**Eric Hetrick**
Project Manager
Marketing Business Unit

**Chevron Environmental Management Company**
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Tel (925) 790-6491
ehetrick@chevron.com

November 7, 2013

Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

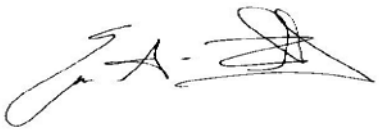
Re: Former Chevron Service Station 95607
5269 Crow Canyon Road
Castro Valley, CA
ACEH Case #RO 0350

I have reviewed the Revised Drilling Scope of Work, dated November 7, 2013, for the subject site. I agree with the conclusions and recommendations presented in the referenced document. The information in the referenced document is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Conestoga Rovers Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,



Eric Hetrick
Project Manager

Attachment: Revised Drilling Scope of Work

CONESTOGA-ROVERS & ASSOCIATES

5900 Hollis Street, Suite A
Emeryville, California 94608
Telephone: (510) 420-0700 Fax: (510) 420-9170
http://www.craworld.com

November 7, 2013 Reference No. 311950

Mr. Mark Detterman
Alameda County Environmental Health Services
1131 Harbor Bay Parkway
Alameda, California 94502

Re: Revised Drilling Scope of Work
Former Chevron Station 95607
5269 Crow Canyon Road
Castro Valley, California
Fuel Leak Case RO0350

Dear Mr. Detterman:

Conestoga-Rovers & Associates (CRA) is submitting this revised drilling scope of work on behalf of Chevron Environmental Management Company (Chevron) for the site referenced above (Figure 1). The previous drilling scope of work was described in the April 4, 2013 Remedial Action Plan Addendum (RAP Addendum), which was approved by ACEH in the letter dated May 29, 2013. The previously-approved drilling scope of work included the following:

1. Installation of three DPE wells adjacent to existing monitoring wells C-1, C-3, and C-6;
2. Destruction of former remediation well RW-1; and,
3. Installation of two groundwater monitoring wells offsite between existing monitoring wells C-9 and C-12.

Revisions to the approved scope have been discussed with ACEH, most recently during a telephone call on October 23, 2013. During the call, CRA proposed the installation of two onsite soil vapor extraction (SVE) wells in the vicinity of the former dispenser islands, installation of an additional DPE well adjacent to well C-9, and elimination of one or both of the monitoring wells proposed between C-9 and C-12. The following sections provide further details of the proposed revisions to the drilling scope of work. The locations of the proposed wells are shown on the attached Figure 2.

**Soil Vapor Extraction Wells**

Based on the results of the soil vapor assessment in the area of the former dispenser islands, CRA has added two SVE wells in that area (Figure 2) to be connected to the proposed DPE

system. After clearing the boreholes at each location to at least 8 feet below grade (fbg) by air-knifing or hand auger, the boreholes for the wells will be advanced to total depths of approximately 20 fbg using 10-inch diameter hollow-stem augers. The wells will be constructed using 4-inch diameter Schedule 40 PVC casing with 0.020-inch slotted screen. The proposed extraction wells will be screened from approximately 10 to 20 fbg. The filter packs will consist of #2/12 sand from the bottom of each boring to approximately 2 feet above the screened interval. Each well annulus will have a 2-foot bentonite seal above the screen and sand pack, with the remainder backfilled with Portland Type I/II cement to approximately 1 fbg. A well box equipped with a traffic-rated lid will be installed flush with grade. Well construction may be further altered based upon field observations. Well locations and top-of-casing elevations will be surveyed by a licensed land surveyor after installation. CRA's standard operating procedures for monitoring well installation were included as Attachment B of the RAP Addendum.

**Well C-9**

During the call on October 23, 2013 with ACEH and Chevron, CRA proposed installing a DPE well near monitoring well C-9 located across Waterford Place. The construction details for well C-9 indicate that it was constructed using 4-inch diameter Schedule 40 PVC casing with 0.020-inch slotted screen. The well is screened from 5 to 30 fbg, with the bottom of the well sitting on bedrock. Based on the well construction details, CRA proposes using well C-9 as an extraction well in lieu of installing another well. During operation of the DPE system, monitoring and sampling of C-9 will continue. Just prior to each monitoring and sampling episode while the system is operating, the submersible pump installed in C-9 will be removed to allow for measurement of depth to water and collection of a groundwater sample. Immediately following each sampling event, the pump will be replaced in C-9 and extraction will be resumed.

**Groundwater Monitoring Wells Between C-9 and C-12**

In a letter dated June 7, 2012, the ACEH requested additional lateral and vertical delineation of dissolved hydrocarbons between offsite wells C-9 and C-12. In the *Site Conceptual Model and Work Plan* (CSM), dated August 28, 2012, CRA proposed installing one well in this area to satisfy ACEH's request; however, ACEH requested that two wells be installed in their March 15, 2013 letter. The drilling scope of work in CRA's April 4, 2013 RAP Addendum included the installation of these two wells with proposed five-foot long well screens from approximately 22 to 27 fbg. In the May 29, 2013 letter, ACEH requested CRA to minimize the screen lengths for each well to the extent possible, and, if appropriate the installation of well

clusters or CMT multilevel wells. However, based on the information summarized below, CRA believes that adequate soil, groundwater, and soil vapor data have been collected from this area and that these two wells are unnecessary.

- *Groundwater*
  - As indicated in the August 28, 2012 CSM; the dissolved plume historically extended downgradient past C-9 to C-15, but over time has been shrinking back toward the source area. Dissolved concentrations in well C-9 have decreased by one to two orders of magnitude from the maximum concentrations detected in 1990. During the July 2013 sampling event, petroleum hydrocarbons were detected at concentrations below the LTCP criteria.
  - To assess the risk to Crow Creek, monitoring wells C-10A, C-10B, C-15, and C-16 were installed in 1990. Only well C-16 remains, but dissolved hydrocarbons have not been detected in that well since 2001. Wells C-10A and C-10B were destroyed in 2001, but at no time before they were destroyed did detected concentrations exceed the aquatic life environmental screening levels (ESLs). Well C-15, destroyed in 2008, was located approximately 45 feet from Crow Creek. Only one benzene concentration (71 µg/l) detected at C-15 in 1997 exceeded the aquatic life ESLs (46 µg/l) prior to that well being destroyed. Dissolved TPHg concentrations in C-15 fluctuated above and below the 500 micrograms per liter (µg/l) aquatic life ESL for TPHg. The average TPHg concentration in C-15 over its 74 sampling events is 532 µg/l. Considering the distance between C-15 and Crow Creek would allow for additional natural attenuation of dissolved concentrations, and that Crow Creek is an ephemeral stream, Crow Creek did not appear to be at risk from the petroleum hydrocarbon plume when it was destroyed in 2008. Based on the overall reduction of the dissolved plume over time, there should be even less risk to the creek 5 years later.
  - The groundwater degradation and trend analysis that was summarized in the CSM indicated that TPHg and benzene concentrations in C-9 were expected to reach the drinking water ESLs within approximately 18 years. This timeframe should be even further reduced by the implementation of the DPE system, including extraction of groundwater and soil vapor from C-9.
- *Soil*
  - In 1996, a transect of soil borings, SV-1 through SV-5, were advanced across Waterford Place, with borings SV-1 through SV-3 located between C-9 and C-12. No petroleum hydrocarbons were detected in the samples collected from borings SV-1 and SV-2. TPHg at 17 mg/kg and benzene at 0.67 mg/kg were detected in the 21 fbg sampled in SV-3 (Figures 5 and 6 in the CSM). SV-4 located downgradient of C-9

contained TPHg at 97 mg/kg and benzene at 0.59 mg/kg at 23.5 fbg. No petroleum hydrocarbons were detected in boring SV-5. Therefore the distribution of petroleum hydrocarbons in offsite soils shows that C-9 is located in the correct location to monitor the petroleum hydrocarbon plume downgradient of the site.

- Soil samples were collected between 3.5 and 12 fbg from ten locations during the most recent soil vapor investigation. Undisturbed soil samples were analyzed for TPHg, BTEX, MTBE, and naphthalene. Analytes were not detected at concentrations above the LTCP Direct Contact and Outdoor Air Exposure criteria.

- *Soil Vapor*
  - The results of soil vapor samples recently collected near the townhomes across Waterford Place show that the vapor concentrations are fairly consistent in vapor probes VP-7 through VP-10. However the 7 fbg vapor probe at VP-10 contained an order of magnitude higher TPHg vapor concentration then the other three probes. VP-10 is located directly downgradient of well C-9. Therefore the distribution of petroleum hydrocarbons in offsite soil vapor shows that C-9 is located in the correct location to monitor the petroleum hydrocarbon plume downgradient of the site.

Based on these results, CRA believes that no additional wells are required to delineate and monitor the plume, wells C-9 and C-12 are located properly to monitor the leading edge of the plume, and any effort moving forward should be focused on remediation. Additionally, as noted above C-9 will be used as an extraction well and connected to the proposed DPE system; therefore, the hydrocarbon impacts in this area will be further mitigated.

**Other Drilling Related Tasks**

Soil and groundwater sampling and analyses, well development, and reporting will be conducted as outlined in the April 4, 2013 RAP Addendum.

CONESTOGA-ROVERS & ASSOCIATES

November 7, 2013 Reference No. 311950



We appreciate your assistance with this project and look forward to your response regarding the proposed revisions to the drilling scope of work. Please contact Judy Gilbert of CRA at (510) 420-3314, Bill Brasher of CRA at (916) 889-8903, or Eric Hetrick of Chevron at (925) 790-6491 if you have any questions or comments.

Sincerely,

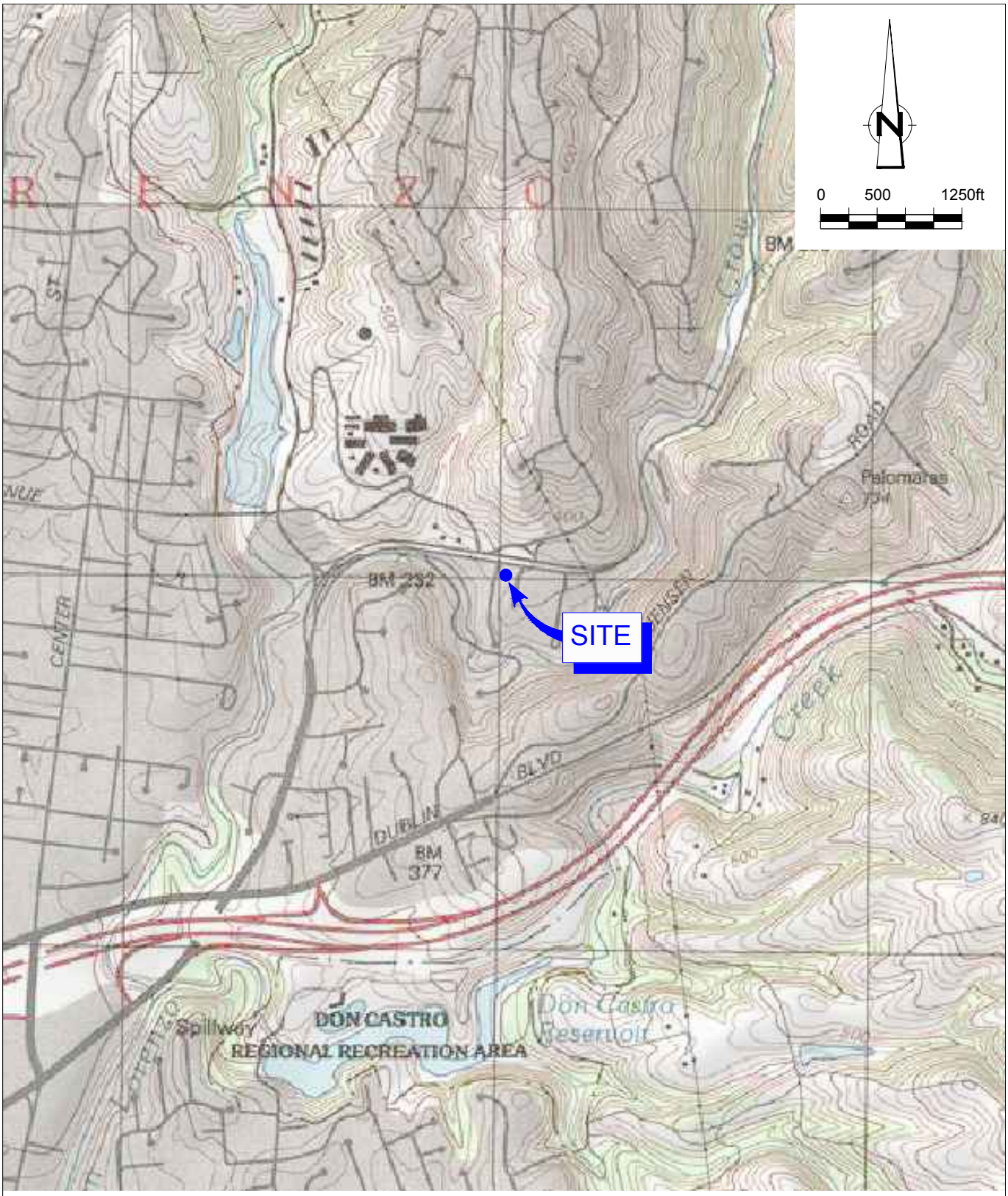
CONESTOGA-ROVERS & ASSOCIATES


William E. Brasher, P.E. Brandon S. Wilken, PG 7564

WB/mws/10
Encl.

Figure 1 Vicinity Map
Figure 2 Site Plan

c.c.: Mr. Eric Hetrick, Chevron EMC *(electronic copy)*
Mr. Kevin Hinkley, Property Owner
Ms. Diane Riggs, Forest Creek Townhomes Association

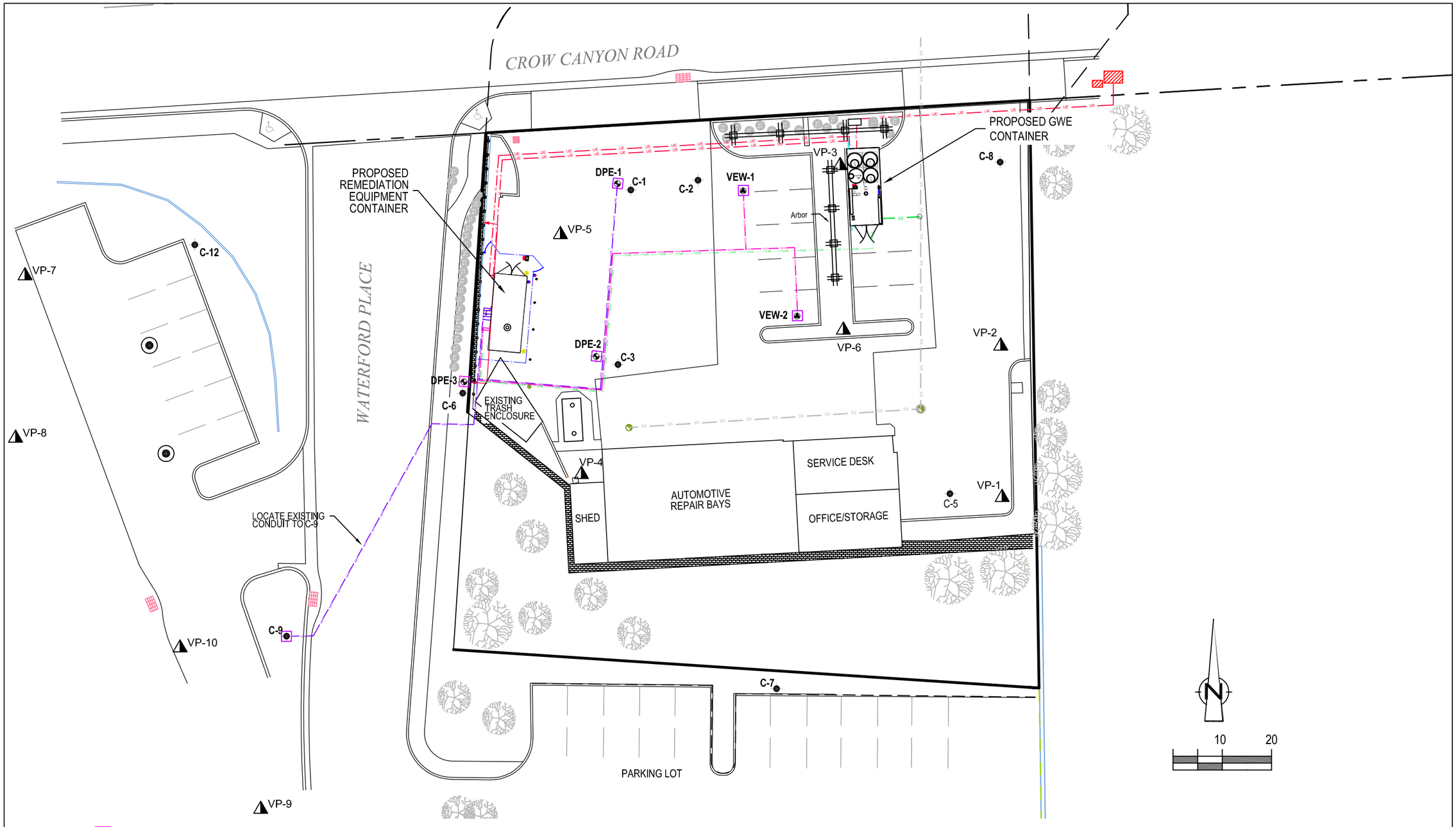



SOURCE: TOPO! MAPS.

Figure 1

VICINITY MAP
FORMER CHEVRON STATION 95607
5269 CROW CANYON ROAD
*Castro Valley, California*

311950-2013(021)GN-EM001 MAR 12/2013




LEGEND

- PROPOSED SVE WELL LOCATION
- PROPOSED DPE WELL LOCATION
- APPROXIMATE VAPOR PROBE LOCATION
- MONITORING WELL LOCATION
- PROPOSED MONITORING WELL LOCATION PREVIOUSLY APPROVED - CURRENTLY BEING RE-EVALUATED
- PROPOSED AIR SUPPLY LINE
- PROPOSED MPE PIPING LINE
- PROPOSED ABOVE GROUND ELECTRICAL LINE
- PROPOSED UNDERGROUND ELECTRICAL LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED RAW WATER LINE
- PROPOSED SANITARY SEWER LINE
- EXISTING NATURAL GAS LINE

Figure 2

SITE PLAN
FORMER CHEVRON STATION 95607
5269 CROW CANYON ROAD
*Castro Valley, California*

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