to lease the property from Redico Management Company. UCB staff plans to move to another building by March 2010.

Environmental Investigations

During the investigations conducted from 1986 through 2009, elevated concentrations of solvents including TCE, Perchloroethylene or PCE, and break down chemicals from these solvents were found in groundwater underneath the building.

Soil investigations were conducted during the same period and did not identify significant soil contamination outside the building or underneath the concrete floor.

Proposed Cleanup Options

DTSC has considered the following four cleanup options for this site:

Alternative A – No Further Action

Alternative B – Groundwater and soil vapor treatment

Alternative C – On site chemical oxidation, groundwater monitoring, monitored natural attenuation

Alternative D – On site bioremediation

Based on careful analysis of the options, DTSC recommends Alternative C or on-site chemical oxidation because it protects human health and the environment, is permanent and has a reasonable cost. Details of the alternatives are listed in Section 5 of the Draft RAW.

If Alternative C is selected, DTSC will oversee the installation of groundwater monitoring wells. Locations will be chosen to be able to conduct long-term monitoring in and around the source area. DTSC estimates that a total of 10 groundwater monitoring wells would be installed for long-term monitoring.

Also, DTSC will oversee the injection and the extraction of the oxidant, sodium permanganate. The permanganate can be used as disinfectant and as an oxidizing agent will react with the solvents and break them down into non-hazardous substances. The schedule calls for preparing a work plan for further source area investigation in January and February, 2010. In March and April, DTSC plans to oversee a final look at determining the depth and width of the source area. Then in April, May and June 2010 consultants will prepare treatment design documents and a work plan for the cleanup.

Safety during Cleanup

The following actions will be implemented during this process to ensure public safety:

- The public will not have access inside the building during cleanup
- The work will proceed only when the building is vacant.
- For the safety of the workers, constant monitoring the air in the building to ensure solvent vapors stay well below any levels of concern

California Environmental Quality Act

In compliance with the California Environmental Quality Act (CEQA), DTSC has prepared a draft Notice of Exemption (NOE) for this project. The NOE states that the proposed cleanup will not have a significant negative effect on human health and the environment because of the short duration, and the minimal impact of the alternative recommended.

Next Steps

At the close of the Public Comment Period, DTSC will review and consider any public comments and make any necessary revisions to the draft RAW prior to final approval. Also, a Response to Comments document will be mailed to everyone who makes a comment and provides their name and address. Before the remedy begins, the consultant will submit design and implementation work plan for DTSC's approval.

Where to Find the Documents

The Draft RAW and other related documents for Marchant are available for review at the following locations:

Golden Gate Branch of the Oakland Public Library
5606 San Pablo Avenue
Oakland, California 94608
Please call them for their hours at
(510) 597-5023

Department of Toxic Substances Control
File Room
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

Please call for an appointment at (510) 540-3800

Site documents are also available at www.envirostor.dtsc.ca.gov. In the dialogue box, please type in Berkeley for the city. Click on “get report”. Click on “report” for the Marchant Corporation. Then click on “community involvement” and select the document that you would like to review. A computer is available in the DTSC file room for your use.

Who to Contact for Information

If you have any questions about the draft RAW, the project or cleanup activities, please contact:

Jacinto Soto
DTSC Project Manager
(510) 540-3842
JSoto@dtsc.ca.gov

Nathan Schumacher
DTSC Public Participation Specialist
Toll free at (866) 495-5651 or (916) 255-3650
NSchumac@dtsc.ca.gov

Media Inquiries:

Ms. Claudia Loomis
DTSC Public Information Officer
(916) 255-6578
CLoomis@dtsc.ca.gov

Notice to Hearing-Impaired Individuals

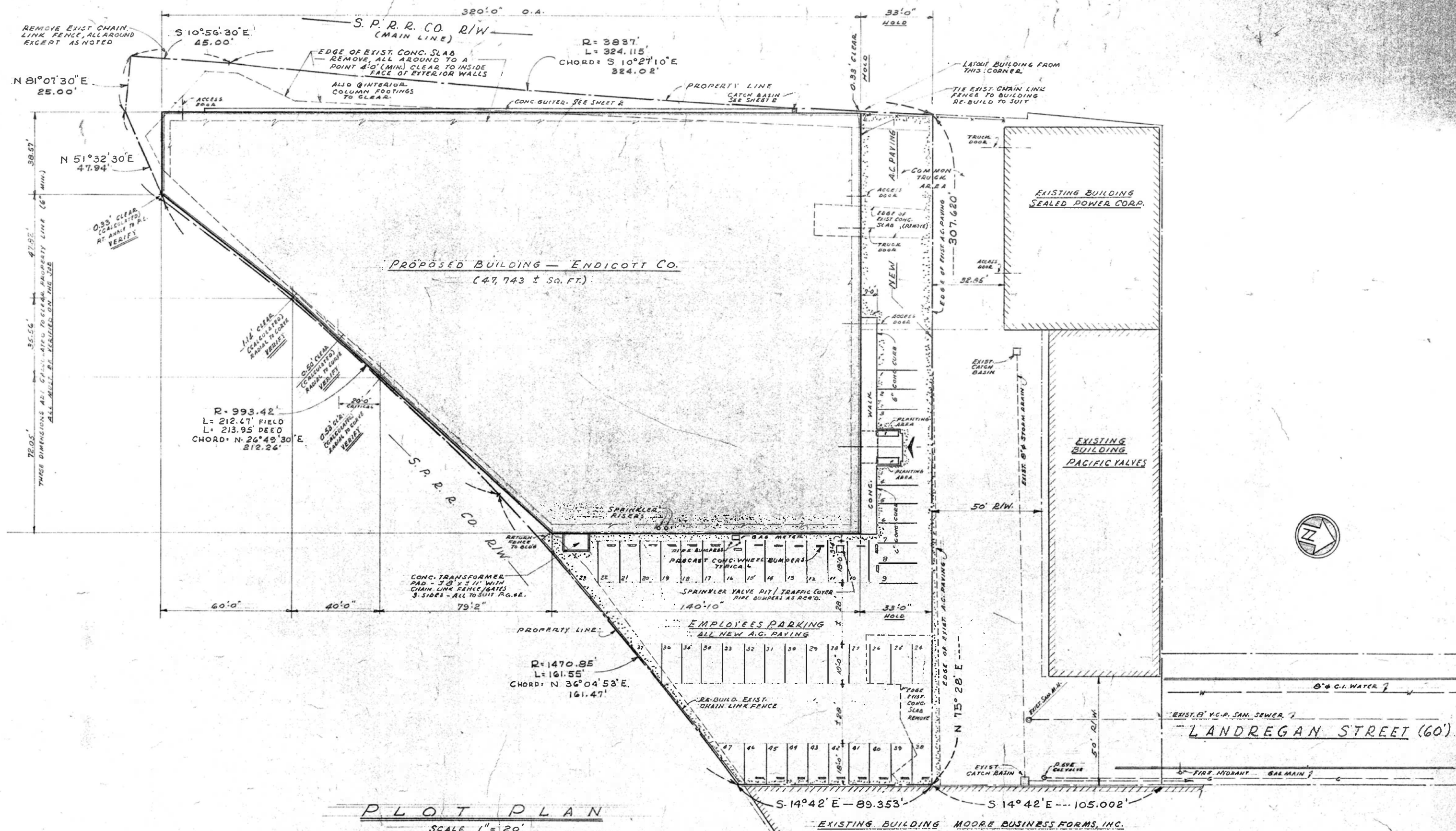
You can obtain additional information about the site by using the California State Relay Service at 1 (888) 877 5378 (TDD). Ask them to contact Nathan Schumacher at (916) 255-3650 regarding the Marchant site.

Annuncio

Si prefiere hablar con alguien en español acerca de esta información, favor de llamar a Jacinto Soto, Departamento de Control de Substancias Tóxicas. Su número del teléfono es (510) 540-3842.

Attachment 2





PLOT PLAN
SCALE 1" = 20'

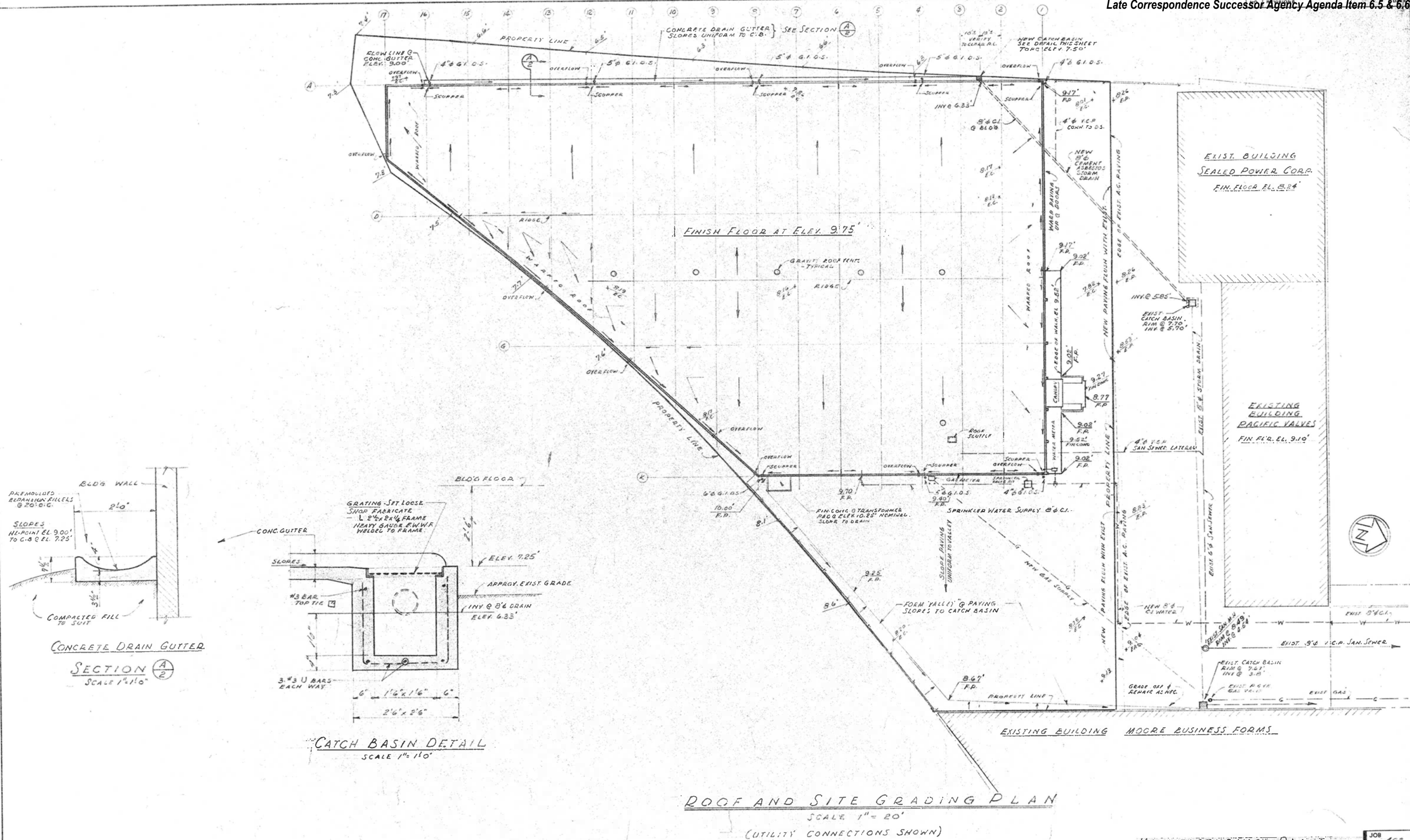
SEE SHEET NO. 2
FOR: EXISTING GRADES & ELEVATIONS
FINISH GRADES & ELEVATIONS
UTILITY CONNECTIONS

MANUFACTURING PLANT
FOR:
ENDICOTT CO.
EMERYVILLE, CALIFORNIA

THEODORE R. MOIST A.I.A.
ARCHITECT
355 GRAND AVE. OAKLAND, CALIFORNIA • TE 2 7044

VAN BOKKELEN-COLE CO.
GENERAL CONTRACTORS, OAKLAND

JOB 403
DATE JUNE 14, 63
REV.
SHEET 1



MANUFACTURING PLANT

FOR: ENDICOTT CO

EMERYVILLE, CALIFORNIA

THEODORE R. MOIST A.I.A.

ARCHITECT

355 GRAND AVE • OAKLAND • CALIFORNIA • TE 2 7044

JOB 403

DATE _____

JUNE 14, 65
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SHEET

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