Catalina Espino Devine
Project Manager
Marketing Business Unit

Chevron Environmental Management Company
6101 Bollinger Canyon Road
San Ramon, CA 94583
Tel (925) 790-3949
espino@chevron.com

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

Re: Chevron Service Station No. 9-0329
340 Highland Avenue
Piedmont, CA

I have reviewed the attached report dated July 27, 2012.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report 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,

Catalina Espino Devine
Project Manager

Attachment: Report

CONESTOGA-ROVERS
& ASSOCIATES

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

July 27, 2012 Reference No. 311776

Mr. Mark Detterman
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Geophysical Survey Report
Former Chevron Service Station 90329
340 Highland Avenue
Piedmont, California
Fuel Leak Case RO0000269

Dear Mr. Detterman:

Conestoga-Rovers & Associates (CRA) is submitting this *Geophysical Survey Report* on behalf of Chevron Environmental Management Company (Chevron) for the site referenced above (Figure 1). A geophysical survey was performed in accordance with CRA's February 17, 2012 *Investigation Work Plan*. The objective was to determine if unknown underground storage tanks (USTs) or evidence of unknown UST pit(s) existed onsite, specifically in the area of soil borings C-A, C-E and monitoring well C-2 (Figure 2). The *Work Plan* and associated extension request were approved by Alameda County Environmental Health (ACEH) as outlined in the April 25, 2012 and June 26, 2012 communications (Attachment A). A geophysical survey summary including survey results, responses to ACEH's technical comments outlined in the April 25, 2012 letter, and CRA's conclusions and recommendations associated with additional assessment are presented below.

GEOPHYSICAL SURVEY

On July 11, 2012, a geophysical survey was performed by Norcal Geophysical Consultants (Norcal) of Cotati, California. Approximately 48 hours prior to conducting the geophysical survey, CRA contacted Underground Service Alert (USA) to mark onsite underground utilities.

Norcal employed ground penetrating radar (GPR), an electromagnetic metal detector, and an electromagnetic line locator to locate/identify subsurface features. A GPR survey was performed using perpendicular transects at 5 foot spacing intervals across subsurface features. In addition, a more focused GPR survey using transects at 1 foot spacing intervals was performed in the area surrounding soil borings C-A, C-E and monitoring well C-2. An electromagnetic metal detector was used across the site. An electromagnetic line locator was

used by tying equipment to known utilities based on USA markings and ground surface features including manholes, utility vaults, and exposed utility lines. All detected features were plotted onto a site plan prepared by Norcal. A detailed discussion of geophysical methods, data analysis, interpretation, methodology limitations, and a site plan illustrating identified features are included Norcal's July 20, 2012 *Geophysical Survey* report (Attachment B).

The subsurface features detected during the geophysical survey included the existing USTs and associated product piping, as well as utility lines, including water, communication, electric, sanitary sewer, and undifferentiated utility lines (potentially product lines, fuel control line or emergency shut off lines). A non-metallic anomaly, interpreted to be concrete debris or cinder block, was detected near the northern corner.

No evidence of unknown USTs or backfilled UST pits were detected in the area of soil borings C-A, C-E and monitoring well C-2 or anywhere else onsite.

RESPONSE TO TECHNICAL COMMENTS

ACEH requested that a well search be performed to locate well C-1. During the geophysical survey, no evidence of well C-1 was discovered. CRA is currently in the process of obtaining Department of Water Resources (DWR) Well Completion Reports. Any information discovered in the DWR records related to C-1 will be submitted to ACEH under a separate cover.

ACEH also requested additional information related to the onsite grease interceptor. During the geophysical survey, the grease interceptor's lateral dimension was determined to be four feet long by 2 feet wide. A sanitary sewer line from the grease interceptor connects to a smaller 2 feet by 1 foot metal grate. CRA has contacted the station manager in regards to the grease interceptor design. CRA will continue to attempt to contact the property owners to determine if as-built plans or other details exist associated with the interceptor. If successful, CRA will provide this information to ACEH under separate cover. CRA suggests that ACEH contact the property owners directly to help obtain further information related to the interceptor construction details.

CONCLUSIONS AND RECOMMENDATIONS

Based on the geophysical survey results, no other USTs or UST pits were identified beyond the USTs and associated UST pit known to be present at the site. Since no additional potential

source areas (such as a former UST complex) were discovered, no additional soil sampling is warranted.

In terms of further assessing groundwater conditions, the existing monitoring well network adequately delineates the remaining dissolved hydrocarbons in groundwater. Therefore, additional groundwater assessment is not necessary.

Given the site is an active service station with an operating automotive repair shop, ambient hydrocarbon vapors are likely present onsite. Groundwater is encountered approximately one foot below grade on site. Given the very shallow groundwater table, and current site use and associated ambient air conditions, a soil vapor assessment is not warranted at this time.

CONESTOGA-ROVERS
& ASSOCIATES

We appreciate the opportunity to work with you on this project. Please contact Nathan Lee at (510) 420-3333 if you have any questions or require additional information.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

Nathan Lee PG 8486

OY/mws/11
Encl.

Figure 1	Vicinity Map
Figure 2	Site Plan
Attachment A	Agency Letter
Attachment B	Geophysical Report

cc: Ms. Catalina Espino Devine, Chevron *(electronic copy)*
Mr. Chuck Headlee, RWQCB - San Francisco Bay Region
Mr. Chester Nakahara, City of Piedmont
Bains Tarvinder Trust

FIGURES

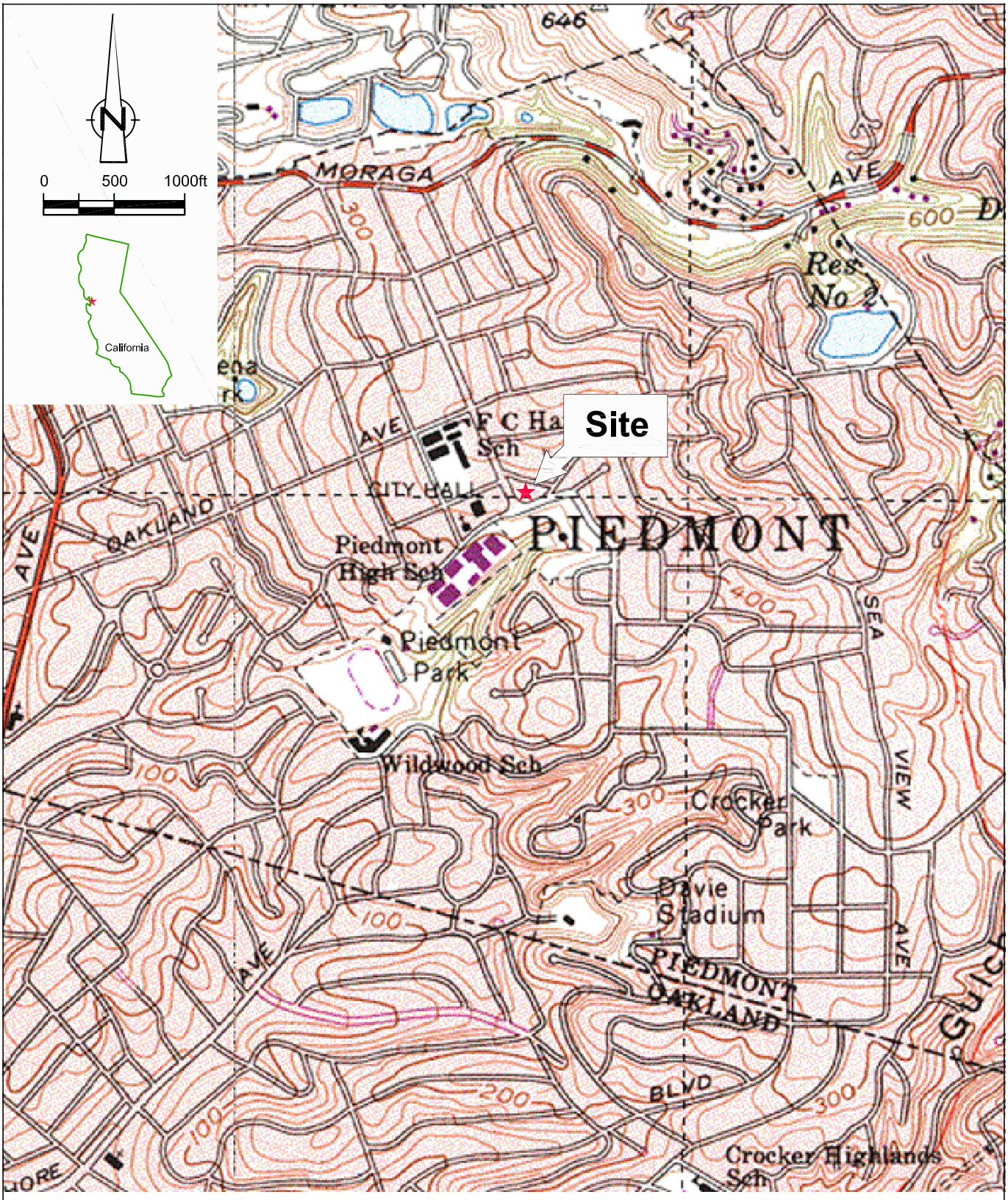


Figure 1

VICINITY MAP
FORMER CHEVRON STATION 90329
340 HIGHLAND AVENUE
Piedmont, California

311776-95(011)GN-EM001 JUL 23/2012

0 20 40ft

0°
270° 90°
180°

HISTORIC GROUNDWATER FLOW DIRECTION
2000 THROUGH SEPTEMBER 2010

LEGEND

- HA-14 — CAMBRIA (2005) SOIL BORING
- HA-1 — CAMBRIA (2004) SOIL BORING
- A — TANK BACKFILL WELL
- C-1 — ABANDONED WELL LOCATION
- C-2 — GETTLER-RYAN MONITORING WELLS (1983) / PEG MONITORING WELLS (1996)
- U-1 — CAMBRIA (2000) SOIL BORING
- B-2 — RESNA SOIL BORING / TEMPORARY WELLS (1993)
- MW-6 — RESNA (1994) ABANDONED WELL
- C-A — GEOSTRATEGIES SOIL BORING (1990)
- E — ELECTRICAL LINE, 36" DEEP, 4" DIAMETER
- T — TELEPHONE LINE, DEPTHS UNKNOWN
- G — GAS LINE, 36" DEEP, 6" DIAMETER
- STM — STORM DRAIN, DEPTH UNKNOWN
- W — WATER LINE, 42" DEEP, 6-12" DIAMETER
- SAN — SANITARY SEWER, DEPTH UNKNOWN, 8-10" DIAMETER

BANK OF AMERICA
VISTA AVENUE
HIGHLAND AVENUE
PIEDMONT COMMUNITY CHURCH
HIGHLAND WAY
340 HIGHLAND AVENUE
STATION BUILDING
342 HIGHLAND AVENUE OFFICE BUILDING
PIEDMONT POLICE DEPT.
MAGNOLIA AVENUE
PARK

Figure 2

SITE PLAN
FORMER CHEVRON STATION 90329
340 HIGHLAND AVENUE
Piedmont, California

BASEMAP MODIFIED FROM PACIFIC ENVIRONMENTAL GROUP, INC.

311776-2012(011)GN-EM002 JUL 23/2012

ATTACHMENT A

AGENCY LETTER

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

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

April 25, 2012

Mr. Dave Patten / Mark Horne
Chevron Environmental Management Co.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
(sent via electronic mail to DRPatten@chevron.com
and MarkHorne@chevron.com)

Mr. Howard Perera
340 Highland Drive
Piedmont, CA 94611

Mr. Ravi Randhawa
5501 San Antonio
Pleasanton, CA 94566

Mr. John Robinson
Hoffman Investment Company
1035 Edwards Road
Burlingame, CA 94010

Mr. Jeff Orwig
66 Ambleside Court
Danville, CA 94526

Mr. Fred Manchouri
1065 Shuey Drive
Moraga, CA 94556

Mr. Mir Ghafari
68 Bates Blvd.
Orinda, CA 94563

Subject: Conditional Work Plan Approval; Fuel Leak Case No. RO0000269; (Global ID # T0600101885); Chevron #9-0329, 340 Highland Avenue, Piedmont, CA 94611

Dear Gentlemen:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *Investigation Work Plan,* dated February 17, 2012. The work plan was submitted on your behalf by Conestoga-Rovers & Associates (CRA). Thank you for submitting the work plan. The work plan proposed to conduct a geophysical survey using magnetometer and ground penetrating radar using perpendicular transects at five foot centers across an undefined area. CRA correctly notes that the requested soil vapor survey will be difficult to conduct with groundwater generally at 1 to 2.5 feet below surface grade. It is understood that CRA will additionally search for information on the grease interceptor drain construction and the status of well C-1 (DWR records and / or inclusion of the well location in the geophysical survey). In the proposal CRA requested that the soil and groundwater work plan be delayed to allow incorporation of the results of the geophysical survey into project planning. This is not unreasonable.

Based on ACEH staff review of the work plan and the addendum the proposed scope of work is conditionally approved for implementation provided that the technical comments below are incorporated during the proposed field investigation. Submittal of a revised work plan or a work plan addendum is not required unless an alternate scope of work outside that described in the work plan or technical comments below is proposed. We request that you address the following technical comments, perform the proposed work, and send us the reports described below. Please provide 72-hour advance written notification to this office (e-mail preferred to: mark.detterman@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

1. **Request for a Geophysical Survey Report and Site Work Plan** – Please submit the results of the geophysical survey, the well search, and grease interceptor drain details, as well as a work plan for a soil and groundwater investigation by the date identified below. Please use the geophysical survey to

inform the work plan. Please also be cognizant that a sub-slab vapor survey may remain appropriate at the site.

2. **Request for Point of Contact and Email Addresses** – If your email address is not listed on the first page of this letter, or in the list of cc's below, ACEH requests your email address to help expedite communications and to help lower overall costs. Please provide that information in your next submittal.

TECHNICAL REPORT REQUEST

Please submit the following deliverable to ACEH (Attention: Mark Detterman), according to the following schedule:

- **June 29, 2012** – Geophysical Survey and Work Plan
- **60 Days After Work Plan Approval** – Soil and Groundwater Report

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

Should you have any questions, please contact me at (510) 567--6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,

Digitally signed by Mark E. Detterman
DN: cn=Mark E. Detterman, o, ou, email, c=US
Date: 2012.04.25 11:03:29 -07'00'

Mark E. Detterman, PG, CEG
Senior Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations
Electronic Report Upload (ftp) Instructions

cc: Nathan Lee, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A, Emeryville, CA 94608; (sent via electronic mail to NLee@CRAworld.com)

Donna Drogos, ACEH, (sent via electronic mail to donna.drogos@acgov.org)
Mark Detterman, ACEH, (sent via electronic mail to mark.detterman@acgov.org)
Geotracker, Electronic File

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

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

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

Attachment 1

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**REVISION DATE:** July 20, 2010
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection.**
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for.**

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

Lee, Nathan

From: Detterman, Mark, Env. Health [Mark.Detterman@acgov.org]
Sent: Tuesday, June 26, 2012 4:38 PM
To: Lee, Nathan
Cc: Espino Devine, Catalina
Subject: RE: Extension Request for RO 0269 - 90329 - 340 Highland Avenue Piedmont, CA

Hi Catalina, Nate,

Please use this email to document ACEH agreement with the extension request. ACEH understands that conflicting agency letters can create confusion, especially at the time of an internal case oversight shuffle. As previously discussed, the case must progress based on available site data and the geophysical survey will assist all involved parties in understanding the potential for additional tanks, or of a former tank pit, at the site. I'll update Geotracker shortly.
Best,

Mark Detterman
Senior Hazardous Materials Specialist, PG, CEG
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502
Direct: 510.567.6876
Fax: 510.337.9335
Email: mark.detterman@acgov.org

PDF copies of case files can be downloaded at:

http://www.acgov.org/aceh/lop/ust.htm

From: Lee, Nathan [mailto:nlee@craworld.com]
Sent: Tuesday, June 26, 2012 3:38 PM
To: Detterman, Mark, Env. Health
Cc: Espino Devine, Catalina
Subject: Extension Request for RO 0269 - 90329 - 340 Highland Avenue Piedmont, CA

Mark,

Conestoga-Rovers and Associates (CRA) on behalf of Chevron Environmental Management Company (Chevron) would like to request for an extension for the Geophysical Survey Report that is due on June 29, 2012. Before the geophysical survey could be conducted clarification was needed because of conflicting information by different agencies. During this timeframe there was also a change in project managers within Chevron. Now that clarification has been received the geophysical survey will be conducted.

An extension date of **July 27, 2012** for the submittal of the Geophysical Survey Report is therefore requested.

Thanks You

Nathan Lee, P.G.
Conestoga-Rovers & Associates (CRA)
5900 Hollis Street, Suite A
Emeryville, CA 94608

Phone: 510.420.3333
Fax: 510.420.9170
Cell: 510.385.2499

Email: nlee@CRAworld.com

ATTACHMENT B

GEOPHYSICAL REPORT

NORCAL GEOPHYSICAL CONSULTANTS, INC.

July 20, 2012

Conestoga-Rovers & Associates
5900 Hollis Street
Suite A
Emeryville, California 94608

Subject: Geophysical Survey
Former Chevron Service Station 9-0329
340 Highland Avenue
Piedmont, California

NORCAL Job No. 12-462.127

Attention: Mr. Oliver Yan

This report presents the findings of a geophysical survey performed by NORCAL Geophysical Consultants, Inc. at the subject site in Piedmont, California. The survey was conducted on July 11th, 2012 by the following NORCAL personnel:

- David T. Hagin - PGp 1033
- Travis W. Black – Senior Geophysical Technician

Mr. Oliver Yan of Conestoga-Rovers & Associates (CRA) provided on-site orientation, safety and background information and logistical support.

1.0 SITE DESCRIPTION and PURPOSE

The subject site is located near the intersection of Highland Avenue and Vista Avenue in Piedmont, California (Plate 1). The site consists of the exterior areas at a currently active Valero service station. The survey area consists of asphalt and concrete paved driveways, a central fueling area with canopy and several parking spaces. The site is bordered by a building, surrounding sidewalk and several planter areas. The site can be generally characterized as an open, slightly southward sloping developed parcel. Abundant vehicular and foot traffic were present at the time of the survey.

According to historical records, an underground storage tank (UST) was once located within the area of investigation and it is uncertain whether it has been removed. The purpose of this investigation was to use geophysical methods, as site conditions allowed, to search for evidence of any remaining UST and also to detect utilities or other subsurface features that may interfere with future drilling operations.

2.0 METHODOLOGY and DATA ACQUISITION

The geophysical survey was performed using a combination of geophysical instrumentation including:

2.1 Metal Detection (MD)

We used hand-held metal detection (MD) to delineate the locations and general outline of subsurface metallic objects. The MD survey was accomplished by conducting a series of bidirectional traverses spaced approximately 5 feet apart over the subject area, where accessible. As the outline and orientation of a detected subsurface feature became more apparent, additional traverses of differing orientations and lengths were conducted as needed.

2.2 Electromagnetic Line-Locating (EMLL)

EMLL was used to scan the areas for the ambient radio-frequency signals that are often received and re-emitted by utilities such as electric, telephone, water, and natural gas lines. This was accomplished by conducting a series of bidirectional traverses spaced approximately 5 feet apart over the subject areas. When a contact point is available, a transmitter may also be used to place a signal or "tone" directly onto the utility which can be detected and traced by the receiver. The EMLL was used in this mode to energize and trace out the subsurface location of identified utilities, where possible.

2.3 Ground Penetrating Radar (GPR)

GPR was used to evaluate and confirm the locations of utilities and other site features. This was accomplished by conducting two or more mutually perpendicular GPR traverses over the feature of interest. GPR was also used to scan the site by conducting longer traverses over accessible areas.

Additionally, a 3D GPR survey was conducted in the area of the suspected UST. The 3D grid had dimensions of 28 X 45 feet, with traverses spaced one foot apart. The resulting 29 profiles, each 45 feet long, were concatenated into a single 3D model. This dense data coverage resulted in relatively high resolution of the 3D model. To aid in interpretation, the model may be viewed as horizontal slices (plan view) that are referred to as "time-slices."

The interpretation of GPR data is based on visually evaluating the size, magnitude, apparent depth, shape, and location of sub-surface reflectors. Due to site conditions, the GPR depth of investigation was limited to approximately 3 to 4 feet.

2.4 Mapping

The resulting interpreted outline or orientation of any detected sub-surface object was painted on the ground surface with marking paint. All detected features were plotted in plan view on a scaled site map and subsequently drafted for future reference. A more detailed discussion of

these geophysical methods, including data analysis, interpretation and inherent limitations is presented in Appendix A.

3.0 RESULTS

The results of our geophysical investigation are summarized on Plate 1. The map shows the site and surrounding sidewalk, pertinent site features, GPR and MD anomalies, the locations of utility alignments and the location of the 3D GPR grid.

3.1 MD and EMLL Survey

The MD and EMLL surveys revealed the locations of numerous utilities, such as the electric and water lines and also undifferentiated utilities. It is probable that the undifferentiated utilities leading toward the pump islands may be product lines and/or fuel control/emergency shutoff lines. We assume that piping and electric lines extend between the pumps and the 3 existing USTs; however, we were unable to detect them due to interference within the UST area.

During the course of the MD survey a small anomaly was discovered within the 3D grid, near Highland Avenue. Based on the size and location of the anomaly, it is probable that the source is a relatively small metallic item such as paved over storm drain grate.

3.2 GPR Survey

3.21 2D GPR Survey

A GPR anomaly with dimensions of approximately 7 X 9 feet was discovered in the northern portion of the site, near the intersection of Highland Avenue and Highland Way. Based on the characteristics of the irregular reflections and the results of the MD survey, we interpret this anomaly to represent buried non-metallic debris such as broken concrete or cinder blocks. No other anomalies were found. We assume that piping and electric lines extend between the pumps and the 3 existing USTs; however, we were unable to detect them due to interference within the UST area.

3.22 3D GPR Survey

The 3D GPR survey performed in the location of the suspected UST confirmed the locations of several utility lines; however it provided no evidence of a UST or a backfilled pit. Plate 2 shows a time-slice at a depth of approximately 3 feet and the associated cross section A-A'. Both images show reflectors due to the metallic plate and the undifferentiated utility. Neither of these images shows reflections that are indicative of a UST or disturbed layering typical of a backfilled pit.

4.0 STANDARD CARE and WARRANTY

The scope of NORCAL's services for this project consisted of using geophysical methods to characterize the shallow subsurface. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the level of skill ordinarily exercised by members of the profession currently employing similar methods. No warranty, with respect to the performance of services or products delivered under this agreement, expressed or implied, is made by NORCAL.

We appreciate having the opportunity to provide you with this information.

Sincerely,

NORCAL Geophysical Consultants, Inc.

David T. Hagin
Professional Geophysicist, PGp 1033

DTH/KGB/tt

Enclosures: Plate 1 - Geophysical Survey Map
Plate 2 - GPR Survey Images
Appendix A - Geophysical Methodology, Instrumentation, Data Analysis, and Limitations

Appendix A

GEOPHYSICAL METHODOLOGY, INSTRUMENTATION, DATA ANALYSIS, AND LIMITATIONS

Appendix A

GROUND PENETRATING RADAR (GPR)

Methodology

Ground penetrating radar is a method that provides a continuous, high resolution cross-section depicting variations in the electrical properties of the shallow subsurface. The method is particularly sensitive to variations in electrical conductivity and electrical permittivity (the ability of a material to hold a charge when an electrical field is applied).

The GPR system operates by radiating electromagnetic pulses into the ground from a transducer (antenna) as it is moved along a traverse. Since most earth materials are transparent to electromagnetic energy, the signal spreads downward into the subsurface. However, when the signal encounters a variation in electrical permittivity, a portion of the electromagnetic energy is reflected back to the surface. When the signal encounters a metal object, all of the incident energy is reflected. The reflected signals are received by the same transducer and are printed in cross-section form on a graphical recorder. Changes in subsurface reflection character on the GPR records can provide information regarding the location of USTs, sumps, buried debris, underground utilities, and variations in the shallow stratigraphy.

Instrumentation

The GPR system typically used is a Geophysical Survey Systems, Inc. SIR-2000 Subsurface Interface Radar Systems equipped with a 500 megahertz (MHz) transducer. This transducer is near the center of the available frequency range and is used to provide high resolution at shallow depths.

Data Analysis

GPR records are examined to identify reflection patterns characteristic of USTs, utilities, and other buried debris. Typically, USTs are manifested by broad localized hyperbolic (upside-down "U" shape) reflection patterns that vary in intensity. The intensity of a reflection pattern is usually dependent upon the condition of the respective UST, its burial depth, and the type of fill over the UST. Utilities and other buried debris are typically manifested by narrow localized hyperbolic reflections that also vary in intensity.

Limitations

The ability to detect subsurface targets is dependent on site specific conditions. These conditions include depth of burial, the size or diameter of the target, the condition of the specific target in question, the type of backfill material associated with the target, and the surface conditions over the target. Under ideal conditions, the GPR can generally detect objects buried to approximately six feet. However, as the clay content in the subsurface increases, the GPR depth of detection decreases. Therefore, it is possible that on-site soil conditions and target features may limit the depth of detection to the upper one to two feet below ground surface.

ELECTROMAGNETIC LINE LOCATION and METAL DETECTION (EMLL/MD)

Methodology

Electromagnetic line location techniques are used to locate the magnetic field resulting from an electric current flowing on a line. These magnetic fields can arise from currents already on the line (passive) or currents applied to a line with a transmitter (active). The most common passive signals are generated by live electric lines and re-radiated radio signals. Active signals can be introduced by connecting the transmitter to the line at accessible locations or by induction.

The detection of underground utilities is affected by the composition and construction of the line in question. Utilities detectable with standard line location techniques include any continuously connected metal pipes, cables/wires or utilities with tracer wires. Unless the utilities carry a passive current, they must be exposed at the surface or in accessible utility vaults. These generally include water, electric, natural gas, telephone, and other conduits related to facility operations. Utilities that are not detectable using standard electromagnetic line location techniques include those made of non-electrically conductive materials such as PVC, fiberglass, vitrified clay, and pipes with insulated connections.

Buried objects can also be detected, without direct contact, by using the induction mode. This is used to detect buried near surface metal objects such as rebar, manhole covers, USTs, and various metallic debris. The induction mode is used by holding the transmitter-receiver unit above the ground and continuously scanning the surface. The unit utilizes two orthogonal coils that are separated by a specified distance. One of the coils transmits an electromagnetic signal (primary magnetic field) which in turn produces a secondary magnetic field about the subsurface metal object. Since the receiver coil is orthogonal to the transmitter coil, it is unaffected by the primary field. Therefore, the secondary magnetic fields produced by buried metal object will generate an audible response from the unit. The peak of this response indicates when the unit is directly over the metal object.

Instrumentation

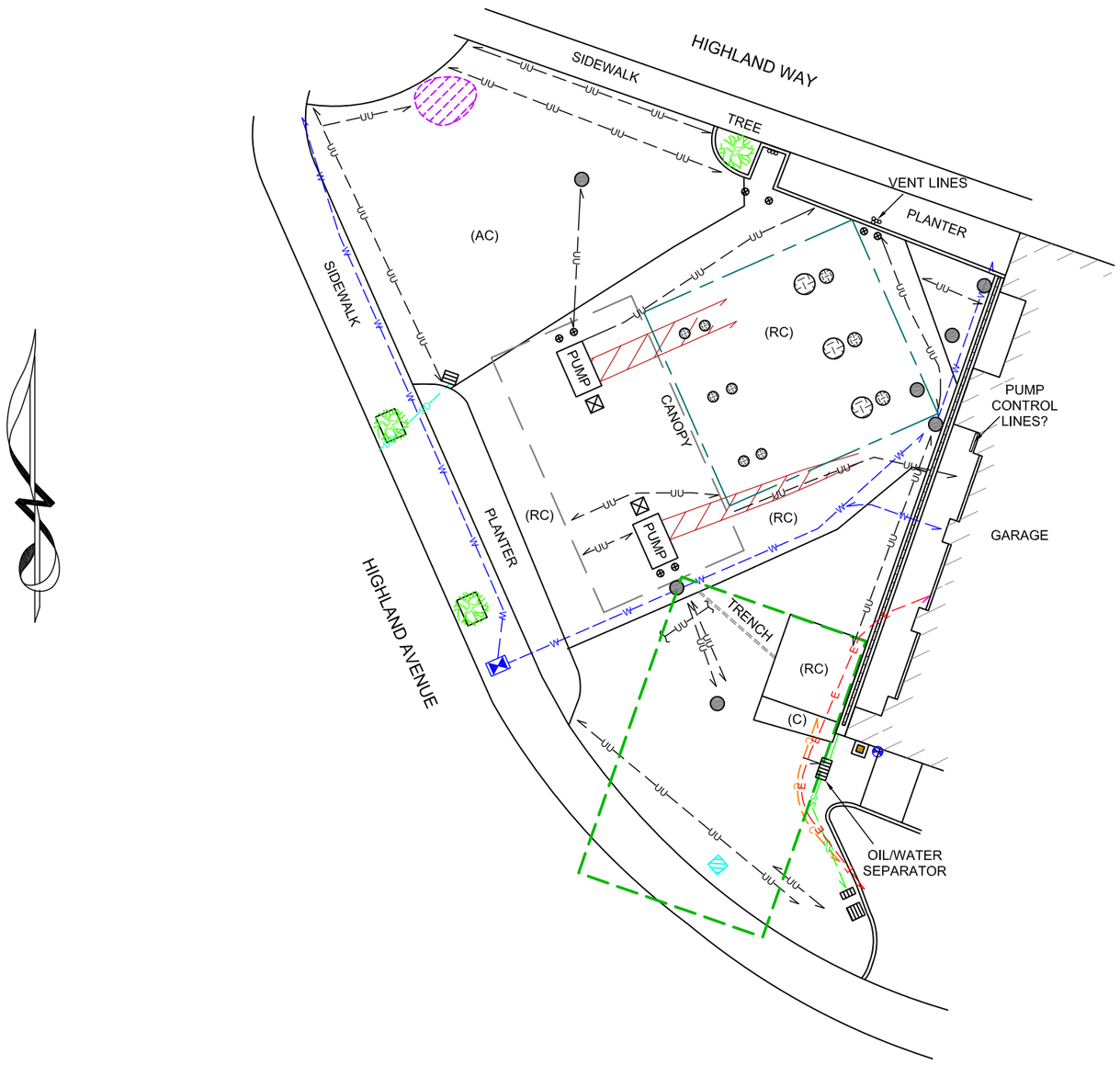
The instrumentation typically used for the EMLL survey consists of a Radio Detection RD-4000 and a Fisher TW-6 inductive pipe and cable locator.

Data Analysis

The EMLL instrumentation indicates the presence of buried metal by emitting an audible tone; there are no recorded data to analyze. Therefore, the locations of buried objects detected with the EMLL method are marked on the ground surface during the survey.

Limitations

The detection of underground utilities is dependent upon the composition and construction of the line of interest, as well as depth. Utilities detectable with standard line location techniques include any continuously connected metal pipes, cables/wires or utilities with tracer wires. Unless carrying a passive current these utilities must be exposed at the surface or accessible in utility vaults. These generally include water, electric, natural gas, telephone, and other conduits related to facility operations. Utilities that may not be detectable using standard electromagnetic line location techniques include certain abandoned utilities, utilities not exposed at the ground surface, or those made of non-electrically conductive materials such as PVC, fiberglass, vitrified clay, and metal pipes with insulating joints. Pipes generally deeper than about five to seven feet may not be detected.



SCALE

0 10 20 40

(1 inch = 20 feet)

LEGEND

	LIMITS OF 3D GPR SURVEY
C	COMMUNICATIONS LINE
E	ELECTRIC LINE
SS	SANITARY SEWER LINE
SD	STORM DRAIN LINE
UU	UNDIFFERENTIATED UTILITY LINE
W	WATER LINE
	SUSPECTED FUEL/PUMP CONTROL LINES
	APPARENT UTILITY LINE TERMINATION
	SUSPECTED UTILITY LINE CONTINUATION BEYOND DETECTED LOCATION
	APPROXIMATE UST AREA
	GPR ANOMALY
	METAL DETECTOR ANOMALY
	AIR/WATER CABINET
	BOLLARD
	CANOPY SUPPORT COLUMN
	METAL PLATE
	STORM DRAIN CATCH BASIN
	STORM DRAIN INTERCEPTION TRENCH
	UST ACCESS PORT
	UST MANWAY
	WATER SPIGOT
	WATER METER BOX
(AC)	ASPHALT
(C)	CONCRETE
(RC)	REINFORCED CONCRETE

NOTE: WE ASSUME PIPING AND ELECTRIC LINES EXTEND BETWEEN THE PUMPS AND THE 3 EXISTING USTs; HOWEVER, WE WERE UNABLE TO DETECT THEM DUE TO INTERFERENCE WITHIN THE UST AREA.

NORCAL

GEOPHYSICAL SURVEY MAP
CHEVRON STATION 9-0329
340 HIGHLAND AVENUE

LOCATION: PIEDMONT, CALIFORNIA

CLIENT: CRA

JOB #: 12-462.127

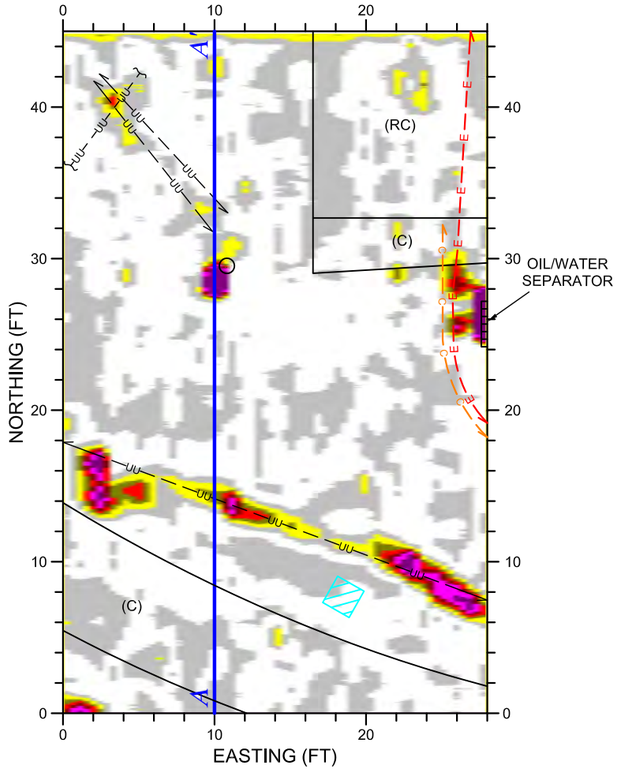
NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: JUL. 2012

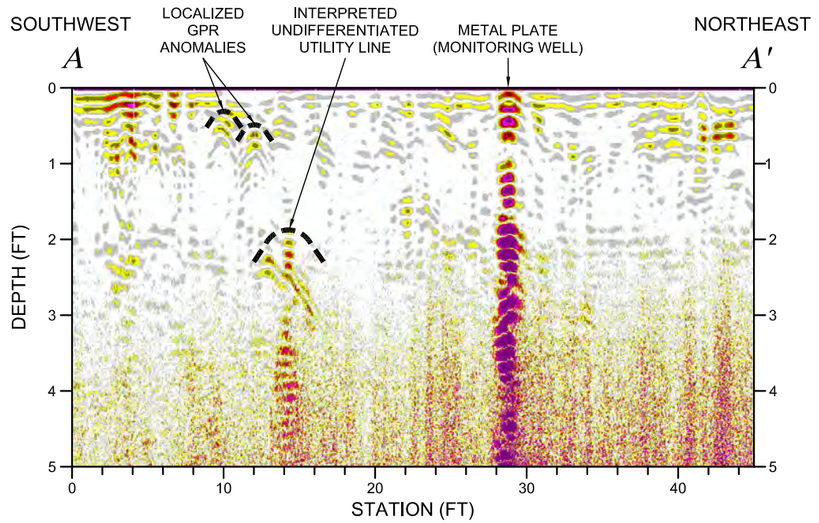
DRAWN BY: G.RANDALL

APPROVED BY: DTH

PLATE 1



3D GPR TIME SLICE IMAGE
@ ~3 FEET BELOW GROUND SURFACE



2D GPR PROFILE A-A'

LEGEND

A — A'	GPR PROFILE LOCATION
—C—	COMMUNICATIONS LINE
—E—	ELECTRIC LINE
—UU—	UNDIFFERENTIATED UTILITY LINE
	APPARENT UTILITY LINE TERMINATION
	SUSPECTED UTILITY LINE CONTINUATION BEYOND DETECTED LOCATION
	METAL DETECTOR ANOMALY
	METAL PLATE
(C)	CONCRETE
(RC)	REINFORCED CONCRETE

HORIZONTAL SCALE
0 5 10 20
(1 inch = 10 feet)
VERTICAL SCALE: 1 INCH = 2 FEET

NORCAL

GPR SURVEY IMAGES
CHEVRON STATION 9-0329
340 HIGHLAND AVENUE

LOCATION: PIEDMONT, CALIFORNIA
CLIENT: CRA
JOB #: 12-462.127
NORCAL GEOPHYSICAL CONSULTANTS INC.
DATE: JUL. 2012
DRAWN BY: G.RANDALL
APPROVED BY: DTH

PLATE 2