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May 12, 2017

Mr. Mark Detterman
Senior Hazardous Materials Specialist, PG, CEG
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

RECEIVED

By Alameda County Environmental Health 2:59 pm, May 12, 2017

Re: Alameda County Letter dated December 22, 2016
Request for Focused Site Conceptual Model and Data Gap Work Plan
2013 San Pablo Ave
Oakland, CA 94608
Fuel Leak Case No. RO0000074
Geotracker Global ID T0600100666

Dear Mr. Detterman:

Greyhound Lines, Inc. (Greyhound) is transmitting the attached documents to Alameda County Environmental Health (ACEH) in response to ACEH letter dated December 22, 2017 regarding the above referenced site (Site). The attached documents include a Green Star Environmental letter dated May 12, 2017 with a Focused Site Conceptual Model and Data Gap Investigation Work Plan for the Site.

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's GeoTracker website

Sincerely,

GREYHOUND LINES, INC.



Susan Kirkpatrick
Sr. Environmental Project & Program Manager

May 12, 2017

Mr. Mark Detterman
Senior Hazardous Materials Specialist, PG, CEG
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: Alameda County Letter dated December 22, 2016
Request for Revised Focused Site Conceptual Model and Data Gap Work Plan
2013 San Pablo Ave
Oakland, CA 94608
Fuel Leak Case No. RO0000074
Geotracker Global ID T0600100666

Dear Mr. Detterman:

On behalf of Greyhound Lines, Inc. (Greyhound), Green Star Environmental (Green Star) has prepared a response to the Alameda County Department of Environmental Health (ACDEH) letter December 22, 2016. In the letter the ACDEH reviewed a Groundwater Monitoring Report dated October 7, 2016 and a Corrective Action Plan Addendum dated October 25, 2016 submitted by Green Star which proposed the implementation of an injection remediation pilot test to determine the effectiveness of injection remediation at the Site. In the letter, the ACDEH concluded that while they agree with the scope of the proposed pilot testing, that such pilot testing be placed on hold in order to obtain additional groundwater, soil, and soil vapor data from the Site to better evaluate closure options under the State Water Resources Control Board (SWRCB) Low Threat Closure Policy (LTCP) for underground storage tank sites. Specifically, the Site did not meet the specifications for the Media Specific Criteria for Groundwater, Vapor Intrusion to Indoor Air, and Direct Contact and Outdoor Air Exposure. Ultimately the ACDEH letter requested the submittal of a Focused SCM and Data Gap Investigation Workplan for the Site to address the ACDEH's Technical Comments.

Upon review of the ACDEH letter, Green Star requested an extension to evaluate all options to address the data gaps and exposure pathways in a phone call with ACDEH and by e-mail correspondence on March 9, 2017. The extension was granted to allow Green Star to data from the most recent groundwater monitoring event at the Site and to respond to the ACDEH letter. The groundwater monitoring event was conducted in February 2017 and the results are transmitted in the Groundwater Monitoring Report dated April 21, 2017. The Groundwater Monitoring Report is attached to this letter for reference. The groundwater data obtained from the February 2017 groundwater monitoring event was used in the evaluation and response to the Technical Comments outlined in the December 22, 2016 ACDEH letter.

Using the groundwater data from the February 2017 groundwater monitoring event as well as existing soil and soil vapor data, Green Star has prepared and is submitting under this cover letter a Revised Focused SCM and Data Gap Investigation Work Plan (Table 1 and 2 respectively) per the request of the ACDEH. In the Focused SCM and Data Gap Investigation Work Plan, Green Star has addressed the Technical Comments in the December 22, 2016 ACDEH letter as listed below:

ITEM 1: LTCP MEDIA SPECIFIC CRITERIA FOR GROUNDWATER

In the December 22, 2016 letter, the ACDEH concluded that the site did not meet the LTCP Media Specific Criteria for Groundwater. The ACDEH cited a lack of a definitive downgradient boundary of the groundwater plume as the main factor in coming to this conclusion. Because the installation of downgradient monitoring wells to the west-northwest of the Site is limited by the presence of the interstate I-980, ACDEH requested an evaluation of worst-case downgradient plume lengths for Total Petroleum Hydrocarbons in the gasoline range (TPH-g) based on tools outlined in the Technical Justification for Groundwater Media-Specific Criteria dated April 24, 2012. The guidance in the Technical Justification for Groundwater Media-Specific Criteria establishes accepted plume lengths for TPH-g based on the average, 90th percentile, and maximum plume lengths beyond a TPH-g concentration of 100 µg/L. The ACDEH has requested that the above-mentioned plume lengths be identified for the Site and that a sensitive receptor search area extending 1,000 feet beyond the maximum plume length.

Based on current groundwater analytical data obtained from the Site in February 2017, Green Star has provided a map (Figure 1) depicting the plume lengths and receptor survey search area. Note that the search distances from the site are depicted as generally concentric circles. This is due to the slight groundwater gradient at the site which tends to change between a radial pattern and various flow directions across the Site in response to seasonal and weather changes. As outlined in the Data Gap Investigation Work Plan, Green Star will complete research of sensitive receptors in the area such as schools, child care centers, and hospitals. Additionally, at the request of the ACDEH, Green Star will research water wells in the area including dewatering wells that may discharge to the public storm water or sanitary sewer system.

ITEM 3: LTCP MEDIA SPECIFIC CRITERIA FOR VAPOR INTRUSION TO INDOOR AIR

In the December 22, 2016 letter, the ACDEH concluded that the Site did not meet the SWRCB LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air. The ACDEH cited a lack of detailed documentation for soil vapor sampling methodologies from a previous soil vapor sampling event conducted at the Site in October 2010 and requested that new sampling be conducted under more current soil vapor sampling protocols defined by the Department of Toxic Substances Control (DTSC) Final Vapor Intrusion Guidance (October 2011) and the Active Soil Gas Investigations Advisory (April 2012). Additionally, the ACDEH noted that previous sampling was not taken at the correct depth beneath the building foundation at the Site. The ACDEH has also requested that permanent soil vapor monitoring points be installed to assess temporal and seasonal variation in soil gas concentrations.

In accordance with the ACDEH's recommendations, Green Star has outlined in the attached Data Gap Work Plan the installation of three permeant soil vapor monitoring points at locations near the onsite building. Green Star attempted to determine specific foundation construction details of the onsite build, however as of the writing of this letter actual construction details were not available. Therefore, for the purposes of this letter and Data Gap Work Plan, Green Star will assume that the onsite building is constructed with a 6-inch thick slab-on-grade foundation with 18-inch thick perimeter footers. As such the vapor monitoring points will be installed at a depth of 6.5 feet below grade surface (bgs) and constructed as shown in the attached schematic Figure 2. Please note that due to the known low permeability native soils encountered at the Site, Green Star proposes to install the soil vapor monitoring in accordance with guidance in Appendix D: Soil Gas Sampling In Low Permeability Soil of the Active Soil Gas Investigation Advisory which allows for alternative vapor monitoring well construction methods and sampling procedures for low permeability soil sites. The ACDEH approved of the alternative construction methods via phone correspondence on March 9,



2017. The locations of the proposed soil vapor monitoring points are depicted on the Site map attached as Figure 3.

Additionally, it should be noted that the SWRCB LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air states that exposures to petroleum vapors associated with historical fuel system releases are comparatively insignificant relative to exposures from small surface spills and fugitive vapor releases that typically occur at active fueling facilities. Therefore, satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities. As the Site is an active bus terminal with refueling activities, Green Star believes the Site is exempt from the SWRCB LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air.

ITEM 4: LTCP MEDIA SPECIFIC CRITERIA FOR DIRECT CONTACT AND OUTDOOR AIR

In the April 7, 2014 letter, the ACDEH concluded that the site did not meet the LCTP Media Specific Criteria for Direct Contact and Outdoor Air. The ACDEH cited a lack of sufficient soil sampling data from the shallow 0-5 and 5-10 foot below ground surface interval as the main factors for coming to their conclusion.

Green Star has reviewed the Site data which supports the ACDEH conclusion. To address this data gap, Green Star is proposing, as detailed in the Data Gap Investigation Work Plan, that shallow soil samples from the specified intervals be collected from the area of current or likely dispenser locations as well as from areas within the former tank pit and outside the former tank pit and analyzed for the appropriate VOCs, naphthalene, and PAHs as requested by the ACDEH. The ACDEH has also requested that groundwater samples be collected from each of the borings. Green Star will collect groundwater samples from each boring via a temporary groundwater monitoring well prior to abandonment of each soil boring location. The analytical results from the shallow soil samples and groundwater will be used to determine if the site does or does not meet the LCTP Media Specific Criteria for Direct Contact and Outdoor Air.

Green Star and Greyhound would like to thank the ACDEH for its time and attention to this project. Should you have any questions or comments regarding this project, please do not hesitate to call me at (214) 222-8752.

Sincerely,

GREEN STAR ENVIRONMENTAL



Leonard C. Albright
Principal



William Little, P.G.
Advanced GeoEnvironmental, Inc.
California P.G. #7473

Attachments: Groundwater Monitoring Report dated May 10, 2017
Focused Site Conceptual Model (Table 1)
Data Gap Investigation Work Plan (Table 2)
Figure 1 – TPH-g Plume Lengths and Receptor Survey Area
Figure 2 – Construction Detail for Soil Boring Converted to Soil Vapor Monitoring Point
Figure 3 – Proposed Soil Boring and Soil Vapor Monitoring Well Locations

cc: Susan Kirkpatrick, FirstGroup America, Inc., Cincinnati, OH



Groundwater Monitoring Report dated May 12, 2017
(See GeoTracker File: RO74_GWM_R_2017-05-12)

Table 1
Focused Site Conceptual Model

**Table 1 - Tabular Site Conceptual Model (SCM)
Oakland Bus Terminal
2103 San Pablo Avenue
Oakland, Alameda County, California
Green Star Project No. 17-1379**

Reference No.	SCM Element	SCM Sub-Element	Description	Data Gap	Proposed Investigation or Work
1	Site Background	General Background Information	The Site has been developed as a bus terminal since 1929. Six, out-of-service underground storage tanks (USTs) were removed from the Site in April 1990. The USTs were reportedly out of use for at least two decades prior to their removal. Subsurface investigations between 1989 and 1997 indicated that petroleum hydrocarbon impacts, including phase-separated hydrocarbons (PSH), were present in soils and groundwater at the Site. Between October 20 and 22, 2010, Green Star advanced twelve additional soil borings at the Site in order to further evaluate subsurface conditions in the area of the former USTs. In addition, Green Star conducted a groundwater monitoring event in February 2017, using the network of 12 wells at the Site, to document current groundwater conditions. Site figures and tables of data collected from the site can be found in Green Star Environmental's (Green Star's) Revised Site Conceptual Model Dated December 22, 2011 and the Groundwater Monitoring Report dated April 21, 2017.	N/A	N/A
2		Previous Remediation Activities	In March 1991, approximately 714 tons of stockpiled, tankhold-related soils were removed from the Site and treated via solidification/stabilization processes at Gibson Oil Refinery in Bakersfield, California. It was reported by a previous consultant that soils treated by Gibson were typically utilized as road base material. This indicates that the excavated tankpit was backfilled with imported fill and not the existing, contaminated stockpiles. A groundwater remediation system was operated from 1992 to 1997 to recover phase-separated hydrocarbons (PSH) and dissolved-phase impacts in groundwater utilizing total-fluid recovery pumps in four, four-inch diameter wells (ES-1, ES-5, BC-1 and ES-2). The recovered fluids were treated with an oil/water separator and activated carbon absorption columns prior to the permitted discharge to the sanitary sewer. Data indicate that the system was effective as PSH greater than 0.1-foot has not been detected since 1995.	N/A	N/A
3		Land Use Category	The Site has been developed as a bus terminal since 1929 and as such is a commercial property. The Site is zoned by the City of Oakland as an area of Central Business Service Commercial/Downtown Residential Open Space Combining zones (C-51/S-17). Due to extensive remodeling upgrades performed on the bus terminal at the Site, it is unlikely that the Site will be utilized in the near or even relatively distant future for any purpose other than bus terminal operations. Adjacent properties with the highest potential to be impacted by petroleum hydrocarbons related to the former source area at the Site are Castro Street followed by Interstate Highway 980 (I-980). Downgradient of I-980 is a commercial property and Brush Street. Beyond Brush Street is a mixed-use neighborhood of commercial and residential properties. The nearest sensitive property downgradient of the Site is a day care center located in the mixed-use neighborhood northwest of Brush Street approximately 485 feet northwest of the Site.	N/A	N/A
4	Physical Setting	Geology	According to the United States Geological Survey (USGS) and the San Francisco Bay Regional Water Quality Control Board (RWQCB), the Site is located in the San Francisco Basin west of the Hayward Fault in the Santa Clara Valley groundwater basin and the East Bay Plain sub-basin. The Site is underlain by unconsolidated Quaternary-aged sediments associated with beach and dune formations. In this area, the Quaternary deposits at the surface are mapped as the Merritt Sands which can be up to 60 feet thick. The Quaternary-aged sediments are assumed to be located on the Cretaceous and Jurassic-aged Franciscan bedrock complex which is approximately 450 ft. below mean seal level (msl) in the area of the Site. Other unconsolidated sediments, which may include the early Pleistocene-aged Santa Clara formation, are present between the Merritt Sands and the Franciscan bedrock. Soils encountered at the Site during subsurface investigations have generally included horizons of clays near the surface which are underlain by sandy soils with some intervals of interbedded silts. An unspecified fill material has been indicated to be present near the surface in several borings. The Site is covered by improved surfaces (concrete or asphalt) which are generally underlain by the clayey soils to approximately 12 to 16 feet below surface grade (bsg). The clayey soils appear to correspond with the Clear Lake-Urban complex of clayey soils described to be present at the Site by the Alameda County Soil Survey3. Although the Urban-Baywood complex of sandy soils is also indicated by the soil survey to be present at the northern portion of the Site, no borings have been advanced in this area. Groundwater has been measured to range from depths of approximately 12 to 22 feet bsg (approximately 3.6 to 9.7 feet msl) and is generally present within a horizon of sandy soils. Geologic cross sections of the region, cross sections of the site, and boring logs depicting soils encountered at the Site can be found in Green Star's Revised Site Conceptual Model dated December 22, 2011.	N/A	N/A

Reference No.	SCM Element	SCM Sub-Element	Description	Data Gap	Proposed Investigation or Work
5		Hydrogeology	<p>Lake Merritt is the nearest surface water body at approximately 0.50-mile east-southeast from the Site. The Oakland Inner Harbor is located approximately 1.1 miles south-southwest of the Site. Groundwater in the area is utilized for very limited amounts of irrigation, industrial and potable purposes, but shallow groundwater (less than 50 feet bgs) use in the area is most typically for household irrigation purposes. The RWQCB lists the East Bay Plain groundwater sub-basin as having existing beneficial uses of groundwater in the form of municipal, industrial and agricultural. The RWQCB indicates that the area had a high density of historic water wells set in the Merritt Sand (greater than five per square mile), but that many of the wells were contaminated by septic fields or saltwater intrusion. The City of Oakland obtains its municipal and drinking water from the East Bay Municipal Utility District (EBMUD). EBMUD obtains the vast majority of water for the system from surface water collected from a watershed of the Sierra Nevada Mountain Range that is stored at the Pardee Reservoir, located approximately 80 miles east-northeast of the Site, with a small percentage of the system water coming from local precipitation runoff stored in area reservoirs.</p>	N/A	N/A
6	Physical Setting (Continued)	Nearby Environmental Projects	<p>A review of ACDEH's Local Oversight Program (LOP) on-line database as well as the water well search data detailed in Section 4.1 indicate that several properties in the area of the Site are sources of environmental impacts to soil and groundwater in relation to USTs. Four of these LOP facilities are near the Site. Two facilities, City Center Project Parcel T12 and Sinclair Paint Site, are located adjacent and upgradient to crossgradient of the Site (south-southeast). Based on a September 1999 report, City Center Project Parcel T12 contains fill material contaminated with oil, grease, and metals (Fuel Leak Case RO-0002809); no further information is available on the LOP website. The Sinclair Paint Site was granted closure in January 1998 after a site investigation of former underground storage tanks indicated TPH, MTBE and BTEX contamination in groundwater from temporary well points; no remediation was performed at this site (Fuel Leak Case RO-0002815). The two other facilities, Peerless Stages (2021 Brush Street; approximately 438 feet west-northwest) and Herrington-Olsen Photo (769 22nd Street; approximately 676 feet northwest) are located downgradient of the Site (west-northwest to north-northwest; Figure 9). The data related to the downgradient projects indicate that both projects had soil and groundwater impacts of petroleum hydrocarbons and that both projects have been closed.</p> <p>The nearest downgradient project to the Site, Peerless Stages (Fuel Leak Case RO-0000407) is located approximately 460 feet west-northwest of the Site (Figure 9). The project was closed in February 2002 after the removal of two USTs, excavation of impacted soils, and completion of nine groundwater monitoring events between 1999 and 2001. In their closure letter dated February 15, 2002, ACDEH states that 240 ppm TPH-d and 4.0 ppm MTBE remains in soils and 1.20 ppm TPH-d and 1.50 ppm MTBE remains in groundwater at the Site. Residential properties are located immediately downgradient of the impacts and the extent and magnitude of the impacts beneath the residential properties were not evaluated.</p>	N/A	N/A
7	Impact Distribution	Groundwater	<p>A groundwater monitoring event was conducted in February 2017. PSH was not detected in February 2017 and has not been detected since October 1997. The calculated hydraulic gradient was approximately 0.008 ft./ft. The groundwater flow direction was to the east across the Site.</p> <p>Analytical results from the groundwater event indicated concentrations of at least one dissolved-phase BTEX constituent were present in eleven monitoring wells (BC-1, B-3, ES-1 through ES-8, and ES-11), concentrations of at least one dissolved-phase TPH constituent were present in eleven monitoring wells (BC-1, BC-3, ES-1 through ES-5, ES-7 through ES-9, and ES-11), and the only miscellaneous petroleum hydrocarbons detected above laboratory detection limits were naphthalene, DIPE, EDC, and TBA.</p> <p>Additional information including groundwater gradient figures, cumulative graphs of groundwater elevations at the site and PSH thicknesses, and data tables of current and cumulative groundwater analytical results can be found in Green Star's Groundwater Monitoring Report for the Site dated May 10, 2017.</p>	<p>Current data from groundwater at the Site appears to show that concentration of dissolved-phase contaminants appears to be stable but is inconclusive in determining the downgradient extent of the plume. The Site does not appear to meet the State Water Resources Control Board Low Threat Closure Policy due to the downgradient extent of the contaminant plume being unknown. Therefore, Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines technical justification of the extent of the plume based on current data and a receptor survey of the area to move the Site toward final closure under the State Water Resources Control Board Low Threat Closure Policy.</p>	<p>Green Star, at the request of the ACDEH, has completed a technical justification to determine the extent of the TPH-g contaminant plume at the Site based on guidance in the SWRCB Technical Justification for Groundwater Media-Specific Criteria dated April 24, 2014. Additionally as directed by the ACDEH, Green Star has determined an area within 1,000 feet of the maximum extent of the plume boundary as determined by the technical justification within a receptor survey should be conducted. A figure depicting the justified plume lengths and the receptor survey area is attached as Figure 1.</p> <p>Green Star proposes to complete research of sensitive receptors in the area such as schools, child care centers, and hospitals. Additionally, at the request of the ACDEH, Green Star will research water wells in the area including dewatering wells that may discharge to the public storm water or sanitary sewer system. Green Star will also collect additional groundwater samples from temporary monitoring wells at soil boring locations described in Section 8 below as well as continue semi-annual sampling and reported from the onsite groundwater monitoring well network.</p>

Reference No.	SCM Element	SCM Sub-Element	Description	Data Gap	Proposed Investigation or Work
8	Impact Distribution (Continued)	Soil	<p>Between October 20 and 22, 2010, twelve additional soil borings (B-1 to B-12) were advanced at the Site in order to further evaluate subsurface conditions in the area of the former UST tankpit. The borings were advanced to depths ranging from 15 to 20 feet below ground surface (bgs). Selected soil samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl-ether (MTBE), and gasoline range total petroleum hydrocarbons (TPH-g) via EPA Method 8021 and diesel range TPH (TPH-d) via EPA Method 8015.</p> <p>Analytical results indicated at least one BTEX constituent was detected in 12 of 20 analyzed samples, at least one TPH constituent was detected in 19 of 20 analyzed samples, and that MTBE was detected above laboratory detection limits only in sample B-7 (16'). The samples were not analyzed for any other VOCs.</p> <p>Summary tables and figures depicting soil data from the subsurface investigation can be found in Green Star's Revised Site Conceptual Model dated December 22, 2011.</p>	<p>Impacted soils appear to still be present at the Site and are the likely cause of the observed groundwater impacts noted in the previous section. The Site does not appear to meet the SWRCB LTCP likely due to contaminated soil as secondary source material remaining at the Site. Additionally the ACDEH has determined that a data gap is present in a lack of shallow soil data from the 0-5 foot depth below surface and the 5-10 foot below surface intervals from areas both within the former tank pit and outside the former tank pit especially near the on site building and the area of likely former dispensers. Therefore, Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed soil boring locations to collect samples from the prescribed locations and depth intervals at the Site and move the Site toward final closure under the SWRCB LTCP. Green Star will also use the new soil data obtained from the Site to satisfy the SWRCB LTCP for the Media Specific Criteria for Direct Contact and Outdoor Air which is specifically addressed in Reference Item 9 below.</p>	<p>Green Star will oversee the advancement of approximately 13 new soil boring locations at the Site. The exact location will be determined in the field after underground utilities are located but a figure depicting proposed soil boring locations is attached as Figure 3.</p> <p>Green Star is proposing that shallow soil samples from the intervals specified by the ACDEH be collected from the area of current or likely dispenser locations as well as from areas within the former tank pit and outside the former tank pit and analyzed for the appropriate VOCs, naphthalene, and PAHs as requested by the ACDEH. The ACDEH has also requested that groundwater samples be collected from each of the borings. Green Star will collect groundwater samples from each boring via a temporary groundwater monitoring well prior to abandonment of each soil boring location. While Green Star believes that sufficient data exists to meet the SWRCB LTCP with respect to soils at the Site, the analytical results from the shallow soil samples and groundwater will be used to determine if the site does or does not meet the LCTP Media Specific Criteria for Direct Contact and Outdoor Air as described in Reference Item 9 below.</p>
9		Soil Vapor	<p>On October 20, 2010, four direct-push soil borings (SV-1, SV-2, SV-3a, and SV-3b) were advanced to approximately 5 feet bgs in an effort to collect soil vapor samples using Geoprobe soil vapor apparatus. Only the sample from SV-2 reached a proper final pressure of -5 inches of mercury (Hg). This indicates low permeability soils were present at the sampling depth at borings SV-1, SV-3a, and SV-3b as an adequate volume of soil vapor could not be collected. However, a soil vapor sample was collected at SV-2.</p> <p>Analytical results indicated that benzene, TPH-g, and the four following VOCs were detected above laboratory detection limits: cyclohexane, hexane, 4-methyl-2-pentanone, and 1,2,4-trimethylbenzene. Hexane and 1,2,4-trimethylbenzene are common fuel fractions. Cyclohexane and 4-methyl-2-pentanone, a derivative of acetone, are common laboratory contaminants.</p> <p>Summary tables and figures depicting soil vapor data from the subsurface investigation can be found in Green Star's Revised Site Conceptual Model dated December 22, 2011.</p>	<p>Currently the Site does not meet the LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air and Direct Contact and Outdoor Air due to a lack of sufficient soil vapor data from the proper depth below the building foundation and soil analytical data from the 0-5 foot and 5-10 foot below ground surface range. Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed sampling of soil vapor and soil at the Site in an effort to move the Site toward final closure under the SWRCB LTCP. Green Star will collect soil vapor and shallow soil samples for analysis of BTEX, TPH, Naphthalene, and PAHs in an effort to satisfy LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air and Direct Contact and Outdoor Air.</p>	<p>Green Star is proposing new soil vapor sampling be conducted under more current soil vapor sampling protocols defined by the Department of Toxic Substances Control (DTSC) Final Vapor Intrusion Guidance (October 2011) and the Active Soil Gas Investigations Advisory (April 2012). Green Star proposing the installation of three permeant soil vapor monitoring points at locations near the onsite building. Green Star attempted to determine specific foundation construction details of the onsite build, however actual construction details were not available. Therefore, Green Star will assume that the onsite building is constructed with a 6-inch thick slab-on-grad foundation with 18-inch thick perimeter footers. As such the vapor monitoring points will be installed at a depth of 6.5 feet below grade surface (bgs) and constructed as shown in the attached schematic Figure 2. Please note that due to the known low permeability native soils encountered at the Site, Green Star proposes to install the soil vapor monitoring in accordance with guidance in Appendix D: Soil Gas Sampling In Low Permeability Soil of the Active Soil Gas Investigation Advisory which allows for alternative vapor monitoring well construction methods and sampling procedures for low permeability soil sites. The ACDEH approved of the alternative construction methods via phone correspondence on March 9, 2017. The locations of the proposed soil vapor monitoring points are depicted on the Site map attached as Figure 3.</p> <p>Green Star also proposes to collect shallow soil samples from the specified intervals be collected from the area of current or likely dispenser locations as well as from areas within the former tank pit and outside the former tank pit.</p> <p>Analytical results from the obtained samples will be used to determine if the Site meets the SRWCB LCTP Media Specific Criteria for Direct Contact and Outdoor Air and/or if additional remediation is needed to meet this LTCP.</p>

Reference No.	SCM Element	SCM Sub-Element	Description	Data Gap	Proposed Investigation or Work
10	Receptor Survey	Water Well Search	Green Star requested data related to water wells present within at least 0.5-mile of the Site from known regulatory data sources: Alameda County Public Works Agency (ACPWA) and State of California Department of Water Resources (DWR). Both agencies requested the related files remain confidential; therefore, the reviewed data is not included in this report. The records indicated that the vast majority of water wells in the area of the Site are utilized for environmental purposes: monitoring or remediation. A few of the wells were listed for irrigation or domestic use, but none were listed as public supply wells. The non-environmental wells are all located at least 0.4-mile from the Site and none were listed as being downgradient from the Site. No listed well appears to be impacted by or be present in a location that could be impacted in the future by petroleum hydrocarbons related to the Site.	The ACDEH has requested that an additional receptor survey of the area be completed based on a technical justification to determine the extent of the TPH-g contaminant plume at the Site based on guidance in the SWRCB Technical Justification for Groundwater Media-Specific Criteria dated April 24, 2014. Additionally as directed by the ACDEH, Green Star has determined an area within 1,000 feet of the maximum extent of the plume boundary as determined by the technical justification within a receptor survey should be conducted. A figure depicting the justified plume lengths and the receptor survey area is attached as Figure 1.	Green Star proposes to complete research of sensitive receptors in the area such as schools, child care centers, and hospitals. Additionally, at the request of the ACDEH, Green Star will research water wells in the area including dewatering wells that may discharge to the public storm water or sanitary sewer system.
11		Area Survey	A walking survey of the Site's area was conducted in 2009 in order to identify unknown, potential receptors or sensitive property uses (residences, water wells, schools, parks, etc.; Figure 9). The survey included an area within at least 500 feet of the Site's property boundary. The area is developed as a dense urban landscape with the majority of the survey area's developments being commercial operations or multi-family residences. No indication of the presence of water wells was observed during the survey. No residences are present within 500 feet downgradient of the Site. Other than residences at upgradient properties, only two sensitive properties were observed. Begin Plaza Park is present northeast of the Site in an up- to cross-gradient location relative to groundwater impacts at the Site. 4C's Child Development Center (4C's) is located approximately 485 feet downgradient of the Site, across Castro Street, I-980 and Brush Street. It should be noted that 4C's is adjacent to the Peerless Stages project site (ACDEH LOP facility) and approximately 50 feet from known impacts at Herrington-Olsen Photography (ACDEH LOP facility). Impacts related to the Site do not appear to threaten sensitive properties or other potential receptors.	The ACDEH has requested that an additional receptor survey of the area be completed based on a technical justification to determine the extent of the TPH-g contaminant plume at the Site based on guidance in the SWRCB Technical Justification for Groundwater Media-Specific Criteria dated April 24, 2014. Additionally as directed by the ACDEH, Green Star has determined an area within 1,000 feet of the maximum extent of the plume boundary as determined by the technical justification within a receptor survey should be conducted. A figure depicting the justified plume lengths and the receptor survey area is attached as Figure 1.	Green Star proposes to complete research of sensitive receptors in the area such as schools, child care centers, and hospitals. Additionally, at the request of the ACDEH, Green Star will research water wells in the area including dewatering wells that may discharge to the public storm water or sanitary sewer system.
12		Vapor Survey	A vapor survey of subsurface conduits at the Site, mainly near the impacted area, was conducted in April 2009. The Site and surrounding streets and right-of-ways were evaluated for the existence of conduits that could allow vapors related to petroleum hydrocarbon impacts at the Site to migrate to the surface or building interiors. Once identified, the atmosphere inside the conduits was screened for VOCs using a photo-ionization detector (PID). The conduits identified included: various manways (sewer, natural gas, and water), storm drains, and floor drains. No VOCs were measured in the conduits' atmospheres. A figure depicting the vapor survey locations and results can be found in Green Star's Revised Site Conceptual Model dated December 22, 2011.	N/A	N/A
13		Utility/Conduit Survey	A survey of subsurface utilities in the vicinity of the impacts at the Site was conducted in 2009 in order to evaluate the potential for the utilities or related trenches to intercept the impacts or impacted groundwater. Groundwater impacts from the Site extend under Castro Street. Four subsurface utility lines are located under Castro Street: a 24-inch outside diameter (OD) sanitary sewer, an 8-inch inside diameter (ID) gas line, a 12-inch OD storm sewer and an 8-inch ID water line (Figure 2b). None of the utilities under Castro Street intercept the water table. The base of the 24-inch sanitary sewer is closest to the groundwater table at approximately 11.7 feet above msl while groundwater has been present in monitoring well ES-8 at elevations ranging from 5.48 to 9.1 feet above msl. Several utility lines are located on-site near the source area, but the on-site lines are very near the surface and do not intercept or approach the water table.	N/A	N/A
14	Cleanup Goals	N/A	The data indicates that residual groundwater impacts and potential soil vapor impacts at the Site appear to be present as a result of contact with contaminated soil source material still present at the Site. As previously stated, the Site does not appear to meet the State Water Resources Control Board Low Threat Closure Policy for groundwater due to contaminated soil as source material remaining at the Site the downgradient extent of the contaminant plume being unknown. The contaminated soil source material appears to continue to impact groundwater at the Site. Therefore, Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed receptor research and soil vapor, soil, and groundwater sampling in an effort to move the Site toward final closure under the State Water Resources Control Board Low Threat Closure Policy. As the vast majority of the groundwater impacts remain on-site as evidenced by relatively low concentrations of impacts in well ES-8 (40 feet downgradient of the former tank pit), ESLs related to the groundwater ingestion pathway are not appropriate for the project and shallow groundwater beneath the site has no documented beneficial use. Therefore, ESLs for non drinking water resources will be used for the groundwater cleanup standard. This cleanup standard may be adjusted based on the results of the new receptor survey proposed in previous sections of this SCM. In general all contaminated media at the site, soil, soil vapor, and groundwater, will be cleaned up if necessary to the standards provided under the SWRCB LTCP.	N/A	N/A

ACDEH = Alameda County Department of Environmental Health

SWRCB = State Water Resources Control Board

LTCP = Low Threat Closure Policy

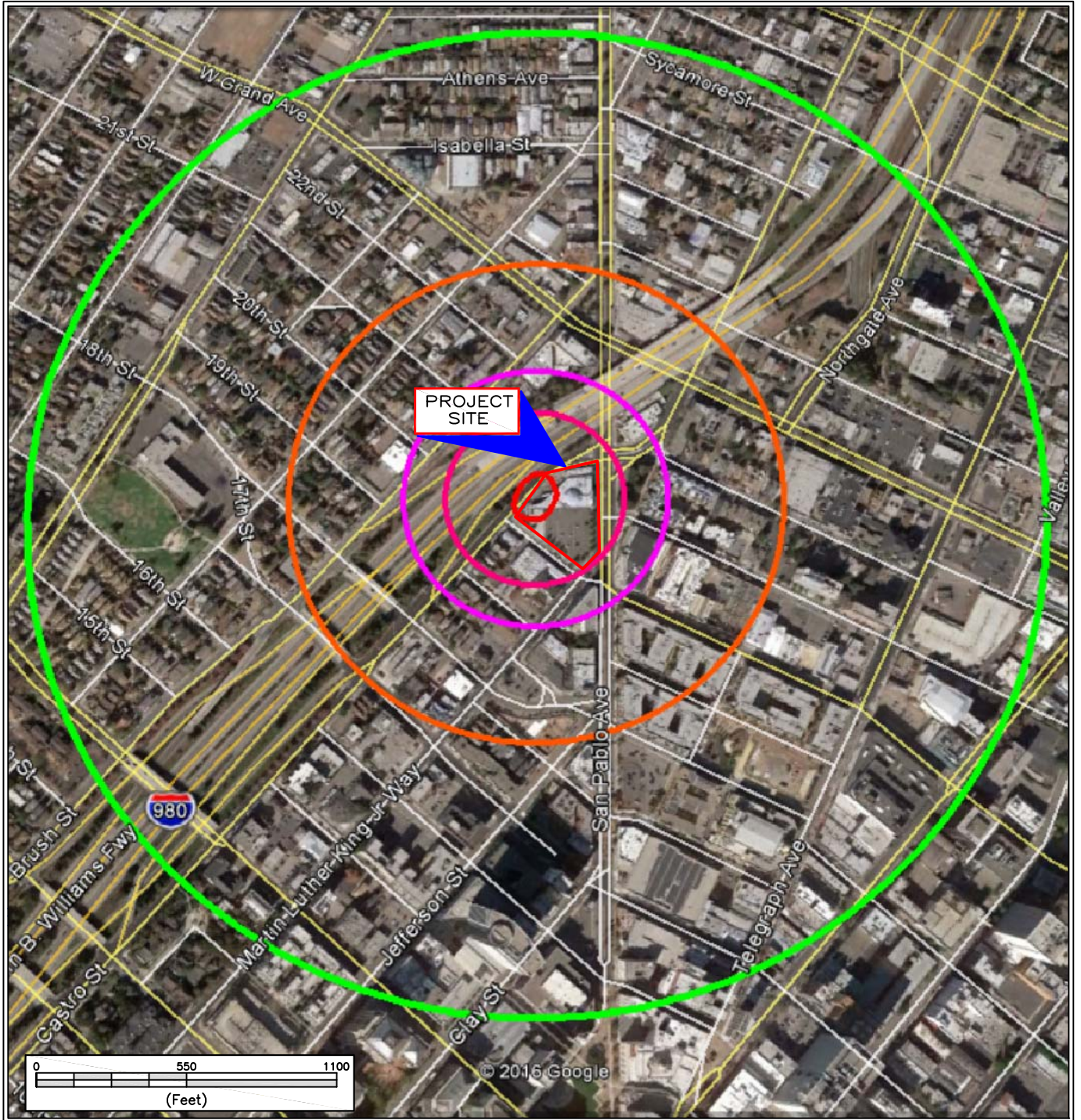
Table 2
Data Gap Investigation Work Plan

**Table 2 - Tabular Data Gap Work Plan
Oakland Bus Terminal
2103 San Pablo Avenue
Oakland, Alameda County, California
Green Star Project No. 17-1379**

Reference No.	Data Gap	Proposed Investigation of Work	Rationale	Analysis
7	Current data from groundwater at the Site appears to show that concentration of dissolved-phased contaminants appears to be stable but is inconclusive in determining the downgradient extent of the plume. The Site does not appear to meet the State Water Resources Control Board Low Threat Closure Policy due to the downgradient extent of the contaminant plume being unknown. Therefore, Green Star is submitting a Data Gap Investigation Work Plan which outlines technical justification of the extent of the plume based on current data and a receptor survey of the area to move the Site toward final closure under the State Water Resources Control Board Low Threat Closure Policy.	Green Star, at the request of the ACDEH, has completed a technical justification to determine the extent of the TPH-g contaminant plume at the Site based on guidance in the SWRCB Technical Justification for Groundwater Media-Specific Criteria dated April 24, 2014. Additionally as directed by the ACDEH, Green Star has determined an area within 1,000 feet of the maximum extent of the plume boundary as determined by the technical justification within a receptor survey should be conducted. A figure depicting the justified plume lengths and the receptor survey area is attached as Figure 1. Green Star proposes to complete research of sensitive receptors in the area such as schools, child care centers, and hospitals. Additionally, at the request of the ACDEH, Green Star will research water wells in the area including dewatering wells that may discharge to the public storm water or sanitary sewer system. Green Star will also collect additional groundwater samples from temporary monitoring wells at soil boring locations as well as continue semi-annual sampling and reported from the onsite groundwater monitoring well network.	Green Star concurs with the ACDEH that the additional research of receptors based on the technically justified plume lengths and continued collect of groundwater data from the on site groundwater monitoring network as well as from the new temporary monitoring well locations may provide a pathway the closure under current site conditions through the SWRCB LTCP without the need to do additional remediation work at the Site.	Green Star proposes to continue groundwater monitoring events at the Site while the receptor survey is completed and during additional assessment work at the Site. Groundwater will be analyzed for: -VOCs to include BTEX, Naphthalene, MTBE, ETBE, TAME, DIPE, EDC, EDB, TBA, and Ethanol via EPA 8260 -Total Petroleum Hydrocarbons (TPH) for gasoline, diesel, and oil range via EPA 8015 -The sample with the highest TPH diesel range result will be analyzed for Poly-aromatic hydrocarbons (PAH) via EPA 8270
8	Impacted soils appear to still be present at the Site and are the likely cause of the observed groundwater impacts noted in the previous section. The Site does not appear to meet the SWRCB LTCP likely due to contaminated soil as secondary source material remaining at the Site. Additionally the ACDEH has determined that a data gap is present in a lack of shallow soil data from the 0-5 foot depth below surface and the 5-10 foot below surface intervals from areas both within the former tank pit and outside the former tank pit especially near the on site building and the area of likely former dispensers. Therefore, Green Star is submitting a Data Gap Investigation Work Plan which outlines additional proposed soil boring locations to collect samples from the prescribed locations and depth intervals at the Site and move the Site toward final closure under the SWRCB LTCP. Green Star will also use the new soil data obtained from the Site to satisfy the SWRCB LTCP for the Media Specific Criteria for Direct Contact and Outdoor Air which is specifically addressed in Reference Item 9 below.	Green Star will oversee the advancement of approximately 13 new soil boring locations at the Site. The exact location will be determined in the field after underground utilities are located but a figure depicting proposed soil boring locations is attached as Figure 3. Green Star is proposing that shallow soil samples from the intervals specified by the ACDEH be collected from the area of current or likely dispenser locations as well as from areas within the former tank pit and outside the former tank pit and analyzed for the appropriate VOCs, naphthalene, and PAHs as requested by the ACDEH. The ACDEH has also requested that groundwater samples be collected from each of the borings. Green Star will collect groundwater samples from each boring via a temporary groundwater monitoring well prior to abandonment of each soil boring location. While Green Star believes that sufficient data exists to meet the SWRCB LTCP with respect to soils at the Site, the analytical results from the shallow soil samples and groundwater will be used to determine if the site does or does not meet the LTCP Media Specific Criteria for Direct Contact and Outdoor Air.	Green Star concurs with the ACDEH that the collection of additional soil vapor data from the proposed locations and depth intervals may provide a pathway the closure under current site conditions through the SWRCB LTCP without the need to do additional remediation work at the Site.	Green Star proposes to collect additional soil samples to meet the SWRCB LTCP during additional assessment work at the Site. Soils will be analyzed for: -VOCs to include BTEX, Naphthalene, MTBE, ETBE, TAME, DIPE, EDC, EDB, TBA, and Ethanol via EPA 8260 -TPH for gasoline, diesel, and oil range via EPA 8015 -The sample with the highest TPH diesel range result will be analyzed for PAH via EPA 8270

Reference No.	Data Gap	Proposed Investigation of Work	Rationale	Analysis
9	<p>Currently the Site does not meet the LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air and Direct Contact and Outdoor Air due to a lack of sufficient soil vapor data from the proper depth below the building foundation and soil analytical data from the 0-5 foot and 5-10 foot below ground surface range. Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed sampling of soil vapor and soil at the Site in an effort to move the Site toward final closure under the SWRCB LTCP. Green Star will collect soil vapor and shallow soil samples for analysis of BTEX, TPH, Naphthalene, and PAHs in an effort to satisfy LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air and Direct Contact and Outdoor Air.</p>	<p>Green Star is proposing new soil vapor sampling be conducted under more current soil vapor sampling protocols defined by the Department of Toxic Substances Control (DTSC) Final Vapor Intrusion Guidance (October 2011) and the Active Soil Gas Investigations Advisory (April 2012). Green Star proposing the installation of three permeant soil vapor monitoring points at locations near the onsite building. Green Star attempted to determine specific foundation construction details of the onsite build, however actual construction details were not available. Therefore, Green Star will assume that the onsite building is constructed with a 6-inch thick slab-on-grad foundation with 18-inch thick perimeter footers. As such the vapor monitoring points will be installed at a depth of 6.5 feet below grade surface (bgs) and constructed as shown in the attached schematic Figure 2. Please note that due to the known low permeability native soils encountered at the Site, Green Star proposes to install the soil vapor monitoring in accordance with guidance in Appendix D: Soil Gas Sampling In Low Permeability Soil of the Active Soil Gas Investigation Advisory which allows for alternative vapor monitoring well construction methods and sampling procedures for low permeability soil sites. The ACDEH approved of the alternative construction methods via phone correspondence on March 9, 2017. The locations of the proposed soil vapor monitoring points are depicted on the Site map attached as Figure 3. Green Star also proposes to collect shallow soil samples from the specified intervals be collected from the area of current or likely dispenser locations as well as from areas within the former tank pit and outside the former tank pit. Analytical results from the obtained samples will be used to determine if the Site meets the SWRCB LTCP Media Specific Criteria for Direct Contact and Outdoor Air and/or if additional remediation is needed to meet this LTCP.</p>	<p>Green Star concurs with the ACDEH that the collection of additional soil data from the proposed locations and depth intervals may provide a pathway the closure under current site conditions through the SWRCB LTCP without the need to do additional remediation work at the Site.</p>	<p>Green Star proposes to collect additional soil vapor samples to meet the SWRCB LTCP during additional assessment work at the Site. Soil vapor will be analyzed for:</p> <ul style="list-style-type: none"> -VOCs to include BTEX, Naphthalene, MTBE, ETBE, TAME, DIPE, EDC, EDB, TBA, and Ethanol via EPA TO-17 -TPH for gasoline, diesel, and oil range via TO-15 -The sample with the highest TPH diesel range result will be analyzed for PAH via TO-17
10 & 11	<p>The ACDEH has requested that an additional receptor survey of the area be completed based on a technical justification to determine the extent of the TPH-g contaminant plume at the Site based on guidance in the SWRCB Technical Justification for Groundwater Media-Specific Criteria dated April 24, 2014. Additionally as directed by the ACDEH, Green Star has determined an area within 1,000 feet of the maximum extent of the plume boundary as determined by the technical justification within a receptor survey should be conducted. A figure depicting the justified plume lengths and the receptor survey area is attached as Figure 1.</p>	<p>Green Star, at the request of the ACDEH, has completed a technical justification to determine the extent of the TPH-g contaminant plume at the Site based on guidance in the SWRCB Technical Justification for Groundwater Media-Specific Criteria dated April 24, 2014. Additionally as directed by the ACDEH, Green Star has determined an area within 1,000 feet of the maximum extent of the plume boundary as determined by the technical justification within a receptor survey should be conducted. A figure depicting the justified plume lengths and the receptor survey area is attached as Figure 1. Green Star proposes to complete research of sensitive receptors in the area such as schools, child care centers, and hospitals. Additionally, at the request of the ACDEH, Green Star will research water wells in the area including dewatering wells that may discharge to the public storm water or sanitary sewer system.</p>	<p>Green Star concurs with the ACDEH that the additional research of receptors based on the technically justified plume lengths is necessary to determine a pathway the closure under current site conditions through the SWRCB LTCP without the need to do additional remediation work at the Site.</p>	<p>N/A</p>
<p>ACDEH = Alameda County Department of Environmental Health SWRCB = State Water Resources Control Board LTCP=Low Threat Closure Policy</p>				

Figure 1
TPH-g Plume Lengths and Receptor Survey Area



MAP SOURCE: Google Earth

LEGEND

- Approximate Extent of TPH-g Concentration of 100 ug/L (August 2016)
- Extent of Plume Based on Average Plume Length of TPH-g As Defined in Technical Justification for Groundwater Media Specific Criteria
- Extent of Plume Based on 90th Percentile Plume Length of TPH-g As Defined in Technical Justification for Groundwater Media Specific Criteria
- Extent of Plume Based on Maximum Plume Length of TPH-g As Defined in Technical Justification for Groundwater Media Specific Criteria
- Extent of Receptor Survey Search Area

FIGURE 1

TPH-g PLUME LENGTHS AND RECEPTOR SURVEY AREA

*Oakland Bus Terminal
2103 San Pablo Avenue
Oakland, California*

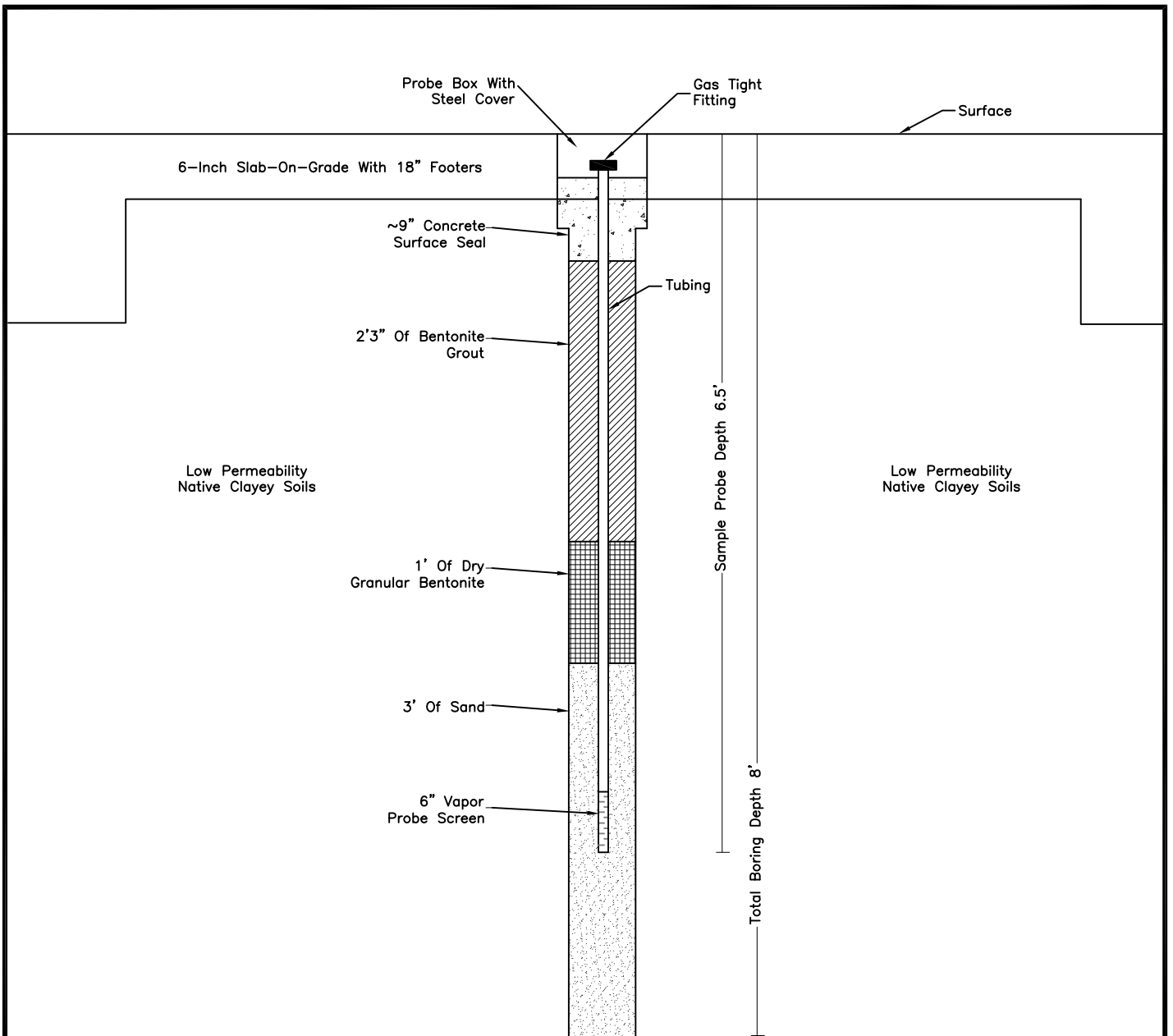


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Date:	04/11/2017

PROJECT No. 17-1379

04/04/17 LBA 1379

Figure 2
Construction Detail for Soil Boring Converted to Soil Vapor Monitoring Point



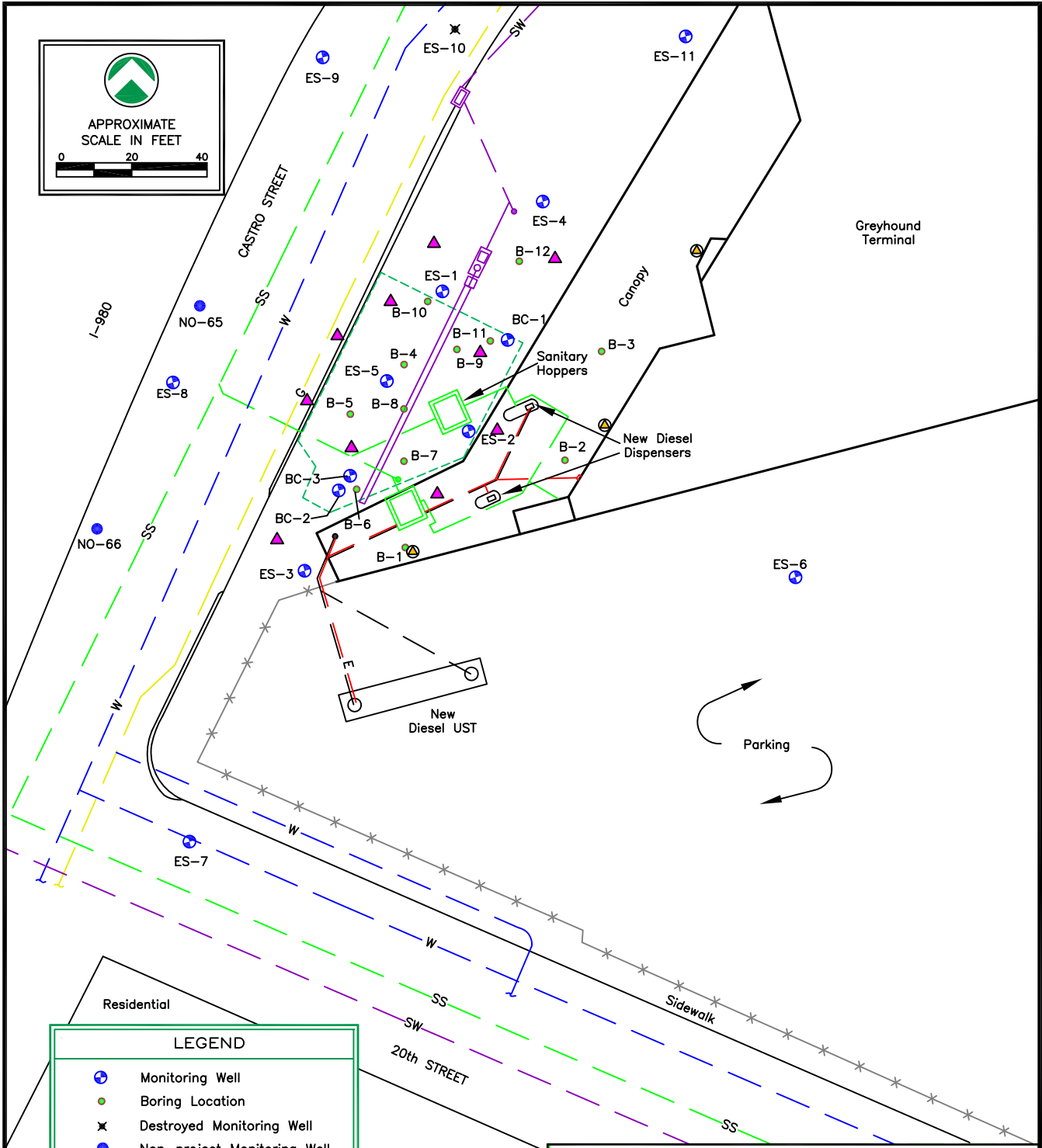
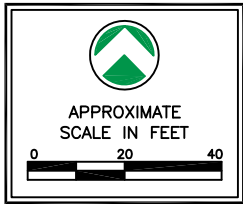
NOT TO SCALE



GREYHOUND LINES, INC.
 2103 SAN PABLO AVENUE
 OAKLAND, CALIFORNIA

FIGURE 2
 CONSTRUCTION DETAIL FOR
 SOIL BORING
 CONVERTED TO
 SOIL VAPOR MONITORING
 WELL LOCATIONS
 PROJECT No. 17-1379.08

Figure 3
Proposed Soil Boring and Soil Vapor Monitoring Well Locations



04/14/2017 LBA 1379

LEGEND	
	Monitoring Well
	Boring Location
	Destroyed Monitoring Well
	Non-project Monitoring Well
	Former Tank Pit
	Fence Line
	Sanitary Sewer Line
	Water Line
	Gas Line
	Storm Water Line
	Electric Line
	Proposed Soil Boring/ Temporary Well Location
	Proposed Soil Boring/ Vapor Monitoring Point Location

FIGURE 3
PROPOSED SOIL BORING AND
SOIL VAPOR MONITORING WELL LOCATIONS

Greyhound Lines, Inc.
 2103 San Pablo Avenue
 Oakland, California



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PROJECT No. 17-1379	